START

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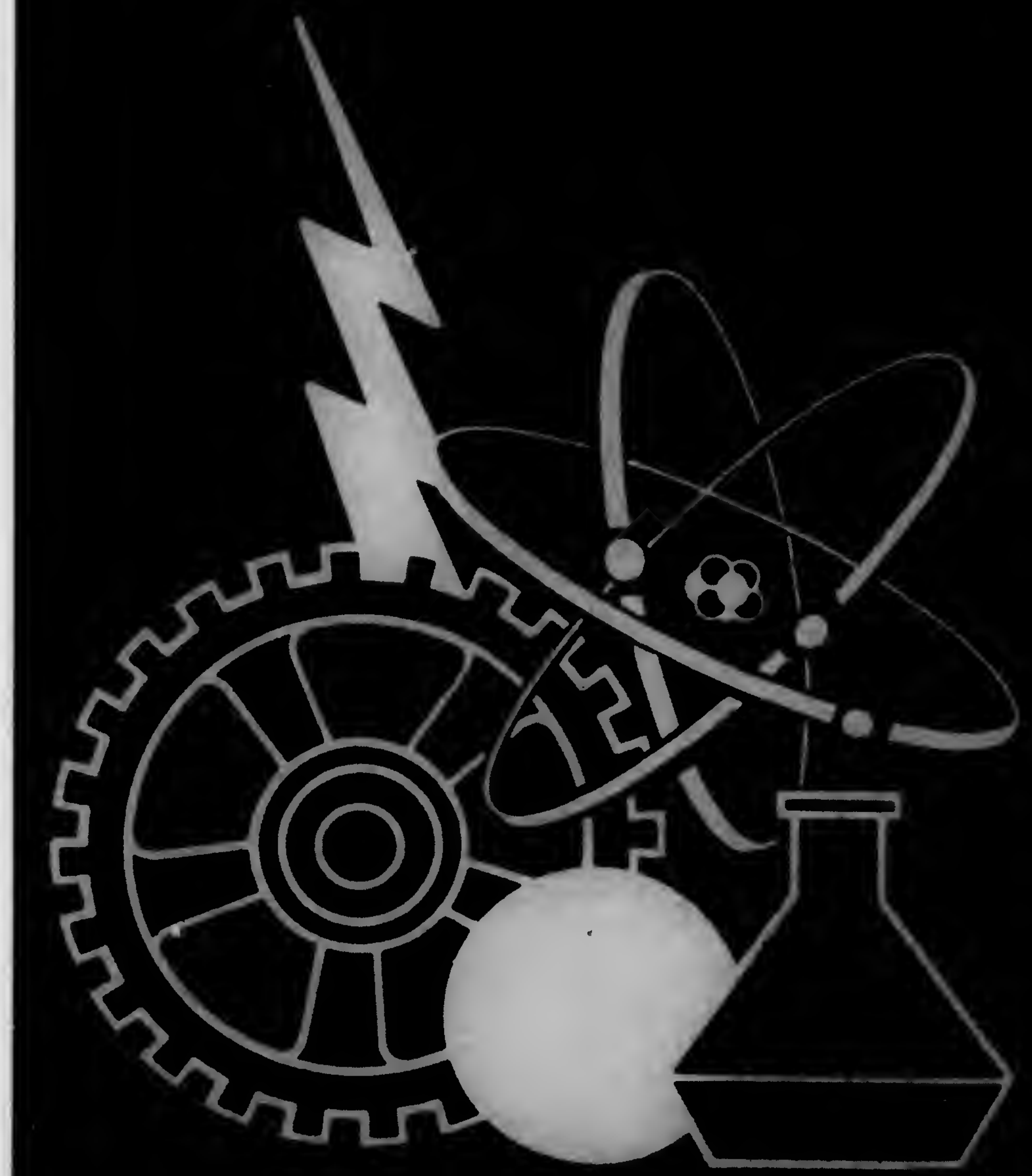
OFFICIAL GAZETTE

of the
UNITED STATES PATENT AND TRADEMARK OFFICE

PATENTS

July 21, 1998



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PATENT AND TRADEMARK OFFICE NOTICES

Patent Cooperation Treaty (PCT) Information

For information concerning PCT member countries, see the notice appearing in the *Official Gazette* at 1205 O.G. 4, on December 2, 1997.

For use of the European Patent Office as an International Searching Authority for international applications filed in the United States Receiving Office, see the notice appearing in the *Official Gazette* at 1022 O.G. 52, on September 28, 1982.

For use of the European Patent Office as an International Preliminary Examining Authority for international applications filed in the United States Receiving Office, see the notices appearing in the *Official Gazette* at 1080 O.G. 2, on July 7, 1987, and at 1091 O.G. 2, on June 7, 1988. There is no longer a limit on the number of such international applications accepted for international preliminary examination by the European Patent Office; see the notice appearing at 1116 O.G. 32, on July 17, 1990.

The search fee of the European Patent Office was increased, effective January 1, 1998, and was announced in the *Official Gazette* at 1205 O.G. 3, on December 2, 1997.

International fees were changed, effective on May 1, 1997, due to a change in the exchange rate of the U.S. dollar with regard to the Swiss franc, and were announced in the *Official Gazette* at 1197 O.G. 69, on April 22, 1997. The basic fee and the designation fee were further changed effective January 1, 1998 and were announced in the *Official Gazette* at 1205 O.G. 3, on December 2, 1997.

Certain domestic PCT fees and charges for International Search and Preliminary Examination were changed, effective October 1, 1997, and were announced in the *Official Gazette* at 1201 O.G. 63, on August 19, 1997.

The schedule of PCT fees (in U.S. dollars), effective January 1, 1998, is as follows:

International Application (PCT Chapter I) fees:	
Transmittal fee	240.00
Search Fee	-
U.S. Patent and Trademark Office (USPTO) as International Searching Authority (ISA)	
— No corresponding prior U.S. national application filed under 35 U.S.C. 111(a)	700.00
— Corresponding prior U.S. national application filed under 35 U.S.C. 111(a)	450.00
— Supplemental search fee, per additional invention (payable only upon invitation)	210.00
European Patent Office as ISA	1250.00
International fees	
Basic fee	455.00
Basic supplemental fee (for each page over 30)	10.00
Designation fee per country or region	
— For the first 11 national or regional offices designated	105.00
— For each designation in excess of 11 offices	No Charge
Precautionary designation fee and confirmation fee for each precautionary designation confirmed (PCT Rule 15.5)	
— Designation fee	105.00
— Confirmation fee	52.50
International Application (PCT Chapter II) fees associated with filing a Demand for Preliminary Examination:	
Handling fee	162.00
Preliminary examination fee	
USPTO as International Preliminary Examining Authority (IPEA)	
— USPTO was ISA in PCT Chapter I	490.00
— Additional examination fee, per additional invention (payable only upon invitation)	140.00
— USPTO was not ISA in PCT Chapter I	750.00
— Additional examination fee, per additional invention (payable only upon invitation)	270.00

U.S. National Stage Fees	Small Entity	Regular
Basic National fee		
USPTO was IPEA		
— All claims presented satisfied provisions of PCT Article 33(2) to (4)	49.00	98.00
— All claims presented did not satisfy provisions of PCT Article 33(2) to (4)	360.00	720.00
USPTO was ISA but not IPEA	395.00	790.00
USPTO was neither ISA nor IPEA		
— Search report has not been prepared by the European Patent Office or the Japanese Patent Office	535.00	1070.00
— Search report has been prepared by the European Patent Office or the Japanese Patent Office	465.00	930.00
Other National fees		
— For each independent claim in excess of 3	41.00	82.00
— For each claim in excess of 20.	11.00	22.00
— For each application containing a multiple dependent claim	135.00	270.00
— Surcharge for filing oath or declaration after the time limit applicable under PCT Article 22 or 39(1)	65.00	130.00
— Processing fee for filing English translation after the time limit applicable under PCT Article 22 or 39(1)	130.00	130.00

Nov. 10, 1997 BRUCE A. LEHMAN
Assistant Secretary of Commerce and
Commissioner of Patents and Trademarks

Notice of Maintenance Fees Payable

Title 37 Code of Federal Regulations (CFR), Section 1.362(d) provides that maintenance fees may be paid without surcharge for the six-month period beginning 3, 7, and 11 years after the date of issue of patents based on applications filed on or after Dec. 12, 1980. An additional six-month grace period is provided by 35 U.S.C. 41(b) and 37 CFR 1.362(e) for payment of the maintenance fee with the surcharge set forth in 37 CFR 1.20(h), as amended effective Dec. 16, 1991. If the maintenance fee is not paid in the patent requiring such payment the patent will expire on the 4th, 8th, or 12th anniversary of the grant.

Attention is drawn to the patents which were issued on July 18, 1995 for which maintenance fees due at 3 years and six

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months may now be paid. The patents have patent numbers within the following ranges:

Utility Patents 5,432,951 through 5,435,005
Reissue Patents based on the above identified patents.

Attention is drawn to the patents which were issued on July 16, 1991 for which maintenance fees due at 7 years and six months may now be paid. The patents have patent numbers within the following ranges:

Utility Patents 5,031,237 through 5,033,114
Reissue Patents based on the above identified patents.

Attention is drawn to the patents which were issued on July 14, 1987 for which maintenance fees due at 11 years and six months may now be paid. The patents have patent numbers within the following ranges:

Utility Patents 4,679,253 through 4,680,811
Reissue Patents based on the above identified patents.

No maintenance fees are required for design or plant patents.

Payments of maintenance fees in patents should be directed to "Commissioner of Patents and Trademarks, Box M. Fee, Washington, D.C. 20231."

For patents based on applications filed on or after Dec. 12, 1980, but before Aug. 27, 1982, patent owners must establish small entity status according to 37 CFR 1.27 if they have not done so and if they wish to pay the small entity amount.

The current amounts of the maintenance fees due at 3 years and six months, 7 years and six months, and 11 years and six months are set forth in 37 CFR 1.20(e)-(g), as amended Oct. 1, 1997, which are reproduced below:

37 CFR § 1.20 Post-issuance fees

(e) For maintaining an original or reissue patent, except a design or plant patent, based on an application filed on or after Dec. 12, 1980, in force beyond 4 years; the fee is due by three years and six months after the original grant:

By a small entity (§ 1.9(f)) $525.00
By other than a small entity................................$1,050.00

(f) For maintaining an original or reissue patent, except a design or plant patent, based on an application filed on or after Dec. 12, 1980 in force beyond 8 years; the fee is due by seven years and six months after the original grant:

By a small entity (§ 1.9(f)) $1,050.00
By other than a small entity................................$2,100.00

(g) For maintaining an original or reissue patent, except a design or plant patent, based on applications filed on or after Dec. 12, 1980 in force beyond 12 years; the fee is due by eleven years and six months after the original grant:

By a small entity (§ 1.9(f)) $1,580.00
By other than a small entity................................$3,160.00

The amount of the surcharge for paying the maintenance fee during the grace period or after expiration of the patent are set forth in 37 CFR 1.20(h), and (i) which are reproduced below:

(h) Surcharge for paying a maintenance fee during the 6 month grace period following the expiration of three years and six months, seven years and six months, and eleven years and six months after the date of the original grant of a patent based on an application filed on or after Dec. 12, 1980:

By a small entity (§ 1.9(f)) $65.00
By other than a small entity...................................$130.00

(i) Surcharge for accepting a maintenance fee after expiration of a patent for non-timely payment of a maintenance fee where the delay is shown to the satisfaction of the Commissioner to have been:

(1) unavoidable $700.00
(2) unintentional..$1,640.00

Notice of Expiration of Patents Due to Failure to Pay Maintenance Fee

35 U.S.C. 41 and 37 CFR 1.362(g) provide that if the required maintenance fee and any applicable surcharge are not paid in a patent requiring such payment, the patent will expire at the end of the 4th, 8th or 12th anniversary of the grant of the patent depending on the first maintenance fee which was not paid.

According to the records of the Office, the patents listed below have expired due to failure to pay the required maintenance fee and any applicable surcharge.

PATENTS WHICH EXPIRED May 13, 1998
DUE TO FAILURE TO PAY MAINTENANCE FEES

Patent Number	Serial Number	Issue Date
Re. 33,248	07/270,816	07/03/90
(4,588,364)	(06/718,803)	(05/13/86)
Re. 33,361	07/193,396	10/02/90
(4,588,086)	(06/618,189)	(05/13/86)
4,587,674	06/564,072	05/13/86
4,587,677	06/662,991	05/13/86
4,587,680	06/624,668	05/13/86
4,587,694	06/558,465	05/13/86
4,587,699	06/658,197	05/13/86
4,587,703	06/692,647	05/13/86
4,587,707	06/469,693	05/13/86
4,587,710	06/621,282	05/13/86
4,587,716	06/618,206	05/13/86
4,587,717	06/729,707	05/13/86
4,587,720	06/659,316	05/13/86
4,587,721	06/630,872	05/13/86
4,587,727	06/510,540	05/13/86
4,587,732	06/671,400	05/13/86
4,587,736	06/717,628	05/13/86
4,587,764	06/603,651	05/13/86
4,587,768	06/604,898	05/13/86
4,587,771	06/421,452	05/13/86
4,587,777	06/681,352	05/13/86
4,587,792	06/638,256	05/13/86
4,587,803	06/523,056	05/13/86
4,587,807	06/486,188	05/13/86
4,587,812	06/616,878	05/13/86
4,587,821	06/693,378	05/13/86
4,587,827	06/725,113	05/13/86
4,587,832	06/661,030	05/13/86
4,587,840	06/627,917	05/13/86
4,587,841	06/703,481	05/13/86
4,587,847	06/509,448	05/13/86
4,587,848	06/664,429	05/13/86
4,587,849	06/706,689	05/13/86
4,587,853	06/673,666	05/13/86
4,587,856	06/768,186	05/13/86
4,587,859	06/713,057	05/13/86
4,587,862	06/513,378	05/13/86
4,587,869	06/746,873	05/13/86
4,587,878	06/626,610	05/13/86
4,587,879	06/553,204	05/13/86
4,587,893	06/771,595	05/13/86
4,587,899	06/749,940	05/13/86
4,587,912	06/714,319	05/13/86
4,587,941	06/537,640	05/13/86
4,587,942	06/549,089	05/13/86
4,587,944	06/526,492	05/13/86
4,587,946	06/697,446	05/13/86
4,587,954	06/574,596	05/13/86
4,587,964	06/698,464	05/13/86
4,587,972	06/631,381	05/13/86
4,587,977	06/553,487	05/13/86
4,587,978	06/660,351	05/13/86
4,587,991	06/464,872	05/13/86
4,587,992	06/611,328	05/13/86
4,588,009	06/646,544	05/13/86
4,588,010	06/577,860	05/13/86
4,588,013	06/717,682	05/13/86
4,588,023	06/580,756	05/13/86
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4,588,039	06/659,964	05/13/86
4,588,043	06/684,350	05/13/86
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4,588,103	06/777,407	05/13/86
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4,588,113	06/578,376	05/13/86
4,588,114	06/624,903	05/13/86
4,588,119	06/716,036	05/13/86
4,588,128	06/704,864	05/13/86
4,588,130	06/571,577	05/13/86
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4,588,141	06/720,043	05/13/86
4,588,143	06/540,382	05/13/86
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4,588,153	06/663,082	05/13/86
4,588,155	06/531,911	05/13/86
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4,588,162	06/620,507	05/13/86
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4,588,182	06/597,374	05/13/86
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4,588,184	06/593,608	05/13/86
4,588,185	06/564,090	05/13/86
4,588,192	06/532,381	05/13/86
4,588,197	06/524,431	05/13/86
4,588,198	06/640,321	05/13/86
4,588,209	06/649,536	05/13/86
4,588,215	06/420,086	05/13/86
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4,588,243	06/565,449	05/13/86
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4,588,468	06/717,202	05/13/86
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4,588,484	06/707,001	05/13/86
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4,588,515	06/655,383	05/13/86
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4,588,530	06/502,449	05/13/86
4,588,535	06/686,257	05/13/86
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4,588,541	06/671,180	05/13/86
4,588,543	06/417,639	05/13/86
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4,588,546	06/644,187	05/13/86
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4,588,591	06/614,408	05/13/86
4,588,598	06/676,955	05/13/86
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4,588,603	06/761,784	05/13/86
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4,588,655	06/608,267	05/13/86
4,588,672	06/763,817	05/13/86
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4,588,806	06/669,573	05/13/86
4,588,808	06/645,952	05/13/86
4,588,811	06/672,869	05/13/86
4,588,814	06/601,862	05/13/86
4,588,816	06/608,069	05/13/86
4,588,823	06/655,403	05/13/86
4,588,826	06/677,619	05/13/86
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Patent Number	Serial Number	Issue Date
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Patent Number	Serial Number	Issue Date
4,923,591	07/140,452	05/08/90
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4,924,056	07/311,430	05/08/90
4,924,059	07/423,314	05/08/90
4,924,061	07/204,866	05/08/90
4,924,062	07/303,113	05/08/90
4,924,063	07/404,908	05/08/90
4,924,064	07/291,225	05/08/90
4,924,067	07/262,034	05/08/90
4,924,070	07/392,157	05/08/90
4,924,071	07/070,332	05/08/90
4,924,079	07/345,493	05/08/90
4,924,088	07/317,529	05/08/90
4,924,092	07/318,535	05/08/90
4,924,098	07/126,714	05/08/90
4,924,105	07/273,916	05/08/90
4,924,112	07/264,732	05/08/90
4,924,115	07/312,161	05/08/90
4,924,121	07/329,207	05/08/90
4,924,123	07/285,666	05/08/90
4,924,127	07/338,203	05/08/90
4,924,134	07/232,355	05/08/90
4,924,136	07/219,580	05/08/90
4,924,138	07/179,610	05/08/90
4,924,139	07/209,936	05/08/90
4,924,144	06/853,170	05/08/90
4,924,145	07/290,727	05/08/90
4,924,150	07/224,178	05/08/90
4,924,156	07/199,232	05/08/90
4,924,157	07/305,100	05/08/90
4,924,158	07/332,133	05/08/90
4,924,163	07/411,271	05/08/90
4,924,172	07/236,598	05/08/90
4,924,174	07/121,786	05/08/90
4,924,175	07/162,192	05/08/90
4,924,179	06/405,899	05/08/90
4,924,181	07/212,696	05/08/90
4,924,182	07/294,621	05/08/90
4,924,188	07/250,236	05/08/90
4,924,190	07/222,421	05/08/90
4,924,197	07/350,726	05/08/90
4,924,199	07/050,430	05/08/90
4,924,201	07/296,620	05/08/90
4,924,202	07/315,648	05/08/90
4,924,207	07/335,838	05/08/90
4,924,213	07/327,744	05/08/90
4,924,216	07/155,669	05/08/90
4,924,218	07/217,404	05/08/90
4,924,226	07/226,401	05/08/90
4,924,235	07/290,048	05/08/90
4,924,246	07/250,927	05/08/90
4,924,248	07/348,075	05/08/90
4,924,259	07/258,210	05/08/90
4,924,263	07/336,285	05/08/90
4,924,270	07/263,415	05/08/90
4,924,275	07/351,429	05/08/90
4,924,276	07/235,311	05/08/90
4,924,285	07/262,765	05/08/90
4,924,297	07/175,276	05/08/90
4,924,303	07/240,663	05/08/90

Patent Number	Serial Number	Issue Date
4,924,312	07/181,298	05/08/90
4,924,324	07/199,847	05/08/90
4,924,333	07/238,248	05/08/90
4,924,334	07/233,235	05/08/90
4,924,352	07/287,251	05/08/90
4,924,360	07/312,052	05/08/90
4,924,367	07/318,701	05/08/90
4,924,368	07/295,043	05/08/90
4,924,369	07/271,018	05/08/90
4,924,371	07/377,670	05/08/90
4,924,373	07/298,962	05/08/90
4,924,379	07/103,491	05/08/90
4,924,388	07/140,847	05/08/90
4,924,392	07/207,514	05/08/90
4,924,393	07/220,687	05/08/90
4,924,420	07/019,674	05/08/90
4,924,422	07/157,500	05/08/90
4,924,424	07/185,759	05/08/90
4,924,445	07/321,077	05/08/90
4,924,446	07/308,653	05/08/90
4,924,452	07/236,488	05/08/90
4,924,453	07/307,067	05/08/90
4,924,467	07/235,425	05/08/90
4,924,485	07/099,850	05/08/90
4,924,490	07/300,949	05/08/90
4,924,507	07/154,718	05/08/90
4,924,512	07/294,731	05/08/90
4,924,518	07/133,808	05/08/90
5,310,427	07/856,168	05/10/94

Patent Reinstated Due to the Acceptance of a Late Maintenance Fee From 05/22/98

Patent Number	Serial Number	Filing Date	Issue Date	Granted Date
4,903,221	07/265,078	10/31/88	02/20/90	05/28/98

Reissue Applications Filed

Notice under 37 CFR 1.11(b). The reissue applications listed below are open to inspection by the general public in the indicated Examining Groups and copies may be obtained by paying the fee therefor (37 CFR 1.12(b)).

4,920,794, Re. S.N. 08/912,797, Aug. 18, 1997, Cl. 73/269, FLUID FLOW METER, Younes Nazarian, Owner of Record: *Measurement Technology Inc., Santa Fe Springs, Calif.*, Attorney or Agent: M. John Carson, Ex. Gp.: 2855

5,087,570, Re. S.N. 08/991,066. Dec. 15, 1997, Cl. 435/325, HOMOGENEOUS MAMMALIAN HEMATOPOIETIC STEM CELL COMPOSITION, Irving L. Weissman, et. al., Owner of Record: *Board of Trustees of the Leland Stanford Jr. Univ., Stanford, Calif.*, Attorney or Agent: Richard L. Neeley, Ex. Gp.: 1632

5,225,724, Re. S.N. 08/876,130, Jun. 23, 1997, Cl. 326/010, OPERATIONAL ANALYSIS DEVICE OF THE SC, Flavio Scarra, et. al., Owner of Record: *SGS-Thompson Microelectronics, Agrate Brianza, Italy*, Attorney or Agent: Bryan A. Santarelli, Ex. Gp.: 2819

5,284,414, Re. S.N. 09/094,424, Jun. 9. 1998. Cl. 414/545. WHEELCHAIR LIFT WITH LINKAGE ASSEMBLY AND HINGED CONNECTION JOINT, Dale Kempf, Owner of Record: *Hogan Manufacturing, Inc., Escalon, Calif.*, Attorney or Agent: Roger D. Wylie, Ex. Gp.: 3617

5,437,859, Re. S.N. 08/904,102, Jul. 31. 1997, Cl. 424/59, PROCESS FOR THE PREPARATION OF A SOLID DISPERSION OF AT LEAST ONE POLYHYDRIC ALCOHOL IN A FATTY BODY AND THE RESULTING DISPERSION FOR COSMETIC AND PHARMACEUTICAL USE, Jean-Claude Ser, et. al., Owner of Record: *L'Oreal, Paris, France,* Attorney or Agent: Christina Gadiano, Ex. Gp.: 1203

5,472,540, Re. S.N. 08/985,153, Dec. 4, 1997, Cl. 156/184, METHOD AND APPARATUS FOR MAKING PALLET SUPPORTS AND PALLETS INCORPORATING SAID SUPPORTS, Carl R. Marschke, et. al., Owner of Record: *Marquip, Inc., Phillips, Wis.*, Attorney or Agent: Mark A. Kassel, Ex. Gp.: 1734

5,499,956, Re. S.N. 08/967,473, Nov. 11, 1997, Cl. 482/052. ARTICULATED LOWER BODY EXERCISER, Theodore G. Habing, et. al., Owner of Record: *Norditrack, Inc., Chaska, Minn.*, Attorney or Agent: Mark A. Krull, Ex. Gp.: 3733

5,513,040, Re. S.N. 09/088,916, Jun. 2. 1998, Cl. 359/585. OPTICAL DEVICE HAVING LOW VISUAL LIGHT TRANSMISSION AND LOW VISUAL LIGHT REFLECTION, Peter Y. Yang, Owner of Record: *MSC Specialty Films, Inc., San Diego, Calif.*, Attorney or Agent: Thomas R. Juettner, Ex. Gp.: 2872

5,517,588, Re. S.N. 09/075,666, May 11, 1998, Cl. 382/300, DIGITAL DATA CONVERSION EQUIPMENT AND A METHOD FOR THE SAME, Tetsujiro Kondo, Owner of Record: *Sony Corp., New York, N.Y.*, Attorney or Agent: Willie S. Frommer, Ex. Gp.: 2213

5,523,264, Re. S.N. 09/089,456, Jun. 3, 1998, Cl. 501/035, GLASS COMPOSITIONS AND FIBERS THEREFROM, Stephanie M. Mattson, Owner of Record: *Owens-Corning Fiberglas Tech. Inc., Summit, Ohio,* Attorney or Agent: Charles F. Wieland, III, Ex. Gp.: 1755

5,523,627, Re. S.N. 09/090,401, Jun. 4, 1998, Cl. 257/774, WIRING PATTERN OF SEMICONDUCTOR INTEGRATED CIRCUIT DEVICE, Masahiro Abe, et. al., Owner of Record: *Kabushiki Kaisha Toshiba, Kawasaki-shi, Japan*, Attorney or Agent: Richard V. Burgujian, Ex. Gp.: 2818

5,525,805, Re. S.N. 09/095,611, Jun. 11, 1998, Cl. 250/423, PULSED ION BEAM SOURCE, John B. Greenly, Owner of Record: *Sandia Corp., Albuquerque, N. Mex.*, Attorney or Agent: Paul Devinsky, Ex. Gp.: 2876

5,528,482, Re. S.N. 09/039,106, Mar. 13, 1998, Cl. 363/021.000, LOW LOSS SYNCHRONOUS RECTIFIER FOR APPLICATION TO CLAMPED-MODE POWER CONVERTERS, Allen Frank Rozman, Owner of Record: *Inventor*, Attorney or Agent: David H. Hitt, Ex. Gp.: 2111

5,537,911, Re. S.N. 08/747,029, Nov. 7, 1996, Cl. 92/022, METHOD AND DEVICE FOR SEPERATING GAS MIXTURES FORMED ABOVE LIQUIDS, Klaus Ohlrogge, et. al., Owner of Record: *GKSS-Forschungszentrum Geesthacht GmbH, Geesthacht, Germany and Sihi Anlagentechnik GmbH, Itzenhoe, Germany*, Attorney or Agent: Jacobson Price Holman & Stern, Ex. Gp.: 1724

5,546,281, Re. S.N. 09/089,584, Jun. 3. 1998, Cl. 361/752, REMOVABLE OPTOELECTRONIC MODULE, Daniel S. Poplawski, et. al., Owner of Record: *Methode Electronics, Inc.*,

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Chicago, Ill., Attorney or Agent: David R. Metzger, Ex. Gp.: 2835

5,596,663, Re. S.N. 09/087,857, Jun. 1, 1998, Cl. 385/092, FIBER OPTIC MODULE, Shin Ishibashi, et. al., Owner of Record: *Matsushita Electrical Industrial Co., Ltd., Kadoma, Japan*, Attorney or Agent: Robert J. Frank, Ex. Gp.: 2874

5,641,687, Re. S.N. 09/092,885, Jun. 8, 1998, Cl. 436/518, ORAL HYGIENE DELIVERY SYSTEM, Eugene C. Wagner, Owner of Record: *Dental Concepts Inc., Elmsford, N.Y.* Attorney or Agent: Seth Natter, Ex. Gp.: 1636

5,717,901, Re. S.N. 09/096,917, Jun. 12, 1998, Cl. 395/497.010, VARIABLE DEPTH AND WIDTH MEMORY DEVICE, Chiakang Sung, et. al., Owner of Record: *Altera Corp., San Jose, Calif.*, Attorney or Agent: G. Victor Treyz, Ex. Gp.: 2752

Request for Reexamination Filed

Notice under 37 CFR 1.11(c). The requests for reexamination listed below are open to inspection by the general public in the indicated Examining Groups. Copies of the requests and related papers may be obtained by paying the fee therefor established in the Rules (37 CFR 1.19(a)).

In the event correspondence to the patent owner is not received, this notice will be considered to be constructive notice to the patent owner and reexamination will proceed (37 CFR 1.248(a)(5) and 1.525(b)).

4,378,940, Reexam. No. 90/004,989, May 18, 1998, Cl. 273/237, ELECTRONIC DEVICE FOR PLAYING BINGO, LOTTO AND ALLIED CARD GAMES, Jacob Gluz, et. al., Owner of Record: *Bingo Card Minder Carp., San Jose, Calif.*, Attorney or Agent: Michael S. Brandt, Stateline, Nev., Ex. Gp.: 3711, Requester: Glenn M. Seager, Crompton, Seager, and Tufte, Minneapolis, Minn.

4,557,720, Reexam. No. 90/004,987, May 22, 1998, Cl. 604/001, VAGINAL APPLICATOR, Allegra D. Hemphill, Owner of Record: *Inventor*, Attorney or Agent: None, Ex. Gp.: 3735, Requester: Owner

5,241,898, Reexam. No. 90/004,988, May 22, 1998, Cl. 099/280, COFFEE DISPENSER AND BREWER APPARATUS, Brian D. Newnan, Owner of Record: *Grandmaster Corp., Lewisville, Ky.*, Attorney or Agent: Vance A. Smith, Wheat Camoriano Smith and Beres, Louisville, Ky., Ex. Gp.: 1761, Requester: Owner

5,525,634, Reexam. No. 90/004,990, May 22, 1998, Cl. 514/777, COLONIC DRUG DELIVERY SYSTEM, Amnon Sintov, et. al., Owner of Record: *Perio Products, Ltd., Jerusalem, Israel, and Yissum Research Development Co. of the Hebrew University of Jerusalem, Jerusalem, Israel*, Attorney or Agent: Michele A. Cimbala, Sterne Kessler Goldstein and Fox, Washington, D.C., Ex. Gp.: 1614, Requester: Owner

5,669,622, Reexam. No. 90/004,991, May 22, 1998, Cl. 280/615, SKI BINDING, Michael E. Miller, Owner of Record: *Inventor*, Attorney or Agent: None, Ex. Gp.: 3611, Requester: Black Diamond Equipment, Ltd., Salt Lake City, Utah, c/o Calvin E. Thorpe, Thorpe North and Western, Sandy, Utah

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Notice of Expiration of Trademark Registrations Due To Failure to Renew

15 U.S.C. 1059 provides that each trademark registration may be renewed for periods of ten years from the end of the expiring period upon payment of the prescribed fee and the filing of an acceptable application for renewal. This may be done at any time within six months before the expiration of the period for which the registration was issued or renewed, or it may be done within three months after such expiration on payment of an additional fee.

According to the records of the Office, the trademark registrations listed below are expired due to failure to renew in accordance with 15 U.S.C. 1059.

TRADEMARK REGISTRATIONS WHICH EXPIRED
June 2, 1998
DUE TO FAILURE TO RENEW

Reg. Number	Serial Number	Reg. Date
118,258	71/103,378	08/28/1917
118,318	71/097,054	08/28/1917
349,157	71/374,197	08/24/1937
349,171	71/379,586	08/24/1937
349,174	71/381,023	08/24/1937
349,206	71/387,314	08/24/1937
349,211	71/387,889	08/24/1937
349,215	71/388,190	08/24/1937
349,267	71/390,205	08/24/1937
349,268	71/390,264	08/24/1937
349,286	71/390,655	08/24/1937
349,316	71/390,994	08/24/1937
349,333	71/391,086	08/24/1937
349,363	71/391,450	08/24/1937
349,383	71/391,589	08/24/1937
349,385	71/391,656	08/24/1937
349,399	71/391,773	08/24/1937
349,402	71/391,856	08/24/1937
637,817	71/697,024	11/27/1956
650,715	72/018,003	08/27/1957
650,719	72/019,279	08/27/1957
650,723	72/011,251	08/27/1957
650,730	72/022,878	08/27/1957
650,753	72/024,424	08/27/1957
650,754	72/019,526	08/27/1957
650,764	72/010,581	08/27/1957
650,766	72/011,562	08/27/1957
650,774	72/004,368	08/27/1957
650,777	72/012,057	08/27/1957
650,780	72/012,307	08/27/1957
650,785	72/022,915	08/27/1957
650,786	72/004,572	08/27/1957
650,808	72/020,146	08/27/1957
650,817	71/700,543	08/27/1957
650,820	72/006,727	08/27/1957
650,832	72/017,662	08/27/1957
650,839	72/020,784	08/27/1957
650,840	72/020,817	08/27/1957
650,841	72/020,872	08/27/1957
650,845	72/021,092	08/27/1957
650,853	71/695,565	08/27/1957
650,856	72/015,921	08/27/1957
650,872	72/010,254	08/27/1957
650,873	72/017,836	08/27/1957
650,875	72/019,844	08/27/1957
650,878	72/022,503	08/27/1957
650,881	72/022,782	08/27/1957
650,889	72/018,587	08/27/1957
650,900	72/020,600	08/27/1957
650,902	72/021,549	08/27/1957
650,903	72/020,802	08/27/1957
650,910	72/025,835	08/27/1957
650,925	72/023,185	08/27/1957
650,926	72/023,312	08/27/1957
650,930	71/685,579	08/27/1957
650,932	72/005,615	08/27/1957
650,933	72/015,757	08/27/1957
650,943	71/679,883	08/27/1957
650,945	72/007,761	08/27/1957
650,948	72/015,415	08/27/1957
650,954	72/018,996	08/27/1957
650,959	72/020,278	08/27/1957
650,963	72/021,263	08/27/1957
650,977	71/693,180	08/27/1957
650,978	71/694,758	08/27/1957
650,989	72/020,103	08/27/1957
650,993	72/020,342	08/27/1957

Reg. Number	Serial Number	Reg. Date
650,999	72/009,845	08/27/1957
651,002	72/019,788	08/27/1957
651,008	72/022,921	08/27/1957
651,014	72/022,330	08/27/1957
1,049,343	73/058,799	10/05/1976
1,066,464	73/068,719	05/24/1977
1,067,089	73/055,514	06/07/1977
1,067,219	73/086,013	06/07/1977
1,071,683	73/057,265	08/23/1977
1,071,685	73/066,962	08/23/1977
1,071,687	73/079,817	08/23/1977
1,071,689	73/081,675	08/23/1977
1,071,693	73/089,181	08/23/1977
1,071,694	73/089,209	08/23/1977
1,071,696	75/089,450	08/23/1977
1,071,697	73/091,834	08/23/1977
1,071,698	73/094,868	08/23/1977
1,071,712	73/109,128	08/23/1977
1,071,713	73/042,628	08/23/1977
1,071,716	73/079,139	08/23/1977
1,071,719	73/090,868	08/23/1977
1,071,720	73/093,384	08/23/1977
1,071,722	75/093,989	08/23/1977
1,071,725	73/098,166	08/23/1977
1,071,728	73/098,527	08/23/1977
1,071,731	73/104,702	08/23/1977
1,071,732	73/104,837	08/23/1977
1,071,739	73/110,471	08/23/1977
1,071,744	73/108,626	08/23/1977
1,071,746	73/075,739	08/23/1977
1,071,747	73/076,654	08/23/1977
1,071,748	73/080,918	08/23/1977
1,071,749	73/089,801	08/23/1977
1,071,752	73/064,193	08/23/1977
1,071,753	73/065,049	08/23/1977
1,071,756	73/089,568	08/23/1977
1,071,757	73/093,119	08/23/1977
1,071,758	73/101,263	08/23/1977
1,071,760	73/103,313	08/23/1977
1,071,763	73/047,366	08/23/1977
1,071,765	73/072,504	08/23/1977
1,071,768	73/085,238	08/23/1977
1,071,771	73/093,613	08/23/1977
1,071,775	73/103,116	08/23/1977
1,071,776	73/109,371	08/23/1977
1,071,781	73/031,195	08/23/1977
1,071,784	73/056,074	08/23/1977
1,071,791	73/083,877	08/23/1977
1,071,792	73/085,305	08/23/1977
1,071,795	73/091,824	08/23/1977
1,071,797	73/099,421	08/23/1977
1,071,799	73/102,439	08/23/1977
1,071,814	73/112,292	08/23/1977
1,071,815	73/075,491	08/23/1977
1,071,819	73/099,767	08/23/1977
1,071,821	73/098,001	08/23/1977
1,071,825	73/107,207	08/23/1977
1,071,837	73/077,182	08/23/1977
1,071,838	73/105,841	08/23/1977
1,071,843	73/044,196	08/23/1977
1,071,844	73/044,241	08/23/1977
1,071,847	73/083,049	08/23/1977
1,071,848	73/106,024	08/23/1977
1,071,850	73/106,522	08/23/1977
1,071,852	73/065,175	08/23/1977
1,071,861	73/103,115	08/23/1977
1,071,862	73/089,276	08/23/1977
1,071,867	73/094,523	08/23/1977
1,071,870	73/061,877	08/23/1977
1,071,877	73/085,643	08/23/1977
1,071,895	73/055,051	08/23/1977
1,071,898	73/085,411	08/23/1977
1,071,900	73/093,946	08/23/1977
1,071,902	73/111,250	08/23/1977
1,071,907	73/074,117	08/23/1977
1,071,909	73/092,133	08/23/1977
1,071,910	73/095,579	08/23/1977
1,071,912	73/105,820	08/23/1977
1,071,913	73/106,272	08/23/1977
1,071,914	73/108,166	08/23/1977
1,071,916	73/111,383	08/23/1977
1,071,917	73/111,443	08/23/1977
1,071,922	73/084,021	08/23/1977
1,071,927	73/103,442	08/23/1977
1,071,929	73/113,103	08/23/1977
1,071,932	73/056,036	08/23/1977
1,071,934	75/073,304	08/23/1977
1,071,935	73/077,295	08/23/1977
1,071,939	73/090,093	08/23/1977
1,071,940	73/094,532	08/23/1977
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1,071,946	73/091,237	08/23/1977
1,071,947	73/092,399	08/23/1977
1,071,951	73/102,300	08/23/1977
1,071,954	73/105,729	08/23/1977
1,071,958	73/092,037	08/23/1977
1,071,973	73/090,202	08/23/1977
1,071,974	73/090,836	08/23/1977
1,071,975	73/090,837	08/23/1977
1,071,976	73/097,287	08/23/1977
1,071,977	73/101,838	08/23/1977
1,071,981	73/107,655	08/23/1977
1,071,986	75/080,036	08/23/1977
1,071,993	73/092,957	08/23/1977
1,071,994	73/099,065	08/23/1977
1,071,996	73/100,760	08/23/1977
1,071,998	73/104,281	08/23/1977
1,071,999	73/105,241	08/23/1977
1,072,003	73/108,209	08/23/1977
1,072,004	73/108,329	08/23/1977
1,072,009	72/460,319	08/23/1977
1,072,011	73/097,022	08/23/1977
1,072,015	73/091,736	08/23/1977
1,072,016	73/050,413	08/23/1977
1,072,029	73/080,648	08/23/1977
1,072,030	73/074,293	08/23/1977
1,072,032	73/058,797	08/30/1977
1,072,035	73/077,762	08/30/1977
1,072,041	73/096,258	08/30/1977
1,072,047	73/104,371	08/30/1977
1,072,050	73/105,631	08/30/1977
1,072,051	73/106,393	08/30/1977
1,072,053	73/108,826	08/30/1977
1,072,054	73/111,759	08/30/1977
1,072,056	73/113,675	08/30/1977
1,072,058	73/114,061	08/30/1977
1,072,068	73/088,906	08/30/1977
1,072,069	73/092,619	08/30/1977
1,072,078	73/112,288	08/30/1977
1,072,079	73/112,368	08/30/1977
1,072,083	73/098,113	08/30/1977
1,072,084	73/101,332	08/30/1977
1,072,088	73/112,918	08/30/1977
1,072,090	73/113,095	08/30/1977
1,072,091	73/113,231	08/30/1977
1,072,094	73/113,353	08/30/1977
1,072,095	73/113,382	08/30/1977
1,072,096	73/113,383	08/30/1977
1,072,098	73/113,808	08/30/1977
1,072,106	73/090,749	08/30/1977
1,072,107	73/094,076	08/30/1977
1,072,109	73/098,539	08/30/1977
1,072,114	73/103,174	08/30/1977
1,072,115	73/106,286	08/30/1977
1,072,116	73/106,289	08/30/1977
1,072,122	73/059,175	08/30/1977
1,072,126	73/065,252	08/30/1977
1,072,129	73/076,484	08/30/1977
1,072,131	73/079,384	08/30/1977
1,072,132	73/080,176	08/30/1977
1,072,140	73/088,530	08/30/1977
1,072,146	73/091,667	08/30/1977
1,072,157	73/101,099	08/30/1977
1,072,158	73/101,355	08/30/1977
1,072,159	73/103,780	08/30/1977
1,072,161	73/104,265	08/30/1977

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1
2
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2
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Reg. Number	Serial Number	Reg. Date
1,072,162	73/104,392	08/30/1977
1,072,163	73/104,554	08/30/1977
1,072,164	73/105,429	08/30/1977
1,072,166	73/109,170	08/30/1977
1,072,170	73/105,788	08/30/1977
1,072,171	73/074,519	08/30/1977
1,072,175	73/090,901	08/30/1977
1,072,180	73/100,855	08/30/1977
1,072,181	73/100,969	08/30/1977
1,072,183	73/102,381	08/30/1977
1,072,187	73/088,978	08/30/1977
1,072,189	73/094,078	08/30/1977
1,072,197	73/107,012	08/30/1977
1,072,198	73/107,349	08/30/1977
1,072,202	73/107,962	08/30/1977
1,072,206	73/025,367	08/30/1977
1,072,208	73/070,433	08/30/1977
1,072,210	73/071,315	08/30/1977
1,072,212	73/075,154	08/30/1977
1,072,218	73/084,164	08/30/1977
1,072,220	73/087,084	08/30/1977
1,072,221	73/087,265	08/30/1977
1,072,222	73/087,266	08/30/1977
1,072,227	73/090,567	08/30/1977
1,072,232	73/094,892	08/30/1977
1,072,235	73/101,573	08/30/1977
1,072,238	73/104,087	08/30/1977
1,072,243	73/101,918	08/30/1977
1,072,247	73/103,493	08/30/1977
1,072,251	73/091,999	08/30/1977
1,072,252	73/103,228	08/30/1977
1,072,254	73/059,358	08/30/1977
1,072,257	73/086,008	08/30/1977
1,072,260	73/102,142	08/30/1977
1,072,261	73/102,514	08/30/1977
1,072,265	73/080,505	08/30/1977
1,072,269	73/097,237	08/30/1977
1,072,271	73/057,156	08/30/1977
1,072,272	73/060,683	08/30/1977
1,072,274	73/082,291	08/30/1977
1,072,276	73/101,936	08/30/1977
1,072,283	73/104,650	08/30/1977
1,072,285	73/111,006	08/30/1977
1,072,287	73/103,674	08/30/1977
1,072,289	73/103,942	08/30/1977
1,072,291	73/107,447	08/30/1977
1,072,292	73/107,490	08/30/1977
1,072,293	73/107,492	08/30/1977
1,072,299	73/087,579	08/30/1977
1,072,300	73/090,024	08/30/1977
1,072,311	73/110,643	08/30/1977
1,072,321	73/076,558	08/30/1977
1,072,328	73/066,085	08/30/1977
1,072,329	73/078,009	08/30/1977
1,072,332	73/101,117	08/30/1977
1,072,336	73/067,388	08/30/1977
1,072,340	73/109,734	08/30/1977
1,072,341	73/022,962	08/30/1977
1,072,346	73/110,212	08/30/1977
1,072,351	73/078,083	08/30/1977
1,072,354	73/084,177	08/30/1977
1,072,357	73/092,161	08/30/1977
1,072,358	73/097,314	08/30/1977
1,072,361	73/109,407	08/30/1977
1,072,367	73/079,572	08/30/1977
1,072,372	73/095,577	08/30/1977
1,072,373	73/098,526	08/30/1977
1,072,377	73/009,265	08/30/1977
1,072,381	73/082,134	08/30/1977
1,072,382	73/094,093	08/30/1977
1,072,385	73/110,514	08/30/1977
1,072,390	73/078,442	08/30/1977
1,072,405	73/029,054	08/30/1977
1,072,406	73/037,462	08/30/1977
1,072,407	73/066,087	08/30/1977
1,072,409	73/072,825	08/30/1977
1,072,412	73/081,161	08/30/1977
1,072,413	73/082,294	08/30/1977
1,072,416	73/087,395	08/30/1977
1,072,425	73/095,968	08/30/1977
1,072,428	73/104,142	08/30/1977
1,072,429	73/107,311	08/30/1977
1,072,433	73/110,107	08/30/1977
1,072,439	73/082,829	08/30/1977
1,072,441	72/422,159	08/30/1977
1,072,446	73/066,681	08/30/1977
1,072,447	73/065,205	08/30/1977
1,072,450	73/063,749	08/30/1977
1,072,451	73/070,467	08/30/1977
1,072,462	73/059,351	08/30/1977
1,072,464	73/084,950	08/30/1977

Notice Regarding Technical Center Box Issue Fee Mailings

The Office will begin mailing address labels with the PTOL-85, "Notice of Allowance and Issue Fee Due" for patent applications allowed in all Technology Centers. These address labels should be used to ensure proper routing of post-allowance correspondence. This directive supersedes the "Special Boxes for Patent Mail" instruction. Any Notice of Allowance and Issue Fee Due received without the accompanying address labels should continue to be addressed to Box Issue Fee.

March 11, 1998

NICHOLAS P. GODICI
Deputy Assistant Commissioner
for Patents (Acting)

Service by Publication

A petition to cancel the registration identified below having been filed, and the notice of such proceeding sent by certified mail to registrant at the last known address having been returned by the Postal Service as undeliverable, notice is hereby given that unless the registrant listed herein, its assigns or legal representatives, shall enter an appearance within thirty days of this publication, the cancellation will proceed as in the case of default.

Michael C. Cowles, Mechanicsville, Md., Reg. No. 1,746,146, for the mark "HORIZON MUSIC FEST AND DESIGN", Canc. No. 27,249.

JEAN BROWN
Technical Program Manager
Trademark Trial
and Appeal Board, for
ROBERT M. ANDERSON
Deputy Assistant Commissioner
for Trademarks

Service by Publication

A petition to cancel the registration identified below having been filed, and the notice of such proceeding sent by certified mail to registrant at the last known address having been returned by the Postal Service as undeliverable, notice is hereby given that unless the registrant listed herein, its assigns or legal representatives, shall enter an appearance within thirty days of this publication, the cancellation will proceed as in the case of default.

Nobel Technologies, Inc., Burke, Va., Reg. No. 1,837,347, for the mark "Easymail", Canc. No. 27,238.

Yogo Limited Partnership, Beltsville, Md., Reg. No. 556,999, for the mark "YOGO", Canc. No. 26,701.

Foremost Dairies, Inc., Los Angeles, Calif., Reg. No. 1,105,729, for the mark "GOLDEN STATE AND DESIGN", Canc. No. 26,691.

KATRINA PETERSON
Supervisory Legal Assistant
Trademark Trial and
Appeal Board, for
ROBERT M. ANDERSON
Deputy Assistant Commissioner
for Trademarks

"Expedited Local" and "At Cost" Services for Certified and Uncertified Copies of Patent and Trademark Office Documents

Expedited Local Service

The Patent and Trademark Office (PTO) offers **"expedited local service"** for three products: (1) uncertified patent and trademark copies; (2) certified copies of both patent and trademark applications-as-filed; and (3) certified copies of trademark registrations (status and title). Customers can routinely order these expedited services, which are specifically identified by separate codes in the PTO's fee schedule. Orders for "expedited local service" on these three products may be placed in one of four ways: (1) delivered in person to the Office of Public Records (OPR) Customer Service Counter, Crystal Gateway 4, Suite 300; (2) placed in drop boxes located in PTO search room facilities; (3) faxed to (703) 308-9759; or (4) delivered via overnight delivery services directly to OPR at the following address:

U.S. Patent and Trademark Office
Office of Public Records
Customer Service, 3rd Floor
1213 Jefferson Davis Highway
Arlington, Va. 22202

Orders marked "Expedite" within the product lines described above will be processed as "regular service" orders if the correct fee does not accompany the order. Please note that orders with notations such as "Please Rush", "Urgent", or "Please Expedite", and which fall outside the product lines offering "expedited local service," do not receive special processing.

Customers should note that orders for "expedited local service" are processed based on the date of receipt, not on the method of delivery to OPR; fax and overnight delivery service orders have the same priority as hand-delivered orders received on the same day. Similarly, completed orders for "expedited local service" are closed and shipped without regard to the requested delivery method or location.

At Cost Service

The Office's fee schedule does not specifically provide for other expedited document delivery, largely because of the uncertainty and risk involved in promising services for which either the media/papers to satisfy the order or PTO staff support might not be available. However, the Office recognizes that there are situations, such as litigation, due dates imposed by foreign intellectual property offices, or pending commercial transactions, which require an extraordinary level of service in order to meet a most urgent deadline. Accordingly, the OPR practice has been to receive and process these requests on a case-by-case basis, and to charge for them based on the published product/service fee code, plus a combination of "Labor Services" (484, 584) and "Other Services at Cost" (485,585). This commonly has been referred to as **"at cost service."**

OPR's ability to provide "at cost" services for copies of patent and trademark documents is based largely upon the ready availability of source documents, either on microform or via access to electronic images. Consequently, orders for copies of file wrappers and contents usually cannot be accepted for filling on an "at cost" basis. While every effort will be made to assist all customers, the PTO cannot always guarantee delivery of documents on or before requested dates. Turnaround time for this service is dependent on the scope and complexity of the specific request, staff resources which can be diverted, and other priority orders in inventory.

Requests for "at cost" services must be in writing and on letterhead from the applicant, attorney of record, or the assignee. The letter must state the reason for requesting "at cost" service, such as active litigation or a pending commercial transaction. The letter must also include the dates the documents are needed. Detailed justification/disclosure of commercial or confidential business information is not required, but there must be a clear sense of urgency in the request.

Requests for "at cost" services may be placed in one of three ways: (1) hand delivered to the OPR Customer Service Counter in Crystal Gateway 4, Suite 300; (2) faxed to (703) 308-9759; (3) or sent via overnight delivery service directly to OPR at the following address:

U.S. Patent and Trademark Office
Office of Public Records
Customer Service, 3rd Floor
1213 Jefferson Davis Highway
Arlington, Va. 22202

Based on a review of the specific request, a Customer Service Representative will contact the requester to discuss the feasibility of meeting the deadline and the total cost involved. The minimum charge for filling an "at cost" order for copies of patent and trademark documents will be $120 (3 hours labor at $40 per hour), plus the published product/service fee per copy. Customers will be asked to approve all charges before any work begins. Customers sending requests via overnight delivery services must specify payment via PTO deposit account, MasterCard, or Visa. "Walkup" customers also may pay by check at the PTO Office of Finance Cashier in Crystal Gateway 4 following discussions with OPR Customer Services staff and acceptance of their order.

"At cost" service requests dropped at PTO search room locations or sent to the general PTO address will be processed as "regular service" orders. "At cost" orders are processed based on the date of acceptance, not on the method of delivery to OPR; "at cost" requests sent via fax and overnight delivery service go through the same review and acceptance process as those hand-delivered. Regardless of which method is used to transmit an "at cost" request, the customer designated point-of-contact should have full authority to discuss the requirement; be able to discuss the impact of any possible change in the expected due date; and be authorized to make payment in full.

Completed "at cost" orders will be sent to the customer via overnight delivery service to ensure continuous tracking while in transit and to confirm receipt. On request, completed "at cost" orders may be picked up/signed for at the OPR Customer Service Counter.

Questions concerning either "expedited local service" or "at cost" services for copies of patent and trademark documents should be directed to OPR Customer Service at (703) 308-9726, or via e-mail address at certdiv@uspto.gov.

May 29, 1998

WESLEY H. GEWEHR
Administrator for
Information Dissemination

Certificates of Correction for July 21, 1998

B1-5280135
D. 390,204
D. 390,235
D. 392,291
D. 394,680
D. 394,810
5,059,610
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5,531,015
5,538,637
5,541,206

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1
2
1
2
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3
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5,547,575
5,551,473
5,554,773
5,555,018
5,555,684
5,560,808
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5,708,154
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5,738,128
5,738,775
5,738,829
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5,746,976
5,747,556
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5,752,738
5,752,797
5,753,234
5,753,433
5,753,824
5,754,128
5,754,331
5,754,835
5,760,982

Summary of Final Decisions Issued by the Trademark Trial and Appeal Board

June 1-5, 1998

Date Issued	Type of Case[1]	Proceeding or App'n No.	Party/Parties	Issue	TTAB Decision	Opposer's/Petitioner's Mark and Goods/Services	Applicant's/ Respondent's Mark and Goods/Services	Mark and Goods Cited by Examining Attorney	Citable as Precedent of TTAB
6-2	OPP OPP OPP OPP OPP OPP (SJ)	97,223 97,274 96,029 96,808 97,273 97,542	U.S. Olympic Committee v. Lifetime Products, Inc.	2(d)	Oppositions Sustained [motion for summary judgment granted]	"TEAM USA" [promoting Olympic Games; t-shirts and other items of clothing]	"TEAM USA" (and design) [portable basketball standards, backboards, and goals; basketballs; t-shirts and athletic shorts; basketball backboards]		No
6-2	EX	74/379,085	Storopack Hans Reichenecker GmbH & Co.	2(e)(1)	Refusal Affirmed		"PAPERFILL" [pourable packaging materials for use in shipping goods]		No
6-2	EX (R)	74/575,074	H. E. Butt Grocery Co.	Sec. 6 disclaimer requirement (of words "OUR OWN ORIGINAL")	Request for Reconsideration Denied (Refusal Affirmed)		"DR. B—OUR OWN ORIGINAL—H-E-B" (and design) [carbonated non-alcoholic soft drinks]		No
6-4	CANC	24,983	Christine D. Funcik v. B. Dazzle, Inc.	2(d) [priority]; laches	Petition to Cancel Granted	"KIDS ON THE GO" [books]	"KIDS ON THE GO" [children's activity books]		No
6-4	EX	74/658,141	Carolina Apparel	2(e)(2)	Refusal Affirmed		"CAROLINA APPAREL" [retail clothing services]		No
6-4	EX	74/628,372	Lake Norman Chrysler-Plymouth-Dodge, Inc.	2(e)(2)	Refusal Affirmed		"THE TRUCK CENTER OF THE SOUTH" [vehicle dealership services]		No
6-4	CANC	23,598	The Scientist, Inc. v. MicroMath, Inc.	2(d)	Petition to Cancel Denied	"THE SCIENTIST" [newspaper]	"SCIENTIST" [computer software and instruction manuals, sold as a unit, for performing numerical analysis and plotting]		No

[1] EX=EX PARTE APPEAL; OPP=OPPOSITION; CANC=CANCELLATION; CU=CONCURRENT USE; (SJ)=SUMMARY JUDGMENT; (R)=REQ. FOR RECONSIDERATION; (MD)=MOTION TO DISMISS; (MR)=MOTION TO REOPEN

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Date Issued	Type of Case(1)	Proceeding or App'n No.	Party/Parties	Issue	TTAB Decision	Opposer's/Petitioner's Mark and Goods/Services	Applicant's/Respondent's Mark and Goods/Services	Mark and Goods Cited by Examining Attorney	Citable as Precedent of TTAB
6-5	OPP	93,813	Rudolf Wild GmbH & Co. KG v. I Uno Espresso, Inc.	2(d)	Opposition Dismissed	"CAPRI SUN" [fruit drinks]	"CAPRI" [whole and ground coffee beans, espresso and other coffee beverages]		No
6-5	OPP (SJ)	93,830	Vaughn Russell Candy Co. and Toymax Inc. v. Cookies in Bloom, Inc.	whether a contractual agreement between the parties negates applicant's claim of a right to use its mark in commerce	Opposition Sustained [motion for summary judgment granted]	"INCREDIBLE EDIBLES" [confections]	"COOKIES IN BLOOM 'INCREDIBLE EDIBLE COOKIE ARRANGEMENTS'" (and design) [decorated cookies]		Yes
6-5	EX	74/551,253	The Pilot Funds	2(d)	Refusal Reversed		"THE PILOT FUNDS" [mutual fund investment service offered to bank and trust company customers]	"PILOT PLUS" [security brokerage services, namely, securities executions in a brokerage account on an annual fee basis in lieu of commissions on individual transactions]	No
6-5	EX	74/658,746	Auto Parts Club, LLC	2(e)(1) [genericness]	Refusal Affirmed		"AUTO PARTS CLUB" [discount wholesale and retail store services in the field of automotive parts]		No

(1)EX=EX PARTE APPEAL; OPP=OPPOSITION; CANC=CANCELLATION; CU=CONCURRENT USE; (SJ)=SUMMARY JUDGMENT; (R)=REQ. FOR RECONSIDERATION; (MD)=MOTION TO DISMISS; (MR)=MOTION TO REOPEN

SPECIAL BOXES FOR PATENT MAIL

Special box designations should be used to allow forwarding of particular types of mail to the appropriate areas as quickly as possible. Such mail is forwarded to the appropriate area without being opened. Only the specified type of document should be placed in an envelope addressed to one of these special boxes. If any documents other than the specified type identified for each special box are addressed to that box, they will be significantly delayed in reaching the appropriate area for which they are intended.

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Box Designations	Explanation
Box 7	Reissue applications for patents involved in litigation and subsequently filed related papers.
Box 12	Contributions to the Examiner Education Program.
Box 313b	Petitions under 37 CFR 1.313(b) to withdraw a patent application from issue after payment of the issue fee and any papers associated with the petition, including papers necessary for filing a continuing application.
Box AF	Expedited procedure for processing amendments and other responses after final rejection.
Box Comments Patents	Public comments regarding patent related regulations and procedures.
Box CPA	Requests for Continued Prosecution Applications (CPA's) under 37 CFR 1.53(d).
Box DAC	Petitions decided by the Office of Petitions including petitions to revive and petitions to accept late payment of issue fees or maintenance fees.
Box DD	Disclosure Documents or materials related to the Disclosure Document Program.
Box Design	The filing of all design patent applications and any communications relating thereto.
Box Issue Fee	All communications following the receipt of a PTOL–85, "Notice of Allowance and Issue Fee Due," and prior to the issuance of a patent should be addressed to Box Issue Fee, unless advised to the contrary. Assignments are the exception. Assignments should be submitted in a separate envelope and not be sent to Box Issue Fee.
Box Missing Parts	Response to the Notice to File Missing Parts of Application and associated papers and fees.
Box MPEP	Submissions concerning the Manual of Patent Examining Procedures.
Box Non-Fee Amendment	Non-fee amendments to patent applications. (Use Box AF for responses after final rejection).
Box PATENT APPLICATION	New patent applications and associated papers and fees.
Box Patent Ext.	Applications for patent term extension and any communications relating thereto.
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Box Reconstruction	Correspondence pertaining to the reconstruction of lost patent files.
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Box Sequence	Submission of diskette for biotechnical application.
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SPECIAL BOXES FOR TRADEMARK MAIL

Special box designations should be used to allow forwarding of particular types of trademark mail to the appropriate areas as quickly as possible. In addition to these box designations, filers are encouraged to indicate whether the contents of the envelope contain a fee. Envelopes containing a fee should be marked "FEE;" envelopes not containing a fee should be marked "NO FEE." Box designations and "FEE/NO FEE" indicators should appear on the envelope as well as on the cover sheet or first page of any document.

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2900 Crystal Drive
Arlington, Virginia 22202-3513

Box Designations	Explanation
Box NEW APP FEE	New trademark applications and fees.
Box ITU FEE	Statements of Use (SOUs) and extension requests.
Box TTAB FEE	Oppositions, cancellation petitions, and ex parte appeals.
Box TTAB NO FEE	Interferences, motions, and extension requests.
Box STATUS NO FEE	Written status inquiries.
Box POST REG FEE	Affidavits, renewals, corrections and amendments.
Box RESPONSES NO FEE	Responses to Examining Attorneys' Office actions and Post Registration actions.

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Box Designations	Explanation
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Box 4	Mail for the Deputy Assistant Secretary of Commerce and Deputy Commissioner of Patents and Trademarks; Office of Legislative and International Affairs.
Box 6	Mail for the Office of Procurement.
Box 8	All papers for the Office of the Solicitor *except* communications relating to *pending litigation and disciplinary proceedings*; papers relating to pending litigation in court cases shall be mailed only to Office of the Solicitor, P.O. Box 15667, Arlington, Virginia 22215 and papers relating to pending disciplinary proceedings before the Administrative Law Judge or the Commissioner shall be mailed only to the Office of the Solicitor, P.O. Box 16116, Arlington, Virginia 22215.
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Box 10	Orders for certified copies of PTO documents.
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Box 13	Mail for the Employee and Labor Relations Division.
Box 14	Mail directed to the APS Contracts Office.
Box 16	Deposit Account Replenishment Checks.
Box 17	Invoices directed to the Office of Finance.
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Box EEO	Mail for the Office of Civil Rights.
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Reference Collections of U.S. Patents and Trademarks Available for Public Use in Patent and Trademark Depository Libraries

The following libraries, designated as Patent and Trademark Depository Libraries (PTDLs), receive patent and trademark information from the U.S. Patent and Trademark Office. Many PTDLs have on file patents issued since 1790, trademarks published since 1872, and select collections of foreign patents. All PTDLs receive both the patent and trademark sections of the *Official Gazette of the U.S. Patent and Trademark Office* and numerical sets of patents in a variety of formats. Patent and trademark search systems in the Cassis CD-ROM series are available at all PTDLs to increase access to that information. It is through the CD-ROM systems and other depository materials that preliminary patent and trademark searches may be conducted through the numerically arranged collections.

Each PTDL offers reference publications which outline and provide access to the patent and trademark classification systems, as well as other documents and publications which supplement the basic search tools. PTDLs provide technical staff assistance in using all materials.

All information is available for use by the public free of charge. However, there may be charges associated with the use of on-line systems, photocopying and related services.

Since there are variations in the scope of patent and trademark collections among the PTDLs, and their hours of service to the public vary, anyone contemplating use of these collections at a particular library is urged to contact that library in advance about its collections, services, and hours in order to avert possible inconvenience.

Partnership PTDLs provide enhanced and expanded services for which fees are charged. They offer on-line patent text and image searching, on-line trademark searching, and videoconferencing for examiner interviews and workshops. They accept disclosure documents on site, order file wrappers, assignment documents and certified copies for their customers, and host a variety of seminars aimed at specific audiences, including practitioners, paralegals, and independent inventors. Currently, partnerships are located at the Great Lakes Patent and Trademark Center (GLPTC) at the Detroit Public Library in Detroit, Michigan and the Sunnyvale Center for Innovation, Invention and Ideas (SCI^3) in Sunnyvale, California.

State	*Name of Library*	*Telephone Contact*
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	Birmingham Public Library	(205) 226-3620
Alaska	Anchorage: Z.J. Loussac Public Library	(907) 562-7323
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Arkansas	Little Rock: Arkansas State Library	(501) 682-2053
California	Los Angeles Public Library	(213) 228-7220
	Sacramento: California State Library	(916) 654-0069
	San Diego Public Library	(619) 236-5813
	San Francisco Public Library	(415) 557-4500
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Idaho	Moscow: University of Idaho Library	(208) 885-6235
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Indiana	Indianapolis-Marion County Public Library	(317) 269-1741
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Iowa	Des Moines: State Library of Iowa	(515) 281-4118
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Kentucky	Louisville Free Public Library	(502) 574-1611
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Maine	Orono: Raymond H. Fogler Library, University of Maine	(207) 581-1678
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	Boston Public Library	(617) 536-5400 Ext. 265
Michigan	Ann Arbor: Media Union Library, University of Michigan	(313) 647-5735
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Minnesota	Minneapolis Public Library and Information Center	(612) 630-6120
Mississippi	Jackson: Mississippi Library Commission	(601) 359-1036
Missouri	Kansas City: Linda Hall Library	(816) 363-4600
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New Mexico	Albuquerque: University of New Mexico General Library	(505) 277-4412
New York	Albany: New York State Library	(518) 474-5355
	Buffalo and Erie County Public Library	(716) 858-7101
	New York Public Library (The Research Libraries)	(212) 592-7000
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Ohio	Akron - Summit County Public Library	(330) 643-9075
	Cincinnati and Hamilton County, Public Library of	(513) 369-6971
	Cleveland Public Library	(216) 623-2870
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	Toledo/Lucas County Public Library	(419) 259-5212
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	Nashville: Stevenson Science Library, Vanderbilt University	(615) 322-2717
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Washington	Seattle: Engineering Library, University of Washington	(206) 543-0740
West Virginia	Morgantown: Evansdale Library, West Virginia University	(304) 293-2510 Ext. 113
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	Milwaukee Public Library	(414) 286-3051
Wyoming	Casper: Natrona County Public Library	(307) 237-4935

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LAWRENCE J. GOFFNEY Jr., Assistant Commissioner for Patents
NICHOLAS P. GODICI, (Acting) Deputy Assistant Commissioner for Patents
STEPHEN G. KUNIN, Deputy Assistant Commissioner for Patent Policy

PATENT EXAMINING GROUPS	Phone number Area Code 703	New Case Date*
CHEMICAL EXAMINING GROUPS		
GENERAL METALLURGICAL, INORGANIC, PETROLEUM AND ELECTRICAL CHEMISTRY, ENGINEERING AND DESIGNS, GROUP 1100—THEODORE MORRIS, Director	308-0661	01/10/96
ORGANIC CHEMISTRY, DRUG, BIO-AFFECTING AND BODY TREATING COMPOSITION, GROUP 1200/2900—JOHN E. KITTLE, Director	308-1235	06/18/96
SPECIALIZED CHEMICAL INDUSTRIES AND CHEMICAL ENGINEERING, GROUP 1300—RICHARD V. FISHER, Director	308-0651	07/15/96
HIGH POLYMER CHEMISTRY, PLASTICS, COATING, PHOTOGRAPHY STOCK MATERIALS AND COMPOSITIONS, GROUP 1500—MARY LEE, Acting Director	308-2351	05/20/96
BIOTECHNOLOGY, GROUP 1800—JOHN J. DOLL, Director	308-0196	11/09/95
ELECTRICAL EXAMINING GROUPS		
INDUSTRIAL ELECTRONICS, PHYSICS AND RELATED ELEMENTS, GROUP 2100—STEWART LEVY, Director	308-1782	11/06/95
SPECIAL LAWS AND ADMINISTRATION, GROUP 2200—ROBERT E. GARRETT, Director	308-0511	04/12/96
COMPUTER SYSTEMS AND COMPUTER APPLICATION, GROUP 2300—JOSEPH J. ROLLA, Director	305-3900	04/12/96
SPECIAL COMPUTER APPLICATIONS: COMPUTER GRAPHICS, BUSINESS PRACTICES, & DIAGNOSTIC TESTING, GROUP 2400—GERALD GOLDBERG, Director	305-3900	12/15/95
ELECTRONIC AND OPTICAL SYSTEMS AND DEVICES, GROUP 2500—JANICE A. HOWELL, Director	308-0956	10/14/96
TELECOMMUNICATIONS, GROUP 2600—JIN F. NG, Director	305-3900	09/13/95
DESIGN, GROUP 2900—JOHN E. KITTLE, Director	305-3293	06/07/96
MECHANICAL EXAMINING GROUPS		
HANDLING AND TRANSPORTATION MEDIA, GROUP 3100—JOHN F. TERAPANE, JR., Director	308-1113	12/08/95
MATERIAL SHAPING, ARTICLE MANUFACTURING AND TOOLS, GROUP 3200—ETHEL CROSS, Director	308-1148	02/04/97
MEDICAL INSTRUMENTS, DIAGNOSTIC EQUIPMENT AND TREATMENT DEVICES; SURGERY AND SURGICAL SUPPLIES; AMUSEMENT AND EXERCISING DEVICES; ANIMAL HUSBANDRY; SPORTING GOODS; TOBACCO PRODUCTS AND MANUFACTURING EQUIPMENT; AND PRINTING, GROUP 3300—J.J. LOVE, Director	308-0858	01/31/96
SOLAR, HEAT, POWER, AND FLUID ENGINEERING DEVICES, GROUP 3400—DONALD G. KELLY, Director	308-0861	02/06/96
GENERAL CONSTRUCTION, PETROLEUM AND MINING ENGINEERING, GROUP 3500—A.L. SMITH, Director	308-2168	01/14/97

*A communication from the examiner should have been received in most applications filed prior to this date.

Patents will Expire as Follows:
(1) The term of any utility or plant patent that is in force on or results from an application filed before June 8, 1995 is the greater of the 20 year term provided in 35 U.S.C. 154(a)(2) or 17 years from grant subject to any terminal disclaimers. 35 U.S.C. 154(c)(1).
(2) All utility and plant patents granted on applications having an actual United States filing date on or after June 8, 1995 are granted for a term which begins on the date on which the patent is granted and ends 20 years from the date on which the application was filed in the United States. If the application contains a specific reference to an earlier application under 35 U.S.C. 120, 121 or 365(c), the patent term ends twenty years from that date on which the earliest application was filed. 35 U.S.C. 154(a)(2).
(3) All design patents are granted for a term of 14 years from the date of the grant.
However, the term of any patent may have been curtailed by disclaimer under the provisions of 35 U.S.C. 153, have lapsed due to failure to pay maintenance fees, or have been extended under the provisions of 35 U.S.C. 154, 155, or 156. Thus, if more reliable information is needed with respect to a particular patent, then the specific patent file should be reviewed to determine the actual date of patent expiration.

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TRADEMARK OPERATION

Bruce A. Lehman, Commissioner
Philip G. Hampton, II, Assistant Commissioner
Robert M. Anderson, Deputy Assistant Commissioner
David E. Bucher, Director, Trademark Examining Office
Condition of Trademark Applications as of June 1, 1998

Law Office	Oldest Date	
	New*	Amendment Filed
Law Office 101—Ron Williams, Managing Attorney, (703) 308–9101—4th Floor Foods, Beverages, Wines & Spirits—Int. Classes 29, 30, 31, 32, 33 Services—Int. Classes 35, 36, 37, 38, 39, 40, 41, 42	01/09/98	03/16/98
Law Office 102—Thomas Shaw, Acting Managing Attorney, (703) 308–9102—5th Floor Scientific Equipment & Furniture—Int. Classes 9, 20 Services—Int. Classes 35, 36, 37, 38, 39, 40, 41, 42	10/14/97	02/11/98
Law Office 103—Michael A. Szoke, Acting Managing Attorney, (703) 308–9103—5th Floor Scientific Equipment & Furniture—Int. Classes 9, 20 Services—Int. Classes 35, 36, 37, 38, 39, 40, 41, 42	09/16/97	05/01/98
Law Office 104—Sidney Moskowitz, Managing Attorney, (703) 308–9104—6th Floor Unwrought metals, Industrial Equipment, Tools, Installation, Vehicles, Firearms, Musical Instruments, Building Materials & Floor Coverings—Int. Classes 6, 7, 8, 11, 12, 13, 15, 19, 27 Services—Int. Classes 35, 36, 37, 38, 39, 40, 41, 42	08/21/97	03/05/98
Law Office 105—Thomas Howell, Managing Attorney, (703) 308–9105—6th Floor Chemicals, Paints, Lubricants, Pharmaceuticals, Medical Apparatus & Tobacco—Int. Classes 1, 2, 4, 5, 10, 34 Services—Int. Classes 35, 36, 37, 38, 39, 40, 41, 42	10/14/97	02/12/98
Law Office 106—Mary Sparrow, Managing Attorney, (703) 308–9106—7th Floor Cosmetics, Cleaning Preparations, Paper Products & Toys—Int. Classes 3, 16, 28 Services—Int. Classes 35, 36, 37, 38, 39, 40, 41, 42	10/31/97	04/14/98
Law Office 107—Thomas Lamone, Managing Attorney, (703) 308–9107—7th Floor Cosmetics, Cleaning Preparations, Paper Products & Toys—Int. Classes 3, 16, 28 Services—Int. Classes 35, 36, 37, 38, 39, 40, 41, 42	01/09/98	03/10/98
Law Office 108—David Shallant, Managing Attorney, (703) 308–9108—8th Floor Precious metals, Fibers, Leather goods, Housewares, Cordage, Yarns, Fabrics, Clothing & Notions—Int. Classes 14, 17, 18, 21, 22, 23, 24, 25, 26 Services–Int. Classes 35, 36, 37, 38, 39, 40, 41, 42	08/27/97	01/21/98
Law Office 109—Deborah Cohn, Managing Attorney, (703) 308–9109—8th Floor Precious metals, Fibers, Leather goods, Housewares, Cordage, Yarns, Fabrics, Clothing & Notions—Int. Classes 14, 17, 18, 21, 22, 23, 24, 25, 26 Services—Int. Classes 35, 36, 37, 38, 39, 40, 41, 42	08/21/97	04/14/98
**Collective Marks—Class 200 **Certification Marks—Classes A & B		
Office of Trademark Services—Terron Simms, Director, (703) 308-9100 Trademark Assistance Center—(703) 308-9000 Pre-Examination—Alan Lambert, Supervisor, (703) 308-9401 ext. 188 Intent-To-Use—(ITU)—(703) 308-9500 Post Registration Section—Mary Bowman, Supervisor, (703) 308-9500 ext. 126		
Affidavits Under Sections 8 & 15 (All Classes)	04/20/98	—0—
Renewals (All Classes)	04/20/98	—0—
Section 12(c) Publications (All Classes)	03/16/98	—0—

1. ** Assigned to all Law Office

2. Applicants with inquiries concerning the status of their applications and a touch telephone should call (703) 305–8747 from 6:30 a.m. to Midnight EST, Monday through Friday. This automated voice system will provide the current status of your application. Applicants are urged not to file unnecessary inquiries concerning the status of their applications. See SECTION 411 of the TRADEMARK MANUAL OF EXAMINING PROCEDURE.

3. * These dates identify the oldest unassigned new case in each Law Office. All cases with earlier dates have either been examined and made the subject of an action or are currently being worked on by the assigned examining attorney.

REEXAMINATIONS

JULY 21, 1998

Matter enclosed in heavy brackets [ ] appears in the patent but forms no part of this reexamination specification; matter printed in italics indicates additions made by reexamination.

B1 4,372,034 (3575th)
PROCESS FOR FORMING CONTACT OPENINGS THROUGH OXIDE LAYERS

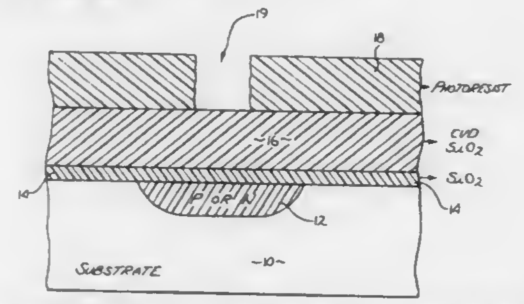
Mark T. Bohr, Aloha, Oreg., assignor to Intel Corporation, Santa Clara, Calif.

Reexamination Request No. 90/003,703, Jan. 27, 1995.

Reexamination Certificate for Patent 4,372,034, issued Feb. 8, 1983, Ser. No. 248,013, Mar. 26, 1981.

Int. Cl.^{6} H01L *21/265;21/31*

U.S. Cl. 438—624



AS A RESULT OF REEXAMINATION, IT HAS BEEN DETERMINED THAT:

Claims **1–10** are cancelled.

1. In the fabrication of an integrated circuit, where a substrate is covered with a thermally grown oxide layer and where a substantially thicker deposited oxide layer containing phosphorus is formed over the grown oxide layer, a process for forming an opening and tapered contact through the oxide layers to expose a region in the substrate comprising the steps of:

forming a photoresist layer over said deposited oxide layer with an opening through said photoresist layer over said region;

etching through said phosphorus containing deposited oxide layer with a wet etchant such that a tapered opening is formed through said deposited oxide layer extending to said grown oxide layer;

removing said photoresist layer; and,

forming an ohmic contact in said tapered opening through said oxide layers;

whereby a tapered contact is formed through said oxide layers.

B3 4,433,070 (3576th)
CULTURED ONYX PRODUCTS AND METHODS THEREFOR

Gilbert B. Ross, Northridge, and Theodore E. Stevens, Azusa, both of Calif., assignors to Spectrum 21 Licensing Corp., New York, N.Y.

Reexamination Request No. 90/004,279, Jun. 13, 1996.

Reexamination Certificate for Patent 4,433,070, issued Feb. 21, 1984, Ser. No. 146,749, May 5, 1980.

Reexamination Certificate B1 4,433,070, issued Jul. 2, 1991, B1 4,433,070, issued Feb. 10, 1987.

Int. Cl.^{6} C08L *67/06;* **C09D** *5/29;* **B44F** *9/04*

U.S. Cl. 523—171

AS A RESULT OF REEXAMINATION, IT HAS BEEN DETERMINED THAT:

The patentability of claim **28** is confirmed.

Claims **1**, **9**, **13**, **15**, **17**, **26** and **27** are determined to be patentable as amended.

Claims **2–8**, **10–12**, **14**, **16** and **18–25**, dependent on an amended claim, are determined to be patentable.

1. A shaped structure having a polishable cultured onyx, cultured marble, or like mineral-appearing surface of predetermined hardness, said structure comprising a locally discontinuous phase comprising a thermosetting synthetic organic resin portion *previously completely* hardened to said predetermined hardness and a visually distinguishable continuous phase comprising a thermosetting synthetic organic resin portion *subsequently and* separately *completely* hardened to said predetermined hardness from a liquid with said *completely hardened* discontinuous phase intimately distributed therein, said discontinuous phase comprising from about 5% to 55% of the weight of said structure, whereby said structure surface is simulative of onyx or like mineral appearance and uniformly polishable in phase undifferentiated relation.

B1 5,166,178 (3577th)
OCULAR HYPOTENSIVE AGENTS

Ryuzo Ueno, and Ryuji Ueno, both of Nishinomiya, Japan, assignors to R-Tech Ueno, Ltd., Osaka, Japan

Reexamination Request No. 90/004,459, Nov. 19, 1996.

Reexamination Certificate for Patent 5,166,178, issued Nov. 24, 1992, Ser. No. 760,269, Sep. 16, 1991.

Division of Ser. No. 584,669, Sep. 19, 1990, which is a continuation of Ser. No. 246,059, Sep. 19, 1988, Pat. No. 5,001,153.

Claims priority, application Japan, Sep. 18, 1987, 62-235890; Dec. 29, 1987, 62-334037

Int. Cl.^{6} A61K *31/19;31/215*

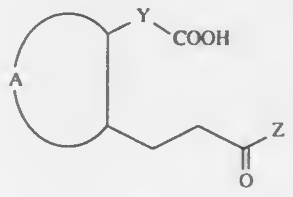
U.S. Cl. 514—573

AS A RESULT OF REEXAMINATION, IT HAS BEEN DETERMINED THAT:

Claims **1**, **4** and **5** are determined to be patentable as amended.

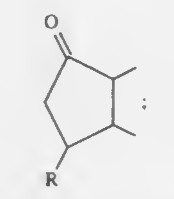
Claims **2**, **3**, **6** and **7**, dependent on an amended claim, are determined to be patentable.

1. A topical ocular composition comprising an amount effective as an ocular hypotensive agent of a 13,14-dihydro-15-keto prostaglandin, *except 13,14-dihydro-15- keto-PGE$_2$ and its physiolagically acceptable salts and carboxylic acid esters,* represented by the formula (I):



(I)

wherein A is



[wherein] R is hydroxy, hydroxy C_{1-3} alkyl or C_{1-2} alkyl; Y is a saturated or unsaturated C_{2-6} hydrocarbon chain which is unsubstituted or substituted by oxo, halogen, an alkyl group or hydroxyl; Z is a C_{1-10} saturated or unsaturated hydrocarbon forming a straight-chain, a branched-chain or a ring, which is unsubstituted or substi-

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tuted by halogen, an alkyl group, an alkoxy group, hydroxyl, a phenyl group or a phenoxy group; or the physiologically acceptable salts and carboxylic acid esters of the compounds of formula (I); and a pharmaceutically acceptable carrier.

B1 5,422,821 (3578th)

APPARATUS FOR INTERCEPTING AND FORWARDING INCORRECTLY ADDRESSED POSTAL MAIL

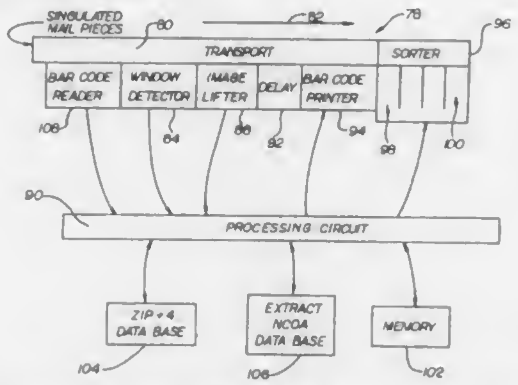
Ronald L. Allen, Grand Prairie; Brenda J. Bishop-Jones; Michael J. Cykana, both of Arlington; Eddie K. Lui, Euless, and Stanley W. Sipe, Arlington, all of Tex., assignors to Electrocom Automation, L.P., Arlington, Tex.

Reexamination Request No. 90/004,579, Mar. 13, 1997.

Reexamination Certificate for Patent 5,422,821, issued Jun. 6, 1995, Ser. No. 864,437, Apr. 6, 1992.

Int. Cl.⁶ G06F *17/60*

U.S. Cl. 364—478.07



AS A RESULT OF REEXAMINATION, IT HAS BEEN DETERMINED THAT:

Claims **1–21**, **24**, **29**, **30**, **33**, **34**, **37–40** and **41** are determined to be patentable as amended.

Claims **22**, **23**, **25–28**, **31**, **32**, **35** and **36** dependent on an amended claim are determined to be patentable.

New claims **42–48** and **49** are added and determined to be patentable.

1. A mailpiece processing system *for forwarding identification*, comprising:

[means] *a data scanner* for reading a destination address and an addressee name from a mailpiece in a stream of correctly and incorrectly addressed mailpieces;

[means] *a processor* for comparing the read destination address and addressee name to a list of incorrect destination addresses and addressee names;

[means] *said processor* responsive to the comparison for identifying the mailpiece as an incorrectly addressed mailpiece *only* when *both* the destination address and addressee name and the mailpiece match an incorrect destination address and addressee name on the list; and

[means] *a mailpiece sorter* for sorting the [item] *mailpiece* from the stream of mailpieces to divert the identified incorrectly addressed mailpiece to a designated area.

B1 5,533,379 (3579th)

METHOD OF FORMING A HEAD ON A FASTENER

John Binder, Morton Grove; Henry W. Schniedermeier, Niles; Lawrence S. Shelton, Morton Grove; Henry A. Sygnator, Arlington Heights, and William L. Gabriel, Barrington, all of Ill., assignors to Illinois Tool Works Inc., Glenview, Ill.

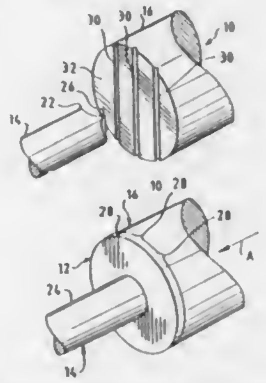
Reexamination Request No. 90/004,685, Jul. 3, 1997.

Reexamination Certificate for Patent 5,533,379, issued Jul. 9, 1996, Ser. No. 486,676, Jun. 7, 1995.

Division of Ser. No. 136,647, Oct. 14, 1993, Pat. No. 5,476,351.

Int. Cl.⁶ B21G *3/12*

U.S. Cl. 72—316



AS A RESULT OF REEXAMINATION, IT HAS BEEN DETERMINED THAT:

Claim **12** is cancelled.

Claim **1** is determined to be patentable as amended.

Claims **2–11** and **13–16**, dependent on an amended claim, are determined to be patentable.

1. A method of forming a head on an elongate member *so as to form a headed fastener*, comprising the steps of:

positioning an end portion of an elongate member, *having a longitudinal axis*, at a predetermined location; and

exerting an axially compressive force against said end portion of said elongate member so as to [radially outwardly] expand a [predetermined] *first* amount of material of said end portion of said elongate member *radially outwardly* and thereby form a head [thereon which includes] *upon said end portion of said elongate member, and to cause a second amount of material of said end portion of said elongate member to flow in opposite directions away from a central portion of said formed head so as to form* a plurality of ribs, [all] disposed parallel with respect to each other and *extending across said head so as to also be disposed parallel* with respect to a single diameter of said head [and extending across said head], for controlling the flow of said *first amount of* material, comprising said end portion of said elongate member *and used to form said head upon said end portion of said elongate member*, [in a predetermined direction parallel to said single diameter, and for] *by* accommodating said *second amount of* material comprising said end portion of said elongate member as said *first amount of* material comprising said end portion of said elongate member is expanded radially outwardly with respect to said elongate member of said fastener during said axial compression of said end portion of said elongate member and said formation of said head upon said elongate member such that said head has a [predetermined] *substantially circular* configuration and wherein said head is substantially centered with respect to *said* longitudinal axis of said elongate member.

REISSUES

JULY 21, 1998

Matter enclosed in heavy brackets [ ] appears in the original patent but forms no part of this reissue specification; matter printed in italics indicates additions made by reissue.

Re. 35,850

Patent Not Issued For This Number

Re. 35,851

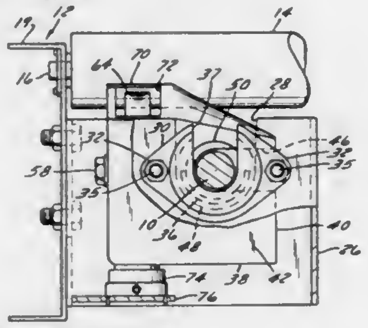
HIGH SPEED LINESHAFT-DRIVEN ACCUMULATING CONVEYOR

Ellsworth H. Collins, Mt. Washington; William A. Fultz, and James F. Mattingly, both of Louisville, all of Ky., assignors to Interlake Material Handling, Inc., Shepherdsville, Ky.

Original No. 5,375,696, dated Dec. 27, 1994, Ser. No. 168,474, Dec. 16, 1993. Continuation-in-part of Ser. No. 14,378, Feb. 5, 1993, Pat. No. 5,287,956. Application for reissue Feb. 2, 1996, Ser. No. 595,784

Int. Cl.⁶ B65G *13/06*

U.S. Cl. 198—781.06 **15 Claims**



1. A conveyor, comprising:

a conveyor frame *defining elongated openings*;

at least one conveyor roller mounted *in said elongated openings* on said conveyor frame *and having an axis of rotation*;

a drive shaft extending along said conveyor frame;

at least one drive wheel rotatable about its axis and driven from said drive shaft, *the axis of said drive wheel being parallel to the axis of said conveyor roller at least when the drive wheel and roller are in driving engagement*;

wherein said conveyor roller and drive wheel are mounted for relative motion between them, such that, in a first position, said conveyor roller is driven from said drive wheel *by contact with the outer surface of the conveyor roller*, and, in a second position, said one conveyor roller is out of driving engagement with said drive wheel*; and further comprising an actuator which automatically moves said roller downwardly relative to said elongated openings, into driving contact with said drive wheel, and moves said roller upwardly relative to said elongated openings, out of driving engagement with said drive wheel*.

Re. 35,852

POWER SUPPLY FREQUENCY REGULATING DEVICE FOR VIBRATION WAVE DRIVEN MOTOR

Tadao Takagi, Yokohama, Japan, assignor to Nikon Corporation, Tokyo, Japan

Original No. 5,061,882, dated Oct. 29, 1991, Ser. No. 468,201, Jan. 22, 1990. Continuation of Ser. No. 138,833, Oct. 19, 1993, abandoned, which is a continuation of Ser. No. 361,744, May 30, 1989, Pat. No. 4,914,337, which is a continuation of Ser. No. 152,644, Feb. 5, 1988, abandoned. Application for reissue Feb. 28, 1995, Ser. No. 396,323

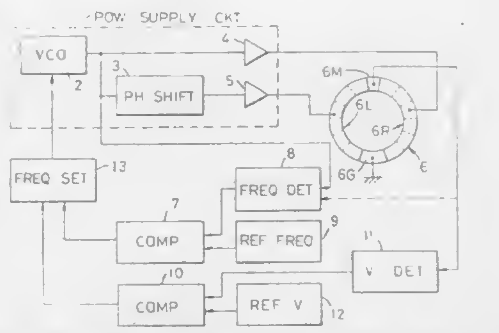
Claims priority, application Japan, Feb. 9, 1987, 62-27771

Int. Cl.⁶ H01L *41/08*

U.S. Cl. 318—116 **13 Claims**

7. A vibration driven motor comprising:

a movable member;



a stator member comprising a resilient member having a surface maintained in contact with said movable member, and a piezoelectric member adapted to be vibrated by an AC voltage to generate a vibration on the surface of said resilient member;

a power supply circuit which supplies said piezoelectric member with said AC voltage; and

circuitry which distinguishes whether a desired operating state of said motor is obtained or is not obtained while said AC voltage is supplied, said desired operating state being a state in which the amplitude of said vibration increases according to decrease of the frequency of said AC voltage, and which controls the frequency of said AC voltage so that when said circuity distinguishes that said desired operating state is not obtained, the frequency of said AC voltage is increased to a frequency within a predetermined frequency range.

Re. 35,853

Patent Not Issued For This Number

Re. 35,854

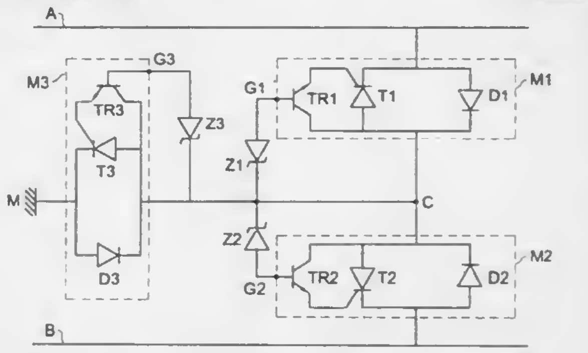
PROGRAMMABLE PROTECTION CIRCUIT AND ITS MONOLITHIC MANUFACTURING

Robert Pezzani, Vouvray, and Eric Bernier, Mettray, both of France, assignors to SGS-Thomson Microelectronics, S.A., Gentilly, France

Original No. 5,274,524, dated Dec. 28, 1993, Ser. No. 801,780, Dec. 6, 1991. Application for reissue Mar. 22, 1995, Ser. No. 407,976

Int. Cl.⁶ H02H *3/20;9/00*

U.S. Cl. 361—56 **31 Claims**



13. A programmable line protection component, comprising:

an anti-parallel association of a thyristor and a diode, said thyristor having an anode, a cathode, and a gate, and

a transistor having first and second current-carrying terminals thereof connected between said anode and said gate, and also having a control terminal.

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said thyristor, diode, and transistor all being integrated together in a common solid-state structure; and

a voltage thresholding component connected between said control terminal of said transistor and said anode of said thyristor.

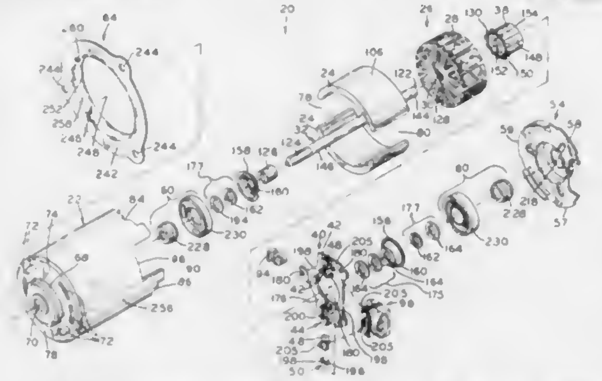
Re. 35,855
STRUCTURED PRODUCT DYNAMOELECTRIC MACHINE

Harald E. Blaettner, Hendersonville, Tenn.; Richard F. Uhen, Ft. Wayne, Ind.; Robert E. Ellis, Ft. Wayne, Ind.; Eldon R. Cunningham, Ft. Wayne, Ind.; Michael J. Usher, Ft. Wayne, Ind., and Joseph E. Miller, Ft. Wayne, Ind., assignors to General Electric Company, Fort Wayne, Ind.

Original No. 5,358,341, dated Oct. 25, 1994, Ser. No. 38,218, Mar. 29, 1993. Division of Ser. No. 805,080, Dec. 11, 1991, Pat. No. 5,237,231, which is a division of Ser. No. 423,827, Oct. 19, 1989, Pat. No. 5,113,104. Application for reissue Aug. 25, 1995, Ser. No. 519,211

Int. Cl.^{6} F16C *23/04;* **H02K** *5/16*

U.S. Cl. 384—204 **16 Claims**



1. A freely aligning bearing assembly for an electric motor comprising:

a sleeve bearing and a generally non-resilient retainer, operatively positioned in a bearing receiving means, for operatively interacting with a shaft, the retainer being adhesively held in position in the bearing receiving means after the establishment of a predetermined set of conditions therebetween, the same set of preconditions being repeatedly duplicatable in a plurality of individual bearing assemblies in a plurality of individual bearing receiving means despite dimensional variations in each individual sleeve bearing, each individual retainer and each individual bearing receiving means.

Re. 35,856
LIGHT SHIELDING APPARATUS

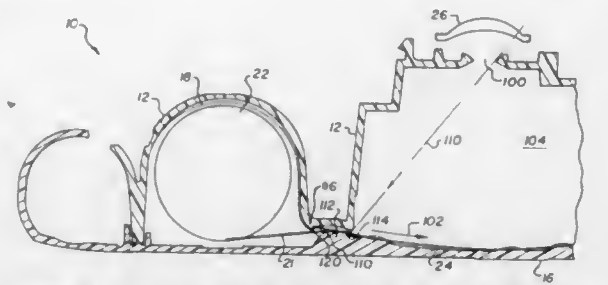
Douglas Harold Pearson, Rochester, N.Y., assignor to Eastman Kodak Company, Rochester, N.Y.

Original No. 5,555,052, dated Sep. 10, 1996, Ser. No. 327,251, Oct. 21, 1994. Application for reissue Feb. 12, 1997, Ser. No. 799,725

Int. Cl.^{6} G03B *17/00*

U.S. Cl. 396—440 **7 Claims**

2. A method of making a single use camera from previously used camera parts, comprising the steps of:



loading an unexposed roll of film into a film [roll] *cassette* chamber of a camera body; and

prewinding the unexposed roll of film from the film [roll] *cassette* chamber over a stepped piece which is integral to said camera body having a first step which is sufficiently raised to block light which can enter through a taking lens from entering [a] *the* film roll chamber and a second step which is raised above said first step for supporting the edges of film as it is prewound into the film roll chamber, wherein said second step is a raised portion of a pair of film rails bordering an exposure chamber to allow said first step to be built up to a sufficient height to block light from entering said film roll chamber.

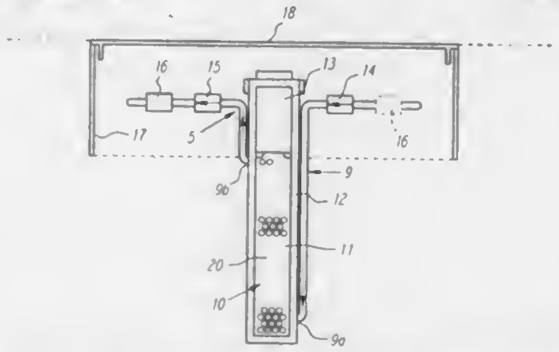
Re. 35,857
IRRIGATION SYSTEMS

Raphael Mehoudar, Tel Aviv, Israel, assignor to Hydroplan Engineering Ltd., Tel-Aviv, Israel

Original No. 5,294,212, dated Mar. 15, 1994, Ser. No. 865,100, Apr. 8, 1992. Continuation of Ser. No. 296,669, Aug. 26, 1994, abandoned. Application for reissue May 31, 1996, Ser. No. 653,064

Int. Cl.^{6} E02B *11/00*

U.S. Cl. 405—36 **1 Claim**



13. For use in an underground drip irrigation system, including a drip irrigation line having successive spaced apart drip outlets, an installation for deterring root growth into said outlets comprising an irrigation supply conduit coupled at one end thereof to said irrigation line and, at an opposite end thereof, to an irrigation supply; a filter casing encasing filtering elements coupled in-line with said irrigation supply conduit; and a slow release herbicide-impregnated material selected from a group consisting of synthetic polymer and rubber located within said casing, whereby irrigation flow from said irrigation supply to said drip irrigation line passes through said filtering elements, wherein said filtering elements located in said casing are formed of said slow release herbicide-impregnated material.

PLANT PATENTS
GRANTED JULY 21, 1998

Illustrations for plant patents are usually in color and therefore it is not practicable to reproduce the drawing.

10,508
AZALEA PLANT NAMED 'OSTALETT'

Otto Stahnke; Peter Dettmer, and Eleonore Dettmer, all of Bromer Strasse 104, 38524 Sassenburg-Grussendorf, Germany

Filed Feb. 19, 1997, Ser. No. 802,577

Int. Cl.^{6} A01H *5/00*

U.S. Cl. Plt.—56 **1 Claim**

1. A new and distinct Azalea plant named 'Ostalett', as illustrated and described.

10,509
AFRICAN VIOLET PLANT NAMED VAN GOGH

Reinhold Holtkamp, Sr., Rees-Haffen, Germany, assignor to International Plant Breeding A.G., Bern, Switzerland

Filed Feb. 7, 1997, Ser. No. 797,618

Int. Cl.^{6} A01H *5/00*

U.S. Cl. Plt.—69.1 **1 Claim**

1. A new and distinct cultivar of African violet plant named Van Gogh, as described and illustrated, and particularly characterized by its single violet-shaped multi-colored flowers with unique markings of large white centers contrasting with the dark lilac petals; strong, upright flower stems that curve slightly toward the center to form a compact bouquet above the leaves; medium green, heart-shaped leaves; profuse flowering; vigorous and compact growth habit; flowering 9–10 weeks after potting, and by its long lasting and non-dropping flowers.

10,510
DAHLIA PLANT NAMED 'GALLERY DEGAS'

Aad Verwer, Lisse, Netherlands, assignor to Gebr. Verwer, Lisse, Netherlands

Filed Mar. 12, 1997, Ser. No. 815,868

Int. Cl.^{6} A01H *5/00*

U.S. Cl. Plt.—87.8 **1 Claim**

1. A new and distinct cultivar of Dahlia plant named 'Gallery Degas', as illustrated and described.

10,511
DAHLIA PLANT NAMED 'GALLERY CEZANNE'

Aad Verwer, Lisse, Netherlands, assignor to Gebr. Verwer, Lisse, Netherlands

Filed Mar. 12, 1997, Ser. No. 815,870

Int. Cl.^{6} A01H *5/00*

U.S. Cl. Plt.—87.8 **1 Claim**

1. A new and distinct cultivar of Dahlia plant named 'Gallery Cezanne', as illustrated and described.

10,512
VARIETY OF GERANIUM PLANT NAMED 'MAUREEN'

David Lemon, Lompoc, Calif., assignor to John Bodger & Sons Company, So. El Monte, Calif.

Filed Oct. 1, 1996, Ser. No. 724,678

Int. Cl.^{6} A01H *5/00*

U.S. Cl. Plt.—87.12 **1 Claim**

1. A new and distinct variety of Geranium plant, substantially as shown and described.

10,513
VARIETY OF GERANIUM NAMED 'GLOBAL LIGHT LILAC'

David Lemon, Lompoc, Calif., assignor to John Bodger & Sons Company, So. El Monte, Calif.

Filed Oct. 1, 1996, Ser. No. 724,699

Int. Cl.^{6} A01H *5/00*

U.S. Cl. Plt.—87.12 **1 Claim**

1. A new and distinct variety of Geranium plant, substantially as shown and described.

10,514
VARIETY OF GERANIUM PLANT NAMED 'GLOBAL ROSE'

David Lemon. Lompoc, Calif., assignor to John Bodger & Sons Company, S. El Monte, Calif.

Filed Oct. 1, 1996, Ser. No. 724,700

Int. Cl.^{6} A01H *5/00*

U.S. Cl. Plt.—87.12 **1 Claim**

1. A new and distinct variety of Geranium plant, substantially as shown and described.

10,515
VARIETY OF GERANIUM PLANT NAMED 'SWEET DREAMS'

David Lemon, Lompoc, Calif., assignor to John Bodger & Sons Company, So. El Monte, Calif.

Filed Oct. 1, 1996, Ser. No. 724,701

Int. Cl.^{6} A01H *5/00*

U.S. Cl. Plt.—87.12 **1 Claim**

1. A new and distinct variety of Geranium plant, substantially as shown and described.

10,516
VARIETY OF GERANIUM PLANT NAMED 'OLYMPIA'

David Lemon, Lompoc, Calif., assignor to John Bodger & Sons Company, So. El Monte, Calif.

Filed Oct. 1, 1996, Ser. No. 724,707

Int. Cl.^{6} A01H *5/00*

U.S. Cl. Plt.—87.12 **1 Claim**

1. A new and distinct variety of Geranium plant, substantially as shown and described.

10,517
VARIETY OF GERANIUM PLANT NAMED 'PATRIOT BRIGHT PINK'

David Lemon, Lompoc, Calif., assignor to John Bodger & Sons Company, So. El Monte, Calif.

Filed Oct. 1, 1996, Ser. No. 724,710

Int. Cl.^{6} A01H *5/00*

U.S. Cl. Plt.—87.12 **1 Claim**

1. A new and distinct variety of Geranium plant, substantially as shown and described.

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10,518
BEGONIA PLANT NAMED "ELBA"

Andre Smaal, Aalsmeer, Netherlands, assignor to Begonia Breeders Assoc. B.V., Aalsmeer, Netherlands
Filed Mar. 6, 1997, Ser. No. 811,732
Int. Cl.^{6} A01H *5/00*
U.S. Cl. Plt.—87.18 **1 Claim**

1. A new and distinct cultivar of Begonia plant named 'Elba', as illustrated and described.

10,519
BEGONIA PLANT NAMED 'CLARA FRANJE'

Jan Man, Amstelveen, Netherlands, assignor to Begonia Breeders Assoc. B.V., Aalsmeer, Netherlands
Filed Mar. 6, 1997, Ser. No. 811,738
Int. Cl.^{6} A01H *5/00*
U.S. Cl. Plt.—87.18 **1 Claim**

1. A new and distinct cultivar of Begonia plant named 'Clara Franje', as illustrated and described.

10,520
AECHMEA PLANT NAMED 'STARBRITE'

Nat DeLeon, Goulds, Fla., assignor to DeLeon's Bromeliads Inc., Goulds, Fla.
Filed Feb. 7, 1997, Ser. No. 797,512
Int. Cl.^{6} A01H *5/00*
U.S. Cl. Plt.—88.8 **1 Claim**

1. A new and distinct variety of Aechmea plant characteristics by the following combination of characteristics:

(a) forms a large distinctive inflorescence having coral-red bracts and yellow flowers, and
(b) forms attractive dark green foliage that is marked with silver-white coloration;

substantially as herein illustrated and described.

PATENTS

GRANTED July 21, 1998

ERRATA

For CLASS	See PATENT NO.
D15—017	D396,174
D16—101	D396,237
D34—033	D396,282
024—016	5,781,975
036—134	5,782,017
042—001	5,782,025
048—077	5,782,032
100—025	5,782,185
126—025	5,782,224
072—481	5,782,308
187—270	5,782,317
198—324	5,782,330
244—002	5,782,427
292—267	5,782,507
297—157	5,782,526
414—563	5,782,596
474—138	5,782,625
473—048	5,782,693
477—086	5,782,710
477—156	5,782,711
074—542	5,782,738
604—313	5,782,871
604—404	5,782,872
096—102	5,782,964
208—262	5,783,068
428—140	5,783,151
423—702	5,783,321
427—459	5,783,335
335—004	5,783,382
436—115	5,783,426
504—206	5,783,516
252—500	5,783,643
564—108	5,783,734
564—134	5,783,735
564—484	5,783,736
149—036	5,783,773
253—693	5,783,861
257—571	5,783,966

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PATENTS

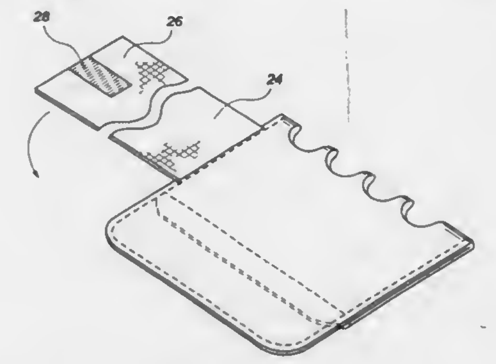
GRANTED JULY 21, 1998

GENERAL AND MECHANICAL

5,781,928

MULTI-PURPOSE HAND PROTECTOR

Louis J. Avila, 336 Roosevelt Ave., Salt Lake City, Utah 84115
Filed Sep. 16, 1996, Ser. No. 714,574
Int. Cl.^{6} A41D *13/08*
U.S. Cl. 2—16 **11 Claims**

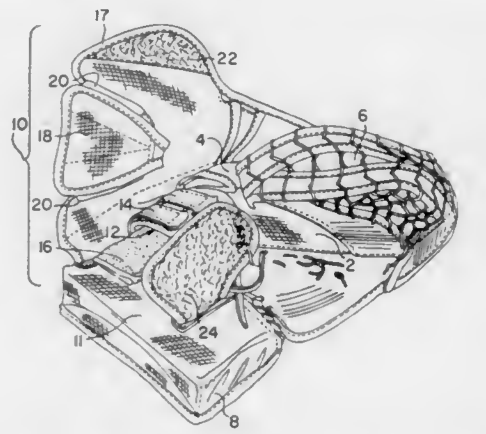


1. A multi-purpose hand protector comprising:
a fingerless half glove having a knuckle portion, a palm portion, and a finger portion defining finger openings for insertion of digits of a hand said knuckle portion having a padded top to cover the top of the knuckles and protect the knuckles, when stuck, and a padded palm portion to cover the segment of the palm beneath a user's knuckles to allow the fingers to clench into a fist to protect the fingers during hand contact.

5,781,929

HOCKEY GOALTENDER'S GLOVE WITH FLEXIBLE CUFF

Brian H. Shikatani, Milton, Canada, assignor to Canstar Sports Group Inc., Quebec, Canada
Continuation of Ser. No. 386,535, Feb. 10, 1995, abandoned.
This application Mar. 5, 1997, Ser. No. 812,327
Int. Cl.^{6} A41D *13/10*
U.S. Cl. 2—16 **7 Claims**

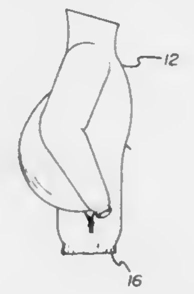


1. A hockey goaltender's glove for protecting a hand of a goaltender, said glove comprising:
a) a glove portion for receiving and enclosing the hand of the goaltender, said glove portion having a palm side and a back side, said glove portion comprising a finger receiving portion, a thumb receiving portion and a pocket located in between said finger receiving portion and said thumb receiving portion;
b) a first cuff portion attached to said glove portion, said first cuff portion being adjacent said palm side of said glove portion for protecting the palm side of the wrist and lower forearm of the goaltender; and
c) a second cuff portion attached to said first cuff portion, said second cuff portion being adjacent said back side of said glove portion for protecting the back side of the wrist and lower forearm of the goaltender, said second cuff portion comprising a first protective element and a second protective element, said second protective element being movable relative to said first protective element to allow the goaltender to rotate the hand backwardly while maintaining protection.

5,781,930

JACKET WITH SAILS SITUTATED BENEATH ASSOCIATED SLEEVES

Alton L. Boshoff, 110 30 St., Newport Beach, Calif. 92663
Filed Nov. 18, 1996, Ser. No. 751,576
Int. Cl.^{6} A41D *1/02*
U.S. Cl. 2—93 **1 Claim**



1. A jacket with sails situated beneath associated sleeves comprising, in combination:
a nylon jacket having a torso portion with a front, a back, an open top, an open bottom, and a pair of sides, the open bottom having an elastic band coupled to a periphery thereof, the front having a vertically oriented zipper for allowing the jacket to be selectively worn by a user, the jacket further having a pair of sleeves coupled at inboard ends thereof to the sides adjacent the open top thereof, the sleeves each further having an open outboard end with elastic coupled to a periphery thereof and a row of zipper tabs extending along a lower surface thereof between the open outboard end thereof and an intersection of the sleeve and the torso portion;
a pair of vertically oriented elongated thin pockets each extending between the open bottom of the jacket and the intersection of an associated sleeve and the torso portion, the pockets each also having a row of zipper tabs situated on opposite vertical side edges thereof with a zipper adapted to interlock the rows of zipper tabs by the upwardly sliding thereof;
a pair of wings each with a generally triangular configuration with a bottom edge having elastic coupled along the length thereof, a first side edge stitchedly coupled within the pocket along a length thereof, a second side edge with a row of zipper tabs with a zipper slidably situated thereon which extend to a top end of the first side edge of an associated wing, the wings having a stored orientation within the pockets and an employed orientation with the row of zipper tabs thereof coupled to the row of zipper tabs of the associated sleeve, wherein each wing defines a 6-inch deep well when the sleeves are held within a vertical plane and 45 degrees below the horizontal with the sleeves having a first and second side edge each with a length of 2 feet and a bottom edge with a length of 3 and ½ feet; and
a rectangular pocket with an open top edge situated on the back of the jacket adjacent the open bottom thereof and within an interior thereof, the pocket including a zipper for sealing the

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open top edge thereof and a handle for totting the jacket, whereby the pocket is adapted to store the jacket therein.

5,781,931

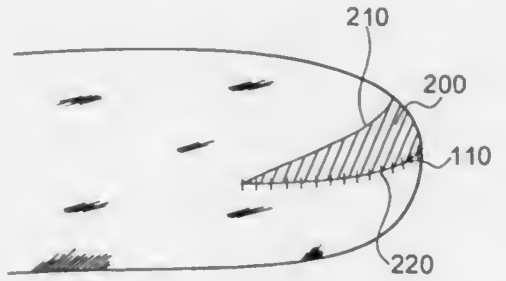
METHOD FOR MAKING ERGONOMIC GLOVES

Arnold Yoonho Lee, 4491 Deanwood Dr., Woodland Hills, Calif. 91364

Filed Nov. 3, 1997, Ser. No. 963,026

Int. Cl.^{6} A41D *19/00*

U.S. Cl. 2—169 **20 Claims**



1. A method for converting a conventional glove into an ergonomic glove comprising forming an aperture into a glove finger of said conventional glove, said aperture positioned above a centrally disposed stitching located along the tip of said glove finger, wherein said aperture is closed, thereby displacing said stitching of said glove finger and positioning said stitching to be aligned with the fingernail of a finger accommodated by said glove finger.

5,781,932

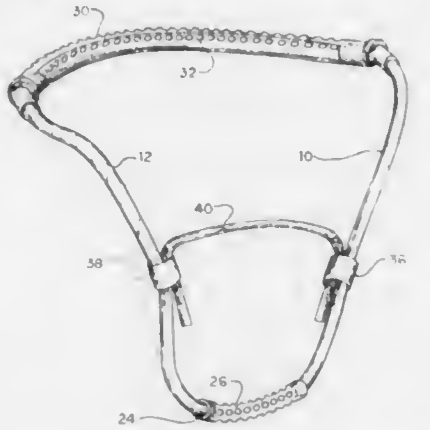
FOREHEAD PERSPIRATION COLLECTOR/ DISCHARGER

Robert L. Brown, 4800 W. Anton Rd., Tucson, Ariz. 85746

Continuation-in-part of Ser. No. 697,479, Aug. 26, 1996, which is a continuation-in-part of Ser. No. 565,831, Dec. 1, 1995, abandoned. This application May 23, 1997, Ser. No. 862,604

Int. Cl.^{6} A41D *20/00*

U.S. Cl. 2—181 **2 Claims**



1. A forehead sweat absorption device for collection and discharge of forehead perspiration including a means for adjustable attachment to the wearer's head, wherein said device functions by collecting and disposing of perspired fluids through a transfer process via tubing canals,

said forehead sweat absorption device composing a number of impermeable elements being substantially tubular and varying in size to include a forehead perspiration absorption section, a pair of drain tubes, a pair of joining tubes having a connective means, a discharge coupling tube and an absorbent element,

wherein said means for adjustable attachment includes a means for securing to the head comprising a piece of elastic cord and a pair of annular shaped cord retainers,

said pair of joining tubes each having a connective means to each end of said forehead perspiration absorption section further including a means to join each said joining tube to each said drain tube so that each said drain tube extends out of each end of said forehead perspiration absorption section,

said pair of annular cord retainers each having a means for attachment to an end of said elastic cord and means for attachment to an end of said drain tube so that said cord retainers will slide forward or rearward over the length of each said drain tube such that said elastic cord forms an adjustable attachment means to a wearer's head and said forehead perspiration absorption section has a predetermined pattern of wall cutouts or apertures upon its upper quadrants for the purpose of fluid absorption,

said forehead section having said apertures further comprising a means to seal off and collect flowing forehead perspiration coming into contact with said device while being worn on a wearer's head and further including a means to confine such fluids in containment until increasing quantities become gravitationally expelled through said drain and discharge tubes

said forehead sweat absorption device comprising a single said discharge coupler tube having a pattern of apertures there around for fluid discharge,

said coupler having a junction with rearward ends of said drain tubes so that fluid disposal is confined to one aft area through said discharge coupler,

said forehead sweat absorption device being a continuous surrounding tubular structure for conveying fluids having a substantially oval configuration that comprises a fluid absorption process on a foreward structure and a fluid discharge process on a rearward structure,

said impermeable elements of said forehead sweat absorption device comprising a series of fluid transfer tubes that are sized in proportion relative to one another to provide a more immediate and efficient fluid transfer process.

5,781,933

AERODYNAMIC PEAKED CAP

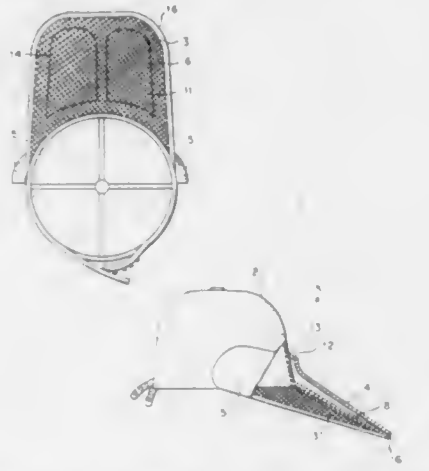
Giancarlo De Giacomi, Segrate Milano, Italy, assignor to General Building s.a.s. di De Giacomi Giancarlo, Segrate Milano, Italy

Filed Jun. 26, 1996, Ser. No. 670,437

Claims priority, application Italy, Jun. 30, 1995, MI950460 U

Int. Cl.^{6} A42B *1/06*

U.S. Cl. 2—195.1 **6 Claims**



1. A visored cap comprising a crown corresponding to the general shape of a turned upside-down bowl for fitting over an

upper portion of a wearer's head; and a visor having a peripheral edge extending outwardly from said crown,

said visor comprising a relatively rigid frame having at least one large aperture extending therethrough, a mesh covering extending below said frame, said mesh covering being sufficiently porous to permit wind to pass therethrough, and an upper streamlined sloping cloth stretched between said peripheral edge of said visor and a front part of said crown, with said frame and said sloping cloth defining an air passageway therebetween, and an upper portion of said cloth being connected to said front part of said crown with at least one air passage between said sloping cloth and said front part of said crown.

5,781,934

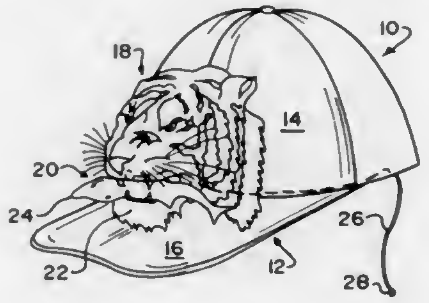
SIMULATIVE SPORTS CAP KIT

Terrance P. Pauley, Jr., 2909 N. Magellan Dr., McHenry, Ill. 60050

Filed Apr. 14, 1997, Ser. No. 833,204

Int. Cl.^{6} A42B *1/24*

U.S. Cl. 2—209.13 **6 Claims**



1. A sports cap kit consisting of a cap with a primary team symbol including a normally open mouth having a movable jaw thereon indicative of a favored sports team and at least one removable, diminutive secondary sports team symbol releasably engaged within the mouth of said primary symbol, the secondary sports team symbol being indicative of an opposing team, the symbols being interactive to generate a message of a desired dominance of the primary team symbolized.

5,781,935

PADDED BODY PROTECTION PADS

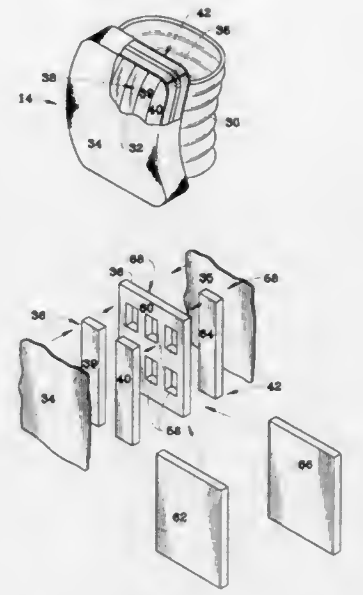
Aldean B. Bassett, 4200 Community Dr., Apt. #2404, West Palm Beach, Fla. 33409, and Nicole Durr, 1491 N. Ocean Blvd., Palm Beach, Fla. 33480

Filed Oct. 9, 1996, Ser. No. 728,155

Int. Cl.^{6} A41D *13/06;13/08;27/12;27/26*

U.S. Cl. 2—455 **8 Claims**

1. A body protection pad for attachment to a body part to be protected from impact, said pad comprising: a hard central layer structure with an inner and outer surface; an outer covering means formed from interconnecting preshaped pieces of vinyl nitrile sponge material being approximately ½ inch thick and attached to said outer surface of said structure, said outer surface of said vinyl nitrile sponge material including an abrasion resistant coating; an inner covering means formed from a soft resilient material and secured to said inner surface of said structure and forming a cushion positioned between said structure and the wearer.



5,781,936

PROJECTION SYSTEM FOR THE RIDER OF A NON-ENCLOSED VEHICLE AND VEHICLE INCORPORATING SAME

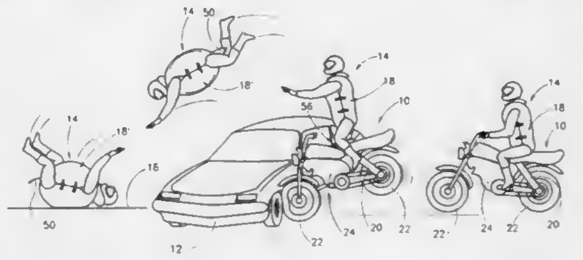
Jacob Alaloof, 4 Amnon Vetamar Street, Herzlia, Israel

Filed Oct. 20, 1995, Ser. No. 545,938

Claims priority, application Israel, Mar. 22, 1995, 113081

Int. Cl.^{6} A41D *13/00*

U.S. Cl. 2—456 **16 Claims**



1. A protective system for the rider of a non-enclosed vehicle comprising:

a garment-shaped inflatable member for surrounding at least upper portions of the body of a rider of a non-enclosed vehicle and including first and second inflatable portions for covering and protecting respective front and rear portions of the body and at least a third inflatable portion for covering and protecting at least a back portion of a neck of the rider, each of said first and second inflatable portions comprising:

a gas impermeable interior layer configured to lay against a predetermined portion of the rider's body;

a gas impermeable exterior layer connected to said interior layer so as to form therewith a substantially sealed chamber, wherein said exterior layer is formed of a flexible material which expands in the presence of an elevated gas pressure; and

at least one gas impermeable wall extending laterally between and sealed to said interior and exterior layers, thereby to divide said sealed chamber into at least two gas inflatable cells, wherein said at least one gas impermeable wall extends between said interior and exterior layers so as to form therewith a generally central generally cylindrical cell surrounded by a generally toroidal cell;

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a source of pressurized gas incorporated in said inflatable member; and
means for exposing the interior of said inflatable member to said pressurized gas source for rapidly inflating said inflatable member in response to a sudden separation of the rider from the vehicle by at least a predetermined distance,
wherein said inflatable member has a garment-shaped configuration when in a non-inflated orientation, and which when inflated, has an expanded, generally bulbous configuration such that large magnitude concentrated forces experienced thereby on impact with an object subsequent to the sudden separation of the rider from the vehicle are prevented from transfer directly to the rider, thereby protecting the surrounded upper portions of the rider's body from serious injury.

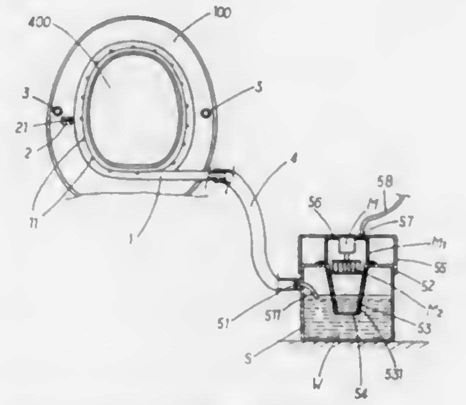
5,781,937
TOILET DEODORIZING SYSTEM

Ming-Feng Liang, 21, Lane 187, Chung Cheng Road Sec. 2, Jen Te, Tainan, Taiwan

Filed Jun. 20, 1997, Ser. No. 879,464

Int. Cl.⁶ E03D *9/052*

U.S. Cl. 4—213 **2 Claims**



1. A toilet deodorizing system comprising:
a rigid air intake pipe fixedly mounted on a bottom side of a toilet seat being hinged to a toilet bowl, said rigid air intake pipe having a plurality of bevel inlets spaced around a center opening of said toilet seat;
spring means fixedly mounted on the bottom side of said toilet seat, said spring means supporting said toilet seat on said toilet bowl when said toilet seat is closed on said toilet bowl;
a micro switch mounted on the bottom side of said toilet seat, said micro switch being switched off when said toilet seat receives no pressure, said micro switch being switched on when said toilet seat is closed on said toilet bowl and forced by the body pressure of a person to compress said spring means against said toilet bowl;
a container disposed outside said toilet bowl and holding an antiseptic solution and covered with a container cover, said container comprising a hole disposed at one side thereof connected to one end of said rigid air intake pipe by a hose, and a dip tube having one end connected to the hole of said container and an opposite end dipped in said antiseptic solution, said container cover comprising a downwardly disposed conical flange at the center, and a wire gauze filter covered on said conical flange, said conical flange having pores spaced around the periphery;
a shield covered on said container cover of said container, having a motor mounting frame on the inside fixedly secured to said container cover of said container, an air inlet through which outside air is drawn into said container, and an air outlet through which inside air is carried away from said container;
a motor fixedly mounted inside said motor mounting frame of said shield and connected to power supply through said micro switch; and
a vane wheel coupled to said motor and suspending in said conical flange of said container cover;
wherein said motor is started to turn said vane wheel when a person sits on said toilet seat to switch on said micro switch, causing a suction force to be induced to draw foul air away from the inside of said bowl into said antiseptic solution in said container through said bevel inlets of said rigid air intake pipe and said hose and said dip tube for treatment, permitting inside air of said container to be carried away through said air outlet of said shield.

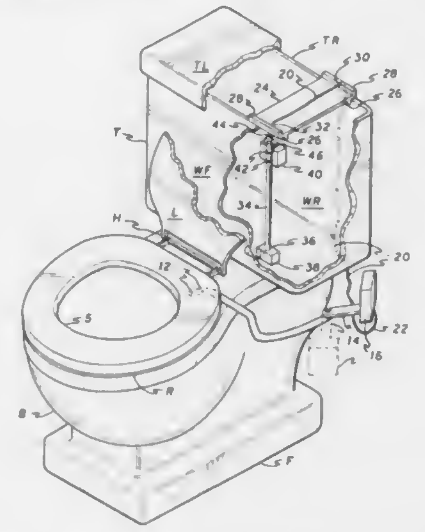
5,781,938
TOILET SEAT LOWERING DEVICE

Eric A. Anderson, 530 Wintersweet Ct., Annapolis, Md. 21401

Filed Jan. 17, 1997, Ser. No. 784,396

Int. Cl.⁶ A47K *13/10*

U.S. Cl. 4—246.1 **18 Claims**



1. A lowering device for a flush toilet seat, with the toilet seat being hingedly installed upon a toilet bowl having a rim therearound and including a toilet tank disposed rearwardly thereon, said device comprising:
a toilet seat counterbalance arm adapted to be rigidly affixed to the toilet seat, with said seat counterbalance arm extending generally rearwardly from the seat and being laterally offset from the seat;
said seat counterbalance arm including a distal end, with said distal end having a seat counterbalance weight secured thereto;
a float adapted to be disposed within the toilet tank, and;
a seat actuating line having a seat counterbalance attachment end and an opposite float attachment end removably secured to said float by magnetic attachment means with said seat actuating line extending between said seat counterbalance arm and said float for drawing said seat counterbalance arm upwardly for lowering the seat when said float descends within the tank as the toilet is flushed.

5,781,939
POTTY TRAINING CHAIR WITH CHILD RESTRAINT, ACTIVITY AREA AND AUDIBLE REWARD SYSTEM

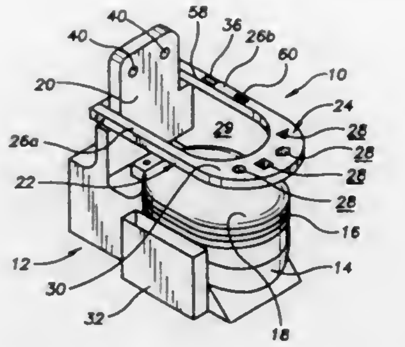
Laurita Bledsoe, 8826 W. 7 Mile Rd., Detroit, Mich. 48221-2002

Filed Jan. 9, 1997, Ser. No. 780,359

Int. Cl.⁶ A47K *11/04*

U.S. Cl. 4—483 **12 Claims**

1. A potty training chair comprising:
a training potty including a waste receiving compartment housing having a top opening, a pivotal potty seat pivotally secured to said compartment housing;



a back support extending upwardly from said compartment housing;
a pivoting child restraint assembly including an activity tray supported on two lockable support arms, said lockable support arms being pivotally secured to said back support, said activity tray including a tray surface having a first plurality of geometric depressions formed therein;
a second plurality of geometrically shaped activity blocks, each of said second plurality of geometric activity blocks being of a geometric shape that corresponds to one of said first plurality of geometric depressions;
a cassette tape player mounted within one of said lockable support arms, said cassette tape player having control buttons extending from said support arm at a location accessible to a child seated on said potty seat; and
an audible reward system, said audible reward system including a digital electronic audible message generating circuit having an audible message storage memory, a first pressure activated message activation switch positioned in connection with said potty lid in a manner to activate said audible message generating circuit to play a first audible message when said potty lid is raised, and a second pressure sensitive message activation switch positioned in connection with said potty seat in a manner to activate said audible message generating circuit to play a second audible message when activated by said weight of a child seated on said potty seat.

5,781,940
PORTABLE, COLLAPSIBLE, SELF-CONTAINED TOILET APPARATUS

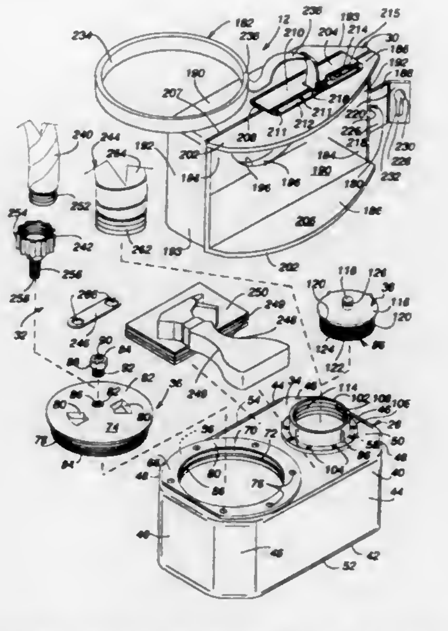
Paul J. Becker, and Bruce D. Becker, both of Wichita, Kans., assignors to GTS, Inc., Wichita, Kans.

Filed Feb. 11, 1997, Ser. No. 799,700

Int. Cl.⁶ A47K *11/04*

U.S. Cl. 4—483 **20 Claims**

1. A portable, collapsible, self-contained toilet apparatus, comprising:
a) a basic storage container assembly and a foldable seat assembly connectable to said basic storage container assembly;
b) said basic storage container assembly includes a main storage body assembly having a seat support opening;
c) said foldable seat assembly includes a main toilet bowl having opposed seat wing members connected thereto adapted to resemble a conventional toilet seat in an expanded usage condition; and



d) said main toilet bowl mounted in said seat support opening to transfer waste products from said main toilet bowl to said main storage body assembly.

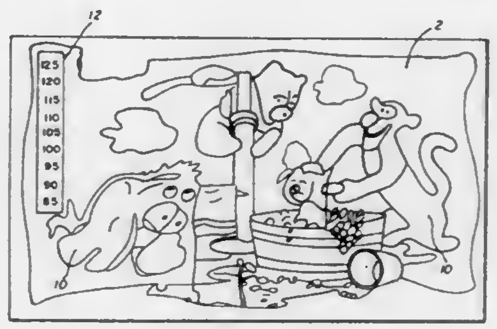
5,781,941
SAFETY BATH MAT

Michael D. Radke, Littleton, Colo., and Jeffrey M. Fields, Madison, Wis., assignors to Lois F. Fields, South Wayne, Wis.

Filed Dec. 16, 1996, Ser. No. 766,050

Int. Cl.⁶ A47K *3/02*

U.S. Cl. 4—583 **6 Claims**



1. A safety bath mat adapted to be secured to the floor of a bath tub or shower, comprising:
a layered body having a continuous, unbroken upper surface, said body having a vinyl base layer, a second layer on top of said base layer, said second layer comprising polycarbonate particles suspended in vinyl, said particles being relatively uniformly laterally spaced and surrounded by vinyl whereby said second layer has a relatively rough upper configuration, and a third vinyl layer covering said second layer and provided a substantially uniformly thick coating conforming to the configuration of said second layer, said third layer providing a slip resistant surface adapted to support a person standing thereon, said second and third layers being substantially transparent.

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5,781,942

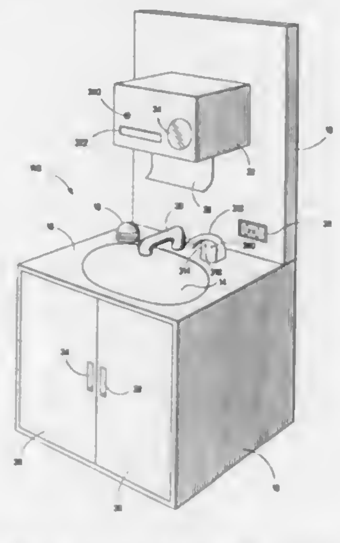
WASH STATIONS AND METHOD OF OPERATION

Charles S. Allen, Kenilwoth, Ill.; Daniel C. Shaw, Geneva, and Lee M. Adler, Altamonte, both of Ill., assignors to Sloan Valve Company, Franklin Park, Ill.

Continuation of Ser. No. 482,994, Apr. 7, 1995, abandoned, which is a continuation-in-part of Ser. No. 729,534, Jul. 15, 1991, abandoned, which is a continuatinn of Ser. No. 378,921, Jul. 12, 1989, Pat. No. 5,031,258. This application Apr. 4, 1997, Ser. No. 832,847

Int. Cl.^{6} E03C *1/05*

U.S. Cl. 4—623 **8 Claims**



1. A hand washing station including different modes for placing the station in each of (i) an automatic user friendly hand washing mode, and (ii) a separate and distinct water dispensing mode, the hand washing station comprising:

a sink;

a water faucet operably associated with said sink for selectively dispensing water;

water dispensing mode means for dispensing pre-soap water, and for operation when the station is in said water dispensing mode, said water dispensing mode means including (i) a first sensor having an operating range for detecting the presence of a user; (ii) means for dispensing pre-soap water from said water faucet when the station is in the water dispensing mode only so long as the presence of the user is detected within said operating range of said first sensor; and (iii) a first electrically operated valve for selectively causing said water faucet to dispense water in response to the user being detected within said operating range of said first sensor;

means for changing the hand washing station from said water dispensing mode to said user friendly hand washing mode, said means for changing including a second sensor integral with a soap dispensing faucet so that the hand washing station is switched from said water dispensing mode to said automatic hand washing mode when the user leaves the operating range of said first sensor and enters an operating range of said second sensor proximate said soap dispensing faucet;

hand washing mode means for operation when the station is in said user friendly hand washing mode following the water dispensing mode, said hand washing mode means, in accordance with a preprogrammed sequence, for (a) actuating a first pump, in operable association with a soap supply and said second sensor, to cause a preprogrammed amount of soap to be dispensed through said soap dispensing faucet, without first causing said water faucet to dispense water; (b) after said preprogrammed amount of soap has been dispensed, automatically causing said water faucet to dispense water for a preprogrammed period of time; and (c) after said preprogrammed period of time has elapsed, dispensing a towel from a towel dispenser;

wherein when the user desires to wash his or her hands with soap, the user first actuates the water dispensing mode via said first sensor to wet his or her hands and thereafter puts his or her hands proximate said soap faucet in order to actuate said hand washing mode via said second sensor so as to get soap and toweling, and said soap faucet in the hand washing mode dispensing soap before said water faucet dispenses water, thereby rendering the hand washing station more user friendly;

a push button (**320**) for causing water to be dispensed from said water faucet for so long as said push button is actuated thereby enabling water to be dispensed from said water faucet for an extended period when the user's hands are not within the operating range of said first sensor or said second sensor; and

a microprocessor-based controller in operative communication with said first sensor, said second sensor, said first valve, said first pump, said push button, and a third sensor located on said towel dispenser, and wherein said controller outputs signals to said towel dispenser, said first valve, and said first pump so that said microprocessor-based controller enables soap, water, and toweling to be dispensed in said modes, and wherein actuation of said second sensor causes soap to be dispensed and causes a signal to be sent to said microprocessor-based controller that causes said controller to switch from said water dispensing mode to said automatic hand washing mode so that the dispensing of soap effects actuation of said hand washing mode.

5,781,943

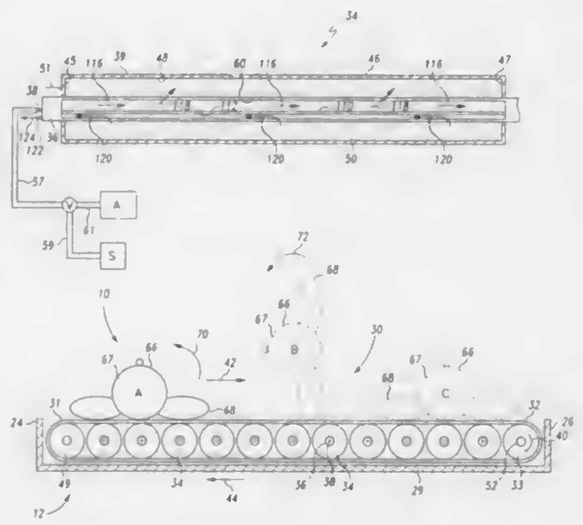
MEDICAL TABLE AND METHOD FOR MOVING A PATIENT FROM A FIRST POSITION TO A SECOND POSITION

Stephen P. Moenning, 124 Hibiscus, Punta Gorda, Fla. 33950; Donald M. Judy, 2396 Seagull La., North Fort, Fla. 34287, and Douglas B. Thatcher, 365 Altoona St., Fort Charlotte, Fla. 33948

Filed Mar. 13, 1997, Ser. No. 815,622

Int. Cl.^{6} A61G *7/08;7/16;* **B65G** *13/02*

U.S. Cl. 5—81.1 C **21 Claims**



1. A support apparatus, comprising:

a base; and

a number of rollers supported by said base, wherein each roller of said number of rollers (1) defines a fluid impervious bag having a void therein, and (2) contains a plurality of heads within said void of said fluid impervious bag.

5,781,944

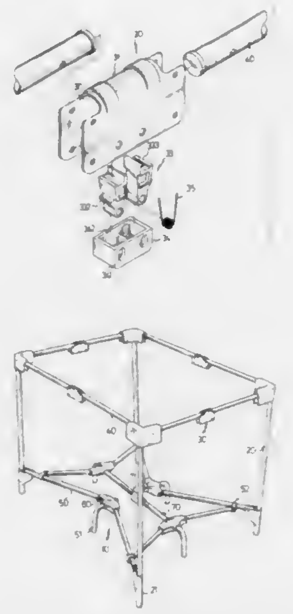
FOLDABLE DEVICE FOR A CRIB

Li-chu Chen Huang, No. 99, Fuchou 7th St., Chiayi City, Taiwan

Filed Jan. 22, 1997, Ser. No. 787,446

Int. Cl.^{6} A47D *13/06;7/00*

U.S. Cl. 5—99.1 **5 Claims**



1. A foldable device for a crib comprising: an upper foldable member having:

four pairs of arms (**40**) each pair of which is pivotally received within said upper foldable member;

two opposed ends (**41**) of a pair of said arms (**40**);

a first housing (**31**) having a first space (**311**) defined therein for respectively and pivotally receiving said two opposed ends (**41**);

a pair of retainers (**33**) movably received within said first housing and each retainer having a stepped part (**332**) protruding outward, a second space (**331**) defined therein and a first extension (**333**) integrally formed therewith for releasably abutting said opposed ends;

a receptacle (**34**) having two pairs of through holes (**341**) defined therein for pivotally receiving the pair of said retainers therein and being adapted to releasably engage said stepped part of said retainers; and a third space (**342**) defined between an inner face of said receptacle and end faces of said retainers for movably receiving said retainers therein; and

a spring (**35**) securely and respectively received between said second spaces of each of said retainers; and

a lower foldable member (**10**) having:

a plurality of joints (**60**) each of which has defined therein at least three pairs of through holes;

four pairs of lower arms (**50**) each pair of which is pivotally received in both sides of each of said joint via two of said through holes; and

four side arms (**51**) each of which is securely received between two respective lower arms and within said joint.

5,781,945

PORTABLE FOLDABLE BED RAIL

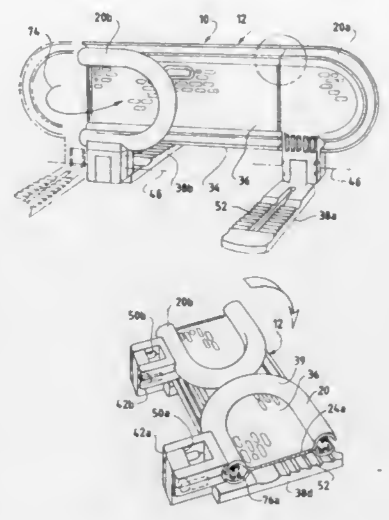
Craig S. Scherer, Wilmette; Michael C. Thuma, Desplaines; David Corbett Brown; Brian James Woodard, both of Chicago, and Michael Scott Garner, Northbrook, all of Ill., assignors to BRK Brands, Inc., Aurora, Ill.

Filed May 20, 1996, Ser. No. 650,173

Int. Cl.^{6} A47C *21/08*

U.S. Cl. 5—426 **29 Claims**

1. A compact, foldable bed rail comprising:



a rail member defining a rail plane and having first and second substantially identical, mirror image end rail portions and a central rail portion, each of said end rail portions being hingedly mounted to said central rail portion by respective rail hinge members having parallel axes of rotation, said end rail portions being foldable toward one another and adjacent to said central rail portion;

first and second support members each having a support leg and each being independently hingedly mounted to a respective one of said end rail portions by a support hinge member, said support hinge members having parallel axes of rotation and being rotatable in a direction transverse to said rail hinge members, each of said support hinge members being independently movable toward and away from its respective end rail portion,

wherein said support legs are movable between a first, folded position wherein said support legs are foldable adjacent to said rail member, and a second, operative position wherein said support legs are folded away from said rail member, and extend generally transverse to said rail plane.

5,781,946

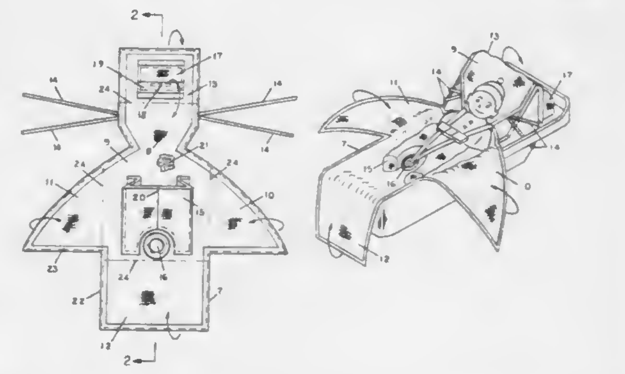
ATTACHABLE BLANKET/SEAT COVER FOR PORTABLE INFANT CAR SEAT OR APPARATUS

Wanda M. McEntire, 736 N. 1060 E., St. George, Utah 84770, and Vera Lindsey Wilson, 98 S. 2200 W., Layton, Utah 84041

Filed Apr. 1, 1997, Ser. No. 831,367

Int. Cl.^{6} A47G *9/06*

U.S. Cl. 5—482 **3 Claims**



1. An attached blanket/seat cover for portable infant car seat or apparatus which comprises:

a flat cross-shaped member, having a mid section area which has a right side extension, a left side extension, a lower extension and an upper extension, said mid section area separates said

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right side extension and said left side extension, said mid section area having a common fold line with said right side extension, said fold line allows said right side extension to fold up over said mid section area, said mid section area having a common fold line with said left side extension, said fold line allows said left side extension to fold up over said mid section area, said mid section area separates said lower extension and said upper extension, said mid section area having a common fold line with said lower extension, said fold line allows said lower extension to fold up over said mid section area, said mid section area having a common fold line with said upper extension, said fold line allows said upper extension to fold down-over an upper area of said portable infant car seat or apparatus, said flat cross-shaped member having an edging that gives support and strength to all edges of said flat cross-shaped member, said flat cross-shaped member having a central opening located on a centerline of said mid section area, said central opening allows a safety strap of said portable infant car seat or apparatus to pass through said central opening for attachment of said safety strap to said portable infant car seat or apparatus, a pair of straps having an attached end and an unattached end, said attached end of each said strap having a means for attachment of each said strap to said flat cross-shaped member at two spaced locations, the first location is where said right side extension and said upper extension converge, the second location is where said left side extension and said upper extension converge, said unattached end of said straps being used to attach said flat cross-shaped member to said portable infant car seat or apparatus.

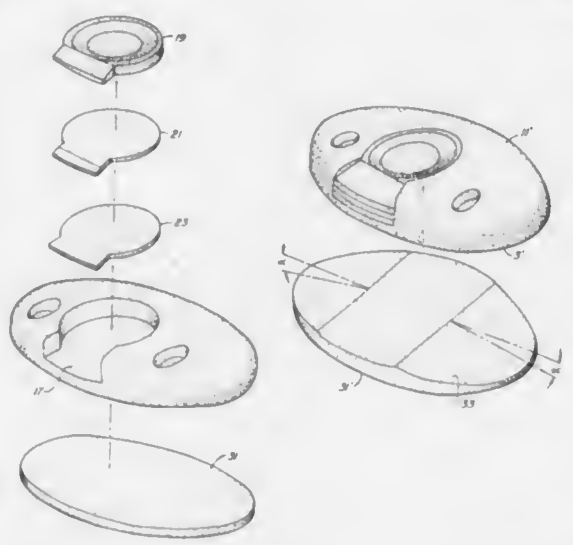
5,781,947
ADJUSTABLE CERVICAL PILLOW WITH DEPRESSIONS FOR A USER'S EARS

Roger Sramek, 1255 California St., Apt. 101, San Francisco, Calif. 94109

Filed Nov. 12, 1996, Ser. No. 747,482

Int. Cl.^{6} A47G *9/00*

U.S. Cl. 5—636 **21 Claims**



1. A cervical pillow with beautification properties for supporting the head and neck of a person, comprising:
   a resilient pillow body with an adjustable height head rest;
   said resilient pillow body having a resilient upper portion with a plurality of depressions on a top face of the resilient upper portion for receiving the person's ears;
   said top face comprising a planar portion with a downward angular planar declination; and,
   said resilient pillow body having a resilient lower portion with a bottom face.

5,781,948

Patent Not Issued For This Number

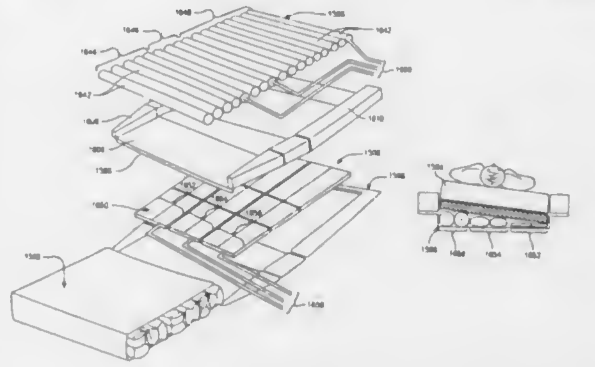
5,781,949
ROTAIONAL THERAPY APPARATUS FOR A BED

Matthew W. Weismiller, Batesville; David J. Ulrich, Sunman; Jay T. Butterbrodt, Lawrenceburg; Kenneth L. Kramer, St. Paul; Jason C. Brooke; Eric R. Meyer, both of Greensburg; Gregory W. Branson, Batesville, all of Ind., and James M. C. Thomas, Mt. Pleasant, S.C., assignors to Hill-Rom, Inc., Batesville, Ind.

Division of Ser. No. 511,542, Aug. 4, 1995, Pat. No. 5,630,238. This application May 7, 1997, Ser. No. 852,361

Int. Cl.^{6} A61G *7/057;7/00*

U.S. Cl. 5—715 **18 Claims**



1. A rotational therapy apparatus for use on a bed having a base frame, a deck coupled to the base frame, a support surface located on the deck, an air handling unit, an electrical communication network, and a rotation control module including a controller coupled to the communication network, the rotational therapy apparatus comprising:
   a normally deflated rotation air bladder located between the support surface and the deck, the rotation air bladder remaining deflated during normal use of the bed, the rotation air bladder being coupled to the rotation control module for selectively inflating and deflating the rotation air bladder to provide rotational therapy to a body located on the support surface; and
   a graphical interactive display coupled to the electrical communication network, the graphical interactive display being configured to transmit command signals for the rotation air bladder to the controller of the rotation control module over the electrical communication network to control the rotation air bladder.

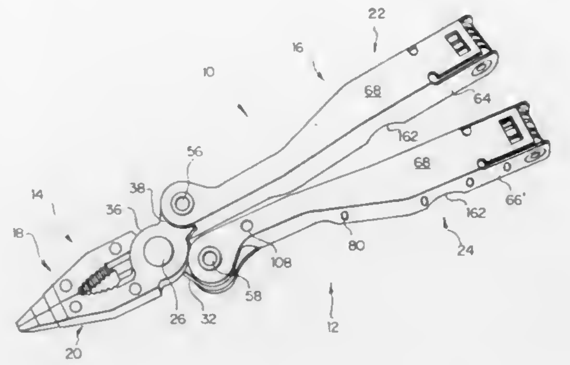
5,781,950
LOCKING MECHANISM FOR A FOLDING COMBINATION TOOL

David A. Swinden, Ellenville, N.Y., and John Denis Lemaire, Quebec, Canada, assignors to Imperial Schrade Corp., Ellenville, N.Y.

Filed Oct. 7, 1996, Ser. No. 724,964

Int. Cl.^{6} B25B *7/22*

U.S. Cl. 7—128 **25 Claims**



1. A multi-purpose folding combination tool, comprising:
   a pliers having a pair of crossed jaws, each of said jaws comprising a gripping end with a tip, a pivot bearing, and a tang, said jaws being rotatably connected to each other by a jaw pivot pin extending through each of said jaw pivot bearings;
   a pair of handles, each of said handles comprising:
      a secured end and a free end, a pivot bearing at said secured end of said handle rotatably connected to one of said tangs by a tang pivot pin, the axes of said jaw pivot pin and said tang pivot pins being substantially parallel to one another whereby said pair of crossed jaws and said pair of handles substantially define a plane of operation;
   a pair of upstanding sidewalls integrally connected by a web, said sidewalls and said web forming a U-shaped channel, said channel adapted to house a plurality of supplemental tools, said web including a flat, resilient leaf spring at one end of said channel, said leaf spring having a first end cantilevered from said web and extending freely to a second end coextensive with said free end of said handle, and a slot through said second end of said leaf spring, said slot being bordered across said second end by a transverse, flat stock, said flat stock and said flat leaf spring being substantially coplanar when said leaf spring is unflexed.
   a plurality of supplemental tools,
   each of said supplemental tools comprising a body and a mounting end,
   said body being shaped as appropriate for the function of said supplemental tool, and
   said mounting end being pivotally mounted on said channel, said mounting end including an arcuate peripheral camming surface of such radius as to deflect and flex said leaf spring when said supplemental tool is moved between its open and closed positions; and
   at least one of said supplemental tools including on its said mounting end a peripheral notch formed in said arcuate camming surface, said notch comprising a bottom surface and a pair of upstanding edge surfaces joining said camming surface and said bottom surface, and said notch being dimensioned and positioned to snugly receive said stock therein, when said at least one of said supplemental tools is extended, to positively lock said at least one of said supplemental tools in its extended position; and
   means for releasing said stock from said notch.

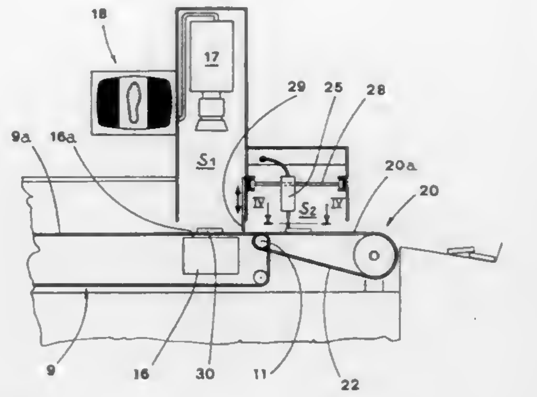
5,781,951
METHOD FOR APPLYING GLUE TO A SURFACE OF PIECES OF FOOTWEAR AND DEVICE THAT CARRIES OUT THIS METHOD

Talamonti Sergio, and Talamonti Federico, both of S.Elpidio a Mare, Italy, assignors to F.LLI Talamonti Macchine S.n.c., S. Elpidio a Mare, Italy

Filed May 22, 1996, Ser. No. 653,947

Int. Cl.^{6} A43D *11/00*

U.S. Cl. 12—142 F **7 Claims**



1. A method for applying glue to a surface of a piece of footwear, comprising the steps of:
   freely resting a sole with any orientation on an upper run of a conveyor, an upper surface of the sole turned upwards;
   moving the sole to a first station;
   determining an outline of the sole, and creating a signal which corresponds to the outline of the sole and sending the signal to a processing unit, for determining a path extending close to the outline of the sole; and,
   applying a strip of glue along the path on the upper surface of the sole, by sending a jet of glue which is moved in accordance with the path determined from the outline of the sole.

5,781,952

Patent Not Issued For This Number

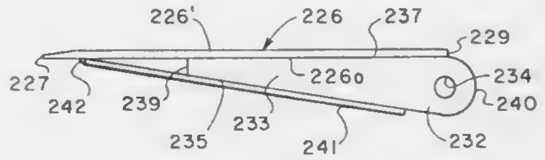
5,781,953
DOCK LEVELER RAMP

Bruce R. Winter, Muskego, Wis., assignor to Overhead Door Corporation, Dallas, Tex.

Filed Jul. 22, 1996, Ser. No. 681,039

Int. Cl.^{6} B65G *69/28;* **E01D** *15/00*

U.S. Cl. 14—69.5 **30 Claims**



28. In a dock leveler ramp having a generally flat deck member and hinge means for connecting said ramp to an extension lip, an improved lip member comprising said extension lip and characterized by:
   a first generally elongated plate member having a forward distal edge;
   a plurality of hinge members disposed spaced apart from each other along an edge opposite said forward distal edge of said first plate member, said hinge members each including elongated beam portions formed thereon extending toward said distal edge of said first plate member, respectively, and a bore for receiving a hinge pin, said beam portions being secured to said plate member by welding along contiguous edges of said hinge members with said first plate member, respectively; and
   an elongated, generally flat reinforcing plate overlying said first plate member and contiguous with said beam portions of said hinge members, respectively, and secured to said beam portions to form a substantially rigid lip member.

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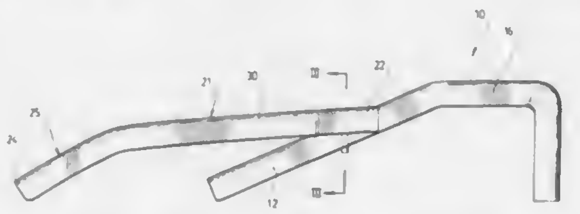
5,781,954
EXTENSION RAMP FOR USE IN COMBINATION WITH A CAR RAMP

Claude Mayer, St.-Théodore-d'Acton, Canada, assignor to Camoguid Inc., Quebec, Canada
Filed Oct. 16, 1996, Ser. No. 731,604
Int. Cl.⁶ E01D *1/00;* **E02C** *3/00*
U.S. Cl. 14—69.5 **19 Claims**



1. An extension ramp for use with a car ramp having a raised platform portion for supporting a car wheel and a downwardly elongated sloped portion connected thereto, the downwardly elongated sloped portion having a given inclination with respect to the raised platform portion, the extension ramp comprising:

a substantially elongated straight portion having a free end mountable along the downwardly elongated sloped portion of the car ramp;

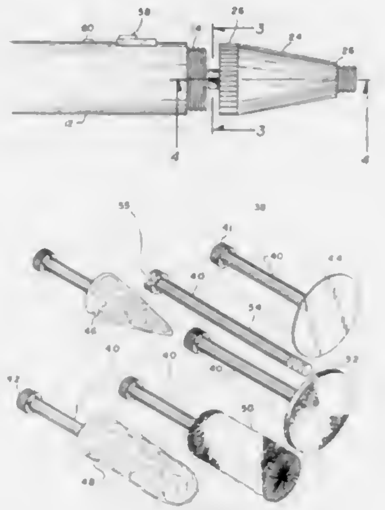
a slanted portion connected to a second end of the substantially elongated straight portion and forming an obtuse angle with the substantially elongated straight portion, the slanted portion and the substantially elongated straight portion defining together a passage for a car wheel, the slanted portion having a free end for laying on the ground and for receiving the car wheel; and

securing means for securing the extension ramp to the car ramp, the securing means being also for aligning the extensioo ramp with the car ramp and for holding the extension ramp in place on the car ramp,

whereby the extension ramp is mountable on the car ramp for lowering the inclination of the downwardly elongated sloped portion of the car ramp.

5,781,955
MOTORIZED MULTIPLE BRUSH ASSEMBLY

Glen J. Hendricks, 227 S. Clinton St., East Orange, N.J. 07018
Filed Oct. 11, 1996, Ser. No. 729,999
Int. Cl.⁶ A46B *13/02*
U.S. Cl. 15—22.1 **8 Claims**



2. A motorized multiple brush assembly comprising:

a handle having a top circular face, a bottom circular face, and a periphery formed therebetween, wherein the handle has a rotating rod with ends concentrically situated along a length of the handle with the ends of the rod protruding from the handle;

a plurality of attachments adapted to be releasably coupled to the rotating rod of the handle, the attachments including a saw attachment with a disk-shaped rigid saw concentrically coupled thereto, a first brush attachment with a brush having a triangular configuration concentrically coupled thereto, a second brush attachment with the brush having a generally cylindrical configuration concentrically coupled thereto, and a third brush attachment with the brush having a disc shaped configuration concentrically coupled thereto;

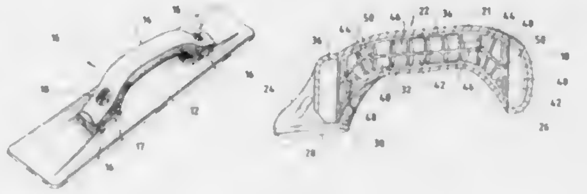
a battery for powering purposes;

an actuator button capable of being depressed; and

a control system situated within the handle and powered by the battery, the control system adapted to actuate the rotating rod of the handle in a first direction upon the depression of the actuator button positioned on the handle.

5,781,956
PLASTIC MOLDED FLOAT HANDLE

Curtis Dwight Kelsay, Springdale, Ark., and Alan Jerome Ness, Edgerton, Kans., assignors to Marshalltown Trowel Company, Marshalltown, Iowa
Filed Jan. 17, 1996, Ser. No. 588,115
Int. Cl.⁶ B05C *17/10*
U.S. Cl. 15—143.1 **9 Claims**



1. A concrete float handle, comprising:

an inner core and an outer core; said inner core formed from two identical core components, each of said core components including;

i) a mounting nose located at one end of a said component, said nose including,

(a) a first outer surface; and

(b) a mounting surface located at the bottom of said mounting nose; and

ii) a hand grip portion extending from said mounting nose and defining the other end of said core component, said hand grip portion, including;

(a) a second outer surface; and

(b) an engagement edge surface; and

said outer core being molded from a rubber-like thermoplastic material, said outer core covering a portion of said inner core to provide an outer grip surfaces;

said outer core being molded such that a mechanical and thermal bond is formed between said inner core components and said outer core.

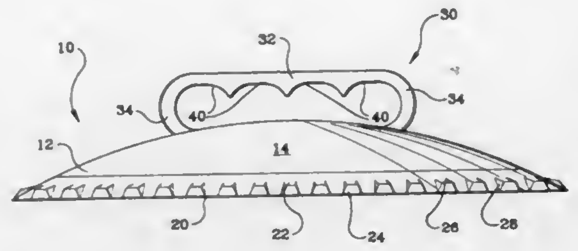
5,781,957
CIRCULAR ICE SCRAPER

Jason K. Scholl, R.R. #2 Box 77, Ellsworth, Ill. 61737
Filed Nov. 17, 1997, Ser. No. 971,755
Int. Cl.⁶ B60S *1/04;* **A47L** *1/06;13/02*
U.S. Cl. 15—236.02 **5 Claims**

1. A scraping tool comprising:

a scraper body configured as a disk having a convex top surface, a concave bottom surface, and a circumferential edge; and

a handle in the shape of an inverted U-shape attached over the apex of said convex top surface to said scraper body; wherein,



said circumferential edge and said convex top surface of said scraper body meet in V-fashion to form, in cross section, an acute angled cutting edge therebetween,

said convex top surface of said scraper body adjacent said cutting edge has a plurality of inclined ridges formed at regular intervals around said cutting edge,

said inclined ridges are each defined by an outermost surface, an uppermost surface, and two sidewalls,

said outermost surface forms an upwardly tapering trapezoid having a top end and a bottom end,

said bottom end of said outermost surface is joined with said circumferential edge of said scraper body in V-fashion at an angle, in cross section, less acute than the acutely angled cutting edge,

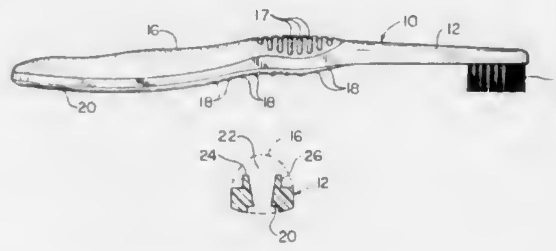
said uppermost surface forms a rectangle extending from said top end of said outermost surface to said convex top surface of said scraper body,

said sidewalls are generally triangular in shape and extend upward from said convex top surface of said scraper body to connect said convex top surface of said scraper body with said outermost surface and said uppermost surface of said inclined ridge, and

said inclined ridges are arranged and configured to break up ice being removed from a surface by said cutting edge.

5,781,958
BRUSH HANDLE

Jeffrey S. Meessmann; Gerald S. Szczech, both of Iowa City, Iowa, and William A. Bredall, Pacifica, Calif., assignors to Gillette Canada Inc., Kirkland, Canada
Filed Feb. 14, 1996, Ser. No. 601,567
Int. Cl.⁶ A46B *5/00;9/04;* **B25G** *1/00*
U.S. Cl. 15—167.1 **16 Claims**



1. A toothbrush comprising:

an elongated handle having a pair of opposed surfaces with a plurality of bristles extending outwardly therefrom at one end of said handle;

a gripping means disposed adjacent the opposite end of said handle;

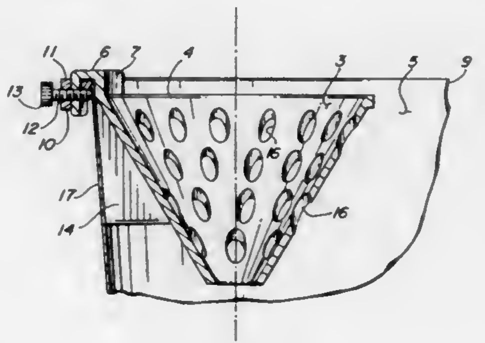
said gripping means comprising an elongated cavity formed in one of said opposed surfaces along a portion of said elongated handle;

a gripping element formed in said cavity, extending outwardly therefrom; and

at least one flange extending outwardly from said cavity and into said gripping element to provide rigidity to said elongated handle during the brushing process.

5,781,959
MOLDED PLASTIC MOP WRINGER

Donald G. Tipotsch, 329 S. Rockford Dr., Tempe, Ariz. 85281-3053
Filed May 14, 1996, Ser. No. 647,557
Int. Cl.⁶ A47L *13/58*
U.S. Cl. 15—263 **3 Claims**



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1. A mop wringer comprising:

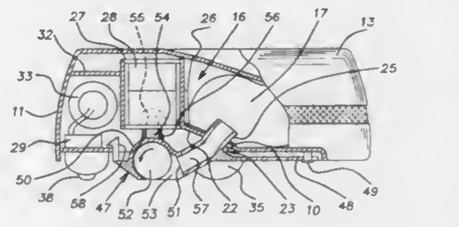
(a) a molded plastic body having a conical shape, said body having a first open end at a top portion thereof and a second open end at a bottom portion thereof, said second open end being smaller in size than said first open end, said body further having a central axis of symmetry;

(b) a plurality of perforations extending through said body, said perforations each having a cylindrical peripheral wall disposed about a perforation axis, each perforation axis being oriented parallel to the central axis of symmetry of said body, whereby said perforations have an elliptical appearance when the body is viewed from above; and

(c) wherein the perforations are adapted to grip strands of a mop when the mop is twisted and pressed and further wherein they also permit any liquid present in the mop to drain.

5,781,960
NOZZLE ARRANGEMENT FOR A SELF-GUIDING VACUUM CLEANER

Lars Kilström, Täby; Björn Riise, Sollentuna, and Anders Haegermarck, Trångsund, all of Sweden, assignors to Aktiebolaget Electrolux, Stockholm, Sweden
Filed Apr. 9, 1997, Ser. No. 838,555
Claims priority, application Sweden, Apr. 25, 1996, 9601576
Int. Cl.⁶ A47L *9/28*
U.S. Cl. 15—319 **11 Claims**



1. A self-guiding vacuum cleaner comprising a chassis (**10**) supporting a brush nozzle (**50**) facing the floor and having a nozzle opening (**51**) communicating with a chamber (**16**) in which a dust container (**17**) is arranged, said chamber being connected to the inlet side of a fan unit (**33**), a drive system for driving the vacuum cleaner on the floor, said drive system comprising at least two drive wheels (**35**) which are also arranged to guide the vacuum cleaner on the floor by relative motion of the wheels and an electric control system, wherein the chassis (**10**) and the nozzle (**50**)

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cooperate to provide means (**48**, **49**) for supporting the nozzle (**50**) in the chassis for vertical movement relative to said chassis.

5,781,961

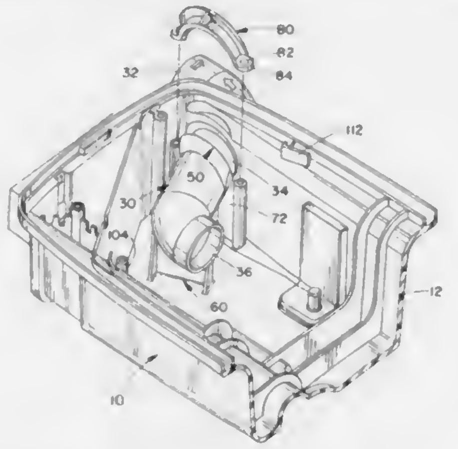
CONDUIT FOR A VACUUM CLEANER

Charles J. Thur, Broadview, and Mark E. Cipolla, Chardon, both of Ohio, assignors to Royal Appliance Mfg. Co., Cleveland, Ohio

Filed Jun. 8, 1995, Ser. No. 488,794

Int. Cl.⁶ A47L *9/14*

U.S. Cl. 15—327.2 **22 Claims**



1. A container construction for a vacuum cleaner, comprising:
a housing enclosing a dirt receptacle for the vacuum cleaner, said housing including a wall;
a hole extending through the wall of the housing;
a tubular conduit extending through said hole in said wall, said conduit having an inlet end located outside said housing and an outlet end located inside said housing, said conduit comprising:
  a flange extending radially outwardly from an outer periphery of said conduit, said flange being sized to contact said wall of said housing, and
  a rib extending radially outwardly from said conduit outer periphery in spaced relation to said flange; and,
a clamp cooperating with said rib and said housing to secure said conduit to said housing.

5,781,962

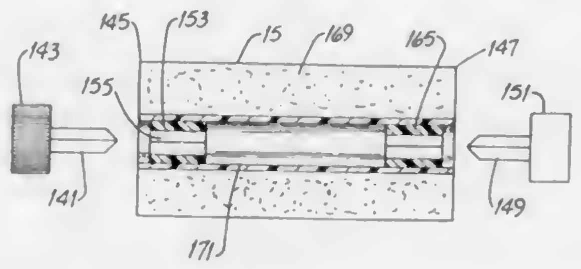
CARPET CLEANING MACHINE WITH MAINTENANCE-REDUCING FEATURES

Paul E. Flegel; Norman K. Harris; David G. Jansson, all of Racine, and Mark A. Pleshek, Milwaukee, all of Wis., assignors to Racine Industries, Inc.

Filed Oct. 15, 1996, Ser. No. 731,523

Int. Cl.⁶ A47L *5/10*

U.S. Cl. 15—392 **16 Claims**



1. In a carpet cleaning machine having a revolving carpet cleaning member powered by a gear-driven drive shaft for removing dirty material from a carpet, and wherein the cleaning member has first and second ends, the improvement wherein:
  the drive shaft is coupled to the first end;
  an idler shaft is coupled to the second end, is spaced from the drive shaft and supports the second end for rotation;
  the second end includes a bushing having a torgue-transmitting shape; and
  the idler shaft is received in and engages the bushing.

5,781,963

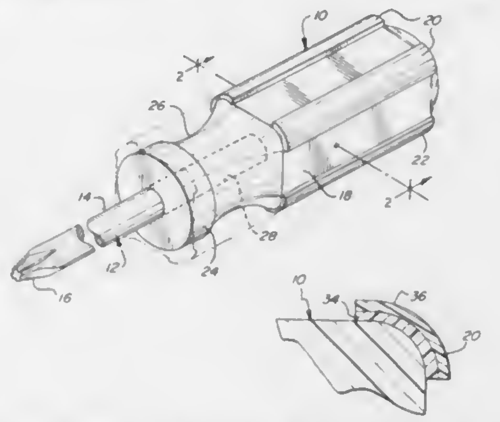
COEXTRUDED SCREWDRIVER HANDLE AND METHOD OF MAKING SAME

Joseph P. Maru, North Branford; Clifford H. Snow, Jr., Southington, both of Conn., and Toye F. Howle, Darlington, S.C., assignors to The Stanley Works, New Britain, Conn.

Filed Oct. 6, 1995, Ser. No. 540,588

Int. Cl.⁶ B25G *1/10*

U.S. Cl. 16—111 R **24 Claims**



1. A comfortably gripped tool handle adapted to seat the shank of a tool element for manipulation thereof, said handle being elongated with a tool receiving end portion and a grip portion extending to its other end, said handle having an extruded body formed of a rigid synthetic resin and having a uniform cross section over most of the length of said grip portion, said grip portion having a multiplicity of coextruded peripherally spaced external stripes extending axially over substantially the entire length of said grip portion and comprising a base layer of a synthetic resin which is firmly bonded to said body and an outer layer of synthetic resin which is substantially softer than that of said body and firmly bonded to said base layer, said stripes thereby being firmly bonded to said body.

5,781,964

PULL HANDLE ASSEMBLY OF A WHEELED SUITCASE

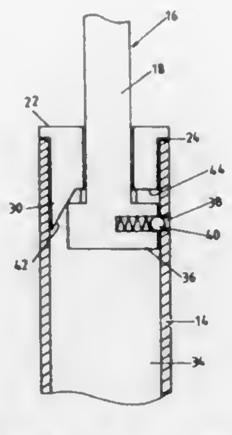
Jerhong Lin, and Kuo Chung-Hsien, both of Taipei Hsien, Taiwan, assignors to Chaw Khong Co., Ltd., Taipei, Taiwan

Filed Feb. 6, 1996, Ser. No. 597,314

Int. Cl.⁶ A47B *95/02*

U.S. Cl. 16—115 **7 Claims**

1. A pull handle assembly for pulling a wheeled suitcase comprising:
  (1) an elongated tube mounted in the suitcase having a channel in it with an upper opening;
  (2) a pull handle telescopingly received within the channel of the tube, the pull handle comprising a rod member having an upper end and a lower end, a gripping handle installed on the upper end of the rod member for hand gripping, and a rod guide installed on the lower end of the rod member for guiding the pull handle within the channel;
  (3) rod detention means installed under the upper opening of the channel for holding the rod guide of the pull handle to the channel; and



  (4) at least one flap having an engaging ramp installed on one side of the channel next to the rod detention means for engaging and pressing the rod guide of the pull handle against an opposite side of the channel to prevent it from wobbling when the rod guide is being held by the rod detention means.

5,781,965

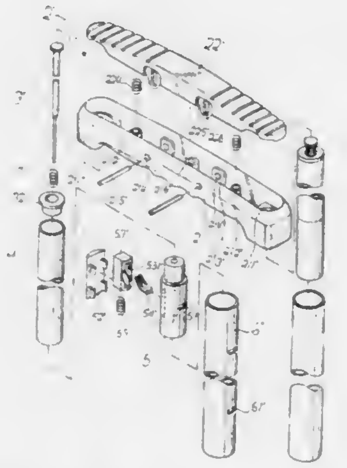
EXTENSIBLE HANDLE DEVICE

Lien-Ching Lu, Miao Li Hsien, Taiwan, assignor to Ting Cheng Co., Ltd., Miao Li Hsien, Taiwan

Filed May 29, 1997, Ser. No. 864,688

Int. Cl.⁶ B25G *1/04*

U.S. Cl. 16—115 **2 Claims**



1. An extensible handle device comprises:
a pair of longitudinal outer pipes,
a pair of inner pipes disposed in the corresponding outer pipes respectively,
a pair of cylinder blocks disposed in the corresponding inner pipes respectively,
a pair of push blocks disposed in the corresponding cylinder blocks respectively,
a handle bar having a hollow crossbar and a press bar inserted in the hollow crossbar,
the hollow crossbar having two through holes formed in the hollow crossbar to receive two upper ends of the two inner pipes, at least two hollow plates disposed in the hollow crossbar, at least two hollow posts disposed in the hollow crossbar, and at least two round holes formed on the hollow crossbar,
the press bar having two recess holes, two pairs of slots and at least two cage posts,
each of the cage posts having a protruded rod,
each of the slots having a slide hole formed in each of the slots,
each of the cylinder blocks having a rectangular hole,
each of the push blocks having a slide groove to receive a slide block and a helical spring abutting the slide block,
each of the push blocks covered by a seal plate on the respective cylinder block,
two hollow cushions inserted in the two upper ends of the inner pipes,
each of the hollow cushions receiving a compression spring and a connecting rod having a lower end inserted in the respective cylinder block and an upper end disposed outside of the respective hollow cushion,
each of the hollow posts receiving a coiled spring and a respective protruded rod,
each of the longitudinal outer pipes having a plurality of oblong holes,
each of the hollow plates inserted in each of the respective slots, and
a pin passing through the respective round hole and the respective slide hole.

5,781,966

CAM ADJUSTING DEVICE FOR FURNITURE

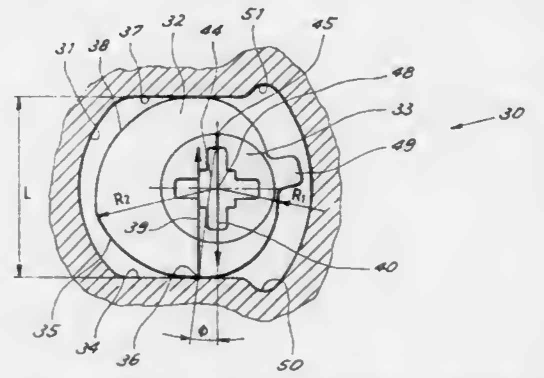
Franco Ferrari, and Carlo Migli, both of Lecco, Italy, assignors to Franco Ferrari, Lecco, Italy

Filed Feb. 7, 1997, Ser. No. 797,008

Claims priority, application Italy, Feb. 14, 1996, MI96A0281

Int. Cl.⁶ E05D *7/04*

U.S. Cl. 16—242 **8 Claims**



1. Cam adjusting device for furniture fittings, comprising first and second elements slidable reciprocally relative to each other, and a cam pivtoally connected to the first element by means of a pivot for rotating the cam around an axis to react a lateral surface on said cam against a bearing surface on the second element, upon rotation of the cam around the axis thereby achieving sliding adjustment of the reciprocal positions of the first and second elements, characterized by the fact that, for any angular position of the cam around said axis of rotation, the centre of rotation of the cam is on a line coincident with or parallel to a straight line passing through the point of contact of said lateral surface of the cam with said bearing surface on the second element, said straight line being inclined at an angle ϕ to a line perpendicular to the point of tangency between said lateral surface on said cam and said bearing surface on said second element.

5,781,967

SELF MOUNTING ADJUSTABLE HINGE WITH D-SHAPED OPENING

Georg Domenig, and Andreas Moser, both of Kernersville, N.C., assignors to Grass America, Inc., Kernersville, N.C.

Filed Jun. 5, 1996, Ser. No. 658,734

Int. Cl.⁶ E05D *7/04*

U.S. Cl. 16—249 **14 Claims**

11. In an adjustable hinge having a hinge cup mountable to a door, a hinge arm connected at one end to the hinge cup and a

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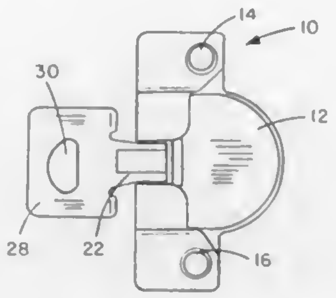
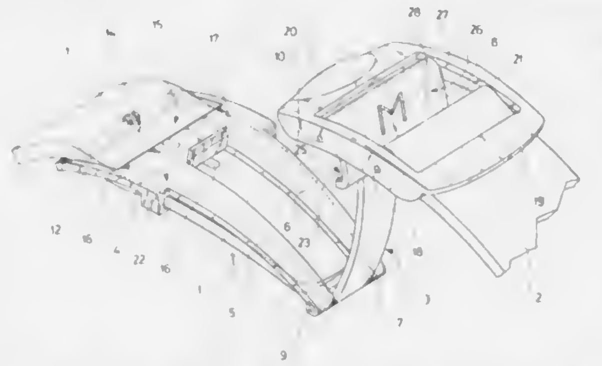


hinge plate connected to the hinge arm at the other end, an improvement comprising a substantially D-shaped opening in the hinge plate for receiving a pre-installed fastening screw.

5,781,968
UNFOLDING BUCKLE CLASP

Rolf Widmer, Bienne, Switzerland, assignor to SMH Management Services AG, Biel, Switzerland
Filed Jul. 15, 1997, Ser. No. 893,093
Claims priority, application France, Jul. 25, 1996, 96 09385
Int. Cl.^{6} A44C *5/00*
U.S. Cl. 24—71 J **8 Claims**

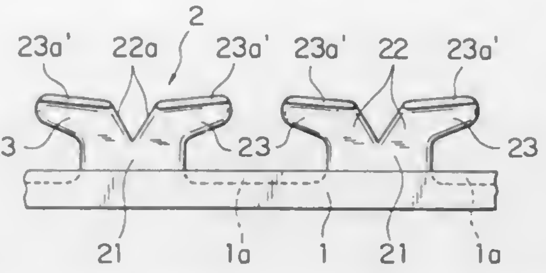


1. Unfolding buckle clasp for a wristlet made of leather or suchlike, said clasp comprising a cover and first and second strips attached to each other by one of their ends by means of a first hinge, the other end of said first strip comprising means for attaching a first strand of the wristlet so that the length of the wristlet may be adjusted and means for locking said first strip onto said second strip when the clasp is in a closed position, the other end of said second strip being mounted so as to pivot by means of a second hinge on said cover, said cover having an opening into which a projecting portion of the other end of said second strip is capable of being inserted, and said projecting portion having an upper face being substantially at the same level as an upper face of said cover when the clasp is in said closed position, wherein a second strand of the wristlet is attached to said cover by means of a third hinge.

5,781,969
MOLDED SURFACE FASTENER

Mitsuru Akeno, and Ryuichi Murasaki, both of Toyama-ken, Japan, assignors to YKK Corporation, Tokyo, Japan
Filed Oct. 31, 1996, Ser. No. 742,197
Claims priority, application Japan, Jun. 6, 1996, 8-144167
Int. Cl.^{6} A44B *18/00*
U.S. Cl. 24—452 **30 Claims**

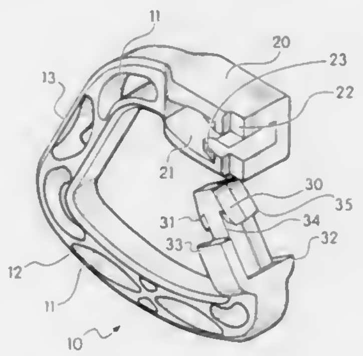
1. A synthetic resin molded surface fastener comprising:
(a) a substrate sheet; and
(b) a multiplicity of engaging elements molded on a front surface of said substrate sheet for engagement with loops of a companion surface fastener;



(c) each of said engaging elements having multiple-head structure composed of a single stem standing on said front surface of said substrate sheet, two or more necks branching in different directions form an upper end of said stem, and two or more substantially straight engaging heads bent outwardly in branching directions from respective outer ends of said necks;
(d) each of said engaging heads having on its top a pair of substantially horizontal protuberances projecting perpendicularly to the branching direction of each said engaging head, said top having a substantially flat top surface.

5,781,970
STRAP RETAINER

Joseph Anscher, Muttontown, N.Y., assignor to National Molding Corp., Farmingdale, N.Y.
Filed Nov. 14, 1997, Ser. No. 971,844
Int. Cl.^{6} A44B *21/00*
U.S. Cl. 24—573.5 **8 Claims**

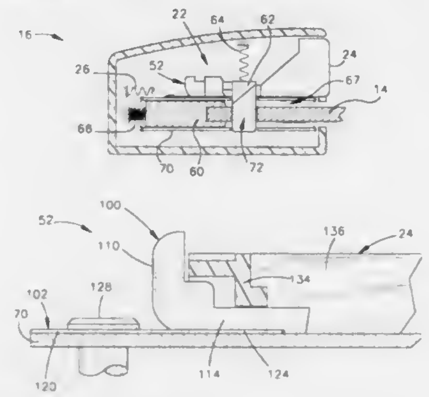


1. A strap retainer comprising:
a flexible elongated body having two planar sides, a first end and a second end adapted for closure onto said first end; and
a locking pawl comprising a head section connected to said first end by a post, said locking pawl having a top surface and a bottom surface;
a receptacle for the locking pawl integrally formed with the second end, said receptacle having a free end, a top surface and a bottom surface, said top and bottom surfaces being in planes parallel to the planar sides of the body, and comprising:
(a) a cavity in the top surface of the receptacle, said cavity having an enlarged section and a narrow section extending through the free end of the receptacle, said enlarged section being longer than the head section of the locking pawl and said narrow section being narrower than the head section of the locking pawl;
(b) at least one flexible locking tooth disposed in the enlarged section of the cavity, said locking tooth protruding in to the cavity; and
(c) a shoulder element arranged on each side of the cavity so as to define an insertion area in the top surface of the receptacle corresponding to the shape of the locking pawl;
wherein inserting the locking pawl into the cavity through the insertion area depresses the locking tooth, and sliding the

locking pawl toward the free end of the receptacle underneath the shoulder elements releases the locking tooth into the cavity to lock the locking pawl within the receptacle.

5,781,971
SEAT BELT BUCKLE WITH INERTIA LOCKING MECHANISM

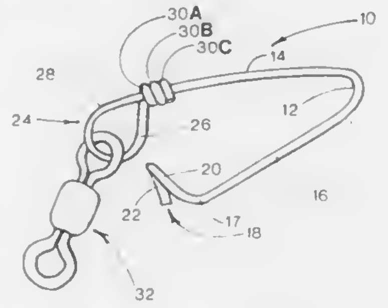
Carl M. Petersen, III, Waterford, Mich., assignor to TRW Vehicle Safety Systems Inc., Lyndhurst, Ohio
Filed Feb. 19, 1997, Ser. No. 802,561
Int. Cl.^{6} A44B *11/00*
U.S. Cl. 24—633 **26 Claims**



1. Apparatus comprising:
a latch mechanism;
a pushbutton having a release position in which said pushbutton releases a seat belt tongue from said latch mechanism;
an inertia member having a blocking position preventing said pushbutton from moving to said release position;
a spring; and
means for supporting said inertia member for inertial movement from a non-blocking position to said blocking position against a bias of said spring, said supporting means being free of a pivotal bearing.

5,781,972
FISHING SNAP

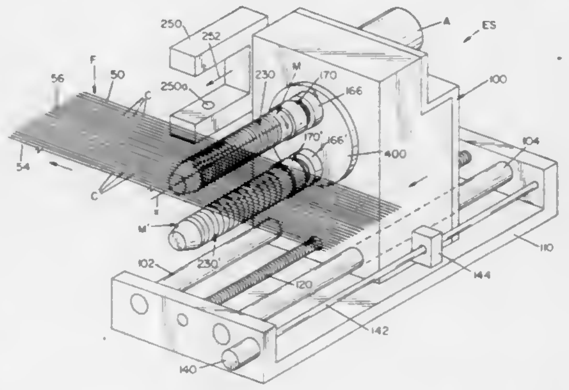
John David Steed, 6365 69th St., Vero Beach, Fla. 32967
Filed Jun. 24, 1996, Ser. No. 668,771
Int. Cl.^{6} A01K *91/00;* **A44B** *13/00*
U.S. Cl. 24—908 **6 Claims**



1. A snap comprising:
a single length of tensile wire which is bent at a focal region so as to define a first end region and a second end region;
said first end region is comprised of a bracing arm, an eye and a plurality of loops at the extreme end portion of said first end region, said plurality of loops extending from said eye and looping around said bracing arm;
said second end is comprised of a lever arm and a latching hook located at the extreme end of said second end;
said eye is comprised of a contact brace region which integrally connects to both a radial portion of said eye and to said bracing arm, said radial portion of said eye being integrally connected to a locking region of said eye and said locking region integrally connecting to said plurality of loops which wrap around said bracing arm;
said latching hook is comprised of an upward region, which integrally and laterally connects to said lever arm, and by a downward locking region which integrally connects to said upward region at a contact point to form said latching hook, said downward locking region having an end point which is the extreme end point of said second end region;
when said snap is in an open position, said latching hook and said eye do not make contact, said upward region of said latching hook being directed toward said eye and said downward locking region of said latching hook and said end point being directed away from said eye;
when said snap is in a closed position, said contact point of said latching hook makes contact with said contact brace region of said eye with said downward locking region contacting said locking region of said eye and being substantially parallel thereto with said end point of said locking region curving and extending such that a frontal view of said snap would indicate that said end point of said latching hook is positioned between said locking region of said eye and said radial portion of said eye.

5,781,973
SPREADER FOR CALENDAR LINE

Edward S. Orzel, Parma, Ohio, assignor to The North American Manufacturing Company, Cleveland, Ohio
Filed Sep. 26, 1997, Ser. No. 938,567
Int. Cl.^{6} D06C *3/06*
U.S. Cl. 26—75 **45 Claims**



1. A spreader for spreading a fabric having upper and lower sides, transversely spaced edges and longitudinally extending tire reenforcing cords spaced laterally across said fabric between said edges preparatory to rubberizing said fabric in a calender, as said fabric moves in a given path to said calender, with said fabric having a desired transverse location for each of said edges, said spreader comprising: a cantilever mounted mandrel having an outer generally cylindrical surface concentric with a rotational axis, said cylindrical surface having a helical groove with convolutions having a pitch equal to a desired cord distribution laterally of said fabric; a mandrel support structure adjacent one edge of said fabric and having means for rotatably mounting said mandrel in a position transverse of said fabric with said cylindrical surface aligned with said fabric path to be generally tangential to a side of said fabric as said fabric moves in said given path; a first motor on said support structure for rotating said mandrel about said axis at a given rotational speed; a second motor for moving said support structure in a direction parallel to said rotational axis of said mandrel and at a given linear speed as said first motor is rotating said mandrel until a number of cords of said fabric at said one edge of said fabric are captured in said helical groove and spaced by the

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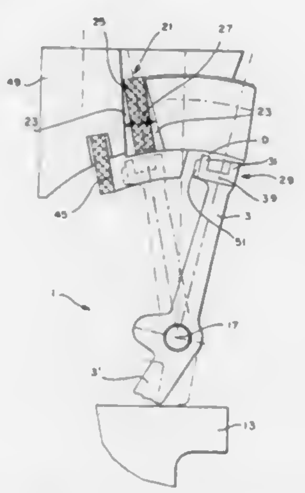
pitch of convolutions of said groove at said desired cord distribution; means for stopping said mandrel when said one edge is at a detected transverse location with respect to said mandrel support structure; and, feedback means for thereafter maintaining said one edge at said known desired transverse location of said one edge.

5,781,974
MAGNETIC TENTER LEVER ACTUATING DEVICE

Jürgen Breil, Grabenstätt, Germany; Paul Lindner, Henndorf, Austria, and Bernd Sieber, Dresden, Germany, assignors to Bruckner Maschinenbau GmbH, Siegsdorf, Germany
PCT No. PCT/EP96/02190, § 371 Date Jan. 14, 1997, § 102(e) Date Jan. 14, 1997, PCT Pub. No. WO96/37358, PCT Pub. Date Nov. 28, 1996
PCT Filed May 22, 1996, Ser. No. 765,694
Claims priority, application Germany, May 24, 1995, 195 19 095.5
Int. Cl.⁶ D06C *3/04*
U.S. Cl. 26—94 **20 Claims**

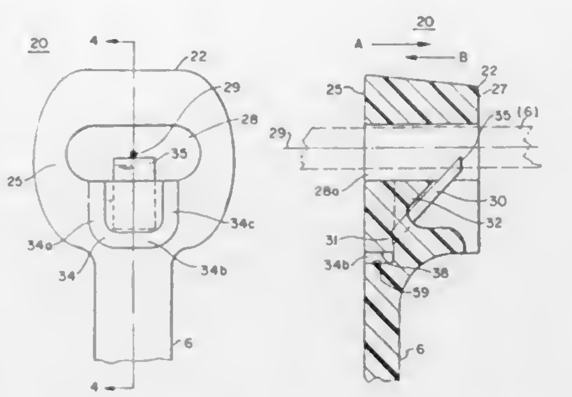


1. In a transport device for a moving material web having a coupling rail extending at least partially along a circulation path, a magnetic tenter lever actuating device comprising:

- a tenter body movable along said path and including a tenter lever mounted for pivotal movement about an axis on said tenter body between open and closed positions relative to the web, said tenter lever having a coupling section;
- a magnetic coupling between said coupling rail and said coupling section for pivoting said tenter lever as said tenter body moves along said path defined by said coupling rail;
- said coupling section being separated from said coupling rail by an air gap; and
- an auxiliary safety device for actuating said tenter lever including a mechanical system for mechanically pivoting said lever toward said open position or said closed position in the event of a failure or ineffectiveness of said magnetic coupling.

5,781,975
FLEXIBLE PLATFORM FOR CABLE TIE BARB

Peter M. Wells, Jr., Germantown, and George Robertson, Memphis, both of Tenn., assignors to Thomas & Betts Corporation, Memphis, Tenn.
Filed Mar. 12, 1997, Ser. No. 815,778
Int. Cl.⁶ B65D *63/14*
U.S. Cl. 24—16 PB **5 Claims**



1. A bundling tie comprising:

- an elongate strap having a tail at one end;
- a head having a strap ingress face, a strap egress face, and an aperture therethrough the head, said aperture communicating with said strap ingress face and said strap egress face for insertable receipt of said strap;
- an elongate locking barb having one end embedded into said head said locking barb being engagable with said strap upon insertion of said strap into said aperture;
- a flexible foundation portion in said head, said barb having a first end embedded in said foundation portion and having a second end extending into said aperture for locking engagement with said strap upon said insertion thereinto;
- said foundation portion of said head being further defined by a U-shaped channel having first and second spaced-apart legs connected by a central leg formed in the strap ingress face of said head, said foundation portion being flexibly supported so at to be movable upon insertion of said strap to permit passage of said strap through said aperture;
- wherein said channel further defines two opposing side walls defining two engagement surfaces for mutual engagement upon attempted movement of said strap in a withdrawal direction opposite said insertion and preventing over rotation of said foundation portion.

5,781,976
METHOD OF AND APPARATUS FOR FABRICATING DIMENSIONALLY STABLE, CYLINDRICAL FILLER BODIES AND EXPANDED MATERIAL

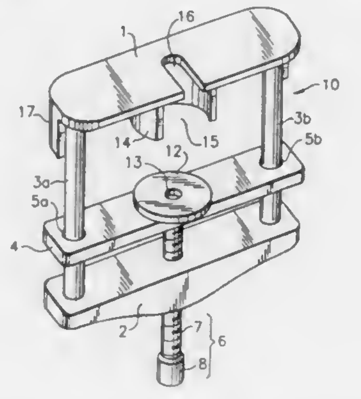
Franz Stuhlbacher, Harterstrasse 26, 8053 Graz, and Karl Heinz Zöhrer, Südtirolerplatz 10, 8020 Graz, both of Austria
Filed Mar. 3, 1995, Ser. No. 397,983
Claims priority, application Austria, Dec. 23, 1994, 2394/94
Int. Cl.⁶ B21D *31/04*
U.S. Cl. 29—6.1 **18 Claims**

1. An apparatus for fabricating dimensional stable cylindrical bodies of thin material strips, comprising:

- means for forming slits through a thin strip of material, which slits extend longitudinally of said strip and which are staggered with respect to one another in a transverse direction of said strip;
- means, downstream of said means for forming slits, for expanding said strip of material in said transverse direction to a desired breadth;
- means, downstream of said means for expanding, for folding said strip of material in said transverse direction, for lopping said strip of material into pieces after it has been folded, and for cylindrically compacting lopped pieces of the strip of material in such a manner that the lopped pieces are rolled into cylindrical bodies; and
- conveying means for conveying said strip of material through said means for forming slits, means for expanding and means for folding, lopping and compacting; wherein
- said means for forming slits includes a first set of cutting discs separated from one another by a washer such that a space exists between every two immediately adjacent cutting discs, and a second set of cutting discs separated from one another by a washer such that a space exists between every two immediately adjacent cutting discs, wherein said cutting discs of said first set are individually received within said spaces of said second set and said cutting discs of said second set are individually received within said spaces of said first set, and wherein each cutting disc of said second set has a first plurality of spaced recesses on one side of said disc extending inwardly from a periphery thereof and around the entire periphery thereof, and a second plurality of spaced recesses on an opposite side of said disc extending inwardly from a periphery thereof and around the entire periphery thereof, such that along the entire periphery of said disc the following pattern is established and repeated, recess of first plurality, recess of second plurality, recess of first plurality, recess of second plurality.

5,781,977
BALL JOINT COMPRESSOR

Daniel Servones, Mount Vernon, N.Y., assignor to Lawrence I. Wechsler, Great Neck, N.Y., a part interest
Filed Feb. 13, 1995, Ser. No. 388,199
Int. Cl.⁶ B23P *19/04*
U.S. Cl. 29—259 **26 Claims**

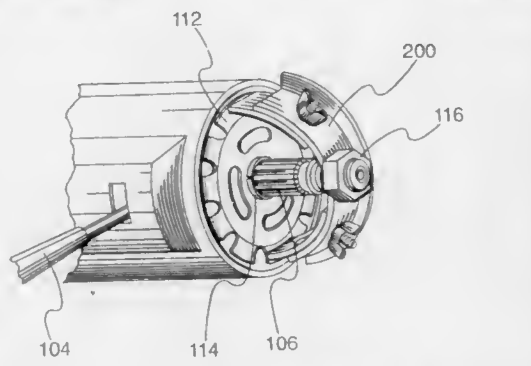


1. A tool for use during installation of a ball joint into an interference-fit accommodating hole in a control arm, in which installation the ball joint having a base and a stem is inserted, stem first, into the accommodating hole from an insertion side of said control arm to protrude from an exiting side thereof, and advanced therein by a compression force until seated, said repair tool comprising:

- a body including upper support means and lower support means spaced apart and fixedly interconnected by a pair of bilateral support means, said ball joint and said control arm being received therebetween during the installation, said upper support means including an upper support member;
- compression means for contacting the base of said ball joint, mounted to said body and movable along an axis of travel substantially perpendicular to said upper support means and said lower support means, and disposed therebetween;
- control arm stop means carried on said upper support means for contacting the control arm adjacent said accommodating hole, said control arm stop means including a tube-shaped member longitudinally extending from a surface of said upper support member in a direction towards said compression means; and
- means for advancing said compression means towards said upper support means whereby compression force may be exerted upon the ball joint by said compression means, said control arm stop means preventing motion of the control arm in the direction of a resultant ball joint advancement, whereby the ball joint is compressed into seated position.

5,781,978
DEVICE AND METHOD FOR DISASSEMBLING AND RE-ASSEMBLING A STEERING COLUMN

Leonard L. Fleming, 2711 W. Harrison, Chicago, Ill. 60612
Filed Feb. 9, 1996, Ser. No. 599,049
Int. Cl.⁶ B23P *6/00;19/04*
U.S. Cl. 29—402.03 **16 Claims**



8. In a method for providing an access to at least one part housed in a steering column, the steering column including a steering housing, a turn signal control lever extending from the steering housing, a steering shaft centrally located in the steering housing, an upper bearing spring around the steering shaft, a turn signal cancelling cam being mounted over the upper bearing spring, a lock plate being mounted over the turn signal cancelling cam, and a holding ring mounted on the steering shaft and holding the lock plate in position; the improvement comprising:

- providing a device for assisting in disassembly and re-assembly of the steering column, the device including a reinforced arcuate housing and an adjusting means mounted thereon, the reinforced arcuate housing having a first end and a second end, the adjusting means including a first adjustable flange and a second adjustable flange, the first adjustable flange being movably mounted at the first end of the reinforced arcuate housing, and the second adjustable flange being movably mounted at the second end of the reinforced arcuate housing;
- inserting the device over the steering rod;
- applying pressure through the device to the lock plate;
- removing the holding ring;
- positioning the first adjustable flange and the second adjustable flange to contact the lock plate;
- providing a post aperture for the arcuate housing; and
- placing the post aperture over the steering post.

5,781,979
NIB CHANGING APPARATUS FOR A FOUNTAIN PEN AND METHOD

Neville Edgar Andrews, Horsham, United Kingdom, assignor to Parker Pen Products, Isleworth, England
PCT Nn. PCT/GB94/01371, § 371 Date Mar. 25, 1996, § 102(e) Date Mar. 25, 1996, PCT Pub. No. WO95/01881, PCT Pub. Date Jan. 19, 1995
PCT Filed Jun. 24, 1994, Ser. No. 571,953
Claims priority, application United Kingdom, Jul. 8, 1993, 9314115
Int. Cl.⁶ B23P *6/00;* **B43K** *23/12*
U.S. Cl. 29—402.08 **6 Claims**

1. A method of replacing a used pen nib with a new pen nib, comprising the steps of:

- providing a new pen nib having a writing end and a threaded end:
- providing a tube having two ends;
- providing two spigots, one spigot operatively engaged to each end of said tube, each spigot having a shaped-opening socket defined therein for operatively engaging the writing end of said new or said used pen nib therein, said sockets facing each other when said spigots are operatively engaged to said tube,

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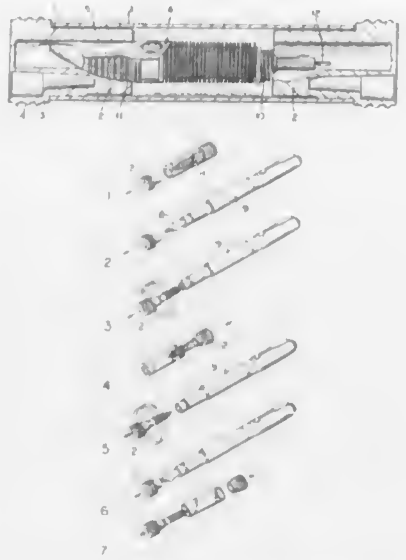
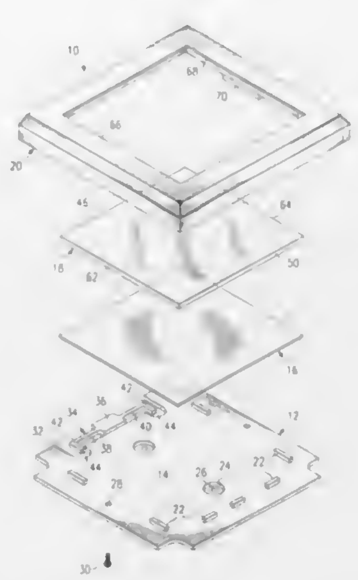




one of said spigots being operatively engaged to the writing end of said new pen nib, said new pen nib being enclosed by said spigots and said tube;

removing said spigots from said tube;

providing a writing instrument having a used pen nib threadedly engaged at one end thereof;

operatively engaging the other of said spigots removed from said tube to the writing end of said used pen nib;

rotating said other spigot to disengage said used pen nib from threaded engagement with said writing instrument; and

rotating said one spigot and said new pen nib operatively engaged thereto relative to said writing instrument to operatively engage said new pen nib to said writing instrument.

6. An apparatus for cleanly interchanging new and used pen nibs, comprising:

a new pen nib having a writing end and a threaded end;

a first spigot having a shaped opening socket therein for operatively engaging the writing end of the new pen nib;

a second spigot having a shaped opening socket defined therein for operatively engaging a writing end of a used pen nib;

a tube having two ends and an opening defined therethrough, the ends of the tube being sized such that the spigots can be removably secured to respective ends of the tube, the length of the tube being sized to accept the new pen nib therein when the spigots are removably secured to respective ends of the tube.

5,781,980
DISPLAY WITH MOLDED SPRING

S. Webb Golston, Denton, Tex., assignor to Golston Company, Sanger, Tex.

Filed Aug. 7, 1995, Ser. No. 512,231

Int. Cl.^{6} B23P *11/02*

U.S. Cl. 29—450 **17 Claims**

1. A method for assembling a sign holder, comprising the steps of:

providing a backplate having a spring mounted on one end thereof.

providing a frame having a border defining a central opening;

assembling said backplate to said frame such that a space exists between said border and said backplate, with said spring located within the space;

providing a lens having first and second opposite edges separated by a distance greater than a width of said central opening;

inserting said first edge of said lens into said space such that said edge contacts said spring and compresses it away from said central opening in a direction substantially parallel to said backplate;

pivoting the lens further into said space until said lens is substantially parallel to said backplate, thereby further compressing said spring in said direction and further inserting said first edge into said space, such that said first edge is completely located beneath said border; and then

releasing the lens, thereby causing said spring to expand such that said spring moves said second edge of said lens underneath said border while said first edge remains underneath said border, and thereby securing said lens in the space between said frame and said backplate.

5,781,981
METHOD OF COVERING A FLOWER POT WITH A POT COVER HAVING AN ELASTIC FASTENER INCORPORATED THEREIN

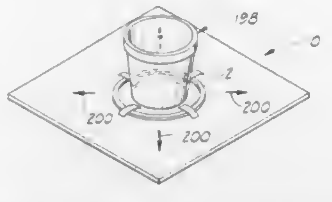
Donald E. Weder; Joseph G. Straeter, both of Highland, and William F. Straeter, Breese, all of Ill., assignors to Southpac Trust International, Inc.

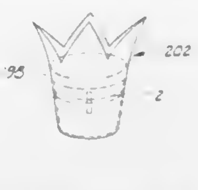
Continuation of Ser. No. 364,356, Dec. 27, 1994, Pat. No. 5,551,140, which is a continuation-in-part of Ser. No. 108,093, Aug. 17, 1993, Pat. No. 5,472,752, which is a continuation of Ser. No. 24,573, Mar. 1, 1993, abandoned, which is a continuation of Ser. No. 464,694, Jan. 16, 1990, Pat. No. 5,208,027, which is a continuation of Ser. No. 219,083, Jul. 13, 1988, Pat. No. 4,897,031, which is a continuation of Ser. No. 4,275, Jan. 5, 1987, Pat. No. 4,773,182, which is a continuation of Ser. No. 613,080, May 22, 1984, abandoned, said Ser. No. 364,356 is a continuation-in-part of Ser. No. 188,183, Jan. 28, 1994, Pat. No. 5,388,386, which is a continuation of Ser. No. 968,798, Oct. 30, 1992, Pat. No. 5,369,934, which is a continuation of Ser. No. 865,563, Apr. 9, 1992, Pat. No. 5,245,814, which is a continuation of Ser. No. 649,379, Jan. 31, 1991, Pat. No. 5,111,638, which is a continuation of Ser. No. 249,761, Sep. 26, 1988, abandoned, said Ser. No. 364,356 is a continuation-in-part of Ser. No. 934,832, Aug. 24, 1992, Pat. No. 5,426,914, which is a continuation-in-part of Ser. No. 819,311, Jan. 9, 1992, abandoned, which is a continuation of Ser. No. 765,416, Sep. 26, 1991, Pat. No. 5,105,599, which is a continuation of Ser. No. 530,491, May 29, 1990, abandoned, which is a continuation of Ser. No. 315,169, Feb. 24, 1989, abandoned, said Ser. No. 934,832 is a continuation-in-part of Ser. No. 832,096, Feb. 6, 1992, abandoned, which is a continuation-in-part of Ser. No. 765,416. This application Jan. 19, 1996, Ser. No. 589,045

Int. Cl.^{6} B23P *11/02;* **A01G** *9/02*

U.S. Cl. 29—450 **12 Claims**

1. A method of forming a covered flower pot, comprising the steps of:





providing a flower pot having an outer peripheral surface and an upper opening;

providing a covering material for covering the flower pot, the covering material comprising a sheet of material and a ring shaped elastic fastener connected to the sheet of material so that the ring shaped elastic fastener is radially expansible and contractable in a direction substantially parallel to the sheet of material;

forming the sheet of material about at least a portion of the outer peripheral surface of the flower pot and expanding the ring shaped elastic fastener about the outer peripheral surface of the flower pot as the sheet of material is formed about the outer peripheral surface of the flower pot; and

allowing the ring shaped elastic fastener to contract against the outer peripheral surface of the flower pot and thereby hold the sheet of material about the outer peripheral surface of the flower pot.

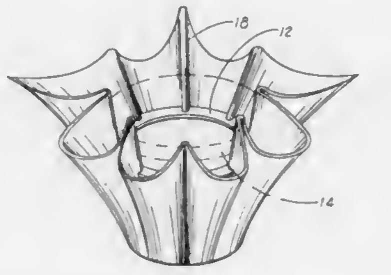
5,781,982
METHOD OF SHAPING AND HOLDING A SHEET OF MATERIAL ABOUT A FLOWER POT WITH A COLLAR

Donald E. Weder, Highland, Ill., assignor to Southpac Trust International, Inc.

Continuation of Ser. No. 984,815, Dec. 3, 1992, Pat. No. 5,274,900, which is a continuation of Ser. No. 890,499, May 27, 1992, Pat. No. 5,184,390, which is a continuation of Ser. No. 405,410, Sep. 11, 1989, Pat. No. 5,129,182, which is a continuation of Ser. No. 327,996, Mar. 21, 1989, Pat. No. 4,901,123, which is a continuation of Ser. No. 232,541, Aug. 11, 1988, Pat. No. 4,835,834, which is a continuation of Ser. No. 846,405, Jun. 19, 1986, abandoned. This application Jan. 3, 1994, Ser. No. 176,614

Int. Cl.^{6} B23P *11/00*

U.S. Cl. 29—525.01 **1 Claim**



1. A method for shaping a sheet of material about the outer peripheral surface of a flower pot having an upper end and a lower end, comprising:

providing a collar having an opening formed therethrough, the opening being shaped to receive the flower pot so the flower pot extends through the opening formed in the collar and so the collar extends generally about the outer peripheral surface of the flower pot;

positioning and securing said collar on the outer peripheral surface of said flower pot

shaping the sheet of material generally about at least a portion of the outer peripheral surface of the flower pot and generally about the collar; and

connecting the sheet of material to the collar for securing the sheet of material positioned generally about the outer peripheral surface of the flower pot.

5,781,983
MACHINING CENTER

Magnus Grüner, Panoramastrasse 10, 73337 Bad Überkingen, Germany

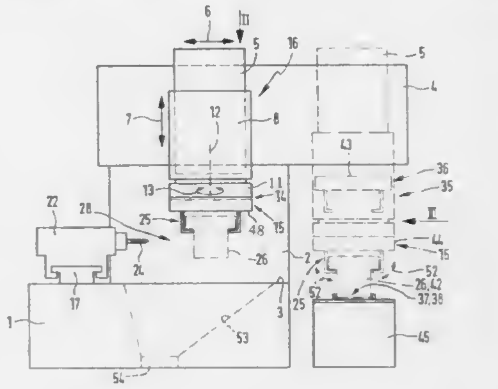
PCT No. PCT/EP95/02385, § 371 Date Dec. 30, 1996, § 102(e) Date Dec. 30, 1996, PCT Pub. No. WO96/00633, PCT Pub. Date Jan. 11, 1996

PCT Filed Jun. 20, 1995, Ser. No. 765,311

Claims priority, application Germany, Jun. 29, 1994, 44 22 416.8

Int. Cl.^{6} B23Q *7/00*

U.S. Cl. 29—563 **17 Claims**



1. A machining center for machining workpieces (**26**), comprising at least one work unit (**22**, **22**' and **22**") having at least one work spindle (**23**) able to be driven in rotation and adapted to be fitted with a machining tool (**24**) with which at least one workpiece (**26**) arranged in a machining zone (**28**) may be machined, a workpiece carrier (**15**) on which the workpiece may be releasably held by means of a holding device (**25**) arranged on the workpiece carrier (**15**), the work unit (**22**, **22**' and **22**") and the workpiece carrier (**15**) being able to be shifted in relation to one another, a positioning device (**16**) for the workpiece carrier (**15**) by which the workpiece carrier (**15**) is able to be shifted between the machining zone (**28**) and a workpiece change station (**35**) located outside the machining zone (**28**), and a gripper for the change over from workpieces (**26**) to be machined and workpieces already machined, the gripper receiving the workpiece (**26**) from a workpiece get-ready site (**37**) in the workpiece change station (**35**) from above or from the side, lifting the same and conveying it into the machining zone (**28**) and, after machining, depositing it at a workpiece deposit site (**38**) in the workpiece change over station (**35**) from above or from the side, wherein the holding device (**25**) on the workpiece carrier (**15**) constitutes the gripper and the gripper moves the workpiece (**26**) into machining engagement, the respective workpiece (**26**), which is respectively to be machined, remaining constantly on the gripper (**25**) from pickup until renewed deposit in the workpiece change station and accordingly also during intermediate machining by the machining tool (**24**) which is arranged on the rotating work spindle (**23**) of the work unit (**22**, **22**' and **22**") and in that the workpiece carrier (**15**) is arranged in a replaceable manner on the positioning device (**16**) jointly with the holding device (**25**);

wherein one workpiece carrier change station (**92**) is provided, wherein the positioning device (**16**) picks up the workpiece carrier (**15**') required for a machining operation, from a supply device (**93**) of the workpiece carrier change station (**92**).

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5,781,984
APPLIANCE FOR CUTTING-OFF AND/OR STRIPPING INSULATION

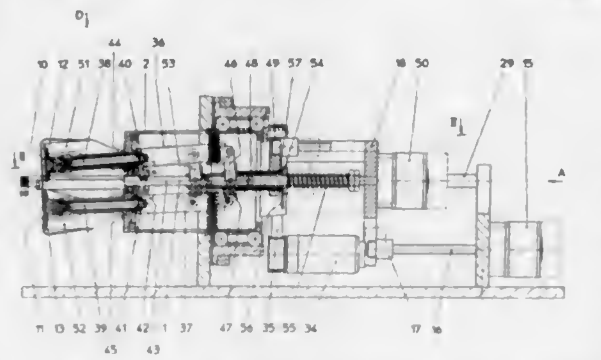
Max Koch, Meggen, and Alois Lustenberger, Littau, both of Switzerland, assignors to Komax Holding AG, Dierikon, Switzerland

Division of Ser. No. 404,856, Mar. 15, 1995, Pat. No. 5,596,802. This application Oct. 29, 1996, Ser. No. 738,594

Claims priority, application Switzerland, Mar. 16, 1994, 00778/94

Int. Cl.⁶ H01R *43/01*

U.S. Cl. 29—564.4 **12 Claims**



1. Appliance for cutting-off and/or stripping a section of at least one layer of sheathing from a cable-like conductor, the conductor having a longitudinal axis, said appliance comprising:

at least one conductor scanning arrangement for determining a starting position of the conductor in a longitudinal direction along the longitudinal axis;

a unit for initiating at least one of a cutting-off and stripping process when the conductor is in the starting position;

clamping jaws for fixing the conductor in the starting position;

blade centering jaws for placing the longitudinal axis of the conductor in a defined position by non-deforming contact with the outside of the sheathing in a radial direction perpendicular to the longitudinal axis;

two cutting knives which are mounted directly next to said blade centering jaws and are spaced apart in the radial direction on opposite sides of the longitudinal axis;

a feed and return arrangement coupled to said blade centering jaws and said cutting knives for effecting common displacement of said blade centering jaws and said cutting knives in the radial direction from a rest position in order to place said blade centering jaws in contact with the outside of the sheathing and to bring said cutting knives to a certain cutting depth in the at least one layer of sheathing, and to return said blade centering jaws and said cutting knives to the rest position after cutting the at least one layer of sheathing; and

a rotor head carrying said feed and return arrangement and displaceable parallel to the longitudinal axis to establish a determined cut-off length of the at least one layer of sheathing.

5,781,985
METHOD OF MAKING A GYRO APPARATUS

Takafumi Nakaishi; Takeshi Hojo, both of Kuroiso; Takao Murakoshi, Ogawa-machi; Isao Masuzawa; Shigeru Nakamura, both of Kuroiso, and Kazuaki Tani, Yaita, all of Japan, assignors to Tokimec Inc., Tokyo, Japan

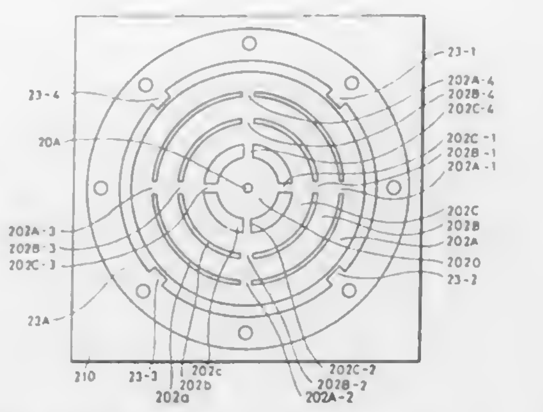
Division of Ser. No. 268,647, Jun. 30, 1994. This application Apr. 10, 1995, Ser. No. 418,657

Claims priority, application Japan, Jul. 6, 1993, 5-166945

Int. Cl.⁶ H01F *41/00*

U.S. Cl. 29—602.1 **2 Claims**

1. A method of manufacturing a gyro apparatus having a thin disk-shaped gyro rotor and a gyro case for accommodating therein said gyro rotor, comprising the steps of: providing a thin plate member made of an insulating material having opposed surfaces; forming thin metal film electrodes on both surfaces thereof; cutting said plate member into circular disks to form a gyro rotor; and simultaneously forming a metal thin film annular spacer and a plurality of stoppers projecting from said spacer to the inside of said disk in the radial direction, said stoppers being formed so as to surround said electrodes and are spaced apart from said electrodes to form the gyro case, said spacer and said stoppers being formed as an integral member with said gyro rotor by cutting portions of said spacer and said stoppers from said plate member wherein said gyro case includes an upper side bottom member and a lower side bottom member, said method including the step of assembling said gyro so that said spacer is disposed between the upper side bottom member and the lower side bottom member so as to dispose said gyro rotor such that a spacing between each of tops of said stoppers and an outer peripheral portion of said gyro rotor becomes the same.



5,781,986
METHOD OF MAKING A MAGNETIC RECORDING/READING HEAD

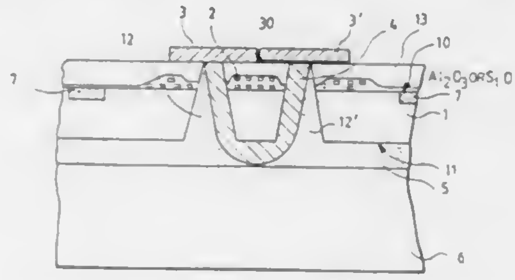
François Maurice, Verrieres le Buisson; Jean-Marc Coutellier, Maurepas, and François-Xavier Pirot, Magny, all of France, assignors to Thomson-CSF, Paris, and Thomson Multimedia, Courbevoie, both of France

Filed Nov. 17, 1995, Ser. No. 560,384

Claims priority, application France, Nov. 29, 1994, 94 14289

Int. Cl.⁶ G11B *5/42*

U.S. Cl. 29—603.14 **15 Claims**



1. A method for making a magnetic recording/reading head comprising the steps of:

providing a substrate having a first face and a second face;

providing magnetic excitation wires on the first face of said substrate;

providing an insulation layer on said wires;

forming, on the insulation layer, at least two magnetic poles separated by a gap;

drilling holes through the substrate and the insulation layer from the second face of the substrate; and

depositing a layer of material with high magnetic permeability in the holes for the purpose of establishing magnetic coupling between the poles.

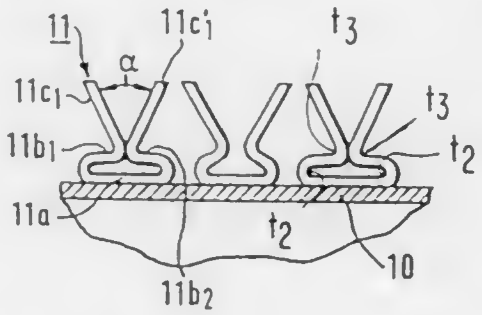
5,781,987
APPRATUS FOR MANUFACTURING A NEEDLE-RIB HEAT-EXCHANGER CONSTRUCTION

Risto Castrén, Lahti, Finland, assignor to Retermia Oy, Heinola, Finland

Filed Nov. 28, 1995, Ser. No. 563,677

Int. Cl.⁶ B23P *15/26*

U.S. Cl. 29—727 **15 Claims**



1. An apparatus for manufacturing a needle-rib heat-exchanger construction which comprises an elongate tube and a band wound onto said tube, the band having a central portion and a lateral portion on each side of said central portion, comprising

cutting means for cutting the lateral portions of the band,

a set of former wheels structured and arranged for shaping the cut band to include a bottom part having first and second longitudinally extending edge regions, top portions formed from the lateral portions of the band between adjacent cuts in the band, said top portions formed from the lateral portions of the band between each pair of adjacent cuts being arranged in opposed relationship to a respective one of said first and second edge regions of said bottom part, and needle-shaped ribs formed from the lateral portions of the band between the adjacent cuts in the band, said needle-shaped ribs formed from the lateral portion of the band between each pair of adjacent cuts projecting from a respective one of said top portions and being situated at an angle in relation to one another,

first rotation means for rotating said former wheels, and

second rotation means for rotating the tube and moving the tube in the longitudinal direction, the band being guided against said rotating former wheels and wound onto the tube.

5,781,988
DYNAMO-ELECTRIC MACHINE COMPONENT CONVEYING SYSTEMS AND LOAD/UNLOAD DEVICES

Alessandro Faraoni; Massimo Lombardi, both of Florence, and Maurizio Mugelli, Siena, all of Italy, assignors to Axis USA, Inc., Marlborough, Mass.

Division of Ser. No. 305,685, Sep. 13, 1994, Pat. No. 5,635,014. This application Feb. 25, 1997, Ser. No. 804,674

Int. Cl.⁶ H02K *15/00;* **B65G** *47/52*

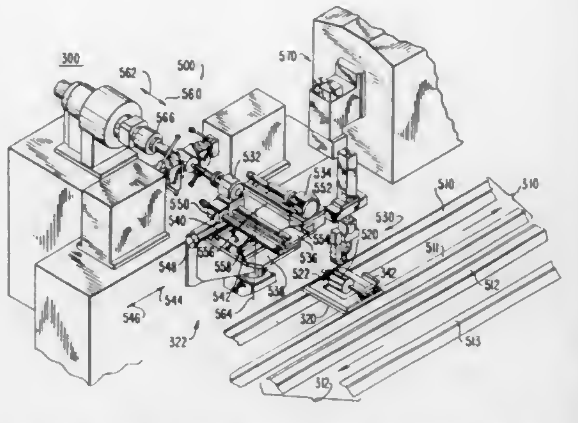
U.S. Cl. 29—735 **7 Claims**

1. Apparatus for conveying dynamo-electric machine components having a magnetic core from a winding machine which winds coils of wire having coil leads on said core to a fusing machine which forms permanent mechanical and electrical connections between said coil leads and said components comprising:

first and second component holders;

first means for successively positioning said component holders for exchanging components with said winding machine and for exchanging components with said fusing machine; and

second means, operable when said first means positions said component holders for exchanging components with said winding machine, for successively positioning each of said component holders relative to said winding machine so that said first component holder can receive a first one of the components from said winding machine and so that said second component holder can thereafter release a second one of the components to said winding machine, said second means being further operable, when said first means positions said component holders for exchanging components with said fusing machine, for successively positioning each of said component holders relative to said fusing machine so that said second component holder can receive a third one of the components from said fusing machine and so that said first component holder can thereafter release the first one of the components to said fusing machine.



5,781,989
FASTENER ATTACHING APPARATUS

Volker Schmidt, Lexington, Ky., assignor to Eastlex Machine Corporation, Lexington, Ky.

Filed Nov. 27, 1996, Ser. No. 757,834

Int. Cl.⁶ B23P *19/00*

U.S. Cl. 29—787 **20 Claims**

1. An attaching apparatus for attaching first and second mating fastener elements to material at a setting station including:

support means and ram means at the setting station;

first disposing means for disposing a first fastener element at the setting station in a specific orientation for engagement by one of said support means and said ram means;

second disposing means for disposing a second fastener element at the setting station in a specific orientation for engagement by the other of said support means and said ram means;

moving means for creating movement of said support means and said ram means towards each other to attach the first fastener element and the second fastener element to each other at the setting station;

and said moving means including:

a single power source for creating movement of said support means and said ram means towards each other;

a first pivotally mounted arm for causing movement of said ram means when said single power source creates movement of said first pivotally mounted arm;

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a second pivotally mounted arm for causing movement of said support means when said single power source creates movement of said second pivotally mounted arm;

and activation control means for controlling activation of each of said first pivotally mounted arm and said second pivotally mounted arm during a cycle of operation of said attaching apparatus, said activation control means causing movement of said ram means to be stopped prior to causing movement of said support means to be stopped during attachment of the first fastener element and the second fastener element to each other at the setting station.

5,781,990
METHOD AND DEVICE FOR PREPARING CABLE FOR SEPARATING INTO PORTIONS

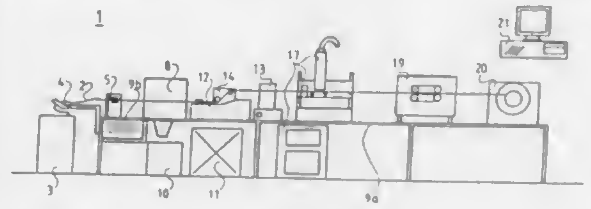
Wolfgang Seidler, Meckenheim; Hans Willi Müller, Rheinbach, and Gerhard Dargel, Erfurt, all of Germany, assignors to Klöckner-Moeller GmbH, Bonn, Germany

Filed Dec. 22, 1995, Ser. No. 577,126

Claims priority, application Germany, Jun. 24, 1993, 43 21 007.4

Int. Cl.⁶ H01R *43/00;* **B23P** *23/00*

U.S. Cl. 29—825 **12 Claims**



1. Method for the manufacture of pre-fabricated cables prepared for separation into individual unconnected cable portions for connection to cable terminals in electrical equipment, such as one of: switchgear, a switchgear cabinet and a control system, said method comprising steps of:

providing cable comprising conducting material having at least one conductor, and insulating material disposed concentrically about the conducting material;

feeding the cable into a stripping device;

stripping sections of insulating material from the cable at predetermined distances along the cable to provide individual connected cable portions;

forming in said stripped sections rupturable joints for maintaining a plurality of said individual connected cable portions and for readily permitting separation of said connected cable portions into individual unconnected cable portions; and

leaving at least a portion of said at least one conductor extending from one of said connected cable portions to another of said connected cable portions through the rupturable joint connecting said one of said connected cable portions to another of said connected cable portions.

7. Apparatus for producing pre-fabricated cable prepared for separation into individual unconnected cable portions for connection to cable terminals in electrical equipment, such as one of: switchgear, a switchgear cabinet and a control system, the cable comprising conducting material comprising at least one conductor, and insulating material disposed concentrically about the conducting material, said apparatus comprising:

a plurality of processing stations;

said processing stations comprising:

a stripping unit, for removing sections of insulating material from the cable to provide individual connected cable portions;

a compressor unit disposed downstream of said stripping unit, for compressing the conducting material in the stripped sections; and

a notching device disposed downstream of said stripping unit, for notching the cable in the stripped sections to provide rupturable joints for maintaining a plurality of the individual connected cable portions and for readily permitting separation of the connected cable portions into individual unconnected cable portions, while leaving at least a portion of said at least one conductor extending from one of said connected cable portions to another of said connected cable portions through the rupturable joint connecting said one of said connected cable portions to another of said connected cable portions;

an advancing unit for the transport of said cable along a predetermined processing route;

central control means for regulating and controlling at least some of:

said stripping unit;

said compressor unit;

said notching device; and

said advancing unit;

said central control means comprising means for storing predetermined lengths and predetermined sequences of the individual connected cable portions and for tranferring said predetermined length information to said advancing unit; and

said advancing unit comprising means for regulating the length and sequence of said individual connected cable portions in response to said predetermined length and sequence information received from said central control unit.

5,781,991
METHOD OF CONNECTING MICROCOAXIAL CABLES TO PRINTED CIRCUIT TRACKS

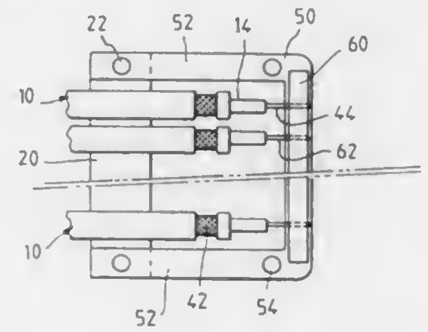
Luc Papon, Montmirail, France, assignor to Axon' Cable S.A., Montmirail, France

Filed Oct. 7, 1996, Ser. No. 727,790

Claims priority, application France, Oct. 9, 1995, 95 11854

Int. Cl.⁶ H01B *13/20*

U.S. Cl. 29—828 **10 Claims**



1. A method of connecting a cable made of a plurality of conductor elements to the conductor tracks of a printed circuit, each conductor element comprising a conductor core, a shield separated from the core by a dielectric material, and an outer sheath, the method comprising the following steps:

removing the sheath and the shield from the end of each conductor element over a given length;

positioning the ends of said conductor elements relative to one another to match the relative positioning of the conductor tracks using a first tool;

fixing the positioned conductor elements together using a first insulating strip, said strip being fixed at least in part to a portion of the conductor elements that is still provided with the sheath;

stripping the conductor cores at the ends of the conductor elements;

positioning the stripped ends of the conductor cores relative to one another as a function of the relative positioning of the conductor tracks using a second tool;

fixing the prepositioned stripped ends using a second insulating strip so that a portion of each stripped end is not covered by said second strip, said second strip being positioned relative to said first strip;

providing a window in such a manner that a portion of the shielding is stripped and not covered by a fixing tape;

positioning the ends of the conductor elements that have been mechanically joined together to face said conductor tracks; and

soldering the stripped ends of the conductor cores where they are not covered by the first strip to said conductor tracks, and soldering the stripped portions of said shielding to a shield connection track of said printed circuit.

5,781,992
HEAT SINK FOR PLASTIC CASINGS

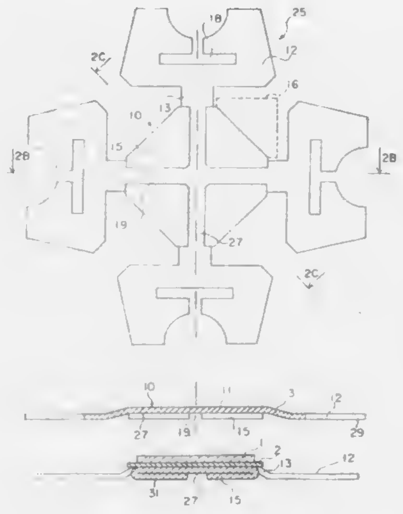
Jean-Pierre Moscicki, Saint Egreve, France, assignor to SGS-Thomson Microelectronics S.A., Saint Genis Pouilly, France

Division of Ser. No. 286,998, Aug. 8, 1994. This application Jun. 5, 1995, Ser. No. 463,607

Claims priority, application France, Aug. 9, 1993, 93 09931

Int. Cl.⁶ B21D *53/04*

U.S. Cl. 29—841 **25 Claims**



1. A method for forming a heat sink for mounting a semiconductor chip in a semiconductor casing, the method comprising steps of:

A. providing a sheet of metal having a predetermined shape that includes a central portion and at least three laterally spaced tongues extending from the central portion; and

B. folding each tongue under the central portion to form a platform having an upper surface adapted to mount the semiconductor chip thereon and a lower surface adapted to engage the semiconductor casing.

5,781,993
METHOD FOR PREVENTING OXIDIZATION OF A SILVER-CADMIUM OBJECT

Donald E. Conaway, Attleboro, Mass., assignor to Checon Corporation, Attleboro, Mass.

Filed Nov. 20, 1995, Ser. No. 560,839

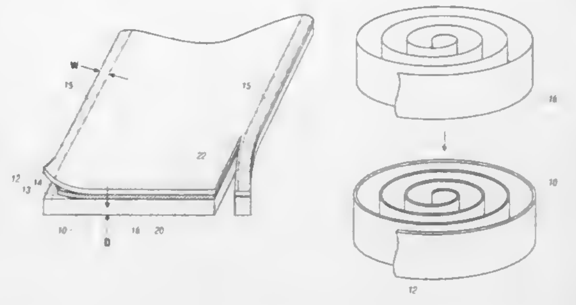
Int. Cl.⁶ H01R *43/16;43/02;* **H01H** *11/04*

U.S. Cl. 29—885 **7 Claims**

1. A method for use in forming a one-side oxidized silver-cadmium object comprising

welding a non-silver-cadmium shield to one side of the silver-cadmium object with a weld having a width, the shield enabling the one side to resist oxidation,

oxidizing the object under conditions that leave substantially unoxidized a layer of the object adjacent the one side, the oxidized object having an oxidized layer, the oxidized layer having a thickness, the width of the weld being greater than the thickness of the oxidized layer.



5,781,994
PROCESS FOR THE MICROMECHANICAL FABRICATION OF NOZZLES FOR LIQUID JETS

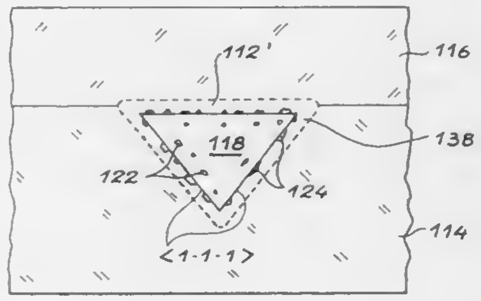
Yves Fouillet, Voreppe; Gilles Delapierre, Seyssins, and Marie-Thérèse Delaye, Grenoble, all of France, assignors to Commissariate a l'Energie Atomique, France

Filed Nov. 29, 1995, Ser. No. 564,600

Claims priority, application France, Dec. 1, 1994, 94 14461

Int. Cl.⁶ B41J *2/16*

U.S. Cl. 29—890.1 **15 Claims**



1. Process for the micromechanical fabrication of nozzles for ink jets comprising the following steps:

a) forming at least one groove on a surface of a first substrate,

b) covering the groove with a second substrate in order to form at least one channel,

c) forming an internal protective coating within the channel by thermal oxidation of walls of the channel,

d) cutting the first and second substrates perpendicular to the channel to form at least one nozzle for a liquid jet,

e) eliminating the internal protective coating.

5,781,995
METHOD OF REPAIRING A DEFECTIVE PORTION IN A FLUID CARRYING TUBE

John P. Anna, and Paul B. Cunningham, both of Uniontown, Pa., assignors to Allegheny Power Service Corporation, Greensburg, Pa.

Filed Jan. 9, 1997, Ser. No. 780,990

Int. Cl.⁶ B23 *15/26*

U.S. Cl. 29—890.031 **19 Claims**

1. A method of repairing a defective portion in one of a plurality of generally parallel elongated tubes comprising

severing an axial portion of said tube which contains the defective portion from the remainder of said tube,

bending the free end portions of the tube disposed adjacent to where said axial portion was severed, and

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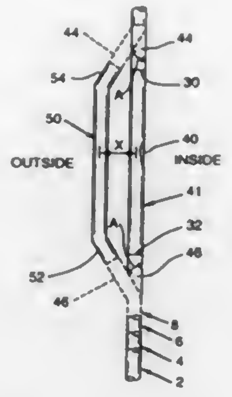
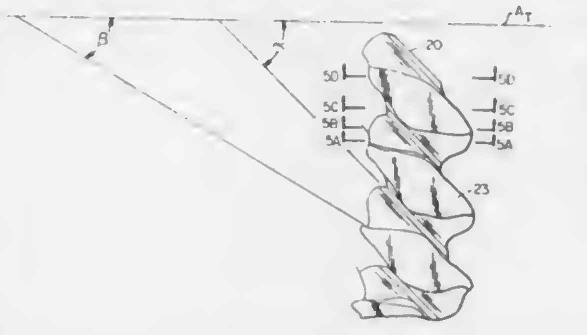


securing an insert tube to said free end portions to reestablish a passage for free flow within said repaired tube.

5,781,996
METHOD OF MANUFACTURING HEAT TRANSFER TUBE

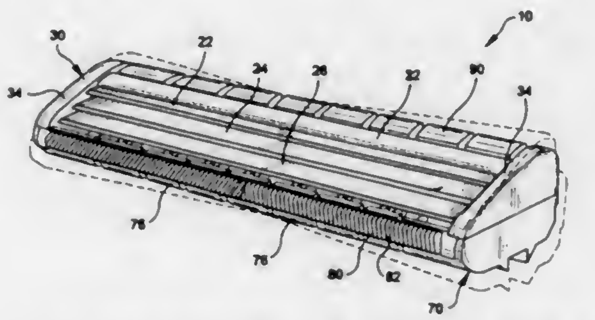
Steven J. Spencer, Liverpool, N.Y., assignor to Carrier Corporation, Syracuse, N.Y.
Division of Ser. No. 639,568, Apr. 29, 1996, Pat. No. 5,669,441, which is a continuation-in-part of Ser. No. 341,235, Nov. 17, 1994, abandoned. This application Mar. 31, 1997, Ser. No. 829,294
Int. Cl.^{6} B23P *15/26*
U.S. Cl. 29—890.048 **1 Claim**



1. A method for making an evaporator heat transfer tube (**10**) having a tube wall (**11**) and an outer surface (**13**) comprising:
a first step of forming a plurality of adjacent, radially outwardly extending helical fins (**20**) in the outer surface by the interaction of a finning disk (**63**) and a mandrel (**64**), whereby circumferential grooves are formed between adjacent fins;
a second step of impressing notches (**30**) radially into and through said fins at intervals about the circumference of the tube using a notching wheel (**66**), each of said notches having a base axis that is at an oblique angle with respect to both the longitudinal axis (A_T) of the tube and the axis of the helical fin; and
a third step of
Radially compressing the fins, whereby the action of impressing the notches followed by compressing the fins cause displacement of the fin material whereby fin spikes (**22**) with flattened distal tips (**23**), are formed between circumferentially adjacent notches, the spikes having tips wider than their respective bases, the tips of spikes of axially adjacent fins being twisted by the actions of the second and third steps into overlapping contacting relationship to form nucleation sites in the grooves between adjacent fins.

5,781,997
ULTRA-FLEXIBLE SHAVING CARTRIDGE

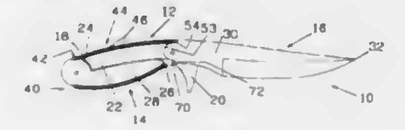
Frank Anthony Ferraro, Trumbull, Conn., and Ernest Albert Ortiz, Chapel Hill, N.C., assignors to Warner-Lambert Company, Morris Plains, N.J.
Filed Jan. 17, 1997, Ser. No. 785,706
Int. Cl.^{6} B26B *21/02*
U.S. Cl. 30—50 **23 Claims**

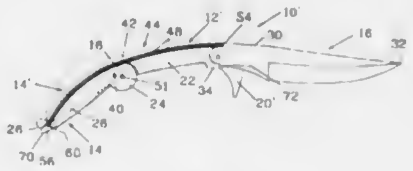


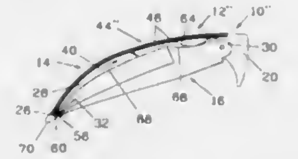
1. A razor head flexible convexly and concavely in response to shaving forces comprising:
at least one flexible blade; and
a resilient blade support which supports said blade, wherein said resilient blade support comprises a flexible material which is compressible in response to shaving forces exerted on said blade and said support comprises a lower support portion comprising generally sinusoidal configurations and said sinusoidal configurations are generally in a plane which is substantially parallel to a plane of said at least one blade when said razor head is not flexed.

5,781,998
SHEATH STYLE FOLDING KNIFE

James D. Stamper, P.O. Box 62, Grantham, N.H. 03753
Continuation-in-part of Ser. No. 172,831, Dec. 23, 1993, abandoned. This application Mar. 21, 1995, Ser. No. 408,594
Int. Cl.^{6} B26B *1/02;1/10*
U.S. Cl. 30—139 **19 Claims**





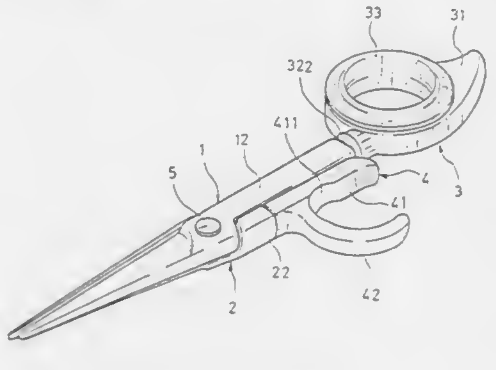


1. A folding knife comprising:
a main handle having a blade end, a butt end and a main groove delimited by side surfaces and extending along said main handle, passing through said butt end and said blade end;
a tail handle having a butt engaging end pivotably attached to said butt end and a free end for engaging said blade end, said tail handle having a tail groove delimited by side surfaces and passing through said butt engaging end,
wherein said side surfaces which delimit said tail groove are co-planar with said side surfaces which delimit said main groove,

said tail handle pivoting between a closed position, where said free end engages said blade end whereby said tail handle and said main handle are in a work configuration, and at least one open position, wherein in one of said open positions, said main groove and said tail groove are aligned whereby said tail handle and said main handle are in a storage configuration;
a blade terminating in a tang and a blade tip, said tang being pivotably engaged to said blade end of said main handle, and said blade having said blade tip exposed when the knife is in said work configuration, and having said blade tip in said tail groove when said blade is engaged with said main groove and said tail groove in said storage configuration;
a biasing means for urging said tail handle, when in one of said open positions, to move toward said closed position; and
a tip engaging encasing assembly positioned in said tail groove so as to engage said blade tip.

5,781,999
THINNING SCISSORS

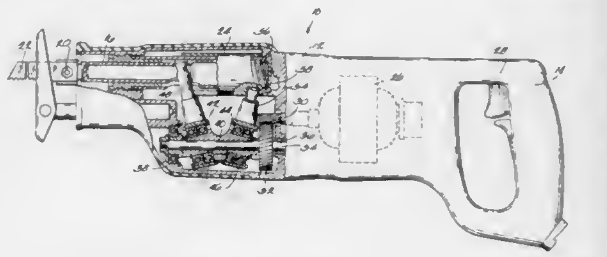
Meng Cheng Chang, P. O. Box 82-144, Taipei, Taiwan
Filed Mar. 7, 1997, Ser. No. 813,390
Int. Cl.^{6} B26B *13/04;13/20*
U.S. Cl. 30—260 **4 Claims**



1. A pair of thinning scissors comprising:
a first blade holder and a second blade holder pivoted together, said first blade holder having handle extended from a rear end thereof and defining a circular axial hole, said second blade holder having a handle extended from a rear end thereof and defining a square axial hole;
a first cutting blade and a second cutting blade respectively fastened to said first blade holder and said second blade holder and moved against each other for cutting hair;
a finger ring mounted with a rubber ring on the inside surface thereof and attached to the handle of said first blade holder for receiving a user's ring finger, said finger ring having a projecting shaft raised from the periphery of the finger ring and turnably received in the circular axial hole of the handle of said first blade holder; and
a fork member attached to the handle of said second blade holder for moving said second blade holder relative to said first blade holder by the user's thumb, said fork member having a square coupling tip fitted into the square axial hole of the handle of said second blade holder.

5,782,000
RECIPROCATING SAW WITH SPINDLE EXTENSION DEVICE

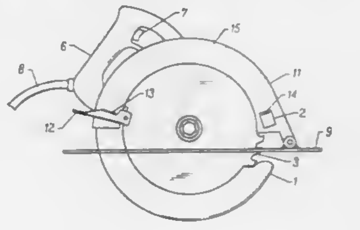
Thomas R. Bednar, Pewaukee, Wis., assignor to Milwaukee Electric Tool Corp., Brookfield, Wis.
Continuation of Ser. No. 643,870, May 7, 1996, abandoned. This application Sep. 24, 1997, Ser. No. 937,043
Int. Cl.^{6} B27B *11/02*
U.S. Cl. 30—393 **12 Claims**

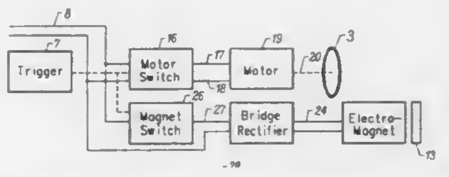


1. A reciprocating power tool comprising:
a main body;
a spindle movably mounted in said main body. said spindle being movable from a retracted position to an extended position;
a wobble plate operatively associated with said spindle for driving said spindle toward said retracted position and toward said extended position;
a power drive means operatively associated with said wobble plate, said power drive means being changeable between activated and deactivated states; and
a biasing member interconnected with said spindle for moving said spindle toward the extended position when said power drive means is in the deactivated state.

5,782,001
CIRCULAR SAW GUARD HOLD AND RELEASE DEVICE

John W. Gray, 976 Great Hill Rd., Guilford, Conn. 06437
Filed Aug. 27, 1996, Ser. No. 697,553
Int. Cl.^{6} B25F *5/00;* **B27B** *9/00*
U.S. Cl. 30—391 **3 Claims**





1. In a circular saw having a housing, a rotatable circular saw blade and an activatable trigger switch for rotating the saw blade when the trigger switch is activated, an upper stationary blade guard and a lower retractable blade guard that has a limited arc of rotation about the saw blade, the retractable blade guard having a normal protective position covering the saw blade and an out-of-the-way position for completing saw cuts, the improvement comprising:
a retention means for retaining the lower retractable guard in the out-of-the-way position, by non-mechanical magnetic attraction when the trigger switch is activated and the blade is rotating; and,

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a release means for releasing the lower retractable guard from the out-of-the-way position to the normal protective position when the activated trigger switch is deactivated, wherein the retention means comprises an electromagnet mounted on the housing and an armature mounted on the retractable guard, wherein the armature is operably positioned proximate the electromagnet when the retractable guard is manually moved to the out-of-the-way position, the electromagnet being energized when the trigger switch is activated wherein the proximately positioned armature magnetically coacts with the energized electromagnet and retains the retractable guard in the out-of-the-way position during activation of the trigger switch by magnetic attraction of the electromagnet on the housing with the armature on the retractable guard, and wherein the electromagnet has electric circuit means connected to the trigger switch for energizing the electromagnet before rotation of the blade, and the trigger switch has a two stage switch means with a first stage connected to the electric circuit means of the electromagnet for energizing the electromagnet without activation of the saw blade and a second stage for activating rotation of the saw blade while the electromagnet remains energized.

5,782,002

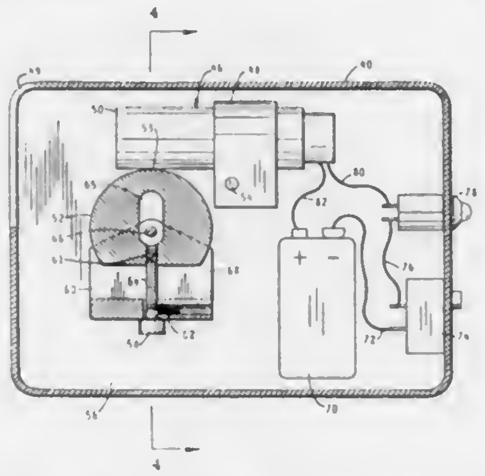
LASER GUIDANCE MEANS

Edwin D. Reed, R.R. 1, Box 175B, Whiteland, Ind. 46184

Filed Jun. 3, 1996, Ser. No. 660,167

Int. Cl.^{6} F41G *1/467*

U.S. Cl. 33—265 8 Claims



1. A laser unit having a laser device (**46**) for guidance of an arrow (**32**) to be propelled by a bow (**20**), the laser device (**46**) being productive of a laser beam (**90**) having a beam inclination by which the beam is to impinge upon the target with a visible reflection indicator on the target,

the laser unit comprising, in combination with its laser device (**46**),

a framework (**40**) which is operatively connected to the bow (**20**),

support means (**52/48**) movably supporting the laser device (**46**) by the framework (**40**),

means (**60/52/48**) for movably varying the position of the laser device (**46**) with respect to the framework (**40**), by which the location of the reflection indicator on the target provides the user with visible guidance for holding the bow (**20**) in a position such that the arrow (**32**) will strike the target operatively adjacent the reflective indicator on the target, and

one of the said support means (**60/52/48**) comprises an adjusting device (**58**), and means (**60/66**) supportively connecting said adjusting device (**58**) to the framework (**40**), and comprising a first intermediate support means (**60**) to which the adjusting device (**58**) is vertically movably engageable, the said one of said support means (**60/52/48**) comprising a cam (**52**) whose surface provides a vertically adjustable non-rotational control surface which is operatively engageable with the laser device (**46**) for controlling the position of said laser device (**46**) and thus its inclination with respect to the framework (**40**).

5,782,003

DEVICE FOR PROJECTING A FLAT BEAM OF DIVERGING LASER RAYS

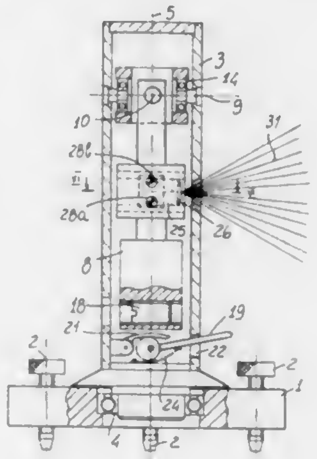
Mario Doriguzzi Bozzo, Viale Vicenza, 40, 36071 Arzignano (Vicenza), Italy

Filed Feb. 21, 1996, Ser. No. 604,478

Claims priority, application Italy, Feb. 22, 1995, MI95A0330

Int. Cl.^{6} G01B *11/26;* G01C *15/00*

U.S. Cl. 33—291 15 Claims



1. A self-leveling by gravity projector device for projecting at least one laser light beam of flat diverging rays for respectively tracing on targeted walls or bodies at least one horizontal and at least one of vertical line, comprising in combination: a base element (**1**) provided with bearing feet (**2**) and a hollow top portion (**3**) supported by the said base (**1**); said hollow top portion (**3**) supports a self-leveling movable equipment (**8**), swingable about two horizontal axes (**9**) and (**10**) by means of gimbals (**11, 12, 13, 14, 15, 16*a*, 16*b***), thereon it is arranged at least a projector of laser beams; means (**19, 20, 24**) for damping the swinging of said movable equipment (**8**); said projector is provided with an optical assembly for transforming the laser beam into a beam of coplanar divergent rays, said bearing feet (**2**) being means for initial setting on a bearing base of the height of said projector device wherein the hollow portion (**3**) is rotatable about a vertical axis (**5**) with respect to the supporting base (**1**) by means of a bearing (**4**), and is provided near the bottom portion thereof with a plurality of notches (**6**), said notches (**6**) are marked by an index (**7**) for the accurate rotation of said hollow top portion (**3**) in respect to said base element (**1**), said bearings (**4**) and gimbals (**11, 12, 13, 14, 15, 16*a*, 16*b***) maintaining the self-leveling of said movable equipment (**8**) during said rotation.

5,782,004

COORDINATE MEASURING APPARATUS HAVING A PROBE IN THE FORM OF A SOLID-STATE OSCILLATOR

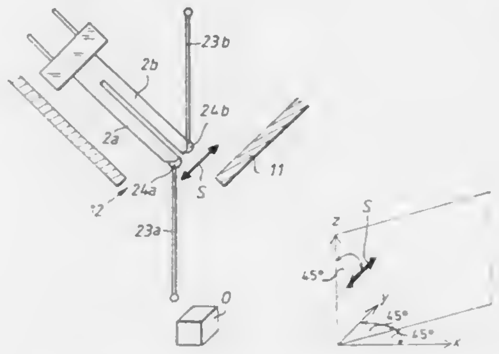
Karl Schepperle, Oberkochen, Germany, assignor to Carl-Zeiss-Stiftung, Heidenheim, Germany

Division of Ser. No. 436,387, May 15, 1995, Pat. No. 5,625,957. This application Mar. 13, 1997, Ser. No. 816,339

Claims priority, application Germany, Sep. 13, 1993, 43 31 069.9

Int. Cl.^{6} G01B *5/03*

U.S. Cl. 33—503 6 Claims



1. A coordinate measuring apparatus defining three measuring directions (x, y, z), the apparatus comprising:

a solid-state oscillator;

a thin rod defining a probe element and being mounted on said solid-state oscillator; and,

means for exciting said solid-state oscillator to vibrate simultaneously in several spatial directions so that comparably large vibrating amplitudes of said probe element result in said measuring directions (x, y, z) of the coordinate measuring apparatus.

5,782,005

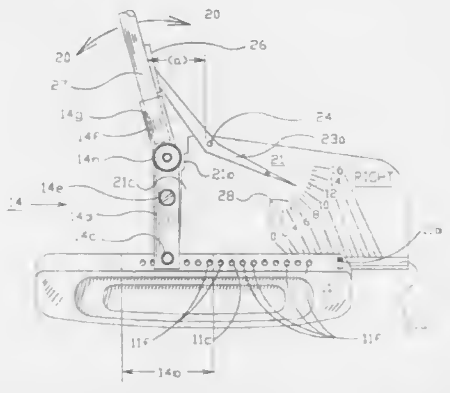
GOLF CLUB FITTING METHOD

Earl F. Reilly, III, 576-26th Ave., Longview, Wash. 98632

Continuation of Ser. No. 619,855, Mar. 20, 1996. This application Jan. 27, 1997, Ser. No. 789,644

Int. Cl.^{6} A63B *57/00*

U.S. Cl. 33—508 5 Claims



1. A method for fitting a golf putter club to an individual golfer, said method employing a fitting shaft member and a fitting putter head, the fitting putter head having a substantially horizontal axis, the position of said fitting shaft member, and said fitting putter head being adjustable relative to each other,

said method comprising the steps of:

adjusting the angle of said fitting shaft member relative to said horizontal axis of said fitting putter head to fit the putting stance of the golfer being fitted; and

adjusting the location of attachment of said fitting shaft member along said horizontal axis of said fitting putter head based on said adjusted angle, to thereby achieve a face balanced condition for said putter club for said golfer being fitted.

5,782,006

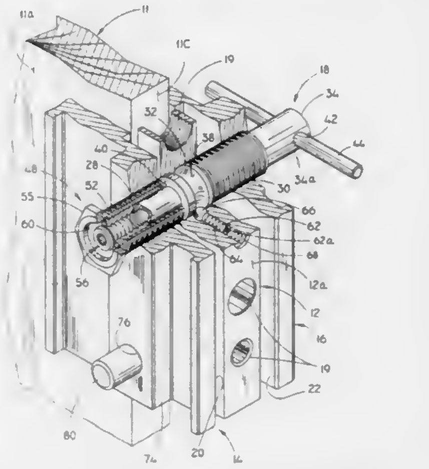
DOWELING JIG

Parker Erway, Battle Creek; Dick Zeigler, Hastings, both of Mich., and James Brown, 810 Indian Hills Dr., Hastings, Mich. 49058, assignors to James Brown, Hasting, Mich.

Filed Oct. 31, 1996, Ser. No. 741,820

Int. Cl.^{6} G01D *21/00;* B25B *1/10*

U.S. Cl. 33—520 22 Claims



1. A jig for centering a drill on a work piece, the work piece having first and second engagement surfaces and a drilling surface, said jig comprising:

a first holding member having a first bearing surface and a first threaded bore extending therethrough, said first bearing surface for bearing against the first engagement surface of the work piece;

a second holding member having a second bearing surface and a second threaded bore extending therethrough aligning with said first threaded bore, said second bearing surface for bearing against the second engagement surface of the work piece, said first and second threaded bores aligned along an axis defining an axis of travel, said first and second holding members adapted to translate generally parallel with respect to each other along said axis of travel;

a guide interposed between said first and second holding members, said guide having a transverse rod receiving passage and at least one guide hole extending therethrough for guiding a drill bit onto the drilling surface of the work piece; and

a threaded rod having threads spaced along said rod at a first spacing in a threaded zone and being free of threads in a second non-threaded zone, said threaded rod extending through said first and second threaded bores of said holding members and said rod receiving passage of said guide, said threaded rod being longitudinally fixed in said rod receiving passage and engaging one of said first and second threaded bores such that rotational movement of said threaded rod urges one of said first and second holding members along said axis of travel in a first direction from said guide, said threaded rod including a removable threaded collar selectively rotatable disposed on said second non-threaded zone and having threads spaced along said collar at said first spacing and an enlarged distal end, said threaded collar engaging the other said first and second bores and said threaded rod including a fastener selectively fixing said threaded collar on said second non-threaded zone so as to rotate therewith, wherein one of said threaded rod and said threaded collar includes right hand threads and the other of said threaded rod and said threaded

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collar includes left hand threads, such that when said rod is rotated said first and second holding members move generally simultaneously toward or away from each other along said rod, and said enlarged distal end providing a stop to limit movement of said other of said first and second holding members along said collar.

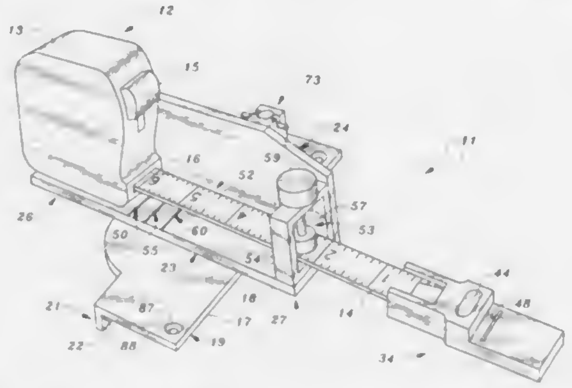
5,782,007
TOOL GUIDING TAPE MEASURE

Adam S. Harris, 1946 Meadows Rd., Walnut Creek, Calif. 94595

Continuation of Ser. No. 606,967, Feb. 26, 1996, abandoned. This application Aug. 22, 1997, Ser. No. 916,505

Int. Cl.^{6} B43L *9/04*

U.S. Cl. 33—768 **20 Claims**



1. A tool guide for facilitating movement of an implement along a predetermined path of travel on a flat sheet of material, said tool guide having a tape measure which has a housing with a coiled measuring tape therein which tape has a distal end that may be drawn outward from the housing, said tool guide further having an implement receiver at said distal end of said measuring tape for maintaining said implement at a constant distance from said housing as said implement is moved along said path of travel, wherein the improvement comprises:

- a first guide member having an abutment surface which may be abutted against an edge surface of said flat sheet of material in an orientation at which said abutment surface faces said edge surface and extends along said edge surface and extends at least partially across said edge surface,
- a swivelable guide member attached to said first guide member by a pivot which is oriented to enable pivoting of the swivelable guide member relative to the first guide member about a pivot axis which is perpendicular to said flat sheet of material when said first guide member is abutted against said edge surface thereof,
- said tape measure housing being secured to said swivelable member and being pivotable therewith.

5,782,008

Patent Not Issued For This Number

5,782,009
DEVICE FOR GUIDING A SHEET OF FIBROUS MATERIAL IN A SINGLE-ROW DRYER PART

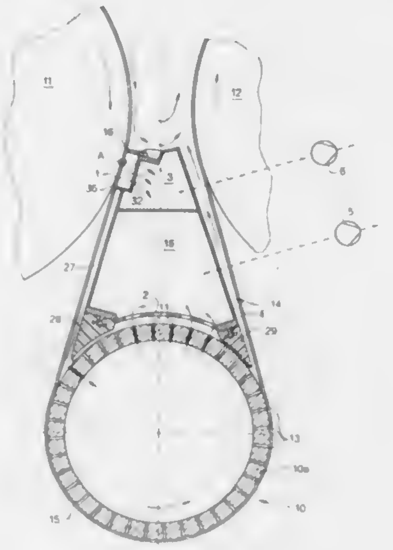
Gerhard Kotitschke, Steinheim, Germany, assignor to Voith Sulzer Papiermaschinen GmbH, Heidenheim, Germany

Filed Jan. 29, 1997, Ser. No. 791,780

Claims priority, application Germany, Jan. 30, 1996, 29601543 U

Int. Cl.^{6} D21G *5/00*

U.S. Cl. 34—117 **20 Claims**



1. A device for drying a sheet of fibrous material, the sheet guided, with a porous support belt, through a dryer section, including at least a first and second at least partially heatable dryer cylinder and at least one deflection roll having one of a perforated and porous roll jacket, the porous support belt guides the fibrous sheet from the first dryer cylinder to the deflection roll and from the deflection roll to the second dryer cylinder, the device comprising:

- an external suction box coupled to a plurality of external vacuum sources, the external suction box comprising at least a first and second opening associated with respective at least first and second aspiration conduits;
- the first opening positioned adjacent a circumferential portion the deflection roll and comprising a first and second seal rails extending along opposite sides of the first opening and adjacent the deflection roll;
- the second opening positioned adjacent a portion of the porous belt that includes a lift-off point where the fibrous sheet separates from the first dryer cylinder;
- the second opening comprising at least two sealing rails extending perpendicular to a direction of travel of the fibrous sheet and disposed on opposite sides of the lift-off point;
- one of the at least two sealing rails comprising a deflection sealing rail that deflects air currents entrained by the porous support belt;
- the plurality of external vacuum sources comprising a first external vacuum source coupled with an internal portion of the deflection roll and a second external vacuum source coupled with the lift-off point.

5,782,010
DEVICE FOR PREPARING A SPRAY-DRIED PRODUCT AND METHOD FOR PREPARING A PRODUCT OF THIS KIND

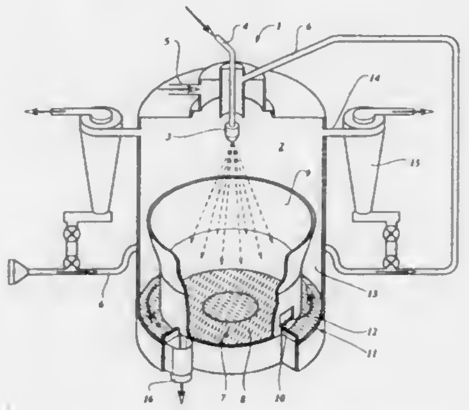
Antonius Cornelus Boersen, Hillegom, and Antonius Johannes Maria Bouman, Drachten, both of Netherlands, assignors to Stork Friesland B.V., Gorredijk, Netherlands

Filed Apr. 19, 1996, Ser. No. 635,136

Claims priority, application Netherlands, Jun. 20, 1995, 1000611; Apr. 19, 1996, 1002909

Int. Cl.^{6} F26B *3/08*

U.S. Cl. 34—359 **22 Claims**



18. Method for preparing a spray-dried product, said method comprising

- supplying a liquid which is to be spray-dried to an atomizing distribution element which is situated inside a drying chamber which atomizes the liquid into a stream of primary liquid droplets,
- delivering by the distribution element the primary liquid droplets at an average speed such that, the primary liquid droplets travel through the drying chamber over a distance which is required to enable a primary liquid droplet to reach a moisture content of from 1.5–0.75 times the critical moisture content and for essentially the period of evaporation at a constant rate and fall into the fluidized bed which adjoins the drying chamber, and
- collecting the primarily liquid droplets in the fluidized bed.

5,782,011
DEVICE AND METHOD FOR PREPARING A SPRAY-DRIED PRODUCT

Antonius Cornelus Boersen, Hillegom, and Antonius Johannes Maria Bouman, Drachten, both of Netherlands, assignors to Stork Friesland B.V., Gorredijk, Netherlands

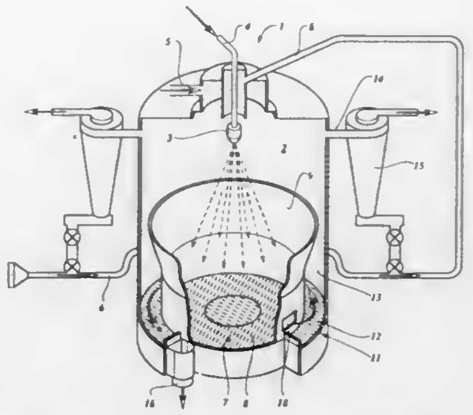
Filed Apr. 19, 1996, Ser. No. 635,292

Claims priority, application Netherlands, Jun. 20, 1995, 1000611

Int. Cl.^{6} F26B *3/08*

U.S. Cl. 34—366 **13 Claims**

11. Method for preparing a spray-dried product, in which a liquid to be spray-dried is supplied to a distribution element which is situated inside a drying chamber and which atomizes the liquid into a stream of droplets, following which the product is dried using at least two fluidized beds, wherein solid particles are supplied to the stream of droplets; the ration of the quantity by weight of solid particles to liquid supplied is greater than or equal to ½; and, using a device comprising a drying chamber with a distribution element placed therein for atomizing liquid to be spray-dried, means for supplying drying gas, and first and second fluidized beds, each comprising at least one bottom plate with openings which has gas supply means opening out at the underside thereof and means for discharging of spray dried product from the device, wherein inside the frying chamber, opposite the distribution element, said first and said second fluidized beds are placed, said beds being connected to each other and having a first and a second bottom plate respectively with openings, the above in such a way that the combined streams of droplets from the distribution element and solid particles fall essentially into the first bed, and conveyance of material from the first bed to the second bed can take place.



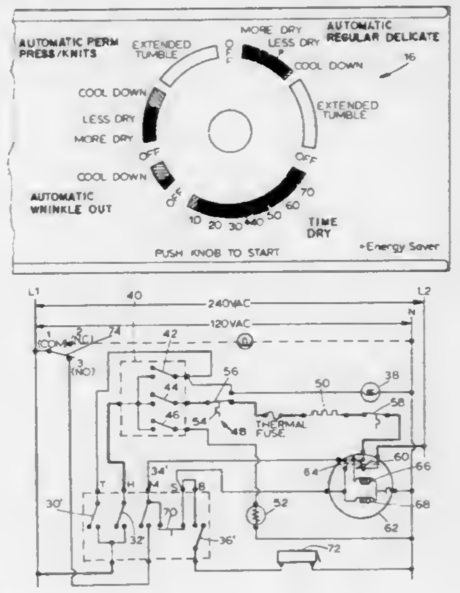
5,782,012
WRINKLE OUT CYCLE FOR A DRYER

Arlynn H. Sanders, Ripon, and Khader I. Meshinesh, Oshkosh, both of Wis., assignors to Raytheon Applicances Inc., Amana, Iowa

Filed Oct. 18, 1996, Ser. No. 734,000

Int. Cl.^{6} F26B *13/10*

U.S. Cl. 34—527 **24 Claims**



11. A dryer comprising:

- a heater;
- a timer;
- a temperature sensor; and,
- a circuit including the heater, the timer, and the temperature sensor, wherein the circuit is responsive to the temperature sensor to alternately energize the heater and the timer during first portions of first and second cycles and to continuously energize the timer during second portions of the first and second cycles in such a way that the first cycle is an automatic wrinkle release cycle.

5,782,013

Patent Not Issued For This Number

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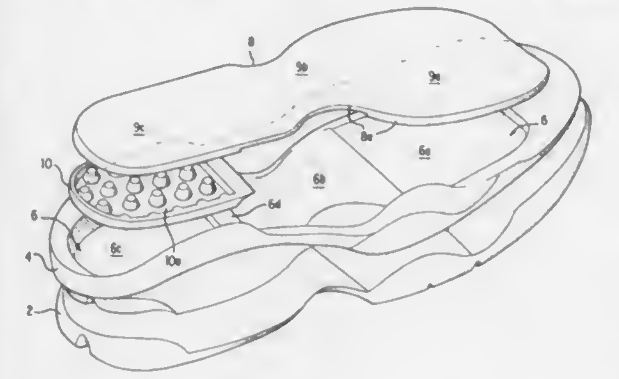
5,782,014
ATHLETIC SHOE HAVING SPRING CUSHIONED MIDSOLE

William R. Peterson, Granada Hills, Calif., assignor to K-Swiss Inc., Chatsworth, Calif.

Filed Jun. 25, 1996, Ser. No. 669,934

Int. Cl.⁶ A43B *13/20;13/26*

U.S. Cl. 36—38 **20 Claims**



1. An athletic shoe comprising:
a sole assembly having a pocket;
a midsole cushioning assembly disposed in said pocket, said midsole cushioning assembly including a modulator portion and a plurality of spaced projections extending from said modulator portion such that adjacent projections are spaced from one another
wherein said midsole cushioning assembly is formed of a foam material having a Shore C hardness in the range of 60–80, and wherein said modulator portion has a thickness in the range of 2–4 mm; and
wherein said projections are spaced to have at least one of: (a) a spacing between adjacent projections of at least 4 mm, and (b) a spacing between centers of adjacent projections of at least 14 mm.

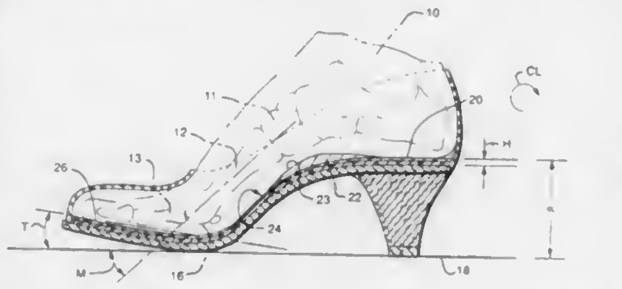
5,782,015
COMFORTABLE HIGH HEEL SHOE

Howard J. Dananberg, 19 Beaver La., Bedford, N.H. 03110

Continuation-in-part of Ser. No. 303,872, Sep. 9, 1994, abandoned, which is a continuation of Ser. No. 60,700, May 12, 1993, abandoned, which is a continuation of Ser. No. 794,817, Nov. 18, 1991, abandoned, which is a continuation of Ser. No. 559,518, Jul. 23, 1990, abandoned, which is a continuation of Ser. No. 300,480, Jan. 23, 1989, abandoned, which is a continuation-in-part of Ser. No. 146,338, Jan. 21, 1988, abandoned. This application Oct. 2, 1996, Ser. No. 720,719

Int. Cl.⁶ A43B *21/26;21/00*

U.S. Cl. 36—34 R **9 Claims**



1. A high heel shoe having a fixed heel height α of at least one inch, a heel seat topping said heel, an arch support extending forward from the heel seat and having a first portion which supports the head of the navicular of the wearer in approximately the same plane (relative to the ground plane) as the wearer's heel bones, a shank extending downwardly and forwardly from the first portion of the arch support, and a toe support region which extends at an inclination upwardly and forwardly from the shank whereby to buttress the phalanges of the wearer to prevent forward sliding of the foot of the wearer relative to the shoe, wherein the heel seat is situated clockwise relative to the shank at an angle "H" which is relative to the ground plane in accordance with the following formula:

$$H=5°+(\alpha\times1.25°)$$

wherein α=the heel height in nearest ½ inch segments in excess of 1", and the shank is inclined at an angle M perpendicular to the ground plane in accordance with the following formula:

$$M=18°+(\alpha\times3.25°)$$

wherein α=the heel height in nearest ½ inch segments in excess of 1".

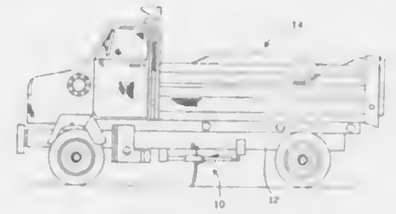
5,782,016
UNDERBODY SCRAPING APPARATUS WITH PITCH CONTROL

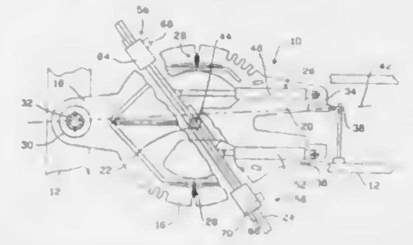
Richard Feller, and Kevin J. Davis, both of Monroe, Wis., assignors to Monroe Truck Equipment Inc., Monroe, Wis.

Filed Apr. 30, 1996, Ser. No. 640,246

Int. Cl.⁶ E02F *5/00*

U.S. Cl. 37—384 **11 Claims**





1. A scraper apparatus for mounting under a body of a truck, said apparatus comprising:
a table having a forward end and a trailing end, said forward end capable of being pivotally secured to the body of the truck, the arrangement being such that said table is permitted to pitch relative to the body of the truck;
a bearing secured to said table, said bearing being disposed between said forward and said trailing ends;
a mold board scraper disposed below and supported by said table, said mold board scraper being rotatably secured to said table by said bearing;
means secured between said mold board scraper and said table for rotating said mold board scraper relative to said table;
pitch means secured to said table and extending between said table and said body for moving said table for controlling said pitch of said table and said mold board so that scraping of snow, ice and gravel is permitted regardless of the level thereof relative to the truck; and
further including:
an anchor bearing disposed between said trailing end of said table and the body of the truck, said anchor bearing being located rearwardly relative to said forward end of said table, the arrangement being such that said table is permitted to pitch relative to the body of the truck about said forward end and said anchor bearing.

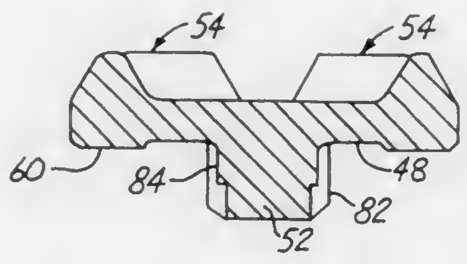
5,782,017
COUPLING DEVICE FOR A TREAD INSERT

Dennis J. Ortscheid, Woodbury, Minn., assignor to Maven Golf Products LLC, Minneapolis, Minn.

Filed Nov. 18, 1996, Ser. No. 751,335

Int. Cl.⁶ A43B *5/00*

U.S. Cl. 36—134 **14 Claims**



1. A tread insert for insertion into a shoe sole, the tread insert comprising:
a base portion;
a stem portion extending from the first side of the base portion the stem portion having spaced longitudinal ridges extending about the stem portion to define an outer periphery thereof, said stem portion being sized for engagement of the outer periphery with a threaded aperture of a shoe sole, the longitudinal facilitating rotation of the stem portion within the threaded aperture to define a self-tapping stem portion; and
a tread portion extending away from a second side of the base portion.

5,782,018
METHOD AND DEVICE FOR CONTROLLING BUCKET ANGLE OF HYDRAULIC SHOVEL

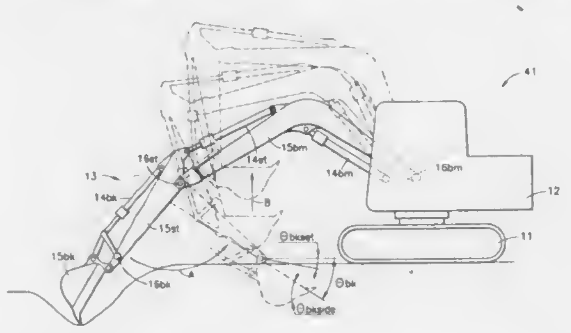
Shoji Tozawa, and Tomoaki Ono, both of Hyogo, Japan, assignors to Shin Caterpillar Mitsubishi Ltd., Tokyo, Japan

Filed Jul. 26, 1996, Ser. No. 688,031

Claims priority, application Japan, Nov. 29, 1994, 6-295427

Int. Cl.⁶ E02F *5/02*

U.S. Cl. 37—348 **15 Claims**



1. A device to control a bucket actuator that moves a bucket comprising:
means for sensing a configuration of at least one of said bucket and said bucket actuator;
means for determining, responsive to said means for sensing, whether said bucket is excavating or not excavating;
means for setting said bucket actuator to a manual operation mode, which provides an operator manual control, when a result of said step of determining indicates said bucket is excavating; and
means for setting said bucket actuator to a bucket angle-maintaining control mode, which provides an automatically controlled fixed bucket angle, when a result of said step of determining indicates said bucket is not excavating.

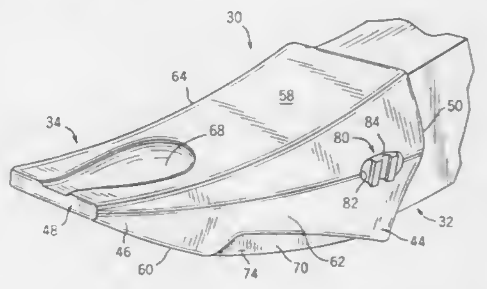
5,782,019
HIGH STRENGTH EARTH WORKING TOOTH

Brian L. Launder, Tulsa, and Charles Clendenning, Broken Arrow, both of Okla., assignors to H & L Tooth Company, Tulsa, Okla.

Filed Nov. 29, 1995, Ser. No. 564,899

Int. Cl.⁶ E02F *9/28*

U.S. Cl. 37—446 **21 Claims**



1. An elongated earth working tooth having a proximal end for attachment to an earth working machine and a distal end defining a forward cutting edge for penetrating the ground, said tooth having a top surface and a bottom surface, with said top and bottom surfaces having substantially similar curved configurations diverging angularly away from each other and extending longitudinally between the forward cutting edge and the proximal end of said tooth, and wherein the top surface of said tooth is provided with a changing configuration extending rearwardly from the forward cutting edge toward the proximal end to inhibit blunting of the forward cutting edge as the tooth wears, said tooth further comprising parallel and generally vertical sidewalls extending between the top and bottom surfaces of the tooth.

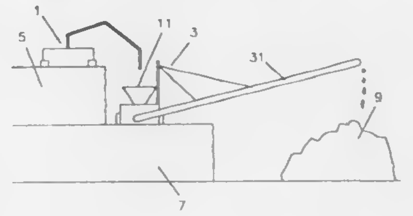
5,782,020
METHOD AND EQUIPMENT FOR SIMULTANEOUS EXCAVATION AND LAND REFILL WITH MINIMUM OPERATING LABOR

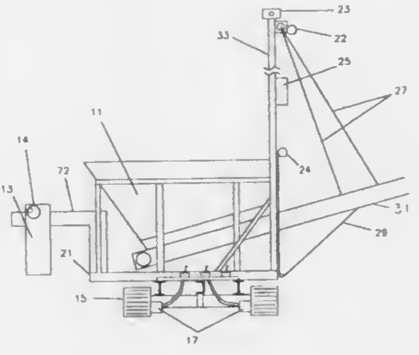
L. Wade Shumaker, Rt. 2, Box 81DS, Manor, Tex. 78653

Filed Nov. 13, 1996, Ser. No. 747,524

Int. Cl.⁶ E02F *3/00*

U.S. Cl. 37—466 **2 Claims**





1. Equipment to excavate and refill soil comprising:
a) an excavator,
b) a self propelled hopper-spreader,

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- c) a wireless interconnection means between said excavator and said self propelled hopper-spreader to allow an operator of said excavator to control movement and operation of said hopper-spreader, said wireless interconnection means comprising a control panel mounted on said excavator and a receiver panel mounted on said hopper-spreader; said control panel having a TV screen therein and control buttons; with activation of each of said buttons broadcasting a separate signal to said receiver panel mounted on said hopper-spreader; said hopper-spreader having associated equipment to carry out said operation indicated by each of said signals;
- c) said operations, each activated by one of said control buttons, include:
  1. starting a motor to operate a hydraulic system that furnishes power for each operation of said hopper-spreader,
  2. stopping said motor,
  3. starting forward motion of said hopper-spreader,
  4. backing up said hopper-spreader,
  5. turning said hopper-spreader hard left,
  6. turning said hopper-spreader hard right,
  7. increasing forward speed of said hopper-spreader,
  8. decreasing forward speed of said hopper-spreader,
  9. turning said hopper-spreader about 10 degrees left,
  10. turning said hopper-spreader about 10 degrees right,
  11. lowering a conveyor on said hopper-spreader,
  12. raising said conveyor,
  13. adjusting a counter weight mounted on said hopper-spreader to prevent tipping of said hopper-spreader;
- d) A TV camera mounted on said hopper-spreader broadcasting to a receiver on said excavator to furnish an operator of said excavator a continuous visual picture of operation of said hopper-spreader.

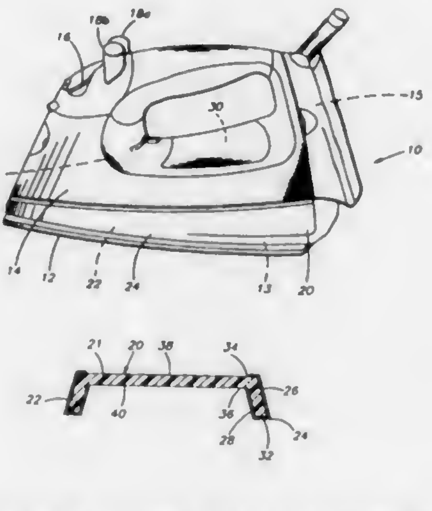
5,782,021
IRON HAVING SKIRT WITH CHROME PLATING

Stephen M. Hall, Cheshire, Conn., assignor to Black & Decker Inc., Newark, Del.

Filed Jan. 10, 1997, Ser. No. 781,874

Int. Cl.^{6} D06F *75/36;* **B05D** *5/00;* **C23C** *2/04*

U.S. Cl. 38—88 **10 Claims**



1. In an iron having a housing with a skirt, a soleplate connected to the housing, and means for heating the soleplate, wherein the improvement comprises:

the skirt having a molded body comprised of dielectric material, and including a top side, a bottom side, two elongated sides, and a downwardly extending perimeter rim along the two elongated sides, said housing covering the top side, said soleplate covering the bottom side, and wherein the rim has a chrome plating adhered directly onto the rim to give an appearance of a metal skirt.

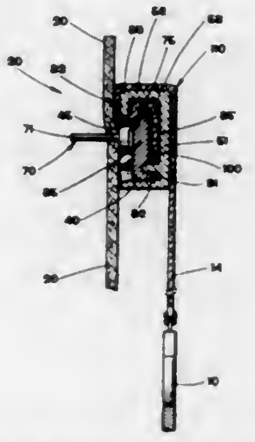
5,782,022
METHOD AND APPARATUS FOR MOUNTING MILITARY MEDALS ON A UNIFORM

William J. Tubberville, 12736 Foxhound Dr., Maryland Heights, Mo. 63043

Filed Mar. 20, 1997, Ser. No. 821,613

Int. Cl.^{6} A44C *3/00*

U.S. Cl. 40—1.6 **18 Claims**



1. An apparatus for mounting a plurality of military medals on a uniform, each medal being suspended from a ribbon, comprising:

an elongate ribbon bar member having a front and a rear surface and an upper edge and a lower edge, the ribbon bar member including a means for securing at least a portion of each ribbon to the front surface of the ribbon bar member;

an elongate ribbon bar clamp member which receives the ribbon bar member and is adapted to clamp a portion of each ribbon between the ribbon bar member and the ribbon bar clamp member; and

means for attaching the ribbon bar member and the ribbon bar clamp member to the uniform, whereby the plurality of military medals may be substantially, simultaneously mounted to the uniform.

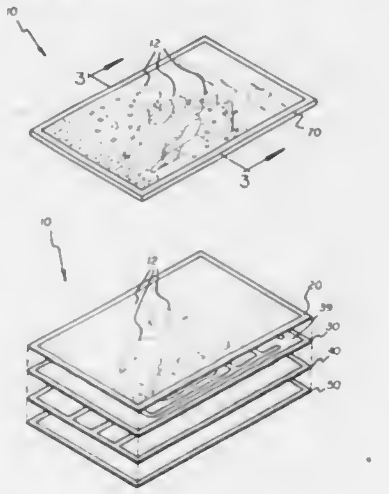
5,782,023
FIBER OPTIC TRADING CARD SYSTEM

Jaime Iannaptuano, and Theresa Iannantuano, both of 610 Columbia Ave., North Bergen, N.J. 07047

Filed Nov. 6, 1996, Ser. No. 764,064

Int. Cl.^{6} G09F *13/00*

U.S. Cl. 40—124.02 **4 Claims**



1. A Fiber Optic Trading Card System comprising:

an image layer having an indicia;

a planar opaque layer having a first side and a second side, wherein at least one of said cable channels extends parallel to the plane of said opaque layer said second side juxtaposed to said image layer;

said opaque layer including a plurality of apertures into said first side and a plurality of apertures into said second side, where said apertures into said second side are positioned to correspond to selected lighting situations within said indicia;

said opaque layer including a plurality of cable channels extending between said apertures of said first side and said second side;

a plurality of fiber optic cables having a first end and a second end projecting through said cable channels having various sizes depending on a desired light intensity;

said first end projecting through said aperture into said first side and said second end projecting through said aperture into said second side; and

a multi-colored layer juxtaposed to said opaque layer opposite of said image layer, where said first end receives a selected colored light from said multi-colored layer when positioned near a light source and said second end projects said selected colored light within said indicia to create life like features with various colors and intensities of light.

5,782,024
METALLIC DATA CARRIER

Rudolf Pausch, Luisenstrasse 39, D-75172 Pforzheim, Germany

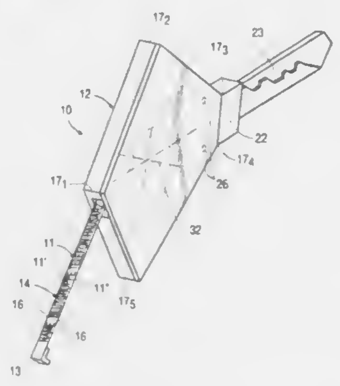
PCT No. PCT/EP94/02459, § 371 Date Feb. 2, 1996, § 102(e) Date Feb. 2, 1996, PCT Pub. No. WO95/04342, PCT Pub. Date Feb. 9, 1995

PCT Filed Jul. 26, 1994, Ser. No. 592,431

Claims priority, application Germany, Aug. 2, 1993, 43 25 918.9

Int. Cl.^{6} G09F *3/00*

U.S. Cl. 40—330 **6 Claims**



1. Data carrier made of metal having personal data of a user carrying the data carrier, with the data carrier being largely insensitive to high thermal stresses as well as mechanical influences in order to maintain the data which it carriers, said data carrier comprising a resistant metal housing, a spring steel band that can be automatically wound up in a spiral configuration in said housing and can be pulled out of a slot in said housing to an unwound configuration, on said band said personal data is embossed legibly in cleartext or applied by recesses that have the contour of conventional characters, and wherein said housing is a bow of a vehicle ignition key.

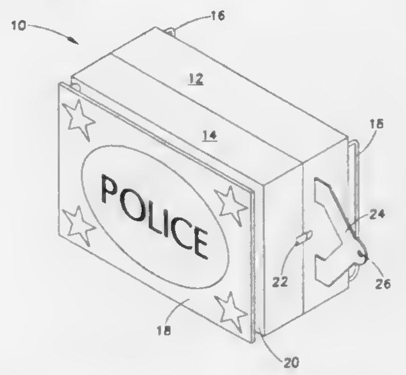
5,782,025
CONCEALED BUCKLE GUN

Dale R. Yoder, Box 27-F, Breezewood, Pa. 15533

Filed Mar. 3, 1997, Ser. No. 810,522

Int. Cl.^{6} F41C *9/02*

U.S. Cl. 42—1.09 **9 Claims**



1. A concealable personal protection buckle gun comprising; a first

block of steel having dimensions of length, width and thickness;

a second block of steel having dimensions of length, width and thickness;

means for securing the first block of steel and the second block of steel in a translatable relation;

a plurality of gun barrel and receiver assembly means positioned in the second block of steel;

a plurality of firing pin assembly means positioned in the second block in a position to cooperatively function with said gun barrel and receiver means;

means for moving the firing pin assembly means to a cocked position;

means for restraining the firing pin assembly means in a cocked position, and

trigger means for releasing the firing pin assemblies whereby a cartridge in the receiver of any barrel and receiver means will discharge causing the projectile attached to the cartridge to escape through the barrel.

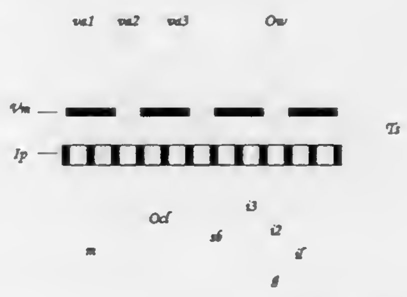
5,782,026
BACK LIT MULTI IMAGE TRANSPARENCY

John Capie, 7050 Village Dr., Suite F, Buena Park, Calif. 90621

Filed Dec. 5, 1994, Ser. No. 349,419

Int. Cl.^{6} G09F *19/14*

U.S. Cl. 40—453 **4 Claims**



1. A method for forming a back lit multi image transparency, the method comprising the steps of:

- a) combining multiple images onto a single photographic transparency by providing at least one mask representative of each image and sequentially pin registering each mask along with the transparency in a vacuum chamber, applying a vacuum, and forming the image of each mask onto the transparency;
- b) attaching the photographic transparency to a first side of a non-opaque substrate;

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c) forming a viewing mask which is configured to facilitate viewing substantially of only one of the multiple images at each of various different view angles; and

d) attaching the viewing mask to a second side of the non-opaque substrate.

5,782,027

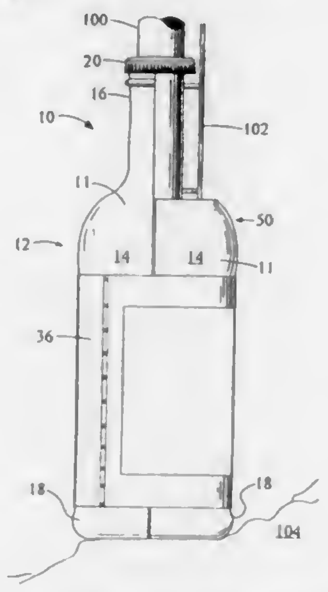
DEVICE FOR CONVERTING A POLE INTO A SIMULATIVE ADVERTISING DISPLAY

Sean T. Gildea, 58 Harbor Ave., Marblehead, Mass. 01945

Filed Mar. 12, 1997, Ser. No. 820,366

Int. Cl.⁶ G09F *5/08*

U.S. Cl. 40—538 9 Claims



1. A device for converting a pole into a simulative advertising display, the device comprising:

a first body element for simulating in a magnified proportion at least a portion of a product to be advertised, the first body element with an outer surface simulating at least a section of a product to be advertised and with a pole engaging surface with a means for engaging a pole; and

a means for coupling the first body element with a pole comprising a removable sheet label for conveying an advertising message and for surrounding the first body element and a pole to thereby couple the first body element with a pole wherein the removable sheet label comprises a generally rectangular sheet of flexible material and wherein the removable sheet label simulates in magnified proportion a label of a product to be advertised;

whereby the first body element, when attached to a pole, causes at least a portion of the pole to simulate a product to be advertised.

5,782,028

CONCEALED SAFETY DEVICE FOR FIREARMS

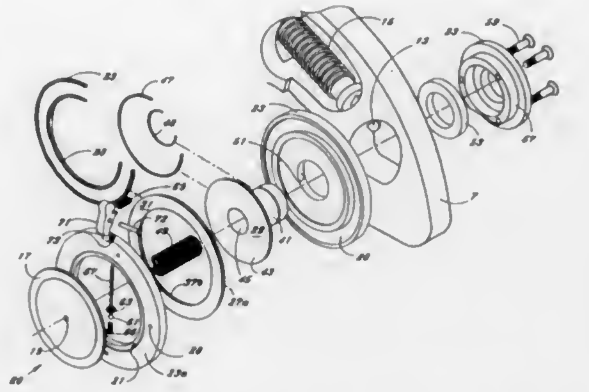
Stephen G. Simon, 1167 E. Hillsboro Mile, No. 216, Hillsboro Beach, Fla. 33062; Denise E. Reed, Hillsboro Beach, Fla., and Charles W. Bergeron, Fort Lauderdale, Fla., assignors to Stephen G. Simon, Deerfield Beach, Fla.

Filed Dec. 19, 1994, Ser. No. 359,067

Int. Cl.⁶ F41A *17/26*

U.S. Cl. 42—70.11 11 Claims

1. An apparatus mounted within a firearm and hidden from external view for use with a firearm to prevent accidental or unauthorized discharge, said apparatus used to selectively control the movement of the main spring rod that actuates the firing of the firearm, comprising:



a manually actuated piston assembly including at least one piston for moving between a first and second position;

means for manually actuating said manually actuated piston assembly, said means being connected to said firearm and hidden from external view;

a blocking member attached to said at least one piston for obstructing the movement of said mainspring rod in said first position and allowing unobstructed movement in said second position, extending into a butt of said firearm; and

whereby said mainspring rod moves with the pull of a trigger of said firearm and said blocking member is positioned to obstruct said mainspring rod when said at least one piston is positioned in said first position.

5,782,029

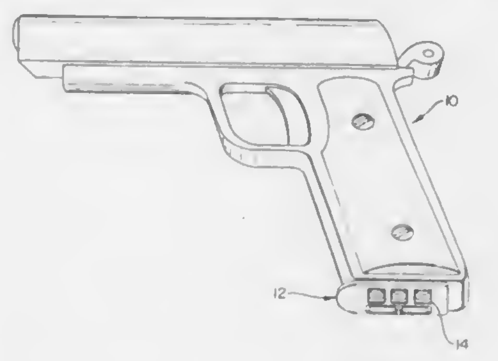
FIREARM SAFETY MECHANISM

Frank Brooks, Jupiter, Fla., assignor to SAF T LOK Corporation, Tequesta, Fla.

Filed Sep. 25, 1996, Ser. No. 719,473

Int. Cl.⁶ F41A *17/00*

U.S. Cl. 42—70.11 12 Claims



1. In a firearm having a firing chamber for receiving ammunition from a detachable magazine, said detachable magazine comprising structure for containing ammunition, structure for preventing firing of said firearm, and a first locking means for controlling said structure for preventing firing of said firearm; wherein said structure for preventing firing of said firearm and said first locking means are formed integral to said magazine.

5,782,030

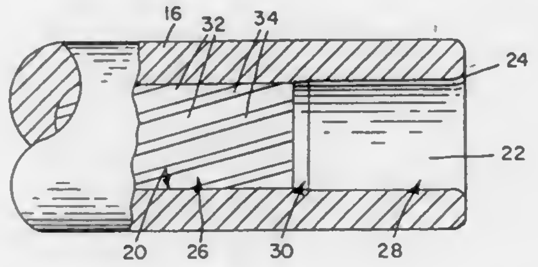
BARREL FOR MUZZLE LOADING FIREARM

Kendrick L. French, Lebanon, Me., assignor to Thompson Intellectual Properties, Inc., Rochester, N.H.

Division of Ser. No. 575,207, Dec. 19, 1995, Pat. No. 5,639,981. This application Mar. 11, 1997, Ser. No. 815,393

Int. Cl.⁶ F41A *21/00*

U.S. Cl. 42—76.01 8 Claims



1. A method of making a barrel for a muzzle loading firearm comprising the following steps:

(a) drilling a longitudinal cylindrical bore into a solid length of metallic barrel stock from one end of the barrel stock so that a muzzle opening to the bore is formed at said one end, said longitudinal cylindrical bore being defined by an inner cylindrical surface;

b) forming rifling on the inner cylindrical surface of said barrel from said muzzle opening along substantially the entire length of said bore, said rifling comprising a plurality of spaced grooves which extend helically along the length of the inner cylindrical surface; and

(c) enlarging the inner diameter of said cylindrical bore from said muzzle opening for a distance of at least ⅜" from said muzzle opening, the enlarged portion of said cylindrical bore being defined as a muzzle portion and the remainder of said cylindrical bore being defined as a main portion, the diameter of said muzzle portion being greater than the diameter of said main portion at the grooves.

5,782,031

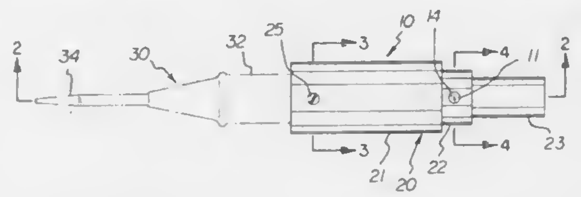
FIREARM PIERCING TOOL ATTACHMENT DEVICE

Mario H. Bourgeois, 605 Boundary Road, Alfred, Ontario K0B 1A0, Canada

Filed Jun. 25, 1997, Ser. No. 881,837

Int. Cl.⁶ F41A *15/00*

U.S. Cl. 42—90 6 Claims



1. A Firearm Piercing Tool Attachment Device for attaching a piercing tool having a handle to a firearm having a cleaning port including an aperture formed therethrough, the attachment device comprising:

a body having a hollow section and a second section, the second section being receivable within the cleaning port of the firearm;

a means for removably attaching the second section to the cleaning port; and

a means for removably attaching the piercing tool to the hollow section.

5,782,032

COAL GASIFICATION FURNACE WITH A SLAG TAP HOLE OF SPECIFIC SHAPE

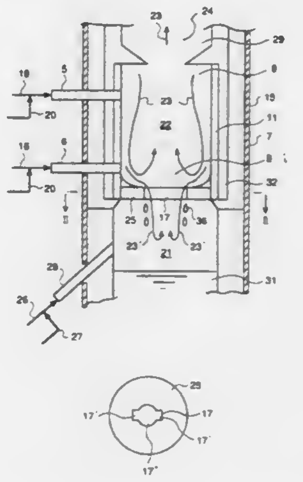
Sinji Tanaka, Juo-machi; Shuntaro Koyama; Atsushi Morihara, both of Hitachinaka; Takanori Kudo, Kodaira; Sadao Takahashi, Hitachi, and Masato Iwahara, Hiroshima, all of Japan, assignors to Hitachi, Ltd., and Babcock-Hitachi Kabushiki Kaisha, both of Tokyo, Japan

Filed Sep. 17, 1996, Ser. No. 714,997

Claims priority, application Japan, Sep. 22, 1995, 7-244104

Int. Cl.⁶ C01J *3/52;3/48;3/84;* **F23J** *9/00*

U.S. Cl. 48—77 8 Claims



1. A coal gasification furnace having a gasification chamber for producing therein burnable gas from coal, a burner arranged on a side wall of said gasification chamber so as to inject coal and an oxidizing agent along a peripheral direction of said gasification chamber, a slag cooling chamber provided below said gasification chamber, and a slag tap partitioning said gasification chamber and said slag cooling chamber, characterized in that said slag tap has a hole formed in such a shape in a cross-section perpendicular to the axis of said hole that the cross-sectional area of said hole is larger around a central portion of said hole than in a peripheral portion thereof, said peripheral portion being formed in a slit-like shape in a cross-section perpendicular to the axis of said hole, and extending outwardly from said central portion in at least two opposite directions.

5,782,033

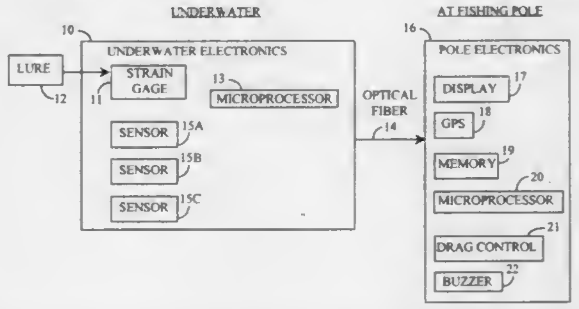
FISHING DEVICE WITH STRIKE DETECTION, DATA LOCK AND LINE BREAKAGE PROTECTION

Michael C. Park, and Kenneth J. Park, both of Portland, Oreg., assignors to Aquametrics Inc., Portland, Oreg.

Filed Mar. 8, 1996, Ser. No. 611,335

Int. Cl.⁶ A01K *97/12*

U.S. Cl. 43—4 2 Claims



1. A system for alerting an operator when a fish strikes comprising,

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an underwater unit including a fish attracting device attached to a strain detection device for detecting the amount of strain from said fish attracting device,

an above water unit including alerting means for alerting said operator,

means for transmitting a signal from said underwater unit to said above water unit when the strain detected by said strain detection device changes, and

means for activating said alerting means when said strain changes by more than a preestablished amount.

2. A fishing system including,

an above water unit,

an underwater unit connected to said above water unit,

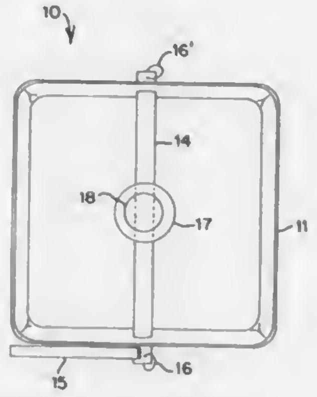
said underwater unit including a strain detecting device, a fish attracting device attached to said strain detecting device, and means for transmitting to said above water unit,

the amount of strain detected by said strain detecting device, and

said above water unit including means for responding to the amount of strain detected by said strain detecting device when said strain indicates a strike at said fish attracting device.

5,782,034
RODENT TRAP
Roger L. Robin; John A. Hanawalt, and Jeffrey M. Watts, all of Hanover, Me., assignors to The Maine Mouse-ah, Inc., Hanover, Me.
Filed Sep. 9, 1996, Ser. No. 711,166
Int. Cl.^{6} A01M *23/10*

U.S. Cl. 43—71 **20 Claims**

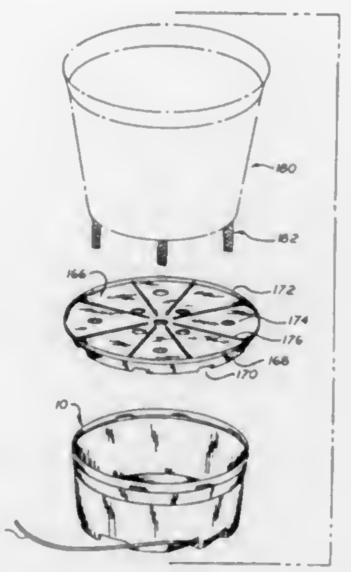


1. A pest-containment device comprising:
- a) a container means for trapping a pest;
- b) a pest-access means for providing entry to said container means, said pest-access means having a transverse portion; and
- c) a substrate having one or more bait-retaining ends, said substrate having a central aperture therethrough and perpendicular to a longitudinal axis of said substrate;

wherein said substrate is substantially centrally located within said container means and rotationally held on said transverse portion of said pest-access means so that said substrate is balanced to remain in a substantially upright vertical position while being rotatable about said transverse portion.

5,782,035
MULTI-PURPOSE AUTOMATIC FILLING AND LEVELING FLUID BASIN WITH WATER TRANSFER
Randal D. Locke; Daniel P. Dunbar, and Teresa M. Locke, all of P.O. Box 1325, Redway, Calif. 95560-1325
Filed Jun. 7, 1995, Ser. No. 488,292
Int. Cl.^{6} A01G *31/02*

U.S. Cl. 47—79 **28 Claims**

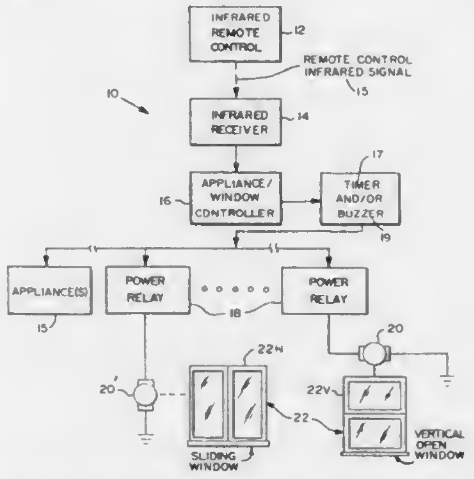


1. In an automatic filling and liquid level regulating device for dispensing liquid from a source thereof which is under pressure to a liquid using attachment when the latter is connected thereto and in liquid communication therewith, the device comprising:
- (a) a liquid holding basin adapted as a reservoir for a volume of liquid to be dispensed therefrom to the liquid using attachment when connected to the basin and which has a closed bottom, at least one side wall, an open top and which comprises:
  - (i) inlet means adapted to connect the interior of the basin to the source of the liquid under pressure and to ambient air;
  - (ii) seating means (in the interior of the basin) for detachably mounting a fill valve to the basin;
  - (iii) connecting means for connecting the liquid using attachment to the basin; and
- (b) a fill valve with an adjustable diaphragm for maintaining the volume of liquid in the basin at a selected liquid level line, which is detachably mounted in the basin between the inlet means and the interior of the basin at a position which leaves an air space above the top of the liquid when the basin is filled with a volume of liquid to the selected liquid level line, which fill valve comprises:
  - (i) means for detachably mounting the fill valve in the basin between the inlet means thereof and the interior of the basin and positioned below the selected liquid level line, between the top and the bottom of the basin, which leaves air space above the top of the liquid when the basin is filled with a volume of liquid to the selected liquid level line;
  - (ii) an interior cavity with a lower portion in liquid communication with the source of the liquid under pressure and which, when the valve is in its open position, is in liquid communication with the interior of the basin, and an upper portion;
  - (iii) a diaphragm in mechanical connection with means positioned in the upper portion of the interior cavity which reciprocally urges the valve into a closed position, in response to the weight of liquid in the basin above the diaphragm when the liquid is at the selected liquid level line, and releases the valve into an open position, in response to a drop in the level of the liquid in the basin below the selected liquid level line;
  - (iv) a liquid inlet port in liquid communication with the inlet means of the basin;
  - (v) a liquid outlet port providing liquid communication between the lower portion of the interior cavity and the interior of the basin for dispensing liquid from the fill valve into the basin when the valve is in its open position;
  - (vi) a gas inlet port in gas communication with the inlet means of the basin for maintaining the diaphragm of the fill valve at ambient air pressure;

the improvement wherein the basin is adapted for mounting thereon different liquid using attachments having different applications; wherein the connecting means thereof is adapted to mount a liquid using attachment on the open top of the basin; and the valve mounting means comprises seating means on an interior surface of the basin which is adapted to permit mounting the fill valve thereon and dismounting it therefrom in a single motion.

5,782,036
DISABLED PERSONS MULTIPLE APPLIANCE/WINDOW REMOTE CONTROL SYSTEM
Fiorenza Bertieri, 211 W. 53rd St., Apt. 4-F, New York, N.Y. 10019, and Richard L. Miller, Dix Hills, N.Y., assignors to Fiorenza Bertieri, New York, N.Y.
Continuation-in-part of Ser. No. 368,977, Jan. 5, 1995, abandoned, which is a division of Ser. No. 234,124, Apr. 28, 1994, abandoned. This application May 10, 1996, Ser. No. 644,310
Int. Cl.^{6} E05F *15/20*

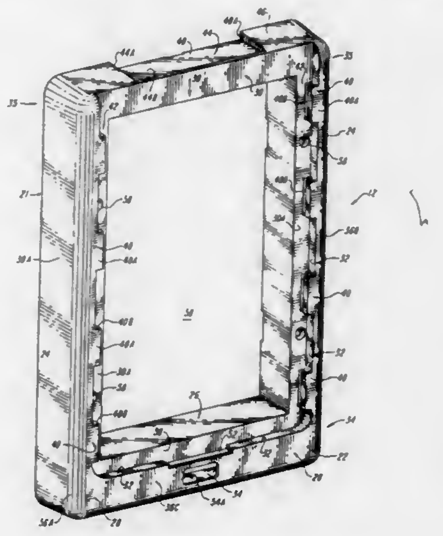
U.S. Cl. 49—25 **16 Claims**



1. A disabled persons multiple appliance and window remote control system that allows a disabled person to remotely and automatically operate at least one of at least one appliance and at least one window by merely aiming a remote control at any of the at least one of the at least one appliance and the at least one window regardless of which one of the at least one of the at least one appliance and the at least one window the disabled person desires to operate, comprising:
- a) a programmable infrared remote control having an infrared transmitter generating separate infrared signals associated with each of the at least one of the at least one appliance and the at least one window; and
- b) a separate and local control system being associated and in electrical communication with each of the at least one of the at least one appliance and the at least one window and with each other and receiving said infrared signal from said programmable infrared remote control, so that the disabled person can remotely and automatically operate the at least one of the at least one appliance and the at least one window by merely aiming said programmable infrared remote control at any said separate and local control system associated with any of the at least one of the at least one appliance and the at least one window regardless of which one of the at least one of the at least one appliance and the at least one window the disabled person desires to operate; each separate and local control system including an infrared receiver and a power line transceiver associated with each of the at least one of the at least one appliance and the at least one window and for communicating with other said separate and local control systems, so that when said power line infrared receiver associated with the at least one of the at least one appliance and the at least one window detects presence of an associated said infrared signal of said programmable infrared remote control, the associated one of the at least one of the at least one appliance and the at least one window is operated and when said infrared receiver of said separate and local control system receives said infrared signal of said programmable infrared remote control detects presence of said infrared signal of said programmable infrared remote control that is not associated with the one of the at least one of the at least one appliance and the at least one window, said separate and local control systems sends a power line signal over conventional AC power lines in a home using said power line transceiver.

5,782,037
PET DOOR HAVING A SECURITY COVER
George N. Davlantes, 21457 Iglesia Dr., Woodlawn Hills, Calif. 91364
Filed Feb. 1, 1996, Ser. No. 595,231
Int. Cl.^{6} E06B *3/68*

U.S. Cl. 49—57 **3 Claims**



3. A pet door assembly including a frame defining a pet opening, and a security cover for a pet door having a main body with vertical edges, said main body having vertical flanges formed near each vertical edge, said frame having vertically extending channel members for slidably receiving said flanges of said security cover, each said channel member including an integrally formed wall portion, at least a portion of which is located inwardly towards the pet opening of said security cover flange when said cover is disposed within said channel for preventing horizontal movement of said vertical flanges with said channel, so as to prevent a force applied substantially normal to said security cover main body from dislodging said security cover from said frame, wherein said security cover further includes locking means formed thereon and said frame further includes receiving means for receiving said locking means, wherein positioning of said locking means within said receiving means further secures said security cover to said frame.

5,782,038
WINDOW REGULATOR
Edward E. Sponable, Novi, and Jeffrey Kolar, Livonia, both of Mich., assignors to Hi-Lex Corporation, Battle Creek, Mich.
Filed Jul. 29, 1996, Ser. No. 688,248
Int. Cl.^{6} E05F *11/48*

U.S. Cl. 49—352 **15 Claims**

6. A window regulator for use with a motor vehicle, the motor vehicle including a window pane and a body structure including means for guiding the window pane for movement between lowered and raised positions, the regulator including a cable assembly including a cable and cable drive means for moving the cable, and means operative in response to movement of the cable to raise and lower the window pane, the improvement wherein:

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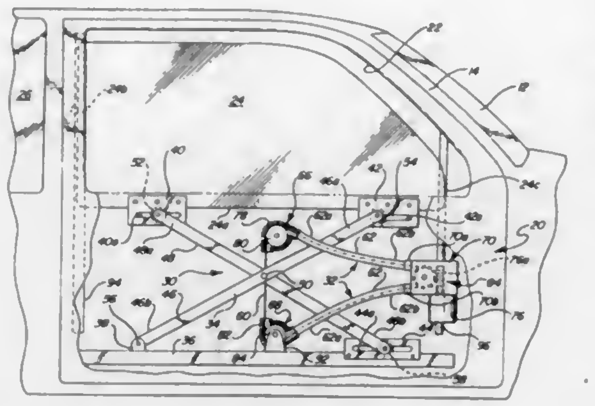


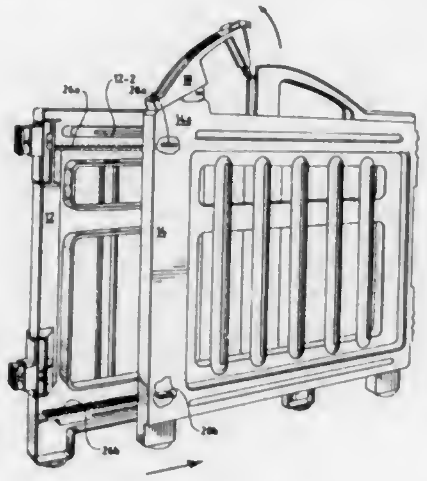
the operative means includes a linkage assembly drivingly connected to the window pane;
the cable is drivingly connected to the linkage assembly;
the linkage assembly includes a scissors linkage comprising two crossed arms connected at a pivot axis;
the cable is connected to the scissors linkage at the pivot axis; and
the point of connection of the cable to the linkage assembly is free to move in a direction normal to the plane of the window pane.

5,782,039

PORTABLE GATE

Craig S. Scherer, Wilmette; David C. Brown, Chicago, and Michael C. Thuma, Desplaines, all of Ill., assignors to BRK Brands, Inc., Aurora, Ill.

Filed Jul. 17, 1996, Ser. No. 682,435
Int. Cl.^{6} E05C *21/02;* E06B *3/12*
U.S. Cl. 49—465 **18 Claims**



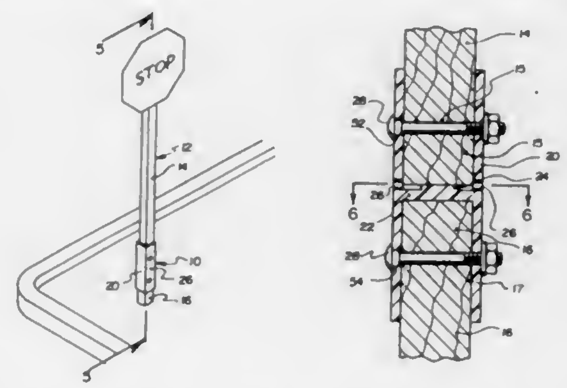
1. A portable security gate comprising:
first and second panels, slidably mounted relative to one another and moveable relative to one another in a first direction;
a locking handle, pivotally attached to one of said panels wherein said handle has a locking position and a non-locking position and where at least the other of said panels carries a plurality of spaced engaging projections linearly arranged and extending parallel to said first direction;
a linearly moveable locking mechanism, coupled to said handle for engaging at least one of said panels, and, in response to movement of said handle to said locking position and movement of said mechanism substantially perpendicular to said first direction, forcing said panels apart to an extended position, and locking same therein.

5,782,040

BREAKAWAY SIGN POST REPAIR SYSTEM

Dean McCartan, 705 Locust St., Rolfe, Iowa 50581

Filed Aug. 13, 1996, Ser. No. 696,036
Int. Cl.^{6} E04B *1/00*
U.S. Cl. 52—98 **2 Claims**



1. A breakaway signpost repair system for rejoining the upper and lower post portions of a broken signpost, said system comprising
a breakaway tubular member having a perimeter wall defining a lumen and having an upper opening for receiving an upper post portion of a broken signpost and a lower opening for receiving the lower post portion of a broken signpost in a manner aligning said upper and lower portions into a longitudinally-aligned position, the breakaway tubular member comprising a horizontal partition extending completely across the lumen of the tubular member to separate the lumen into an upper lumen for receiving the upper post portion and a lower lumen for receiving the lower post portion; and
the breakaway tubular member being comprised of a material adapted to break upon impact of a vehicle striking an upper post portion inserted into said breakaway tubular member;
the breakaway tubular member including an upper fastener aperture and a lower fastener aperture for receiving fasteners passing through the upper and lower post portions of a broken signpost;
a fastener for projecting through the upper fastener aperture and lower fastener aperture to secure an upper post portion and a lower post portion to the breakaway tubular member;
a cylindrical member secured to the horizontal partition of the breakaway tubular member and projecting vertically upward for engaging the bottom end of an upper post portion inserted in said breakaway tubular member to thereby space the bottom end of the upper post portion upward from the horizontal partition, said cylindrical member forming an annular groove between said cylindrical member and the perimeter wall of said breakaway tubular member; and
at least one drainage aperture in said breakaway tubular member located above the horizontally partition and below the upper end of the cylindrical member opposite of the horizontal partition to drain accumulated water from said annular groove to prevent deterioration of the upper post portion of a signpost.

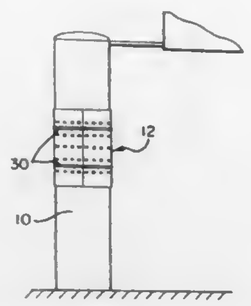
5,782,041

COLUMN PROTECTOR DETERRING UNAUTHORIZED CLIMBING ACCESS BY HUMAN BEING

Dorian Filipescu, 1562 3/4 N. Verdugo Rd., Glendale, Calif. 91208

Filed Apr. 11, 1997, Ser. No. 837,016
Int. Cl.^{6} E04B *1/72*
U.S. Cl. 52—101 **15 Claims**

1. A protective guard for deterring human access thereacross, comprising:



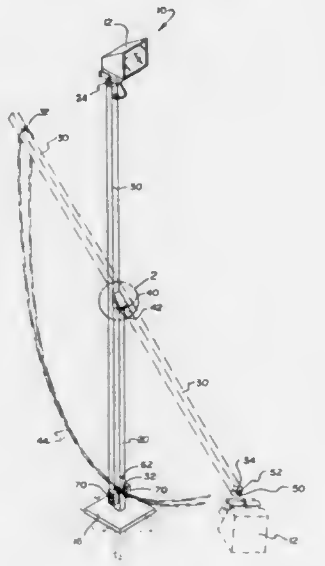
a metal sheet having a plurality of barblike means formed in the sheet and extending outwardly from a common major surface, each such means including,
four generally triangular sidewalls arranged spaced apart about an opening, each having a pointed end portion turned back away from the opening and toward the sheet and at least one metal band which extends about said metal sheet in closed curve form with two opposite end portions which are adapted to be secured together.

5,782,042

TILTING POLE SYSTEM

Erwin M. Klein, 3219 Spring Cypress Rd., Spring, Tex. 77388

Filed Jan. 30, 1997, Ser. No. 791,663
Int. Cl.^{6} B66C *23/06*
U.S. Cl. 52—116 **17 Claims**



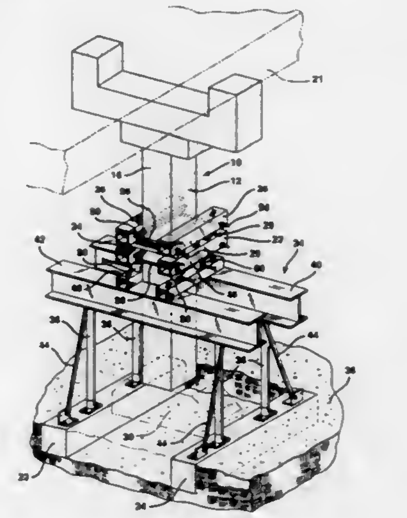
1. A tilting pole system comprising:
a lower pole having an upper end and a lower end, wherein said lower end is for securing within concrete for retaining said lower pole orthogonal to ground;
an upper pole having a first end, a second end and a concentric portion, wherein said first end is for supporting a utility device and said upper pole is a finite distance longer than said lower pole;
said concentric portion of said upper pole is pivotally attached to said upper end of said lower pole;
a securing means removably securing said second end of said upper pole to said lower end of said lower pole to retain said upper pole juxtaposed and parallel to said lower pole;
an eyelet secured to said lower end of said lower pole and another eyelet secured to said second end of said upper pole; and
an elongated strap having opposing ends secured between said eyelets secured to said lower end and said second end for preventing said utility device secured to said first end of said upper pole from engaging said ground when said securing means is removed.

5,782,043

SEISMIC CORRECTION SYSTEM FOR RETROFITTING STRUCTURAL COLUMNS

C. Warren Duncan, 1281 Logan Ave., Suite F, Costa Mesa, Calif. 92626, and Richard G. Meehan, 25255 Cabot Rd., Suite 102, Laguna Hills, Calif. 92653

Filed Nov. 19, 1996, Ser. No. 752,051
Int. Cl.^{6} E02D *27/34*
U.S. Cl. 52—167.1 **11 Claims**



9. Apparatus for supporting the load on a column so as to reduce a vertically downwardly acting load on said column below a predetermined location thereon comprising: a pair of horizontally oriented clamps disposed on opposite transverse sides of said column and extending laterally beyond said column on laterally opposing sides thereof, each of said clamps including a horizontally oriented key projecting therefrom, whereby said horizontally oriented keys face each other and project into horizontally oriented keyways defined into said column on said transversely opposite sides thereof above said predetermined location thereon, at least one pair of laterally separated, horizontally oriented, mutually parallel clamping bolts extending between said clamps adjacent said laterally opposite sides of said column and tightened to draw said clamps toward each other and into compression against said opposite transverse sides of said column, load-bearing supports located vertically beneath each of said clamps and anchored to transmit vertically downwardly acting loads thereon to ground, and jacks acting between said load-bearing supports and each of said clamps and actuated to exert vertically upwardly acting forces against said clamps to counter at least a portion of said load on said column, thereby reducing said vertically downwardly acting load on said column beneath the level of said clamps.

5,782,044

MULTI-TREAD ENTRY GRID

Ronald N. Dodd; James J. Hopper, II, and Johnnie D. Hilburn, Jr., all of Wichita, Kans., assignors to Balco Metalines Inc., Wichita, Kans.

Filed Jun. 12, 1997, Ser. No. 873,821
Int. Cl.^{6} E04F *11/16;15/02*
U.S. Cl. 52—177 **25 Claims**

1. A foot traffic grid apparatus comprising:
a first grid section including

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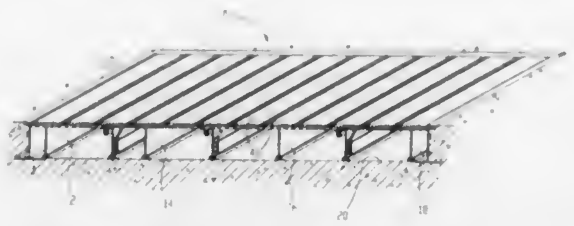


- a first support body having a first upper surface, an opposed first lower surface, a first side and an opposed second side
- a support leg extending downwardly from said first support body adjacent said first side,
- there being channel means defining first and second, upwardly opening, spaced, connector-receiving channels positioned on opposed sides of said support leg; and

a second grid section including
- a second support body having a second upper surface, an opposed second lower surface, a first side and a second side, and
- first and second, spaced connectors extending downwardly from said second support body adjacent said first side thereof,
- said first and second connectors being configured for reception in said first and second channels respectively on opposed sides of said support leg for positioning said second support surface adjacent to and on the same level as said first support surface

each of said grid sections including tread channel means defining at least one tread channel for receiving and holding a tread.

5,782,045

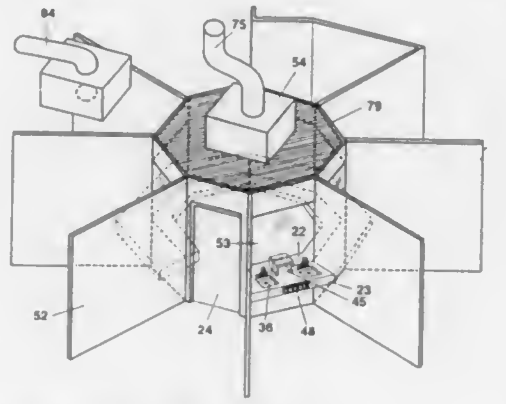
DENTAL TREATMENT UNIT

Richard Craig Paschal, Nashville, Tenn., assignor to Haynes Houk, Leweller, orr and Paschal, Associates

Filed Feb. 13, 1995, Ser. No. 387,338

Int. Cl.^{6} E04C *2/52*

U.S. Cl. 52—220.8 **1 Claim**



1. A dental treatment unit comprising:
- a. a treatment module;
- b. a supply module adjacent the treatment module, the supply module including means to store dental treatment instruments and supplies for use in the treatment module;
- c. a partition which separates and isolates the treatment module from the supply module;
- d. an access opening in the partition to allow for passage of the dental instruments and supplies into the treatment module from the supply module;
- e. pneumatic means to inhibit movement of airborne contaminants through the access opening from the treatment module to the supply module; and
- f. whereby a dental patient can be treated inside the treatment module using dental instruments and supplies that have been passed through the access opening in the partition from the supply module without contamination of instruments and supplies in the supply module by airborne contaminants from the treatment module, and whereby the treatment module can be de-contaminated without contamination of instruments in the supply module.

5,782,046

ISOLATED LOG ELEMENT

Hans Karlsson, Sörvägen 540, S-940 92 Lillpite, Sweden

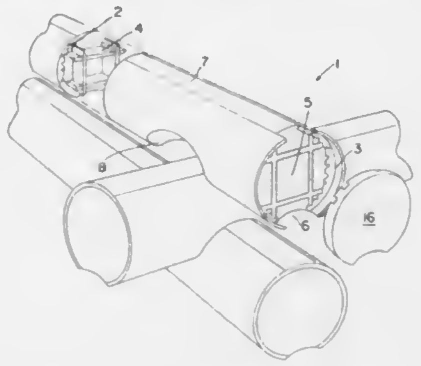
PCT No. PCT/SE95/00488, § 371 Date Feb. 18, 1997, § 102(e) Date Feb. 18, 1997, PCT Pub. No. WO95/30807, PCT Pub. Date Nov. 16, 1995

PCT Filed May 4, 1995, Ser. No. 737,128

Claims priority, application Sweden, May 6, 1994, 9401585

Int. Cl.^{6} E04C *3/12*

U.S. Cl. 52—233 **11 Claims**



1. Wooden log elements (1) adapted to be stacked one upon another to form a wall structure, each of the log elements including surface parts (3) having inwardly facing surfaces which are provided with grooves (12, 15, 15') that extend in a longitudinal direction of the log element (1), and further including spacers (4) which hold the surface parts (3) in supported mutually spaced relationship, wherein a space is formed between the surface parts and is filled with a thermally insulating material (5) which fixes the surface parts (3) and the spacers (4) in position, further characterized in that the log element (1) has the form of a natural log wherein the surface parts (3) are disposed on sides of the thermally insulating material (5) and have an arcuate cross-sectional shape and are formed by a plurality of mutually joined panel elements (2) with the spacers (4) disposed therebetween in mutually spaced relationship along the full length of the log element (1) and substantially enclosed by the thermally insulating material (5), wherein for the purpose of shape-locking the surface parts (3) together in all directions, the spacers (4) comprise a square frame construction having corners and having mutually intersecting outer end parts (13.13') projecting out from the corners, wherein the outer end parts are fixed together at said corners and have ends which are received in the grooves (15.15') that extend longitudinally in the inwardly facing surfaces of the surface parts (3).

5,782,047

HIGH-RISE BUILDING SYSTEM USING LIGHT GAUGE STEEL WALL PANELS

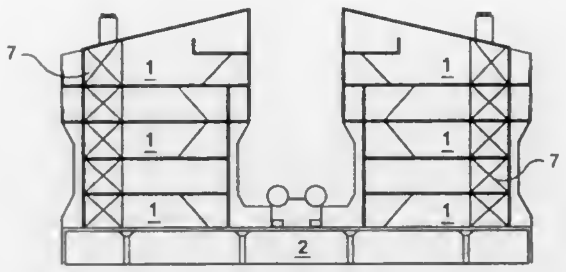
Jorge De Quesada, 477 Pacific Ave., San Francisco, Calif. 94133

Filed Jul. 19, 1996, Ser. No. 684,461

Int. Cl.^{6} E04H *1/00;* **E04C** *2/34*

U.S. Cl. 52—236.6 **15 Claims**

1. A lightweight, prefabricated wall panel having left and right ends which is able to resist both vertical and lateral forces for use as a wall in a multi-story building of three or more stories comprising:



- a plurality of spaced vertical cold rolled light gauge sheet metal studs extending between top and bottom channels in which they are retained, at least one pair of diagonal tension bracing plates connected to said studs and channels, and a pair of hot rolled steel members affixed vertically to the left and right ends of said panel including said top and bottom channels and said diagonal bracing plates.

5,782,048

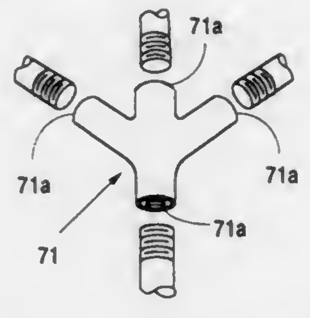
REINFORCED BUILDING STRUCTURE AND METHOD OF CONSTRUCTING THE SAME

Jose G. Ramirez, P.O. Box 657, Hidalgo, Tex. 78557

Continuation of Ser. No. 499,167, Jul. 7, 1995, abandoned, which is a continuation-in-part of Ser. No. 257,371, Jun. 9, 1994, which is a continuation of Ser. No. 979,137, Nov. 20, 1992, abandoned. This application Feb. 24, 1997, Ser. No. 805,376

Int. Cl.^{6} E04H *9/14;* **E02D** *27/50*

U.S. Cl. 52—295 **4 Claims**



1. An assembly for securing a roof of a wood frame building structure, the roof having a multiplicity of roof rafters, to a foundation of the building structure, the assembly comprising:
- a first rigid metal tie rod having a first end securely fastened with the foundation of the wood frame building structure and a second end;
- a first multiplicity of roof rafter engaging rigid metal rods, each having a first end and a second end;
- a first bracket having means for connecting the second end of the first rigid metal tie rod to the first ends of each of the first multiplicity of roof rafter engaging rigid metal rods; and
- means to attach the second ends of the first multiplicity of roof rafter engaging rigid metal rods to the roof rafters of the wood frame building structure;

wherein a force tending to displace the roof from the building structure will be transmitted through the first multiplicity of roof rafter engaging rigid metal tie rods to the first rigid metal tie rod and down to the foundation to resist such displacement.

5,782,049

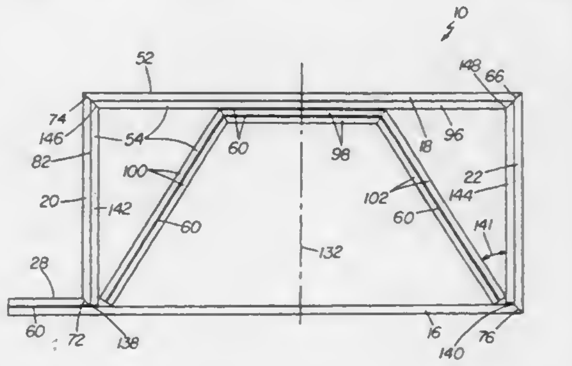
TWO-PART COLLAPSIBLE CORRUGATED PAPER FORM VOID

Robert C. Gates, Lakewood, and Michael L. Turner, Englewood, both of Colo., assignors to Surevoid Products, Inc., Englewood, Colo.

Filed Dec. 11, 1996, Ser. No. 763,408

Int. Cl.^{6} E04B *5/00*

U.S. Cl. 52—323 **16 Claims**



1. A two-part collapsible form void for establishing a space in or adjacent to a concrete structure, including:

an outer part comprising,
- a first sheet of planar material folded over onto itself along a longitudinal fold line and forming first and second portions, wherein said first portion is defined by joined together coextensive strips along two adjacent sides to form a bottom flange, and wherein said second portion is defined by the remainder of the folded first sheet, said second portion having,
- parallel longitudinal fold lines defining an upper panel, a coextensive base panel, a first side panel and a second side panel, and second strut panels attached to the middle sheet along first and second longitudinal fold lines, said strut panels, in the erected position of the void form, depending downwardly at an angle from the middle sheet, whereby said strut panels extend between the middle sheet and the said parallel longitudinal fold lines which define an intersection between the base panel and the first and second side panels.

5,782,050

TWO-PIECE CORNER TIE

Patrick E. Boeshart, P.O. Box 774, Sioux City, Iowa 51102

Filed Mar. 7, 1997, Ser. No. 813,857

Int. Cl.^{6} E04G *17/02*

U.S. Cl. 52—426 **7 Claims**

1. In combination:
- a first pair of parallel, spaced apart form panels having first and second ends;
- a second pair of parallel, spaced apart form panels having first and second ends; and
- a tie for interlocking the first ends of the first pair of form panels with the first ends of the second pair of form panels and with the first and second pairs of panels disposed at an angle of less than 180° with respect to one another, to form a corner;

said tie including:
- a first tie half connected to the first ends of said first pair of form panels, retaining the panels in spaced apart parallel relationship;
- a second tie half independent of the first tie half and substantially identical thereto, connected to the first ends of said second pair of form panels, retaining the panels in spaced apart parallel relationship; and
- connector means releasably connecting the first tie half to the second tie half;

said first tie half including:

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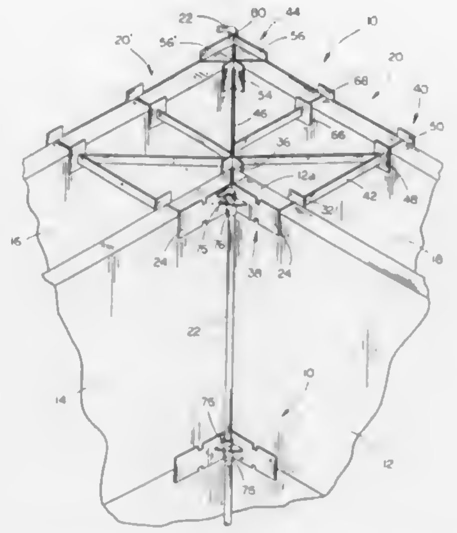
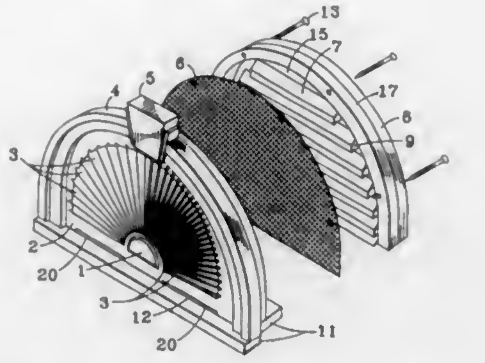


first means for retaining a forward panel of the first pair of panels in an upright position;
second means for retaining a rearward panel of the first pair of panels, in an upright position; and
a connector rod connecting the first and second panel retaining means, to retain the panels in spaced apart, parallel relationship; and
said second tie half including:
third means for retaining a forward panel of the second pair of panels in an upright position;
fourth means for retaining a rearward panel of the second pair of panels in an upright position; and
a connector rod connecting the third and fourth panel retaining means, to retain the second pair of panels in spaced apart parallel relationship;
said first tie half further including a connector strap connecting the first and second panel retaining means, said connector strap oriented at an angle relative to the first pair of form panels which is one-half the angle of the corner formed between the first and second pair of panels;
said second tie half further including a connector strap connecting the third and fourth panel retaining means, said connector strap oriented at an angle relative to the second pair of form panels which is one-half the angle of the corner; and
said connector means releasably connecting the first and second tie halves with the first tie half connector strap abutting the second tie half.

5,782,051
WATER RESISTANT LOUVER

John F. LaVoie, P.O. Box 15, Springfield, Vt. 05156
Filed Mar. 11, 1996, Ser. No. 647,427
Int. Cl.^{6} E06B *7/08;* **F24F** *13/08*
U.S. Cl. 52—473 **8 Claims**

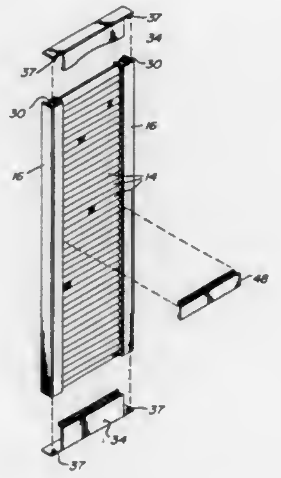
1. A water resistant louver, comprising:
a. a two piece front louver frame with a frontal portion of said front louver frame affixed to a rear portion of said frontal louver frame;
b. a gearhub centrally positioned within said rear portion of said front louver frame;
c. a plurality of symmetrically positioned pieces of decorative blading each of said plurality having a first end and a second end and being positioned and held each at said first end of said each of said plurality to and within said rear portion of said front louver frame and said each being accepted at said second end of said each of said plurality by notches in said gearhub;



d. a water resistant gear hub blade retainer plate affixed to a backside of said gearhub;
e. a mesh screen unit lying affixed to a posterior side of said rear portion of said front louver frame with a screen perimeter and screen shape equal to a perimeter and a shape of said rear portion of said front louver frame;
f. a hollow spacer rim affixed to a posterior side of said mesh screen unit with an external shape and external perimeter being equal to said screen shape and said screen perimeter of said mesh screen;
g. a rear louver frame with flooring;
h. a porous face plate affixed anteriorly to said rear louver frame and with all of said affixed porous face plate and all of said rear louver frame being affixed to a posterior side of said hollow spacer rim with said porous face plate having a shape and a perimeter equal to said screen shape and said screen perimeter of said mesh screen as well as further being equal to a shape and a perimeter of said rear louver frame;
i. a plurality of horizontally positioned deflector slats affixed parallelwise to a front side of said porous face plate which said slats are all in the shape of a rectangle initially affixed to and abutting the lie of said face plate then bent at an initial angle outward with an inclination towards the lie of said mesh screen then bent again downward at a subsequent angle equal in size to the size of said initial angle;
j. a protective deflector drip cap plate affixed to and positioned within said rear louver frame and to a posterior side of said rear louver frame behind and just below a lowest positioned one of said deflector slats which said protective drip cap is in the shape of a rectangle covering an upper surface of said flooring of said rear louver frame and with a first bend upwardly at a first angle at a posterior edge of said flooring so, as to, form a situs of said first bend lie affixed to the said posterior side of said louver frame parallel to the said lie of said face plate, then with a bend downwardly at a second angle at an anterior edge of said flooring so as to incline initially vertically downward from a situs of said second bend and then with a third bend at a third angle below a locus of said second bend so as to incline downward towards said lie of said mesh screen;
k. a positively pitched sill unit, the top surface of which is partially covered by a water retardant shield and to which said sill unit there are attached from front to rear, said two piece front louver frame, said mesh screen, said spacer rim, said porous face plate and said rear louver frame;
l. a plurality of notches cut at a bias into a plurality of portions of a base of said rear portion of said front louver frame, and:
m. a plurality of slots cut into a front of said rear portion of said front louver frame that each connect directly with each of said notches.

5,782,052
OMAMENTAL SHUTTER

Michael A. Lacy, Conyers, Ga., assignor to Vantage Products Corporation, Conyers, Ga.
Filed May 19, 1997, Ser. No. 858,232
Int. Cl.^{6} E06B *7/08*
U.S. Cl. 52—473 **20 Claims**

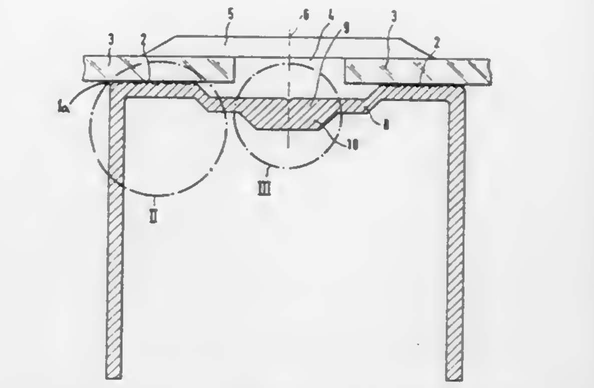


1. A shutter assembly, comprising:
a body portion, comprising
two vertical side rails, each side rail having a front surface, an outer wall, and an inner, the outer wall having a plurality of tabs extending horizontally within the channel formed by the side rail, and
a plurality of horizontal slats disposed between and formed integrally with the side rails, each slat having a rearward first edge and a forward second edge, the second edge having a rearwardly extending lip;
a first and second end cap secured to each end of the shutter body, the end caps comprising
an end wall overlying the end of shutter body,
a front panel attached to the end wall and a fin engaging the rearwardly extending lip of a horizontal slat on the shutter body, and
end wall flanges projecting from the end wall and secured within the channels of the side rails; and
a mullion comprising
a front surface, and
one or more mullion flanges engaging a rearwardly extending lip on a horizontal slat within the center of the shutter body and spaced from the end caps on each end of the shutter body.

5,782,053
BEARING ELEMENT FOR SUPPORTING THE ROOF CLADDING OF A LIGHT-ADMITTING ROOF RIDGE

Gerd Arntjen, An Der Brücke 33-35, 26180 Rastede, Germany
Filed May 20, 1997, Ser. No. 859,177
Claims priority, application Germany, Aug. 28, 1996, 296 14 963.2
Int. Cl.^{6} E04C *3/06*
U.S. Cl. 52—731.9 **3 Claims**

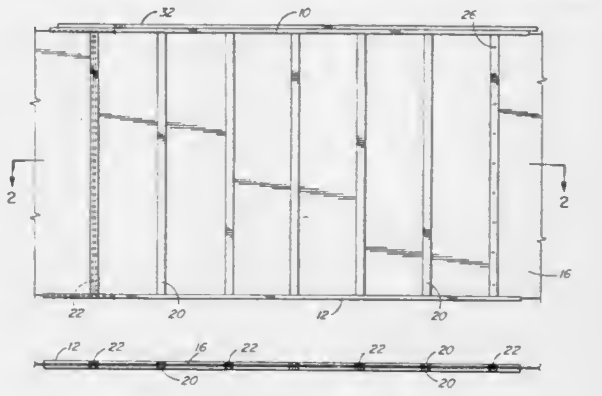
1. A bearing element for supporting a roof cladding forming light permeable panels of a light admitting roof ridge for barns and ancillary buildings, comprising
a bearing element having an outer surface with two supporting surfaces for supporting a roof cladding panel;
said supporting surface having a profiling on at least one section of this supporting surface;
wherein the profiling comprises corrugations which extend in a longitudinal direction of the bearing element and are parallel



to one another; said corrugations are adapted to be in contact with said roof cladding panel;
wherein said outer surface of the bearing element which has said supporting surfaces has a channel like depression between the supporting surfaces; said channel like depression extends in a longitudinal direction of the bearing element;
wherein said outer surface is adapted to face said roof cladding, and in said outer surface is a guide groove which runs centrally in a direction of a longitudinal extent of said bearing element; wherein said guide groove is an indent in the bearing element; and
wherein material of the wall is reinforced by a bead at least over a central section of the channel like depression, in an interior portion of the bearing element.

5,782,054
WOOD WALL STRUCTURE

Erol Varoglu, Vancouver, and Siegfried Fritz Stiemer, Surrey, both of Canada, assignors to Forintek Canada Corp., Vancouver, Canada
Filed Jan. 17, 1997, Ser. No. 784,977
Int. Cl.^{6} E04B *2/70*
U.S. Cl. 52—780 **18 Claims**



1. A wood wall structure comprising:
a top plate and a bottom plate, each having a width across a face, each face extending longitudinally along the wood wall structure, both having substantially the same width, each plate having its face in opposed relation to the other said face and a central groove extending longitudinally along such face;
a central sheath positioned between the top plate and the bottom plate fitting into the central groove in each plate;
pairs of vertical framing elements extending between the top plate and the bottom plate with the central sheath sandwiched therebetween, the pairs of framing elements being positioned at both ends of the wall structure and spaced longitudinally along the wall structure, the pairs of framing elements with the central sheath therebetween having a width substantially the same as the width of the top plate and the bottom plate, and

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attachments between the pairs of framing elements retaining the central sheath therebetween.

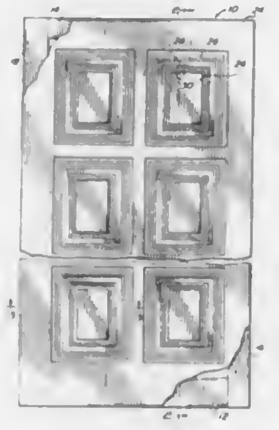
5,782,055
DOOR APPARATUS AND METHOD OF MAKING DOOR

Jerry G. Crittenden, Phoenix, Ariz.

Filed Nov. 22, 1996, Ser. No. 755,406

Int. Cl.^{6} E06B *3/72;* E04C *2/54*

U.S. Cl. 52—784.1 **18 Claims**



1. Door apparatus comprising in combination:

a door, including a front side, a back side, and a perimeter frame;

a grooved first pattern on the front side;

a grooved second pattern on the back side asymmetrical with the first pattern to define a plurality of webs between the front and back sides, whereby the webs allow the door to expand and contract generally perpendicular to the perimeter frame in response to temperature and/or humidity and the perimeter frame remains generally true.

5,782,056
PACKAGING APPARATUS FOR REMOVING A PRODUCT FROM A CONTINUOUSLY MOVING CONVEYOR AND SEALING SAID PRODUCT IN A BAG WITH A CLOSURE

Dennis J. May, Moncure, N.C.; Eddie M. Norton, McDonough, Ga.; Brian K. Digeso, Raleigh, N.C.; Kuo-Raid Grant Chen, Cary, N.C., and Christopher T. Booker, Garner, N.C., assignors to Delaware Capital Formation, Inc., Wilmington, Del.

Continuation-in-part of Ser. No. 743,994, Nov. 4, 1996, abandoned, which is a continuation of Ser. No. 481,182, Jun. 7, 1995, Pat. No. 5,570,561, which is a continuation of Ser. No. 183,484, Jan. 18, 1994, abandoned. This application Aug. 1, 1997, Ser. No. 904,893

Int. Cl.^{6} B65B *61/00*

U.S. Cl. 53—138.4 **14 Claims**

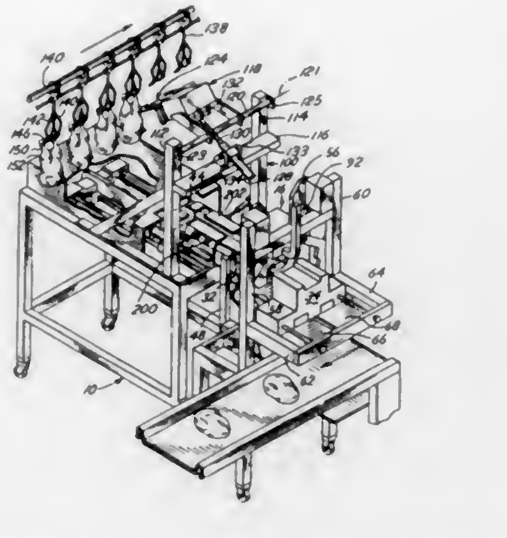
1. Apparatus for removing a unit of product from a continuously moving conveyor having product carriers aligned in serial order and moving on said conveyor, said apparatus further useful for packaging said product, said apparatus comprising in combination:

a frame;

a first product receiving station on the frame;

a second horizontally aligned product packaging station on the frame spaced forwardly from the first station and including a platform for support of a product;

a pivoting product transport arm also on the frame said arm including product gripping and movement means, said arm pivotal about a horizontal axis between a carrier disengagement position and a first station delivery position;



a transport arm drive mechanism connected between the transport arm and the frame for rotating the transport arm intermittently from the carrier disengagement position to the delivery position and vice versa;

a product gripping member mounted on the transport arm and telescopically movable between an extended position and a retracted position, said product gripping member including gripping means for engaging and releasably holding a product, said extended position of said gripping member being substantially equal when the transport arm is in the carrier disengagement and the delivery positions;

control means for intermittently and sequentially (a) maintaining the transport arm in the carrier disengagement position, (b) simultaneously extending the gripping member to the extended position to the conveyor for engaging a product, (c) retracting the gripping member to the retracted position with a product, (d) pivoting the transport arm to the delivery position to transport the product to the first station, (e) releasing the gripping means, (f) retracting the telescoping gripping member to the retracted position and (g) pivoting the pivot arm to the carrier disengage position;

guide plates on opposite sides of the first station support surface for guiding the product as it moves on the support surface from the first station forwardly;

a clipper mechanism positioned between the first and second stations for gathering packaging material and subsequently attaching a U-shaped metal clip about gathered material positioned intermediate the stations;

a bag holder adjacent the first station for holding a bag of the type having an open end in the pathway between the first and second stations, with the open end of the bag positioned to receive the product therein;

a pusher block at the first station for engaging, holding and directing the product toward the second station;

a pusher block drive mechanism for driving the pusher block forwardly for moving the product from the first station into the open end of the bag, for subsequently moving the bagged product continuously to the second station with the open end of the bag projecting into the open space between the stations for gathering and closure by the clipper mechanism, said block drive mechanism including a reciprocal drive for removing the pusher block from the space between the stations prior to attachment of a clip by the clipper mechanism; and

said second station support platform including a mechanism for transporting the product from the platform.

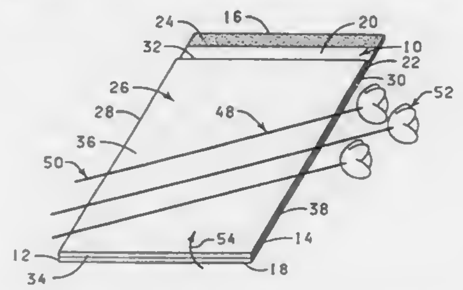
5,782,057
METHOD AND APPARATUS FOR WRAPPING A FLORAL GROUPING WITH MULTIPLE SHEET WRAPPER

Donald E. Weder, Highland, Ill., assignor to Southpac Trust International, Inc.

Continuation of Ser. No. 469,096, Jun. 6, 1995, Pat. No. 5,636,493, which is a continuation of Ser. No. 923,202, Oct. 13, 1992, Pat. No. 5,596,862, which is a continuation-in-part of Ser. No. 803,318, Dec. 4, 1991, Pat. No. 5,344,016, which is a continuation-in-part of Ser. No. 707,417, May 28, 1991, abandoned, which is a continuation of Ser. No. 502,358, Mar. 29, 1990, abandoned, which is a continuation-in-part of Ser. No. 391,463, Aug. 9, 1989, abandoned, which is a continuation-in-part of Ser. No. 249,761, Sep. 26, 1988, abandoned, said Ser. No. 469,096 is a continuation-in-part of Ser. No. 46,504, Apr. 12, 1993, abandoned, which is a continuation of Ser. No. 842,817, Feb. 27, 1992, abandoned, which is a continuation of Ser. No. 586,092, Sep. 19, 1990, abandoned, which is a continuation of Ser. No. 393,992, Aug. 15, 1989, Pat. No. 4,989,396. This application Apr. 21, 1997, Ser. No. 837,620

Int. Cl.^{6} B65B *51/02;61/06*

U.S. Cl. 53—397 **10 Claims**



1. A method for wrapping a floral grouping comprising:

providing a pad comprising plurality of pairs of sheets of material with each pair comprising a first sheet of material and a second sheet of material with each first sheet of material in the pair having an upper surface and a lower surface and each second sheet of material in the pair having an upper surface and a lower surface, and wherein at least a portion of the lower surface of the second sheet is disposed adjacent and connected to at least a portion of the upper surface of the first sheet;

separating the pair of sheets of material from the pad to provide the first sheet of material and the second sheet of material wherein at least a portion of the lower surface of the second sheet of material is disposed adjacent at least a portion of the upper surface of the first sheet of material;

providing the floral grouping having a bloom end and a stem end;

disposing the floral grouping adjacent at least one of the first and the second sheets of material; and

wrapping the first and the second sheets of material about the floral grouping to provide a wrapper.

5,782,058
METHOD AND APPARATUS FOR WRAPPING COILS

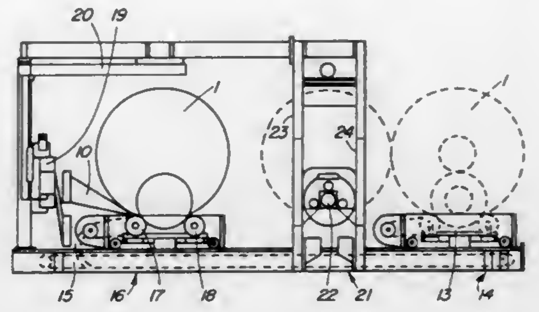
Dennis P. Chadwick, Napanee, Canada, assignor to Chadwick Engineering Limited, Kingston, Canada

Continuation-in-part of Ser. No. 643,750, May 6, 1996. This application Dec. 23, 1996, Ser. No. 772,106

Int. Cl.^{6} B65B *11/00*

U.S. Cl. 53—409 **17 Claims**

1. A method for wrapping an object having a substantially cylindrical peripheral surface, two end surfaces and a hollow cylindrical central space, with a flexible protective film material, comprising: inserting a cylindrical sleeve of said film material, having a length and diameter greater than the length and respective diameter of said central space into said central space so that the ends thereof project from respective ends of said central space; inserting flanged collar means into each respective projecting end of said cylindrical sleeve so as to arrange a portion of each said projecting end thereof in overlying relationship with a respective one of said end surfaces; folding each said projecting end of said cylindrical sleeve to overlie a respective one of said collar means; wrapping a strip of said film material around said peripheral surface, said two end surfaces of the object and said overlain flanged collar means; and sealing said strip of film material to each said projecting end of said sleeve adjacent each said flanged collar means.



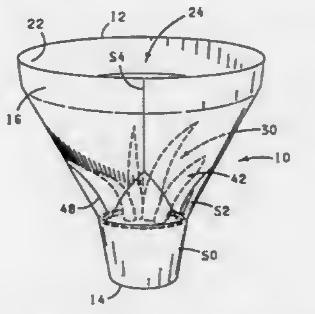
5,782,059
METHOD FOR FORMING A DECORATIVE COVER ABOUT A FLOWER POT

Donald E. Weder, Highland, Ill., assignor to Southpac Trust International, Inc.

Continuation of Ser. No. 460,731, Jun. 2, 1995, Pat. No. 5,613,347, which is a continuation of Ser. No. 237,078, May 3, 1994, Pat. No. 5,625,979, which is a continuation-in-part of Ser. No. 220,852, Mar. 31, 1994, Pat. No. 5,572,851. This application Jan. 15, 1997, Ser. No. 782,439

Int. Cl.^{6} A01G *9/02;* B65B *25/02;* B65D *85/52*

U.S. Cl. 53—412 **32 Claims**



1. A method of wrapping a potted plant, comprising:

providing a potted plant comprising a floral grouping disposed in a pot means, the pot means having a lower end, an upper rim and an outer peripheral surface;

providing a sleeve comprising:

a base having an upper end, a lower end, an inner peripheral surface and an outer peripheral surface, the base having a flattened state from which the base is openable to an opened position wherein the inner surface of the base defines and encompasses an inner retaining space, an opening being formed through the upper end of the base in communication with the inner retaining space, the base sized to fit the outer peripheral surface of the pot means and having a gusset which is unfoldable for forming a closed bottom of the base in the opened position of the base, and

an upper portion connected to the upper end of the base along a line of perforations and having means in the upper portion for supporting the sleeve from wicket means;

separating the base of the sleeve from the upper portion by tearing along the line of perforations forming an upper edge in the upper end of the base;

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opening the base into the opened position thereby exposing the inner retaining space of the base thereby providing a base sized to fit the pot means; and

disposing the potted plant in the inner retaining space of the base of the sleeve with the lower end of the pot means positioned upon the closed bottom of the base and with the base covering at least a portion of the outer peripheral surface of the pot means to provide the decorative cover for the potted plant.

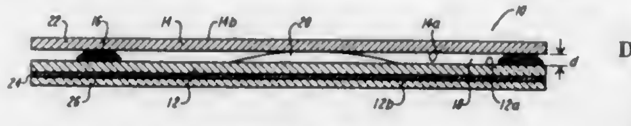
5,782,060
SAMPLER PACKAGE AND METHOD OF MAKING THE SAME

Steven J. Greenland, Stratham, N.H., assignor to Webcraft Technologies, Inc., Lawrenceville, N.J.

Division of Ser. No. 431,781, May 1, 1995, Pat. No. 5,622,263. This application Jan. 7, 1997, Ser. No. 779,823

Int. Cl.^{6} B65B *1/02;9/02;9/04*

U.S. Cl. 53—450 **11 Claims**



1. A method of manufacturing a packaged free flowing product which comprises:

providing a flexible first ply;
dispensing a quantity of said product onto said first ply;
providing a flexible second ply;
applying a continuous wall to one of said plies; and
arranging said plies in a superimposed relationship in which said product is surrounded by said wall and said plies are separated by and bonded to said wall to define a three dimensional chamber containing said product.

5,782,061
SYSTEM AND METHOD FOR MAKING CUSHIONS OF LOOSE FILL PACKING MATERIAL

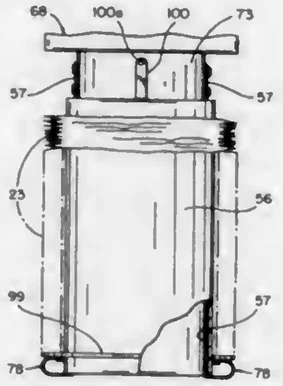
Ronald N. Clazie, Menlo Park; Gunter G. Fuss, San Mateo, and Vladimir Yampolsky, San Carlos, all of Calif., assignors to Free-Flow Packaging International, Inc., Redwood City, Calif.

Continuation-in-part of Ser. No. 766,156, Dec. 12, 1996, which is a continuation-in-part of Ser. No. 673,296, Jun. 28, 1996. This application Apr. 17, 1997, Ser. No. 843,914

The portion of the term of this patent subsequent to Dec. 12, 2010, has been disclaimed.

Int. Cl.^{6} B65B *9/20*

U.S. Cl. 53—451 **15 Claims**



1. A system for packaging loose fill packing material in bags for use as cushions in shipping cartons, comprising:

a dispenser having an outlet through which loose fill packing material is discharged;
a plurality of fingers extending axially from the outlet;
a cylindrical core removably mounted on the fingers, with the fingers extending lengthwise inside of the core;
hooks toward outer ends of the fingers retaining the core on the fingers;
an elongated length of flexible plastic tubing gathered axially about the core such that successive sections of the tubing can be drawn from the core and into communication with the outlet for receiving the loose fill material discharged through the outlet;
a removable ring projecting laterally from the core near the hooks in interior engagement with the tubing for retaining the tubing on the core while permitting the successive sections to be withdrawn; and
means for closing end portions of the successive sections to form bags containing the loose fill material.

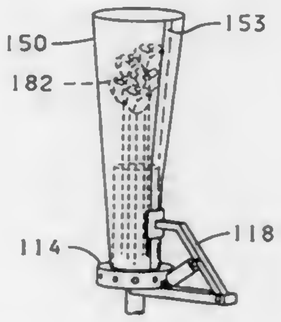
5,782,062
FLORAL GROUPING WRAPPING APPARATUS AND METHOD

Donald E. Weder, and Joseph G. Straeter, both of Highland, Ill., assignors to Southpac Trust International, Inc.

Continuation of Ser. No. 402,747, Mar. 13, 1995, Pat. No. 5,617,708. This application Mar. 27, 1997, Ser. No. 827,136

Int. Cl.^{6} B65B *11/04;25/02*

U.S. Cl. 53—465 **21 Claims**



1. A method of wrapping a sheet of material about a floral grouping, the sheet having a leading edge, the method comprising the steps of:

providing a floral grouping having a stem portion at one end and a bloom portion at another end in a generally vertical or semi-vertical orientation;
automatically advancing the leading edge of the sheet of material toward the floral grouping until a portion of the sheet of material is positioned in a vertical or semi-vertical wrapping position near the floral grouping; and
automatically drawing the sheet of material about the floral grouping until a portion of the sheet engages another portion of the sheet of material wherein the sheet of material surrounds at least a portion of the floral grouping.

5,782,063
METHOD FOR OVERWRAPPING PACKETS OF CIGARETTES

Silvano Boriani, and Antonio Gamberini, both of Bologna, Italy, assignors to G.D. S.P.A., Bologna, Italy

Filed Oct. 21, 1996, Ser. No. 734,535

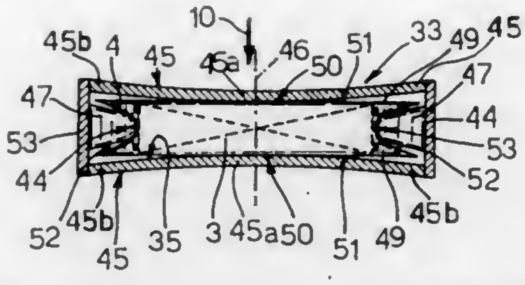
Claims priority, application Italy, Oct. 20, 1995, B095A0502

Int. Cl.^{6} B65B *11/00*

U.S. Cl. 53—466 **2 Claims**

1. A method of overwrapping packets of cigarettes, comprising the steps of:

directing a plurality of packets singly and in succession along a first path;



directing a plurality of sheets of transparent wrapping material singly and in succession along a second path which crosses said first path at a folding station;
associating each successive said packet with a respective said sheet at said folding station by bringing the respective said packet into contact initially with a substantially central portion of the respective said sheet;
causing the respective said sheet to fold around the respective said packet and assume a profile of "U" shape with two lateral portions on each side of the respective said central portion flattened against respective lateral faces of the respective said packet;
compressing a central band of each said lateral portion when flattened against the respective lateral face of the respective said packet, in such a way that said lateral portions are spread progressively and into uniform contact with the respective said lateral faces; both longitudinally and transversally of the direction of movement of the respective said packet along said first path; each said packet lateral face having a transversal width which is larger than the transversal width of the respective said central band, said lateral portions as a result of said compressing not being compressed throughout the full width of the respective said lateral face.

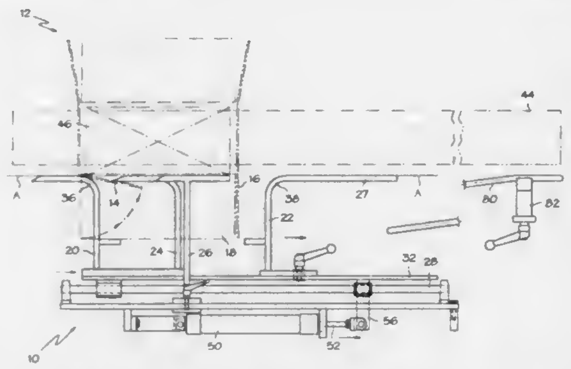
5,782,064
BOX FOLDING APPARATUS

John A. Beeman, Dayton, Ohio, assignor to The Mead Corporation, Dayton, Ohio

Filed Jun. 13, 1997, Ser. No. 874,565

Int. Cl.^{6} B65B *5/04;7/20;49/02;49/08*

U.S. Cl. 53—467 **19 Claims**



1. An apparatus for folding a box around an item to thereby package the item in the box, said box being formed from an unfolded sleeve having a front panel, a back panel and two side panels, each of said panels having a lower edge defining a lower perimeter, said sleeve further having a trailing unfolded bottom flap and a leading unfolded bottom flap extending downwardly from said front and back panels, the apparatus comprising:

a support for the item to be packaged,
a path defined by said apparatus along which said item is moved as it is packaged in said box,
a first fold bar located upstream of said support in line with said path, said first fold bar having a first folding portion at substantially the same height as said support and being movable in a downstream direction along said path to contact said unfolded sleeve and fold said trailing bottom flap into the plane of said perimeter to form a partially folded sleeve;
a conveyor for moving said sleeve in a downstream direction along said path; and
a second fold bar located downstream of said support, said second fold bar having a second folding portion at substantially the same height as said support such that said second folding portion contacts said partially folded sleeve and folds said leading bottom flap into the plane of said perimeter as said sleeve containing said item is conveyed downstream along said path.

5,782,065
LOADING AND UNLOADING DEVICE FOR X-RAY FILM CASSETTES

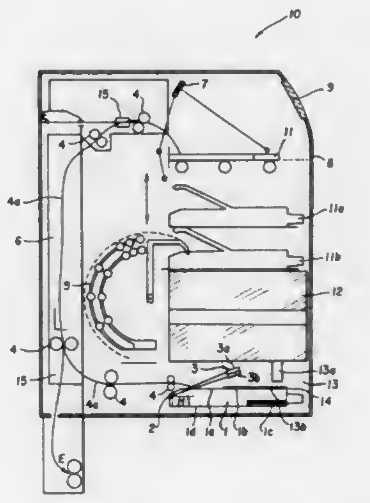
Frank Gaebele, Ostfildern, Germany, assignor to Eastman Kodak Company, Rochester, N.Y.

Filed Apr. 11, 1997, Ser. No. 840,311

Claims priority, application Germany, Jun. 22, 1996, 196 25 085.4

Int. Cl.^{6} G03B *42/04;* **B65B** *57/00*

U.S. Cl. 53—504 **10 Claims**



1. Loading and unloading device for x-ray film cassettes, said device having a station for opening and closing a cassette brought into the station via a light-tight opening, and said device also having a film loading and unloading system for unloading and transferring an exposed film to pairs of film transport rollers for transportation along a film conveyor track as well as for loading a cassette with a single film from a number of film storage magazines each of which contains a film of a different format, characterized in that in the film conveyor track of the loading and unloading device, a light-tight storage magazine for the unsorted collection of a variety of exposed x-ray films is provided in which the number of films deposited and the height of the film stack (H) is measured by means of a single sensor.

5,782,066
APPARATUS FOR FILLING A BAG WITH AN ARTICLE LOADED IN A TRAY

Kenneth Peter Giesbrecht, 2729 Chestnut Street, Jordan Station, Ontario, Canada, L0R 1S0

Filed Feb. 21, 1997, Ser. No. 803,837

Int. Cl.^{6} B65B *43/30;43/18;43/59*

U.S. Cl. 53—573 **10 Claims**

1. An apparatus for loading an article into a bag, the article being delivered on a conveyor adjacent said apparatus and the bag having

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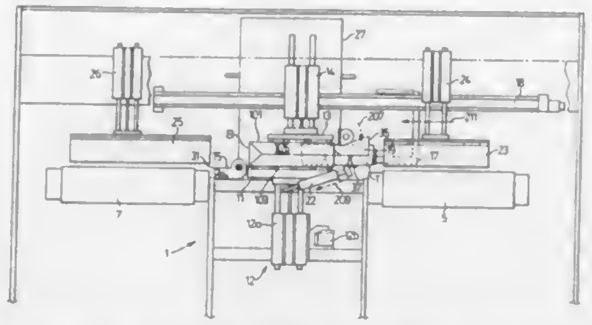


a folded bottom panel, side panels and upper and lower facing panels, said loading apparatus comprising:

- (a) a loading station having a bag delivery plate, a bag bottom opening plate, and a bag opening plate;
- (b) a hopper for supplying bags to said loading station;
- (c) said loading station including a first actuator coupled to said bag delivery plate for moving said bag delivery plate to said hopper for retrieving a bag from said hopper and returning said bag to the loading station, said bag delivery plate having means for securing one of the facing panels of the bag;
- (d) said loading station including a second actuator coupled to said bag bottom opening plate for engaging the bottom panel of the bag and moving the bottom panel to an unfolded position;
- (e) said loading station including a third actuator coupled to said bag opening plate for engaging the other facing panel of the bag and moving the facing panel to open the bag;
- (f) a pusher arm coupled to a fourth actuator for pushing the article from the conveyor into the opened bag; and
- (g) a controller coupled to said actuators for controlling the movements of said actuators.

5,782,067

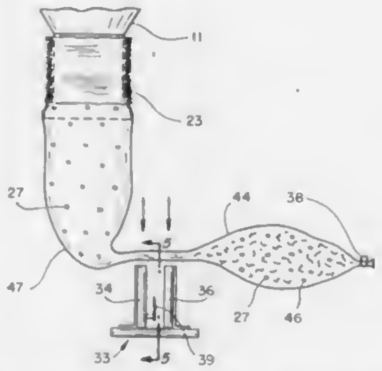
BAG SEALER AND CUTTER FOR USE IN PACKAGING LOOSE FILL PACKAGING MATERIALS

Gunter G. Fuss, San Mateo, and Vladimir Yampolsky, San Carlos, both of Calif., assignors to Free-Flow Packaging International, Inc., Redwood City, Calif.

Continuation-in-part of Ser. No. 766,156, Dec. 12, 1996, which is a continuation-in-part of Ser. No. 673,296, Jun. 28, 1996. This application Mar. 11, 1997, Ser. No. 816,114

Int. Cl.^{6} B65B *9/15;9/18;51/06*

U.S. Cl. 53—576 **15 Claims**



1. Apparatus for packaging loose fill packing material in bags for use as protective cushions in shipping cartons, comprising:

a dispenser having an outlet through which loose fill packing material is discharged;

a supply of flexible plastic tubing disposed coaxially of the outlet such that successive sections of the tubing can be drawn from the supply into communication with the outlet for receiving the loose fill material discharged through the outlet;

means for gathering a portion of the tubing together between the successive sections and guiding the gathered portion along a predetermined path in a direction which is generally perpendicular to the axis of the tubing;

first and second rolls of sealing tape positioned beside the path;

a pair of tape applicators positioned side-by-side and connected together for rotation in concert about an axis which is generally perpendicular to the path for simultaneously applying a band of tape from each of the two rolls to the gathered portion of the tubing as the tubing travels along the path; and

a knife disposed in the path of the tubing after the applicators for cutting the tubing between the bands of tape to separate the sections.

5,782,068

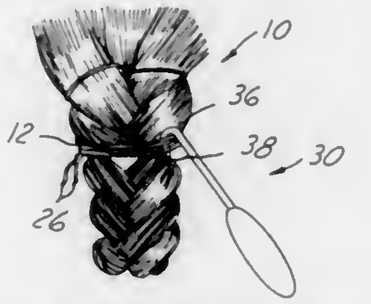
HORSE MANE UNBRAIDER

Karin W. Flint, 1411 Kirkway Rd., Bloomfield Hills, Mich. 48302

Filed May 8, 1996, Ser. No. 643,446

Int. Cl.^{6} B68B *5/00*

U.S. Cl. 54—1 **1 Claim**



1. An improved method for removing braids from a horse's mane comprising the steps of:

providing a braided horse mane with each braid being secured by a piece of yarn that is tied into a first knot and a second knot;

providing a tool with a sharpened edge for cutting said knots that are used to secure said braids, said tool having a handle member and an elongated shank member with a hooked end, the hooked end having a sharpened blade on the inner surface thereof;

hooking said hooked end of said tool around said first knot such that said sharpened blade is facing said yarn of said first knot;

pulling said tool in downward motion to cut said first knot;

placing said tool around said second knot such that said sharpened blade is facing said yarn of said second knot; and

pulling said tool in a downward motion to cut said second knot.

5,782,069

Patent Not Issued For This Number

5,782,070

METHOD AND APPARATUS FOR PADDING AND CUSHIONING AN EQUINE SADDLE

Ralphine S. Knight; Joel D. Knight, both of Ft. White, and Kathryn J. Bridges, Alachua, all of Fla., assignors to Fastrac Ideas, Inc., High Springs, Fla.

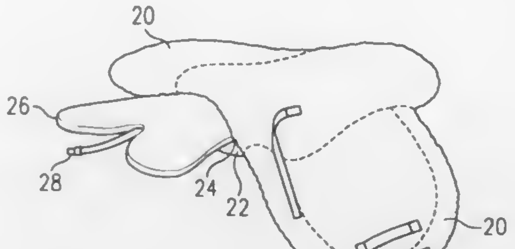
Filed Aug. 17, 1995, Ser. No. 516,488

Int. Cl.^{6} B68C *1/08;* **B68G** *5/02*

U.S. Cl. 54—66 **11 Claims**

1. An apparatus for padding and cushioning an equine saddle for use between the saddle and the equine's back, the apparatus comprising:

- (a) a cushion having a foam inner core with a cell structure that absorbs air from the atmosphere, a gas impermeable outer flexible shell impervious to moisture defining a cavity for surrounding the foam inner core and sealing the foam inner core from the atmosphere, an opening in the flexible shell for transmitting air between the atmosphere and the cavity, a valve in the opening for controlling air flowing in and out of the cavity; and
- (b) a pad having lower and upper sections, both sections having an inner layer resistant to the absorption of moisture, an outer layer having a soft, deep pile for contacting an underside of the saddle and for contacting the equine's back, and a foam inner core sandwiched between the inner and outer layers, a pocket formed by the upper and lower sections for receiving the cushion.



5,782,071

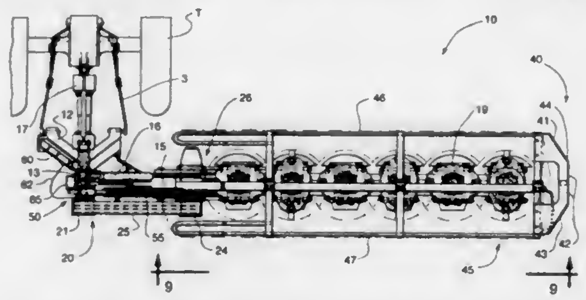
DISC MOWER PIVOT SEALING APPARATUS

Barry E. Lehman, York, and Kenneth W. McLean, New Holland, both of Pa., assignors to New Holland North America, Inc., New Holland, Pa.

Filed Jul. 22, 1996, Ser. No. 681,242

Int. Cl.^{6} A01D *34/66*

U.S. Cl. 56—6 **13 Claims**



1. In a mower supportable from a prime mover and operably connected to said prime mover to receive operative power therefrom, said mower having a frame including a pivot support arm; a cutterbar pivotally supported from said pivot support arm for movement between a raised transport position and a lowered operative position; a drive mechanism supported from said frame to receive rotational power from said prime mover and transfer the rotational power to said cutterbar for operably driving said cutterbar; a pivot mechanism interconnecting said cutterbar and said pivot support arm to provide pivotal movement of said cutterbar, said pivot mechanism including bearing means for permitting relative pivotal movement between said pivot support arm and said cutterbar; and sealing means to protect said bearing means from exposure to foreign material introduced externally of said pivot mechanism, the improvement comprising:

a radially extending groove formed between an inner portion of said pivot support arm and a corresponding portion of said cutterbar pivotally supported from said pivot support arm, said groove including portions projecting perpendicularly thereto in generally opposing directions; and

a labyrinth seal having a shape to correspond to said groove and including axially extending legs to fit within said axially extending portions of said groove, said labyrinth seal forming a labyrinth path for the entrance of said foreign material to said bearing means.

5,782,072

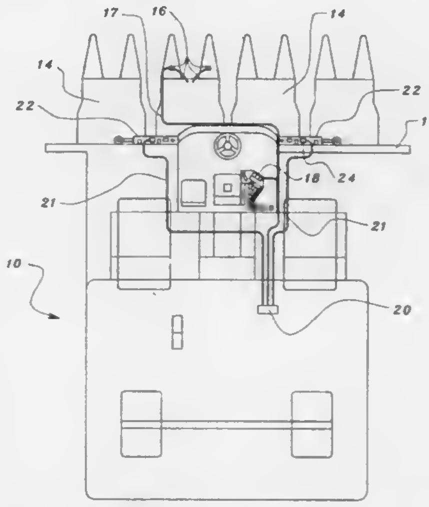
CROP TRACKING ROW UNITS ON COTTON HARVESTERS

H. Wayne Matthews, P.O. Box 225, Denison, Tex. 75021

Filed Jul. 11, 1996, Ser. No. 680,213

Int. Cl.^{6} A01D *46/08*

U.S. Cl. 56—10.2 F **7 Claims**



1. An apparatus for automatically adjusting a row unit position on a tool bar of a cotton harvesting machine, comprising:

a sensor to determine a crop row location relative to said row unit position, said sensor responsive to changes in said crop row location,

a signal generated by said sensor,

said signal generated by said sensor containing information on a magnitude of displacement of said sensor,

means, including an electronic computer, for determining from said signal a deviation of said row unit position from said crop row location, and

means responsive to said deviation for laterally adjusting said row unit position to minimize said deviation.

5,782,073

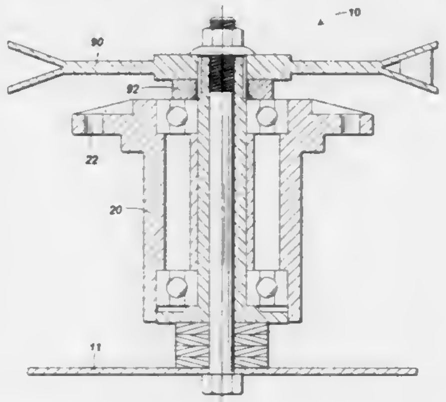
LAWN MOWER CUTTING BLADE SPINDLE ASSEMBLY INCLUDING QUICK CHANGE CHARACTERISTICS

John D. Sheldon, Chandler, Ariz., assignor to Snapper, Inc., McDonough, Ga.

Filed Feb. 5, 1996, Ser. No. 597,007

Int. Cl.^{6} A01D *34/03*

U.S. Cl. 56—17.5 **20 Claims**



1. A lawn mower cutting blade spindle assembly, comprising;

a) a pulley configured for being driven by a belt, said pulley having a central mounting hole having an irregular cross section;

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b) a cutting blade having a central mounting hole;
c) an elongate hollow spindle shaft interconnecting said pulley and said blade, said spindle shaft having an elongate bore extending the length thereof, said spindle shaft also including an upper end having an irregular portion having an irregular transverse cross section substantially conforming to that of said pulley mounting hole, said spindle shaft also having a bearing inner race mounting portion, said spindle shaft also defining a downwardly-directed end face configured for at least partial frictional engagement relative to said cutting blade;
d) a spindle support housing having a longitudinal bore, said spindle support shaft configured for mounting to a lawn mower cutter housing;
e) at least one bearing intermediate said spindle shaft and said spindle support housing, said bearing including an inner race attached to said inner race mounting portion of said spindle shaft such that said spindle shaft may be rotatably supported relative to said spindle support housing by contact with said inner race of said bearing;
f) a through bolt and nut subassembly itself comprising:
  a through bolt having a threaded first end and a head at its second, opposite end, said through bolt configured to extend through said hole in said blade, said hollow spindle shaft, and said pulley, and
  a nut configured to threadably engage said threaded end of said through bolt
  such that as said nut is threaded down said threaded end of said through bolt, said nut and head of said through bolt combine to capture and compress said pulley, said bearing, and said blade, such that said blade is frictionally engaged relative to said spindle shaft to a degree sufficient to allow said spindle shaft to provide torque to said blade sufficient to cause rotation, and said pulley is positively engaged with said spindle assembly due to their respective irregular cross section, thus deterring relative rotation therebetween, and
g) a retaining ring attached relative to said spindle shaft at a location on said spindle shaft intermediate said irregular portion and said bearing inner race mounting portion, said retaining ring configured to capture and retain said bearing on said hollow spindle member even if said through bolt and nut subassembly is removed, said retaining ring when attached relative to said spindle shaft being located within an annular retaining ring clearance region at least partially defined by said spindle shaft and said at least one bearing.

5,782,074

Patent Not Issued For This Number

5,782,075
APPARATUS FOR WIRE STRANDING AND CONTROL THEREOF

Ludwig Meggle, Markt Oberdorf, Germany, assignor to Maschinenfabrik Niehoff GmbH & Co. KG, Schwabach, Germany

PCT No. PCT/EP95/01276, § 371 Date Oct. 11, 1996, § 102(e) Date Oct. 11, 1996, PCT Pub. No. WO95/27677, PCT Pub. Date Oct. 19, 1995

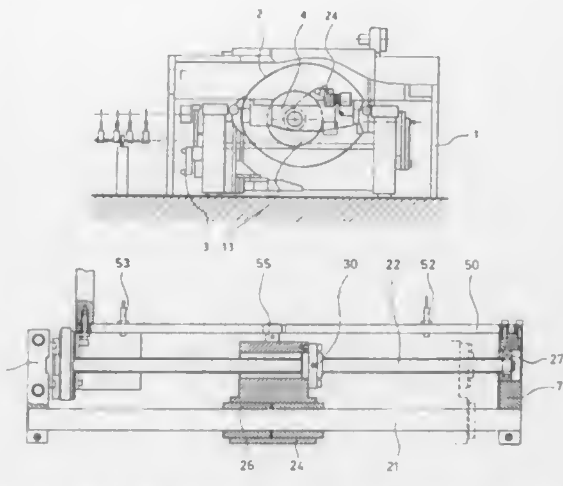
PCT Filed Apr. 7, 1995, Ser. No. 722,053

Claims priority, application Germany, Apr. 11, 1994, 44 12 409.0

Int. Cl.⁶ D01H *7/46;7/92*

U.S. Cl. 59—264 **16 Claims**

1. An apparatus for the making of stranded wire out of metal wire comprising:
  a machine frame (**1**),
  a rotor (**2**), rotatable mounted in the machine frame which rotor is rotatable driven by means of a first driving means (**3**),



  a spool carrier (**4**) rotatably installed in the rotor, which spool carrier is provided for the acceptance of a spool (**10**), which spool is rotatable driven by a second driving means (M2),
  a transfer mechanism (**20**) with a transfer element (**24**) mounted to the spool carrier, which moves along a guide bar arrangement (**21**, **22**), principally parallel to the rotational axis of the said spool and by means of which the stranded wire is laid upon the spool,
therein characterized, in that
  the transfer mechanism (**20**) is connected with a third driving means (**32**), by means of which this transfer element (**24**) is movable along said guide bar arrangement (**21**, **22**),
  a control module arrangement (**60**, **85**) is provided, which possesses a program storage means (**63**, **64**, **86**) which controls the movement of the transfer element (**24**) along the guide assembly in dependency with revolutions of the spool, and
  a first sensor which measures the revolutions of the spool, said first sensor being connected to the control module arrangement.

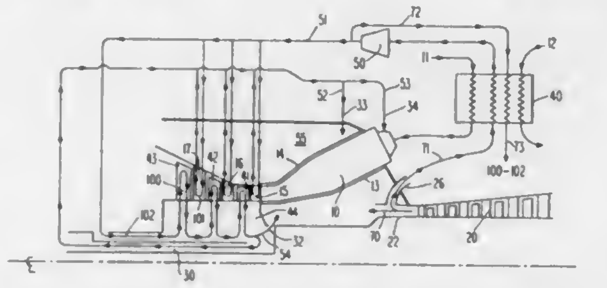
5,782,076
CLOSED LOOP AIR COOLING SYSTEM FOR COMBUSTION TURBINES

David John Huber, North Canton, Ohio, and Michael Scot Briesch, Orlando, Fla., assignors to Westinghouse Electric Corporation, Pittsburgh, Pa.

Filed May 17, 1996, Ser. No. 649,506

Int. Cl.⁶ F02G *3/00;* **F02C** *5/00*

U.S. Cl. 60—39.02 **20 Claims**



1. In a combustion turbine system having a first compressor, a combustor for producing a flow of hot gas, and a turbine for expanding said flow of hot gas, said turbine having a rotor coupled to said compressor and having a plurality of rotating blades, said rotating turbine blades having internal cooling air passages formed therein, a method of cooling said rotating turbine blades, comprising the steps of:
  a) compressing air in said first compressor so as to produce a flow of compressed air;
  b) extracting a first portion of said flow of compressed air so as to produce a flow of cooling air;

  c) further compressing said flow of cooling air in a second compressor so as to produce a flow of further compressed cooling air;
  d) directing said further compressed cooling air to flow through said internal cooling air passages in said rotating turbine blades so as to transfer heat from said rotating turbine blades to said further compressed cooling air, thereby cooling said rotating turbine blades and producing a flow of heated cooling air; and
  e) injecting said flow of heated cooling air from said rotating turbine blades into said combustor, and directing a second portion of said flow of compressed air produced by said first compressor to said combustor, and combusting therein a flow of fuel in said flow of heated cooling air and said second portion of said flow of compressed air.

5,782,077
DEVICE FOR BLEEDING OFF AND COOLING HOT AIR IN AN AIRCRAFT ENGINE

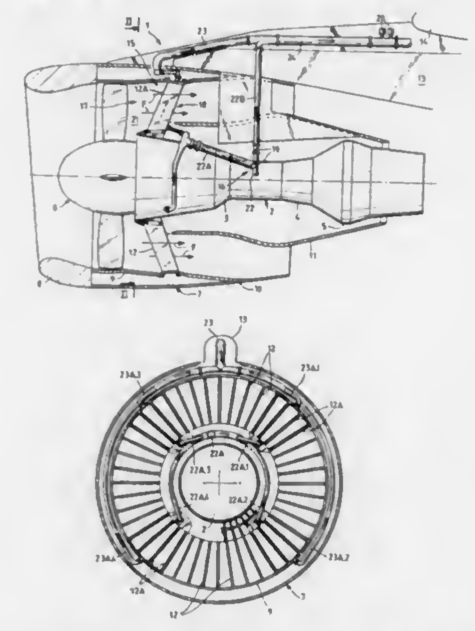
Alain Porte, Colomiers, France, assignor to Aerospatiale Societe Nationale Industrielle, Paris, France

Filed May 9, 1996, Ser. No. 647,060

Claims priority, application France, May 15, 1995, 95 05704

Int. Cl.⁶ F02C *7/26;7/12*

U.S. Cl. 60—39.07 **13 Claims**



1. A device for bleeding off and cooling hot air in an engine of an aircraft, the aircraft having a body, said engine comprising:
  an engine body having a compressor, a combustion chamber and a turbine, the engine defining an upstream direction and a downstream direction;
  a fan, arranged in the upstream direction from the engine body, for causing a flow of air in the downstream direction;
  a fairing assembly comprising an air intake, a fan shroud and outer and inner fairings;
  a plurality of linking arms for connecting the engine body with the fan shroud; and
  engine support means for connecting the engine to the body of the aircraft;
  said device comprising:
    hot air take-off means, in communication with the engine, for taking off hot air from the engine,
    a cold air take-off means, disposed downstream of the fan of the engine, for taking off cold air from the flow of air coming from the fan; and
    a precooling heat exchanger for causing a heat exchange between said hot air taken off by the hot air take-off means and said cold air taken off by the cold air take-off means, the precooling heat exchanger comprising at least one of the plurality of linking arms, said at least one of the plurality of linking arms having (i) a hollow structure traversed longitudinally in a first direction by at least a portion of the hot air and an internal partitioned portion in which the cold air flows in a second direction which is opposite to the first direction.

13. A device for bleeding off and cooling hot air in an engine of an aircraft, the aircraft having a body, said engine comprising:
  an engine body having a compressor, a combustion chamber and a turbine, the engine defining an upstream direction and a downstream direction;
  a fan, arranged in the upstream direction from the engine body, for causing a flow of air in the downstream direction;
  a fairing assembly comprising an air intake, a fan shroud and outer and inner fairings;
  a plurality of linking arms for connecting the engine body with the fan shroud; and
  engine support means for connecting the engine to the body of the aircraft; said device comprising:
  hot air take-off means, in communication with the engine, for taking off hot air from the engine,
  a cold air take-off means, disposed downstream of the fan of the engine, for taking off cold air from the flow of air coming from the fan; and
  a precooling heat exchanger for causing a heat exchange between said hot air taken off by the hot air take-off means and said cold air taken off by the cold air take-off means, the precooling heat exchanger comprising a plurality of groups of linking arms within the plurality of linking arms, each of said plurality of groups of linking arms having a hollow structure traversed longitudinally by at least a portion of the hot air;
wherein the hot air take-off means comprises:
  a first trunking for bleeding off the hot air from the engine;
  a first tapping leading from the first trunking to said plurality of groups of linking arms, said first tapping comprising (i) a first plurality of branches, each leading from the first trunking to a linking arm in the plurality of groups, and (ii) a second plurality of branches, each leading from a linking arm in the plurality of groups, joining together in a duct; and
  a second tapping leading from the first trunking, passing transversely through the engine and rejoining said duct so as to form a second trunking leading to the body of the aircraft.

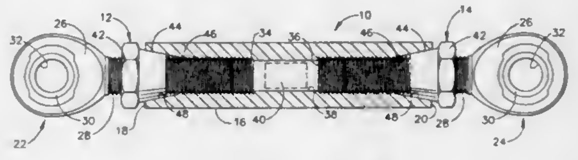
5,782,078
TAPERED JAM NUT FOR TURBINE FRAME MOUNT LINK

James W. Brantley, Fairfield, Ohio, assignor to General Electric Company, Cincinnati, Ohio

Filed Dec. 17, 1996, Ser. No. 768,265

Int. Cl.⁶ F02C *7/20*

U.S. Cl. 60—39.31 **8 Claims**



1. A link assembly for supporting a core engine of a gas turbine engine in an outer shell, said link assembly comprising:
  a first rod end bearing comprising a bearing head and a stud extending from said head;
  a first tapered jam nut comprising a nut end and a tapered portion extending from said nut end, and a threaded bore extending through said tapered jam nut, said bore sized to have said bearing stud extend therethrough; and
  an elongate rod comprising a first end and a second end, a threaded socket located at said first rod end and sized to be engaged to said first rod end bearing stud, said threaded

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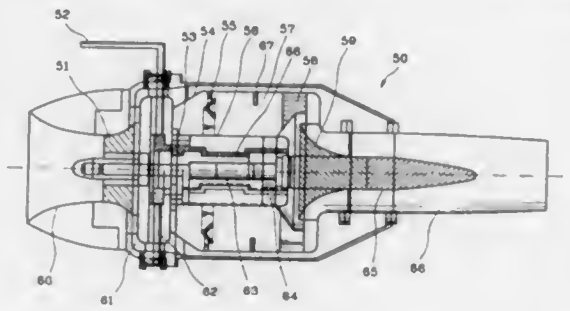
socket including a coaxial countersunk portion for receiving said tapered portion of said first jam nut.

5,782,079
MINIATURE LIQUID-FUELED TURBOJET ENGINE

Hsiao-Wei D. Chiang; Wu-Chi Ho, both of Hsinchu; Ling-Chia Weng, ChiaYi; Ming-Yen Liu, YunLin; Tzeng-Wuu Wey, Hsinchu, and Chii-Ron Kuo, Taoyuan, all of Taiwan, assignors to Industrial Technology Research Institute, Hsinchu, Taiwan

Filed Feb. 25, 1997, Ser. No. 810,121
Int. Cl.^{6} F02C *3/08;* **F23R** *3/16*
U.S. Cl. 60—39.36 **6 Claims**

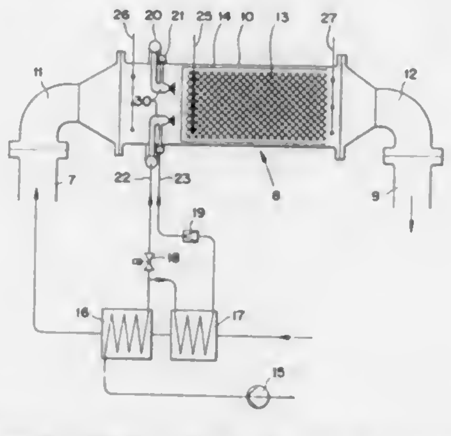


1. A miniature liquid-fueled turbojet engine comprising:
a bell mouth inlet;
a centrifugal compressor;
an annular combustion chamber including an outer liner and an inner liner located behind the compressor, and a plural number of tiny pressure-swirl type atomizers located at the front end thereof for atomizing liquid fuel injected radically into the front section of the combustion chamber;
an annular-shaped V-gutter flame holder located in the combustion chamber and behind the atomizers;
a radial-inflow turbine located behind the combustion chamber;
a shaft running through the compressor, the combustion chamber and the turbine; and
an exhaust tail pipe located behind the turbine.

5,782,080
QUENCH COOLER FOR GAS TURBINE SYSTEM

Holger Ilbruck, Mannheim, Germany, assignor to Asea Brown Boveri AG, Baden, Switzerland

Filed Dec. 2, 1996, Ser. No. 758,675
Int. Cl.^{6} F02C *3/30;7/14*
U.S. Cl. 60—39.59 **5 Claims**

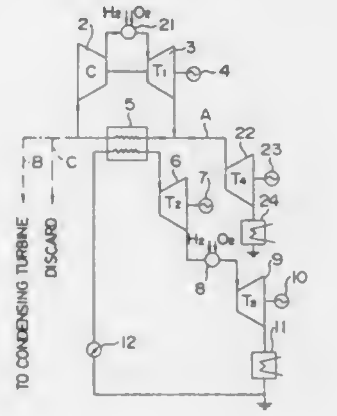


1. A quench cooler for cooling compressed air in a gas turbine apparatus, comprising:
a cylindrical shell having an air inlet to receive heated, compressed air from a compressor and an air outlet to deliver cooled, compressed air to a turbine apparatus;
a packed column disposed in the shell and substantially filling a cross-section of the shell, the packed column being positioned in a flow path from the air inlet to the air outlet;
means for injecting atomized water into the shell between the air inlet and the packed column, the water injection means having a plurality of pressure atomization nozzles having water feed means and steam feed means for producing atomized water; and
a plurality of thermocouples disposed in the packed column for measuring a temperature of the packed column for determining a water content in the compressed air in the packed column.

5,782,081
HYDROGEN-OXYGEN BURNING TURBINE PLANT

Pyong Sik Pak, 10-3-1404, Dogashiba 2-chome, Tennoji-ku, Osaka-shi, Osaka-fu 543; Toru Takigawa, Tokyo; Hidetaka Mori, Takasago, and Kiichiro Ogawa, Tokyo, all of Japan, assignors to Pyong Sik Pak; Yutaka Suzuki, both of Osaka-fu, and Jukogyo Kabushiki Kaisha, Tokyo, all of Japan

Continuation of Ser. No. 779,660, Jan. 7, 1997, abandoned, which is a continuation of Ser. No. 492,107, Aug. 10, 1995, abandoned. This application Oct. 29, 1997, Ser. No. 950,811
Int. Cl.^{6} F02C *6/18*
U.S. Cl. 60—39.181 **1 Claim**

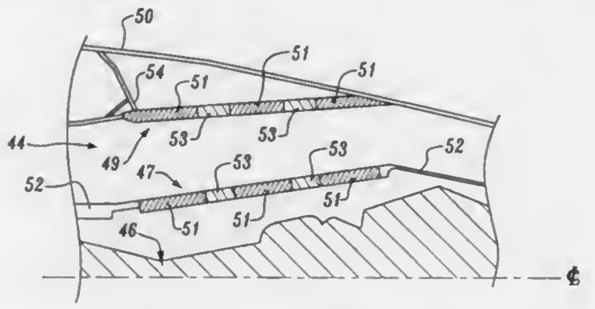


1. A hydrogen-oxygen burning turbine plant using hydrogen as fuel and pure oxygen as oxidizing agent which comprises:
a gas turbine topping cycle including a compressor having an inlet, a hydrogen-oxygen combustor and a turbine having an outlet;
a heat exchanger having an inlet and outlet installed between the turbine outlet and the compressor inlet of said gas turbine topping cycle, and
a bottoming cycle including an expansion turbine, a hydrogen-oxygen combustor, a first condensing turbine and a steam condenser,
wherein exhaust heat from said gas turbine topping cycle is transferred to said bottoming cycle by means of said heat exchanger, and steam that is the combustion product of said gas turbine topping cycle is extracted at the inlet or outlet of said heat exchanger and conducted to said first condensing turbine or to a second condensing turbine.

5,782,082
AIRCRAFT ENGINE ACOUSTIC LINER

William H. Hogeboom, Redmond, and Gerald W. Bielak, Issaquah, both of Wash., assignors to The Boeing Company, Seattle, Wash.

Filed Jun. 13, 1996, Ser. No. 662,456
Int. Cl.^{6} F02K *3/02;* **E04B** *1/82*
U.S. Cl. 60—226.1 **6 Claims**

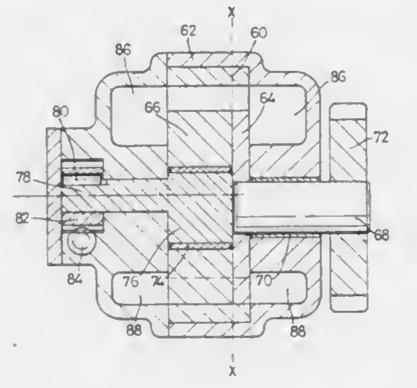


1. An acoustic lining for use in attenuating noise in and around the surfaces of a jet engine, comprising:
(a) a low resistance acoustic liner having a resistance coefficient in the range of about 0 to 0.5 pc, the low resistance acoustic liner comprising:
  (i) a middle layer having a multiplicity of partitioned cavities and top and bottom sides;
  (ii) a perforated sheet attached to the top side of the middle layer; and
  (iii) an imperforate sheet attached to the middle layer near the middle layer bottom side; and
(b) an absorptive liner positioned adjacent the low resistance acoustic liner in a generally coplanar orientation, the absorptive liner having an absorption coefficient in the range of about 0.7 to 1;
(c) whereby the low resistance acoustic liner scatters low mode order noise into both high and low mode order noise and the absorptive liner absorbs high mode order noise.

5,782,083
DRIVE SYSTEMS

Stephen Mark Hodge, Staffordshire, Great Britain, assignor to Concentric Pumps Limited, Birmingham, Great Britain

Filed Jun. 21, 1996, Ser. No. 664,444
Int. Cl.^{6} F16D *39/00*
U.S. Cl. 60—487 **6 Claims**

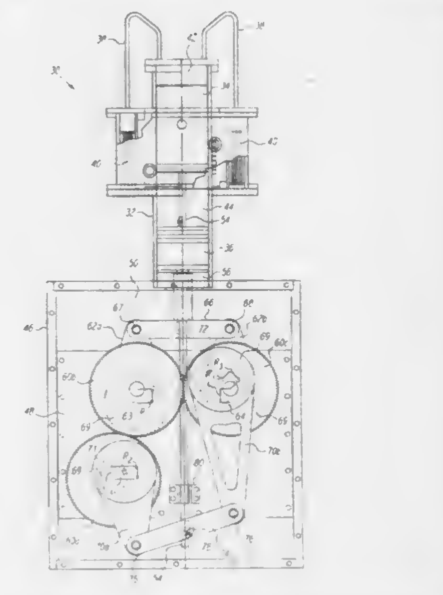


1. A hydrostatic drive comprising a gerotor pump supplying hydraulic fluid to a motor, said gerotor pump having an annulus member and a male lobed rotor member engaging one another, the male lobed rotor member being axially split into two end-to-end separate parts of unequal axial length with respect to the rotational axis of the male lobed rotor member, and means for angularly shifting one of said separate parts relative to the other.

5,782,084
VARIABLE DISPLACEMENT AND DWELL DRIVE FOR STIRLING ENGINE

Hy T. Jarvis, Whittier, Calif., assignor to Hyrum T. Jarvis, Whittier, Calif.

Filed Jun. 7, 1995, Ser. No. 481,798
Int. Cl.^{6} F02G *1/04*
U.S. Cl. 60—518 **18 Claims**

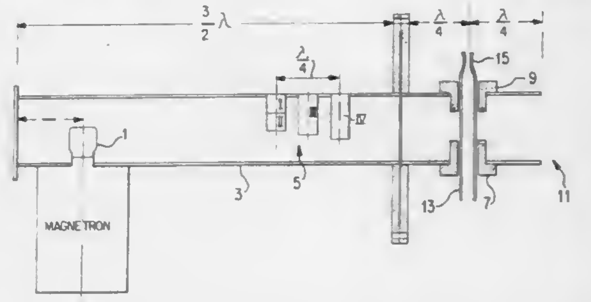


1. A Stirling engine including a displacer piston and a power piston, comprising:
a drive system coupling the displacer piston and power piston, the drive system having a floating yoke member coupled to the displacer piston, the yoke configured to provide a dwell at both top dead center and bottom dead center in a stroke of the displacer piston.

5,782,085
METHOD AND APPARATUS FOR CONTINUOUSLY REMOVING NITROGEN OXIDES IN EXHAUST GASES OF INTERNAL COMBUSTION ENGINES

Jürgen Steinwandel, Oberuhldingen; Jörg Höschele, Friedrichshafen; Martin Stöer, Immenstaad; Rainer Willneff, Markdorf, and Theodor Staneff, Bermatingen, all of Germany, assignors to Dornier GmbH, Friedrichshafen, Germany

Filed Apr. 8, 1996, Ser. No. 629,044
Claims priority, application Germany, Apr. 7, 1995, 195 13 250.5
Int. Cl.^{6} B01D *53/92;* **F01N** *3/10*
U.S. Cl. 60—274 **20 Claims**



1. A method for continuously removing nitrogen oxide from exhaust gas stream of internal combustion engines containing an excess of oxygen, comprising the steps of:

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generating a reactive, nitrogen-containing plasma jet of a plasma pressure of at least 1 bar from plasma gas by electromagnetic high-frequency fields, and

feeding the plasma jet into the exhaust gas stream to obtain a purified exhaust gas stream.

5,782,086
FAILURE DETECTION SYSTEM OF EXHAUST SECONDARY AIR SUPPLY SYSTEM OF INTERNAL COMBUSTION ENGINE

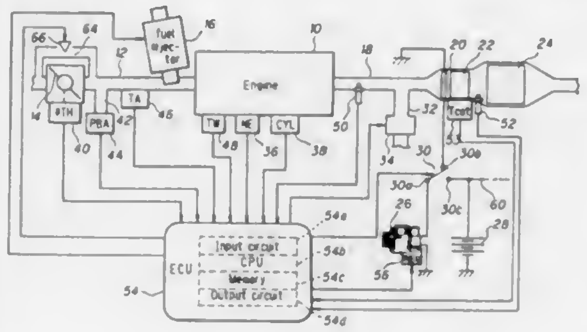
Hiroaki Kato; Yuichi Shimasaki; Takashi Komatsuda; Akihisa Saito; Tetsu Teshirogi; Takuya Aoki; Hideo Furumoto; Hiroaki Muramatsu, all of Wako, and Takayoshi Nakayama, Haga-machi, all of Japan, assignors to Honda Giken Kogyo Kabushiki Kaiha, Tokyo, Japan

Filed Jul. 2, 1996, Ser. No. 674,691

Claims priority, application Japan, Jul. 4, 1995, 7-191242

Int. Cl.^{6} F01N *3/20;3/22;3/30*

U.S. Cl. 60—274 **21 Claims**



8. A method for detecting a failure occurring in an exhaust secondary air supply system of an internal combustion engine, having

a catalytic converter installed in an exhaust pipe of an exhaust system of the engine for reducing pollutants from exhaust gases emitted from the engine;

a conduit connected, at one end, to the exhaust pipe at a location upstream of the catalytic converter;

an air pump connected to an opposite end of the conduit for supplying air in the conduit;

air pump operation control means for controlling operation of the air pump;

a valve provided in the conduit;

valve operation control means for controlling operation of the valve to open/close the conduit;

current detecting means for detecting current supplied to an electric motor for driving the air pump;

reference current determining means for determining a reference current of the motor which indicates a maximum current at no air flow; and

comparing means for comparing the detected current with the reference current;

wherein the method comprises the steps of:

determining whether the air flows in the conduit when the detected current is less than the reference current; and

detecting a failure occurring in the valve based on the determined air flow in the conduit when the air pump is controlled to operate while the valve is controlled to close the conduit.

5,782,087
DEVICE FOR PURIFYING EXHAUST GAS OF AN ENGINE

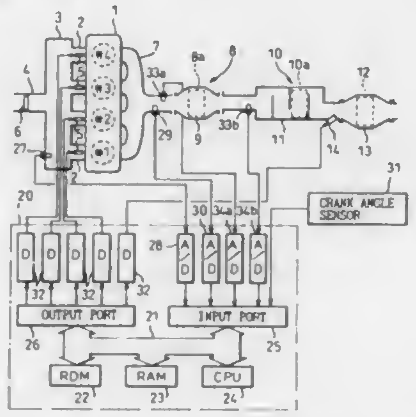
Yukio Kinugasa; Kouhei Igarashi, both of Susono; Takaaki Itou, Mishima; Naoto Suzuki, Susono; Takehisa Yaegashi, Mishima, and Toshiaki Tanaka, Numazu, all of Japan, assignors to Toyota Jidosha Kabushiki Kaisha, Aichi, Japan

Filed Nov. 6, 1996, Ser. No. 746,056

Claims priority, application Japan, Nov. 10, 1995, 7-292906

Int. Cl.^{6} F01N *3/20*

U.S. Cl. 60—276 **13 Claims**



1. A device for purifying an exhaust gas of an engine having an exhaust passage, comprising:

an exhaust gas purifying catalyst arranged in the exhaust passage, of which an endurance temperature when an exhaust gas air-fuel ratio of the inflowing exhaust gas is lean or stoichiometric is higher than a rich endurance temperature which is an endurance temperature when an exhaust gas air-fuel ratio of the inflowing exhaust gas is rich;

exhaust gas air-fuel ratio control means for controlling the exhaust gas air-fuel ratio of the exhaust gas flowing into the exhaust gas purifying catalyst;

making-rich means adapted for controlling the exhaust gas air-fuel ratio control means to make the exhaust gas air-fuel ratio of the exhaust gas flowing into the exhaust gas purifying catalyst rich; and

avoiding-rich means for controlling the exhaust gas air-fuel ratio control means to make the exhaust gas air-fuel ratio of the exhaust gas flowing into the exhaust gas purifying catalyst lean or stoichiometric when the making-rich operation of the making-rich means is to be performed and when a temperature representing a temperature of the exhaust gas purifying catalyst is equal to or higher than the rich endurance temperature.

5,782,088
PISTON-TYPE INTERNAL COMBUSTION ENGINE HAVING TWO GROUPS OF CYLINDERS ONE OF WHICH BEING SELECTIVELY INOPERATIVE AND MEANS FOR SUPPLYING EXHAUST GAS TO THE CATALYTIC CONVERTER OF THE INOPERATIVE GROUP

Josef Günther, Affalterbach; Roland Kemmler, Stuttgart; Herbert Klein, Leutenbach; Uwe Kleinecke, Winnenden, and Wolfgang Oehler, Suttgart, all of Germany, assignors to Mercedes Benz AG, Stuffgart, Germany

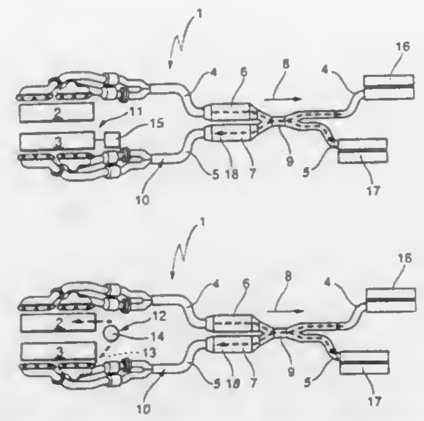
Filed Mar. 10, 1997, Ser. No. 813,408

Claims priority, application Germany, Mar. 22, 1996, 196 11 363.6

Int. Cl.^{6} F02M *25/06*

U.S. Cl. 60—278 **6 Claims**

1. A multi-cylinder piston-type internal combustion engine with at least two cylinder groups, each having an exhaust pipe including at least one catalytic converter, one of said cylinder groups being



capable of being shut down such that it is inoperative during part-load operation of said internal combustion engine, said exhaust pipes being joined by a common pipe section downstream of said catalytic converters, and vacuum generating means for subjecting the exhaust pipe of said inoperative cylinder group upstream of its catalytic converter during part-load operation to a vacuum for pulling exhaust gas from said common pipe section into the catalytic converter of said inoperative cylinder group.

5,782,089
HONEYCOMB CATALYTIC CONVERTER

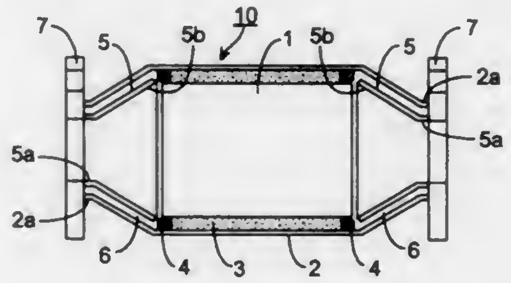
Minoru Machida; Toshihiko Hijikata, and Masashi Yano, all of Nagoya, Japan, assignors to NGK Insulators, Ltd., Japan

Filed Jan. 24, 1996, Ser. No. 590,862

Claims priority, application Japan, Jan. 26, 1995, 7-010436

Int. Cl.^{6} F01N *3/28*

U.S. Cl. 60—299 **7 Claims**



1. A honeycomb catalytic converter, comprising a metal case, a honeycomb catalyst mounted in said metal case, a securing member for mounting said honeycomb catalyst in said metal case and arranged between an outer surface of said honeycomb catalyst and an inner surface of said metal case, at least one of an inlet portion and an outlet portion of said converter having a double cone structure wherein said metal case comprises an outer cylindrical member and an inner cylindrical member is disposed concentrically therein, a circumferential gap of substantially constant size being defined by said outer and inner cylindrical members, and a flange being connected to each of said outer and inner cylindrical members, said flange maintaining an end portion of each of said outer and inner cylindrical members at a distance for each other corresponding to the size of the gap.

5,782,090
HOSE CLIP

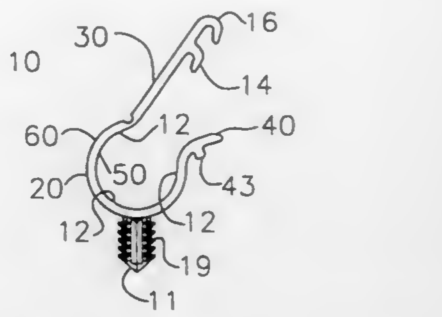
Thomas M. B. Locke, Mishawaka, Ind., assignor to Excel Industries, Inc., Elkhart, Ind.

Filed Nov. 27, 1996, Ser. No. 757,781

Int. Cl.^{6} F16D *31/02*

U.S. Cl. 60—397 **28 Claims**

1. A hose clip comprising, in combination:



a flexible, generally tubular, open-ended main body which is circumferentially open-sided to partially define a hose-receiving space having an inside, free state cross-sectional dimension;

a flange extending from one side of the main body and baving a first hook with first hook serrations;

a tab extending from a second side of a main body having a distal end with tab serrations;

a living hinge connecting the main body to the flange, permitting the flange to bend toward the tab to reduce the inside cross sectional dimension of the hose-receiving space in a first closed condition;

wherein the first hook is lockingly engageable with the distal end of the tab to close the hose receiving space, the first book serrations being engageable with the tab serrations to enhance locking engagement of the first hook with the tab; and

an attachment means for securing the hose clip to a fixed structure.

5,782,091
HYDROSTATIC CONTINUOUSLY VARIABLE TRANSMISSION

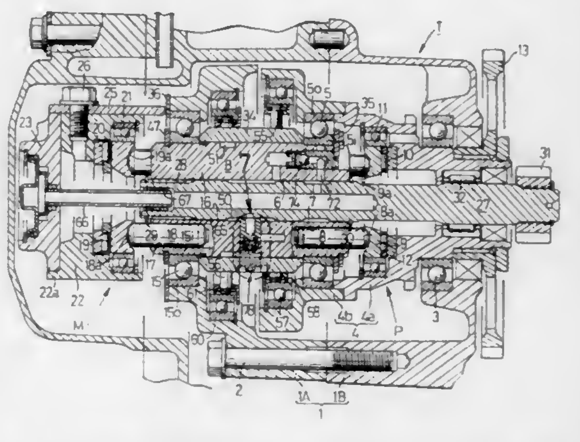
Yoshihiro Nakajima, Saitama, Japan, assignor to Honda Giken Kogyo Kabushiki Kaisha, Tokyo, Japan

Filed Oct. 9, 1996, Ser. No. 727,928

Claims priority, application Japan, Oct. 9, 1995, 7-261683

Int. Cl.^{6} F16D *39/00*

U.S. Cl. 60—487 **16 Claims**



10. A hydrostatic continuously variable transmission comprising:

a constant displacement type swash plate hydraulic pump including an input cylindrical shaft rotatably supported on one end portion of a transmission case, a pump cylinder relatively rotatably supported on said input cylindrical shaft, a plurality of pump plungers inserted in cylinder holes annularly arranged in said pump cylinder, and a pump swash plate mounted on said input cylindrical shaft for reciprocating said pump plungers with relative rotation of said input cylindrical shaft and said pump cylinder;

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a variable displacement type swash plate hydraulic motor in communication with said hydraulic pump through an oil pressure closing circuit, said hydraulic motor includes a motor cylinder coaxially, integrally, connected to said pump cylinder and rotatably supported on the other end of said transmission case, a plurality of motor plungers inserted in cylinder holes annularly arranged in said motor cylinder, a motor swash plate anchor connected to the other end of said transmission case, a motor swash plate holder tiltingly supported on said motor swash plate anchor, and a motor swash plate mounted on said motor swash plate holder for reciprocating said motor plungers with rotation of said motor cylinder;

said pump cylinder and said motor cylinder forming a cylinder block, and said cylinder block is connected to an output shaft;

said input cylindrical shaft being rotatably and axially movably supported on one end portion of said transmission case;

a first angular contact bearing interposed between said input cylindrical shaft and said cylinder block for axially fixedly connecting the input cylindrical shaft relative to the cylinder block;

said motor swash plate anchor being fixed to the other end of said transmission case; and

a second angular contact bearing interposed between said motor swash plate anchor and said cylinder block for axially fixedly connecting the motor swash plate anchor relative to the cylinder block.

5,782,092

ARRANGEMENT CONTROLLING THE OUTPUT PRESSURE OF A TURBOCHARGER FOR AN INTERNAL COMBUSTION ENGINE

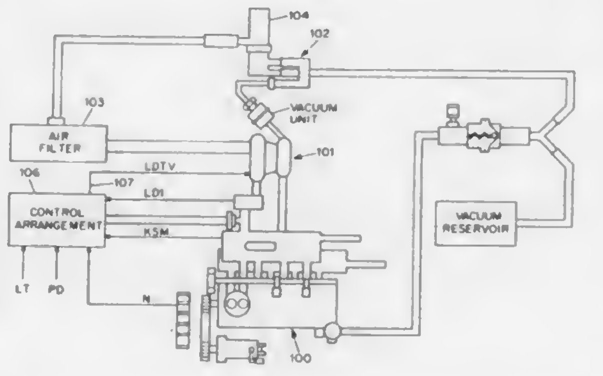
Winfried Schultalbers, Meinersen, and Volker Böstfleisch, Neckarsulm, both of Germany, assignors to Volkswagen AG, Wolfsburg, Germany

Filed Jun. 7, 1996, Ser. No. 657,589

Claims priority, application Germany, Jun. 7, 1995, 195 20 665.7

Int. Cl.⁶ F02B *37/12*

U.S. Cl. 60—602 **10 Claims**



1. A control arrangement for the output pressure of a turbocharger for an internal combustion engine comprising a servo element to control the operation of the turbocharger and control means to actuate the servo element in accordance with at least the speed of the engine wherein the control means includes at least one target diagram for providing turbocharger output pressure target data based on an engine operating parameter and means for reading out target data from the target diagram of the control means to control the turbocharger output pressure when the engine is operating in a first engine load range, and a turbocharger output pressure controller for controlling the turbocharger output pressure when the engine is operating in a second engine load range including means for providing a pre-control based on target data read out of the target diagram.

5,782,093

GAS TURBINE INTAKE AIR COOLING APPARATUS

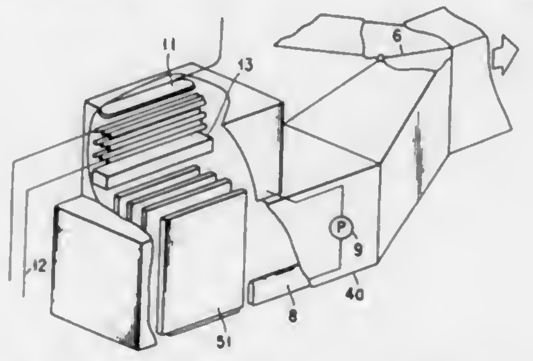
Katsuya Yamashita, Tokyo, and Hiroki Simaya, Himeji, both of Japan, assignors to Kabushiki Kaisha Toshiba, Kawasaki, Japan

Division of Ser. No. 535,891, Sep. 28, 1995, Pat. No. 5,655,373. This application Mar. 6, 1997, Ser. No. 812,243

Claims priority, application Japan, Sep. 28, 1994, 6-233519; Aug. 10, 1995, 7-204431

Int. Cl.⁶ F02C *7/143*

U.S. Cl. 60—728 **7 Claims**



1. A gas turbine intake air cooling apparatus comprising:

cooling members, which are arranged in a channel which is arranged between a gas turbine and an air supply source for supplying combustion air to said gas turbine and through which the combustion air of said gas turbine flows, parallel to a flowing direction of the combustion air that flows in said channel, each of which is formed by two flat plates arranged parallel to the flowing direction of the combustion air and forms a conduit;

an absorber, in which an aqueous lithium bromide solution is stored,

for absorbing water vapor generated in said cooling members by using the aqueous lithium bromide solution;

a water tank for storing water flowed out from said cooling members;

pumping means for pumping the water stored in said water tank up to an inlet port of said cooling members so that the water flows down in the conduit from the inlet port to form flowing water films and the water is evaporated from the flowing water films to cool the combustion air that flows in said channel; and

a generator for extracting water vapor contained in the aqueous lithium bromide solution supplied from said absorber, condensing extracted water vapor to water by a condenser through which cooling water flows, supplying obtained water to said water tank, and supplying condensed aqueous lithium bromide solution from which the water vapor has been removed to said absorber.

5,782,094

REFRIGERATED COUNTERTOP SNACK CONTAINER

Pamela R. Freeman, 721 Alverston Ave., Ventura, Calif. 93003

Filed Feb. 25, 1997, Ser. No. 805,924

Int. Cl.⁶ F25B *21/02*

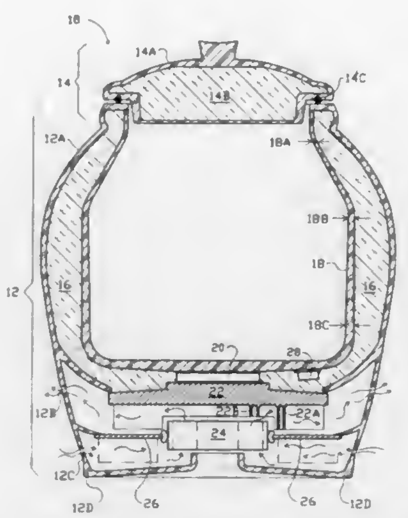
U.S. Cl. 62—3.6 **18 Claims**

1. A refrigerated container for storing and dispensing chilled snack foods from a countertop location, comprising:

a container body;

an outer shell forming an exterior surface of said container body;

an inner liner of said container body, contained within said outer shell and thermally insulated therefrom, forming a storage region for snack food, said inner liner being made from thermally conductive material and made to be tapered in thickness, being made thinnest in a top region and increasing in thickness to a thickest portion at a bottom region configured to have a downward-facing thermal input interface pad,



whereby uniformity of temperature distribution throughout the storage region is enhanced by expediting transfer of corrective temperature changes from the thermal input interface pad to the top region;

a cover on said container providing user access to the storage region;

a Peltier-effect thermoelectric element, having a thermal pad, known as the cold pad, thermally coupled to the thermal input interface pad of said inner liner, and having a second thermal pad, known as the hot pad, located opposite the first thermal pad;

a source of electrical direct current directed through said thermoelectric element so as to absorb heat at the cold pad and to generate heat at the hot pad; and

heat sink means, coupled thermally to the hot pad, constructed and arranged to transfer heat therefrom to environmental air surrounding said container;

whereby the storage region is caused to be cooled relative to the surrounding environmental air.

5,782,095

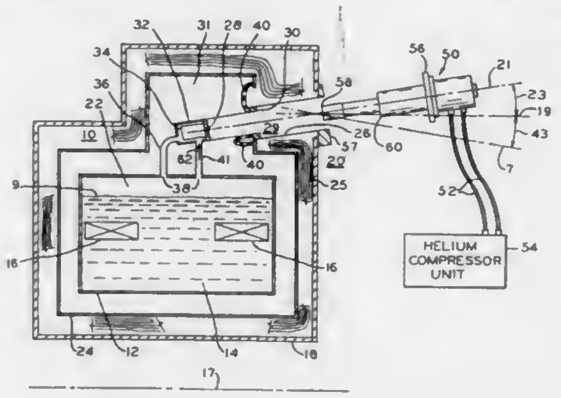
CRYOGEN RECONDENSING SUPERCONDUCTING MAGNET

William E. Chen, Florence, S.C., assignor to General Electric Company, Milwaukee, Wis.

Filed Sep. 18, 1997, Ser. No. 933,471

Int. Cl.⁶ F17C *5/02*

U.S. Cl. 62—47.1 **10 Claims**



1. A liquid cryogen cooled superconducting magnetic resonance imaging magnet for generating a magnetic imaging field including cryogen gas recondensing apparatus comprising:

a liquid cryogen vessel to contain a liquid cryogen reservoir to provide cryogenic temperatures to said superconducting magnet assembly for superconducting operation resulting in the formation of cryogen gas;

a closed vacuum vessel surrounding said cryogen vessel and spaced from said cryogen vessel;

a cryocooler sleeve assembly extending through said vacuum vessel and selectively positioned in the space between said vacuum vessel and said cryogen vessel, and separating the atmosphere outside said vacuum vessel from the interior of said vacuum vessel;

a recondenser assembly in thermal contact with the end of said sleeve remote from said atmosphere;

a cryocooler removably positioned within said sleeve to render said cryogen gas to liquid cryogen for return to said liquid cryogen reservoir;

said recondenser being connected by tubing to at least one aperture in said liquid cryogen vessel; and

said sleeve being positioned in said space to minimize magnetic interference with said magnetic imaging field.

5,782,096

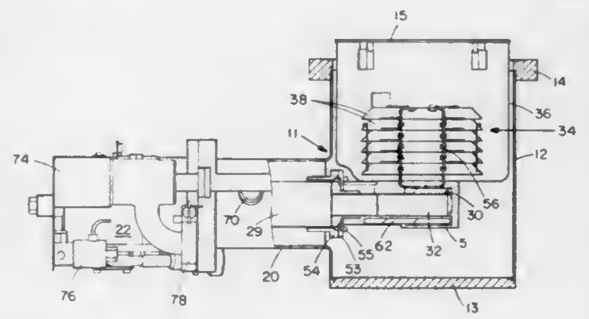
CRYOPUMP WITH IMPROVED SHIELDING

Allen J. Bartlett, Mendon, and John J. Casello, Norton, both of Mass., assignors to Helix Technology Corporation, Mansfield, Mass.

Filed Feb. 5, 1997, Ser. No. 795,981

Int. Cl.⁶ B01D *8/00*

U.S. Cl. 62—55.5 **15 Claims**



1. A cryopump comprising:

a refrigerator including a first stage and a second stage;

a primary pumping surface in thermal contact, through a conductive link, with the second stage of the refrigerator;

a radiation shield surrounding the primary pumping surface and in thermal contact with the first stage of the refrigerator, the first and second stages of the refrigerator being external to the radiation shield; and

a vessel defining a chamber encompassing both the radiation shield and the second stage of the refrigerator.

5,782,097

GENERATOR-ABSORBER-HEAT EXCHANGE HEAT TRANSFER APPARATUS AND METHOD AND USE THEREOF IN A HEAT PUMP

Benjamin A. Phillips, Benton Harbor, and Thomas S. Zawacki, St. Joseph, both of Mich., assignors to Phillips Engineering Co., St. Joseph, Mich.

Continuation-in-part of Ser. No. 347,255, Nov. 23, 1994, Pat. No. 5,570,584. This application Apr. 30, 1996, Ser. No. 641,217

Int. Cl.⁶ F25B *15/00*

U.S. Cl. 62—101 **49 Claims**

36. A method for transferring heat between an absorber and a generator in a generator-absorber heat exchange apparatus including a generator and an absorber, the absorber having an interior pressure lower than the pressure of the generator interior and each having high and low temperature regions at opposite ends establishing respective temperature ranges, the temperature ranges defining respective overlapping heat transfer regions, and a fluid flow pathway circulating a liquor having rich, intermediate and

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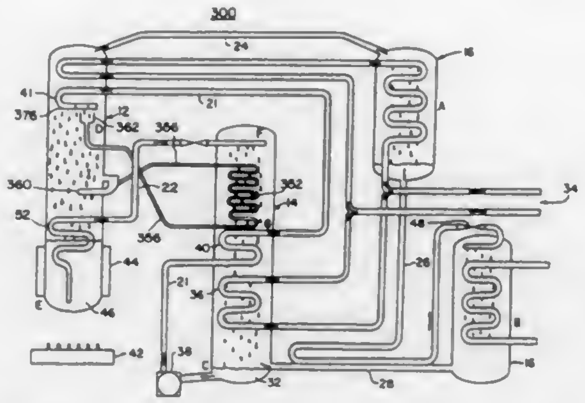


weak concentrations of refrigerant to and through the high temperature, heat transfer and low temperature regions of the generator and the absorber, said method comprising:

circulating a liquor having a rich concentration from the generator between the heat transfer region of the absorber and the heat transfer region of the generator thereby transferring heat from the absorber to the generator.

5,782,098
FREEZER CONTROL UNIT

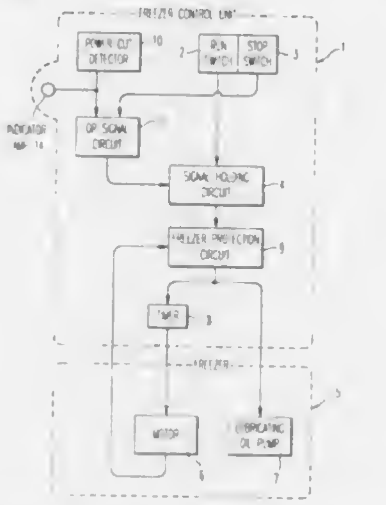
Koichi Hirooka, and Isao Koga, both of Kanagawa-ken, Japan, assignors to Kabushiki Kaisha Toshiba, and Toshiba Engineering Corporation, both of Kawasaki, Japan

Filed Feb. 18, 1997, Ser. No. 802,535

Claims priority, application Japan, Feb. 27, 1996, 8-039838

Int. Cl.^{6} F25B *49/02*

U.S. Cl. 62—126 **5 Claims**



1. In a freezer control unit provided with a run switch and a stop switch which operate running and stopping of the freezer;

a signal holding circuit which holds the 'Run' signal of this run switch;

a timer which receives the 'Run' signal held by this signal holding circuit and starts the freezer drive motor by delaying it for a specified time after the freezer lubricating oil pump; and

a freezer protection circuit which cuts the 'Run' signal, which is the output of the said signal holding circuit, when the freezer has broken down,

a freezer control unit which has the characteristic of being provided with

a power cut detector which detects cuts in the power source of the said freezer; and

an OR signal circuit which outputs a signal which stops the 'Run' signal of the said signal holding circuit when at least one of this power cut detection signal and the stop signal of the said stop switch is established.

5,782,099
METHOD FOR CONTROLLING AN ABSORPTION SYSTEM

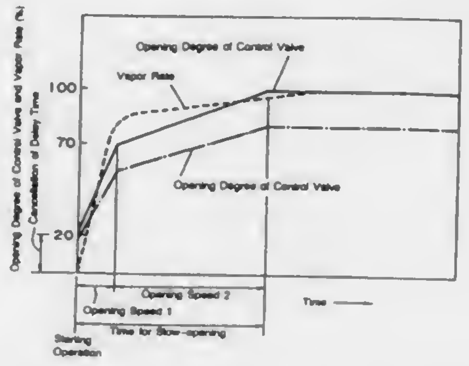
Toshiyuki Hoshino; Masayuki Oonou, both of Ohra-gun; Goro Ebara, Isesaki; Hideo Ishiko, Ohra-gun, and Masahiko Ikemori, Ohta, all of Japan, assignors to Sanyo Electric Co., Ltd., Osaka-fu, Japan

Filed Jun. 24, 1996, Ser. No. 667,940

Claims priority, application Japan, Jun. 27, 1995, 7-160936

Int. Cl.^{6} F25B *15/00;49/00*

U.S. Cl. 62—148 **9 Claims**



1. A method for controlling an absorption system having a refrigerating cycle formed by connecting a regenerator, a condenser, an evaporator, and an absorber to each other in a circuit by pipes and controlling the heat input at the time of start, the method comprising the step of performing slow open control for opening a control valve of a heat-source fluid feeding pipe connected to said regenerator at a predetermined speed so as to limit the heat input at the time of start; wherein said control valve is quickly opened up to a predetermined opening degree and thereafter, said control valve is opened at said predetermined speed.

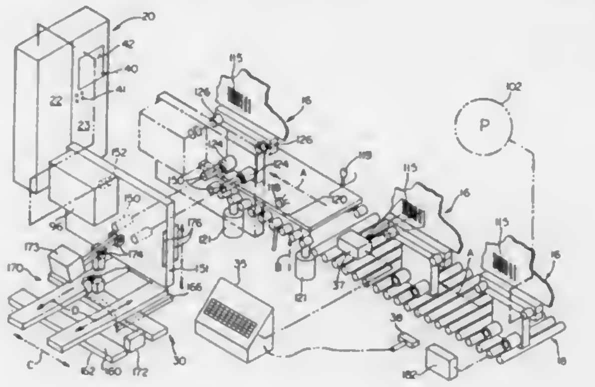
5,782,100
REFRIGERANT METERING CHARGE BOARD

Stephen W. Wilson, Fort Smith, Ark., assignor to Whirlpool Corporation, Benton Harbor, Mich.

Division of Ser. No. 505,549, Jul. 21, 1995, Pat. No. 5,694,778. This application Mar. 18, 1997, Ser. No. 819,348

Int. Cl.^{6} F25B *45/00*

U.S. Cl. 62—149 **5 Claims**



1. A system for metering oil and refrigerant through filling ports into refrigerant tubing in a series of refrigerating appliances during manufacture comprising:

a conveyor system for carrying said appliances toward a charging station;

a charging unit positioned at said charging station and being supplied with refrigerant and oil to be dispensed from dispensing ports thereon; automatic means for stopping an individual appliance at the charging station;

automatic means for aligning said filling ports on said appliance with said dispensing ports on said charging unit;

means for determining and dispensing a proper charge of refrigerant and oil from said dispensing ports on said charging unit and into said filling ports on said appliance; and

a conveyor system for moving said appliances away from said charging station after said dispensing has occurred.

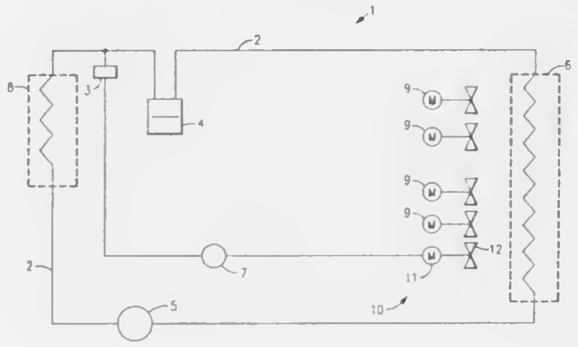
5,782,101
HEAT PUMP OPERATING IN THE HEATING MODE REFRIGERANT PRESSURE CONTROL

Richard Dale Dennis, Bridgeport, N.Y., assignor to Carrier Corporation, Syracuse, N.Y.

Filed Feb. 27, 1997, Ser. No. 807,618

Int. Cl.^{6} F25D *17/04*

U.S. Cl. 62—186 **17 Claims**



1. A heat pump operating in its heating cycle mode of a type having at least one refrigerant circuit wherein each said refrigerant circuit comprises a compressor, a condenser, an evaporator, and a refrigerant; and at least one motor driven evaporator fan in an air circulation relationship with at least one said evaporator, wherein each said evaporator is in said relationship with at least one said motor driven evaporator fan; and comprising:

a sensor that produces an electrical signal that varies in accordance with one of the pressure and temperature of said refrigerant on a discharge side of the compressor for at least one said refrigerant circuit; and

speed control means for controlling the speed of at least one of said at least one motor driven evaporator fan in response to said electrical signal;

wherein said speed control means controls one of the pressure and temperature of at least one of said at least one refrigerant circuit.

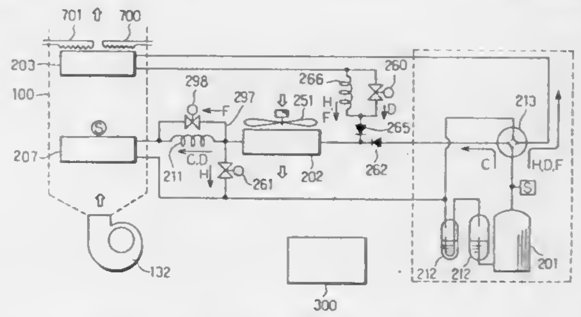
5,782,102
AUTOMOTIVE AIR CONDITIONER HAVING CONDENSER AND EVAPORATOR PROVIDED WITHIN AIR DUCT

Kunio Iritani, Anjo; Shigeo Numazawa, Nagoya; Kenichi Fujiwara, Kariya; Yasushi Yamanaka, Nakashima-gun; Akira Isaji, Nishio, and Nobunao Suzuki, Toyohashi, all of Japan, assignors to Nippondenso Co., Ltd., Kariya, Japan

Division of Ser. No. 332,062, Nov. 1, 1994, Pat. No. 5,642,627, which is a division of Ser. No. 138,207, Oct. 20, 1993, abandoned, which is a division of Ser. No. 873,430, Apr. 24, 1992, Pat. No. 5,299,431. This application Jan. 9, 1997, Ser. No. 781,047

Int. Cl.^{6} F25D *17/06;41/00*

U.S. Cl. 62—197 **15 Claims**



1. An automotive air conditioner, comprising:

a compressor for compressing and discharging refrigerant;

an outside condenser for causing compressed refrigerant from said compressor and air to exchange heat with each other;

condensing side varying means for varying the condensing capacity of said outside condenser;

an inside heater for causing refrigerant having by-passed said outside condenser and air to exchange heat with each other;

expanding means for decompressing and expanding refrigerant having by-passed said inside heater:

an inside evaporator for causing refrigerant decompressed and expanded by said expanding means and air to exchange heat with each other:

an outside evaporator for causing refrigerant having by passed said inside evaporator and air to exchange heat with each other;

evaporating side varying means for varying the evaporating capacity of said outside evaporator; and

refrigerant pipe means for interconnecting the above-mentioned elements such that refrigerant may circulate among them.

5,782,103
CONTROL ARRANGEMENT FOR THE SUPERHEAT TEMPERATURE OF AT LEAST ONE EVAPORATION OF A REFRIGERATION SYSTEM

Frede Schmidt, Sønderborg, Denmark, assignor to Danfoss A/S, Nordborg, Denmark

PCT No. PCT/DK95/00402, § 371 Date Apr. 15, 1997, § 102(e) Date Apr. 15, 1997, PCT Pub. No. WO96/12148, PCT Pub. Date Apr. 25, 1996

PCT Filed Oct. 11, 1995, Ser. No. 817,814

Claims priority, application Germany, Oct. 15, 1994, P 44 36 925.5

Int. Cl.^{6} F25B *41/04*

U.S. Cl. 62—225 **4 Claims**

1. A control arrangement for the superheat temperature of at least one evaporator of a refrigeration system having a refrigerant circulation, in which at least one compressor, a condenser, an electronically controlled expansion valve and the evaporator are arranged in series, a measuring device being connected to the evaporator, which measuring device produces a measurement signal that is a measure of the superheat temperature of the refrigerant in the evaporator, the arrangement having a comparator to which

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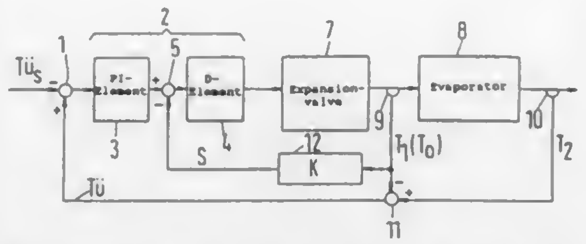


the measurement signal and a desired superheat temperature are supplied, and having a PID controller, arranged between output of the comparator and a control input of the expansion valve, an output signal of the comparator being supplied to the PID controller and the PID controller being connected to the expansion valve, and including a control signal proportional to the evaporation temperature of the refrigerant being supplied to the PID controller, the PID controller having a PI-element and a D-element the control signal S being supplied to a summation element located between the PI-element and the D-element.

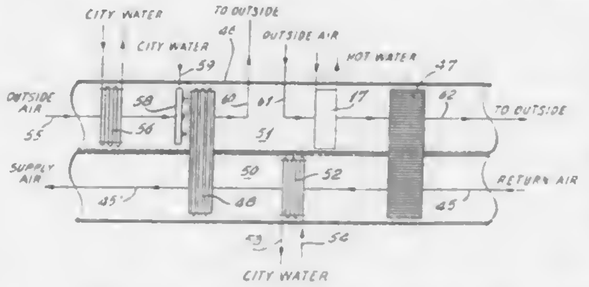
5,782,104
INTEGRATED AIR CONDITIONING SYSTEM WITH HOT WATER PRODUCTION

Samuel M. Saml, Moncton; David Elkaim, St. Laurent; Jean-Guy Choulnard, Verdun, and Kébir Ratnani, Boucherville, all of Canada, assignors to Société en commandite Gaz Métropolitain, Canada, and Gaz de France, France

Filed Jun. 20, 1996, Ser. No. 667,868

Int. Cl.^{6} F25D *23/00;* **F25B** *27/00*

U.S. Cl. 62—271 **18 Claims**



1. An integrated air conditioning and hot water supply system for conditioning air and supplying hot water to a building, said system comprising air circulation and integrated air conduit means to effect circulation of air to and from said building for conditioning by said system, a hot water tank having a water heating device to produce hot water in said tank, a heat exchanger fed by a hot water supply circuit from said tank for heating air recirculated from said building in said conduit means for heat exchange with said heat exchanger to heat said air when required by said building, combined air dehumidification means and cooling means to dehumidify and cool return air from said building in a recirculation circuit of said integrated conduit means when required by said building, said cooling means being connected to a water supply circuit to cool dehumidified air in said recirculation circuit and to provide cooling of a fresh air intake of said combined air dehumidification means and cooling means where said fresh air is treated and fed to said building in said integrated conduit means when required, regeneration means to regenerate said dehumidification means, and heat recovery ventilator means to treat exhaust air from the building and to admit warmed fresh air thereto when required by said building, wherein said hot water tank having a water feed inlet connected to said water supply circuit, said cooling means connected to said water supply circuit providing a preheating source for city water connected to said water feed inlet whereby to feed warm water to said tank when said combined air dehumidification means and cooling means are in operation as required by said building, said cooling means having a first cooling coil in which said city water is circulated, said first cooling coil being disposed in said recirculation circuit for cooling air from an outlet of said dehumidification means, and a second cooling coil for pre-cooling said fresh air intake of said combined air dehumidification means and cooling means.

5,782,105
KITCHEN APPLIANCE FOR INSTALLATION IN CAMPING VEHICLES IN PARTICULAR

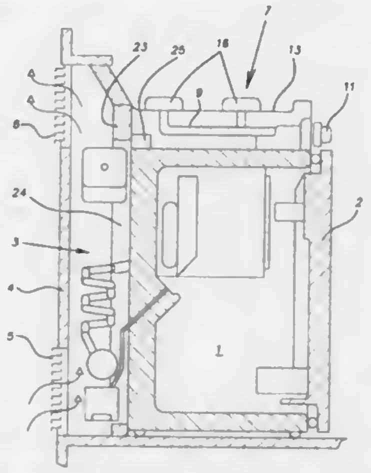
Sven Stork, Oberbüren, Switzerland, assignor to Electrolux Siegen GmbH, Siegen, United Kingdom

Filed Feb. 12, 1997, Ser. No. 800,234

Claims priority, application Germany, Jan. 24, 1997, 196 05 473.7

Int. Cl.^{6} F25D *15/00;* **F24C** *1/14;* **A47B** *81/00*

U.S. Cl. 62—331 **16 Claims**



1. A kitchen appliance including at least a refrigerator and a stove, in particular for installation in camping vehicles, boats, and the like, said refrigerator defining a cooling compartment (1) accessible from a frontside thereof and closed by a door (2) and having a cooling unit (3) located on a backside thereof, wherein the stove (7) is fixedly mounted to an upper side of the refrigerator, said stove including at least one gas burner (8) and a cover plate (13), said stove cover plate (13) is adapted to be mounted and removed independently from remaining parts of the stove, and wherein said at least one gas burner is movable in height for bearing on a relating opening in the cover plate (13) from below and is connected with a burner head (16) put thereon from above.

5,782,106
REFRIGERATOR HAVING WARMER COMPARTMENT

Sang Tae Park, Seoul, Rep. of Korea, assignor to LG Electronics Inc., Seoul, Rep. of Korea

Filed Dec. 27, 1996, Ser. No. 774,220

Claims priority, application Rep. of Korea, Dec. 29, 1995, 1995-67163

Int. Cl.^{6} F25D *19/00;* **F25B** *27/00;21/02*

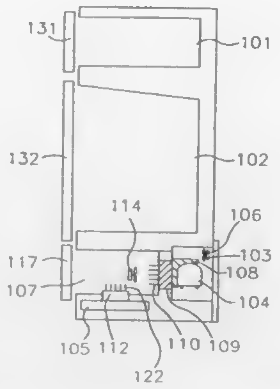
U.S. Cl. 62—452 **19 Claims**

1. A refrigerator, comprising:

a warmer compartment;

a machine compartment including a compressor and a condenser, the compressor and condenser emitting heat to the machine compartment; heat transmitting means for transmitting heat from the machine compartment to the warmer compartment, wherein the heat transmitting means includes at least one heat transmitting member for transmitting heat emitted from the machine compartment to the warmer compartment;

at least one heat conducting member for conducting heat from the machine compartment to the heat transmitting member; and



plural fins attached to the heat transmitting member and positioned within the warmer compartment.

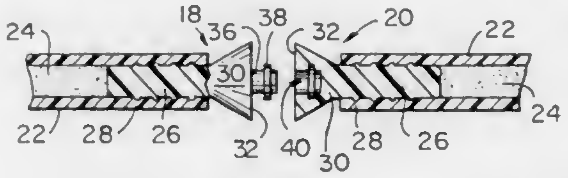
5,782,107
NOVELTY JEWELRY CONSTRUCTION

Andrew Glanz, 3005 Shore Dr., Merrick, N.Y. 11566

Filed Apr. 16, 1996, Ser. No. 633,290

Int. Cl.^{6} A44C *5/14;7/00*

U.S. Cl. 63—3 **6 Claims**



1. A costume jewelry article, comprising a length of flexible, transparent tube having first and second ends; flowable decorative material arranged within the tube to substantially fill the tube; and a pair of mating connector closures for the first and second ends of the tube to join said ends of said tube into a closed loop, said closures each comprising a ridged shank to grip an inside surface of one of said first and second ends of said tube and an outwardly-flared body portion bearing a mating connector element.

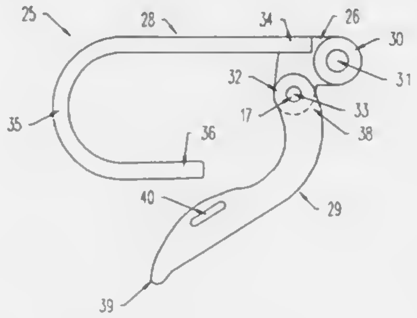
5,782,108
SPRINGLESS JEWELRY FINDING

Christopher J. Cannata, Cranston, R.I., and Maria H. Garcia, Attleboro, Mass., assignors to Leach & Garner Company, North Attleboro, Mass.

Filed Apr. 18, 1997, Ser. No. 844,436

Int. Cl.^{6} A44C *15/00*

U.S. Cl. 63—35 **4 Claims**



1. A springless jewelry finding comprising:

a hinge plate;

an ear-wire having one marginal end portion secured to said hinge plate, having an intermediate arcuate portion, and having a distal marginal end portion; and

a lever-paddle having one marginal end portion pivotally mounted on said hinge plate and having another marginal end portion mounted for arcuate movement toward and away from said wire distal marginal end portion, said lever-paddle other marginal end portion having a concave surface that is adapted to selectively embrace said ear-wire distal marginal end portion and having a detent that is so configured and dimensioned with respect to said ear-wire distal marginal end portion as to require that said ear-wire distal marginal end portion be forcibly passed through said detent as said lever-paddle is moved between opened and closed positions relative to said ear-wire;

whereby when said lever-paddle is in said closed position, said detent will prevent said lever-paddle other marginal end portion from freely moving away from said ear-wire distal marginal end portion.

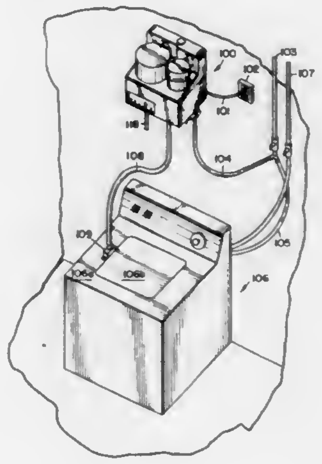
5,782,109
DISPENSER

John Ross Spriggs, Minneapolis; Loleta T. Tolliver-Rogers, Chanhassen; Daniel K. Boche, Eagan; Ronald Bruce Howes, Minneapolis, and Douglas Sherwin Hoerning, Cottage Grove, all of Minn., assignors to Ecolab Inc., St. Paul, Minn.

Filed May 6, 1996, Ser. No. 644,620

Int. Cl.^{6} D06F *39/02*

U.S. Cl. 68—17 R **10 Claims**



1. A chemical product injection manifold for use with a washing machine of the type having an opening in its top and a lid, the lid being sized to be smaller than the opening so as to form a gap between the top and the lid, said manifold comprising:

(a) a fitting adapted to receive a hose from a chemical dispenser;
(b) a housing having an inner cavity, said cavity in fluid communication with said fitting, said housing having a bottom;
(c) means for positioning said manifold on the washing machine top proximate the gap between the top and lid, said positioning means operatively connected to said housing; and
(d) an outlet in fluid communication with said cavity, said outlet generally elongate and extending generally parallel to the gap and having a width less than the width of the gap.

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5,782,110
CLOTHES WASHING MACHINE WITH BALANCING DEVICE

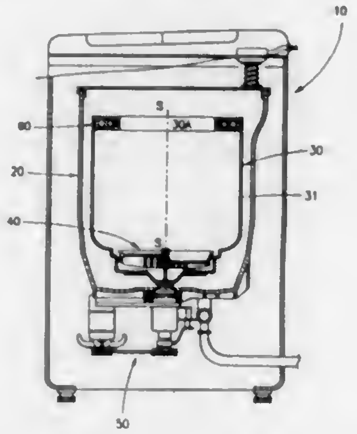
Do Weon Kim, Seoul, Rep. of Korea, assignor to Samsung Electronics Co., Ltd., Suwon, Rep. of Korea

Filed Aug. 28, 1996, Ser. No. 697,666

Claims priority, application Rep. of Korea, Aug. 28, 1995, 1995-26947; Aug. 28, 1995, 1995-26949; Aug. 28, 1995, 1995-26950; Aug. 28, 1995, 1995-26951; Aug. 28, 1995, 1995-26952

Int. Cl.⁶ D06F *37/24*

U.S. Cl. 68—23.3 **8 Claims**



1. A clothes washing machine comprising:

a housing;

an outer cylinder suspended in the housing;

an inner cylinder rotatable around an axis of rotation in the outer cylinder;

balancing means provided to the inner cylinder and being concentric with the axis of rotation; the balancing means comprising a plurality of annular passageways in which oil is contained, the passages arranged horizontally next to one another and being coaxial, a radially innermost one of the passageways with respect to said axis having a smallest height, and a radially outermost one of the passageways having a largest height; and

annular dividing walls extending between adjacent passageways, a radially innermost one of the dividing walls being a thinnest of all the dividing walls, and a radially outermost one of the dividing walls being a thickest of all of the dividing walls.

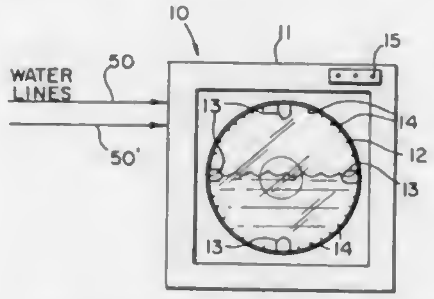
5,782,111
MECHANICAL DESIZING AND ABRADING APPARATUS

James Barton Sights, Henderson; Lewis Shane Smithhart, Robards; John Alfred Laughlin, Poole, and Richard Allen Gaines, Robards, all of Ky., assignors to Sights Denim Systems Inc, Henderson, Ky.

Filed Jul. 2, 1996, Ser. No. 674,344

Int. Cl.⁶ D06F *21/04;37/06*

U.S. Cl. 68—142 **11 Claims**



1. In a washer having a controlled rotary barrel for clockwise and counterclockwise rotation at a selected speed, the improvement comprising an abrasive structure within said barrel mounted for rotation with said barrel and said barrel comprising:

(1) an apertured structural form having a multiplicity of solid studs ; and

(2) a plurality of apertured tumbling ribs having raised embossments, said ribs running the length of said barrel; and said washer having means to infect an amount of water into said barrel so as to create a water to fabric ratio by weight within said barrel of about 4:1 to 15:1.

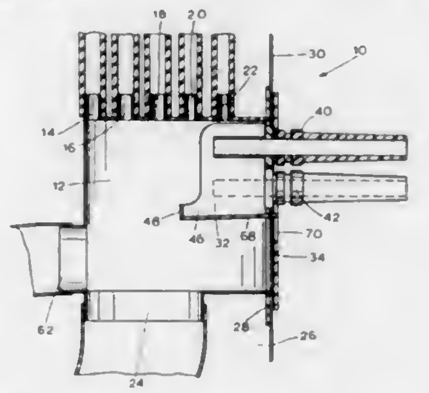
5,782,112
AUTO-INJECTION SIPHON BREAK FOR WASHERS

Wm Wallace White, 2401 Minerva St., and Christopher G. Hoppe, 214 S. Eagle St., both of Oshkosh, Wis. 54901

Filed Nov. 7, 1996, Ser. No. 744,503

Int. Cl.⁶ E03C *1/10*

U.S. Cl. 68—207 **34 Claims**



1. An arrangement for a washer comprising:

directing means for directing fill water from a first water inlet to a tub of the washer;

mixing means for mixing a chemical with water from a second water inlet and for directing a mixture of the chemical and water to the directing means for supply to the tub; and,

mounting means for mounting the mixing means and the directing means to the washer so that the mixing means may be removed from the washer separately from the directing means.

5,782,113
COMBINATION LOCK

Cheng Jung Chen, No. 47, Heyming Street, Lugaang Village, Changhua County, Taiwan

Filed Sep. 30, 1997, Ser. No. 940,799

Int. Cl.⁶ E05B *37/02*

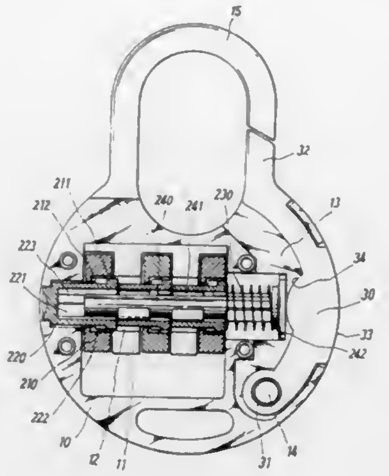
U.S. Cl. 70—28 **1 Claim**

1. A combination lock comprising:

a lock body provided therein with a horizontal slot;

a lock device comprising a plurality of rotary wheels, arresting blocks, a spring, and an arresting rod, said rotary wheels provided at a center thereof with a stepped hole having a plurality of teeth spaced equidistantly, said arresting blocks provided with a through hole having in an inner wall thereof a plurality of grooves, said arresting blocks further provided in an outer wall thereof with a plurality of engaging teeth, said arresting rod provided in an outer wall thereof with a plurality of ribs and further provided at one end thereof with a stop plate;

an unlocking device provided at one end thereof with a rotating hole and at another end thereof with a lock rod engageable with one end of a shackle attached to said lock body, said rotating hole and said lock rod being located on opposite sides of said arresting rod when said lock rod engages said shackle, said unlocking device further provided with a press portion and an arcuate portion opposite in location to said press portion; and



a cover engaged with said lock body;

wherein said lock device is located in said horizontal slot of said lock body such that said arresting rod can be actuated by said unlocking device, and that said one end of said shackle is separated from said press portion of said unlocking device by a distance capable of preventing a finger pressing said press portion from obstructing said shackle to be fastened with an object.

5,782,114
MULTI-POINT LOCKING SYSTEM

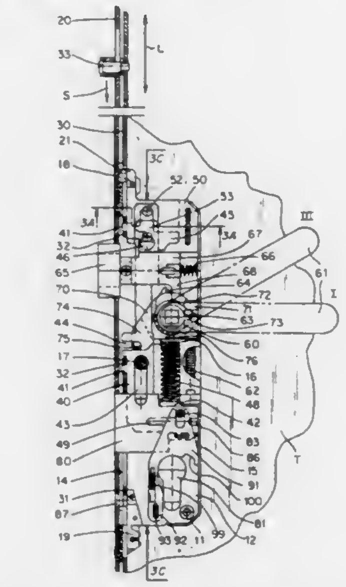
Christian Zeus, Stilfs, and Josef Mairvongrasspeinten, Pfalzen, both of Italy, assignors to Hoppe AG, St. Martin I.P., Italy

Filed Nov. 28, 1995, Ser. No. 563,657

Claims priority, application Germany, Jan. 13, 1995, 295 00 502 U

Int. Cl.⁶ E05B *63/20*

U.S. Cl. 70—109 **43 Claims**



1. A multi-point locking system (**10**) for locking doors (T) having a lock case (**11**), a door front edge (**20**) attached thereto, a spring-loaded latch (**65**) passing through said door front edge (**20**), a locking bolt (**80**) passing through said door front edge (**20**) and operable via a closing element (**81**) and at least two longitudinally movable push rods (**30**, **31**) connected to one another by a connecting element (**40**) with locking elements (**33**) engaging in corresponding recesses, where the push rods are movable into an opening position against a resetting force by a handle mounted in a pivotable nut and are arrestable in this pretensioned position, wherein the connecting element (**40**) between the push rods (**30**, **31**) is loaded in a closing direction (Y) by a compression spring (**48**) and wherein the push rods (**30**, **31**) are releasable from the arrested position by direct operation of the locking elements (**33**) in the longitudinal direction (L) of the door front edge (**20**).

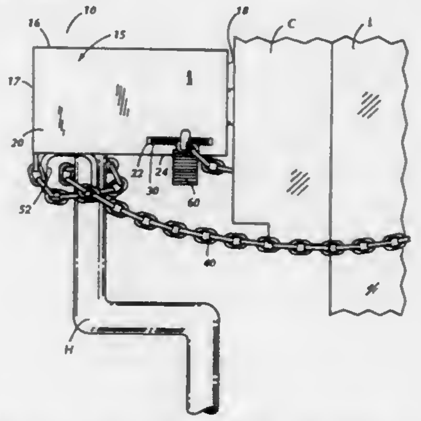
5,782,115
ANTI-THEFT SECURITY DEVICE FOR TRAILERS OF TRUCKS

Danny Lee Judy, 2635 Sunset Ave., Springfield, Ohio 45505

Filed Jun. 6, 1996, Ser. No. 660,707

Int. Cl.⁶ B60R *25/00*

U.S. Cl. 70—164 **15 Claims**



1. An anti-theft device for use with semi-trailers of the type which have a dolly-leg, a dolly-leg crank, and a dolly-leg crank handle, said anti-theft device comprising

a housing, said housing having a top, an end panel, a first side, a second side, a notched bottom, said first side and said second side each having formed therein a first side aperture and a second side aperture respectively, said notched bottom having downwardly depending therefrom at least two lock chain guide harnesses,

a locking bar, said locking bar having formed therein at one end thereof a locking bar aperture,

a lock, said lock being secured to said locking bar by attachment thereto through said locking bar apertures, and

a chain, said chain being secured to said housing.

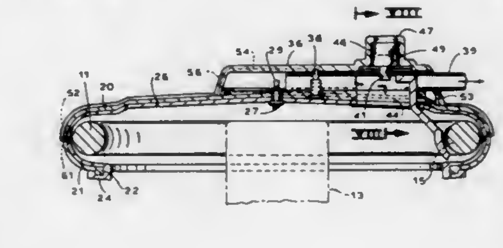
5,782,116
STEERING WHEEL AND AIR-BAG LOCK

Timothy Ryan, 200 Beacon Hill Dr., Apt. 9P, Dobbs Ferry, N.Y. 10522, and Lawrence Cunningham, 3044 Albany Crescent, Bronx, N.Y. 10463

Filed Aug. 23, 1996, Ser. No. 701,247

Int. Cl.⁶ B60R *25/02*

U.S. Cl. 70—209 **16 Claims**



1. A steering-wheel protector for a steering wheel having a hub and a rim of an automotive vehicle, said steering-wheel protector comprising:

a steering-wheel cover including:

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- a first generally semicircular disk segment formed with an inwardly open channel configured to receive a portion of the rim of said steering wheel,
- a second generally semicircular disk segment formed with an inwardly open channel configured to receive a remainder of the rim of said steering wheel in an outwardly swung position of said second segment relative to said first segment, and
- pivot means connecting said segments to permit said second segment to be received in said first segment in an inwardly swung position of said second segment, said segments forming a disk receiving the entire rim of said steering wheel and spanned entirely across said steering wheel, peripherally enclosing said rim and preventing access to said hub in said outwardly swung position of said second segment;
- a tunnel formed on said first segment and having an end opening toward a periphery of said disk;
- a locking bar slidable in said tunnel between an unlocked retracted position and a locking extended position and adapted to project from said end beyond said disk in said extended position of said bar and said outwardly swung position of said second segment by an amount sufficient to encounter an obstruction in said vehicle, thereby limiting rotation of said cover and said steering wheel;
- means on said bar for engaging said second segment to prevent inward swing thereof and for engaging said rim along an inner periphery thereof in said extended position, thereby preventing removal of said cover from said steering wheel; and
- a lock on said tunnel engageable with said bar in said extended position for releasably securing said bar in said extended position.

5,782,117
ANTI-THEFT DEVICE FOR MOTOR VEHICLES

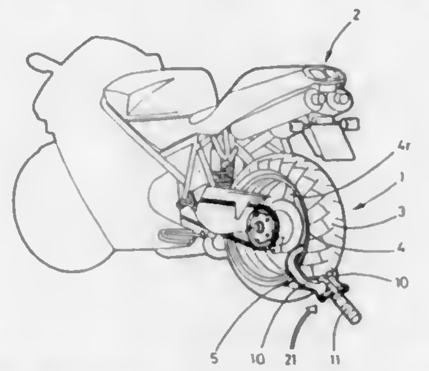
Ellis Fernanda Xavler, Lugo, Italy, assignor to I.P. Innovative Products S.r.l., Ravenna, Italy

Filed May 15, 1996, Ser. No. 648,425

Claims priority, application Italy, May 25, 1995, B095 A 000259; European Pat. Off., Dec. 21, 1995, 95830532

Int. Cl.⁶ B60R *25/00*

U.S. Cl. 70—226 **11 Claims**



1. An anti-theft device in combination with a vehicle wheel including a rim, at least one aperture through the rim, and a tire mounted to the rim and having an external rolling surface, the anti-theft device comprising:

- first and second mutually opposing C-shaped arms each having a first end, a second end, and an intermediate portion, the first ends of said C-shaped arms passing through the at least one aperture to encompass the tire and the rim in a locked position of the vehicle anti-theft device;
- a support bar spaced laterally between said second ends of said C-shaped arms and having a first pivot member positioned proximate the tire, said intermediate portions of said C-shaped arms being pivotally connected to said first pivot member;
- an actuator rod slidably positioned within said support bar and having a second pivot member associated therewith;
- first and second lever arms each having one end thereof pivotally connected to said respective second ends of said C-shaped arms and another end thereof pivotally connected to said second pivot member;
- spring means interposed between said support bar and said actuator rod for urging said support bar and said actuator rod axially apart to define an unlocked position of the vehicle anti-theft device wherein said first ends of said C-shaped arms are urged laterally apart and said second ends of said C-shaped arms are urged laterally inward toward said support bar, each of said lever arms forming an acute angle with said support bar in said unlocked position;
- lock means for preventing relative axial movement between said actuator rod and said support bar against a biasing force generated by said spring means when in said locked position of the vehicle anti-theft device; and
- when in said locked position, said actuator rod being urged axially toward said support bar against said biasing force, said first ends of said C-shaped arms being urged together, said second ends of said C-shaped arms being urged laterally apart, and each of said lever arms extending substantially perpendicular to said support bar.

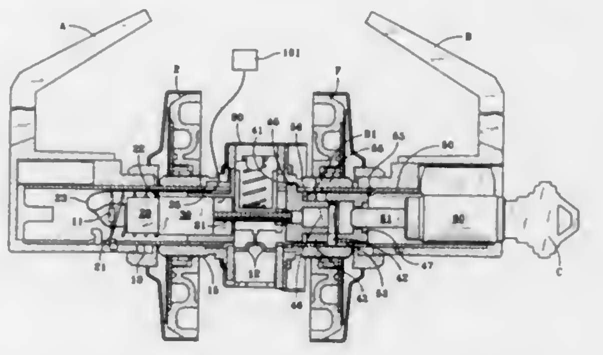
5,782,118
LOCKSET WITH MOTORIZED SYSTEM FOR LOCKING AND UNLOCKING

L. C. Derek Chamberlain, and Frederick M. Hensley, both of Colorado Springs, Colo., assignors to Schlage Lock Company, San Francisco, Calif.

Filed Jul. 16, 1996, Ser. No. 682,173

Int. Cl.⁶ E05B *47/00*

U.S. Cl. 70—279 **19 Claims**



1. A door lock, operable by an electronic signal and having inside and outside handles mounted on inside and outside hollow spindles, for mounting on a door having an inside face and an outside face, said door lock comprising:

- a cylindrical lock chassis having means for retracting a latch bolt in response to rotation of either of said hollow spindles;
- means for locking said outside spindle against rotation;
- a reversible electric motor mounted coaxially within the inside spindle, said motor being secured against rotation but free to slide axially against resistance provided by a biasing means, and having a motor shaft extending through said cylindrical lock chassis to operably engage the means for locking said outside spindle; and
- means for moving the means for locking said outside spindle between unlocked and locked positions.

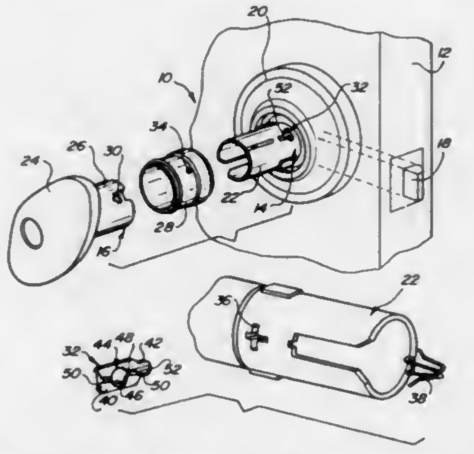
5,782,119
BIASED DETENT FOR DOOR KNOB ASSEMBLY

Philip C. Ellis, Reading, and Leslie A. Meck, Fleetwood, both of Pa., assignors to Baldwin Hardware Corporation, Reading, Pa.

Filed Jul. 19, 1996, Ser. No. 684,158

Int. Cl.⁶ E05B *9/04*

U.S. Cl. 70—371 **3 Claims**



1. In a lock mechanism having a lock cylinder with a tailpiece operably connected to the lock cylinder and a lock spindle with a door knob assembly detachably mounted to the lock spindle, the tailpiece rotatable between a first locked orientation and a second unlocked orientation and the lock cylinder movable between a first locked orientation and a second unlocked orientation the improvement comprising:

- a spring-biased detent for detachably mounting the door knob assembly to the lock spindle, said detent having a substantially planar body portion with a reduced width end;
- said body portion having a keyhole aperture receiving the tailpiece of the lock mechanism, said keyhole aperture oriented axially within said body portion and including a round portion and a slot portion extending from said round portion along a longitudinal axis of said body whereby longitudinal movement of said detent is prevented with the tailpiece in the first orientation and said detent selectively depressible with the tailpiece aligned with said longitudinal slot portion in the second unlocked orientation; and
- said body portion having at least one flange formed perpendicular thereto and selectively engaging the lock cylinder, the lock cylinder including means for selectively blocking movement of said detent whereby longitudinal movement of said detent is prevented by said blocking means on said lock cylinder with the lock cylinder in a first locked orientation and said detent selectively depressible past said blocking means with the lock cylinder in a second unlocked position.

5,782,120
CONTINUOUS EXTRUSION

Robert Rodger Wright, Dorchester, Great Britain, assignor to Holton Machinery Ltd., Bournemouth, United Kingdom

PCT No. PCT/GB94/02767, § 371 Date Aug. 8, 1996, § 102(e) Date Aug. 8, 1996, PCT Pub. No. WO95/17270, PCT Pub. Date Jun. 29, 1995

PCT Filed Dec. 20, 1994, Ser. No. 666,336

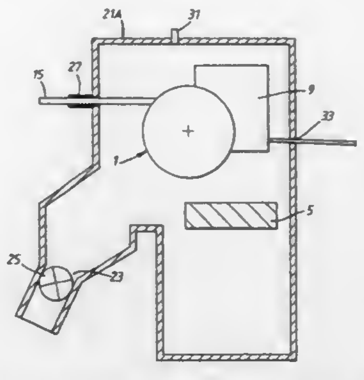
Claims priority, application United Kingdom, Dec. 21, 1993, 9326050

Int. Cl.⁶ B21B *9/00*

U.S. Cl. 72—38 **16 Claims**

10. A continuous extrusion apparatus comprising:

- a hood;
- a rotatable wheel having an endless groove in a wall thereof, wherein said wheel is mounted within said hood so that said hood completely encloses said wheel;



- an extrusion die structure mounted adjacent said wheel;
- a first aperture located in said hood for the introduction of a metal feedstock to said wheel;
- a second aperture located in said hood for the discharge of extruded product from said wheel, wherein said second aperture is spaced from said first aperture; and
- a selectively openable third aperture located in said hood for the discharge of flash removed from the groove, said third aperture being spaced from said first and second apertures.

5,782,121
APPARATUS FOR THE INNER PROFILING OF TUBES OR PIPES

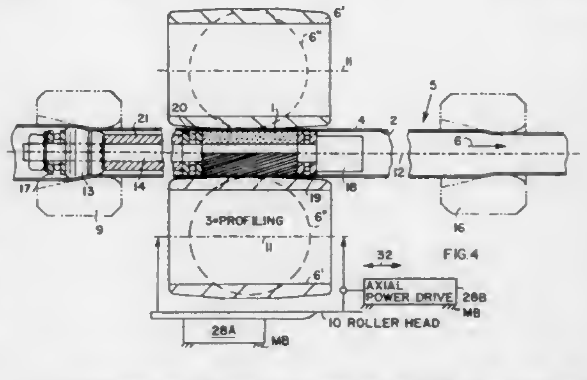
Walter Wetzels, Aachen, Germany, assignor to Schumag AG, Aachen, Germany

Continuation-in-part of Ser. No. 276,052, Jul. 14, 1994, Pat. No. 5,524,467. This application Jun. 5, 1996, Ser. No. 659,236

Claims priority, application Germany, Jul. 16, 1993, 43 23 840.8

Int. Cl.⁶ B21B *15/00*

U.S. Cl. 72—68 **10 Claims**



1. An apparatus for profiling an inner surface of a pipe (5), said apparatus comprising a profiling stone (1), a drawing mandrel (13) and a connecting rod (14) interconnecting said drawing mandrel (13) and said profiling stone (1) with each other for positioning coaxially inside said pipe, said profiling stone comprising a profiling surface (3) facing an inner pipe surface in a working position of said profiling stone (1), said apparatus further comprising a plurality of roller bodies (6, 6', 6") arranged on the outer circumference (4) of said pipe (5) for pressing said pipe (5) within a working range (7) of said roller bodies against said profiling surface (3) of said profiling stone (1), said roller bodies being adapted for performing a revolving motion around said pipe (5), a rotary drive for rotating said profiling stone (1) inside said pipe to be profiled about a longitudinal axis (12) extending in a feed advance direction of said pipe, a spindle head (22) for simultaneously revolving said roller bodies (6, 6', 6") about said longitudinal axis (12) while permitting each of said roller bodies to rotate about its individual roller body axis (11), an axial power drive for imparting to at least one of said profiling stone (1) and said roller bodies (6, 6', 6") a periodic axial oscillating motion back and forth

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in said feed advance direction for superimposing on said drawing motion a relative axial displacement in said axial feed advance direction between said profiling stone (1) and said roller bodies (6, 6', 6"), and means for limiting said relative axial displacement so that a working range (7) of said roller bodies (6) remains within said surface profile (3) of said profiling stone (1).

5,782,122
SPINNING ROLLER FOR SPLITTING A ROTATIONALLY SYMMETRICAL WORKPIECE

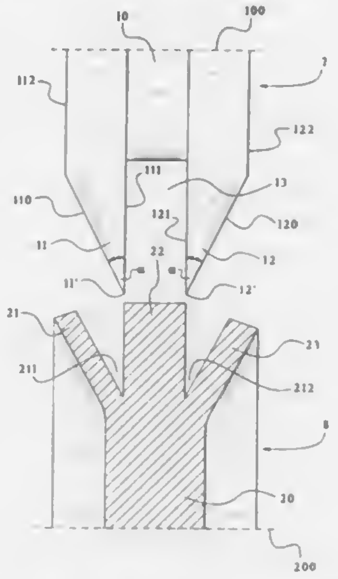
Jürgen Köppel, Im Lehmkühlchen 24, D-59269 Beckum, Germany

Continuation-in-part of Ser. No. 703,332, Aug. 26, 1996, which is a continuation of Ser. No. 372,943, Jan. 17, 1995, abandoned. This application Oct. 17, 1996, Ser. No. 733,300

Claims priority, application Germany, Oct. 26, 1994, 44 38 112.3

Int. Cl.⁶ B21B *27/06*

U.S. Cl. 72—71 **16 Claims**



1. A spinning roller for splitting a rotationally symmetrical workpiece on a spinning machine, comprising:

a double splitting roller having an axis of symmetry and rotation with a first splitting edge and a second splitting edge arranged along said axis at a distance from one another separated by a spacer, each splitting edge having an inner flank extending a radial distance from and perpendicular to the axis and an outer flank arranged at an angle relative to the inner flank such that the inner flank and the outer flank form an asymmetrical splitting edge tip therebetween;

a groove located between the two splitting edges laterally defined and bounded by the inner flanks of the two splitting edges and the spacer; and

an outer surface formed on each splitting edge.

5,782,123
WORKING TOOL FOR PIPE WALL

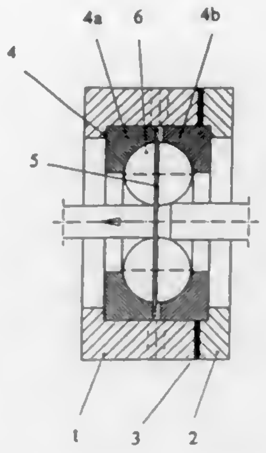
Tapio Väkiparta, Ulvila, Finland, assignor to Outokumpu Copper Products OY, Finland

Filed Mar. 12, 1997, Ser. No. 820,444

Claims priority, application Finland, Mar. 15, 1996, 961218

Int. Cl.⁶ B21C *37/20*

U.S. Cl. 72—75 **10 Claims**



1. A rotating working tool for grooving the inner surface of a pipe, which tool comprises a cylindrical housing (1) open around its axis to receive a pipe to be grooved, a circular rotation roller frame (4) arranged coaxially inside the housing (1), and balls (6) contacting the inside of the rotation roller frame (4), characterized in that one end of the housing (1) is locked with a lid (2) open around its axis, the rotation roller frame (4) having a circular inner surface and being installed inside the housing (1), the roller frame being composed of two parts (4*a*, 4*b*), in between which parts there is disposed a ball holder plate (5) to keep the balls (6) in place.

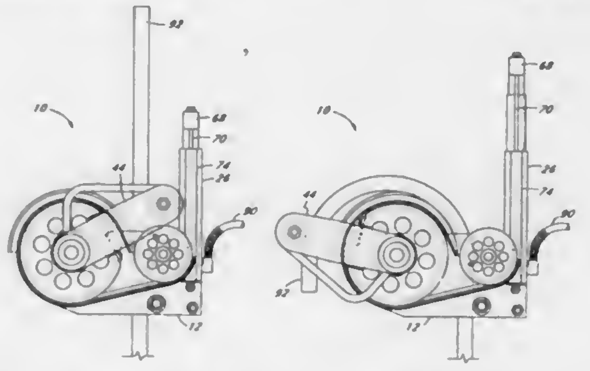
5,782,124
HIGH FORCE REBAR BENDING MACHINE

Jimmy D. Lee, 7781 LaMesa, Buena Park, Calif. 90620

Filed Oct. 30, 1996, Ser. No. 739,580

Int. Cl.⁶ B21D *7/024*

U.S. Cl. 72—217 **10 Claims**



1. A high force rebar bending machine, comprising:

a frame and first and second side plates held in spaced alignment with one another by said frame;

a fluid pressure cylinder connected to said frame and having a cable head that moves when fluid is supplied to said fluid pressure cylinder and a fluid pressure is developed therein;

a bending die connected to said frame between the first and second side plates thereof;

at least one drive wheel rotatably connected to said frame adjacent said bending die;

at least one cable connected between the cable head of said fluid pressure cylinder and said drive wheel, said cable extending around at least some of said drive wheel to impart a rotation to said drive wheel;

a rebar engagement means adapted to apply a bending force to a rebar to be bent that is located between said rebar engagement means and said bending die; and

at least one bending arm connected at one end thereof to said drive wheel and carrying said rebar engagement means at the opposite end,

said cable head moving in response to the fluid pressure developed by said fluid pressure cylinder to apply a pulling force to said cable for causing said drive wheel to rotate relative to said bending die and said bending arm to correspondingly rotate with said drive wheel in a direction towards the rebar to be bent, whereby said rebar engagement means carried by said bending arm engages and bends the rebar to be bent around said bending die.

5,782,125
ASSEMBLY TO CLAMP A ROLLING RING

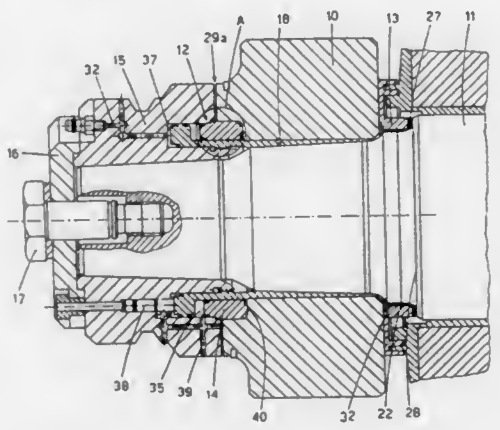
Eddy Faggiani; Gino Cattelani, and Ferruccio Tomat, all of Udine, Italy, assignors to Danieli & C. Officine Meccaniche SpA, Buttrio, Italy

Filed Oct. 31, 1996, Ser. No. 740,605

Claims priority, application Italy, Nov. 9, 1995, UD95 A 000223

Int. Cl.⁶ B21B *31/00*

U.S. Cl. 72—237 **7 Claims**



1. A combination of a rolling ring, a ring-bearing shaft and an assembly for clamping the rolling ring to the ring-bearing shaft, comprising:

a longitudinally extending ring bearing shaft having an intermediate ledge;

a labyrinth ring provided on the ring bearing shaft abutting the intermediate ledge;

a rolling ring provided on the ring bearing shaft and abutting the labyrinth ring;

a cap for clamping the rolling ring of the ring bearing shaft, the cap having a coupling element cooperating with a mating coupling element provided on an opposed surface of the rolling ring to provide rotational clamping of the rolling ring;

an alignment bush having a circumferential head provided in a chamber in the surface of the cap opposing the rolling ring and having a circumferential tapered section extending longitudinally from the head and, provided between the rolling ring and the ring bearing shaft;

a closure flange for locking the cap on the ring bearing shaft by a locking screw; and

a circumferential spacer provided between the cap and the rolling ring, the spacer having a first abutment surface which abuts against the rolling ring and a second abutment surface which abuts against a frontal abutment surface of the cap, the spacer being associated axially with the cap by a key fixed to the cap, the key cooperating with a seating provided in the spacer to ensure reciprocal circumferential clamping that permits longitudinal sliding of the spacer, the spacer defining a first gap of a required width between opposed surfaces of the cap and the rolling ring and a second gap between the coupling element of the cap and the mating coupling element of the rolling ring.

5,782,126
DEVICE TO REPLACE THE ROLLS IN A FOUR-HIGH ROLLING STAND FOR SHEET AND/OR WIDE PLATE

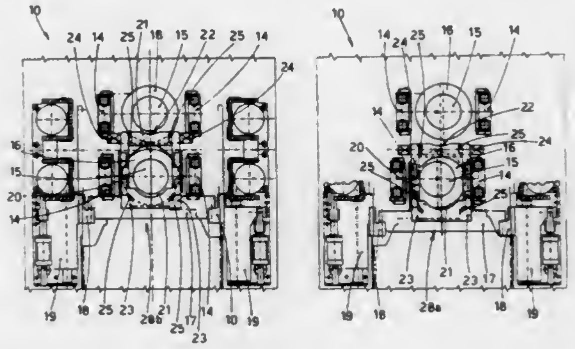
Fausto Drigani, Pozzuolo del Friuli, and Estore Donini, Vimercate, both of Italy, assignors to Danieli & C. Officine Meccaniche SpA, Buttrio, Italy

Filed Apr. 21, 1997, Ser. No. 845,190

Claims priority, application Italy, Apr. 19, 1996, UD96A0052

Int. Cl.⁶ B21B *31/07;31/08*

U.S. Cl. 72—239 **7 Claims**



1. Device to replace rolling rolls for use in a four-high rolling stand for sheet or wide plate, the rolls comprising upper and lower rolls supported by chocks and cooperating axially with connecting liners associated with spindles connected with drive means, the device comprising a travel and support unit with a first inactive position and a second active position to temporally support and maintain in position at least the liner elements during extraction and insertion of either the upper roll or the lower roll and when the extraction operation is completed, the travel and support unit comprising a plate associated with lifting means and having in a substantially central position an aperture to receive an liner associated with the lower roll and at the upper end a positioning hollow cooperating, when the travel and support unit is in its active position, with the liner associated with the upper roll.

5,782,127
DEVICE FOR THE AXIAL SHIFTING OF ROLLING ROLLS

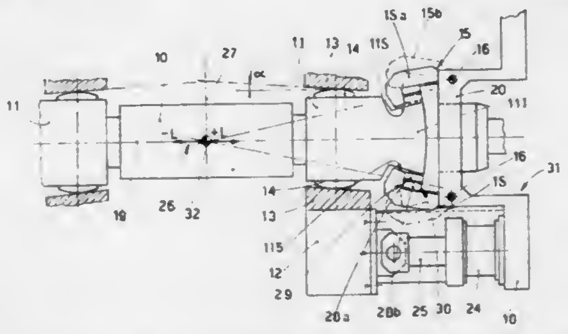
Estore Donini, Vimercate; Cesare Galletti, Segrate S. Felice, and Fausto Drigani, Zugliano, all of Italy, assignors to Danieli & C. Officine Meccaniche SpA, Buttrio, Italy

Filed Jun. 24, 1996, Ser. No. 668,681

Claims priority, application Italy, Jun. 26, 1995, UD95A0127

Int. Cl.⁶ B21B *31/07;31/18*

U.S. Cl. 72—247 **4 Claims**



1. Device for the axial shifting of rolling rolls in a rolling mill stand of a four-high type for the production of strip and/or plate, the stand being equipped with means for the reciprocal cross-over displacement of the processing rolls on a plane parallel to the rolling plane, each roll being borne on relative chocks associated with stationary housings, a shifting jack being included and being anchored at one end to a stationary housing and at the other end to an erection element jaw means being included for the temporary

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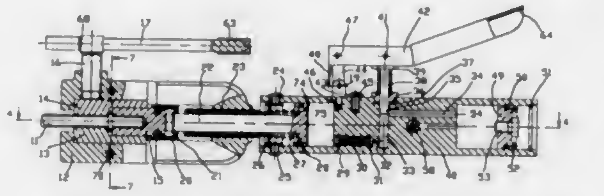
clamping of the erection element to a chock, the jaw means having engagement surfaces cooperating in an engagement position with engagement means included at least on sides of the chock, the device being characterised in that these latter engagement means are conformed as a sliding element having at least a first position and a second position in relation to the engagement surfaces of the jaw means, these first and second positions depending on the aligned and/or inclined position of the roll in relation to its initial longitudinal axis, the device being characterised in that the engagement surfaces of the jaw means are conformed as an arc of a circumference the centre of which lies on a median plane of the relative rolling roll.

5,782,128
HAND TOOL FOR FLARING A TUBE

Mike Barjesteh; Jerry Umbro, both of Randolph, and Ali M. Sadegh, Closter, all of N.J., assignors to Mastercool, Inc., Randolph, N.J.

Filed Apr. 18, 1997, Ser. No. 839,943
Int. Cl.^{6} B21D *19/00*
U.S. Cl. 72—318 **11 Claims**



1. A hand tool tube push connect flaring apparatus for forming a radially outwardly convex extending, push connect flare close to, but not on, a distal end of a hollow malleable cylindrical tubing comprising:

gripper-die means for holding said tube;

a yoke member for securing said gripper-die means, said yoke member having a base with internal thread means at its base;

a hollow, cylindrical, externally threaded positioning screw member for engaging to the internal threads of said yoke;

a manual hydraulic pump apparatus rigidly connected to said positioning screw member, said hydraulic pump apparatus having a flaring piston comprising an elongated cylindrical rod axially extending outwardly from the pump, said flaring piston passing through the hollow space of said positioning screw member, said hydraulic pump apparatus having a lever arm for pumping fluid;

a guide nut member and a snap ring member, said guide nut member being loosely connected to said flaring piston by the snap ring member; and,

an adapter-die member for pressing said tube in the axial direction of the tube, wherein said adapter-die member is secured by said guide nut, and is connected to said flaring piston.

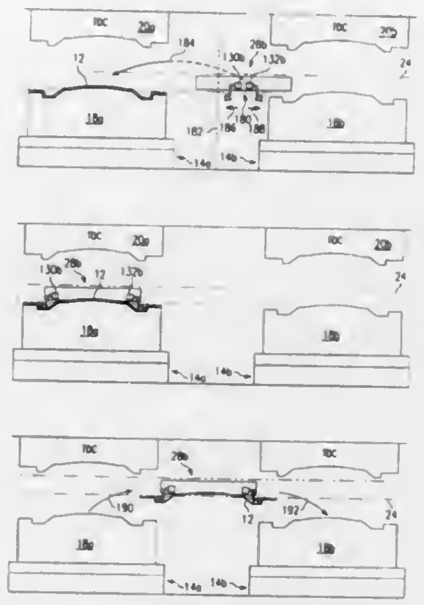
5,782,129
METHOD FOR TRANSFERRING A WORK PIECE IN A MULTI-STATION PRESS

Allen J. Vanderzee, St. John, Ind.; Edward J. Brzezniak, and Adam Schwarz, both of Orland Park, Ill., assignors to Verson, A Division of Allied Products Corporation, Chicago, Ill.

Division of Ser. No. 393,554, Feb. 23, 1995, Pat. No. 5,632,181. This application Feb. 13, 1997, Ser. No. 800,038
Int. Cl.^{6} B21D *43/05*
U.S. Cl. 72—405.1 **36 Claims**

1. A method of transferring work pieces in a multi-station press having a plurality of associated upper and lower dies, said method comprising the steps of:

moving a cross bar assembly from a first rest position to a first press station containing a work piece which has been pressed by an associated upper and lower die pair;



engaging the work piece at said first press station with a plurality of holding devices coupled to the cross bar assembly;

moving the cross bar assembly and work piece from the first press station to a second press station;

depositing the work piece in the second press station for pressing;

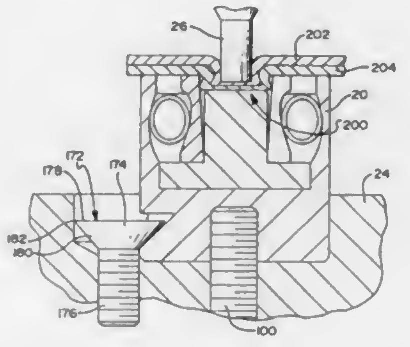
moving the cross bar assembly to a second rest position adjacent to the first press station; and

returning the cross bar assembly to the first rest position prior to beginning the next work piece transfer cycle.

5,782,130
APPARATUS FOR RETAINING TOOLS

Edwin G. Sawdon, St. Clair, Mich., assignor to BTM Corporation, Marysville, Mich.

Filed Jan. 27, 1997, Ser. No. 788,242
Int. Cl.^{6} B21D *37/14*
U.S. Cl. 72—481.8 **33 Claims**



1. An apparatus for retaining tools to a fixture, said apparatus comprising:

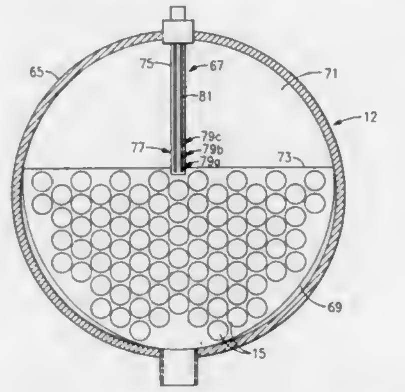
a side of a tool having a partially conical recess, a bottom of said tool disposed upon said fixture; and

a fastener having a longitudinal shank and a laterally extending head mounted to said shank, said head being engagable with said recess of said tool, said shank of said fastener being securely and disengagably attachable to said fixture, said shank being threaded, said fastener serving to retain said tool to said fixture.

5,782,131
FLOODED COOLER WITH LIQUID LEVEL SENSOR

Richard G. Lord, 104 Somerset La., Tullahoma, Tenn. 37388; Arthur F. Friday, 306 Broadleaf Dr., NE., Vienne, Va. 22180, and Kenneth J. Nieva, 7826 Restmoor Dr., Baldwinsville, N.Y. 13027

Filed Jun. 28, 1996, Ser. No. 672,744
Int. Cl.^{6} G01F *23/24*
U.S. Cl. 73—295 **8 Claims**



1. A method for measuring variation in the liquid refrigerant level of a refrigerant within a cooler, comprising the steps of:

positioning a heat exchanger within a cooler shell so that an area within the cooler shell is above the heat exchanger;

positioning a probe, comprising a heating element and a plurality of thermistors comprised by at least one thermistor circuit, so that the probe extends at least to a point above the heat exchanger;

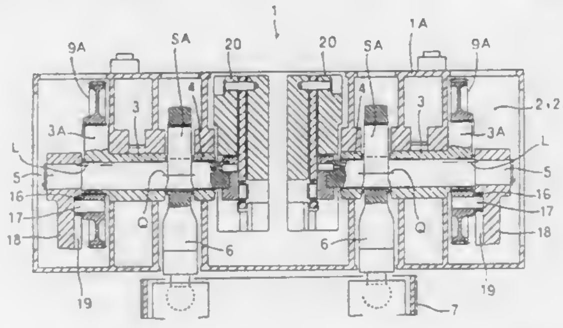
activating the heating element to provide heat that acts upon the thermistor; and

measuring a property of the thermistor circuit to monitor for variation of the liquid refrigerant level.

5,782,132
PRESSING MACHINE

Shigeo Ishibashi, Tsukui-district, and Tooru Miyashita, Sagamihara, both of Japan, assignors to Aida Engineering Ltd., Kanagawa, Japan

Filed Sep. 30, 1996, Ser. No. 723,780
Claims priority, application Japan, Jan. 11, 1996, 8-020447
Int. Cl.^{6} B30B *1/06;* F16H *21/18*
U.S. Cl. 74—44 **2 Claims**



1. A straight side type pressing machine in which power from a flywheel is selectively transmitted using either uniform or ununiform rotation, through a main gear meshing with a drive gear of a drive shaft, to a crankshaft supported by a bearing member provided on a frame, and a slide is vertically moved by a connecting rod slidably fitted over said crankshaft and said slide for connection therebetween, wherein:

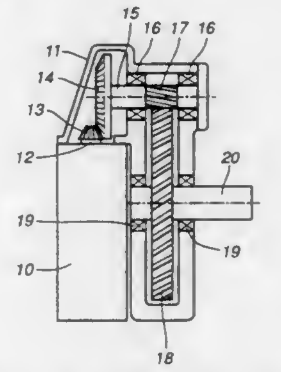
said drive shaft is disposed in a position equi-distanced from a center of rotation of a respective main gear of either an ununiform rotation mechanism or a uniform rotation mechanism either for rotating said crankshaft to drive said slide, said main gear of either said ununiform rotation mechanism or said uniform rotation mechanism having the same number of teeth and the same tooth size, and a drive gear mounted on said drive shafts is selectively meshed with one of said respective main gears, while a speed reducing ratio and a frame are kept the same common to either said ununiform rotation mechanism or said uniform rotation mechanism.

5,782,133
DRIVING UNIT FOR AN INDUSTRIAL ROBOT

Ove Kullborg, Västerås, Sweden, assignor to Asea Brown Boveri AB, Västerås, Sweden

PCT No. PCT/SE95/00529, § 371 Date Nov. 7, 1996, § 102(e) Date Nov. 7, 1996, PCT Pub. No. WO95/31657, PCT Pub. Date Nov. 23, 1995

PCT Filed May 12, 1995, Ser. No. 737,204
Claims priority, application Sweden, May 13, 1994, 9401654
Int. Cl.^{6} F16H *37/04;57/02*
U.S. Cl. 74—420 **3 Claims**



1. A driving unit for an industrial robot, comprising an electric motor having a shaft extending in a first direction, said shaft of said motor being gear connected to an output shaft extending in a second direction perpendicular to said first direction with central axes of said shafts intersecting, said shaft of said motor being gear connected to said output shaft via a reduction angle gear unit comprising a non-hypoid bevel gear pair provided between said shaft of said motor and an intermediate shaft, said reduction angle gear unit further comprising a unit of parallel-axes gears respectively provided on said intermediate shaft and said output shaft, a gear case encasing said reduction angle gear unit, said case having a major dimension overlying said gear provided on said output shaft and perpendicular thereto, said motor having a length extending along said shaft thereof, said motor having a width transverse to said length, the length of the motor being greater than the width, and said motor overlying said case at the major dimension thereof without said motor extending beyond an outer dimension of said case such that a projection of the length and width of the motor in said second direction lies on the gear case, whereby the gear unit has the properties of high reduction gear ratio with a minimum of play, fast acceleration and a minimum overall volume.

5,782,134
ELECTROMAGNETICALLY ACTUATED THRUST GENERATOR

James D. Booden, 25 Cullens Run, Pittsford, N.Y. 14534
Continuation-in-part of Ser. No. 355,840, Dec. 14, 1994, abandoned. This application Dec. 6, 1996, Ser. No. 761,435
Int. Cl.^{6} F16H *33/20*
U.S. Cl. 74—84 R **14 Claims**

1. An electric propulsion device, comprising:

(a) a rotatable housing for rotation about a common axis;

(b) a plurality of masses connected to the housing for rotation about the common axis, each mass moveable between a

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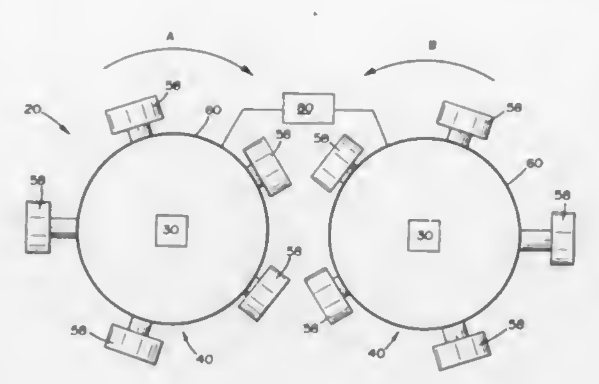


retracted position defining a first radius from the common axis and an extended position defining a second longer radius from the common axis;

(c) an electromagnetic actuator operably connected to each of the masses to selectively dispose the mass between one of the retracted and the extended position, the electromagnetic actuator including a coil wound about a frame and a shaft moveable within the coil; and

(d) a bias member operably connected to each of the masses to urge the mass in a direction opposite to the electromagnetic actuator.

5,782,135

BALL SCREW FOR VACUUM APPARATUS

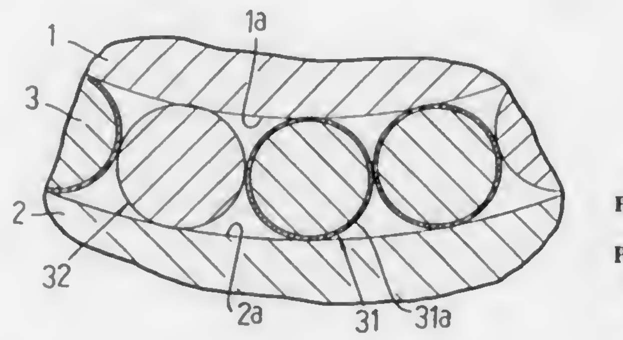
Hiromitsu Kondo, Kuwana; Tokumasa Nakamura, Kwana; Hiroshi Yamada, Kuwana; Masahiro Nobutomo, Fukurol, and Michiyoshi Ishimaru, Kuwana, all of Japan, assignors to NTN Corporation, Osaka, Japan

Continuation of Ser. No. 493,748, Jun. 22, 1995, abandoned. This application Feb. 4, 1997, Ser. No. 794,487

Claims priority, application Japan, Jun. 24, 1994, 6-142702

Int. Cl.⁶ F16H *25/22;* **F16C** *33/66*

U.S. Cl. 74—459 **4 Claims**



1. A ball screw for a vacuum apparatus comprising:

a screw shaft having a spiral inner raceway formed on an outer peripheral surface thereof;

a ball nut having a spiral outer raceway formed on an inner peripheral surface thereof;

a plurality of balls disposed in a spiral space defined between said inner raceway and said outer raceway;

circulating members connecting ends of said spiral space to each other to define a continuous ball circulating passage,

wherein said plurality of balls comprises first balls

formed of high polymer material containing polytetrafluoroethylene as a main component and second balls formed of a metallic material, said first balls circulating through said circulating passage together with said second balls,

said second balls having lubricating films of crystalline polytetrafluoroethylene formed on surface thereof.

5,782,136

MOTOR VEHICLE STEERING COLUMN WHICH IS DIVISIBLE INTO MUTUALLY SEPARABLE STRUT PARTS

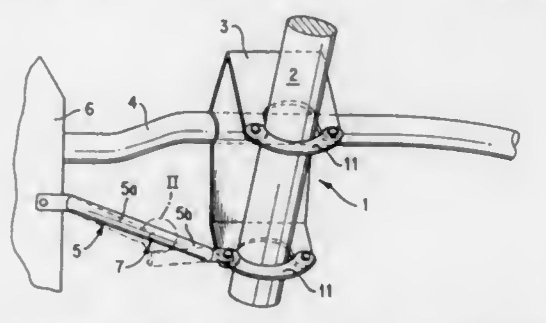
Thomas Witkovsky, Grafenau; Alfred Schnabel, Althengstett, and Rolf Zimmerman, Ebningen, all of Germany, assignors to Mercedes-Benz AG, Germany

Filed Jun. 17, 1996, Ser. No. 664,502

Claims priority, application Germany, Jun. 15, 1995, 195 21 793.4

Int. Cl.⁶ B62D *1/19*

U.S. Cl. 74—492 **8 Claims**



1. A steering column for a motor vehicle, comprising a single strut for supporting the steering column tube on vehicle supporting parts and extending in a transverse direction of the motor vehicle from one side of the steering column tube to a lateral wall of the vehicle,

wherein the transversely extending strut has at least one separating point formed thereon between the steering column tube and the lateral wall so as to divide the strut from a single part into mutually separated strut parts only after being stressed and separated by a crash and thereby not pull the steering column tube into an unfavorable position for a vehicle occupant.

5,782,137

Patent Not Issued For This Number

5,782,138

LOCKING DEVICE FOR CAR SEAT, ESPECIALLY MOTOR VEHICLE SEATS

Peter Groche, Kaiserlautern, Germany, assignor to Keiper Recaro GmbH & Co., Remscheid, Germany

PCT No. PCT/EP94/04109, § 371 Date Sep. 19, 1996, § 102(e) Date Sep. 19, 1996, PCT Pub. No. WO95/17317, PCT Pub. Date Jun. 29, 1995

PCT Filed Dec. 10, 1994, Ser. No. 505,234

Claims priority, application Germany, Dec. 20, 1993, 43 43 463.0

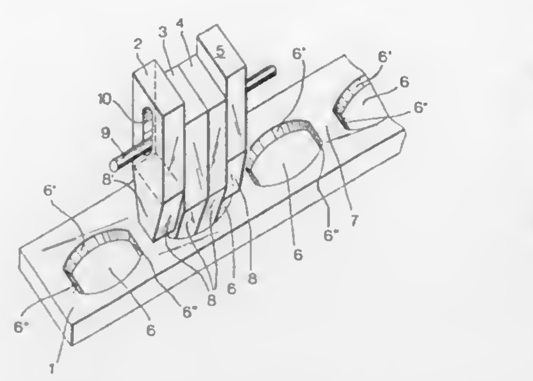
Int. Cl.⁶ B60N *2/08*

U.S. Cl. 74—527 **10 Claims**

1. Locking device for car seats for use in motor vehicles, the seats having two parts which can be adjusted continuously relative to each other, said locking device comprising:

a) a rail having a longitudinal direction and a span and a plurality of snap-in holes which are separated from each other by web-like material sections, said web-like material sections having the same width in the longitudinal direction of the rail;

b) locking teeth which can be moved in a direction of movement relative to said rail at right angles to the rail span, such that, at least one of said teeth drops into one of the snap-in holes in a locking position and in this locking position rests against said snap-in hole without play in a direction of adjustment, whereby at least one of a surface making contact is sloped relative to said locking teeth direction of movement; wherein



c) the span of said snap-in holes is greater in the longitudinal direction of said rail than a dimension of each locking tooth in the longitudinal direction; wherein

d) an inside width of the snap-in holes changes continuously in the longitudinal direction of the rail, said inside width being measured at right angles to the longitudinal direction of the rail; and wherein

e) surfaces, resting against each other without play in one locking direction and in a locking position, are formed by at least one of two longitudinal sides, defining the inside width of the snap-in holes, and at least one of two locking tooth-contact areas facing the longitudinal sides.

5,782,139

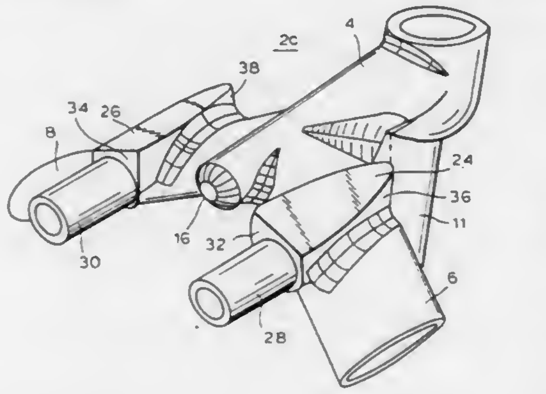
BICYCLE HANDLEBAR CENTERPIECE

Peter G. Fraiman, 18705 S.E. 284th Pl., Kent, Wash. 98042

Continuation of Ser. No. 524,216, Sep. 6, 1995, abandoned. This application Jan. 27, 1997, Ser. No. 789,736

Int. Cl.⁶ B62K *21/12*

U.S. Cl. 74—551.1 **46 Claims**



1. A centerpiece for a bicycle handlebar, for receiving a pair of separate left and right handlebar sections, the handlebar sections having, in transverse cross-section, a rounded leading edge and a tapered trailing edge, the centerpiece comprising:

left and right lugs having respective elongated mating portions for overlappingly receiving corresponding elongated mating portions of the left and right sections of the handlebar, respectively,

each of the lugs having a transverse cross-section having a rounded leading edge and a tapered trailing edge for corresponding to the transverse cross-section of the left and right handlebar sections to be received thereon, respectively.

5,782,140

STEERING WHEEL CORE METAL UNIT

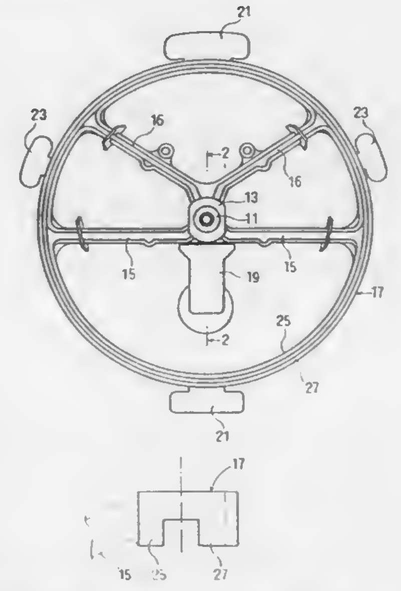
Tooru Koyama, Aichi-ken, and Kenji Mori, Gifu, both of Japan, assignors to Toyoda Gosei Co., Ltd., Nishikasugai-gun, Japan

Filed Mar. 19, 1996, Ser. No. 617,604

Claims priority, application Japan, Mar. 29, 1995, 7-072044

Int. Cl.⁶ B62D *1/04*

U.S. Cl. 74—552 **12 Claims**



7. A steering wheel core metal unit comprising:

a boss portion,

a connecting section,

a plurality of spoke sections connected to said connecting section, and

a ring section connected to said plurality of spoke sections,

said connecting section, said plurality of spoke sections and said ring section being integrally formed by die-casting molten metal, with said boss portion serving as an insert,

said ring section comprising an inside rib, an outside rib and a cross-sectional area of said outside rib being larger than that of said inside rib so that during die-casting, entrained air and molten metal may move toward an outer periphery of said ring section.

5,782,141

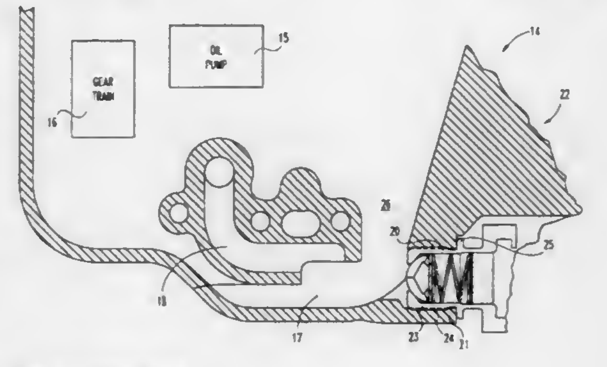
ENGINE HAVING A NON-INTRUSIVE SELF CLOSING VALVE FOR MAGNETIC CHIP DETECTORS

Ronald J. Schoolcraft, Martinsville, Ind., assignor to Allison Engine Company, Indianapolis, Ind.

Filed Mar. 6, 1995, Ser. No. 398,751

Int. Cl.⁶ F16H *57/02;* **B03C** *1/30*

U.S. Cl. 74—606 R **39 Claims**



29. In combination:

an engine;

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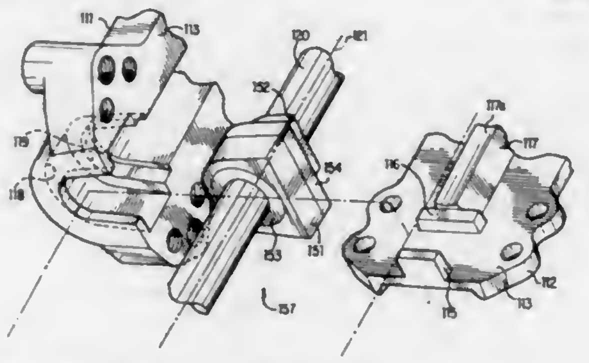
- a gear train coupled to said engine;
- a mechanical housing having an interior, said mechanical housing having said gear train disposed therein;
- passageway extending through said mechanical housing for allowing access to said interior of said mechanical housing; and
- a valve positioned relative to said passageway so as not to extend substantially into said interior of said mechanical housing and being closable to prevent the loss of fluid from said interior of said mechanical housing, said valve comprising:
  - a body having an aperture therethrough aligned with said passageway, said valve body having a sealing surface therein adjacent said aperture;
  - a plurality of interengaging doors positioned within said aperture for controlling the flow of fluid therethrough, said plurality of doors having an outer surface that is normally spring biased against said sealing surface to form a substantially fluid tight seal, wherein said plurality of doors are moveable along a surface of said body.

5,782,142
AXLE DRIVING APPARATUS

Robert Abend, Morristown, Tenn.; Hiroaki Shimizu, and Norihiro Ishii, both of Amagasaki, Japan, assignors to Tuff Torq Corporation, Morristown, Tenn., and Kanzaki Kokyukoki Mfg. Co., Hyogo, Japan

Filed Apr. 12, 1996, Ser. No. 631,258
Int. Cl.^{6} F16H *57/02*
U.S. Cl. 74—607 **39 Claims**



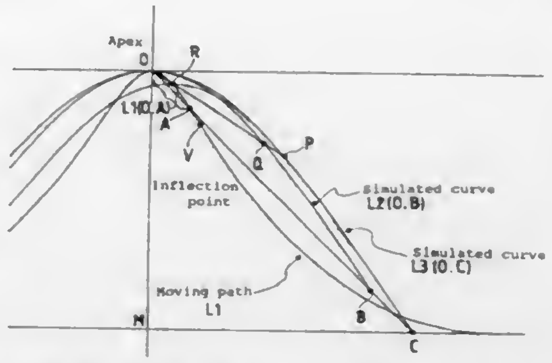
15. An axle driving apparatus, comprising:
- first and second casing sections joined along a junction surface to form a casing, wherein the junction surface of said first and said second casing sections lies in a first plane;
- an axle disposed within one of said first and second casing sections and having a longitudinal axis which lies in a second plane different from said first plane;
- a transmission housed within said casing;
- a seal supporting device and axle supporting device which are integral with each other and which are disposed within said casing between said axle and said casing.

5,782,143
FLEXIBLE MESHING TYPE GEAR DEVICE WITH NEGATIVE DEFLECTION PASSING TOOTH PROFILE

Shoichi Ishikawa, Nagano-ken, Japan, assignor to Harmonic Drive Systems, Inc., Tokyo, Japan

PCT No. PCT/JP94/02141, § 371 Date Oct. 3, 1996, § 102(e) Date Oct. 3, 1996, PCT Pub. No. WO96/19683, PCT Pub. Date Jun. 27, 1996

PCT Filed Dec. 19, 1994, Ser. No. 687,485
Int. Cl.^{6} F16H *1/32;55/08*
U.S. Cl. 74—640 **14 Claims**



1. A flexible meshing type gear device with negative deflection passing tooth profile having a rigid internal gear, a flexible external gear inside the internal gear and a wave generator for flexing a section of the external gear perpendicular to its axis into an elliptical shape, causing the flexible external gear to mesh partially with the rigid internal gear and rotating mesh positions of the two gears in a circumferential direction, the rotation of the wave generator producing relative rotation between the two gears, characterized in being provided with the following structural features:
- (a) an amount of radial flexing (w) in a basic section defined perpendicular to a flexible external gear axis at a prescribed point on a tooth trace of the gear is defined to be an amount of negative deviation flexing smaller than a normal amount of flexing (W_0).
- (b) the rigid internal gear and the flexible external gear are both spur gears,
- (c) a number of teeth of the flexible external gear is 2n (n being a positive integer) fewer than that of the rigid internal gear,
- (d) a working tooth profile of either one of the rigid internal gear or the flexible external gear, called a first gear, is defined to be a convex curve whose shape approximates a convex curve obtained by similarity transformation of a peak portion of a rack-approximated moving path of a tooth of the gear with respect to the other gear, called a second gear, in the basic section of the tooth trace perpendicular to the axis, the portion being convex relative to the second gear, at an enlargement ratio (λ) using an apex of the moving path as an origin, and
- (e) the working tooth profile of the second gear is defined to be a concave curve whose shape approximates a concave curve obtained by similarity transformation of the same portion of the moving path at an enlargement ratio (λ+1) using the apex of the moving path as the origin, whereby meshing of the tooth profiles of the first and second gears is pass messing enabling continuous contact in the basic sector perpendicular to the axis.

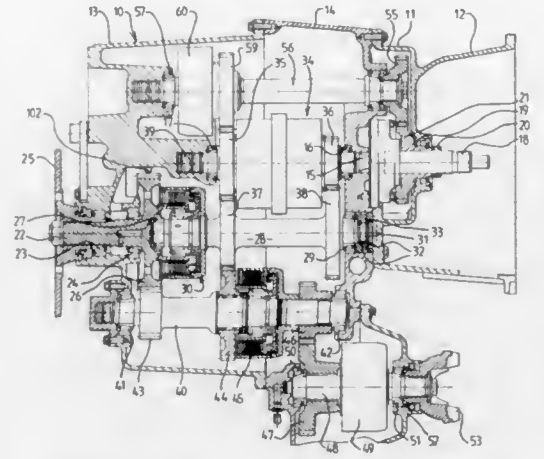
5,782,144
VEHICLE TRANSMISSION

Anthony Wrathall, Wrexham, and John Pius Burke, Whitchurch, both of United Kingdom, assignors to JCB Transmissions, Staffordshire, United Kingdom

Filed Aug. 20, 1996, Ser. No. 700,226

Claims priority, application United Kingdom, Aug. 26, 1995, 9517582

Int. Cl.^{6} F16H *3/08*
U.S. Cl. 74—664 **16 Claims**



1. A vehicle transmission comprising:
- a first input for connection to a prime mover of the vehicle;
- an output for connection to ground-engaging wheels of the vehicle;
- multi-ratio transmission means operable to provide a driving connection, at a selected one of a number of gear ratios, between said first input and said output;
- a further input for connection to the prime mover of the vehicle;
- means operable to provide a driving connection between said further input and said output via at least part of said multi-ratio transmission means;
- wherein the driving connection between the further input and said output of the transmission provides a higher transmission ratio than the highest gear ratio provided by the multi-ratio transmission means between the first input of the transmission and said output; and
- the multi-ratio transmission means is operable to select a required ratio under the control of a driver of the vehicle, whilst the means providing a driving connection between the further input and output is arranged to be brought into operation, and the driving connection between the first input and the output discontinued, only when the driver has selected the highest gear ratio of the multi-ratio transmission means.

5,782,145
PROCESS FOR THE FABRICATION OF A MULTI-BLADE TOOL

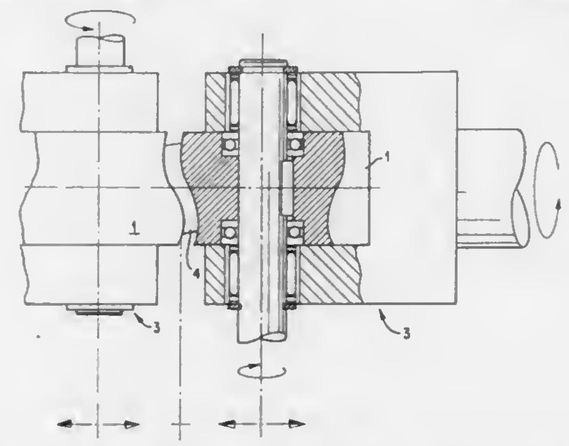
Karl Metzger, Wiesenstr. 68, Albstadt, Germany, D-72461

PCT No. PCT/DE95/01006, § 371 Date Jul. 8, 1996, § 102(e) Date Jul. 8, 1996, PCT Pub. No. WO96/07504, PCT Pub. Date May 14, 1996

PCT Filed Aug. 2, 1995, Ser. No. 640,739

Claims priority, application Germany, Sep. 6, 1994, 44 31 756.5; Dec. 8, 1994, 44 43 736.6

Int. Cl.^{6} B23B *51/02;* **B23P** *15/32*
U.S. Cl. 76—108.6 **13 Claims**

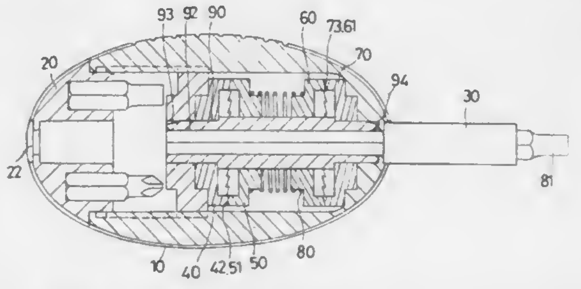


1. A process for fabricating a multi-blade tool, said tool having an axis of rotation, said process comprising the steps of:
- hot extruding a profile having a cross-section which corresponds to an untwisted cross-section of the tool; and
- twisting at least a portion of said profile about said axis of rotation via at least two sets of rollers, each of said sets of rollers being spaced apart from each other along a longitudinal axis coaxial with said axis of rotation of said tool, each said set of rollers comprising at least two rollers, said rollers of each said set of rollers being spaced apart from each other radially with respect to said longitudinal axis to define a space therebetween corresponding to a twisted cross-section of the tool wherein said twisting step is conducted immediately following said hot extruding step.

5,782,146
RATCHET SCREW DRIVER

Ching Chou Lin, No. 150, Sec. 3, Chung San Road, Wu Zh Hsiang, Taichung Hsien, Taiwan

Filed Feb. 19, 1997, Ser. No. 802,093
Int. Cl.^{6} B25B *13/46*
U.S. Cl. 81—58.3 **4 Claims**

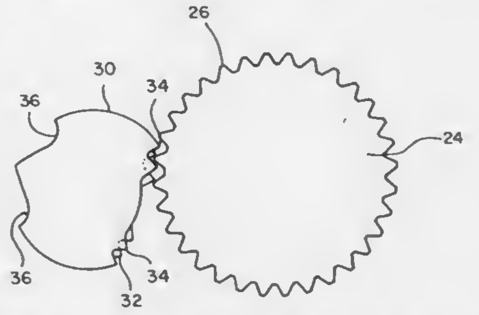


1. A ratchet screw driver comprising:
- a handle including a bore and including a front portion and including a rear portion,
- two rings engaged in said front portion and said rear portion of said handle respectively and rotated in concert with said handle, said rings each including a plurality of ratchet teeth, said ratchet teeth of a first of said rings being arranged opposite to that of a second of said rings,
- a barrel rotatably engaged in said rings and including a non-circular middle portion.
- two followers slidably engaged on said middle portion of said barrel and rotated in concert with said barrel, said followers each including a plurality of ratchet teeth for engaging with said ratchet teeth of said rings respectively,
- means for biasing said followers toward said rings, and
- an extension engaged with said barrel,
- said extension being adapted to be rotated by said handle when said handle is rotated in an active direction, and said followers being forced toward each other against said biasing means when said handle is rotated in a reverse direction.

5,782,147
RATCHET WRENCH HAVING TWO-PANEL ACTION

Peter Constantine Chaconas, Glyndon, Md., and James A. Van Lenten, Lancaster, Pa., assignors to Hand Tool Design Corporation, Wilmington, Del.

Filed Nov. 21, 1996, Ser. No. 754,646
Int. Cl.^{6} B25B *13/46*
U.S. Cl. 81—63.1 **14 Claims**



1. A ratchet wrench having a head, the head having a bottom, a first opening formed in the head, a second opening formed in the head communicating with the first opening,

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at least one gear disposed in the first opening, the at least one gear having a plurality of teeth formed axially thereon,

a plurality of pawls disposed in a stacked arrangement in the second opening, each pawl having a set of teeth oriented toward, and engageable with, the teeth on the at least one gear,

a lever engaged with the plurality of pawls wherein rotation of the lever simultaneously moves the plurality of pawls between a forward and a reverse position,

wherein the teeth on the pawls work conjointly and alternately engage the teeth on the at least one gear as the wrench is ratcheted, thereby producing a reduction in the backswing arc of the ratchet wrench.

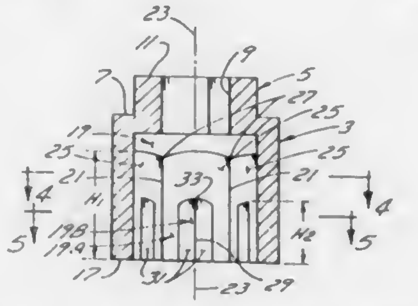
5,782,148
DUAL DEPTH SOCKET

Edward Kerkhoven, 4414 Ridge Road, Fournier, Ontario, Canada, K0B 1G0

Filed Jul. 17, 1996, Ser. No. 682,427

Int. Cl.^{6} B25B *13/00;13/58*

U.S. Cl. 81—124.6 **20 Claims**



1. A wrench socket having a fastener element receiving recess of uniform size extending inwardly from one end face of the socket, the fastener element receiving recess having a first set of equally spaced-apart long points on its inner surface, the set of long points parallel to the longitudinal axis of the recess and extending inwardly from the one end face for a length that is substantially greater than the height of the fastener element that fits within the recess; a second set of equally spaced-apart short points, equal in number to the first set of long points, on the inner surface of the recess, parallel to the set of long points but laterally spaced therefrom, the second set of short points extending inwardly from the end face for a length that allows axial pressure to be applied to the fastener element by the inner ends of the short points; the number of short and long points each equal in number to the number of corners on the fastener element that fits within the recess so that the same fastener element can be selectively held by the long or short points within the recess.

5,782,149
ELECTROMAGNETIC SCREWDRIVER

Phillip D. Jensen, 13926 W. Warren Dr., Lakewood, Colo. 80228

Filed Oct. 9, 1996, Ser. No. 728,141

Int. Cl.^{6} B25B *13/06*

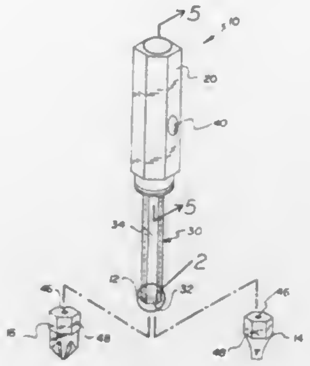
U.S. Cl. 81—125 **5 Claims**

5. An electromagnetic screwdriver, comprising:

a handle having a hollow interior adapted to hold a number of batteries:

a shaft extending from the handle, the shaft having a tool head receiving distal end;

electrical wiring leading from the hollow interior to the tool head receiving end, the electrical wiring adapted to form an electrical connection with batteries held within the hollow interior, the electrical wiring further formed to include an electrical coil within the shaft proximate the distal end, the



electrical wiring further having a positive and negative contact exposed within the tool head receiving end;

a tool head removably coupled to the tool head receiving end, the tool head having a positive and a negative receptacle positioned to align with the positive and negative contacts within the tool head receiving end; and

a switch positioned on the handle, the switch in communication with the electrical wiring such that utilization of the switch completes the electrical circuit to allow current to pass from the batteries to the electrical wiring, electrical coil, and tool head.

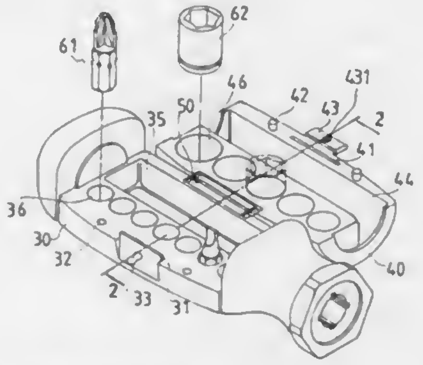
5,782,150
SCREW DRIVER HANDLE

Yung Hsu Huang, No. 10, Lane 38, Li Der Street, Taiping City, Taichung Hsien, Taiwan

Filed Feb. 19, 1997, Ser. No. 802,092

Int. Cl.^{6} B25B *23/16;* **B25G** *1/08*

U.S. Cl. 81—177.4 **1 Claim**



1. A tool handle comprising:

a base and a cap pivotally coupled together at a folding line, said base including a side edge opposite to said folding line, said side edge of said base including a flange extended upward and including at least one puncture and including a latch extended outward, said base including a plurality of holes for partially receiving tool bits and including a chamber,

said cap including a side edge corresponding to that of said base and opposite to said folding line, said side edge of said cap including a groove for engaging with said flange of said base and including at least one projection for engaging with said puncture of said base and including an ear having an orifice for engaging with said latch and for securing said cap to said base and for allowing said cap to be solidly secured to said base, said cap including a plurality of cavities for partially receiving tool bits and for allowing tool bits to be easily disengaged from said base, said cap including a space,

said chamber of said base being aligned with said cavities of said cap and said space of said cap being aligned with said holes of said base for engaging with the tool bits when said cap is secured to said base.

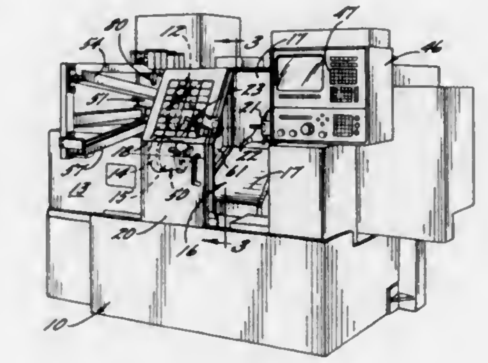
5,782,151
WORKPIECE TRANSFER APPARATUS

Yoshio Shiramasa, Fuchu, Japan, assignor to Kitagawa Iron Works Co., Ltd., Japan

Filed Aug. 7, 1995, Ser. No. 511,644

Int. Cl.^{6} B23B *13/02;13/10;13/12;15/00*

U.S. Cl. 82—124 **27 Claims**



1. An apparatus for transferring a workpiece between two positions which are offset from each other, and comprising

a machine frame,

a gripper arm including at least one gripper jaw assembly for releasably engaging and supporting a workpiece,

means mounting said gripper arm to said machine frame for selective movement about an axis which is fixed with respect to said machine frame, and for selective axial movement in the direction of said axis, said mounting means comprising

(a) a drive shaft mounted for rotation about said axis and having at least one helical thread and at least one longitudinal thread on the surface thereof,

(b) a first nut mounted on said drive shaft and fixed against axial movement along the axis and having an internal thread engaging said one helical thread of said shaft,

(c) a first reversible drive motor for selectively rotating said first nut so as to cause said shaft to axially advance or retract,

(d) a second nut mounted on said shaft and fixed against axial movement along the axis and having an internal thread engaging said one longitudinal thread of said drive shaft,

(e) a second reversible drive motor for selectively rotating said second nut and so as to cause rotational movement of said shaft about the axis.

23. A machine tool having provision for transferring a workpiece to and from a machining station and comprising

a machine frame,

a workpiece transfer means mounted to said machine frame and defining a transfer station,

a chuck mounted to said machine frame for engaging and supporting a workpiece during a machining operation,

at least one panel mounted to said machine frame so as to have said transfer station on one side thereof and said chuck on the other side thereof, said one panel having only one opening therethrough adjacent said transfer station,

a gripper arm including first and second gripper jaw assemblies for releasably engaging and supporting a workpiece,

means mounting said gripper arm to said machine frame so that said gripper arm is on the same side of said panel as said chuck and for movement between a first position wherein said first and second gripper jaw assemblies extend through said one opening and are adjacent said transfer station, and a second position wherein said first and second gripper jaw assemblies are adjacent said chuck, and

said gripper arm and said panel having mating surfaces which form a seal surrounding said one opening when said gripper arm is in said first position and said first and second gripper law assemblies extend through said one opening so as to preclude debris from passing through the opening during the machining operation.

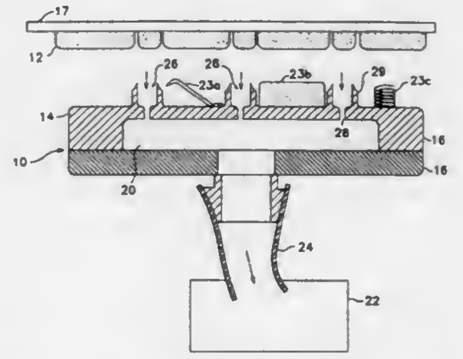
5,782,152
VACUUM FIXTURE AND METHOD FOR DIMENSIONING AND MANIPULATING MATERIALS

Bradley E. Reis, and Steven C. Hoover, both of Wilmington, Del., assignors to W. L. Gore & Associates, Inc., Newark, Del.

Division of Ser. No. 515,757, Aug. 15, 1995, Pat. No. 5,660,380. This application Feb. 24, 1997, Ser. No. 804,591

Int. Cl.^{6} B26D *7/08*

U.S. Cl. 83—22 **8 Claims**



1. A method for dimensioning a thermally conductive material and for manipulating the dimensioned thermally conductive material for exact placement on a surface of an object of interest, the method comprising the following steps:

providing a thermally conductive material having at least one layer of adhesive disposed on a surface thereof for securing said thermally conductive material to the object of interest;

providing a fixture having a manifold and a working surface, the working surface fluidly communicating with the manifold;

providing a patterned cutting element on the working surface;

connecting the manifold to a reversible gas flow supply;

drawing a vacuum within the manifold with the reversible gas flow supply;

cutting the thermally conductive material with the patterned cutting element thereby fixedly locating the thermally conductive material within the patterned cutting element;

precisely positioning the thermally conductive material in a predetermined location on the surface of the object of interest;

ceasing the vacuum at a predetermined time when the thermally conductive material is precisely positioned on the surface so that the thermally conductive material may be removed from the cutting element; and

removing the thermally conductive material from the cutting element.

5,782,153
DESK-TOP CIRCULAR SAW INCLUDING CHIP DISCHARGING MEANS

Katsuhiko Sasaki; Kiyotaka Ichikawa; Atsushi Yamada, and Toshiyuki Kani, all of Anjo, Japan, assignors to Makita Corporation, Anjo, Japan

Filed Jun. 4, 1996, Ser. No. 657,944

Claims priority, application Japan, Jun. 8, 1995, 7-142076

Int. Cl.^{6} B23D *45/04*

U.S. Cl. 83—162 **13 Claims**

1. A desk-top circular saw comprising

a saw blade assembly having a neck,

a base having a front end and a rear end and defining an axis,

an arm extending from said rear end of said base, said arm having a top end distal from said base and a front face and a rear face, said neck of said saw blade assembly being pivotably mounted to said top end of said arm such that said saw blade assembly is vertically pivotable about a pivot axis, and

chip discharge means for removing chips from said saw, said chip discharge means including

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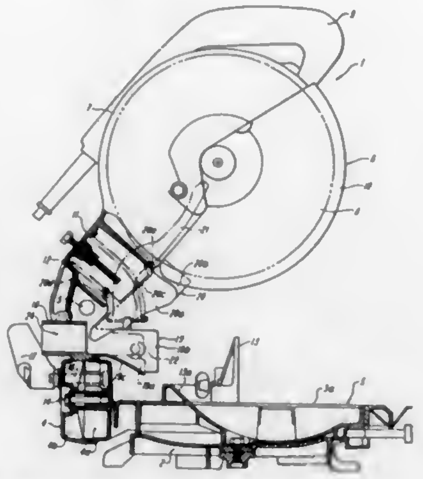


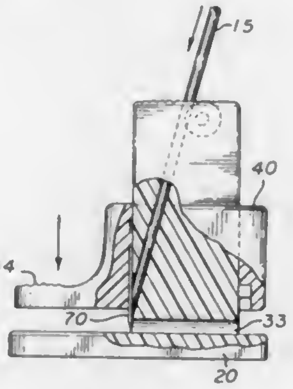
means defining an opening in said arm, said opening providing communication between said front face of said arm and said rear face of said arm, and

a chip guide mounted to said neck and being pivotable with said neck about said pivot axis, said saw generating chips during operation, said chip guide having a surface designed to deflect said chips into said opening.

5,782,154

NAIL STICK TRIMMER

Judy M. Hansen, 346 Eastwood Ter., Boca Raton, Fla. 33431
Filed Jan. 7, 1997, Ser. No. 779,792
Int. Cl.^{6} B26D *7/00*
U.S. Cl. 83—167 **4 Claims**



1. A device for trimming an end zone of a nail stick having a central longitudinal axis comprising:

a base portion including a top surface disposed in a horizontal plane;

a tower extending vertically upward from said top surface of said base portion and including a top end, opposite side faces, a rear face, a front face, and a bottom end adjacent said top surface of said base portion;

a first channel extending from an upper opening at said top end of said vertical tower to said top surface of said base portion and exiting said vertical tower at a lower opening formed in a lower portion of said front face of said tower, adjacent said bottom end, said first channel extending from said top end to said top surface of said base portion at an angle less than 90° and greater than 0° relative to said horizontal plane;

a second channel extending horizontally through a lower portion of said tower in horizontal, parallel relation to said top surface of said base portion, said second recess on said front face adjacent said bottom end;

a blade carrier slidably supported on said tower and including a blade supported thereon, said blade carrier being structured and disposed for reciprocating downward and upward movement on said tower to move said blade along a cutting plane parallel to said front face and adjacent to said lower opening and said recess of said first and second channels, respectively;

said first channel being structured and disposed for receipt of said nail stick therethrough so that said end zone of said nail stick extends from said lower opening and beyond said cutting plane with said central longitudinal axis disposed at an angle of less than 90° relative to said cutting plane; and

said second channel being structured and disposed for receipt of said nail stick therethrough so that said end zone of said nail stick extends outwardly from said recess and beyond said cutting plane with said central longitudinal axis disposed at an angle perpendicular to said cutting plane.

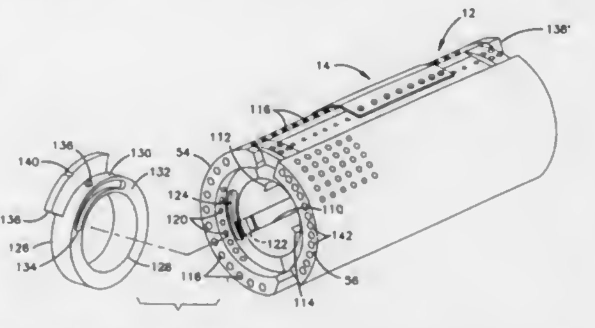
5,782,155

Patent Not Issued For This Number

5,782,156

FLEXIBLE DIE AND SUPPORTING CYLINDER

Robert W. Collins, Overland Park, Kans., assignor to Winkler & Dunnebier, Germany
Continuation of Ser. No. 227,263, Apr. 13, 1994, abandoned. This application Dec. 11, 1996, Ser. No. 764,644
Int. Cl.^{6} B26D *7/26;1/62*
U.S. Cl. 83—331 **14 Claims**



8. A blank forming apparatus comprising a flexible die, a mounting bar and a cylinder, said flexible die having a plurality of apertures therein, said die positioned on an outer surface of a support segment of said cylinder, said bar attached to said cylinder within a groove in said cylinder, said apparatus further including a plurality of pins extending radially outwardly from an outer surface of said bar and through said apertures in said die, and further including means for adjustably positioning said bar on said cylinder in said groove.

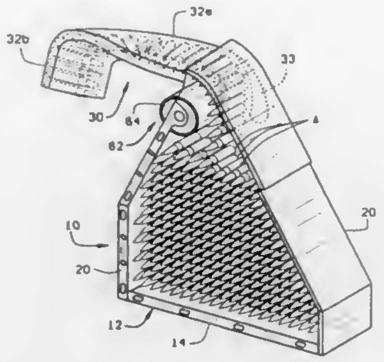
5,782,157

CHUTING ASSEMBLY FOR AMMUNITION MAGAZINE FEED

Thomas W. Ellington, Alton, and Edward V. Carter, Edwardsville, both of Ill., assignors to Esco Electronics Company, St. Louis, Mo.
Filed Apr. 2, 1997, Ser. No. 832,382
Int. Cl.^{6} F41A *9/30;9/34*
U.S. Cl. 89—33.16 **29 Claims**

1. A magazine and feed mechanism storing ammunition for a weapon and feeding the ammunition to the weapon when the weapon is fired comprising:

a magazine storing a plurality of rounds of ammunition, individual rounds of said ammunition being linked together on an ammunition belt by which said rounds of ammunition are fed to the weapon during firing;



feed means including a feed chute positioned above said magazine vertically extracting said linked rounds of ammunition from said magazine, said feed chute being a rigid feed chute having a fixed fan radius through which said belt of ammunition is drawn;

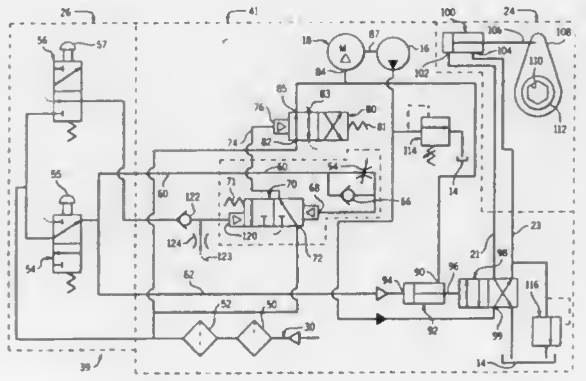
drive means engaging said belt of ammunition to draw said linked ammunition from said magazine up through said rigid chute to the weapon, use of said rigid chute enabling ammunition to be fed to the weapon regardless of the weapon's angle of elevation and eliminating feed problems caused by tip-over of the belted ammunition which may otherwise stop the weapon from firing and jamming of the weapon during firing due to misalignment of links of the ammunition and stretching of the ammunition belt; and,

a switch within said magazine actuated by movement of the last of round of ammunition on a belt from its storage position in the magazine to provide an indication thereof and facilitate reloading of the magazine.

5,782,158

AIR OPERATED HYDRAULIC TORQUE WRENCH PUMP

Lawrence P. Rothering, New Berlin, Wis., assignor to Applied Power Inc., Butler, Wis.
Filed Sep. 20, 1996, Ser. No. 717,310
Int. Cl.^{6} F15B *21/02*
U.S. Cl. 91—38 **10 Claims**

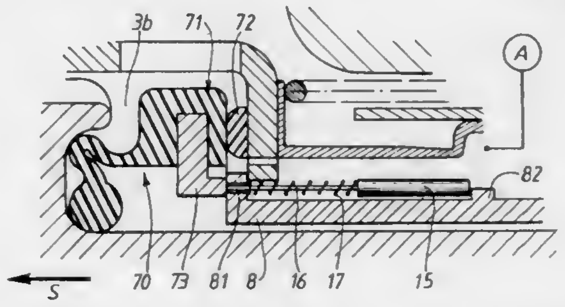


1. A compressed air-powered hydraulic torque wrench apparatus of the type having an air motor which drives a hydraulic pump for supplying hydraulic fluid under pressure to a hydraulic torque wrench and having controls including an advance actuator which when actuated supplies a flow of hydraulic fluid under pressure to said wrench to cause said wrench to advance in rotation and when deactuated cuts off said flow of hydraulic fluid to cause said wrench to terminate advancement in rotation, the improvement wherein said controls continue operation of said air motor after said advance actuator is deactuated and said wrench has terminated advancement in rotation to drive said hydraulic pump until a post-advance period of operation has expired.

5,782,159

PNEUMATIC BOOSTER WITH INERTIAL VALVE

Jean Pierre Gautier, and Ulysse Verbo, both of Aulnay-Sous-Bois, France, assignors to Bosch Systems De Freinage, Drancy, France
PCT No. PCT/FR96/00377, § 371 Date Apr. 10, 1996, § 102(e) Date Apr. 10, 1996, PCT Pub. No. WO96/33895, PCT Pub. Date Oct. 31, 1996
PCT Filed Mar. 12, 1996, Ser. No. 624,568
Claims priority, application France, Apr. 25, 1995, 95 04904
Int. Cl.^{6} F15B *9/10*
U.S. Cl. 91—369.1 **1 Claim**



1. A pneumatic booster comprising: a rigid casing divided in leaktight fashion into at least first and second variable-volume working chambers, said first variable-volume working chamber being is connected to a first pressure source delivering a first pressure, and the second variable-volume working chamber being connected selectively, by means of a three-way valve, to said first pressure source or to a second pressure source delivering fluid at a pressure different from said first pressure, a moving partition separating the said first and second variable-volume working chamber inside the casing and capable of being urged by a pressure difference established selectively between said first and second variable-volume working chamber through the actuation of said three-way valve; a pneumatic piston which can move with said moving partition and which contains the three-way valve, said three-way valve comprising a tubular shutter having a first end which is selectively applied to a first seat in order selectively to prevent and to allow a flow between said second pressure source and the second chamber; an operating rod housed in said piston and moveable in a first axial direction to control the actuation of the three-way valve by means of a plunger capable of moving said first end of the tubular shutter away from said first seat; a push rod moveable in the first axial direction to receive and thereafter transmit an output force oriented in a first axial direction; and reaction means interposed between said operating rod and said push rod in order to apply to said operating rod a reaction which increases with the output force, characterized in that said shutter has a freedom of movement with respect to said plunger in said first axial direction and is urged elastically against said plunger in a second direction which is the opposite said first axial direction said first end of said shutter being connected to a mass which can be set in motion by a movement of said plunger in said first axial direction in order to push said first end of said tubular shutter back away from said plunger to increase the flow of air between said second pressure source and said second chamber.

5,782,160

ADJUSTABLE STOP FOR VARIABLE DISPLACEMENT PUMPS

Nick L. Boone, Omaha, Nebr., assignor to Vickers, Incorporated, Maumee, Ohio
Filed May 28, 1997, Ser. No. 864,246
Int. Cl.^{6} F01B *3/00*
U.S. Cl. 92—12.2 **14 Claims**

1. An adjusting member for limiting maximum yoke angle in a hydraulic pump, said adjusting member comprising:

a control piston for inclining a yoke so as to define a desired yoke angle;

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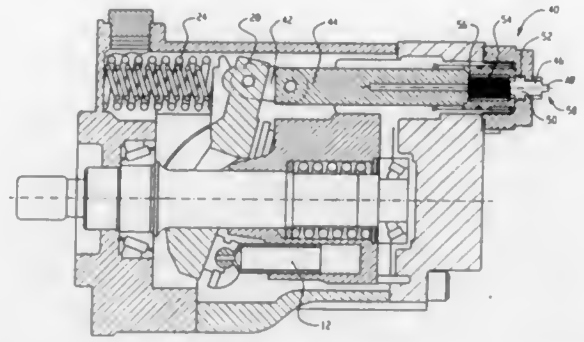


- a stop means having threads and retained within said control piston;
- an adjusting screw for rotational motion comprising:
  - an oversized diametrical section for retaining said adjusting screw reciprocally stationary against a pump housing;
  - a threaded portion for engaging the threads of the stop means, wherein rotation of the adjusting screw advances the stop means, thereby displacing the control piston for inclining the yoke.

8. A hydraulic pump having a housing comprising:
- at least one piston for receiving and discharging fluid;
- a yoke, inclined at a predetermined yoke angle, in order to displace the at least one piston to create hydraulic flow, wherein piston displacement and hydraulic flow are varied by varying yoke angle;
- an adjusting member for varying yoke angle, said adjusting member comprising:
  - a control piston for inclining the yoke so as to define a predetermined yoke angle;
  - a stop means having threads and retained within said control piston;
  - an adjusting screw for rotational motion comprising:
    - an oversized diametrical section for retaining said adjusting screw reciprocally stationary against the pump housing;
    - a threaded portion for engaging the threads of the stop means, wherein rotation of the adjusting screw advances the stop means, thereby displacing the control piston for inclining the yoke.

5,782,161
AXIAL PLUNGER PUMP WITH A PARTITION BETWEEN THE LUBRICATING CHAMBER AND THE WORKING FLUID CHAMBER

Yoshio Okubo, Atsugi; Toshiaki Hori, Hadano; Hiroyuki Watanabe, Sagamihara; Hirokazu Akiba, Atsugi, and Mizuo Ohtaki, Hiratsuka, all of Japan, assignors to Unisia Jecs Corporation, Atsugi, Japan

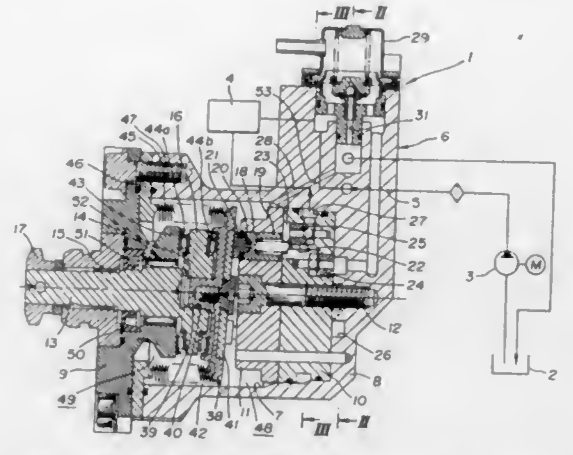
Filed Dec. 23, 1996, Ser. No. 771,918

Claims priority, application Japan, Dec. 28, 1995, 7-342693; Jun. 7, 1996, 8-145674

Int. Cl.⁶ F01B *3/02*

U.S. Cl. 92—71 **10 Claims**

1. An axial plunger pump, comprising:
- a housing;
- a drive shaft rotatably supported to said housing;
- a cam plate fixedly mounted to said drive shaft at an end thereof;
- a cylinder block fixedly mounted to said housing to face said cam plate;
- a plunger axially movably arranged through said cylinder block, said plunger being pressed by rotation of said cam plate to inhale and discharge working fluid, said plunger having on a side of said cam plate formed with a recess;
- an auxiliary plate mounted to said cam plate at an end thereof on a side of said cylinder block, said auxiliary plate being rotatable relative to said cam plate; and
- a flexible partition member interposed between said housing and said auxiliary plate to cover said drive shaft and said cam plate, said flexible partition member serving to divide an inside of said housing into a working fluid chamber and a lubricant chamber.



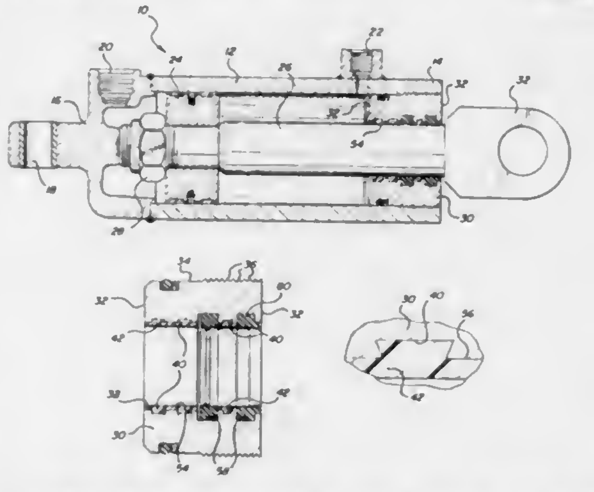
5,782,162
CYLINDER PISTON ROD GUIDE

Eddy R. Lanteigne, Sterling Heights; Dwain L. Chalker, Madison Heights; Terrance W. Rudd, Rochester Hills, and Roger R. Schumacher, Bloomfield Hills, all of Mich., assignors to Dynamic Seals Incorporated, Troy, Mich.

Filed Jun. 12, 1996, Ser. No. 661,996

Int. Cl.⁶ F16J *15/18*

U.S. Cl. 92—168 **8 Claims**



1. A guide (**30**) for surrounding and sealing a rod (**26**) in the end of a hydraulic cylinder (**12**) including a piston (**24**) slidably disposed in the cylinder (**12**) and attached to the end of the rod (**26**), said guide (**30**) comprising;
- end faces (**32**) interconnected by an outer mounting surface (**34**, **36**) and an inner guide bore (**38**),
- at least one annular channel (**40**) in said guide bore (**38**),
- an organic polymeric bearing material (**42**) disposed in said guide bore (**38**),
- said bearing material (**42**) and said channel (**40**) including a mechanical interlock in the radial direction to exert a radial retaining force from said channel (**40**) to said bearing material (**42**) to establish a force fit in the radial direction between said channel (**40**) and said bearing material (**42**),
- at least a portion (**34**) of said mounting surface having closer tolerances than the tolerances of said guide bore (**38**) and said bearing material (**42**) having a closer tolerance than said portion (**34**) of said mounting surface so that said bearing material (**42**) is in closer tolerance concentric relationship to said portion (**34**) of said mounting surface than said guide bore (**38**).

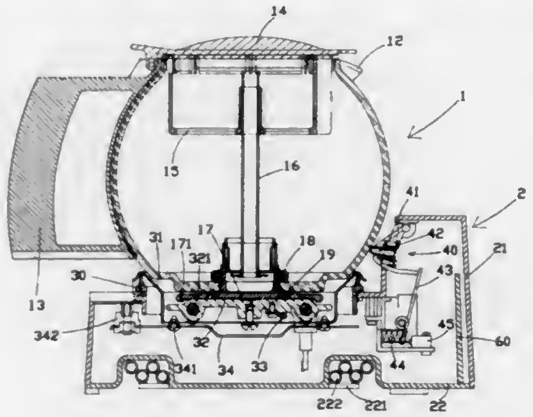
5,782,163
COFFEE MAKER

Kwei-Tang Chang, No. 14, Lane 54, Luong Chuan St., Panchiao, Taipei Hsien, Taiwan

Filed Dec. 26, 1996, Ser. No. 774,006

Int. Cl.⁶ A47J *31/10;31/00*

U.S. Cl. 99—281 **8 Claims**



1. A coffee maker comprising a carafe having a hot plate at a bottom side thereof on the outside and a downward annular flange raised from the bottom side around said hot plate, and a brewing and warming unit, wherein said brewing and warming unit comprises:
- a base, an annular heat insulating rack raised from said base and defining a plurality of head dissipating holes, a concave heat insulating plate mounted within said heat insulating rack and fitting the curvature of the bottom side of said carafe and having a center opening, a mounting plate fixedly mounted inside said base below the center opening of said heat insulating plate, a heating plate fixedly fastened to said mounting plate covered on the center opening of said heat insulating plate and having an electric heating coil on the inside controlled to produce heat for heating said carafe, a heating coil driving circuit controlled to drive said electric heating coil, a heating plate heat sensor fastened to said heating plate to detect its temperature, a detecting mechanism spaced from said mounting plate, and a control panel at one side of said base, said detecting mechanism comprising a substantially conical lever, an aluminum tube coupled to said lever which is disposed in contact with said carafe when said carafe is placed on said heating plate, a carafe heat sensor mounted within said aluminum tube and adapted for detecting the temperature of said carafe, a spring element mounted inside said base, a rocker arm turned about an axis inside said base and forced by the spring element into contact with a bottom side of said lever, a micro switch disposed in contact with one end of said rocker arm, and a control circuit mounted inside said control panel and connected to said micro switch, said control panel comprising an on/off switch for power control, a power indicator lamp, a brewing indicator lamp and an auto-warming indicator lamp respectively connected to said control circuit, said micro switch being triggered to drive said control circuit when said carafe is placed on said heating plate to move the lever of said detecting mechanism, said control circuit being driven by said micro switch to control the power of said photo coupling switch and said electric heating coil subject to the detection result of said carafe heat sensor and said heating plate heat sensor.

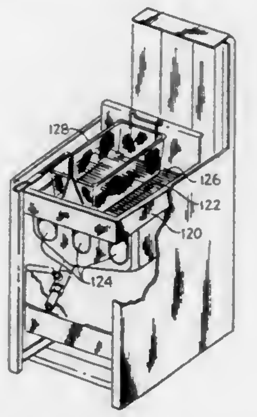
5,782,164
COOKING OIL EXTENDING FILTER FOR A DEEP FAT FRYER

B. Kelly Brintle, La Habra Heights, Calif., assignor to Dentura Foods L.L.C., Industry, Calif.

Division of Ser. No. 488,831, Jun. 8, 1995, Pat. No. 5,629,039. This application Mar. 6, 1997, Ser. No. 812,687

Int. Cl.⁶ A23L *1/00;* **A47J** *37/12;* **C11B** *3/00*

U.S. Cl. 99—330 **16 Claims**



1. A deep fat fryer that includes:
- a fry pot for filling with cooking oil;
- a heater to raise the temperature of cooking oil in said fry pot to a temperature that can cook breaded food products in a batch process;
- a fry basket for retaining food products in the heated cooking oil;
- a filter assembly to purify cooking oil that has been used in said fry pot;
- a pump to return purified cooking oil from said filter assembly to said fry pot, the improvement comprising:
- a fine mesh screen positioned in said fry pot to trap particles of breading that are loose in the cooking oil during cooking, said fine mesh screen including:
  - means that allow quick and easy removal of said fine mesh screen after each cooking batch when the fry basket is removed, whereby the loose particles of breading are removed by the fine mesh screen.

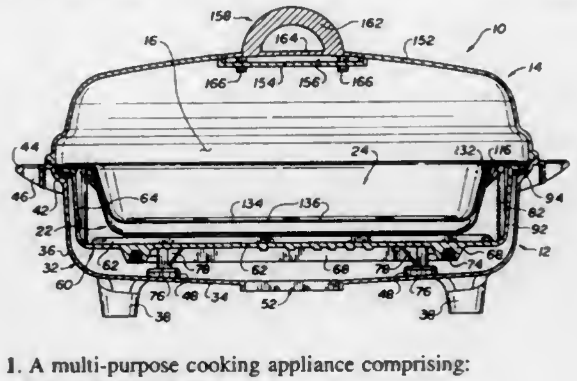
5,782,165
MULTI-PURPOSE COOKING APPARATUS

Daniel T. Glenboski, Cleveland; Mark Cartellone, Rocky River, and Stanley E. Grzywna, Elyria, all of Ohio, assignors to Ever Splendor Enterprises Co., Ltd., Taipei, Taiwan

Continuation-in-part of Ser. No. 938,811, Sep. 1, 1992, Pat. No. 5,323,692. This application Jan. 18, 1994, Ser. No. 182,579

Int. Cl.⁶ A47J *37/00*

U.S. Cl. 99—340 **11 Claims**



1. A multi-purpose cooking appliance comprising:
- a self-supporting base,
- a lid mountable on said base,

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a cooking chamber defined between said base and said lid.

a heat conductive pan within said cooking chamber.

a heat source connected to said heat conductive pan,

removable, elongated skewer means for supporting food within said cooking chamber, said skewer means being formed of a heat conductive material and having a length sufficient to span the length of said conductive pan and rest thereon,

at least one tray including surface means engageable with surface means on said pan to locate and position said tray within said cooking chamber, said tray dimensioned to be spaced from the pan.

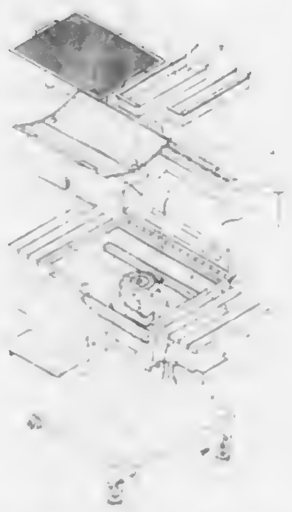
5,782,166
STRUCTURE OF GRILLING APPARATUS

Charlotte Lin, P.O. Box 55-175, Taichung, Taiwan

Filed Feb. 25, 1997, Ser. No. 805,697

Int. Cl.⁶ A47J *37/00;37/07*

U.S. Cl. 99—340 **1 Claim**



1. An apparatus for grilling broilers comprising:

a firebox of a rectangular upper section and a tapered lower section defined by four side walls, including an upper opening and a narrow bottom portion;

a support of roughly U-shaped section centrally projected from the bottom portion including a first central bore in upper portion;

a gas stove disposed to the support and secured to the first central bore by means of a bolt and a washer, said gas stove including a second central bore in a center thereof engageable with first central bore and an inlet communicating to a switch means at a middle outward surface of one of the side walls of said firebox;

a pair of first apertures formed in the proximity of two ends of the bottom portion;

a pair of guide slots formed beneath two ends of the bottom portion communicating to the first apertures respectively;

a pair of oil collection trays slidably engaged into the respective guide slots for collecting grease from the first apertures;

a pair of elongate slots extended along the length of inner surface of a pair of opposing side walls of said firebox each including a first screw hole in an approriate middle portion thereof;

a heat plate of a metallic square flat body horizontally disposed to the pair of elongate slots including a pair of second screw holes engageable with the first screw holes and secured by means of bolts;

an encirclement flange extended inward from inner surface of the four side walls of said firebox;

a rectangular broiler pan of arcuate section releasably disposed on the encirclement flange, said broiler pan being composed of plurality of parallel connected elongate rectangular plate, a pair of roughly L-shaped retaining tabs projected upward from an outward edge of each of two outmost elongate plates engageable with the encirclement flange and a pair of second apertures adjacent two ends of a middle elongate plate thereof made in alignment with the first aperture in the bottom portion of said box for draining off the grease from said broiler pan into said oil collection trays;

a rectangular grid releasably disposed to the opening of said firebox above said broiler pan including a pair of ears centrally projected upward from two ends thereof;

a container selectively disposed between said grid and said broiler pan, said container composed of a cubic rectangular body for containing fresh water therein, an upper opening and a pair of flanges extended outward from two ends of the upper opening engageable with the encirclement flange;

a pair of station members extended outward from two ends of the upper opening of said firebox respectively;

a lid hinged to one side of the upper opening of said firebox for closing said firebox, said lid comprising a hollow tapered body, a lower opening engageable with the upper opening of said firebox, a plurality of louver vents formed spaced apart in one lateral housing for introducing fresh air into and exhausting smoke out of said firebox, and a handle attached to an outer surface of an opposing lateral housing thereof;

a stand for supporting said firebox including a square flat base, a rectangular upright centrally projected upward from the base and axially connected on upper end to a bottom of said firebox, a pair of casters pivotally connected spaced apart to one side of the base and a pair of glides rotatably connected spaced apart to an opposing side of said base;

whereby said firebox is moveable and horizontally adjustable for selectively grilling broilers and steaming food stuff.

5,782,167

Patent Not Issued For This Number

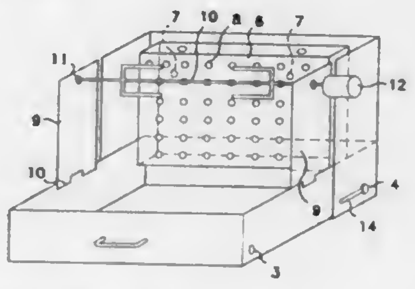
5,782,168
PORTABLE GRILL

Peter S. Krhnak, 11707 Greenlane Dr., Potomac, Md. 20854

Filed Aug. 5, 1997, Ser. No. 906,502

Int. Cl.⁶ A47J *37/00;37/04;37/07*

U.S. Cl. 99—340 **5 Claims**



1. A portable grill comprising:

a base unit including a first pair of opposing sidewall members, a second pair of opposing sidewall members, and a first planar member interconnecting said sidewall members;

a cover unit pivotally connected to said base unit, said cover unit having a plurality of sidewall members and a second planar member interconnecting said sidewall members, wherein said cover unit is pivotable relative to said base unit between a storage position in which said second planar member overlies said first planar member and a cooking position in which said second planar member is substantially perpendicular to said first planar member;

a heating box for receiving a heat source, said heating box being detachably connected to said planar member of said cover unit in said cooking position, and said heating box having an open upper end and a perforated sidewall; and

a pair of detachable support structures mounted on said first pair of opposing sidewall members, respectively, in said cooking position, wherein said pair of support structures are adapted to support a food supporting device laterally of said perforated inner wall of said heating box.

5,782,169
FOOD PROCESSING SYSTEM

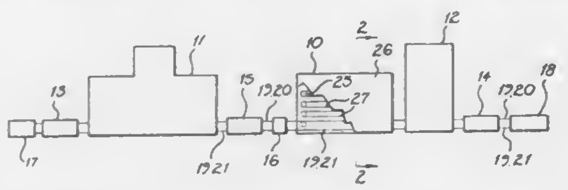
Kevin Joseph Hicks, Middle Cove, Australia, assignor to Auto-Bake Pty Ltd, Australia

Filed Jun. 3, 1997, Ser. No. 868,163

Claims priority, application Australia, Jun. 3, 1996, PO0244

Int. Cl.⁶ A47J *37/00;* **A21B** *1/42;3/07;7/00*

U.S. Cl. 99—355 **10 Claims**



1. A food processing system which includes a product baking stage, a product processing stage, and an endless conveyor which is in use driven to carry product support trays through the two stages, the endless conveyor having a forward path, which extends serially through both the processing and baking stages, and a return path; the baking stage comprising a baking chamber through which the conveyor is directed to follow a generally serpentine path which includes a plurality of horizontal passes at different levels in the chamber, and the baking stage further comprising heating elements located between at least some of the horizontal passes of the conveyor; the processing stage comprising a processing chamber having at least one processing compartment through which the conveyor is directed to follow a generally serpentine path which includes a plurality of horizontal passes at different levels; and the system including means for varying the effective length of the portion of the forward path of the conveyor which is at any one time located within the processing chamber and for making a complementary variation in the length of a further portion of the conveyor.

5,782,170
METHOD AND APPARATUS FOR AUTOMATICALLY FRYING FOOD PRODUCTS

Johnny B. Pomara, Jr., 2223 Crockett Dr., Carrollton, Tex. 75006, assignor to Johnny B. Pomara, Jr., Carrollton, and Industrial Catering, Inc., Grand Prairie, both of Tex.

Filed Sep. 4, 1996, Ser. No. 707,745

Int. Cl.⁶ A47J *27/18*

U.S. Cl. 99—407 **15 Claims**

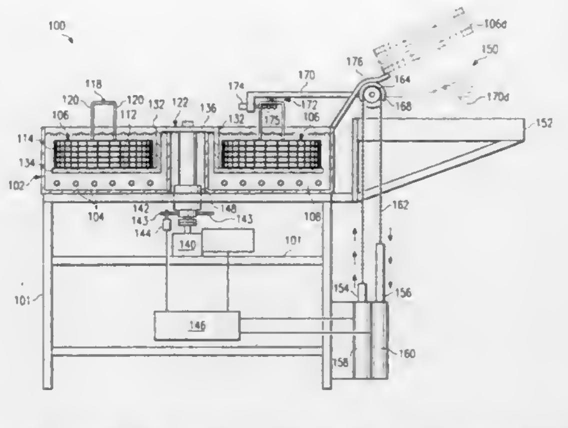
1. An apparatus for automatically frying food products, comprising:

a vat operable to contain a cooking medium;

a heater operable to heat the cooking medium;

a plurality of baskets operable to hold food products within the cooking medium and lift the food products out of the vat, each basket having a handle;

a dumping mechanism comprising a dump bar having first and second ends, the first end having a grasping mechanism operable to grasp the handle of a selected one of the baskets, the second end being connected to a pivot, the dumping mechanism being operable to automatically remove the selected one of the baskets from the cooking medium.



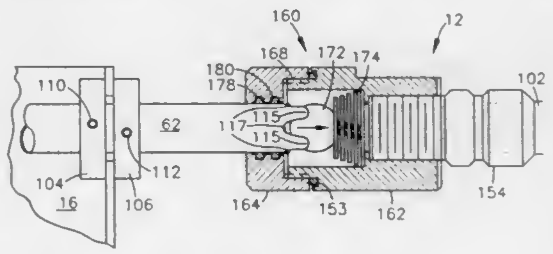
5,782,171
DISCONNECT MECHANISMS BETWEEN A DEEP FAT FRY POT AND FILTER VAT

John W. Crain, and Michael G. Walpole, both of Greer, S.C., assignors to Standex International Corporation, Salem, N.H.

Division of Ser. No. 669,874, Jun. 21, 1996. This application Nov. 7, 1997, Ser. No. 966,861

Int. Cl.⁶ A47J *37/12;* **F16L** *27/00;35/00;37/28*

U.S. Cl. 99—408 **5 Claims**



1. A quick disconnect mechanism comprising:

a first pipe and a second pipe separable with respect to each other, the first and second pipes being positionable in axial alignment, the first pipe having an open end adjacent to the second pipe and the second pipe having an open end adjacent to the first pipe, a quick disconnect mechanism secured to the second pipe, the quick disconnect mechanism including a two-part separable block including a hollow inboard section positionable over the free end of the second pipe and an outboard section with an axial aperture therethrough, threaded coupling means releasably securing the inboard and outboard sections;

a ball positioned within the inboard section of the block with an associated frustroconically-shaped spring biasing the ball toward the aperture of the outboard section;

at least one O-ring positioned in the outboard section of the block to be in sealing contact when the ball is biased in a forward sealing position; and

a plurality of axially extending recesses formed around the periphery of the first pipe and adapted to contact the ball and, on mutual movement of the first and second pipes toward each other, to move the ball away from the aperture against the resilient action of the spring and to allow the flow of fluids between the first and second pipes through the recesses of the first pipe.

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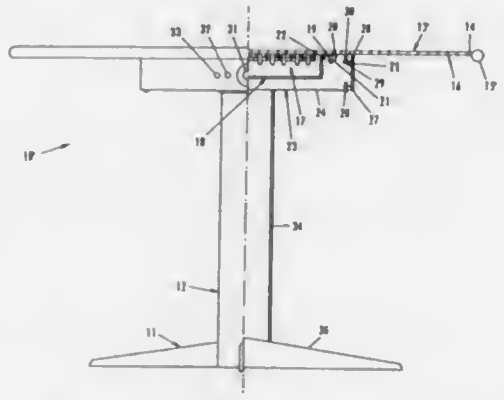
5,782,172

APPLIANCE FOR LOW AND HIGH-HEAT COOKING

Paul Schacht, 3, Horschelstr., Munich 80796, Germany
Continuation of Ser. No. 411,813, May 26, 1995, abandoned. This application Aug. 12, 1996, Ser. No. 695,889
Claims priority, application Germany, Oct. 8, 1992, 42 33 940.5; Nov. 9, 1992, 42 37 759.5
Int. Cl.^{6} A47J *37/06*
U.S. Cl. 99—422 **25 Claims**

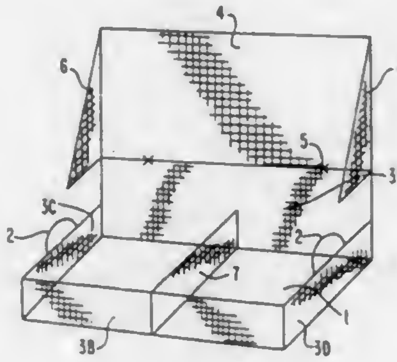


1. A roasting and cooking device comprising:
- a fine steel plate having a top side, a bottom side, and at least one edge;
- a heating device mounted on the bottom side and in a central area of the steel plate for heating said central area and causing an expansion of the steel plate in a radial direction; and
- a closed fine steel profile surrounding the steel plate in the proximity of the edge or edges thereof, for limiting the expansion of the steel plate in the radial direction and creating a trough-shaped deformation in the central area of the plate.

5,782,173

DEVICE FOR COOKING OR GRILLING SMALL PIECES OF FOOD AND METHOD OF USE

Marvin Fabrikant, and Patricia Fabrikant, both of 5149 Tilden St., NW., Washington, D.C. 20016
Continuation-in-part of Ser. No. 571,772, Dec. 13, 1995, Pat. No. 5,560,286, which is a continuation-in-part of Ser. No. 442,931, May 17, 1995, Pat. No. 5,520,098. This application Apr. 1, 1996, Ser. No. 625,255
Int. Cl.^{6} A47J *37/00*
U.S. Cl. 99—426 **17 Claims**

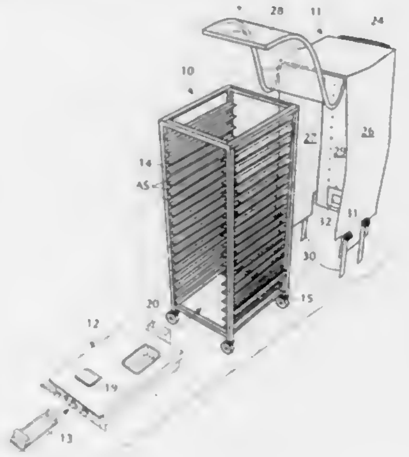


1. A device for cooking or grilling small pieces of food comprising a basket including a mesh made of a material suitable for cooking or grilling small pieces of food having openings throughout the mesh, said basket having a base and four adjoining side walls, wherein two opposite side walls each have an inwardly facing top edge to retain small pieces of food when the device is shaken or moved to turn the small pieces of food over.

5,782,174

SOFT HOOD AND MODULE DOUGH-PROOFING ASSEMBLY

Robert J. Cohn, 61 Sterling Ave., Dallas, Pa. 18612; Chad Morgan, RD 4 Box 524, West Pittston, Pa. 18643; Arnold S. Rifkin, 200 Riverside Dr., Wilkes-Barre, Pa. 18702, and John Hutnick, 250 Wilson St., Larksville, Pa. 18704
Filed May 19, 1997, Ser. No. 858,117
Int. Cl.^{6} A47J *39/00;39/02;* **A47B** *31/02;* **F25B** *29/00*
U.S. Cl. 99—476 **15 Claims**

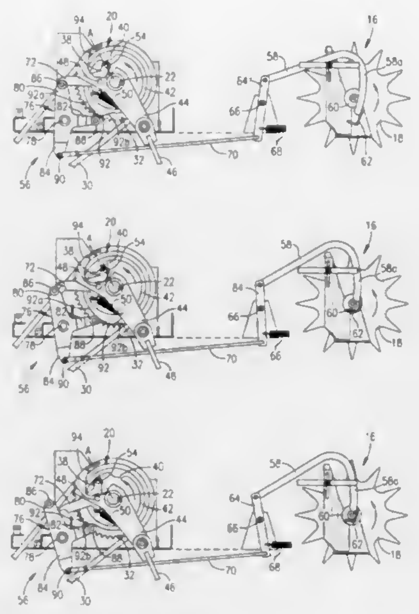


1. A hood and module assembly adapted to convert a multi-level rectangular rack loaded with pieces of yeast dough into a proofing chamber in which the pieces are subjected to a hot, humid air environment, said assembly comprising:
- A. a module placed in the rack having an air inlet adjacent one side of the rack and an outlet adjacent a side opposite said one side from which is emitted a stream of hot humid air; and
- B. a hood fabricated of plastic sheeting enclosing the rack to form a proofing chamber having a feed duct parallel to said opposite side of the rack communicating with said outlet, and a return duct parallel to said one side of the rack communicating with said inlet, whereby hot, humid air from the outlet flowing into the feed duct is distributed thereby to pass across the dough pieces loaded in the multi-level rack and from there into the return duct to flow back into the inlet of the module for recirculation in the chamber to proof the dough pieces loading the rack.

5,782,175

KNOTTER CLUTCH CONTROL FOR SQUARE BALERS

Thomas G. Schrag, Hesston, Kans., assignor to Hay & Forage Industries, Hesston, Kans.
Filed Aug. 29, 1997, Ser. No. 920,687
Int. Cl.^{6} B65B *13/26*
U.S. Cl. 100—4 **9 Claims**

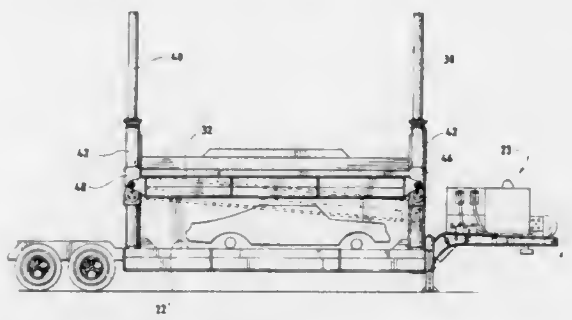


1. In a square baler having an intermittently operated knotter shaft that becomes operably connected with a continuously rotating drive sprocket during each knotter cycle, the improvement comprising:
- a clutch including
  - a dog mounted on the knotter shaft,
  - a driving lug mounted on the sprocket and engageable with the dog at a pickup point on the path of travel of the lug for transferring driving power from the sprocket to the knotter shaft when the lug is engaged with the dog,
  - a spring yieldably urging the dog toward an extended position in which the dog is disposed in the path of travel of the lug so that the lug engages the dog when the lug reaches the pickup point on its path of travel,
  - said dog being holdable in a retracted position in which the dog is disposed out of the path of travel of the lug so that the lug passes by the dog when the lug reaches the pickup point; and
- a control for the clutch including
  - a releasable retainer for holding the dog in said retracted position,
  - a sensor responsive to the length of a bale forming in the baler for shifting the retainer to a released position when the bale reaches a certain predetermined length,
  - a reset device for returning the retainer to a retaining position during a revolution of the knotter shaft and for causing the dog to disengage from the lug when the lug and the dog arrive back at the pickup point after completing the knotter cycle, and
  - control structure for preventing the dog from moving from its retracted position to its extended position when the sensor determines that the bale has reached the predetermined length unless the moving lug is either beyond or approaching said pickup point.

5,782,176

MATERIAL PRESS HAVING PIVOTALLY CONNECTED CRUSHING LID AND A REDUCIBLE HEIGHT FOR TRANSIT

James A. Bevan, Ottumwa, Iowa, assignor to Al-jon, Inc., Ottumwa, Iowa
Filed Jul. 23, 1996, Ser. No. 687,118
Int. Cl.^{6} B30B *9/32*
U.S. Cl. 100—100 **20 Claims**

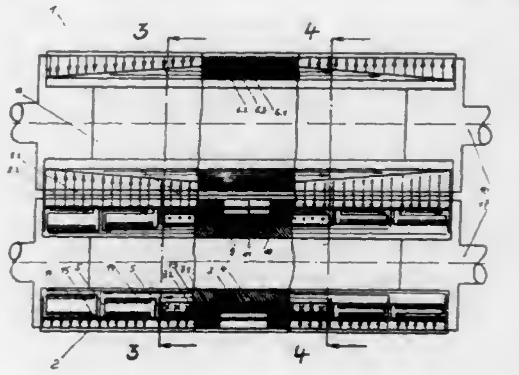


1. A material press, comprising:
- a generally horizontal, elongated bed having first and second vertical guide mechanism extending from opposite ends of the bed;
- a lid slidably connected to the guide mechanisms for vertically movement relative to the bed between an upper position at which the lid is vertically displaced from the bed and a lower position at which the lid is juxtaposed next to the bed;
- a pair of hydraulic cylinders mounted for moving the lid between its upper and lower positions, each of the cylinders including an outer casing having an upper end, a lower end and a flange extending from the lower end, and a cylinder rod extending from the casing lower end and being movable between an extended position and a retracted position in response to hydraulic fluid supplied to the cylinder casing from an external source;
- each of the cylinders having its casings slidably connected to one of the guide mechanisms and its rod fixedly connected to the lid, the cylinder casings being movable between a lowered position at which the lower end is proximal to the bed and a raised position at which the casing lower end is vertically displaced from the bed by a distance which exceeds the stroke length of the cylinder rod;
- first and second locking mechanisms adapted for controllably locking the position of the first and second hydraulic cylinders casings, each locking mechanism comprising:
  - a locking member movable between a first position at which the hydraulic cylinder casing freely slides with respect to the guide mechanism and a second position which locks the position of the hydraulic cylinder casing relative to the respective guide mechanism; and
  - means for controllably moving the locking member between its first and second positions; and
  - wherein the cylinder casings may be moved to their lowered position to reduce the overall height of the vehicle crusher during movement between locations by disengaging the locking mechanism and retracting the cylinder rods, and wherein the casings may be raised to their upper position by moving the cylinder rods to their extended positions at which time the locking mechanism is activated to lock the casings in its raised position after which the lid may be raised by retracting the cylinder rods and lowered by extending the cylinder rods.

5,782,177

ELECTROMAGNETIC ROLLER ARRANGEMENT

Hans-Jochen Karl Max Rindfleisch, Berlin, Germany, assignor to EMS Elektromagnetische Systeme GmbH, Korbussen, Germany
PCT No. PCT/DE96/00339, § 371 Date Oct. 20, 1996, § 102(e) Date Oct. 20, 1996, PCT Pub. No. WO96/26369, PCT Pub. Date Aug. 29, 1996
PCT Filed Feb. 20, 1996, Ser. No. 737,326
Claims priority, application Germany, Feb. 22, 1995, 195 07 828.4
Int. Cl.^{6} B30B *3/04;15/34*
U.S. Cl. 100—334 **18 Claims**



1. An electromagnetic rolling device comprising
- a frame made of non magnetic material;
- two adjacent rollers predominantly made of ferromagnetic material, both of said rollers being pivoted within said frame so as to have a same axial direction, and being separated mechanically each from another at a non magnetic nip gap and connected magnetically each to another within a common magnetic circuit.

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wherein said magnetic circuit comprises
- at least one magnetic core being part of at least one of said rollers;
- several flange shaped magnetic legs extending radially outwards from said core;
- a magnetic yoke, which is constituted by the respective other of said rollers;
- magnetizing coils wound on said core forming a solenoid for magnetizing said magnetic circuit,
- said magnetizing coils being disposed each between two of said flange shaped magnetic legs,
- said magnetizing coils being provided with separate terminals, which have means for being connected to an electrical current source,
- said magnetizing coils each being charged by an exciting current in one magnetically active direction so that said magnetic core is magnetized homogeneously, each in its own axial direction;
- two magnetic shells, each of said shells being part of respective one of said rollers and extending in each case around the whole circumference of each said rollers, respectively, at least in sections of said rollers, which contain said magnetizing coils;
- said magnetic shell of at least that roller containing said magnetizing coils being divided into two adjacent magnetic shell parts by a non magnetic annular by-gap, being considerably wider than said non magnetic nip gap but narrower than said magnetic shell parts, wherein said magnetizing coils are disposed axially or approximately symmetrical with regard to the magnetic field; and
- a non magnetic gap space having a width between said rollers.

5,782,178
STENCIL PRINTER

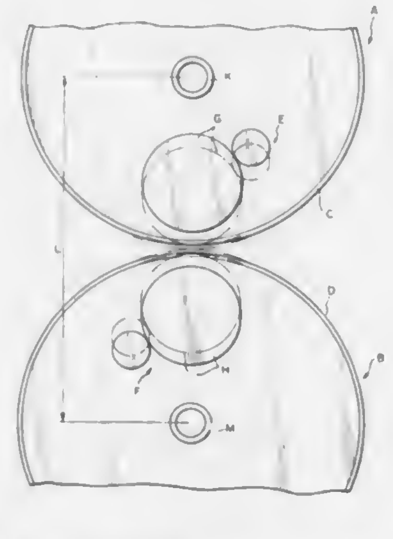
Tomoya Otomo, Sendai, Japan, assignor to Tohoku Ricoh Co., Ltd., Miyagi-ken, Japan

Filed Jun. 23, 1997, Ser. No. 880,493

Claims priority, application Japan, Jul. 2, 1996, 8-172571; Apr. 15, 1997, 9-096947

Int. Cl.^{6} B41L *13/00*

U.S. Cl. 101—119 **15 Claims**



1. A stencil printer comprising:
- a first drum including a first flexible master support;
- a second drum including a second flexible master support and having a circumferential surface adjoining said first drum;
- first ink feeding means arranged in said first drum and including a first ink roller capable of rotating in pressing contact with an inner periphery of said first master support;
- second ink feeding means arranged in said second drum and including a second ink roller capable of rotating in pressing contact with an inner periphery of said second master support; and
- control means for controlling said first and second drums and said first and second ink feeding means;
- said first ink roller or said second ink roller being supported by said first ink feeding means or said second ink feeding means in such a manner as to be movable between an inoperative position not causing said first and second master supports to contact each other and an operative position causing said first and second master supports to pressingly contact each other;
- said control means moving, when a paper is passed between said first and second drums for printing, at least one of said first and second ink rollers from said inoperative position to said operative position to thereby bulge said first master support or said second master support, whereby said first and second master supports are brought into pressing contact with each other with the intermediary of the paper.

5,782,179
AUTOMATIC STENCIL FEEDING AND MAKING DEVICE

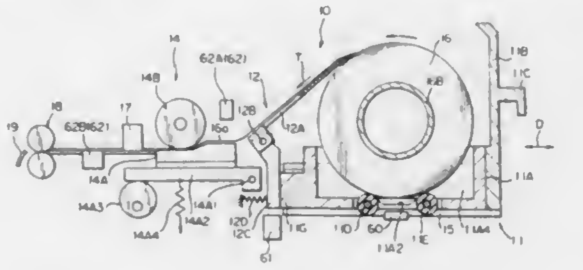
Hideyuki Kagawa, Sendai, and Mituru Takahashi, Shiroishi, both of Japan, assignors to Tohoku Ricoh Co., Ltd., Miyagi-ken, Japan

Filed Jul. 31, 1996, Ser. No. 690,547

Claims priority, application Japan, Jul. 31, 1995, 7-195308; Jul. 31, 1995, 7-195310; Jun. 8, 1996, 8-170040

Int. Cl.^{6} B41C *1/14*

U.S. Cl. 101—128.4 **86 Claims**



1. A master making device comprising:
- a body;
- stencil storing means for storing a stencil in a form of a roll while allowing said stencil to be paid out from the roll;
- master making means for making a master out of the stencil paid out from the roll;
- cutting means for cutting off the master;
- roll holding means movable into and out of said body and for setting the roll thereon;
- rotary drive means for causing the roll set on said roll holding means to rotate in a stencil pay-out direction for paying out a leading edge of the stencil toward said master making means; and
- peeling means for peeling off the leading edge of the stencil from the roll by adjoining or contacting a circumference of the roll in accordance with a varying diameter of the roll.

5,782,180
SPRAY DAMPER

Georg Schneider, Würzburg, and Martin Heinz Schoeps, Güntersleben, both of Germany, assignors to Koenig Bauer-Albert Aktiengesellschaft, Wurzburg, Germany

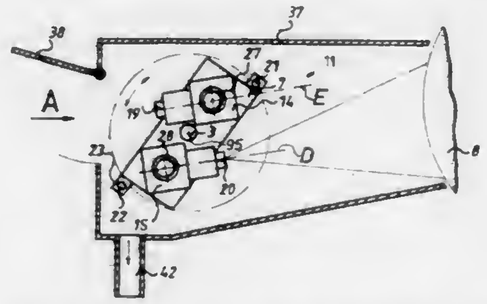
PCT No. PCT/DE95/00883, § 371 Date Jan. 9, 1997, § 102(e) Date Jan. 9, 1997, PCT Pub. No. WO96/01740, PCT Pub. Date Jan. 25, 1996

PCT Filed Jul. 6, 1995, Ser. No. 765,172

Claims priority, application Germany, Jul. 9, 1994, 44 24 301.4

Int. Cl.^{6} B41F *7/30;7/26*

U.S. Cl. 101—148 **15 Claims**



1. A spray dampening device for use in supplying a dampening agent to a dampening agent roller in a rotary printing press comprising:
- a dampening agent roller in a rotary printing press, said dampening agent roller having a plurality of spray areas;
- a magazine assigned to each said spray area of said dampening agent roller;
- at least first and second dampening agent spray nozzles positioned in each said magazine, one of said at least first and second dampening agent spray nozzles in each said magazine being in an operating position and being usable to spray dampening agent completely on said spray area assigned to each said magazine, another of said at least first and second spray nozzles in each said magazine being in a reserve position; and
- means to move said another of said at least first and second dampening agent spray nozzles in each said magazine from said reserve position into said operating position in response to a failure of said one of said first and second dampening agent spray nozzles in said operating position to spray said dampening agent completely on said spray area assigned to each said magazine.

5,782,181
CONCENTRIC DOUBLE SLEEVE FOR A ROTARY PRINTING CYLINDER

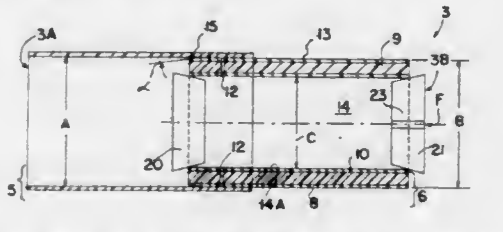
Felice Rossini, Milan, Italy, assignor to Erminio Rossini S.p.A., Milan, Italy

Filed Mar. 11, 1996, Ser. No. 613,895

Claims priority, application Italy, Mar. 14, 1995, MI95A0489

Int. Cl.^{6} B41F *9/06*

U.S. Cl. 101—153 **12 Claims**



1. An inner sleeve portion for use in the combination of a rotogravure or flexographic mandrel said inner sleeve portion, and an outer sleeve portion that is to be rotated about its axis when used in a printing machine, an inner sleeve portion to be mounted on the mandrel, the inner sleeve portion comprising:
- an inner cylindrical layer formed of high rigidity material and defining an inner surface and an outer surface;
- an outer cylindrical layer formed of high rigidity material and defining an inner surface and an outer surface;
- an intermediate cylindrical layer having an inner surface disposed against said outer surface of said inner layer, and said intermediate layer having an outer surface disposed against said inner surface of said outer layer; and
- a plurality of channels, each said channel being configured to feed air from said inner surface of said inner layer through said outer surface of said outer layer.

5,782,182
PRINTING GROUP FOR A COLOR-PRINTING WEB-FED ROTARY PRESS

Wolfgang Günter Ruckmann, Würzburg, and Martin Heinz Schoeps, Güntersleben, both of Germany, assignors to Koenig & Bauer-Albert Aktiengesellschaft, Wurzburg, Germany

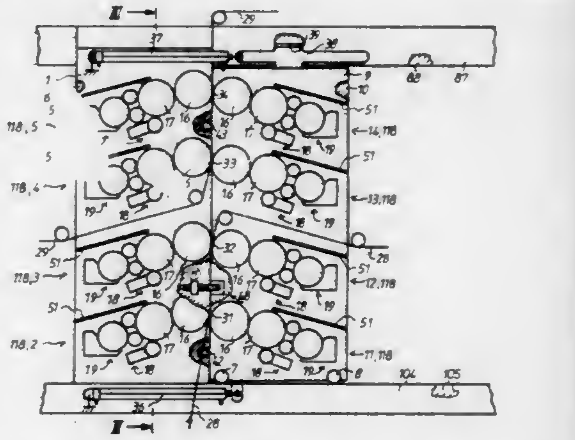
PCT No. PCT/DE95/00303, § 371 Date Sep. 10, 1996, § 102(e) Date Sep. 10, 1996, PCT Pub. No. WO95/24314, PCT Pub. Date Sep. 14, 1995

PCT Filed Mar. 7, 1995, Ser. No. 702,554

Claims priority, application Germany, Mar. 10, 1994, 44 08 025.5

Int. Cl.^{6} B41F *5/08;5/22*

U.S. Cl. 101—177 **21 Claims**



1. A printing system for the multi-color printing of one or more webs in a web-fed rotary printing press comprising:
- a plurality of left printing units, each of said left printing units having a left inking system, a left printing cylinder and a left rubber blanket cylinders;
- a plurality of right printing units, each of said right printing units having a right inking system, a right printing cylinder and a right rubber blanket cylinder;
- a plurality of bridge printing units formed by cooperating ones of said left and right printing units, each of said bridge printing units having one of said left printing units and one of said right printing units, said left and right blanket cylinders in each of said bridge printing units being engageable with each other to print a web passing vertically therebetween, said plurality of bridge printing units being disposed one above the other;
- a left frame element for receiving said plurality of left printing units;
- a right frame element for receiving said plurality of right printing units; and
- means for supporting at least one of said left and right frame elements for horizontal movement with respect to the other of said left and right frame elements so that said left and right frame elements can be separated by a horizontal distance from

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each other to separate said left and right blanket cylinders in said plurality of bridge printing units from each other.

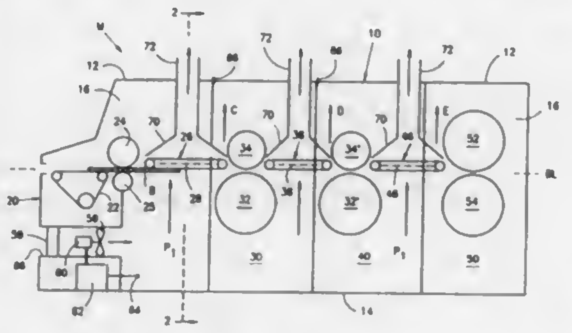
5,782,183
PRESSURIZED MACHINE FOR PROCESSING BLANKS

John H. P. Andrews, Jr., Monkton, Md., assignor to Ward Holding Company, Inc., Wilmington, Del.

Filed Mar. 7, 1997, Ser. No. 812,591

Int. Cl.^{6} B41F *13/24*

U.S. Cl. 101—232 **17 Claims**



1. A machine for printing and otherwise processing blanks of sheet material comprising:
(a) means forming a printing section;
(b) means forming a processing section;
(c) housing means surrounding said printing and process sections;
(d) conveyor belt means having a lower reach for horizontally conveying said blanks from said printing section to said processing section within said housing means;
(e) exhaust duct means positioned above said conveyor belt means for exhausting air from the interior of said housing means;
(f) flow-restricting means positioned above said lower reach of said conveyor means for restricting the air flow passing therethrough and creating a pressure drop thereacross;
(g) blower means for forcing air into said machine and creating a super-atmospheric pressure throughout the interior of said housing below said flow-restricting means; and
(h) filter means for removing dust from said air forced into the interior of said housing whereby said blanks are forced upwardly against said lower reach of said conveyor belt means as said super-atmospheric air flows against said blanks and then through said flow-restricting means toward said exhaust duct means.

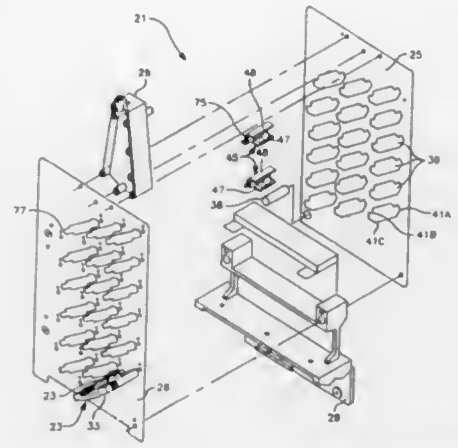
5,782,184
PRINTER HEAD CARRIAGE AND METHOD FOR ALIGNING PRINTER HEADS ON A PRINTER HEAD CARRIAGE

David Albertalli; Paul Gregory; Larry Capps, all of San Jose, and Noel Schmidt, Palo Alto, all of Calif., assignors to Raster Graphics, Incorporated, San Jose, Calif.

Filed Mar. 12, 1997, Ser. No. 815,590

Int. Cl.^{6} B41J *1/37*

U.S. Cl. 101—486 **21 Claims**



1. A method for mounting printer heads relative to a plate, comprising the steps of:
assembling a plurality of identical printer head assemblies, each of the printer head assemblies including a printer head, the printer head including an array of a plurality of nozzles, and a printer head carrier, each of the printer head carriers having at least three alignment points;
providing openings in a plate corresponding to desired locations and orientations of the printer head assemblies on the plate, the openings each having at least three alignment points corresponding to the three alignment points on each of the printer head carriers;
positioning the printer head assemblies in corresponding ones of the openings; and
applying a force against the printer head assemblies to cause the at least three alignment points on the printer head carriers to contact respective ones of the at least three alignment points in the corresponding ones of the openings.

5,782,185
PLAY AND STORAGE TABLE

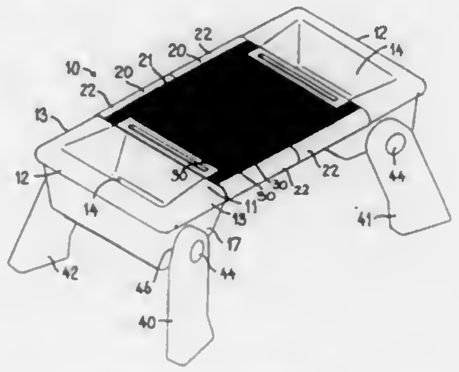
Søren Xerxes Frahm, and Jan Ryaa, both of Billund, Denmark, assignors to INTERLEGO AG, Baar, Switzerland

Filed Feb. 6, 1995, Ser. No. 384,423

Claims priority, application Denmark, Feb. 9, 1994, 0168/94

Int. Cl.^{6} A47B *85/00*

U.S. Cl. 108—25 **7 Claims**



1. A play and storage table comprising:
a table top, said table top having opposed end edges;
a first storage depression disposed between said end edges and extending downwardly from said table top; and
a first sliding lid secured to said table and shiftable across said table top toward and away from said end edges between a closed position overlying said table top first depression and an open position uncovering said table top first depression, said first sliding lid remaining entirely between said end edges in both said closed and open positions, said first sliding lid having on a top surface thereof a first type of coupling means for interconnection with toy building elements having mating coupling means thereon.

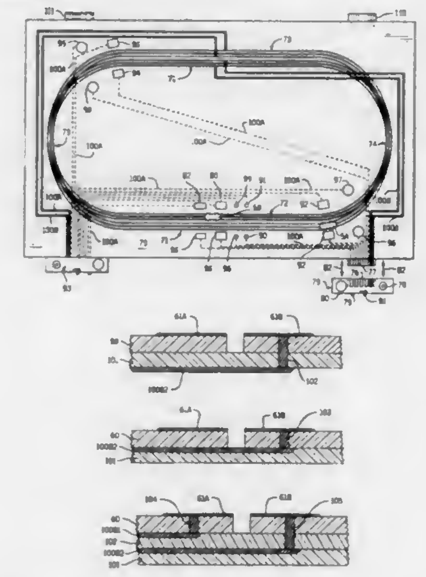
5,782,186
MODEL MOTOR VEHICLE TRACK SYSTEM AND METHOD FOR MAKING THE SAME

Stephen I. McTaggart, Scottsdale, Ariz., assignor to Futech Educational Products, Inc., Phoenix, Ariz.

Filed Jan. 3, 1997, Ser. No. 775,956

Int. Cl.^{6} A63G *31/00*

U.S. Cl. 104—60 **26 Claims**



1. A model vehicle system including:
A) a model vehicle track comprising:
  1) a substrate having non-conductive upper and lower surfaces;
  2) a path on said upper surface of said substrate, said path representing a model vehicle course; and
  3) first and second conductive laminae overlaying said upper surface of said substrate and extending, mutually spaced-apart, along said path, each of said first and second conductive laminae comprising a layer of conductive ink;
B) a model vehicle comprising:
  1) electrically energizable motive means having first and second electrical terminals, said motive means adapted to propel said model vehicle along said path when a voltage is applied across said first and second electrical terminals; and
  2) spaced-apart first and second brush means, said first and second brush means each coupled at one end thereof to one of said electrical terminals, each said brush means having a second end depending from said model vehicle and adapted to slidingly engage and electrically contact one of said conductive laminae as said model vehicle moves along said path; and
C) power supply means for selectively applying a voltage across said first and second conductive laminae;
whereby, when a voltage is applied across said first and second conductive laminae, said brush means pick up and place said voltage across said electrical terminals, thereby energizing said motive means to propel said model vehicle along said path.

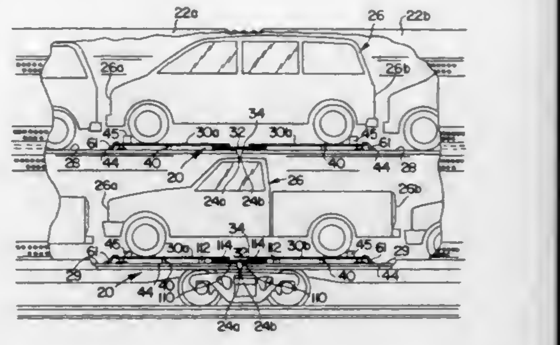
5,782,187
PIVOT PLATE ASSEMBLY FOR ARTICULATED RAILWAY CARS

James E. Black, Jr., Trenton, Mich., and Ivan Gaster, Union, Ohio, assignors to Thrall Car Manufacturing Company, Chicago, Ill.

Continuation-in-part of Ser. No. 558,681, Nov. 16, 1995, Pat. No. 5,657,698. This application Aug. 18, 1997, Ser. No. 912,495

Int. Cl.^{6} B61D *3/02;3/10*

U.S. Cl. 105—3 **8 Claims**



1. In an articulated railway car for transporting automotive vehicles by rail comprising first and second car units, each of said first and second car units having a swivel plate assembly adjacent the articulation for supporting the front or rear wheels of a vehicle, each swivel plate assembly comprising a durable, low-friction surface which enables slidable and pivotable support of the swivel plate on its respective associated car unit, each swivel plate assembly further comprising means for securely holding an automotive vehicle to the swivel plate assembly, each said swivel plate assembly being capable of supporting one end of a vehicle on a respective one of said units, and said swivel plate assemblies, in combination, being capable of supporting opposite ends of a single vehicle spanning the articulation, the improvement comprising a plurality of wear blocks affixed to the bottom of each swivel plate assembly for engaging an underlying floor deck surface of the railway car in sliding contact, said wear blocks being composed of a material which has a relatively low coefficient of friction in contact with the deck floor, and which is sufficiently hard and durable to withstand extended use in rail service.

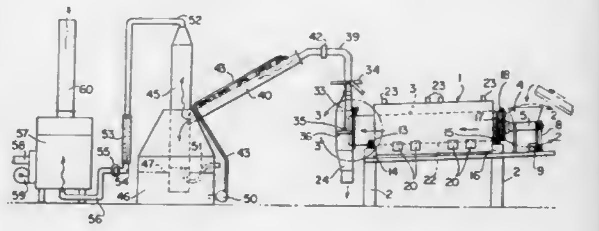
5,782,188
PYROLYTIC COMBUSTION APPARATUS AND METHOD

Marvin Evans, 8550 N. Fielding Rd., and David H. Miller, 610 E. Birch Ave., both of Milwaukee, Wis. 53217

Filed Sep. 25, 1996, Ser. No. 718,916

Int. Cl.^{6} F23G *5/00;5/027;5/20;* **C10B** *53/00*

U.S. Cl. 110—346 **22 Claims**



1. An apparatus for incinerating waste material having a high BTU value, comprising pyrolytic combustion means for combusting waste material in a substantial absence of air to produce hydrocarbon combustion gases, water vapor and a solid residue, first separating means communicating with said pyrolitic combustion means for separating said combustion gases and water vapor from said solid residue, condenser means connected to said first separating means for cooling the combustion gases and water to a temperature below 212° F. to thereby condense said water vapor and condense higher boiling point hydrocarbon gases and produce hydrocarbon liquid, second separating means connected to said condenser means for separating the condensed water vapor and hydrocarbon liquid from lower boiling hydrocarbon gases, and third separating means for separating the condensed water vapor from the hydrocarbon liquid.

19. In a method of incinerating particulate material resulting from the shredding of vehicles, comprising the steps of introducing particulate waste material containing both metallic and non-metallic materials into a rotatable drum, subjecting the material in said drum to pyrolytic combustion in the substantial absence of air

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to thereby generate high boiling point hydrocarbon gases, low boiling point hydrocarbon gases, water vapor, and a solid residue, separating the solid residue from said gases and said water vapor while maintaining the gases in an atmosphere substantially devoid of oxygen; passing the gases and said water vapor through a condenser to cool said gases and said water vapor to thereby condense said high boiling point hydrocarbon gases and produce a hydrocarbon liquid and to condense said water vapor to produce a water condensate, separating the low boiling point hydrocarbon gases from said hydrocarbon liquid and said water condensate in a liquid-gas separator, introducing said hydrocarbon liquid and said water condensate into a body of water whereby said water condensate will mix with said body of water and said hydrocarbon liquid will collect as a hydrocarbon layer on said body of water, and removing said hydrocarbon layer from said body of water.

5,782,189
SEWING MACHINE WITH DISPLAY FOR SELECTING SEWING PATTERNS

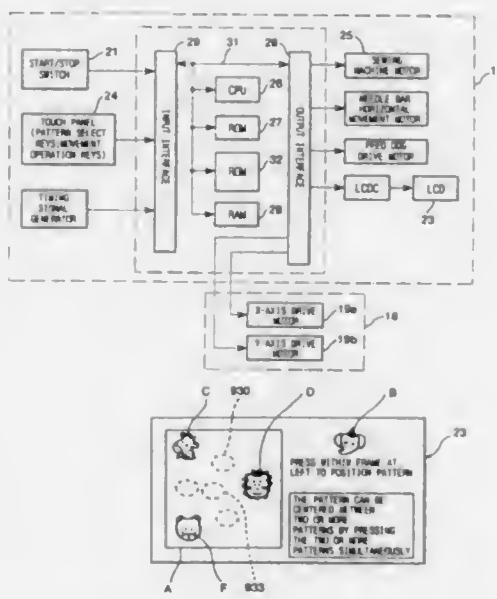
Takashi Hirata; Shintaro Tomita, both of Nagoya, and Ryoji Owaki, Kasugai, all of Japan, assignors to Brother Kogyo Kabushiki Kaisha, Nagoya, Japan

Filed Feb. 20, 1997, Ser. No. 804,110

Claims priority, application Japan, Feb. 23, 1996, 8-035895; Feb. 29, 1996, 8-043791; Mar. 1, 1996, 8-044333; Mar. 15, 1996, 8-059531

Int. Cl.^{6} D05B *21/00;* **D05C** *5/02*

U.S. Cl. 112—102.5 **28 Claims**


START/STOP SWITCH
21
TOUCH PANEL
24
CPU
ROM
RAM
LCDC
LCD
SEWING MACHINE MOTOR
25
11
23
C
B
D
A
F
PRESS EITHER FRAME AT LEFT TO POSITION PATTERN
THE PATTERN CAN BE CENTERED BETWEEN TWO OR MORE PATTERNS BY PRESSING THE TWO OR MORE PATTERNS SIMULTANEOUSLY

1. A sewing pattern display device comprising:
a display device for displaying a plurality of options relating to sewing;
a transparent touch panel disposed adjacent to the display for detecting positions where the touch panel is pressed; and
a control device for determining, based on detection by the touch panel, a position of the display corresponding to a pressed position of the touch panel and, when the touch panel is pressed at more than one position to simultaneously indicate more than one of the options, processing an option different from the indicated options.

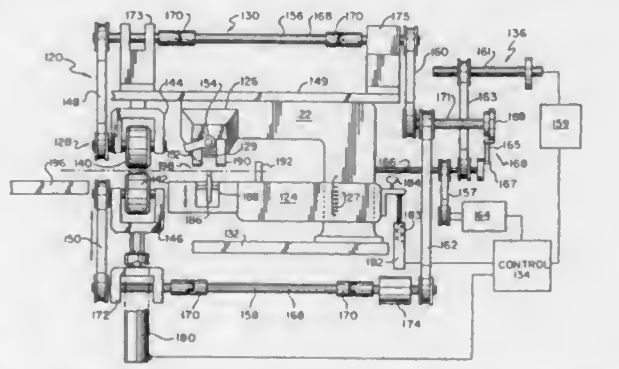
5,782,190
APPARATUS FOR ASSEMBLY OF PILLOW-TOP MATTRESS COVERS

Michael R. Porter, Topsfield; Charles E. Mulcahey, Beverly, and John J. Kirby, Hamilton, all of Mass., assignors to Porter Sewing Machines, Inc., Beverly, Mass.

Continuation of Ser. No. 478,033, Jun. 7, 1995, Pat. No. 5,586,511, which is a division of Ser. No. 422,151, Apr. 14, 1995, Pat. No. 5,501,164, which is a continuation of Ser. No. 101,941, Aug. 4, 1993, abandoned. This application May 8, 1996, Ser. No. 646,957

Int. Cl.^{6} D05B *1/24;27/10*

U.S. Cl. 112—176 **11 Claims**



1. Apparatus for sewing together two materials using a blind stitch, said apparatus comprising:
a frame;
a sewing apparatus disposed on said frame for sewing together two materials with a blind stitch, said sewing apparatus including a sewing needle;
apparatus for feeding the two materials to and through said sewing apparatus in a single direction of movement, said feeding apparatus comprising:
an upper feed for engaging an upper surface of the two materials, said upper feed being spaced from said sewing needle in a direction normal to said direction of movement and being generally aligned with said sewing needle with respect to said direction of movement; and
a lower feed disposed generally below said upper feed so that the two materials are disposed between said upper and lower feeds, said lower feed being spaced from said sewing needle in a direction normal to said direction of movement and being generally aligned with said sewing needle with respect to said direction of movement, said lower feed being positively driven to feed the two materials to and through said sewing apparatus in said direction of movement.

5,782,191
PUCKER FREE RIGHT FRONT HEM GARMENT SEAM AND METHOD FOR PRODUCTION

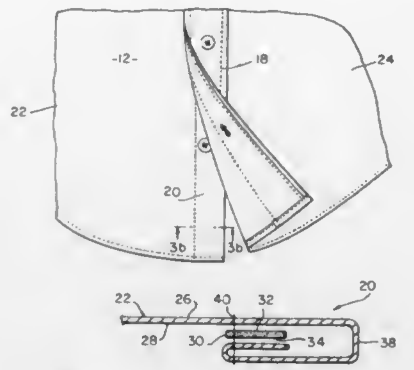
John Wong, Montreal, Canada, assignor to Tal Apparel Ltd., Kowloon, Hong Kong

Continuation-in-part of Ser. No. 613,656, Mar. 11, 1996, Pat. No. 5,590,615, which is a continuation of Ser. No. 245,122, May 17, 1994, Pat. No. 5,568,779. This application Jan. 6, 1997, Ser. No. 782,005

Int. Cl.^{6} D05B *1/18;* **A41D** *27/10;* **B32B** *7/08;7/12*

U.S. Cl. 112—441 **58 Claims**

1. A method for producing a smooth seam in a garment component, said method comprising the steps of:
(a) reverse folding an edge of the garment component;
(b) placing a bonding strip having a first and second surface and at least a thermal adhesive component co-extensive with the reverse portion of the garment component, such that the second surface of the bonding strip abuts a first surface of the garment component;



(c) reverse folding the garment component a second time such that a portion of a second surface of the twice folded garment component abuts the first surface of the bonding strip and a portion of the second surface of the twice folded garment component abuts itself;
(d) sewing the garment component and the bonding strip together by a stitch running along the bonding strip; and
(e) applying sufficient heat and pressure to said bonding strip to cause the thermal adhesive to melt such that said adhesive flows onto a portion of the folded first surface of the garment component along a second surface of the bonding strip and concomitantly onto a portion of the second surface of the twice folded garment component along the first surface of the bonding strip to provide a bond along the seam and around the stitch such that the bonded component will effectively reduce a tendency of the seam to exhibit pucker following laundering operations.

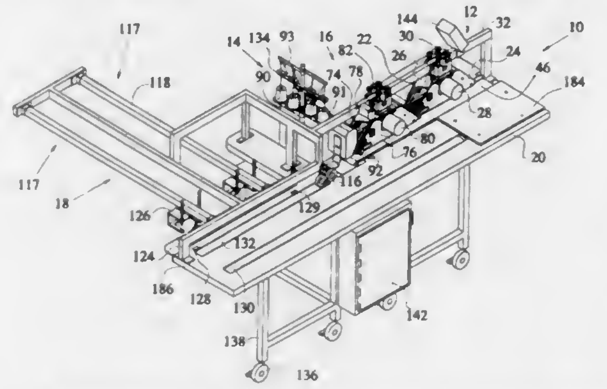
5,782,192
AUTOMATED SEWING SYSTEM

Jerry S. Kear; Larry C. Dulaney, both of Knoxville, and Douglas H. Capps, Powell, all of Tenn., assignors to VMW Automated Apparel Equip., Knoxville, Tenn.

Filed Nov. 19, 1996, Ser. No. 751,811

Int. Cl.^{6} D05B *21/00*

U.S. Cl. 112—470.05 **24 Claims**



1. An automated sewing system for sewing two articles together, said automated sewing system comprising:
a support table;
a loading unit positioned proximate the first end of said support table, said loading unit including a loading assembly for receiving the two articles, said loading unit including a first conveying assembly for clamping down on the two articles to securely maintain a relative disposition of the two articles and advancing the two articles to a seam folding unit supported on said support table;
said seam folding unit for receiving the edges of the two articles to fold a seam, said seam folding unit including a seam folder and a second conveying assembly for conveying the two articles through said seam folder and advancing the two articles to a sewing unit supported on said support table;
said sewing unit for sewing the two articles at the seam to produce a sewn product; and,
a control system for monitoring and controlling said loading unit, said seam folding unit and said sewing unit.

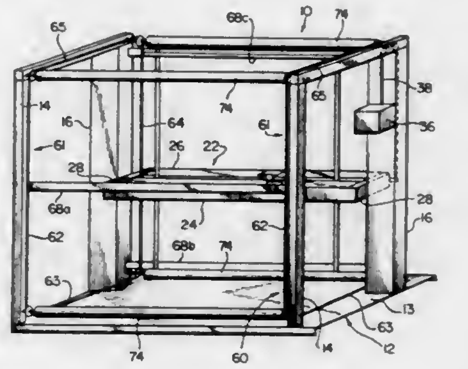
5,782,193
VERTICAL STITCHING MACHINE AND METHOD

Michael V. Schwarzberger, 7401 N. Albany, Chicago, Ill. 60645; Neal A. Schwarzberger, and Joseph C. Podolski, both of 205 Alpine Dr., Vernon Hills, Ill. 60061

Filed Feb. 25, 1997, Ser. No. 805,455

Int. Cl.^{6} D05B *21/00*

U.S. Cl. 112—470.13 **13 Claims**



1. A stitching machine for making interior seams through flexible sheet(s), comprising the combination of
a sewing machine having cooperating needle and hook components;
a conveyor having a substantially vertical run passing between the cooperating sewing machine components, and of a height in excess of the sheet(s) to be stitched;
the conveyor having means thereon to releasibly retain the leading edge of the sheet(s), and to move said leading edge to near the upper end of said vertical run and thereby have the remainder of the sheet(s) hanging vertically therebelow along the conveyor run and between the sewing machine components;
means to releasibly retain the trailing and side edges of the sheet(s) while along the vertical conveyor run, and to stretch the sheet(s) along the vertical or "Y" axis and the horizontal or "X" axis to a generally flat stitchable condition;
means to shift the cooperating sewing machine components in unison along the "X" and "Y" axes as needed to trace out an intended seam pattern relative to the flexible sheet(s); and
means to move said retained leading edge from said vertical conveyor run for removing the stitched sheet(s).

5,782,194
METHOD OF DISSIMILAR METAL ATTACHMENT TO SHIP HULLS

David G. Tipton, Severna Park, Md., assignor to Northrop Grumman Corporation, Los Angeles, Calif.

Filed Nov. 8, 1996, Ser. No. 745,983

Int. Cl.^{6} B63B *3/00*

U.S. Cl. 114—79 W **20 Claims**

1. A bimetallic hull mount assembly for reducing galvanic corrosion of a hull, comprising:
a foundation, made of a first material, welded to the hull, also made of the first material; and

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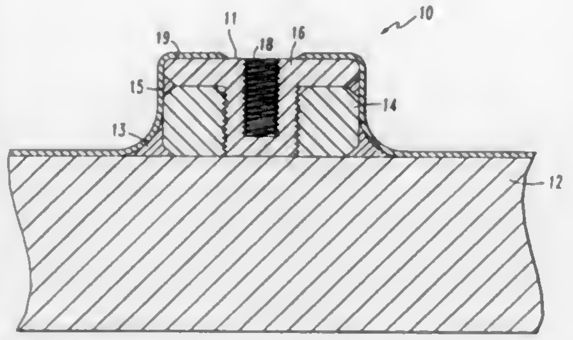


an insert, made of a second material, different from the first material, welded to said foundation;

wherein a weld area between said insert and said foundation is covered with paint.

5,782,195

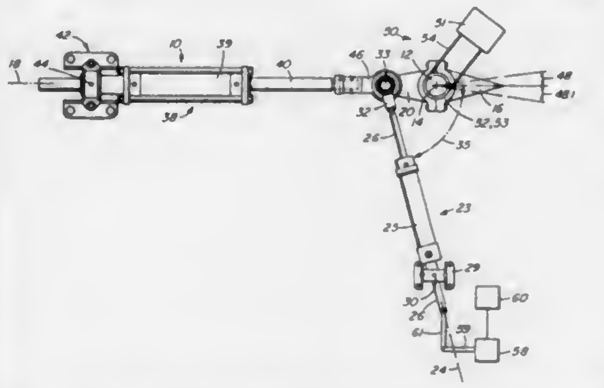
BRAKING/REVERSING RUDDER FOR MARINE VESSEL

Jacob Kobelt, 1654 Ocean Park Rd., Surrey, British Columbia, Canada, V4A 4V5

Filed Jul. 2, 1996, Ser. No. 674,677

Int. Cl.^{6} B63H *25/06*

U.S. Cl. 114—162 **30 Claims**



1. A rudder operating apparatus for swinging a rudder of a marine vessel through approximately one half of revolution about a rudder axis, the rudder operating apparatus comprising:

(a) an initiating actuator which is connected to a tiller arm, the tiller arm cooperating with a rudder stock which controls the rudder, the actuator being adapted to initiate movement of the rudder through a switching angle from an initial position of the rudder in a straight position thereof disposed generally parallel to a longitudinal vessel axis for straight line travel,

(b) a main linear actuator cooperating with the rudder stock, the main actuator being extensible and retractable along a longitudinal axis which intersects the rudder axis when the rudder is in the straight position, the main actuator being isolated from any lateral forces from the initiating actuator, and

(c) a controller directly mechanically coupled to the rudder stock remotely from the main actuator so as to be responsive to position of the rudder, the controller also selectively controlling actuation of the initiating actuator and main actuator so as to actuate the initiating actuator and main actuator in sequence to swing the rudder from the straight position thereof,

so that in order to swing the rudder from the straight position thereof, the initiating actuator can be actuated first to rotate the rudder through the switching angle, at which position the main actuator can apply additional force to generate sufficient torque on the rudder to increase the angle of the rudder up to approximately 90 degrees from the straight position to provide a braking force to the vessel.

5,782,196

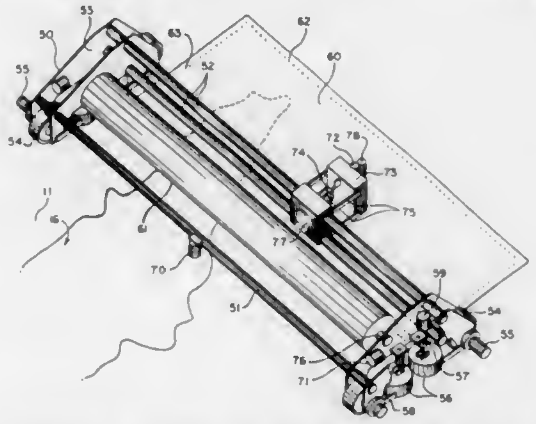
SEALING OPENINGS IN HULLS OF VESSELS

Christopher C. Cunningham, Boston; Marcel P. J. Gaudreau, Lexington, both of Mass.; Axel Sigmar, Sugar Lard, Tex., and Edward M. Hogan, Landenberg, Pa., assignors to Diversified Technologies, Inc., Bedford, Mass.

Continuation of Ser. No. 399,061, Mar. 8, 1995, Pat. No. 5,562,064. This application Oct. 4, 1996, Ser. No. 725,996

Int. Cl.^{6} B63B *43/16*

U.S. Cl. 114—229 **25 Claims**



1. Apparatus for sealing an opening in a hull of a vessel, comprising:

a vehicle for placement in water exterior to the hull of the vessel and for traversing the hull of the vessel, the vehicle including a patch for sealing the opening in the hull and a mechanism for firing fasteners through the patch into the hull to attach the patch to the hull;

a vehicle control center having a display unit, data transmission link to the vehicle, operator controls and a computer control system for controlling vehicle control parameters; and

an imaging system coupled to the vehicle control center for providing a view of the hull to the vehicle control center.

5,782,197

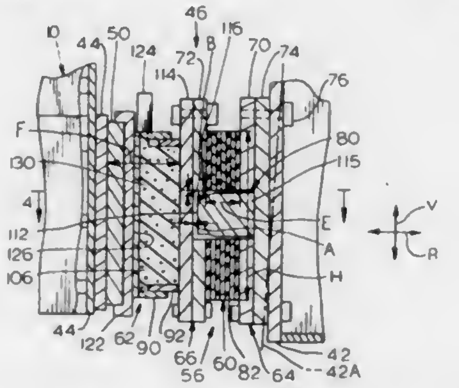
OFFSHORE TURRET LOWER BEARING

Jack Pollack, Calabasas Hills, Calif., assignor to Imodco, Inc., Calabasas Hills, Calif.

Filed Dec. 13, 1996, Ser. No. 763,718

Int. Cl.^{6} B63B *21/00*

U.S. Cl. 114—230 **19 Claims**



1. A vessel which includes a large turret that lies in a moonpool in the middle portion of a vessel hull where the turret is supported in rotation about a primarily vertical axis on the hull by upper and lower bearing assemblies, with the lower bearing assembly having an interface, and with the turret diameter at said interface being at least 20% of the hull height, where said lower bearing assembly includes a bearing ring that is substantially centered on said axis and a plurality of segment structures that include circumferentially-spaced segment bearings that lie facewise adjacent to said bearing ring at said interface, and where the bearing ring and plurality of segment structures are mounted one to a turret part and one to a hull part, wherein:

each of a plurality of said segment structures includes a base with radially spaced inner and outer base elements and a body that comprises elastomeric material lying between the elements and being elastically distortable, with said segment bearings mounted on said inner base elements, and with said segment bearings being free of direct rigid connection to each other to allow each of said segment bearings to individually deflect by deflection of the corresponding elastomeric body, to thereby minimize stresses due to distortion of said hull or turret.

5,782,198

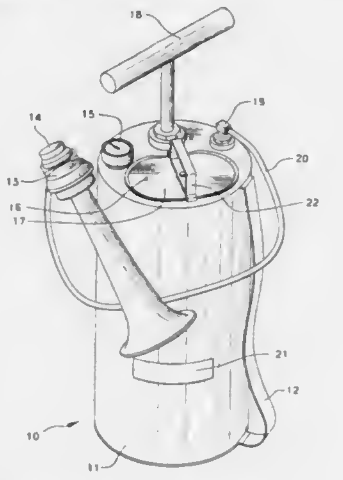
AUDIBLE WARNING DEVICE

Paul Sinclair, II, 153 Harbourton-Woodsville Rd., Lambertville, N.J. 08530, and John P. Meloney, 164 Upper Ferry Rd., Trenton, N.J. 08628

Filed Jul. 16, 1996, Ser. No. 682,986

Int. Cl.^{6} G10K *9/04*

U.S. Cl. 116—139 **18 Claims**



9. An audible warning device comprising:

a refillable pressurized air tank having a service port;

a cover for covering said service port;

an air pump being spaced from said service port for filling said tank with pressurized air, said air pump extending at least partially into said tank;

an activator for regulating air flow from said tank;

means for connecting said tank to said activator;

a horn connected to said activator to receive a portion of said pressurized air so as to be activated to produce an audible warning; and

a relief valve for depressurizing said tank.

5,782,199

DEVICE AND METHOD FOR AUTOMATICALLY MILKING OF ANIMALS

Pieter Adriaan Oosterling, Vijfhuizen, Netherlands, assignor to Prolion B.V., Vijfuizen, Netherlands

PCT No. PCT/NL95/00261, § 371 Date Jan. 28, 1997, § 102(e) Date Jan. 28, 1997, PCT Pub. No. WO96/03031, PCT Pub. Date Feb. 8, 1996

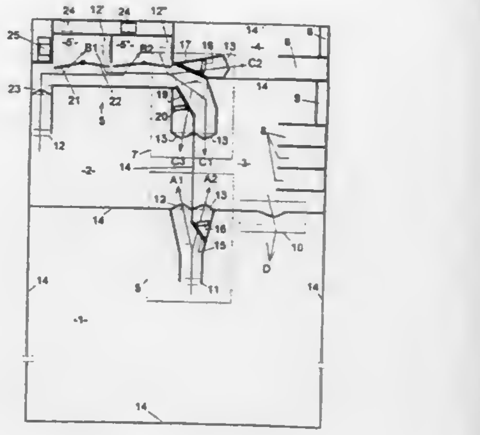
PCT Filed Jul. 27, 1995, Ser. No. 776,416

Claims priority, application Netherlands, Jul. 28, 1994, 9401238

Int. Cl.^{6} A01J *5/00*

U.S. Cl. 119—14.02 **13 Claims**

5. A method for automatic milking of animals, including the steps of:



guiding the animals by a control system via an access gate and a waiting area to at least one milking stall having an automatic milking device;

identifying milk-ripe animals by a first identification system located in the access gate;

allowing the guided animals to roam with other guided animals in the waiting area before entering the at least one milking stall in an arbitrary sequence;

identifying the animals before leaving the at least one milking stall by a second identification system;

and recording milking data in the control system.

5,782,200

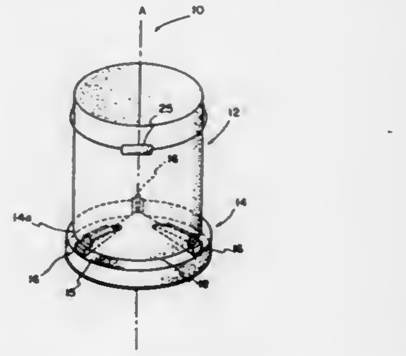
POULTRY FEEDER

James A. Knowles, 608 S. Cumberland St., Wallace, N.C. 28466; Joseph E. Knowles, 1224 Cornwallis Rd., Rose Hill, N.C. 28458; Larry M. Knowles, 1224 Cornwalli8s Rd., Rose Hill, N.C. 28458, and Marvin E. Knowles, 1224 Cornwallis Rd., Rose Hill, N.C. 28458

Filed Nov. 7, 1996, Ser. No. 745,160

Int. Cl.^{6} A01K *39/60*

U.S. Cl. 119—53 **7 Claims**



1. A gravity feeder especially for use in commercial poultry production capable of dispensing varying quantities of feed according to the dietary needs of a particular animal comprising:

a generally circular feed tray means including an upwardly projecting, conical surface having a center axis;

a generally cylindrical feed hopper means having a top opening and a bottom opening; said hopper means being positioned above and coaxial to said conical surface of said tray means, said bottom opening and said conical surface defining at least one feed means discharge opening therebetween; and adjustable means including at least one generally horizontally disposed slot formed therein, said at least one slot being adapted for engagement with at least one notch formed in an internal ledge adjacent the bottom opening of said hopper means whereby said feed tray means and said hopper means can be interlocked.

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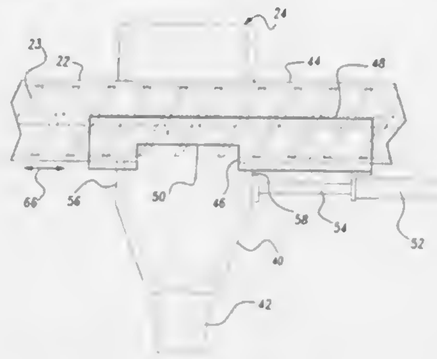
5,782,201

AUTOMATED LIVESTOCK FEEDING SYSTEM

John A. Wells, 7280 Hoyle Rd., North Adams, Mich. 49262
Filed Jul. 1, 1997, Ser. No. 886,218
Int. Cl.⁶ A01K *5/02*
U.S. Cl. 119—57.4 **15 Claims**



1. An automated livestock feed delivery system for individually delivering a pre-weighed quantity of feed to one of plural feeders to ensure that feed is always available in the feeder, the system comprising:

a weighing hopper for holding a quantity of feed;
weighing means for weighing feed within the weighing hopper;
one or more feed storage bins for one or more storing feed;
first feed moving means for delivering feed from one of the storage bins to the weighing hopper;
a feed delivery conduit containing second feed moving means for moving feed from the weighing hopper to one of the plural feeders;
a plurality of feed drop boxes located serially along the conduit, each drop box positioned above and associated with one of the plural feeders, the conduit having an opening therein at each drop box to enable feed to drop from the conduit into each drop box;
a movable valve member covering each opening in the conduit in a closed position to prevent feed from dropping into the drop box;
valve member moving means for moving each valve member to an open position in which the opening in the conduit is uncovered whereby feed is able to drop from the conduit into the drop box, the valve member moving means operable to move each valve member independently of the other valve members;
a drop tube for directing feed from each drop box to the associated feeder therebelow; and
a programmable controller for controlling the operation of the weighing means, the first feed moving means, the second feed moving means, and the valve member moving means and for recording the weight of feed delivered to each of the plural feeders.

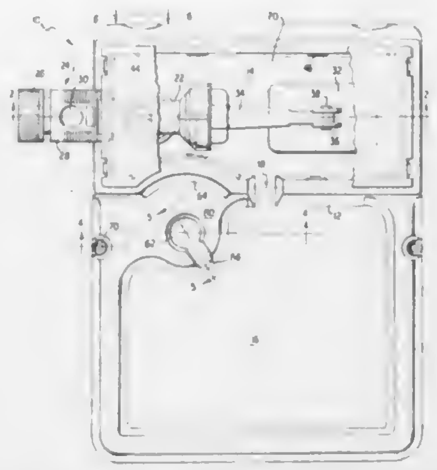
5,782,202

AUTOMATIC WATERING DISH

George B. Strickland, Fayetteville, N.C., assignor to Dogloo, Inc., Corona, Calif.
Filed Apr. 3, 1995, Ser. No. 415,258
Int. Cl.⁶ A01K *7/00*
U.S. Cl. 119—78 **11 Claims**

1. A watering dish capable of holding water and debris, said watering dish comprising:

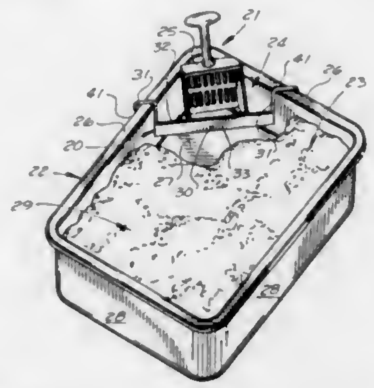
(a) a valve chamber having a bottom,
(b) an inlet valve operatively connected to said valve chamber for supplying water to said valve chamber,
(c) a drinking reservoir adjacent said valve chamber, and
(d) a partition between said valve chamber and said drinking reservoir, said partition having an aperture therein for providing fluid communication between said valve chamber and said drinking reservoir, said bottom of said valve chamber being sloped toward said drinking reservoir, said aperture extending to said bottom of said valve chamber for allowing the debris in said valve chamber to pass to said drinking reservoir, said inlet valve having an inlet channel for directing the water toward said bottom of said valve chamber for washing the debris out of said valve chamber, said valve chamber having a notch for receiving said inlet valve, said inlet valve and said valve chamber further having interacting tab means and opening means for slidably receiving said inlet valve during assembly and for securely holding said inlet valve in a unique, predetermined orientation in said notch.



5,782,203

ANIMAL LITTER SCOOP RETAINING SYSTEM

Leslie I. Tennen, 849 N. Third Ave., Phoenix, Ariz. 85003
Filed Aug. 6, 1996, Ser. No. 692,708
Int. Cl.⁶ A01K *1/035*
U.S. Cl. 119—166 **20 Claims**



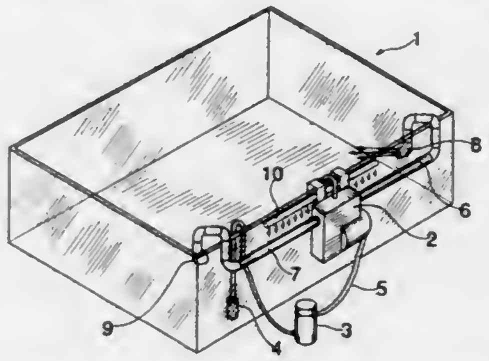
1. An animal litter scoop retaining system, for use with a litter box having a bottom and upstanding wall portions of at least about height h, said bottom and all said wall portions defining an exterior and an interior for litter containment, said system comprising:

a. obstruction means for creating a partial obstruction in a said interior for litter containment;
b. attachment means for attaching said obstruction means to a said litter box for location between a first said wall portion and a second said wall portion, in such manner as to define a said interior for litter containment into a small first space and a large second space horizontally adjacent to said small first space;
c. said obstruction means having a longitudinal axis and being structured and arranged to comprise, when attached to a said litter box, a longitudinal substantially-obstructive bar portion situate between a said first space and a said second space at a height of at least about one-half of h above a said bottom and along said longitudinal axis.

5,782,204

WAVEMAKER FOR LIVING AQUARIUMS

Kenneth Rahn, Shirley, N.Y., assignor to Tidaltronics Inc., Shirley, N.Y.
Filed Apr. 3, 1997, Ser. No. 832,500
Int. Cl.⁶ A47K *3/10;* A01K *63/100*
U.S. Cl. 119—255 **7 Claims**



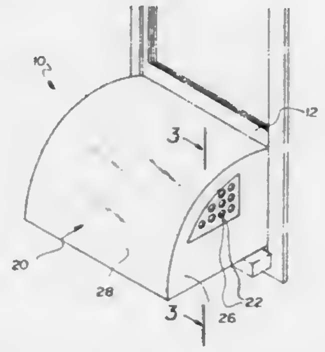
1. An aquarium wavemaker for making pulsed water-flow waves reciprocally in differing directions within the aquarium, comprising:

a. pump means for pressured circulation of aquarium water;
b. a plurality of water outlet means for directing outlet water in differing directions within the aquarium;
c. a plurality of water outflow valves matched to said respective water outlet means for controlling pressured circulation of aquarium water;
d. reciprocating piston means for controlling said water outflow valves reciprocally so as to open one outflow valve while closing all others; and
e. force application means for forcing reciprocal motion of said reciprocating piston means.

5,782,205

WINDOW MOUNTED COMBINATION PORCH AND CAGE SYSTEM

Richard Veras, 43 Hollywood Ave., Cranford, N.J. 07016
Filed Jan. 7, 1997, Ser. No. 779,847
Int. Cl.⁶ A01K *1/03*
U.S. Cl. 119—484 **10 Claims**



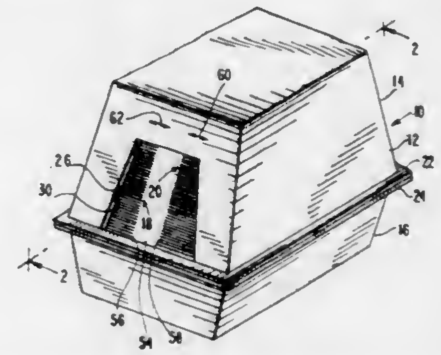
1. A combination porch and cage system for mounting within a window, the porch and cage system comprising:

a container having a floor, side walls and an arcuate roof extending upwardly from the floor to form a rectangular opening adapted to fit within an opening of the window, said container including a plurality of ventilation apertures into said side walls for providing ventilation to a house pet;
an upper lip secured to said arcuate roof adapted for engaging an upper interior portion of the window;
a lower lip secured to said floor, the lower lip adapted for engaging a lower interior portion of the window; and
a track secured to said side walls for slidably receiving a vent cover for selectively covering said ventilation apertures during unfavorable weather conditions.

5,782,206

LITTER BOX HAVING A GROOMING DEVICE

Eli Markowitz, 1173 52nd St., Brooklyn, N.Y. 11219
Filed Jan. 7, 1994, Ser. No. 179,044
Int. Cl.⁶ A01K *1/035*
U.S. Cl. 119—622 **15 Claims**



1. A litter box apparatus for an animal comprising:

an enclosure including a front panel, a rear panel, a pair of side panels, a bottom panel and a top panel, with said front panel including an aperture for entry and exit for an animal;
fastener means mounted on said front panel;
a first brush means with said first brush means comprising a first base member and a plurality of bristles and first fastener means mounted on said first base member, with said first fastener means cooperating with said fastener means on said front panel to attach said first brush means to said front panel with said bristles projecting into said aperture for grooming an animal entering or leaving said enclosure;
a second brush means with said second brush means comprising a base member and a plurality of bristles and fastener means mounted on said second base member, with said second fastener means cooperating with said fastener means on said front panel to attach said second brush means to said front panel with said bristles projecting into said aperture;
a third brush means with said third brush means comprising a third base member and a plurality of bristles and third fastener means mounted on said third base member, with said third fastener means on said third brush means cooperating with said third fastener means on said front panel to attach said third brush means to said front panel with said bristles projecting into said aperture;
a fourth brush means with said fourth brush means comprising a fourth base member and a plurality of bristles and fourth fastener means mounted on said base member with said fastener means on said fourth brush means cooperating with said fastener means on said front panel to attach said fourth brush means to said front panel with said bristles projecting into said aperture;
four removal connector means connecting each of said four brush means to form a rectangular frame having two of said four brush means vertically disposed and two of said four brush means horizontally disposed, with each of said vertically disposed brush means connected to said front panel.

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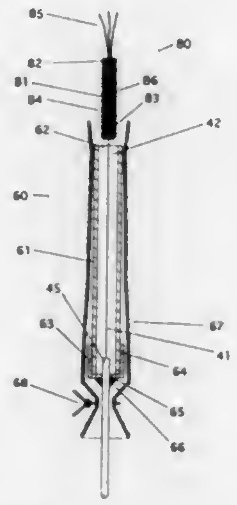
5,782,207
INTERACTIVE PET TOY

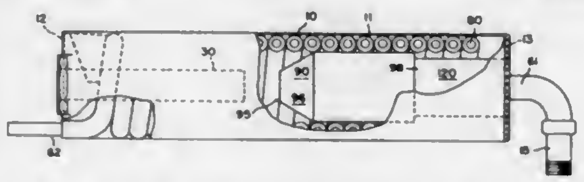
Thomas J. Goodham, 1821 NW. 65th St., Seattle, Wash. 98117
Filed Jan. 31, 1997, Ser. No. 791,733
Int. Cl.^{6} A01K *29/00*
U.S. Cl. 119—707 **4 Claims**



1. A pet toy, comprising:
- (A) a mouse, comprising:
  - (a) a tubular body having a cloth cover; and
  - (b) a plurality of whiskers, extending from the forward end of the tubular body and
- (B) a driving cable, comprising
  - (a) an inner cable, having a forward end and a rearward end, the forward end attached to the mouse; and
  - (b) an outer cable, having a forward end,
- (C) a housing, having first fastening means for securing the forward end of the outer cable; and
- (D) a handle, the handle having a second fastening means, carried by the handle, for attaching to the rearward end of the inner cable to the handle.

5,782,208
WATER BOILER WITH METAL CORE

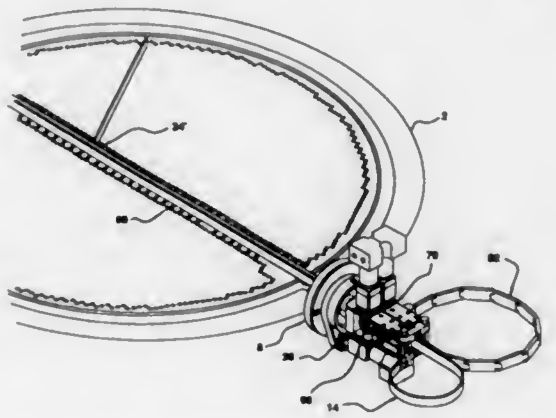
David Lackstrom, Cape Canaveral, Fla., and John Horrocks, Elyria, Ohio, assignors to Glowcore Acquisition Company, Chicago, Ill.
Continuation-in-part of Ser. No. 525,223, Sep. 8, 1995, Pat. No. 5,671,700, which is a continuation of Ser. No. 260,335, Jun. 15, 1994, abandoned. This application Jun. 11, 1996, Ser. No. 661,746
Int. Cl.^{6} F22B *23/06;37/10*
U.S. Cl. 122—367.3 **23 Claims**



1. In a water boiler having a convection burner and coiled heat exchanger tube contained within an enclosed shell, the coiled tube being located between the core and the enclosed shell, the core and the enclosed shell being separated by an aggregate distance,
- the burner generating products of combustion including unburned residue, the center of the coiled tube being plugged by a core extending therein,
- the improvement of the core being metal, the core having a top directed towards the burner, the top of the core having a reducing diameter facing the burner, means for said reducing diameter top to concentrate the products of combustion flowing longitudinally away from the burner between the core and the coiled heat exchanger tube at the interjection between the top of the core and the surrounding coiled heat exchanger tube so as to develop a relatively high temperature threat so as to destroy any unburned residue at this location,
- heat exchanging elements, said heat exchanging elements extending off of the coiled tube and said heat exchanger elements filling the aggregate distance between the core and the enclosed shell.

5,782,209
SEGMENTED AUTOMATED SLUDGE LANCE

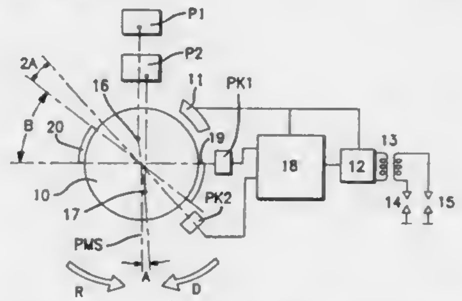
James P. Vandenberg, Cambridge, Canada, assignor to The Babcock & Wilcox Company, New Orleans, La.
Filed Sep. 20, 1995, Ser. No. 530,814
Int. Cl.^{6} F22B *37/18;37/52*
U.S. Cl. 122—379 **9 Claims**



1. A segmented automated sludge lance for removing sludge located between tubes within a steam generator, comprising:
- a lance guide channel constructed to extend and be supported in a steam generator, said lance guide channel having a U-shape and having a groove located on each side of a leg of the U-shape;
- a waterlance movably contained within said lance guide channel, said waterlance being constructed to remotely move within said lance guide channel and extend from said lance guide channel at a preset angle and a predetermined length between tubes of the steam generator, said waterlance further being constructed to receive a fluid and direct the fluid into the steam generator to remove sludge therefrom;
- a segmented lance guide having a plurality of segments hingedly connected together, said segmented lance guide having a guide head hingedly attached to a segment at one end for directing said waterlance at the preset angle, said segmented lance guide being movably contained within said lance guide channel with said guide head, each of said segments being at least about three times thicker than a thickness of said waterlance;
- first means for remotely moving said segmented lance guide with said waterlance in the steam generator, said first means for moving being positioned outside the steam generator; and
- second means for remotely moving said waterlance out from said lance guide channel in between the tubes of the steam generator, said second means for moving being positioned outside the steam generator.

5,782,210
ELECTRONIC IGNITION SYSTEM FOR REVERSIBLE INTERNAL-COMBUSTION ENGINES

Alessandro Venturoli, and Gianni Regazzi, both of Bologna, Italy, assignors to Ducati Energia S.p.A., Bologna, Italy
Filed Jun. 18, 1996, Ser. No. 665,687
Claims priority, application Italy, Jun. 21, 1995, MI95A1333
Int. Cl.^{6} F01L *13/02;* **F02P** *7/067*
U.S. Cl. 123—41 E **11 Claims**

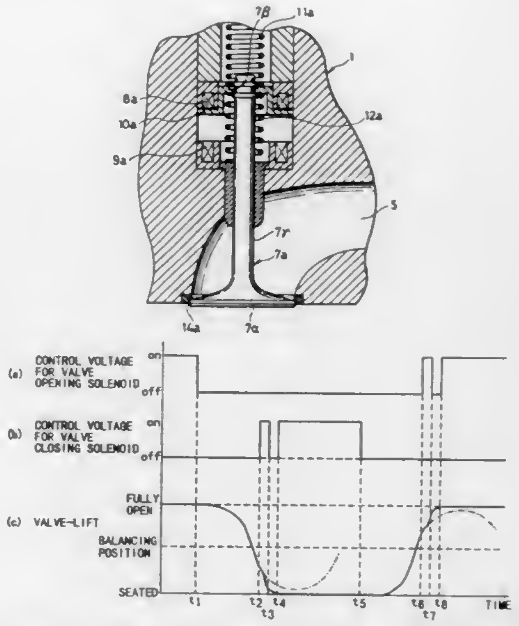


1. An electronic ignition system suitable for a reversible combustion engine, in which the engine comprises at least one piston reciprocable inside a respective cylinder, between a top dead centre and a bottom dead centre, and in which the piston is linked to the rotor of a voltage generator for powering an ignition circuit of the engine, and in which an electronic control unit is provided for controlling said ignition circuit, comprising:
- a first timing means (PK1) cyclically actuated by the rotor of the voltage generator to provide a control signal indicative of the forward rotation of the engine, and
- a second timing means (PK2) cyclically actuated by said rotor, said second timing means (PK2) being angularly spaced apart from the first timing means (PK1), in the forward direction of rotation of the engine, to provide a phase-delayed control signal during forward rotation, and to supply a phase-advanced control signal during reverse rotation of the engine, with respect to the first timing means (PK1), and
- wherein said electronic control unit comprises a microprocessor provided with program means to control the ignition procedures of the ignition circuit of the engine both during forward rotation and reverse rotation, and means to allow reversal of the engine rotation below a predetermined number of revolutions of the engine, in relation to timing signals provided by said first and second timing means.

5,782,211
ELECTROMAGNETICALLY OPERATED VALVE DRIVING SYSTEM

Shinji Kamimaru, Tokyo, Japan, assignor to Fuji Jukogyo Kabushiki Kaisha, Tokyo, Japan
Filed Aug. 15, 1997, Ser. No. 911,657
Claims priority, application Japan, Aug. 30, 1996, 8-230094
Int. Cl.^{6} F01L *9/04*
U.S. Cl. 123—90.11 **2 Claims**

1. An electromagnetically operated valve driving system of an engine having a combustion chamber, an intake or exhaust valve including a valve body for opening and closing said combustion chamber, a valve stem for supporting said valve body, an armature connected with said valve stem, a first solenoid for attracting said armature and for driving said valve body so as to open said combustion chamber and a second solenoid for attracting said armature and for driving said valve body so as to close said combustion chamber, and a control apparatus for energizing or deenergizing said first and second solenoids, comprising:
- at least one spring for balancing said valve body on a specified position between the fully open and fully closed positions of said valve body and for exerting a restoring force of said valve body; and
- valve closing control means for at least once stopping energizing said second solenoid immediately before said intake or exhaust valve is fully closed, so as to reduce a traveling speed of said valve body when said valve body is seated, when said intake or exhaust valve is closed.

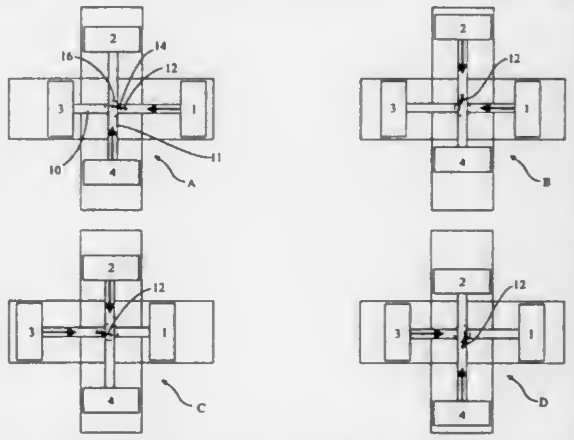


5,782,212

Patent Not Issued For This Number

5,782,213
INTERNAL COMBUSTION ENGINE

Laust Pedersen, 21291 High Country Dr., Trebuco Canyon, Calif. 92679
Filed Apr. 7, 1997, Ser. No. 835,293
Int. Cl.^{6} F02B *75/22*
U.S. Cl. 123—55.2 **20 Claims**



1. An improved internal combustion engine, comprising:
- a block having a first and second cylinder, said first cylinder disposed along a first axis and said second cylinder disposed along a second axis, the second axis in orthogonal alignment with the first axis, and said block further including at least one ring gear means;
- a first piston reciprocal in said first cylinder;
- a second piston reciprocal in said second cylinder;
- a first connecting member attached to said first piston in alignment with said first cylinder and further defined by a first crank aperture;

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- a second connecting member attached to said second piston in alignment with said second cylinder and further defined by a second crank aperture;
- an orbital crankshaft having first and second lobes, said first lobe configured to orbit in said first crank aperture and said second lobe configured to orbit in said second crank aperture, said crankshaft orbital and rotatable about a third axis, and said crankshaft further comprising at least one planetary gear means, each said planetary gear means aligned to engage one said ring gear means and configured such that for every two rotations of said crankshaft, each said planetary gear means completes one orbit around said at least one ring gear means and said ring gear means, planetary gear means, pistons, connecting members, lobes, crankshaft and bearing means being dependently configured to dissipate substantially the entirety of any transverse forces between said pistons and said cylinders; and
- means, rotatable about the third axis, and extending from said crankshaft, for providing output power from the engine.

5,782,214
EXHAUST TIMING CONTROL FOR A PLANING-TYPE BOAT

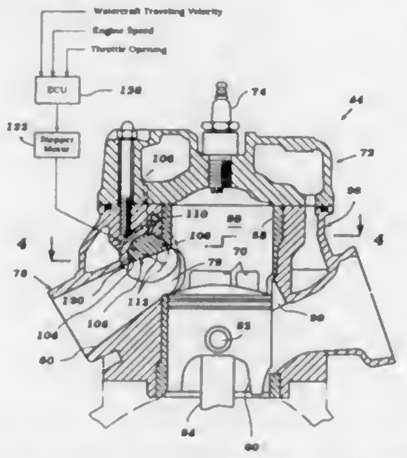
Masayoshi Nanami, Hamamatsu, and Ryoichi Nakase, Iwata, both of Japan, assignors to Sanshin Kogyo Kabushiki Kaisha, Shizuoka-Ken, Japan

Filed Jun. 20, 1996, Ser. No. 666,246

Claims priority, application Japan, Nov. 28, 1995, 7-309366

Int. Cl.^{6} B63H *21/26*

U.S. Cl. 123—65 PE **8 Claims**



1. A two-cycle internal combustion engine for a watercraft, said engine comprising a cylinder block having a cylinder bore, a piston reciprocating in said cylinder bore, an exhaust port formed in said cylinder block extending from said cylinder bore for exhausting combustion products from said cylinder bore, an exhaust control valve cooperable with said exhaust port and movable between at least a first position for advancing the closing of said exhaust port so as to increase the compression ratio in the engine and a second position for delaying the closing of said exhaust port so as to decrease the compression ratio in the engine, and means for controlling the position of said exhaust control valve dependent upon a water condition.

5,782,215
INTAKE/EXHAUST VALVE

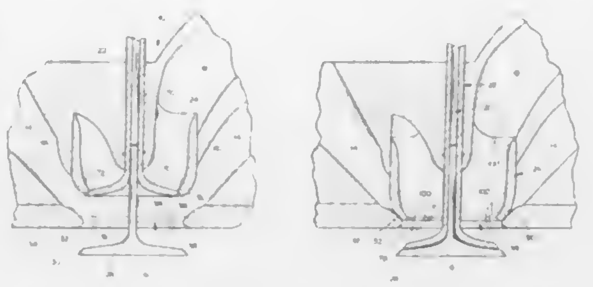
Mark M. Engelmann, 730 Madison Ave., Council Bluffs, Iowa 51503

Filed Jun. 13, 1997, Ser. No. 874,310

Int. Cl.^{6} F01L *1/28*

U.S. Cl. 123—79 C **17 Claims**

1. A valve assembly, comprising:



- a block having a chamber formed therein and a port for accessing the chamber;
- a fluid inlet passage formed through said block and communicating with said port;
- a fluid exhaust passage separate from the inlet passage and communicating with said port;
- said port having a portion defining a lower valve seat and a portion defining an upper valve seat;
- a main valve having a head movable into and out of engagement with the lower valve seat to respectively close and open said port;
- an auxiliary valve having a head disposed for movement through said port between a first position disposed below the port and permitting fluid flow therethrough, and a second position disposed above the port and permitting fluid flow therethrough;
- said auxiliary valve head including a portion defining a third valve seat;
- a hollow cylindrical valve having a generally vertically oriented cylindrical wall with upper and lower ends, disposed for movement into and out of engagement with the upper valve seat to respectively close and open the inlet passage's communication with the port;
- said cylindrical valve hollow passage being in communication with the exhaust passage throughout its movement;
- said auxiliary valve head disposed for movement of the third valve seat into and out of engagement with the cylindrical valve lower end, to respectively close and open the hollow passage through the cylindrical valve; and
- means for sequentially moving said main valve head out of engagement with the lower valve seat, moving said auxiliary valve upwardly to the second position and moving said cylindrical valve out of engagement with the upper valve seat, to define an intake position to permit the flow of fluid from the inlet passage, through the port, to the chamber.

5,782,216
ENGAGEABLE TAPPET FOR A VALVE DRIVE OF AN INTERNAL COMBUSTION ENGINE

Michael Haas, Weisendorf; Gerhard Maas, Herzogenaurach; Walter Speil, Ingolstadt, and Birger Wollboldt, Rodgau/Hainhausen, all of Germany, assignors to INA Walzlager Schaeffler KG, Germany

PCT No. PCT/EP95/03317, § 371 Date Apr. 9, 1997, § 102(e) Date Apr. 9, 1997, PCT Pub. No. WO96/12092, PCT Pub. Date Apr. 25, 1996

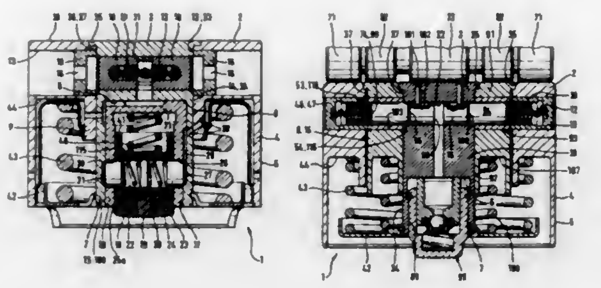
PCT Filed Aug. 21, 1995, Ser. No. 817,406

Claims priority, application Germany, Oct. 15, 1994, 44 36 952.2

Int. Cl.^{6} F01L *1/14;1/24;13/00*

U.S. Cl. 123—90.16 **44 Claims**

1. A tappet (1) for a valve drive of an internal combustion engine comprising an annular bottom portion (2) arranged concentrically around a circular bottom portion (3), the annular bottom portion (2) being contacted by at least one cam (71) of higher lift than a cam contacting the circular bottom portion (3), and said annular and circular bottom portions (2, 3) being slidable relative to each other, the tappet (1) being guided for longitudinal displacement in a bore (114) of a cylinder head (70) by a skirt (4) connected to the annular bottom portion (2), while a cam-distal end surface (6) of the circular bottom portion (3) received a guide bush (7) which is at least partly surrounded by a bore (8) of the annular bottom portion (2), at least one radially displaceable first piston (**10**) which serves as a coupling element for a selective positive coupling between the two bottom portions (**2**, **3**) in a base circle phase of the cams (**71**, **72**) being arranged in a region near the two bottom portions (**2**, **3**), and said first piston (**10**) can be loaded in at least one direction of travel by a hydraulic medium and in an opposite direction of travel optionally by hydraulic medium or by the force of a spring (**12**), while, to establish a coupled state, said first piston (**10**) overlaps a separating surface (**14**) extending between said two bottom portions (**2**, **3**) characterized in that an inner piston (**18**) is slidably arranged in a bore (**17**) of the guide bush (**7**) at a distance from the cam-distal end surface (**6**) of the circular bottom portion (**3**), an opposite end surface (**19**) of the inner piston (**18**) cooperating at least indirectly with an end of a valve stem, and the inner piston (**18**) comprises at least one radial bore (**22**) for lodging a second piston (**23**) which constitutes a coupling element which is displaceable in the base circle phase of the cams (**71**, **72**) optionally by hydraulic medium or by the force of at least one spring (**24**).



5,782,217
PISTON FOR TWO CYCLE ENGINE

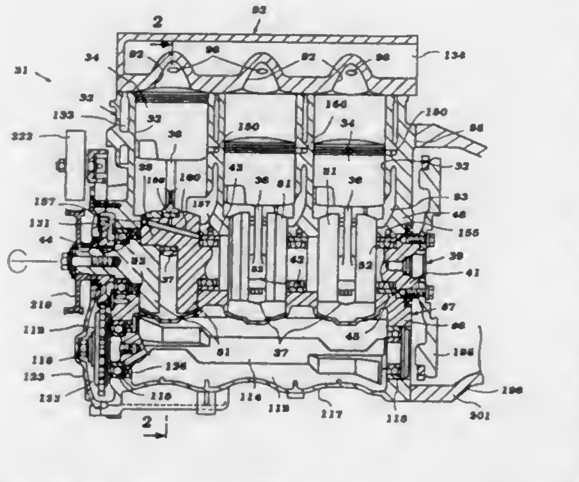
Eiichi Ito, and Akihiko Okubo, both of Iwata, Japan, assignors to Yamaha Hatsudoki Kabushiki Kaisha, Iwata, Japan

Continuation of Ser. No. 317,671, Oct. 5, 1994, abandoned. This application Jul. 22, 1996, Ser. No. 681,074

Claims priority, application Japan, Oct. 12, 1993, 5-280230

Int. Cl.^{6} F02F *5/00*

U.S. Cl. 123—193.6 **24 Claims**



1. An internal combustion engine comprising a cylinder defining a cylinder bore, a piston reciprocating in said cylinder bore and formed with at least one ring groove, a piston ring received in said ring groove and defining a gap at its adjacent ends, means for fixing said piston ring in said ring groove of said piston for limiting the relative rotation therebetween, and a fuel injector for spraying fuel into said cylinder bore in a direction toward said piston ring gap.

5,782,218
EVAPORATED FUEL TREATMENT DEVICE OF AN ENGINE

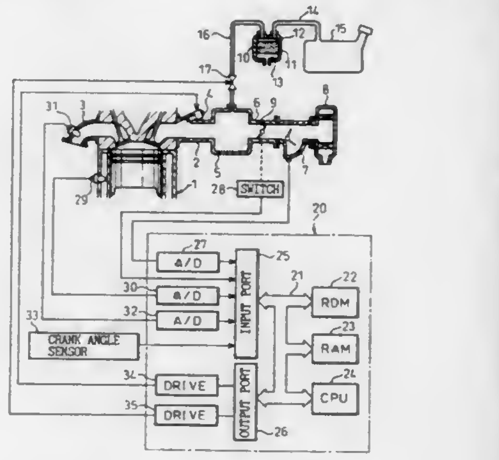
Osanai Akinori, Susono, Japan, assignor to Toyota Jidosha Kabushiki Kaisha, Aichi, Japan

Filed Sep. 3, 1997, Ser. No. 922,529

Claims priority, application Japan, Sep. 4, 1996, 8-234449

Int. Cl.^{6} F02B *77/00;* F02M *33/02*

U.S. Cl. 123—198 D **13 Claims**



1. An evaporated fuel treatment device for an engine provided with an intake passage, comprising:

- a purge control valve for controlling an amount of purge of fuel vapor to be purged to the intake passage;
- purge control means for controlling the amount of opening of the purge control valve so that a purge rate of fuel vapor to the intake passage becomes a target purge rate determined by the operating state of the engine; and
- judging means for judging if the engine has stalled due to the purge action of the fuel vapor, said purge control means restarting the purge action by a purge rate lower than the purge rate at the time when the engine stalled when restarting the engine after it is judged that the engine has stalled due to the purge action of fuel vapor.

5,782,219
RECIPROCATING ENGINE WITH A WOBBLE PLATE TRANSMISSION

Michael Frey, Lindau, Germany; Frank Obrist, Dornbirn, Australia, and Peter Kuhn, Weinheim, Germany, assignors to Audi Aktiengesellschaft, Ingolstadt; Bayerische Motoren Werke Aktiengesellschaft, Munich, and Mercedes-Benz Aktiengesellschaft, Stuttgart, all of Germany

Filed Apr. 23, 1997, Ser. No. 842,133

Claims priority, application Germany, Apr. 27, 1996, 196 16 961.5

Int. Cl.^{6} F02B *75/26*

U.S. Cl. 123—56.3 **5 Claims**

1. Reciprocating engine with a wobble plate transmission, whose wobble plate (3) has a first wobble plate part (5) rotating with the engine shaft (4) and a second wobble plate part (6) in drive connecting with several pistons (2) and between which is located a rotary bearing (7, 8) transmitting the wobbling movement, the first wobble plate part (5) being connected to the engine shaft (4) by means of a wobble joint (9, 11) allowing different inclined positions, in that a driving pin (9) with engagement in a guide slot (**11**, **11'**) extends through driving extensions (**10**, **12**, **12'**), one being provided on the engine shaft (4) and the other on the wobble plate part (5) and between the driving pin (9) and at least one of the driving extensions (**10**, **12**, **12'**) is provided at least one wear-reducing engine component (32–37, **41**, **42**, **47**) carried by the driving pin (9), characterized in that the driving pin (9) extends through a driver (**10**), which engages between bearing cheeks (**12**,

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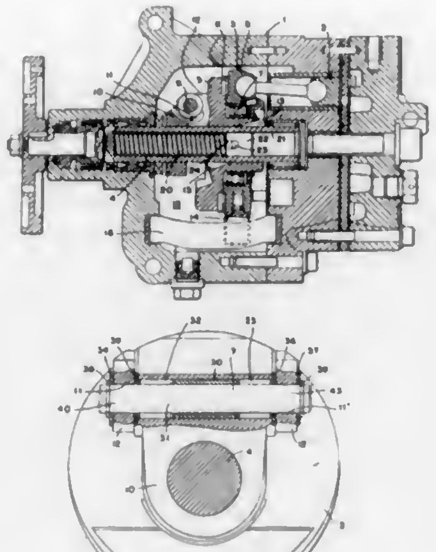


12') forming driving extensions, the guide slots (11, 11') are provided on the bearing cheeks (12, 12'), which have a mutual spacing corresponding to one to two times the diameter of the engine shaft (4) and the at least one wear-reducing engine component is an engine component (32–37, 41, 42, 47) reducing friction by rolling contact.

5,782,220

Patent Not Issued For This Number

5,782,221
METHOD AND APPARATUS FOR DECREASING THE LOAD CHANGE REACTIONS IN A MOTOR VEHICLE

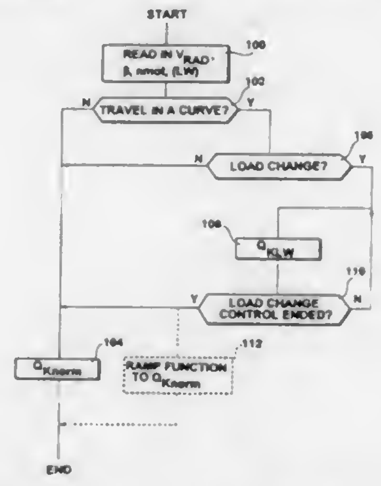
Sven Woldt, Vaesterlanda, Sweden, assignor to Robert Bosch GmbH, Stuttgart, Germany

Filed Oct. 23, 1996, Ser. No. 735,694

Claims priority, application Germany, Dec. 20, 1995, 195 47 717.0

Int. Cl.^{6} F02D *41/04;* **B60K** *27/08*

U.S. Cl. 123—436 **18 Claims**



1. Method for decreasing a load change reaction in a vehicle having pedal and an engine which generates power for driven wheels, said method comprising:

monitoring at least one of engine speed and gas pedal position,

adjusting the power of the engine as a function of at least one of said engine speed and said gas pedal position,

determining at least one of a rate of change of the gas pedal position and a rate of change of the engine speed,

recognizing a load change situation when, irrespective of the gas pedal position, at least one of said rate of change of said gas pedal position and said rate of change of said engine speed exceeds a predetermined value representing fast release of the gas pedal,

increasing said power is adjusted as a function of at least one of said engine speed and gas pedal position responsive to said recognition of a load change situation.

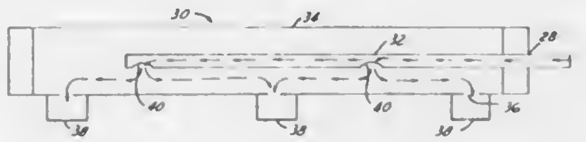
5,782,222
APPARATUS AND METHOD FOR SUPPLYING AN ALTERNATE FUEL SUBSTANTIALLY SIMULTANEOUSLY TO FUEL INJECTORS

James R. Morris, Newport News; Neil D. Schoenberg, Suffolk, and Jack R. Lorraine, Newport News, all of Va., assignors to Siemens Automotive Corporation, Auburn Hills, Mich.

Filed Mar. 19, 1997, Ser. No. 820,203

Int. Cl.^{6} F02M *37/04*

U.S. Cl. 123—456 **12 Claims**



1. A fuel supply system for delivery of a first fuel to a plurality of fuel injectors followed by delivery to said plurality of injectors of a second fuel different from said first fuel, comprising:

a housing having spaced inlets for supplying fuel to the respective fuel injectors; and

a fuel supply line within said housing having a plurality of outlets configured and arranged relative to said spaced fuel inlets to supply via the housing the second fuel, different from the first fuel, substantially simultaneously to the inlets to the fuel injectors when changing over from the first fuel to the second fuel.

5,782,223
FUEL SUPPLY SYSTEM

Keiichi Yamashita; Kouji Izutani; Kingo Okada, and Hideto Takahashi, all of Kariya, Japan, assignors to Nippondenso Co., Ltd., Kariya, Japan

Filed Aug. 8, 1996, Ser. No. 694,069

Claims priority, application Japan, Feb. 3, 1995, 7-017308

Int. Cl.^{6} F02M *37/04*

U.S. Cl. 123—510 **24 Claims**

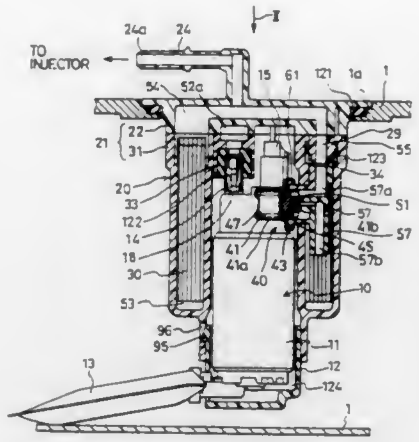
1. A fuel supply system for supplying fuel to a fuel consumption unit, comprising:

a fuel pump having a cylindrical appearance;

a fuel filter for filtering the fuel to be delivered to said fuel consumption unit and having a shape corresponding to an outer periphery of said fuel pump;

other parts forming a part of said fuel supply system, said other parts being separate from said fuel pump and said fuel filter;

a holding member holding a plurality of parts for said fuel supply system, said holding member holding said fuel pump, holding said fuel filter around the outer periphery of said fuel pump windingly and holding said other parts around the outer periphery of said fuel pump at a position overlapping in the peripheral direction of said fuel pump with respect to said fuel filter.



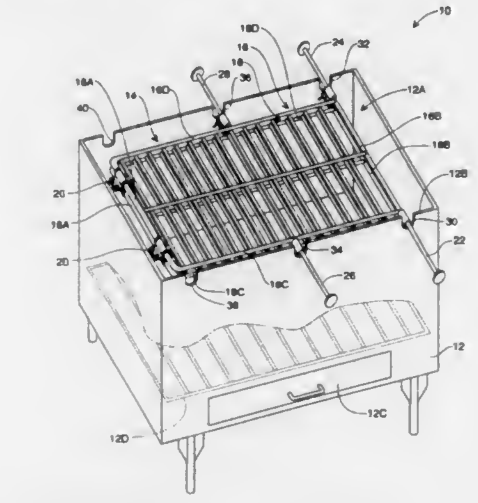
5,782,224
GRILL WITH ROTATING RACK

Robert L. Rabell, 10560 E. Washington St., Albion, Pa. 16401

Filed Feb. 6, 1997, Ser. No. 816,744

Int. Cl.^{6} A47J *37/00;* **F24B** *3/00*

U.S. Cl. 126—25 R **3 Claims**



1. An apparatus for cooking food comprising:

a first rack and a second rack;

the first rack having a first rack first end opposite a first rack second end, and a first rack first side opposite a first rack second side;

the second rack having a second rack first end opposite a second rack second end, and a second rack first side opposite a second rack second side;

the first rack first end hingedly connected to the second rack first end to form a rack assembly adapted to hold food between the first rack and the second rack;

a first handle extending outwardly from the first rack first side at the first rack second end;

a second handle extending outwardly from the first rack second side at the first rack second end;

a first extension extending outwardly from the second rack first side opposite the first handle;

a first retaining member comprising a first sleeve and a second sleeve disposed parallel to each other;

the first handle having the first sleeve slidably retained thereon;

the second sleeve configured to be slidably positionable on the first extension;

a selectively engageable second sleeve retaining means for retaining the second sleeve on the first extension;

a second extension extending outwardly from the second rack second side opposite the second handle;

a second retaining member comprising a third sleeve and a fourth sleeve disposed parallel to each other;

the second handle having the third sleeve slidably retained thereon;

the fourth sleeve configured to be slidably positionable on the second extension;

a selectively engageable fourth sleeve retaining means for retaining the fourth sleeve on the second extension;

a first pivot arm extending outwardly from the rack assembly;

a second pivot arm extending outwardly from the rack assembly and disposed opposite the first pivot arm;

a base adapted to provide a source of heat to food placed between the first rack and the second rack;

the base having a top opening bounded by a rim;

the rim including structure forming a first pivot arm support, a first handle support, and an alternate first handle support, the first handle support and the alternate first handle support located on opposite sides of the first pivot arm support;

the rim including structure forming a second pivot arm support, a second handle support, and an alternate second handle support, the second handle support and the alternate second handle support located on opposite sides of the second pivot arm support;

the first and second pivot arm supports, the first and second handle supports, and the alternate first and alternate second handle supports configured and positioned to permit the rack assembly to be pivoted about the first and second pivot arms from a first position wherein the rack assembly is substantially horizontal, the first rack is above the second rack, and the first and second handles are supported respectively by the first and second handle supports, to a second position wherein the rack assembly is substantially horizontal, the second rack is above the first rack, and the first and second handles are supported respectively by the alternate first and alternate second handle supports.

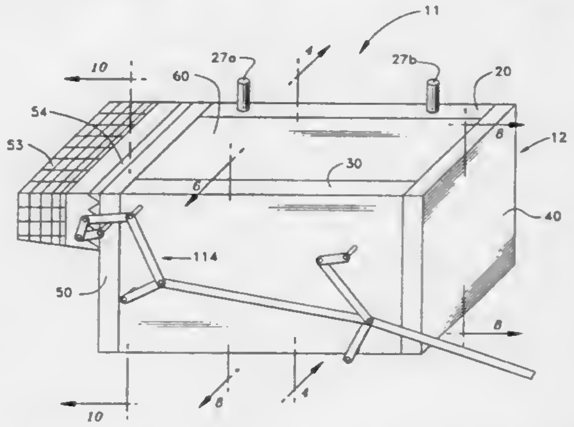
5,782,225
VAPORIZATION SYSTEM

Allen Caggiano, c/o Pat McCorry, Esq. 43 Kenwood Dr., Plymouth, Mass. 02360-2117

Continuation of Ser. No. 420,749, Apr. 12, 1995. This application Nov. 21, 1997, Ser. No. 975,880

Int. Cl.^{6} F02G *5/00;* **F02M** *23/14*

U.S. Cl. 123—545 **15 Claims**



1. A fluid vaporization system comprising:

a first inlet for receiving a first fluid; a second inlet for receiving a second fluid; a first discharge for discharging the first fluid and the second fluid; a plurality of first interconnected pas-

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sages connecting the first inlet and the second inlet in fluid communication with the first discharge for mixing the first fluid and the second fluid to form a fluid mixture and delivering the fluid mixture to the first discharge; a third inlet for receiving a third fluid; a second discharge for discharging the third fluid; a second connecting passage in heat transfer relationship with the first connecting passages and connecting the third inlet in fluid communication with the second discharge for delivering the third fluid from the third inlet to the second discharge to effect transfer of heat energy between the third fluid and the fluid mixture to vaporize the fluid mixture and discharge the mixture by the first discharge in a vaporized state; and a controller disposed between at least two of the first connecting passages for controlling the amount of fluid mixture delivered from one connecting passage to another and to the first discharge.

5,782,226

METHOD OF REDUCING THE HARMFUL EMISSIONS OF A MULTICYLINDER INTERNAL COMBUSTION ENGINE

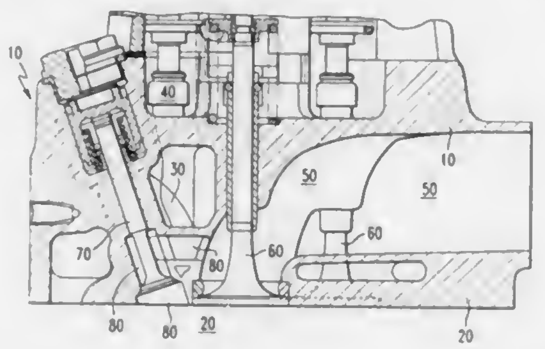
Uwe Gärtner, Remshalden, Germany, assignor to Mercedes-Benz AG, Stuttgart, Germany

Filed May 19, 1997, Ser. No. 858,434

Claims priority, application Germany, May 29, 1996, 196 21 530.7

Int. Cl.⁶ F02D *21/08;* F02M *25/07*

U.S. Cl. 123—568 **4 Claims**



1. A method for reducing harmful emission of a multi-cylinder internal combustion engine which includes, for each cylinder arranged in a cylinder head at least one intake passage with an intake valve, an exhaust passage with an exhaust valve and an exhaust gas recirculation passage extending between an exhaust passage and the interior of a cylinder or its intake passage and including an exhaust gas recirculation valve, said method comprising the steps of:

opening the exhaust recirculation valve associated with a first cylinder during the intake cycle of the first cylinder at the beginning of the exhaust cycle of a second cylinder associated with the first cylinder and closing the exhaust gas recirculation valve when the exhaust gas pressure in the exhaust gas recirculation passage to said first cylinder falls below the combustion chamber pressure of the first cylinder or a charge air pressure in its intake passage and when a predetermined amount of exhaust gas has been recirculated.

5,782,227

APPARATUS FOR CONTROLLING A HEATER FOR HEATING AN AIR-FUEL RATIO SENSOR

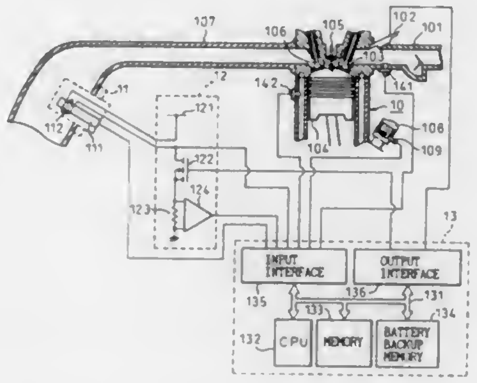
Shinichi Abe, Aichi, Japan, assignor to Toyota Jidosha Kabushiki Kaisha, Aichi, Japan

Filed Jun. 17, 1997, Ser. No. 877,688

Claims priority, application Japan, Jun. 25, 1996, 8-164568

Int. Cl.⁶ G01N *27/416;* F02D *41/14*

U.S. Cl. 123—689 **2 Claims**



1. An apparatus for controlling a heater for heating an air-fuel ratio sensor installed in an exhaust pipe for detecting an air-fuel ratio of an exhaust gas, comprising:

an operating condition detecting means for detecting an operating condition of an internal combustion engine;

an activation determining means for determining that the air-fuel ratio sensor has been activated after the engine was started up;

a basic electric power determining means for determining a first basic electric power in accordance with an operating condition of the engine detected by said operating condition detecting means when it is determined that the air-fuel ratio sensor has not been activated by said activation determining means, and for determining a second basic electric power less than the first electric power in accordance with an operating condition of the engine detected by said operating condition detecting means when it is determined that the air-fuel ratio sensor has been activated by said activation determining means;

an auxiliary electric power determining means for determining an auxiliary electric power in accordance with a temperature of coolant of the engine detected by said operating condition detecting means;

a power increasing means for increasing the basic electric power determined by said basic electric power determining means in accordance with the auxiliary electric power determined by said auxiliary electric power determining means; and

a heater controlling means for controlling an electric power supplied to the heater by limiting the electric power increased by said power increasing means to the first basic electric power by said basic electric power determining means.

5,782,228

TOY FLYING DISK AND LAUNCHER SYSTEM

Wen-Long Wu, No. 5, Alley 26, Lane 62, Tung-Hsing Rd., Ta-Li City, Taichung Hsien, Taiwan

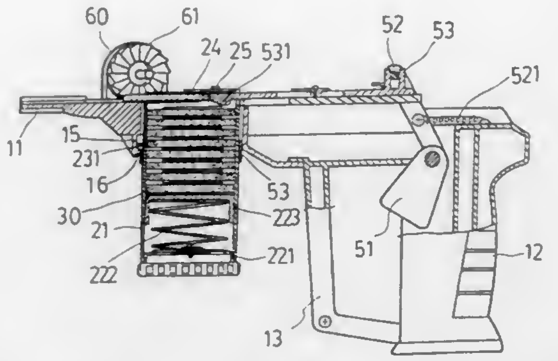
Filed Aug. 26, 1997, Ser. No. 917,357

Int. Cl.⁶ F41B *4/00*

U.S. Cl. 124—6 **6 Claims**

1. A toy flying disk and disk launcher system comprising:

a launcher base, said launcher base comprising a launching pad, a slot at said launching pad, a shield covered over said launching pad, a handle connected to one end of said launching pad, and a vertical disk feed hole at said launching pad in front of said slot;



a disk feeder mounted in said vertical disk feed hole at a bottom side and adapted to feed flying disks one after another into position for launching, said disk feeder comprised of a barrel adapted to hold flying disks and a disk pusher adapted to push loaded flying disks out of said barrel, said barrel comprising at least one stop block raised from a top side thereof and adapted to hold loaded flying disks in place;

a plurality of flying disks loaded in said barrel of said disk feeder and arranged in a stack stopped below the at least one stop block of said barrel and pushed into a launching position one after another by a disk launching control mechanism;

a motor mounted on said launching pad, said motor having a motor shaft fixedly mounted with a ratchet wheel, said ratchet wheel being turned to send said flying disks one after another from said launching position into the air by means of the control of a disk launching control mechanism;

a disk launching control mechanism controlled to push said flying disks out of said disk feeder into said launching position one after another for launching, and simultaneously to drive said motor and said ratchet wheel in sending said flying disks from said launching position into the air one after another, said disk launching control mechanism comprising a trigger mounted on said handle at an inner side, a push rod driven by said trigger to push said flying disks out of said disk feeder into said launching position, a link coupled between said trigger and said push rod, a return spring connected between said link and said launching pad, said push rod having a bevel bottom flange at a front side, said bevel bottom flange of said push rod being stopped above a second flying disk in said barrel of said disk feeder when a first flying disk is pushed out of said barrel into said launching position, permitting the first flying disk to be sent into the air by said ratchet wheel;

a power switch adapted to control electric power supply to said motor; and

a safety control device mounted on said launching pad and adapted to switch on/off said power switch and to lock/unlock said disk launching control mechanism, said safety control device comprising a sliding track fixedly mounted on said launching pad, a safety bar moved in said sliding track between a first position in which said power switch is switched on and said disk launching control mechanism is unlocked, and a second position in which said power switch is switched off and said disk launching control mechanism is locked, a retainer block moved up and down in said slot of said launching pad, said retainer block comprising an arched face, and a stop face which is forced into engagement with said push rod to stop it from forward movement when said bumper is pulled from said first position to said second position, a downward finger rod at a rear end of said safety bar through which said safety bar is moved between said first position and said second position by hand, a conical projection raised from a front end of said safety bar and adapted to act against the arched face of said retainer block, a holder frame fastened to said launching pad and suspended below said slot, and spring means mounted on said holder frame to impart an upward pressure to said retainer block, a first actuating rod and a second actuating rod respectively raised from a top side of said safety bar, said first actuating rod being moved with said safety bar to switch on said power switch when said safety bar is moved from said second position to said first position, said second actuating rod being moved with said safety bar to switch off said power switch when said safety bar is moved from said first position to said second position.

5,782,229

SINGLE CAM COMPOUND BOW WITH INTERCHANGEABLE CAMS FOR VARYING DRAW LENGTH

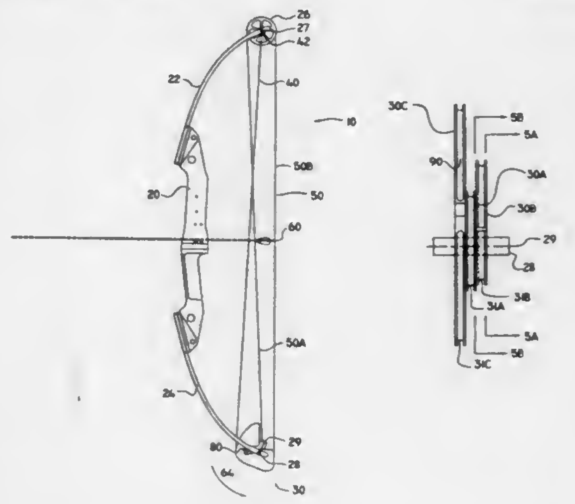
John D. Evans, Box 55052 #18, 7196 Temple Dr. NE., Calgary, Alberta, Canada, T1Y 4E0, and Scott Phillips, #5 - 1246 Fairfield Rd., Victoria, British Columbia, Canada, V8V 3B5

Continuation-in-part of Ser. No. 514,874, Aug. 14, 1995, abandoned. This application Feb. 24, 1997, Ser. No. 803,825

Claims priority, application Canada, Aug. 14, 1996, 2183305

Int. Cl.⁶ F41B *5/10*

U.S. Cl. 124—25.6 **23 Claims**



1. A compound bow comprising:
(a) a handle;
(b) opposed upper and lower flexible limbs having inner ends connected to the handle;
(c) a cam assembly pivotally mounted at an outer end of one of the limbs for rotation about a first axis, the cam assembly having:
  (1) a main sheave
  (2) a collector sheave parallel to the main sheave; and,
  (3) a cable sheave between and parallel to the main and collector sheaves, the cable sheave having a removable portion and a non-interchangeable portion, each of the sheaves having a profile;
(d) a pulley pivotally mounted at an outer end of a second one of the limbs for rotation about a second axis;
(e) a bowstring having a first segment extending from a first attachment point on the cam assembly, around a peripheral portion of the collector sheave, and around the pulley, and a second segment extending from the pulley, around a peripheral portion of the main sheave to a second attachment point on the cam assembly; and
(f) a cable extending from an attachment point near the outer end of the second one of the limbs around a peripheral portion of the non-interchangeable portion of the cable sheave to a third attachment point on the cam assembly.

13. A compound bow kit comprising:
(a) a handle;
(b) upper and lower flexible limbs having inner ends connected to opposite ends of the handle;
(c) a cam assembly pivotally mounted at an outer end of one of the limbs for rotation about a first axis, the cam assembly having:

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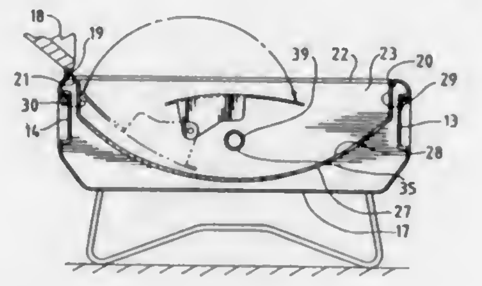
(1) a main sheave
(2) a collector sheave parallel to the main sheave; and,
(3) a cable sheave between and parallel to the main and collector sheaves, the cable sheave having a nonremovable portion;
(d) a set consisting of a plurality of removable cable sheave modules in graduated sizes, each of the cable sheave modules capable of rigid attachment to the cam assembly between the main and collector sheaves adjacent the non-interchangeable portion of the cable sheave while the bow is strung; wherein a draw length of the bow is adjustable to one of a plurality of fixed draw lengths by selecting and attaching one of the plurality of removable cable sheave modules to the cam assembly;
(e) a pulley pivotally mounted at an outer end of a second one of the limbs;
(f) a bow string extending from a first attachment means on the cam assembly, around a peripheral portion of the collector bow string sheave, around the pulley, and around a peripheral portion of the main bow string sheave to a second attachment means on the cam assembly, the second attachment means having two or more alternative positions spaced at increments of a first length wherein the draw length of the bow is adjustable to draw lengths intermediate two of the plurality of fixed draw lengths by selecting one of the alterative positions for the second attachment means; and
(f) a cable extending from an attachment point near the outer end of the second one of the limbs around a peripheral portion of the non-interchangeable portion of the cable sheave to a third attachment means on the cam assembly.

18. A cam assembly for a single cam compound bow, the cam assembly comprising:
(a) a fixed portion of a cable sheave mounted between a collector sheave and a main sheave;
(b) an interchangeable cable sheave module mounted between the collector sheave and the main sheave adjacent the cable sheave fixed portion;
(c) fasteners passing through the cable sheave module, the fasteners extending into the main sheave and collector sheave on either side of the cable sheave module;
(d) an axle passing through the cam assembly.

5,782,230
COMBINATION STOVE AND BARBECUE GRILL

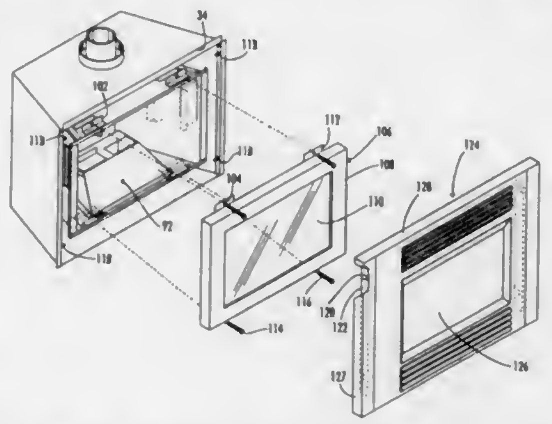
David H. Linnebur, Derby; Douglas A. Lynn, Wichita, and Keith V. Skidmore, Newton, all of Kans., assignors to The Coleman Company, Inc., Wichita, Kans.
Filed Oct. 9, 1996, Ser. No. 727,899
Int. Cl.^{6} A47J *37/00;* **F24C** *3/00*
U.S. Cl. 126—41 R **19 Claims**



1. A cooking apparatus comprising:
a housing;
a burner disposed in the housing;
a food supporting surface disposable in the housing above the burner; and
a heat diffuser rotatably mounted in the housing for movement between a first position, in which said heat diffuser is positioned between the food supporting surface and the burner in a region where the diffuser diffuses heat passing from the burner to the food supporting surface, so that heat is diffused across the food supporting surface, and a second positions in which said heat diffuser is positioned outside said region so that heat may pass from the burner to the food supporting surface without obstruction by the heat diffuser.

5,782,231
DIRECT VENT FIREPLACE

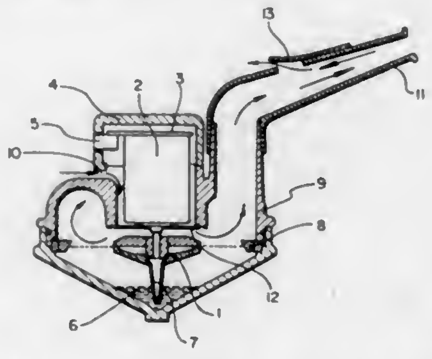
Melvin Wade, Bridgeport, Ala., assignor to Temco Fireplace Products, Inc., Nashville, Tenn.
Filed Feb. 24, 1997, Ser. No. 804,815
Int. Cl.^{6} F24B *1/188;* **F24C** *15/04*
U.S. Cl. 126—200 **11 Claims**



1. A fireplace comprising a casing and a firebox mounted within said casing, a glass access door having a frame carrying a glass plate fastened to said firebox at the front thereof for viewing the interior of said firebox, a front panel including a unitary frame removably fastened to and carried by said casing spaced forwardly of said glass access plate, and said front panel having a central opening defining a window to permit viewing of the interior of said firebox through said glass plate.

5,782,232
MEDICAL NEBULISER

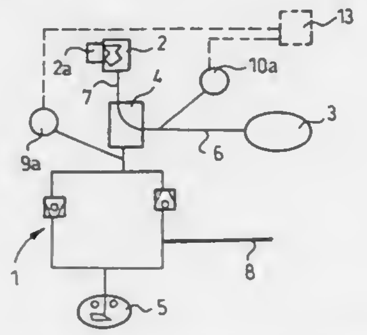
Stephen James Rowland, 52 Broadlands Avenue, Sheffield S19 6RL, Great Britain
PCT No. PCT/GB95/01494, § 371 Date Jan. 14, 1997, § 102(e) Date Jan. 14, 1997, PCT Pub. No. WO96/02293, PCT Pub. Date Feb. 1, 1996
PCT Filed Jun. 26, 1995, Ser. No. 765,804
Claims priority, application United Kingdom, Jul. 16, 1994, 9414399
Int. Cl.^{6} B05B *3/02*
U.S. Cl. 128—200.14 **3 Claims**



1. A medical nebuliser comprising a container providing a sump area for a liquid drug, a rotor located in the container, and an impacter ring encircling the rotor, the rotor being formed from two disc shaped components at least one of which is concave, the components having co-operating mating faces being so machined that when they are clamped together microscopic passageways are provided between their mating faces, and there being a connection between an interior of the rotor and a sump to contain liquid to be nebulised, the impacter ring having an impacter face that is an inwardly facing frusto-conical surface to encourage the return of larger droplets to the sump, the frusto-conical surface having a number of ridges in the form of concentric or helical grooves over its length, whereby there is the ejection of liquid drug from within the perpendicular to the axis of rotation of the rotor, of uniform and controlled droplet size which impacts on the ridges on the impacter ring to reduce the droplet size of liquid drug.

5,782,233
METHOD AND ARRANGEMENT FOR IDENTIFYING AN EXISTING CONNECTION IN APPARATUS FOR THE VENTILATION OF A PATIENT

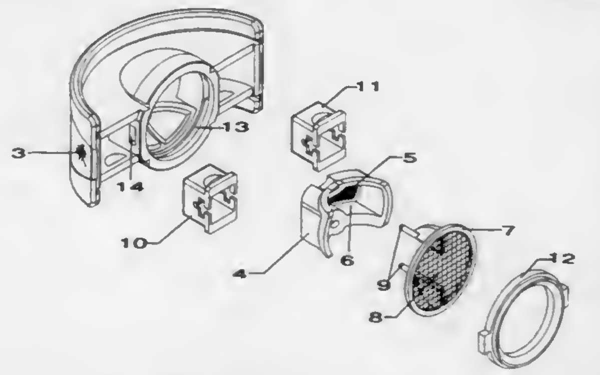
Hannes Niemi, and Markku Hyvönen, both of Espoo, Finland, assignors to Instrumentarium Oy, Helsinki, Finland
Filed Nov. 30, 1995, Ser. No. 565,349
Claims priority, application Finland, Nov. 30, 1994, 945649
Int. Cl.^{6} A61M *16/00*
U.S. Cl. 128—202.22 **27 Claims**



1. A method for use with equipment for ventilating a patient with breathing gas, the equipment having a mechanical ventilating part for supplying breathing gas, the mechanical ventilating part being connected to a switching valve, said valve comprising a single, unitary structure having first and second positions establishing first and second gas communication paths in the valve, the equipment having a manually operable part for supplying breathing gas and a patient circuit part for providing breathing gas to the patient, the manually operable part and the patient circuit part being connected to the valve, the manually operable part and the patient circuit part being capable of connection to the valve in a correct connection state in which breathing gas is supplied from the mechanical ventilating part to the patient circuit part when the valve is in a first position and from the manually operable part to the patient circuit part when the valve is in a second position, the manually operable part and the patient circuit part also being capable of being connected to the valve in an incorrect connection state, said method identifying the correctness of the connection state of the manually operable part and the patient circuit part to the valve and comprising the steps of:
moving the valve to one of the first and second positions to establish one of the first or second gas communication paths in the valve;
operating the mechanical ventilating part if the valve has been moved to the first position or the manually operable part if the valve has been moved to the second position;
sensing a gas property condition associated with a selected one of the gas communication paths;
comparing the sensed gas property condition with information corresponding to gas property conditions existing when the patient circuit part and manually operable part are correctly connected to the switching valve; and
determining the correctness of the connection of the manually operable part and patient circuit part to the valve from the comparison of the gas property condition information obtained from said sensing and from the information corresponding to correct connection gas property conditions.

5,782,234
RESPIRATORY BREATHING FILTER APPARATUS AND METHOD

Charles W. Bates, 450 E. 126th St., Los Angeles, Calif. 90061
Filed Apr. 5, 1995, Ser. No. 417,372
Int. Cl.^{6} A62B *7/10*
U.S. Cl. 128—205.27 **8 Claims**



1. A respiratory filter apparatus comprising:
a) an arcuate outer body sized and shaped to be received within a user's mouth, said arcuate outer body having upper and lower recesses to receive a user's teeth for removably holding the body within a user's mouth;
b) first filter means for removing large particles from an inhaled airstream, said first filter means comprising a removable mesh-like material extending across a forward end of said arcuate body in proximity to the upper and lower recesses, and a second filter means for also removing material from an inhaled airstream and having means for holding an evaporative medicament within said second filter means and to allow a medicament to be added to an inhaled airstream;
c) valve means for dispensing an exhaled airstream containing exhaled carbon dioxide and thereby preventing increased carbon dioxide levels within said filter apparatus, said valve means having a first position during exhalation wherein said valve means is open, and a second position during inhalation where said valve means is closed;
d) means for monitoring a user's body temperature and respired gases passing through said respiratory filter apparatus for gas analysis, said means for monitoring comprising a plurality of probes;
e) a sensing screen located in proximity to said plurality of probes and operating in conjunction therewith to sense characteristics of an exhaled airstream to enable a gas analysis and a monitoring of a user's body temperature with said respiratory filter apparatus.

5,782,235
VALVED FILTER CONNECTION PIECE FOR A GAS MASK

Rüdiger Müller, Stockelsdorf, and Hartmut Kintzel, Lübeck, both of Germany, assignors to Drägerwerk AG, Lübeck, Germany
Filed Feb. 25, 1997, Ser. No. 806,834
Claims priority, application Germany, Mar. 5, 1996, 196 08 412.1
Int. Cl.^{6} A62B *7/10;18/08;23/02;9/04*
U.S. Cl. 128—206.15 **12 Claims**

7. A method of providing a gas mask breathing connection system, comprising the steps of:

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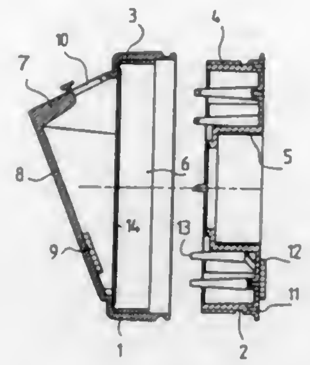


- providing a gas mask with a breathing connection;
- providing an insert which can be inserted into said breathing connection for connecting filters to the gas mask;
- providing a first fastening means within said insert;
- providing a second fastening means between said breathing connection and said insert;
- providing a first marking field associated with said first fastening means disposed on a surface of said insert, located outside said breathing connection;
- inserting said insert into said breathing connection to provide a connection to a filter via said first fastening means, or maintaining said insert out of said breathing connection to provide a connection to a filter via said second fastening means.

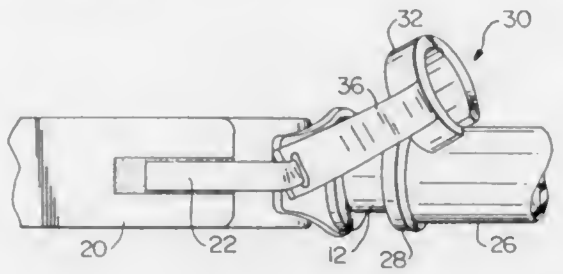
5,782,236
VENTILATOR TUBE RETAINING DEVICE FOR ENDOTRACHEAL TUBE OR TRACHEOSTOMY

Steven M. Ess, 6864 Minnick Rd., Lockport, N.Y. 14094

Filed Aug. 9, 1996, Ser. No. 695,372

Int. Cl.⁶ A61M *16/00*

U.S. Cl. 128—207.17 **6 Claims**



1. A retaining device for yieldably retaining a tubular air fitting to an endotracheal tube or tracheostomy tube, said retaining device having a flange with left and right slots, collar means adapted to be disposed on a patient's neck; left and right ribbons affixed to said collar means and passing through the left and right slots of said flange to hold the flange and endotracheal tube or tracheostomy tube in place on a patient; the retaining device comprising:

- a C-shaped clamp member formed of a resilient semi-rigid material and having an inside diameter to fit snugly over said air fitting, wherein said C-shaped clamp member has a gap on one side dimensioned to permit the C-shaped clamp member to spread at said gap over an air fitting to snap on or snap off to one side; and
- leg means connected to said C-shaped clamp member and including means to receive said left and said right ribbons, respectively, thus securing said retaining device to the flange.

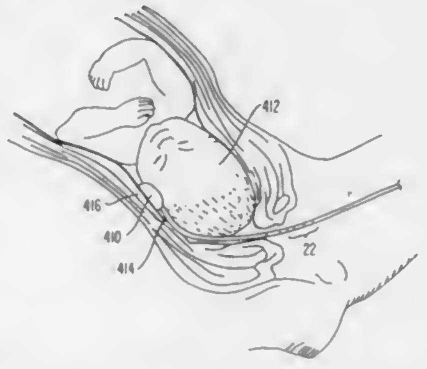
5,782,237
PULSE OXIMETER AND SENSOR OPTIMIZED FOR LOW SATURATION

James R. Casciani, Cupertino; Paul D. Mannheimer, Belmont; Steve L. Nierlich, San Leandro, and Stephen J. Ruskewicz, Kensington, all of Calif., assignors to Nellcor Puritan Bennett Incorporated, Pleasanton, Calif.

Continuation-in-part of Ser. No. 221,911, Apr. 1, 1994, Pat. No. 5,421,329. This application Mar. 30, 1995, Ser. No. 413,578

Int. Cl.⁶ A61B *5/00*

U.S. Cl. 128—633 **47 Claims**



1. A method for measuring blood oxygen saturation, comprising the steps of:

- providing a sensor and a pulse oximeter;
- selecting a light source and a light detector as a part of said sensor;
- optimizing a wavelength spectrum of light received by said light detector from said light source for an oxygen saturation reading less than 80 percent, said optimizing comprising receiving at said detector only red and infrared portions of said spectrum, including a portion between 700 and 790 nanometers;
- placing said sensor on a patient; and determining said blood oxygen saturation said sensor and said pulse oximeter.

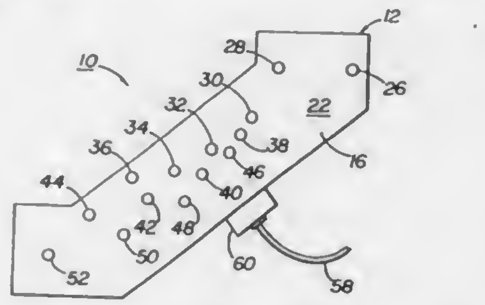
5,782,238
MULTIPLE ELECTRODE EKG DEVICE

Martin M. Beitler, 115 Spring St., New York, N.Y. 10012

Filed Nov. 27, 1995, Ser. No. 563,264

Int. Cl.⁶ A61B *5/0408*

U.S. Cl. 128—639 **10 Claims**



1. An apparatus for positioning electrodes onto a patient to facilitate the use of an electrocardiograph instrument, said apparatus comprising:

- a) a flexible pad having an upper surface and a lower surface, said pad having sufficient uniform weight across its entirety such that the lower surface of the pad will maintain substantially complete contact with a patient's chest when the pad is positioned thereon;
- b) a plurality of sets of electrodes exposed through the lower surface of the pad;
- c) an electrical lead associated with each individual electrode for connecting said electrode to an electrocardiograph machine; and
- d) a switch for preferentially activating or deactivating each electrode, whereby a specific desired pattern of activated electrodes can be achieved, depending on the size of the patient.

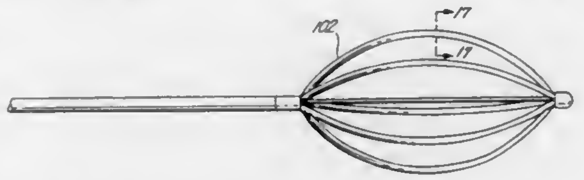
5,782,239
UNIQUE ELECTRODE CONFIGURATIONS FOR CARDIOVASCULAR ELECTRODE CATHETER WITH BUILT-IN DEFLECTION METHOD AND CENTRAL PULLER WIRE

Wilton W. Webster, Jr., Altadena, Calif., assignor to Cordis Webster, Inc., Baldwin Park, Calif.

Continuation-in-part of Ser. No. 432,011, May 1, 1995, Pat. No. 5,628,313, which is a continuation-in-part of Ser. No. 906,546, Jun. 30, 1992, Pat. No. 5,411,025. This application Jun. 7, 1995, Ser. No. 488,107

Int. Cl.⁶ A61B *5/0402*

U.S. Cl. 128—642 **7 Claims**



1. A catheter for cardiac mapping and ablation comprising:
a catheter body having a distal end and a lumen;
a plurality of arms extending through the lumen and out the distal end of the catheter body for forming a three-dimensional shape, each arm having a semi-circular transverse cross-sectional shape and wherein
each arm forms a continuous electrode.

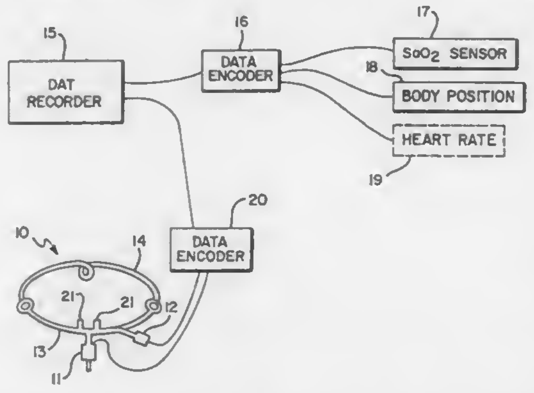
5,782,240
METHOD OF CLASSIFYING RESPIRATORY SOUNDS

Gil Raviv, Northbrook, and Charles Z. Weingarten, Wilmette, both of Ill., assignors to SNAP Laboratories, L.L.C., Glenview, Ill.

Filed Dec. 22, 1994, Ser. No. 362,813

Int. Cl.⁶ A61B *5/02*

U.S. Cl. 128—671 **15 Claims**



1. A method of automatically classifying sounds of respiratory events of a human subject comprising the steps of: manually classifying a first set of sounds of respiratory events of the human subject; fitting a set of respiratory event threshold values to each classification of the manually classified set of respiratory events; and automatically classifying a second set of sounds of respiratory events of the human subject by comparing the set of threshold values of each classification with a set of respiratory event parameters of each respiratory event of the second set of respiratory events.

5,782,241
SENSOR DEVICE FOR ELECTROCARDIOGRAM

Jacques Felblinger, Toffen; Chris Boesch, Thun, both of Switzerland; Gerard Muller, Rohrbach les Bitche, and Michel Kraemer, Durrenbach, both of France, assignors to O.D.A.M. Office de Distribution d'Appareils Medicaux (SA), Wissembourg, France

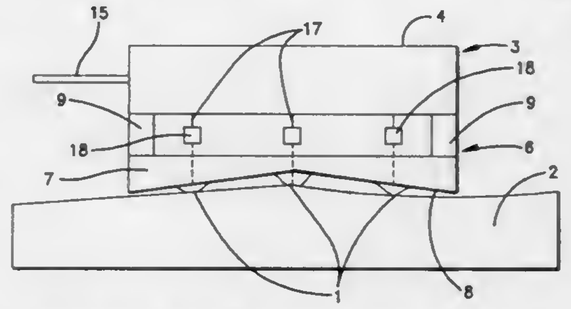
PCT No. PCT/FR94/00454, § 371 Date Oct. 23, 1995, § 102(e) Date Oct. 23, 1995, PCT Pub. No. WO94/23648, PCT Pub. Date Oct. 27, 1994

PCT Filed Apr. 21, 1994, Ser. No. 537,786

Claims priority, application France, Apr. 22, 1993, 93 04918

Int. Cl.⁶ A61B *5/0428*

U.S. Cl. 128—696 **9 Claims**



1. In a detector device for electrocardiograms, adapted to be used in a loaded and sensitive electromagnetic environment, adjacent or within a nuclear magnetic resonance apparatus, and on a patient within the tunnel of the magnet of a magnetic resonance imager (MRI), the improvement wherein the device comprises at least two non-metallic electrodes for application to the patient's skin for receiving electrical signals from the heart; a module including means for filtering the electrical signals received from the heart, means for amplifying filtered signals, and means for electro-optically converting filtered and amplified electrical signals, said module being disposed in a shielded housing forming a Faraday cage; an optical means connecting said casing to an apparatus for visualization; and a support body of an amagnetic material carrying the shielded housing containing the module, said support body including means for maintaining the shielded housing at a constant distance from the patient's skin.

5,782,242

Patent Not Issued For This Number

5,782,243
VARIABLE POSITION INTERCOURSE PERFORMANCE APPARATUS

Steven Bisyak, P.O. Box 639, Tracyton, Wash. 98393

Filed Jul. 25, 1997, Ser. No. 900,604

Int. Cl.⁶ A61G *15/00*

U.S. Cl. 128—845 **7 Claims**

1. An apparatus for performing intercourse, comprising:

- a. a main strap, said main strap having a first end and a second end,
- b. a main strap first end connecting means located at said first end of said main strap capable of selectively attaching said first end of said main strap to an elevated surface;
- c. an elastic strap, said elastic strap having a first end and a second end;

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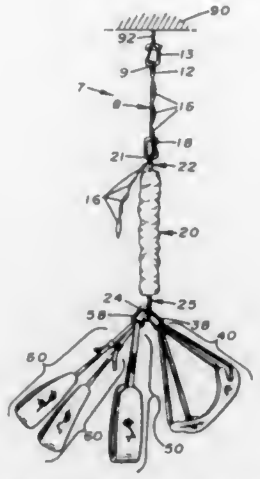
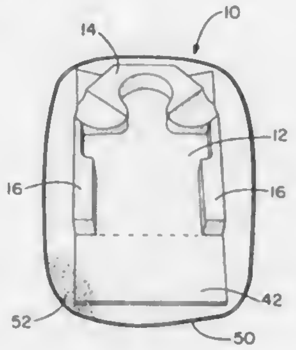


d. a main/elastic strap connecting means disposed between said main strap and said first end of said elastic strap;
e. an elastic strap end connecting means attached to said elastic strap;
f. an upper harness capable of attaching to said second end of said elastic strap, said upper harness capable of supporting one or both shoulders of a participant placed therein;
g. a lower harness capable of attaching to said second end of said elastic strap, said lower harness capable of supporting the lower torso of a participant placed therein; and,
h. at least one leg harness capable of attaching to said second end of said elastic strap, said leg harness capable of supporting at least on leg of the participant.

5,782,244
METHOD AND APPARATUS FOR IMMOBILIZING THE HEAD, SHOULDER AND TORSO OF THE HUMAN ANATOMY

Jeffrey Vincent Kostich, 7992 Pine Ridge St. NW., North Canton, Ohio 44720

Filed Feb. 8, 1996, Ser. No. 598,351
Int. Cl.^{6} A61B *19/00*
U.S. Cl. 128—869 16 Claims

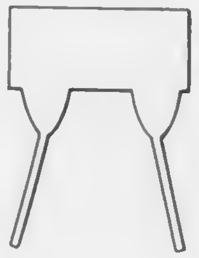


14. A device for forming a mold for immobilizing the head, shoulder and torso extending down to the mid thigh of the human anatomy comprising;
- a base for supporting a molded template structure, said base having upper and lower planar surfaces, a top, a bottom and at least two sides;
- a head and shoulder form attached to the top and upper surface of said base, said head and shoulder form having a cavity for receiving a human head, and at least one channel for receiving part of a human arm; and
- at least one chest side form, having a top and a bottom, attached to said upper surface of said base along at least one of said two sides and adjacent said head and shoulder form, wherein said base extends beyond the bottom of said at least one chest side form.

5,782,245
PROCEDURE OF ELABORATING ONE-PIECE CUSTOM POSTS ON NON-PARALLEL ROOTED TEETH

Milan Divjak, Celje, Slovenia, assignor to Chris Company, Inc., Ridgewood, N.J.

Filed Dec. 2, 1996, Ser. No. 759,261
Int. Cl.^{6} A61B *19/00*
U.S. Cl. 128—898 2 Claims

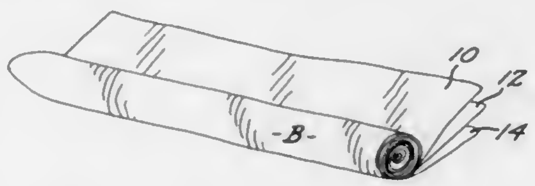


1. A method of making a metal one-piece custom post member for non-parallel rooted teeth, comprising the steps of:
- preparation of two root canals of the tooth by using a drill,
- making a funnel-shaped parallel fixing of entries in the root canals,
- inserting two posts made of burn-out plastic and sized respectively to the root canals, into the canals, such that upper ends of the posts extend out of the root canals,
- treating the upper ends of the posts that extend out of the root canals with a self-curing resin so as to bind the posts together to form a plastic one-piece custom post member,
- removing the plastic one-piece custom post member from the tooth,
- casting a metal one-piece custom post member from the plastic one-piece custom post member and of the same size and dimensions as the one-piece plastic post member such that said metal one-piece custom post member has two metal posts extending therefrom, each metal post being sufficiently thin so as to be flexible, and
- securing the cast metal one-piece custom post member in the tooth, with each metal post extending within one said root canal, thereby dividing a required section of the tooth to attain a best possible tensile strength which is distributed over the two posts of the metal one-piece custom post.

5,782,246
LONG FILLER CIGAR CONSTRUCTION

Herbert R. Axelrod, 6 Marine Pl., Deal, N.J. 07753

Filed Dec. 1, 1995, Ser. No. 566,256
Int. Cl.^{6} A24D *1/00*
U.S. Cl. 131—364 2 Claims

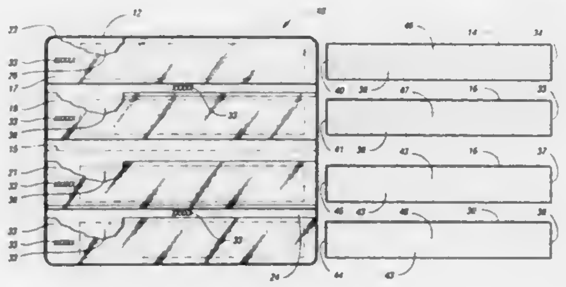


1. A long filler cigar construction, comprising:
- a plurality of vertically stacked long filler tobacco leaves of generally uniform dimensions which are rolled together within a binder to define the body of the cigar;
- a wrapper within which is rolled said body; and
- with the front portion of the long filler tobacco leaves protruding from the front end of the wrapper so as to provide immediate smoker identification of the integrity of such long filler cigar construction.

5,782,247
SYSTEM AND METHOD FOR BUFFING AND POLISHING FINGERNAILS AND TOENAILS

Susan J. Sadley, and William C. Sadley, both of 35387 Hathaway St., Livonia, Mich. 48150

Filed Jul. 29, 1997, Ser. No. 901,984
Int. Cl.^{6} A45D *29/18*
U.S. Cl. 132—76.4 9 Claims

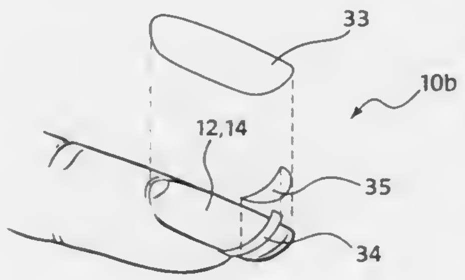


1. A nail care system for buffing and polishing fingernails and toenails, the system comprising:
- at least two fabric strips;
- each of said at least two fabric strips having a surface covered with a graded abrasive;
- one of said covered surfaces of said at least two fabric strips covered with a coarsely graded abrasive falling within the range of 1500 to 2400 grit; and
- another of said covered surfaces of said at least two fabric strips covered with a finely graded abrasive having at least a 12000 grit.

5,782,248
METHOD FOR APPLYING FRENCH MANICURES TO FINGERNAILS

Sung Yong Chang, Palisades Park, N.J., assignor to Kiss Products, Inc., Port Washington, N.Y.

Filed Jul. 24, 1996, Ser. No. 686,097
Int. Cl.^{6} A45D *29/00*
U.S. Cl. 132—200 2 Claims

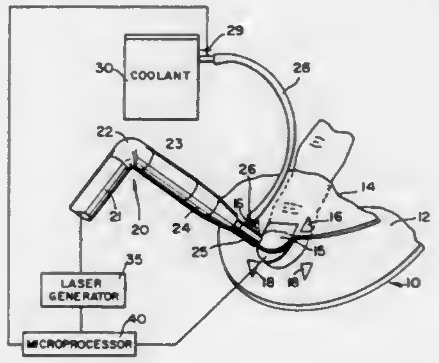


1. A method of applying a French manicure to fingernails comprising the steps of:
- applying a base coat of polish to the fingernail;
- allowing the base cost to dry;
- placing a tip guide on the fingernail such that a free edge of the fingernail is exposed;
- applying polish to the exposed free edge of the fingernail, said polish being applied over said base coat;
- removing the tip guide from the fingernail;
- allowing the polish applied to the free edge to dry;
- applying a top coat of polish to the entire fingernail to protect the applied free edge of polish and to further increase the strength and durability of the fingernail.

5,782,249
LASER MANICURE PROCESS

Paul J. Weber, 5353 N. Federal Hwy., Suite 400, Ft. Lauderdale, Fla. 33308; Michael R. Weber, 100 W. Kennedy Blvd., Tampa, Fla. 33602, and Robert Weber, 5353 N. Federal Hwy., Suite 400, Ft. Lauderdale, Fla. 33308

Filed Sep. 30, 1996, Ser. No. 724,182
Int. Cl.^{6} A45D *24/00*
U.S. Cl. 132—200 16 Claims

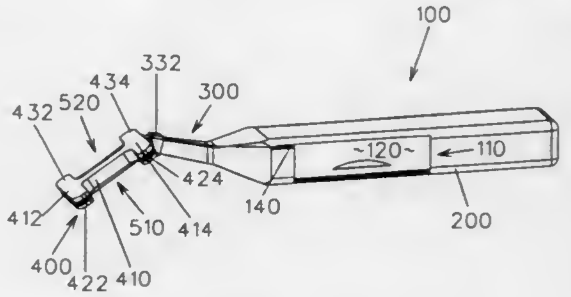


1. A method for cutting or decorating fingernails comprising the step of:
- a) positioning a laser directing means including an articulated arm assembly containing a laser having a laser generating source in communication with a laser radiation delivery means at the fingernail site; and
- b) selectively energizing a laser beam of sufficient intensity to produce the desired cutting or to score the fingernail itself or a coating on the nail in a decorating procedure.

5,782,250
DENTAL FLOSSING TOOL

Larry C. Harrab, Jr., 503 W. 14th, Atlantic, Iowa 50022

Filed Dec. 27, 1996, Ser. No. 777,387
Int. Cl.^{6} A61C *15/04*
U.S. Cl. 132—327 19 Claims



1. A dental floss tool comprising:
- an elongated handle having a first end and a second end;
- a compartment in said handle between said first end and said second end for holding a supply of dental floss;
- a slot formed in said handle adjacent said compartment which provides a path for dental floss to extend from said compartment;
- a neck having a first end and a second end, the neck first end being joined to the first end of said handle such that the neck extends from said handle;
- a plurality of ridges formed on and traversing said neck, wherein floss extending from said slot is adapted to pass across said ridges;
- a floss head attached to said second end of said neck, said head comprising:
  - an elongated head body having a series of four spacedapart lobes extending therefrom;

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- a channel in each of said lobes for holding said floss such that there are first and second longitudinal stretches of floss wound about said lobes;
- a pin extending from said neck for wrapping of a free end of the dental floss about said pin in a manner to place an initial tension on the dental floss wound about said lobes;
- a clamping device pivotally attached to said neck between a first position displaced from said ridges and a second position for engaging said ridges and floss passing thereover, said clamping device adapted to place additional tension on said dental floss wound about said lobes when in said second position.

5,782,251

Patent Not Issued For This Number

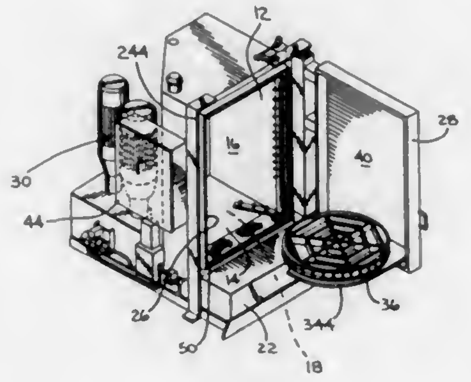
5,782,252
PARTS WASHER

Gary Lewis, Glen Carbon, Ill., and Marc Treppler, St. Louis, Mo., assignors to The Mart Corporation, Maryland Hts., Mo.

Continuation of Ser. No. 268,970, Jun. 30, 1994, abandoned. This application May 20, 1996, Ser. No. 650,546

Int. Cl.^{6} B08B *3/02*

U.S. Cl. 134—103.1 **24 Claims**



11. A parts washer comprising:
- means for supporting at least one part to be washed;
- means for mounting the part supporting means for movement about a first axis relative to a support therefor,
- means for delivering cleaning fluid from a pressurized supply to against a part on the part support means,
- said fluid delivering means including first and second means for directing fluid from a pressurized supply against a part of the part support means, each said first and second fluid directing means delivering cleaning fluid in a discharge direction that is transverse to the first axis; and
- means for selectively repositioning the fluid directing means relative to the part supporting means,
- said repositioning means comprising means for simultaneously moving the first and second fluid directing means through a reciprocating path of less than 360 degrees around a single second axis,
- wherein the fluid delivering means comprises a conduit with a portion of the conduit having a length, the first and second means for directing fluid comprise first and second discrete flow directing means on the conduit spaced along the length of the conduit portion, and the repositioning means comprises means for moving the conduit portion around the second axis,
- wherein there are more than two discrete flow directing means on the conduit spaced in a line extending transversely to the length of the first axis.

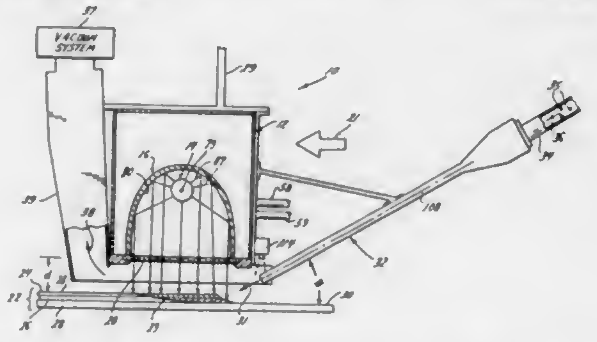
5,782,253
SYSTEM FOR REMOVING A COATING FROM A SUBSTRATE

Michael C. Cates, Solano Beach; Richard R. Hamm; John D. Hoogerwerl, both of San Diego, all of Calif.; Michael W. Lewis, Wichita, Kans., and Wayne N. Schmitz, St. Louis, Mo., assignors to McDonnell Douglas Corporation, St. Louis, Mo., and Maxwell Laboratories, Inc., San Diego, Calif.

Continuation-in-part of Ser. No. 813,872, Dec. 24, 1991, Pat. No. 5,328,517. This application Mar. 2, 1994, Ser. No. 204,852

Int. Cl.^{6} B08B *3/10*

U.S. Cl. 134—105 **51 Claims**



1. A system for removing material that is coating a substrate of a structure, comprising:
- a housing;
- a radiant energy source mounted to said housing for generating radiant energy to irradiate a target area of the structure with a quantity of energy sufficient to at least pyrolyze the material;
- scanning means to scan radiant energy from said radiant energy source along the structure thereby changing the location of the target area; and
- particle directing means operatively connected to said scanning means for directing a cool particle stream at material pyrolyzed by said radiant energy source for removing pyrolyzed material from the substrate immediately after the material has been pyrolized and for cooling the substrate.

5,782,254
RECYCLABLE IMAGE RECORDING SUPPORT MATERIAL, METHOD OF PRODUCING THE SAME, AND METHOD OF RECYCLING THE RECYCLABLE IMAGE RECORDING MATERIAL

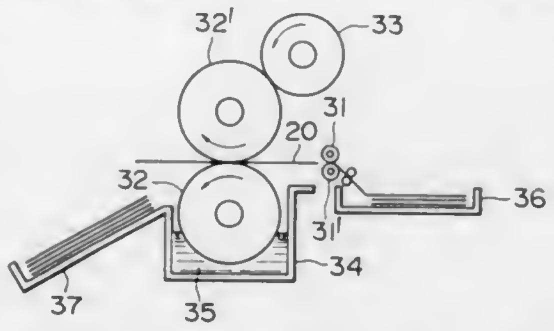
Kiyoshi Tanikawa; Tadashi Saito, both of Yokohama; Shigeru Fujita, Tokyo; Kakuji Murakami, Kamakura, and Mitsuru Ohminato, Yokohama, all of Japan, assignors to Ricoh Company, Ltd., Tokyo, Japan

Filed Sep. 28, 1995, Ser. No. 535,732

Claims priority, application Japan, Sep. 28, 1994, 6-258792; Jan. 9, 1995, 7-017548

Int. Cl.^{6} B08B *3/00*

U.S. Cl. 134—109 **35 Claims**



1. A method of producing a recyclable image recording support material comprising a paper layer capable of copying or recording images thereon, comprising the step of:

applying to an image-bearable side of an image recording support material comprising a paper layer free from images thereon an aqueous coating liquid selected from the group consisting of an aqueous surfactant solution comprising a surfactant with a concentration in the range of 0.1 wt. % or more, an aqueous water-soluble polymer solution comprising a water-soluble polymer with a concentration of 0.1 to 60 wt. %, and a mixture of said aqueous surfactant solution and said aqueous water-soluble polymer solution, in an effective trace amount.

5,782,255
METHOD AND DEVICE FOR CLEANING A TUBE PLATE OF A HEAT EXCHANGER FROM INSIDE THE BUNDLE OF THE HEAT EXCHANGER

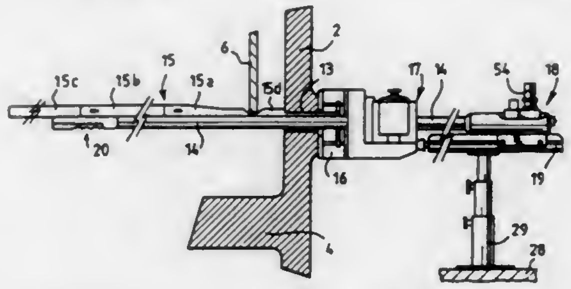
Bernard Magnin, Saint Victor Sur Rhins; Alain Vouzelland, Fontaines sur Saone; Martin Bourdelet, and Catherine Weber-Guevara, both of Lyons, all of France, assignors to Framatome, Courbevoie, France

Filed Dec. 19, 1996, Ser. No. 769,408

Claims priority, application France, Dec. 22, 1995, 95 15418

Int. Cl.^{6} B08B *9/08*

U.S. Cl. 134—167 R **9 Claims**



1. Device for cleaning, by liquid jets, a tube plate (**4**) of a heat exchanger comprising a substantially cylindrical outer barrel (**2**), a transverse tube plate (**4**) integral with the outer barrel (**2**), a bundle (**3**) of tubes, the ends of which are fixed into holes (**7**) passing through the tube plate (**4**) between an inlet face constituting one wall of a water box (**5**) and an outlet face where the tubes of the bundle emerge, the tubes being bent into a hairpin shape and including mutually parallel straight legs arranged in parallel flat rows and in an even lattice in transverse planes parallel to the faces of the tube plate (**4**), at least one opening (**13**, **13'**) passing through the outer barrel in alignment with at least one space between two successive rows of tubes, the cleaning device including an at least partially flexible lance (**14**) having a thickness which is less than the width of the space between two rows of tubes of the bundle (**3**) and comprising means for forming at least one jet of liquid in a plane substantially perpendicular to the rows of tubes, when the lance (**14**) is inserted between two rows of tubes through the opening (**13**) in the outer barrel (**2**), characterized in that the means for forming a liquid jet (**55***a*, **55***b*, **55***c*) belonging to the lance (**14**) include at least two liquid-jet-forming nozzles (**48***a*, **48***b*, **48***c*) mounted so that they can rotate on the lance (**14**) about an axis parallel to the rows of tubes (**32**, **32'**) and to the tube plate (**4**).

5,782,256
CONTOURED FOOT FOR AMBULATORY AID

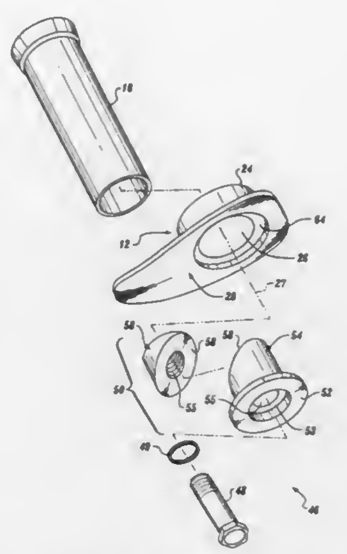
Paul M. Bradley, 1710 57th NW, Apt. 412, Seattle, Wash. 98108

Filed May 3, 1996, Ser. No. 642,490

Int. Cl.^{6} A45B *9/04*

U.S. Cl. 135—77 **18 Claims**

1. A foot for attachment to a leg of an ambulatory aid, comprising:
- a body having an attachment portion for securement to the leg, and an elongate base portion defining a longitudinal axis, the base portion defining elongate left and right sides oriented



along the direction of the longitudinal axis, front and rear ends, and a bottom ground-engaging surface with a lower-most area immediately below the attachment portion, wherein the bottom ground-engaging surface is contoured to slope upwardly from the lower-most area towards the left and right sides and towards the front end.

5,782,257

Patent Not Issued For This Number

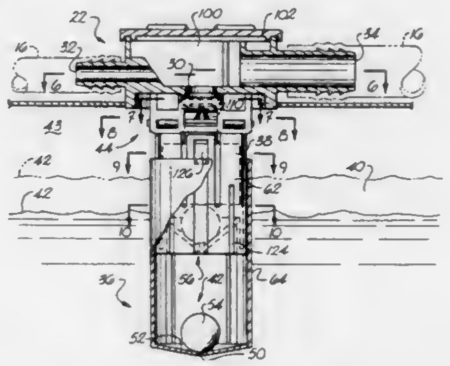
5,782,258
VAPOR RECOVERY FUEL TANK SYSTEM

Joseph A. Herbon, Rochester Hills; Eric A. Mihal, Farmington Hills; Karen R. Byrka, West Bloomfield, all of Mich.; Scott C. Gaynor, Greenville, S.C., and Frederic Ramioulle, Choisy Au Bac, France, assignors to Alfmeier Corporation, Greenville, S.C., and Solvay Automotive, Inc., Troy, MI

Filed Dec. 11, 1995, Ser. No. 570,186

Int. Cl.^{6} F16K *24/04*

U.S. Cl. 137—43 **37 Claims**



1. A vapor recovery fuel system, comprising:
- a fuel tank having at least one vent opening defined therein;
- a fuel vapor trap in communication with said vent opening to receive fuel vapors from said fuel tank; and
- a refueling control valve configured with said vent opening, said control valve having a first inlet and an outlet in communication with said vapor trap, said control valve comprising a variably buoyant first float body extending into an interior volume of said fuel tank which rises over a predetermined range of movement in response to increasing fuel level in said fuel tank during refueling, said control valve further compris-

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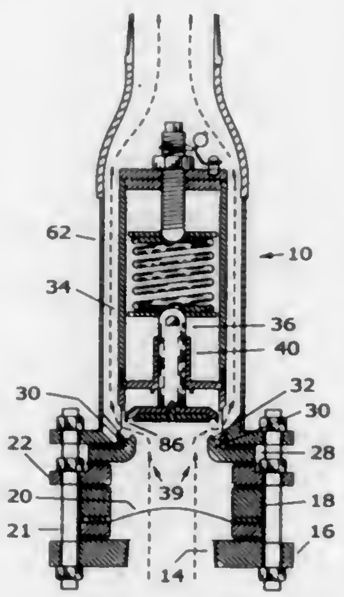
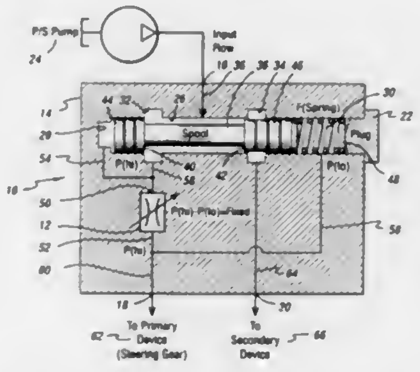
ing a second float body movable relative to said first float body and engaged by said first float body over at least a portion of said range of movement, said first float body having a buoyancy during refueling so as to rise with increasing fuel level and engage and move said second float body into a sealing position to seal said inlet from said outlet at a predetermined height of fuel within said fuel tank, said first float body having a buoyancy reducing mechanism for automatically reducing its buoyancy after refueling so that it lowers in said fuel tank allowing said second float body to lower and unseal said inlet after refueling.

5,782,259
PRESSURE RELIEF VALVE
Harold J. Ledbetter, and Wayne Ledbetter, both of 8629 E. 106th St. North, Owasso, Okla. 74055
Continuation of Ser. No. 429,807, Apr. 27, 1995, abandoned, which is a continuation-in-part of Ser. No. 260,871, Jun. 16, 1994, abandoned. This application Aug. 5, 1996, Ser. No. 691,826
Int. Cl.^{6} F16K *17/08*
U.S. Cl. 137—71 **20 Claims**



1. A pressure relief valve for a fluid pressure system having a pressure vent, which valve comprises:
- a. a body aligned with and in fluid communication with said pressure vent, said body terminating in a lip having a circular opening, said body detachably connected to said fluid pressure system;
- b. a bonnet in axial alignment with said circular opening, a central shaft extending axially into said bonnet, said bonnet being stationary with respect to said body;
- c. a fluid tight shroud spaced from and entirely surrounding said bonnet, said shroud axially aligned with said bonnet and extending from said body to allow unobstructed flow in a space parallel to said central shaft between said bonnet and said shroud to a single top outlet opening in said shroud, said shroud being free-standing except for a radially extending flange attachable to said body;
- d. said body being detachable from said fluid pressure system and thereafter said shroud being reattachable to the fluid pressure system without said body; and
- e. a spindle head disk extending radially from said central shaft and having a circular edge seatable in said circular opening.

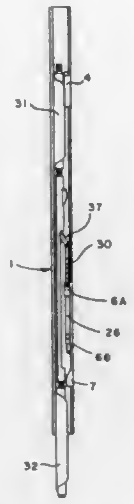
5,782,260
HYDRAULIC FLOW PRIORITY VALVE
Barry Howard Jacobs, Belleville; Roger Wayne Gettel, Bloomfield Hills, and John Allen Oliver, Jr., Canton, all of Mich., assignors to Ford Global Technologies, Inc., Dearborn, Mich.
Filed Dec. 4, 1995, Ser. No. 566,628
Int. Cl.^{6} B62D *5/07*
U.S. Cl. 137—118.02 **13 Claims**



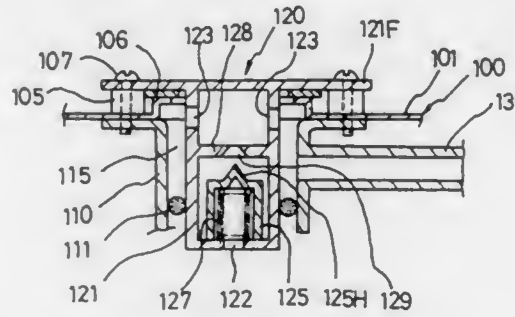
1. A flow priority valve for receiving an input fluid flow and dividing the fluid flow between a primary device and a secondary device, comprising:
- a valve body having a bore formed therein, said bore having first and second ends and first and second annular channels formed in communication with said bore, said valve body further having an input flow channel formed in communication with said bore for receiving the input fluid flow;
- a spool movable within said bore and having a first land and a second land adjacent opposing ends of said spool;
- a spring positioned within said bore for biasing said spool toward said first end of said bore;
- an electronically variable orifice (EVO) for electronically adjusting flow, said EVO having an EVO input portion and an EVO output portion, said EVO input portion being in fluid communication with both said first annular channel and said first end of said bore, and said EVO output portion being in fluid communication with both said second end of said bore and the primary device;
- said second annular channel being in fluid communication with said secondary device; and
- said first and second lands being movable with said spool for selectively limiting flow from said bore to said first and second annular channels, respectively.

5,782,261
COILED TUBING SIDEPOCKET GAS LIFT MANDREL SYSTEM
Billy G. Becker, and David A. Tuckér, Sr., both of 1604 Morse Ave., Ventura, Calif. 93003
Filed Sep. 25, 1995, Ser. No. 533,403
Int. Cl.^{6} F04F *1/20*
U.S. Cl. 137—155 **1 Claim**

1. A sidepocket gas lift mandrel assembly for use in coiled tubing and for receiving a wireline retrievable gas lift valve comprising:
- a gas lift mandrel housing having inwardly projecting elongated members offset from the centerline of the mandrel including a first inwardly projecting member adapted to engage an oil tool and to activate said oil tool, a second inwardly projecting elongated member offset from the longitudinal centerline of the mandrel for receiving and holding a wireline retrievable latch, a third inwardly projecting elongated member having a bore therethrough for receiving a wireline retrievable gas lift valve and a port providing fluid communication from the inside of said gas lift mandrel assembly and the outside of said gas lift mandrel assembly and upper and lower inwardly projecting elongated member for contacting and aligning an oil tool to position said oil tool with respect to said inwardly projecting elongated members.

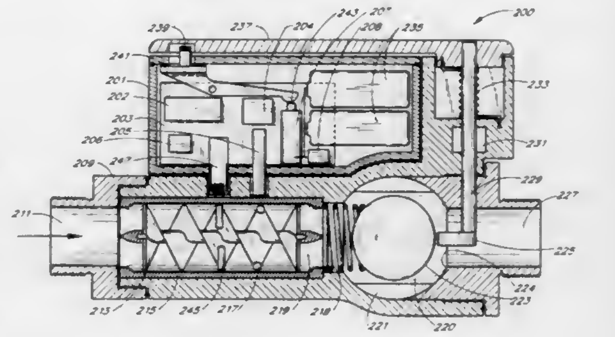


5,782,262
GAS VENTILATION APPARATUS FOR A FUEL TANK
Jae-San Kim, Kyungki-Do, Rep. of Korea, assignor to Hyundai Motor Company, Seoul, Rep. of Korea
Filed Dec. 10, 1996, Ser. No. 762,972
Claims priority, application Rep. of Korea, Dec. 11, 1995, 1995 48420
Int. Cl.^{6} F16K *24/04*
U.S. Cl. 137—202 **2 Claims**



1. A gas ventilation apparatus for a fuel tank, comprising:
- a housing having an interior and adapted to be arranged in an inner portion of an upper panel of such fuel tank;
- a gas discharge unit arranged in the interior of the housing, comprising:
  - an upper portion and a bottom portion, wherein the upper portion is adapted to be mounted on an upper portion of such fuel tank, and an inlet hole formed in the bottom portion of the gas discharge unit;
  - a discharge body comprising:
    - an upper portion having a circumferential surface;
    - an interior; and
    - a plurality of discharge holes formed on the circumferential surface of the of the upper portion of the discharge body in order for fuel gas introduced into the interior of the discharge body to be discharged to a path formed between the housing and the discharge body; and
  - an opening and closing cap, positioned over the inlet hole, having an upper portion and elastically supported by an elastic member in the interior of the discharge body in order for the inlet hole to be opened and closed in accordance with the pressure of fuel gas which is generated in such fuel tank and introduced into the gas discharge unit through the inlet hole; and
- a discharge pipe which communicates with the housing on one side of the discharge pipe, passes through an interior of such fuel tank, and penetrates a lateral surface of such fuel tank on the other side of the discharge pipe in order for the fuel gas to be discharged out of such fuel tank.

5,782,263
FLOOD CONTROL DEVICE
Gary A. Isaacson, Jr., 6610 Crawford St., San Diego, Calif. 92120; Eric Nyenhuis; James Nyenhuis, both of La Mesa, Calif.; Terry Simpkins, Sr., and Terry J. Simpkins, Jr., both of Carlsbad, Calif., assignors to Gary A. Isaacson, Jr., San Diego, Calif.
Filed Aug. 2, 1996, Ser. No. 691,569
Int. Cl.^{6} F16K *31/12*
U.S. Cl. 137—487.5 **6 Claims**



1. A flood control device comprising:
- a housing having an inlet and an outlet;
- an impeller which rotates a specified number of times for a given volume of fluid flowing into the inlet;
- at least one indicator mass on at least one vane of the impeller;
- a proximity detector for sensing when said at least one indicator mass passes by the proximity detector, for counting the number of rotations of the impeller;
- an electronic circuit, coupled to the proximity detector, for counting the number of rotations of the impeller;
- a solenoid, coupled to the electronic circuit, for activating a trigger when the electronic circuit has counted a preset number of rotations of the impeller;
- a cocking lever, having first and second ends, wherein the first end is releasably coupled to the trigger;
- a cam shaft having first and second ends and biased with a spring, the first end of the cam shaft being attached to the second end of the cocking lever;
- a cam, attached to the second end of the cam shaft; and
- a ball engaging the cam such that when the trigger is activated by the solenoid, the cocking lever releases from a cocked position, thereby rotating the cam shaft and cam as the first end of said cocking lever swings so as to extend outward from said housing, and thereby allowing the ball to be seated in a seat of said outlet, thereby closing the outlet and stopping fluid flow through the flood control device.

5,782,264
Patent Not Issued For This Number

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5,782,265

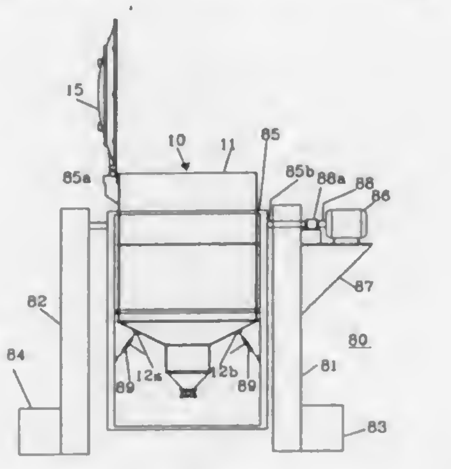
FILTRATION AND TRANSPORTABLE CONTAINER FOR PROCESSING WASTE INTO FUEL

Eric B. Tiemeyer, 3165 Timberview, Dallas, Tex. 75229, and Kenneth R. Latchem, P.O. Box 382635, Duncanville, Tex. 75138

Filed Dec. 26, 1995, Ser. No. 578,467

Int. Cl.⁶ F16K *51/00*

U.S. Cl. 137—550 **16 Claims**



1. A removable and transportable container for transferring fuel from a Filtration Fuel Technology process to a fuel receiving facility, comprising:
- a first cylindrical body;
- a second smaller cylindrical body;
- a first transition region between and connecting said first and second cylindrical bodies;
- a second transition region attached to said second cylindrical body on a side of said second cylindrical body opposite said first transition region; and
- a discharge valve attached to said second transition region; and
- a hinged lid enclosing an end of said first cylindrical body opposite an end connected to said first transition region.

5,782,266

PRESSURE RELIEF VALVE FOR A PACKAGING CONTAINER

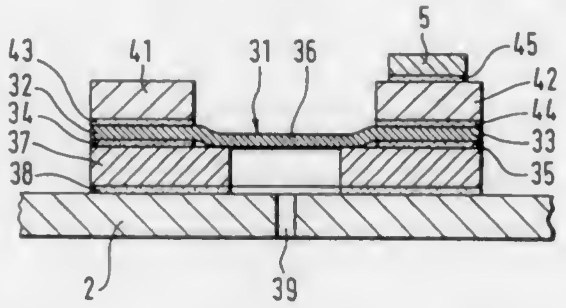
Klaus Domke, Ditzingen, Germany, assignor to Robert Bosch GmbH, Stuttgart, Germany

Filed Sep. 6, 1996, Ser. No. 669,373

Claims priority, application Germany, Nov. 5, 1994, 44 39 591.4

Int. Cl.⁶ F16K *37/00;* **B65D** *33/01*

U.S. Cl. 137—551 **10 Claims**



9. A pressure relief valve (**10**) for a packaging container (**1**) in which spacer strips (**41**, **42**) are attached to a valve membrane (**31**), coinciding with two parallel fastening zones (**33**, **34**), and an alarm device (**5**) is attached to an inner surface of the spacer strips (**41**, **42**).

5,782,267

SOLENOID VALVE FOR AN ANTI-LOCK BRAKE SYSTEM AND VALVE FABRICATING METHOD

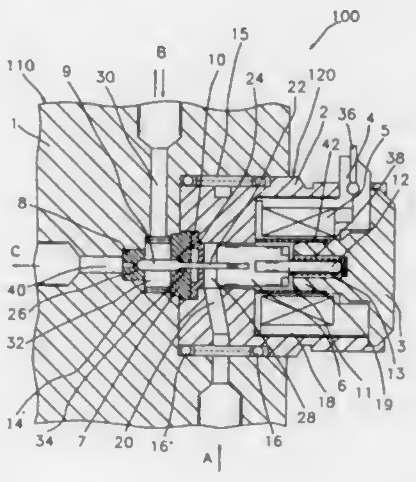
Jang-Yeol Yoo, Seoul, Rep. of Korea, assignor to Daewoo Electronics Co., Ltd., Seoul, Rep. of Korea

Filed Mar. 21, 1996, Ser. No. 619,205

Claims priority, application Rep. of Korea, Sep. 19, 1995, 95-30580

Int. Cl.⁶ F16K *31/06*

U.S. Cl. 137—596.17 **2 Claims**



1. A method for fabricating a solenoid valve comprising the steps of:
- fabricating a modulator block assembly;
- fabricating a solenoid valve assembly into said modulator block assembly,
- said step of fabricating said modulator block assembly comprises the steps of:
  - tightly fitting an outlet nozzle in a modulator block having a first pathway for receiving fluid, a second pathway for inflowing/outflowing fluid and a third pathway for exhausting fluid to communicate a nozzle hole of said outlet nozzle with said third pathway and hermetically coupling said nozzle to said modulator; and
  - inserting a caliper filter for filtering the fluid from said second pathway in said modulator block, and
  - said step of fabricating said solenoid valve assembly comprises the steps of:
    - fabricating valve means comprising the steps of inserting a push rod having a spool integrally formed at one end thereof in an inlet nozzle and a bushing, fitting the other end of said push rod in a first closed hole formed at the center of one end of an armature, fitting a spring guiding rod in a second closed hole formed at the center of the other end of said armature and pressing said armature radially to secure said push rod and said spring guiding rod;
    - forming a chamber defined by a housing, a cylindrical sealing member and a protrusion formed in the center of one side of a cover and fitted in said sealing member in order to obtain a space capable of receiving and reciprocating said valve means, the step comprising the steps of fitting said sealing member in said housing, inserting a bobbin wound by a solenoid coil in a space between said housing and said sealing member, tightly fitting said cover in said housing and hermetically coupling said cover to said housing;
  - inserting, in said chamber, said valve means of which said spring guiding rod is inserted in said spring;
  - hermetically coupling said inlet nozzle to said housing; and
  - successively mounting a first O-ring, a pump filter for filtering the fluid from said first pathway and a second O-ring on the circumference of said housing.

5,782,268

SPOOL VALVE AND PROCESS FOR MANUFACTURING THE SAME

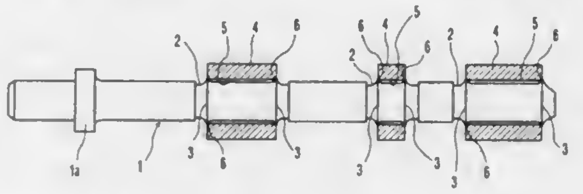
Keigo Kato, and Masataka Mizuno, both of Aichi-ken, Japan, assignors to Aoyama Seisakusho Co., Ltd., Nagoya, Japan

Filed Jan. 13, 1997, Ser. No. 782,593

Claims priority, application Japan, Jan. 24, 1996, 8-010020; Jun. 26, 1996, 8-166140

Int. Cl.⁶ F15B *13/02;* **F16K** *3/24;11/07;* **B23P** *15/00*

U.S. Cl. 137—625.69 **8 Claims**



1. A spool valve which comprises:
- a shaft having plural small diameter portions formed at intervals along the shaft on a circumferential surface of the shaft, said small diameter portions having linear outer surfaces extending substantially parallel to an axis of said shaft;
- a collar to be mounted to the shaft, said collar having a substantially central hole defining an inner diameter of said collar and through which the shaft is passable for mounting said collar to the shaft, said collar having a length shorter than a length of said small diameter portions of said shaft, and said collar having a linear inner surface extending substantially parallel to the axis of said shaft and said linear outer surfaces of said small diameter portions; and
- a pair of circular convex portions integrally formed on outer circumferential faces of a corresponding one of said small diameter portions, said pair of circular convex portions each having an outer diameter larger than the inner diameter of said collar which is to be mounted to the shaft, and said pair of circular convex portions being spaced apart from each other by a distance substantially corresponding to the length of said collar;
- wherein said collar is arranged between said circular convex portions so that side faces of said circular convex portions are in close contact with opposite side surface portions of said collar in a vicinity of said substantially central hole of said collar, whereby said collar forms a valve body.

5,782,269

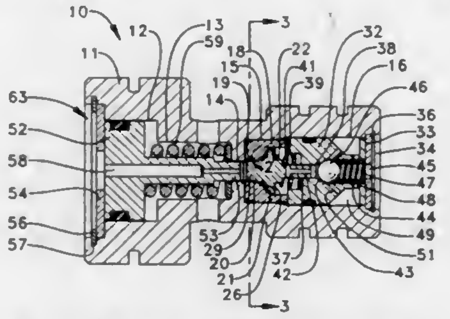
SOFT SEAL POPPET TYPE CHECK VALVE

Steven P. Seaney, Glen Ellyn; Rita R. Waller, Edelstein; Randall A. Harlow, Brimfield; Robert A. Lapke, Peoria; Joseph F. Duffy, Metamora; James R. Carlberg, Dunlap, and Joseph T. Phillips, Dunlap, all of Ill., assignors to Caterpillar Inc., Peoria, Ill.

Filed Apr. 14, 1997, Ser. No. 833,230

Int. Cl.⁶ F16K *15/00*

U.S. Cl. 137—630.22 **10 Claims**



1. A check valve having a poppet normally biased to a closed position blocking fluid flow through the check valve and having an open position establishing communication through the check valve comprising:
- a valve body defining a valve seat having a conical face;
- a conical face on the poppet and disposed for engagement with the conical face of the valve seat;
- an annular groove recessed into one of the conical faces;
- a resilient seal disposed within the annular groove, the resilient seal does not extend above the conical face; and
- an annular protrusion extending from the other of the conical faces and disposed to engage the resilient seal when the conical faces are in engagement.

5,782,270

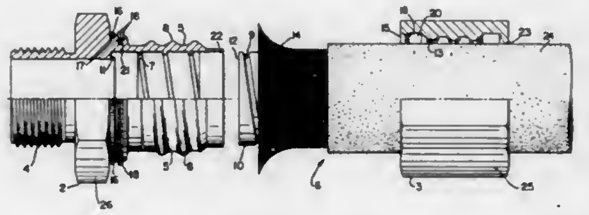
FIELD REPAIRABLE CONDUIT TERMINATION SYSTEM

Edward P. Goett, Geyserville, and Roger Woehl, Rohnert Park, both of Calif., assignors to Engineered Transistions, Inc., Healdsburg, Calif.

Continuation of Ser. No. 439,659, May 12, 1995, abandoned. This application Dec. 16, 1996, Ser. No. 767,570

Int. Cl.⁶ F16L *11/11*

U.S. Cl. 138—109 **14 Claims**



1. A two-part, field repairable backshell adapter for assembly with a conduit including a hollow inner core having a helical thread formed on its outer surface, a metal shield over the inner core and a sheath over the shield comprising
- a backshell adapter having a hollow conduit end fitting and a termination nut having internal threads,
- said conduit end fitting having at a first end including means for connecting the backshell adapter to another structure and having at a second end internal and external threads with an enlarged region separating said two ends,
- a hollow cylindrical lip extending axially from the enlarged region away from the first end,
- said hollow lip having an outer diameter such as to provide a snug fit within a core of a conduit when a conduit is disposed over said external threads and into contact with said enlarged region,
- said internal threads of the second end snuggly matable with the external threads of said core,
- said internal threads of said nut matable with said external threads of the second end of the conduit of the end fitting,
- said internal threads of said nut having a diameter to accept and snuggly capture a shield of a conduit between the two sets of threads.

5,782,271

MULTI-SECTION REED FOR AIR JET LOOM

Adnan Wahhoud, Lindau-Bodolz, and Peter Czura, Wangen, both of Germany, assignors to Lindauer Dornier Gesellschaft mbH, Lindau, Germany

Filed Dec. 9, 1996, Ser. No. 761,947

Claims priority, application Germany, Dec. 8, 1995, 195 45 840.0

Int. Cl.⁶ D03D *49/62*

U.S. Cl. 139—192 **18 Claims**

1. A multi-section reed for a pneumatic loom comprising a plurality of partial reed members arranged successively adjacent one another with a respective space therebetween in a weft insertion direction of said loom,
- wherein said partial reed members respectively have weft insertion air channel sections extending therealong in at least

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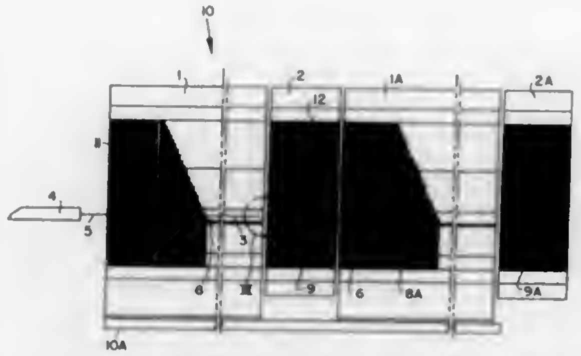


substantial alignment with one another along said weft insertion direction to form a weft insertion air channel extending along said reed,

wherein said plurality of partial reed members includes a first weft-upstream reed member and a second weft-downstream reed member arranged weft-downstream adjacent said first reed member, and

wherein said air channel sections respectively have weft-upstream inlet ends and weft-downstream outlet ends, and said inlet end of said air channel section of said second reed member has an enlarged inlet cross-sectional dimension that is larger than a corresponding cross-sectional dimension of said outlet end of said air channel section of said first reed member.

5,782,272

PIEZOELECTRIC SHED SELECTING DEVICE

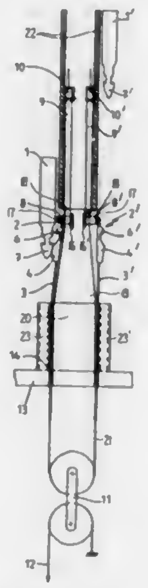
André J. Dewispelaere, Marke, Belgium, assignor to N.V. Michel van de Wiele, Marke, Belgium

Filed Sep. 23, 1996, Ser. No. 717,868

Claims priority, application Belgium, Oct. 27, 1995, 09500885

Int. Cl.⁶ D03C *3/20*

U.S. Cl. 139—455 **5 Claims**



1. A shed forming device including piezoelectric bending elements for selecting shed forming means with the assistance said piezoelectric bending elements, in a weaving and/or knitting machine of the Jacquard type, intended for weaving and knitting patterns, said shed forming device comprising complementary ascending and descending hooks (2. 2') and complementary ascending and descending blades (1, 1') adapted to cooperate and mutually hook and unhook, wherein each of the piezoelectric bending elements (9, 9') has a U-shaped clip at a free extremity thereof said clip (8, 8') having one arm (17) that is adapted to slide over a corresponding one of the hooks.

5,782,273

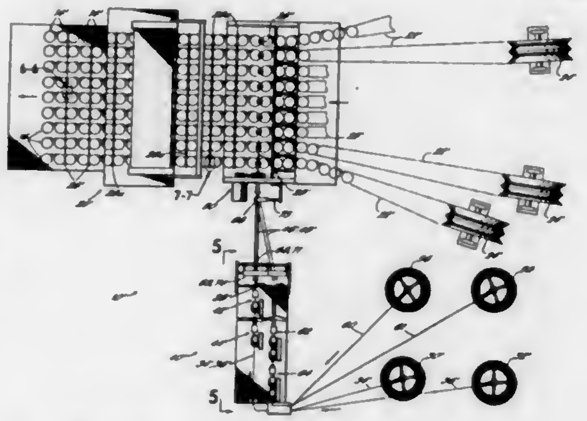
DUAL LACING WIRE MECHANISM FOR A COIL SPRING ASSEMBLY MACHINE

Terry W. Moser; John B. Schnake, and Thomas J. Wells, all of Carthage, Mo., assignors to L&P Property Management Company, South Gate, Calif.

Filed Mar. 21, 1997, Ser. No. 822,115

Int. Cl.⁶ B21F *33/04*

U.S. Cl. 140—92.4 **15 Claims**



1. A coil spring assembly machine for lacing coil springs together to form a coil spring assembly, said coil spring assembly machine including

clamping jaws for clamping together end portions of adjacent rows of coil springs in one of a top and bottom plane of said coil spring assembly, said clamping jaws including dies which cooperate with the end portions of said rows of coil springs to define a helical travel path for helical lacing wires as those lacing wires are moved through the said helical travel path; and

a lacing wire forming and application mechanism for alternatively and selectively supplying lacing wires having two differing physical characteristics to said helical travel path.

5,782,274

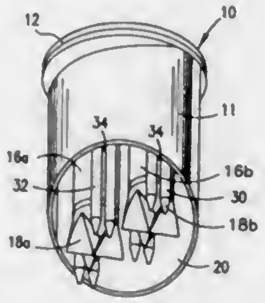
ELLIPTICAL CLEANING BOX FOR FILLING APPARATUS

Yutaka Kaneko, Wheeling, and Bengt Andersson, Palatine, both of Ill., assignors to Tetra Laval Holdings & Finance, SA, Pully, Switzerland

Filed Mar. 11, 1997, Ser. No. 816,056

Int. Cl.⁶ B65B *3/04*

U.S. Cl. 141—90 **2 Claims**



1. A filling assembly for a linear form, fill and seal packaging machine for processing a series of carton conveyed along a carton path, the filling assembly comprising:

two fill tubes adjacent each other disposed above the carton path, each of the tubes having a nozzle thereon, the two fill tubes filling a pair cartons simultaneously;

a plurality of guide pins disposed in relation to the two fill tubes for guiding a pair of cartons about the fill tubes;

a cleaning box substantially encompassing the two fill tubes and the plurality of guide pins, the cleaning box having an elliptical body having a longitudinal axis parallel to the filling tubes and perpendicular to the carton path, the elliptical body having a front half and a rear half, the cleaning box having a bottom opening angled to the longitudinal axis to define a circular cross section allowing for the visual perception of the nozzles, a portion of the filling tubes and a portion of each of the plurality of guide pins when viewed from a plane perpendicular to the longitudinal axis, the elliptical body extending from a mounting plate to a position below the two fill tubes on the rear half and to a position above the two fill tubes on the front half; a closure cap attached to the elliptical body and configured to coact with the opening to form a sealed cleaning box, the closure cap having a locking device for maintaining the closure cap in a sealed position engaged with the opening and an open position proximate to the front half of the elliptical body, the closure cap also having an actuator for automatic sealing and opening;

whereby during the filling operation the closure cap is in the open position and before the cleaning operation, the closure cap may be automatically closed thereby reducing contamination.

5,782,275

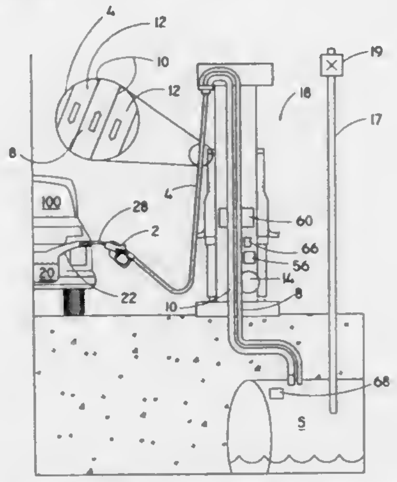
ONBOARD VAPOR RECOVERY DETECTION

Hal C. Hartsell, Jr., Kernersville; Edward A. Payne, Greensboro; Paul D. Miller, Winston-Salem, and Mark B. Tucker, Colfax, all of N.C., assignors to Gilbarco Inc., Greensboro, N.C.

Filed May 17, 1996, Ser. No. 649,455

Int. Cl.⁶ B65B *1/30*

U.S. Cl. 141—94 **23 Claims**



1. An apparatus for dispensing fuel and detecting a vehicle having a vapor recovery system comprising:

a fuel dispenser configured to deliver fuel to a fuel tank of vehicle;

a vapor recovery system operatively associated with said fuel dispenser having a vapor path for removing fuel vapor expelled from the fuel tank of the vehicle during a fueling operation;

a hydrocarbon vapor sensor associated with said vapor path for sensing the fuel vapors in said vapor path and providing a vapor signal indicative of a presence of hydrocarbon vapor; and

a vapor recovery controller configured to:

a) receive the vapor signal;

b) determine whether or not the vehicle has a vapor recovery system based on hydrocarbon vapor concentration in said vapor path during fueling; and

c) shut off or adjust said vapor recovery system during the fueling operation upon determining that the vehicle has a vapor recovery system.

5,782,276

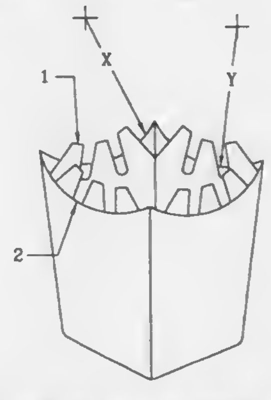
HORIZONTAL OIL FILTER DISCHARGE CONTROL TOOL

Gary Hartman Kilgore, 239 Calumet Pl., San Antonio, Tex. 78209

Filed Nov. 26, 1996, Ser. No. 756,435

Int. Cl.⁶ B65B *39/00;* **B67C** *11/04*

U.S. Cl. 141—332 **2 Claims**



1. A vessel for collecting oil from engines having oil filters of different sizes, said vessel comprising an open end, a bottom and a plurality of sides, at least one side having a rim at said open end, at least one concavity (A) with radius (X) delineating a segment of said rim at said open end, said at least one concavity (A) provide with a plurality of blades adapted to be inserted between an engine and an oil filter projecting from an interior surface of said open end and extending from said interior surface outwardly beyond said rim of said open end of vessel at said segment of said rim defined by said concavity (A).

5,782,277

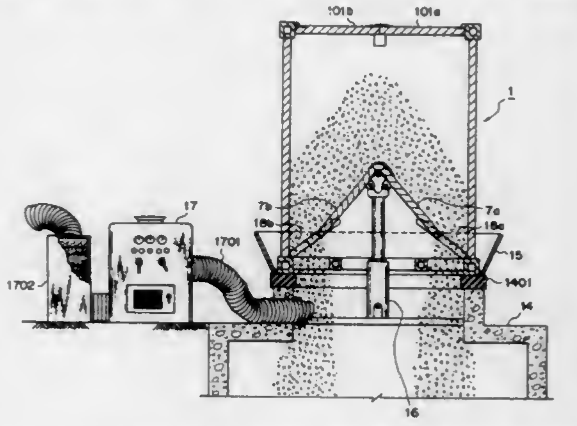
CONTAMINATION-FREE FREIGHTING AND STORING SYSTEM FOR CONTAINERIZED BULK GOODS AND OPERATIVE MECHANISM THEREOF

Lu-Hsiung Ung, F1. 2, No. 5, Lane 3, Hsing Tong Street, Taipei, Taiwan

Filed Jun. 19, 1996, Ser. No. 666,865

Int. Cl.⁶ B65B *1/04;3/00;* **B67C** *3/00*

U.S. Cl. 141—352 **8 Claims**



1. A contamination-free freighting and storing system for containerized bulk goods adapted for the expeditious loading of freight, storage and unloading of dry granular or powdered goods, the system comprising:

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a container (1) (1') freighting device which satisfies ISO standards and having a front wall (**4***a*), a rear wall (**4***b*) and two side walls (**3***a*) and (**3***b*) and a top board, a bottom board, an unloading tank (**14**) having a top opening, a lifting device (**16**) provided in said unloading tank, a suction filter device (**17**) located externally of said unloading tank and connected thereto and conventional container transporting equipment; wherein

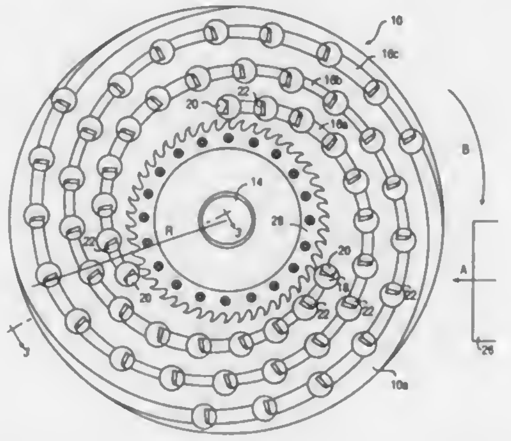
said bottom board comprises two separate bottom panels (**7***a*) and **7**(*b*);

a loading device placed on said top board, above said top opening of said unloading tank;

each of said two separate bottom panels having a side and when they are activated by said lifting device (**16**) they elevate into said container to achieve a mountain-like shape and expose said sides whereby said goods inside said container can expeditiously fall into said unloading tank; and

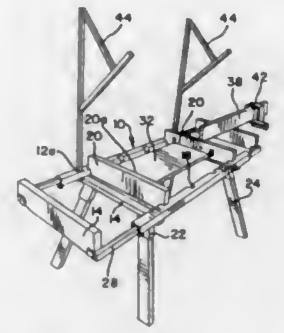
the powder which is formed during the unloading process is drawn and filtered by said suction filter device.

5,782,278
CANT FORMING DEVICE
Kenneth Larsson, Mockfjard, Sweden, assignor to Disk Knife System i Sverige AB, Mockfjard, Sweden
Filed Jun. 17, 1996, Ser. No. 665,235
Int. Cl.^{6} B27C ***9/00***
U.S. Cl. 144—220 **12 Claims**



1. In a cant forming device having an opposed facing pair of chipping heads for rotation in a direction of rotation about an axis of rotation, each chipping head having a truncated conical shape, a small end of said conical shape in closest spaced apart relation to a corresponding small end of said chipping head in opposed facing relation, wherein each of said chipping heads have releasably mountable cutting knives mountable on a surface thereon to plane opposed parallel planar surfaces on a workpiece being fed longitudinally between said chipping heads, whereby wood is removed from said workpiece in the form of wood chips, at least one cutting knife mountable in at least one radially spaced apart array of cutting knives on said surface comprises a main cutting edge extending substantially across said at least one cutting knife, said main cutting edge extending in a first plane substantially parallel with a rotational plane of said clipping heads, wherein said main cutting edge is angled back in relation to a rotational radius, in said first plane through said axis of rotation of said chipping heads rotational center and said at least one cutting knife, and wherein said main cutting edge has a first end furthest away from said axis of rotation and a second end located closer to said axis of rotation and said first end is spaced from said rotational radius in a direction reverse to said direction of rotation.

5,782,279
PORTABLE UNIVERSAL SAW TABLE
David W. Stecker, Sr., 23W540 Bryn Mawr, Roselle, Ill. 60172
Filed May 23, 1997, Ser. No. 862,568
Int. Cl.^{6} B27B ***5/24;*** **B25H** ***1/00***
U.S. Cl. 144—286.1 **8 Claims**



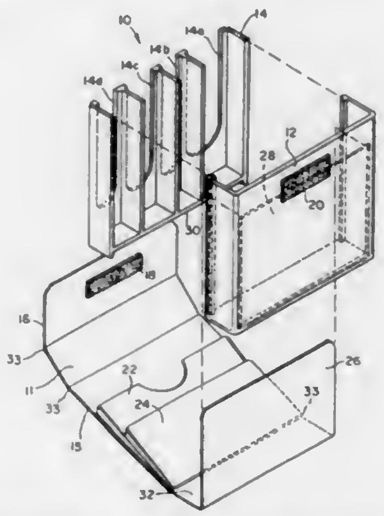
4. A portable saw table comprising:

a) a pair of spaced apart parallel metal support rails, each having notches for receiving wooden cross pieces spaced therealong;

b) a pair of metal cross pieces rotatably attached at each end thereof to said support rails, said cross pieces being adapted to maintain said support rails in said spaced apart condition and on rotation to allow said support rails to move into substantially abutting relationship; and

c) a plurality of disposable wooden cross pieces located in said notches on said support rails for holding said rails in said spaced apart condition and also for holding work pieces to be sawed on said table.

5,782,280
COIN PURSE
Rawnie J. Berry, 43 N. 23rd St., Reading, Pa. 19606
Filed Jan. 23, 1997, Ser. No. 787,863
Int. Cl.^{6} A45C ***1/04***
U.S. Cl. 150—113 **7 Claims**



1. The combination of a molded purse and coin holder, said purse comprising:

a) a flexible mold plastic sheet having a plurality of bends or folds which form a front wall, a top wall and a bottom wall integrally interconnected to the front wall, said top wall having an integral extension which forms and an overhanging flap;

b) at least one plastic film sheet fused to the inner surface of said front wall to form a pocket within said purse;

c) a molded plastic coin holder comprising a plurality of integrally connected flexible U-shaped channelled members for holding and dispensing coins, said coin holder is connected to said bottom wall by a hook and eye fastener.

7. The combination of a molded purse and coin holder, said purse comprising:

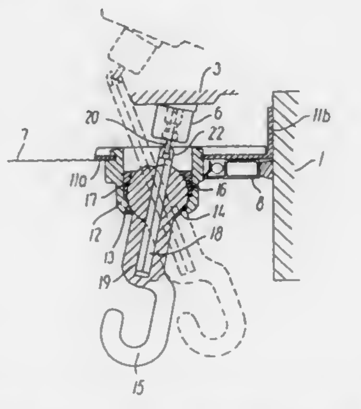
a) a flexible mold plastic sheet having a plurality of bends or folds which form a front wall, a top wall and a bottom wall integrally interconnected to the front wall, said top wall having an integral extension which forms and an overhanging flap;

b) at least one plastic film sheet fused to the inner surface of said front wall to form a pocket within said purse;

c) a molded plastic coin holder comprising a plurality of integrally connected flexible U-shaped channelled members for holding and dispensing coins, said coin holder being attached to a wall of said purse; and

d) a clip attached to an outer surface of said coin holder.

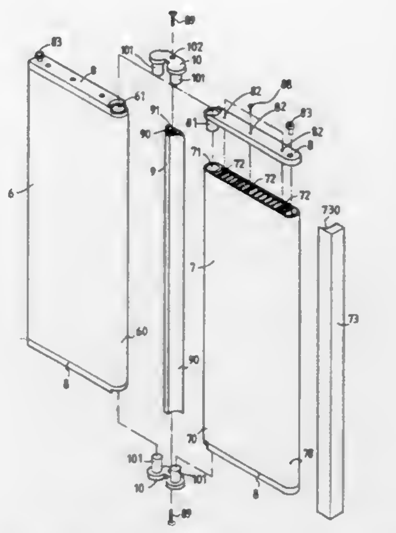
5,782,281
OPENABLE WINDOW
Brent Møller, Gentofte, Denmark, assignor to V. Kann Rasmussen Industri A/S, Søborg, Germany
PCT No. PCT/DK95/00051, § 371 Date Jun. 17, 1996, § 102(e) Date Jun. 17, 1996, PCT Pub. No. WO95/21314, PCT Pub. Date Aug. 10, 1995
PCT Filed Feb. 2, 1995, Ser. No. 663,224
Claims priority, application Denmark, Feb. 4, 1994, 0151/94
Int. Cl.^{6} E06B ***3/32***
U.S. Cl. 160—92 **14 Claims**



1. An openable window with a main frame (**1**) and a sash (**3**) top-hinged therein, in which sash is mounted a light screen with an adjusting mechanism (**5**), as well as with a screening device (**7, 8**) adapted to be detachably mounted in the main frame internally of the sash with respect to a room in which the window is positioned and a turning handle (**15**) mounted at the internal side of the screening device, which turning handle via a shaft (**18**) extends through said screening device and is connected with the light screen adjusting mechanism in a rotationally locked manner, characterized in that said shaft is articulated with the light screen adjusting mechanism and is axially displaceable in a bore (**19, 28**) in a pivotable member (**14**) which is journalled in a bearing device (**12**) rigidly connected with the main frame in such a way as to permit said shaft to pivot around an axis of rotation parallel to the hinge axis of the window sash.

5,782,282
FOLDABLE DOOR FOR CLOSET
Chang Than Chen, 12F., No. 426, Ming Chuan 2nd Road Chien Chen Chu, Kaohsiung, Taiwan
Filed Jul. 17, 1997, Ser. No. 895,944
Int. Cl.^{6} E05D ***15/06***
U.S. Cl. 160—206 **3 Claims**

1. A foldable door comprising:



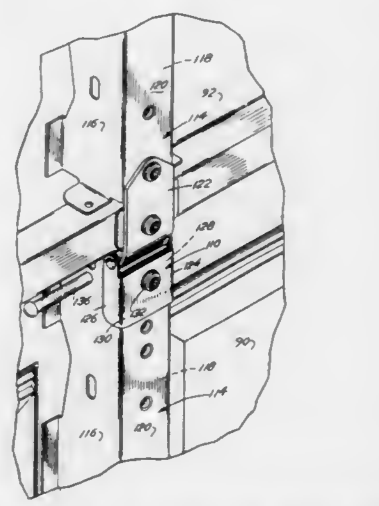
two door panels each including a rounded adjacent side and each including an upper portion and a lower portion having a hole formed in said rounded adjacent side, said door panels defining a gap between said rounded adjacent sides thereof,

a safety member disposed in said gap defined between said rounded adjacent sides of said door panels and including two curved recesses for engaging with said rounded adjacent sides of said door panels,

two couplers each including two shafts engaged in said holes of said door panels for pivotally coupling said door panels together and for allowing said door panels to be rotated about said shafts respectively, and

means for securing said safety member to said couplers for allowing said safety member to enclose said gap defined between said door panels and for allowing said safety member to prevent user from being hurt between said door panels.

5,782,283
GARAGE DOOR CONSTRUCTION
William F. Kendall, Oregon, Ill., assignor to Raynor Garage Doors, Dixon, Ill.
Filed Apr. 3, 1997, Ser. No. 832,434
Int. Cl.^{6} E05D ***15/10***
U.S. Cl. 160—229.1 **7 Claims**



1. A pinch-proof garage door for protecting human fingers from being pinched, the pinch-proof garage door comprising:

a first garage door panel having a bottom female portion;

a second garage door panel having a top male portion cooperating with the bottom female portion of the first garage door

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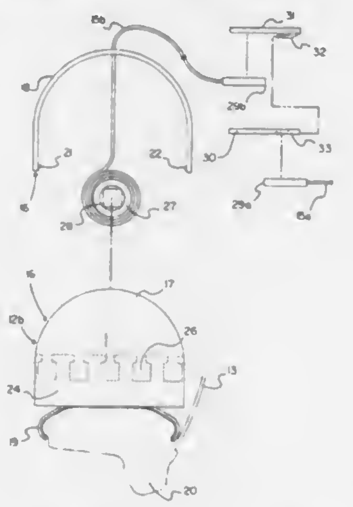
panel, said bottom female portion and said top male portion shaped so as to prevent said human fingers from being pinched;
a first structural member securely fastened to said first garage door panel; a second structural member having two opposed horizontally-aligned holes, said second structural member securely fastened to said second garage door panel, said second structural member vertically aligned with said first structural member;
a hinge leaf vertically aligned with the first structural member and the second structural member, said hinge leaf having a substantially cylindrical hole aligned with the two opposed horizontally-aligned holes of the second structural member, said hinge leaf cooperating with said second structural member so as to prevent said human fingers from being pinched; and
a hinge pin operatively coupling the second structural member to the hinge leaf and the first structural member, said hinge pin extending through the two opposed horizontally-aligned holes of the second structural member and the substantially cylindrical hole of the hinge leaf, whereby the first garage door panel and the second garage door panel pivot relative to one another about said hinge pin as the garage door transitions from a closed to an open state.

5,782,284
SUN SHADE SYSTEM FOR WINDSHIELDS

Benny L. Leatherman, 1305 Southwind Ct., Concord, N.C. 28025

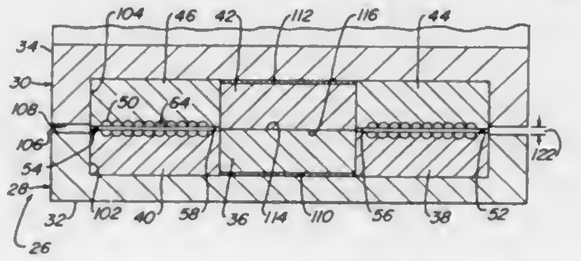
Filed May 13, 1997, Ser. No. 855,010
Int. Cl.^{6} B60J *3/02*
U.S. Cl. 160—370.22 **15 Claims**



1. A sunshade system for covering a windshield of a vehicle, comprising:
a pair of sunshade assemblies for being disposed adjacent opposite ends of the windshield;
each said sunshade assembly including a housing;
said housing comprises a main housing portion;
a sunscreen support roll disposed within the housing;
a sunscreen attached along one edge thereof to the support roll;
a rod attached to an edge of each sunscreen opposite the edge attached to the support roll;
a handle means attached to each said rod;
means for connecting the handle means together so that the sunscreens are secured in position over the windshields;
said main housing portion includes top and bottom mounting brackets therein which support the support roll; and
each said mounting bracket includes a plurality of mounting slots therein permitting the angle of the support roll to be changed.

5,782,285
DIE CASTING SMALL PARTS FROM MATERIALS THAT EXPAND WHEN TRANSITIONING FROM THE LIQUID TO THE SOLID STATE

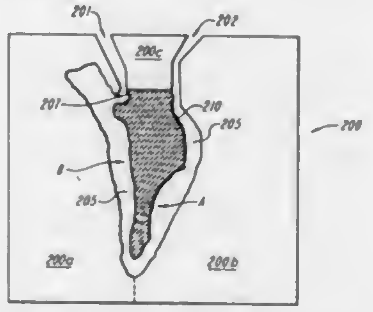
Jerry E. Trickel, 5010 Mohawk Ct., Granbury, Tex. 76049, and Lyn O. Trickel, 10816 Camellia, Dallas, Tex. 75230
Division of Ser. No. 509,168, Jul. 31, 1995. This application Jan. 13, 1997, Ser. No. 783,821
Int. Cl.^{6} B22D *17/04;17/22;25/02*
U.S. Cl. 164—113 **1 Claim**



1. A method of die casting substantially spherical objects of a material that expands when transitioning from the liquid to the solid state, the method comprising the steps of:
providing a die comprising a movable die half and a stationary die half, each die half comprising a front surface, and further comprising a plurality of cavities located along the front surface that, when the die halves are in a closed position, align with the cavities in the other die half, thus defining a plurality of voids that define the objects to be formed;
locking the die halves in the closed position wherein a selected spacing remains between the front surfaces of the die halves thus causing the front surfaces to define a laminar void that connects the cavities so that upon solidification of the material, a flashing is formed connecting the objects and facilitating the removal of the objects from the die;
injecting the material in the cavities;
allowing the die halves to remain in the closed position sufficiently long for the material to harden so that upon moving the die halves to an open position, a majority of the objects stick to the movable die half and not to the stationary die half;
moving the die halves to the open position and causing the objects to become detached from the movable die half.

5,782,286
METHOD OF CASTING HOLLOW BONE PROSTHESIS WITH TAILORED FLEXIBILITY

Robert E. Sommerich, Norton, Mass., assignor to Johnson & Johnson Professional, Inc., Raynham, Mass.
Division of Ser. No. 536,816, Sep. 29, 1995, Pat. No. 5,725,586. This application Dec. 16, 1996, Ser. No. 764,895
Int. Cl.^{6} B22D *25/00;29/00*
U.S. Cl. 164—132 **5 Claims**

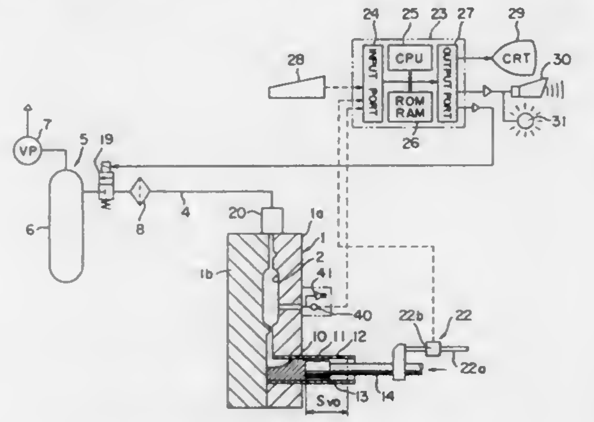


1. A method of forming a hollow bone prosthesis, such method comprising the steps of:
forming a mold block having a generally tapered cavity corresponding to a desired size of a prosthesis stem,

forming a plug body of smaller cross-dimension than said tapered cavity, the plug body having an irregular outer contour,
fitting the plug body in the cavity of the mold block,
casting metal between the plug body and the mold block to form a metal cast prosthesis, and
removing the prosthesis from the mold block and the plug body from the prosthesis to achieve a hollow prosthesis having a stiffness comparable to stiffness of a human bone, wherein the hollow prosthesis has a non-monotomically decreasing interior surface corresponding to the irregular outer contour of the plug body and a wall thickness having at least one region of locally increased thickness.

5,782,287
METHOD OF CONTROLLING VACUUM IN VACUUM DIE-CASTING AND VACUUM CONTROL SYSTEM FOR CARRYING OUT THE SAME

Norihiro Iwamoto, Sagamihara, and Shinobu Kodama, Zama, both of Japan, assignors to Toshiba Kikai Kabushiki Kaisha, Tokyo-To, Japan
Filed Jun. 7, 1996, Ser. No. 659,913
Claims priority, application Japan, Jun. 8, 1995, 7-142019
Int. Cl.^{6} B22D *17/32*
U.S. Cl. 164—155.3 **7 Claims**



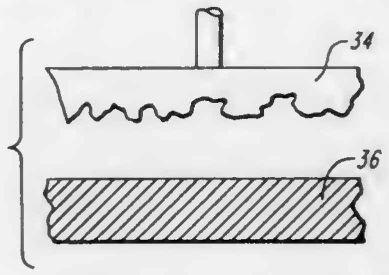
1. A vacuum die-casting machine including:
a vacuum control system;
a die having a cavity and vacuum passageway formed therein, said vacuum passageway extending downstream from said cavity;
a vacuum system connected to said cavity;
a vacuum valve for connecting the vacuum system to and disconnecting the same from the cavity;
a vacuum device for evacuating the cavity through the vacuum system;
an injection plunger for injecting a molten metal into the cavity;
said vacuum control system comprising:
a vacuum sensor connected to a port opening in said cavity upstream of said vacuum passageway for directly measuring vacuum in said cavity;
position detecting means for detecting the position of the injection plunger;
data storage means for storing data on vacuum taken at a predetermined period after the start of an injection cycle;
vacuum comparing means for comparing a vacuum measured by said vacuum sensor immediately before the completion of injection of the molten metal into the cavity and a predetermined reference vacuum; and
vacuum valve opening position correcting means for correcting a first position at which to open the vacuum valve so that the first position is shifted by a predetermined distance toward the die when the measured vacuum is higher than the reference vacuum and so that the first position is shifted by a predetermined distance away from the die when the measured vacuum is lower than the reference vacuum.

5,782,288

Patent Not Issued For This Number

5,782,289
INVESTMENT CASTING

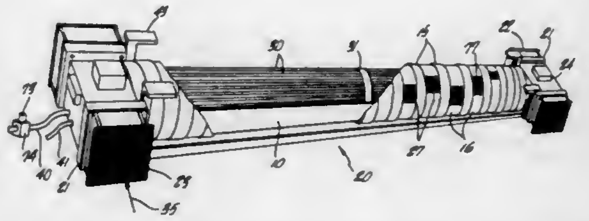
Brooke W. Mastrorio, Lakeville, and Douglas A. Fifolt, South Easton, both of Mass., assignors to Johnson & Johnson Professional, Inc., Raynham, Mass.
Filed Sep. 30, 1996, Ser. No. 724,494
Int. Cl.^{6} B22C *9/04*
U.S. Cl. 164—516 **13 Claims**



1. A method of making a textured metal casting comprising the steps of:
creating a heat softenable pattern;
creating a textured template by creating a data file that defines a three-dimensional textured template, providing the data file to a rapid prototyping machine, and forming a model representative of the three-dimensional textured template with the rapid prototyping machine;
pressing the textured template against at least a portion of the pattern to provide a textured pattern;
creating a shell around the textured pattern;
removing the textured pattern from the shell;
introducing molten metal into the shell;
allowing the molten metal to harden;
removing the shell from the hardened metal.

5,782,290
TUBULAR HEAT EXCHANGE SYSTEM

David R. Cook, 5355 E. Evans Creek Rd., Rogue River, Oreg. 97537
Filed Nov. 17, 1995, Ser. No. 560,451
Int. Cl.^{6} F24F *5/00;* **F28D** *1/04;7/08*
U.S. Cl. 165—231 **19 Claims**



1. A multi-purpose heat exchange system comprising: a substantially cylindrical tubular structure; a plurality of coils within said tubular structure; means to draw a first medium into the heat exchange system; means to release the first medium from the heat exchange system; and means to transport a second medium through said coils; said substantially cylindrical tubular structure

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including a first tube with solid portions and a cutaway portion; a second tube surrounding said first tube along the substantial entirety of the length of said first tube, said second tube having a plurality of cut slots positioned along the length of said second tube, said second tube being able to rotate around said first tube, and said release means being a series of openings where the cutaway portion of the first tube is aligned with the slots in said second tube.

10. A multi-purpose heat exchange system, comprising a substantially cylindrical tubular structure; a plurality of coils within said tubular structure; means to draw a first medium into the heat exchange system; means to release the first medium from the heat exchange system; and means to transport a second medium through said coils; said substantially cylindrical tubular structure including a tube with solid portions and cut-away portion; a plurality of first rings encircling said tube along the substantial entirety of the length of said tube; a plurality of second rings encircling said tube and having means to rotate around said tube, said second rings positioned between said first rings and having gap portions, said release means having a plurality of openings created where the gap portions in said second rings are aligned with the cut-away portion of said tube.

5,782,291

HEAT EXCHANGER

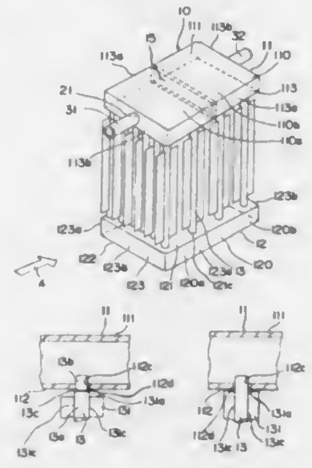
Tomonari Morita, Sawa-gun, Japan, assignor to Sanden Corporation, Japan

Filed May 30, 1996, Ser. No. 652,699

Claims priority, application Japan, May 30, 1995, 7-154037

Int. Cl.⁶ F28D *1/053;* **F28F** *1/16*

U.S. Cl. 165—76 **10 Claims**



1. A heat exchanger comprising:

a first header tank and a second header tank spaced from the first header tank, wherein each of the first and second header tanks comprises a top end portion, a bottom end portion spaced from the top end portion, and a sidewall portion connecting the top and bottom end portions, so that a hollow space is defined within each of the first and second header tanks, wherein said bottom end portion of said first header tank has a plurality of holes adapted to accept a plurality of pipe members and wherein said top end portion of said second header tank has a plurality of holes adapted to accept said plurality of pipe members and wherein each of said holes has a circumference;

said plurality of pipe members connecting the first and second header tanks in fluid communications, wherein each of the pipe members comprises at least one fin portion formed at an exterior surface thereof and has a first end and a second end opposite to the first end; and wherein the at least one fin portion extends along the longitudinal axis of the pipe member and has a first end and a second end opposite to the first end; and wherein the first end of the at least one fin portion is spaced from the first end of the pipe member so that a first end region is defined therebetween along the pipe member and the second end of the at least one fin portion is spaced from the second end of the pipe member so that a second end region is defined therebetween along the pipe member; and

preventing means for preventing a line contact between the first end of the at least one fin portion and the circumference of the hole in which the pipe member is inserted and a line contact between the second end of the at least one fin portion and the circumference of the hole in which the pipe member is inserted, when the first and second end regions of the pipe member are inserted into the holes of said first and said second header tanks) respectively, wherein said preventing means includes each of the first and second ends of the at least one fin portion which is radially inwardly inclined from the axial ends of the tube towards the axial center of said tube.

5,782,292

HEAT SINK FOR AN ELECTRONIC COMPONENT COOLING APARATUS

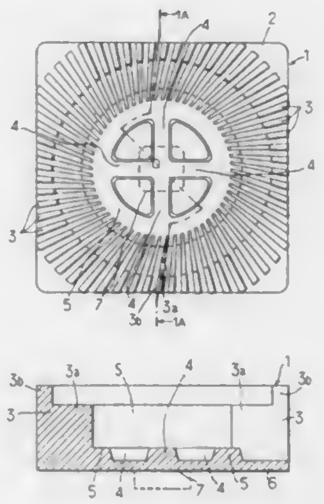
Toshiki Ogawara, Nagano-ken; Yuichi Kodaira, and Tomoaki Ikeda, both of Ueda, all of Japan, assignors to Sanyo Denki Company, Ltd., Tokyo, Japan

Filed Oct. 1, 1996, Ser. No. 720,612

Claims priority, application Japan, Oct. 5, 1995, 7-258526

Int. Cl.⁶ H05K *7/20*

U.S. Cl. 165—80.3 **3 Claims**



1. A heat sink for an electronic component cooling apparatus comprising:

a base having one side for providing an electronic component and another side for providing a fan having an impeller including a plurality of blades;

a plurality of radiation fins being arranged so as to surround said impeller and provided on said other side of said base;

a heat conductive thick portion formed on a region of said base surrounded by said radiation fins, being thicker than a radiation fin mounting area where said radiation fins are mounted, and being formed to reduce resistance of heat transfer between a heat source opposed-portion which opposes to a heat source of said electronic component and said radiation fin mounting area;

said heat conductive thick portion comprising a plurality of linear ribs formed to extend from said heat source opposed-portion to said radiation fin mounting area and an annular rib connected to said plurality of radiation fins and outer ends of said plurality of linear ribs.

5,782,293

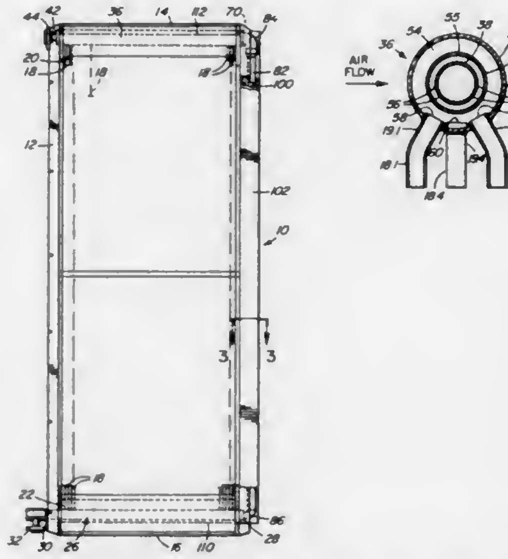
HEAT EXCHANGER FOR A PULP DRYER

Stanley H. Sather, 894 Citadel Drive, Port Coquitlam, British Columbia, Canada, V3C 5Y1

Filed Oct. 24, 1995, Ser. No. 547,221

Int. Cl.⁶ F28B *1/06*

U.S. Cl. 165—110 **17 Claims**



1. A steam heat exchanger for a wood pulp dryer, the heat exchanger having a first end, a second end which is opposite the first end, and comprising:

a plurality of tubes, each having an inlet end and an outlet end, the tubes extending between the ends of the heat exchanger in parallel, spaced-apart relationship to each other;

an outlet header near the second end of the heat exchanger, the outlet ends of the tubes being connected to the outlet header; and

a steam inlet header near the first end of the heat exchanger, the inlet header having an inner conduit with means at a first end thereof for connecting the inner conduit to a source of steam and a plurality of openings spaced-apart therein for discharging steam from the inner conduit, a middle conduit extending about the inner conduit having a top and a plurality of steam openings, and an outer conduit extending about the middle conduit, the inlet ends of the tubes being connected to the outer conduit.

5,782,294

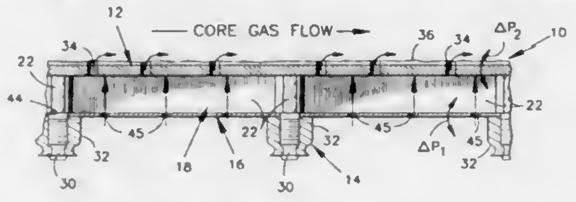
COOLED LINER APPARATUS

Kenneth W. Froemming, Indianapolis, Ind.; James W. Vehr, Palm Beach Gardens, Fla.; Caesar G. Mamplata, Jupiter, Fla., and Alfredo Cires, Palm Beach Gardens, Fla., assignors to United Technologies Corporation, Hartford, Conn.

Filed Dec. 18, 1995, Ser. No. 573,926

Int. Cl.⁶ F08C *7/12*

U.S. Cl. 165—168 **11 Claims**



1. A liner apparatus, comprising:

an inner wall;

an impingement sheet;

spacing means disposed between said inner wall and said impingement sheet;

wherein said inner wall and said impingement sheet are attached to one another and may be disassembled from one another,

a finger seal, disposed adjacent an edge of said impingement sheet; and

a seal member, disposed between said finger seal and said inner wall, said seal member substantially impeding the flow of cooling air exiting said liner between said impingement sheet and said inner wall.

11. A liner apparatus, comprising:

an inner wall, having a plurality of first apertures;

a plurality of fasteners, extending out from said inner wall;

an impingement sheet, having a plurality of second apertures for receiving said fasteners, and a plurality of third apertures, wherein each said first aperture has a cross-sectional area greater than each said third aperture;

means for spacing said inner wall and said impingement sheet a distance apart; and

means for sealing between said inner wall and said impingement sheet along an edge of said liner;

wherein said liner apparatus may be readily disassembled such that said inner wall may be coated on a core gas side and said first apertures may be readily purged of coating from a side of said inner wall opposite said core gas side.

5,782,295

HEAT EXCHANGER

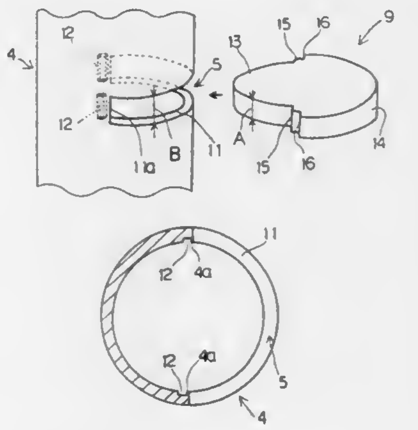
Soichi Kato, and Takashi Sugita, both of Saitama, Japan, assignors to Zexel Corporation

Filed Mar. 4, 1997, Ser. No. 811,052

Claims priority, application Japan, Mar. 14, 1996, 8-058129

Int. Cl.⁶ F28F *9/04*

U.S. Cl. 165—174 **2 Claims**



1. A heat exchanger comprising,

a plurality of alternately laminated tubes and fins;

a pair of header tanks fluidly connected to ends of the laminated tubes;

at least one slit formed in one of the header tanks, recesses formed in an inner face of said one header tank and spaced from the slit; and

a partition plate having projections corresponding to the recesses for positioning the partition plate in the slit to redirect the flow of heat exchanging medium.

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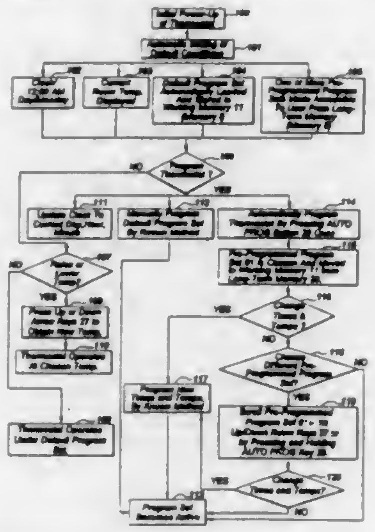
5,782,296
AUTO-PROGRAMMABLE ELECTRONIC THERMOSTAT

Vinay Mehta, Germantown, Tenn., assignor to Hunter Fan Company, Memphis, Tenn.

Filed Jun. 14, 1996, Ser. No. 665,206
Int. Cl.^{6} F23N *5/20;* **F25B** *19/00*
U.S. Cl. 165—268 **37 Claims**



1. A method of programming a programmable thermostat having a default program set and one or more pre-programmed program sets stored in a long-term memory and loadable into a working memory, the default program set being loaded into the working memory upon power-up of the programmable thermostat, wherein each pre-programmed program set comprises a plurality of times and a plurality of temperatures, the method comprising the steps of:

selecting one of said one or more pre-programmed program sets stored in long-term memory;

programming the programmable thermostat with the times and temperatures of the selected pre-programmed program set by loading the selected pre-programmed program set into the working memory; and

altering the times and temperatures of the selected pre-programmed program set within the working memory to create a tailored program set within the working memory which may remain within the working memory until further alteration by a user of the programmable thermostat.

5,782,297
RETRIEVAL TOOL FOR BACK PRESSURE VALVE AND TREE TEST PLUG

Martin L. Samuels, Nashville, Tenn.; Bashir M. Koleilat, Forest Spring, Tex.; David E. Cain; John R. Herold, both of Houston, Tex.; Neil C. Crawford, Forest Spring, Tex., and Henry Wong, Houston, Tex., assignors to FMC Corporation, Chicago, Ill.

Filed Aug. 19, 1996, Ser. No. 699,317
Int. Cl.^{6} E21B *23/00*
U.S. Cl. 166—85.1 **3 Claims**

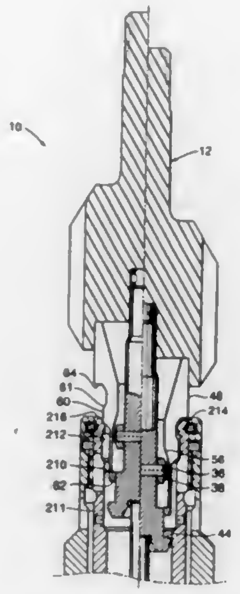
1. A retrieval tool assembly for retrieving a valve comprising:

a tool body having a first end and a second end;

said first end being adapted to receive means for grasping and manipulating said tool body;

a stem connected to said second end;

a spear comprising a generally ring-shaped base and a plurality of resilient fingers extending therefrom and having free ends opposite said base, said base being positioned generally concentrically around said stem such that said fingers extend toward said second end of said body;



said stem comprising integral retaining means adapted to retain said spear on said stem while permitting limited axial movement of said spear on said stem;

wedge means releasably fixed to said stem for engagement with an inner surface on each of said fingers when said body and said stem are moved relative to said spear, whereby said wedge means bias said fingers radially outward when said spear is moved axially relative to said body and said stem;

each said finger comprising engagement means extending radially outwardly for engaging an annular retrieval groove on an inner circumferential surface of said valve when said tool assembly is inserted concentrically in said valve; and

shear means for releasably fixing said wedge means to said stem, said shear means being adapted to shear and release said wedge means from said stem, causing said wedge means to fall out of engagement with said inner surfaces when an axial force imposed on said wedge means attributable to said relative axial movement between said body, said stem, and said spear reaches a predetermined limit, whereby continued relative movement causes said retaining means to contact said spear and cause said spear to move with said body and said stem;

wherein said tool body comprises an axial recess formed in said second end, an end of said stem is received in said axial recess and the retaining means is formed adjacent the distal end of said stem.

5,782,298
RETRIEVABLE SAFETY PACKER

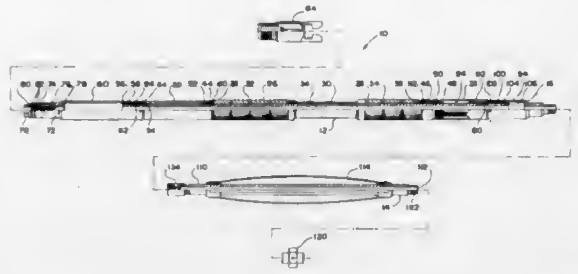
G. Timmins Alexander, Metairie, and Terry L. Boquet, Chauvin, both of La., assignors to Alexander Oil Tools, Inc., Metairie, La.

Filed Jun. 7, 1996, Ser. No. 660,527
Int. Cl.^{6} E21B *33/122;33/127*
U.S. Cl. 166—133 **13 Claims**

1. A packer assembly for use in a well mining operation, comprising:

an elongated packer body having a central opening extending through substantially entire length of the packer body, an upper part and a lower part;

a centralizer element detachably secured to the lower part of the packer body; and

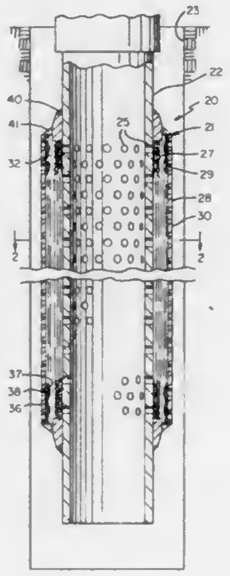


a normally seated pressure valve mounted in a top of said central opening to prevent escape of a downhole pressure.

5,782,299
PARTICLE CONTROL SCREEN ASSEMBLY FOR A PERFORATED PIPE USED IN A WELL, A SAND FILTER SYSTEM AND METHODS OF MAKING THE SAME

Anthony D. Simone, and Michael J. Panciera, both of Greensboro, N.C., assignors to Purolator Products Company, Tulsa, Okla.

Filed Aug. 8, 1996, Ser. No. 694,062
Int. Cl.^{6} E21B *43/08*
U.S. Cl. 166—230 **21 Claims**



1. In a particle control screen assembly for a perforated pipe used in a well, said assembly including a woven mesh filter media means disposed on one side of said perforated pipe, and a protective wrapper means disposed adjacent said filter media means remote from said pipe, the improvement wherein said protective wrapper means comprises a first perforated layer, and a second layer that is disposed between said perforated layer and said filter media means, said second layer having a first surface that faces said perforated layer and has a non-smooth contour, said first surface of said second layer having portions thereof in direct contact with a facing surface of said perforated layer, and said second layer being provided with apertures that are disposed in such a way that fluid cannot flow from an outer surface of said perforated layer directly radially both through holes of said perforated layer and said apertures of said second layer.

5,782,300
SUSPENSION AND POROUS PACK FOR REDUCTION OF PARTICLES IN SUBTERRANEAN WELL FLUIDS, AND METHOD FOR TREATING AN UNDERGROUND FORMATION

Simon Gareth James, and Paul Richard Howard, both of Tulsa, Okla., assignors to Schlumberger Technology Corporation, Sugar Land, Tex.

Filed Nov. 13, 1996, Ser. No. 748,446
Int. Cl.^{6} E21B *43/267*
U.S. Cl. 166—278 **43 Claims**

25. A method of treating an underground formation penetrated by a wellbore comprising

providing a treatment fluid suspension, said treatment fluid suspension comprising a fluid, a particulate material, and a solid material selected from fibers and platelets of novoloid, or mixtures thereof; fibers and platelets of a novoloid-type polymer material, and mixtures thereof; and mixtures thereof;

pumping the treatment fluid suspension downhole through a wellbore;

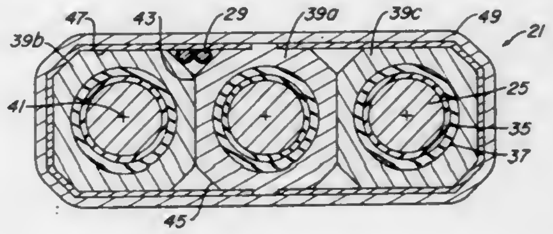
depositing the treatment fluid suspension in the formation; and

forming within the formation a porous pack of particulate material and said solid material.

5,782,301
OIL WELL HEATER CABLE

David H. Neuroth, Tulsa; Larry V. Dalrymple, and Robert Bailey, both of Claremore, all of Okla., assignors to Baker Hughes Incorporated, Houston, Tex.

Filed Oct. 9, 1996, Ser. No. 728,319
Int. Cl.^{6} E21B *36/04;* **H05B** *3/56*
U.S. Cl. 166—302 **20 Claims**



1. An electrical heater cable for heating a string of tubing located within a well, comprising:

a plurality of heater wires, each heater wire having a conductor of metal having high electrical conductivity, an electrical insulation layer surrounding the conductor, and a metal sheath surrounding the insulation layer, wherein the insulation layer comprises a polymer extrusion and has a thickness which is substantially no greater than 0.025 inch;

the heater wires being located adjacent to each other with their metal sheaths contacting each other, defining a subassembly;

an outer armor of metal tape wrapped around the subassembly with the sheaths in metal-to-metal contact with the outer armor; and

wherein a lower end of each of the conductors may be connected together and current supplied to an upper end of the conductors to generate heat which transmits through the metal sheaths and the armor to the tubing.

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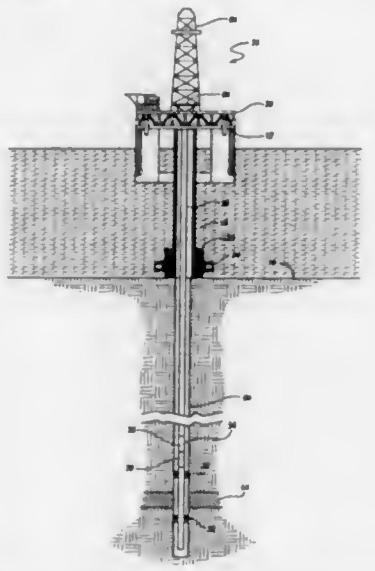
5,782,302
APPARATUS AND METHOD FOR LOADING FLUID INTO SUBTERRANEAN FORMATIONS

Paul D. Ringgenberg, 2101 Brentwood La., Carrollton, Tex. 75006, and Neal G. Skinner, 1219 Indian Paint, Lewisville, Tex. 75076

Filed Feb. 18, 1997, Ser. No. 801,754
Int. Cl.^{6} E21B *43/26*
U.S. Cl. 166—305.1 **40 Claims**

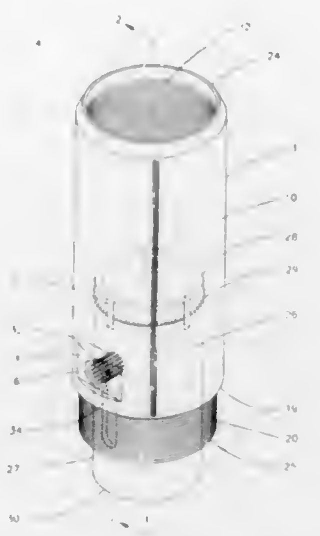


1. An apparatus for loading fluid into a subterranean formation comprising:
a power section; and
a pump section operably associated with said power section so that said pump section is operated upon oscillatory motion of said power section after application of a fluid pressure to said power section, said pump section including a housing, at least one intake valve and at least one exhaust valve said housing of said pump section defining at least one fluid passageway in communication with an annular volume around the exterior of said housing of said pump section such that fluid is pumped from said pump section into said annular volume upon oscillatory motion of said power section.

5,782,303
METHOD AND APPARATUS FOR DRAINING FLUIDS FROM TUBING

J. B. Christian, 26 Holly Lake Dr., Ellisville, Miss. 39437-9801

Filed Sep. 4, 1996, Ser. No. 707,424
Int. Cl.^{6} E21B *21/00*
U.S. Cl. 166—311 **10 Claims**

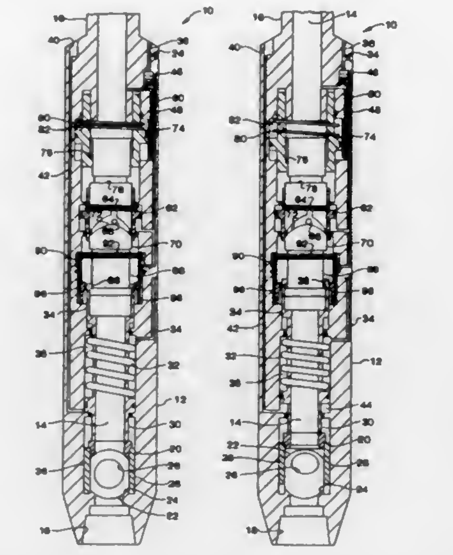


2. A well tubing drain apparatus for opening one or more drain holes in a well bore in a well with a big bore pump, comprising:
a. a precision external housing machined to size specifications from cylindrical lengths of hollow metal tubing, and cut to an appropriate length, with the bottom end slightly smaller than the top end, including:
(i) one or more milled flats on the outside diameter of said cylindrical hollow metal tubing disposed to accommodate the location of one or more partially-hollowed-out plug screws;
(ii) one or more drilled and threaded self-sealing holes using National Pipe Thread standards in the one or more milled flats disposed to accommodate one or more partially-hollowed out plug screws;
(iii) self-sealing threads disposed in the inside diameter at the top of said cylindrical hollow metal tubing to accommodate a tubing string;
(iv) threads, disposed on the outside diameter at the bottom end of the external housing, to accommodate screwing of said housing into the top of a big bore pump;
(v) a shoulder disposed on the outside diameter of said housing located just above the threads at the bottom end, so that said shoulder will form a metal to metal seal with the top of a big bore pump when said housing is screwed into said pump;
(vi) a groove disposed on the inside diameter of said housing just above the threaded hole drilled into said housing to accommodate a collet which has been milled on the internal sleeve;
(vii) in some embodiments, no milled flat described in claim **2**.a.(i) above will be cut, the threads described in claim **2**.a.(iv) above will be self-sealing, no shoulder described in claim **2**.a.(v) above will be milled, and no groove described in claim **2**.a.(vi) above will be used;
b. a precision internal sleeve machined from cylindrical lengths of hollow tubing pipe including:
(i) a uniform outside diameter to create a close tolerance with the larger inside diameter of the external housing in claim **2**.a. above, and cut to an appropriate length;
(ii) a collet milled near the top of said outside diameter of said sleeve which will rest in the groove disposed on the inside diameter of said housing as described in claim **2**.a.(vi) above;
(iii) one or more slots cut into the top end of said sleeve;
(iv) one or more drilled self-sealing threaded holes using National Pipe Thread standards disposed to accommodate the location of one or more partially-hollowed-out plug screws in claim **2**.c. below which are inserted from outside into said housing;
c. a precision self-sealing threaded steel pipe plug which is machined by drilling into its center starting at the top end and drilling to near its bottom end, thus, creating a tapered partially-hollowed-out plug screw.

5,782,304
NORMALLY CLOSED RETAINER VALVE WITH FAIL-SAFE PUMP THROUGH CAPABILITY

Virgilio Garcia-Soule, 4116 Astoria, Irving, Tex. 75062; Darrin N. Towers, 1753 Arledge, Carrollton, Tex. 75007, and Kenneth L. Schwendemann, 708 Bentwood, Lewisville, Tex. 75067

Filed Nov. 26, 1996, Ser. No. 757,714
Int. Cl.^{6} E21B *33/035*
U.S. Cl. 166—356 **15 Claims**

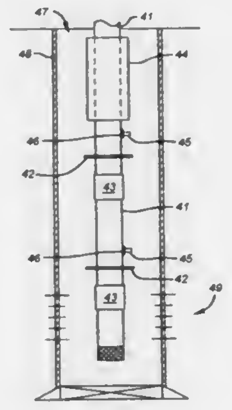


1. A valve for use in conjunction with operations in a subterranean well, the valve being of the type having an interior axially extending flow passage, a seat disposed adjacent the flow passage, a blocking member selectively displaceable relative to the seat between a first position in which the blocking member sealingly engages the seat to block fluid flow through the flow passage and a second position in which fluid flow through the flow passage is permitted, a first piston interconnected to the blocking member for selectively displacing the blocking member relative to the seat, and a first line in fluid communication with the first piston, fluid pressure in the first line being capable of biasing the first piston to displace the blocking member to the second position, the valve comprising:
a second piston interconnectable to the blocking member for selectively displacing the blocking member relative to the seat; and
a first fluid passage capable of being in fluid communication with the second piston and the flow passage, fluid pressure in the first fluid passage being capable of biasing the second piston to displace the blocking member to the second position.

5,782,305
METHOD AND APPARATUS FOR REMOVING FLUID FROM PRODUCTION TUBING INTO THE WELL

John Michael Hicks, Bakersfield, Calif., assignor to Texaco Inc., White Plains, N.Y.

Filed Nov. 18, 1996, Ser. No. 746,820
Int. Cl.^{6} E21B *34/06*
U.S. Cl. 166—376 **10 Claims**

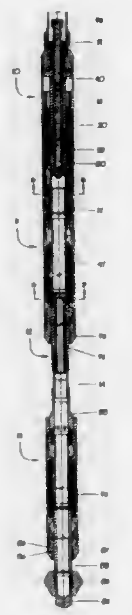


1. Apparatus for draining well fluid from a production tubing string into a well borehole as the production tubing string is pulled from a well, comprising:
a length of tubing having near its lower end a drain port communicating from the interior of the tubing to the exterior of the tubing;
plug means for initially sealing said drain port, said plug means extending radially outwardly from the outer surface of said length of tubing; and
drop sleeve means, sized to fit over said length of tubing and any joint collars used to join tubing sections, for dropping from the surface of the earth down the tubing string to said length of tubing and for shearing and opening said plug means from said drain port to allow fluid communication between the interior and exterior of said length of tubing via said drain port.

5,782,306
OPEN HOLE STRADDLE SYSTEM

Vitold P. Serafin, Calgary, Canada, assignor to Site Oil Tools, Inc., Alberta, Canada

Filed Dec. 14, 1995, Ser. No. 572,003
Int. Cl.^{6} E21B *33/127*
U.S. Cl. 166—387 **13 Claims**



1. A removable packer device for isolating a segment of a well bore comprising:
(a) a housing for attachment to a tubing string, said housing carrying a pair of axially spaced inflatable packing elements;
(b) a first fluid path through said housing for delivering fluid under pressure from the tubing string to the inflatable packing elements to cause them to expand and sealingly engage with the well bore to isolate the segment of the well bore that lies between the packing elements;
(c) a first valve controlling said first fluid path;
(d) a pressure responsive sensor coupled to actuate said first valve for automatically sealing said inflatable packing elements after the latter have been inflated to a pressure sufficient to ensure their sealing engagement with the well bore, said first valve when so actuated opening a second fluid path from the tubing string to the isolated segment of the well bore; and
(e) an actuator in said housing selectively operable to close said second fluid path and to open a third fluid path through said housing to equalize pressure in the isolated well bore segment with the adjacent regions of the well bore above and below the packing elements, said actuator being coupled for operation in response to a short axial movement of said tubing string.

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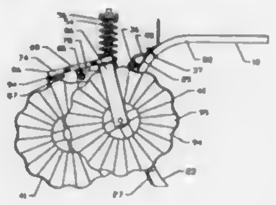
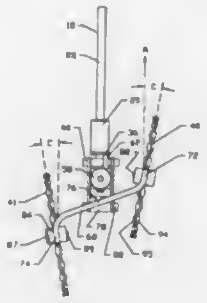
5,782,307
FURROW CLOSING APPARATUS

Daniel L. Forsyth, 630 Seventh St. SE., Oelwein, Iowa 50662
Filed Nov. 18, 1996, Ser. No. 751,258
Int. Cl.^{6} A01B *49/02*
U.S. Cl. 172—156 **15 Claims**



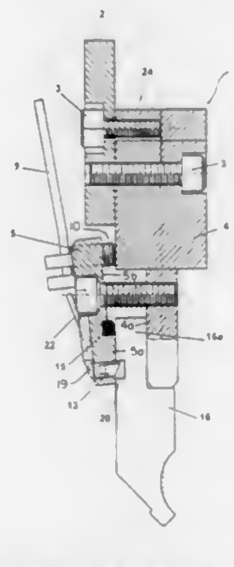


1. In a furrow closing apparatus mounted to a knife drawn in a plane of travel, the knife having a generally vertical shank, the furrow closing apparatus having a mounting member mounted to said shank and having a pair of spaced apart disks rotatably supported upon said mounting member, the improvement comprising

said mounting member comprising a substantially vertically disposed mounting plate and a base plate,
said mounting plate mounted to said shank,
said base plate selectively mountable at a multiplicity of vertical positions thereof to said mounting plate.

5,782,308
QUICK CLAMPING DEVICE FOR AT LEAST ONE TOOL OF A MACHINE TOOL

Werner Latten, Oerlinghausen, and Hideji Saito, Düsseldorf, both of Germany, assignors to Amada GmbH, Haan, Germany
Filed Dec. 13, 1996, Ser. No. 764,224
Claims priority, application Germany, Dec. 15, 1995, 195 46 969.0
Int. Cl.^{6} B21D *5/02*
U.S. Cl. 72—481.6 **6 Claims**

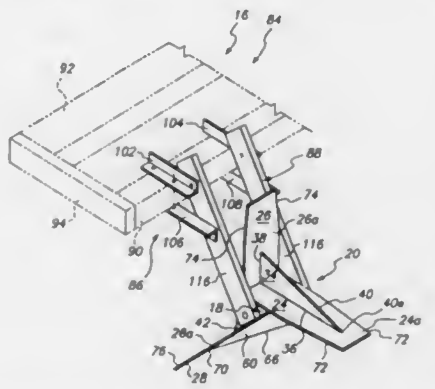


1. A quick clamping device for securing a machine tool to a tool holder, comprising:

(a) a tool holder (**4**) having a clamping surface (**4***a*);
(b) a clamping plate (**5**) connected with said tool holder for pivotal movement about an axis parallel with, opposite, and spaced from said clamping surface, said clamping plate being pivotable between a released tool-receiving position generally parallel with and spaced from said clamping surface, and an inclined clamping position in which first (**5***a*) and second (**5***b*) portions of said clamping member are adjacent and spaced from said clamping surface, respectively;
(c) quick release means (**9**, **10**) for pivoting said clamping plate between said released and clamping positions, respectively, whereby when said clamping plate is in said released position and a machine tool is inserted between said clamping plate and said clamping surface, said quick release means is operable to pivot said clamping member toward said clamping position, thereby to clamp the tool to said clamping surface; and
(d) safety holding means (**13**, **17**) for retaining the machine tool in a space between said clamping member and said clamping surface when said clamping member is pivoted by said quick release means toward said released position, said safety holding means including:
  (1) a retaining member (**13**) mounted for movement in a corresponding recess (**12**) contained in the face of said clamping plate first portion for movement between extended and retracted positions relative to said clamping plate;
  (2) resilient means (**18**) normally biasing said retaining member toward said extended position, thereby to cause the retaining member to extend with a corresponding groove (**20**) contained within the machine tool; and
  (3) safety release lever means (**22**) for displacing said retaining member toward said retracted position, thereby to release said machine tool for removal from said space.

5,782,309
APPARATUS AND METHOD FOR TILLING SOIL

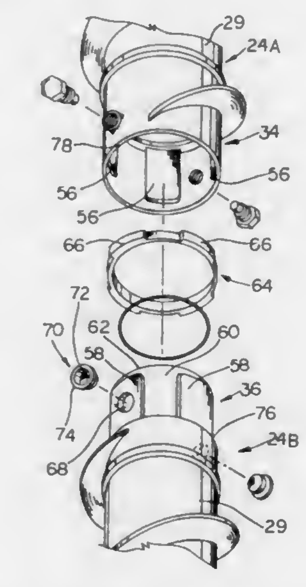
Alan D. Bultman, 1411 S. Monroe, Hugoton, Kans. 67591
Filed Jan. 25, 1994, Ser. No. 187,591
Int. Cl.^{6} A01B *35/18*
U.S. Cl. 172—540 **6 Claims**



1. All apparatus for tilling soil comprising a support assembly; a shaft assembly rotatably secured to the support assembly; and a paddle assembly secured to the shaft assembly, said paddle assembly comprises a first blade, a second blade and a third blade; said first blade being secured to said second blade and to said third blade, said second blade being secured to said first blade and to said third blade, and said third blade being secured to said first blade and to said second blade, such that said interconnected said first, said second, and said third blade form a triangular opening wherethrough said shaft assembly passes and is lodged; and said paddle assembly further comprising, a first triangular support member having a first base side secured to the first blade and a first blade height side secured to the second blade, and a first hypotenuse edge extending from the second blade to the first blade to define a first ground entering edge, a second triangular support member living a second base side secured to the second blade and a second blade height side secured to the third blade, and a second hypotenuse edge extending from the third blade to the second blade to define a second ground entering edge, a third triangular support member having a third base side secure to the third blade and a third blade height side secure to the first blade and a third hypotenuse edge extending from the first blade to the third blade to define a third ground entering edge; and wherein said first blade has a structure defining a first planar member with a pair of first tapering edges, and wherein said second blade has a structure defining a second planar member with a pair of second tapering edge, and wherein said third blade has a structure defining a third planar member with a pair of third tapering edges; and said support assembly comprises a first support assembly, a second support assembly steadfastly secured to the first support assembly, and a third support assembly secured to the second assembly and having said shaft assembly rotatably secure thereto; said first support assembly comprising a first horizontal support member; a second horizontal support member, and a pair of end support members secured to the first horizontal support member and to the second horizontal support member; said second support assembly comprising a pair of upper angel iron members secured against the first horizontal support member and a pair of lower angel iron members secured against the first horizontal support member and interconnected with the upper angel iron members.

5,782,310
DRY HOLLOW STEM AUGERS

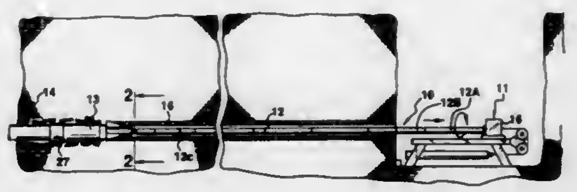
James E. Lange, P.O. Box 1670, LaPorte, Ind. 46350
Filed Apr. 10, 1996, Ser. No. 629,479
Int. Cl.^{6} F21B *17/046;17/22*
U.S. Cl. 175—323 **15 Claims**



1. Drilling auger comprising a tubular housing having an outer circumferential surface, said housing including an inner circumferential surface defining a passage through the auger, helical flighting mounted on said outer circumferential surface, one end of said housing terminating in a socket connector and the other end of the housing terminating in a plug connector, said passage extending through said connectors, said socket connector including a circumferentially extending radially projecting rim, and a circumferentially extending sealing gasket mounted on said rim and extending radially outwardly from said inner circumferential surface for sealing against the plug connector of a succeeding housing when augers are connected together to form a drilling string to thereby resist fluid leakage into said passage from outside of the auger.

5,782,311
METHOD AND APPARATUS FOR INSTALLATION OF UNDERGROUND PIPES

Steven W. Wentworth, Brookfield, Wis., assignor to Earth Tool Company, LLC, Oconomowoc, Wis.
Filed Jan. 3, 1997, Ser. No. 778,456
Int. Cl.^{6} F16L *1/00;* **F21B** *4/10*
U.S. Cl. 175—53 **19 Claims**

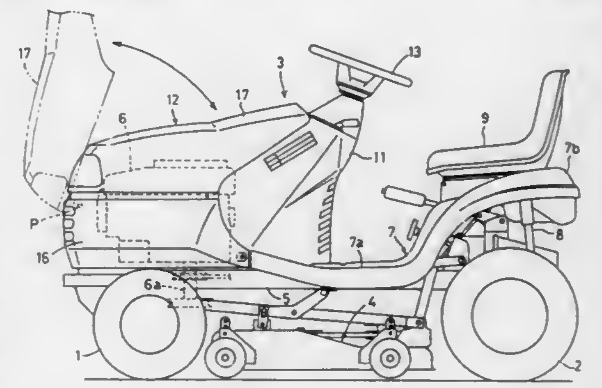


17. A method for widening an existing borehole, using an apparatus comprising a drill string, a directional boring machine that can simultaneously rotate and pull the drill string, and an impact tool including a tubular housing ending in a boring head, an input shaft connectable to the drill string, bearings supporting the input shaft for rotation within the housing, a striker disposed for reciprocation within the housing to deliver impacts to a front anvil, and a drive mechanism that simultaneously pulls the impact tool forward in response to a pulling force on the input shaft and reciprocates the striker in response to rotation of the input shaft and drill string to drive the tool forward by the action of cyclic impacts on the front anvil, which method comprises the steps of:

positioning the drill string inside the existing borehole with the directional boring machine at one end of the existing borehole and the impact tool at the other end thereof;
connecting the drill string to the input shaft;
positioning the impact tool coaxial with the existing borehole;
rotating the drill string with the boring machine whereby the striker of the impact tool delivers impacts to the front anvil, which impacts are sufficient to cause the boring head to advance in the existing borehole; and
pulling the impact tool through the existing borehole.

5,782,312
ENGINE HOOD

Masatake Murakawa, Sakai, Japan, assignor to Kubota Corporation, Japan
Filed Mar. 30, 1994, Ser. No. 220,006
Claims priority, application Japan, Sep. 30, 1993, 5-244043; Dec. 9, 1993, 5-308794
Int. Cl.^{6} B62D *25/10*
U.S. Cl. 180—69.2 **13 Claims**



1. An engine enclosure for use on a vehicle having an engine disposed forwardly of a driver's seat, comprising:

a control panel disposed rearwardly of said engine; and
hood means disposed forwardly of said control panel for covering said engine, said hood means including:

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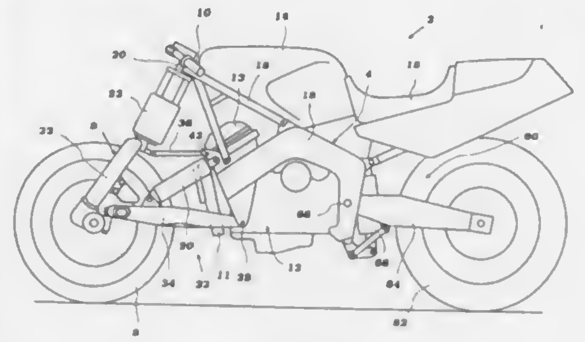
- a lower hood removably attached to vehicle frames through fixing means, and having a lower front wall portion, and lower side wall portions extending upward and opposed to each other across said engine, said lower side wall portions having a smaller distance therebetween in a lower region than in at least an intermediate region, wherein said lower hood is removable from said vehicle by drawing said lower hood in the forward direction of the vehicle; and
- an upper hood pivotable about pivot means which is attached to a fixed portion of the vehicle and disposed adjacent a forward end thereof so as to surround upper edges of said lower hood, said upper hood including a top wall portion, an upper front wall portion and upper side wall portions, said upper side wall portions having a greater distance therebetween in a lower region than in at least an intermediate region, wherein the upper hood remains attached to the fixed portion of the vehicle when the lower hood has been removed from the vehicle.

5,782,313
DOUBLE SWING ARM MOTORCYCLE FRONT SUSPENSION

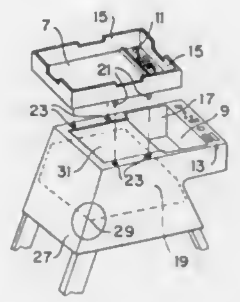
Ichiro Kurawaki; Toyoji Tanaka, and Kazumasa Nakaya, all of Iwata, Japan, assignors to Yamaha Hatsudoki Kabushiki Kaisha, Iwata, Japan
Continuation of Ser. No. 989,194, Dec. 11, 1992, abandoned, which is a continuation-in-part of Ser. No. 786,733, Nov. 1, 1991, abandoned. This application Oct. 6, 1994, Ser. No. 319,473
Int. Cl.^{6} B62K *25/04*
U.S. Cl. 180—219 **19 Claims**



1. A steering and suspension arrangement for a front wheel of a motorcycle comprising: a frame, an engine adjoining said frame, a steering knuckle extending along one side of said front wheel, an upper swing arm having first and second ends, a first pivotal connection between said first end of said upper swing arm and said frame and a second pivotal connection between said second end of said upper swing arm an upper portion of said steering knuckle, a lower swing arm having first and second ends, a third pivotal connection between said first end of said lower swing arm and said frame and a fourth pivotal connection between said second end of said lower swing arm and a lower portion of said steering knuckle; said lower swing arm being longer than said upper swing arm, along a longitudinal direction of said motorcycle, and said first pivotal connection being positioned forward of said third pivotal connection and lying on an upper line of an imaginary parallelogram, said imaginary parallelogram having four apexes with three of said apexes lying on the second, third and fourth pivotal connections, respectively, when the motorcycle is normally laden so that said swing arms function substantially as a parallelogram.

5,782,314
STEP LADDER ORGANIZER

Gary J. Zeitler, 2447 Liberty Grove Rd., Colora, Md. 21917
Filed Jul. 5, 1996, Ser. No. 675,786
Int. Cl.^{6} E06C *7/14*
U.S. Cl. 182—129 **4 Claims**

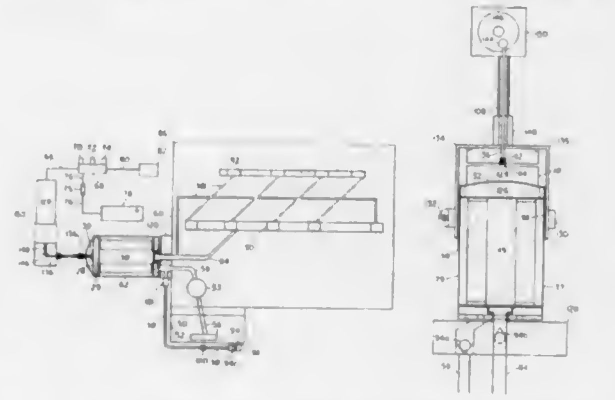


1. A lightweight stepladder organizer adapted to fit over a top platform of a stepladder comprising:

- a main body portion having a lower downwardly and outwardly extending apron portion having a plurality of sides and an opened bottom configured to fit completely over the top platform of a stepladder and extend downwardly therefrom past the top platform to assist in holding the body to sides of the stepladder below the top platform;
- a removable upper tray with tool receptor indentations said tray mounted on said main body portion; and
- at least one additional lower tray with tool receptor indentations, said lower tray located within the lower apron portion.

5,782,315
OIL FILTER PUMP AND AUTOMATIC METHOD FOR PRELUBRICATING AN ENGINE

Adan Reinosa, 1729 W. Moreland Dr., Montebello, Calif. 90640
Filed Mar. 22, 1997, Ser. No. 821,998
Int. Cl.^{6} F01M *9/00*
U.S. Cl. 184—6.3 **18 Claims**



1. An oil filter pump system replacing a normally provided oil filter and attached to a normally provided point of connection in an internal combustion engine for prelubricating a set of normally provided engine galleries, said engine having an oil sump containing a lubricating fluid, a battery, a normally provided oil filter point of attachment on said engine, comprising:

- a rigid enclosure containing a filter element, and further including a flexible membrane coupled by power transmission means to a prime mover to urge said flexible membrane to change an internal volume defined by said rigid enclosure and said flexible membrane in its unbiased at rest position;
- an inlet check valve means to allow lubricating fluid flow into said internal volume;
- an outlet check valve means to allow lubricating fluid flow out of said internal volume;

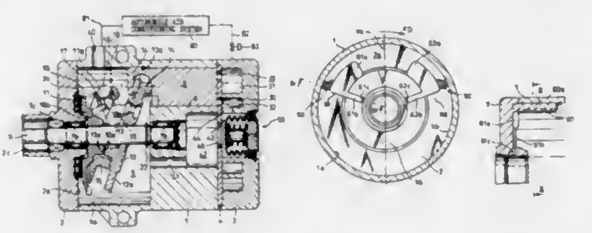
- a conduit means for fluidly connecting said inlet check valve means to said oil sump to remove a portion of said lubricating oil while said flexible membrane is urged by said prime mover to increase said internal volume;
- an oil filter pump outlet orifice to allow for attachment of said oil filter pump to said oil filter normally provided point of attachment on said engine to fluidly connect to said engine oil galleries to discharge said portion of lubricating fluid while said flexible membrane is urged by said prime mover to decrease said internal volume; and
- an electronic controller means coupled to said battery for automatically switching control power to said prime mover.

7. An oil filter pump system attached to a normally provided oil filter on an internal combustion engine for prelubricating a set of normally provided engine galleries, said engine having an oil sump containing a lubricating fluid, a battery, comprising:

- a rigid enclosure dimensioned as a cylinder in cross section to mate to a conventional oil filter which is shaped as a cylinder in cross section, said enclosure including a flexible membrane coupled by power transmission means to a prime mover to urge said flexible membrane to change an internal volume defined by said rigid enclosure and said flexible membrane in its unbiased at rest position;
- a normally provided upper oil filter wall equipped with a plurality of orifices to fluidly connect said rigid enclosure to said conventional oil filter internal volume;
- an inlet check valve means to allow lubricating fluid flow into said internal volume; an outlet check valve means to allow lubricating fluid flow out of said internal volume;
- a conduit means for fluidly connecting said inlet check valve means to said oil sump to remove a portion of said lubricating oil while said flexible membrane is urged by said prime mover to increase said internal volume;
- a normally provided threaded point of attachment of a conventional oil filter to discharge said portion of lubricating fluid into said engine galleries while said flexible membrane is urged by said prime mover to decrease said internal volume; and
- an electronic controller means coupled to said battery for automatically switching control power to said prime mover.

5,782,316
RECIPROCATING PISTON VARIABLE DISPLACEMENT TYPE COMPRESSOR IMPROVED TO DISTRIBUTE LUBRICATING OIL SUFFICIENTLY

Hisakazu Kobayashi; Youichi Okadome; Masaru Hamasaki, and Masaki Ota, all of Kariya, Japan, assignors to Kabushiki Kaisha Toyoda Jidosokki, Kariya, Japan
Filed Mar. 5, 1997, Ser. No. 812,321
Claims priority, application Japan, Mar. 6, 1996, 8-048903
Int. Cl.^{6} F01M *1/00*
U.S. Cl. 184—6.17 **12 Claims**



1. A reciprocating piston-type compressor for compressing refrigerant gas for an automobile air conditioning system, the refrigerant gas containing a lubricant oil in the form of a mist, the compressor comprising:

- a cylinder block assembly which includes a plurality of axially extending cylinder bores arranged around the longitudinal axis of the cylinder block assembly and a cylindrical swash plate chamber aligned with the longitudinal axis of the cylinder block assembly, the swash plate chamber defined by opposite end walls and a circumferential wall between the opposite end walls, which are included in the cylinder assembly;
- a plurality of pistons slidably provided within the cylinder bores for reciprocation between the top and bottom dead centers, the inner wall of the cylinders and the end face of the pistons defining compression chambers, a low pressure refrigerant gas being introduced into the compression chambers through the swash plate chamber;
- an axially extending drive shaft for driving the reciprocating pistons, the drive shaft being arranged in the cylinder block assembly with a bearing means for rotation;
- a swash plate arranged on the drive shaft for rotation with the drive shaft, the swash plate engaging the pistons to transform the rotation of the swash plate to the reciprocation of the pistons; and
- the cylinder block assembly including an oiler channel which extends along one of the end walls of the swash plate chamber to separate the lubricating oil mist in the refrigerant gas flow in the swash plate chamber induced by the rotating swash plate when the refrigerant gas contacts the oiler channel, and to introduce the separated lubricating oil into the bearing means.

8. A reciprocating piston type compressor for compressing refrigerant gas for an automobile air conditioning system, the refrigerant gas containing a lubricating oil in the form of a mist, the compressor comprising:

- a cylinder block assembly which defines a plurality of axially extending cylinder bores arranged around the longitudinal axis of the cylinder block assembly and a cylindrical swash plate chamber aligned with the longitudinal axis of the cylinder block assembly, the swash plate chamber including opposite end walls and a circumferential wall between the opposite end walls;
- a plurality of pistons slidably provided within the cylinder bores for reciprocation between a top and a bottom dead center, an inner wall of the cylinder bores and an end face of the pistons defining compression chambers, a low pressure refrigerant gas being introduced into the compression chambers through the swash plate chamber;
- an axially extending drive shaft for driving the reciprocating pistons, the drive shaft being arranged in the cylinder block assembly with a bearing means for rotation;
- a swash plate arranged on the drive shaft for rotation with the drive shaft, the swash plate engaging the pistons to transform the rotation of the swash plate to the reciprocation of the pistons; and
- the cylinder block assembly including an oiler channel which extends along one of the end walls of the swash plate chamber to separate the lubricating oil mist in the refrigerant gas flow in the swash plate chamber induced by the rotation of the swash plate when the refrigerant gas contacts the oiler channel, and to introduce the separated lubricating oil into the bearing means, the oiler channel including an enlarged channel portion in the form of a sector extending along the one of the end walls about the axis of the cylinder block assembly;
- the cylinder block assembly further including an inwardly projecting ridge which axially extends from the inner end wall along the circumferential wall to trap the oil mist in the refrigerant gas flow in the swash plate chamber and to introduce the trapped oil mist into the oiler channel.

5,782,317
TRANSPORT APPARATUS FOR VERTICALLY MOVING OBJECTS AND METHOD

David W. Lutz, Carlisle, Pa., assignor to Master Manufacturers, Inc., Carlisle, Pa.
Filed Apr. 16, 1996, Ser. No. 633,159
Int. Cl.^{6} B66B *9/02*
U.S. Cl. 187—270 **26 Claims**

11. Transport apparatus for moving objects along a vertical column comprising,

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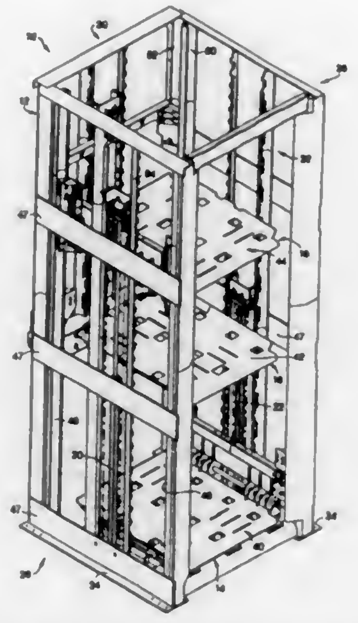


a) a rectangular frame extending around the column and including four sides;

b) a plurality of member assemblies, each assembly associated with one frame side and including a vertically movable carriage mounted on such side, a support member, a hinge connecting the member to the carriage, the axis of the hinge extending horizontally and located inside of such side and outside of the column, and a hinge drive operable to rotate the member from a horizontal position in the frame extending across the column to a vertical position between the column and such side; and

c) an assembly drive associated with each plate assembly for moving the assembly vertically, each assembly drive including a power operator, and a connection between the power operator and a carriage.

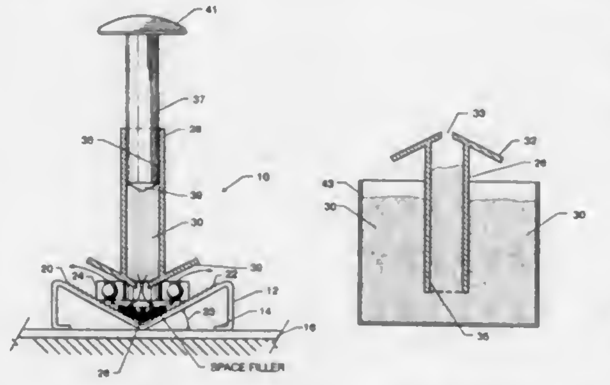
5,782,318
BEARING LUBRICATION APPARATUS

Gim Shek Ng, 213 Oak La., Yorktown, Va. 23693

Filed Jun. 7, 1997, Ser. No. 872,489

Int. Cl.^{6} F16C *1/24*

U.S. Cl. 184—5.1 **9 Claims**



1. Apparatus for applying grease to bearing structures while simultaneously removing old grease therefrom comprising, in combination:

a bearing support stand including a reverse conical central cavity having a stepped surface for horizontally supporting a bearing structure;

a bearing structure horizontally supported by a step of said stepped surface of said bearing support stand;

an elongated open cylinder containing a quantity of lubricating grease perpendicularly disposed relative to said bearing structure;

said open cylinder having a first end contacting said bearing structure;

a manually operated elongated slidable piston having a first end disposed within a second end of said open cylinder and a second end having a handle thereon to permit manual pressure to be applied to said slidable piston; whereby

when manual pressure is applied to said handle on said slidable piston to effect slidable movement thereof within said open cylinder, said piston forces grease through said first end of said open cylinder and through said bearing structure to thereby forcibly remove old grease from said bearing structure while simultaneously packing said bearing structure with new grease.

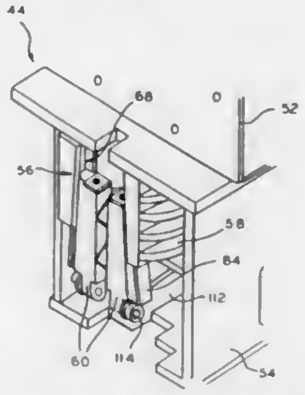
5,782,319
ELEVATOR CAR AND COUNTERWEIGHT SAFETY

Mark Jon Woodruff, Dallas, Tex.; Daniel Lee Vermeere, Moline, and James William Bos, Fulton, both of Ill., assignors to Montgomery Kone Inc., Moline, Ill.

Filed Feb. 12, 1996, Ser. No. 600,349

Int. Cl.^{6} B66B *5/01*

U.S. Cl. 187—376 **16 Claims**



1. A braking device for an elevator having a governor that actuates above a tripping speed for braking an elevator car or counterweight that is guided on a vertical guide rail, the braking device comprising:

a unitary safety housing attached to the elevator car or counterweight and at least partially surrounding the guide rail, the safety housing being expandable and having opposite, facing wedge guides on opposite sides of the guide rail;

a pair of wedges, each wedge being received between the guide rail and one of the wedge guides; and

an actuator linked to the governor and the wedges for driving the wedges into the safety housing, forcing the safety housing to expand and produce a clamping force on the guide rail, in response to actuation of the governor.

5,782,320
TOUGHENED CARBON COMPOSITE BRAKE DISCS

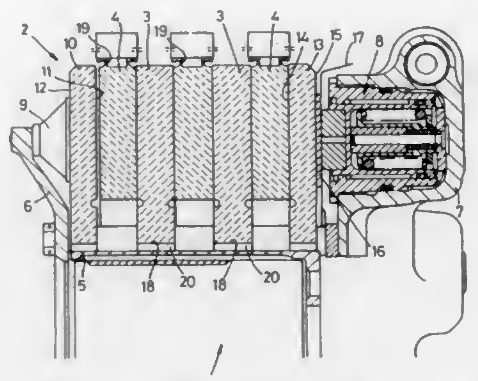
Ronald Fisher, Rugby; Thomas Gerard Fennell, Coventry, and Maurice James Evans, Lichfield, all of England, assignors to Dunlop Limited, London, United Kingdom

Continuation of Ser. No. 593,485, Jan. 29, 1996, abandoned, which is a division of Ser. No. 128,571, Sep. 30, 1993, Pat. No. 5,503,254. This application Jun. 26, 1997, Ser. No. 882,958

Claims priority, application United Kingdom, Sep. 30, 1992, 9220603

Int. Cl.^{6} B00T *1/06*

U.S. Cl. 188—18 A **20 Claims**



1. An annular carbon composite disc comprising an outer peripheral edge surface, an inner peripheral edge surface located radially inward relative to the outer peripheral edge surface, and two friction faces opposing each other between said outer peripheral edge surface and said inner peripheral edge surface, wherein said outer or inner peripheral edge surface is a slotted surface provided with slots for engaging keyways of a torque tube or wheel rim, wherein at least a portion of said slotted surface, and material underlying said slotted surfaces have been selectively toughened at least in part by needle-punching to provide increased resistance indentation damage and/or wear and/or fracture resulting from localized loads in the selectively toughened portion, wherein said friction faces are non-toughened.

5,782,321
AUTOMATICALLY ADJUSTABLE BRAKE STOP

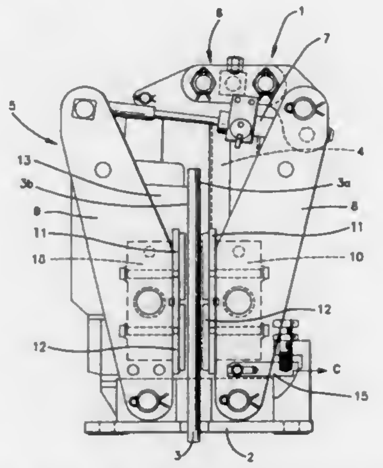
Hans-Walter Treude, Wilnsdorf, Germany, assignor to Bubenzer Bremsen Gerhard Bubenzer Ing. GmbH, Freudenberg, Germany

Filed Jun. 17, 1996, Ser. No. 665,320

Claims priority, application Germany, Jun. 16, 1995, 195 21 553.2

Int. Cl.^{6} F16D *65/52*

U.S. Cl. 188—71.8 **2 Claims**



1. In a brake having at least one braking force generator with brake springs for closing a brake jaw via a lever system in the braking process, with at least two brake levers which act with brake linings attached to interchangeable brake shoes on the peripheral area of the brake, a venting device assigned to the brake springs for opening the brake jaws by means of the lever system when the brakes are released, an automatic reset device for the brake levers for equalizing brake lining wear and an adjustment device with at least one stop which is located on the lower end of a brake lever connected to the base frame of the brake and which is movable for adjustment of the brake jaw, the improvement wherein:

the stop is automatically adjustable during brake lining wear reset of the brake levers for readjustment of the brake jaw in its venting position; and

the stop (**15**) has adjustment crank (**17**) with inner end (**17***a*) which is provided with bearing bore (**18**) and which is pivotally mounted with play (**19**) on stop means (**20**) which is located between brake levers (**8**, **8**) and between swivel axis (**21**—**21**) and brake shoe (**10**) of brake lever pair (**8**, **8**), which is joined to brake levers (**8**, **8**) and which is located parallel to base frame (**2**) of brake (**1**), bearing play (**19**) of adjustment crank (**17**) on stop means (**20**) corresponding to venting and closing stroke (**24**) of brake shoe (**10**) which is reduced according to the leverage of brake levers (**8**, **8**), outer end (**17***a*) of adjustment crank (**17**) with inclined surface (**36**) abutting corresponding oblique opposite surface (**38**) of automatically adjustable counterstop (**37**) which comprises adjustment key (**39**) which is movably guided parallel to brake disk plane (**22**—**22**) in bracket (**26**) which is attached to base frame (**2**) of brake (**1**), oblique surface (**36**) in outer end (**17***b*) of adjustment crank (**17**) for being aligned to oblique opposite surface (**38**) of adjustment key (**39**) by means of an adjustment device, and wherein adjustment crank (**17**) is pressed with bearing bore (**18**) against stop means (**20**) by prestressed compression spring (**29**) which acts transversely to stop means (**20**) and which is inserted into the crank, in direction (a) of the venting movement of brake levers (**8**, **8**).

2. The brake according to claim **1**, wherein said adjustment device comprises a lockable eccentric pulley (**41**) which is supported by base frame (**2**) of brake (**1**) and which abuts bottom (**40**) of adjustment crank (**17**) to align adjustment crank (**17**).

5,782,322
BRAKE ACTUATOR

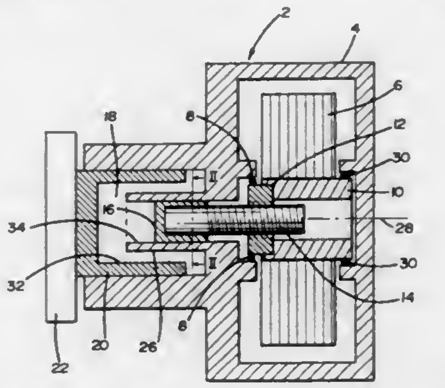
Stefan Hauck, Hanover; Thomas Dieckmann, Pattensen; Christof Maron, Gehrden, and Friedhelm Bergmann, Bad Pyrmont, all of Germany, assignors to Continental Aktiengesellschaft, Hanover, Germany

Filed May 24, 1996, Ser. No. 653,132

Claims priority, application Germany, May 26, 1995, 195 19 308.3

Int. Cl.^{6} F16D *55/18*

U.S. Cl. 188—72.4 **8 Claims**



1. A brake actuator for a vehicle brake having a brake pad defining a friction lining, and a brake disc for coacting with the brake pad, the brake actuator comprising:

a frame;

an electric motor having a rotor rotatably mounted in said frame and said rotor having a hollow shaft defining an axis of rotation;

a spindle assembly for converting the rotational movement of said rotor into a linear movement along said axis;

said spindle assembly including: a threaded member fixedly connected to said rotor so as to rotate therewith; and, a spindle rod threadably engaged with said threaded member to execute said linear movement through a predetermined stroke;

said spindle rod being mounted so as to extend telescopically into said hollow shaft so as to cause at least a portion of said spindle rod to be within said hollow shaft during all of said stroke;

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rotation restraining means for preventing said spindle rod from rotating when said threaded member is rotated thereby causing said spindle rod to execute said linear movement along said axis;

a hydraulic transmission for transmitting said linear movement to said brake pad;

said hydraulic transmission including a first hydraulic piston; a second hydraulic piston connected to said brake pad; and, a hydraulic medium between said hydraulic pistons;

said first hydraulic piston being fixedly connected to said spindle rod so that said first hydraulic piston cannot rotate relative thereto and so as to be movable along said axis with said spindle rod to transmit force to said second hydraulic piston via said hydraulic medium when said spindle rod and said first hydraulic piston are moved through said stroke along said axis; and,

said second hydraulic piston being movably mounted on said frame for moving said brake pad into contact engagement with said brake disc in response to said force.

5,782,323

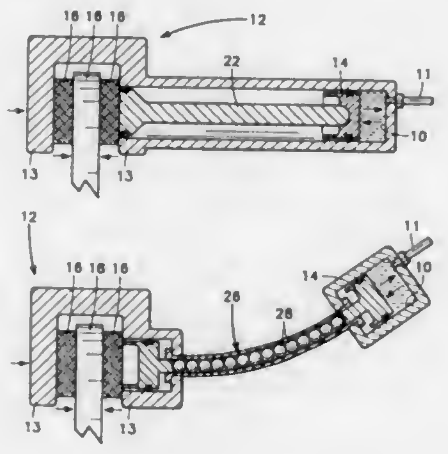
CALIPER DISC BRAKE HAVING A LOW THERMAL CONDUCTIVITY EXTENSION ELEMENT

Rutledge A. Mills, 681 Chelham Way, Santa Barbara, Calif. 93108

Filed Nov. 21, 1995, Ser. No. 560,277

Int. Cl.^{6} F16D *55/26*

U.S. Cl. 188—72.6 **5 Claims**



2. A hydraulic brake system, comprising:

a braking structure including at least one brake pad forcibly engagable with a rotating brake element;

a hydraulic means disposed remotely to said brake pad for applying a pushing force;

a communicating means disposed between said hydraulic means and said brake structure for locating said hydraulic means sufficiently remote to said brake structure and for communicating said pushing force to said brake structure to permit frictional engagement of said brake pad with said rotating brake element, said communicating means having a low rate of thermal conductivity to prevent a fluid of said hydraulic means from overheating and changing from an incompressible fluid to a compressible fluid during a period of continued and constant braking when large amounts of non dissipated heat energy are developed.

5,782,324

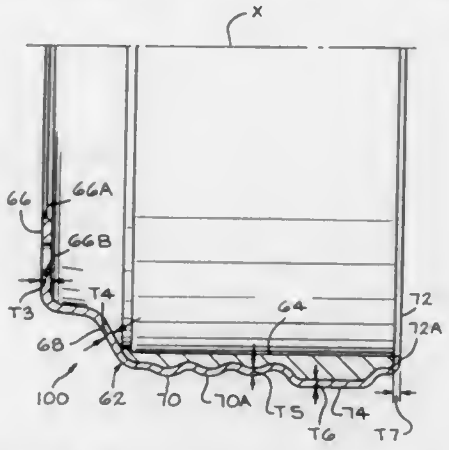
COMPOSITE BRAKE DRUM AND METHOD FOR PRODUCING SAME

Donald R. Wall, Dayton, Ohio, assignor to Dayton Walther Corporation, Dayton, Ohio

Filed Dec. 18, 1996, Ser. No. 769,196

Int. Cl.^{6} F16D *65/10*

U.S. Cl. 188—218 R **19 Claims**



1. A composite vehicle brake drum comprising:

a one-piece spun formed metal brake drum component defining a center longitudinal axis and including a cylindrical shell, a mounting flange extending radially inwardly from one end of said shell toward said center longitudinal axis, and an annular lip extending radially inwardly from an opposite end of said shell toward said center longitudinal axis;

said shell, said mounting flange, and said lip cooperating to define a mold cavity; and

said mold cavity of said brake drum component then having a liner centrifugally cast therein.

5,782,325

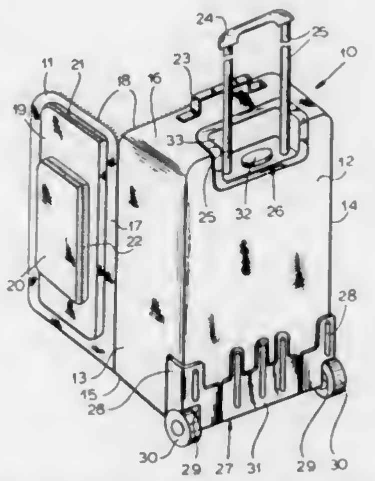
EXTENDABLE-HANDLE ROLLING SUITCASE

James O'Shea, Annandale, N.J., and Jay Evan Myers, Newport Beach, Calif., assignors to Andiamo, Inc., Fountain Valley, Calif., and Royalox International, Inc., Phillipsburg, N.J.

Filed Dec. 24, 1996, Ser. No. 773,636

Int. Cl.^{6} A45C *5/14;13/26;13/36*

U.S. Cl. 190—18 A **11 Claims**



1. An extendable-handle rolling luggage article comprising:

a generally rectangular parallelepipedal case having a back wall, a front wall, a pair of side walls, a top wall and a bottom wall;

a frame internally of said case extending along said top, bottom and side walls;

a handle mechanism affixed to said case and comprising
  a housing disposed at said top wall,
  a handle assembly in said housing and including a handle and a pair of shanks, and
  handle means for displacing said assembly upwardly in an extended position thereof from said housing to enable said article to be drawn along a floor; and

mounting means along said bottom wall formed with wheel wells for receiving respective wheels adapted to roll on said floor, said mounting means including:
  a molded plastic L-section support internally of said case extending along said back wall and said bottom wall, secured to said back wall and to said frame along said bottom wall, and of a length selected to match a width of said article, said support being provided with formations facilitating severing of segments from said support to match the support to a selected width of the article to be fabricated, said segments and a body of said support inwardly of said segments being formed with oval openings through which said support is secured to said case,
  a respective end portion internally of said case secured to said support at a respective end thereof through said oval openings and formed with one of said wheel wells at a respective bottom back corner of said case, and
  a respective outer member externally of said case fastened to each of said end portions through said case.

5,782,326

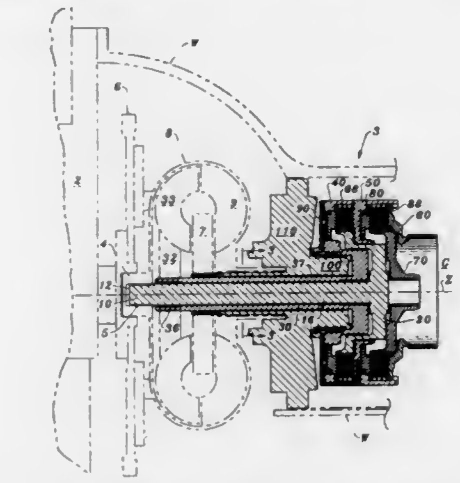
KIT AND METHOD FOR BYPASSING A TORQUE CONVERTER OF A TRANSMISSION

Ronald J. Souza, 7105 Blue Springs Way, Citrus Heights, Calif. 95621

Filed Sep. 24, 1996, Ser. No. 707,496

Int. Cl.^{6} F16H *45/02;* **B60K** *17/02*

U.S. Cl. 192—3.26 **15 Claims**



1. A kit for modifying an input shaft and a forward clutch drum assembly of an automatic transmission to provide the automatic transmission with a lock-up mode where the automatic transmission couples a crank shaft, which provides rotational shaft power to the automatic transmission, to an output shaft of the automatic transmission without any fluid coupling there between when the automatic transmission is in the lock-up mode, the automatic transmission to be modified having a torque converter providing a fluid coupling between the crank shaft and an input shaft, the input shaft coupled to the forward clutch drum assembly, the forward clutch drum assembly selectively driving a gear box at multiple different gear ratios; the kit comprising in combination:

a drive tube replacing the input shaft, said drive tube having a hollow interior passing entirely there through, said drive tube coupled to the torque converter at a first end and a modified forward clutch drum assembly at a second end opposite said first end, said modified forward clutch drum assembly replacing the unmodified forward clutch drum assembly of the automatic transmission, said modified forward clutch drum assembly including means to selectively drive the gear box;

a lock-up shaft, said lock-up shaft colinear with said drive tube and nested within said drive tube, said lock-up shaft having an input end coupled to the crank shaft and an output end coupled to said modified forward clutch assembly; and

means to select said modified forward clutch drum assembly, along with the gear box and the output shaft coupled thereto, to be driven by said drive tube or to be driven by said lock-up shaft.

10. A method for modifying an input shaft and a forward clutch drum assembly of an automatic transmission to provide the automatic transmission with a lock-up mode in which the automatic transmission couples a crankshaft, which provides rotational shaft power to the automatic transmission, to an output shaft of the automatic transmission without any fluid coupling there between when the automatic transmission is in the lock-up mode, the automatic transmission to be modified having a torque converter providing a fluid coupling between the crank shaft and an input shaft, the input shaft coupled to the forward clutch drum assembly, the forward clutch drum assembly selectively driving a gear box at multiple different gear ratios; the method including the steps of:

replacing the input shaft with a drive tube, the drive tube having a hollow interior passing entirely there through, the drive tube coupled to the torque converter at a first end and a modified forward clutch drum assembly at a second end opposite the first end;

replacing the forward clutch drum assembly with the modified forward clutch drum assembly;

nesting a lock-up shaft within the drive tube, the lock-up shaft having an input end coupled to the crank shaft and an output end coupled to the modified forward clutch assembly; and

providing the automatic transmission with a means to select whether the modified forward clutch drum assembly is driven by the drive tube through the torque converter or driven by the lock-up shaft.

5,782,327

HYDROKINETIC TORQUE CONVERTER AND LOCKUP CLUTCH THEREFOR

Dieter Otto, Achern-Oberachern, and Volker Middlemann, Bühl-Altschweier, both of Germany, assignors to Luk Getriebe-Systeme GmbH, Bühl, Germany

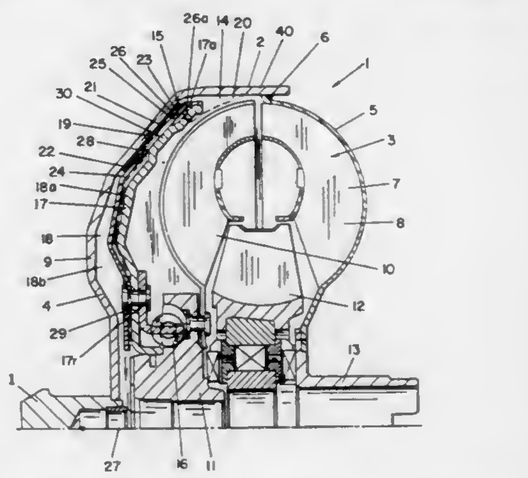
Continuation of Ser. No. 272,920, Jul. 8, 1994, abandoned.

This application May 16, 1996, Ser. No. 649,065

Claims priority, application Germany, Jul. 9, 1993, 43 22 971.3; May 25, 1994, 44 18 024.1

Int. Cl.^{6} F16H *45/02*

U.S. Cl. 192—3.29 **156 Claims**



1. A hydrokinetic torque converter comprising a housing having a fluid-containing chamber and being rotatable about a predeter-

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mined axis; a pump, a turbine and a stator in said chamber; and an engageable and disengageable lockup clutch interposed between said housing and said turbine and comprising a piston movable in said chamber in the direction of said axis and dividing said chamber into a first compartment disposed at a first radial distance from said axis and a second compartment, a first friction surface carried by said piston at a second radial distance from said axis greater than said first distance, a second friction surface carried by a component rotatable with said housing, said first friction surface confronting and being in contact with said second friction surface in the engaged condition of said clutch, at least one of said piston and said component having at least one passage provided at least in part in a friction lining of said at least one of said piston and said component for the flow of fluid from said second compartment substantially radially inwardly toward said first compartment, first and second members defining at least one channel which establishes a path for the flow of fluid from said at least one passage into said first compartment and wherein the fluid acts upon said members in the direction of said axis, and means for preventing axial movements of said piston in the direction of said axis in response to the action of fluid in said at least one channel.

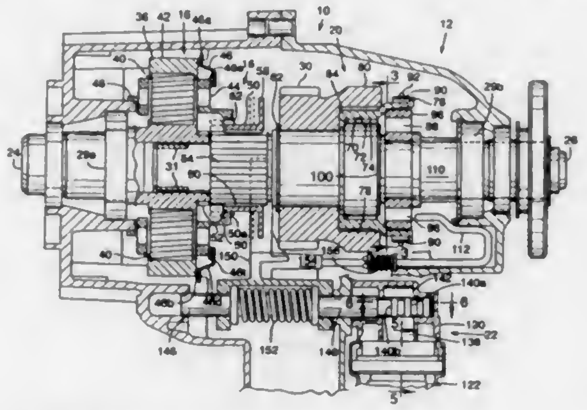
5,782,328
TRANSFER CASE WITH SELECTIVELY GROUNDED MEMBER

Mark J. Fogelberg; Michael L. McMorris, both of Milwaukie, and Christopher J. Walter, Portland, all of Oreg., assignors to Warn Industries, Inc., Milwaukie, Oreg.

Filed Sep. 27, 1996, Ser. No. 721,822

Int. Cl.^{6} F16D *41/08;43/00*

U.S. Cl. 192—35 **3 Claims**



3. A vehicle drive line comprising:

a drive shaft and a driven shaft rotatably mounted in a nonrotative housing;

a roller clutch mechanism interposed between surfaces of the drive and driven shafts and cooperatively configured to produce interconnection of the drive and driven shafts when either of the drive or driven shafts overruns the other;

a retardation mechanism including a brake shoe connected to the clutch mechanism, a ground member rotatably mounted on one of the shafts, and a locking device for selectively locking the ground member to the housing, said brake shoe in continuous frictional engagement with said ground member at low speeds of rotation, and said locking device selectively inter-engaging said ground member with said housing to prevent rotation of the ground member and thereby provide a first retarding force to the clutch mechanism, said ground member when permitted rotation about the rotating shaft producing a second retarding force;

a friction member between the clutch mechanism and the driven shaft to generate a friction member urging force for urging movement of the clutch mechanism with the rotating driven shaft and thereby to urge interconnection between the drive and driven shafts when either of the drive or driven shafts overruns the other; and

said first and second retarding forces and said friction member urging force coordinated whereby said first retarding force overcomes the friction member urging force to permit overrunning of the driven shaft, and said friction member urging force overcomes the second retarding force to produce interconnection when either of the drive or driven shafts overruns the other.

5,782,329
ONE-WAY CLUTCH ASSEMBLY HAVING DUAL SPRING SUPPORTED SPRAGS

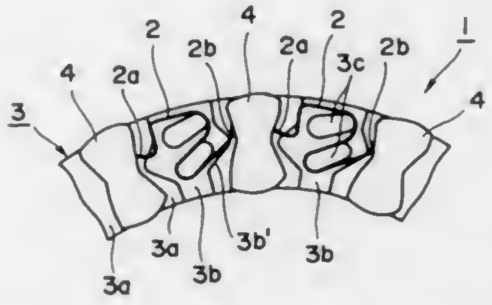
Kazuhiko Muramatsu, Fukuroi, and Yoshio Kinoshita, Shizuoka-ken, both of Japan, assignors to NSK-Warner Kabushiki Kaisha, Tokyo, Japan

Filed Jul. 24, 1996, Ser. No. 686,142

Claims priority, application Japan, Jul. 24, 1995, 7-187342

Int. Cl.^{6} F16D *41/07;41/06*

U.S. Cl. 192—45.1 **6 Claims**



1. A one-way clutch assembly comprising:

a generally ring-shaped cage provided with a plurality of openings spaced apart from one another in a circumferential direction and with engaging means between two adjacent openings;

a plurality of sprags each provided pivotally movably in a corresponding one of said plurality of openings;

at least one spring means in engagement with said engaging means and extending into at least one of the two openings adjacent to said engaging means to be in contact with the sprag provided therein;

wherein each of said plurality of sprags provided in a corresponding one of said plurality of openings is contacted by the spring means engaged with the engaging means on both sides of said corresponding opening;

wherein said cage includes a pair of ring-shaped side plate sections;

a plurality of cage cam sections provided on at least one of said side plate sections spaced apart from one another in a circumferential direction, each of said plurality of cage cam sections having a cam surface for limiting a pivotal motion of the pairs in said opening;

a plurality of connection sections for connecting said pair of side plate sections at a plurality of locations in a circumferential direction, at least part of said connection sections defining said engaging means; and

wherein each of said spring means includes a pair of first and second spring members, each having a predetermined shape, said first spring member being engaged with said engaging means of said connection section and in engagement with a sprag provided in a first opening, which is one of a pair of openings adjacent to said engaging means, said second spring member being engaged with said engaging means of said connection section and in engagement with a sprag provided in a second opening of said pair of openings adjacent to said engaging means.

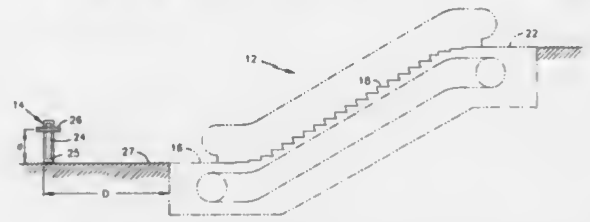
5,782,330
INFORMATION DISPLAY AND CONTROL DEVICE FOR A PASSENGER CONVEYOR

Martin Mehlert, Nienstaedt; Michael Kruse, Minden; Dietmar Krüger, Rintein, and Reiner Wallbaum, Bochum, all of Germany, assignors to Otis Elevator Company, Farmington, Conn.

Filed Dec. 20, 1996, Ser. No. 781,950

Int. Cl.^{6} B65G *15/00*

U.S. Cl. 198—324 **6 Claims**



1. An integrated information display and control device for a passenger conveyor, the passenger conveyor having a direction of travel for carrying passengers from a first landing to a second landing, wherein the device is separate from the passenger conveyor and includes:

a housing including:

an information display that is viewable by the passengers approaching the passenger conveyor;

a control panel that permits an operator of the control panel to manipulate the operation of the passenger conveyor; and

an emergency switch, wherein actuation of the switch stops the operation of the passenger conveyor; and

a post that supports the housing such that the housing is positioned at a predetermined height to discourage inadvertent actuation of the emergency switch.

5,782,331
LOCK-SYNCHRONISIED GEARBOX SHIFT SYSTEM

Gerhard Bailly; Detlef Baasch, and Ünal Gazyakan, all of Friedrichshafen, Germany, assignors to ZF Friedrichshafen AG, Friedrichshafen, Germany

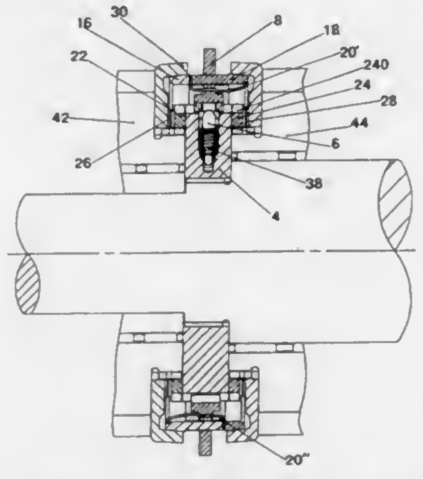
PCT No. PCT/EP94/02373, § 371 Date Jan. 22, 1996, § 102(e) Date Jan. 22, 1996, PCT Pub. No. WO95/03496, PCT Pub. Date Feb. 2, 1995

PCT Filed Jul. 19, 1994, Ser. No. 586,644

Claims priority, application Germany, Jul. 23, 1993, 43 24 814.4

Int. Cl.^{6} F16D *23/06*

U.S. Cl. 192—53.32 **28 Claims**



11. A transmission shift system with a lock-synchronizing arrangement having a sliding sleeve non-rotatably connectable with a transmission shaft but axially movable, said sliding sleeve causing, via coupling elements, a connection between a transmission shaft and at least one gear wheel, and said at least one gear wheel has a synchronizer ring being restrictedly turnable relative to said sliding sleeve, locking teeth being located on said synchronizer ring, said locking teeth blocking further movement of said sliding sleeve when a speed difference is present between said at least one gear wheel and said sliding sleeve;

wherein said synchronizer ring is coupled with said sliding sleeve by a steel rim with several radially dampening tabs, said clutch members form coupling teeth (**76**) with stub-ended teeth, without any no facets, and elastic elements (**106**, **108**) are provided which dampen said coupling teeth (**76**) relative to said sliding sleeve (**66**).

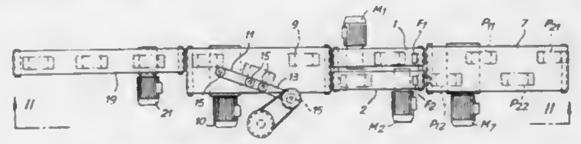
5,782,332
DEVICE AND CORRESPONDING METHOD FOR GROUPING TOGETHER RANDOM PRODUCT FLOWS INTO A SINGLE PATH ACCORDING TO A PRE-ESTABLISHED AND ADJUSTABLE RATE OF ADVANCE

Dario Guidetti, Grignasco, and Michele Decuzzi, Prato, both of Italy, assignors to Sasib Packaging Italia S.R.L., Pistoia, Italy

Filed Aug. 8, 1995, Ser. No. 512,385

Int. Cl.^{6} B65G *47/46*

U.S. Cl. 198—357 **17 Claims**



1. A device for aligning a plurality of products from a plurality of non-correlated inlet paths, the device comprising:

a plurality of conveyors individually receiving the products from the separate inlet paths;

a plurality of sensors, each sensor being associated with one of said conveyors, said each sensor generating a respective arrival signal upon detecting an arrival of a product on a corresponding conveyor;

a plurality of actuators, each actuator being associated with one of said conveyor for moving a product on a corresponding conveyor;

a plurality of position transducers, each position transducer being associated with one of said conveyors for generating a corresponding position signal representing a position of said corresponding conveyor;

a control unit receiving said arrival and position signals, said control unit recognizing when a first product arrives onto one of said conveyors, said control unit controlling said actuator corresponding to said first product to move said first product by a predetermined length, said control unit controlling remaining said actuators to stop movement of product received by remaining said conveyors until said actuator corresponding to said first product has moved said first product by said predetermined length.

5,782,333
ESCALATOR HAVING HANDRAIL/DRIVE-WHEEL SELF-ADJUSTING TRACTION MECHANISM

John T. Pitts, Penang, Malaysia, assignor to Otis Elevator Company, Farmington, Conn.

Filed Dec. 30, 1996, Ser. No. 774,770

Int. Cl.^{6} B65G *23/00*

U.S. Cl. 198—336 **7 Claims**

1. An escalator having a handrail arranged on a drive wheel, comprising:

handrail drive means, responsive to a handrail drive force, for providing a handrail drive tension force, and further responsive to a handrail/drive-wheel traction self-adjusting force,

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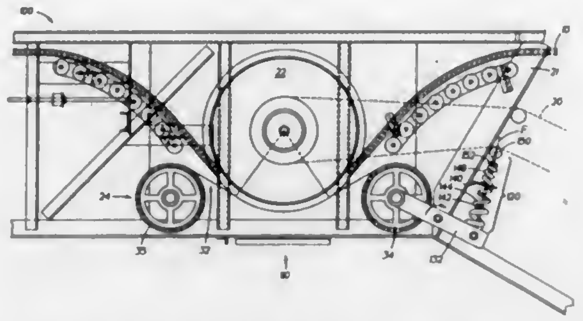


further for providing a handrail/drive-wheel traction force between the drive wheel and the handrail; and

handrail/drive-wheel traction self-adjusting means, responsive to the handrail drive tension force, for providing the handrail/drive-wheel traction self-adjusting force to adjust the handrail/drive-wheel traction between the drive wheel and the handrail, wherein the handrail/drive-wheel traction adjustment means comprises:

a handrail/drive-wheel traction pushrod being slidably arranged in a fixedly mounted pressure belt tension spring plate, having one end connected to a pivotally mounted pressure belt tension adjustment arm, having another end with a chain tension wheel coupled to a drive chain of the handrail drive means; and

a pressure belt tension spring arranged on the handrail/drive-wheel traction pushrod between the pivotally mounted pressure belt tension adjustment arm and the pressure belt tension spring plate, for providing a pressure belt tension spring force on the pivotally mounted pressure belt tension adjustment arm of the handrail drive means.

5,782,334

METHOD AND LINE FOR FORMING AND CONVEYING ORDERLY GROUPS OF ELONGATED PRODUCTS, PARTICULARLY CIGARETTES

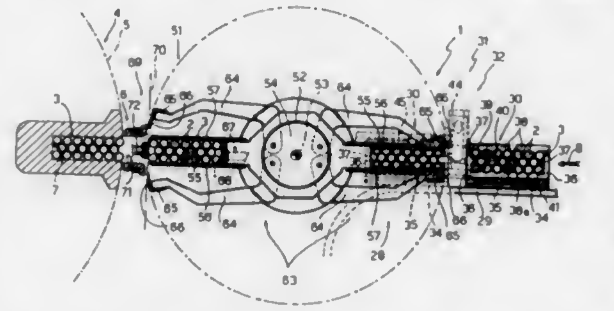
Gian Paolo Parrocchetti, Bologna; Claudio Mistroni, Zola Predosa, and Antonio Gamberini, Bologna, all of Italy, assignors to G.D Societa' Per Azioni, Bologna, Italy

Filed Jan. 23, 1996, Ser. No. 590,170

Claims priority, application Italy, Jan. 26, 1995, B095A0021

Int. Cl.⁶ B65G *47/26*

U.S. Cl. 198—418.3 **25 Claims**



1. A method of forming and conveying orderly groups of elongated products, the method comprising:

forming a said group by confining a number of superimposed layers of products, including a bottom layer, inside a given volume, each layer comprising a number of products arranged, inside said volume, in an orderly operating arrangement wherein the products in each layer are arranged side by side and separated by a given distance greater than zero and less than the width of the product, each pair of adjacent products in each layer defining a seat for a product in each adjacent layer;

feeding the layers axially into a forming spindle to form each group, the spindle defining said given volume;

transversely retaining, in said operating arrangement, the products in at least said bottom layer inside said given volume, the spindle comprising a bottom wall having seats separated by said given distance for receiving and transversely retaining in position the products of said bottom layer;

compressing each group inside said given volume in a direction crosswise to the layers, and in a direction parallel to the layers and crosswise to the products; and

feeding said volume to wrapping means in a given supply direction.

5,782,335

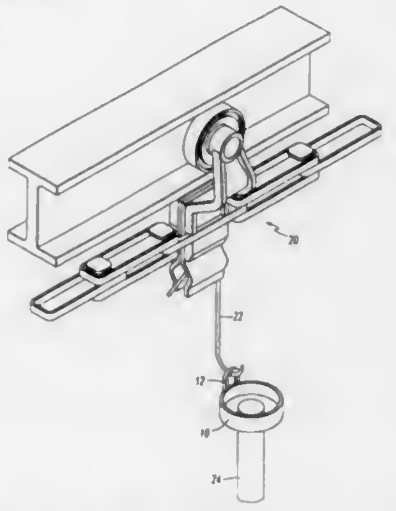
METHOD AND APPARATUS FOR PARTS CONVEYANCE

David Crisman, Baraboo, Wis.; Glen D. Kemnitz, Gallatin, and Richard L. Minchey, Goodlettesville, both of Tenn., assignors to Sunbeam Products, Inc., Fort Lauderdale, Fla.

Filed Mar. 31, 1994, Ser. No. 220,416

Int. Cl.⁶ B65G *17/32*

U.S. Cl. 198—465.4 **11 Claims**



1. An apparatus for parts conveyance, comprising a hanger means having means for allowing said hanger means to be removably attached to a part, said hanger means being suited to be engaged by a means for conveying said part, wherein said hanger means has notches to facilitate the removal of said hanger means from said part.

5,782,336

APPARATUS FOR HANGING OBJECTS IN AN ORDERLY FASHION, ESPECIALLY SACKED MEATS, ON TRANSFERABLE SUPPORTS

Rino Venturelli, Savignano Sul Panaro, Italy, assignor to Tecnomec S.r.L., Vignola, Italy

Filed Feb. 2, 1996, Ser. No. 596,443

Claims priority, application Italy, Feb. 17, 1995, MO95A0022

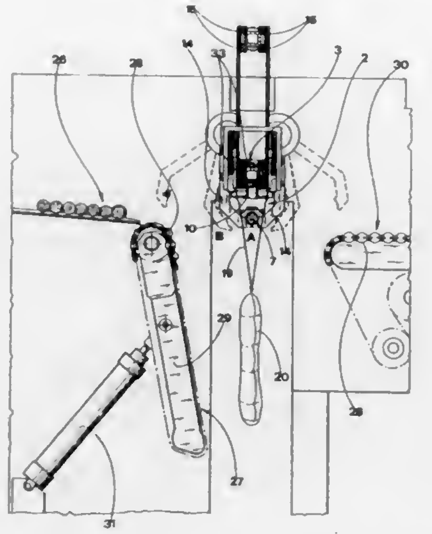
Int. Cl.⁶ A22C *15/00;* **B65G** *47/61*

U.S. Cl. 198—465.4 **7 Claims**

1. An apparatus for hanging objects in an orderly fashion, especially sacked meats, on transferable supports, comprising:

a transport line along which fork-shaped hooks are guided, which hooks are consecutively constrained to a chain at a first predetermined reciprocal distance;

a tilting device for producing on command a partial tilting of said hooks from a natural loaded position, at which teeth of said hooks are positioned in such a way as to keep said object stably hung, into an unloading position, in which said teeth of said hooks are arranged inclinedly downwards such as to be unable to keep an object hooked thereon;



said tilting device being positionable on command at any point of a guide predisposed parallel to a tract of the transport line of the hooks;

a straight-rod support predisposed such that said objects can be hung thereon, the support having ends;

means for supporting said support at both ends thereof while keeping said support in a position which is parallel to and below said transport line of said hooks; said means for supporting comprising a first plier and a second plier situated and predisposed to operate at least at one end of said support, said first plier and said second plier being arranged at a second predetermined reciprocal distance and being commanded by a commanding means to alternatingly grip said at least one end of said support by means of a mechanism operating synchronically with a movement of said hooks in an advancement direction along said transport line; and

means for transferring said supports;

wherein said transport line exhibits a straight horizontal tract and wherein said hooks are constrained to said chain by means of pivots exhibiting axes which are horizontal and perpendicular to the advancement direction of said chain;

said chain including a cardan chain including pairs of guide wheels arranged such that an axis of each pair thereof is perpendicular to an axis of a next pair thereof and such that axes of all pairs thereof are perpendicular to the advancement direction of said chain; said guide wheels being uniformly reciprocally distanced and extending in a longitudinal direction alone said chain, as are also said hooks;

wherein the second reciprocal distance at which said first plier and said second plier are placed is not less than a mass of any one of said hooks measured in the advancement direction thereof, and wherein said first plier and said second plier include symmetrically-opening arms provided with recesses shaped such as to be able to embrace the ends of said supports; said arms having fulcra situated above said transport line.

5,782,337

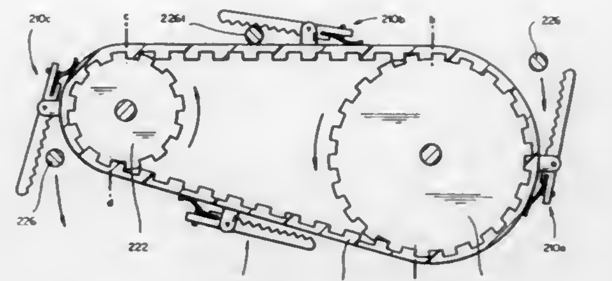
CONVEYOR BELT SYSTEM AND HEATER UTILIZING SAID SYSTEM

George Raymond Langland, Diamond Springs, Calif., assignor to Raychem Corporation, Menlo Park, Calif.

Continuation of Ser. No. 66,047, May 25, 1993, abandoned, which is a continuation-in-part of Ser. No. 641,374, Jan. 15, 1991, abandoned, and Ser. No. 341,416, Jan. 15, 1991, abandoned. This application Aug. 23, 1994, Ser. No. 294,769

Int. Cl.⁶ B65G *25/00*

U.S. Cl. 198—803.1 **3 Claims**



1. A conveyance system comprising an endless flexible belt which circulates through at least two arcs, a first of said arcs having a greater radius than a second of said arcs; at least one structurally rigid gripping member attached to the belt, the gripping member having a free end and an anchoring end disposed at opposite ends of the gripping member; a biasing means which biases the gripping member in a closed position; and a pivot attachment located at a medial point on the gripping member between the anchoring end and the free end, wherein the configuration of the biasing means causes the gripping member to be opened as it traverses an arced path and closed against the belt as it traverses a straight path, without interruption in the movement of the path, and wherein a workpiece is loaded as the gripping member traverses the first arc, and offloaded as the gripping member traverses the second arc.

5,782,338

TRANSFER DEVICE FOR MAIL AND THE LIKE

Rudolf Schuster, Kirchheim, and Josef Raschke, Pliening, both of Germany, assignors to Siemens Aktiengesellschaft, Munich, Germany

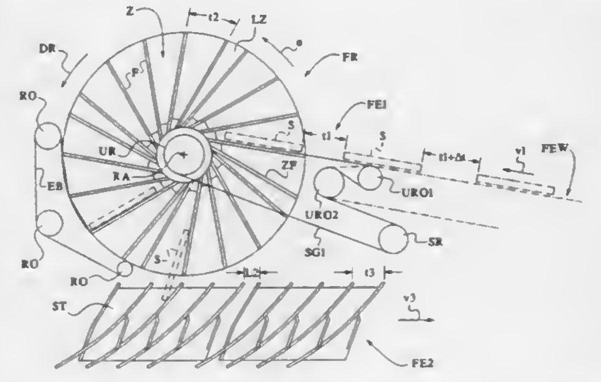
PCT No. PCT/DE94/01378, § 371 Date Aug. 21, 1996, § 102(e) Date Aug. 21, 1996, PCT Pub. No. WO95/17267, PCT Pub. Date Jun. 29, 1995

PCT Filed Nov. 22, 1994, Ser. No. 666,289

Claims priority, application Germany, Dec. 23, 1993, 43 44 347.8

Int. Cl.⁶ B65G *47/04*

U.S. Cl. 198—803.13 **20 Claims**



1. A transfer device for transferring items, the device comprising:

a first conveying device;

a second conveying device having a plurality of circulating item carriers; and

a rotatable paddle wheel with a plurality of paddles defining a plurality of pockets to receive items arriving on the first conveying device and discharge said items onto circulating item carriers of the second conveying device;

wherein a speed and the spacing of the incoming items on the first conveying device are matched to a circumferential speed and circumferential spacing of the paddle wheel, which are matched to a speed and spacing of the circulating item carriers; and

wherein each paddle of the paddle wheel is segmented by a plurality of gaps arranged one behind the other in the axial

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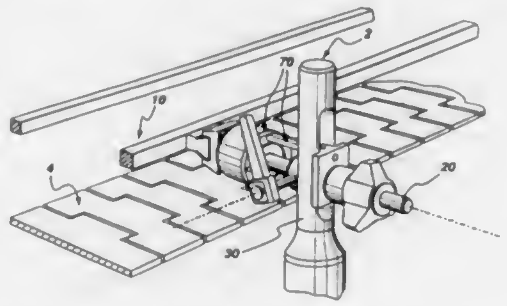
direction, wherein cooperatively spaced segments of the first conveying device are guided into the pockets of the paddle wheel in the region of the gaps, and wherein the segments of the first conveying device are guided around coaxially and rotatably arranged deflection wheels of the paddle wheel.

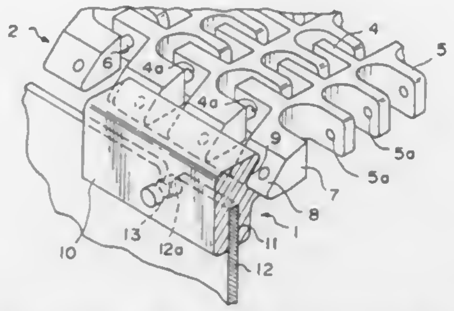
5,782,339
ADJUSTABLE GUIDE-RAIL FOR A CONVEYOR BELT
Hugues Drewitz, 113, 45th Avenue, St-Eustache, Quebec J7P 3G4, Canada
Filed Nov. 6, 1996, Ser. No. 744,757
Int. Cl.⁶ B65G *21/20*
U.S. Cl. 198—836.3 13 Claims



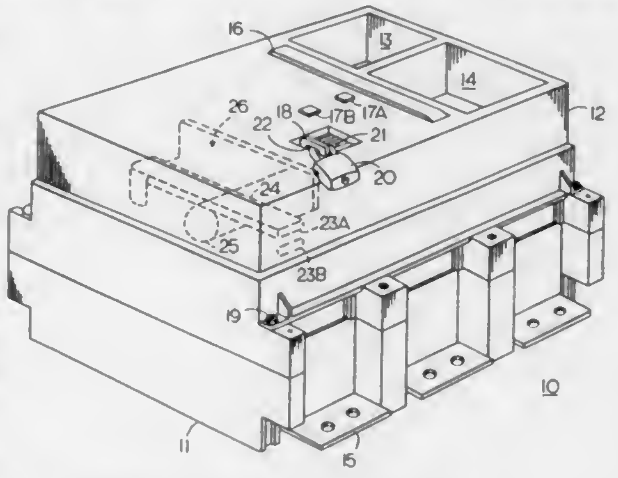
1. An adjustable guide rail for guiding containers on a conveyor belt, said adjustable guide rail comprising:
- a support element;
- an elongated rail element mounted to said support element and being movable with relation to said support element;
- a gage block having a plurality of bores of different depths in a spaced apart relationship;
- a stopper member having a pin adapted to selectively penetrate into any one of said plurality of bores;
- a locking mechanism for securing said rail element at a given horizontal distance from said support element, said locking mechanism allowing, in a free position, the free movement of said rail element with relation to said support element and, in a locked position, securing said rail element;
- said bores of said gage block and said pin being arranged along a common, substantially horizontal axis;
- whereby movement of said rail element with relation to said support element causes relative displacement between said gage block and said stopper member, engagement of said pin in a selected bore of said gage block allowing location of said rail element at a predetermined distance with relation to said support element.

5,782,340
TAPERED SIDE SUPPORT FOR CONVEYOR BELTS
Rex H. Dolan, P.O. Box 528, Carthage, Miss. 39061
Filed Mar. 6, 1997, Ser. No. 812,032
Int. Cl.⁶ B65G *15/62*
U.S. Cl. 198—841 9 Claims

1. In combination, a tapered side support and a plastic belt conveyor having integral sideplates, a conveyor support frame assembly including a pair of laterally spaced vertically extending sideplates having a top edge portion and a bottom edge portion, said conveyor positioned in the space between said sideplates, a first wearstrip mounted on the top edge portion of each sideplate, a tapered surface formed on each integral sideplate of said conveyor, and a correspondingly tapered recess provided in said first wearstrip, the tapered surface of each integral sideplate being slidably mounted in the tapered recess in the first wearstrip for guiding and supporting said conveyor.



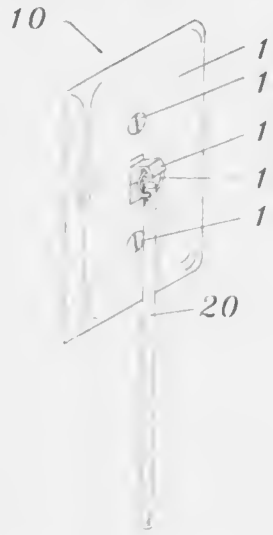
5,782,341
PADLOCKING ARRANGEMENT FOR HIGH AMPERE-RATED CIRCUIT BREAKER
William H. Calder, Plainville, and James L. Rosen, West Hartford, both of Conn., assignors to General Electric Company, New York, N.Y.
Filed Dec. 22, 1995, Ser. No. 578,872
Int. Cl.⁶ H01H *9/28*
U.S. Cl. 200—43.14 10 Claims



1. An industrial-rated circuit breaker comprising:
- an electrically insulative circuit breaker case and cover;
- a pair of separable contacts within said case and arranged for connection with electrical equipment;
- an operating mechanism within said case, said operating mechanism including a closing shaft for moving said contacts between OPEN and CLOSED positions and a latch assembly for latching and releasing said operating mechanism, said closing shaft includes a multi-surface cam on an outer perimeter, said cam being configured to define a first surface corresponding to said OPEN position of said contacts and a second surface corresponding to said CLOSED position of said contacts; and
- a locking hasp assembly arranged within said circuit breaker cover, said locking hasp assembly interacting with said closing shaft to allow attachment of a locking device to one end of said locking hasp assembly when said contacts are in said OPEN position, said hasp assembly includes a cam slide interconnected with a hasp slide, said hasp slide includes a hasp aperture and said hasp slide is arranged for moving above and below a top surface on said circuit breaker cover, said cam slide and said hasp slide are slidably arranged on a side wall of said operating mechanism, said cam slide

includes a cam slide return spring for positioning an end of said cam slide against said first and second surface of said cam.

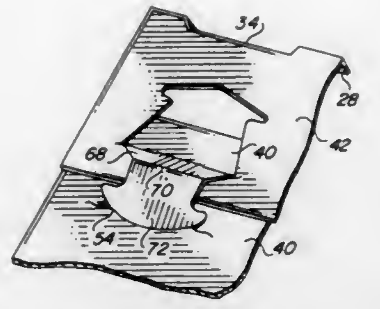
5,782,342
APPARATUS AND METHOD FOR LIGHT SWITCH OPERATION
Leslie N. Hewitt, and Roy B. Hewitt, both of 6828 Wagon Oak Rd., Charlotte, N.C. 28212
Filed Nov. 5, 1996, Ser. No. 743,963
Int. Cl.⁶ H01H *3/20*
U.S. Cl. 200—331 12 Claims



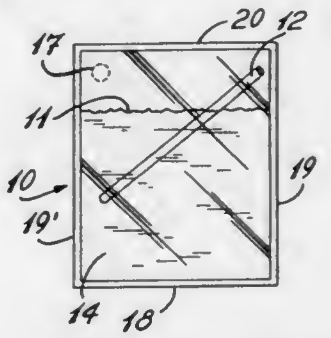
1. An improved light switch assembly comprising a conventional light switch assembly having a toggle-type lever, wherein the improvement comprises a light switch extension comprising:
- an elongate rod and a ring member, said rod having an aperture therethrough adjacent to one of its ends and being sufficiently rigid to push against said toggle-type lever to raise it into an upward position;
- said ring member connected through said aperture, said ring member also being sufficiently rigid to raise said toggle-type lever into an upward position and being connected directly through a hole through the distal end of said toggle-type lever so that a portion of said toggle-type lever is positioned within an aperture of said ring member wherein upward movement of said rod raises said ring which raises said toggle-type lever into an upward position, lowering of said rod lowers said ring which causes said toggle-type lever to be lowered, and so that a twisting, motion exerted on said r will not cause said ring member to be disconnected from said distal end of said toggle switch.

5,782,343
WARP-AROUND CARRIER WITH IMPROVED LOCKING MEANS
Glen R. Harrelson, Gainsville, Ga., assignor to Riverwood International Corporation, Atlanta, Ga.
Filed Jan. 24, 1997, Ser. No. 788,305
Int. Cl.⁶ B65D *5/42*
U.S. Cl. 206—140 10 Claims

1. A wrap-around article carrier, comprising: opposite side panels connected to a top panel and a bottom panel;
- the bottom panel being comprised of first and second bottom panel flaps, each bottom panel flap having a free edge;
- the first bottom panel flap partially overlapping the second bottom panel flap to form an overlapped area and containing a male locking flap, integrally formed from the first bottom panel, having a base end and an opposite end, the base end being connected by a fold line to a portion of the first bottom panel flap and spaced inwardly from the free edge thereof;
- the second bottom panel flap containing primary and secondary female locking openings, the primary female locking opening being in the overlapped area of the second bottom panel flap and the secondary female locking opening being spaced from the overlapping area; and
- the male locking flap including a primary locking tab adjacent the base end of the locking flap and a secondary locking tab at the opposite end thereof;
- the primary locking tab extending into the primary locking opening in locking engagement therewith and the secondary locking tab extending into the secondary locking opening in locking engagement therewith, said male locking flap extending from the male locking flap fold line over the free edge of the first bottom panel flap and into the secondary female locking opening thereby providing a strap-like configuration to support and strengthen the bottom panel of said wrap around carrier.



5,782,344
LIQUID PLASTIC FILM POUCH WITH INNER STRAW
John Edwards, Montreal, Canada, and Raymond L. Larson, Fargo, N. Dak., assignors to Glopak Inc., Montreal, Canada
Filed Feb. 28, 1997, Ser. No. 806,126
Int. Cl.⁶ B65D *77/28*
U.S. Cl. 206—217 10 Claims



1. A plastic film pouch for containing a liquid product, said film pouch having opposed side walls sealed about a peripheral edge thereof to define a sealed inner chamber, at least a portion of at least one of said side walls being formed of transparent film for visual access to said inner chamber, a straw of predetermined rigidity located within said inner chamber, said straw having a length shorter than said side wall, a liquid within said inner chamber, said straw being free floating in said liquid and displaceable in said liquid across said side walls of said chamber, said liquid contained within said inner chamber occupying from about 60% to about 90% of the volume of said inner chamber, the remaining volume of said inner chamber having a portion of air evacuated therefrom in sufficient quantity to permit said liquid to

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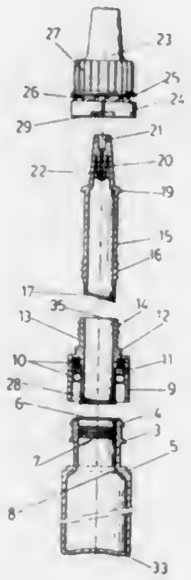
be displaced within said inner chamber when said side walls are collapsed towards one another to grasp said free floating straw in said liquid and manipulate it to puncture said plastic film pouch whereby to extend a portion of said straw exteriorly of said pouch to extract liquid from said pouch.

5,782,345

PHARMACEUTICAL BOTTLE OF TWO SEPARATE SUBSTANCES WITH MIXING DEVICE, DOSED APPLICATION AND ASSEMBLY PROCESS THEREOF

Francesc Xavier Gimenez Guasch, and Michael Van Wie Bergamini, both of Barcelona, Spain, assignors to Laboratorios Cusi, S.A., Spain

Filed Dec. 27, 1995, Ser. No. 579,138
Claims priority, application Spain, Dec. 4, 1995, 9502392
Int. Cl.⁶ B65D *25/08*
U.S. Cl. 206—222 **14 Claims**



1. A container, comprising:
- a) a bottom container closed at a bottom end and open at a top end opposite the bottom end, the top end defined by a tubular neck having a peripheral edge containing a first set of stria, an interior of the tubular neck further having a plurality of sealing rings;
- b) a top container open at a top end and closed at a bottom end opposite the top end by a tearable seal, the top container engaging the sealing rings of the bottom container when the top container is inserted into the interior of the tubular neck;
- c) a flap extending radially out from an exterior of the top container so that the flap surrounds the neck of the bottom container when the top container is inserted into the interior of the tubular neck, an interior of the flap having a second set of stria that engage the first set of stria; and
- d) a tubular sleeve having a bottom end and a top end, the bottom end defined by a beveled edge and the top end closed by a truncated cone, the bottom end of the tubular sleeve being sized and shaped to be received within the open end of the top container;

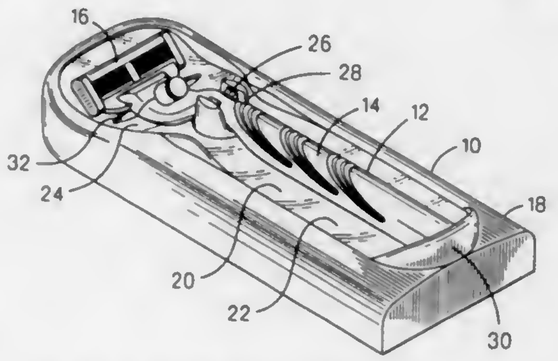
wherein the tubular sleeve may be moved axially within the top container so that the beveled edge tears the tearable seal in the top container.

5,782,346

TRAY FOR A WET SHAVING RAZOR

Michael J. Gray, Duxbury, and Gerald T. Swanson, Kingston, both of Mass., assignors to The Gillette Company, Boston, Mass.

Filed Feb. 19, 1997, Ser. No. 803,155
Int. Cl.⁶ B69D *65/00*
U.S. Cl. 206—228 **35 Claims**



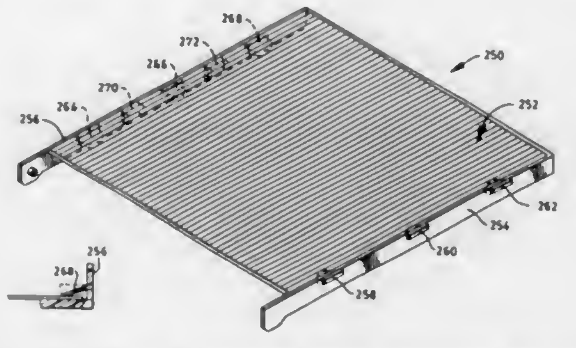
1. A tray for a wet shaving razor comprising,
a base member including engagement structure for releasably holding a said razor on said base member,
said base member including platform support structure, and
a platform member that is supported on said platform support structure, is secured to said base member, and is located behind at least part of the region occupied by a said razor when held by said engagement structure, wherein said shaving razor includes a cartridge and a handle, wherein said platform member has a cartridge portion located behind the region occupied by said cartridge when said razor is held by said engagement structure, wherein said base member has an opening through it in the region under said cartridge portion, and wherein said cartridge portion of said platform member is transparent from a surface that is opposite from a surface facing said cartridge when said razor is held on said tray to permit viewing of the side of said cartridge facing said platform member.

5,782,347

BOX CONTAINER SYSTEMS AND DISPLAY FRAMES WITH MULTIPLE VIEW OPTICS

Stephen D. Fantone, Lynnfield, Mass.; Anthony L. Gelardi, and John A. Gelardi, both of Rocky Pasture, Me., assignors to Insight, Inc., Lynnfield, Mass.

Continuation-in-part of Ser. No. 222,632, Apr. 1, 1994, abandoned, Ser. No. 338,246, Nov. 14, 1994, Pat. No. 5,588,526, and Ser. No. 367,091, Dec. 30, 1994, Pat. No. 5,647,151. This application Jul. 31, 1995, Ser. No. 508,380
Int. Cl.⁶ B65D *85/57*
U.S. Cl. 206—308.1 **32 Claims**



1. A box system for displaying visual information, said box system comprising:

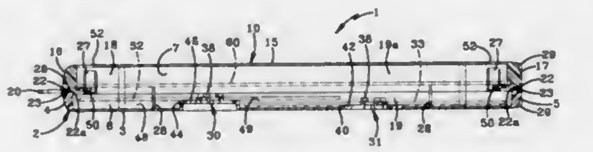
information bearing media of predetermined geometry and thickness, said information bearing media having printed on a surface thereof a plurality of interlaced images and having one edge that serves as a reference edge and is in a fixed angular orientation to within a given tolerance with respect to said interlaced images;
a pair of opposed, spaced apart flat walls having at least one major dimension;
a plurality of shallow side walls interconnected between said pair of opposed, spaced apart flat walls and having dimensions that are substantially smaller than said major dimension of said pair of opposed, spaced apart flat walls, at least one of said pair of opposed, spaced apart flat walls having at least one transparent lenticulated section optically associated therewith, said transparent lenticulated section having arranged thereon a plurality of longitudinally extending lenticules that collectively define a focal plane and have a given depth of focus, said plurality of shallow side walls and said pair of opposed, spaced apart flat walls providing an interior chamber for receiving said information bearing means therein; and
means located within said interior chamber for resiliently urging said information bearing media into a position of alignment with respect to said transparent lenticulated section such that said interlaced images are located within said depth of focus of said lenticules and said reference edge is in said fixed angular orientation to within a predetermined fraction of the width of one of said lenticules over the length of said interlaced images with respect to said longitudinal axes of said lenticules so that an observer of said transparent lenticulated section is provided with distinctly different information when viewing transparent lenticulated section from different angular perspectives.

5,782,348

MULTIPLE DISC STORAGE CASE

Ronald K. Burdett, Strasburg, Ohio, assignor to Alpha Enterprises, Inc., North Canton, Ohio

Filed Jun. 19, 1996, Ser. No. 666,044
Int. Cl.⁶ B65D *85/57*
U.S. Cl. 206—308.1 **10 Claims**



1. In combination, a pair of disc-shaped data storage media and a storage case for storing said media in a partial overlapped and spaced configuration, said case being an integral one-piece member formed of a plastic material including a base having a substantially flat continuous planar base wall extending between a pair of spaced parallel end walls, a front wall and a hinge;
a cover movably mounted on the base by the hinge for movement between open and closed positions with respect to said base and forming a parallelpiped in combination with the base when in the closed position; and
first and second hubs formed integrally on the base wall in a spaced position and raised above said base wall, said second hub being raised above the base wall a greater distance than the first hub with one of said disc-shaped data storage media being held by the second hub in a spaced relationship above and partially overlapping the first disc-shaped data storage medium being held by the first hub in a spaced relationship above said base wall.

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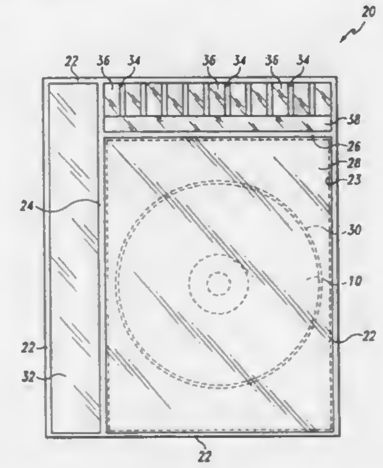
CD ROM HOLDER SUITABLE FOR BINDING

Jeff Combs, 179 Country Aire, Greenwood, Ind. 46143

Filed Jun. 20, 1997, Ser. No. 879,357
Int. Cl.⁶ B65D *85/57;* **B65B** *35/54;* **B42D** *1/00*
U.S. Cl. 206—308.1 **18 Claims**



1. A data disk holder suitable for binding, comprising:
first and second sheets of heat-sealable material;
a data disk positioned between the first and second sheets; and
at least one heat-seal fusing the first and second sheets;
wherein the data disk is substantially surrounded by the heat-seal and cannot be removed from the holder without breaking the heat-seal or cutting one of the first and second sheets, wherein the at least one heat-seal includes a longitudinal heat-seal extending substantially an entire longitudinal length of the holder, thereby forming a land separated from the data disk by the longitudinal heat-seal and thereby forming a tear line along the longitudinal heat-seal.

13. A method for forming a data disk holder suitable for binding, comprising the steps of:
- a) providing first and second sheets of heat-sealable material;
- b) positioning the data disk between the first and second sheets; and
- c) forming at least one heat-seal fusing the first and second sheets, thereby forming a data disk holder, wherein the data disk is substantially surrounded by the heat-seal, including forming a longitudinal heat-seal extending substantially an entire longitudinal length of the holder, thereby forming a land separated from the data disk by the longitudinal heat-seal and thereby forming a tear line along the longitudinal heat-seal.

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MAGNETIC LOCKING MECHANISM FOR A SECURITY PACKAGE

James T. Weisburn, Massillon, and Matthew Perry Williams, North Canton, both of Ohio, assignors to Alpha Enterprises, Inc., North Canton, Ohio

Filed May 16, 1997, Ser. No. 857,964
Int. Cl.⁶ B65D *55/02;85/57*
U.S. Cl. 206—308.2 **20 Claims**

1. A security package for holding and displaying a rectangular-shaped article comprising:
a housing having a rectangularly shaped storage compartment for selectively storing the article, said compartment having an access opening for inserting and removing the article into and out of said compartment;
a lock compartment formed adjacent the storage compartment;
a lock plate movably mountable with respect to the lock compartment and selectively movable across at least a portion of the access opening of the storage compartment between

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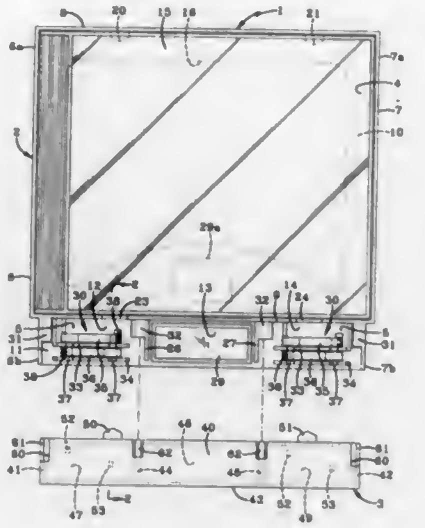


locked and unlocked positions, for releasably securing said article in said storage compartment; and

magnetically releasable lock means within said lock compartment and operatively engageable with the lock plate for selectively securing the lock plate in the locked position and releasing the lock plate from said locked position when a magnetic field is proximate the magnetically releasable lock means.

12. A security package for holding and displaying a jewel case which selectively holds and displays a compact disc comprising:

a base having a storage compartment formed by a pair of spaced apart parallel end walls, a pair of spaced apart parallel side walls and a bottom wall, and having an access opening opposite of the bottom wall for placing and removing said jewel case into and from said storage compartment where said compartment is sized and configured generally equal to that of the jewel case being contained therein;

a lock compartment formed adjacent to said storage compartment, said lock compartment formed by one of said end walls, a pair of spaced apart parallel side walls, and a bottom wall;

a lock plate slidably mountable on the lock compartment and selectively movable across at least a portion of the access opening of the storage compartment between locked and unlocked positions, for releasably securing said compact disc in said storage compartment, and said lock plate including at least one lock plate movement inhibitor; and

a pair of spaced apart magnetically releasable locking mechanisms within said lock compartment, each of said magnetically releasable locking mechanisms for releasing the lock plate from the locked position by magnetically unlocking the locking mechanism from said lock plate movement inhibitor.

20. A security system for selectively holding and displaying a jewel case with a compact disc therein comprising:

a security package having a housing formed with a rectangularly shaped storage compartment for selectively storing the jewel case, said jewel case being formed with at least one aperture in a wall thereof and the compartment having an access opening for inserting and removing the jewel case into and out of said compartment;

a lock compartment formed adjacent the storage compartment;

a lock plate movably mountable with respect to the lock compartment and selectively movable between locked and unlocked positions;

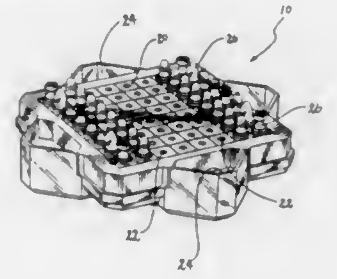
magnetically releasable lock means within said lock compartment and operatively engageable with the lock plate for selectively securing the lock plate in the locked position and for releasing the lock plate from said locked position when a magnetic field is proximate the magnetically releasable lock means; and

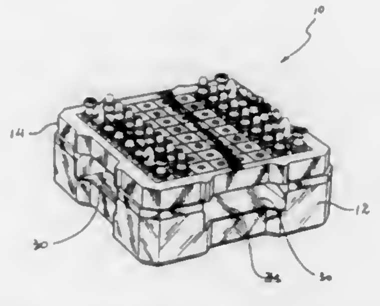
at least one tab formed on the lock plate and selectively movable into the jewel case aperture when the lock plate is in the locked position for retaining said jewel case in the storage compartment.

5,782,351
CONTAINER

Philip LeRoy Shoptaugh, 5860 Buena Vista Ave., Oakland, Calif. 94618

Filed Dec. 5, 1996, Ser. No. 759,570
Int. Cl.^{6} B65D *85/20*
U.S. Cl. 206—315.1 **22 Claims**





1. A container comprising a first member releasably engageable with a second member having an upper surface, wherein the first member is engageable with the second member in a first position in which the first member is supported on the second member and collectively from a substantially enclosed container, wherein the first member is engageable with the second member in a second position in which the second member is supported on the first member whereby at least one exposed storage area is formed between both the first member and the second member, wherein the exposed storage area is formed among at least part of a cover member of the first member, at least part of a wall member of the first member, and at least part of a wall member of the second member, and wherein when the first member is engaged with the second member in the second position, at least part of the wall member of the first member intersects at least part of the wall member of the second member at an angle selected from a group consisting of an obtuse angle and an acute angle.

5,782,352
CASE FOR ENCASING DISC CARTRIDGE THEREIN

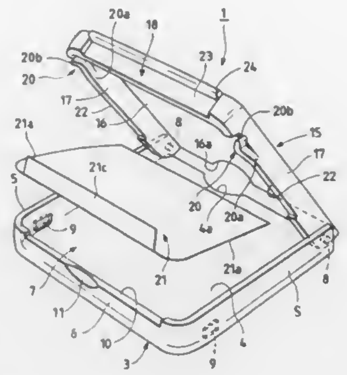
Yutaka Senda, Tokyo, Japan, assignor to Fuji Photo Film Co., Ltd., Japan

Filed Feb. 21, 1997, Ser. No. 804,423
Claims priority, application Japan, Feb. 23, 1996, 8-036637
Int. Cl.^{6} B65D *85/57*
U.S. Cl. 206—308.3 **4 Claims**

1. An encasing structure comprising:

a disc cartridge to be encased;

a box-shaped body having a space for receiving the disc cartridge therein and an inlet opening which is disposed at a front end thereof and is in communication with said space for introducing said disc cartridge into said space, said box-shaped body comprising a main case body and a closure member which is enabled to open and close relative to said main case body; and

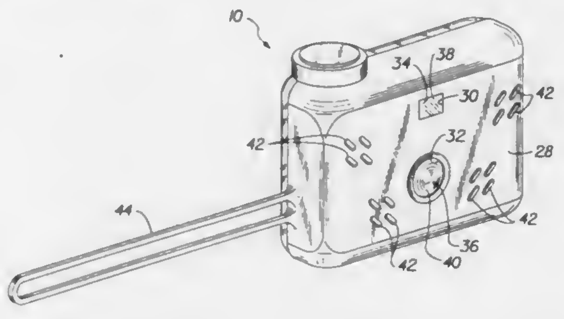


an index sheet disposable in said space, wherein part of the index sheet is fixedly interposable between a rear wall portion of said closure member and a rear wall portion of said main case body by closing said closure member relative to said main case body.

5,782,353
CAMERA CASING INTEGRATED WITH CARRY-STRAP

David Barclay, Bergen; James G. Rydelek, Henrietta, both of N.Y., and Albert E. Rieger, Unterboehringen, Germany, assignors to Eastman Kodak Company, Rochester, N.Y.

Filed Mar. 13, 1997, Ser. No. 816,974
Int. Cl.^{6} G03B *17/08*
U.S. Cl. 206—316.2 **7 Claims**



1. A camera casing provided with a flexible carry-strap which is secured to said camera casing to permit said carry-strap to extend as loop from the camera casing, is characterized in that:

an exterior elasticized overlay is arranged immovably on said camera casing to serve as a ready hand grip for the camera casing, has respective openings for a camera taking lens and a camera viewfinder, and is integral with said carry-strap to make the carry strap similarly elasticized.

3. A camera casing provided with a flexible carry-strap which is secured to said camera casing to permit said carry-strap to extend as loop from the camera casing, is characterized in that:

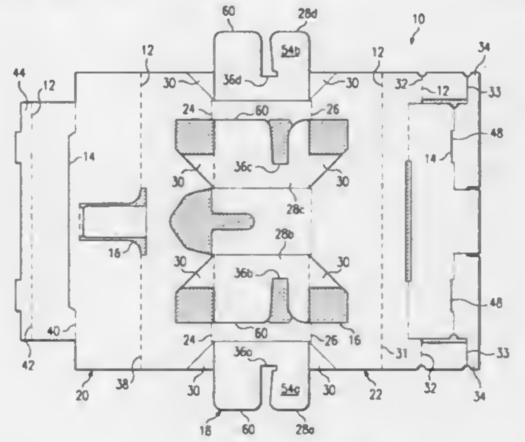
an exterior elasticized overlay is arranged on said camera casing to serve as a ready hand grip for the camera casing and is integral with said carry-strap to make the carry strap similarly elasticized; and

said carry-strap has mutual engagement means at respective locations relative close to and far from said camera casing for engaging one another to secure the carry-strap in said loop.

5,782,354
CORRUGATED END CAP FOR ELECTRICAL PRODUCTS

Pete Genix, Austin, Tex., assignor to Dell Computer Corporation, Round Rock, Tex.

Filed Jun. 9, 1997, Ser. No. 871,189
Int. Cl.^{6} B65D *81/127*
U.S. Cl. 206—320 **16 Claims**



1. A corrugated end cap for packaged products comprising:

a corrugated member including perforations, scores and cutouts, the corrugated member having flat bearing surfaces and a center section positioned between a first rollover shoulder section spaced apart from a second rollover shoulder section;

a first fold line formed between the center section and the first rollover shoulder section,

a second fold line formed between the center section and the second rollover shoulder section:

a plurality of spaced apart ribs formed in the center section;

said corrugated member being foldable at the first and second fold lines to extend the spaced apart ribs and the spaced apart pair of rollover shoulder sections;

a first one of the rollover shoulder sections including a tab and being on a first side of the ribs and second one of the rollover shoulder sections including a slit and being on a second side of the ribs, the first and second rollover shoulder sections each having multiple folds formed therein;

the rollover shoulder sections being foldable at their respective multiple folds to interlock the tab and the slit and engage with the extended ribs for forming an end cap including an open ended cavity for engaging a portion of an electrical product; and

the cavity being defined by the flat bearing surfaces including opposed side walls and a base wall formed by portions of the rollover shoulder sections and including opposed end walls formed by two of the ribs for engagement with the product, the bearing surfaces of the two ribs each having an opening formed therein, and one of the portions of the rollover shoulder sections extending through the open end of the cavity.

9. A die-cut corrugated end cap for packaged electrical products comprising:

a corrugated member including perforations, scores and cutouts, the corrugated member having planar bearing surfaces, said corrugated member having a center section positioned between a fist rollover shoulder section spaced apart from a second rollover shoulder section;

a first fold line formed between the center section and the first rollover shoulder section;

a second fold line formed between the center section and the second rollover shoulder section,

a plurality of spaced apart ribs formed in the center section,

said corrugated member being foldable at the first and second fold lines to extend the spaced apart ribs having grooves formed therein and the spaced apart pair of rollover shoulder sections;

a first one of the rollover shoulder sections including a tab and being on a first side of the ribs and a second one of the

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rollover shoulder sections including a slit and being on a second side of the ribs, the first and second rollover shoulder sections each having multiple folds formed therein;

the rollover shoulder sections being foldable at their respective multiple folds to interlock the tab and the slit and engage with the grooves formed in the extended ribs for forming an end cap including an open ended cavity for engaging a portion of an electrical product; and

the cavity being defined by the planar bearing surfaces including opposed side walls and a base wall formed by portions of said rollover shoulder sections and including opposed end walls formed by two of the ribs for engagement with the product, the bearing surfaces of the two ribs each having an opening formed therein by the grooves, and one of the portions of the rollover shoulder sections extending through the open ended cavity.

14. A method of forming a corrugated end cap for packaging electrical products comprising the steps of:

perforating, scoring and cutting a corrugated member having first and second fold lines, planar bearing surfaces and a center section positioned between a first rollover shoulder section having multiple folds and a tab spaced apart from a second rollover shoulder section having multiple folds and a slit;

folding said corrugated member along the first fold line between the center section and the first rollover shoulder section and along the second fold line between the center section and the second rollover shoulder section for extending a plurality of spaced apart ribs, each including a groove formed therein, from the center section; and

folding the rollover shoulder sections at their respective multiple folds to interlock the tab and the slit and engage with the extended ribs for forming an end cap including an open ended cavity for engaging a portion of an electrical product, so that said cavity is defined by the bearing surfaces including spaced apart end walls formed by at least two of the ribs and spaced apart side walls and a base formed by portions of the rollover shoulder sections for engagement with the product, one of the portions of the rollover shoulder sections extending through the open ended cavity.

5,782,355
CASSETTE CASE

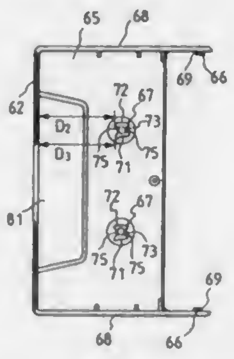
Shingo Katagiri, and Teruo Ashikawa, both of Kanagawa, Japan, assignors to Fuji Photo Film Co., Ltd., Kanagawa, Japan

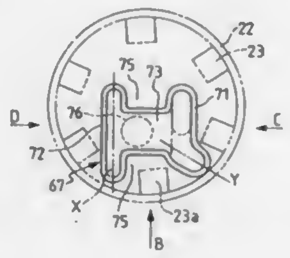
Continuation of Ser. No. 521,648, Aug. 31, 1995, abandoned. This application Nov. 12, 1997, Ser. No. 967,822

Claims priority, application Japan, Sep. 30, 1994, 6-237781

Int. Cl.⁶ B65D *85/30*

U.S. Cl. 206—387.1 **12 Claims**





1. A case for encasing a cassette therein, said case comprising: a cover section comprising a cover wall facing one side of a magnetic tape cassette housed in said case and a pocket section formed at one end of said cover wall for receiving one end of said magnetic tape cassette, and a casing section comprising a projection formed on a casing wall facing said cover wall, said projection being positioned to enter a hub of said magnetic tape cassette to thereby engage to a hub pawl for preventing said hub from rotating, said casing section being pivotably secured to said cover section so that said casing section is capable of opening and closing relative to said casing section, said projection comprising two plate-like portions cooperating to provide a space into which said hub pawl is received when said projection enters said hub, at least one of said plate-like portions being formed with an inclined portion which directs a force in a direction to cause said hub to rotate, said force being exerted on said hub pawl by said one of said plate-like portions when said one of said plate-like portions comes into contact with said hub pawl when closing said cover section to said casing section wherein said one of said plate-like portions extends in a direction in which said magnetic cassette tape is received into said pocket section, and the other of said plate-like portions has an edge portion extending at an angle to said first direction and further having an inclination relative to a surface of said casing wall.

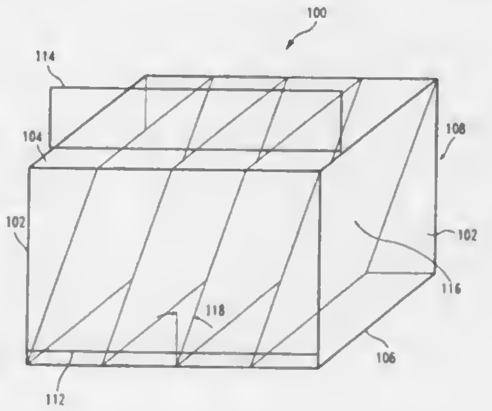
5,782,356
CONTAINER FOR STORING AND TRANSPORTING FRAGILE OBJECTS

Joshua S. Hugg, Wappingers Falls, N.Y., assignor to International Business Machines Corporation, Armonk, N.Y.

Filed Apr. 30, 1996, Ser. No. 641,378

Int. Cl.⁶ B65D *85/30*

U.S. Cl. 206—454 **16 Claims**



1. A container for storing and transporting fragile objects, comprising:

at least one fragile object;

a pair of side walls, a top wall, a bottom wall, and a back wall, forming a box with one open side;

a plurality of spaced apart partitions between the side walls for separating the objects,

wherein the angle of the partitions is such that the following conditions are satisfied:

$x_g < X_0$

$x'_g > x_0$

where

x_g=calculated or measured x component of the center of gravity for the object, assuming the direction of tilt is perpendicular to the x-y plane;

X'_g=relative x position of x_g upon tilting the object;

x_0=measured width of object, assuming the direction of tilt is perpendicular to the y-z plane, also the pivot point around which the object is tilted;

and

means to maintain the objects in an angled orientation during storage and transport so that the objects rest against the partitions and do not easily move.

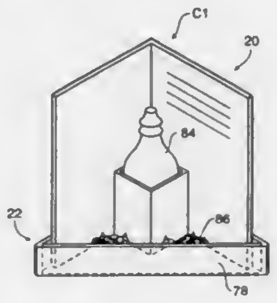
5,782,357
GREETING CARD AND RETAINING TRAY ASSEMBLY

Keith D. Johnson, 10217 1st Ave., Inglewood, Calif. 90303

Continuation-in-part of Ser. No. 364,122, Dec. 27, 1994, Pat. No. 5,595,008, which is a continuation-in-part of Ser. No. 235,451, Apr. 29, 1994, Pat. No. 5,435,085. This application Jan. 21, 1997, Ser. No. 785,885

Int. Cl.⁶ B65D *73/00*

U.S. Cl. 206—461 **29 Claims**



1. A combination of a greeting card device which presents a greeting message and provides for retention of a gift item in relationship to the greeting card device and a retaining tray for holding the greeting card device in an upright position, said combination comprising:

a) a greeting card device comprised of a pair of panels hingedly connected to one another and which are capable of having inner surfaces facewise disposed against one another and separated so that the panels are angularly located relative to one another;

b) a message on at least one of the panels for presenting a greeting message to the recipient of the greeting card device;

c) pocket forming means located between the two panels for opening to form a gift item receiving pocket with an open upper end upon placing the panels in an angular relationship relative to one another and which pocket is sized to receive a gift item and where the gift item can be inserted into said pocket through an open upper end;

d) a tray having a card receiving space for receiving a lower end of the card device to thereby hold the card device in an upright position when the panels are separated and angularly located relative to one another; and

d) said tray generally snugly engaging the panels of the greeting card, said tray having a bottom wall and an enclosing side wall, said side wall being shaped and sized to hold the panels both in an upright position and in a generally open position when the panels are separated, so that the tray and greeting card device are effective in holding a gift item in said pocket in a generally upright position and thus allowing the greeting card and tray combination to be permanently retained and also retaining the gift item in an upright position.

5,782,358
CONTAINER

Kenneth C. Walker, 116 Westwood La., Richmond Hill Ontario, Canada, L4C 6Y3

Filed Mar. 30, 1995, Ser. No. 413,320

Int. Cl.⁶ B65D *77/00*

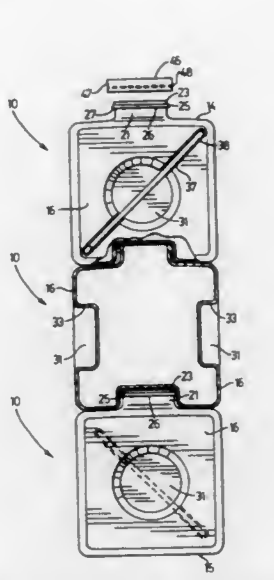
U.S. Cl. 206—509 **10 Claims**

1. A cubic plastic container having a top, a bottom, and four sides, comprising:

a cylindrical neck formed centrally in the top, the neck defining a mouth for the container, the mouth having a circular rim from which extends a collar having a lower edge spaced outwardly from the neck;

the bottom and two opposing sides each have a circular recess formed centrally therein, the recess having a cylindrical sidewall and being sized to snuggly, but releasably, receive the neck of another such container so that the two containers are coupled by the engagement of the collar of one container with the sidewall of the recess of the other container; and

an elongate groove in a side having a circular recess, the groove intersecting the recess and being sized to releasably store a straw.



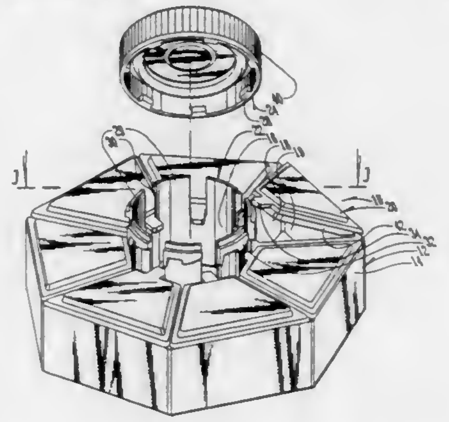
5,782,359
CHILD PROOF PILL CONTAINER

Angel F. McAllister, and Steven R. McAllister, both of 231 N. East St., Manly, Iowa 50456

Filed Apr. 4, 1997, Ser. No. 833,358

Int. Cl.⁶ B65D *83/04*

U.S. Cl. 206—538 **20 Claims**



1. An apparatus for storing medication which comprises:

a container having a base, an outer wall, an inner wall, and divider parts which extend out from the inner wall to the outer wall separating space into a plurality of compartments, enclosures which fit over the top of each compartment, a threading cylinder which extends upward from the inner wall of the container, and a lid which is detachable from the threading cylinder.

5,782,360
CUBIC DISPLAY DEVICE

Richard Markson, Goshen, N.Y., assignor to Markson Rosenthal & Company, Englewood Cliffs, N.J.

Filed Mar. 7, 1997, Ser. No. 813,604

Int. Cl.⁶ B65D *19/00*

U.S. Cl. 206—600 **14 Claims**

1. A display unit for protectively storing and presenting pallet-loaded products for manual removal therefrom, comprising:

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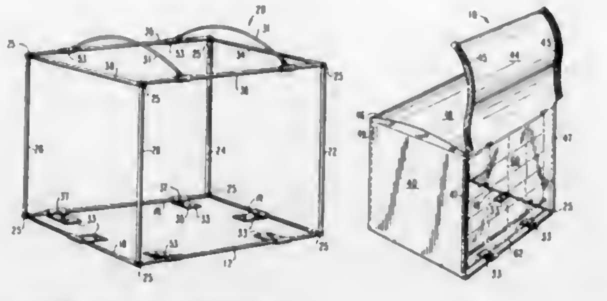


a frame assembly including;
- a rectangular base frame formed of successively interconnected first, second, third and fourth horizontal rods,
- said first and third rods defining the front and rear sides of said base frame, and
- said second and fourth rods defining the right and left sides of said base frame,
- first, second, third and fourth vertical rods extending upwardly from said base frame, with said first vertical rod connected to and extending upwardly from the juncture of said first and second horizontal rods, said second vertical rod connected to and extending upwardly from the juncture of said second and third horizontal rods, said third vertical rod connected to and extending upwardly from the juncture of said third and fourth horizontal rods, and said fourth vertical rod connected and extending upwardly from the juncture of said first and fourth horizontal rods and,
- a rectangular top frame connected to the vertically upwards ends of said vertical rods and formed of successively interconnected and horizontally disposed first, second, third and fourth top rods, said top frame overlying and generally corresponding to the shape of said base and spaced therefrom by the extent of said vertical rods,
- a front wall extending between said first bottom rod, first and fourth vertical rods and first top rod,
- a right side wall connected to, and extending between, said second bottom rod, first and second vertical rods and second top rod,
- a rear wall connected to and extending between said third bottom rod, second and third vertical rods and third top rod,
- a left side wall connected to and extending between said fourth bottom rod, third and fourth vertical rods and fourth top rod,
- a top wall extending between and connected to said first, second, third and fourth top rods, and
- said right, rear, left, top and front walls enclosing a generally rectangular internal volume open at its base, and adapted to receive a plurality of units of products to be dispensed from a pallet support;
- said front wall including releasable closure means for selectively opening or closing said front wall, with the products to be dispensed being accessible for insertion or manual removal while the front wall is open; and
- a plurality of anchor plates secured to spaced locations of the horizontal rods forming said base frame and extending inwardly into the internal volume defined by the frame assembly to be positioned below a pallet supporting the products being dispensed, whereby the weight of the pallet-supported products, as transmitted to the anchor plates, retains the display unit in place on a ground support.

5,782,361
THIN-PLATE SUPPORTING CONTAINER

Takeyoshi Kakizaki, and Yukihiro Hyobu, both of Tokyo, Japan, assignors to Kakizaki Manufacturing Co., Ltd., Japan

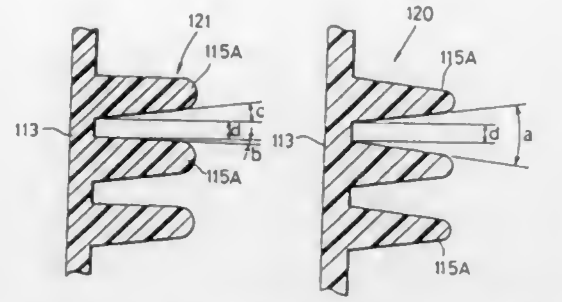
Filed Feb. 12, 1996, Ser. No. 599,928

Claims priority, application Japan, Jun. 26, 1995, 7-159136; Jul. 7, 1995, 7-006915 U; Aug. 18, 1995, 7-210552; Aug. 18, 1995, 7-210553

Int. Cl.^{6} B65D *85/48*

U.S. Cl. 206—711 **2 Claims**

1. A thin-plate supporting container comprising:



a casing having first and second opposed side walls, an open end serving as an inlet/outlet port, through which thin plates are loaded and unloaded from the container, and a rear end; and

first and second pluralities of spaced parallel ribs extending along interior surfaces of said first and second opposed side walls, respectively, the ribs of said first plurality being aligned with corresponding ribs of said second plurality, along a line perpendicular to said opposed side walls, to define plural stages for holding the thin plates, each of said ribs defining longitudinally extending upper and lower surfaces along the respective sidewalls, the upper surface of each rib having a longitudinal length divided into an inlet portion adjacent said open end and a plate support portion extending from said inlet portion toward said rear end, said inlet portion and said plate support portion being inclined downward with respect to said perpendicular line from the respective sidewall to define first and second angles of transverse inclination on said respective inlet and plate support portions, said first angle of transverse inclination being larger than said second angle of transverse inclination to facilitate the loading and unloading of the thin plates and said second angle of transverse inclination providing point-contact or line-contact between upper surfaces of plate support portions of aligned ribs and thin plates resting horizontally thereon.

5,782,362
WAFER CASSETTE IN WAFER CARRIER

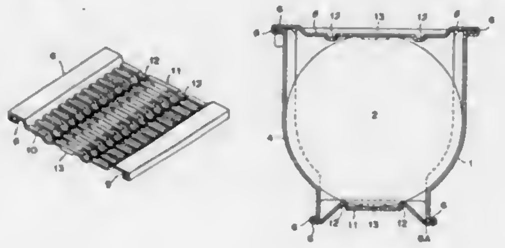
Shinichi Ohori, Niigata-ken, Japan, assignor to Shin-Etsu Polymer Co., Ltd., and Shin-Etsu Handotai Co., Ltd., both of Tokyo, Japan

Filed Oct. 11, 1996, Ser. No. 729,978

Claims priority, application Japan, Oct. 12, 1995, 7-289158

Int. Cl.^{6} B65D *85/46*

U.S. Cl. 206—711 **20 Claims**



1. A wafer carrier comprising:

a cassette having
- an upper opening,
- a lower opening,
- a first side wall having, on an inner surface thereof, a first plurality of parallel alignment grooves,
- a second side wall, opposite to said first side wall, having, on an inner surface thereof, a second plurality of parallel alignment grooves;

an upper presser plate, covering said upper opening of said cassette, and having
- a first upper engageable part attached to an upper portion of said first side wall of said cassette,

- a second upper engageable part, opposite to said first upper engageable part, and attached to an upper portion of said second side wall of said cassette, and
- a plurality of upper parallel elastic plates extending between said first upper engageable part and said second upper engageable part and each of said upper parallel elastic plates including a protrusion having a groove which forms a plate center line; and

a lower presser plate, covering said lower opening of said cassette, and having
- a first lower engageable part attached to a lower portion of said first side wall of said cassette,
- a second lower engageable part, opposite to said first lower engageable part, and attached to a lower portion of said second side wall of said cassette, and
- a plurality of lower parallel elastic plates extending between said first lower engageable part and said second lower engageable part and each of said lower parallel elastic plates including a protrusion having a groove which forms a plate center line.

5,782,363
METHOD OF CONDUCTING FLUIDIZED-BED FIRING WITH OPEN-PASS ASH OBTAINED FROM A COAL-FIRING PLANT OR THE LIKE

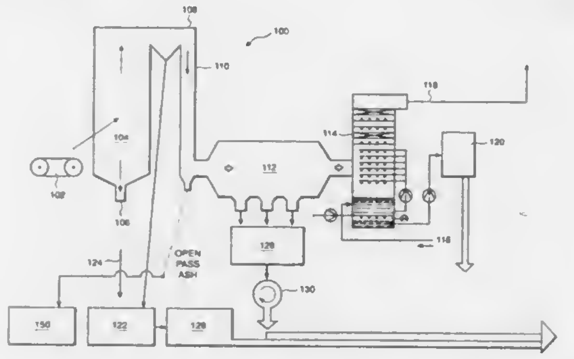
Günther Kirchen, Wurselen, Germany, assignor to SICOWA Verfahrenstechnik fur . . . Co. KG, Aachen, and ProMineral Gesellschaft zur . . . mbH, Bergheim, both of Germany

Filed Oct. 17, 1996, Ser. No. 733,701

Claims priority, application Germany, Oct. 18, 1995, 195 38 711.2

Int. Cl.^{6} B03B *9/00*

U.S. Cl. 209—2 **10 Claims**



1. A method of conducting fluidized-bed firing with open-pass ash obtained from a coal-firing plant or the like, said method comprising the steps of:
- separating open-pass ash from at least one coal-firing plant or lignite-firing plant and conveying the separated open-pass ash to a fluidized bed of a fluidized-bed firing system; and
- introducing the separated open-pass ash into the fluidized bed as bed sand.

5,782,364
DEVICE FOR SEPARATING A MIXTURE OF OBJECTS

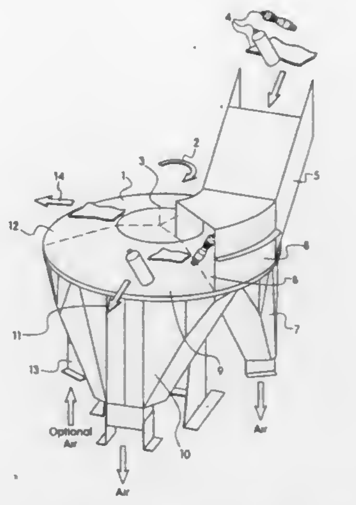
Heimo Macenka, Gleisdorf, Austria, assignor to Binder + Co. Aktiengesellschaft, Gleisdorf, Austria

Filed Nov. 30, 1995, Ser. No. 565,680

Claims priority, application Austria, Dec. 27, 1994, 2413/94

Int. Cl.^{6} B07C *5/00*

U.S. Cl. 209—643 **9 Claims**



1. Device for separating a mixture of two-dimensional objects and three-dimensional objects, with a conveying device comprising at least one air-permeable conveying carrier having an upper side, a plane tangentially contacting the upper side of the conveying carrier defining a line of intersection with a plane extending perpendicularly to the conveying direction, the line of intersection forming an angle with the horizontal, a feeding device for feeding a stream of the objects to be separated to the conveying device substantially in one layer, a casing connected to a source of underpressure for drawing in air through the air-permeable conveying carrier and arranged below the conveying carrier in an area following the feeding device in the conveying direction, the casing having edges substantially sealed to a bottom side of the conveying carrier.

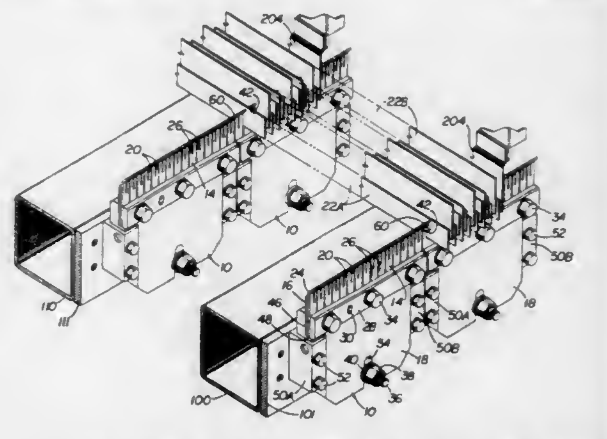
5,782,365
BLADE GUIDE FOR A BLADE SCREEN

Peter J. Zreloff, Alpharetta; Alexander D. Cormack, Marietta, and Bengt A. Nilsson, Atlanta, all of Ga., assignors to BMH Wood Technology, Inc., Atlanta, Ga.

Filed Oct. 3, 1995, Ser. No. 538,707

Int. Cl.^{6} B07B *1/49*

U.S. Cl. 209—674 **20 Claims**



1. A blade guide for use in a dual-frame wood chip sorter comprising a first and second frame, each frame having a front frame member, an opposite rear frame member, two opposed side frame members, a plurality of longitudinally extending blades, and at least one longitudinally extending support member disposed below the blades, intermediate the two side frame members, and being connected to the front and rear frame members and having a top surface, comprising:

a) a plurality of elongated fingers, each finger having a bottom end, an opposite top end, two opposing edges, and a slot therethrough intermediate the two edges of the finger, the slot being of a size to receive therein one of the blades;

b) at least two first frame mounting plates, each first frame mounting plate having a lower end fixedly attached to the top surface of the support member of the first frame and an

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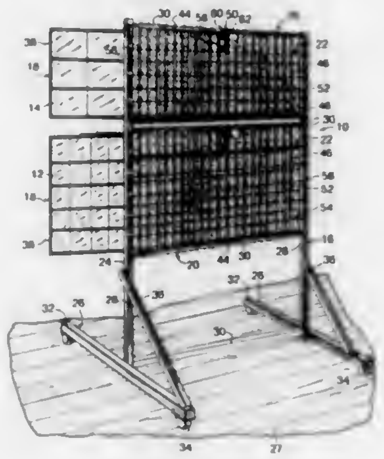
opposite upper end fixedly attached to the bottom end of at least two fingers, wherein each of the attached fingers has a blade of the first frame disposed through its slot, wherein at least one blade of the first frame is disposed intermediate adjacent fingers attached to each first frame mounting plate, each finger that has one of those intermediate blades of the first frame disposed through its slot being attached to another first frame mounting plate that is longitudinally separated within the first frame from the other first frame mounting plate by a predetermined distance; and

c) at least two second frame mounting plates, each second frame mounting plate having a lower end fixedly attached to the top surface of the support member of the second frame and an opposite upper end fixedly attached to the bottom end of at least two fingers, wherein each of the attached fingers has a blade of the second frame disposed through its slot, wherein at least one blade of the second frame is disposed intermediate adjacent fingers attached to each second frame mounting plate, each finger that has one of those intermediate blades of the second frame disposed through its slot being attached to another second frame mounting plate that is longitudinally separated within the second frame from the other second frame mounting plate by a predetermined distance.

5,782,366
DISPLAY RACK FOR CASSETTE TAPES AND COMPACT DISCS

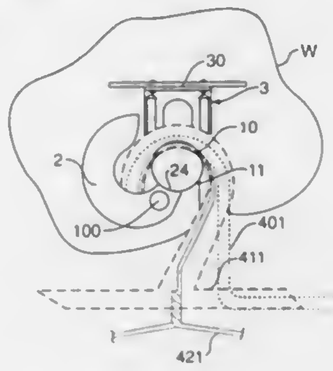
Fernando Garza, Jr., 3600 W. 26th St., Chicago, Ill. 60623
Filed Dec. 2, 1996, Ser. No. 759,056
Int. Cl.⁶ A47G *19/08*
U.S. Cl. 211—41.12 **15 Claims**



1. A display rack for cassette tapes and compact discs comprising:
- a) a support structure having a rectangular framework and means for maintaining said rectangular framework in an upright position on the floor, said rectangular framework having:
  - i) a pair of spaced apart vertical side members; and
  - ii) a plurality of spaced apart horizontal cross members extending between and attached at opposite ends to said vertical side members;
- b) a plurality of holders, each said holder capable of receiving vertically a plurality of the cassette tapes/compact discs;
- c) means for pivotally mounting said holders vertically in side by side relationships to said support structure, so that the front and backs of the cassette tapes/compact discs can be viewed; and
- d) means for preventing unauthorized removal of the cassette tapes/compact discs from said holders, said unauthorized removal preventing means including a plurality of gates and means for attaching each said gate in a removable manner to a rear surface of said framework, so that the cassette tapes/compact discs will be maintained within said holder.

5,782,367
DEVICE FOR HOLDING COATHANGERS IN AN ITEM OF LUGGAGE AND ITEM OF LUGGAGE EQUIPPED WITH SUCH A DEVICE

Michel Aumasson, Rueil Malmaison, France, assignor to Delsey, France
Filed Mar. 19, 1996, Ser. No. 616,909
Claims priority, application France, Mar. 20, 1995, 95 03188
Int. Cl.⁶ A47F *7/24*
U.S. Cl. 211—124 **11 Claims**

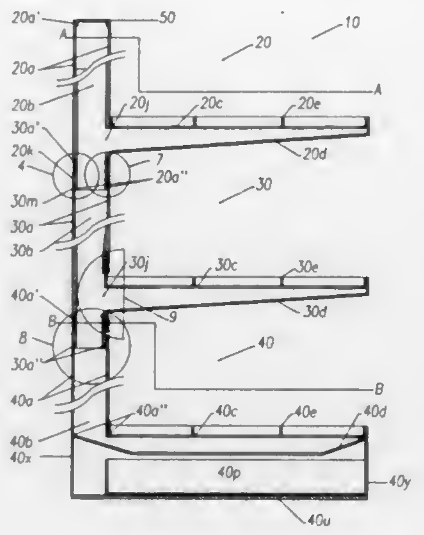


1. A device for holding coathangers in an item of luggage, the device comprising:
- a support adapted for attachment to a wall of the item of luggage;
- a peg extending along a peg axis, the peg having a first end attached to the support, a second end axially spaced from the first end, and a shank defining the peg's surface between the first and second ends; and
- a cover pivotally attached to the support for movement about a cover axis between an open position permitting coathanger hooks to be placed on and removed from the peg and a closed position substantially covering the peg and coathanger hooks thereon, the cover in the closed position cooperating with the peg to define a space enclosing the coathanger hooks, the cover axis being parallel to the peg axis and radially spaced from the shank.

5,782,368
RACK FOR RECEIVING OBJECTS DELIVERING LIQUIDS AND DIRTS

Gaétan Roberge, 57 Des Pinsons, St-Basile Le Grand, Qc, Canada, J3N 1L1
Filed Oct. 4, 1996, Ser. No. 727,702
Int. Cl.⁶ A47B *43/00*
U.S. Cl. 211—194 **14 Claims**

1. A rack for receiving objects delivering liquids and dirts, comprising:
- a stackable module,
- said stackable module having:
- two longitudinal walls, said two longitudinal walls being spaced one from the other and facing one another,
- and bridging lateral walls across said two longitudinal walls whereby said longitudinal walls cooperate with said lateral walls to define at least one substantially vertical passage,
- said longitudinal and said lateral walls defining at least one vertical passage, having opposite ends,
- a tray outwardly projected from one of said two longitudinal walls, between said opposite ends of said walls defining at least one vertical passage.

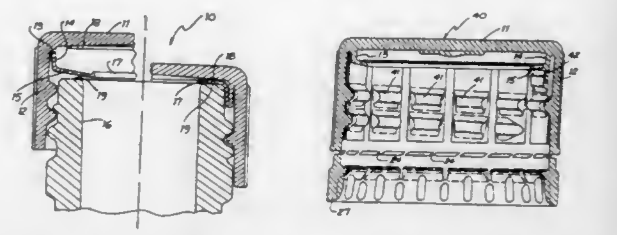


- said tray having an inclined bottom, for said bottom to direct liquids and dirts towards said one of said two longitudinal walls,
- and a perforated plate for receiving objects delivering liquids and dirts, supported by said tray, over said inclined bottom of said tray,
- said perforated plate being substantially horizontal,
- a way to exit said liquids with dirts from said inclined bottom of said tray adjacent to said one of said two longitudinal walls defining at least one substantially vertical passage, through said one of said two longitudinal walls, and between said opposite ends of said walls, and into said at least one vertical passage, for said liquids and dirts to be displaced from said tray through said one of said two longitudinal walls and to fall through said at least one vertical passage,
- said stackable module having a substantially T-shaped cross-section, said T-shaped cross-section having a top, a bottom and a central portion running from said top to said bottom;
- said bridging lateral walls with said two longitudinal walls thus defining the top of said substantially T-shaped cross-section of said stackable module,
- and said tray with said perforated plate defining the central portion running from the bottom to the top of said substantially T-shaped cross-section of said stackable module,
- and said walls defining at least one vertical passage, defining a coupling, at at least one of said opposite ends, for said walls defining at least one vertical passage, to enable bridging at said coupling with another module having substantially similar walls defining at least one vertical passage, at said other of said opposite ends of said walls defining at least one vertical passage of said other module, and thereby said modules being stackable via said longitudinal and said lateral walls defining at least one vertical passage, having opposite ends.

5,782,369
LINERLESS CLOSURE FOR CONTAINER

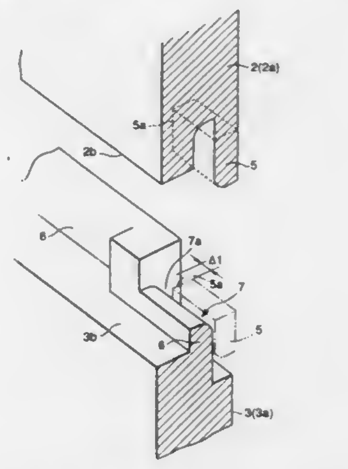
Charles Martin Tansey, 29 Laycock Road, Penshurst, N.S.W. 2222, Australia
PCT No. PCT/AU94/00486, § 371 Date Feb. 15, 1996, § 102(e) Date Feb. 15, 1996, PCT Pub. No. WO95/05321, PCT Pub. Date Feb. 23, 1995
PCT Filed Aug. 19, 1994, Ser. No. 602,754
Claims priority, application Australia, Aug. 19, 1993, PM0705; Mar. 25, 1994, PM4717
Int. Cl.⁶ B65D *41/34;53/00*
U.S. Cl. 215—344 **13 Claims**

1. A closure for a neck of a container, the closure being molded from a resilient synthetic plastic material and comprising a top and a skirt depending from an underside of the top, which skirt has an internal surface with a means for attachment with the neck of the container, and an annular sealing rib projecting downwardly from the underside of the top of the closure, the rib including a first portion having a substantially cylindrical inner surface, the first portion being contiguous with the top and lying adjacent to the skirt and a second, frusto-conical, portion contiguous with an end of the first portion distal to the top, having an upper surface, and extending radially inwardly to terminate in a circular free edge, the first portion having an internal diameter suitable for receiving the external diameter of the neck of the container to which the closure is to be attached such that during attachment of the closure with the neck, the second, frusto-conical, portion of the rib will be engaged by a free end of the neck and folded back towards the substantially cylindrical inner surface of the first portion of the rib to form a gas-tight seal between at least an outer surface of the neck of the container and the closure, the closure being characterized in that there is a first annular ridge formed on the upper surface of the second portion of the sealing rib and proximate the free edge of the second portion, a second annular ridge formed on the underside of the top of the closure and positioned inwardly and adjacent the first portion of the annular sealing rib, the first and second annular ridges being so arranged that during attachment of the closure with the neck, the first annular ridge engages with the underside of the top of the closure, the second annular ridge engages with the upper surface of the second portion of the rib adjacent and outside the first annular ridge, and the first and second annular ridges interlock with each other thereby holding the surface of the rib touching the underside the closure stationary and causing the second portion of the sealing rib to be disposed over a greater area of the underside of the top as well as the outer surface of the neck of the container.



5,782,370
CASING CAPABLE OF PROTECTING AN ELECTRONIC APPARATUS FROM STATIC ELECTRICITY

Shinichi Kamiya, Shizuoka, Japan, assignor to NEC Corporation, Tokyo, Japan
Filed Aug. 8, 1997, Ser. No. 908,987
Claims priority, application Japan, Aug. 8, 1996, 8-210279
Int. Cl.⁶ B65D *6/28*
U.S. Cl. 220—4.02 **5 Claims**



1. A casing for an electronic apparatus comprising:
- a first casing part formed with a plurality of first hooks spaced from each other, and a plurality of ribs each intervening between nearby ones of said plurality of first hooks;

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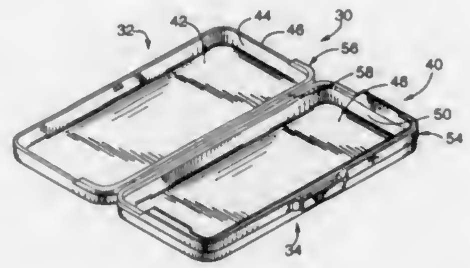
a second casing part formed with a plurality of second hooks spaced from each other and engageable with said plurality of first hooks, and a plurality of recesses each intervening between nearby ones of said plurality of second hooks and engageable with said plurality of ribs; and

a plurality of ridges each being formed in a respective one of said plurality of recesses, and located to face a respective one of said plurality of ribs in a widthwise direction of side walls of said first and second casing parts for blocking a clearance between an end face of the respective rib and an end face of the respective recess facing each other.

5,782,371
METAL CONTAINER HAVING RESILIENT HINGED CONNECTOR

Philip M. Baerenwald, Rockton; David K. Bried, Loves Park; Alfred L. Gray, Belvidere; George Solowiejko, and Gary D. Johnson, both of Rockford, all of Ill., assignors to J. L. Clark, Rockford, Ill.

Filed Mar. 5, 1997, Ser. No. 810,871
Int. Cl.^{6} B65D *6/00*
U.S. Cl. 220—4.22 **29 Claims**



1. A metal container comprising the combination of: a container lid and a container bottom each having a closed end and a side wall terminated in a formed edge, the formed edges of the container lid and bottom defining a peripheral container shape; and

a resilient connector shaped to match the peripheral container shape and having seats sized to fit the formed edges of the container lid and bottom for forming a closed container, the connector having a ring member, a partial segment, and an integrally formed hinge joining the ring member and the partial segment,

the ring member being substantially continuous about the periphery and having a down-facing seat for engaging the formed edge of the container bottom, and an up-facing seat for engaging fewer than all sides of the formed edge of the container lid, leaving at least one side of the formed edge of the container lid free,

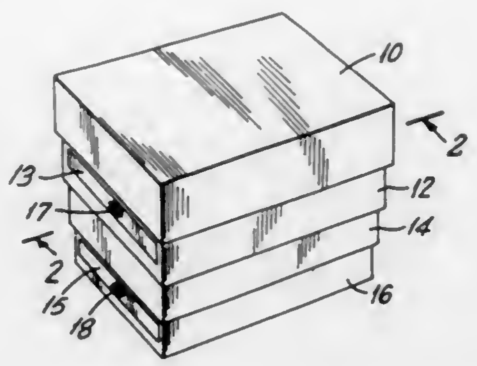
the partial segment having an up-facing seat for securely gripping at least the free side of the formed edge of the container lid,

the hinge being positioned to close the container in a normal condition and allow the container lid to pivot about the hinge to open the container.

5,782,372
COLLAPSIBLE CARRYING CASE

Maria Weiss, 64-39 98th, St. Rego Park, N.Y. 11374, and Eugene C. Rzucidlo, 48 Shaw Rd., Woodcliff Lake, N.J. 07675

Continuation-in-part of Ser. No. 569,361, Dec. 8, 1995, Pat. No. 5,579,940. This application Dec. 2, 1996, Ser. No. 753,776
Int. Cl.^{6} B65D *8/14*
U.S. Cl. 220—8 **15 Claims**

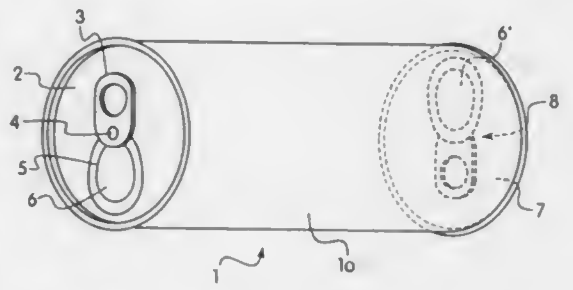


1. A carrying case which can be opened or collapsed comprising at least a first nestable module and a second nestable module, said first module having a bottom portion which has an inward projection, a side portion of said first module having compartment which can be withdrawn from said first module, said second module having a top portion which has an outward projection and a side portion of said second module having a compartment which can be withdrawn from the second module, wherein the outward and inward projections of the first and second modules cooperate as a stop means for controlling the opening of the carrying case, said first and second modules being nestable within one another and being adapted to slidably collapse into one another and slidably open into a position to provide access to the compartments wherein the first module is larger than the second module.

5,782,373
METAL CONTAINER WITH MEANS FOR ALLOWING A RAPID EMPTYING OF THE CONTAINER

Luca Bianchi, Piazza Italia, 9, Lissone MI, Italy, I-20035

Continuation of Ser. No. 446,678, May 31, 1995. This application Dec. 2, 1996, Ser. No. 758,972
Claims priority, application Italy, Oct. 5, 1993, MI930766 U
Int. Cl.^{6} B65D *17/34*
U.S. Cl. 220—269 **1 Claim**



1. A disposable metal beverage can having a cylindrical body with a circular top and an opposite circular bottom comprising:

a first easy-opening tab disposed on the circular top of the can for removing a first portion of small area of said circular top, for creating a first opening of small area;

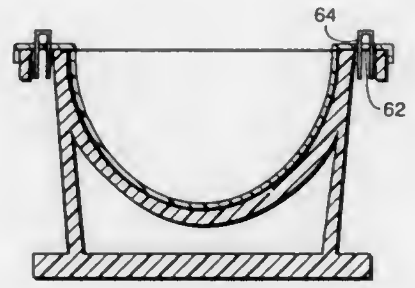
a second easy-opening tab disposed on the circular bottom of the can for removing a second portion of small area of said circular bottom for creating a second opening of small area; and said second opening positioned on the bottom near the edge of said bottom in diametrical opposition to said first opening;

wherein said first tab is opened for distributing the beverage through the first opening by tilting the can to raise the bottom above the top to open said second tab without significant stresses on the can so that air enters the can above the beverage for rapid and regular emptying of the can directly into the mouth of the consumer while avoiding beverage splashing and turbulence within the beverage during pouring, said first and second portions being of such a small area that said first and second openings do not affect the mechanical resistance of the can.

5,782,374
FOOD RECEIVING LINERS FOR ANIMAL FEEDERS

Robert T. Walker, 13027 Blairwood Dr., Studio City, Calif. 91604

Continuation-in-part of Ser. No. 354,428, Dec. 12, 1994, abandoned. This application Jun. 1, 1996, Ser. No. 673,142
Int. Cl.^{6} A01K *5/01;* **B65D** *90/04*
U.S. Cl. 220—404 **10 Claims**



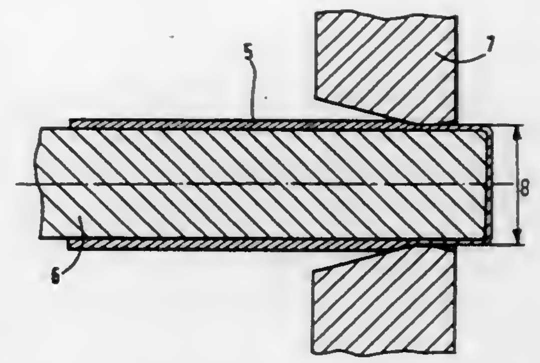
1. A removable and disposable liner for use with an animal feeder of the type having an exterior wall defining an interior cavity for receipt of food or liquid and a rim thereon being sized to fit a large number of different pre-existing animal feeders, said liner comprising:

a) an enclosing continuous side wall sized to fit within the cavity of the animal feeder and snugly engage an inwardly presented continuous wall which defines said cavity;
b) a peripheral exterior flange on said wall of said liner for engagement with the exterior wall of said animal feeder to thereby snugly but nevertheless removably retain said liner on said animal feeder;
c) a rim on said side wall of the liner and being connected to the side wall of the liner and to the peripheral exterior flange and extending therebetween;
d) said liner being formed of a foldable and bendable material which is flexible and relatively crushable and generally non-flaccid and which is also non-toxic to animals using the animal feeder and which is sufficiently thin so as to be crumbled and disposable and easily bent to conform to and fitted to a conventional animal feeder; and
e) an opening in the rim of said liner and being located to communicate with a like opening in the rim of the animal feeder to receive a removable clip sized and shaped to extend through said aligned openings and thereby removably but retentively hold said liner on the animal feeder.

5,782,375
DRAWN AND IRONED CANS OF A METAL-PLASTIC CONSTRUCTION AND THEIR FABRICATION PROCESS

Robert J. McHenry, 2819 Royal Ashdown Ct., St. Chalres, Ill. 60174, and Dominique Petit, Les Cotes, F-38340 Pommiers-La-Placette, France

PCT No. PCT/US94/13922, § 371 Date Oct. 29, 1996, § 102(e) Date Oct. 29, 1996, PCT Pub. No. WO95/15226, PCT Pub. Date Jun. 8, 1995
PCT Filed Nov. 30, 1994, Ser. No. 656,333
Claims priority, application France, Dec. 1, 1993, 93 14619
Int. Cl.^{6} B65D *25/14*
U.S. Cl. 220—450 **32 Claims**

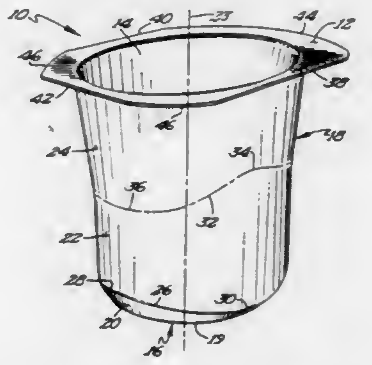


1. A drawn and ironed can body comprising a base and an upstanding sidewall, the base and the sidewall having an M_i-P-M_e type laminar construction, wherein M_i and M_e are inner and outer metal foil layers, respectively, P is a central polymer layer and the ratio of the thicknesses P/M_i and M_e is greater than 0.5, the thickness of the sidewall being thinner than the thickness of the base, and in the base of the can body the thickness of the polymer layer P is between 100 and 500 microns and the thickness of each of the metal layers M_i and M_e is between 25 and 150 microns.

5,782,376
THERMOFORMED PLASTIC CONTAINERS AND THEIR METHOD OF MANUFACTURE

Arne H. Brauner, Minnetonka, and Donald P. Messer, Eden Prairie, both of Minn., assignors to General Mills, Inc., Minneapolis, Minn.

Continuation-in-part of Ser. No. 39,499, May 25, 1995, Pat. No. Des. 369,971. This application Sep. 5, 1995, Ser. No. 523,671
Int. Cl.^{6} B65D *23/00*
U.S. Cl. 220—669 **17 Claims**



1. Container comprising, in combination: a generally planar bottom having a periphery; a first portion inter-connected to the periphery of the bottom and having cross sections of a shape corresponding to the periphery of the bottom, with the first portion formed from a curved planar surface, with the cross sections of the first portion being of an increasing size with increased spacing from the bottom; and a second portion interconnected to the first portion and having cross sections of a shape different than the shape of the cross sections of the first portion, with the second portion formed from a curved planar surface, with the first and second portions being interconnected in a first curved intersection line having varying spacing from the periphery of the bottom.

5,782,377
ARTICLE DISPENSING AND POSITIONING DEVICE

Arnold Fassman, 40 Oak St., Westport, Conn. 06880

Filed Apr. 26, 1996, Ser. No. 639,170
Int. Cl.^{6} B65G *59/00*
U.S. Cl. 221—94 **41 Claims**

1. An article dispensing and positioning device for placing a plurality of rectangular articles such as dominos or the like on a flat surface in a plurality of parallel rows and in evenly spaced relationship with each other in each row, said device comprising:

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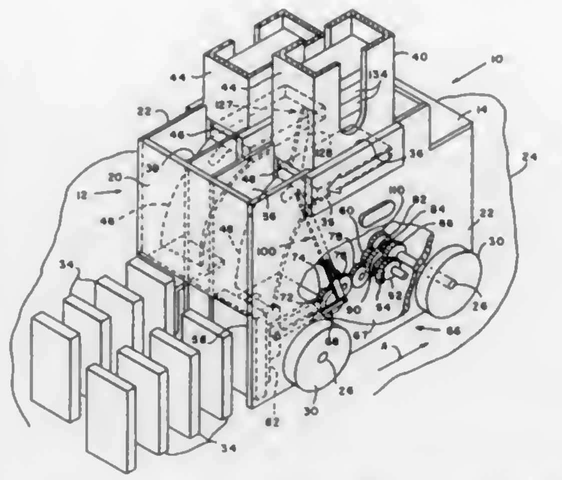


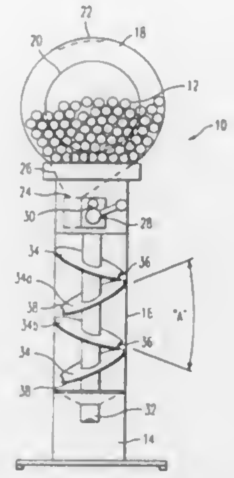
A a plurality of article dispensing assemblies, each of said dispensing assemblies including
1 means therein for holding an article to be dispensed therein,
2 ejector means mounted in said dispensing assembly for cyclical reciprocative movement therein, and
3 actuator means in said dispensing assembly for causing said cyclical reciprocative movement of said ejector means to eject an article from said dispensing assembly with each cycle of operation of said ejector means, said actuator means of each of said dispensing assemblies being adjusted to operate in a predetermined phase relationship with each other actuator means in which the individual cycles of operation of each of said ejector means are uniformly out of phase with each other ejector means,
B means operatively associated with said dispensing assemblies for securing said dispensing assemblies together to form a composite unit, said composite unit including means for supporting said composite unit for movement along said flat surface on which the articles are to be placed, and
C means operatively interconnecting all said dispensing assemblies for maintaining the operation of all of said actuator means in said predetermined phase relationship to maintain the operation of all said ejector means in said uniformly out of phase relationship with each other,

whereby variations in the force required to operate said article dispensing and positioning device resulting from resistance to movement of the operating parts of said article dispensing assemblies are substantially reduced or eliminated.

5,782,378
ARTICLE DISPENSER

Don Hart, and Guy Hart, both of Woodland Hills, Calif., assignors to Suncloud Inc., Chatsworth, Calif.
Filed Jul. 19, 1996, Ser. No. 684,576
Claims priority, application Israel, Feb. 18, 1996, 117163
Int. Cl.^{6} G07F *11/00*
U.S. Cl. 221—24 **10 Claims**

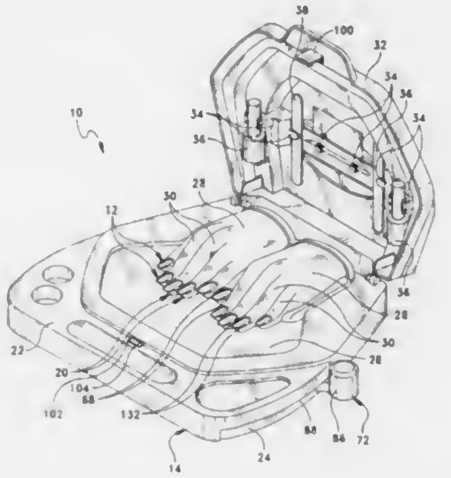
1. A dispenser for small articles, of the type comprising:
a base;
an at least partially transparent, substantially hollow support column supported by said base; and
a housing, held above said support column and containing a multiplicity of articles selected from the group consisting of gumballs, candies, children's trinkets, and combinations thereof, at least a segment of an outer wall of said housing being transparent for viewing;
said housing being provided with an aperture at a lower segment thereof connected to a token-operated release mechanism for dispensing said articles individually from said container via said column to a dispensing aperture;
characterized by the inclusion in said column of a plurality of individual barrier plates, sequentially arranged in spaced-apart descending order between said housing and said base,



each of said plates being provided with an opening to enable the gravity-assisted descent of said article from said housing to said dispensing aperture after it travels along a path on an upper surface of each of said sequentially positioned plates.

5,782,379
ARTIFICIAL FINGERNAIL DISPENSING DEVICE

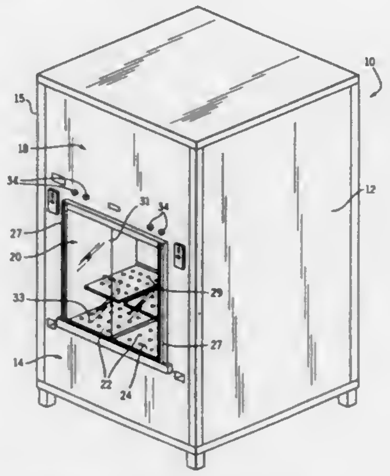
JoAnn M. Traub, West Warrick, R.I., and Craig C. Selvage, Attleboro, Mass., assignors to Hasbro, Inc., Pawtucket, R.I.
Filed Feb. 8, 1996, Ser. No. 598,888
Int. Cl.^{6} B65G *59/00*
U.S. Cl. 221—93 **6 Claims**



6. A device for holding and decorating an artificial fingernail comprising:
an imitation finger having a fingernail receiving recess thereon;
an artificial fingernail;
means in said recess for releasably receiving and retaining said artificial fingernail therein in a substantially natural fingernail position relative to said imitation finger during a fingernail decorating operations
means for receiving and holding a plurality of said artificial fingernails; and
means for sequentially advancing said artificial fingernails to said fingernail receiving recess so that sequential fingernails are individually received and retained therein by said releasable receiving and retaining means.

5,782,380
WATER DISPENSING SYSTEM

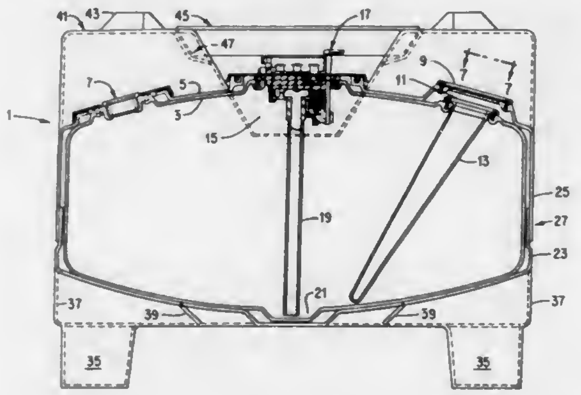
Timothy J. DiSanto, Modesto, Calif., assignor to Pure Fill Corporation, Modesto, Calif.
Filed Sep. 27, 1996, Ser. No. 722,610
Int. Cl.^{6} B67D *5/10*
U.S. Cl. 222—2 **6 Claims**



6. A water dispenser system, comprising:
a plurality of water filling stations, each of said stations being located side by side in a single sink with an independent shelf positioned at each of said water filling stations, each said shelf independently hinged to allow supporting a small container to be filled or pivoted to enable positioning a larger container in each station; and
a filling apparatus associated with each of said stations and for selectively providing a predetermined water volume upon actuation.

5,782,381
CONTAINER FOR CARRYING AND DISPENSING LIQUID AND SEMI-LIQUID PRODUCTS

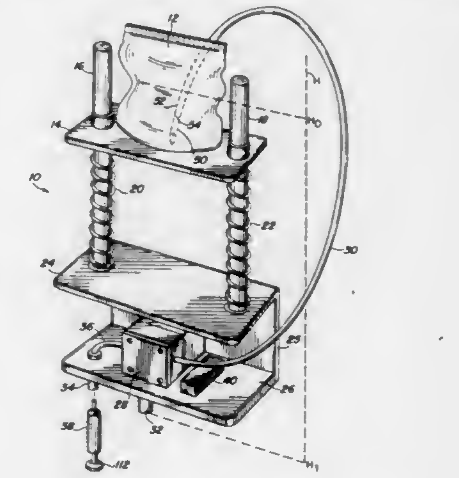
Keith F. Woodruff, Mountainside, and Donald E. Bradley, Allendale, both of N.J., assignors to American Cyanamid Company, Madison, N.J.
Filed Dec. 9, 1993, Ser. No. 164,295
Int. Cl.^{6} B67D *5/60*
U.S. Cl. 222—23 **16 Claims**



1. A container for storing, transporting and dispensing liquid and semi-liquid product, said container comprising:
a first inner tank for receiving and holding said product, a second outer tank for removably receiving therein said first inner tank,
port means in said container for supplying said product to said inner tank,
discharge means for selectively discharging said product in said inner tank from said container, a plurality of supporting legs extending downwardly from a bottom surface of said outer tank of said container,
a plurality of projections extending upwardly from an upper surface of said outer tank, said projections being provided for supporting another container in stacked relationship atop said projections,
each of said plurality of projections defining a top upper surface, and each of said plurality of projections including a raised element extending upwardly from said top surface, said raised element engaging a portion of a stacked container to retain said stacked container in a predetermined position relative to said top upper surface.

5,782,382
DISPENSER FOR PERSONAL HYGIENE LIQUIDS

Karel Carl Van Marcke, Kruisboutem, Belgium, assignor to International Sanitary Ware Manufacturing CY, Belgium
Filed Dec. 27, 1995, Ser. No. 578,080
Int. Cl.^{6} B67D *5/08*
U.S. Cl. 222—52 **37 Claims**



1. A dispenser for a personal hygiene liquid comprising a container for the liquid, which liquid has a level situated at a first height, a liquid outlet situated at a second height lower than the first height, a conduit for allowing flow of liquid from said container to said liquid outlet in response to hydrostatic pressure of the liquid, said conduit comprising a flexible tube having one end inserted into said container for siphoning the liquid and including a sealable opening and means cooperating with said opening for drawing liquid into said flexible tube by creating a below atmospheric pressure environment within said conduit, and a valve for controlling the flow of liquid through said outlet, a support for movably supporting said container in the dispenser, resilient means for supporting said support and adapted to increase the height of said container to keep the liquid level at the first height during flow of liquid out of said container to keep the hydrostatic pressure at said outlet substantially constant.

5,782,383
DISPENSING CLOSURE FOR SEALED ENTERAL FLUID CONTAINERS

Clayton L. Robinson, Newburgh, Ind., assignor to Rexan Closures Inc., Evansville, Ind.
Filed Sep. 4, 1996, Ser. No. 706,253
Int. Cl.^{6} B67D *5/00;* **A61B** *19/00;* **B65D** *41/20*
U.S. Cl. 222—81 **11 Claims**

1. A dispensing closure for connection to the neck of a liquid container, the neck having a lip defining a fluid opening with a

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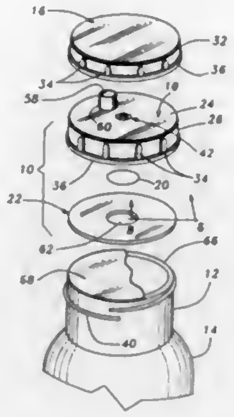


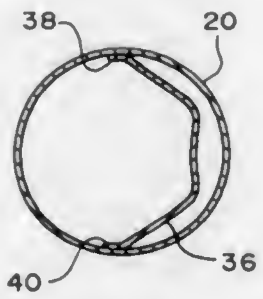
pierceable member covering the lip and sealing the fluid opening, said closure comprising:

- a cap having a planar top and an annular skirt depending from the periphery of said top, said skirt having means for engaging said closure neck;
- said top having an air opening formed in a central portion of said top a spike guide on said cap forming a spike receiving opening offset from said central portion of said top toward said annular skirt;
- an air filter covering said air opening and bonded to an inside surface of said top around said air opening;
- a resilient sealing liner abutting an inner surface of said cap top, said liner having an aperture aligned with said air opening;
- whereby when said closure is engaged with said container neck, sealing occurs between the liner and the pierceable member covering the lip of said container neck and between the liner and the inside surface of said top;
- when said liner and said member being pierced said container is inverted for dispensing, and a spike is inserted through said spike guide, pierced portions of said liner being defleted and drawn along with said spike, to push the pierced portion said member away from said spike and said liner to provide a fluid passage between said member and said liner and along said spike into said container, allowing filtered air to enter said container as container liquid is being dispensed through said spike and allowing flow of container liquid to said air filter to keep said air filter wet when dispensing is stopped for a period of time.

5,782,384
ALIGNED WEB IN A CONTAINER

Ramon Armando Mejia Mustafa, Hillsborough, and Patrick Andre Connan, Lebanon, both of N.J., assignors to Colgate-Palmolive, New York, N.Y.

Filed Nov. 5, 1996, Ser. No. 740,970
Int. Cl.^{6} B65D *35/22*
U.S. Cl. 222—94 **20 Claims**

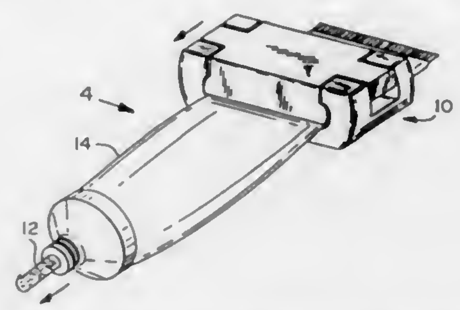


1. A method of aligning a web in an elongated tubular chamber that is attached to the inner walls of said elongated tubular chamber comprising placing at least one longitudinal area of modified thickness along said web.

5,782,385
TUBE SQUEEZER

Min Tet Soon, P.O. Box A-499, Sabah, Malaysia, 89357

Filed May 5, 1997, Ser. No. 851,217
Int. Cl.^{6} B65D *35/28*
U.S. Cl. 222—103 **19 Claims**



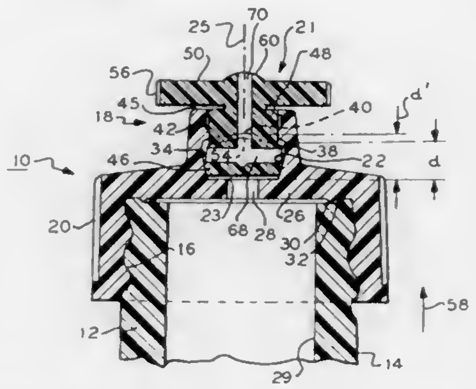
1. A tube squeezer replaceably attachable to a tube with contents and preventing the contents of the tube from flowing backwards therein when the tube is no longer squeezed and thereby allowing the contents of the tube to be readily and constantly available without waste, said squeezer comprising:

- a) a lower portion having a pair of longitudinal sides, a pair of lateral sides meeting said pair of longitudinal sides of said lower portion at corners, a top surface, two pair of vertically-disposed legs with outboard surfaces and inboard surfaces; each pair of legs of said two pair of legs of said lower portion extending vertically upwardly from a respective longitudinal side of said pair of longitudinal sides of said lower portion at a respective pair of corners of said corners of said lower portion; said inboard surfaces of each pair of legs of said two pair of legs of said lower portion opposing each other and defining a longitudinal space therebetween; said lower portion further having a lateral space between each pair of legs of said pair of legs of said lower portion at said pair of lateral sides of said lower portion; said top surface of said lower portion having a groove extending longitudinally therealong between said two pair of legs of said lower portion; and
- b) an upper portion being replaceably interlocked with said lower portion and having a pair of longitudinal sides, a pair of lateral sides with centers, and a bottom surface; said upper portion further having a pair of tabs, each of which extending outwardly from a respective lateral side of said pair of lateral sides of said upper portion and releasibly and frictionally engaging its respective lateral space in said lower portion when said upper portion is interlocked with said lower portion; said bottom surface of said upper portion having a pair of longitudinally-disposed tabs, each of which extending downwardly along a respective longitudinal side of said pair of longitudinal sides of said upper portion and releasibly and frictionally engaging its respective longitudinal space in said lower portion when said upper portion is interlocked with said lower portion, and terminating in ends releasibly and frictionally engaging said inboard surfaces of said two pair of legs of said lower portion when said upper portion is interlocked with said lower portion; said bottom surface of said upper portion further having a projection extending longitudinally therealong between said pair of longitudinally-disposed tabs on said bottom surface of said upper portion, and cooperatively engaging said groove in said top surface of said lower portion when said upper portion is interlocked with said lower portion, so that when the tube is positioned through said longitudinal spaces in said lower portion, transversely across said groove in said top surface of said shaped lower portion, and said ends of said pair of longitudinally-disposed tabs of said bottom surface of said upper portion frictionally engage said inboard surfaces of said two pair of legs of said lower portion, and said pair of longitudinally-disposed tabs of said bottom surface of said upper portion frictionally engage said longitudinal spaces in said lower portion, and said pair of tabs of said upper portion frictionally engage said lateral spaces in said lower portion, said projection on said bottom surface of said upper portion compresses and deforms the tube downwardly into said groove in said top surface of said lower portion where it is maintained and the contents in the tube is prevented from flowing backward therefrom when the tube is no longer squeezed and thereby allowing the contents of the tube to be readily available without waste, and as the contents of the tube is being used, said tube squeezer being slid forwardly along the tube, so that the contents in the tube is constantly available without waste.

5,782,386
DISPENSING CLOSURE FOR A SQUEEZABLE CONTAINER

William M. Lester, 4389 White Cedar La., Delray Beach, Fla. 33445

Filed Oct. 2, 1996, Ser. No. 720,676
Int. Cl.^{6} B67B *5/00*
U.S. Cl. 222—153.14 **15 Claims**



1. A closure for dispensing a fluid stored in a squeezable resilient container comprising:

- a housing having a valve cavity;
- means for securing the housing in fluid communication with the container interior;
- an annular tapered valve seat in said cavity;
- a valve member including a tapered valve and a stem, the valve member having a bottom surface, the valve having a surface complementary to said seat for providing a substantially fluid tight seal in a seated closed valve position and for providing a fluid passage at the interface between said valve member and said seat in an open valve position;
- said valve stem upstanding from said valve in said cavity along an axis and having a top portion in communication with the ambient atmosphere, said valve member being rotatably secured to said housing;
- a disc-like handle knob secured to said valve stem top portion for manual gripping by a plurality of fingers for rotating said stem about the axis, said handle overlying said valve stem and a portion of said housing;
- said interface for being positioned in fluid communication with said stored fluid so that fluid forced against said bottom surface displaces said valve member to the open valve position along said axis and said fluid enters into and forms a seal with said interface;
- said valve member having a fluid receiving conduit transverse to said axis in fluid communication with said cavity and interface, and a vertical central fluid discharge conduit passing through said valve stem from said fluid receiving conduit along said axis to the ambient atmosphere through said handle knob;
- valve member displacement limiting means having a locked state and an unlocked state coupled to said housing and valve member for limiting the distance said valve member is permitted to axially displace to an open valve position from the closed valve position to provide a maximum clearance in said interface between the valve member and seat such that fluid in said interface tends to effectively seal said interface from passing ambient air therethrough when the container interior pressure is less than ambient pressure to force said valve member to its closed valve position; and
- locking means for locking the valve member in the closed valve state in response to rotation of the valve member.

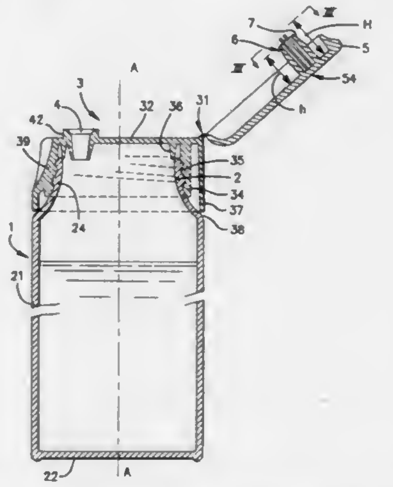
5,782,387

Patent Not Issued For This Number

5,782,388
CONTAINER INCLUDING A DISPENSING ORIFICE EQUIPPED WITH A CLOSURE SYSTEM

Stanislas De Nervo, Paris, France, assignor to L'Oreal, Paris, France

Filed Jul. 10, 1996, Ser. No. 678,075
Claims priority, application France, Jul. 10, 1995, 95 08314
Int. Cl.^{6} B65D *47/00*
U.S. Cl. 222—546 **17 Claims**



1. In a dispensing cap (3) for a container (21), the cap comprising a body (32, 35, 37) provided with at least one dispensing orifice (4) and a lid (5) provided with at least one hollow plugging pip (6) adapted to plug the dispensing orifice (4) in a closed position of the cap; the improvement wherein the pip (6) comprises a skirt (7) and at least one fin interior to said skirt and whose exterior surface is spaced from said skirt to retain by a capillary effect a product inside of the pip (6).

5,782,389
LAMINAR CONSTRUCTION VARIABLE CLOTHING FORM

James C. Maharg, Ridgefield, Conn., assignor to Alu Inc., New York, N.Y.

Filed May 27, 1997, Ser. No. 863,869
Int. Cl.^{6} D06C *15/00;* **A41H** *5/00*
U.S. Cl. 223—66 **23 Claims**

1. A clothing form comprising:

- a spine having a laminar form, said spine in profile being generally similar to the side profile of a human spine; and
- a plurality of flat modular laminae parallel to and spaced apart from one another along said spine at right angles thereto to give the appearance of a stylized human torso, said laminae being configured to resemble cross-sections of a human torso at different positions along the length of a human spine, each of said laminae having a specific position on said spine, and

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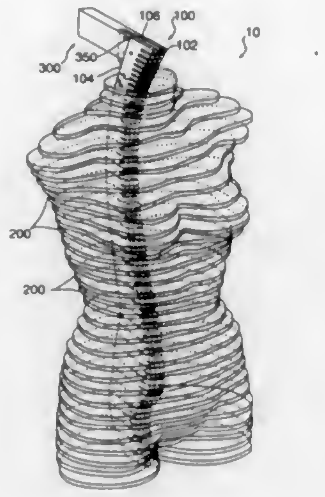


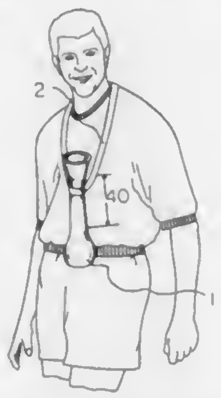
each of said laminae having a rearwardfacing edge removably interlocking with said spine.

5,782,390
DETACHABLE STRAP FOR A PLASTIC YARD OF ALE
Peter Dorney, 956 S. Lake Sterling Ct., Castle Berry, Fla. 32107

Continuation of Ser. No. 438,046, May 8, 1995, Pat. No. 5,622,292. This application Apr. 21, 1997, Ser. No. 840,985

Int. Cl.^{6} A45F *5/00*

U.S. Cl. 224—148.6 **4 Claims**



1. A combination drinking glass and supporting device comprising, in combination:

a drinking glass positionable in a generally vertical orientation, the drinking glass having a lower closed end of an increased diameter and an upper open end of an increased diameter and a central portion having a reduced diameter less than both the diameter of the upper end and the lower end;

a supporting strap of a flexible material having first and second free ends positionable in a generally vertical orientation in front of a wearer and having a central portion intermediate the free ends positionable around the back of the neck of a wearer; and

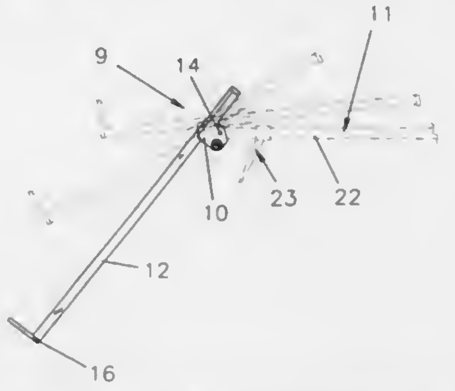
an intermediate strip positionable in a generally horizontal orientation having a first free end and a second free end and a central region between the free ends of the strip positionable in a loop with an interior surface and an exterior surface and with an upper region and a lower region, the supporting strap having its free ends coupled to the intermediate strip, the intermediate strip having a first releasable fastener means on the interior surface adjacent to the first free end and a second releasable fastener means on the exterior surface adjacent to the second free end of the strip, the first and second releasable fastener means being moveable between an inoperative separated orientation and an operative coupled orientation wherein the intermediate strip forms the loop which is unobstructed upwardly and downwardly around the central portion of the drinking glass with the drinking glass extending upwardly from the intermediate strip to a region above the intermediate strip and downwardly from the intermediate strip to a region beneath the intermediate strip.

5,782,391
VEHICLE ROOF RACK LOADING MECHANISM
Gary S. Cretcher, 7669 Harrisburg Hollow Rd., Bath, N.Y. 14810

Filed Nov. 22, 1996, Ser. No. 753,282

Int. Cl.^{6} B60R *9/00*

U.S. Cl. 224—310 **7 Claims**



1. A vehicle roof rack loading mechanism comprising:

a pivotal guide block having a pivot portion and guide portion;

a lift member;

slidable guide means connecting said lift member and said guide block to permit an outward or inward movement of the said lift member;

a mounting base;

pivot means connecting said guide block and said base to permit pivoting movement of said guide block and said lift member; wherein said lift member may be slid outward and tilted downward and for loading and pivoted up and slid in for transport.

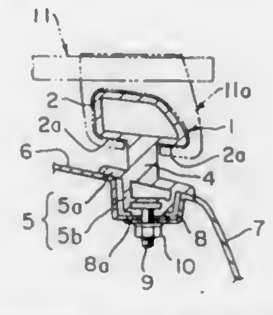
5,782,392
ROOF RAIL STRUCTURE FOR MOTOR VEHICLE
Toshiyuki Yamamoto, Oota, Japan, assignor to Fuji Jukogyo Kabushiki Kaisha, Tokyo, Japan

Filed Jul. 17, 1996, Ser. No. 684,439

Claims priority, application Japan, Jul. 20, 1995, 7-206512

Int. Cl.^{6} B60R *9/00*

U.S. Cl. 224—326 **8 Claims**



1. A roof rail structure for a motor vehicle having a roof groove formed in a roof panel along an entire side length thereof adjacent a side panel in a longitudinal direction of said motor vehicle, comprising:

a molding unit provided with a ridge for being inserted in the roof groove and with a cover section extending from the ridge for entirely covering the roof groove from above,

legs protruding upwardly from an upper surface of the molding unit, and

a rail body formed on the legs in parallel with the molding unit for supporting a roof carrier or luggage; and

whereby the molding unit, legs, and the rail body are integrally formed of a synthetic resin.

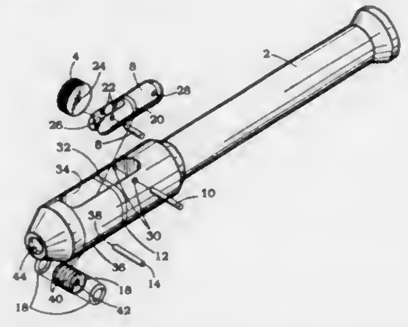
5,782,393
Patent Not Issued For This Number

5,782,394
MANUAL WELDING WIRE FEEDER
Thomas Guinn Langley, P.O. Box 4916, Breckenridge, Colo. 80424

Filed Jun. 19, 1997, Ser. No. 878,132

Int. Cl.^{6} B65H *20/00;* **B23K** *9/28*

U.S. Cl. 226—187 **8 Claims**



1. A hand held wire feeder comprising in combination:

a elongated holder having a longitudinal through-hole, a groove and a plurality of openings and having a size adapted to fit between a users thumb and index finger;

a finger wheel mounted inside a first opening of said openings on said holder and adapted to roll by movement of the tip of the index finger;

a lever mounted inside a second opening of said openings on the holder, said lever having a idler wheel mounted in a slot on one end of said lever disposed to roll against a welding wire, a groove and an elastic band disposed in said groove on said lever and in said groove on said holder the idler wheel being urged against the wire by said elastic band whereby a plurality of welding wires with differing diameters can be fed to a weld seam by movement of the tip of the index finger.

5,782,395
DRIVING TOOL FOR FASTENER ELEMENTS
Marcus Sauer, Bad Schwartau, Germany, assignor to Joh. Friedrich Behrens AG, Ahrensberg, Germany

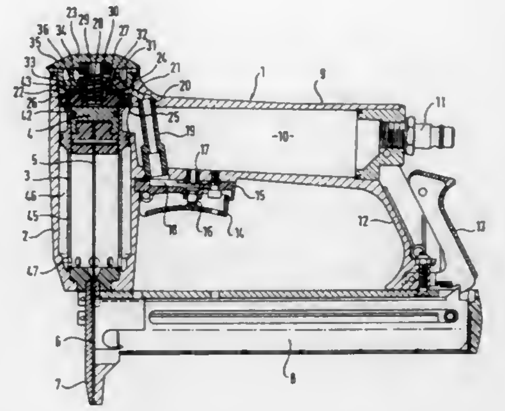
Filed May 20, 1996, Ser. No. 650,471

Claims priority, application Germany, May 24, 1995, 295 08 658 U

Int. Cl.^{6} B25C *1/04*

U.S. Cl. 227—130 **15 Claims**

1. A driving tool for fastener elements, wherein a tool casing (1) includes a valve cavity (22) of a main valve closed by a casing cover (23), a valve piston (24) having a top end and a bottom end, and being sealingly and slidingly mounted coaxially within said valve cavity about a work cylinder (3), said valve piston (24) when in a lower position sealingly engaging upon an upper edge of the work cylinder (3) so as to close an inlet passage communicating with a pressure air source and opening into an upper work space of said work cylinder, and said valve piston (24) when in an upper position closing an outlet passage, which communicates with said work space via a throughbore (28) of said valve piston, by sealingly engaging a valve seat element (30), said valve piston (24) having a lower work surface which is continuously subjected to pressure of said pressure air source, and an upper work surface adapted to be selectively subjected to atmospheric pressure or pressure of said pressure air source by means of a control valve (15,16,17), the improvement of which is characterized by said valve piston (24) having axially extending throughbores (37), interconnecting webs (44) extending through said throughbores (37), and said interconnecting webs (44) having one end connected to a sealing ring (42) at the bottom (38) of said valve piston (24) and having an other end connected to a damper ring (43) at the top (40) of said valve piston (24).

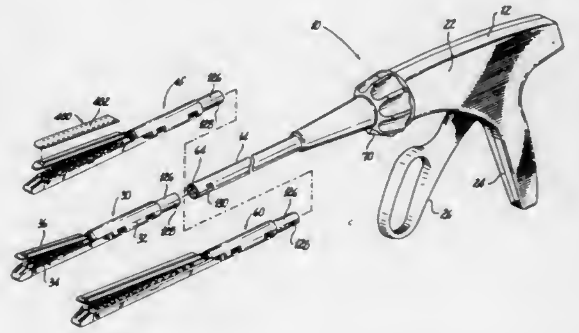


5,782,396
SURGICAL STAPLER
Dominick L. Mastri, Bridgeport; Frank J. Viola, Sandy Hook; Thomas W. Alesi, Jr., New Fairfield; Robert J. Geiste, Milford, and Jon Wilson, Fairfield, all of Conn., assignors to United States Surgical Corporation, Norwalk, Conn.

Continuation-in-part of Ser. No. 520,202, Aug. 28, 1995. This application Oct. 20, 1995, Ser. No. 546,253

Int. Cl.^{6} A61B *17/068*

U.S. Cl. 227—175.3 **19 Claims**



1. A surgical stapler comprising:

a) a handle assembly including an elongated barrel portion and an actuation handle mounted for manipulation through a complete actuating stroke which includes an initial clamping stroke segment and at least one subsequent stapling stroke segment;

b) an elongated body extending distally from the barrel portion of the handle assembly and defining a longitudinal axis;

c) a toothed actuation rack supported within the barrel portion of the handle assembly and mounted for incremental linear movement in response to manipulation of the actuation handle;

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d) an elongated control rod extending from a distal end of the toothed actuation rack and through the elongated body to a location adjacent a distal end portion thereof; and
e) a disposable loading unit operatively engaged in the distal end portion of the elongated body and including a staple cartridge containing a plurality of staples, an anvil mounted adjacent the staple cartridge and movable between an open position and a closed position, and an actuator adapted to releasably mate with a distal end portion of the control rod and configured to move in a distal direction relative to the staple cartridge and anvil to initially effectuate movement of the anvil from the open position to the closed position during the clamping stroke segment and to subsequently effectuate sequential ejection of the staples from the staple cartridge during the at least one subsequent stapling stroke segments.

5,782,397

STAPLING DEVICE

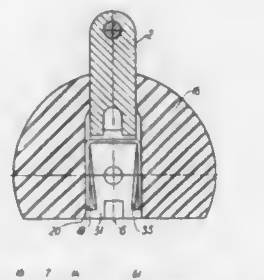
Alexandre Koukline, Moscow, Russian Federation, assignor to Alpha Surgical Technologies, Inc., Rego Park, N.Y.

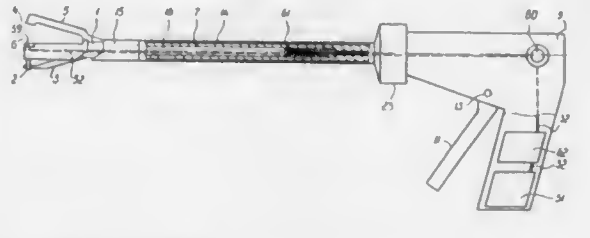
PCT No. PCT/US95/00112, § 371 Date Aug. 30, 1996, § 102(e) Date Aug. 30, 1996, PCT Pub. No. WO95/18572, PCT Pub. Date Jul. 13, 1995

Continuation-in-part of Ser. No. 177,262, Jan. 4, 1994, abandoned. This PCT application Jan. 4, 1995, Ser. No. 666,314

Int. Cl.⁶ A61B *17/068*

U.S. Cl. 227—176.1 **19 Claims**





1. A stapler, comprising:
(a) a staple advancing system for applying an advancing force to a plurality of "U" shaped staples;
(b) a guide, for maintaining said plurality of "U" shaped staples parallel to each other along a feed axis, said guide having a channel cross section including a horizontal top portion, substantially perpendicular to said feed axis, and two semivertical portions below said horizontal top portion, each having a plane oriented downwardly inward at such an angle which does not cause plastic deformation of said "U" shaped staples inserted in said guide, said guide having an open end wherein said semivertical portions merge with walls having vertical portions which are substantially aligned with a vertical axis;
(d) a lower aperture, aligned with respect to said feed axis with said vertically aligned walls; and
(e) a displaceable staple ejector, for displacing one of said "U" shaped staples proximate to said open end through said lower aperture, without displacing an adjacent "U" shaped staple.

5,782,398

DEVICE FOR INSIDE SCARFING OF LONGITUDINALLY WELDED TUBES OR PROFILES

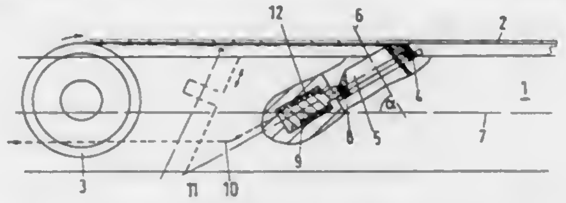
Michael Graefe, Hamerweg 315, D-41068 Mönchengladbach, Germany

Filed Aug. 27, 1996, Ser. No. 703,456

Claims priority, application Germany, Aug. 28, 1995, 195 32 835.3

Int. Cl.⁶ B23K *37/00*

U.S. Cl. 228—17.5 **10 Claims**



1. A device for inside scarfing of a tube longitudinally welded in a tube welding line, comprising:
a tool carrier having a cutting ring holder and being guided on guide rollers inside said tube;
a cutting ring having cutting ring sectors adapted to be in cutting position and being clamped to said cutting ring holder by a clamp means, said cutting ring holder be rotatable about its central axis which is inclined at an acute angle with respect to the longitudinal axis of said tube; and
control means for controlling said cutting ring remotely from the welding point of the tube so that when said cutting ring is moved from said cutting position, said clamp means releases said cutting ring and said cutting ring is turned by a defined angle such that another of said cutting ring sectors adjacent to the cutting ring sector previously used is automatically brought into said cutting position.

5,782,399

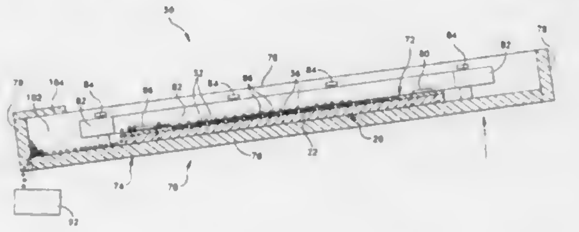
METHOD AND APPARATUS FOR ATTACHING SPHERICAL AND/OR NON-SPHERICAL CONTACTS TO A SUBSTRATE

James Lapastora, West Warwick, R.I., assignor to TTI Testron, Inc., Woonsocket, R.I.

Filed Dec. 22, 1995, Ser. No. 577,494

Int. Cl.⁶ H01L *21/60*

U.S. Cl. 228—41 **10 Claims**



1. An apparatus for attaching contacts to a substrate having mounting pads arranged in a predetermined array and a plurality of openings, said apparatus comprising:
a first fixture for holding said substrate and a stencil, said first fixture having a plurality of pins arranged thereon, wherein said plurality of openings of said substrate receive said plurality of pins to hold said substrate in place;
said stencil having first openings formed therein in said predetermined array and second openings formed therein and arranged to receive said plurality of pins of said first fixture, said stencil being held and aligned by said plurality of pins of said first fixture in such a position that the openings of the stencil are aligned with the mounting pads of the substrate, said stencil being adapted to receive thereon soldering paste so as to fill the openings of the stencil so that a dab of paste is left in the openings of the stencil; and

a second fixture for holding said substrate and a contact loading plate, said second fixture including a plurality of pins arranged thereon and a plurality of movable rails;
said contact loading plate having first openings formed therein in said predetermined array and second openings formed therein and arranged to receive said plurality of pins of said second fixture, said contact loading plate being adjustably held and aligned by said plurality of pins and said movable rails of said second fixture, said movable rails being adjustable so as to lock said contact loading plate in such a position that the first openings of the contact loading plate are aligned with the mounting pads of the substrate, said fire openings of the contact loading plate being adapted to receive contacts therein wherein the contacts engage the dabs of paste positioned over the mounting pads.

5,782,400

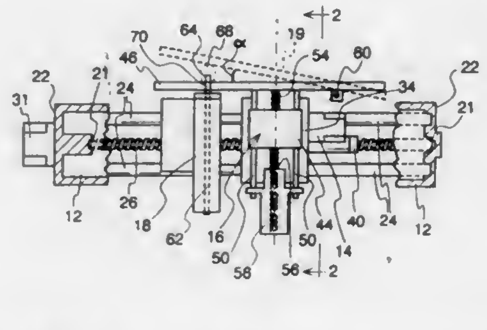
SUBSTRATE CARRIER FOR A SOLDERING MACHINE

John Susicki, Des Plaines, Ill., assignor to Susco Manufacturing Co., Inc., Des Plaines, Ill.

Filed Jun. 28, 1996, Ser. No. 673,377

Int. Cl.⁶ B23K *37/04*

U.S. Cl. 228—49.5 **18 Claims**



10. An apparatus for carrying a substrate to be soldered, said apparatus comprising:
a base;
a slide mounted on said base for movement relative to said base in a horizontal path;
means for moving said slide in said horizontal path relative to said base;
at least one rod on said slide;
a table through which said at least one rod extends, said table slidably mounted on said at least one rod for guided movement relative to said slide in a vertical path;
means for moving said table in said vertical path relative to said slide;
means for changing the angular position of said table relative to said base;
a frame having a substrate carrier portion, said frame connected to said table for movement relative to said table between a first position and a second position so that a substrate to be soldered carried on said substrate carrier portion in the operative position has a different angular relationship to the base with the frame in the first and second positions; and
means for moving the frame between the first and second positions, wherein one of the first and second positions is at an angular position that prevents formation of solder bridges and icicles on the substrate.

5,782,401

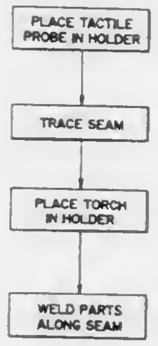
AUTOMATED SYSTEM AND METHOD FOR WELDING A FIRST METAL PART TO A SECOND METAL PART

John F. Hinrichs, Menomonee Falls, Wis., assignor to R. J. Tower Corporation, Grand Rapids, Mich.

Filed Aug. 28, 1996, Ser. No. 704,821

Int. Cl.⁶ B23K *9/02;9/127*

U.S. Cl. 228—102 **6 Claims**



1. An automated system for welding a first metal part to a second metal part, the system comprising:
an articulated arm,
moving means for moving said arm, said moving means comprising:
mechanized means connected to said arm for moving said arm, and
programmable means connected to said mechanized means for controlling the movement of said articulated arm,
a welding torch,
a probe with physical dimensions comparable to said torch, said probe including seam tracking means for tracking the location of a weld seam in response to movement of the probe along the seam, said probe including connector means for transmitting probe movement to said programmable means, and
holder means mounted on said articulated arm for interchangeable receiving said torch and said probe so that said torch and said probe assume essentially the same position relative to said arm.

5,782,402

METHOD FOR PRODUCING A METAL STRUCTURE AND APPARATUS FOR METALLIC JOINING OF SHEET-METAL LAYERS OF A METAL STRUCTURE

Ludwig Wieres, Overath, Germany, assignor to Emitec Gesellschaft fuer Emissionstechnologie mbH, Lohmar, Germany

Filed Mar. 14, 1997, Ser. No. 818,309

Claims priority, application Germany, Sep. 14, 1994, 44 32 730.7

Int. Cl.⁶ B23K *1/00;* **F01N** *3/28*

U.S. Cl. 228—221 **18 Claims**

1. A method for producing a metal structure from at least partly structured, wound, intertwined or stacked sheet-metal layers, which comprises:
cleaning a structure having sheet-metal layers in a vacuum in a cleaning chamber;
transferring the structure to a process chamber;
carrying out a process for metallic joining of the sheet-metal layers in a vacuum;

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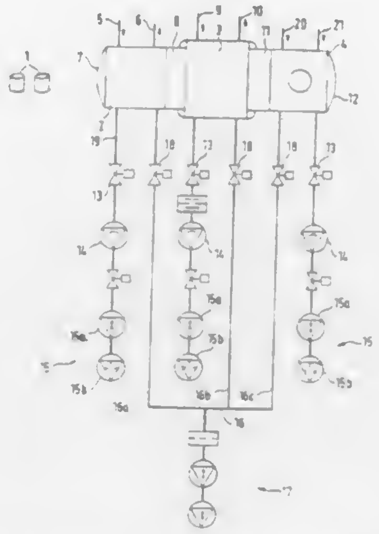


transferring the structure to a cooling chamber; and
cooling the structure to a predetermined temperature in a vacuum in the cooling chamber.

5,782,403

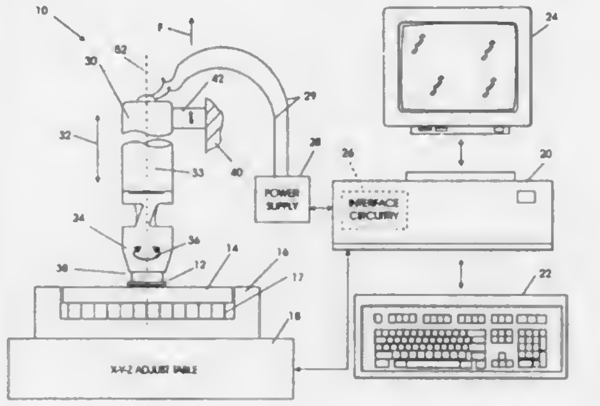
ULTRASONIC CHIP REMOVAL METHOD AND APPARATUS

Li Wang, Manassas, Va., assignor to International Business Machines Corporation, Armonk, N.Y.

Filed Jan. 6, 1997, Ser. No. 779,868

Int. Cl.^{6} B23K *1/018*

U.S. Cl. 228—264 **20 Claims**



1. A method for removal of a semiconductor chip interconnected to a substrate package via solder ball connections, said method comprising the steps of:
providing lateral ultrasonic vibration with the use of an ultrasonic transducer; and
converting the lateral ultrasonic vibration to a torsional ultrasonic vibration with the use of a lateral-to-torsional ultrasonic vibration converter, the torsional ultrasonic vibration being perpendicular to the lateral ultrasonic vibration; and
applying the torsional ultrasonic vibration to the chip for facilitating its removal from the substrate package, wherein the semiconductor chip is coupled to the lateral-to-torsional ultrasonic vibration converter.

5,782,404

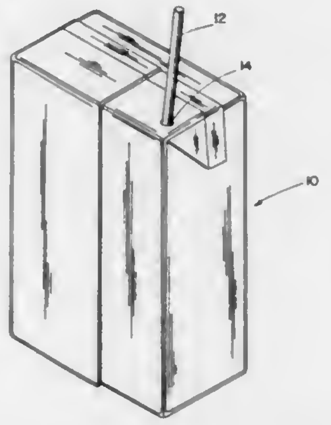
PACKAGE OPENING

Arthur W. Robichaud, and Dennis W. Bender, both of Worthington, Ohio, assignors to Combibloc, Inc., Columbus, Ohio

Continuation of Ser. No. 45,316, Apr. 7, 1993, abandoned, which is a continuation of Ser. No. 663,712, Mar. 4, 1991, abandoned. This application Dec. 31, 1996, Ser. No. 775,759

Int. Cl.^{6} B65D *77/28*

U.S. Cl. 229—103.1 **1 Claim**



1. In a combination of an aseptic drink box package and a straw, said aseptic drink box package having an inner layer forming an entirely enclosed aseptic barrier and an outer layer secured to and encapsulating said inner layer, said package layers consisting of materials which may be squeezed by human hands causing a pressure increase within said package, said package equipped for consumption of the contents thereof through the straw, the improvement comprising:
said outer layer including a predetermined shape partially precut into said outer layer thereby defining a straw insertion location on said package, while leaving said inner layer uncut and thereby maintaining the aseptic nature of said package prior to said straw insertion, said shape having a dimension greater than the diameter of the straw, said shape forming a flap that protrudes into said package when pressure is exerted against said shape and creates a hole in said inner layer corresponding in size to the size of said flap, such that when the straw is inserted into said hole, a sufficient gap is present between a perimeter of said hole in said inner layer and the straw, through which air within said package may vent to prevent unwanted spillage of the contents out the straw.

5,782,405

RAILROAD TRACK COLLECTOR PAN SYSTEM

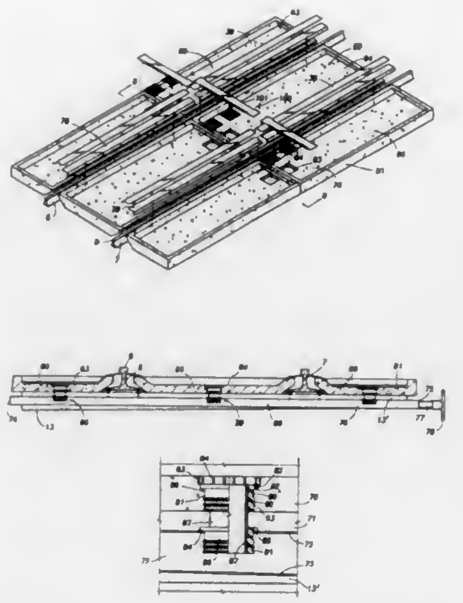
Jon R. Vincent, 4205 W. Jevon La., Lake Charles, La. 70605

Continuation-in-part of Ser. No. 173,778, Dec. 27, 1993, abandoned. This application May 2, 1996, Ser. No. 643,014

Int. Cl.^{6} E01B *1/00*

U.S. Cl. 238—2 **12 Claims**

1. In combination with a pair of rails supported on cross ties and ballast of a railroad track; an improved pan collection system for causing run-off of a liquid or light solids spilled while unloading a rail car supported on said rails and cross ties; said pan collection system comprising:
a plurality of sets of drain pan members arrangement end-to-end and supported by said cross ties and ballast, each of said sets of pan members including a center pan member positioned between said rails and outside pan members positioned respectively on opposite sides of said rails and said center pan member;
a transverse elongate drain conduit positioned between a pair of adjacent cross ties below said pan members and having an upper surface spaced vertically from said pan members;



a pair of spaced generally vertically aligned openings in each of said pan members and said transverse drain conduit;
a generally vertically extending tubular member mounted in each pair of generally vertically aligned openings; and
resilient means adjacent said tubular member to permit limited movement of said pan members relative to said transverse drain conduit.

5,782,406

RAIL TIE PLATE CLIPS AND SHOULDERS

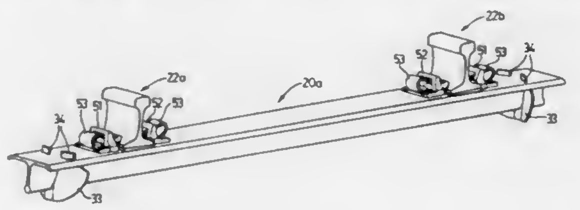
Jude O. Igwemezie, 1020 Denison Street, Suite 207, Markham, Ontario, Canada, L3R 3W5

Continuation-in-part of Ser. No. 139,736, Oct. 22, 1993, abandoned. This application Dec. 1, 1995, Ser. No. 566,327

Claims priority, application United Kingdom, Jun. 2, 1993, 9311395; Jan. 13, 1995, 9500700

Int. Cl.^{6} E01B *3/00*

U.S. Cl. 238—67 **44 Claims**



1. A steel tie for incorporation in a rail track, comprising a generally horizontal oblong rectangular plate member for connection transversely of the rail and for restraining vertical rail movement, said oblong plate member having two shorter and two longer sides, and a web member extending generally vertically on the underside of the plate member and generally parallel to and spaced inwardly substantially centrally of said longer sides of the plate member and serving to restrain longitudinal rail movement; wherein said tie includes at least one ballast engaging plate member connected to the tie on its underside and facing generally transversely of the rail for restraining lateral tie movement; and where said least one ballast engaging plate member is curved to provide a concavity on a side facing transversely of the rail.

5,782,407

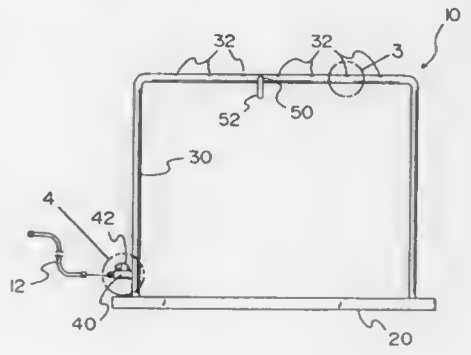
MULTIPLE-PERSON WATER DRINKING FOUNTAIN SYSTEM

Tyre A. VanDegrift, 8746 Sun Country Dr., Elizabeth, Colo. 80107

Filed Nov. 21, 1996, Ser. No. 754,787

Int. Cl.^{6} B05B *1/20;15/06*

U.S. Cl. 239—24 **6 Claims**



1. A Multiple-Person Water Drinking Fountain System comprising:
a base;
a U-shaped tube having a pair of closed ends opposite of an upper portion;
said closed ends secured to said base;
said U-shaped tube including a plurality of apertures along said upper portion spaced apart; and
a means connected near one said closed end for connecting to a garden hose, for supplying water into said U-shaped tube where said water radiates out through said apertures allowing a plurality of individuals to drink the radiating water.

5,782,408

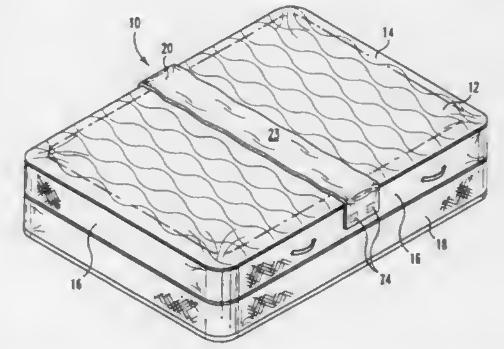
SCENTED BEDDING ACCESSORY

Katharine Carter, 1250 E. 86th St., Indianaoplis, Ind. 46236-8548, assignor to Katharine Carter, and Vida Lorraine Carter, both of Indianapolis, Ind.

Filed Mar. 1, 1996, Ser. No. 613,454

Int. Cl.^{6} A24F *25/00;* A61L *9/04*

U.S. Cl. 239—34 **13 Claims**



1. An accessory attachable to bedding having a top surface and a lower surface, comprising:
a thin flexible sheet having a sheet surface; a scented material disposed throughout the sheet;
means for removably attaching a portion of the sheet to the lower surface so that a portion of the sheet surface is disposed to contact the top surface, and the sheet partially surrounds the bedding,

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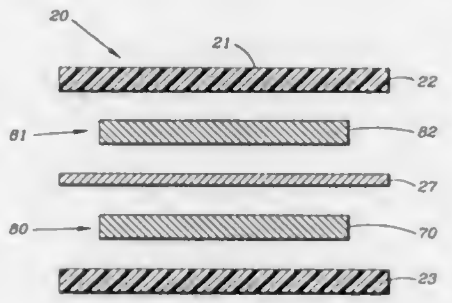
wherein the means for removably attaching a portion of the sheet to the lower surface comprises a plurality of couplers attached to the sheet surface and adapted for demountable coupling to the lower surface, and
wherein each of the couplers comprises:
an attachment strip having a strip first surface and an opposing strip second surface;
means for attaching the strip first surface to the sheet surface; and
means for demountably coupling the strip second surface to the lower surface.

5,782,409
AIR FRESHENING AND DEODORIZING SYSTEM

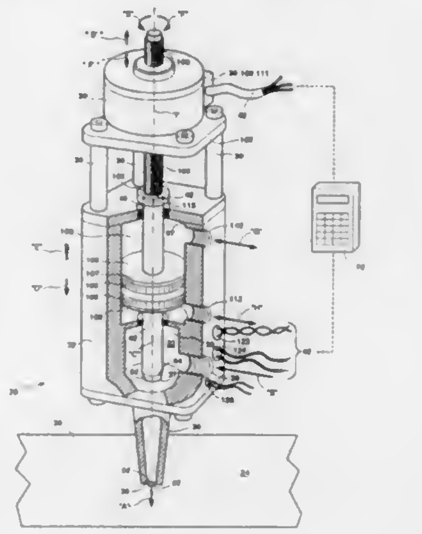
Leonard Paul, 13 Stuart Dr., Bloomfield, Conn. 06002
Continuation-in-part of Ser. No. 418,079, Apr. 6, 1995, Pat. No. 5,611,486, which is a continuation-in-part of Ser. No. 333,027, Nov. 1, 1994, Pat. No. 5,556,030, which is a continuation-in-part of Ser. No. 163,338, Dec. 6, 1993, Pat. No. 5,372,303. This application Jun. 27, 1996, Ser. No. 670,499
Int. Cl.⁶ A61L *9/12*
U.S. Cl. 239—56 **27 Claims**



1. A combined air freshening and deodorizing system for providing controlled, long-term release of an air freshening fragrance and absorption of odors from the ambient air, said system comprising
A. a container incorporating a sealed holding zone;
B. odor absorbing material contained within the holding zone and comprising one or more selected from the group consisting of activated charcoal or active carbon, zeolites, baking soda, silica gel, silica molecular sieves, activated alumina, kieselguhr, fullers earth, and clay minerals;
C. fragrance producing means comprising
  a. a highly concentrated, long-lasting, air freshening fragrance comprising a formulation selected from the group consisting of compositions which are unable to be absorbed by the odor absorbing material, and
  b. an inert carrier for holding the fragrance composition and providing controlled release of the fragrance; and
D. a portal zone
  a. formed in the container in a normally sealed configuration to prevent the release of the fragrance or the odor absorbing material from the holding zone, and
  b. controllably openable to enable the fragrance to be dispersed throughout the ambient air and to allow the air to contact the odor absorbing material while preventing the odor absorbing material or the fragrance bearing carrier from exiting from the holding zone into the ambient surroundings.

5,782,410
FLUID FLOW CONTROL DEVICE

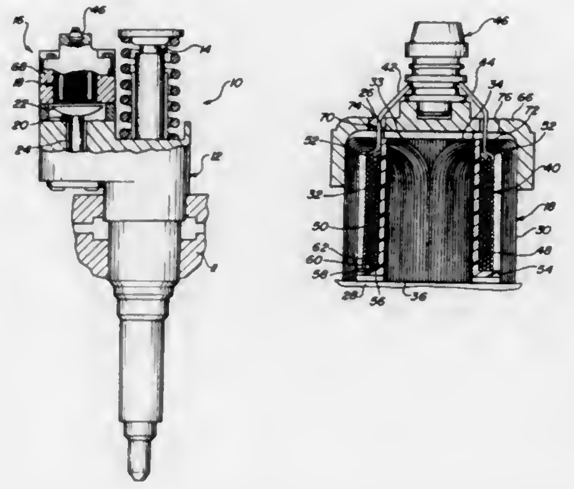
Colin K. Weston, RR #3, 499 Carlisle Rd., Campbellville Ontario, Canada, L0P 1B0
Continuation-in-part of Ser. No. 331,960, Oct. 31, 1994, Pat. No. 5,598,973. This application Feb. 1, 1996, Ser. No. 593,147
Int. Cl.⁶ B67D *5/06;* **F16K** *1/38*
U.S. Cl. 239—63 **13 Claims**



1. An automatic continuous flow liquid dispensing device for dispensing liquid onto a receiving surface of an article, wherein said dispensing device has a main chamber defined by an external housing, an inlet for accepting liquid pumped from a remote source into said main chamber, a dispensing nozzle terminating in a remote outer end with a dispensing aperture of a selected cross-sectional area at said remote outer end of said dispensing nozzle, said dispensing aperture being in fluid communication with said main chamber, and valve means operatively mounted with respect to said external housing for selective positioning in either one of a full flow position and a flow precluding position and free movement between said full flow position and said flow precluding position; wherein said liquid dispensing device includes an improved flow control mechanism, comprising:
a threaded elongate shaft operatively retained in threaded engagement by a base member securely attachable to said external housing, so as to be selectively rotatably movable to any one of a plurality of stop positions, whereat said threaded elongate shaft is positioned to be contactable by said valve means, thereby acting as a backstop to preclude said valve means from reaching said full flow position, and thus defining a plurality of partial flow positions disposed between said full flow position and said flow precluding position;
electrically powered drive means mounted on said base member so as to engage said threaded elongate shaft in driving relation, whereby said threaded elongate shaft is rotatable by said electrically powered drive means in first and second rotational directions, thereby moving said threaded elongate shaft to a selected one of said plurality of stop positions;
control means operatively connected in electrically conductive relation to said drive means for selectively controlling said drive means;
sensor means mounted on said external housing to sense ongoing conditions of selected parameters representative of specific circumstances related to the operation of said liquid dispensing device, and to generate quantitative values corresponding to said selected parameters, said sensor means being connected in electrically conductive relation to said control means so as to provide feedback signals to said control means, said feedback signals being derived from said quantitative values generated by said sensor means;
wherein said control means is adapted to process said feedback signals in real time and to provide control signals to said drive means, wherein said control signals are a function of said feedback signals from said sensor means, said control means thereby controlling said drive means in accordance with said quantitative values.

5,782,411
SOLENOID STATOR ASSEMBLY FOR AN ELECTROMECHANICALLY ACTUATED FUEL INJECTOR

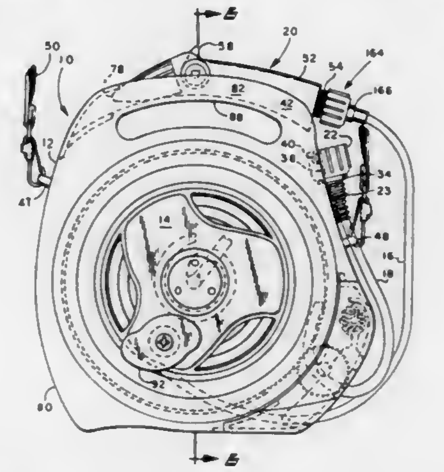
Kenneth Ray Potter, Kalamazoo, Mich., assignor to Diesel Technology Company, Wyoming, Mich.
Filed Dec. 23, 1996, Ser. No. 779,983
Int. Cl.⁶ F02M *51/00*
U.S. Cl. 239—88 **17 Claims**



1. A solenoid stator assembly for an electromechanically actuated fuel injector, said solenoid stator assembly comprising:
a cup shaped stator core assembly comprised of a plurality of magneto-conductive wire members of a predetermined length arranged in parallel, adjacent and abutting relationship relative to an adjacent wire member; said plurality of wire members bound at one end thereof for some length less than the entire length of the wire members to form a central pole piece, and splayed umbrella like about the central pole piece at the opposite end thereof to form a first pole piece in concentrically spaced relationship relative to said is center pole piece; said stator core thereby having a circular top portion and an open end disposed opposite said top portion and facing an armature, said first pole piece cylindrical in shape and substantially circular in cross-section extending in a direction perpendicular to said circular top portion, said center pole piece concentrically disposed in spaced relationship relative to said cylindrical first pole piece and extending in a direction perpendicular to said cylindrical top portion, a wire coil having first and second leads electrically connected to a pair of terminals, said wire coil wound in distinct layers about said center pole piece in a predetermined manner such that adjacent wire elements in each distinct layer of said coil are juxtaposed in pre-ordered side by side relationship relative to each other;
a cup shaped insulator covering said circular top portion and a portion of said cylindrical first pole piece;
a housing molded about and substantially enveloping said stator core assembly and said cup shaped insulator except for said open end of said stator core assembly.

5,782,412
GARDEN WATERING TOOL

Jeffrey S. Plantz, Seven Hills; John R. Nottingham, Hunting Valley; John W. Spirk, Gates Mills; Paul E. Brokaw, Euclid, and Paul A. Tamulewicz, Berea, all of Ohio, assignors to Gulfstream Home & Garden, Inc., Lexington, Ky.
Filed Jul. 28, 1995, Ser. No. 508,626
Int. Cl.⁶ B65H *75/00;75/34;75/38*
U.S. Cl. 239—197 **47 Claims**



1. A hose carrier comprising:
a housing having a top, a bottom, and a carrying handle;
a spool having a barrel portion rotatably supported in said housing;
a hose connector fixed to said barrel portion having a first nipple fixed with respect to said spool and a second nipple rotatable with respect to said spool and fixed with respect to said housing;
a relatively long length of hose contained on said spool having a first end fixed to said hose connection first nipple and a second end having fitting for connection to a standard garden faucet;
a relatively short length of hose having a first end connected to said hose connector second nipple and a second end connected to a nozzle;
said carrying handle being at said top of said housing and having a recess therein having an open top, an open end and a close end, said recess accepting said nozzle.

5,782,413

Patent Not Issued For This Number

5,782,414
CONTOURED SUPERSONIC NOZZLE

Richard D. Nathenson, 5301 Fair Oaks St., Pittsburgh, Pa. 15217
Filed Jun. 24, 1996, Ser. No. 669,212
Int. Cl.⁶ B05B *1/00*
U.S. Cl. 239—589 **22 Claims**

1. A method for manufacturing an axisymmetric nozzle comprising the steps of:
defining a profile of a nozzle comprising:
  a converging portion having a first end and a second end, said second end having a slope of zero; and
  a diverging portion having three segments, said first segment being an arc of a circle having a third end and a fourth end, said third end corresponding with said second end and having a slope of zero, said second segment being a straight line having a fifth end and a sixth end, said second segment having a slope equal to the tangent at said fourth end,

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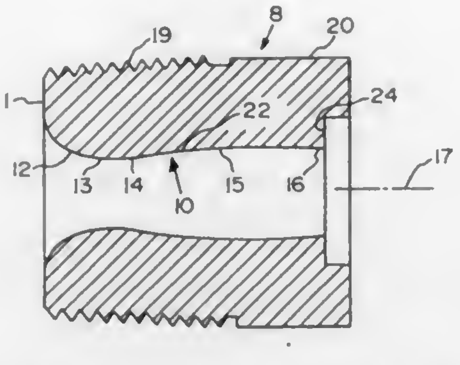
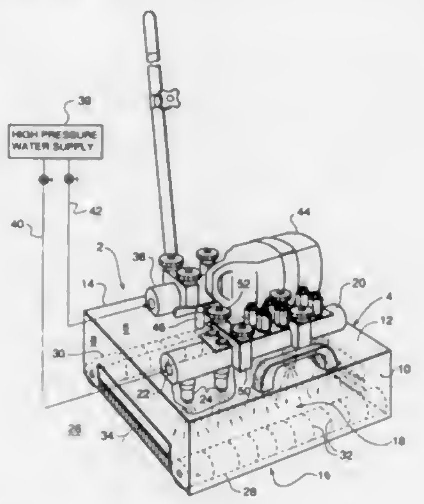


wherein said fourth end corresponds to said fifth end, and said third segment being an arc of a circle having a seventh end and an eighth end, where said sixth end corresponds to said seventh end and the slope of said second segment is equal to the tangent of said third segment at said seventh end and wherein a first angle is subtended by said first segment, said second segment has a slope equal to a second angle and a third angle is subtended by said third segment, and the first angle, the second angle and the third angle are equal to each other; and

manufacturing a nozzle having said profile, wherein said first end of the profile corresponds to an inlet of the nozzle, said second end and said third end correspond to a throat of the nozzle and said eighth end corresponds to an exit of the nozzle.

5,782,415
FLOOR WASHER

Joseph Kepiro, 810 Waterfront Dr., Lancaster, Pa. 17602
Filed Aug. 10, 1995, Ser. No. 513,403
Int. Cl.^{6} B05B *1/28;3/00;3/18;* **A47L** *7/00*
U.S. Cl. 239—754 **6 Claims**



1. A floor washer comprising:

a.) a housing with a cavity formed by four sides, being a front side, a back side, a left side and a right side, a top and an open bottom,

b.) at least one distributor tube with a central passageway mounted on the top of the housing substantially outside the cavity, said tube having affixed thereto spray nozzles, said distributor tube and said nozzles extending into said cavity directed toward the open bottom,

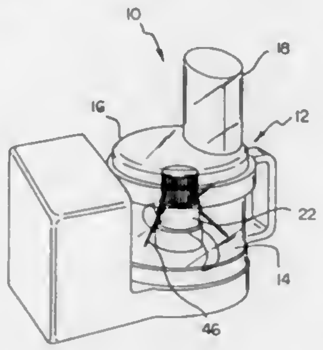
c.) said distributor tube and nozzles being rotated along the axis of the tube, but fixed in position during use, to let the fixedly positioned nozzles spray at a angle to the floor upon which the floor washer moves,

d.) means mounted on the open bottom of the housing to permit the housing to roll across the floor, and

e.) means supplying liquid to the distributor tube.

5,782,416
APPARATUS FOR BREAKING UP FOOD WITHIN A FOOD PROCESSOR

Iradj Nejatbina, 320 N. Lapeer Dr. #201, Beverly Hills, Calif. 90211
Filed Oct. 25, 1996, Ser. No. 736,776
Int. Cl.^{6} B02C *18/18*
U.S. Cl. 241—194 **1 Claim**



1. A new and improved apparatus for breaking up food within a food processor comprising, in combination:

a food processor housing with a transparent container having a circular base, a cylindrical periphery integrally formed with the base, and a circular cover with a lip depending therefrom for allowing removable coupling with the periphery, thereby affording selective access within the container, the cover further including a tube situated eccentrically thereon and extending upwardly therefrom for allowing the insertion of food therethrough to be ultimately deposited within the container for processing, the housing having a handle formed thereon for conveniently transporting the processor;

a cutting mechanism with a central cylindrical plastic post corrugated for convenient gripping, a plastic disk concentrically formed integrally on a bottom end of the post with a diameter greater than that of the post, and a pair of metal blade units each having a planar annular ring with a diameter equal to that of the disk, the ring having a blade protruding therefrom with a generally triangular configuration, the blade including a first convex cutting edge having a first arc length and another concave edge having a second arc length approximately half the first arc length, the blade units including a first blade unit horizontally oriented with the ring thereof disposed about the post and further coupled to a top face of the disk and a second blade unit horizontally oriented with the ring thereof concentrically coupled to a bottom face of the disk with the blade thereof situated opposite the blade of the first blade unit and further spaced therebeneath, wherein a bore is formed in the post and disk with a rod concentrically coupled at a top end thereof within the bore for coupling with the food processor housing and further allowing the rotation thereof; and

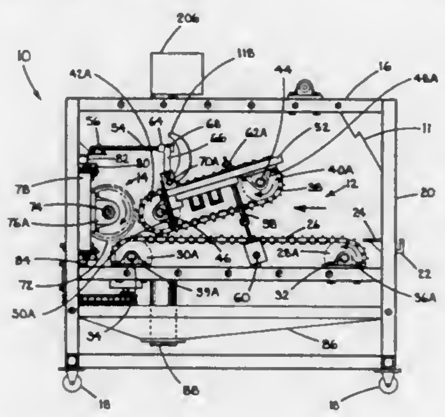
a pair of particle remover mechanisms each including a metal eyelet with a post integrally formed therewith and extending therefrom for coupling with the post of the cutting mechanism, wherein a plane in which the post resides is coextensive with a plane in which the eyelet resides, wherein the eyelet and post have a circular cross-section with a diameter of approximately 0.1 cm, the particle remover mechanisms also including an elongated metal rod with a length slightly less than the blades of the blade units, the elongated rod having a loop formed on a first end thereof for permanently coupling with the eyelet, wherein the rod and loop have a circular cross-section with a diameter of approximately 0.1 cm, the particle remover mechanisms including a first particle

remover mechanism with the post of the eyelet thereof coupled to the post of the cutting mechanism adjacent to the top end thereof and a second particle remover mechanism with the post of the eyelet thereof coupled to the post of the cutting mechanism opposite the first particle remover mechanism and further spaced therebeneath, wherein the second particle remover mechanism is spaced below the first particle remover mechanism 40% a height of the post and the second particle remover is situated a distance above the first blade unit equivalent to 60% the height of the post of the cutting mechanism;

whereby upon rotation of the cutting mechanism, the particle remover mechanisms are adapted to rotate within a horizontal plane thereby breaking up particles allowing said particles to be deposited adjacent the blade units for further processing.

5,782,417
TIRE SHREDDER

Werner Niederholtmeyer, 7804 Fritz Rd., Fort Wayne, Ind. 46818
Filed Oct. 25, 1996, Ser. No. 738,027
Int. Cl.^{6} B02C *19/12*
U.S. Cl. 241—277 **18 Claims**



1. Apparatus comprising:

a frame;

a conveyor assembly supported on the frame defining a generally linear feed path from an input end to a discharge end;

a travel positioned on the frame across the discharge end of the conveyor assembly;

a carriage disposed for reciprocating movement on the travel; and

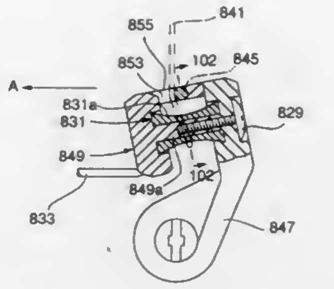
a rotary cutting assembly, mounted for rotation on the carriage at the discharge end of the conveyor assembly, the rotary cutting assembly having a shaft with an axis of rotation which is parallel to the travel, a plurality of circular blades removably mounted on the shaft, spacers separating each of the circular blades and fixing a cant for each of the circular blades with respect to the shaft, and means for driving the shaft.

5,782,418
SPINNING REEL FOR FISHING HAVING AN OBLIQUELY ORIENTED LINE GUIDE ROLLER

Kyoichi Kaneko; Eiji Shinohara; Masatoshi Katayama, and Wataru Tsutsumi, all of Tokyo, Japan, assignors to Daiwa Seiko, Inc., Tokyo, Japan
Continuation of Ser. No. 554,468, Nov. 7, 1995, abandoned, which is a division of Ser. No. 430,821, Apr. 28, 1995, abandoned. This application Jun. 5, 1997, Ser. No. 869,961
Int. Cl.^{6} A01K *89/01*
U.S. Cl. 242—231 **7 Claims**

1. A spinning reel for fishing comprising:

a reel main body having a forward end and rear end;



a spool supported on said reel main body at said forward end and defining a spool axis;

a rotor rotatably supported with respect to said reel main body for winding a fishline onto said spool, said rotor rotating about said spool axis and including an arm;

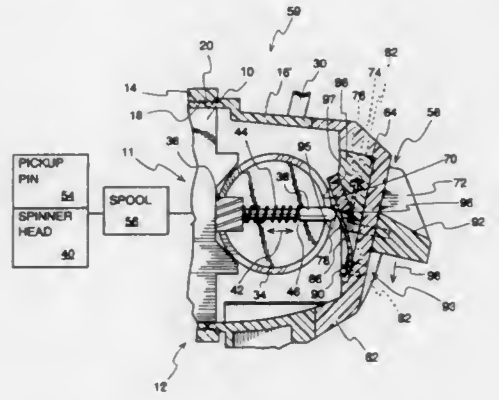
a line roller mounted on said arm and rotatable about a roller axis, said line roller contacting and guiding said fishline onto said spool during said winding, said line roller including a first axial end proximate said arm, a second axial end opposite said first end, and a fishline guide portion extending along said roller axis between said first and second axial ends, and said line roller being fixed in an oblique position with respect to said spool axis so that said first axial end is located forward of said second axial end with respect to said spool axis during a fishline winding operation; and

a restriction portion disposed adjacent said fishline guide portion to thereby restrict an axial movement of said fishline along said roller axis by contacting said fishline during said fishline winding operation, said restriction portion defining a fishline path on a plane substantially orthogonal to said roller axis,

wherein said fishline guide portion decreases in diameter from said second axial end to an intersection of said plane and said fishline guide portion.

5,782,419
SLIDABLE THUMB BAR FOR A SPINCAST REEL

Thomas A. Pulliam, Broken Arrow, Okla., assignor to Zebco Division of Brunswick Corp., Tulsa, Okla.
Filed Oct. 15, 1996, Ser. No. 729,327
Int. Cl.^{6} A01K *89/01*
U.S. Cl. 242—236 **13 Claims**



1. A fishing reel comprising:

a frame including a bousing;

a spool on the frame; and

an operating mechanism on the frame, with the operating mechanism being placeable selectively in a retrieve mode, wherein the operating mechanism can be operated to direct line onto the spool, and a cast mode, wherein line can be paid off the spool, said operating mechanism comprising:

a shaft with an axis,

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said shaft being movable guidingly relative to the frame between first and second positions,

the operating mechanism changing from the retrieve mode into the cast mode as an incident of the shaft moving from the first position into the second position;

an actuator connected to the frame for guided movement relative to the frame between a first state and a second state; and

a bias element for normally urging the actuator toward the first state,

wherein at least part of the bias element is urged by the actuator toward the shaft to thereby transmit a force from the actuator through the bias element to cause the shaft to move from the first position into the second position as an incident of the actuator moving from the first state into the second state.

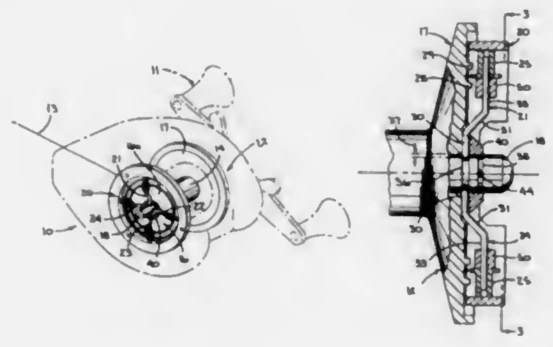
5,782,420
MOTION LIMITING DEVICE FOR INERTIAL SPOOL BRAKES FOR FISHING REELS

Robert L. Forslund, Catoosa, Okla., and David E. Valentine, Ft. Wayne, Ind., assignors to Zebco Division of Brunswick Corp., Tulsa, Okla.

Filed Feb. 21, 1995, Ser. No. 391,967

Int. Cl.^{6} A01K *89/02*

U.S. Cl. 242—289 **19 Claims**



11. In a bait cast fishing reel having a housing, a line carrying spool having an elongate body with a radially extending flange at each end, a spool shaft supporting the spool for rotation with respect to the housing and a centrifugal braking system for the spool comprising an annular brake surface, a plurality of elongated brake arms extending radially of the spool shaft, a plurality of brake pads slidingly mounted upon the brake arms for radial movement into and out of engagement with the brake surface and means for attaching the brake arms to the spool shaft comprising:

a hub having a bore therethrough sized to receive therein the spool shaft;

means for retaining the hub on the shaft;

a brake arm retainer spaced radially outwardly from the hub;

means for connecting the brake arm retainer to the hub;

means for attaching the brake arms to the brake arm retainer; and

means extending from a spool flange for limiting the outward radial movement of the brake pads upon the brake arms;

said limiting means comprising an annular stop ridge extending outwardly from the spool flange toward the brake arms, said brake pads comprising a body and a protrusion extending radially from the body of each of the plurality of brake pads, the brake arms being spaced sufficiently distant from the stop ridge to permit the body of the brake pads to pass over the ridge when sliding on the brake arms and sufficiently close to the stop ridge that the protrusion from the body of the brake pads will not pass over the ridge, whereby sliding movement of the brake pads on the brake arms is limited.

5,782,421
RECORDING AND/OR REPRODUCING APPARATUS FOR OPERATION WITH MAGNETIC-TAPE CASSETTES OF DIFFERENT SIZES

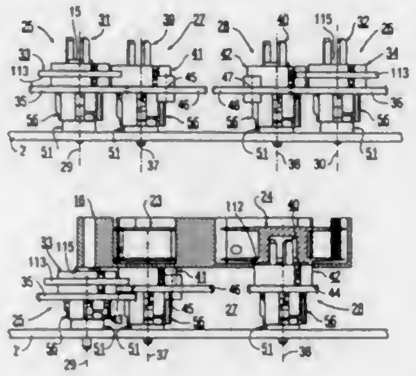
Franz Kletzl, Vienna, and Henricus Ruyten, Gumpoldskirchen, both of Austria, assignors to U.S. Philips Corporation, New York, N.Y.

Filed Nov. 16, 1995, Ser. No. 558,991

Claims priority, application Austria, Nov. 22, 1994, 2159/94

Int. Cl.^{6} G11B *15/32;23/04*

U.S. Cl. 242—336 **2 Claims**



1. A recording and/or reproducing apparatus into which either a first magnetic-tape cassette having a first size and having at least one reel, or a second magnetic-tape cassette having a second size and having at least one reel, can be loaded in an operating position, said apparatus comprising:

a first reel spindle which is rotationally drivable relative to a first axis for driving the reel of the first magnetic-tape cassette;

a first reel disk which is coaxial with the first axis for supporting the reel of the first magnetic-tape cassette,

the first reel spindle being movable in the direction of the first axis between a driving position, in which the first reel spindle is in driving engagement with the reel of the first magnetic-tape cassette, and a non-driving position, in which the first reel spindle is situated outside the area occupied by the second magnetic-tape cassette in the operating position thereof,

and the first reel disc being movable in the direction of the first axis between a supporting position, in which the first reel disc supports the reel of the first magnetic-tape cassette, and a non-supporting position, in which the first reel disc is situated outside the area occupied by the second magnetic-tape cassette in the operating position thereof;

a second reel spindle which is rotationally drivable relative to a second axis for driving the reel of the second magnetic-tape cassettes;

and, a second reel disc which is coaxial with the second axis for supporting the reel of the second magnetic-tape cassette,

characterized in that, in addition,

the second reel spindle is movable in the direction of the second axis between a driving position, in which the second reel spindle is in driving engagement with the reel of the second magnetic-tape cassette, and a non-driving position, in which the second reel spindle is situated outside the area occupied by the first magnetic-tape cassette in the operating position thereof,

and that, in addition, the second reel disc is movable in the direction of the second axis between a supporting position, in which the second reel disc supports the reel of the second magnetic-tape cassette, and a non-supporting position, in which the second reel disc is situated outside the area occupied by the first magnetic-tape cassette in the operating position thereof and, in that the first reel spindle and the first reel disc which is coaxial therewith form part of a first drive means for driving the reel of the first magnetic-tape cassette,

in that the first drive means comprises a flat raised portion which forms a positioning element for the second magnetic-tape cassette,

which raised portion, when the first reel spindle is in the non-driving position and the first reel disc is in the non-supporting position, vertically positions the second magnetic-tape cassette,

and in that there is at least one positioning stop for the positioning element, by means of which positioning stop the first reel disc can be positioned in an axial direction when the first reel spindle is in the non-driving position and the first reel disc is in the non-supporting position.

5,782,422
METAL PLATE MEMBER FORMING A PORTION OF A CASSETTE HOUSING FOR A RECORDING MEDIUM STORAGE CASSETTE

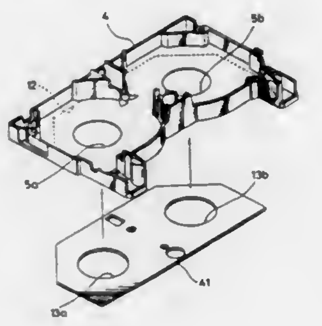
Taizo Fukuda; Shuichi Kikuchi, and Kazuo Sasaki, all of Miyagi, Japan, assignors to Sony Corporation, Tokyo, Japan

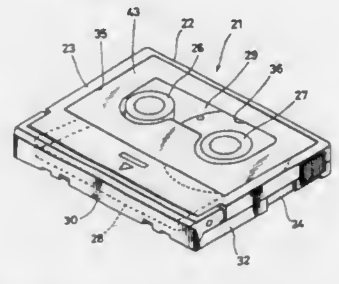
Filed Mar. 5, 1996, Ser. No. 612,020

Claims priority, application Japan, Mar. 7, 1995, 7-047579

Int. Cl.^{6} G03B *23/02*

U.S. Cl. 242—347 **14 Claims**





1. A cassette housing for a recording medium storage cassette comprising:

a lower cassette shell having a substantially concave opening provided in a central surface portion of a bottom surface thereof, said lower cassette shell including an insert member of a predetermined thickness, said insert member having a pair of reel drive shaft insertion apertures and being non-moveably secured within said substantially concave opening which has a depth which is substantially equal to the thickness of said insert member, said insert member being formed of a metal plate member.

5,782,423
SPIRAL TUBE COMPACT PRETENSIONER AND RETRACTOR

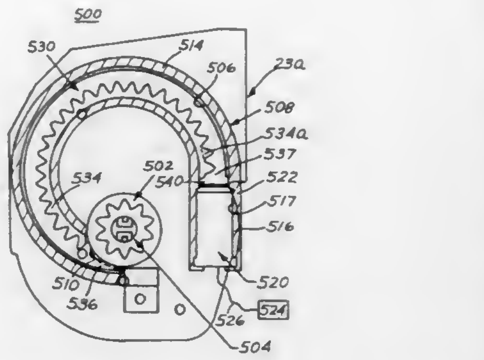
Harold John Miller, III, Troy; Niels Dybro, Utica, both of Mich.; Harjeet Gill, Windsor, Canada, and Jason W. Raines, Harrison Township, Mich., assignors to AlliedSignal Inc., Morristown, N.J.

Continuation-in-part of Ser. No. 542,080, Oct. 12, 1995, abandoned. This application Mar. 20, 1997, Ser. No. 820,857

Int. Cl.^{6} B60R *22/46*

U.S. Cl. 242—374 **10 Claims**

1. An apparatus (**20**, **500**) comprising:



first driven means (**502**) operatively linked to a spool of a retractor (**20**) to rotate the spool (**24**) in a direction of retraction to cause a seat belt (**31**) wound thereabout to retract;

an inteargally formed, spiral shaped first drive means (**530**) having a front end (**436**) initially maintained out of engagement with the first driven means and pushed into engagement with the first driven means to cause same to rotate;

second drive means (**520**) operatively linked to a rear end of the first drive means for pushing the first drive means into engagement with the first driven means thereby causing the first driven means to rotate.

5,782,424
THREAD BRAKE

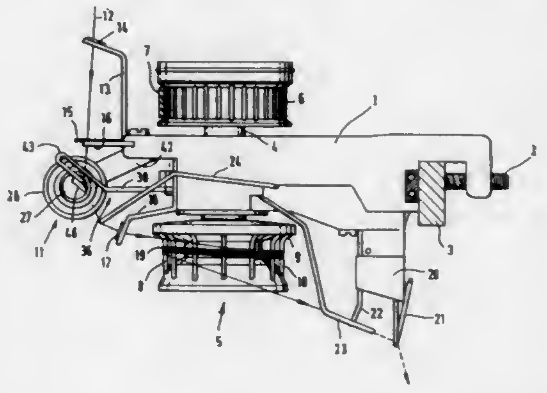
Attila Horvath, Freudenstadt; Hermann Schmodde, Albstadt, and Josef Fecker, Bisingen, all of Germany, assignors to Memminger-IRO GmbH, Dornstetten, Germany

Filed Jan. 19, 1994, Ser. No. 184,400

Claims priority, application Germany, Jan. 21, 1993, 43 01 507.7

Int. Cl.^{6} B65H *59/22;51/00;57/00;* **D04B** *15/44*

U.S. Cl. 242—419.3 **29 Claims**



1. A thread brake comprising:

two essentially plate-shaped brake elements, at least one of said brake elements being provided with a central opening therethrough and an inside rim at said central opening;

loading means for resiliently pressing said brake elements against each other and for permitting at least one thread passed between said brake elements to be braked;

bearing means for rotatably mounting said at least one brake element in a region within an outer circumference of said at least one brake element;

said at least one brake element being in contact with said thread so as to be set in rotary motion by said thread about an axis of rotation that traverses the central opening of said at least one brake element;

said at least one brake element being suspended from said bearing means which projects through said central opening at

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a bearing point located eccentrically in relation to said axis of rotation and on the inside rim at said central opening; and

said bearing means only partially filling out the central opening in said at least one brake element, thereby allowing fluff scraped off said thread to be expelled through unfilled open space of said central opening.

5,782,425
METHOD AND DEVICE FOR WINDING A PAPER WEB

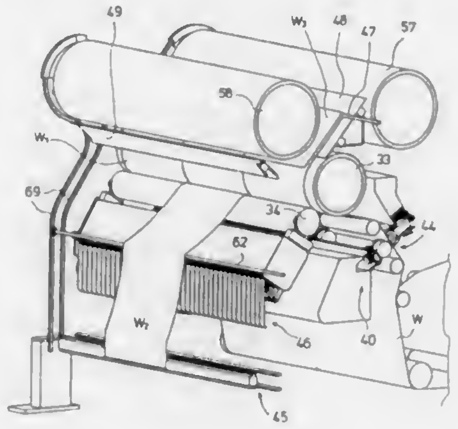
Arto Leskinen, Nukari; Jari Sinkko, Järvenpää , and Pauli Koutonen, Jokela, all of Finland, assignors to Valmet Corporation, Helsinki, Finland

Filed Jul. 2, 1997, Ser. No. 887,010

Claims priority, application Finland, Jul. 5, 1996, 962762

Int. Cl.^{6} B65H *35/00*

U.S. Cl. 242—526.3 **20 Claims**



1. In a method for winding a paper web in which the paper web is unwound from a paper reel and passed through a slitting station of a slitter-winder, the paper web being slit in the slitting station of the slitter-winder longitudinally into component webs, each of the component webs being wound in a winding station into a component roll, the improvement comprising the step of:

cutting off a portion of each of the component webs from a forward end thereof before the component webs are passed into one of the winding stations such that each of the component webs has a predetermined length.

5,782,426
METHOD AND DEVICE FOR REELING A PAPER OR BOARD WEB

Jorma Kinnunen, Helsinki, and Silvo Mikkonen, Jävenpää, both of Finland, assignors to Valmet Corp., Helsinki, Finland

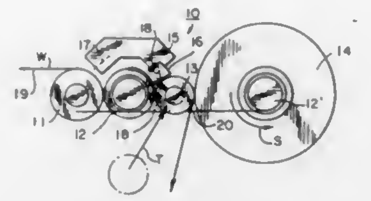
Filed Sep. 26, 1996, Ser. No. 721,794

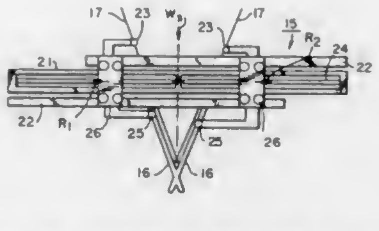
Claims priority, application Finland, Sep. 29, 1995, 954631

Int. Cl.^{6} B65H *35/08*

U.S. Cl. 242—526.3 **20 Claims**

1. In a method for reeling a paper or board web, wherein a first reel spool is in a reeling position in nip-defining relationship with a reeling cylinder and an empty second reel spool is placed in a stand-by position, the web being carried on a belt until it is reeled onto the first reel spool, the belt being guided in a run over the reeling cylinder and a guide roll, the first reel spool being transferred from the reeling position and pushed by the guide roll to a change position and the second reel spool being lowered into the reeling position when the reel forming on the first reel spool is complete, the reeling of the web being transferred from the reel formed on the first reel spool to the second reel spool while the first reel spool is in the change position and the second reel spool is in the reeling position, the improvement comprising:





the transfer of the reeling of the web while the first reel spool is in the change position and the second reel spool is in the reeling position comprising the steps of:

cutting the web across its entire width by initially cutting a middle region of the web to form a tip and then cutting the web between the middle region and side edges of the web by extending the tip to the side edges of the web to thereby form a cut line separating the web reeling onto the first reel spool and the tip,

directing the tip onto the second reel spool after the tip has been formed by cutting the middle region of the web and before the tip is extended to the side edge of the web, and

applying an adhesive onto the web reeling onto the first reel spool proximate a rear edge of the web in advance of the cut line in a running direction of the web and at a uniform distance from the cut line substantially simultaneously with the cutting of the web across its entire width so as to glue and thereby fix the rear edge of the web to an underlying web portion of the reel formed on the first reel spool.

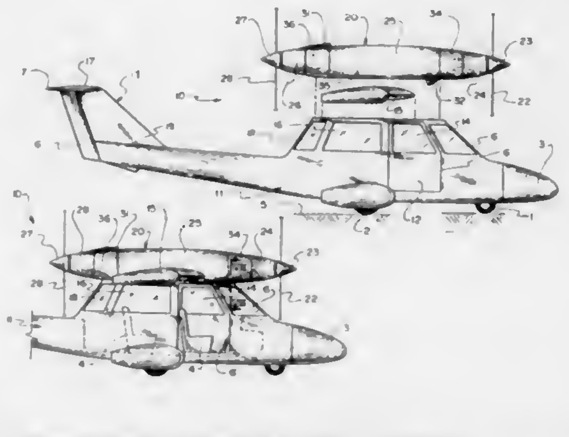
5,782,427
TANDEM-ENGINE AIRCRAFT PROPULSION MODULE

Carl J. Hermach, 1100 S. Belcher, #480, Largo, Fla. 34641

Filed Nov. 28, 1994, Ser. No. 345,292

Int. Cl.^{6} B64L *37/00*

U.S. Cl. 244—2 **4 Claims**



1. Tandem-engine propulsion module, comprising

a housing with only two engines, respectively fore-and-aft in the housing, a fuel compartment centered fore-and-aft in the housing, and engine instruments and controls;

adapted to be installed as the only propulsion means for a fixed-wing aircraft having fuselage means extending fore-and-aft, including a forward cabin portion for a flight crew, with the engine instruments and controls accessible to the flight crew.

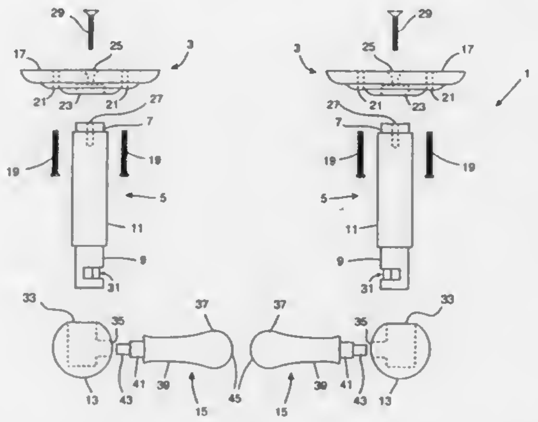
5,782,428
ROLL HOLDER HAVING PIVOTING SUPPORT ARMS

Claude Chabot, 24612 Woodacre Ave., Hayward, Calif. 94544

Filed Sep. 27, 1996, Ser. No. 722,358

Int. Cl.^{6} B65H *75/18*

U.S. Cl. 242—596.8 **15 Claims**



1. An apparatus attachable to a supporting surface for holding and dispensing material stored on a roll, the apparatus comprising:

a first and a second support member, each support member having a first end and a second end, said second end of each said support member including a recess;

a means for securing said first end of each said support member to the supporting surface;

a first pivot comprising a first pivot body having a support member aperture sized to receive said second end of said first support member, and a support arm aperture sized to receive a base end of a first support arm, said support arm aperture of said first pivot body being aligned with said recess of said first support member;

said first support a further comprising a first end, said base end of said first support arm further comprising a protrusion, said base end of said first support arm being received within said support arm aperture of said pivot body, and said protrusion being received within said recess of said first support member; and

a second pivot comprising a second pivot body having support member aperture sized to receive said second end of said second support member, and a support arm aperture sized to receive a base end of a second support arm, said support arm aperture of said second pivot body being aligned with said recess of said second support member;

said second support arm farther comprising a first end, said base end of said second support arm further comprising a protrusion, said base end of said second support arm being received within said support arm aperture of said second pivot body, and said protrusion being received within said recess of said second support member within a range limited by said protrusion within said recess of each said support member.

5,782,429
VIDEO COMPRESSION FOR MISSILE TERMINAL GUIDANCE

Donald C. Mead, Carlsbad, Calif., assignor to Hughes Electronics Corporation, Los Angeles, Calif.

Filed Dec. 19, 1996, Ser. No. 767,132

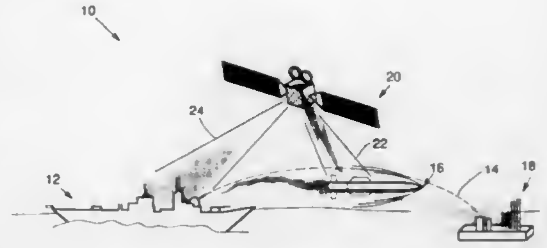
Int. Cl.^{6} F41G *7/30*

U.S. Cl. 244—3.11 **10 Claims**

1. A method for improving aim point accuracy in a programmable flight control missile, comprising:

receiving at least one frame of imagery in a vision system mounted on the missile;

predicting a subsequent frame content based on the content of said at least one frame as a function of missile path height, missile velocity and frame rate;



sensing a subsequent frame content;

creating a residual image by determining the difference between said predicted subsequent frame content and said sensed subsequent frame content;

coding said at least one frame and said residual image in a signal message.

5,782,430
DEVICE FOR ANTIVIBRATORY SUSPENSION OF A HELICOPTER ROTOR

René Louis Mouille, Aix-en-Provence, France, assignor to Eurocopter France, Marignane Cedex, France

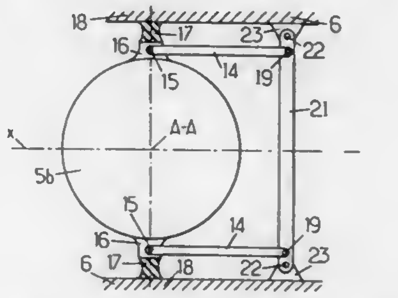
PCT No. PCT/FR95/01728, § 371 Date Sep. 24, 1996, § 102(e) Date Sep. 24, 1996, PCT Pub. No. WO96/20107, PCT Pub. Date Jul. 4, 1996

PCT Filed Dec. 22, 1995, Ser. No. 682,712

Claims priority, application France, Dec. 23, 1994, 94 15591

Int. Cl.^{6} B64C *27/51*

U.S. Cl. 244—17.27 **21 Claims**



1. Device for antivibratory suspension of a helicopter rotor (**1**) on the fuselage (**6**) of the helicopter, on which the rotor (**1**) is integral in rotation with a mast (**4**) supported and driven in rotation about its axis (A—A) by a coaxial transmission gearbox (**5**), the suspension device comprising:

a set of at least three straight and rigid suspension bars (**7**), distributed around the transmission gearbox (**5**) and arranged obliquely with respect to the axis of rotation (A—A), so as to converge toward the axis of rotation (A—A), each bar (**7**) being linked by one end (**8**) to the transmission gearbox (**5**) and articulated (**10**) by its other end to a structural support (**11**) of the fuselage (**6**), and

a device (**12**) linking the base (**5*b***) of the transmission gearbox (**5**) to the fuselage (**6**), allowing transfer to the fuselage (**6**) of the torque in reaction to the torque driving the rotor (**1**) by the transmission gearbox (**5**) as well as the movements of the transmission gearbox (**5**) with respect to the fuselage (**6**) with flexibility in at least one direction perpendicular to the axis of rotation (A—A) in order to filter vibration between the rotor (**1**) and the fuselage (**6**), and comprising, on the one hand, two identical rods (**14**), substantially parallel and extending substantially in the same plane perpendicular to the axis of rotation (A—A), one end of each rod (**14**) being linked to a structural support (**20**) of the fuselage (**6**) while its other end is articulated (**15**) onto one of two lateral supports (**16**) respectively, fixed to opposite sides of the transmission gearbox (**5**), the rods (**14**) extending on the same side of a plane substantially parallel to the axis of rotation (A—A) and pass-

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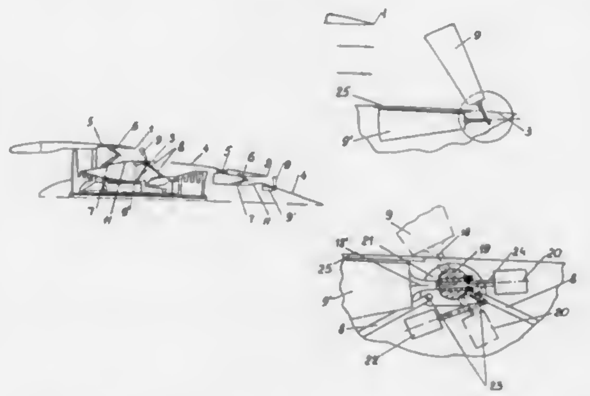
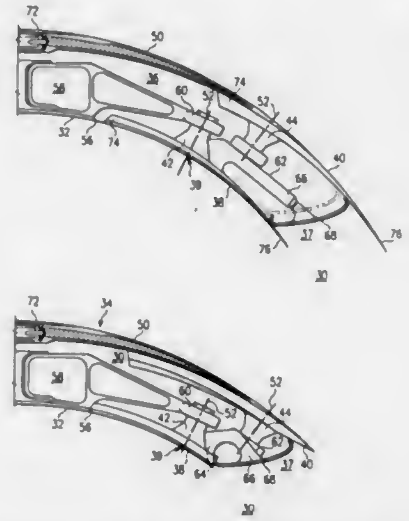
ing through the centers of the articulations (**15**) of the rods (**14**) onto the transmission gearbox (**5**), so that one of the rods is stressed in tension and the other in compression for transferring said reaction torque to the fuselage (**6**), and, on the other hand, at least one elastic link (**13, 34**) including at least one element for elastic return (**17, 37**) in at least said direction perpendicular to the axis of rotation (A—A) and also perpendicular to the rods (**14**), and fixed between a structural support (**18, 38-39**) of the fuselage (**6**) and a lateral support (**16, 35**) of the base (**5***b*) of the transmission gearbox (**5**), characterized in that the ends of the rods (**14**) linked to structural supports (**20**) of the fuselage (**6**) are articulated directly (**19**) onto said structural supports (**20**).

5,782,431
THRUST VECTORING/REVERSING SYSTEMS
Benjamin Gal-Or; Michael Lichtsinder, and Valery Sherbaum, all of Technion—Israel Institute of Technology, Haifa, Israel, 32000
Filed Aug. 18, 1995, Ser. No. 516,870
Int. Cl.⁶ B64C *15/02*
U.S. Cl. 244—52 **18 Claims**



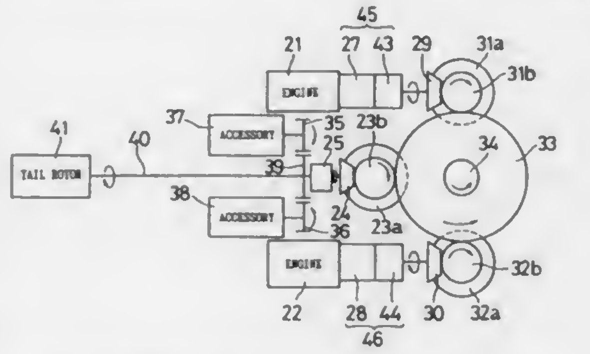
1. The method of controlling motion by thrust-vectoring control means inside nozzles of gas-turbine operated vehicles and fluid-jet operated systems, comprising the steps of:
  a. Grouping radially-oriented thrust vectoring control means of low drag shape in sectors according to their yaw, roll, and pitch thrust-vectoring orientations with respect to the vehicle/system;
  b. Connecting each of said sectors of thrust vectoring control means with sectorially-commanded thrust-vectoring actuators;
  c. Deploying said sectors of thrust vector controlling means from their thrust vectoring stowed position into said nozzle flow, while simultaneously rotating each said thrust vectoring control means;
  d. Positioning by said deployment each of said thrust-vectoring control means at minimal drag orientation parallel to local flow at zero reference angle for thrust-vectoring;
  e. Vectoring thrust in said roll-yaw-pitch coordinates by sectorially-commanding rotations of said thrust vectoring control means away from said zero reference angle;
  f. Retracting said thrust vectoring control means back to said stowed position;
  g. Splitting said nozzle flow by asymmetric deploying of a fraction of available conventional thrust-reversing doors and/or said sectors of thrust vectoring control means without rotation, until effecting a partial nozzle-flow blocking, thereby forcing pair of said flow through openings in radially-out/upstream direction for providing course/emergency thrust vectoring;
  h. Reversing thrust by symmetric conventional deploying/sliding methods involving all said thrust vectoring control means functioning as conventional thrust-reversing doors without simultaneous rotation.

5,782,432
APPARATUS FOR A VARIABLE AREA NOZZLE
Kevin J. Renshaw, Fort Worth, Tex., assignor to Lockhead Corporation, Fort Worth, Tex.
Filed Dec. 13, 1995, Ser. No. 571,534
Int. Cl.⁶ B64D *33/04*
U.S. Cl. 244—53 R **18 Claims**



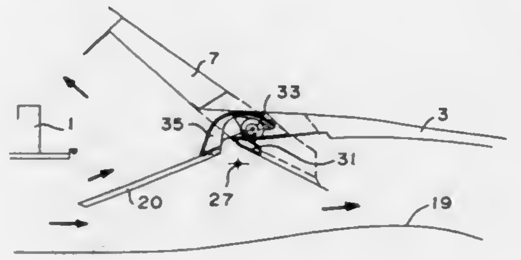
1. A variable area nozzle, the nozzle comprising:
- a nozzle shell forming a nozzle opening the nozzle opening having a cylindrical area and a circumference; and
- a plurality of inner and outer nozzle flaps, each nozzle flap having an internal portion and an external portion, said nozzle flaps supported about said circumference of said nozzle opening with said internal portion, said nozzle flaps each having an axis of rotation, said nozzle flaps positioned to rotate said external portion into said nozzle opening to decrease said cylindrical area of said nozzle opening, said nozzle flaps positioned to rotate out of said nozzle opening to increase said cylindrical area of said nozzle opening, and said rotation of said nozzle flaps to vary said cylindrical area of said nozzle opening and to reduce the forces required to rotate said nozzle flaps.

5,782,433
ENGINE DECELERATION DEVICE AND POWER TRANSMISSION DEVICE FOR HELICOPTERS
Tatsuhiko Goi; Nobuyoshi Yamauchi, and Eiichi Yamakawa, all of Kakamigahara, Japan, assignors to Advanced Technology Institute of Commuter-Helicopter, Ltd., Gifer, Japan
Filed Mar. 12, 1996, Ser. No. 615,786
Claims priority, application Japan, Apr. 27, 1995, 7-104362
Int. Cl.⁶ B64C *27/58*
U.S. Cl. 244—60 **1 Claim**



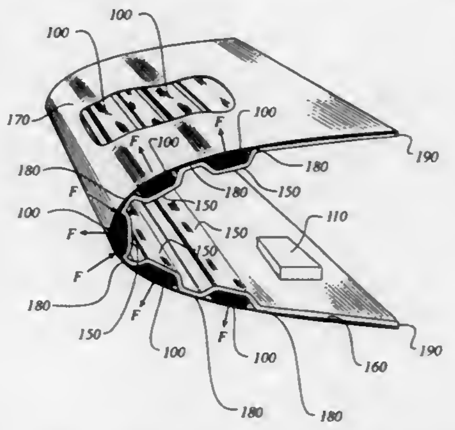
1. A power transmission device for helicopters comprising:
- a first traction speed change mechanism of continuously variable speed change ratio, coupled to an output shaft of an engine;
- a collector gear driven by output torque from the first traction speed change mechanism;
- a main rotor shaft for rotating and driving a main rotor which generates lift force, directly coupled to the collector gear;
- a second traction speed change mechanism coupled to the collector gear, in which speed change is carried out at the inverse number ratio of the speed change ratio of the first traction speed change mechanism; and
- a tail rotor and accessories driven by output torque from the second traction speed change mechanism.

5,782,434
SELF-CLOSING PIVOTING DOOR THRUST REVERSER WITH GEAR ACTUATED PANEL
Michel Christian Marie Jean, Harfleur, France, assignor to Societe Hispano Suiza, Saint Cloud Cedex, France
Filed Feb. 14, 1997, Ser. No. 800,043
Int. Cl.⁶ F02K *1/70*
U.S. Cl. 244—110 B **7 Claims**



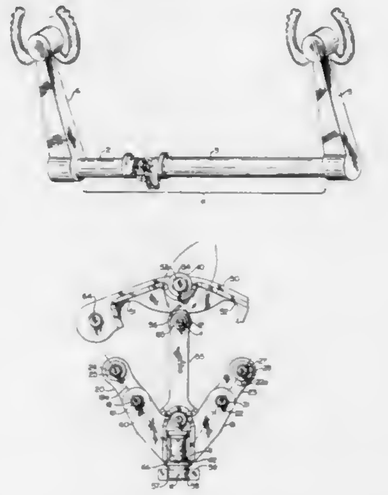
1. A thrust reverser for a turbojet engine having a housing forming an outer boundary of a duct through which gases pass in an upstream to downstream direction the housing having at least one lateral opening, the thrust reverser comprising:
  a) at least one thrust reverser door pivotally attached to the housing so as to be movable about a pivot axis between a forward thrust position wherein the at least one thrust reverser door covers the lateral opening and wherein an inner portion of the at least one thrust reverser door forms a part of the boundary of the duct, and a reverse thrust position wherein the at least one thrust reverser door uncovers the lateral opening and directs gases flowing through the duct outwardly through the lateral opening;
  b) a least one thrust reverser panel pivotally attached to the housing so as to be movable about the same pivot axis as the at least one thrust reverser door between a forward thrust position, wherein an inner surface forms a portion of the outer boundary of the duct, and a reverse thrust position wherein the at least one thrust reverser panel directs at least a portion of the gases outwardly through the lateral opening; and,
  c) an epicyclic gear mechanism connected to the housing, the at least one thrust reverser door and the at least one thrust reverser panel such that the at least one thrust reverser door and the at least one thrust reverser panel move in opposite directions around the pivot axis between their forward and reverse thrust positions whereby when the at least one thrust reverser panel is in its forward thrust position a force exerted on an inner surface of the at least one thrust reverser panel by pressurized gases in the duct will urge the at least one thrust reverser door to remain in its forward thrust position.

5,782,435
ELECTRO-MAGNETIC EXPULSION DE-ICING SYSTEM
Richard B. Ingram; Gerald W. Codner, both of Ithaca, and Joseph J. Gerardi, Dryden, all of N.Y., assignors to Cox & Company, Inc., New York, N.Y.
Filed May 24, 1995, Ser. No. 449,628
Int. Cl.⁶ B64D *15/16;* **H01F** *7/08*
U.S. Cl. 244—134 D **52 Claims**



1. An elongated and mechanically deformable electro-magnetic actuator adapted for radial deformation normal to its longitudinal axis of elongation comprising:
- a flexible dielectric sheet; and
- a flexible conductive strip disposed on said dielectric sheet, said dielectric sheet and conductive strip being shaped as a flattened and elongated tube, said conductive strip being wound into a coil around said longitudinal axis, whereby said sheet and strip become less flattened and more cylindrical when an electrical current is passed through the strip.

5,782,436
TORQUE TUBE BREAKOUT MECHANISM
John G. Pohling, Buena Park, Calif., assignor to McDonnell Douglas Corporation, Long Beach, Calif.
Filed Jan. 19, 1996, Ser. No. 588,749
Int. Cl.⁶ B64C *13/12;13/44*
U.S. Cl. 244—229 **22 Claims**



1. A torque tube disconnect apparatus disposed between torque tube sections comprising:
  a. a lever attached at one end to a first torque tube section and adapted to move relative to said first torque tube section, the lever including a first recess in said lever and at least one adjacent recess;

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b. a swivel bar adapted for selective engagement with the recesses of said lever and adapted for releasably engaging a second torque tube section, said swivel bar further having a pair of arms;

c. a pair of articulatable links each rotatably attached separately to one of said arms at one end of said links, said links adapted for rotation relative to said arms;

d. a mount attached to said first torque tube section adapted for rotatably receiving each of the articulatable links, said links spaced apart from one another and adapted to rotate relative to said mount; and

e. a spring adapted for attachment to said lever at one end and to said swivel bar at the other.

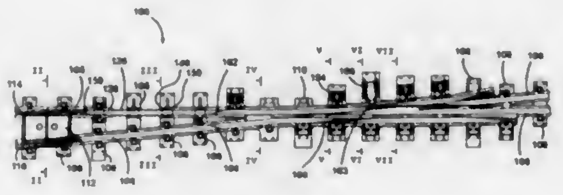
5,782,437
SPRING RAIL FROG HAVING BENDABLE RAIL WITH MODIFIED CROSS-SECTION

Takaaki Irie, and Katunari Konishi, both of Himeji, Japan, assignors to Yamato Kogyo Co., Ltd., Himeji, Japan

Filed Dec. 2, 1996, Ser. No. 755,854

Int. Cl.^{6} E01B *7/14*

U.S. Cl. 246—276 **17 Claims**



1. A spring rail frog comprising:

a movable wing rail having a head portion, a web portion and a base portion along its length;

a fixed wing rail; and

at least one nose rail;

wherein said movable wing rail has a bendable portion and a non-bendable portion and said base portion of said movable wing rail includes a reduced width base portion so that the bendable portion comprises the reduced width base portion that is reduced in width compared to a width of the base portion of the nonbendable portion.

5,782,438
VERSATILE MOUNTING AND ADJUSTMENT SYSTEM FOR PASSIVE INFRARED DETECTOR

Edward B. Hubben, Skaneateles, and Curtis J. Royce, Syracuse, both of N.Y., assignors to Pass & Seymour, Inc., Syracuse, N.Y.

Filed Jan. 31, 1996, Ser. No. 594,770

Int. Cl.^{6} G12B *9/00*

U.S. Cl. 248—27.3 **72 Claims**

1. A PIR device and means for mounting said device comprising:

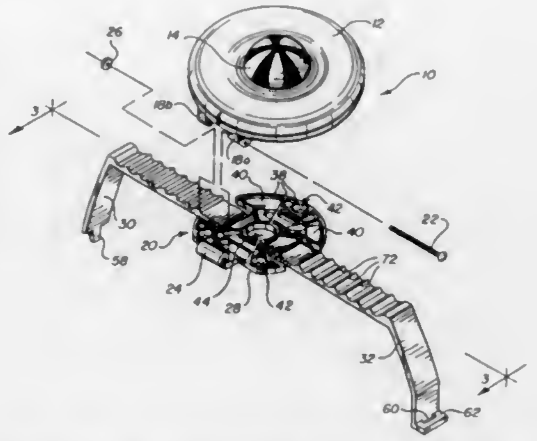
a) housing means defining an enclosed space containing electrical elements of said device;

b) a lens element having a central axis and mounted upon said housing to focus infrared radiation upon one of said electrical elements;

c) a support member;

d) first means for mounting said housing upon said support member;

e) second means for mounting said support member upon a first type of pre-existing structure; and



f) third means for mounting said support member upon a second type of pre-existing structure, alternatively to said first type of structure.

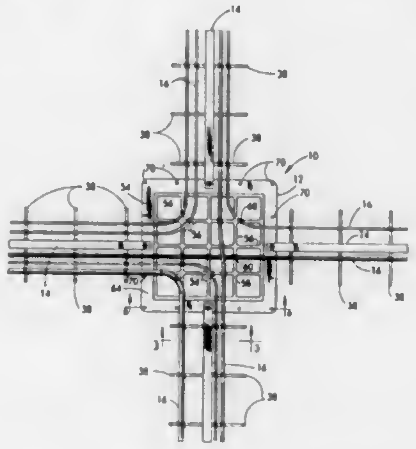
5,782,439
SUPPORT SYSTEM FOR TRANSMISSION LINES AND CABLE

Eric R. Rinderer, Highland, Ill., assignor to Sigma-Aldrich Company, St. Louis, Mo.

Filed Nov. 28, 1995, Ser. No. 563,676

Int. Cl.^{6} H02B *3/00*

U.S. Cl. 248—49 **19 Claims**



1. A line support system comprising

a plurality of rail sections having line-supporting rungs extending laterally outward from the rail sections.

a hub having a horizontal peripheral rim around the hub, and

a plurality of vertical holes in the rim at intervals spaced around the rim for connecting said rail sections to said hub in positions in which the rail sections extend laterally out from the hub.

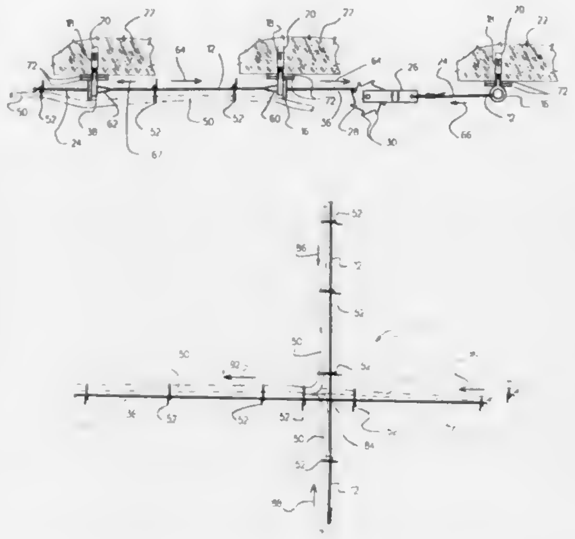
5,782,440
TELECOMMUNICATION CABLING SUSPENSION SYSTEM FOR CEILING AND PLENUM AREAS

Jane E. Ozga, and Sue E. Walker, both of 3525 S. Tamarac Dr., Ste. 120, Denver, Colo. 80237

Filed Feb. 16, 1996, Ser. No. 602,658

Int. Cl.^{6} E21F *17/02*

U.S. Cl. 248—58 **5 Claims**



1. A system for routing and suspending a plurality of telecommunication cables together from a ceiling in a plenum area in a building structure to support a telecommunications cabling network within the plenum area, the system comprising:

a first suspension means having a first and a second wires, each of said first and second wires defining a first end and a second end, wherein said first end of said first wire including means for attachment to the ceiling in the plenum area and said second end of said first wire attached to a first end of a first tensioning means, and said first end of said second wire attached to a second end of said first tensioning means and said second end of said second wire adapted for attachment to the building structure so that tension means may be applied and adjusted along said first suspension means;

a second suspension means having a first and a second wires, each of said first and second wires defining a first end and a second end, wherein said first end of said first wire including means for attachment to the ceiling in the plenum area and said second end of said first wire attached to a first end of a second tensioning means, and said first end of said second wire attached to a second end of said second tensioning means and said second end of said second wire adapted for attachment to the building structure so that tension may be applied and adjusted along said second suspension means, said second suspension means being at an angle to said first suspension means;

means for securing the plurality of telecommunication cables together against the first suspension means and against the second suspension means, so that the telecommunication cables may be used as a telecommunications distribution network in the plenum area.

5,782,441
CABLE LAYING APPARATUS

Shohachi Shimizu, Gifu, Japan, assignor to Mirai Industries, Co., Ltd., Gifu, Japan

Filed Dec. 23, 1994, Ser. No. 363,724

Claims priority, application Japan, Dec. 27, 1993, 5-330445; Jul. 12, 1994, 6-160267

Int. Cl.^{6} F16L *3/22*

U.S. Cl. 248—68.1 **6 Claims**

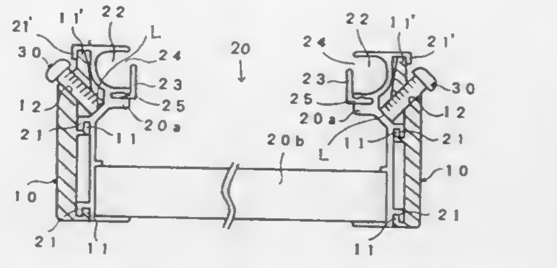
1. A rack frame for a cable rack, comprising:

a) a frame body;

b) longitudinally extending chute means provided on said frame body;

c) cable floor mounting means provided on said frame body;

d) at least two longitudinally extending outer hook portions provided in parallel on said frame body for partially engaging longitudinally extending engagement hook portions of a fastener means, said fastener means having at least two threaded through screw holes; and



e) a longitudinally extending screw receiving surface provided on said frame body,

wherein said screw receiving surface is provided to receive screw means through said screw holes in a substantially different orientation from the direction of said partial hook engagement so that said partial hook engagement becomes more secure as said screw means is fastened further in said screw holes and readily and securely aligns said chute means with chute means of another rack frame.

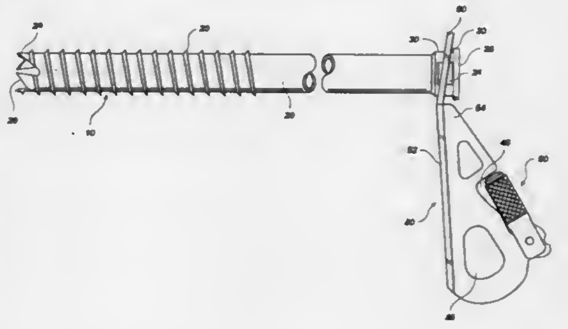
5,782,442
ICE SCREW WITH FOLDABLE CRANK HANDLE

Hong Kyu Kwak, Salt Lake City, Utah, assignor to Black Diamond Equipment, Ltd., Salt Lake City, Utah

Filed Jan. 22, 1997, Ser. No. 792,954

Int. Cl.^{6} A47F *5/08*

U.S. Cl. 248—231.9 **11 Claims**



1. An ice screw device for use by climbers on a body of ice, said device comprising:

a shaft having screw threads;

a hanger attached to the shaft to cause the shaft to rotate when the hanger is moved, the hanger having an eye for receiving a clipped-on carabiner; and

a crank handle attached to the hanger and pivotable between a folded position generally against the hanger, and a crank position where it may be grasped and moved to rotate the shaft.

5,782,443
STAND FOR SUPPORTING A GOLF CLUB IN A HIGHLY VISIBLE POSITION WHEN NOT IN USE

Judd La Fontaine, 2010 Jimmy Durante Blvd. #220, Del Mar, Calif. 92104

Filed Aug. 15, 1997, Ser. No. 911,995

Int. Cl.^{6} A63B *55/10*

U.S. Cl. 248—156 **3 Claims**

1. A stand for supporting a golf club in a highly visible and easily retrievable position above a grassy surface so as to protect it from possible loss while not being used, comprising:

a base member including a generally horizontal top plate, and at least two horizontally spaced spikes depending downwardly from the under side of the top plate and adapted to be driven into the grassy surface by pressure applied to the top plate, so

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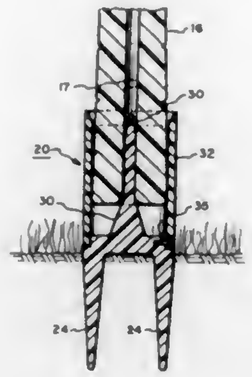


that the golf club may be placed in vertically disposed position with its lower end resting above the top surface of the top plate while the remaining portion of the under side of the top plate directly engages the grassy surface;

a column extending vertically upward from the upper surface of the top plate, capable of being in parallel with a substantial portion of the length of the club and internally engagingly and supporting the club;

securing means capable of at least partially encircling the club at a finite distance above the top plate of the base member and cooperating with the column for removably maintaining the club in its vertically disposed position; and

fastening means capable of holding the securing means in fixed relation to the column.

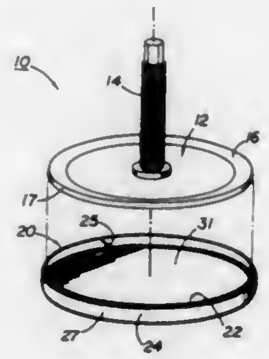
5,782,444
CABINET SKATE

Terry J. Anderman, Woodstock, Ga., and Kirk Wurdack, Chattanooga, Tenn., assignors to Interface, Inc., Atlanta, Ga.

Filed Apr. 26, 1996, Ser. No. 638,496

Int. Cl.^{6} A47B *91/00*

U.S. Cl. 248—188.8 **15 Claims**



1. A cabinet skate for attaching to a furniture foot comprising:

a) a web with a top surface, a bottom surface, a center and an outer perimeter in which the thickness of the web gradually increases from the perimeter to the center thereby forming a crown on the bottom surface; and

b) a retaining wall protruding from the top surface at the perimeter, the wall having an inside surface, an outside surface and means for retaining the furniture foot.

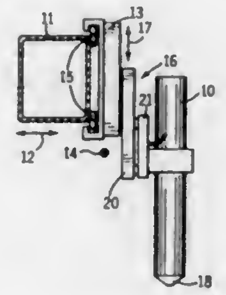
5,782,445
MOUNTING AND LOCATING DEVICE FOR A BREAKAWAY TOOL HOLDER

Alvin L. Cleek, Wauwatosa, Wis., assignor to MG Systems & Welding, Inc., Menomonee Falls, Wis.

Filed Dec. 11, 1996, Ser. No. 763,804

Int. Cl.^{6} B23K *7/10*

U.S. Cl. 248—206.5 **15 Claims**



1. A breakaway tool mounting device for supporting a tool holder on a tool carriage providing three axis movement, said mounting device comprising:

a support plate attached to the carriage and having a generally planar support surface;

a tool mounting plate demountably attached to said support plate and having a generally planar mounting surface disposed parallel to said support surface in an attached position;

means for releasably holding said plates in said attached position; and,

a non-redundant locating system for providing a fixed relation between said plates in the attached position, said system including first, second and third locators providing, with said holding means, operative contact between said plates, said first locator providing restraint to movement between said plates in both directions on all three axes of movement, said second locator providing restraint to movement between said plates in both directions on two of said axes of movement, and said third locator providing restraint to movement between said plates in both directions on one of said axes.

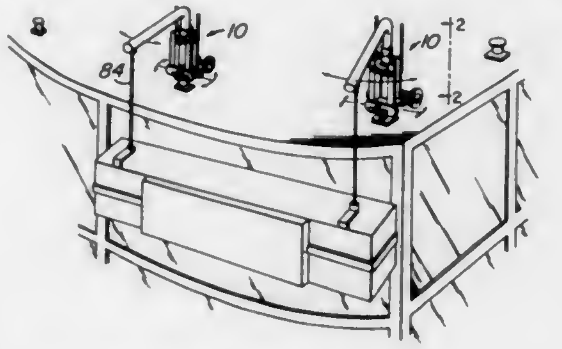
5,782,446
DAVIT MOUNTING ASSEMBLY

Ali Ghahremani, Granada Hills, Calif., assignor to Skymaster, Inc., City of Industry, Calif.

Filed Jan. 21, 1997, Ser. No. 785,906

Int. Cl.^{6} F16M *13/00*

U.S. Cl. 248—220.21 **11 Claims**



1. A davit mounting assembly, comprising:

a generally circular mounting plate secured on a pedestal mounted on an elevated surface of a structure, and

a davit mounting assembly adapted to be removably and rotatably mounted on said mounting plate, said davit mounting assembly being adapted to receive a davit,

whereby the davit mounting assembly is rotatable on the mounting plate for positioning thereof in any selected rotational position relative to the mounting plate.

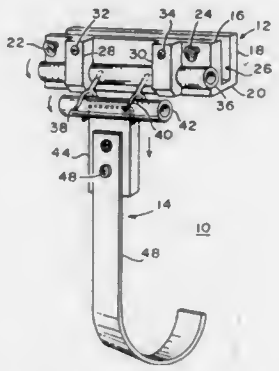
5,782,447
POOL HOOK

Thomas J. Hoffend, 1472 Long Pond Rd., Rochester, N.Y. 14626

Filed Jun. 24, 1996, Ser. No. 667,938

Int. Cl.^{6} A47B *96/06;* **A47K** *1/00*

U.S. Cl. 248—227.1 **20 Claims**



1. A detachable multipiece support attachable to a swimming pool, said support comprising:

a clamp having a longitudinal groove, said groove defined by first and second legs attached to a base, said legs having outer surfaces and inner surfaces;

a longitudinal support parallel to the longitudinal groove and attached to said clamp, said longitudinal support having at least one tension clip extending therefrom, said clip having first and second spaced apart arms;

a support hook; and

a mounting head attached to the hook and engaged between the first and second spaced apart arms of the tension clip,

wherein said support hook is releasable from said clamp.

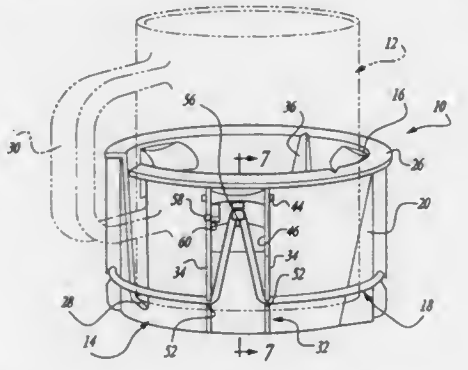
5,782,448
APPARATUS FOR SUPPORTING A CONTAINER

Matthew C. Withun, Rochester Hills; Bradley A. Richards, Royal Oak, and Thomas P. Muday, Auburn Hills, all of Mich., assignors to LDM Technologies, Inc., Auburn Hills, Mich.

Filed Jul. 9, 1996, Ser. No. 677,084

Int. Cl.^{6} A47K *1/08*

U.S. Cl. 248—311.2 **16 Claims**



1. An apparatus for supporting a container, the apparatus comprising:

a frame at least partially defining an aperture for receiving the container;

a plurality of substantially rigid container engaging members pivotally mounted to said frame, each of said plurality of container engaging members including a camming surface for establishing line contact with the container, each of said plurality of container engaging members being deflectable from a fully extended position towards a fully retracted position in response to insertion of the container in said frame, said camming members each being configured to maintain a line of contact on a common circle as said container engaging members are each uniformly rotated through their range of motion, said common circle having a variable diameter ranging from a first value when said container engaging members are in said fully extended positions to a second value when said container engaging members are in said retracted positions; and

a biasing arrangement for biasing each of said plurality of container engaging members toward their fully extended positions and into contact with the container.

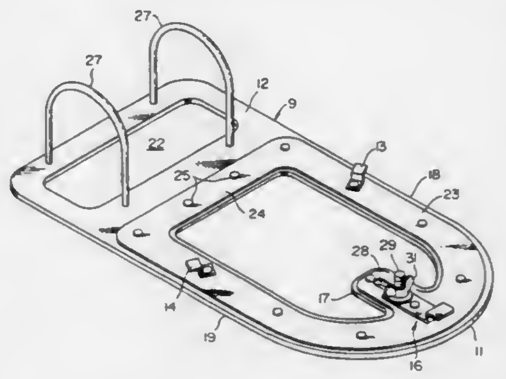
5,782,449
BACKPACK STOVE STAND

Thomas E. Church, 1900 Hillsdale Rd., Athol, Id. 83801; Brian R. Killian, 14353-117th Ave., N.E., Kirkland, Wash. 98034, and Richard A. Milestone, 1917 SE. 128th St., Renton, Wash. 98059

Filed Jun. 14, 1996, Ser. No. 663,810

Int. Cl.^{6} A47B *91/00*

U.S. Cl. 248—346.03 **19 Claims**



1. A stove stand for a portable stove and fuel tank combination comprising;

an elongated relatively thin sheet material base plate with planar top and bottom surfaces for mounting a stove and fuel tank and for substantially full surface contact with a supporting sub surface respectively,

said base plate including a stove mounting section on one end and a tank mounting section on the other end thereof,

anchor clip members located on said stove mounting section positioned to receive and clamp a stove base on the top surface thereof,

said stove mounting section having a cut-out area directly beneath the stove to permit the flow of heat from the stove directly to the-supporting sub surface, and

hold-down means on said tank mounting section for removably mounting a fuel tank to the top surface thereof.

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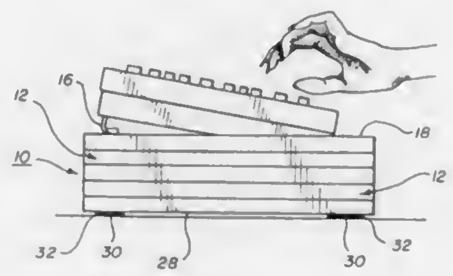
5,782,450
ERGONOMIC STRESS-REDUCING DEVICE FOR COMPUTER KEYBOARDS AND THE LIKE

Richard C. Spencer, 20253 E. San Gabriel Valley Dr., Walnut, Calif. 91789

Filed Jul. 10, 1995, Ser. No. 500,283

Int. Cl.^{6} A47G *29/00*

U.S. Cl. 248—346.07 **15 Claims**



1. An ergonomic support for computer keyboards, the support comprising, in combination:

a) a plurality of stacked shape-retaining computer keyboard-supporting sheets, each sheet being of controlled thickness, width and length, the uppermost of the sheets in the stack having non-slip means thereon bearing spaced keyboard-centering lines, the lowermost of the sheets in the stack having a bottom surface including a non-slip means; and

b) means integral with the sheets releasably interconnecting the sheets in the stack into a solid support block;

c) wherein the sheets are of differing thicknesses of from about ⅛ inch to about ½ inch thick for customizing the height of the keyboard for maximum stress-relieving effect, and

d) wherein the sheets are of differing colors to indicate the differing thicknesses of the sheets for any reassembly of the support.

5,782,451
SWIVEL BASE APPARATUS AND METHOD OF MAKING A SWIVEL BASE

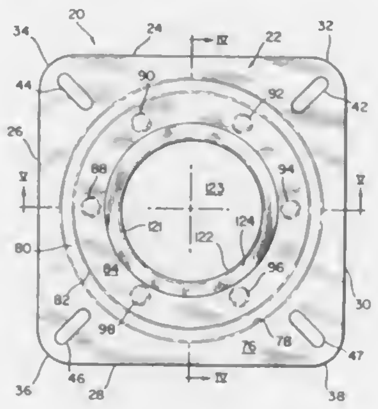
Garnett Carnahan; Caroline Carnahan, both of 337 E. Lindbergh Rd., Nixa, Mo. 65714, and Sherman Lee, P.O. Box 1111, Nixa, Mo. 67514

Continuation-in-part of Ser. No. 512,415, Aug. 8, 1995, Pat. No. 5,685,514. This application Feb. 2, 1996, Ser. No. 597,548

Claims priority, application Switzerland, Jun. 6, 1995, 95244133.0

Int. Cl.^{6} A47B *95/00*

U.S. Cl. 248—425 **38 Claims**



1. A swivel base, comprising:

a first plate having an external peripheral edge and an internal edge defining an opening in said first plate; and

a second plate having an external peripheral edge and a hook-shaped internal section, which hook shaped internal section defines an opening in said second plate and includes a first section in contact with a first side of said first plate, a second section extending across said internal edge, and a third section in contact with a second side of said first plate, and the internal edge of said first plate being slideably received within said hook-shaped internal section such that at least one of said first and second plates is rotatable.

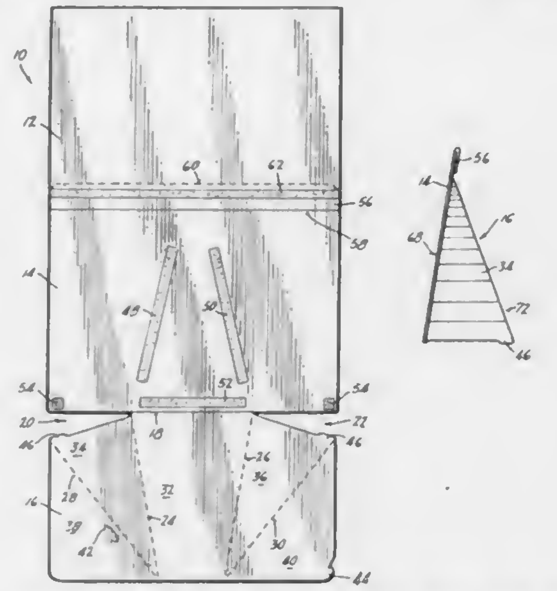
5,782,452
COMBINATION PICTURE POST CARD MAILER AND DISPLAY EASEL

John Bosworth, 601 N. Broadway, Upper Nyack, N.Y. 10960

Filed May 13, 1996, Ser. No. 645,083

Int. Cl.^{6} A47B *97/04*

U.S. Cl. 248—459 **31 Claims**



1. As a new article of manufacture, a flat mailing package consisting of a combined mailing post card and display easel, said package comprising in combination:

a) a die-cut blank having an easel portion, an address and message portion, and a display portion,

b) said address and message portion being separably attached to said display portion,

c) said easel portion having means including at least two mutually divergent fold lines to enable it to be folded in to angularly related panels independently of the display and address and message portions, and being folded over said display portion, said easel portion lying flat thereagainst in superposed relation therewith,

d) said address and message portion being folded over said superposed folded easel portion and display portion, said address and message portion lying flat against the latter two portions, and

e) means for separably holding said address and message portion in folded position over said easel portion.

5,782,453
DECORATIVE TREE PLANTER STAND

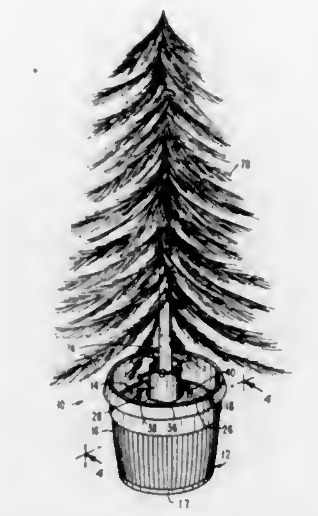
Lou Ann Tuzza, 19 Oakland St., East Patchogue, N.Y. 11772, and Nancy Barrie, P.O. Box 921, Remsenberg, N.Y. 11960

Filed Dec. 13, 1996, Ser. No. 764,941

Int. Cl.^{6} F16M *13/00*

U.S. Cl. 248—523 **4 Claims**

1. In a decorative tree support stand which includes a planter, the improvements comprising, a support stanchion insert disposed within said planter and supported therefrom, said support stanchion insert comprising a tree trunk support riser extending upwardly generally centrally thereof and operable to receive and support a tree trunk therefrom, and attachment means operatively associated with said tree trunk support riser and operable to securely grasp the stump of said tree trunk and retain the same firmly supported in said tree trunk support riser, and thus from said planter, said planter including an internal support ridge, said support stanchion insert being generally cylindrical and comprising an enlarged, generally circular cover including a lower support rim, and said support rim being operable to rest upon said planter support ridge to support said support stanchion insert within said planter.



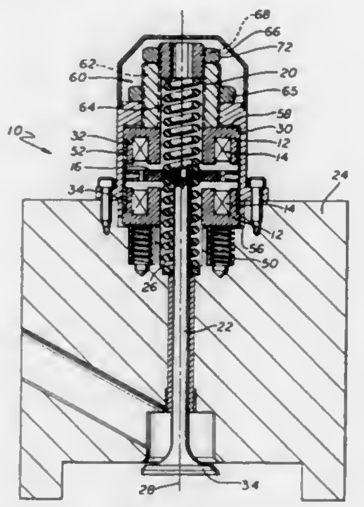
5,782,454
ELECTROMAGNETICALLY ACTUATED VALVE

Dennis C. Bulgatz, Reseda; Fernando B. Morinigo, Los Angeles, both of Calif.; Christopher Sortore, Charlottesville, Va., and Keith O. Stuart, Cypress, Calif., assignors to Aura Systems, Inc., El Segundo, Calif.

Division of Ser. No. 84,737, Jun. 28, 1993, Pat. No. 5,548,263, which is a continuation-in-part of Ser. No. 957,194, Oct. 5, 1992, Pat. No. 5,222,714. This application Apr. 12, 1996, Ser. No. 630,694

Int. Cl.^{6} H01F *7/08*

U.S. Cl. 251—129.1 **2 Claims**



1. An electromagnetic actuator comprising:

at least one pair of electromagnets, each pair of electromagnets further comprising an upper electromagnet and a lower electromagnet, each of said electromagnets having an annular horizontal cross-section defining a central chamber, and further wherein the upper and lower electromagnets of said pair are in a mirror relationship to each other;

at least one armature element, said armature element having an annular horizontal cross-section and being disposed intermediate said upper and lower electromagnets;

a spring disposed within the central chamber of the electromagnets, said spring having a tension to bias said armature element in a neutral position; and

a passive mechanical spring adjustment member, said adjustment member engaging said spring so as to control the tension in said spring, whereby the neutral position of said armature element is controlled.

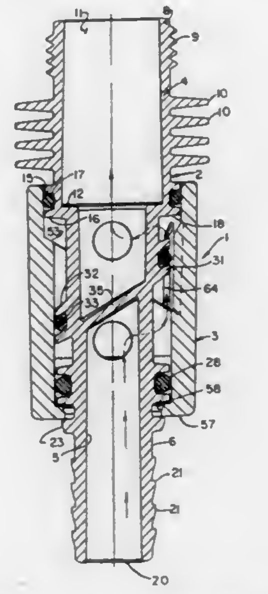
5,782,455
VALVE

Douglas J. Burnworth, Confluence, Pa., assignor to Gilmour, Inc., Newark, Del.

Filed Aug. 9, 1996, Ser. No. 695,343

Int. Cl.^{6} F16K *31/00*

U.S. Cl. 251—345 **5 Claims**



1. A valve having an elongated body, said body having an inlet end adapted to be connected to a supply of liquid under pressure and an outlet end through which liquid flows when said valve is open, said body having a cylindrical section through a mid portion of its longitudinal extent, first means for sealing an inlet end of said mid-portion, and second seal means, spaced lengthwise of said body from said first sealing means, for sealing an outlet end of said mid portion, and an elliptical seal seat on an exterior surface of said cylindrical section between said first and second sealing means, said elliptical seal seat being circular as viewed in plan and diagonal as viewed in side elevation, said body having an interior fluid-tight partition between the first and second sealing means, and ports through said side wall on longitudinally opposite sides of said partition; and a sleeve, mounted on said body for rotation with respect thereto, said sleeve having a hollow, open ended cylindrical wall, circular in transverse cross-section, said wall having a first, uninterruptedly smooth interior wall surface section through a portion of an inlet end of its length, a second, radially outwardly offset portion of said inner wall surface defining with said first section a ledge extending diagonally in side elevation, a plurality of channel-defining ribs in said offset portion extending longitudinally from said ledge toward an open outlet end of said sleeve but short thereof, and a third, uninterrupted inner wall surface section between an outer end of said ribs and an open outlet end of said sleeve, a radially inner face of each rib lying on substantially the same radius as the first wall surface section, said first surface section being in continuous engagement with a seal mounted in the elliptical seat in one, closed, position of said sleeve with respect to

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said body, and said faces of said ribs being in engagement with at least a portion of a said seal in a rotated, open position of said sleeve.

5,782,456
VEHICLE JACK

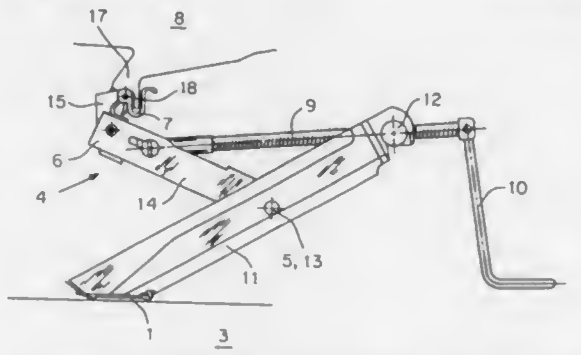
Peter Broslus, Ayl; Ludger Hilvert, Irsch; Andreas Huber, Braunschweig, and Ferdinand Alten, Mandern, all of Germany, assignors to August Bilstein GmbH, Ennepetal, Germany

Filed Jun. 19, 1996, Ser. No. 666,078

Claims priority, application Germany, Jun. 20, 1995, 195 21 994.5; Nov. 22, 1995, 195 43 523.0

Int. Cl.^{6} B66F *3/12*

U.S. Cl. 254—126 **14 Claims**



1. A jack comprising: an upright member standing on the ground; an arm articulated to said upright member and pivotable about a fixed horizontal axis; a spindle for raising and lowering said arm with respect to the ground; said arm having a free end bent upward to a vehicle to be raised by the jack; a pivotable carrying accommodation member on said free end; a sill seam engaged by said accommodation member, said accommodation member being pivotable about an axis located at least as high as said sill seam over a top side of a linear part of said arm; said arm having two parts, one of said parts being a base member extending linearly to said free end; the other part being an angled section form-fitted onto said free end.

5,782,457
JACK FOR VEHICLES

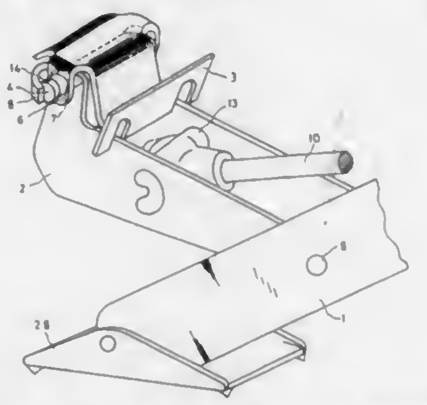
Joseba Palacio Argüelles, Santurtzi, Spain, assignor to Batz, S. Coop., Igorre, Spain

Filed Jan. 21, 1997, Ser. No. 785,770

Claims priority, application Spain, Jan. 22, 1996, 9600128; Feb. 1, 1996, 9600231

Int. Cl.^{6} B66F *3/12*

U.S. Cl. 254—126 **5 Claims**



1. Vehicle jack, to lift at a vehicle body work projection, comprising a jack support leg (**1**) and a vehicle support arm (**2**) that moves in a rocking motion with the jack support leg pivoting around a fixed horizontal shaft (**9**), means for the vehicle support arm (**2**) to be moved by means of a screw-threaded spindle shaft (**10**) operated by a winding handle (**11**), with the spindle shaft being supported in a nut (**12**) fitted into the jack support leg (**1**) and in a spindle shaft support (**13**) close to a free end of the vehicle support arm, at which free end is situated a vehicle support plate (**3**) that receives the projection from the bodywork of the vehicle,

the support plate (**3**) being supported in a movable way on the vehicle support arm (**2**) by means of a rotation shaft (**4**) that is parallel to the horizontal shaft (**9**), the rotation shaft being supported on the lower side of the support plate, wherein:

the rotation shaft (**4**) passes through and rests on two horizontally aligned holes (**7**) cut in wings in proximity of the end of the vehicle support arm (**2**), as well as two other holes (**14**) cut in side fins (**6**) of the vehicle support plate (**3**), wherein the side fins clasp or hold an exterior of arm wings in the vehicle support arm (**2**), protruding ends of the said shaft (**4**) being secured by securing means to the exterior of the side fins (**6**),

the jack support leg (**1**), formed of a U-shaped section, includes a leg end, which is not provided with a base and is open at the leg end creating a lower gap or opening (**27**) of a greater size than an average gap in the support leg between side members (**17**),

drill holes (**16**) of an approximately circular shape and an uneven elevation, in which the nut (**12**) is received, are made in each of the side members (**17**),

a nut (**12**), through which the screw-threaded spindle shaft (**10**) passes, is provided with two diametrically opposed side projections (**22**) of a circular shape, each provided with nut fins (**26**) that open outwards, comprising means to determine internal gaps or recesses (**21**), the nut fins occupying a radial portion of each projection and being housed by the projections and side fins in the drill holes in the jack support leg (**1**).

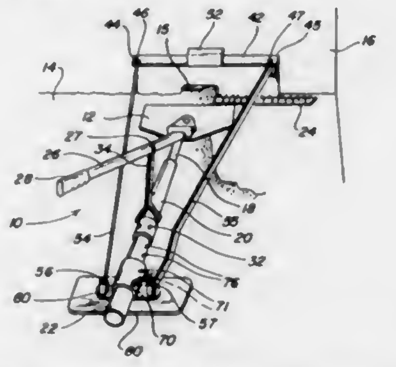
5,782,458
CARPET STRETCHER WITH UNIVERSAL BASE

Steven J. Prinzi, Bridgeton, and Paul L. Holmes, Florissant, both of Mo., assignors to Target Sales & Marketing, Inc., Bridgeton, Mo.

Filed Feb. 19, 1997, Ser. No. 802,124

Int. Cl.^{6} B66D *1/00*

U.S. Cl. 254—209 **16 Claims**



1. A portable carpet stretching device for enabling a user to stretch carpeting at an angle into engagement with a tack strip affixed along the base of an adjacent wall, said device comprising a carpet-engaging head member and a base member, each of said members having front and rear portions, with the front of said base member being attached by an extensible member to the rear of said head member, and with said head member being closer to the adjacent wall than the base member, said base member being connected to a tail piece with a plurality of spaced apart holes upon which is mounted a collar member with at least one hole, said tail piece being received into the collar member and selectively pinned with a pin member, a shaft attached to the collar member, a pressure plate and a strap pivotally mounted on the shaft with the strap between the pressure plate and the collar member, said pressure plate having a length greater than the strap, whereby the extensible member can be extended without mashing a user's fingers on the strap and the extensible member can be contracted without lifting the device by placing a weight on a portion of the pressure plate that extends past the strap, anchoring means for securing said base member with its front portion in a fixed relationship to the adjacent wall, power applying means for causing said head member and said base member to be forced apart, the anchoring of said base member with respect to the adjacent wall by said anchoring means resulting at the time of application of the power means, in the forcing of a portion of the carpet engaged by said head member toward the adjacent wall and into contact with the tack strip, said anchoring means comprising a pulling plate having elongate upper and lower edges, with the lower edge of said pulling plate including means for engaging the tack strip located along the base of the adjacent wall, and with the upper edge of said pulling plate being pivotally connected to said strap by a pair of elongate arms, said elongate arms enabling said head member to be moved into a non-symmetrical relationship to said pulling plate, whereby a pull at an angle to the adjacent wall can be applied by said head member to the carpet when said power applying means is operated.

5,782,459
SUPPORT FRAME FOR A LIFTING BRIDGE WITH A SUPPORT PLATE

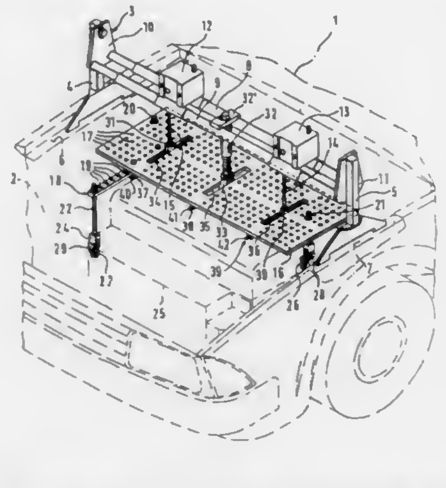
Horst Klann, Terra Wohnpark 12, D-78052 Villingen-Schwenningen, Germany

Filed Nov. 3, 1995, Ser. No. 552,609

Claims priority, application Germany, Nov. 5, 1994, 94 17 788 U

Int. Cl.^{6} B66D *1/00*

U.S. Cl. 254—323 **12 Claims**



1. A lifting bridge for an engine compartment, the bridge comprising:

support feet having means for being mounted on edges of the engine compartment;

a support rail arranged on said support feet and extending across the engine compartment;

hoisting means arranged on said support rail and for raising and lowering an object to and from said support rail with a pulling element;

a planar support plate positioned between said hoisting means and the object, said support plate being connected to said pulling element by a coupling element, said support plate and said coupling element having coupling positioning means for adjusting a position where said coupling element contacts said support plate;

connection element means for fastening to a plurality of points on said support plate and for attaching to the object.

5,782,460
PROCESS AND DEVICE FOR THE MANUFACTURE OF MOULDINGS

Otto Kretzschmar, Einhausen; Sharia Borghorst, Frankfurt am Main; John Golby, Aschaffenburg; Peter Hagmann, Erlenbach am Main; Peter Herbrechtsmeier, Königstein; Bernhard Seiferling, Goldbach, all of Germany, and Beat Müller, Marly, Switzerland, assignors to CIBA Vision Corporation, Duluth, Ga.

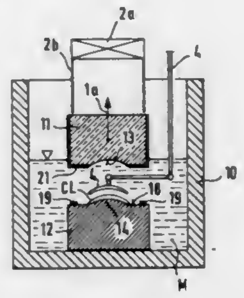
Continuation of Ser. No. 278,477, Jul. 20, 1994, abandoned.

This application Aug. 13, 1996, Ser. No. 696,138

Claims priority, application Switzerland, Jul. 29, 1993, 2299/93; Aug. 6, 1993, 2350/93

Int. Cl.^{6} B29D *11/00*

U.S. Cl. 264—1.36 **54 Claims**



1. A process for the manufacture of mouldings from a starting material that is crosslinkable by the impingement of suitable energy in a mould, wherein the mould is at least partially permeable to the energy and comprises two mould halves, each of the mould halves having a shape-forming surface and the shape-forming surfaces of the two mould halves forming a mould cavity, the process comprising the steps of:

(a) filling the mould cavity with the starting material in a still at least partially uncrosslinked state, and

(b) impinging the crosslinking energy to crosslink the starting material in the mould cavity to form a moulding,

wherein the filling of the mould cavity is carried out while the shape-forming surfaces are immersed in the starting material such that the shape-forming surfaces of the mould cavity are continuously immersed in the starting material during the filling and impinging steps.

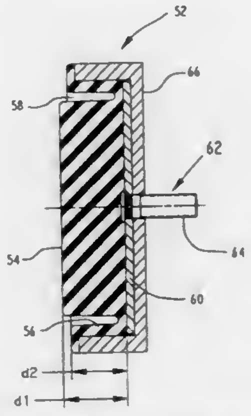
5,782,461
SNUBBER USING BULK LOADING

James T. Gwinn, Erie, Pa., assignor to Lord Corporation, Cary, N.C.

Filed Dec. 19, 1996, Ser. No. 770,143

Int. Cl.^{6} F16M *7/00;* **B60G** *11/22*

U.S. Cl. 267—140 **9 Claims**



1. A bumper for limiting the movement of a large object when mounted adjacent a lateral extent of said large object, said bumper comprising

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a) a central button of solid elastomer said button having a first axial extent;

b) an elastomeric sleeve interconnected to and surrounding said button and having a second axial extent which is less than said first axial extent;

c) a rigid cup enclosing said elastomeric sleeve and limiting its outward expanse;

d) a backing plate received in said rigid cup to which said central button and elastomeric sleeve are bonded:

e) a gap surrounding said central button and creating a space which extends for substantially all of said second axial extent and defines a first volume; said first axial extent exceeding said second axial extent by an amount which defines a second volume of elastomer, whereby if a large object traverses in a lateral direction into engagement with said bumper with sufficient force, said large object is capable of causing a volume of elastomer equal to said second volume to bulge outwardly to substantially fill said first volume whereby further movement of said large object will be resisted by bulk loading of said elastomer both in said central button and in said elastomeric sleeve due to the confinement thereof by said rigid cup.

5,782,462

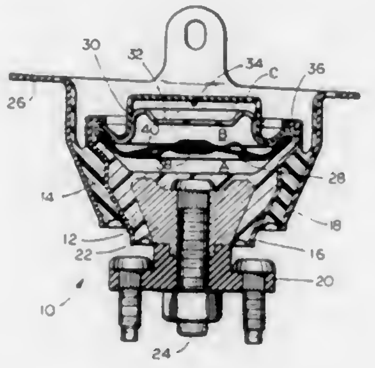
HYDRAULICALLY DAMPED POWERTRAIN MOUNT

Richard D. Hein, Wabash; Paul T. Wolfe, and Douglas M. McLelland, both of Ft. Wayne, all of Ind., assignors to BTR Antivibration Systems, Inc., Fort Wayne, Ind.

Continuation of Ser. No. 546,462, Oct. 20, 1995, abandoned. This application Jul. 29, 1997, Ser. No. 902,489

Int. Cl.^{6} F16F *13/00*

U.S. Cl. 267—140.13 **9 Claims**



1. An in-series hydraulically damped powertrain mount comprising:

(a) a mounting element adapted to be fixed to a movable body;

(b) a first resilient member having an inner surface coaxially connected to one end of said mounting element and an outer surface fixed to a support member;

(c) a deformable element cooperating with said inner surface of said first resilient member so as to define a fluid damping assembly for damping oscillations of said mounting element with respect to said support member, said fluid damping assembly divided into upper and lower fluid chambers;

(d) a partition member disposed between said upper and lower fluid chambers and having a passage to allow communication between said fluid chambers;

(e) an attachment member adapted to be fixed to a stationary component; and

(f) a second resilient member fixed between said support member and said attachment member for damping oscillation of said first resilient member with respect to the stationary component;

wherein each of said first resilient member, said second resilient member, said support member and said attachment member is in the form of a truncated elliptical cone.

5,782,463

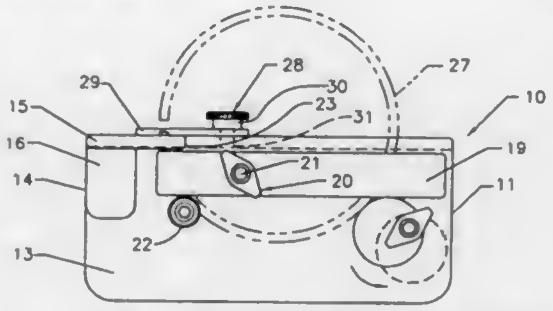
PRISTON RING FILING JIG

Dino Campolito, 4545 Quaker Ct., Canfield, Ohio 44406

Filed Oct. 1, 1996, Ser. No. 725,671

Int. Cl.^{6} B25B *1/00*

U.S. Cl. 269—87.1 **7 Claims**



1. A piston ring clamp and filing guide comprising; a main body member having a mounting portion, guide insert surfaces extending from said mounting portion, piston ring securing means and adjustable ring engagement guides secured to said mounting portion, said guide surfaces and said main body member defining a ring receiving area therebetween, a ring end stop positioned on one of said guide surfaces, shim spacers for selectively spacing said ring end stop from said guide surfaces, means for pivoting said ring end stop on said guide surfaces and means for selective adjustment of said ring engagement guides in relation to one another.

5,782,464

FOLDING CYLINDER

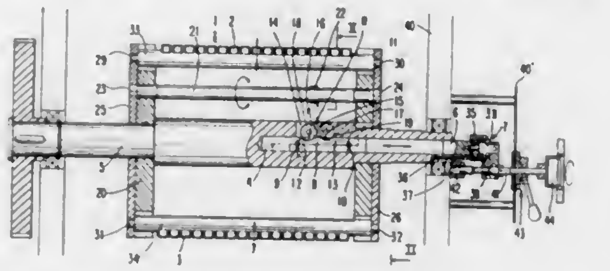
Karl-Heinz Höhle, and Winfried Milltzer, both of Plauen, Germany, assignors to MAN Roland Druckmaschinen AG, Offenbach am Main, Germany

Filed Jun. 24, 1996, Ser. No. 668,914

Claims priority, application Germany, Jun. 23, 1995, 195 22 903.7

Int. Cl.^{6} B41F *13/64;* **B41L** *43/08*

U.S. Cl. 270—19 **26 Claims**



1. A folding cylinder for a folding apparatus of a rotary printing press, comprising:

a shaft having a coaxial bore and a radial opening extending from the bore;

a folding cylinder body mounted on the shaft;

at least one spindle turnably arranged in the folding cylinder body so as to be spaced radially from the shaft;

displaceable elements connected to the at least one spindle;

an adjustment spindle arranged in the coaxial bore of the shaft so that one end of the adjustment spindle projects from the bore and so as to be non-rotatable relative to the shaft and axially displaceable in the coaxial bore for turning the at least one spindle; and

pull means including guide pulleys mounted to the shaft in the radial opening, a drive disk mounted to the spindle and an elongate member arranged to wrap around the drive disk and pass over the guide pulleys, the elongate member having ends that are fixed to the adjustable spindle axially spaced from one another.

5,782,465

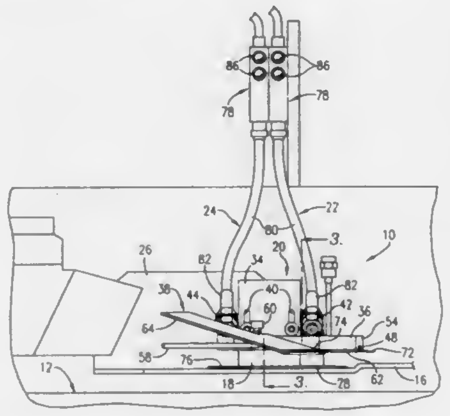
SPEAR MISSED OPEN DETECTION SYSTEM

Greg Rawlings, Madison, and Lonnie Worthington, Topeka, both of Kans., assignors to Kansa Corporation, Emporia, Kans.

Filed Oct. 27, 1995, Ser. No. 549,044

Int. Cl.^{6} B65H *39/00*

U.S. Cl. 270—52.23 **7 Claims**



1. An apparatus for opening a publication that is formed of a plurality of sheets and for sensing the open or closed condition of the publication, the apparatus comprising:

an opening means for opening the publication into two sections that remain separated from one another during passage through the apparatus;

a first detector assembly for sensing the presence of one of the sections at a first predetermined location;

a second detector assembly for sensing the presence of the remaining section at a second predetermined location spaced from the first location; and

indicating means responsive to the first and second detector assemblies for indicating that the opening means properly opened the publication when the sections are sensed at both the first and second predetermined locations, and for indicating that the opening means missed opening the publication when the sections are sensed at only one of the first and second predetermined locations.

5,782,466

MEDIA PROCESSING HAVING INTERMEDIATE FINISHING OPERATIONS AND A REMOTE OUTPUT STORAGE LOCATION

Laurent A. Regimbal, Eagle, Id.; Lenin Gallegos, San Agustin Jalisco, Mexico; Martha Patricia Salas Sanchez, Jalisco, Mexico; Francisco J. Camino-Escudero; Carlos F. Becerra Jimenez, both of Guadalajara Jalisco, Mexico, and Roberto Obregon, La Castellana Zapopan Jalisco, Mexico, assignors to Hewlett-Packard Company, Palo Alto, Calif.

Filed Nov. 8, 1996, Ser. No. 748,465

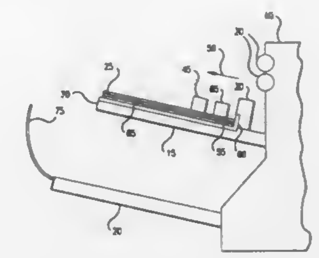
Int. Cl.^{6} B31B *1/68*

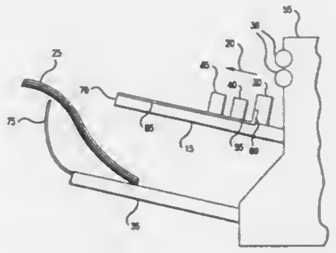
U.S. Cl. 270—58.08 **20 Claims**

1. A media processing output apparatus, comprising:

(a) first and second holding beds adapted to receive media thereon;

(b) a first finishing mechanism disposed to cooperate with the first holding bed for performing a first finishing operation on the media; and





(c) a push arm disposed in cooperation with the first holding bed for pushing the media from the first holding bed into the second holding bed.

5,782,467

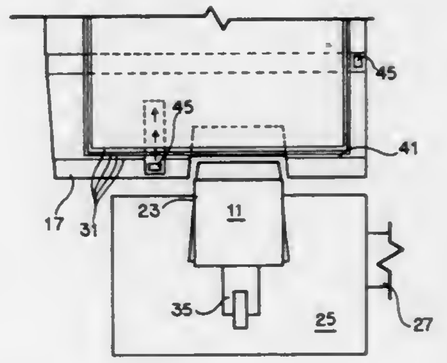
STAPLING FOR MULTIPLE BIN OUTPUT STATION

Steven M. Johnson, Eagle, Id., assignor to Hewlett-Packard Company, Palo Alto, Calif.

Filed Jan. 8, 1997, Ser. No. 780,556

Int. Cl.^{6} B65H *39/02*

U.S. Cl. 270—58.13 **17 Claims**



1. An output mechanism for sheet media handling equipment, comprising:

a. a plurality of output bins;

b. a diverter mechanism for accepting sheet media which have been processed by the sheet media handling equipment and directing the sheet media to a selected one of the output bins;

c. a transport mechanism for shifting the diverter mechanism to said selected output bin;

d. a stapler carried by the transport mechanism; and

e. a mechanism for moving the stapler and the sheet media out of registration with one another, thereby permitting the transport mechanism to move the stapler to different ones of the output bins.

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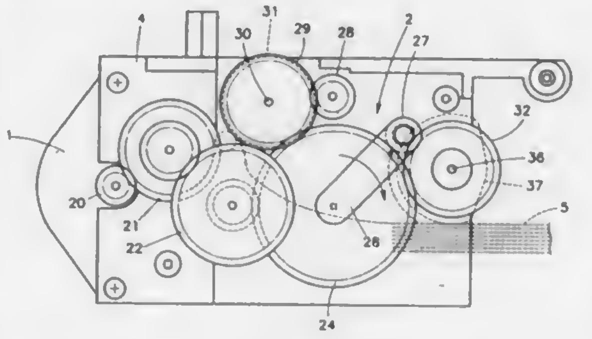
5,782,468
TRANSMISSION MECHANISM OF A FAX PRINTER FOR PICKING UP AND FEEDING PAPER

Hwel-Tsong Wu, Taipei, and Kuo-Hua Wu, Hsin Chu Hsien, both of Taiwan, assignors to Sampo Corporation, Taipei, Taiwan

Filed Sep. 25, 1996, Ser. No. 719,465
Int. Cl.^{6} B65H *5/00*
U.S. Cl. 271—10.05 **1 Claim**



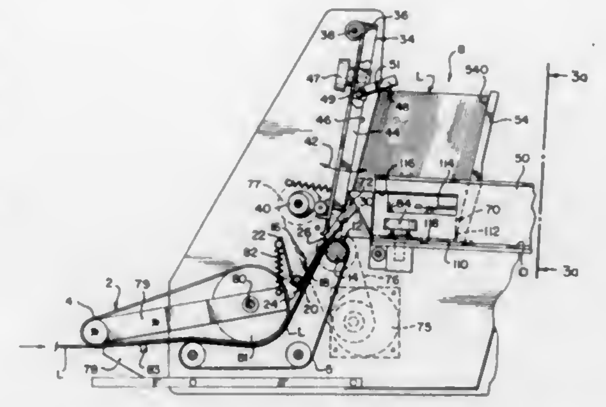
1. A transmission mechanism installed in a machine and driven by a motor to pick up and feed paper, comprising:
a pinion turned by said motor;
a reduction gear train meshed with said pinion and having an output gear;
a transmission gear and a return gear mounted on a common shaft in a frame at one side of the output gear of said reduction gear train;
a rocker having one end connected to said common shaft and an opposite end fixedly mounted with a rocker gear, said rocker gear being meshed with said transmission gear;
an idle wheel mounted on said frame adjacent to said rocker gear;
a transmission shaft mounted inside said frame;
a rubber roll mounted around said transmission shaft and turned with it to feed paper;
a paper feeding gear wheel mounted on one end of said transmission shaft in said frame and meshed with said return gear;
a first paper pick up gear mounted on a revolving axle in said frame at an outer side, and having a peripheral surface section;
a second paper pick up gear mounted on said revolving axle at an inner side of said first paper pick up gear and matched with said return gear, and having a plain peripheral surface section; and,
a rubber cam mounted on said revolving axle and synchronously turned with said first paper pick up gear and said second paper pick up gear;
wherein when said motor is turned in one direction, said rocker is moved rightwards to force said rocker gear into mesh with said first paper pick up gear; when said motor is turned in the reversed direction, said rocker is moved leftwards to disengage said rocker gear from said first paper pick up gear and to force it into engagement with said idle wheel.

5,782,469
STACKING DEVICE FOR CARD-SHAPED PRODUCTS

Jürgen Schoon, Eberbach, and Heinrich Volk, Berrfelden, both of Germany, assignors to Esselte Meto International GmbH, Heppenheim, Germany

Filed Jul. 9, 1996, Ser. No. 680,510
Claims priority, application Germany, Nov. 6, 1995, 195 41 278.8
Int. Cl.^{6} B65H *29/38*
U.S. Cl. 271—177 **26 Claims**

1. A stacking device for stacking card-shaped products that are conveyed one after the other in the direction of their surface plane, said stacking device comprising:

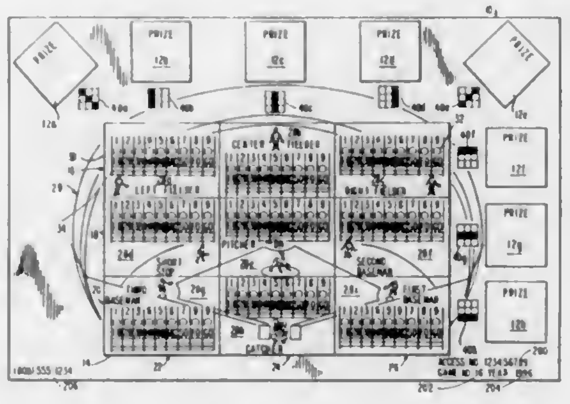


a conveyor arrangement, at least one card-shaped product being conveyed by the conveyer arrangement to a stack of card-shaped products;
a guide device at a downstream end of said conveyor arrangement, said guide device guiding said card-shaped product at least partially into a generally vertical direction of conveyance and depositing said card-shaped product onto the stack of card-shaped products in such a way that the stacked card-shaped products are arranged standing substantially vertically with one longitudinal edge on a support surface;
a drivable rocker arm positioned adjacent said guide device and pressing in a stacking direction against the stack end facing said conveyor arrangement to thereby cause the stack to advance; and
a brake stop on said rocker-arm and oblique to the generally vertical direction of conveyance, wherein said brake stop is flexible in the moving direction of the card-shaped products from said conveyor arrangement to the stack, said brake stop intercepting said card-shaped product to stop its movement across the stack generally in the vertical direction of conveyance as it is deposited onto the stack by said guide device.

5,782,470
SPORTS GAME OF SKILL AND CHANCE

Henry G. Langan, 211 Dahlgren Pl., Brooklyn, N.Y. 11228

Filed Oct. 30, 1996, Ser. No. 739,174
Int. Cl.^{6} A63F *3/06;* **G06F** *15/44*
U.S. Cl. 273—139 **25 Claims**

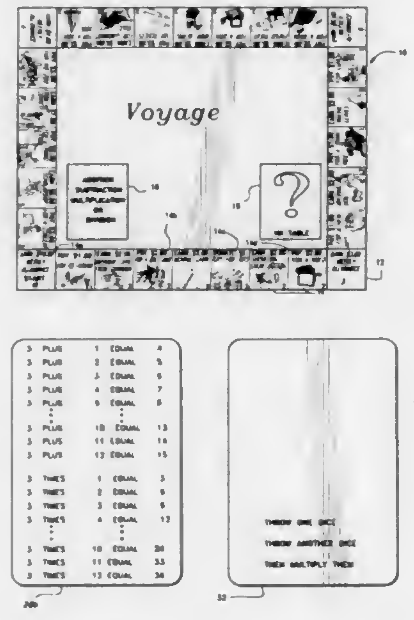


1. A sweepstakes-type game for play in conjunction with a contest having a plurality of events whose outcomes are unknown prior to their performance, comprising:
means for storing predicted outcomes of the events in advance of their performance;
multiple chance means for earning scoring factors by matching the actual outcomes of the events to correctly predicted stored outcomes, each scoring factor having a plurality of scoring chances to be earned during subsequent performances of individual events during the contest; and
means for determining at the end of the contest at least one sweepstakes game winner by obtaining at least one predetermined combination of said scoring factors each earned during any one of its respective scoring chances.

5,782,471
BOARD GAME APPARATUS AND METHOD OF PLAY

Jacqueline Bautista, and Angel B. Bautista, both of 77 Brothers Rd., Wappingers Falls, N.Y. 12590

Filed Jun. 2, 1997, Ser. No. 867,399
Int. Cl.^{6} A63F *3/00*
U.S. Cl. 273—256 **15 Claims**

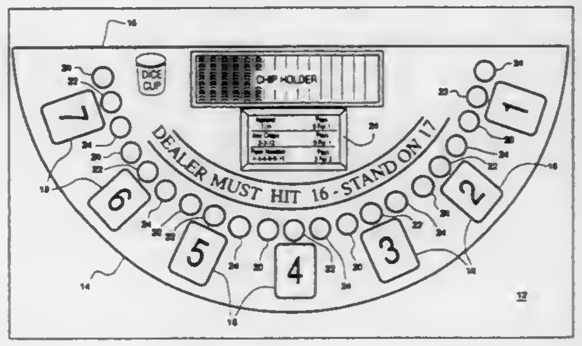


1. A board game for a plurality of players, comprising:
A game board having a continuous peripheral playing path;
said playing path being divided into a plurality of contiguous playing positions;
each of said playing positions including instructions for transacting a monetary exchange;
said game board further including a first location for holding a single arithmetic table card and a second location for holding a single mathematical problem card;
random number generation means for alternatingly determining one of said playing positions for each of the players and for providing numbers for arithmetic problems and for mathematical operations for the players;
at least one arithmetic table card for indicating a type of arithmetic problem to be performed and for verifying a solution to an arithmetic problem, said arithmetic problem having a number corresponding to numbers generated by said random number generator;
at least one mathematical operation card for indicating a type of mathematical operation to be performed and for indicating the quantity of numbers to be provided by said random number generation means for the mathematical operation;
a plurality of individual player position markers; and
a quantity of simulated currency having at least a first denomination and a second denomination.

5,782,472
DEVICE FOR COMBINING A GAME OF CHANCE AND CRAPS

J. Breck Brown, 05326 Lake Shore Dr., Boyne City, Mich. 49712, assignor to Steven R. Pyykkonen, Leonard, Mich., and J. Breck Brown, Las Vegas, Nebr., a part interest

Division of Ser. No. 533,567, Sep. 25, 1995, abandoned. This application Aug. 23, 1996, Ser. No. 702,280
Int. Cl.^{6} A63F *1/00*
U.S. Cl. 273—274 **2 Claims**



1. A game board for combining the play of twenty-one and the play of craps, said board comprising:
an upper playing surface;
said playing surface defined by a straight diameter extending across a semi-circular playing arena;
means for rolling a pair of dice;
a dealer playing area adjacent the straight diameter of the semi-circular playing arena;
a plurality of player areas spaced about the circumference of the circular periphery of said semi-circular playing arena and opposed to said dealer playing area, each of said player areas comprising a card box and first, second and third craps wager indicator areas, said first indicator area including the numbers 7 and 11 for paying first odds in response to the roll of the dice matching 7 or 11, said second indicator area including the numbers 2, 3 and 12 for paying second odds in response to the roll of the dice matching 2, 3 or 12, and said third indicator area including the numbers the remaining numbers 4, 5, 6, 8, 9 and 10 for paying third odds in response to the roll of the dice matching 4, 5, 6, 8, 9 or 10, and an odds area indicating said first, second and third odds.

5,782,473
METHOD OF PLAYING A BIG TEN CARD GAME

Henry H. Chou, and Ian Y. Fu, both of 430 S. Garfield Ave. #315, Alhambra, Calif. 91801

Filed Sep. 19, 1997, Ser. No. 933,625
Int. Cl.^{6} A63F *1/00*
U.S. Cl. 273—292 **18 Claims**

1. A method of playing a Big Ten card game, comprising the following steps:
(1) providing at least two players for said card game;
(2) providing at least a deck of 52 cards, wherein said deck of cards includes four sets of cards and each set of cards includes an ACE, three face cards including a JACK, a QUEEN, a KING, and nine numerical value cards including a 2 card, a 3 card, a 4 card, a 5 card, a 6 card, a 7 card, a 8 card, a 9 card, and a 10 card, a numerical value of each of said numerical value cards counting as a point value thereof, said ACE counting as a point value of either "1" or "10", each of said face cards counting as a point value of "0", and that said ACE has a higher ranking order than said KING, which has a higher ranking order than said QUEEN, which has a higher ranking order than said JACK, which has a higher ranking order than said numerical value card 10,
(3) shuffling said deck of cards;

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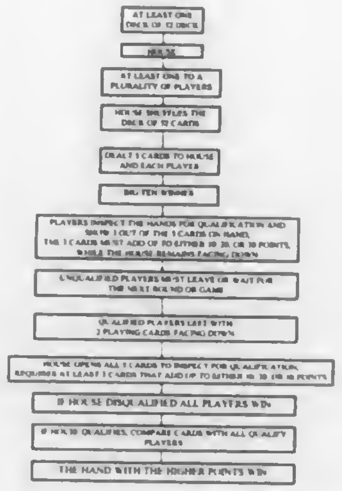

AT LEAST ONE TO A PLURALITY OF PLAYERS
IF HOUSE DISQUALIFIED ALL PLAYERS WIN
THE HAND WITH THE HIGHER POINTS WIN

(4) dealing a hand of five cards to each of said players having all said hand of five cards facing down;

(5) determining and selecting three selected cards from said hand of five cards by each of said players to face up while the other two unselected cards remaining facing down to act as two playing cards, in which said three selected cards of each of said players must have a total point value of ten, twenty or thirty by summing up said point value of said three selected cards, in order to be qualified to continue said card game, on the other hand, said player who fails to select said three selected cards having a total point value of ten, twenty or thirty is disqualified to continue said card game;

(6) discarding said three selected cards from said hand of five cards and facing up said two playing cards by each of said qualified players;

(7) computing a comparison point value of said two playing cards of each of said qualified players, wherein said comparison point value is a total point value achieved by summing up said point values of said two playing cards when said total point value is equal to or less than ten, wherein said comparison point value is a total point value deducting with ten when said total point value is larger than ten; and

(8) comparing said comparison point values of said qualified players with each other and determining which qualified player having a highest comparison point value to win said card game.

5,782,474

Patent Not Issued For This Number

5,782,475

SNOWBOARD BINDING ASSEMBLY

Patrick Balmain, 3, rue du Lieutanant-Barret, Fourneaux, France, 73500, assignor to Patrick Balmain, Fourneaux, France

PCT No. PCT/FR93/00417, § 371 Date Jan. 10, 1995, § 102(e) Date Jan. 10, 1995, PCT Pub. No. WO93/22013, PCT Pub. Date Nov. 11, 1993

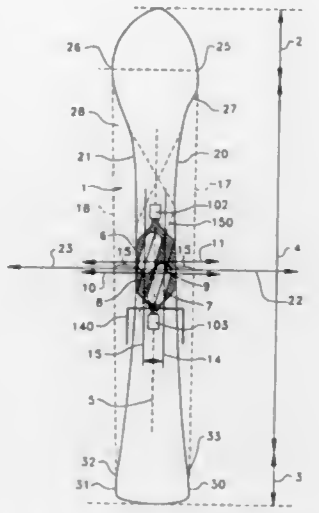
PCT Filed Apr. 27, 1993, Ser. No. 331,517

Claims priority, application France, Apr. 27, 1992, 92 05264; Oct. 29, 1992, 92 12970

Int. Cl.^{6} A63C *5/03;5/04;9/00*

U.S. Cl. 280—14.2 **36 Claims**

1. An apparatus for gliding on snow with improved stability and better edge-setting in turns, comprising a single board having a median defining a longitudinal axis, a raised tip formed along forward portions of the board, a heel formed along rearward portions of the board, and a safety binding assembly for securely



joining boots with the board so that the boots are prevented from moving relative to the board;

wherein the safety binding assembly includes a first binding having a median defining a longitudinal axis, for positioning a first boot on the board, the longitudinal axis of the first binding forming an angle with the longitudinal axis of the board of between 0 and 20 degrees, and a second binding having a median defining a longitudinal axis, for positioning a second boot on the board, the longitudinal axis of the second binding forming an angle with the longitudinal axis of the board of between 0 and 20 degrees;

wherein the second binding is longitudinally and rearwardly offset relative to the first binding, along the longitudinal axis of the board, so that the longitudinal distance from a rearwardmost point of the first binding to a forwardmost point of the second binding is no greater than 100 millimeters; and

wherein the board includes laterally extending sides having center portions which are concave in shape between the tip and the heel of the board, rectilinear portions located where the center portions of the sides intersect with the tip and the heel of the board and further including a linkage plate receiving the first binding and the second binding and means for securely connecting the linkage plate to the board.

5,782,476

SNOWBOARD BINDING MECHANISM

Kenneth W. Fardie, 100 Lake Shore Dr. L-1, North Palm Beach, Fla. 33408

Continuation-in-part of Ser. No. 615,683, Mar. 13, 1996, Pat. No. 5,584,492. This application Nov. 19, 1996, Ser. No. 746,967

Int. Cl.^{6} A63L *9/00*

U.S. Cl. 280—14.2 **14 Claims**

1. An adjustable snowboard binding assembly which can be rotated and locked to chosen orientation angles without the use of external tools comprising:

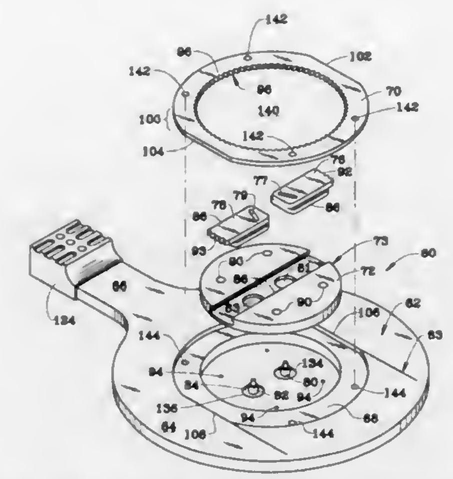
a mounting assembly platform with attachment holes, and a longitudinal length with a central portion and a neck portion;

a rotatable boot mounting fixture with a central cutout and a circular insert having a first inner diameter;

a pair of side segments having guide rails extending laterally along their sides, an angled receiving slot, and an outwardly facing toothed edge;

an anchoring insert with a second outer diameter which overlaps said first inner diameter, said insert having a lateral receiving track for receiving said side segments and said guide rails, and a plurality of attachment holes for an attachment means;

a toothed ring insert with an third inner diameter which encompasses said second outer diameter, having a plurality of radial oriented circumferential teeth along its inwardly facing circumference, and being attached to said circular insert;



a slidable band extending along said longitudinal length of the platform with a pair of laterally extending side tabs, each side tab having an upwardly extending post;

wherein said attachment means attaches said anchoring insert to said platform so that said boot mounting fixture is rotatable held via said overlapping anchoring insert, and said side segments are slidably held via said interfacing rail and track, and said posts are received in said angled slots and thereby control the lateral sliding movement of said side segments via movement of said band so that said teeth on said side segments engage or disengage said teeth on said platform.

5,782,477

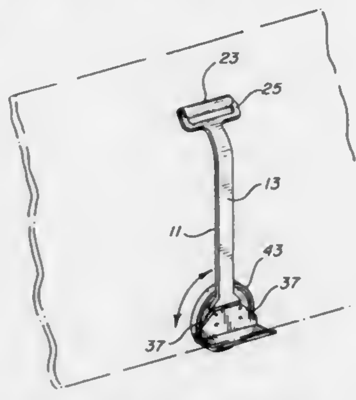
MATERIAL HANDLING DEVICE

Theodore Covert, Hudson St., Box 191, Glasco, N.Y. 12432

Filed Apr. 19, 1996, Ser. No. 634,838

Int. Cl.^{6} B62B *3/04*

U.S. Cl. 280—79.7 **3 Claims**



1. A material handling device comprising:

a support bar having an upper section, a middle section and a lower section, the upper section being substantially shorter than the middle section and the lower section being shorter than the middle section, the support bar having a rectangular cross-section with a width substantially greater than its thickness and having a face surface and a rear surface, the upper section being bent at an acute angle to the middle section over the rear surface, the lower section having a width greater than the middle section and the upper section;

a handle mounted on the upper section remote from the middle section;

an axle secured to the rear surface of the lower section;

a wheel mounted on the axle to be rotatable on the axle adjacent the rear surface of the lower section; and

an L-shaped support member rigidly mounted on the face surface of the lower section, the L-shaped support member having a back member and a forward member, the forward member and the back member being adjacent to the face surface, the forward member including a lip remote from the back member bent at an acute angle to the forward member and toward the upper section, the wheel extending further from the lower section away from the middle section than the forward member.

5,782,478

Patent Not Issued For This Number

5,782,479

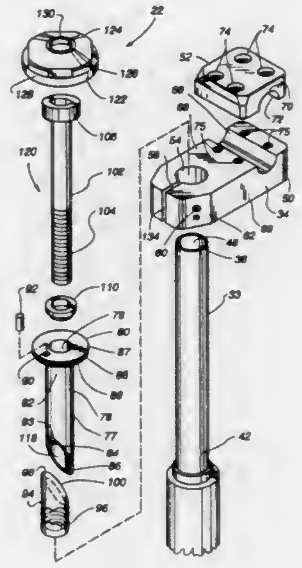
STEERING MECHANISM SAFETY SYSTEM

Richard J. Adams, Boulder, and Mark N. Pippin, Golden, both of Colo., assignors to Schwinn Cycling & Fitness Inc., Boulder, Colo.

Filed Jun. 21, 1996, Ser. No. 667,429

Int. Cl.^{6} B62K *21/18*

U.S. Cl. 280—279 **8 Claims**



1. A steering control safety mechanism for a bicycle, wherein the bicycle includes a hollow cylindrical head tube, the safety mechanism comprising: a steering mechanism having a hollow steerer tube with an upper end and a lower end, and being rotationally positioned in the head tube, a fork attached at said lower end of said steerer tube, and a stem releasably attachable to the upper end of the steerer tube for rigidly fixing a handlebar to the steerer tube;

a torque transfer member positioned in the steerer tube and having a passageway extending therethrough;

a wedge member positioned in the steerer tube below the torque transfer member;

a bolt rotationally positioned in the torque transfer member passageway, supported on the torque transfer member, and aligned to laterally offset the wedge member from the torque transfer member and cause the torque transfer member and the wedge member to form a jam fit and oppositely engage the steerer tube to releasably attach the torque transfer member thereto, wherein a first steering control path is defined in the steering mechanism by connections between the handlebar, stem, steerer tube and fork, and wherein a second steering control path is defined in the steering mechanism by connections between the handlebar, stem, torque transfer member, wedge member, steerer tube and fork, with the second steering control path utilized upon the failure of the steerer tube.

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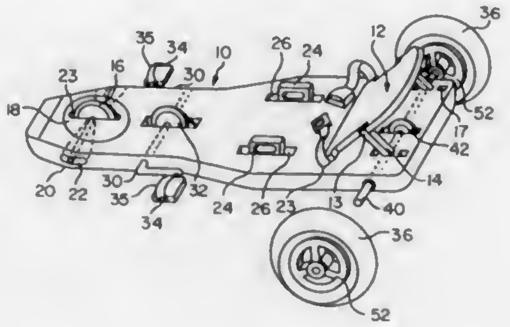
5,782,480
WHEELED AMPHIBIOUS VEHICLE

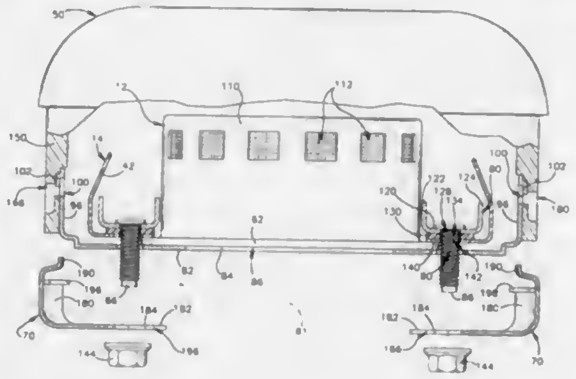
Reuben Phillips, 3203 Saddle Rock Rd., Holbrook, N.Y. 11741
Filed Dec. 20, 1995, Ser. No. 575,280
Int. Cl.⁶ B62K *5/04*
U.S. Cl. 280—282 **12 Claims**



1. A human-powered wheeled amphibious vehicle comprising
a substantially planar buoyant base member,
a single front wheel mounted on the base member so that a portion of the front wheel extends above the base member, and a portion of the front wheel extends below the base member, and the wheel rotates about an axis parallel to the base member,
means for pivoting the wheel about an axis substantially perpendicular to the base member,
said pivoting means comprising a pair of handles, each mounted in a slot in the base member and reciprocable fore and aft by an operator of the vehicle,
a pair of rear wheels mounted on the base member rearward of the handles, each of said rear wheels comprising a tubular tire and paddle means for generating propulsion when the vehicle is in water, and
human-powered driving means for rotating the rear wheels, said driving means comprising a pedal mechanism and means connecting the pedal mechanism to the rear wheels.

5,782,481
VEHICLE OCCUPANT PROTECTION APPARATUS

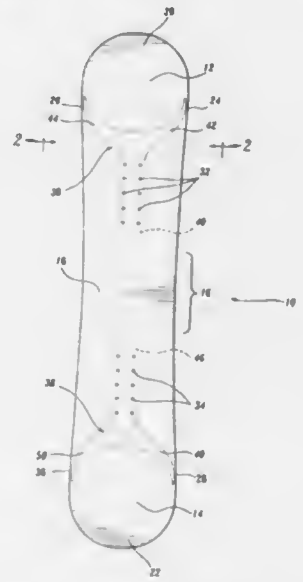
David G. Magoteaux, Mesa, Ariz., assignor to TRW Inc., Lyndhurst, Ohio
Filed Nov. 4, 1996, Ser. No. 740,719
Int. Cl.⁶ B60R *21/16*
U.S. Cl. 280—728.2 **23 Claims**



1. Apparatus comprising:
an inflator;
a reaction plate;
a fastener interconnecting said inflator and said reaction plate;
a cover defining a pivotal deployment door, said cover having a portion spaced from said fastener; and
a clip attached to said reaction plate by said fastener, said clip extending from said fastener to said portion of said cover and engaging said portion of said cover to interconnect said cover and said reaction plate.

5,782,482
SNOWBOARD AND METHOD OF CONSTRUCTION

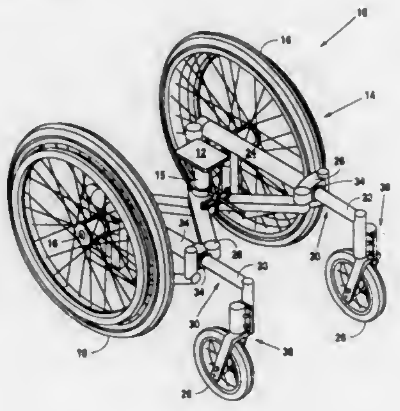
Cameron Whitley Andrus, Vashon, and Luke James Edgar, Seattle, both of Wash., assignors to K-2 Corporation, Vashon, Wash.
Filed Jan. 30, 1996, Ser. No. 594,286
Int. Cl.⁶ A63C *5/07*
U.S. Cl. 280—602 **32 Claims**

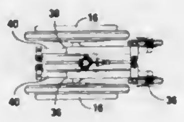


1. A snowboard having a longitudinal axis, a shovel portion, a heel portion, and first and second longitudinal edges, the snowboard comprising:
(a) a core;
(b) an upper structural layer disposed above said core:
(c) a top layer disposed above said upper structural layer:
(d) a plurality of fasteners secured through said upper structural layer within said core, said fasteners adapted for securing a first and a second binding on top of the snowboard generally along the longitudinal axis of the snowboard, said fasteners including forward fasteners for securing a forward binding and rearward fasteners for securing a rearward binding; and
(e) a first and a second torsional reinforcement element for reinforcing the snowboard shovel portion and heel portion, respectively, each torsional reinforcement element including an inner elongate leg portion extending below a respective binding along the longitudinal center axis of the snowboard above said core, each said reinforcement element further including an outer portion which includes a transverse head portion having a center section with a transverse axis extending primarily laterally across a major portion of a width of the snowboard and toward the first and second edges of the snowboard, thereby forming a T-shaped portion of the reinforcing element.

5,782,483
ADJUSTABLE WHEELBASE WHEELCHAIR

Richard H. Rogers, San Antonio, Tex., and Robert M. Huntress, San Diego, Calif., assignors to Adorno/Rogers Technology, Inc., Austin, Tex.
Filed Jun. 5, 1995, Ser. No. 463,201
Int. Cl.⁶ B62B *11/00*
U.S. Cl. 280—642 **9 Claims**

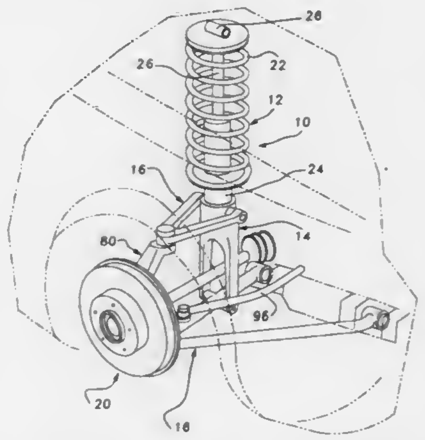




1. A wheeled vehicle comprising:
a first frame member having a first frame member forward terminus and a first frame member rearward terminus;
a second frame member having a second frame member forward terminus and a second frame member rearward terminus;
first primary wheel means rotatably affixed to said first frame member;
second primary wheel means rotatably affixed to said second frame member;
a first wheel strut movably engaged with said first frame member and extending from said first frame member forward terminus, a first secondary wheel means being rotatably affixed to said first wheel strut, said first and said second primary wheel means and said first secondary wheel means being positioned relative to each other whereby they jointly define a single rolling plane on which said wheel means may roll;
a second wheel strut movably engaged with said second frame member and extending from said second frame member forward terminus;
adjustable frame connection means for expandably and contractibly connecting said first and second side frame members for enabling said first and second side frame members to reversibly move between a contracted side frame configuration wherein said first and second side frame members are juxtaposed and separated by a first distance and an expanded side frame configuration wherein said first and second side frame members are separated by a second distance, said second distance being greater than said first distance, said adjustable frame connection means having wheel strut extending and retracting means configured for extending said first and second wheel struts from said forward first and second side frame termini when said first and second side frame members are moved from said contracted side frame configuration toward said expanded side frame configuration and for retracting said first and second wheel struts toward said rearward first and second side frame termini when said first and second side frame members are moved from said expanded side frame configuration toward said contracted side frame configuration, said first and second primary wheel means and said first secondary wheel means remaining substantially positioned for simultaneous rolling on said rolling plane, with said wheeled vehicle remaining in a substantially constant vertical and horizontal orientation relative to said rolling plane, throughout said extending and retracting of said first and second wheel struts.

5,782,484
SHORT LONG ARM INDEPENDENT SUSPENSION

Robert M. Kuhn, Jr., Temperance, Mich., assignor to Chrysler Corporation, Auburn Hills, Mich.
Filed May 14, 1996, Ser. No. 645,974
Int. Cl.⁶ B60G *3/20;11/14;15/06*
U.S. Cl. 280—663 **10 Claims**



1. A vehicle suspension system for a steerable drive wheel comprising:
a wheel carrier having a tie rod for steering a wheel;
a strut assembly;
a mounting member coupled with said strut assembly;
a lower arm having two legs, each leg with two ends, each leg having one end to be coupled with a chassis, the other ends of the legs coupled together, only one of said legs coupled with said mounting member, and another end of said lower arm coupled with said wheel carrier;
an upper arm having two legs, each leg having an end coupled with said mounting member and another end of said upper arm coupled with said wheel carrier.

5,782,485
ACTUATING-JUDGMENT SYSTEM FOR SAFETY DEVICE FOR PROTECTING OCCUPANT ON FRONT PASSENGER SEAT

Masaru Takeda; Mitsuru Ono; Etsujiro Imanishi, and Yasushi Tsuji, all of Kobe, Japan, assignors to Sensor Technology Co., Ltd., Kobe, Japan
PCT No. PCT/JP94/02243, § 371 Date Jul. 1, 1996, § 102(e) Date Jul. 1, 1996, PCT Pub. No. WO95/18028, PCT Pub. Date Jul. 6, 1995
PCT Filed Dec. 27, 1994, Ser. No. 666,472
Claims priority, application Japan, Dec. 29, 1993, 5-352529
Int. Cl.⁶ B60R *21/16*
U.S. Cl. 280—735 **14 Claims**

13. An air bag actuating system comprising:
a first sensor for sensing a first distance to an upper portion of an object existing in a space between an air bag storing portion and a passenger seat,
a second sensor for sensing a second distance to a lower portion of said object, and

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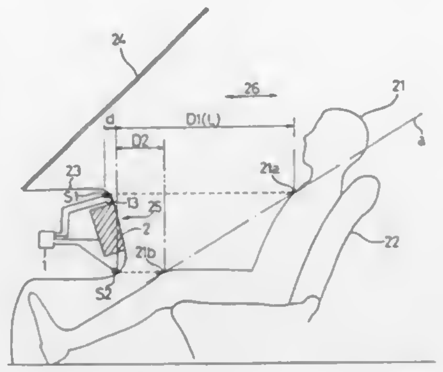


a control unit for determining whether said object is tilted forward or rearward based upon said first and second distances and for controlling actuation of an air bag.

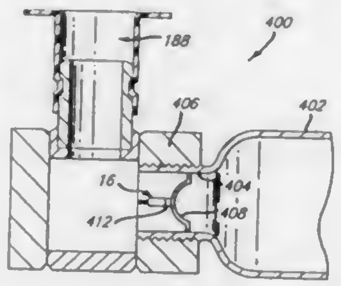
5,782,486
RAPID GAS-FILL APPARATUS AND METHOD

F. Michael Barnes, Dunnellon, and Benjamin Gregory Shepherd, Fruitland Park, both of Fla., assignors to New Lenox Industries, Inc., Dunnellon, Fla.

Continuation-in-part of Ser. No. 296,675, Aug. 26, 1994, abandoned, which is a continuation-in-part of Ser. No. 276,179, Jul. 15, 1994, Pat. No. 5,720,519, which is a continuation-in-part of Ser. No. 92,725, Jul. 16, 1993, abandoned. This application Nov. 17, 1995, Ser. No. 560,573

Int. Cl.⁶ B60R *21/26*

U.S. Cl. 280—737 **12 Claims**



9. A gas dispersing apparatus comprising:
a container enclosing an interior volume, said container defining a fluid passageway extending between said interior volume and an exterior environment, said passageway being closed by an explosively rupturable frangible member;
a compressed fluid disposed within said container and having said interior volume;
an actuatable micro miniature explosive charge assembly having an explosive charge having a shape defined by a plurality of dimensions, each of said plurality of dimensions being less than one centimeter, said explosive charge assembly being secured to said explosively rupturable frangible member by an electrically conductive epoxy for establishment of immediate fluid flow communication from said interior volume to said exterior environment upon actuation of said explosive charge assembly by explosively rupturing said frangible member to substantially fully open said fluid passageway establishing immediate flow of said compressed fluid from said interior volume; and
an actuator for detonating said micro miniature explosive charge assembly.

5,782,487
GAS GENERATOR

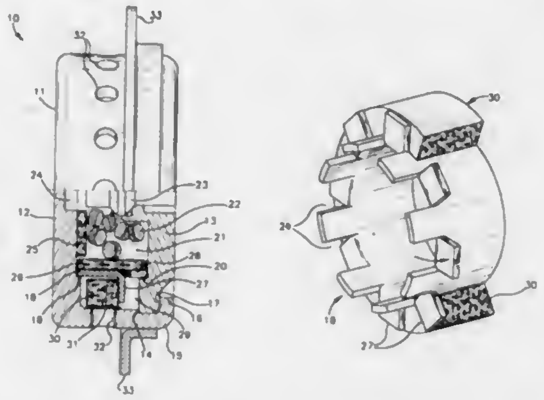
Hermann Bauer, Heidenheim, and Franz Fürst, Grossmehring, both of Germany, assignors to TEMIC Bayern-Chemie Airbag GmbH, Aschau am Inn, Germany

Filed May 2, 1997, Ser. No. 850,177

Claims priority, application Germany, May 4, 1996, 196 18 040.6

Int. Cl.⁶ B60R *21/26*

U.S. Cl. 280—741 **7 Claims**



1. A gas generator (**10**) which generates propellant gas for inflating a gas bag in an air bag system, comprising a housing (**11**) having discharge openings (**32**) for the exit of the propellant gas from the housing (**11**) into the gas bag, a filter device (**30**) upstream of the discharge openings (**32**) and an ignition device (**23**) for igniting a solid propellant (**22**) contained in the combustion chamber (**21**), the propellant gas escaping from the combustion chamber (**21**) being directed out of the housing (**11**) via flow chambers (**29**), a combustion chamber (**21**) formed in the interior of the housing (**11**) by an upper part (**12**) of the housing, a lower part (**13**) of the housing as well as by an interior space of a tubular insert (**18**) which is fixedly held between the upper part (**12**) of the housing and the lower part (**13**) of the housing, the tubular insert (**18**) comprising outlet openings (**28**) into the annular flow chamber (**29**) between the tubular insert (**18**) and the housing (**11**), and means being provided at the outer peripheral surface of the tubular insert (**18**) for holding the filter device (**30**) between the tubular insert (**18**) and the housing (**11**), characterized in that the tubular insert (**18**) comprises tabs (**27**) bent radially outwards which form the outlet openings (**28**) in the tubular insert (**18**) and, serve as a means at the outer peripheral surface of the tubular insert (**18**) for holding the filter device (**30**).

5,782,488
STRESS REDUCER PASSENGER CUSHION

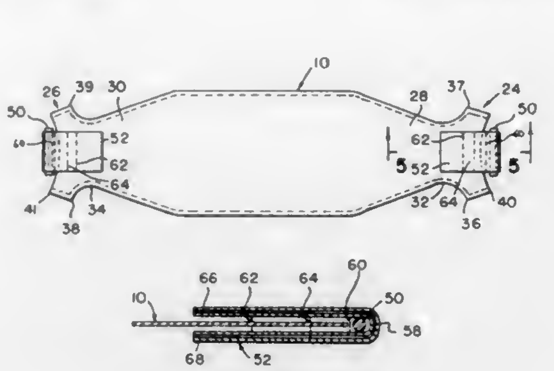
Trudy C. Lewis, Roy; Dennis K. Talbot, West Point, and Douglas V. Fairbanks, Logan, all of Utah, assignors to Morton International, Inc., Chicago, Ill.

Filed Jun. 14, 1996, Ser. No. 665,769

Int. Cl.⁶ B60R *21/20*

U.S. Cl. 280—743.1 **15 Claims**

1. A passenger inside air bag cushion for use in a vehicle to provide occupant protection during a crash that has reduced stress concentrations during deployment, said bag when uninflated and unfolded having:
an elongated central main panel having substantially identical end portions;
a pair of side panels having a curved outer periphery that is attached to opposite side edges of the central main panel to form an enclosure for a confined volume wherein the central main panel totally surrounds the peripheral edges of the side panels in their entirety; and
said end portions extending from each end of the central main panel having a respective free end that is distant from a nearest side panel peripheral edge, said free ends being located at upper and lower edges of a mouth of the air bag cushion, said free ends having flaps on each side which extend laterally beyond the width of the mouth, said flaps being folded toward each other to form opposite side walls for said mouth, said folded flaps being joined together by a seam along each sidewall that extends from between said upper and lower edges of said mouth back to the periphery of the side panel, said mouth thus being formed solely from the central main panel with no portion of the side panels forming part of the mouth, and said upper and lower edges of the mouth being adapted for connection to a module through which inflation gas is received when the air bag cushion is deployed.



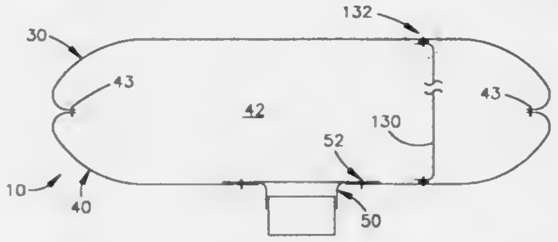
5,782,489
AIR BAG WITH ADHESIVE AT SEAMS

Gary R. LaLonde, Clinton Township; Al S. Emambakhsh; Xingyuan Sun, both of Rochester Hills, all of Mich., and Carlos H. Murillogalindo, Chihuahua, Mexico, assignors to TRW Vehicle Safety Systems Inc., Lyndhurst, Ohio

Filed Aug. 23, 1996, Ser. No. 701,828

Int. Cl.⁶ B60R *21/20*

U.S. Cl. 280—743.1 **13 Claims**



1. An inflatable vehicle occupant protection device for helping to protect an occupant of a vehicle, said protection device being inflatable from a deflated condition to an inflated condition by inflation fluid from an inflation fluid source, said protection device comprising:
a first panel having a first side surface;
a second panel having a second side surface overlying said first side surface on said first panel;
an adhesive material located between said first and second side surfaces and interconnecting said first and second panels of said protection device; and
a stitching section including a plurality of stitches which extend through said first panel and through said adhesive material and through said second panel to block relative movement between said first and second panels.

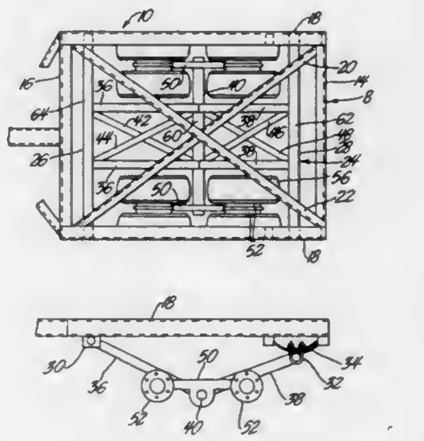
5,782,490
TRACK WHEELED TRAILER

Donald H. Kendall, and Kenneth W. Kendall, both of Almont, Mich., assignors to The United States of America as represented by the Secretary of the Army, Washington, D.C.

Filed Jan. 11, 1996, Ser. No. 594,824

Int. Cl.⁶ B62D *63/08*

U.S. Cl. 280—789 **7 Claims**



5. A utility trailer adapted for off-road travel, comprising:
a rigid frame;
a first transverse member of the frame;
a second transverse member of the frame;
longitudinal members of the frame fixed to the first and second transverse members;
an axle;
a rigid undercarriage fixed to the axle;
wherein the undercarriage has a generally V-shaped structure comprising a pair of fore arms extending down and aft from a central zone of the first transverse member, a pair of aft arms extending down and forward from a central zone of the second transverse member and a connection between lower ends of the arms and a central zone of the axle;
hinge connections between the frame and the undercarriage;
a hinge axis of the hinge connections, the hinge axis disposed horizontally transversely of the trailer;
means for absorbing road shocks, the absorbing means located solely between rear outboard zones of the frame and rear outboard zones of the undercarriage.

5,782,491
ADJUSTABLE MOUNTING FOR SEAT BELT GUIDE

Rasik N. Patel, Canton, Mich., assignor to Ford Global Technologies, Inc., Dearborn, Mich.

Continuation of Ser. No. 587,054, Jan. 16, 1996, abandoned. This application Sep. 19, 1997, Ser. No. 934,028

Int. Cl.⁶ B60R *22/20*

U.S. Cl. 280—801.2 **12 Claims**

1. An adjustable mounting mechanism for a seat belt guide ring carried within a body of an automotive vehicle, the body having an interior, comprising:
a vertically extending track mounted on the interior of the body of the vehicle;
a guide ring assembly slidably mounted on said track and selectively vertically moveable therealong between vertical positions and including a bolt projecting inwardly toward the body interior and carrying a guide ring thereon;
a trim cover assembly mounted in overlying relationship with respect to said track and said guide ring assembly and including a fixed member mounted on the interior of the vehicle body and a moveable member slidably engaging said fixed member and having an actuating finger operatively engage-

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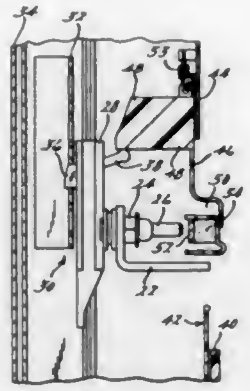


able with said guide ring assembly to selectively effect vertical movement of said guide ring assembly along said track; and

a cushion member carried with said moveable member in facing relationship with said bolt, said cushion member being positioned at all vertical positions of said guide ring assembly between said bolt and the interior of the body.

5,782,492

SEAT BELT TIGHTENING DEVICE

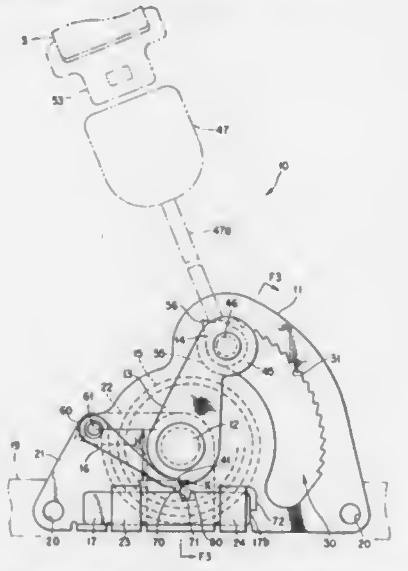
Juji Ojima, Yokohama; Yoshiharu Kitamura, and Kouichi Yamamuro, both of Kanagawa-ken, all of Japan, assignors to NIIK Spring Co., Ltd., Yokohama, Japan

Filed Nov. 9, 1995, Ser. No. 555,814

Claims priority, application Japan, Nov. 11, 1994, 6-277901; Jun. 19, 1995, 7-151905

Int. Cl.^{6} B60R *22/36*

U.S. Cl. 280—806 19 Claims



1. A seat belt tightening device mounted on a seat belt support structure of a vehicle, said device comprising:

a base bracket fixed on said support structure and having a horizontally extending main shaft;

a lock arm rotatable between a normal position in which the lock arm is set in a higher position and a tightened position in which the lock arm is set in a lower position, with one end portion of the lock arm rotatably centering around said main shaft, said lock arm having a coupling portion to be coupled to a seat belt support member for supporting a seat belt and having a stopper wall extending radially outward of the main shaft;

urging means for producing a torque for rotating the lock arm towards said tightened position;

a movable body provided on said base bracket to be movable between a first position and a second position, said movable body moving from the first position to the second position at a time of a collision;

a horizontal support shaft provided on said base bracket;

a trigger lever being swingable on said support shaft and having an end portion and an engaging portion, a part of the trigger lever which is closer to the end portion being situated between said lock arm and said movable body, the end portion being supported by the movable body when the movable body is in the first position, whereby engagement between the engaging portion and the stopper wall is maintained and the lock arm is set in said normal position, and the end portion ceasing to be supported by the movable body when the movable body has moved to the second position, whereby the engagement between the engaging portion and the stopper wall is released and the lock arm is permitted to rotate towards the tightened position;

reverse motion preventing teeth provided on said base bracket along an arc defined around said main shaft;

a shaft member provided at another end portion of the lock arm; and

a ratchet rotatably provided around said shaft member and having a distal-end claw portion engageable with said reverse motion preventing teeth, said claw portion being directed rearwards with respect to a rotational direction of the lock arm while the lock arm is being rotated towards the tightened position, and said claw portion being moved in a direction to engage the reverse motion preventing teeth while the lock arm is being rotated towards the normal position.

5,782,493

ROAD TRAILER

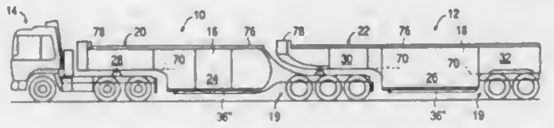
Garth Desmond Bolton; Peter Bennetto, both of Sandton, and Derick Garzancich, Johannesburg, all of South Africa, assignors to GFLT Developments (PTY) Limited, Johannesburg, South Africa

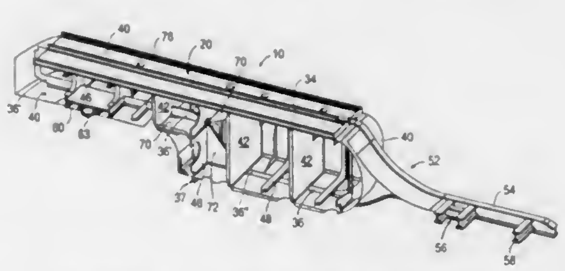
Filed Oct. 10, 1995, Ser. No. 541,884

Claims priority, application South Africa, Oct. 7, 1994, 94/7855

Int. Cl.^{6} B60P *3/24*

U.S. Cl. 280—837 10 Claims





1. A road trailer for carrying fluid and dry freight including:

(a) an elongated bulk liquid tank which is clad with sheet metal and has a substantially planar upper surface and a substantially flat base surface which is stepped across its length from a first level, forward low volume zone of the tank to a lower second level, high volume tank zone, which is situated between front and rear wheels which support the trailer in use,

(b) a first pair of parallel spine beams which extend over the length of the tank and are attached to its upper surface cladding,

(c) a second pair of parallel spine beams which; extend over the length of the tank, are fixed directly to and follow the stepped contour of the base surface cladding of the tank and are again stepped upwardly from the second tank level to project rearwardly from the high volume zone of the tank,

(d) vertical planar spacer elements which; are located in and suitably spaced over the length of the tank and are fixed directly to the second pair of spine beams and the inner surface of the tank cladding,

(e) a load deck arrangement which is fixed to and extends over the upper outer surface of the tank,

(f) a hitch device on the underside of the low volume zone of the tank, and

(g) a wheel and suspension arrangement which is attached to the rearwardly projecting portions of the second pair of spine beams.

5,782,494

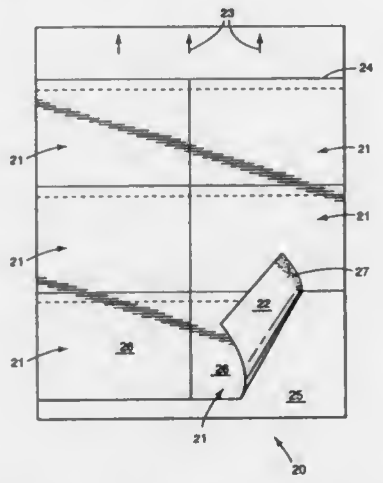
DESKTOP PRINTER NOTES

Michael D. Crandall, North Oaks; Kim K. Tsujimoto, New Brighton, and Mark S. Vogel, Maplewood, all of Minn., assignors to Minnesota Mining and Manufacturing Company, St. Paul, Minn.

Continuation-in-part of Ser. No. 574,675, Dec. 19, 1995. This application Apr. 23, 1996, Ser. No. 636,615

Int. Cl.^{6} B42D *1/00*

U.S. Cl. 281—2 9 Claims



1. A personal computer printer note construction consisting at least one printer note coated with a repositionable adhesive, wherein the printer note is removably affixed onto a backsheet by means of at least one stripe of repositionable adhesive along at least one edge or parallel to at least one edge of the printer note but not more than three edges of the printer note, such that the construction passes through a personal computer printer without damage to the printer or to the printer note construction.

5,782,495

HANGER LABEL

Glenn A. Grosskopf, Lake Zurich, Ill.; Cari W. Treleaven, Greensboro, N.C., and Robert L. Pavetto, Palatine, Ill., assignors to Westlake Ventures, L.L.C., Greensboro, N.C.

Filed Jan. 11, 1996, Ser. No. 584,622

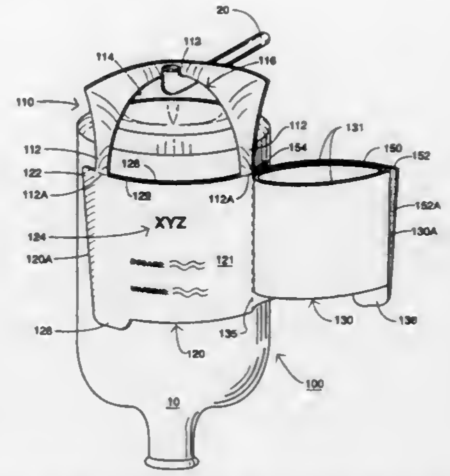
Int. Cl.^{6} B42D *15/00*

U.S. Cl. 281—81 30 Claims

1. A hanger label for displaying information regarding a bottle or the like which also includes a hanger for suspending the bottle from a support, said label comprising:

a) a bottom panel having an upper surface and a lower surface;

b) an adhesive layer disposed on said lower surface of said bottom panel for securing said label to the bottle;



c) a hanger flap connected with said bottom panel by a first fold along a first edge of said bottom panel, said hanger flap in a stored position overlying said upper surface of said bottom panel and having an opening therein, said opening so arranged and configured to receive the support in an operative position;

d) a top panel connected with said bottom panel by a second fold along a second edge of said bottom panel, said top panel overlying said hanger flap in said stored position;

e) said top panel being releasably attached to and in overlying relationship with said bottom panel;

f) wherein, when said top panel is secured in overlying relationship with said bottom panel, said hanger flap is beld between said top and bottom panels in said stored position, and, when said top panel is released from said bottom panel, said hanger flap may be folded away from said bottom panel into said operative position for receiving the support.

5,782,496

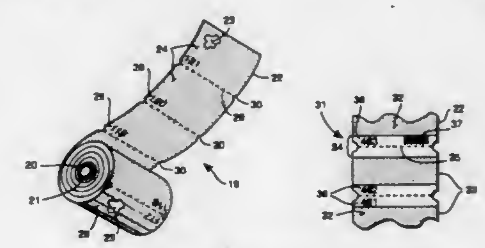
LINERLESS LABEL IDENTIFICATION

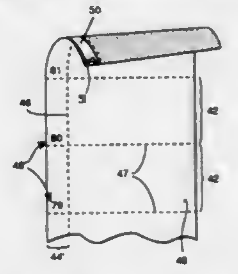
Mark S. Casper, Williamsville; John R. Soltysiak, Blasdell; John C. Bane, Grand Island, and Michael C. Maier, East Amherst, all of N.Y., assignors to Moore Business Forms, Inc., Grand Island, N.Y.

Filed Nov. 3, 1995, Ser. No. 552,569

Int. Cl.^{6} B42D *15/00*

U.S. Cl. 283—81 22 Claims





1. A roll of linerless labels including a trailing innermost label in a spiral roll, and a leading, outermost label in the spiral roll;

each label including a substrate having an inner face primarily coated with pressure sensitive adhesive, and an outer face coated with release material; and

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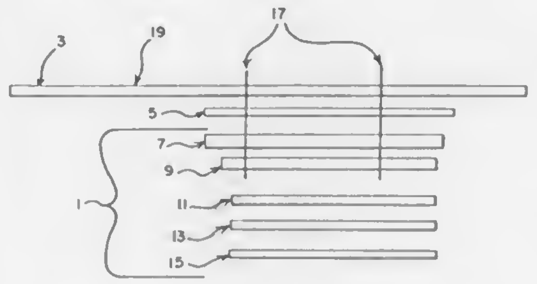
unobtrusive sequential numbers applied to one or both of said inner and outer faces of said labels.

5,782,497
LITE-LIFT DRY LAMINATE: FORM WITH INTEGRAL CLEAN RELEASE CARD

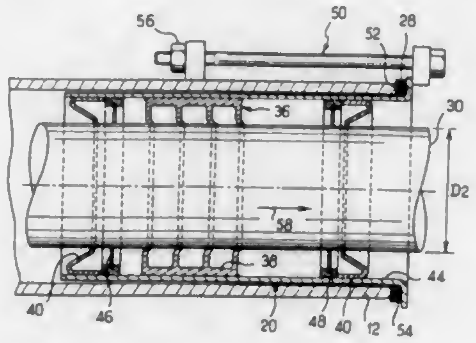
Charles L. Casagrande, 423 S. Elmwood, Aurora, Ill. 60506
Filed Sep. 20, 1996, Ser. No. 756,397
Int. Cl.^{6} B42D ***15/00***
U.S. Cl. 283—110 **5 Claims**



1. A laminate, comprising:
a layer of translucent paper or film;
a card, having edges and defined in the translucent layer by a diecut extending
through the translucent layer;
a thin cast film layer, disposed on the translucent layer; and
a base layer of paper adhesively secured to the thin cast film layer opposite the translucent layer,
wherein the thin cast film layer has a greater affinity for the adhesive securing the thin cast film layer to the base layer than for the translucent layer.

5,782,498
SEALING FLANGE, IN PARTICULAR FOR INTERNAL LINING OF PIPES

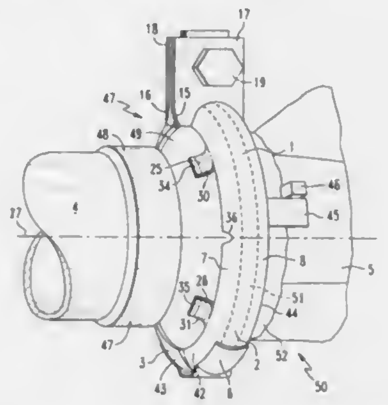
Steve Vick, Norton St Philip, and Gordon Hewlett, Wellow, both of United Kingdom, assignors to Gaz de France, Paris, France
Continuation of Ser. No. 561,528, Nov. 21, 1995, abandoned. This application Jan. 23, 1997, Ser. No. 788,797
Claims priority, application France, Nov. 22, 1994, 94 13980
Int. Cl.^{6} F16L ***55/13;47/00***
U.S. Cl. 285—3 **4 Claims**



1. A pipe assembly comprising:
an outer pipe to be lined, said outer pipe having an open end and an axis;
a generally tubular sealing flange disposed in coaxial relationship with the open end of said outer pipe, said sealing flange having an end abutting the open end of said outer pipe; and
an inner, liner pipe for circulating a fluid therein, said inner, liner pipe extending through said sealing flange and said outer pipe and being disposed in generally coaxial relationship with said outer pipe;
wherein said sealing flange comprises
a generally tubular body;
a series of annular seals disposed generally coaxially within said body and peripherally fixed to said body, said annular seals surrounding and making sealing contact with said inner, liner pipe;
at least one sealing partition fixed generally coaxially within said body, said sealing partition having formed a barrier seal against said fluid before having been torn by said inner, liner pipe being extended through said body; and
at least one annular, frustro-conical guiding and centering means disposed generally coaxially within said body, said guiding and centering means centering said inner, liner pipe within said outer pipe.

5,782,499
CLAMP FOR JOINING TUBULAR PIPE SECTIONS

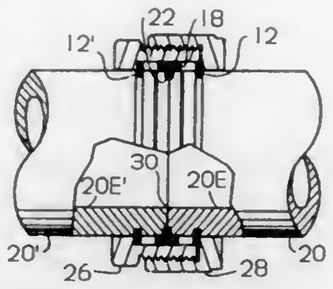
Heinrich Gfrerer, Urbach; Thomas Röder, Kirchberg, and Otto Oster, Kirchardt, all of Germany, assignors to Mercedes-Benz AG, Stuttgart, Germany
Filed Sep. 5, 1996, Ser. No. 708,647
Claims priority, application Germany, Sep. 16, 1995, 195 34 437.5
Int. Cl.^{6} F16L ***25/00***
U.S. Cl. 285—23 **6 Claims**



1. A pipe jointure for pipe end sections having conical end flanges, particularly of exhaust systems of motor vehicles, said pipe jointure including a clamp having opposite leg portions with clamping surfaces enclosing and firmly engaging adjacent conical end flanges of said pipe sections, and means for compressing said clamp for clamping said pipe sections together, at least one of said leg portions of said clamp having radially inwardly and axially outwardly directed tabs formed thereon in circumferentially spaced relationship which extend at least one of the clamping surfaces for engaging an adjacent pipe section end flange during mounting of the clamp, said tabs each including at least two outwardly inclined areas, a radially outer area and a radially inner area which has a greater inclination than said radially outer area which is joined to said leg portion.

5,782,500
PASSAGEWAY ALIGNED COUPLING AND PROCESS

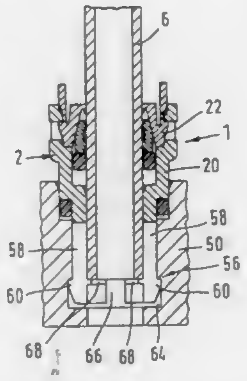
Robert James Maté, 12803 Knollcrest, Houston, Tex. 77015
Filed May 26, 1995, Ser. No. 451,907
Int. Cl.^{6} F16L ***35/00***
U.S. Cl. 285—24 **21 Claims**



1. In the method of relatively aligning a passageway of a conduit part with a passageway of an adjacent conduit part and sealing off with a seal between the opposed ends of said conduit parts, each said conduit part comprising: a mating face, a passageway, a partial seal cavity means for receiving a seal, and having predetermined dimensions, and a formed alignment feature means referenced to said passageway, the steps that include:
a) locating said mating faces in spaced apart relation, with said conduit parts extending coaxially,
b) locating a seal upon one said partial seal cavity means,
c) aligning the passageways via their respective alignment feature means,
d) providing a means to displace the conduit parts toward each other, causing said seal cavity means to engage opposite sides of said seal, and
e) further displacing the mating faces into an approximate flush relation, thereby providing the alignment of adjacent passageways and sealing off between said passageways with said seal at the interfaces of said mating faces.

5,782,501
CONNECTING MECHANISM FOR CONNECTING A PIPELINE TO A UNIT PART

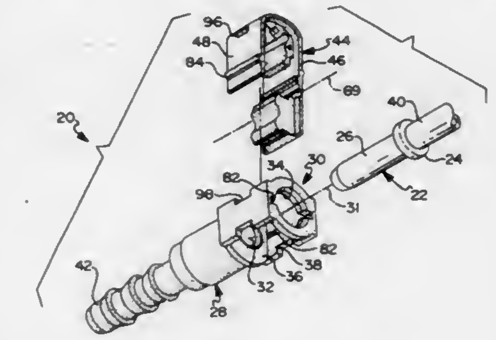
Josef Brandt, Wipperfürth, Germany, assignor to Armaturenfabrik Hermann Voss GmbH & Co., Wipperfürth, Germany
Filed Mar. 21, 1996, Ser. No. 619,428
Claims priority, application Germany, Mar. 21, 1995, 195 10 192.8
Int. Cl.^{6} F16L ***35/00;39/00***
U.S. Cl. 285—81 **10 Claims**



1. A connecting mechanism for connecting a plastic pipeline to a unit part having a mating opening to receive the connecting mechanism, the connecting mechanism comprising:
a housing selectively connectable to the unit part and having a receiver opening for plugging in a pipeline;
a retainer arranged in the receiver opening and operative to lock onto a, pipeline inserted into the receiver opening;
the housing having a plug-in section selectively connectable to the mating opening of the unit part and including a snap-action interlocking connection selectively operative to retain the plug-in section in the mating opening; and
the snap-action interlocking connection having means adapted to cooperate with the inserted pipeline to lock the snap-action interlocking connection against detachment from the mating opening of the unit part,
whereby the connecting mechanism is adapted to lock the unit part and the inserted pipeline.

5,782,502
RADIAL-RELEASE QUICK CONNECTOR

J. Gordon Lewis, Bloomfield Hills, Mich., assignor to ITT Automotive, Inc., Auburn Hills, Mich.
Filed Dec. 29, 1995, Ser. No. 581,102
Int. Cl.^{6} F16L ***55/00***
U.S. Cl. 285—87 **26 Claims**



1. A connector assembly comprising:
a male component having an external flange proximate to a first end thereof;
a female component having receiving member defined therein along a first axis receiving the first end of said male component, the receiving member including a radial shoulder selectively engaged by the external flange of said male component upon insertion of said male component into the receiving member thereby limiting axial travel of said male component thereinto, said female component further including a slot extending transversely through said female component so as to intersect the first bore proximate to the radial shoulder thereof; and
a retainer received within the slot of said female component, said retainer having a pair of legs separated by a bight portion, wherein a first surface on each leg axially opposes the external flange on said male component thereby preventing removal of said male component from the receiving member of said female component,
said retainer further including a locking member being displaceable about the legs into interlocking engagement with the legs, the interlocking engagement being between an engagement feature of the legs and an engagement feature of the locking member, the locking member having a second surface thereon substantially co-planar with the first surface which axially opposes the external flange on said male component when the locking member is interlockingly engaged with the legs.

5,782,503
THREADED JOINT FOR TUBES

Thierry Noel, Sebourg, France, and Akira Narita, Osaka, Japan, assignors to Vallourec Oil & Gas, Aulnoyes-Aymeries, France, and Sumitomo Metal Industries, Osaka, Japan
Filed Apr. 24, 1996, Ser. No. 636,932
Claims priority, application France, Apr. 28, 1995, 95 05371
Int. Cl.^{6} F16L ***7/00***
U.S. Cl. 285—94 **15 Claims**

1. Thread joint for tubes comprising:
a sleeve provided with first and second female housings, each female housing having internal tapered threads, a first tube and a second tube, each tube having a male element provided with an external tapered thread that corresponds with the internal tapered threads of the female housings which com-

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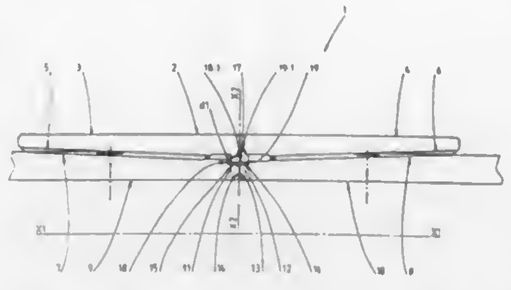
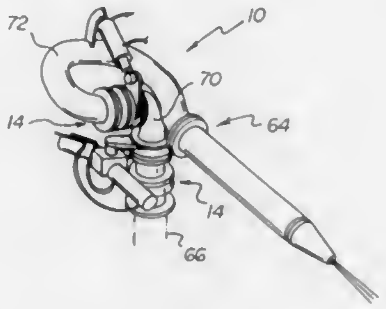


prises a non-threaded extremity zone which engages into an annular axial passage of the sleeve, the extremity zone comprising a front wall, the male element of the first tube being screwed into the first female housing and the male element of the second tube being screwed into the second female housing the front walls of the two male elements abutting one against the other when screwing is completed, wherein the non-threaded extremity zones slide with clearance into the inside of the annular axial passage and clearance being maintained between the non-threaded extremity zones and the inside of the annular axial passage of the sleeve over substantially an entire inner circumference of the annular axial passage when screwing is completed, further comprising at least one pair of male and female stop shoulders disposed on the female housing and corresponding male element which allows axial positioning of each of the male elements in its female housing and of the abutting front walls, teeth of the male threads having a constant height over an axial length representing a part of a total length of a threaded zone, identical to the height of female thread teeth, wherein when screwing is completed interference exists between male and female threads.

5,782,504
ROTATABLE WATER CONDUIT COUPLE FOR A PIT GUN

Samuel Thomas Chauncey, 4641 Harden Blvd., Lakeland, Fla. 33813

Filed Nov. 8, 1996, Ser. No. 745,293
Int. Cl.⁶ F16L *27/00*
U.S. Cl. 285—147.3 **6 Claims**



1. A new and improved rotatable water conduit couple for a pit gun comprising, in combination:

at least two water conduit couples each constructed from a metal and comprising a first portion including a hollow cylinder with a first end and a second end, a disk coupled coaxially to the first end of the hollow cylinder with a plurality of coupling apertures formed therethrough adjacent a periphery thereof, a flange integrally formed about the hollow cylinder and extending radially therefrom adjacent the second end thereof with a plurality of threaded bores formed in a surface thereof facing the disk; an annular second portion having an outboard smooth surface, a smooth end surface with a plurality of threaded bolts coupled thereto adjacent the outboard surface and extending perpendicularly therefrom in parallel with an axis about which the cylinder of the first portion is situated, a smooth intermediate surface with a plurality of threaded bores formed therein adjacent the outboard surface, and a stepped inboard surface with a first step extending radially inward, a second step extending radially inward contiguously below the first step, a cut out formed below the second step, and a lip formed at a bottom of the inboard surface and extending radially inwardly, the second end of the first portion of the couple being inserted within the second portion such that the second end of the first portion slidably abuts the lip of the second portion and the flange of the first portion slidably abuts the first step of the second portion forming a first annular compartment defined by the second step of the second portion and a second annular compartment defined by the cut out of the second portion; a first annular gasket situated within the first annular compartment; a second annular gasket situated within the second annular compartment; a first annular bearing retainer having an L-shaped cross-section with a first extent having a plurality of bores formed therethrough for inserting a plurality of bolts therethrough and further threadedly coupling the bolts within the threaded bores of the flange of the first portion, the first bearing retainer further having a second extent extending in parallel with the intermediate surface of the second portion; a second annular bearing retainer having a plurality of bores formed therethrough for inserting a plurality of bolts therethrough and further threadedly coupling the bolts within the threaded bores of a linear intermediate surface of the second portion thereby forming an annular compartment with the first bearing retainer; and a plurality of bearings situated within the bearing compartment and maintained in the proper position via the tightening of the bolts of the bearing retainers;

a first lower water conduit with a vertical orientation, wherein the bolts of the end surface of the second portion of a first water conduit couple are utilized for coupling to an end of the first lower water conduit;

a second intermediate water conduit having a generally L-shaped configuration with a horizontal extent and a vertical extent, wherein a plurality of bolts are inserted through the apertures of the disk of the first portion of the first water conduit couple and further secured to an end of the vertical extent of the second water conduit and further the bolts of the end surface of the second portion of a second water conduit couple are utilized for coupling to an end of the horizontal extent of the second water conduit; and

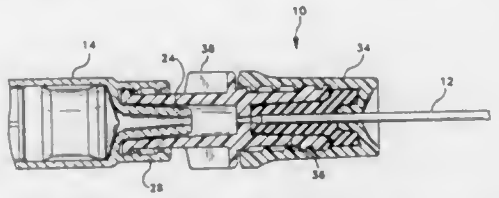
a third upper water conduit having a generally P-shaped configuration which resides generally within a horizontal plane, the third upper water conduit having a first end with a dispensing nozzle coupled thereto, wherein a plurality of bolts are inserted through the apertures of the disk of the first portion of the second water conduit couple and further secured to a second end of the third upper water conduit;

said nozzle being swivelled about both a vertical axis and a horizontal axis for dispensing fluids within a pit.

5,782,505
CATHETER ADAPTER ASSEMBLY

Christopher J. Brooks, New York, N.Y.; Jesse Lee Dorogusker, Palo Alto, Calif., and Keith Joseph Mc Wha, Waldwick, N.J., assignors to Becton, Dickinson and Company, Franklin Lakes, N.J.

Filed Aug. 29, 1996, Ser. No. 697,759
Int. Cl.⁶ A61M *25/00;25/18*
U.S. Cl. 285—175 **12 Claims**



1. An adapter assembly for fluid-tight connection to a catheter, said assembly comprising:

a tubular nose have proximal and distal ends;

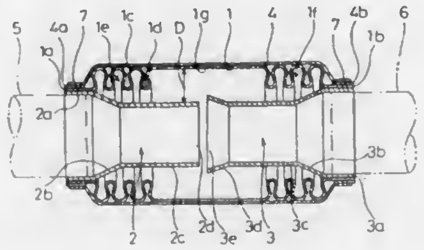
a resilient elastomeric plug having proximal and distal ends, said distal end of said plug being tightly engaged in said distal end of said nose, said proximal end of said plug being tapered, a catheter passage extending through said plug and being dimensioned for slidable engagement of said catheter therein; and

a generally tubular hub having proximal and distal ends, said distal end of said hub being selectively movable in proximal and distal directions in said nose, a plug compression cavity extending into said distal end of said hub and receiving said proximal end of said plug, said plug having sufficient resiliency and said plug compression cavity being tapered and dimensioned such that distal movement of said hub into said nose causes said hub to gradually compress said plug into secure fluid-tight engagement with said catheter.

5,782,506
FLEXIBLE PIPE

Toru Uematsu, Toyota; Hidenori Tateno, Nisshin, and Katsujiro Tachikawa, Okazaki, all of Japan, assignors to Sanco Co., Ltd., Nagoya, Japan

Filed Apr. 2, 1996, Ser. No. 626,365
Claims priority, application Japan, Apr. 4, 1995, 7-078570
Int. Cl.⁶ F16L *27/11*
U.S. Cl. 285—227 **8 Claims**



1. A flexible pipe comprising:

a bellows tube comprising:

bellows portions including ridges and valleys on opposite ends of the bellows tube in a longitudinal directions, and

a straight tube portion disposed at a central portion of the bellows tube between the bellows portions and having a diameter approximately the same as an outside diameter of the ridges in the bellows portions, the bellows portions being integrally formed with and fixedly attached to the straight tube portion;

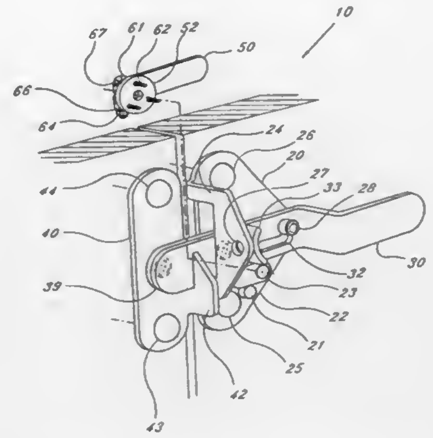
a first inner tube inserted into a first opening formed in the bellows tube; and

a second inner tube inserted into a second opening formed in the bellows tube, wherein inner opening ends of the first and the second inner tubes in the bellows tube are disposed within the straight tube portion and the inner opening end of the first inner tube faces the inner opening end of the second inner tube, the inner opening ends being in close proximity to each other.

5,782,507
GATE LATCH WITH LATCHING MEANS

Carl B. Hardee, 2271 Hwy. 348, Loris, S.C. 29569

Filed Apr. 15, 1997, Ser. No. 837,995
Int. Cl.⁶ E05C *5/00*
U.S. Cl. 292—67 **7 Claims**



1. A gate and door latch having alternative latching means, comprising in combination:

A striker member having a latching end and a striker handle, said striker handle extending from said striker member in an off-set fashion from a plane occupied by said striker member such that said striker handle may be easily grasped by a human hand;

a striker slot cut into said striker member, said striker slot being centrally located on said striker member having a uniform slot width, said striker slot further comprising a vertical slot end and a horizontal slot end, said vertical slot end joining said horizontal slot end at an approximate right angle;

a striker mount having a plurality of square bolt apertures for insertion of striker mount bolts to secure said striker mount to said door, said striker mount having a stirrup extending in a perpendicular fashion from said striker mount opposite said door, said stirrup having an opening through which said latching end of said striker member pivots and slides between an open and closed position, said opening of said stirrup confining a pivoting action of said latch end of said striker member;

a striker pivot bolt having a threaded end, a pivot neck and a pivot bolt head, said striker pivot bolt being inserted through said striker slot for securing said threaded end of said striker pivot bolt into a pivot bolt aperture of said striker mount so that said striker member may pivot on said pivot neck, said pivot bolt head having a diameter greater than said width of said striker slot and said pivot neck having a diameter slightly less than said width of said striker slot;

a means for locking said striker member to said stirrup of said striker mount; and

a keeper mount having a pronged keeper and plurality of square bolt apertures through which keeper bolts secure said keeper mount to a surface adjacent and opposite said striker mount, said keeper mount being aligned with said striker mount so that said pronged keeper receives said latching end of said striker member maintaining said door in a closed position.

5,782,508
SWIVELABLE QUICK CONNECTOR ASSEMBLY

Donald D. Bartholomew, Mt. Clemens, Mich., assignor to Proprietary Technologies, Inc., Bloomfield Hills, Mich.

Division of Ser. No. 437,272, May 8, 1995, which is a continuation-in-part of Ser. No. 9,009, Jan. 26, 1993, Pat. No. 5,413,387, which is a division of Ser. No. 506,449, Apr. 6, 1990, abandoned, which is a continuation of Ser. No. 360,405, Jun. 2, 1989, Pat. No. 4,936,544, which is a division of Ser. No. 251,038, Sep. 26, 1988, Pat. No. 4,915,136, which is a continuation of Ser. No. 127,532, Dec. 2, 1987, abandoned, which is a continuation of Ser. No. 748,307, Jun. 24, 1985, abandoned, which is a continuation of Ser. No. 360,201, Mar. 22, 1982, Pat. No. 4,601,497, which is a continuation-in-part of Ser. No. 201,711, Oct. 29, 1980, Pat. No. 4,423,892. This application Mar. 12, 1996, Ser. No. 615,847
Int. Cl.⁶ F16L *37/14*
U.S. Cl. 285—319 **22 Claims**

22. A swivelable quick-connect coupling for connecting a tube end and a fluid passage for conducting fluids between the tube and the passage, the coupling comprising:

an outwardly-projecting annular enlargement provided at a distance from the tube end, said enlargement having an outwardly-facing blocking wall portion formed thereon;

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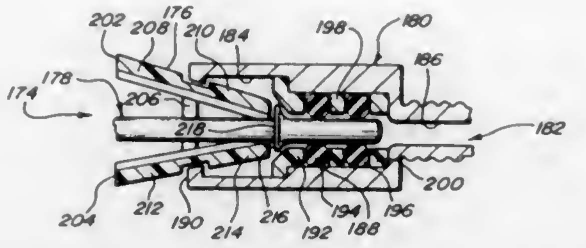


a coupling housing fluidly associated with the fluid passage, said coupling housing having formed therein a bore for at least partially receiving the tube end;

a retainer element including a pair of opposing and radially displaceable members and a pair of opposing manually engageable and radially deformable elements, said radially displaceable members having formed thereon an inner radial wall and an outer radial wall, said inner radial wall being cooperable with said outwardly-facing blocking wall portion of the tube end and said outer radial wall being cooperable with said coupling housing for releasably securing the tube end within the coupling housing whereby the tube end is in fluid communication with the fluid passage; and

interconnecting portions disposed around the outer surface of the tube end and integrally connected between said displaceable members and said deformable elements such that radially inwardly compressive movement of said deformable elements enables radially outward movement of said displaceable members which in turn causes said radially inner walls on said displaceable members to move radially out of engagement with said blocking wall portion on the tube end, whereby the tube end may be withdrawn from said coupling housing.

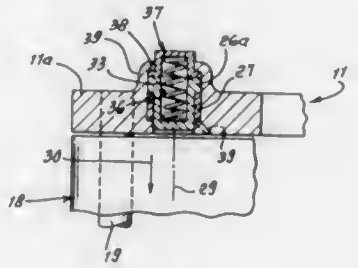
5,782,509
BOLT CLOSURE MAINTENANCE FOR FIRE-DEGRADED LATCHING ASSEMBLY

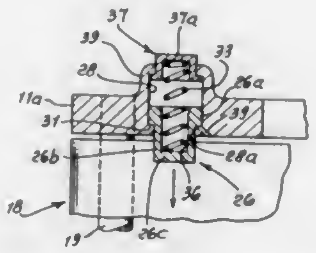
Alan K. Uyeda, Trabuco Canyon, Calif., assignor to Adams Rite Manufacturing Co., City of Industry, Calif.

Filed Feb. 18, 1997, Ser. No. 802,435

Int. Cl.^{6} E05B *65/10;15/02;17/20*

U.S. Cl. 292—DIG. 66 **10 Claims**





1. In a door closure assembly, the combination comprising

a) a latch bolt element,

b) carrier structure to carry the bolt element to pivot between door unlatched and latched position,

c) and means carried by a fire resistant portion of said assembly to be responsive to an increase in temperature to a level T to move into position to block door unlatching movement of said bolt element from door latching position, there being a chamber in said portion of the assembly,

d) said means including a blocking part urged in a direction of movement of said part into blocking relation to bolt pivoting toward unlatched position, and a meltable element preventing said movement of said part until the temperature of said meltable element rises to temperature T causing melting of said element,

e) said blocking part comprising a plunger movable in said chamber in said direction, said meltable element also positioned in said chamber, said plunger having a flange and a blocking shank projecting in said direction beyond said flange, and said meltable element is positioned to extend about said shank to obstruct movement of said flange in said direction, said means including a spring in said chamber urging said blocking part in said direction, said meltable part extending annularly about said shank and said spring.

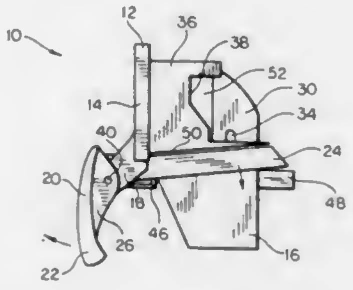
5,782,510
GLOVE BOX LATCH

Paul E. Gass, Mokena, Ill., assignor to Illinois Tool Works Inc., Glenview, Ill.

Filed Aug. 21, 1996, Ser. No. 700,860

Int. Cl.^{6} E05C *1/12*

U.S. Cl. 292—165 **6 Claims**



1. A latch assembly for a glove box or similar compartment in a motor vehicle, said latch assembly comprising:

a slide;

a housing, said housing having a receptacle wherein said slide is disposed and is slidably translatable between a locked position and an unlocked position, said receptacle having a pair of side walls, each of said side walls having a notch at said locked position of said slide, a top of said slide extending above a bottom of a portion of each of said side walls above said notches when said slide is at said locked position, said notches, said side walls and said slide defining an enclosed passage at said locked position for accommodating a striker to which said locking assembly is to be locked;

means for biasing said slide from said unlocked position toward said locked position; and

a handle, said handle being rotatably attached to said housing and having a member operatively engaging said slide so that when said handle is pulled by an operator, causing it to rotate with respect to said housing, said member moves said slide from said locked position to said unlocked position.

5,782,511
DECOMPRESSION LOCK

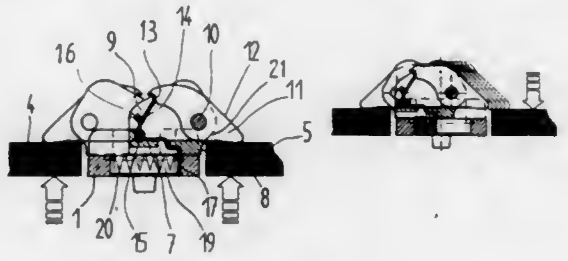
Helmut Schwarz, Weil der Stadt, Germany, assignor to Schwarz Verbindungs-Systeme GmbH, Althengstett, Germany

Filed Jan. 3, 1997, Ser. No. 775,341

Claims priority, application Germany, Jan. 13, 1996, 296 00 518 U

Int. Cl.^{6} E05B *15/04;15/12;* **E05C** *3/00;5/02*

U.S. Cl. 292—219 **8 Claims**



1. A decompression lock configured for opening when a predetermined pressure is exceeded, comprising:

a base plate having a trough;

a support carriage, longitudinally displaceable along a first axis, slidably supported on said base plate above said trough;

a bolt rotatably supported on said support carriage;

a detent spring fixed to the support carriage, said detent spring having an outer end for biasing said bolt in a closed position and for releasing said bolt from said closed position at a predetermined overpressure and said detent spring having an inner end disposed in said trough; and

a compression spring disposed in said trough and abutting said inner end of said detent spring such that said support carriage and said bolt are biased in a locking position.

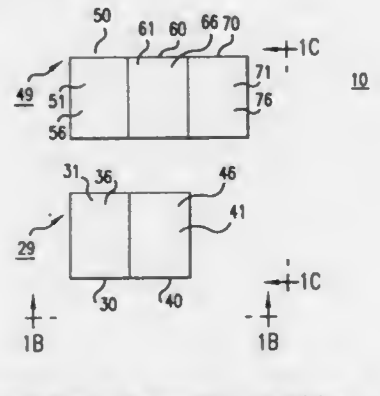
5,782,512
MAGNETIC FIELD LATCH ASSEMBLY

James P. Cargnoni, Shortsville, N.Y., assignor to Xerox Corporation, Stamford, Conn.

Filed Jan. 13, 1997, Ser. No. 781,305

Int. Cl.^{6} E05C *17/56*

U.S. Cl. 292—251.5 **19 Claims**



1. A magnetic field latch assembly, comprising:

a first magnet associated with a first element;

a second magnet associated with a second element, the second element having a disengaged position and an engaged position with respect to the first element; and

adjustment means for adjusting a position of at least one of the first magnet and the second magnet, the adjustment means allowing adjustment of at least an angular position of the first magnet relative to the second magnet, wherein a force between the first and the second magnets tends to separate the first and the second elements when in the disengaged position and the force between the first and the second magnets tends to draw the first and the second elements together when in the engaged position.

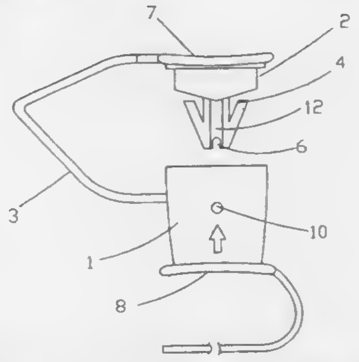
5,782,513
SECURITY SEAL

Ian Nazzari, Moraga, Calif., assignor to NIC Products, Inc., Walnut Creek, Calif.

Filed Jul. 26, 1996, Ser. No. 686,584

Int. Cl.^{6} B65D *27/30*

U.S. Cl. 292—319 **1 Claim**



1. A wire security seal comprising a closure system of ergonomic design, said seal comprising

a capsule, said capsule comprising

interior and exterior surfaces; an open end and a closed end, at least two apertures,

a female fitting formed by the interior surface of the capsule;

a bottom surface at the closed end, the bottom surface comprising a first contour corresponding to the shape of a user's index finger;

an anchor sized to be received within the capsule, said anchor comprising a male fitting which is complementary to and suitable to be irreversibly engaged by the female fitting, said anchor comprising a groove, a top surface said top surface comprising an area which is somewhat larger than an area of the open end of the capsule, the top surface comprising a second contour to accommodate a user's thumb

a connecting arm integrally formed of the capsule and the anchor, said connecting arm linking the capsule and the anchor, said connecting arm projecting away from the capsule at a right angle for some portion and then back toward the capsule at an acute angle;

a wire of suitable size integral with the seal to be received through the apertures and within the groove;

the apertures for receiving the wire and for aligning the wire with the groove in the anchor as the anchor is pushed into the open end of the capsule, the anchor for engaging the wire as the wire is received in the apertures via the anchor's groove such that the wire, as the anchor and capsule are engaged, is received into the groove is pushed progressively into the capsule, and is bent at numerous points according to the shape of the interior of the capsule, the anchor is irreversibly engaged to the female fitting and the wire is held in place by the anchor and cannot be pulled out without destroying the capsule or otherwise leaving evidence of tampering.

5,782,514
PIVOTING TAIL LIGHT BAR SYSTEM FOR MOVABLE-DECK VEHICLE

Fred W. Mann, Box 444, Waterville, Kans. 66548

Filed Jun. 28, 1996, Ser. No. 672,320

Int. Cl.^{6} B60R *19/38*

U.S. Cl. 293—118 **9 Claims**

1. A pivoting bumper system for a movable-deck vehicle, said vehicle including a deck which is pivoting between a generally

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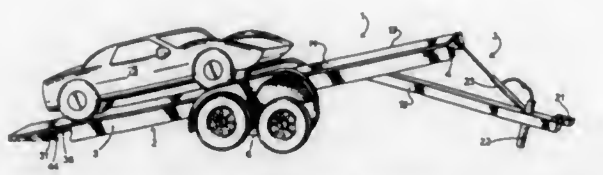


horizontal, transport position and a tilted, loading/unloading position, with one or more rear facing lights attached to a rear surface of said deck, said bumper system comprising:

- a. an elongate bumper; and
- b. a pair of shock absorbing support arms, each support arm with one end attached to said bumper and with a second end pivotably attached to said vehicle beneath said deck so that said support arms and said bumper are pivotable between a lowered position when said deck is in said horizontal, transport position and a raised position when said deck is in said tilted, loading/unloading position, said bumper at least partially covering and protecting said rear facing lights when it is placed in said raised position.

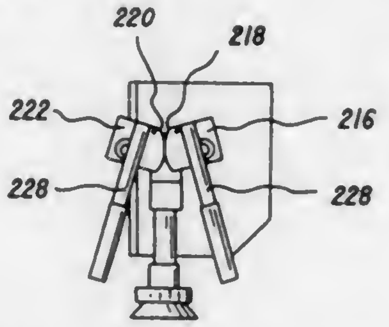
5,782,515
ROTATABLE ARM MECHANISM FOR ASSEMBLING AND DISASSEMBLING SAMPLES

Howard P. Jehan, Honeoye Falls, N.Y., assignor to Eastman Kodak Company, Rochester, N.Y.

Filed Nov. 13, 1996, Ser. No. 748,317

Int. Cl.^{6} B25J *15/06*

U.S. Cl. 294—2 **5 Claims**



1. An apparatus for assembling and disassembling generally planar samples in sample cups comprising:

- (a) a drive shaft;
- (b) means for rotating said drive shaft;
- (c) a bracket affixed to said drive shaft;
- (d) a tubular sleeve supported at a proximal end thereof from said bracket, said tubular sleeve having a rod inserted therethrough past a distal end of said tubular sleeve;
- (e) means mounted to said bracket for rotating said rod within said tubular sleeve;
- (f) a pair of tong members supported from said distal end of said tubular sleeve and from said rod, said tong members being spreadable from one another to cause a distal end of each of said pair of tong members to engage a sample cup on an interior surface thereof in response to rotation of said rod;
- (g) a vacuum cup supported from said distal end of said tubular sleeve.

5,782,516
HAND-WORN APPARATUS FOR LIFTING COMPACT DISKS AND OTHER DELICATE ARTICLES

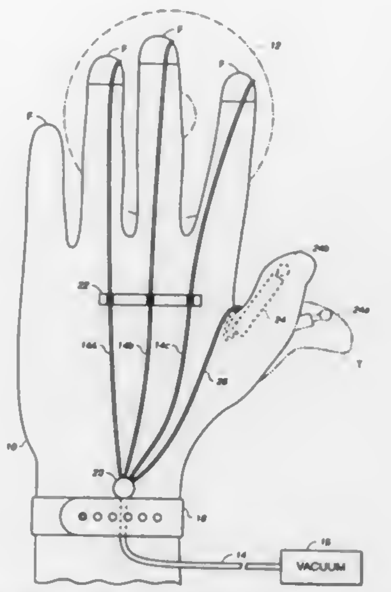
Alfonso Partida, 6415 Via Baron, Rancho Palos Verdes, Calif. 90275

Filed Dec. 2, 1996, Ser. No. 759,041

Int. Cl.^{6} B25J *15/06*

U.S. Cl. 294—25 **8 Claims**

1. An apparatus for releasably lifting a delicate article by a user's hand, said apparatus comprising:



at least one suction cup element disposed on a glove member;

a vacuum line connected to said suction cup element, said vacuum line including means for connection to a vacuum source; and

manual switch means for selectively drawing a vacuum from the vacuum source through said vacuum line to said suction cup element, wherein when said switch means is activated, a vacuum is drawn from the vacuum source, through said vacuum line and through said suction cup element, enabling temporary attachment to and lifting of a delicate article by said apparatus, and when said switch means is deactivated, the vacuum is not drawn through said vacuum line and suction cup element, thereby releasing the article from said apparatus.

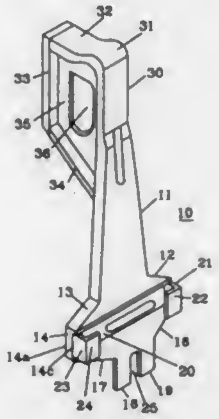
5,782,517
HANDLE FOR WAFER CARRIER AND DOCKING STATION

Robert E. Mckee, IV, Dallas, Tex., assignor to Texas Instruments Incorporated, Dallas, Tex.

Filed Dec. 20, 1996, Ser. No. 771,457

Int. Cl.^{6} B65D *25/28*

U.S. Cl. 294—27.1 **13 Claims**



1. A semiconductor handling apparatus including a handle device for attaching to and lifting semiconductor wafer carriers from a single end, wherein the carrier has two spaced apart slots on one end; and a docking station for said carrier; wherein said handle comprises:

a linear handle tapered from a small end to a larger mid-section, and terminating in a section that tapers to two spaced apart legs;

a looped handle on said small end; and

a bracket device, mounted on said larger mid-section, having on each end a first section extending vertically from the mid-section, and a second section extending at an right angle from said first section;

wherein said second sections extending at a right angle from said first sections are insertable into the spaced apart slots on said wafer carrier for lifting and carrying said wafer carrier.

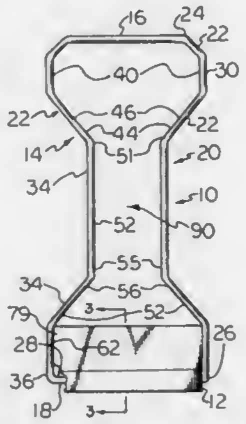
5,782,518
TOOL HANDLE

Lincoln Scruggs, 7369 Farrand, Clio, Mich. 48420

Filed Mar. 18, 1996, Ser. No. 617,386

Int. Cl.^{6} B25G *1/10*

U.S. Cl. 294—57 **20 Claims**



1. An elongate tool handle for attachment to a tool head, such as a shovel blade, or the like, comprising:

a first, substantially straight handle portion lying in a first plane and including a hand grip;

a second, substantially straight, handle portion, integral with said first portion, lying in a second plane which obliquely intersects said first plane;

a third, substantially straight handle portion, integral with said second portion, lying in a third plane which obliquely intersects said second plane and is parallel to said first plane;

a fourth, substantially straight handle portion, integral with said third portion, lying in a fourth plane which obliquely intersects said third plane and is parallel to said second plane; and

means for coupling said fourth handle portion to a tool head;

said fourth plane being parallel to said second plane.

5,782,519
SIDE LATCH INTERCONNECT APPARATUS AND METHOD FOR TRANSPORTING A CONTAINER

James A. Baumann, 16413 Grant Ave., Orland Park, Ill. 60606

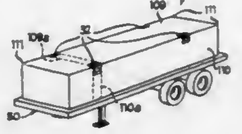
Division of Ser. No. 209,487, Mar. 14, 1994, Pat. No. 5,382,067, which is a continuation of Ser. No. 989,338, Dec. 11, 1992, abandoned, which is a continuation-in-part of Ser. No. 973,723, Nov. 9, 1992, Pat. No. 5,332,274, and a continuation-in-part of Ser. No. 945,747, Sep. 16, 1992, Pat. No. 5,431,471. This application Dec. 30, 1994, Ser. No. 366,461

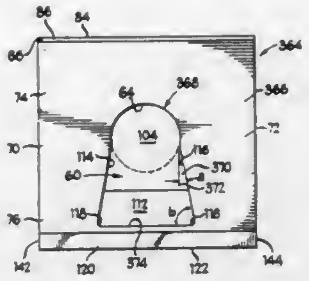
Int. Cl.^{6} B65D *90/00*

U.S. Cl. 294—68.3 **19 Claims**

1. A handle for mounting on a container for use with a releasable latch mechanism, the container handle comprising:

an integral body including a substantially vertical member adapted to being mounted on a side surface of a container having an outwardly facing surface which faces substantially perpendicular to the side surface of the container having a lower engagable portion having a lower engagement surface, the vertical member is sufficiently narrow in profile so as to be substantially free from intruding into a cargo space of the container;





the outwardly facing surface facing outwardly away from the substantially vertical member and including side target means for releasably receiving a portion of a latch mechanism from a side in a substantially inwardly direction with respect to the substantially vertical member defined by a recess; and

the side target means being generally centrally located on the outwardly facing surface including a plurality of communicating boundaries, including: (i) an upper boundary defined by the lower engagement surface; (ii) a base section of the recess; and (iii) side boundaries defined by inclined side sections, and the boundaries being located substantially within the substantially vertical member of the integral body, thereby facilitating handling from the side.

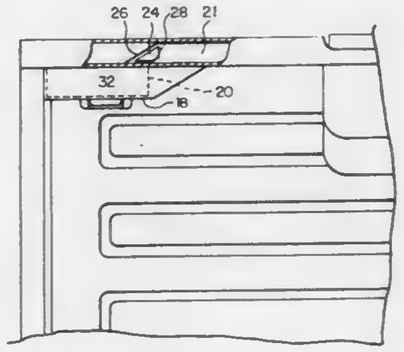
5,782,520
BED LINER RETAINER

Kevin L. Smith, Ayden, N.C., assignor to Atwell Industries, Inc., Ayden, N.C.

Filed Jun. 19, 1996, Ser. No. 666,944

Int. Cl.^{6} B60R *13/01*

U.S. Cl. 296—39.2 **3 Claims**



1. A pickup truck bed liner for a pickup truck bed having side walls with an integral inwardly extending post at a rear end of each side wall and an inwardly extending rail having a downwardly extending flange on each rail, said bed liner comprising a pair of side walls engageable with the side walls of the truck bed beneath the rail of each side wall of the truck bed, each bed liner side wall having a column-shaped first projection adjacent a rear end thereof for close fitting engagement with the post at the rear end of a corresponding truck side wall and a second projection on an upper outwardly extending flange portion of the first projection for engagement with the flange of the truck bed rail to retain the bed liner side wall against the truck bed wall and the post to prevent rearward movement of the bed liner relative to the truck bed.

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5,782,521

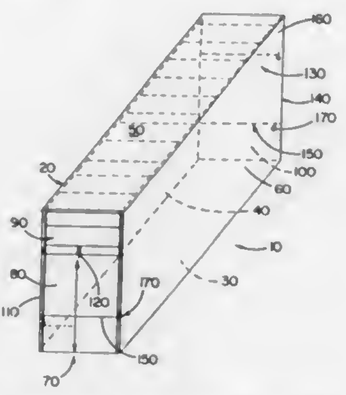
AIR FLOW MANAGEMENT SYSTEM FOR TRACTOR TRAILERS

James Anderson, 5610 W. 175th St., Tinley Park, Ill. 60477

Filed May 17, 1996, Ser. No. 649,524

Int. Cl.^{6} B60P *7/04*

U.S. Cl. 296—181 **2 Claims**



1. A method for reducing aerodynamic drag in a tractor trailer, the method comprising:

opening a front segmented retractable door on a trailer to define an entrance opening at a forward position of the trailer, the entrance opening effective for allowing air to enter the trailer; and

opening a rear segmented retractable door on the trailer to define an exit opening at a rear position of the trailer, the exit opening effective for allowing air to exit the trailer,

positioning at least one removable horizontal support bar in the entrance opening and in the exit opening, wherein the removable horizontal support bar is held in place by a securing means, the removable horizontal support bar effective for providing structural stability to the trailer when entrance and exit openings are present;

the method effective for reducing wind resistance at least about 22 percent as compared to a closed trailer.

5,782,522

REMOVABLE SECURABLE CARGO AREA COVER ESPECIALLY FOR USE ON UTILITIES AND PICK-UP TRUCKS

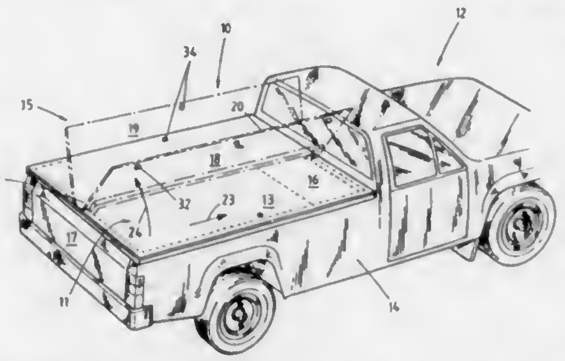
Gregory John DeBono, P.O. Box 1071, Broken Hill, New South Wales 2880, Australia

Filed Jun. 27, 1996, Ser. No. 672,091

Claims priority, application Australia, Jun. 29, 1995, PN3864

Int. Cl.^{6} B60P *7/02*

U.S. Cl. 296—100 **18 Claims**



1. A removable securable cover for use with a vehicle having an open cargo area defined by a tray and two pairs of substantially parallel side walls, said cover comprising:

two panels spanning across the cargo area so as to cover it, the panels spanning across the first pair of side walls with an outer edge of one panel resting on top of one side wall of the second pair of side walls and an outer edge of the other panel resting on top of the other one of the second pair of side walls;

a hinge connection means for hingedly connecting the two panels to each other at their adjacent inner edges opposite from said outer edges;

a securing means securing the outer edge of each panel to the side wall on which it is resting;

a restraining means engaging the cover so as to prevent it from moving in an upright direction unless both panels are lifted to provide an inclined angle therebetween;

whereby with both panels extending over the cargo area and secured the cover is securably attached to the vehicle, with one panel extending over the cargo area and secured in place the other panel can be folded open about the hinge connection means to expose at least a part of the open cargo area with the cover still securably attached to the vehicle, and whereby with both panels folded open about the hinge connection means and extending upwardly the cover may be removed from the vehicle.

5,782,523

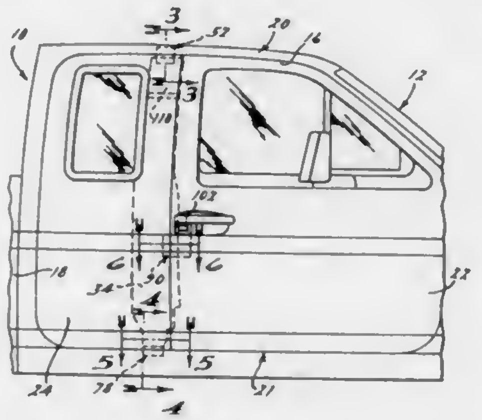
REINFORCED DOOR ASSEMBLY FOR PICK-UP TRUCKS

Gary Eugene Heldt, Livonia; Ryan Spencer Marshall, Novi; Tadeusz Joseph Siedlecki, Dearborn, and David Rush, Bingham Farms, all of Mich., assignors to Ford Global Technologies, Inc., Dearborn, Mich.

Continuation of Ser. No. 589,238, Jan. 22, 1996, abandoned. This application Oct. 14, 1997, Ser. No. 950,304

Int. Cl.^{6} B60J *5/04*

U.S. Cl. 296—146.6 **14 Claims**



1. A reinforced door assembly for closing a door opening in a side of a body of a pick-up truck comprising:

a first door pivotally connected to the body between an open position and a closed position;

a second door pivotally connected to the body between an open position and a closed position;

a rocker at a bottom portion of said door opening;

a roof rail at a top portion of said door opening;

one of said first door and said second door having a lower portion extending downwardly to overlap a portion of said rocker:

at least one of said first door and second door including a vertical reinforcement assembly disposed within and extending from said roof rail to said rocker and overlapping a portion of said rocker and a floor of the pick-up truck and offset rearwardly from a centerpoint of the door opening to resist inward movement of said first door and said second door from said closed position with respect to the body of the pick-up truck upon imposition of an excessive or side intrusion load on an outer panel of said first door and said second door.

5,782,524

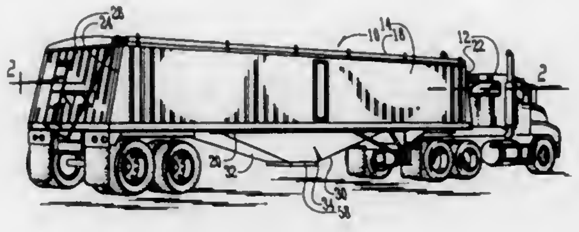
CURVED WALL TRAILER CONSTRUCTION

Merle J. Heider, 203 12th St. SW.; Dale J. Heider, 1108 8th Ave. SW.; Leon J. Heider, 1107 Third Ave. SW., and Craig J. Heider, 812 S. Taft St., all of Humboldt, Iowa 50548

Filed Jun. 30, 1995, Ser. No. 496,896

Int. Cl.^{6} B60P *1/56*

U.S. Cl. 296—181 **12 Claims**



11. A trailer construction comprising:

first and second spaced apart trailer side walls, each having a forward end, a rear end, an upper edge, and a lower edge;

an elongated bottom wall having a longitudinal axis, a forward end, a rear end, a front sloping portion, a rear sloping portion, and an intermediate portion, said front and rear sloping portions extending from said forward and rear ends respectively of said bottom wall in a downwardly inclined direction toward said intermediate portion;

said intermediate portion comprising a hopper having an open upper end connected between said front and rear sloping portions of said bottom wall and having a hopper side wall tapering downwardly and inwardly to form a reduced cross section lower end; said hopper side wall being continuous and curved when viewed in cross section taken on a horizontal plane;

said hopper having a discharge opening therein; and

a door fitted in covering relation over said discharge opening.

5,782,525

BODY STRUCTURE FOR MOTOR VEHICLE

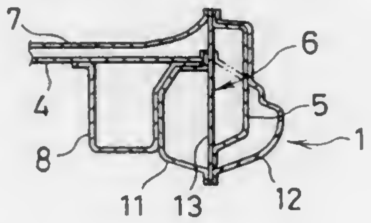
Masayuki Honma, Ora, and Toshio Masuda, Ashikaga, both of Japan, assignors to Fuji Jukogyo Kabushiki Kaisha, Tokyo, Japan

Continuation of Ser. No. 510,532, Aug. 2, 1995, Pat. No. 5,641,194. This application Feb. 6, 1997, Ser. No. 795,865

Claims priority, application Japan, Aug. 31, 1994, 6-230467

Int. Cl.^{6} B62D *25/20*

U.S. Cl. 296—188 **14 Claims**



1. A body structure of a motor vehicle having a side sill including a side sill inner panel, a side sill outer panel and a side sill reinforcement provided between said side sill inner panel and said side sill outer panel, a rear floor and a rear wheel arch, comprising:

a first crash box reinforcement including a U-shaped cross section and provided outside of said side sill reinforcement;

a first crash box having a closed cross section formed by said first crash box reinforcement and by said side sill reinforcement, and secured to said side sill and to said rear wheel arch so as to connect said side sill and said rear wheel arch;

a second crash box having a closed cross section formed by said side sill inner panel and by said side sill reinforcement, and located on the opposite side of said first crash box with respect to said side sill reinforcement and abutting said rear floor.

5,782,526

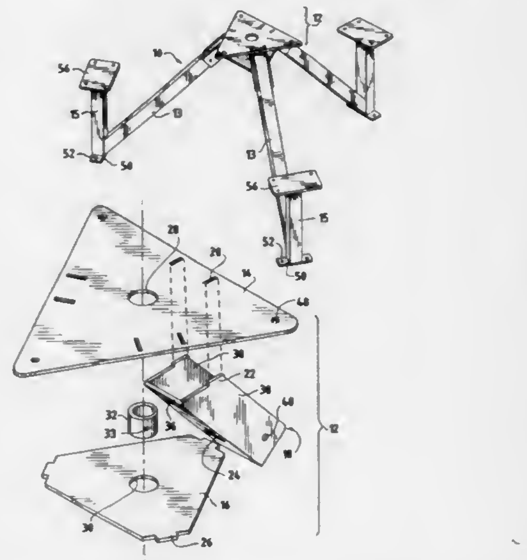
LEG ASSEMBLY FOR A TABLE

David P. Ott, Mosinee, Wis., assignor to Wausau Tile, Inc., Wausau, Wis.

Filed Apr. 19, 1996, Ser. No. 634,810

Int. Cl.^{6} A47B *83/02*

U.S. Cl. 297—157.1 **19 Claims**



1. A leg assembly for a table, comprising:

an upper plate having a first plurality of spaced first connection points thereon;

a lower plate having a second plurality of spaced second connection points thereon;

a plurality of leg sleeves each secured to the upper and lower plates at one of said first connection points and one of said second connection points forming a leg subassembly with the plates aligned in vertical spaced apart relationship; and

a plurality of legs, each having an upper end telescoped with one of the leg sleeves, the legs extending downwardly therefrom.

5,782,527

ACCESSORY FOR SUNROOF AIR DEFLECTOR

Barry A. Willey, 727 Ela Rd., Inverness, Ill. 60067

Filed Oct. 27, 1995, Ser. No. 549,387

Int. Cl.^{6} B60J *7/22*

U.S. Cl. 296—217 **13 Claims**

1. In combination, a sunroof air deflector and a releasable hold-down and latching system, said deflector including a shield body portion defined at least in part by a leading edge portion and a free trailing edge portion, said leading edge portion including a principal portion and a pair of spaced apart wing portions all adapted to be positioned closely adjacent a vehicle roof, said free trailing edge portion having a principal portion disposed generally horizontally and a pair of generally vertically extending portions extending toward and joining the ends of said wing portions, at least one area between said leading and trailing edge portions defining an opening for receiving an air deflector hold-down assembly, and a hold-down assembly received in said opening, said

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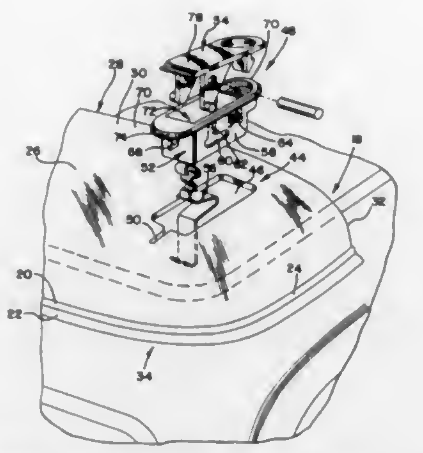
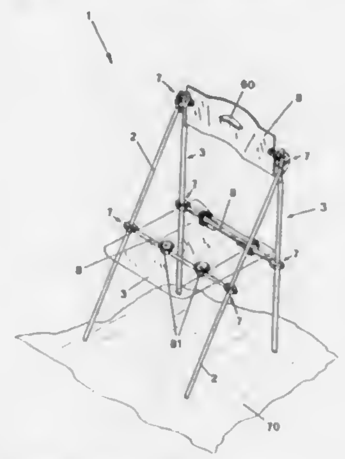


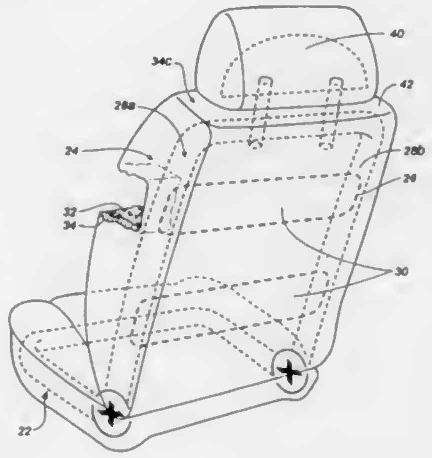
hold-down assembly including a housing portion, a lever positioned within said housing, said lever including a first leg with an outer surface portion adapted to be moved by the finger of a user and at least one offset leg, said offset leg including a hook carrier and a pivot portion, said housing including means for guiding said hook carrier through a substantially vertical path, and means for guiding said pivot portion through a substantially horizontal path, said horizontal path including portions lying to either side of said vertical path, said pivot portion being movable within said horizontal guide means between unlocked and over-center positions, and being operative to move said hook carrier through said vertical movement path, and a hook positioned by said carrier and extending downwardly beneath said housing for engagement with a hem portion of a sunroof opening, whereby swinging said first leg of said lever from an open to a closed position raises said hook vertically and moves said pivot portion from said unlocked position to said over-center position.

5,782,528
FOLDING CHAIR
Enrico Cioncada, Viale del Bosco, 84100 Salerno, Italy
PCT No. PCT/EP95/04890, § 371 Date Jun. 12, 1997, § 102(e) Date Jun. 12, 1997, PCT Pub. No. WO96/18325, PCT Pub. Date Jun. 20, 1996
PCT Filed Dec. 12, 1995, Ser. No. 849,765
Claims priority, application Italy, Dec. 12, 1994, SA94A0012
Int. Cl.⁶ A47C *4/00*
U.S. Cl. 297—60 **7 Claims**



1. A folding chair consisting of:
a seat foldable from horizontal to vertical and vice-versa;
two pairs of front and rear struts functioning as legs which converge on and connect to the chair back each pair of struts being connected to each other, through a rear horizontal cross-bar and a front horizontal cross-bar respectively by joint means;
a chair back connected to the front and rear struts at their point of convergence, by joint means; the rear struts being formed by two tubes slidable one inside the other, the internal tube being fixed to the top of the front strut in correspondence with the chair back, by means of at least one joint means, the partial extraction of the internal tube from the external tube of the rear strut, occurring when the chair is lifted by the back and allowing the rotation of the seat around the axis of said rear cross-bar characterised in that each of said joint means, which link the struts to the cross-bars, has a first hole through which the struts pass, and a second dead hole for coupling the end of each of cross-bars, this second dead hole having the bottom of the hole oversized in order to lock the end of the cross-bars said joint means being realized in two parts symmetrical with respect to the axis of dead hole.

5,782,529
INFLATABLE SEAT BACK
H. John Miller, III, Hillside, and Gerald Keller, Blue Bell, both of Mich., assignors to AlliedSignal Inc., Morristown, N.J.
Filed Feb. 20, 1997, Ser. No. 803,563
Int. Cl.⁶ B60R *21/22*
U.S. Cl. 297—216.13 **15 Claims**

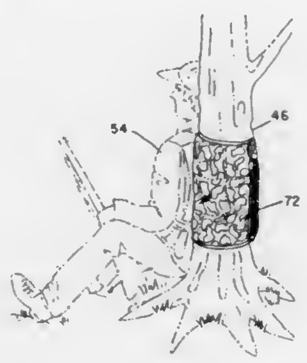


1. An occupant protection system for protecting a seated occupant comprising:
a seat (**20**) having a seat cushion (**22**) and a seat back (**24**), the seat back including a back support surface; frame means (**26**, **30**) to support the seat back, an integral or moveable headrest extending above the seat back, cushion material (**32**) for providing resiliency to the seat and a protective cover material (**34**) covering cushion material;
an air bag system including an air bag and means for inflating said bag in response to a vehicle collision, the air bag having an inflatable first portion positioned within the seat generally behind the back support surface, wherein upon inflation of the first portion of the air bag, during the collision, a portion of the back support surface is adapted to be gently urged against the spine of the occupant supported by the inflated first portion.

5,782,530

Patent Not Issued For This Number

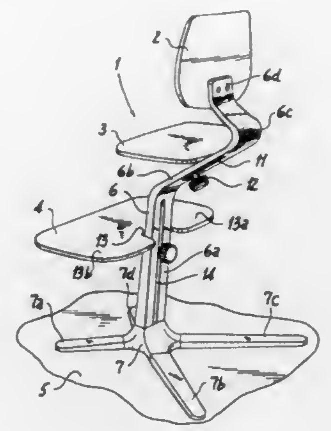
5,782,531
COMPACT BACKREST DEVICE FOR HUNTERS
Brian M. Shindle, 3211 Keating Ct., Manchester, Md. 21102
Filed Apr. 3, 1997, Ser. No. 831,897
Int. Cl.⁶ A47C *7/02*
U.S. Cl. 297—230.1 **5 Claims**



1. A new and improved compact backrest device for hunters comprising in combination:
a generally rectangular sheet having a front side, a rear side and a peripheral edge therearound, the peripheral edge of the sheet having formed a first short edge, a second short edge and a pair of long edges therebetween;
a plurality of end straps forming a pair of first end straps and a pair of second end straps, the pair of first end straps each being fixedly attached to the first short edge of the sheet, each of the pair of first end straps having a free end with a male adjustable member coupled thereto, the pair of second end straps each being fixedly attached to the second short edge of the sheet, each of the pair of second end straps having a free end with a female adjustable member coupled thereto, the male adjustable member being coupled with the female adjustable member when the sheet is wrapped around a tree trunk and the rear side is placed adjacent the tree trunk;
a carrying strap being fixedly attached to the rear side of the sheet and spaced from the first short edge, the sheet being placed in a roll for allowing the carrying strap to support the sheet over a hunters shoulder;
a quiver being fixedly attached to the front side of the sheet, the quiver having an upper end edge defining an upper opening and a lower end edge defining a lower opening; and
a plurality of padded sections being interconnected and attached to the front side of the sheet, the padded sections being spaced from the second short edge, the padded sections having a water repellent covering thereon, the padded sections support the hunter's back when the sheet is releasably coupled around the tree trunk.

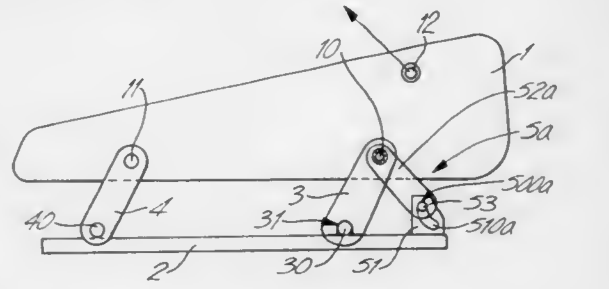
5,782,532
ARRANGEMENT IN A CHAIR, ESPECIALLY A CHAIR FOR CHILDREN
Peter Opsvik, Pilestredet 27H, N-0164 Oslo, Norway
PCT No. PCT/NO94/00189, § 371 Date May 24, 1996, § 102(e) Date May 24, 1996, PCT Pub. No. WO95/14411, PCT Pub. Date Jun. 1, 1995
PCT Filed Nov. 22, 1994, Ser. No. 649,667
Claims priority, application Norway, Nov. 25, 1993, 934275
Int. Cl.⁶ A47C *1/02;7/50*
U.S. Cl. 297—338 **29 Claims**

1. An arrangement in a chair resting on a foundation, said chair comprising in combination:
a column-like support having a mid-stem comprising a rearwardly extending upper regulating portion angled upwardly in a range of 10°–55° relative to the foundation and a rearwardly extending lower regulating portion angled upwardly in a range of 65°–90° relative to the foundation,



a back rest attached to said support;
a chair seat;
a first attachment means connecting said chair seat to the upper regulating portion having means for adjusting the position of said chair seat along the upper regulating portion and thereby the level of said chair seat above the foundation of the chair;
a foot support;
a second attachment means connecting said foot support to the lower regulating portion having means for adjusting the position of said support along the lower regulating portion and thereby the level of said foot support above the foundation of the chair;
said support and said chair each having a central projection plane, the central projection plane of said support substantially coinciding with the central plane of the chair.

5,782,533
VEHICLE SEAT WITH AN ADJUSTABLE-HEIGHT SEAT FRAME
Markus Fischer, Coburg; Jürgen Angermüller, Mitwitz; Bernd Krüg, Itzgrund/Schottenstein; Werner Taubmann, Lautertal, and Gregor Kröner, Gundelsheim, all of Germany, assignors to Brose Fahrzeugteile GmbH & Co. KG, Coburg, Germany
Continuation of Ser. No. 401,191, Mar. 9, 1995, abandoned.
This application Feb. 18, 1997, Ser. No. 801,177
Claims priority, application Germany, Mar. 11, 1994, 44 08 219.3
Int. Cl.⁶ A47C *1/022;* B60N *2/16*
U.S. Cl. 297—338 **2 Claims**



1. A height adjustable vehicle seat comprising:
a seat frame adapted for accommodating a seat cushion therein;
an upper rail of a longitudinal seat adjuster disposed below the seat frame;
a first bracket directly attached at one end to the upper rail and directly attached at an opposite end to the seat frame, wherein the first bracket is attached to one end of the seat frame;
a second bracket directly attached at one end to the upper rail and directly attached at an opposite end to the seat frame,

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wherein the second bracket is attached adjacent an end of the seat frame opposite from the first bracket;
stopping means attached to the upper rail;
a third bracket directly attached at one end to the seat frame near the first bracket, and attached at an opposite end to the stopping means, wherein the stopping means limits movement of the third bracket end; and
means for pivoting the first bracket about the upper rail, wherein activation of such means effects a height adjustment of the seat frame relative to the upper rail;
wherein the second bracket is pivotally attached at opposite ends to the seat frame and upper rail, wherein the first bracket is pivotally attached at one end to the seat frame, and wherein the third bracket is pivotally attached at one end to an attachment point between the first bracket and the seat frame.

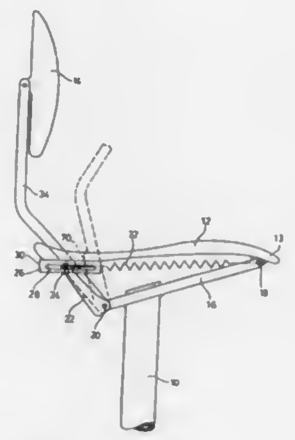
5,782,534
CHAIR WITH KNEE SUPPORT
Simon Desanta, Schlossalle 18, D-33829 Borgholzhausen, Germany

Filed Nov. 25, 1996, Ser. No. 757,966

Claims priority, application Germany, Nov. 24, 1995, 195 43 818.3

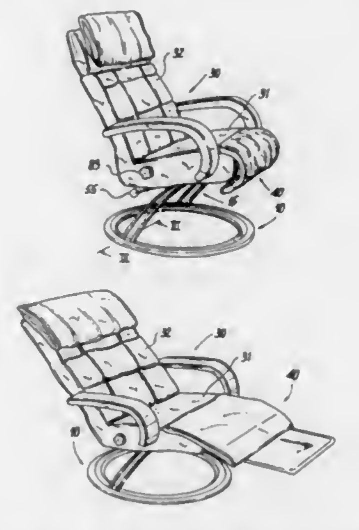
Int. Cl.^{6} A47C *7/50*

U.S. Cl. 297—423.13 **11 Claims**



1. A chair, comprising:
a vertically disposed post having an upper end;
a frame attached to the upper end of the post, the frame having a front portion and a rear portion;
a seat plate having a front portion and a rear portion, the front portion of the seat plate being mounted on the front portion of the frame for pivoting movement about a first, horizontal, transverse axis;
a seat back;
a yoke pivotably mounted on the rear portion of the frame, the seat back being mounted on the yoke, the seat back together with the yoke being foldable forward to a position where the seat back can be used as a knee support;
guide members mounted on the frame for pivoting movement about a second horizontal axis, the guide members having free ends;
guides attached to the seat plate;
a horizontal rod connected between the free ends of the guide members, the rod being installed in the guides such that the rod can be moved backward and forward; along a displacement path having a frontal limit position; and
springs for elastically prestressing the rod toward the frontal limit position.

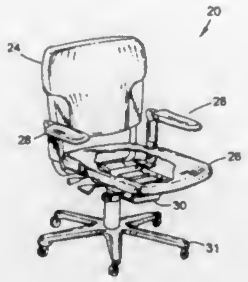
5,782,535
ARMCHAIR
Percival Lafer, São Paulo - SP, Brazil, assignor to Lafer S/A. Indústria e Comércio, São Paulo, Brazil
PCT No. PCT/BR96/00020, § 371 Date Feb. 27, 1996, § 102(e) Date Feb. 27, 1996, PCT Pub. No. WO96/37130, PCT Pub. Date Nov. 28, 1996
PCT Filed May 22, 1996, Ser. No. 776,291
Claims priority, application Brazil, May 23, 1995, 9502131
Int. Cl.^{6} A47C *7/50;20/00*
U.S. Cl. 297—423.36 **18 Claims**



1. An armchair, comprising: a base; a support frame, forming a framework to be fixed under a seat of an armchair portion, wherein the armchair is provided with: a footrest, comprising: a first footrest portion including a rear portion articulated with the support frame, in order to be angularly displaced between a non-operative position adjacent to the support frame, and an operative position projecting forwardly from the armchair portion; and a second footrest portion mounted onto the first footrest portion, to be linearly displaceable between a retracted position overlapped by the first footrest portion and an extended position projecting forwardly from said first footrest portion; guiding means mounted on the first footrest portion for guiding the linear displacement of the second footrest portion; first impelling means, mounted on the support frame, operatively connected to the first footrest portion and selectively actuated to displace the first footrest portion between its operative and non-operative positions; and second impelling means comprising a rod medially articulated with the first footrest portion, having an end articulated with the second footrest portion, and an opposite end operatively connected to the support frame in order to automatically promote the linear displacement of the second footrest portion to and from its extended position in response to the respective angular displacement of the first footrest portion to and from its operative position.

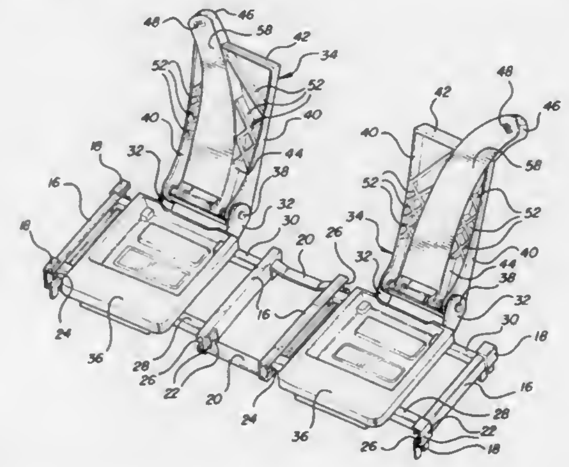
5,782,536
MODULAR CHAIR CONSTRUCTION AND METHOD OF ASSEMBLY
Kurt R. Heidmann, Grand Rapids; Brian L. Christensen, Wayland; Michael W. Haan, Byron; Glenn A. Knoblock, Kentwood; Eric T. McClure, Grand Rapids; Noe Palacios, Rockford; Brian H. Root, Grandville; David D. Sayers, Kentwood; Robert M. Scheper, Grand Rapids; Patrick P. Schwoerer, Sarebourg; James P. Steffens, Hopkins, and Greg A. VanStee, Grand Rapids, all of Mich., assignors to Steelcase Inc., Grand Rapids, Mich.
Filed Feb. 17, 1995, Ser. No. 390,118
Int. Cl.^{6} A47C *7/00*
U.S. Cl. 297—440.15 **19 Claims**

1. A synchrotilt chair control comprising:
a fixed housing;



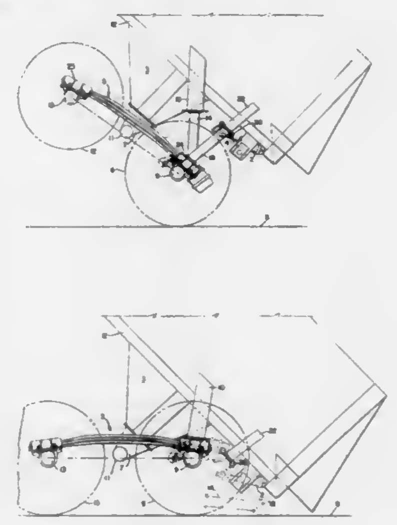
a back upright support bracket rotationally connected to said fixed housing, said back upright support bracket including first pivot receiving structure;
a seat support configured to be removably attached to said back upright support bracket, said seat support including a second pivot receiving structure alignable with said first pivot receiving structure; and
removable/interference-fit pivot pins pivotally engaging said first and second pivot receiving structure for pivotally securing said seat support to said back upright support bracket, said pivot pins being removable from said synchrotilt chair control so that said seat support can be readily removed and replaced; said first pivot-receiving structure including spaced apart inner and outer flange pairs defining a space for receiving said second pivot-receiving structure, each of said inner and outer flange pairs defining a clevis-simulating arrangement for supporting one of said pivot pins on opposing sides of said second pivot-receiving structure.

5,782,537
AUTOMOTIVE SEAT BACK
Philip Leistra, Novi; James Masters, Farmington; Andrew Massara, Southfield; Rich Saoders, Clarkston, and Steve Lambrecht, Warren, all of Mich., assignors to Lear Corporation, Southfield, Mich.
Filed Aug. 29, 1996, Ser. No. 705,420
Int. Cl.^{6} A62B *35/00;* **B60R** *21/00*
U.S. Cl. 297—473 **13 Claims**



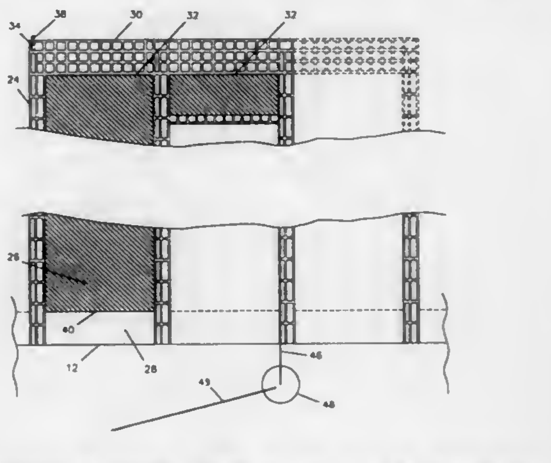
1. An automotive seat back assembly comprising;
a pair of spaced upright members each having lower ends and upper ends,
a mounting member at said lower ends for mounting said upright members to a seat frame,
a cross member extending between said upper ends of said upright members,
a shoulder belt housing having a lower end disposed between said upright members and curving upwardly and outwardly along a predetermined arcuate path from said lower ends of said upright members below said cross member to a distal end disposed above said cross member.

5,782,538
SWING AWAY DUMP BLOCKS FOR END DUMP TRAILERS
Jason R. Backs, 15811 Oak Mountain Dr., Houston, Tex. 77095, assignor to Jason R. Backs
Filed Dec. 9, 1996, Ser. No. 762,095
Int. Cl.^{6} B60P *1/16*
U.S. Cl. 298—17.5 **6 Claims**



1. A trailer body having a front end and a rear dump end,
a spring suspension having spring end caps
a Bogie Pod located generally adjacent the dump end of the trailer and having means for engaging the spring suspension of the trailer to provide a single point suspension
a dump block secured to said trailer body and rotatable between first and second positions, and
a stop block secured to said trailer body, said dump block in said first position being engagable by one of said spring end caps,
said stop block being engagable by said one spring end cap when said dump block is in said second position.

5,782,539
WALL-TO-WALL SURFACE MINING PROCESS
Randall D. Peterson, 175 S. Main St., 10th Floor Walker Bldg., Salt Lake City, Utah 84111
Filed Nov. 16, 1995, Ser. No. 558,826
Int. Cl.^{6} E21C *41/00*
U.S. Cl. 299—11 **3 Claims**



1. A process for mining a seam of coal from an underground reserve having an overburden partially suitable for strip mining, comprising the following steps:

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(a) stripping said overburden and mining said coal utilizing surface-mine extraction methods until an economic stripping ratio is reached, thereby producing a highwall containing an exposed face of said coal seam;

(b) starting at said exposed face, developing two substantially parallel sets ot gate entries in the coals seam to a predetermined distal distance from the highwall;

(c) connecting said two substantially parallel sets of gate entries approximately at said distance from the highwall, thereby defining a coal panel and establishing a distal mining face for longwall operation; and

(d) starting at said distal mining face, mining said coal panel in retreat using longwall mining methods to a predetermined proximal distance from said highwall to provide a safety barrier between the highwall and the coal panel.

5,782,540

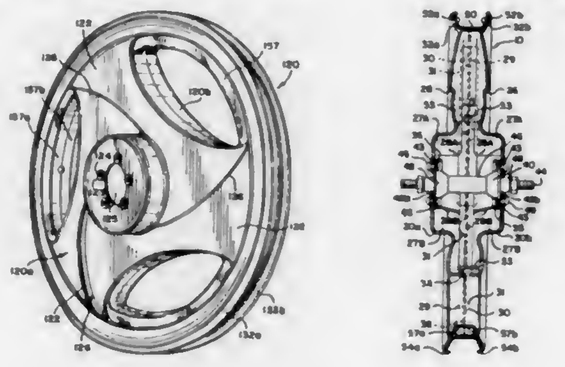
PLASTIC WHEEL AND METHOD OF MAKING SAME

David K. Camfield; Daniel F. Brashear, both of Olney, Ill., and Robert N. Conn, Seneca, Mo., assignors to Brunswick Corporation, Lake Forest, Ill.

Continuation-in-part of Ser. No. 652,014, May 21, 1996, abandoned. This application Sep. 30, 1996, Ser. No. 723,860

Int. Cl.^{6} B60B *1/00;3/08*

U.S. Cl. 301—64.4 **31 Claims**



1. A wheel assembly comprising:

a) a hub assembly comprising an axle and a bearing assembly;

b) two molded plastic wheel halves connected to said hub assembly so as to form a wheel rotatable about said axle and having a circumference, said wheel halves including a plurality of stiffening ribs extending generally radially on the inside of the plastic wheel halves and terminating at free ends spaced from the hub assembly; and

c) a rim attached to said circumference and having two side walls adapted to hold a tire onto said rim.

5,782,541

PRESSURE CONTROL PROCESS AND APPARATUS

Harmut Schappler, Hanover, Germany, assignor to Wabco Vermogensverwaltung GmbH, Hanover, Germany

Filed Aug. 9, 1995, Ser. No. 512,944

Claims priority, application Germany, Aug. 16, 1994, 44 28 929.4

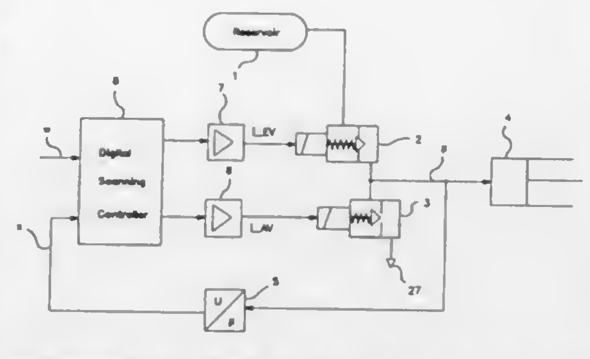
Int. Cl.^{6} B60T *13/74*

U.S. Cl. 303—3 **12 Claims**

1. Pressure control process in a braking system of a vehicle, comprising the steps of:

transmitting a command variable from a driver to a controller of at least one valve, said at least one valve having an operating point,

determining said operating point of said at least one valve with a pilot control value during a series of brake cycles, said pilot control value consisting additively of a constant value and a variable value,



determining a new variable value after each of said brake cycles,

storing said new variable value after each of said brake cycles,

determining said variable value based on said new variable values, stored for each of said brake cycles,

updating said pilot control value with said variable value, and

controlling said at least one valve with said pilot control value.

5,782,542

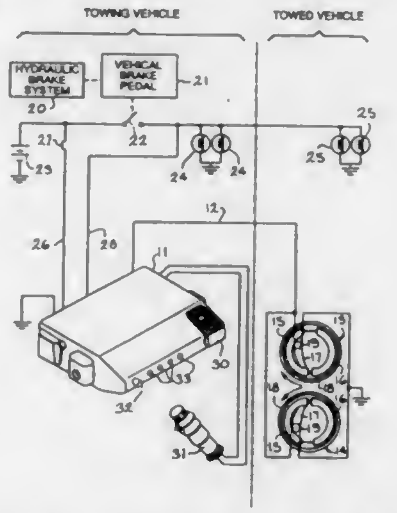
ELECTRONIC TRAILER BRAKE CONTROLLER WITH REMOTE MANUAL CONTROL

Michael C. McGrath, Farmington Hills; Wayne M. Groleau, Novi; Michael A. Hedding, Canton; Brian J. Stockford, Ann Arbor, and David Sullivan, Brighton, all of Mich., assignors to Hayes Lemmerz International, Inc., Romulus, Mich.

Division of Ser. No. 313,703, Sep. 27, 1994, Pat. No. 5,620,236. This application Feb. 19, 1997, Ser. No. 802,359

Int. Cl.^{6} B60T *13/00*

U.S. Cl. 303—7 **16 Claims**



1. An electronic brake controller for actuating electric wheel brakes of a towed vehicle, the towed vehicle being associated with a towing vehicle having a set of wheel brakes, the electronic brake controller comprising:

a sensor for producing an automatic brake control signal which is representative of the desired automatic braking of the towed vehicle;

a controller housing;

a remote housing separable from said controller housing, said remote housing adapted to be held in one hand of a vehicle operator;

a manual brake control signal generator carried by said remote housing for producing a manual brake control signal representative of the desired manual braking of the towed vehicle, said control signal generator operable by the one hand of the vehicle operator while holding said remote housing; and

a control device mounted within said controller housing, said control device coupled to receive both said automatic and manual brake signals and responsive to one of said automatic and manual brake control signals for generating an output signal for actuating the electric wheel brakes of the towed vehicle.

5,782,543

STABILITY CONTROL DEVICE OF VEHICLE COMPATIBLE WITH FOOT BRAKING

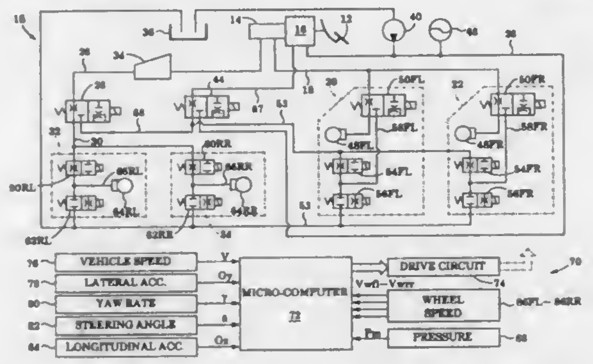
Shirou Monzaki, Mishima, and Mizuho Sugiyama, Toyota, both of Japan, assignors to Toyota Jidosha Kabushiki Kaisha, Toyota, Japan

Filed Oct. 3, 1996, Ser. No. 726,412

Claims priority, application Japan, Oct. 11, 1995, 7-289334

Int. Cl.^{6} B60T *8/32*

U.S. Cl. 303—146 **2 Claims**



1. A stability control device of a vehicle having a vehicle body, and front left, front right, rear left and rear right wheels, comprising:

a means for estimating a liability of the vehicle body to drift out for producing a drift-out quantity which generally increases along with increase of the drift-out liability;

a brake means for selectively applying a variable braking force to each of said rear left and rear right wheels, said brake means including a manually controlled pressure source means incorporating a brake pedal and an accumulator pressure source means; and

a control means for controlling said brake means according to said drift-out quantity so as variably to apply a braking force to a selected one or both of said rear left and rear right wheels for suppressing the vehicle body against drift-out,

wherein said control means controls said brake means by employing said manually controlled pressure source means when said brake pedal is depressed equal to or more than a predetermined extent, while employing said accumulator pressure source means when said brake pedal is depressed less than said predetermined extent.

5,782,544

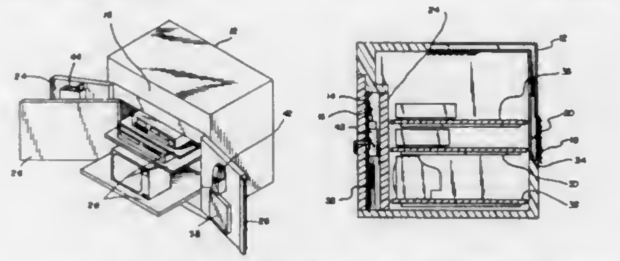
HOUSING FOR AN ENTERTAINMENT SYSTEM

David Johnson, Sr., 5732 N. 17th St., Philadelphia, Pa. 19141

Filed Dec. 20, 1996, Ser. No. 771,026

Int. Cl.^{6} A47B *81/06*

U.S. Cl. 312—7.2 **8 Claims**



1. A new and improved housing for an entertainment system comprising, in combination:

a housing with a rectilinear configuration having a top face, a bottom face, a front face, a rear face, and a pair of side faces defining an interior space, the front face having a rectangular cut out formed therein with a recess formed about a top edge and pair of side edges thereof, wherein the recess has a uniform width and depth, the rear face including a square cut out centrally formed therein with an air vent secured thereover, the air vent having a plurality of downwardly angled strips for precluding entry of rain and debris into the housing, the housing further including an inner door with a front face, a rear face, and a periphery, the inner door being hingably coupled along a side edge thereof a first predetermined distance from the recess of the front face within the interior space and further adapted to open outwardly thereby allowing selective access to the interior space, the housing further including a pair of outer doors each with a front face, a rear face, and a periphery with the outer doors hingably coupled at outer side edges thereof to each side edge of the recess of the front face, whereby the outer doors are adapted to swing outwardly between an open orientation and a closed orientation with the outer doors residing within the recess and an intermediate space defined between the inner door and outer doors having a depth equal to the first predetermined distance;

a shelf assembly including a plurality of planar horizontally oriented shelves situated within the interior space of the housing between the inner door and the rear face thereof, each shelf including means of sliding within a horizontal plane between a first orientation located within the interior space of the housing and a second orientation located partially exterior of the housing, the shelves including a bottom shelf located adjacent the bottom face of the housing for supporting a television, an intermediate shelf located above the bottom shelf located approximately within a horizontal plane which bisects the housing wherein the intermediate shelf is adapted to support a video cassette recorder, and a top shelf situated a distance above the intermediate shelf which is about half that between the bottom shelf and intermediate shelf, wherein a pair of speakers associated with the video cassette recorder and the television are secured to the inner face of the outer doors and protrude therefrom a distance less than the first predetermined distance;

a plurality of accessory containers mounted to the rear face of the pair of outer doors, the accessory containers including a phone container with an open top face for accepting a conventional phone therein and a depth less than the first predetermined distance, the accessory containers further including a remote control container having first portion and further a second portion with a height that is less than that of the first portion, the first portion being in communication with the second portion, wherein the remote control container also has a depth less than the first predetermined distance; and

a handle formed of a rod pivotally coupled at a first end thereof to the front face of one of the outer doors for allowing selective access to the inner doors and the interior space of the housing.

5,782,545

MULTIPLE DRAWER INTERLOCKING SYSTEM

Thomas Arthur Kahara, Fitchburg, and Wayne Rodriques Crespo, Winchendon, both of Mass., assignors to ESP Lock Products, Inc., Leominster, Mass.

Filed Mar. 20, 1997, Ser. No. 820,863

Int. Cl.^{6} E05B *65/46*

U.S. Cl. 312—217 **5 Claims**

1. A multiple drawer interlocking system comprising:

a plurality of elongate locking elements;

a track confining said locking elements in a string;

biasing means for urging said locking elements into a contiguous series with each adjacent pair meeting at a junction; and

a plurality of actuator devices each having a first unlocked state and a second locked state; each actuator device including an actuator element and a pair of opposing camming elements

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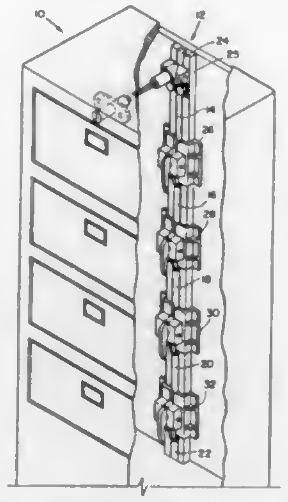


engaged with the adjacent ends of a pair of said locking elements at a junction; each actuator element in the unlocked state being poised adjacent a junction of said string and in its second, locked state being interjected into the associated junction between a pair of said locking elements to drive apart said camming elements and the associated locking elements against the urging of said biasing means to misalign all of the remaining junctions with respect to the remaining actuator devices and prevent said remaining actuator devices from moving into the locked state.

5,782,546

DOOR STRUCTURE FOR CABINETS

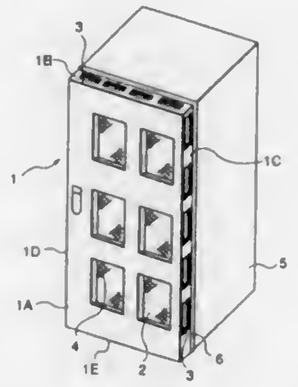
Misao Iwatare, Tokyo, Japan, assignor to NEC Corporation, Tokyo, Japan

Filed Apr. 8, 1997, Ser. No. 835,499

Claims priority, application Japan, Apr. 10, 1996, 8-086966

Int. Cl.^{6} H05K *7/20;9/00*

U.S. Cl. 312—236 **6 Claims**



1. A door structure for a cabinet having an external face and an internal face parallel to each other and interconnected by flat top, bottom, left, and right sides each perpendicular to the faces,

a plurality of holes in the external face and a plurality of bored holes in each of the sides at locations between the external and internal faces permitting free passage of air through the external face and each of the sides,

said internal face comprising a meshed member of electroconductive material permitting free passage of air therethrough.

5,782,547

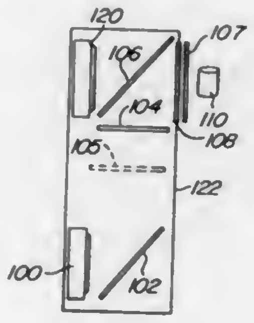
MAGNIFIED BACKGROUND IMAGE SPATIAL OBJECT DISPLAY

Jeffrey Machtig, Lake Forest, and Steve McNelley, San Juan Capistrano, both of Calif., assignors to Videotronic Systems, San Juan Capistrano, Calif.

Filed Nov. 8, 1996, Ser. No. 748,499

Int. Cl.^{6} G03B *21/14*

U.S. Cl. 353—28 **36 Claims**



13. A spatial object image display device for displaying natural appearing luminous spatial objects against a background image so that the spatial objects appear to float in space beyond the device, the display device comprising:

a first luminous display screen for providing a first image that will form a first spatial object;

a second luminous display screen for providing a second image that acts as a background image;

a first Fresnel lens spaced apart from the second luminous display for projecting the image on the first display screen beyond said lens to appear as a first spatial object, for magnifying the second image to impart pseudo-three-dimensionality to the background image, and for forming a front surface of the device, the front surface readily viewable by observers being completely open to ambient room light with no shroud or surrounding structure;

a second Fresnel lens spaced apart from the first luminous display for working in consort with the first Fresnel lens for projecting the image on the first display screen beyond the first Fresnel lens to form the first spatial object;

a semi-reflective mirror disposed between the first Fresnel lens and the first luminous display for ensuring that images from both the first luminous display and the second luminous display reach the first Fresnel lens; and

a housing including the display screens and the Fresnel lenses with the first Fresnel lens forming the front surface of the housing.

5,782,548

IMAGE PROJECTION SYSTEM AND A METHOD OF CONTROLLING A PROJECTED POINTER

Kiyoshi Miyashita, Suwa, Japan, assignor to Seiko Epson Corporation, Tokyo, Japan

Filed Dec. 15, 1995, Ser. No. 573,520

Claims priority, application Japan, Apr. 7, 1995, 7-108015

Int. Cl.^{6} G03B *21/14*

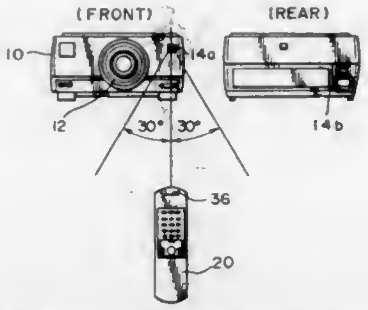
U.S. Cl. 353—42 **15 Claims**

14. An image projection system comprising:

projecting means for projecting an image onto a desired display area, and a remote controller for said projecting means;

wherein said remote controller includes wireless transmitting means for wirelessly transmitting an operation signal,

said projecting means includes a plurality of wireless receiving means for receiving said operational signal which may be transmitted from different directions, and



one of the plurality of wireless receiving means is disposed in a front direction defining a direction of projection of the image and another of the plurality of wireless receiving means is disposed in a rear direction opposite to the front direction.

5,782,549

OPERATIONS VEHICLE WITH A LIGHTING DEVICE

Alfred Glatzmeier, Linz, and Franz Hochdaninger, Lauffen, both of Austria, assignors to Rosenbauer International Aktiengesellschaft, Leonding, Austria

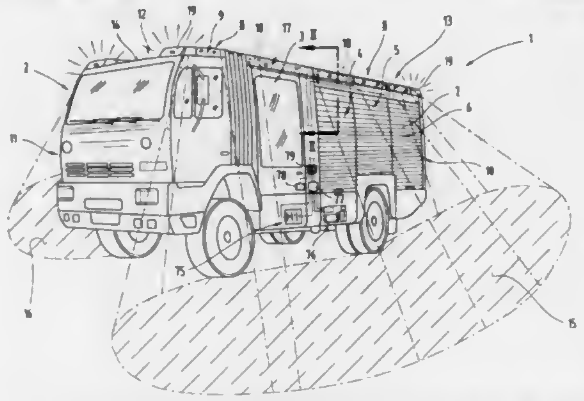
PCT No. PCT/AT95/00106, § 371 Date Nov. 27, 1996, § 102(e) Date Nov. 27, 1996, PCT Pub. No. WO95/32875, PCT Pub. Date Dec. 7, 1995

PCT Filed May 29, 1995, Ser. No. 737,955

Claims priority, application Austria, May 30, 1994, A 1105/94

Int. Cl.^{6} B60Q *3/00*

U.S. Cl. 362—80 **29 Claims**



1. An operations vehicle illuminating a working area and comprising:

(a) a side panel;
(b) a roof;
(c) a transition region between the side panel and the roof; and
(d) a lighting device disposed in the transition region and on the roof, the lighting device including:
  a light source, and
  a lining enclosing the light source, having a light opening in a direction of the side panel directing light from the light source onto the working area, and having a plurality of light apertures facing the roof and directing light from the light source onto the roof.

5,782,550

LAMP FOR AUTOMOBILE

Yasuhiro Ohashi, and Hiroshi Shida, both of Shizuoka, Japan, assignors to Koito Manufacturing Co, Ltd., Tokyo, Japan

Filed Jun. 19, 1996, Ser. No. 665,899

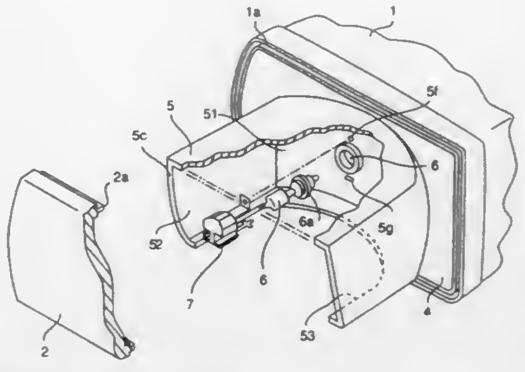
Claims priority, application Japan, Jun. 21, 1995, 7-178256

Int. Cl.^{6} B60Q *1/04*

U.S. Cl. 362—61 **17 Claims**

1. A lamp for an automobile, the lamp comprising:

a lamp body;



a bulb disposed in the lamp body;

a reflector for reflecting light projected from the bulb toward a frontward direction, the reflector including a back surface portion and a circumferential edge wall, wherein the back surface portion serves as a reflecting mirror to reflect the light projected from the bulb, and wherein the circumferential edge wall extends in the frontward direction along an inner surface of the lamp body from a circumferential edge of the back surface portion; and

a lower circumferential edge wall portion which confronts a lower surface portion of the lamp body and which is notched to a position in close proximity to the back surface portion; and

a shade, covering the bulb, for limiting a scope of distribution of the light projected by the bulb, the shade including a first shade portion and a second shade portion, the first shade portion shielding a dazzling component of the light projected from the bulb, and the second shade portion shielding a component of the light projected by the bulb which is directed toward the lower surface portion of the lamp body.

5,782,551

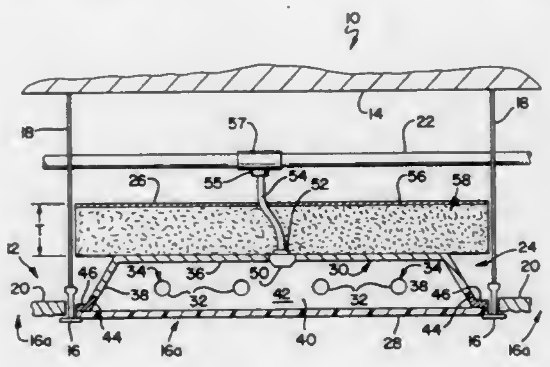
ACOUSTICAL LIGHTING FIXTURE

Raymond W. Capaul, Box 643 Wildwood Dr., Aurora, Ill. 60506

Continuation of Ser. No. 332,955, Nov. 1, 1994, abandoned. This application Jan. 19, 1996, Ser. No. 588,910

Int. Cl.^{6} F21S *1/02*

U.S. Cl. 362—148 **33 Claims**



1. A lighting fixture comprising:

an acoustical shell adapted to receive an electrical light source and adapted to be removable at a ceiling location, and to absorb a first portion of sound energy impinging on the acoustical shell and to permit a second portion of sound energy to pass therethrough; and,

an acoustical blanket mounted on the acoustical shell and installable with the acoustical shell, the acoustical blanket adapted to absorb at least a portion of the second portion of sound energy.

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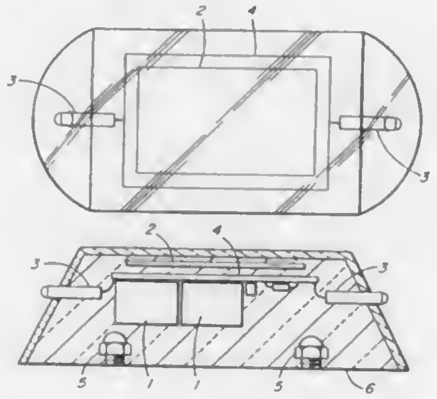
5,782,552
LIGHT ASSEMBLY

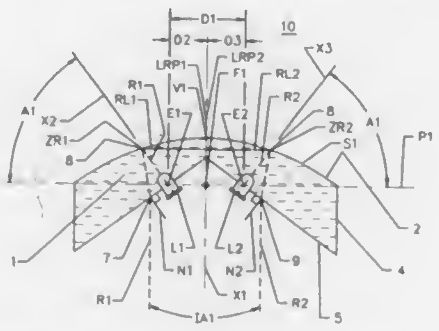
David R. Green, 1312 Victoria Avenue, Victoria, Canada, BC V8S 4P5, and L. Brock Russell, 1712 Chandler Avenue, Victoria, Canada, BC V8S 1N6
Filed Jul. 26, 1995, Ser. No. 506,750
Int. Cl.⁶ F21S *9/00*
U.S. Cl. 362—183 8 Claims



1. A light assembly comprising:
an encapsulated light emitting diode;
a rechargeable capacitor in electrical contact with said LED to energize said LED;
a solar cell in electrical contact with said capacitor, to recharge said capacitor;
circuitry to enable recharging of the capacitor and to enable the LED to flash for several hours after solar illumination has ceased; and
potting material that completely or substantially encapsulates the light assembly.

5,782,553
MULTIPLE LAMP LIGHTING DEVICE

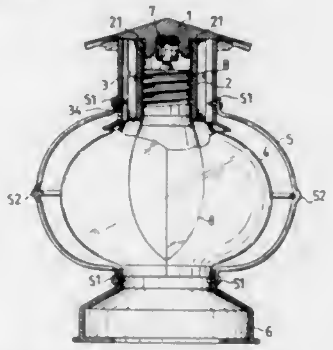
Kevin McDermott, 196 Phillips Dr., Hampstead, Md. 21074
Filed Oct. 28, 1993, Ser. No. 144,653
Int. Cl.⁶ F21V *5/00*
U.S. Cl. 362—245 28 Claims



10. A high efficiency lighting device including:
a) a primary mirrored reflector conforming to a concave surface of revolution, said concave surface of revolution having an axis of revolution;
b) a plurality of light sources;
c) each said light source including a luminescent element emitting light in a directional spatial radiation pattern, each said light source oriented relative to said primary mirrored reflector such that said luminescent element is at a different location than said axis of revolution and a percentage of said emitted light impinges upon a reflective zone of said primary mirrored reflector where it is reflected to form a light beam having a geometric beam axis;
d) the projection of each said geometric beam axis upon a reference plane intersects the projection of said axis of revolution upon said reference plane to form an included angle;
e) means to curve said primary mirrored reflector to cooperate with said orientation of each said light source to reduce each said included angle.

5,782,554
DECORATIVE LAMP ASSEMBLY

Shun-Feng Huang, No. 13, Lane 84, Na Fu Rd., Hsinchu City, Taiwan
Filed Feb. 6, 1997, Ser. No. 796,731
Int. Cl.⁶ F21V *29/00*
U.S. Cl. 362—294 4 Claims

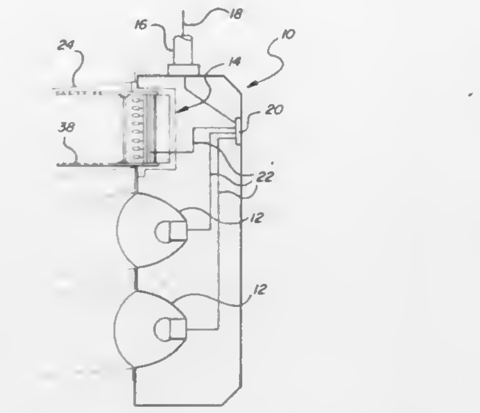


1. A decorative lamp assembly comprising:
a base having a tubular upper part and a plurality of locating holes spaced around said tubular upper part;
a lamp holder having a plurality of vent holes and a plurality of locating holes spaced around a periphery, and two pairs of wire grooves at a topmost edge;
a basket connected between said base and said lamp holder, said basket comprising a plurality of plug ends respectively fastened to the locating holes of said lamp holder and the locating holes of said base;
a lamp shade mounted within said basket;
a lamp socket disposed inside said lamp holder to hold a bulb in said lamp shade and having two hooked portions bilaterally disposed on the inside of said lamp socket; and
a top cap covered on said lamp holder and secured to said lamp socket to hold down a two-line electrical wire, having two parallel wire grooves which receive said two-line electrical wire, and two downward hooks respectively hooked on the hooked portions of said lamp socket.

5,782,555
HEAT DISSIPATING L.E.D. TRAFFIC LIGHT

Peter A. Hochstein, 2966 River Valley Dr., Troy, Mich. 48098
Filed Jun. 27, 1996, Ser. No. 671,249
Int. Cl.⁶ F21V *29/00*
U.S. Cl. 362—373 10 Claims

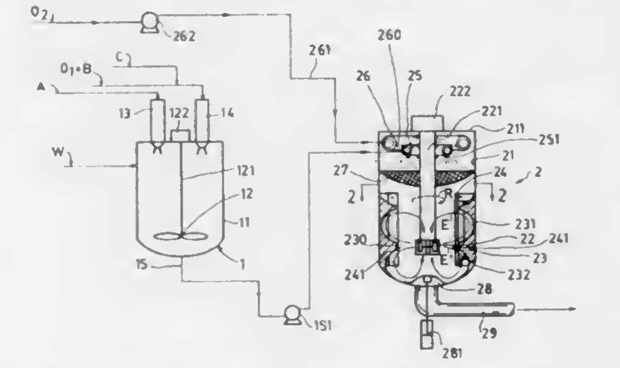
1. An electrically driven L.E.D. lamp assembly (**14**) comprising:
an electrically insulating circuit board (**26**) having opposed first and second surfaces,
light emitting diodes (**28**) mounted on said first surface,
each of said light emitting diodes (**28**) having positive and negative leads (**30**, **32**),
an electrically conductive plating on said first surface for establishing discrete and electrically conductive paths (**34**) for electrically interconnecting said positive lead (**30**) of one of said light emitting diodes (**28**) to said negative lead (**32**) of another of said light emitting diodes (**28**),
a plurality of first holes through said board (**26**),
a plurality of pads (**50**) of thermally conductive plating on said second surface with each pad associated with one of said holes,



said pads (**50**) extending laterally from said holes and being separated from one another a discrete distance (**54**) which is only of a magnitude sufficient to prevent electrical conductivity from pad to pad, said pads (**50**) being multi-sided and said discrete distance (**54**) being defined by a grid of thin lines separating said pads (**50**), said pads (**50**) occupying over eighty percent of an area over which said grid lines extend,
a thermally conductive first material extending through said holes and thermally connecting each of said pads (**50**) and one of said leads (**30**, **32**) to conduct heat from each of said leads (**30**, **32**) to one of said pads (**50**) while maintaining electrical isolation between said pads (**50**),
a heat sink (**36**, **36**(*a*)) overlying said pads (**50**), and
a thin layer (**58**) of electrically insulating and thermally conductive second material disposed between said pads (**50**) and said heat sink (**36**, **36**(*a*)) to prevent electrical shorting between said pads (**50**) by said heat sink (**36**, **36**(*a*)) while maximizing heat transfer to said heat sink (**36**, **36**(*a*).

5,782,556
APPARATUS FOR QUICKLY MAKING MULTIPLE-PHASE MICROEMULSION FUEL OIL

Chai-Kan Chu, P.O. Box 55-846, Taipei, Taiwan
Filed Sep. 4, 1997, Ser. No. 923,636
Int. Cl.⁶ B01F *5/10;15/02*
U.S. Cl. 366—155.1 4 Claims



1. An apparatus for making water-containing fuel oil comprising:
a primary mixer (**1**) for primarily mixing water with a catalyst, a little quantity of fuel oil including heavy oil and crude oil, emulsifying agent and stabilizer for producing oil-in-water phase mixing liquid; and
a secondary mixer (**2**) fed therein with the oil-in-water phase mixing liquid from the primary mixer (**11**) and a fuel oil having larger volume than the mixing liquid, said secondary mixer (**2**) including a turbine agitator (**22**) rotatably mounted in a lower portion of said secondary mixer (**2**), an eddy-flow guiding means (**23**) having a longitudinal section of calabash shape and disposed around said turbine agitator (**22**) for producing upwardly and downwardly curved eddy flows of a mixing solution consisting of the fuel oil and the mixing liquid from said primary mixer (**1**), and a plurality of turbulence baffles (**24**) radially disposed around the turbine agitator (**22**) for limiting the eddy flows in a plurality of sector zones (**241**) as defined among said plurality of turbulence baffles (**24**) for thoroughly mixing and emulsifying the mixing solution to produce microemulsion water-in-oil phase fuel oil;
said secondary mixer (**2**) including: a secondary tank (**21**); the turbine agitator (**22**) provided in a lower portion of the secondary tank (**21**) and having an agitator shaft (**221**) driven by a driving motor (**222**) secured on a top portion of the tank (**21**); the eddy-flow guiding means (**23**) disposed around the turbine agitator (**22**) having an upper gourd portion (**231**) concave radially from a central convex portion (**230**) towards an inside wall of the secondary tank (**21**) for upwardly curving an eddy flow (E) of said mixing solution in the secondary tank (**21**) as propelled by the turbine agitator (**22**), the central convex portion (**230**) convex radially towards the agitator shaft (**221**) of the turbine agitator (**22**) to be generally transversely tangential to the turbine agitator (**22**), and a lower gourd portion (**232**) concave radially from the central convex portion (**230**) towards the inside wall of the secondary tank (**21**) for downwardly curving an eddy flow (E') of the mixing solution in the secondary tank (**21**) as propelled by the turbine agitator (**22**); a bottom valve (**28**) of mushroom shape forming an arcuate surface convex upwardly towards a bottom of the agitator shaft (**221**) to help guide the eddy flow (E') upwardly as guided from the lower gourd portion (**232**) to be drafted by the turbine agitator (**22**), with the bottom valve (**28**) normally closing a discharge pipe (**29**) connected to a bottom of the secondary tank (**21**); said plurality of turbulence baffles (**24**) radially mounted in the secondary tank (**21**), each said baffle (**24**) having a right-angle plate (**240**) formed as L shape from a cross sectional view of the right-angle plate (**240**) and orienting in a direction opposite to a rotating direction of the turbine agitator (**22**) for limiting the eddy flows (E,E') between two neighboring baffles (**24**) for forming each said sector zone (**241**) of eddy flow between the two neighboring baffles (**24**); an inner annular sprayer (**25**) fluidically communicated with the primary mixer (**1**) for feeding the oil-in-water phase mixing liquid from the primary mixer (**1**) towards the inner annular sprayer (**25**) to be sprayed downwardly into the secondary tank (**21**); an outer annular sprayer (**26**) disposed around the inner annular sprayer (**25**) and fluidically communicated with an oil feeder pipe for feeding raw heavy oil into the outer annular sprayer (**26**) to be sprayed downwardly into the secondary tank (**21**); and a conical perforated film plate (**27**) converging downwardly and formed with fine meshes in the film plate (**27**) for diffusing and homogeneously mixing the heavy oil and mixing liquid as sprayed from the outer and inner annular sprayers (**26**,**25**) and drained into a lower portion of the secondary tank (**21**) having the turbine agitator (**22**) provided therein.

5,782,557
HOMOGENIZING APPARATUS

David John Young, Chorleywood, United Kingdom, assignor to Eastman Kodak Company, Rochester, N.Y.
PCT No. PCT/EP94/03504, § 371 Date Apr. 16, 1996, § 102(e) Date Apr. 16, 1996, PCT Pub. No. WO95/11742, PCT Pub. Date May 4, 1995
PCT Filed Oct. 28, 1993, Ser. No. 633,716
Claims priority, application United Kingdom, Oct. 28, 1993, 9322228
Int. Cl.⁶ B01F *5/06*
U.S. Cl. 366—176.2 18 Claims

1. An apparatus for homogenizing a liquid comprising:
a casing portion having an inlet port, an outlet port and at least one internally threaded portion situated between the inlet port and the outlet port;

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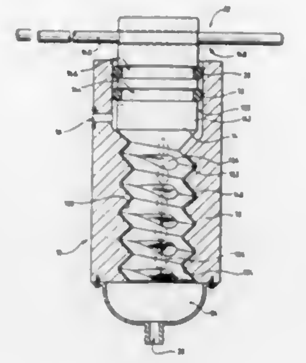
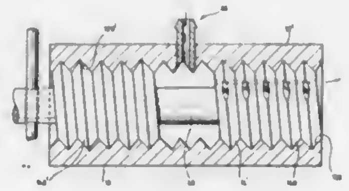




a plug portion having at least one externally threaded portion for engaging the at least one internally threaded portion, the plug portion being rotatable relative to the casing portion and being threadably engaged with the casing portion to yield at least one threadably engaged section,

a channel defining means for defining at least one homogenizing channel across the at least one threadably engaged section, the channel defining means comprising at least one first region formed in the internally threaded portion and at least one second region formed on the externally threaded portion, the at least one first region cooperating with the at least one second region in the at least one threadably engaged section such that through rotation of the plug portion the at least one homogenizing channel can be varied between a fully open position and a fully closed position.

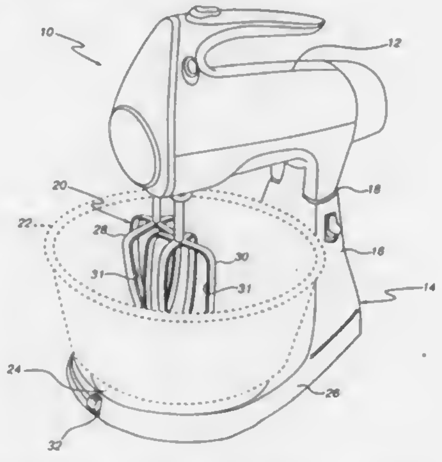
5,782,558
HEADLOCK FEATURE FOR STAND MIXER

Bruce R. Roberts, Hattlesburg, Miss., assignor to Sunbeam Products, Inc., Delray Beach, Fla.

Filed Apr. 25, 1997, Ser. No. 846,004

Int. Cl.^{6} A47J *43/044;* **B01F** *7/24;7/32*

U.S. Cl. 366—199 **7 Claims**



1. A stand mixer comprising a base with an upstanding pedestal portion, a mixer head supported on said pedestal for movement between a lowered operative position and a retracted position, a pivot point about which said mixer head may pivot from said lowered operative position to said retracted position, a locking pin slideably positioned within said pedestal and operable by a knob external to said pedestal, said locking pin being received in a recess in said mixer head, thereby locking said mixer head from movement between said operative and retracted positions, said knob allowing a user of said stand mixer to retract said locking pin from said mixer head recess, thereby allowing said mixer head to be pivoted about said pivot point between said operative and retracted positions.

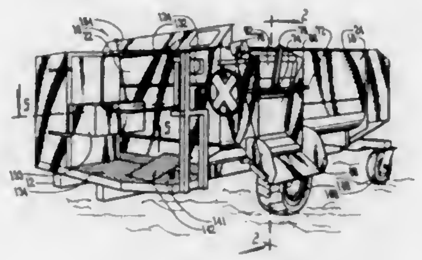
5,782,559
SELF-PROPELLED MATERIAL MIXER

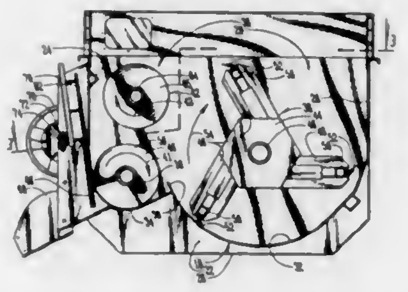
Benjamin R. Neier, Dodge City, and Dennis W. Waldron, Great Bend, both of Kans., assignors to J-Star Industries, Inc., Ft. Atkinson, Wis.

Filed Sep. 6, 1996, Ser. No. 706,655

Int. Cl.^{6} B01F *13/00*

U.S. Cl. 366—279 **11 Claims**





1. A self-propelled material mixer, comprising:

a mixing tank having at least one rotary mixing member therein and having a forward end and a rear end;

a driving platform adjacent said rear end of said mixing tank;

means for rotating said at least one rotary mixing member;

two wheels operatively attached to and supporting said mixing tank;

a drive system drivingly connected to at least one of said wheels; and

a control mechanism operable from said driving platform and operatively connected to said drive system for controlling the operation of said wheels.

5,782,560
INTERNAL MIXER

Takeshi Hatanaka, Hudson, Ohio; Norifumi Yamada, Hyogo, Japan; Ko Takakura, Hyogo, Japan; Tatsuya Tanaka, Hyogo, Japan, and Yoshinori Kurokawa, Hyogo, Japan, assignors to Kabushiki Kaisha Kobe Seiko Sho, Kobe, Japan, and Kobelco Stewart Bolling, Inc., Hudson, Ohio

Filed Jun. 24, 1996, Ser. No. 670,783

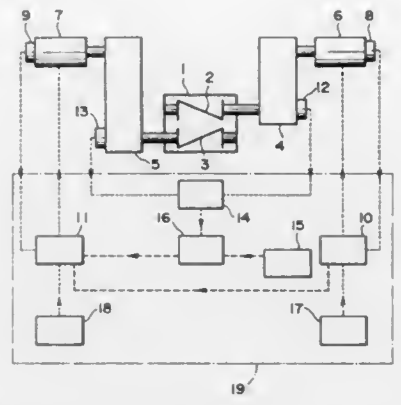
Int. Cl.^{6} B01F *7/02*

U.S. Cl. 366—298 **7 Claims**

1. An internal mixer comprising:

a mixing chamber;

non-intermeshing first and second rotors disposed in said mixing chamber;



first and second drive units for respectively and independently driving said first and second rotors;

first and second phase measuring devices for respectively measuring phases of said first and second rotors;

first and second speed measuring devices for respectively measuring speeds of said first and second rotors; and

control means responsive to said first and second phase measuring devices and said first and second speed measuring devices for controlling said first and second drive units, wherein said control means comprises means for changing a phase difference between said first and second rotors.

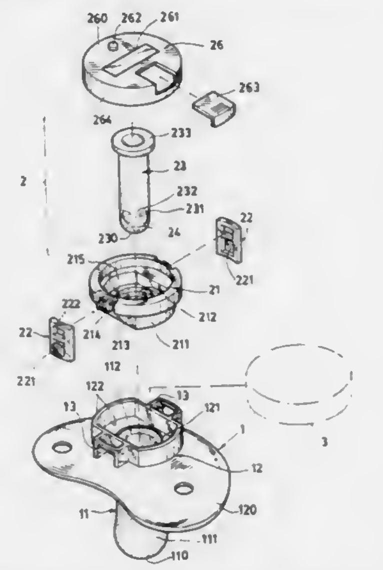
5,782,561
DETACHABLE PACIFIER WITH ELECTRONIC THERMOMETER

Yun-Shen Pai, P. O. Box 55-846, Taipei, Taiwan

Filed Apr. 30, 1997, Ser. No. 846,581

Int. Cl.^{6} G01K *13/00;* **A61B** *5/00;* **A61J** *17/00*

U.S. Cl. 374—151 **1 Claim**



1. A pacifier and thermometer device comprising: a pacifier including: a nipple member having a front nipple portion, a hollow portion recessed in the nipple member, and a rear rim formed on a rear end of the nipple member; a guard member having a blocking flange, a rim groove recessed in a central portion of the blocking flange for engaging the rear rim of the nipple member, and a central socket formed in a central portion of the flange and communicated with the rim groove; and a pair of staple portions formed on the flange and diametrically disposed on opposite sides of the central socket; and an electronic thermometer including: a base member having a pair of fastening buckles formed on opposite sides of the base member to be coupled with the pair of staple portions formed on the blocking flange for detachably coupling the electronic thermometer with the pacifier; a probe member protruding forwardly from the base member and insertable into the bollow portion of the nipple member having a thermistor formed on a front end of the probe member for sensing temperature through the front nipple portion of the nipple member when bitten by an infant, a temperature display mounted on an electronic temperature indicating circuit electrically connected to the thermistor through two wires passing through the probe member for indicating the temperature as sensed from the thermistor wherein a temperature signal as sensed by the thermistor is converted into a digit temperature data displayed on the temperature display as processed by the electronic temperature indicating circuit stored in a chamber formed in the base member; and a cap member covering the base member;

said probe member further including a plurality of teeth circumferentially formed on a front portion of the probe member adjacent to a front membrane portion formed on a front tip end of the probe member for locating the thermistor on the front membrane portion, a plurality of air passages, each of said air passages defined between every two neighboring teeth, and a rear flange formed on a rear end portion of the probe member to be engaged with an annular groove in the base member.

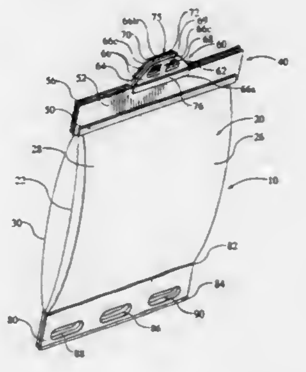
5,782,562
HANDLE FOR RESEALABLE CONTAINER

Richard B. Anspacber, P.O. Box 8300-397, Dallas, Tex. 75205

Continuation-in-part of Ser. No. 320,330, Oct. 11, 1994, abandoned. This application Mar. 22, 1996, Ser. No. 620,473

Int. Cl.^{6} B65D *33/06*

U.S. Cl. 383—15 **11 Claims**



1. A resealable container comprising:

a tube forming a container body having a front panel and a rear panel, said front and rear panels having top and bottom edges and side edges;

a pair of interlocking resealable closure strips for providing an air-tight seal, one of said closure strips being bonded to the top of the front panel of said body and a second of said closure strips being bonded to the top of said rear panel of said body, said closure strips having end portions extending past the top edge and side edges of said body;

first and second handle pieces having at least one hand receiving aperture in each handle piece, each of said handle pieces having at least two flanges, said flanges on said first handle piece being secured to a first of said closure strips and said flanges on said second handle piece being secured to a second of said closure strips, said handle pieces being rigid and positioned such that application of force to said handle pieces for lifting said container body does not result in application of forces of sufficient magnitude for separating said first and second resealable closure strips.

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ROLLING BEARING UNIT

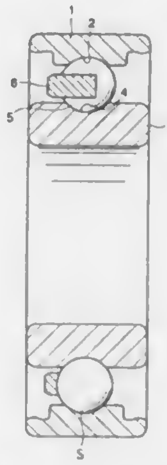
Yasushi Muto; Banda Noda, and Tatsunobu Momono, all of Fujisawa, Japan, assignors to NSK Ltd., Tokyo, Japan

Continuation of Ser. No. 613,295, Mar. 11, 1996, abandoned. This application Aug. 20, 1997, Ser. No. 915,380

Claims priority, application Japan, Mar. 10, 1995, 7-051156; Mar. 10, 1995, 7-051158

Int. Cl.^{6} F16C *33/58;33/32*

U.S. Cl. 384—450 **6 Claims**



1. A rolling bearing unit comprising a first bearing ring having a first raceway, a second bearing ring having a second raceway, and a plurality of rolling elements located between the first and second raceways, each rolling element having a rolling surface with minute undulation per circumference, where rolling surface has wave components per circumference such that the total value of the wave components per circumference comprising even numbers up to ten waves per circumference is less than the total value of the wave components per circumference comprising odd numbers up to nine waves per circumference, provided that the total value is the sum of the square of the peak amplitude of the wave components per circumference.

5,782,564

CLUTCH RELEASE BEARING

Jean-Michel Kromwel, Amiens, and Laurent Dequesnes, Foulloy, both of France, assignors to Valeo, Paris, France

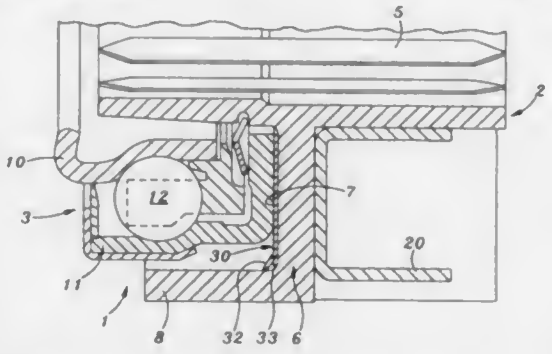
PCT No. PCT/FR95/01411, § 371 Date Jun. 19, 1996, § 102(e) Date Jun. 19, 1996, PCT Pub. No. WO96/12899, PCT Pub. Date May 2, 1996

PCT Filed Oct. 24, 1995, Ser. No. 666,384

Claims priority, application France, Oct. 24, 1994, 94 12669

Int. Cl.^{6} F16C *19/04;19/10*

U.S. Cl. 384—495 **1 Claim**



1. Clutch release bearing (1) with a control member (2) made of synthetic material, having a thrust surface (7) opposite a fixed raceway (11) of a ball bearing (3) and a thin bearing plate (30) immobilized against said thrust surface (7) between said raceway (11) of the ball bearing and said control member (12), characterized in that said bearing plate (30) has, formed at its outer periphery, tab (32) which are flexible enough to bend and lock against the control member (2), in that said tabs (32) are of a length such that the tabs (32) extend slightly beyond the external edge of the bearing plate (30), and in that said tabs (32) are braced against an annular collar (8) which extends, in the axial direction, said thrust surface.

5,782,565

BALL BEARING FOR AN AUTOMOBILE WHEEL HUB

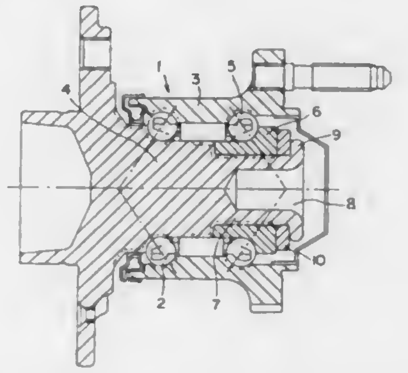
Paolo Bertetti, and Mauro Picca, both of Turin, Italy, assignors to SKF Industrie S.p.A., Turin, Italy

Filed Apr. 3, 1996, Ser. No. 627,057

Claims priority, application Italy, Apr. 6, 1995, TO950084 U

Int. Cl.^{6} F16C *43/04;33/60*

U.S. Cl. 384—537 **8 Claims**



1. A ball bearing for an automobile wheel hub, of the type comprising a double set of balls in angular contact, the inner race being composed of two half-races to allow mounting of one of the two sets of balls, of which the first set of balls (2) is located between an outer race (3) and a facing portion of the hub (4), and the second set of balls (5) is located between the outer race (3) and an inner half-race (6) fixed onto said hub (4), said inner half-race (6) being secured by a ring-like end portion (9) of said hub (4) folded by cold forming, characterized in that a substantially flat washer (10) is interposed between said inner-race (6) and said ring-like end portion (9) and said washer (10) is of a less harder material than that of said inner half-race (6).

5,782,566

METHOD OF ASSEMBLING A VEHICLE WHEEL HUB BEARING TO A RESPECTIVE UPRIGHT, AND BEARING-UPRIGHT UNIT SO FORMED

Paolo Bertetti, Turin, Italy, assignor to SKF Industrie S.p.A., Turin, Italy

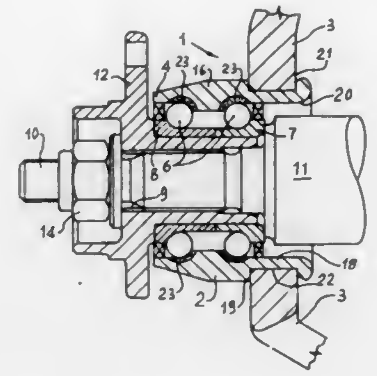
Filed Mar. 7, 1997, Ser. No. 813,654

Claims priority, application Italy, Mar. 8, 1996, T096A0175

Int. Cl.^{6} F16C *19/08*

U.S. Cl. 384—537 **5 Claims**

1. A bearing-upright unit for a vehicle wheel, wherein a fixed first ring (4) of said bearing is fitted integrally to an upright (3) of a wheel hub (12), and at least one rotary second ring (7, 8) of said bearing supports said hub (12); characterized in that said first ring (4) comprises an asymmetrical tubular projection (18) extending axially from only one side of said first ring, and of an axial width greater than the width of said upright; said tubular projection having an outer cylindrical seat (22), which is interference-fitted inside a seat on said upright, and an axial shoulder (19) adjacent to said first ring; and said tubular projection comprising an end portion (20) projecting beyond said upright, and which is bent radially, by means of a cold permanent deformation operation, on to a lateral surface (21) of said upright to lock said first ring (4) to said upright (3).



5,782,567

PRINTING APPARATUS COMPRISING PLURAL PRINTING MECHANISMS

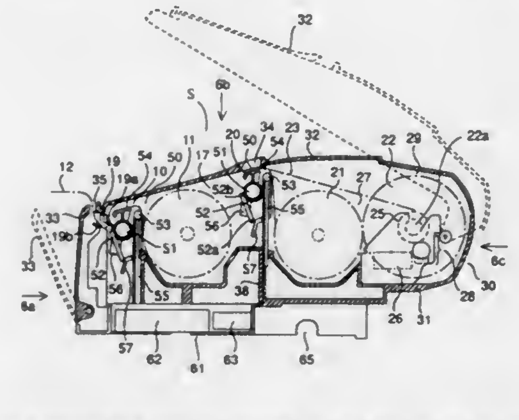
Katsuyuki Endo, Suwa, Japan, assignor to Seiko Epson Corporation, Tokyo, Japan

Filed Jan. 17, 1997, Ser. No. 785,063

Claims priority, application Japan, Jan. 19, 1996, 8-007212

Int. Cl.^{6} B41J *15/22;11/00*

U.S. Cl. 400—621 **14 Claims**



1. A printing apparatus for printing on first and second recording media comprising:

- a main housing having a longitudinal dimension;
- first and second printing mechanisms, disposed longitudinally in-line in said main housing, for respectively printing on said first and second recording media;
- a first recording medium housing for storing the first recording medium, a second recording medium housing for storing the second recording medium, and a third recording medium housing for storing the first recording medium printed by said first printing mechanism, said first, second and third recording medium housings disposed in said main housing longitudinally in-line with said first and second printing mechanisms;
- a recording medium path in said main housing, traveled by said first recording medium, for connecting said first printing mechanism and said third recording medium housing; and
- a window in said main housing disposed above said recording medium path for visually exposing said first recording medium to an outside of said main housing when said first recording medium occupies said recording medium path.

5,782,568

APPLICATION SYSTEM

Georg Röder, Schwabach; Ulrich Griebel, Altdorf, and Wolfgang Winkler, Lauf/Pegnitz, all of Germany, assignors to Schwan-STABILO Cosmetics GmbH & Co., Heroldsberg, Germany

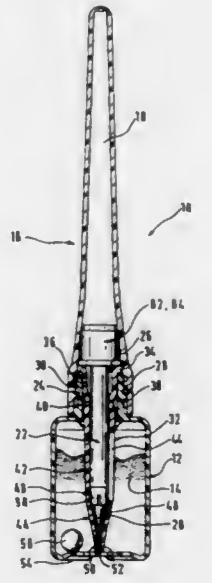
PCT No. PCT/DE95/00103, § 371 Date Mar. 26, 1996, § 102(e) Date Mar. 26, 1996, PCT Pub. No. WO95/20891, PCT Pub. Date Aug. 10, 1995

PCT Filed Jan. 24, 1995, Ser. No. 619,761

Claims priority, application Germany, Feb. 7, 1994, 44 03 689.2

Int. Cl.^{6} A46B *11/04*

U.S. Cl. 401—122 **10 Claims**



1. An applicator system comprising an applicator having a handle and an applicator member, a container having a liquid medium into which the applicator is inserted through an opening for wetting the applicator member with the liquid medium, wherein the applicator seals off the container when in a closed position, the improvement which comprises a hollow sleeve member extending into the container from the opening wherein the hollow sleeve member receives the applicator when in the closed position, said hollow sleeve member comprising an upper end, a middle portion and a lower end portion; said upper end of said hollow sleeve is sealingly fixed to the container at the opening; said middle portion is provided with at least one aperture communicating the hollow sleeve with the medium in the interior of the container surrounding the sleeve; and said lower end portion is formed of a conically tapered shaping portion for re-shaping the applicator member, wherein adjoining the shaping portion at the lower end portion of the hollow sleeve is a sleeve end portion which touches the bottom of the container, said sleeve end portion being provided with a plurality of capillary slots for communicating the medium in the interior of the container with the hollow sleeve portion.

5,782,569

MOLDED BINDER ASSEMBLY

Howard Mullin, Atherton, and Peter David Doninelli, Morgan Hill, both of Calif., assignors to Duo Tang, Inc., Paw Paw, Mich.

Continuation of Ser. No. 193,234, Feb. 8, 1994, Pat. No. 5,393,156. This application Oct. 11, 1994, Ser. No. 320,485

Int. Cl.^{6} B42F *3/04*

U.S. Cl. 402—36 **6 Claims**

1. A snap ring assembly for holding loose leaf paper and molded as one piece from a single parting line mold, the assembly comprising:

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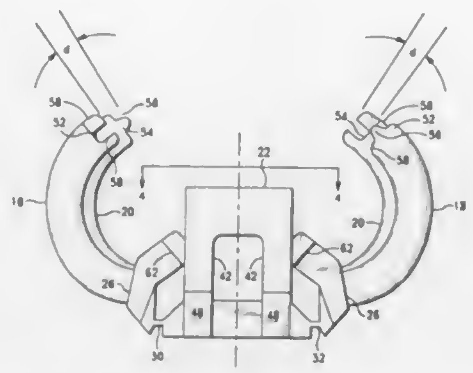


an elongated longitudinal base section having a top, a bottom, lateral sides and opposed ends;
two ring support sections having proximal and distal sides and opposed ends;
living hinge means, connected between the proximal side of each ring support section and the corresponding lateral side of the base section, for pivoting the ring support sections to and away from the base section;
a plurality of opposed pairs of spaced apart ring segments for retaining the loose leaf paper, the pairs of segments mounted on the respective ring support sections, the segments spaced apart from the ends of the support sections, the pairs of segments having free ends, the opposed pairs of segments substantially aligned and configured to make contact at the respective free ends to form fully closed rings when the support sections are pivoted into a closed position;
engagement members for engaging the ring sections and the base section, releasably connected between the ring support sections and the base section, for releasably locking the support sections to the base section in the closed position,
whereby the loose leaf sheets retained by the ring segments may be retained, added to or subtracted from as desired.

5,782,570

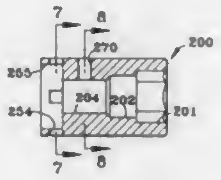
ALIGNMENT OF ATTACHMENT(S) MOUNTED ON A POWER TOOL

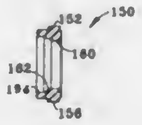
Peter A. Masterson, New Hartford, N.Y., and Carl R. Muha, Jr., Woodbury, Minn., assignors to Chicago Pneumatic Tool Company, Rock Hill, S.C.

Continuation-in-part of Ser. No. 546,935, Oct. 23, 1995, abandoned. This application Oct. 23, 1996, Ser. No. 735,678

Int. Cl.⁶ B25G *3/12*

U.S. Cl. 403—13 **6 Claims**





1. An accessory adapted for use with a pneumatic tool comprising:
a slotted alignment ring having a plurality of protuberances extending therefrom; and
a pneumatic tool attachment, said attachment including a first bore sized for mounting said tool attachment on said pneumatic tool, and a second bore larger than said first bore and sized for mounting said alignment ring therein, said tool attachment also including a plurality of holes extending therethrough from the second bore for receiving the plurality of protuberances of the slotted alignment ring.

5,782,571

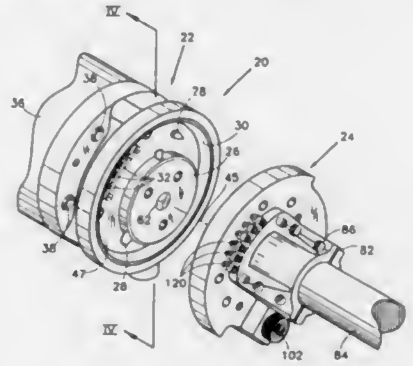
TOOL MOUNT FOR AUTOMATIC COUPLING WITH ROBOTIC EQUIPMENT

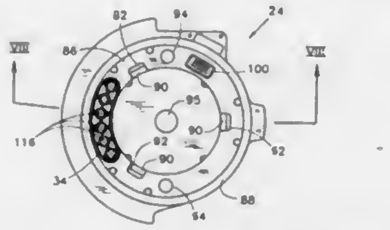
Donald L. Hufford, Marco Island, Fla.; Maurice Samuel Perlman, Southfield, and William Louis Scott, East Jordan, both of Mich., assignors to CPI Products, L.C., Plymouth Township, Mich.

Filed Oct. 17, 1996, Ser. No. 733,667

Int. Cl.⁶ B25J *11/00*

U.S. Cl. 403—31 **43 Claims**





14. A robot tool mount for selectively mounting a tool on a robot, comprising:
a mounting base having a first side adapted to be secured to the robot and a second side opposite said first side, said second side including a sealing surface;
a tool carrier having a tool mounting fixture on a first side thereof, said tool carrier having a second side opposite said first side;
a plurality of lock posts mounted on said mounting base second side, said lock posts reciprocating between a converged disconnected position and a diverged locked position; and
a lock wall of said tool carrier projecting from said tool carrier second side, said lock wall having an outwardly facing tapered surface dimensioned to matingly engage said sealing surface of said mounting base, said lock wall having a plurality of notches with a cylindrical member disposed in each respective notch, said cylindrical members and said notches forming lock seats to receive said lock posts.

5,782,572

POSITIONING DEVICE

Stefan Thiem, Heidelberg, Germany, assignor to Leica Instruments GmbH, Wetzlar, Germany

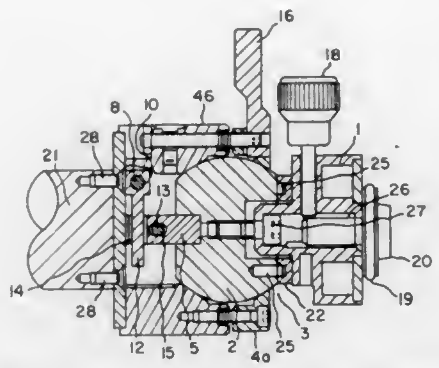
Filed Feb. 5, 1997, Ser. No. 795,850

Claims priority, application Germany, Feb. 5, 1996, 196 04 001.9

Int. Cl.⁶ F16C *11/06*

U.S. Cl. 403—90 **16 Claims**

1. A device for positioning an object head in a cryostat microtome, comprising:



a ball and socket joint having a ball and a shell holding the ball, the ball being rotatable movable relative to the shell;
an object head connected to the ball;
a clamp connected to the shell for preventing movement of the ball relative to the shell;
a cross-joint connected to the ball, the cross-joint having first and second portions; and
a rotatable mechanism for moving the first portion of the cross-joint along a first path and the second portion of the cross-joint along a second path, which is substantially perpendicular to the first path, to thereby selectively move the ball and position the object head connected thereto,
wherein the rotatable mechanism comprises two rotatable handles, each having gearing means, to move the first and second portions of the cross-joint substantially along the first and second paths respectively, the rotatable handles being positioned perpendicularly to each other, and
wherein each gearing means includes a threaded spindle rotatable mounted to the shell and a nut movably received in the threaded spindle, the nut being connected to the cross-joint at one of the first and second portions of the cross-joint.

5,782,573

BALL-AND-SOCKET JOINT WITH BALL RETENTION DEVICE

Christoph Dorr, Meerbusch, and Hans-Joachim Schutt, Bergheim, both of Germany, assignors to TRW Fahrwerksysteme GmbH & Co. KG, Dusseldorf, Germany

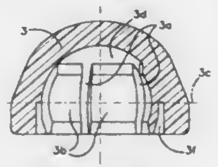
PCT No. PCT/EP95/02355, § 371 Date Aug. 23, 1996, § 102(e) Date Aug. 23, 1996, PCT Pub. No. WO95/35450, PCT Pub. Date Dec. 28, 1995

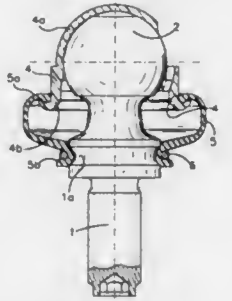
PCT Filed Jun. 19, 1995, Ser. No. 596,258

Claims priority, application Germany, Jun. 18, 1994, 44 21 403.0

Int. Cl.⁶ F16C *11/00*

U.S. Cl. 403—135 **5 Claims**





1. A ball-and-socket joint comprising:
a journal (1) having a ball (2) on one end;
a plastic housing (3) having a socket and an opening through which said ball (2) is inserted into said socket,
said socket being defined by a plurality of circumferentially spaced segmented bearing surfaces (3*b*) having a partially spherical shape, said plurality of segmented bearing surfaces (3*b*) being formed by a plurality of circumferentially spaced radially extending slits (3*a*), said plurality of slits (3*a*) extending axially from said opening to at least an equator (3*e*) of said socket,
said housing (3) including a ring groove (3*f*) extending axially from said opening to at least said equator (3*e*), said ring groove (3*f*) encircling said plurality of segmented bearing surfaces (3*b*) defining said socket in said housing (3), and
a locking ring (4) in said ring groove (3*f*) in said housing (3), said locking ring (4) elastically deforming said plurality of segmented bearing surfaces (3*b*) to position said ball (2) in a first position in said socket against said plurality of segmented bearing surfaces (3*b*),
said locking ring (4) having a plurality of circumferentially spaced radially extending lands (4*a*) encircling said ball (2), each one of said plurality of lands (4*a*) extending into a respective one of said plurality of slits (3*a*) in said housing (3) to secure said ball (2) in said first position in said socket.

5,782,574

BALL AND SOCKET JOINT

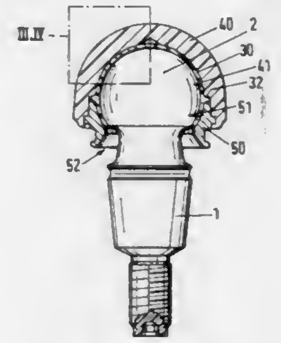
Günther Henkel, Düsseldorf, Germany, assignor to TRW Fahrwerkesystems GmbH & Co., Alfdorf, Germany

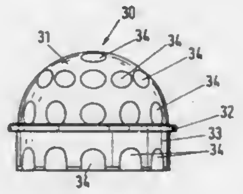
Continuation of Ser. No. 339,078, Nov. 14, 1994, abandoned. This application Sep. 23, 1996, Ser. No. 724,037

Claims priority, application Germany, Nov. 15, 1993, 43 38 916.3

Int. Cl.⁶ F16C *11/00*

U.S. Cl. 403—135 **5 Claims**





1. A ball-and-socket joint for use in a motor vehicle, said ball-and-socket joint comprising:
a socket having an inner surface;
a shaft having a ball on an end thereof;
a lining made of an elastic plastic material located between said ball and said inner surface of said socket, said lining having a hemispherical outer surface comprising projecting portions which engage said inner surface of said socket and interposed portions between said projecting portions; and
grease between said ball and said lining;
said interposed portions of said outer surface of said lining being forced radially outward into engagement with said inner surface of said socket by said ball and said grease to form a plurality of lubricating pockets between said ball and said interposed portions of said lining, said hemispheri-

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cal outer surface of said lining completely engaging said inner surface of said socket when said interposed portions are forced radially outward, said interposed portions of said outer surface which are forced radially outward into engagement with said inner surface being coextensive with said plurality of lubricating pockets;

said plurality of lubricating pockets providing said ball-and-socket joint with full surface lubrication as well as a low release torque.

5,782,575

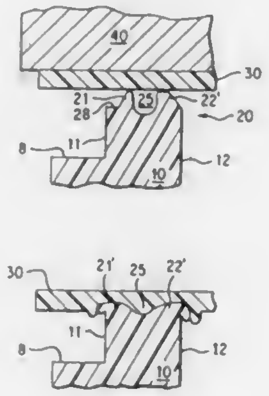
ULTRASONICALLY WELDED JOINT

Douglas E. Vincent, Manchester, N.H., and Kevin A. Durand, Lancaster, Mass., assignors to DEKA Products Limited Partnership, Manchester, N.H.

Division of Ser. No. 380,307, Jan. 30, 1995, Pat. No. 5,540,808, which is a division of Ser. No. 22,019, Feb. 24, 1993, Pat. No. 5,401,342. This application Apr. 23, 1996, Ser. No. 636,287

Int. Cl.^{6} F16B *11/00;* **B32B** *31/00*

U.S. Cl. 403—270 **4 Claims**



1. A joint connecting a thermoplastic flexible membrane, having first and second surfaces, the first and second surfaces being parallel to each other, and a thermoplastic rigid material, formed from the process of:

providing on the rigid material an energy director comprising first and second ridges running substantially parallel to each other, and a groove running between the first and second ridges, wherein the first ridge has a first side adjacent the groove and a second side opposite the groove, wherein the first ridge's first side is steeper than the first ridge's second side:

placing an ultrasonic horn against the first surface of the membrane;

placing the energy director against the second surface of the membrane opposite the ultrasonic horn; and

applying vibrations to the horn so as to weld ultrasonically the membrane and the rigid material to nether,

wherein, in the welded joint, the rigid material has first and second protrusions corresponding to the first and second ridges, with the groove between said first and second protrusions running along the length of the joint, and

wherein, in the welded joint, the first surface of the flexible membrane faces away from the rigid material and being unsupported, and the second surface of the flexible membrane faces towards the rigid material and has a protrusion extending into the rigid material's groove.

5,782,576

DETACHABLE CONNECTION OF ROTATIONALLY SYMMETRICAL COMPONENTS

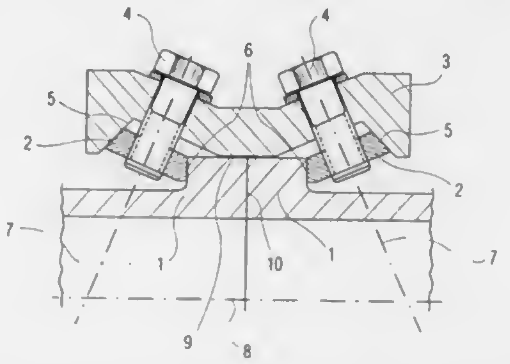
Alfred Schlemenat, Dörnchen 2, D-45701 Herten, and Walter Langhoff, Frankfurter Str. 209, D-46562 Voerde, both of Germany

Filed Nov. 22, 1996, Ser. No. 754,964

Claims priority, application Germany, Nov. 25, 1995, 195 44 033.1; Feb. 9, 1996, 196 04 702.1

Int. Cl.^{6} F16D *1/00;* **F16L** *19/025*

U.S. Cl. 403—337 **14 Claims**



1. A detachable connection of rotationally symmetrical components for a nonpositive and positive-locking connection of the rotationally symmetrical components, comprising:

two collars including a collar of one tubular or cylindrical attachment and another collar of a second tubular or cylindrical attachment said collars each having a flat surface;

a one-part sleeve surrounding said two collars, said sleeve having an inside surface defining two conical contact surfaces, each of said contact surfaces being located opposite one said flat surface;

a plurality of wedge-shaped tensioning elements, each of said wedge-shaped tensioning elements being disposed between one of said conical contact surfaces and a flat surface of one of said collars; and

tension bolts, each of said tensioning bolts for tensioning one of said wedge-shaped tensioning elements between one of said collars and said sleeve.

5,782,577

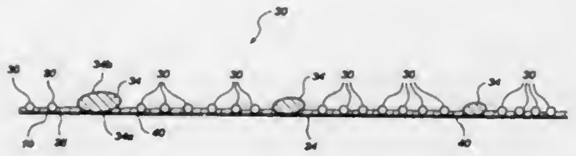
ROADWAY MEDIAN STRIPE PROTECTIVE METHOD

Dan Stephens, 2360 S. 3270 West, Salt Lake City, Utah 84119

Filed Aug. 7, 1996, Ser. No. 689,309

Int. Cl.^{6} E01F *9/00;* **B05D** *5/00*

U.S. Cl. 404—14 **20 Claims**



18. A method for protecting a plurality of reflective beads disposed on a roadway to form a reflective surface from damage caused by snowplow blades, the method comprising:

a) selecting a plurality of metallic spacer beads which are sized larger than the reflective beads;

b) spacing the metallic spacer beads apart on the reflective surface a distance less than the thickness of a snowplow blade; and

c) adhesively attaching the spacer beads to the roadway.

5,782,578

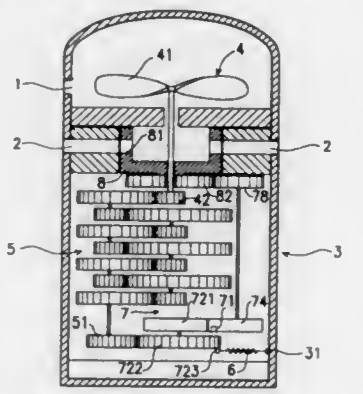
HYDRAULIC TIMER MECHANISM FOR WATER IRRIGATION

Woody Yang, No. 205, Chung-Chuang Lane, Len-Li Tsune, Tien-Wei Hsiang, Changhua Hsien, Taiwan, assignor to Woody Yang; Shin-Tsung Yang, and Sheh-Ching Young, all of Taipei, Taiwan

Filed Mar. 1, 1996, Ser. No. 609,385

Int. Cl.^{6} B05B *1/14;3/14;* **E02B** *13/00*

U.S. Cl. 405—37 **6 Claims**



1. A hydraulic timer mechanism for water irrigation comprising:

a cylindrical body having an irrigation water entrance and a plurality of irrigation water exits, said exits being arranged along the same peripheral circle of said cylindrical body;

a water turbine assembly housed inside said cylindrical body for harnessing the power of irrigation water flow to provide rotational power;

a speed reducing gear assembly housed inside said cylindrical body and coupled to said water turbine assembly for reducing the rotational speed of said water turbine and increasing the torque produced by said water turbine assembly;

an intermittent motion device housed inside said cylindrical body and coupled to said speed reducing gear assembly for transforming the continuous rotational motion of said water turbine assembly into intermittent motion;

an energy storage means housed inside said cylindrical body for storing energy provided by the rotation of said water turbine assembly that is released in a short period of time; and

a rotating seat housed inside said cylindrical body and coupled to said intermittent motion device for aligning said irrigation water entrance to one of said irrigation water exits one at a time as said intermittent motion device is driven for intermittent rotational motion.

5,782,579

PIPE SYSTEMS FOR SUPPLYING LIQUID FUEL TO AN UNDERGROUND TANK AND FOR TRANSFER OF SUCH FUEL TO A DISPENSING STATION

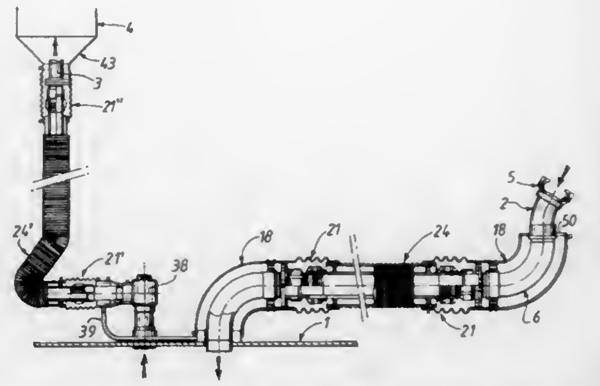
Jean-Claude Dupouy, Arthon-en-Retz; Yannick Lallinec, Quimper, and Daniel Mahin, Savonnieres, all of France, assignors to Total Raffinage Distribution, S.A., Puteaux, France

Filed Jun. 12, 1996, Ser. No. 662,362

Claims priority, application France, Jun. 12, 1995, 95 06898

Int. Cl.^{6} F16L *1/00*

U.S. Cl. 405—52 **14 Claims**



1. A pipe system for filling an underground tank with liquid fuel from a supply ground level station and for transferring liquid fuel between an underground tank and at least one dispensing ground level station through which fuel is delivered, said system comprising:

flexible inner piping,

flexible outer piping,

at least one coaxial assembly of said inner and outer piping extending between said tank and said dispensing ground level station and one coaxial assembly of said inner and outer piping extending between said tank and said supply station, with said outer piping of each assembly being continuous and protectively enveloping the inner piping of the respective assembly along its entire length without interruption from adjacent said tank to adjacent said respective ground level station with the annular spacing between said inner and outer piping being sufficient for said inner piping to be removable from said outer piping and for any fuel escaping from the inner piping to be retained within and flow along said outer piping,

a rigid annular cup located at said tank at the downstream end of and coaxial with the inner piping and defining the downstream end of the respective annular spacing which extends between said tank and said supply station, and

a branch piping which is in communication, through the outer piping interconnecting the underground tank with the dispensing station, with the upstream end of such outer piping and further communicates with said cup, with said branch pipe being disposed so that any fuel leaking from the corresponding inner pipe is removed to said cup by gravity.

5,782,580

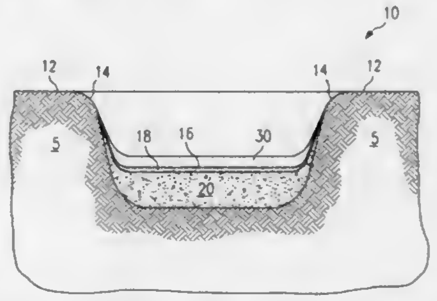
SOIL REMEDIATION METHOD

Winton G. Aubert, Anchorage, Ak., and C. Richard Knowles, South Pasadena, Calif., assignors to Atlantic Richfield Company, Los Angeles, Calif.

Filed Oct. 15, 1996, Ser. No. 729,897

Int. Cl.^{6} B09C *1/02;1/06;1/08*

U.S. Cl. 405—128 **20 Claims**



1. A method to remediate soil contaminated with at least one volatile organic contaminant and having a surface area exposed to the atmosphere, the method comprising:

placing a substantially continuous layer of a vapor barrier material selected from the group consisting of aqueous surfactant-based foams, natural gels, and oil-based muds on top of the surface area of the soil in an amount sufficient to reduce the amount of the at least one volatile organic contaminant which can volatilize into the atmosphere; and

treating the soil so as to stabilize the soil.

20. A method to remediate soil in a waste site which is contaminated with at least one volatile organic contaminant and has a surface area exposed to the atmosphere, the method comprising the sequential steps of:

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(a) optionally, placing a substantially continuous layer of an aqueous surfactant based foam over the surface area of the soil in an amount sufficient to reduce the amount of the at least one volatile organic contaminant which can volatile into the atmosphere, the aqueous surfactant based foam comprising:
at least one nonionic surfactant;
a cationic fluorinated surfactant;
a solvent;
an anionic polymer; and
water;

(b) removing at least a portion of the soil contaminated with the at least one volatile organic contaminant from the site and contemporaneously placing a substantially continuous layer of an aqueous surfactant based foam over the surface area of the soil remaining at the site in an amount sufficient to reduce the amount of the at least one volatile organic contaminant which can volatilize into the atmosphere, the aqueous surfactant based foam comprising:
at least one nonionic surfactant;
a cationic fluorinated surfactant;
a solvent;
an anionic polymer; and
water;

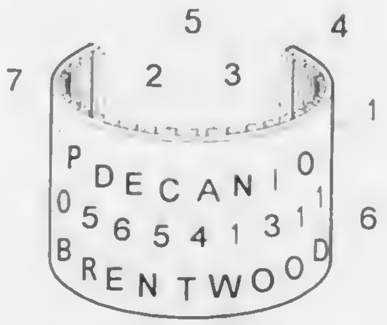
(c) repeating step (b) above as necessary until substantially all of the contaminated soil at the site is removed therefrom;

(d) treating the soil after its removal in an ex situ method selected from the group consisting of incineration, solvent extraction, and chemical treatment so as to stabilize the soil; and

(e) replacing the soil after treatment back into the site from which the soil was removed.

5,782,581
SCUBA TANK IDENTIFICATION COLLAR

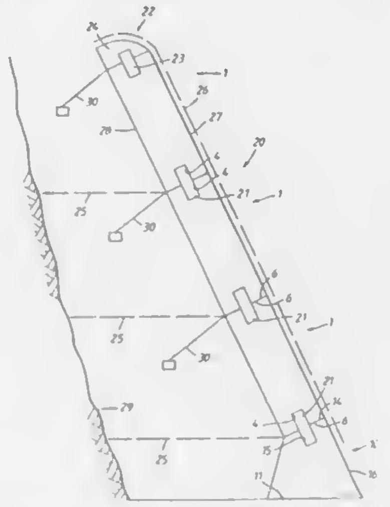
Paul Joseph DeCanio, 35 Franklin Ave., Brentwood, N.Y. 11717
Filed Aug. 2, 1996, Ser. No. 692,039
Int. Cl.^{6} B63C *11/02;* **G09F** *3/16*
U.S. Cl. 405—186 **2 Claims**



1. A device for identification of a scuba tank in the day and night diving modes and from many visual dive positions which comprises:
an elastic body structure comprising an outer circumferential surface which extends from a first lip member to a second lip member, the outer circumferential surface includes identification symbols thereon an inner circumferential surface which extends from the first lip member to the second lip member, the inner circumferential surface include inner ridges therein which extend perpendicularly from a top edge and bottom edge of the elastic body structure, said lip members comprises a lip which angles out from each adjacent side of an opening of the said body structure, said lip members extend perpendicularly from the top edge and bottom edge of the said elastic body structure, means for the device to be attached to the scuba tank by engagement of said lip members to the outer surface of the scuba tank, pressure then is applied to the said elastic body structure, the elasticity of the said body structure allows the scuba tank through the adjacent said lip members which will snap said elastic body structure to encompass the scuba tank with securing force, the said inner ridges would allow for water to drain from between said inner circumferential surface and the scuba tank in the installed mode.

5,782,582
FILLING IN A HOLLOW IN THE GROUND

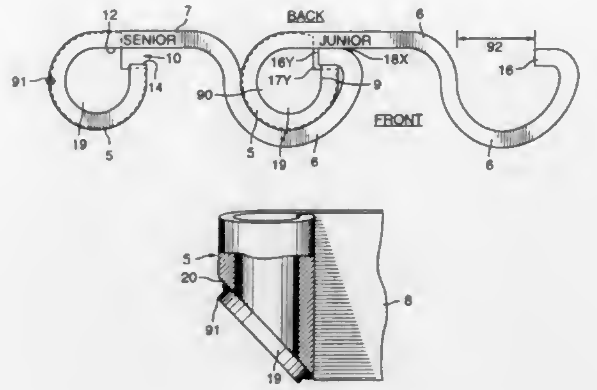
William Robert Oliver, Isle of Wight, and Anthony Benjamin Di Stefano, Kent, both of England, assignors to Cordek Limited, United Kingdom
PCT No. PCT/GB94/00468, § 371 Date Nov. 24, 1994, § 102(e) Date Nov. 24, 1995, PCT Pub. No. WO94/20695, PCT Pub. Date Sep. 15, 1994
PCT Filed Mar. 10, 1994, Ser. No. 513,958
Claims priority, application United Kingdom, Mar. 11, 1993, 9304981; Jan. 14, 1994, 9400661
Int. Cl.^{6} E02D *29/02*
U.S. Cl. 405—262 **10 Claims**



1. A facing having a smooth face for a side of a hollow, built from a first, lightweight, plastic facing unit, a plurality of further lightweight, plastic facing units extending upwardly from the first facing unit, and a liner of impervious material positioned over the smooth face, said liner being impervious to containments or pollutants, wherein an interlocking member is interposed between adjacent facing units and retains them in interlocking engagement, the interlocking member comprising a tongue of greater load and stress strength than each facing unit, and each facing unit having a groove for engagement with the tongue.

5,782,583
IN-GROUND BARRIER

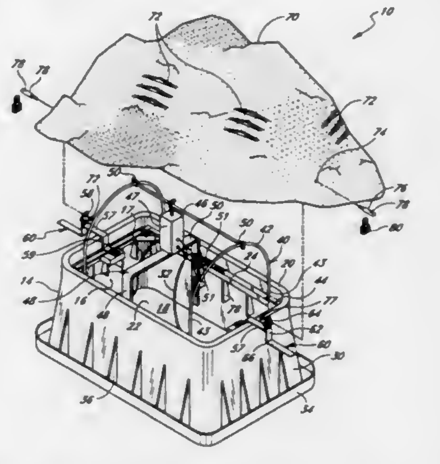
E. S. Vales, Waterloo, Canada, assignor to University of Waterloo, Waterloo, Canada
Continuation-in-part of Ser. No. 765,254, Sep. 25, 1991, abandoned, which is a continuation of Ser. No. 487,260, Mar. 2, 1990, abandoned. This application Dec. 21, 1994, Ser. No. 360,626
Claims priority, application United Kingdom, Mar. 3, 1989, 89 04845.8
Int. Cl.^{6} E02D *5/08*
U.S. Cl. 405—281 **14 Claims**



1. Procedure for making an in-ground barrier, wherein:
the procedure includes the step of providing adjoining barrier elements, each element comprising a length of sheet material of uniform cross-sectional shape when viewed in plan, the elements being arranged edge to edge;
the procedure includes the step of inserting the elements into the ground;
the cross-sectional shape of each element, when viewed in plan, has a left edge-form and a right edge-form;
the barrier is of the type wherein, when the barrier is installed in the ground, the left edge-form of a senior element is in operative engagement with the right edge-form of the adjoining junior element;
the said operatively engaging left and right edge-forms overlap and interlock together to form, when viewed in plan, the circumference of an enclosure, which defines a cavity;
one portion, termed the senior portion, of the circumference of the enclosure, being less than the whole circumference of the enclosure is constituted by a portion of the right edge-form of the senior element, and another portion of the circumference of the enclosure, termed the junior portion, being also less than the whole circumference of the enclosure is constituted by a portion of the left edge-form of the junior element;
whereby the circumference of the enclosure is inherently not water tight, in that potential leakage paths exist between the senior and junior portions of the circumference of the enclosure;
the senior and junior portions of the circumference of the enclosure overlap and interlock in such a manner that each and every leakage path starting from in front of the barrier and finishing behind the barrier is in communication with the said cavity;
the shape and size of the said enclosure, when viewed in plan, is such that a circle inscribed within the cavity has a substantial diameter;
the said inscribed circle is clear and unobstructed, in that, when viewed in plan, none of the material of either element encroaches within the inscribed circle;
the edge-forms of the elements are so shaped that the said inscribed circle within the enclosure is clear and unobstructed over the height of the enclosure;
the said senior and junior elements are provided with a mutually-interlocking dovetail means, for maintaining uniform the size and shape, when viewed in plan, of the said enclosure, both during insertion and after;
the procedure includes the step of extracting solid material from the cavity inside the enclosure, and of removing the said solid material from the cavity;
the procedure includes extracting and removing the solid material to the extent that, after removal, the cavity is substantially unobstructed by solid material, and is substantially clear and open, over the whole height of the enclosure, from top to bottom of the barrier;
the procedure includes the step of passing an inspection probe down into the cavity, where the probe is of the kind which is capable of providing an indication of the nature of the walls of the enclosure, being an indication which is readable from outside the cavity;
and wherein the procedure includes the step of passing the inspection probe down into the cavity, from the ground surface, substantially down to the foot of the junior element.

5,782,584
ROCK UTILITY ENCLOSURE APPARATUS

Joel C. Arthur, 4303 N. Webster Ave., Perris, Calif. 92571
Filed Oct. 10, 1996, Ser. No. 728,893
Int. Cl.^{6} E02D *00/00;* **F16L** *1/00*
U.S. Cl. 405—303 **21 Claims**



1. A utility enclosure apparatus, comprising:
a housing, the housing having side walls defining a cavity therein, the housing having an upper aperture opening into said cavity and a lower aperture for the passage of utility cables therethrough into said cavity;
a first guide rail and a second guide rail, the first and second guide rails extending upward from the housing across the aperture and defining two substantially parallel planes that are spaced apart from each other;
a rod having a first end and a second end, the first end of the rod slidably connected to the first guide rail, the second end of the rod slidably connected to the second guide rail, wherein the rod is slidably movable along the lengths of the guide rails and wherein said rod is configured to receive one or more devices that are to be hung on said rod so as to support said one or more devices in an orientation where said one or more devices can be connected to said cables; and
a cover having the appearance of a rock which is removably secured to said housing, wherein the cover is configured to fit over and conceal the housing.

5,782,585
PRECISION DRILL FOR DRILLING NONCIRCULAR BORES

Roland Bathen, Stuttgart, Germany, assignor to Mahle GmbH, Stuttgart, Germany
PCT No. PCT/DE95/01315, § 371 Date Dec. 11, 1996, § 102(e) Date Dec. 11, 1996, PCT Pub. No. WO96/16762, PCT Pub. Date Jun. 6, 1996
PCT Filed Sep. 21, 1995, Ser. No. 765,150
Claims priority, application Germany, Nov. 26, 1994, 44 42 218.0
Int. Cl.^{6} B25B *27/22*
U.S. Cl. 408—17 **3 Claims**

1. Precision drilling machine with a drilling bit on a drilling spindle and a holder for a workpiece to be worked for drilling noncircular bores, characterized in that the holder (6) for the workpiece (5) oscillates in a least one direction translatorily with a

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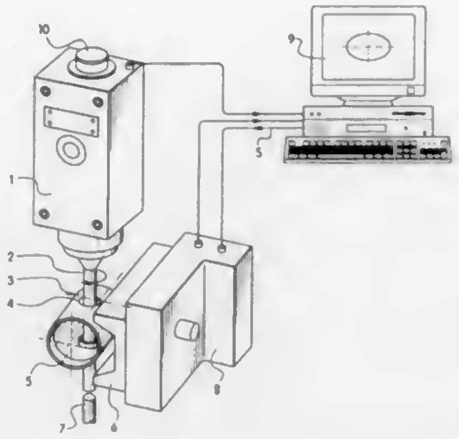
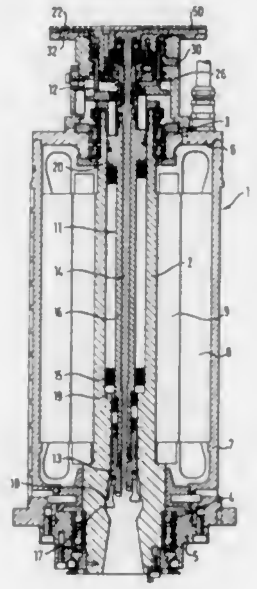


frequency proportional to the given number of revolutions per minute of the drilling bit (3) and in a path of deflection dependent on the shape of the bore to be drilled.

5,782,586

SPINDLE UNIT FOR MACHINE TOOLS

Alfred Geissler, Pfronten, Germany, assignor to Deckel Maho GmbH, Pfonten, Germany
Filed Dec. 20, 1996, Ser. No. 770,959
Claims priority, application Germany, Dec. 22, 1995, 295 20 427 U
Int. Cl.⁶ B23B *51/06*
U.S. Cl. 408—56 **13 Claims**

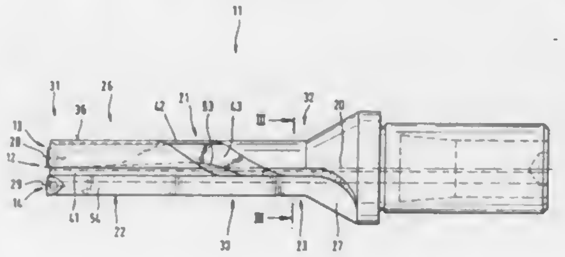


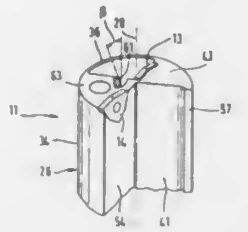
1. A spindle unit for machine tools comprising:
a housing;
a motor in said housing;
a working spindle mounted for rotation in said housing, said working spindle being driven by said motor to accommodate a tool;
a chucking unit with an operating mechanism in said housing and coupled to said working spindle; and
supply channels in said spindle unit for providing internal coolant to the tool;
wherein said internal coolant channels are integrated into said chucking unit and have a rotary transmission lead-through arranged inside said operating mechanism to convey the coolant from a stationary supply channel into said chucking unit.

5,782,587

DRILLING TOOL

Andreas Basteck, Freiburg, Germany, assignor to August Beck GmbH & Co., Winterlingen, Germany
Filed Jun. 21, 1996, Ser. No. 667,547
Claims priority, application Germany, Jun. 23, 1995, 195 22 836.7
Int. Cl.⁶ B23B *51/06;51/00*
U.S. Cl. 408—59 **18 Claims**





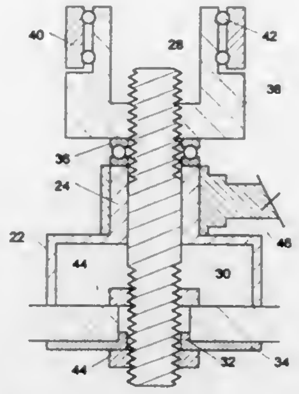
1. A drilling tool for boring solid metal material, comprising:
a drill shank (26) having a longitudinal axis (20) and an end face (12), at least one axially extending recess (21, 22) and at least two indexable inserts (13, 14), in which
said indexable inserts are arranged at different radial distances from said longitudinal axis (20), are at least similar geometrically, have working areas that overlap, and have two cutting edges (16, 17, 18, 19) that are of the same length, are inclined adjacent to one another, are arranged at an obtuse angle to one another, and are in cutting engagement simultaneously,
a radially inner indexable insert (13) slightly overlapping said drill axis (20) with one engaged cutting edge (16), a radially outer indexable insert (14) forming a drill diameter with an engaged cutting edge (18), and at least one angle bisector (28, 29) of said cutting edges (16, 17, 18, 19) being inclined at an angle (α) relative to said longitudinal axis (20), and in which
at least one cover (36) extends axially from said end face (12) of said drilling tool, is arranged in at least one of said recesses (21, 22), and forms an integral portion of said drill shank (26).

5,782,588

DRAW BAR ASSISTED ROTARY HOLE SAWING

Dale W. Gardner, 12680 Herring Rd., Colorado Springs, Colo. 80908
Filed Jun. 25, 1996, Ser. No. 670,065
Int. Cl.⁶ B23B *45/14*
U.S. Cl. 408—80 **8 Claims**

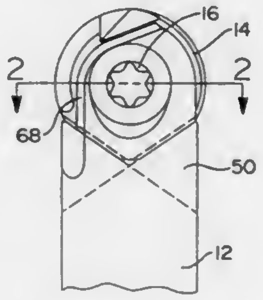
1. A rotary hole sawing apparatus for making a larger hole in a workpiece already having a pilot hole concentric with the desired location of the larger hole, comprising an externally threaded drawbar which is placed concentrically within said pilot hole, said drawbar having a longitudinal axis, a hole saw mounted on said drawbar on one side of the workpiece, means for rotating said hole saw, a thrust nut which is threaded onto said drawbar, and a thrust nut handle mounted on said thrust nut for rotation about the axis of the drawbar independent of said thrust nut.



5,782,589

MILLING CUTTER

John M. Cole, 3754 Lotus Dr., Waterford, Mich. 48329
Filed Jun. 17, 1996, Ser. No. 664,642
Int. Cl.⁶ B23B *51/00*
U.S. Cl. 408—233 **12 Claims**



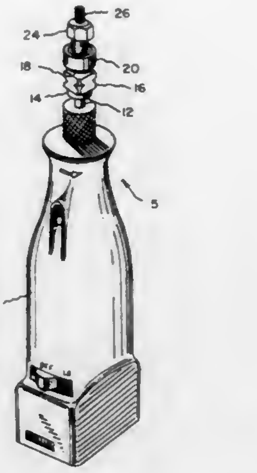
1. A tool holder for holding a cutting tool insert, comprising an elongated body having a centerline defining a first side and a second side; said elongated body having a first diagonal slot extending continuously through said elongated body adjacent to said centerline on said first side and a second diagonal slot extending continuously through said elongated body adjacent to said centerline on said second side, such that a portion of said first and second diagonal slots define a substantially V-shaped concave pocket for receiving the cutting tool insert.

5,782,590

APPARATUS FOR CONTOUR SHAPING AND FINISH BEVELING EDGES OF EYEWEAR LENSES

James W. Morrison, Sarasota, Fla., assignor to Morrison International Inc., Sarasota, Fla.
Filed Apr. 26, 1996, Ser. No. 639,870
Int. Cl.⁶ B23C *1/20;3/12*
U.S. Cl. 409—124 **26 Claims**

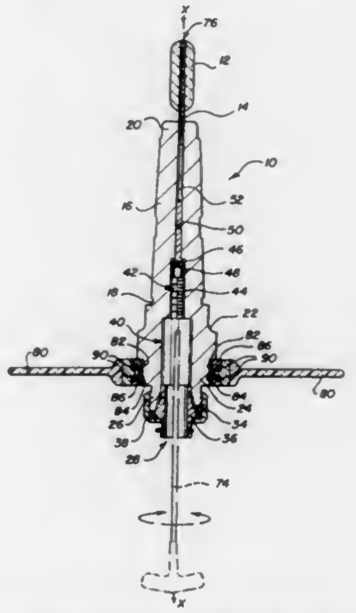
1. A portable, hand-held apparatus for contouring the edges of eyewear lenses, comprising:
- (a) a hand-held rotary power device having a spindle coupled thereto;
- (b) a guide roller mounted to said spindle for engaging and following the periphery of a lens pattern affixed to a lens blank to be edged contoured; and
- (c) cutter means having a rotatable cutter on said spindle and mounted to said rotary power device with and adjacent to said guide roller for engaging the edge of said lens blank while said pattern engages said guide roller for contouring the edge of said lens blank affixed to said lens pattern as said cutter means mounted to said rotary power device and guide roller is moved about said lens blank affixed to said pattern or said lens blank affixed to said pattern is revolved to present the edge of said blank and said pattern respectively to said cutter and guide roller.



5,782,591

UNIVERSAL TOOL HOLDING DEVICE FOR USE WITH A POWER-DRIVEN, ROTATABLE SPINDLE MACHINE

Daniel Wilkinson, Jr., New York Central Rd., Port Byron, N.Y. 13140
Filed May 16, 1996, Ser. No. 648,922
Int. Cl.⁶ B32C *1/02*
U.S. Cl. 409—131 **17 Claims**



11. A method of mechanically retaining an arbor within the bore of a spindle on a rotary power tool, said arbor having a passageway extending axially therethrough, said passageway having cylindrical, internal walls with first and second axial portions of respective first and second diameters, said first diameter being smaller than said second diameter and said first and second portions meeting at a fixed shoulder within said passageway and said spindle including a transverse opening communicating with said bore, said method comprising:
- a) inserting said first threaded fastener into said bore through said transverse opening;

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b) positioning a second threaded fastener at an axially fixed position with respect to said arbor at least a portion of said second fastener being positioned within said passageway;
c) inserting said arbor axially into said spindle bore; and
d) threadedly engaging said first and second fasteners to releasably and mechanically retain said arbor in said spindle bore.

5,782,592

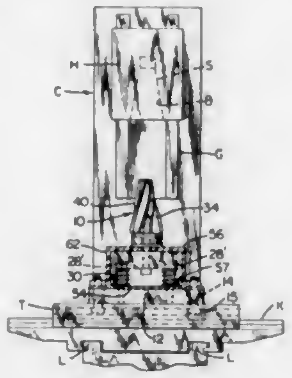
HIGH SPEED SPINDLE SOCKET CLEANING TOOL

John W. Row, P.O. Box 499, Pine, and James L. Row, P.O. Box 187, Buffalo Creek, both of Colo. 80425

Filed Oct. 10, 1996, Ser. No. 729,013

Int. Cl.^{6} B23C *9/00*

U.S. Cl. 409—137 **19 Claims**



1. A cleaning tool for cleaning an inner wall surface of a socket comprising:
a base member;
an elongated head shaped to conform to the configuration of the inner wall surface, said head being of generally circular cross-sectional configuration and having circumferentially spaced wiper blades extending substantially parallel to the length of said head and on an external surface thereof; and
bias means resiliently mounting said head on said base for aligning the centerline of said head with that of said socket when inserted into said socket to effect uniform engagement between said wiper blades and the inner wall surface of said socket.

5,782,593

DRIVE FOR MACHINING SPINDLE

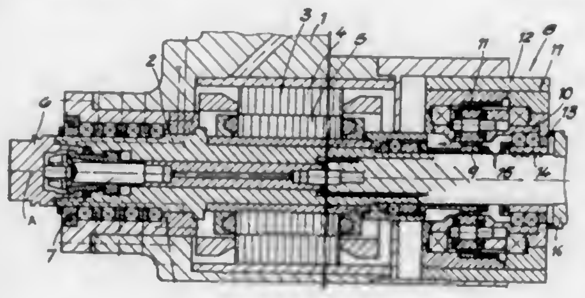
Klaus-Dieter Klement, St.Mauri Strasse 1, D-52428 Jülich, Germany

Filed Jan. 24, 1997, Ser. No. 788,320

Claims priority, application Germany, Mar. 22, 1996, 196 11 459.4

Int. Cl.^{6} B23C *1/00*

U.S. Cl. 409—231 **5 Claims**



1. A drive comprising:
a housing;
a machining spindle rotatable in the housing about an axis and adapted to carry a machine tool;
a motor in the housing having
  a stator fixed in the housing and surrounding the spindle, and
  a rotor rotatable about the axis relative to the housing and to the spindle and surrounding the spindle; and
means including a gear transmission in the housing having an input connectable to the rotor and an output connectable to the spindle for rotating the spindle about the axis, the transmission including
  a tubular sun gear rotatable on the spindle and rotationally directly coupled to the rotor,
  a planet carrier rotatable about the axis and carrying a plurality of planet gears meshable with the sun gear, and
  a ring gear rotatable in the housing and meshing with the planet gears.
the transmission being displaceable between a low-speed position with the sun gear meshing with the planet gears and the planet carrier coupled to the spindle for rotating the spindle at a rate slower than that of the rotor and a high-speed position with the sun gear out of mesh with the planet gears and directly coupled to the spindle for rotating the spindle jointly with the rotor.

5,782,594

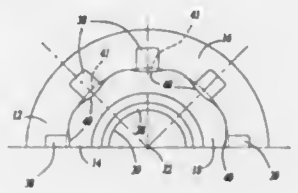
SELF-ATTACHING FASTENER & METHOD

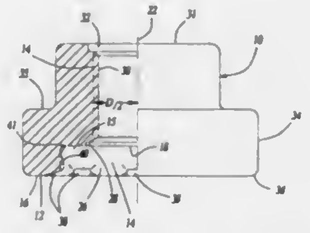
Rudolf R. M. Muller, Frankfurt, Germany, assignor to Profil-Verbindungstechnik GmbH & Co KG, Germany

Filed Aug. 16, 1996, Ser. No. 698,870

Int. Cl.^{6} F16B *39/00*

U.S. Cl. 411—176 **11 Claims**





1. A fastener for installation in a part, the fastener comprising a body portion with at least one side, opposed faces with one of the faces being a part contacting face and a bore extending through the body portion forming opposed openings in the opposed faces, the part contacting face includes a recess generally coaxially aligned with the bore, the recess extends from the bore to a spaced distance from the side of the fastener body to define a part contacting surface, a plurality of spaced projections extending into the recess defining a plurality of spaced undercut portions for receipt of a portion of the part to interlock the fastener to the part, a plurality of generally radial notches in said contacting surface overlying said spaced projections having a radial outer extent spaced from a radial outer surface of said fastener defining a portion of said contacting surface surrounding said notches and providing a bearing area adjacent said radial outer surface of said fastener.

5,782,595

ASSEMBLY UNIT COMPRISED OF AN ASSEMBLY ELEMENT AND A FASTENING ELEMENT

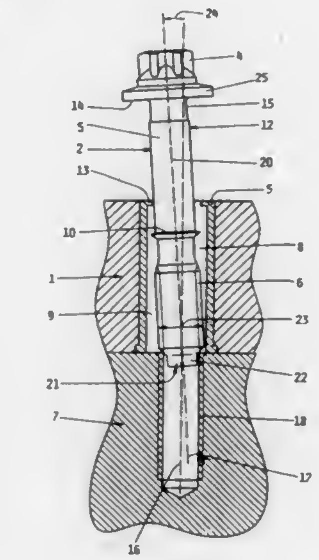
Wilhelm Schneider, Rednitzhembach, Germany, assignor to Richard Bergner GmbH & Co., Schwabach, Germany

Filed Dec. 19, 1996, Ser. No. 769,327

Claims priority, application Germany, Dec. 23, 1995, 195 48 773.7

Int. Cl.^{6} F16B *21/18;39/00*

U.S. Cl. 411—352 **10 Claims**



1. An assembly unit comprising:
an assembly element defining a through hole therein and having:
  a wall bounding the through hole; and
  a counterpart back engagement part protruding radially inwardly from the wall and into the through hole; and
a fastening element configured to be inserted into the through hole of the assembly element for assuming an initial position and a final assembly position therein, the fastening element including:
  a head for actuating a fastening of the fastening element for placing the fastening element in its final assembly position for fastening the assembly element to a workpiece;
  a shaft disposed adjacent the head for resting with radial play in the through hole of the assembly element, the shaft resting entirely in the through hole of the assembly element in the final assembly position of the fastening element; and
  a back engagement part disposed on the shaft and having a cross section in a plane perpendicular to a longitudinal axis of the shaft which protrudes beyond a cross section of the shaft in the plane;
wherein:
  the shaft defines an undercut region between the head and the back engagement part of the fastening element, the undercut region defining a constriction therein positioned such that, in the final assembly position of the fastening element, the constriction is disposed, in a radial direction, adjacent the counterpart back engagement part of the assembly element; and
  when the shaft rests in the through hole, the counterpart back engagement protrudes toward the undercut region of the shaft and cooperates with the back engagement part to captively retain the fastening element in the through hole.

5,782,596

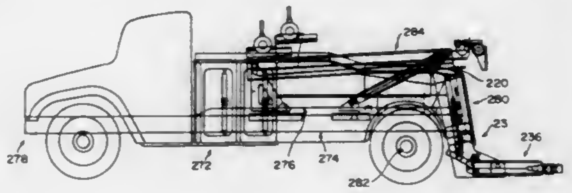
TOW TRUCK EQUIPPED WITH A LIGHT WEIGHT RUST RESISTANT BODY ASSEMBLY AND AN UNDERLIFT ASSEMBLY

Charles E. Young, Falling Waters, W. Va., and James J. Bartel, Southfield, Mich., assignors to Jer-Dan Corporation, Greencastle, Pa.

Filed Nov. 8, 1995, Ser. No. 555,032

Int. Cl.^{6} B60P *3/12*

U.S. Cl. 414—563 **25 Claims**



1. A tow truck for lifting a part of a vehicle and towing the vehicle comprising:
a tow truck chassis including spaced frame members and a deck above said frame members, and said tow truck chassis having a forward end and a rearward end including a rear axle;
a lifting boom assembly coupled to the tow truck chassis; and
an underlift assembly coupled to the lifting boom, wherein said underlift assembly comprises:
  a support arm coupled to the lifting boom;
  a base coupled to an end of the support arm;
  a boom base pivotally attached to the base at a first pivot point;
  a boom pivotally attached to the boom base at a second pivot point;
  a first actuator coupled to the support arm and the boom base, wherein the operation of the first actuator pivots the boom base with respect to the support arm;
  a second actuator coupled to the boom base and the boom, wherein the operation of the second actuator pivots the boom with respect to the boom base; and
  attachments coupled to the boom for engaging a vehicle for lifting a part thereof.

5,782,597

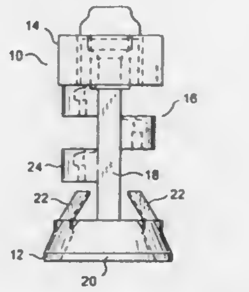
STUD RETENTION DEVICE

Charles Meyer, New Lenox, Ill., assignor to Illinois Tool Works Inc., Glenview, Ill.

Filed May 5, 1997, Ser. No. 850,998

Int. Cl.^{6} F16B *37/08;37/16*

U.S. Cl. 411—433 **5 Claims**



1. A stud retention device comprising an elongated member formed of a resilient material and having:
a base;
a top end opposite to said base;
a plurality of longitudinal members, spaced apart from each other and interconnecting said base and said top end;
a plurality of staggered arcuate ribs extending between said longitudinal members, an inner diameter of said ribs defining

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a passage extending along a longitudinal axis of said elongated member, said passage further extending through said base;

a finger projecting radially toward said longitudinal axis from each of said ribs; and

a plurality of arms projecting upwardly and radially inwardly of said inner diameter from said base toward said top end;

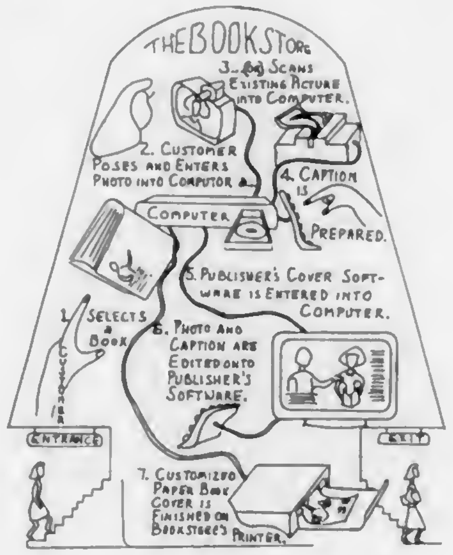
whereby upon insertion of a stud into said passage said fingers and said arms are deflected and then relax to engage said stud, imparting a retention force on said stud opposing said stud being withdrawn from said passage.

5,782,598
PERSONALIZED PAPER BOOK COVER

Marc Salzberger, 84-42 Fleet Ct. #12A, Middle Village, N.Y. 11379

Filed Sep. 15, 1995, Ser. No. 529,624
Int. Cl.^{6} B42C *19/00*

U.S. Cl. 412—4 **14 Claims**


THE BOOK STORE
3. (or) SCANS EXISTING PICTURE INTO COMPUTER.
2. CUSTOMER POSES AND ENTERS PHOTO INTO COMPUTOR
4. CAPTION IS PREPARED.
COMPUTER
5. PUBLISHER'S COVER SOFTWARE IS ENTERED INTO COMPUTER.
1. SELECTS A BOOK
CUSTOMER
6. PHOTO AND CAPTION ARE EDITED ONTO PUBLISHER'S SOFTWARE.
ENTRANCE
EXIT
7. CUSTOMIZED PAPER BOOK COVER IS FINISHED ON BOOKSTORE'S PRINTER.

1. A process for incorporating a book buyer's picture into the publisher's paper cover, of the volume said book buyer buys, in steps which involve:

(a) interfacing a computer having memory and a programed editing capacity with a variety of peripheral devices including a keyboard, a video monitor, electro optical image capturing apparatus and a printer

(b) generating, by means of said electro optical image capturing apparatus, data representing said customer's picture

(c) entering said data into said computer

(d) adjusting and positioning said data within programed parameters, by means of said editing capacity

(e) inserting and mounting in said printer a paper surface identical in size and shape to said volume's paper cover

(f) printing onto said paper surface the edited data.

5,782,599
SEAMING APPARATUS

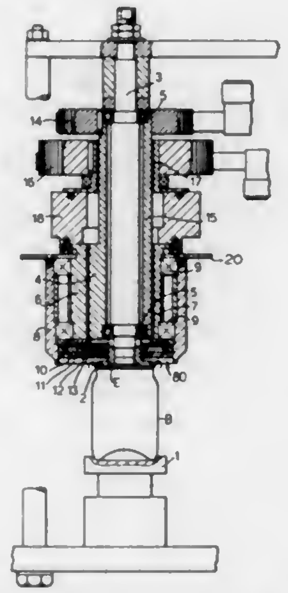
Peter Leslie Moran, Gloucester; Robin Fergusson; David Livingstone, both of Royston; Paul Simms, Silsen, and Nicholas Charles Martinek, Huddersfield, all of United Kingdom, assignors to CarnaudMetalbox plc, United Kingdom

Filed Nov. 2, 1995, Ser. No. 551,948

Claims priority, application United Kingdom, Nov. 3, 1994, 9422228

Int. Cl.^{6} B21D *51/32*

U.S. Cl. 413—31 **18 Claims**



1. Apparatus for seaming a container end to an open end of a container body, comprising:

means for supporting a container body;

a seaming chuck for supporting a container end in place on the container body and cooperating with the container body supporting means to hold the container body and container end one against the other;

an annular seaming tool having a continuous unending annular seaming profile on an inner circumferential surface which surrounds the seaming chuck and the container end for progressively folding peripheral portions of the container body and container end together to form a seam, the annular seaming tool being mounted on a tool holder;

means for supporting and driving the tool holder in orbiting motion such that an axis of the annular seaming tool follows a circular path around an axis of the seaming chuck;

means for varying a radius of the circular path between a first minimum value at which the annular seaming profile is coaxial with the seaming chuck and a second maximum value at which the annular seaming profile engages the peripheral portions of the container end; and

the annular seaming tool being mounted on the apparatus for free rotation about the axis of the annular seaming tool such that when the annular seaming profile engages the peripheral portions of the container end the annular seaming profile is free to roll around the container end to progressively form the seam.

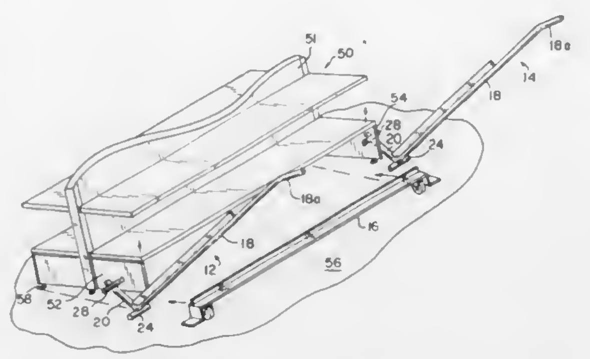
5,782,600
SYSTEM AND METHOD FOR MOVING SHELF UNITS

Michael D. Walsh, 3086 Kress La., Potosi, Wis. 53820

Filed Dec. 23, 1996, Ser. No. 771,489
Int. Cl.^{6} B62B *1/00;3/00*

U.S. Cl. 414—490 **24 Claims**

1. A system for moving a shelf unit, said shelf unit including first and second opposing vertical feet for supporting said shelf unit on a ground surface, said system comprising:



first and second prying arms each including a pushable member and a lifting member joined to each other, said first prying arm adapted to lift said first of said vertical feet at least partially off said ground surface in response to engaging said first of said vertical feet with the lifting member of said first prying arm and pushing downward on the pushable member of said first prying arm, said second prying arm adapted to lift said second of said vertical feet at least partially off said ground surface in response to engaging said second of said vertical feet with the lifting member of said second prying arm and pushing downward on the pushable member of said second prying arm, said first and second prying arms not being mechanically connected to each other; and

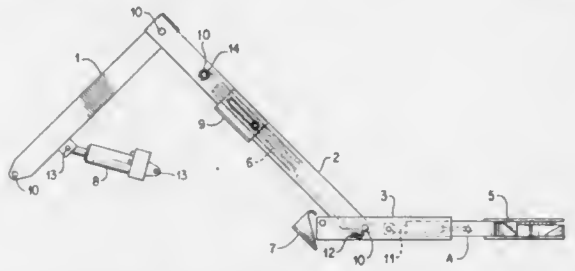
a rolling device including first and second opposing end supports and an intermediate cross bar extending between said first and second end supports, said rolling device including a pair of casters mounted to an underside of said cross bar for allowing said rolling device to be rolled along said ground surface, said first and second end supports being located closer than said cross bar to said ground surface when said rolling device is positioned with its casters contacting said ground surface, said first and second end supports adapted to support said respective first and second vertical feet in response to said vertical feet being lifted at least partially off said ground surface with said first and second prying arms, said rolling device being rolled beneath said shelf unit to position said first and second end supports beneath said respective first and second vertical feet, and said first and second vertical feet being lowered onto said respective first and second end supports.

5,782,601
VEHICLE TOWING APPARATUS

Paul M. Wilson, c/o Fred Greco 1300 Old Chain Bridge Rd., McLean, Va. 22101

Filed Feb. 2, 1996, Ser. No. 594,654
Int. Cl.^{6} B60P *3/12*

U.S. Cl. 414—563 **1 Claim**



1. An automotive vehicle lifting and towing truck comprising:

a first boom member and a second boom member;

a first hydraulic cylinder connected at a first end to a bed of the truck and at a second end to said first boom member;

said first boom member pivoted to said bed of the truck at one end and extending over said bed to said second boom member pivoted to said first boom member at another end of said first boom member, said second boom member extending vertically below said first boom member;

a third boom member pivoted to a lower end of said second boom member, said third boom member having a portion extending forwardly of said second boom member and a portion extending rearwardly of said second boom member, said forwardly extending portion including a wedge roller bearing and said rearwardly extending portion including a vehicle wheel lift;

a spring member extending between an upper portion of said second boom member and said third boom member;

and a lower boom folding wedge located below said first boom member, said lower boom folding wedge including a lip portion which engages said wedge roller bearing upon lifting of said third boom by said first hydraulic cylinder thereby pivoting said third boom member about said pivot to said second boom member whereby said spring member is tensioned and said third boom member is pivoted to a folding position.

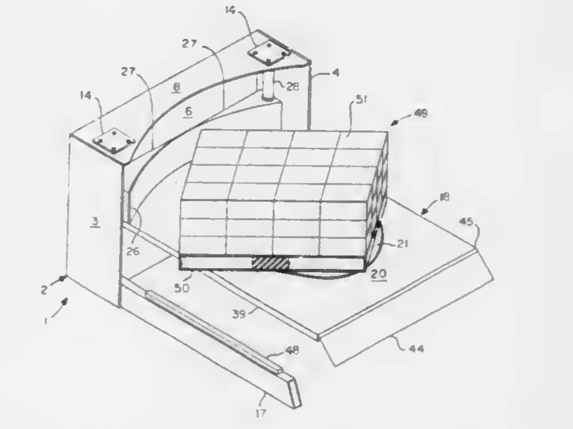
5,782,602
DEVICE FOR LOADING AND UNLOADING PALLETS

Zersis M. Mehta, Hialeah, Fla., and Robert M. Stone, Tucson, Ariz., assignors to Ecoa Hydraulic Lifts, Inc., Hialeah, Fla.

Continuation-in-part of Ser. No. 267,443, Jun. 28, 1994, Pat. No. 5,490,758, which is a continuation-in-part of Ser. No. 14,344, Jan. 5, 1993, abandoned, which is a continuation-in-part of Ser. No. 695,692, May 3, 1991, Pat. No. 5,299,906.

This application Jan. 25, 1996, Ser. No. 591,362
Int. Cl.^{6} B66B *7/00*

U.S. Cl. 414—672 **20 Claims**



1. A device for supporting a stack during stacking and unstacking comprising:

(a) a base;

(b) a platform assembly including a carrier, a first platform mounted for rotation on said carrier, and a second platform on said carrier at least partly framing said first platform: and

(c) a drive for moving said platform assembly between a raised position and a lowered position, said drive being located laterally of said platform assembly substantially in its entirety, and said platform assembly further including means for causing relative movement of said first and second platforms from a first condition to a second condition when said platform assembly is moved from said raised position to said lowered position, said first condition being a non-aligned condition in which said second platform is lower than said first platform, and said second condition being an aligned condition in which said first and second platforms are at substantially the same height, said platform assembly additionally including a braking mechanism which is arranged to arrest said first platform in said second condition.

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5,782,603

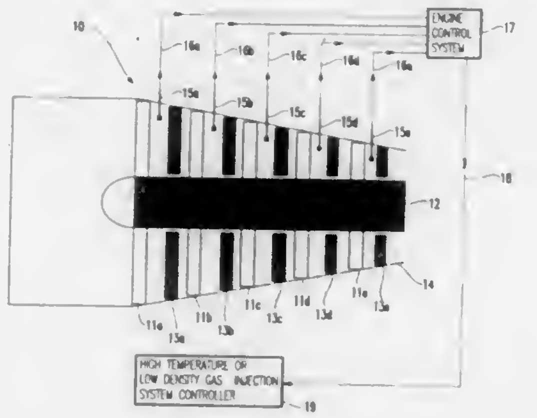
PROCESS AND APPARATUS FOR RECOVERY FROM ROTATING STALL IN AXIAL FLOW FANS AND COMPRESSORS

Walter F. O'Brien, and Anthony L. DiPietro, Jr., both of Blacksburg, Va., assignors to Virginia Tech Intellectual Properties, Inc., Blacksburg, Va.

Filed Jan. 3, 1997, Ser. No. 779,151

Int. Cl.^{6} F01D *17/08*

U.S. Cl. 415—1 **15 Claims**



1. A compressor or axial flow fan, comprising:

an inlet for admitting a working gas into said compressor or axial flow fan;

means for sensing rotating stall in said compressor or axial flow fan; and

means for injecting low density gas which is of a density that is lower than said working gas into said compressor or axial flow fan in response to the rotating stall sensed by said means for sensing rotating stall.

11. A method for recovering from rotating stall in a compressor or axial flow fan, comprising the steps of:

sensing the rotating stall;

injecting low density gas into an inlet for said compressor or axial flow fan after said rotating stall condition is sensed, said low density gas being of a density that is lower than a working gas introduced into said inlet during operation of said compressor or axial flow fan; and

stabilizing said compressor or axial flow fan.

5,782,604

PUMP

Geoffrey Luxford, Northamptonshire, United Kingdom, assignor to Domino Printing Sciences, PLC, United Kingdom

Filed Dec. 5, 1996, Ser. No. 760,487

Claims priority, application United Kingdom, Dec. 19, 1995, 9525972

Int. Cl.^{6} F04D *29/28*

U.S. Cl. 415—71 **18 Claims**

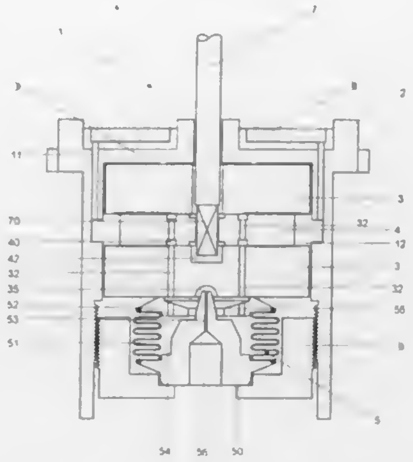
1. A pump comprising

a rotor;

a stator disposed closely adjacent to and biased by a force relatively towards, but spaced apart from, the rotor;

a surface forming a plurality of recesses, said surface selected from the group consisting of a surface on said stator facing said rotor, and a surface on said rotor facing said stator;

an inlet to and outlet from each recess to provide for the supply of fluid to and from the recess, whereby rotation of the rotor about its axis is arranged to cause fluid to be pumped from the inlet to the outlet as a result of the viscous drag on the fluid resulting from rotation of the rotor relative to the stator;



the force biasing the rotor and stator being provided at least in part by fluid pressure feedback from the pump, in order to automatically control the biasing force between the rotor and stator.

5,782,605

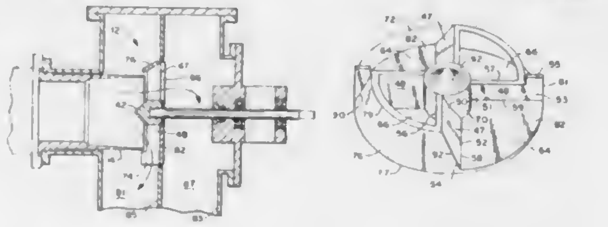
IMPELLER FOR SEPARATING A CONVEYED STREAM OF MATERIAL

Gregory R. Kohler, Williamsport, Pa., assignor to Andritz Sprout-Bauer, Inc., Muncy, Pa.

Filed Jul. 19, 1996, Ser. No. 684,134

Int. Cl.^{6} F04D *7/04;* **B02C** *18/14;18/22*

U.S. Cl. 415—121.1 **22 Claims**



18. An apparatus for separating a conveyed stream of material, comprising:

a stationary housing having an annular feed conduit with a central axis and a downstream end, a first wall extending outwardly from a portion of the downstream end, the first wall having an outer perimeter, a second wall connected to the outer perimeter of the first wall and extending in a downstream direction, and a divider wall,

an impeller positioned within the housing to form a housing-impeller assembly, the impeller including

a central hub which is coaxial with the feed conduit and has a length,

a plurality of blades extending radially from the hub, each blade having a front edge, a back edge, and an outer edge, the blades and hub defining a first set of generally wedge-shaped spaces and a second set of generally wedge-shaped spaces within the housing-impeller assembly,

baffle means formed in or along the first set of generally wedge-shaped spaces for guiding conveyed material in the first set of generally wedge-shaped spaces outwardly from the housing-impeller assembly upstream from the baffle means through a first housing-impeller assembly outlet which is defined by the annular feed conduit, the baffle means, the blades and the hub, and

guide means formed in or along the second set of generally wedge-shaped spaces for guiding material in the second set of generally wedge-shaped spaces outwardly from the housing-impeller assembly downstream from the baffle means through a second housing-impeller assembly outlet which is defined by the blades, the hub and the guide means, said divider wall maintaining separation of material directed outwardly from the impeller on the upstream side of the baffle means and material which is guided outwardly from the impeller on the downstream side of the baffle means.

5,782,606

DEVICE FOR FOLDING A ROTORCRAFT ROTOR BLADE

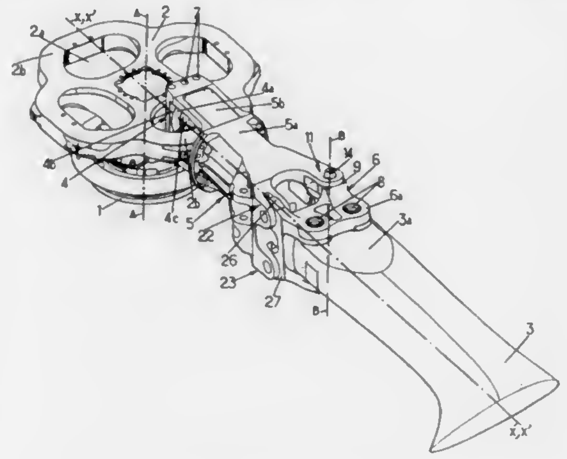
Jean Joseph Henri Mondet, Pelissanne, and Vincent Scala, Lancon de Provence, both of France, assignors to Eurocopter France, Marignane Cedex, France

Filed Dec. 18, 1996, Ser. No. 769,061

Claims priority, application France, Dec. 22, 1995, 95 15389

Int. Cl.^{6} F04D *29/26*

U.S. Cl. 416—142 **16 Claims**



1. A device for folding a blade of a rotorcraft rotor comprising a hub mounted so that the hub can rotate about an axis of the rotor, and to which hub each blade is connected by a linking member which is substantially radial with respect to the axis of the rotor and is itself connected to the hub by retaining and articulating means, each blade being secured by a root to a folding fitting mounted so that said fitting can pivot about a folding axis on said linking member, between two positions, one of which is a flight position in which the fitting is fixed to said linking member in such a way that the blade is aligned via its longitudinal axis with a longitudinal axis of said linking member and in the substantially radial extension of said linking member, and the other of which is a folded position, in which the fitting and the blade are pivoted about the folding axis substantially on one side of said linking member, the folding device including a pivoting articulation which is offset laterally with respect to the longitudinal axis of the linking member, and by means of which the fitting is mounted so that it can pivot on the linking member about the folding axis, the articulation comprising, on the linking member just as on the fitting, two lateral bearings, secured respectively to one and the same side of the linking member and of the fitting and which are coaxial about the folding axis while at the same time being axially offset from one another along this folding axis, and two stepped bushings are mounted coaxially about the folding axis, each in respectively one of the two lateral bearings of the linking member and in respectively one of the two lateral bearings of the fitting, the two bushings also being mounted in opposition, each having a radially external step at its end pointing toward the other bushing, and facing a body retained on the linking member between the two bearings thereof and between the two bearings of the fitting, and a centering peg being mounted coaxially and retained axially in each of the two bushings in such a way that an end part of the peg projects axially out of the bushing beyond its step and is engaged and centered in respectively one of two corresponding centering housings of said body.

5,782,607

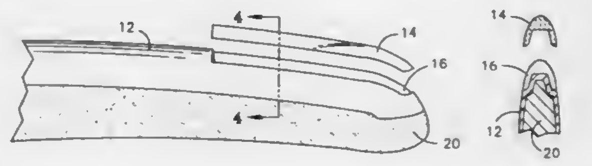
REPLACEABLE CERAMIC BLADE INSERT

Blair A. Smith, South Windsor, Conn.; James Cook, Agawam, Mass.; Joseph L. Mattavi, Granby, and Harry E. Eaton, Woodstock, both of Conn., assignors to United Technologies Corporation, Hartford, Conn.

Filed Dec. 11, 1996, Ser. No. 763,915

Int. Cl.^{6} B64C *11/26*

U.S. Cl. 416—224 **26 Claims**



18. A sheath for protecting a leading edge of a propeller blade, of a propeller system, the propeller blade having a normal bending moment, the sheath comprising:

a) a first protection means comprising a ductile metal attached to the leading edge of the propeller blade for protecting the leading edge from erosion, wherein said first protection means has an aerodynamic profile, and wherein said first protection means has an opening exposing an underlying blade material at a tip end of the propeller blade; and,

b) a second protection means comprising a ceramic material, wherein said second material is releasably attached by an adhesive material to the underlying blade material, wherein said second protection means forms a continuation of said aerodynamic profile of said first protection means and wherein said adhesive material isolates said second protection means from the normal bending moment of the propeller blade.

5,782,608

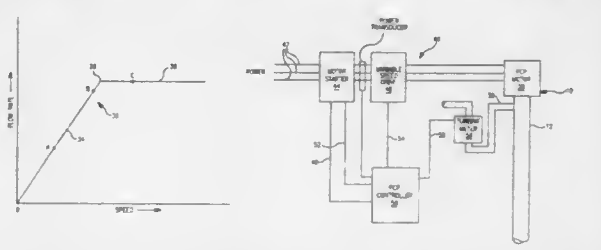
METHOD AND APPARATUS FOR CONTROLLING A PROGRESSING CAVITY WELL PUMP

Fount E. McKee, Houston, Tex., assignor to Delta-X Corporation, Houston, Tex.

Filed Oct. 3, 1996, Ser. No. 725,603

Int. Cl.^{6} F04B *49/00*

U.S. Cl. 417—43 **6 Claims**



1. The method of controlling the speed of a progressing cavity liquid well pump for obtaining maximum liquid production without maintaining the well in the pumped off state comprising,

continuously driving the progressing cavity well pump with a variable speed drive device while measuring the amount of liquid production produced from the well pump, and

continuously varying the speed of the pump in speed steps, either upwardly or downwardly, by the variable speed drive device while measuring the liquid production, to maintain a linear relationship between liquid production and pump speed.

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5,782,609

VACUUM PUMP HAVING DIFFERENT DIAMETER ROTORS AND A DRIVE MOTOR SYNCHRONIZATION SYSTEM

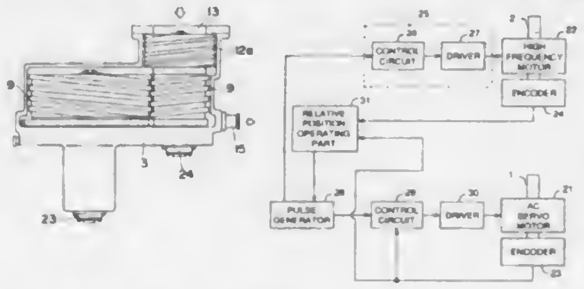
Yoshihiro Ikemoto, and Teruo Maruyama, both of Hirakata, Japan, assignors to Matsushita Electric Industrial Co., Ltd., Kadoma, Japan

Filed Jun. 26, 1995, Ser. No. 494,737

Claims priority, application Japan, Jun. 27, 1994, 6-144836

Int. Cl.^{6} F04B *49/06;17/00;35/04*

U.S. Cl. 417—44.1 **6 Claims**



1. A vacuum pump comprising:
a housing having a fluid suction port and a fluid discharge port;
a first rotary shaft rotatably mounted in said housing;
a second rotary shaft rotatably mounted in said housing;
a first rotor mounted on said first rotary shaft within said housing;
a second rotor mounted on said second rotary shaft within said housing, said second rotor having a diameter which is smaller than that of said first rotor;
a first motor, comprising an AC servo motor or a pulse motor, for driving said first rotary shaft which is connected to said first rotor;
a second motor comprising a high frequency motor for driving said second rotary shaft which is connected to said second rotor;
a rotation detector for detecting rotating angles and/or rotating speeds of said first motor and said second motor; and
a control means for controlling said first motor based on data from said rotation detector so as to synchronize rotation of said first rotary shaft driven by said first motor with that of said second rotary shaft driven by said second motor by controlling only said first motor.

5,782,610

METHOD OF STOPPING SCROLL COMPRESSOR THAT IS DRIVEN BY 3-PHASE DC MOTOR

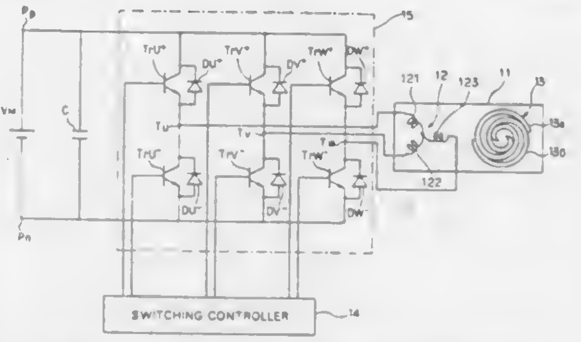
Hideo Ikeda, Isesaki, Japan, assignor to Sanden Corp., Isesaki, Japan

Filed Nov. 27, 1996, Ser. No. 757,449

Claims priority, application Japan, Dec. 7, 1995, 7-318787

Int. Cl.^{6} F04B *49/06*

U.S. Cl. 417—53 **3 Claims**



1. A method of stopping a scroll compressor that is driven by a 3-phase dc motor having 3-phase exciter windings, the motor being energized by a 3-phase dc power that is produced from a dc power source through an electronic switching circuit, the switching circuit having three pairs of bridge-connected switching transistors whose switchings are individually controlled by a switching controller, one of each pair of the switching transistors belonging to a first transistor group that is connected to a positive terminal of the dc power source and the other belonging to a second transistor group that is connected to a negative terminal of the dc power source, the method comprising the steps of:
(a) simultaneously turning off all of the three pairs of the switching transistors so as to shut off the 3-phase dc power provided to the motor;
(b) maintaining all of the three pairs of the switching transistors in the off state for a first time period;
(c) simultaneously turning on the switching transistors of the second group at the end of said first time period so that all terminals of the 3-phase exciter windings are short-circuited with one another; and
(d) maintaining the switching transistors of the second group for a second time period while the switching transistors of the first group are still in the off state.

5,782,611

PORTABLE PUMP ASSEMBLY

Frédéric Neftel, 17 Rue des Terreaux, CP82, CH1000 Lausanne 9, Switzerland, and Bernard Bouvier, 17 Rue de la Marne, 95610 Eragny sur Oise, France

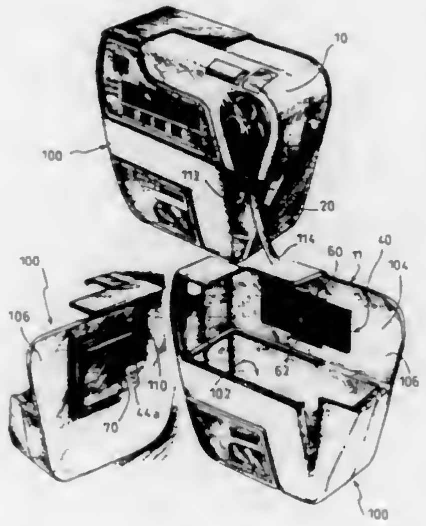
PCT No. PCT/FR95/01034, § 371 Date Apr. 4, 1997, § 102(e) Date Apr. 4, 1997, PCT Pub. No. WO96/11025, PCT Pub. Date Apr. 8, 1996

PCT Filed Oct. 6, 1995, Ser. No. 817,545

Claims priority, application France, Oct. 6, 1994, 94 11943

Int. Cl.^{6} F04B *53/00;43/08*

U.S. Cl. 417—234 **10 Claims**



1. A portable pump assembly comprising a pump mounted in a box and a plurality of distinct accessories fixable on said pump box, wherein:
said pump box (**10**) has both a control face (**12**) and a fixing face (**14**) that is distinct from the control face, said fixing face including first mechanical fixing means (**30**, **32**) and non-moving first locking means (**36**);
said pump box further includes a single link member (**40**) having a top face (**44***a*) and second mechanical fixing means (**60**, **62**) disposed in a plane offset from the top face, said first and second mechanical fixing means forming a rib-and-slideaway system, and with moving second locking means (**48**, **64**) such that when the first and second mechanical fixing means co-operate mutually, the first and second locking means (**48**, **64**) also co-operate to secure said link member of said box, and the top face including a first fixing zone and a control element (**54**) for unlocking the second locking means;
each accessory (**70**, **90**, **100**) includes a second fixing zone suitable for engaging at least a portion of said first fixing zone; and
each accessory further includes fixing means (**80**) for fixing said second fixing zone on at least a portion of said first fixing zone.

5,782,612

HYDRAULIC GAS COMPRESSOR

Manfred Margardt, Heusweiler-Holz, Germany, assignor to Hydac Technology GmbH, Sulzbach/Saar, Germany

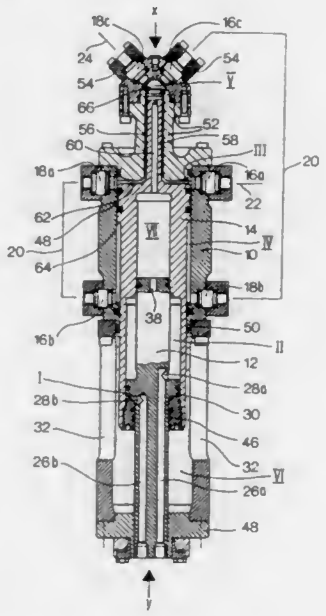
PCT No. PCT/EP94/02174, § 371 Date Nov. 27, 1995, § 102(e) Date Nov. 27, 1995, PCT Pub. No. WO95/06204, PCT Pub. Date Mar. 2, 1995

PCT Filed Jul. 2, 1994, Ser. No. 549,734

Claims priority, application Germany, Aug. 23, 1993, 43 28 264.4

Int. Cl.^{6} F04B *25/00;35/02*

U.S. Cl. 417—266 **22 Claims**



1. A gas compressor, comprising:
a housing;
a separating element stationarily mounted in and relative to said housing;
a piston mounted for movement guided along said separating element between first and second dead center positions;
drive means for moving said piston along said separating element between said dead center positions, said drive means including first and second fluid chambers of variable volume and including first and second feed lines in said separating element coupled to said first and second fluid chambers, respectively, said first and second fluid chambers being separated by a seal and being bounded by said separating element and said piston;
first, second and third separate gas chambers within said housing about said piston; and
conduit means for connecting said first, second and third gas chambers in series;
whereby, gas can be compressed in said gas chambers by said piston in a three-stage compression cycle.

5,782,613

PISTON TYPE COMPRESSOR WITH STRUCTURE FOR REDUCING CYLINDER BORE DEFORMATION

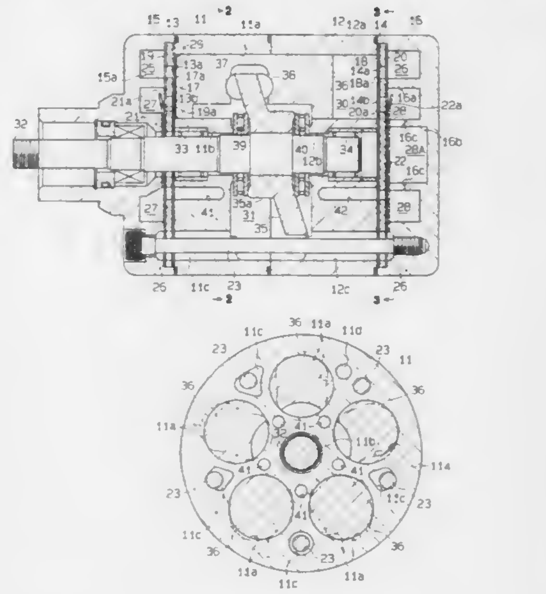
Hiromi Michiyuki, Anjo; Hayato Ikeda, Kariya; Tomoji Tarutani, Kariya, and Norikazu Deto, Kariya, all of Japan, assignors to Kabushiki Kaisha Toyoda Jodoshokki Seisakusho, Aichi-Ken, Japan

Filed Mar. 12, 1996, Ser. No. 614,370

Claims priority, application Japan, Mar. 20, 1995, 7-060981

Int. Cl.^{6} F04B *1/12*

U.S. Cl. 417—269 **22 Claims**



1. A compressor, comprising:
a housing body;
a drive shaft rotatably supported in the housing body;
a swash plate mounted on the drive shaft;
at least one cylinder bore defined in the housing body;
at least one piston operably coupled to the swash plate and disposed in the cylinder bore, wherein said swash plate converts a rotation of the drive shaft to a reciprocating movement of the piston along an inner surface of the cylinder bore to compress gas supplied from a suction chamber to the cylinder bore and discharge the compressed gas to a discharge chamber; and
means for reducing a deformation of the inner surface of the cylinder bore by utilizing pressure of the gas compressed in the cylinder bore.

5,782,614

RECIPROCATING COMPRESSOR IN WHICH GAS IS SUPPLIED TO EACH OF OPPOSITE ENDS OF A SUCTION CHAMBER EXTENDING AROUND A DISCHARGE CHAMBER ON A PLANE

Shigemi Shimizu, Sawa-gun, and Yujiro Morita, Honjo, both of Japan, assignors to Sanden Corporation, Gunma, Japan

Filed Apr. 4, 1997, Ser. No. 832,854

Claims priority, application Japan, Apr. 5, 1996, 8-083470

Int. Cl.^{6} F04B *1/12*

U.S. Cl. 417—269 **10 Claims**

1. A reciprocating compressor comprising:
a cylinder block having a plurality of bores arranged in parallel;
a housing having therein a crank chamber and closing one end of said cylinder block;
a drive shaft rotatably supported by said cylinder block and said housing;
a swash-plate element mounted on said drive shaft;
pistons reciprocating within said bores in response to movement of said swash-plate element;

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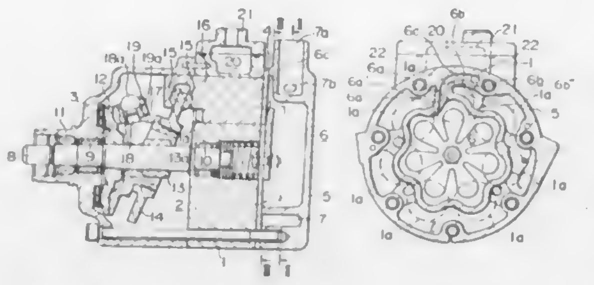


- a cylinder head having a discharge chamber at the center thereof and a suction chamber at a peripheral region thereof and attached to said cylinder block at the other end thereof via a valve plate interposed therebetween;
- a pressure suppressing chamber communicating with said discharge chamber for receiving discharge gas from said discharge chamber;
- a partition wall extending from said discharge chamber so as to partition said suction chamber;
- a discharge gas conducting passage provided in said cylinder head by said partition wall at a side of said valve plate for introducing the discharge gas into said pressure suppressing chamber from said discharge chamber; and
- a suction gas inlet passage provided in said cylinder head at a side away from said valise plate relative to said discharge gas conducting passage for introducing suction gas into said suction chamber from the exterior of said cylinder head such that the suction gas is divided to flow into suction chamber at opposite outer sides of said partition wall defining said discharge gas conducting passage.

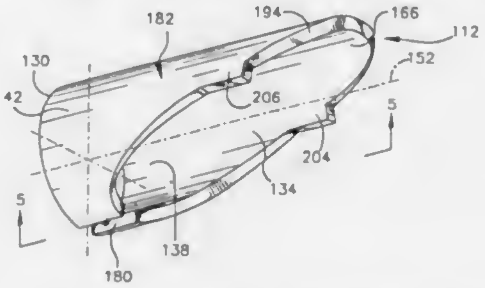
5,782,615
PUMP ASSEMBLY METHOD WITH A TUBULAR BYPASS LINER

Bruce C. Noah, W. Lafayette; Robert S. Phillips, and Frederick D. Venable, both of Lafayette, all of Ind., assignors to TRW Inc., Lyndhurst, Ohio

Division of Ser. No. 369,369, Jan. 6, 1995, Pat. No. 5,567,125. This application Mar. 28, 1996, Ser. No. 623,598

Int. Cl.^{6} F04B *49/02*

U.S. Cl. 417—310 **9 Claims**



1. A method of assembling a pump, said method comprising the steps of:

- providing a pump housing having an inlet passage connected with an inlet to the housing and a bypass passage connected with the inlet passage;
- providing a tubular passage liner having a side wall with a slot which extends between opposite ends of the tubular passage liner;
- reducing the cross sectional size of the tubular passage liner by closing the slot in the side wall of the tubular passage liner;
- thereafter, inserting the tubular passage liner into the inlet passage while maintaining the slot closed; and
- increasing the cross sectional size of the tubular passage liner by opening the slot in the side wall of the tubular passage liner while the tubular passage liner is at least partially disposed in the inlet passage.

5,782,616
OIL PUMP OF THE FORCED LUBRICATION SYSTEM

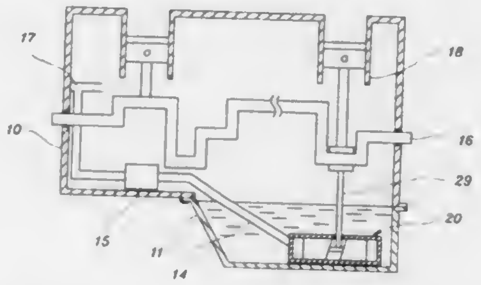
Sung Choon Yoo, Kyungsangnam-do, Rep. of Korea, assignor to Hyundai Motor Company, Seoul, Rep. of Korea

Filed Oct. 8, 1996, Ser. No. 727,296

Claims priority, application Rep. of Korea, Oct. 11, 1995, 1995-34812

Int. Cl.^{6} F04B *17/00;21/02*

U.S. Cl. 417—364 **2 Claims**



1. An oil pump of a forced lubrication system in an automobile engine comprising:

- a pump cylinder having two inlet ports and outlet ports, each disposed at a respective end of the cylinder, and the cylinder being mounted at the bottom of an oil pan of an engine crankcase, the outlet ports being joined together by a connecting pipe coupled to an oil supply pipe leading to an oil filter located above the oil, pan;
- a first one-way valve means provided at each inlet port for allowing oil to flow in said cylinder;
- a second one-way valve means provided at each outlet port for allowing the oil to flow out of said cylinder;
- a pair of pistons coaxially slidably mounted in said cylinder, the pistons having the same diameter, and facing slant surfaces in parallel, opposed relation to each other;
- a horizontal bar interposed between the slant surfaces of said pistons, said bar having a slant end surface at each end, said slant end surface having a slant angle equal to that of said slant surfaces of the pistons;
- a connecting rod penetrating a top center portion of said cylinder, mounted between a center portion of said horizontal bar and a load bearing of a crank shaft, to form a T-shaped pump operating rod; and
- a compression spring provided between each of the outer ends of said pistons and a respective opposing inner surface of said cylinder.

5,782,617
CAPSULE-TYPE DOSING PUMP

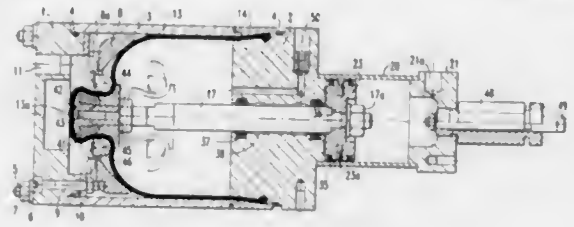
Gerhard Habla, Krokusweg 4, 86863 Langenneufnach, Germany

Filed Aug. 6, 1996, Ser. No. 692,586

Claims priority, application Germany, Aug. 7, 1995, 295 12 694 U

Int. Cl.^{6} F04B *43/06*

U.S. Cl. 417—395 **17 Claims**



1. A capsule-type dosing pump comprising:

(a) a pump capsule including a stationary capsule wall provided with an inlet port and an outlet port, and a movable capsule wall comprising a capsule diaphragm;

(b) an operating member for moving said capsule diaphragm to and fro between a bulged-out position providing minimum capsule volume, and a retracted position providing maximum capsule volume, and

(c) pneumatic means effective upon each movement of the capsule diaphragm to said bulged-out position thereof to effect pressurization of the space behind the capsule diaphragm, and effective upon each movement of the capsule diaphragm to said retracted position thereof to effect a pressure release from said space,

(d) said stationary capsule wall including a concave surface which is curved to conform to the contour of said capsule diaphragm when in said bulged-out position, the arrangement being such that the capsule diaphragm lies flush against said concave surface when in the bulged-out position thereof, said stationary capsule wall comprising a front end flange and a tubular wall extending therefrom, and said capsule diaphragm including a substantially cylindrical portion which abuts said tubular wall.

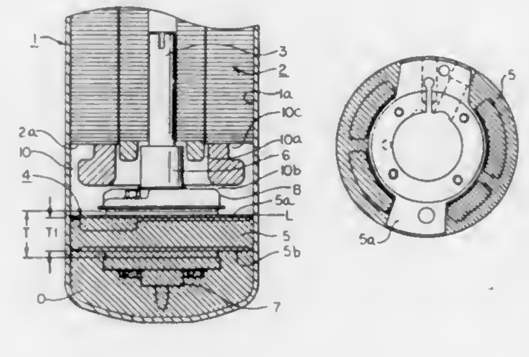
5,782,618
ROTARY COMPRESSOR HAVING A ROUND CYLINDER BLOCK

Takahiro Nishikawa, Ohta; Kenzo Matsumoto, Gunma-ken; Takashi Sato, Kumagaya, and Masaji Yamanaka, Tatebayashi, all of Japan, assignors to Sanyo Electric Co., Ltd., Osaka-fu, Japan

Filed Sep. 24, 1996, Ser. No. 718,946

Int. Cl.^{6} F04B *35/04*

U.S. Cl. 417—410.3 **7 Claims**



1. A rotary compressor comprising an electric driving element and a rotary compression element having a round cylinder block and driven by the electric driving element in the bottom of a hermetically sealed casing for storing refrigerator oil in its bottom and constituted by setting the cylinder block of said rotary compression element between a main bearing and an auxiliary bearing both of which support the shaft of said electric driving element and joining and securing at least a first and second end faces of said cylinder block to the inner periphery of said hermetically sealed casing; wherein the thickness between the outermost ends of the first and second end faces of said cylinder block is set to 45 to 85% of the maximum thickness of said cylinder block in the axis direction.

5,782,619
RADIAL PISTON DISTRIBUTOR FUEL INJECTION PUMP

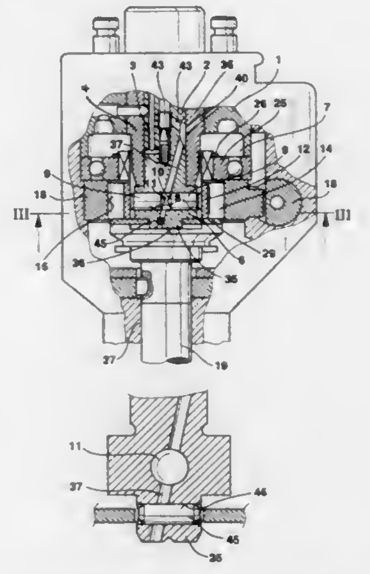
Wolfgang Fehlmann, Stuttgart, Germany, assignor to Robert Bosch GmbH, Stuttgart, Germany

Filed Oct. 26, 1995, Ser. No. 548,844

Claims priority, application Germany, Oct. 26, 1994, 44 38 251.0

Int. Cl.^{6} F04B *19/02*

U.S. Cl. 417—462 **28 Claims**



1. A fuel injection pump comprising a housing, a distributor (**2**) in said housing which is driven in rotation by a drive shaft (**19**) of the fuel injection pump and in which is arranged a longitudinal bore (**37**) which extends essentially in the axial direction of the distributor and connects a high-pressure space (**11**) in the housing to a control point (**39**) of the distributors (**2**) and which is fashioned in the distributor from one end face (**36**) of the distributor and thereafter is closed relative to an outside by means of a closing piece (**45**), wherein there is provided as a closing piece a cylindrical pin (**45**) which is fitted in a manner secured against displacement into a bore (**46**) which extends transversely relative to an axis of the distributor (**2**) and intersects the longitudinal bore (**37**) inwardly of said end face (**36**) and the diameter of said closing piece (**45**) is at least as large as the diameter of the longitudinal bore.

5,782,620
FUEL INJECTION PUMP FOR INTERNAL COMBUSTION ENGINES

Heinz Nothdurft; Wolfgang Fehlmann; Bernhard Bonse; Nestor Rodriguez-Amaya; Ewald Eblen, all of Stuttgart; Holger Pitsch, St. Ingbert; Andreas Sterr, Nuertingen; Walter Fuchs, Stuttgart; Andreas Dutt, Stuttgart, and Joerg Wolke, Stuttgart, all of Germany, assignors to Robert Bosch GmbH, Stuttgart, Germany

Filed Nov. 15, 1996, Ser. No. 751,094

Claims priority, application Germany, Nov. 18, 1995, 195 42 952.4

Int. Cl.^{6} F04B *27/06*

U.S. Cl. 417—462 **2 Claims**

1. A fuel injection pump for internal combustion engines, comprising a rotatingly driven distributor (3) supported in a housing bore (2), a distributor opening (8) discharges at a jacket face (9) of the distributor (3), said distributor opening is periodically supplied with fuel at high pressure via a pressure line (7) and in a course of the rotation of the distributor (3) comes to communicate successively with various injection lines (11), the fuel under high pressure discharges at the circumference of the distributor (3) into the

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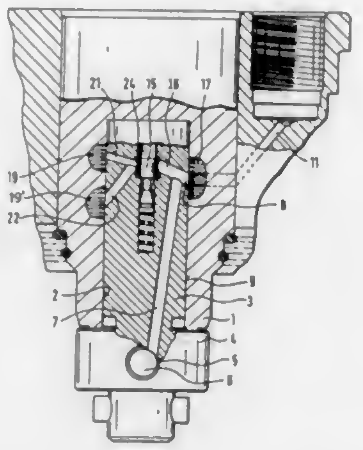
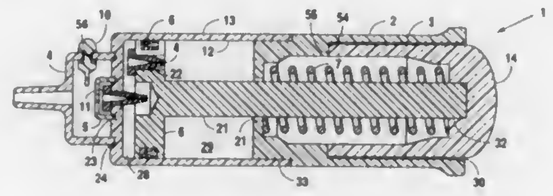


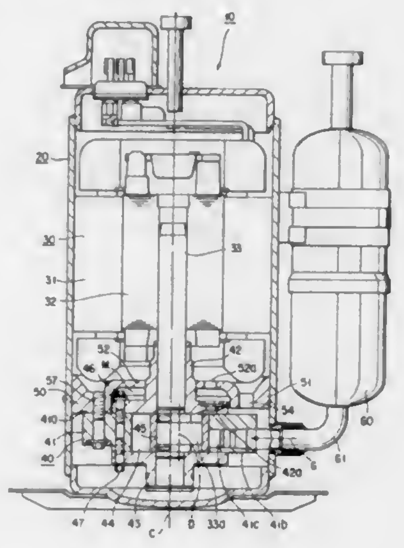
housing bore (2), in order to carry the fuel, pumped at high pressure to the distributor opening (8), and on to one injection valve each, first and second pressure equalization openings (19, 19') as outlets of bores (21, 22) communicate with said pressure line (7) that leads from a high-pressure source to the distributor opening, the first and second pressure equalization openings are located axially above and below the distributor opening (8) on one side of the jacket face (9) of the distributor (3) remote from the distributor opening (8), wherein the first and second pressure equalization openings remain covered constantly by an inner wall of the housing bore (2) in a course of the motion of the distributor (3) and are located in a same axial plane as the distributor opening (8) through the axis of the distributor.

5,782,621
MANUAL PUMP WITH INHERENT VACUUM LIMIT
Jesse W. Harris, San Antonio, Tex., assignor to Mission Pharmacal Company, San Antonio, Tex.
Filed Apr. 22, 1996, Ser. No. 635,475
Int. Cl.⁶ F04B *39/10*
U.S. Cl. 417—470 **11 Claims**



1. A vacuum pump apparatus with an inherent vacuum limit, comprising:
- a piston having a shaft, said piston being movable within a bore casing and capable of drawing a vacuum in an end thereof;
- actuator means coupled to said piston for moving the piston into said bore casing in an inward stroke;
- means for evacuating air from said bore casing when the piston is moved in an inward stroke;
- means connecting said bore casing to a reservoir to be evacuated for admitting air from said reservoir into the bore casing when said piston is moved in an outward stroke; and
- means coupled to said piston for moving the piston in an outward stroke, said moving means operable to move the piston only when said vacuum is below a predetermined limit.

5,782,622
HERMETIC COMPRESSOR HAVING A FRAME SUPPORTING THE COMPRISSION MECHANISM
Masao Ozu, and Izumi Onoda, both of Fuji, Japan, assignors to Kabushiki Kaisha Toshiba, Kawasaki, Japan
Filed Nov. 22, 1996, Ser. No. 755,024
Claims priority, application Japan, Dec. 11, 1995, 7-321701
Int. Cl.⁶ F04C *18/356;29/06*
U.S. Cl. 418—63 **11 Claims**



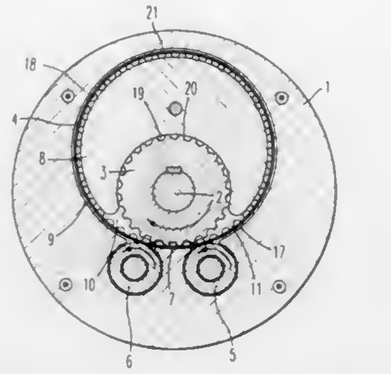
1. A hermetic compressor which compresses a compressed gas, comprising:
- a sealing container;
- a compression mechanism, contained within said sealing container, for compressing said compressed gas, said compression mechanism including a rotary shaft;
- a motor for actuating the compression mechanism by driving the rotary shaft;
- first and second bearings, arranged individually on both sides of the compression mechanism, for journaling said rotary shaft; and
- a frame for fixedly supporting the compression mechanism,

wherein said frame comprises:
- a frame body having a hollow portion in which said first bearing is situated, said frame body being fixed on one end surface of the compression mechanism; and
- a bearing support portion for sealing the hollow portion of the frame body and supporting an outer peripheral portion of the first bearing,

wherein said compression mechanism comprises:
- a cylinder;
- said rotary shaft situated coaxially within the cylinder; and
- said first and second bearings, disposed on both end surfaces of the cylinder, for rotatable supporting the rotary shaft and defining a compression chamber within the cylinder.

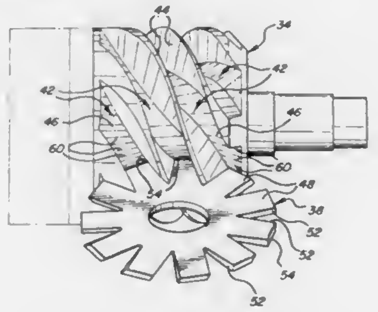
5,782,623
INTERNAL TOOTHED BELT PUMP
Dieter Brox, Wittenstrasse 2 (c)., D-38640 Goslar, Germany
PCT No. PCT/EP95/01564, § 371 Date Dec. 12, 1996, § 102(e) Date Dec. 12, 1996, PCT Pub. No. WO95/29339, PCT Pub. Date Nov. 2, 1995
PCT Filed Apr. 25, 1995, Ser. No. 722,244
Claims priority, applicatinn Germany, Apr. 25, 1994, 44 14 319.2
Int. Cl.⁶ F04C *2/10;5/00*
U.S. Cl. 418—153 **7 Claims**

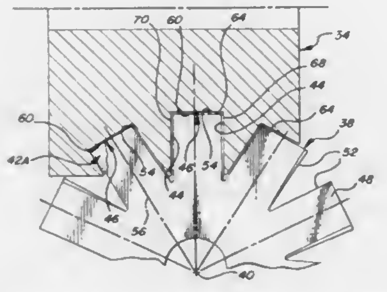
1. An internal toothed belt pump comprising:



- a casing having a substantially cylindrical inside wall formed with both a first radius and a second radius larger than the first radius;
- a toothed pulley having an external tooth configuration, said toothed pulley being situated in said casing;
- a drive shaft mounted in said casing and rotatably driving said toothed pulley;
- a toothed belt positioned in said casing around said toothed pulley and having an internal tooth configuration cooperating with said toothed pulley to define a suction chamber and a pressure chamber, the toothed belt having a back surface facing the inside wall of the casing, said back surface of said toothed belt conforming to the variable shape of said inside wall of said casing; and
- two guide rollers rotatably mounted in a portion of said casing corresponding to said first radius, said guide rollers bearing against said back of said toothed belt so as to form an engagement region within which said internal tooth configuration of said toothed belt is fully engaged with said external tooth configuration of said toothed pulley.

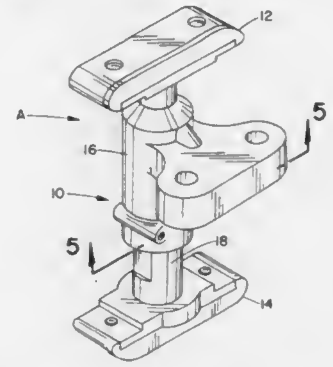
5,782,624
FLUID COMPRESSION/EXPANSION MACHINE WITH FLUTED MAIN ROTOR HAVING RULED SURFACE ROOT
David L. Jensen, 5107 Glengate Rd., Rochester, Mich. 48306
Filed Oct. 25, 1996, Ser. No. 738,087
Int. Cl.⁶ F01C *3/08*
U.S. Cl. 418—195 **9 Claims**





1. A main rotor for a rotary fluid machine comprising a body rotatable about a longitudinal axis of rotation with at least one fluid conducting flute therein, said flute having flanking side walls and a root surface therebetween, said root surface being a ruled surface defined by a ruling line sweeping in an arcked-helical path in said body with the arc thereof having a center spaced from said body, said ruling line remaining generally perpendicular to a radial line extending therefrom to said center as the ruling line sweeps through said body.

5,782,625
AUTOMATIC TENSIONER WITH ONE-PIN LOCKING MECHANISM
James D. Young, Chesaning, Mich., assignor to Cloyes Gear & Products, Paris, Ak.
Filed Dec. 7, 1995, Ser. No. 568,657
Int. Cl.⁶ F16H *7/12*
U.S. Cl. 474—138 **16 Claims**



1. A tensioning apparatus for adjustably exerting tension upon a flexible member comprising:
- a housing including a base and defining a longitudinal piston cavity therein, and said piston cavity having a pin aperture transversely defined therein;
- a piston with a longitudinal axis having a generally arcuate outer surface with a flat face cut therein defining at least one stop;
- biasing means for biasing the piston away from the base; and
- a pin located in the pin aperture and extending substantially parallel to the flat face to thereby prevent rotation of the piston about its longitudinal axis.

5,782,626
AIRBLAST ATOMIZER NOZZLE
Franz Joos, Weilheim, Germany, and Marcel Stalder, Untersiggenthal, Switzerland, assignors to Asea Brown Boveri AG, Baden, Switzerland
Filed Aug. 14, 1996, Ser. No. 696,665
Claims priority, application Germany, Oct. 21, 1995, 195 39 246.9
Int. Cl.⁶ F23D *7/00*
U.S. Cl. 431—8 **14 Claims**

1. A method for operating a burner with liquid and gaseous fuel, the burner having an airblast nozzle including a nozzle outer body mounted to the burner and defining an air feed conduit having a nozzle axis, an intermediate wall disposed in a downstream portion of the air feed conduit to define an inner air duct and an outer air duct, a downstream portion of the intermediate wall forming an atomizer edge, an outlet of the atomizer edge defining an atomization plane, the atomizer edge having a frustoconical shaped narrowing toward the outlet, wherein, the inner air duct and outer air duct are positioned concentrically about the nozzle axis, the air ducts open into a burner interior at the atomization plane, and wherein a cross section of the outer air duct narrows upstream of the atomization plane, a liquid fuel pipe disposed centrally on the nozzle axis and having means for applying liquid fuel to the atomizer edge, said means located at a downstream end of the

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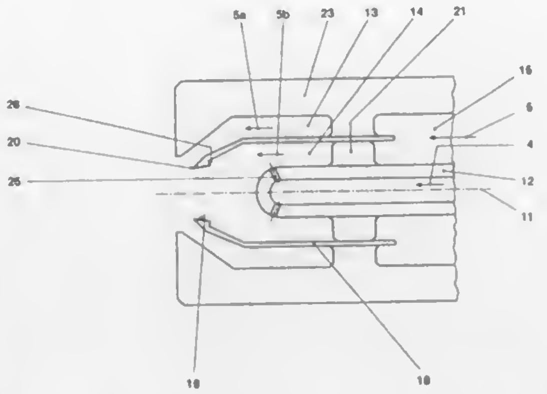
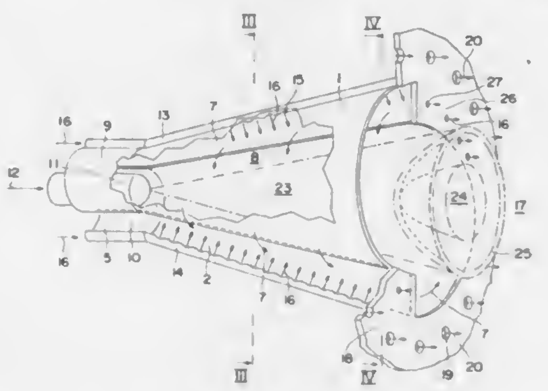


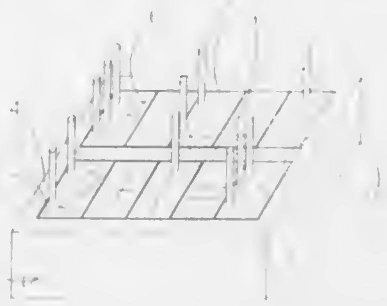
liquid fuel pipe, inner and outer support elements fixedly supporting the intermediate wall between the inner and outer air duct, the inner support elements being arranged between the intermediate wall and the fuel pipe and the outer support elements being arranged between the intermediate wall and the nozzle outer body, and a pilot gas duct arranged radially outward of and concentrically to the liquid fuel duct, the burner being mounted firmly on a combustion chamber, and having air throttling means attached between the liquid fuel conduit and the burner at an inlet to the burner, the liquid fuel conduit being slidable relative to the burner,
the method comprising the steps of:
closing a fuel supply to the liquid fuel conduit for operation of the burner with gaseous fuel; and
throttling an inflow of air into the air feed conduit by guiding air into the air feed conduit past the liquid fuel conduit to heat the liquid fuel conduit, wherein different thermal expansion of the liquid fuel conduit and the burner causes the liquid fuel conduit to expand to close the air throttling means.

5,782,627
PREMIX BURNER AND METHOD OF OPERATING THE BURNER
Klaus Döhbeling, Windisch; Hans Peter Knöpfel, Besenhüren, and Timothy Griffin, Ennetbaden, all of Switzerland, assignors to ABB Research Ltd., Zurich, Switzerland
Filed May 29, 1997, Ser. No. 865,102
Int. Cl.^{6} F23M *3/00*
U.S. Cl. 431—9 **5 Claims**



1. Burner for burning liquid (**12**) and gaseous fuels (**16**), comprising at least two hollow sectional cone bodies (**1**, **2**) complementing one another to form one body, having tangential air-inlet slots (**5**, **6**) and feeds (**13**, **14**) for gaseous (**16**) and liquid fuels (**12**), in which burner the center axes (**3**, **4**) of the hollow sectional cone bodies (**1**, **2**) have a conicity widening in the direction of flow and run offset from one another in the longitudinal direction, a fuel nozzle (**11**) for the liquid fuel (**12**) being placed at the burner head in the conical interior space (**8**) formed by the sectional cone bodies (**1**, **2**), and the feeds (**13**, **14**) for the gaseous fuel (**16**) being provided with fuel injectors (**15**), and the air-inlet slots (**5**, **6**) being closed off on a combustion-chamber side by a burner sickle (**26**), wherein at least one bore (**27**) is arranged in the burner sickle (**26**), which bore (**27**) is connected to a source of gaseous fuel (**16**).

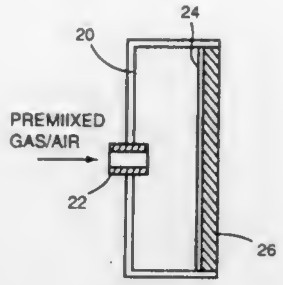
5,782,628
EDUCATIONAL DEVICE FOR TEACHING THE SEVERELY MENTALLY HANDICAPPED THE BASIC SKILLS OF FUNCTIONAL ARITHMETIC
Frank J. Alioto, P.O. Box 92243, Lakeland, Fla. 33804
Filed Oct. 21, 1996, Ser. No. 731,854
Int. Cl.^{6} G09B *1/06;23/02*
U.S. Cl. 434—200 **1 Claim**



1. An educational device to teach the severely mentally handicapped the basic skills of functional arithmetic,comprising three elements, special blocks, special supporting base and pegs:
said blocks having a numeral on the top surface of a predetermined shape as used in writing;said blocks having apertures on said top surface equal to the value of said number; said apertures spatially arranged to the shape of said numeral but not touching said numeral;
said blocks having an aperture on at least one of its sides; said aperture capable of accomodating said pegs having a cross-section;said cross-section being triangular,square,rectangular or circular;said side aperture located in the exact center of the plane of said side; said peg and aperture being used as a means of joining said blocks;
said blocks including a sub-group of blocks with mathematical symbols or a zero on said top surface;
said supporting base having a fixed vertical bar on the extreme left side and horizontal bars perpendicular to said vertical bar, as a means of constraining the blocks in a left to right direction; said supporting base allowing the blocks to be ordered in a horizontal as well as vertical direction; said supporting base having a means by which it is firmly fixed to a table top surface;
said pegs being capable of being inserted and removed from said sides and said top surface of said blocks;
said three elements capable of being manipulated by the mentally handicapped with severe physical handicaps.

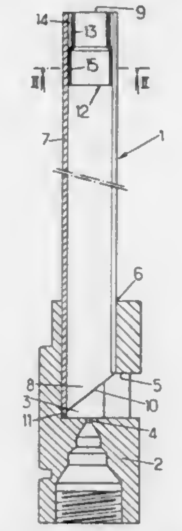
5,782,629
RADIANT BURNER SURFACES AND METHOD OF MAKING SAME
John J. Lannutti, Columbus, Ohio, assignor to The Ohio State University, Columbus, Ohio
Filed Jan. 22, 1996, Ser. No. 589,423
Int. Cl.^{6} F23D *3/40*
U.S. Cl. 431—326 **8 Claims**

1. A porous surface radiant burner assembly, comprising, in combination;
a) a support structure;



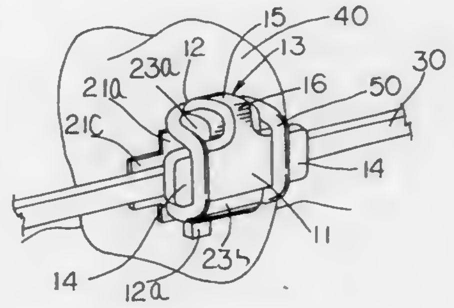
b) a chamber provided with an inlet for communication to a source of pre-mixed combustion reactants and an outlet communicating with said support structure;
c) a porous surface burner substrate mounted to said support structure in communication with said pre-mixed combustion reactants, said substrate including a surface provided with a porous layer of zircon having an overlying layer of zirconia formed in situ upon exposure to operating conditions of said radiant burner.

5,782,630
ATMOSPHERE-CONTROL PILOT BURNER FOR A GAS APPLIANCE
Bernard Dane, Montbazon, France, assignor to Sourdillon, France
Filed Dec. 30, 1996, Ser. No. 775,095
Claims priority, application France, Jan. 5, 1996, 96 00090
Int. Cl.^{6} F23D *14/62*
U.S. Cl. 431—355 **8 Claims**



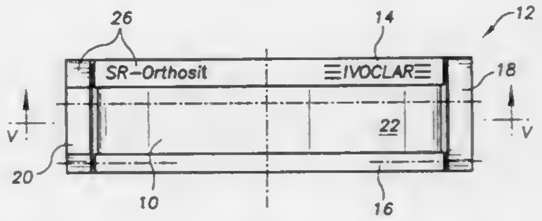
1. An atmosphere-control pilot burner which burns a gas mixed with primary air and which has an adjustable trigger threshold for automatically controlling an operation of an appliance, said pilot burner comprising:
a body defining a mixing chamber for the gas and primary air, said body including
an axial bore leading to said mixing chamber,
a gas injector opening into said mixing chamber for an introduction of gas axially in said mixing chamber opposite to said axial bore, and
a primary-air intake port made in a wall of said body for an intake of primary air radially into said mixing chamber;
an open tube including
a first end which penetrates axially into said mixing chamber through said bore, said first end including a bevelled inclined-edged orifice which is located radially opposite to said primary-air intake port and also axially opposite to said gas injector such that gas from said gas injector passes axially into said inclined-edged orifice and primary air passes radially into said inclined-edged orifice, and
a second end axially distal from said body where the gas and primary air mixed in said first end are burned; and
an adjustable fixing means for adjustably fixing said tube axially in said bore of said body while allowing an angular orientation of said bevelled orifice with respect to said port to be adjusted to control a level of primary air intake radially into said mixing chamber without affecting a level of axial gas introduction.

5,782,631
ORTHODONTIC APPLIANCE
Christopher K. Kesling, 22 Green Acres, Laporte, Ind. 46350, and Robert A. Miller, 2992 Cove Trace, Charlottesville, Va. 22911
Filed Dec. 11, 1996, Ser. No. 763,129
Int. Cl.^{6} A61C *3/00*
U.S. Cl. 433—14 **6 Claims**



1. An orthodontic appliance, comprising:
a bracket;
a first labially facing slot extending through the bracket;
a second vertical slot extending through the bracket;
an archwire located in the first slot;
a pin located at least partially within the second slot; and
an elastomeric ring secured about a portion of the bracket and pin to secure the bracket to the archwire.

5,782,632
SUPPORT PLATE FOR TEETH
Hans-Peter Foser, Balzers, Liechtenstein, assignor to Ivoclar AG, Liechtenstein
Filed Mar. 11, 1996, Ser. No. 612,805
Claims priority, application Germany, Mar. 10, 1995, 195 08 760.7
Int. Cl.^{6} A61C *13/12;19/10*
U.S. Cl. 433—26 **7 Claims**



1. A support plate assembly for teeth comprising:
a plate body (**12**) having
a substantially flat quadrilateral wax receiving portion (**22**) having a bottom **32** for the reception of an adhesive wax in which a plurality of teeth may be positioned, one next to the other, upper, lower, and two spaced apart lateral ridges

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(14, 16, 18, and 20, the two spaced apart lateral ridges each having spaced apart portions adjacent the upper and lower ridges, which upper, lower and two lateral ridges mark off the boundaries of the wax receiving portion, and which ridges protrude from the bottom (32) of the wax receiving portion (22), the upper ridge (14) and the lower ridge (16) being arched away from the bottom so that the central portion of each ridge protrudes from the bottom (32) a greater extent than their lateral areas (29); and

a flat strip of wax held in the wax receiving portion such that the wax receiving portion has a greater depth at the center area intended for premolars than at the side area intended for molars.

5,782,633
APPLICATOR FOR A DENTAL COMPOUND

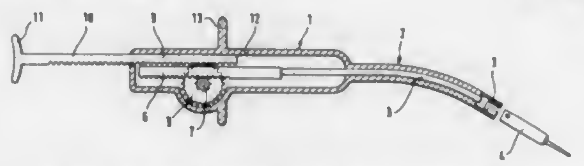
Ernst Mühlbauer, Elbgaustrasse 248, 22547 Hamburg, Germany

Filed Mar. 31, 1997, Ser. No. 828,554

Claims priority, application Germany, Apr. 10, 1996, 296 06 540 U

Int. Cl.^{6} A61C *5/04*

U.S. Cl. 433—90 **8 Claims**



1. An applicator for a dental compound comprising:

an elongated implement body having mounting means at the front end thereof for connecting thereto a dental compound syringe containing a plunger;

a pusher rod protruding out of the rear end of said body, a first rack member connected to the pusher rod;

a ram within said body for advancing the syringe plunger, a second rack member connected to the ram; and

gear reduction means drivably interconnecting said first and second rack members whereby driving movement of said pusher rod and first rack member drivably actuates said second rack member and ram at a reduced speed for controlled actuation of the syringe plunger.

5,782,634
MEDICAL, IN PARTICULAR DENTAL TURBINE HANDPIECE

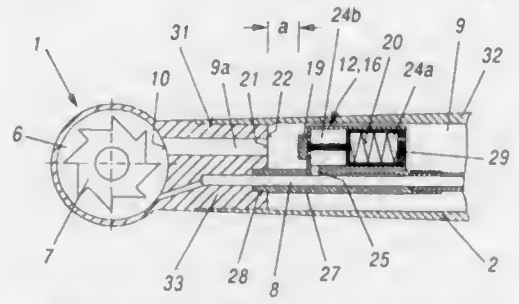
Bernhard Lingenhöle, Warthausen-Birkenhard, and Eugen Mohr, Ummendorf, both of Germany, assignors to Kaltenbach & Voigt GmbH & Co., Biberach, Germany

Filed Aug. 9, 1996, Ser. No. 695,855

Claims priority, application Germany, Aug. 11, 1995, 195 29 668.0

Int. Cl.^{6} A61C *1/05;1/08*

U.S. Cl. 433—132 **10 Claims**



1. A turbine handpiece for medical and dental applications; comprising a turbine chamber (6) in said handpiece; a turbine wheel (7) being rotatably mounted in said turbine chamber; a supply line (8) for pressurized air communicating with said turbine chamber; a discharge line (9) for outgoing air communicating with said turbine chamber; a valve (12) being arranged to automatically prevent a flow of outgoing air in said discharge line; and a connecting line (25) for connecting said valve (12) with the supply line (8), said valve being maintained in an open position responsive to pressure reigning in said supply line (8) and closing upon said pressure falling below a predetermined minimum value.

5,782,635
DEVICE FOR WORKING A SURFACE

Axel Altvater, Sindelfinger Strasse 33, Sindelfingen 71069, Germany

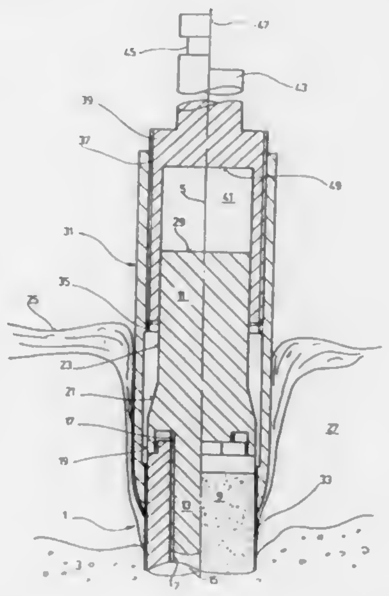
PCT No. PCT/EP95/01551, § 371 Date Oct. 25, 1996, § 102(e) Date Oct. 25, 1996, PCT Pub. No. WO95/28893, PCT Pub. Date Nov. 2, 1995

PCT Filed Apr. 25, 1995, Ser. No. 737,306

Claims priority, application Germany, Apr. 27, 1994, 44 14 610.8

Int. Cl.^{6} A61C *17/00*

U.S. Cl. 433—143 **17 Claims**



1. A device for working the surface of inserted oral members, said device comprising:

a cleaning curette that has a sheath-shaped basic body having at least one through slot therein, the at least one through slot has at least one cleaning edge that is formed as a cutter that removes substances deposited on the surface.

5,782,636
BONE CONTOURING TOOL

Peter S. Armstrong, San Diego, and Brian C. Myers, Carlshad, both of Calif., assignors to Sulzer Calcitek Inc., Carlsbad, Calif.

Filed Oct. 2, 1996, Ser. No. 723,611

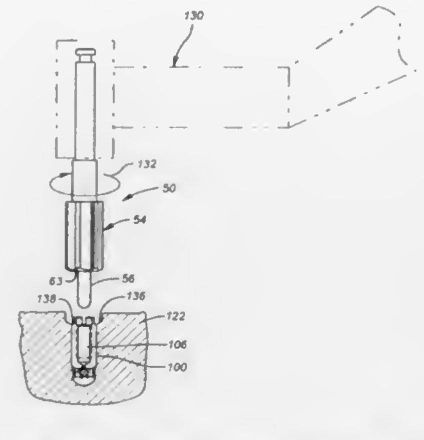
Int. Cl.^{6} A61C *3/02*

U.S. Cl. 433—165 **20 Claims**

1. A one piece bone contouring tool for removing tissue surrounding a dental implant, comprising:

an elongated shank;

blade means connected to said shank for removing bone tissue surrounding said implant: and



a pilot pin connected to and extending downwardly from said blade means.

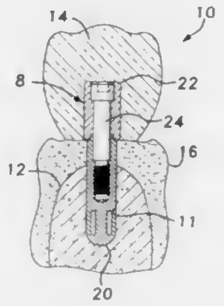
5,782,637
PROSTHESIS MOUNTING ARRANGEMENT

Frank J. Cosenza, Santa Barbara, Calif., assignor to Spiralock Corporation, Madison Heights, Mich.

Filed Dec. 18, 1996, Ser. No. 768,504

Int. Cl.^{6} A61C *8/00*

U.S. Cl. 433—173 **15 Claims**



1. A mounting arrangement for interconnecting a prosthesis to a bone of a patient, the mounting arrangement comprising:

a first component adapted for direct attachment to the bone, said first component including a longitudinally extending aperture having an upper portion with a cylindrical cross section with a constant diameter defined by a smooth surface and a lower portion defined by a plurality of internal threads;

a second component adapted to abut said first component, said second component including a generally cylindrical channel passing longitudinally therethrough; and

a threaded fastener having a shaft including an upper segment having a smooth surface having a cylindrical cross section with a constant diameter and a lower segment including a plurality of external threads for meshing engagement with said plurality of internal threads, said upper segment passing through said generally cylindrical channel and extending partially into said aperture;

wherein said upper segment of said shaft of said threaded fastener and said upper portion of said longitudinally extending aperture are closely toleranced so as to prevent bending forces from being transmitted to said plurality of internal threads and said plurality of external threads.

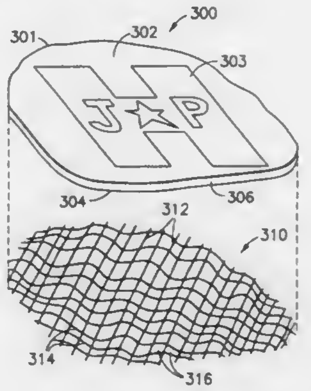
5,782,638
ORNAMENTAL FILM ARTICLE FOR DENTAL SUBSTRATE DECORATION AND DENTAL SUBSTRATE DECORATED THEREWITH

A. Daniel Warren, III, 4 Doctors Park; Gary E. Michels, 2245 Stantonsburg Rd. - Ste. F, both of Greenville, N.C. 27834, and Steven J. Hultquist, P.O. Box 14329, Research Triangle Park, N.C. 27709

Continuation-in-part of Ser. No. 445,363, May 19, 1995. This application Feb. 6, 1996, Ser. No. 596,042

Int. Cl.^{6} A61C *5/08*

U.S. Cl. 433—206 **28 Claims**



1. A metal foil appliqué for adhesive bonding to a dental substrate, comprising a metal foil body having main top and bottom faces of a predetermined shape and a side edge, said main bottom face having a foraminous backing structure secured thereto, wherein the main bottom face is adapted for affixation to the dental substrate over at least a major portion of its facial area by securement of said foraminous backing structure to said dental substrate for spacing said appliqué from said substrate, said foil body side edge shaped to frame the periphery of said foraminous backing structure.

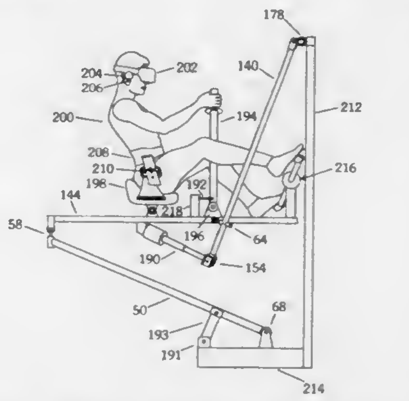
5,782,639
MANUAL MOTION SIMULATOR WITH RESISTANCE AND VIDEO

Robert Austen Beal, 7757 Pierson St., Arvada, Colo. 80005

Filed Oct. 2, 1996, Ser. No. 720,667

Int. Cl.^{6} G09B *9/02;9/12*

U.S. Cl. 434—29 **12 Claims**



1. A manually operated motion device for use over an area having a floor, the motion device comprising:

an axial hinge member, the axial hinge member attached to a support;

a motion surface, the motion surface having three universal hinge means, the three universal hinge means on said motion surface defining corner points on a first triangle, the first triangle having:

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at least two substantially equal length sides, the sides defined by a pair of lines between two universal hinge means on the motion surface, the two substantially equal length sides of the motion surface defining an angle therebetween, the angle having a vertex;

support means for supporting the first triangle in a substantially parallel relationship to the floor, the support means comprising:

a first support member attached to one universal hinge means on the motion surface,

a second support member attached to one universal hinge means on the motion surface, the first and second support member arranged in a non-parallel, spaced apart relationship; and

a compression member to support compression forces the compression member connecting the universal hinge means at the vertex of the angle on the motion surface to the axial hinge member, so that the compression member may move in a plane normal to the axial hinge means and passing through the vertex of the angle on the motion surface; and

means for moving at least one of the support members by acting transversely on the support member, so that motion of one support member allows motion of the motion surface.

5,782,640

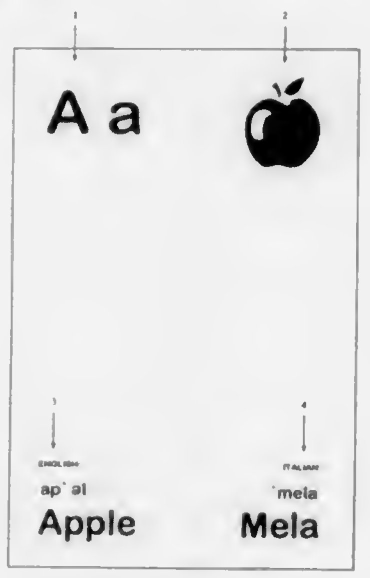
LANGUAGE TRANSLATION NOTE PAD

Brad A. Sandlin, 25 Dunns Ct., Stonington, Conn. 06978

Filed May 3, 1996, Ser. No. 655,607

Int. Cl.^{6} G09B *19/08*

U.S. Cl. 434—157 **4 Claims**



1. A device for teaching single word translation from a first language employing a particular alphabet having an alphabetic ordering to a second, different language, said device comprising:

a pad comprising a plurality of sheets of writing paper bound together adjacent a common edge, each of said sheets having a writing surface which bears indicia, said indicia comprising:

a letter of the alphabet employed by said first language;

a first word, said first word being selected from a plurality of words employed by said first language, said first word beginning with said letter of the alphabet employed by said first language;

a second word, said second word being selected from a plurality of words employed by said second language and corresponding in meaning to said first word; and

a pictorial representation corresponding in meaning to said first word and said second word;

said plurality of sheets being arranged relative to each other in an alphabetical order consistent with the alphabet ordering of said first language; and

whereby a person knowing one of said first and second languages may learn the other of said first and second languages by observing the indicia borne by a particular one of said sheets during the course of writing on that particular sheet.

5,782,641

Patent Not Issued For This Number

5,782,642

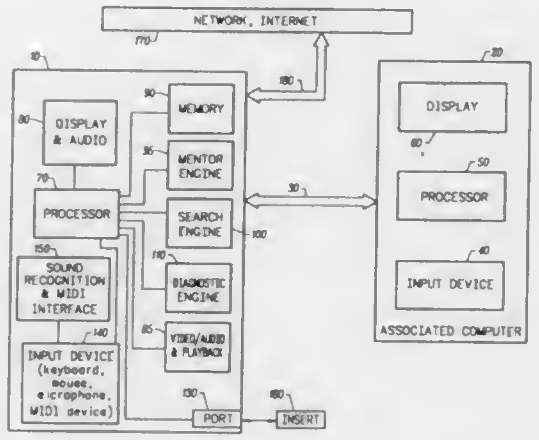
INTERACTIVE VIDEO AND AUDIO DISPLAY SYSTEM NETWORK INTERACTIVE MONITOR MODULE INTERFACE

Michael Goren, 15 Chesterfield Dr., Voorheesville, N.Y. 12186

Filed Dec. 19, 1995, Ser. No. 574,742

Int. Cl.^{6} G09B *5/00*

U.S. Cl. 434—307 R **49 Claims**



1. A device comprising:

a first display;

a first processor operatively coupled to said first display;

a memory operatively coupled to said first processor;

input means for receiving input and operatively coupled to said first processor;

bussing means coupled to said device for interfacing with an associated computer having a second processor and a second display;

mentor means, operatively coupled to said first processor, for producing on said first display a first explanation of a first computer program executing on said associated computer; and

search means, operatively coupled to said first processor, for searching a server for information and retrieving said information.

27. A system comprising:

a computer system including a second display, a second input means for receiving input, and a second processor for executing a first computer program; and

an interactive device, including:

a first display;

a first processor operatively coupled to said first display;

a memory operatively coupled to said first processor;

first input means, operatively coupled to said first processor, for receiving input;

bi-directional bussing means coupled between said computer system and said interactive device for communicating with said computer system;

mentor means, operatively coupled to said first processor, for producing on said first display a first explanation of said fir computer program; and

search means, operatively coupled to said first processor, for searching a server for information and retrieving said information.

40. An interactive device for use with an associated computer, wherein said associated computer includes a second processor, a second input device, and a second display and wherein said associated computer is capable of executing one of a plurality of interactive user applications and displaying on said second display first information, said interactive device comprising:

a first display wherein said second display and said first display are simultaneously viewable by a user;

a first processor operatively coupled to said first display;

a first input device, operatively coupled to said first processor, including at least one of a keyboard, a mouse, and a microphone for receiving a request input from a user;

means, operatively coupled to said first processor, for displaying on said first display in response to said request input second information integrally correlated and dynamically changing with respect to said first information, wherein said second information is different from said first information, and displaying said second information concurrently with the display of said first information, wherein said first information is displayed on said second display in response to one of said plurality of interactive user applications executing on said associated computer.

5,782,643

Patent Not Issued For This Number

5,782,644

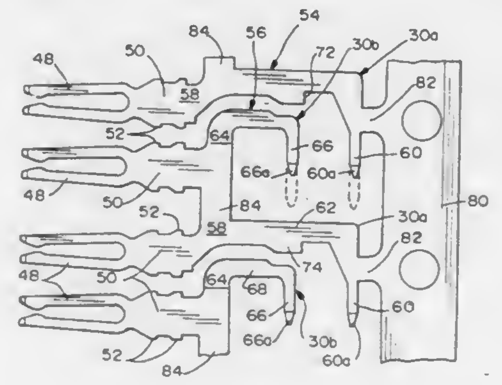
PRINTED CIRCUIT BOARD MOUNTED ELECTRICAL CONNECTOR

Toh Ser Kiat, Singapore, Singapore, assignor to Molex Incorporated, Lisle, Ill.

Continuation of Ser. No. 381,614, Jan. 30, 1995, Pat. No. 5,584,709. This application Nov. 27, 1996, Ser. No. 757,496

Int. Cl.^{6} H01R *9/09*

U.S. Cl. 439—79 **34 Claims**



1. An electrical connector, comprising:

an elongated dielectric housing adapted for mounting along an edge of a printed circuit board, a mounting portion of the housing adapted for mounting adjacent a top surface of the board and defining a seating plane of the connector, said housing having two rows of terminal-receiving passages, said passages being arranged in pairs of upper and lower passages along at least a portion of the housing, the passages in each pair being aligned in a plane generally perpendicular to said seating plane; and

a plurality of aligned pairs of terminals, each pair being mounted in one of said pairs of passages of the housing and including an upper terminal and a lower terminal, said upper and lower terminals of each pair being aligned in a plane generally perpendicular to said seating plane, each terminal including a retention portion for securing the terminal within one of said passages, a forward mating portion for mating with a terminal of a complementary mating component, and a rear portion for termination with a circuit trace on the printed circuit board, said rear portion of each terminal having a generally inverted U-shape which defines an inner side portion, a downwardly directed outer leg, and a bridge portion between said inner side portion and outer leg, said bridge portion of each lower terminal having an uppermost perimeter located above a lowermost perimeter of the retention portion of the aligned upper terminal, said inner side portion, bridge portion, and at least a portion of the outer leg of each of said terminals being blanked from generally planar sheet metal material so as to have planar side surfaces in the plane of the sheet metal material and edges about said surfaces, said side surfaces having a substantially greater width dimension than said edges and being generally perpendicular to said seating plane, and said terminals each having their retention portion press fit within a respective one of said housing passages and their rear portion free of any over molded plastic.

5,782,645

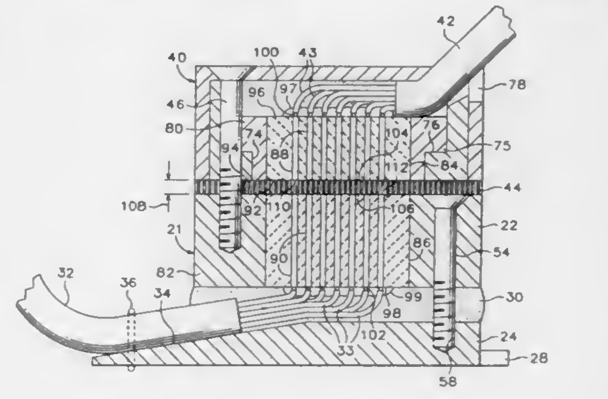
PERCUTANEOUS CONNECTOR FOR MULTI-CONDUCTOR ELECTRICAL CABLES

John J. Stobie; Scott S. Corbett, III, both of Portland, Oreg.; Thomas R. Clary, Issaquah, Wash.; David Edell, Lexington, Mass.; Edward M. Schmidt, Bethesda, Md.; Fredrick T. Hambrecht, Rockville, Md.; Martin J. Bak, Germantown, Md.; William J. Heetderks, Silver Spring, Md., and Coorad V. Kufta, Rockville, Md., assignors to PI Medical Corporation, Portland, Oreg., and The United States of America as represented by the Department of Health and Human Services, Washington, D.C.

Division of Ser. No. 326,291, Oct. 18, 1994, Pat. No. 5,604,976. This application Jan. 7, 1997, Ser. No. 779,639

Int. Cl.^{6} H01R *13/22;13/58*

U.S. Cl. 439—289 **21 Claims**



1. A miniature biologically implantable multi-conductor electrical connector for interconnecting respective parts of a multi-conductor cable, comprising:

(a) a biologically implantable lower contact block having an upper end and a lower end and defining a plurality of bores extending therethrough from said lower end to said upper end in a predetermined arrangement with respect to one another;

(b) a plurality of electrically conductive rods each having a first end and an opposite terminal end, said rods extending through respective ones of said bores;

(c) a matrix of dielectric material holding said rods in said bores, said lower contact block including a planar mating face

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defined on said upper end thereof, said mating face including said first end of each of said rods surrounded by said matrix of dielectric material, said first ends being arranged in a predetermined array on said mating face;

(d) a terminal face located at said lower end of said first contact block and including said terminal end of each of said rods;

(e) a biologically implantable base on which said lower contact block is mounted removably;

(f) a layer of elastomeric sealing material adhered to said terminal face of said lower contact block and compressed between said lower contact block and said base;

(g) an upper contact-bearing member including a mating face having an array of contacts thereon located correspondingly to mâte with said first ends of said rods in said predetermined array on said mating face of said first contact block; and

(h) a layer of an anisotropically conductive elastomeric material having a pair of opposite sides, said lower contact block and said upper contact-bearing member being mated together, with said respective mating face of each in contact with a respective one of said opposite sides of said layer of anisotropically conductive elastomeric material and with said anisotropically conductive elastomeric material interconnecting said first ends of said rods of said lower contact block with respective ones of said contacts contained in said array included in said upper contact-bearing member.

5,782,646
COMBINED CONNECTOR CONTACT

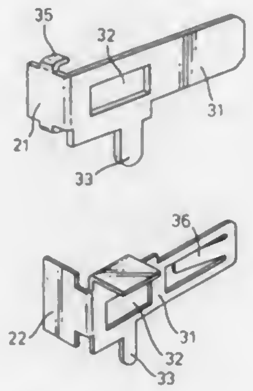
Gary Broadfield, Kumamoto, Japan, and Marrku Syrjala, Halikko, Finland, assignors to Nokia Mobile Phones Limited, Espoo, Finland, and Hirose Electric Co., Ltd., Tokyo, Japan

Continuation of Ser. No. 525,988, Sep. 8, 1995, abandoned. This application Jun. 12, 1997, Ser. No. 873,824

Claims priority, application United Kingdom, Sep. 9, 1994, 9418235

Int. Cl.^{6} H01R *9/09*

U.S. Cl. 439—346 **17 Claims**



1. A radio telephone combined connector for providing charging current to a battery of a radio telephone comprising a first electrically conductive charging pad contact, a second electrically conductive charging pad contact and a signal connector for receiving signals from a complementary cable connector, the first electrically conductive charging pad contact providing latching means for releasably retaining the cable connector against withdrawal from the combined connector, wherein the first and second charging pad contacts form part of a means which, when separately coupled to opposite terminals of the battery, forms a circuit loop from the first charging pad contact, through the battery, and to the second charging pad contact, wherein battery charging current can be provided through the first and second charging pad contacts.

5,782,647
ELECTRICAL CONNECTOR WITH INTERNAL RESILIENT MEMBER

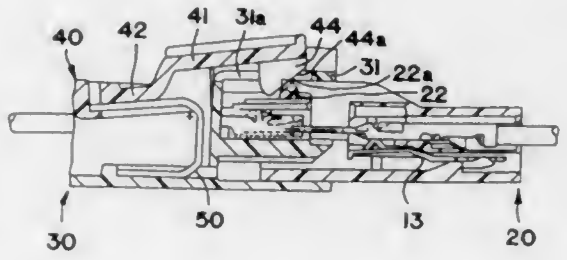
Yoshio Okura, and Mitsuhiro Fujitani, both of Yokkaichi, Japan, assignors to Sumitomo Wiring Systems, Ltd., Japan

Filed Nov. 12, 1996, Ser. No. 747,554

Claims priority, application Japan, Nov. 14, 1995, 7-321074

Int. Cl.^{6} H01R *13/627*

U.S. Cl. 439—358 **6 Claims**



1. An electrical connector comprising a male housing and a female housing, said male housing adapted for insertion along a path into said female housing in an insertion direction, whereby at least one terminal in said male housing is brought into electrical contact with a corresponding terminal in said female housing,

a pivoting arm mounted on one of said female housing and said male housing, a cam on said arm, said arm adapted to pivot about a pivot point and having a locking position, wherein said cam is in said path, and an open position, wherein said cam is not in said path,

an actuating member on another of said male housing and said female housing, said actuating member adapted to contact said cam at a surface thereof as said male housing is inserted into said female housing,

a resilient member disposed entirely within said one housing and bearing against said arm at a bearing point, said pivot point being between said bearing point and said cam, said resilient member urging said arm toward said locking position, said resilient member having a bent portion and two legs, one of said legs bearing against said arm at said bearing point and another of said legs bearing against an internal surface of a wall of said one housing.

5,782,648
ELECTRICAL PLUG ATTACHMENT SYSTEM

Edwin R. Peterson, 4420 Hillcrest, Boise, Id. 83705

Filed Jul. 11, 1996, Ser. No. 679,698

Int. Cl.^{6} H01R *13/62*

U.S. Cl. 439—369 **11 Claims**

1. A first electric plug securing device, for securing an electric plug, comprising:

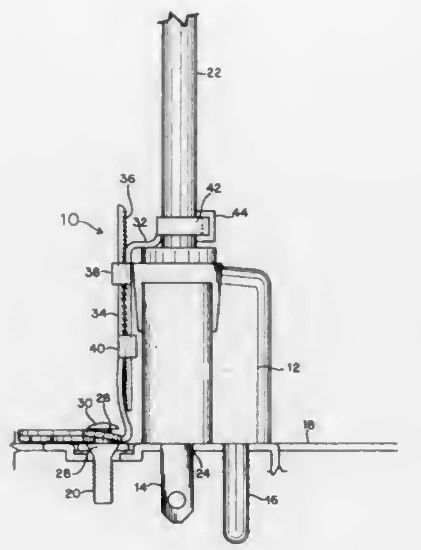
an anchor post for attachment to the wall socket;

a first connector for attachment to the anchor post and a second connector;

a means of attaching and detaching the first connector to the anchor post;

a second connector for attachment to the first connector and the electric plug;

a means of attaching the second connector to the first connector;



a means of attaching the second connector to the electric plug, wherein the means of attaching the first connector to the anchor post is a loop formed from overlapping resilient lever arms.

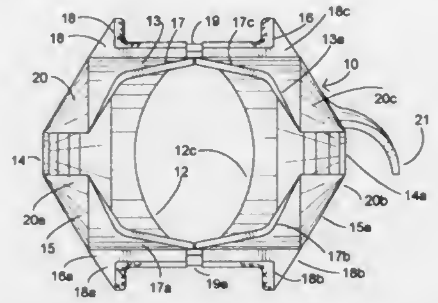
5,782,649
POWER TOOL CORD LOCKING ASSEMBLY

Luke T. Aiken, R.F.D. #2, Box 128 - A, Sheffield, Vt. 05866

Continuation-in-part of Ser. No. 685,001, Jul. 22, 1996, abandoned. This application Aug. 11, 1997, Ser. No. 905,003

Int. Cl.^{6} H01R *13/62*

U.S. Cl. 439—369 **7 Claims**



1. A power tool cord locking assembly, for use in enabling an operator to hook a power tool to an extension cord and have it held securely through almost all manipulations of the power tool, comprising:

a housing having an open top portion for receiving an assembled power tool and extension cord connection;

said housing further comprising two separate structures, each structure configured to hold a single connector portion, each said structure having arcuate side and bottom portions;

each said structure having one end having a receiving slot positioned therein and the end opposite said receiving slot end being totally open;

said housing further having extension means located on both arcuate sides of each said structure; and

retention means to be positioned within said extension means on each of said arcuate sides of each said structure of said housing to retain said structures as a unitary housing, thereby holding the power tool and extension cord securely together.

5,782,650
TERMINAL WITH PROJECTING PORTIONS PROJECTING FROM BENT PLATE PORTION AND ENGAGED IN RECESS PORTION OF HOUSING

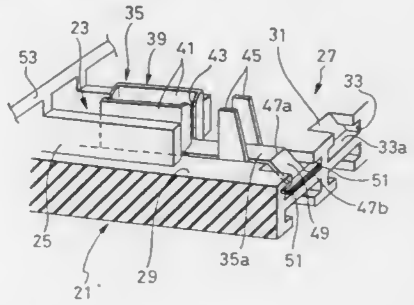
Toshiaki Okabe, Shizuoka, Japan, assignor to Yazaki Corporation, Tokyo, Japan

Filed Nov. 22, 1996, Ser. No. 755,343

Claims priority, application Japan, Nov. 27, 1995, 7-307530

Int. Cl.^{6} H01R *4/24;4/26;11/20*

U.S. Cl. 439—399 **2 Claims**



1. A terminal rising-up preventing structure comprising:

a housing;

terminal receiving chambers formed in said housing and separated by partitions from each other so as to be disposed side by side;

rear plate portions formed in bottom plate portions of said terminal receiving chambers so as to extend from rear ends of said bottom plate portions in a direction of insertion of terminals, respectively;

recess portions formed in rear end surfaces of said bottom plate portions, each of said recess portions including a pair of diametrically opposed notches formed at a tip end of each of said rear end surfaces of said bottom plate portions, each of said recess portions having a widthwise dimension smaller than a width of one of said terminal receiving chambers but larger than a width of one of said rear plate portions, said recess portions adjoining surfaces of said bottom plate portions via said rear plate portions, respectively;

terminals inserted into said terminal receiving chambers, respectively;

bent plate portions formed by partially bending said terminals toward said bottom plate portions and inserted into said rear plate portions, respectively; and

a pair of projecting portions formed on both sides of each of said bent plate portions and to be inserted into said recess portion.

5,782,651
ELECTRICAL CONNECTION BOX

Hisashi Konoya, Yokkaichi, Japan, assignor to Sumitomo Wiring Systems, Ltd., Japan

Continuation of Ser. No. 577,414, Dec. 22, 1995, abandoned. This application Aug. 14, 1997, Ser. No. 911,276

Claims priority, application Japan, Dec. 22, 1994, 6-320025

The portion of the term of this patent subsequent to Aug. 30, 2015, has been disclaimed.

Int. Cl.^{6} H01R *4/24*

U.S. Cl. 439—405 **12 Claims**

1. An electrical connection box comprising a main body provided with a connector receptacle, a first wire group on a first plane within said body, a second wire group on a second wire plane within said body,

a first terminal group comprising a plurality of cramping terminals,

said cramping terminals being electrically connected to corresponding wires of said first wire group and said second wire group,

said cramping terminals projecting into said connector receptacle,

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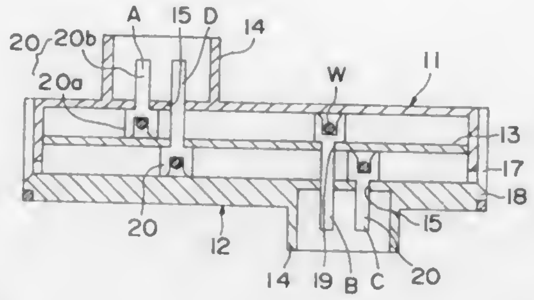
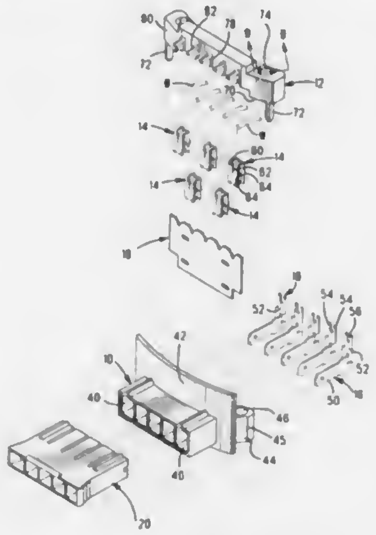


said cramping terminals being mounted on terminal mounts on an interior surface of said main body, and extending both above and below said surface, said receptacle being on an exterior surface of said main body, said mounts being adjacent said receptacle.

5,782,652

ELECTRICAL CONNECTOR ASSEMBLY FOR A MAGNET WIRE

Michael Scott Feher, Steelton; Edward John Howard, Millersburg, and Nelson Edward Neff, Hershey, all of Pa., assignors to The Whitaker Corporation, Wilmington, Del.
Filed May 23, 1996, Ser. No. 652,220
Int. Cl.^{6} H01R *4/24*
U.S. Cl. 439—417 **10 Claims**

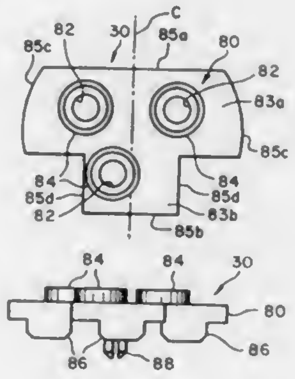


1. An electrical connector assembly, comprising:
a wire housing having a wire contact disposed therein, the wire contact having two ends, one of the ends having insulation displacing slots for receiving a magnet wire therein, the other of the ends having a resilient contact finger;
a connector housing having a tab contact disposed therein, the tab contact having a poke-in tab and a contact tab for mating with a matable connector;
the wire housing being matable with the connector housing wherein the poke-in tab engages the resilient contact finger to provide electrical connection therebetween and to provide electrical connection between the magnet wire and the matable connector; and
the wire housing has an opening with resilient fingers therein, the fingers being dimensioned to receive a splice connector and to secure the splice connector therein.

5,782,653

INTERNAL CAP FOR PREVENTING REARWARD MOVEMENT OF CONTACTS WITHIN AN ELECTRICAL CONNECTOR

John L. Sandor, Wallingford, Conn., assignor to Hubbell Incorporated, Orange, Conn.
Continuation of Ser. No. 694,007, Aug. 7, 1996, Pat. No. 5,645,447, which is a continuation of Ser. No. 474,171, Jun. 7, 1995, abandoned. This application Feb. 21, 1997, Ser. No. 803,876
Int. Cl.^{6} H01R *13/58*
U.S. Cl. 439—467 **6 Claims**

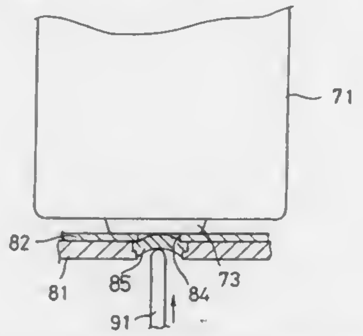


1. An internal cap for preventing rearward movement of contacts within an electrical connector, comprising:
a first surface facing in a first direction with at least one engagement portion adapted to engage a retaining member of the electrical connector;
a second surface facing in a second direction to engage and retain electrical contacts within a contact retainer body of the electrical connector;
three wire openings extending between said first and second surfaces for receiving electrical connectors of a cord therethrough;
a peripheral edge located between said first and second surfaces, with first and second substantially planar end sections positioned such that said first and second planar end sections are substantially parallel to each other; and
at least one tab extending from said peripheral edge in said second direction for engaging a recess formed in the contact retainer body,
said first planar end section being longer than said second planar end section as they extend peripherally between said first and second surfaces,
said peripheral edge further including a pair of first side sections positioned adjacent said first planar end section and a pair of second side sections positioned adjacent said second planar end portion such that said first side sections are spaced a greater distance apart than said second side sections,
first and second wire openings of said three wire openings being located between said first side sections and a third wire opening of said three wire openings being located between said second side sections, said first and second wire openings being symmetrically arranged relative to each other about center line substantially dividing said internal cap in half and extending substantially perpendicular to said first and second planar end sections, and said third wire opening having its center positioned to one side of said center line.

5,782,654

BATTERY RECEIVING MECHANISM

Masahiro Inazuka, and Kazunori Osakabe, both of Tokyo, Japan, assignors to Asahi Kogaku Kogyo Kabushiki Kaisha, Tokyo, Japan
Division of Ser. No. 428,649, Apr. 25, 1995, Pat. No. 5,634,815. This application Oct. 31, 1996, Ser. No. 741,979
Claims priority, application Japan, Apr. 26, 1994, 6-004493
Int. Cl.^{6} H01R *3/00*
U.S. Cl. 439—500 **5 Claims**

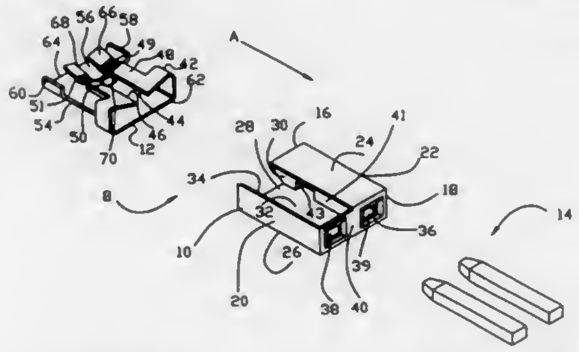


1. A battery receiving mechanism including a battery chamber for receiving a battery therein, and a conductor having an aperture connected to a first terminal of said battery, comprising:
a biasing member which biases said battery in a first direction to connect said first terminal of said battery to said conductor; and
a deformable member, mounted in said aperture, and which deforms when a predetermined external force is applied to said deformable member, said external force moving said battery to disconnect said first terminal from said conductor.

5,782,655

MINIATURE SHUNT CONNECTOR WITH ANTI-OVERSTRESS CONTACT ELEMENT AND METHOD OF COMMONING A PAIR OF ADJACENT TERMINAL POSTS

Michael V. Stefaniu, 165 Meadowbrook La., Lake Zurich, Ill. 60047; Raymond Silbernagel, 1008 Mattande La., Naperville, Ill. 60566, and John T. Scheitz, 117 Park Dr., R.R. #4, Barrington, Ill. 60010
Filed Sep. 16, 1996, Ser. No. 714,340
Int. Cl.^{6} H01R *31/08*
U.S. Cl. 439—510 **12 Claims**

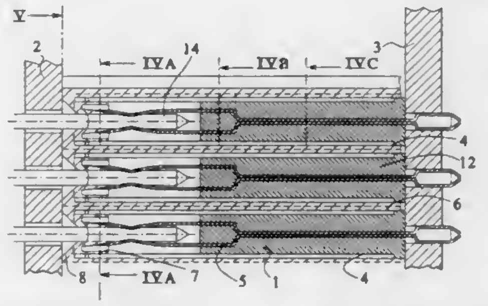


1. An electrical contact for commoning a pair of adjacent terminal posts comprising:
a shunt portion;
first and second rear contact beams extending from said shunt portion; and
first and second front contact beams extending from said shunt portion opposite said rear beams, said first and second front contact beams each having an outwardly flared end portion for engaging a front wall of a contact housing such that said terminal posts, inserted between said front and rear contact beams, compress said front contact beams between said front wall of said contact housing and said terminal posts, said compressed front contact beams providing a biasing force against said terminal posts.

5,782,656

PLUG-TYPE CONNECTOR FOR BACKPLATE WIRINGS

Karl Zell, Niederpoecking; Juergen Seibold, Baierbrunn, and Peter Seidel, Groebenzell, all of Germany, assignors to Siemens Aktiengesellschaft, Munich, Germany
Filed Apr. 11, 1995, Ser. No. 420,212
Claims priority, application Germany, Apr. 14, 1994, 44 12 975.0
Int. Cl.^{6} H01R *13/00*
U.S. Cl. 439—579 **2 Claims**



1. A shielded plug-type connector connectable between a wiring backplane and a printed circuit board, the connector comprising:
a plurality of parallel receptacle chambers arranged in at least one row:
a plurality of continuous metal tubes each having a rectangular cross-section, one of the tubes being arranged in each receptacle chamber;
a plurality of conductive contact springs, each contact spring having a backplane end insertable onto a contact blade extending from the wiring backplane and an opposite circuit board end being engageably connectable to the printed circuit board, each contact spring being disposed in one of the tubes, an insulative extrusion coating surrounding at least a portion of each contact spring to seat the contact springs generally centrally within the respective tubes so that the contact springs are insulated from the tubes;
each metal tube adapted at opposite ends to connect to one or more of a plurality of shield contacts charged with a shield voltage, the shield contacts extending from the backplane and the printed circuit board; and
wherein the opposite ends of each of the tubes has four arcuate cut out sections lying diagonally opposite one another, wherein each tube contacts the respective shield contacts between the cutouts.

5,782,657

ELECTRICAL CONNECTOR WITH SECONDARY LOCK

David Maurice Wolla, Winston-Salem, N.C., and Keith Robert Denlinger, Lancaster, Pa., assignors to The Whitaker Corporation, Wilmington, Del.
Filed Apr. 13, 1995, Ser. No. 421,637
Int. Cl.^{6} H01R *13/40*
U.S. Cl. 439—595 **9 Claims**

1. An electrical plug housing assembly for receiving at least one electrical contact therein and for matable connection with a further electrical housing, said plug housing assembly comprising:
(a) a housing having at least one contact receiving aperture, a primary latching member, and a housing recess for receiving a secondary locking member;
(b) said primary latching member includes at least one deflectable latching beam formed thereon, said primary latching member having a free end;

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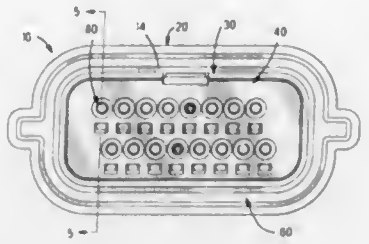
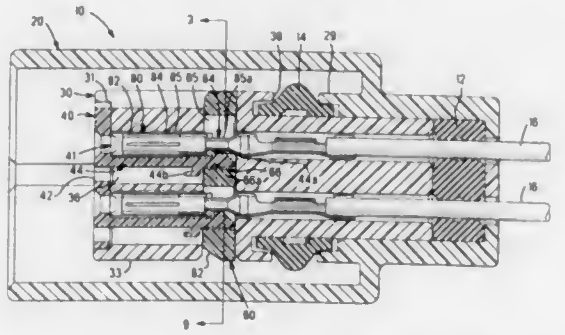




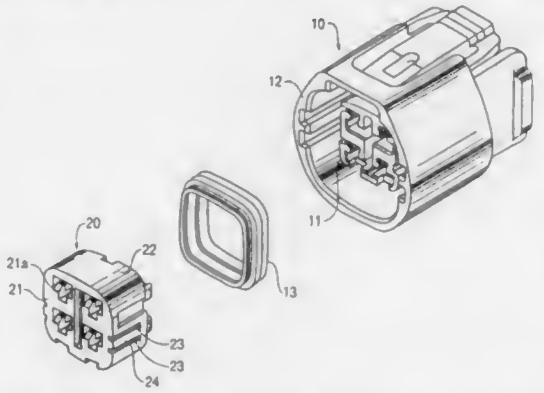
(c) a secondary locking member disposed in said housing recess, said secondary locking member comprises at least one contact receiving aperture;

(d) said free end is generally located in the contact receiving aperture of the secondary locking member; and

(e) upon engagement of the free end with an electrical contact inserted through said contact receiving aperture of the secondary locking member, said free end is operative to deflect and move into a locking position relative to said electrical contact within said contact receiving aperture of the secondary locking member.

5,782,658
TUBULAR SUPPORTING STRUCTURE

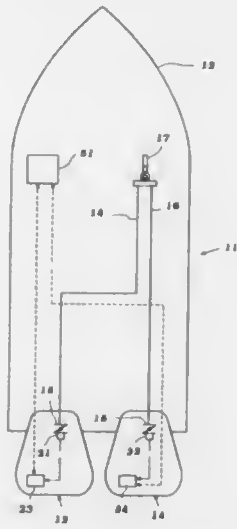
Akihito Maegawa; Nobuyoshi Tanaka; Yukinori Saka, and Kiyofumi Ichida, all of Yokkaichi, Japan, assignors to Sumitomo Wiring Systems, Ltd., Japan
Filed Apr. 26, 1996, Ser. No. 638,208
Claims priority, application Japan, Apr. 26, 1995, 7-127218
Int. Cl.^{6} H01R *13/422*
U.S. Cl. 439—595 **11 Claims**



1. In combination a tubular retainer and a water-proof connector housing having a cavity member adapted to receive at least one terminal fitting therein and a seal, the retainer fitting onto the cavity member along a fitting axis to retain the seal, said retainer having a peripheral wall extending along the fitting axis with a pair of opposite wall portions, said wall portions each having an inner end facing said seal and an opposite outer end, each said wall portion having spaced slits defining a flexible arm secured at both ends thereof to the wall between the slits to stiffen the arm, said slits being open at said outer ends and closed at the inner ends, and each flexible arm having a projection extending perpendicular to said axis and adapted for secure engagement in a lock opening defined in said cavity member.

5,782,659
CONTROL FOR WATERCRAFT

Hitoshi Motose, Hamamatsu, Japan, assignor to Sanshin Kogyo Kabushiki Kaisha, Hamamatsu, Japan
Filed Jan. 30, 1996, Ser. No. 594,309
Claims priority, application Japan, Jan. 30, 1995, 2-012872
Int. Cl.^{6} B63H *21/22*
U.S. Cl. 440—1 **12 Claims**

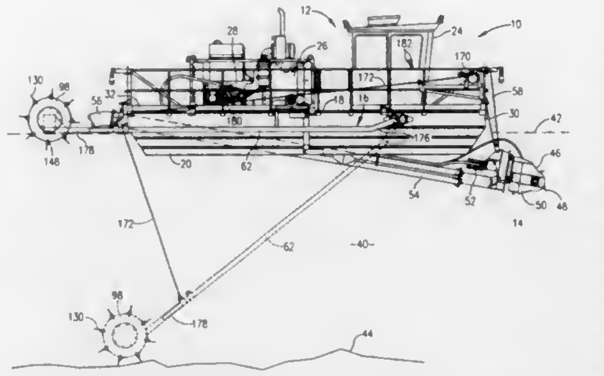


1. A marine propulsion control system for a watercraft having a hull, a pair of propulsion units carried by said hull for propelling said watercraft, each of said propulsion units having a function control for controlling a specific function of the respective propulsion unit, a single moveable control element positioned within said hull, means for mechanically coupling said single moveable control element to each of said function controls for controlling the same function of each of said propulsion units, sensing means for sensing when the condition of the respective functions of the propulsion units being controlled do not correspond with each other, and means for altering the condition of one of the propulsion units to coincide with each other, and means for altering the condition of one of the propulsion units to coincide with that condition of the other propulsion unit.

5,782,660
WATERCRAFT PROPULSION SYSTEM

Joseph Brickell, Leawood, Kans.; Garland Martin, Jonesboro, Ark., and Daniel McDougal, Kansas City, Mo., assignors to Innovative Material Systems, Inc., Olathe, Kans.
Filed Mar. 11, 1997, Ser. No. 814,348
Int. Cl.^{6} B63H *19/00*
U.S. Cl. 440—36 **11 Claims**

1. A watercraft propulsion system for moving a watercraft along a shallow waterway having a bottom and a surface comprising:
- a watercraft presenting a port side and a starboard side;
- a first boom presenting a proximate end and a remote end;
- a second boom presenting a proximate end and a remote end;
- first and second mounting members connected to the side of the watercraft and pivotally mounting the proximate end of the respective first and second booms along the respective port and starboard sides of the watercraft;



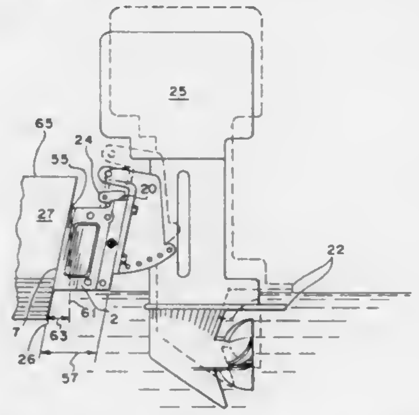
- a first wheel mounted to said first boom for rotation about a first axis located proximate said remote end of said first boom, said first wheel including a plurality of radially extending, circumferentially spaced blades;
- a second wheel mounted to said first boom for rotation about a second axis located proximate said remote end of said second boom, said second wheel including a plurality of radially extending, circumferentially spaced blade;
- a first drive motor operatively connected to said first wheel for bidirectional rotational driving of said first wheel;
- a second drive motor operatively connected to said second wheel for bidirectional rotational driving of said second wheel;
- means mounted on said watercraft for raising and lowering said first boom between a lowered position with the first wheel in engagement with the bottom of the waterway and a raised position with the first wheel in contact with the surface of the waterway;
- means mounted on said watercraft for raising and lowering said second boom independently of said first boom between a lowered position with the second wheel in engagement with the bottom of the waterway and a raised position with the second wheel in contact with the surface of the waterway.

5,782,661

Patent Not Issued For This Number

5,782,662
HYDRAULIC MARINE JACK PLATE

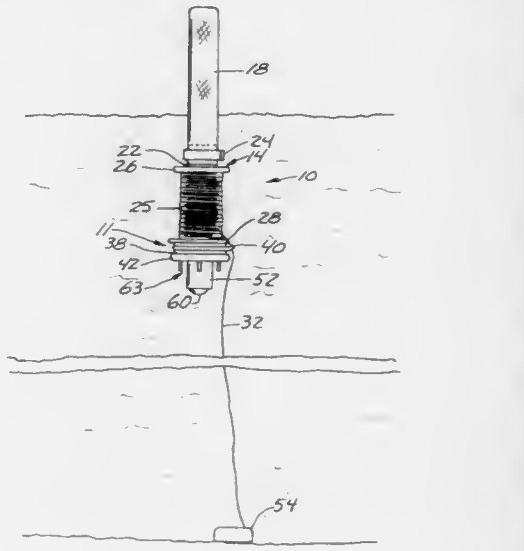
Robert O. Icenogle, 1501 33rd. St. SE., Ruskin, Fla. 33670
Continuation-in-part of Ser. No. 511,105, Aug. 4, 1995, abandoned. This application Mar. 3, 1997, Ser. No. 808,461
Int. Cl.^{6} B63H *21/26*
U.S. Cl. 440—61 **23 Claims**



1. A hydraulic marine jack plate for use with an outboard marine engine, which will allow generally vertical movement of the outboard marine engine in a plane which is parallel with the transom of a boat when said jack plate is attached to said transom comprising: a support having first and second planar sides, said first planar side having an inward upper terminal edge and said first planar side being adapted to being secured to the transom of a boat, said second planar side having an outward upper terminal edge and said second planar side being adapted to receive a slide member such that said slide member can move up and down in a plane which is approximately parallel with the transom wherein said support member and said slide are interconnected by a hydraulic cylinder which is in turn connected to a source of hydraulic power and wherein when said jack plate is attached to the transom of a boat having a transom angle of about 12 degrees, the inward upper terminal edge of said support adjacent said first planar side is lower than outward upper terminal edge, adjacent said second planar side wherein this difference in the height between the outward upper terminal edge and the inward upper terminal edge is from about 15 to about 50 percent of the distance between said first and second planar sides.

5,782,663
LINE TENDING MARKER FLOAT

Charles Van Raden, 1701 N. 11th St., Moorhead, Minn. 56560
Continuation-in-part of Ser. No. 637,130, Apr. 24, 1996, Pat. No. 5,605,481. This application Feb. 24, 1997, Ser. No. 805,159
Int. Cl.^{6} B63B *22/18*
U.S. Cl. 441—25 **16 Claims**



1. A line tending device including a base having a central axis, a clutch hub on the base, a source of a line length that will extend from the base in response to a tension load thereon, said clutch hub having a clutch hub outer surface and having at least a first flange extending outwardly from a clutch hub central axis, and an elastomeric member overlying the clutch hub outer surface, said line length passing from along the clutch hub between the clutch hub outer surface and the elastomeric member, the line length having an end which is under tension loading as it extends from the clutch hub and moves between the elastomeric member and the clutch hub outer surface, the elastomeric member urging the line length toward the clutch hub outer surface to tend to provide a clamping action on the line length around the first flange which increases as the angle of the line length relative to the central axis of the clutch hub increases.

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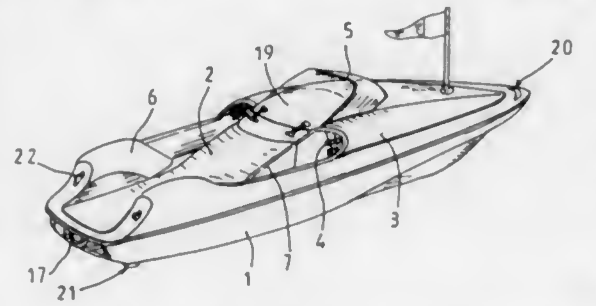
MOTORIZED CRAFT FOR PROPELLING A PERSON LYING IN A HORIZONTAL POSITION

Laurent Casters, 46, rue du Vallon, Epinal, France, 88000
Continuation of Ser. No. 596,255, Feb. 7, 1996, abandoned. This application Jun. 5, 1997, Ser. No. 869,379
Claims priority, application France, Jun. 7, 1994, 94 07104
Int. Cl.⁶ B63B *1/00*
U.S. Cl. 441—65 **10 Claims**

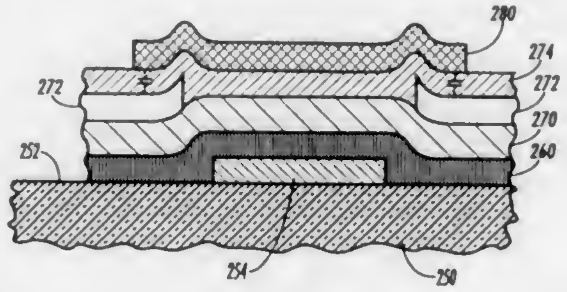


1. A motorized boat for moving a user in a lying-down position on a water surface, comprising a hull for protecting a propulsion unit, two handles for gripping by the user, and two rear floats upon which the user rests folded elbows while the user grips the two handles of the boat, wherein the hull includes a support surface along a rear portion of the hull for supporting the user in a ventral lying-down position so as to support at least one portion of the user's body, and wherein the handles and the rear floats are positioned for maintaining the hands and arms of the user within interior portions of the boat, such that the user controls the boat by applying sideward forearm pressure on the hull and by gripping the handles, with the user's legs remaining at least partially inside the boat.

5,782,665

FABRICATING ARRAY WITH STORAGE CAPACITOR BETWEEN CELL ELECTRODE AND DARK MATRIX

Richard L. Weisfield, Los Altos; Michael G. Hack, Mountain View, and Joel Levine, Millbrae, all of Calif., assignors to Xerox Corporation, Stamford, Conn.
Filed Dec. 29, 1995, Ser. No. 581,088
Int. Cl.⁶ H05B *33/10*
U.S. Cl. 445—24 **37 Claims**



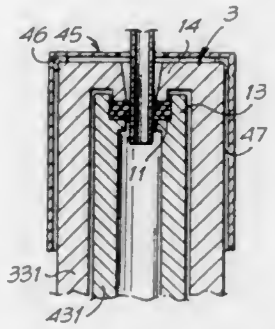
1. A method of forming an array of light active cells at a surface of a substrate; the method comprising:

producing a series of layers at the surface of the substrate; the series of layers including:
scan lines; and
data lines;
producing a first patterned layer over the series of layers; the first patterned layer including conductive material; each light active cell including a cell electrode that is part of the first patterned layer;
depositing a layer of dielectric material over the first patterned layer; the layer of dielectric material covering the cell electrode of each light active cell; and
producing a second patterned layer over the layer of dielectric material; the second patterned layer including dark matrix material that is conductive; each light active cell including a dark matrix that is part of the second patterned layer; each cell's dark matrix and cell electrode having an overlap area in which they overlap; the overlap area of the cell electrode, the overlap area of the dark matrix, and a part of the layer of dielectric material between them forming a storage capacitor for the cell.

5,782,666

TELEVISION TUBE EXHAUST CART NOT EMPLOYING A WATER COOLING CIRCUIT

Gianluca Bardi, Via delle Panche No. 181, 50141 Firenze, and Marco Panizza, Via Monte Oliveto No. 13, 50124 Firenze, both of Italy
Filed Apr. 19, 1996, Ser. No. 635,014
Claims priority, application Italy, Apr. 20, 1995, FI95 A 000074
Int. Cl.⁶ H01J *9/385*
U.S. Cl. 445—73 **20 Claims**



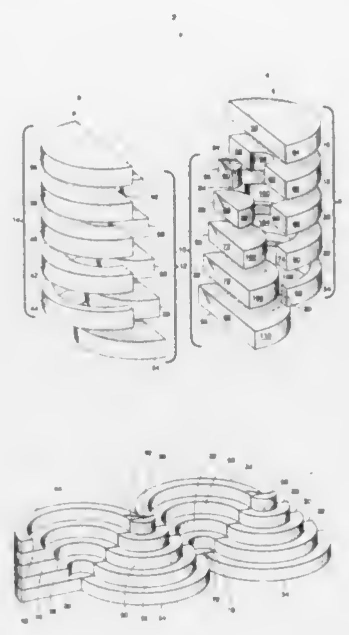
4. A television tube exhaust cart, comprising:
an O-ring seal;
a gripper for gripping a stem of a television tube, said gripper including a seat and a gland for said O-ring seal;
vacuum forming means for forming the vacuum in the television tube, said O-ring seal, said seat and said gland cooperating to provide leaktightness around a stem of the television tube connected to said vacuum means; and
a cooling system to protect said ring seal from heat associated with television tube formation, said system comprising a cold source and a block that conducts heat well, said block being in contact with at least one of said seat and said gland of said gripper for transferring heat of said gripper to said cold source.

5,782,667

SCULPTURE AMUSEMENT DEVICE

Toro Luby, 3828 Trenton Dr., Lithonia, Ga. 30058
Filed Nov. 1, 1995, Ser. No. 551,377
Int. Cl.⁶ A63H *33/04*
U.S. Cl. 446—69 **8 Claims**

1. A sculpture amusement device formed of a plurality of stackable elements which may form a vertical stack having a stack profile, said device comprising:
a plurality of interior elements, each of said interior elements including a front surface, a rear surface, a top surface and a bottom surface;
each of said plurality of interior elements being of a different size and accordingly having different surface areas as defined by said top and bottom surfaces;
a plurality of exterior elements, each of said exterior elements including first and second offset front surfaces and a rear surface, each first and second front surfaces defining an opening having an inside surface complementary to the rear surface of only one of said plurality of interior elements wherein each of said respective openings is configured to receive one and only one of said plurality of different sized interior elements;
said exterior elements also including top and bottom surfaces of different sizes and accordingly different surface areas as defined by said top and bottom surfaces;
whereby a respective of an interior element is received within an opening of a respective exterior element such that the combination of said interior element with its complementary exterior element define a stacking pair having a predetermined surface area as defined by the combination of the respective top surface areas of the mating interior and exterior elements; and
wherein each of said respective stacking pairs of complementary interior and exterior elements define equivalent top surface areas to enable stacking of each respective pair within a general stack profile.

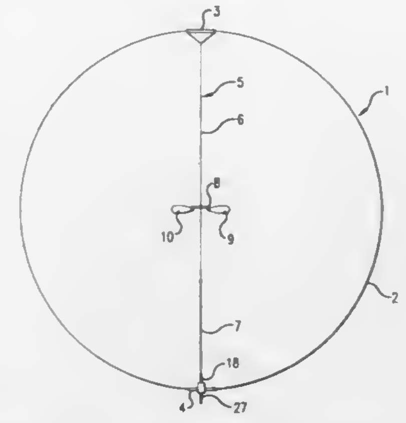


5,782,668

ILLUMINATING INFLATABLE BALLOON

Pierre Gabriel Chabert, St. Martin d'Heres, France, assignor to Airstar, Poisat, France
PCT No. PCT/FR95/00550, § 371 Date Oct. 18, 1996, § 102(e) Date Oct. 18, 1996, PCT Pub. No. WO95/29739, PCT Pub. Date Nov. 9, 1995
PCT Filed Apr. 27, 1995, Ser. No. 727,422
Claims priority, application France, Apr. 29, 1994, 94 05216
Int. Cl.⁶ A63H *37/00*
U.S. Cl. 446—220 **8 Claims**

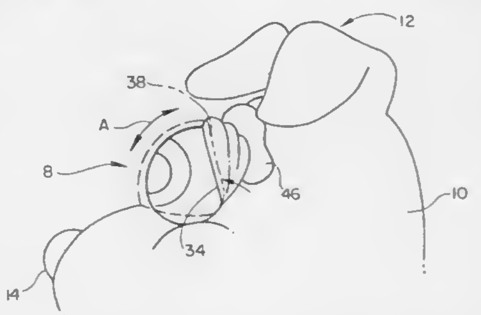
1. An illuminated inflatable balloon, comprising:
an envelope inflated with a gas, said envelope being connected to the ground by an elongate element;
illumination means enclosed within said envelope and electrically connected to an electrical power supply;
actuation means sensitive to one of a deformation of said envelope and a variation in an internal pressure of the gas in said envelope, said actuation means cooperating with a control member; and
switching means interposed in the electrical connection between said illumination means and said electrical power supply, said electrical switching means being actuated by said control member in order to manipulate the electrical connection between an open position when said internal pressure within said envelope is on a first side of a predetermined threshold and a closed position when said internal pressure within said envelope is on a second side of said predetermined threshold.



5,782,669

EYE ASSEMBLY FOR A STUFFED TOY OR THE LIKE

James R. Hornsby, St. Louis; Joseph L. McGowan, St. Peters, and Tricia Souers, Florissant, all of Mo., assignors to Trendmasters, Inc., St. Louis, Mo.
Filed Sep. 27, 1996, Ser. No. 720,350
Int. Cl.⁶ A63H *3/40*
U.S. Cl. 446—342 **4 Claims**



1. An eye for a stuffed toy or the like having a face, said eye comprising:
an eyeball with an eyeball surface; and
an eyelid operably coupled to the eyeball for being selectively positioned with respect to the eyeball surface, wherein the eyelid comprises a substantially continuous piece of material having a free edge movable with respect to the eyeball, and positioning means for tending to keep the eyelid in a selected position, said positioning means comprising a stiffener, at least a portion of the stiffener adjacent to the free edge.

5,782,670

POST-OPERATIVE OPEN HEART SURGERY BRASSIERE

Mary K. Whisman, 3516 Atkinson Cir., North Vernon, Ind. 47265
Filed Aug. 16, 1996, Ser. No. 698,912
Int. Cl.⁶ A41C *3/00;3/02;3/12*
U.S. Cl. 450—1 **11 Claims**

1. A post-operative open heart surgery brassiere for minimizing contact with a chest wound of the wearer comprising:
a pair of cups sized to receive the wearer's breasts;
a band coupled to each cup and sized to lie across the wearer's back;
a piece of connective material coupling the cups together between the breasts; and

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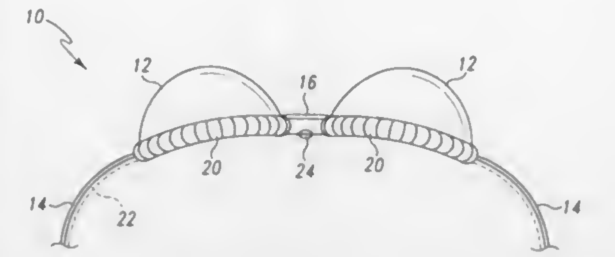
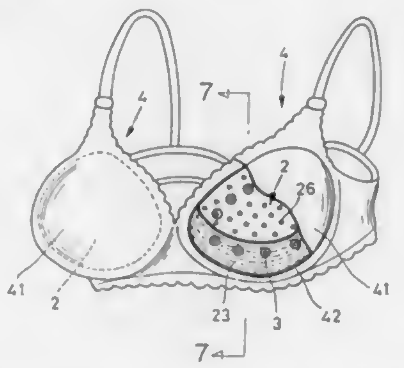


a pair of cloth padding material rolls coupled to a bottom edge of each cup, wherein a height of each roll is operative to elevate the connective material above the chest so that the connective material is not in contact with the wound.

5,782,671
LIQUID ADJUSTING TYPE MAGNETIC BRASSIERE

Yi-Mou Suen, No. 9-2, Lane 35, Tung Te 11th St., Taoyuan City; Kuo-Liang Liou, No. 174, Min Chuan Rd., Chung Li City, and Liang-Hung Ho, No. 7, Lane 112, Wen Chang St., Pa Te City, all of Taiwan

Filed May 2, 1997, Ser. No. 850,683
Int. Cl.^{6} A41C *3/00;3/12*
U.S. Cl. 450—38 **2 Claims**



1. A liquid adjusting type magnetic brassiere, comprising a sac shaped to match a cup of the brassiere for holding a liquid and disposed in each cup of the brassiere between an inner cotton panel and an outer fabric of the cup, wherein said sac comprises two sheets of water impermeable soft, supple plastic material being fused by use of high frequency waves into an oval sac with a curved chamber formed at a lower half portion of said sac, and a filling hole at a lateral side of said chamber for filling of a suitable amount of liquid into said chamber before being sealed by use of high frequency waves; one of said sheets having a plurality of small plastic sheets of the same soft, supple plastic material fused thereonto in a radial arrangement, each of said small plastic sheets having a small magnet attached thereto; an upper half portion of said sac being thinner and punched with a plurality of air vents.

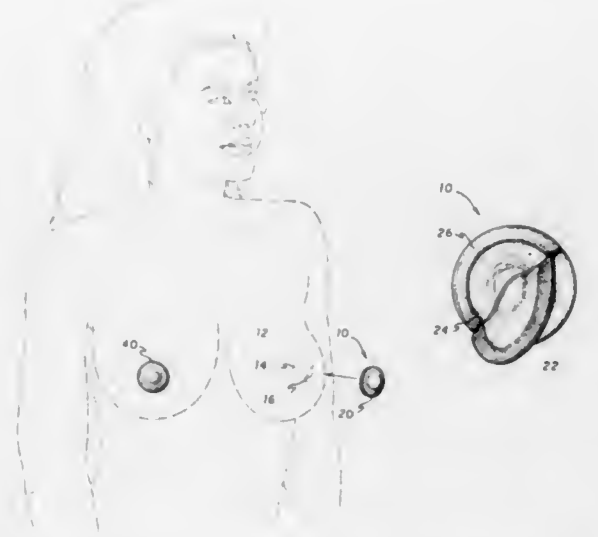
5,782,672
NIPPLE PAD

Vickie G. Woodley, 405 S. West, New Boston, Tex. 75570

Filed Feb. 24, 1997, Ser. No. 805,236
Int. Cl.^{6} A41C *3/12*
U.S. Cl. 450—57 **4 Claims**

1. A nipple pad for protecting and concealing a nipple and an areola of a breast of a woman, said nipple pad comprising:

a pliable latex cover having an outer surface, an opposing inner surface, a concave central portion, and a substantially flat periphery concentrically surrounding said central portion, said pliable cover having a plurality of breathing holes passing therethrough;



a concave padded liner having a nipple receiving surface and an attachment surface, said attachment surface being connected to said inner surface of said pliable cover at said central portion, said padded liner and said pliable cover formed of supple material to conform to a nipple of a breast of a woman;

said padded lined has a thickness which increases from said periphery to said central portion of the pliable cover

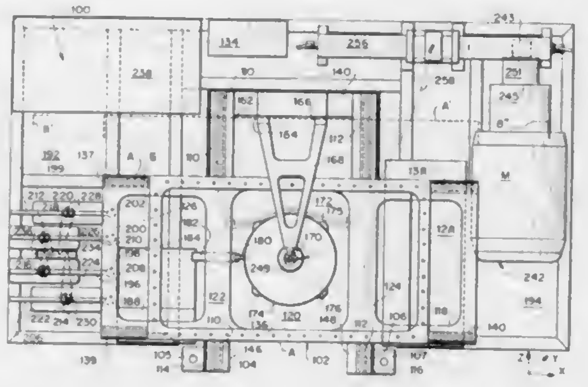
an adhesive strip affixed to said inner surface of said pliable cover at said periphery; and,

a protective release liner attached to said adhesive strip for protecting said adhesive strip and said nipple receiving surface of said padded liner until a user removes said protective release liner.

5,782,673
FLUID JET CUTTING AND SHAPING SYSTEM AND METHOD OF USING

Kevin S. Warehime, 2375 Feeser Rd., Taneytown, Md. 21787

Filed Aug. 27, 1996, Ser. No. 703,462
Int. Cl.^{6} B24C *3/00*
U.S. Cl. 451—2 **56 Claims**



1. A method for cutting a workpiece with a fluid jet comprising:

feeding a high pressure fluid from a fluid supply assembly to a nozzle head assembly;

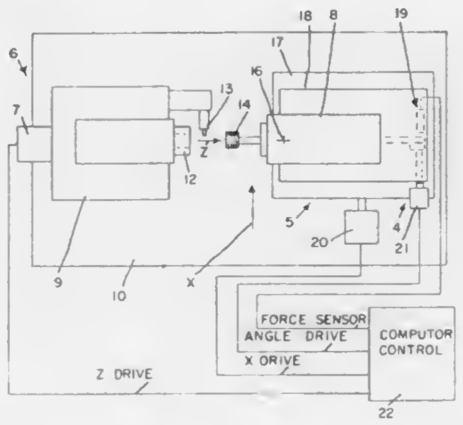
fixing a workpiece to an X-Y axis support table, comprised of an X-axis table component and a Y-axis table component, such that the workpiece is positioned within an open area formed in said X-Y axis support table; and

while a high pressure fluid let is emanating from the nozzle head assembly, shifting the X-axis table component and the Y-axis table component so that the supported workpiece is shifted in both an X-axis and a Y-axis direction with respect to the nozzle head assembly.

5,782,674
SENSORS FOR INTERNAL GRINDING MACHINES

Robert S. Hahn, 218 E. Hill Rd., Oakham, Mass. 01068

Filed May 20, 1997, Ser. No. 859,153
Int. Cl.^{6} B24B *49/00*
U.S. Cl. 451—9 **9 Claims**



1. A grinding machine for grinding an internal surface of revolution about an axis of revolution on a workpiece, said grinding machine comprising:

(a) a base;

(b) a workhead for supporting the workpiece and for rotating the workpiece about said axis of revolution;

(c) a wheelhead having a front end which faces said workhead, a rear end and a rotatable spindle which supports an abrasive wheel, said spindle extending toward the workpiece from the front end of said wheelhead along said axis of revolution, said spindle being deflectable from said axis of revolution;

(d) a longitudinal feed mechanism for supporting said workhead and for moving said workhead relative to said base along said axis of revolution toward and away from said wheelhead to enable said abrasive wheel to abut the surface of revolution of said workpiece;

(e) a wheelhead supporting structure for supporting said wheelhead so that said wheelhead is pivotable relative to said base about a pivoting axis adjacent the front end of said wheelhead, said pivoting axis being transverse to said axis of revolution;

(f) an elongated stiffening element having a first end rigidly connected to the rear end of said wheelhead and a second end operatively connected to said wheelhead supporting structure, said stiffening element restraining angular displacement of said wheelhead supporting structure about said pivoting axis caused by the normal grinding force between the abrasive wheel and the workpiece, the second end of said stiffening element being deflectable relative to the first end of said stiffening element as a result of said normal grinding force, the deflection of said stiffening element being proportional to said the deflection of said spindle;

(g) a transverse feed mechanism for supporting said wheelhead supporting structure and for moving said wheelhead transversely of said axis of revolution to cause said abrasive wheel to engage said surface of revolution for grinding said surface of revolution, so that the engagement of said abrasive wheel against said surface of revolution with a normal grinding force causes said spindle to deflect from said axis of revolution, and causes said wheelhead supporting structure to pivot about said pivoting axis and the second end of said stiffening element to deflect relative to the first end of said stiffening element, the deflection of said stiffening element being proportional to said the deflection of said spindle:

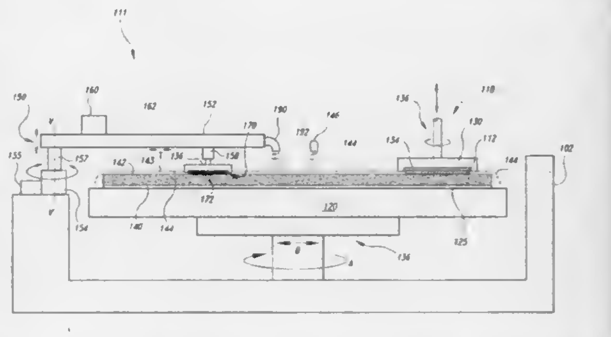
(h) sensing means for measuring said deflection of said stiffening element and for producing an analog electrical signal which is proportionally indicative of said deflection of said stiffening element, said sensing means including a converter for converting said analog electrical signal to a digital electric signal; and

(i) drive means, including a digital computer, operatively connected to said stiffening element and to said sensing means for receiving said digital electrical signal and for angularly positioning said wheelhead supporting structure about said pivoting axis in response to said digital electrical signal.

5,782,675
APPARATUS AND METHOD FOR REFURBISHING FIXED-ABRASIVE POLISHING PADS USED IN CHEMICAL-MECHANICAL PLANARIZATION OF SEMICONDUCTOR WAFERS

Scott A. Southwick, Boise, Id., assignor to Micron Technology, Inc., Boise, Id.

Filed Oct. 21, 1996, Ser. No. 735,804
Int. Cl.^{6} B24B *53/00*
U.S. Cl. 451—56 **29 Claims**



1. A planarizing machine for chemical-mechanical planarization of a semiconductor wafer, comprising:

a platen mounted to a support structure;

a fixed-abrasive polishing pad positioned on the platen, the abrasive polishing pad having a suspension medium, a plurality of abrasive particles fixedly suspended within the suspension medium, and a planarizing surface with a plurality of exposed abrasive particles;

a movable wafer carrier to which the wafer is mounted, the wafer carrier being positionable over the abrasive polishing pad and adapted to engage the wafer with the planarizing surface of the abrasive polishing pad, wherein at least one of the platen and the wafer carrier moves with respect to the other to impart relative motion between the wafer and the abrasive polishing pad;

a liquid solution dispenser positioned proximate to the planarizing surface of the polishing pad, the solution dispenser being connected to a supply of conditioning solution that interacts with the waste matter material to form an interacted waste material;

a carriage assembly positioned proximate to the abrasive polishing pad, the carriage assembly having an arm positionable over the planarizing surface and an actuator for moving the arm with respect to the planarizing surface; and

a non-abrasive refurbishing element attached to the arm, wherein the refurbishing element removes the interacted material from the abrasive polishing pad without abrading the planarizing surface as at least one of the refurbishing element and the abrasive polishing pad moves with respect to the other.

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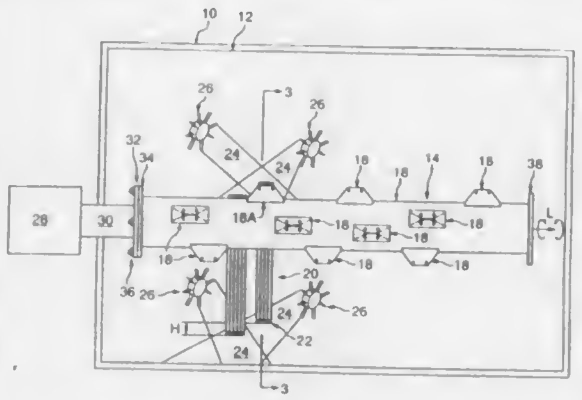
5,782,676
RESILIENT LIFTER FOR WIRE COIL BLAST CLEANING APPARATUS

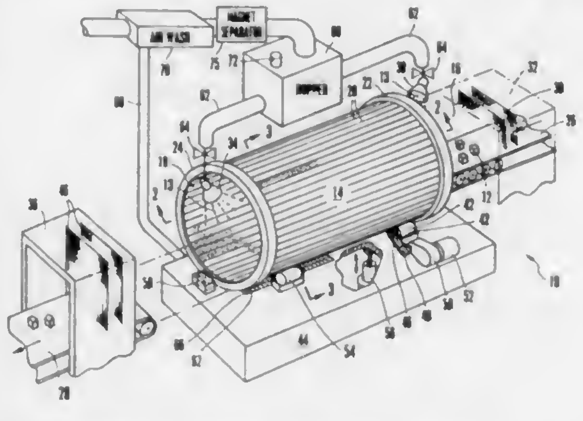
John A. Pedersen, Oakville, Canada, assignor to Blast Cleaning Products Ltd., Oakville, Canada
Division of Ser. No. 610,056, Feb. 29, 1996. This application Nov. 3, 1997, Ser. No. 963,442
Claims priority, application Canada, Jan. 9, 1996, 2166820
Int. Cl.⁶ B24B *3/08*
U.S. Cl. 451—82 **7 Claims**



1. A resilient blast cleaning lifter having a longitudinal axis, a bi-laterally symmetrical trapezoid cross-sectional shape in a plane parallel to the longitudinal axis of the lifter, and a crescent cross-sectional shape in a plane transverse to the longitudinal axis of the lifter,
- the lifter having a bottom surface adapted to sit on an outer surface of a cylinder having a longitudinal axis parallel to the longitudinal axis of the lifter, and
- the lifter having at least an outer layer comprised of a flexible, polymeric material, wherein the lifter has sufficient hardness to withstand impact with abrasive cleaning material during blast cleaning of a workpiece.

5,782,677
CONTINUOUS PROCESS BLAST MILL FOR FINISHING CAST METAL PARTS

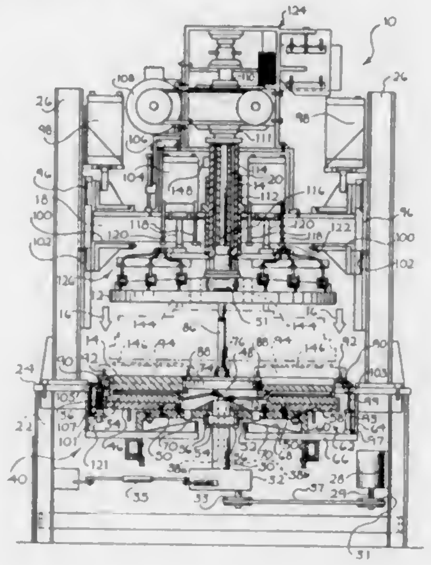
Richard C. Kanouse, S38 W34402 Hwy. D, Dousman, Wis. 53118
Filed Jan. 14, 1997, Ser. No. 783,129
Int. Cl.⁶ B24B *31/023;* **B24C** *3/08;3/78*
U.S. Cl. 451—85 **16 Claims**



1. An apparatus for cleaning workpieces, comprising:
- a plurality of elongated flights arranged to establish a blast housing defining opposed entry and exit ends, the blast housing defining an inner surface and an outer surface;
- at least one drive roller rollably engaged with the outer surface of the blast housing for causing the blast housing to rotate;
- at least one support roller rollably engaged with the outer surface of the blast housing;
- at least one entrance media thrower juxtaposed with the entrance end and oriented to direct cleansing media into the blast housing;
- at least one exit media thrower juxtaposed with the exit end and oriented to direct cleansing media into the blast housing;
- at least one entrance curtain juxtaposed with the entrance end to block media from propagating past the entrance curtain;
- at least one exit curtain juxtaposed with the exit end to block media from propagating past the exit curtain; and
- an entrance vestibule juxtaposed with the entrance end and an exit vestibule juxtaposed with the exit end, wherein the entrance and exit curtains are respectively suspended in the entrance and exit vestibules, and wherein at least one of the vestibules can be distanced from the blast housing to permit a person to enter the blast housing.

5,782,678
DUAL COLUMN ABRADING MACHINE

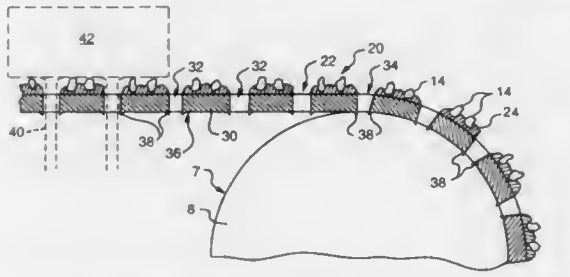
Joseph V. Cesna, Niles, Ill., and Lawrence O. Day, Fremont, Calif., assignors to Speedfam Corporation, Des Plaines, Ill.
Division of Ser. No. 218,611, Mar. 28, 1994. This application Apr. 29, 1996, Ser. No. 638,678
Int. Cl.⁶ B24B *7/22*
U.S. Cl. 451—269 **9 Claims**



1. A device for performing abrading operations on at least one workpiece, the device comprising:
- an upper and lower lap plate, each having a lap surface parallel to each other;
- means for rotating each of the lap plates about its own vertical axis;
- means for carrying at least one workpiece on the lower lap plate;
- carriage means for supporting the upper lap plate that is being driven by the rotating means;
- a frame means for supporting the carriage means at spaced locations for vertically reciprocating movement;
- means for driving the vertically reciprocating movement of the carriage means being mounted to the frame means and connected to the carriage means to move the upper lap plate relative to the lower lap plate for performing abrading operations and to provide access for loading and unloading the workpieces;
- reciprocating means for reciprocating the upper lap plate independent of and relative to the carriage means for performing abrading operations and to provide access for loading and unloading the workpieces;
- wherein for performing abrading operations and to provide access for loading and unloading the workpieces from the device the carriage means travels vertically a predetermined distance relative to the lower lap plate and the upper lap plate travels vertically a second predetermined distance relative to the carriage means, with the first pre-determined distance greater than the second predetermined distance; and
- wherein, for performing abrading operations and to provide access for loading and unloading the carrying means from the device, the first predetermined distance of vertical travel of the carriage means is a predetermined fixed distance relative to the lower lap plate and the second predetermined distance of vertical travel of the upper lap plate is a pre-determined variable distance with respect to the carriage means.

5,782,679
METAL ABRASIVE BELT AND METHOD OF MAKING SAME

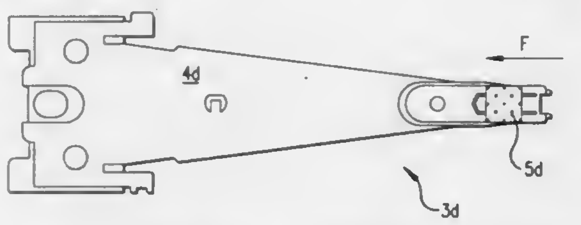
David T. Hunter, 12 Belmont Ct., Bedford, N.H. 03110
Filed Sep. 23, 1996, Ser. No. 717,796
Int. Cl.⁶ B24B *21/00*
U.S. Cl. 451—296 **18 Claims**



1. A metal abrasive belt comprising:
- a continuous metal belt having an outer surface and an inner surface; and
- a plurality of abrasive particles electroplated onto at least a portion of said outer surface of said continuous metal belt, said continuous metal belt including at least one perforation extending through said continuous metal belt from said outer surface to said inner surface of said continuous metal belt, said continuous metal belt further including at least one burr proximate an intersection of said at least one perforation and said inner surface of said continuous metal belt, for engaging with at least one pulley on which said continuous metal belt is driven.

5,782,680
BURNISHING HEAD FOR POLISHING SURFACES OF CARRIERS OF MAGNETIC MEDIA

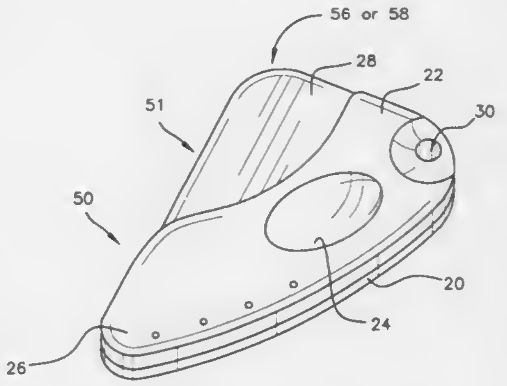
Horatiu O. Pilsan, Dornbirn, Austria, assignor to Aijohn Establishment, Vaduz, Liechtenstein
Filed Nov. 13, 1996, Ser. No. 748,399
Int. Cl.⁶ B24B *5/00*
U.S. Cl. 451—317 **18 Claims**



1. A flying burnishing head for polishing surfaces of magnetic media carriers when flying over the surface of the magnetic media carrier, the burnishing head comprising:
- a slider having a surface that faces the surface of the carrier that is to be polished;
- the slider surface including at least four protrusions that protrude outwardly from the slider surface, the sum of the surface areas of the protrusions facing the surface to be polished being no more than approximately 20% of the total surface area of the slider surface.

5,782,681
CONDITIONER FOR WINDSHIELD WIPER BLADES

William Bresnahan, 1090A Troxel Rd., Lansdale, Pa. 19446
Filed Dec. 3, 1996, Ser. No. 753,937
Int. Cl.⁶ B24D *15/02*
U.S. Cl. 451—523 **1 Claim**



1. A system for resurfacing, cleaning, and conditioning a wiper blade comprising in combination:
- a housing, said housing having a substantially triangularly shaped main body with a contoured outer surface including mutually opposed finger size indentations to facilitate manipulation, said housing having male and female halves, said male and female halves removably joined by projections on the male half and corresponding slots on the female half, said male and female halves joined by frictional engagement, recessed areas formed in the interior surfaces of both the male and female halves defining an interior space completely surrounded on all sides when said halves are fastened in said frictional engagement; wherein a moistened towlette is stored in said completely surrounded interior space, said moistened towlette containing a conditioning and cleaning solution; wherein a channel is formed along one edge of said housing when both halves are engaged,
- said channel having a coarse material therein, said coarse material being sufficiently abrasive to remove a layer of said wiper blade whereby said wiper blade can be resurfaced by said resurfacing means and cleaned and conditioned by said towlette.

5,782,682
GRINDING WHEEL HAVING ABRASIVE TIPS

Jung Su Han, Paldal-ku, and So Young Yun, Seoul, both of Rep. of Korea, assignors to EHWA Diamond Ind. Co. Ltd., Rep. of Korea
Filed Jun. 4, 1996, Ser. No. 657,277
Claims priority, application Rep. of Korea, Jun. 9, 1995, 1995 15165
Int. Cl.⁶ B24B *5/00*
U.S. Cl. 451—548 **4 Claims**

1. A grinding wheel having a plurality of abrasive tips arranged radially over one side of a disc-shaped sheet, said disc-shaped sheet having an outer periphery and a center, wherein said tips have different concentrations of diamond dust in a way such that

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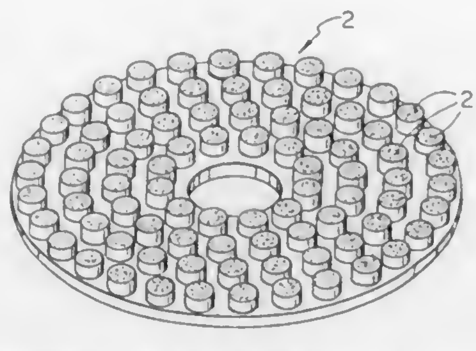


the concentration of the diamond dust decreases from tips being near the outer periphery toward tips being near the center of the sheet.

5,782,683
COLD TEMPERATURE SHIRRING

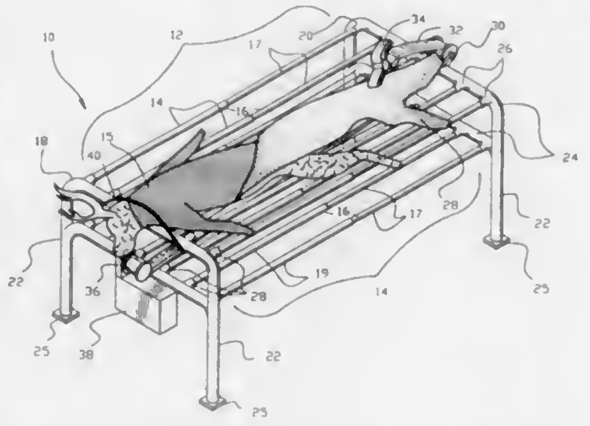
Alan David Stall, Naperville, Ill., assignor to Alfacel s.a., Madrid, Spain
Filed Aug. 27, 1996, Ser. No. 703,796
Int. Cl.^{6} A22C *13/02*
U.S. Cl. 452—27 **12 Claims**

1. In a method of shirring cellulosic skinless sausage casing comprising applying a shirring solution to the interior surface of the casing the improvement comprising,

applying said shirring solution to the interior of the casing at a temperature of less than 10° C.

5,782,684
PORTABLE ANIMAL SKINNER

John V. Shaff, 20 N. Main St., Boonsboro, Md. 21713
Filed Mar. 5, 1997, Ser. No. 811,882
Int. Cl.^{6} A22B *5/16*
U.S. Cl. 452—128 **6 Claims**



1. A portable animal skinning device, said animal skinning device comprising:

upper and lower racks, said racks disposed parallel to each other, each said rack comprising a plurality of hollow telescoping rods, said telescoping rods arranged in a planar formation, and each of said telescoping rods comprising first and second hollow rods, said first rod having an inner diameter greater than the outer diameter of said second rod so that said second rod insertably engages said first rod and can be slidably displaced therein, to facilitate the length adjustment of said telescoping rods;

opposingly disposed first and second end supports, said end supports each comprising a pair of substantially parallel, vertically-oriented hollow metal rods, a pair of substantially parallel, horizontally-oriented hollow metal rods and a pair of stands, said vertical rods integrally connecting to said horizontal rods, sandwiching said horizontal rods therebetween and said stands engaging said vertical rods to facilitate upright positioning thereof;

coupling means for removably securing the proximate ends of said telescoping rods of said upper and lower racks to said horizontal rods of said first and second end supports;

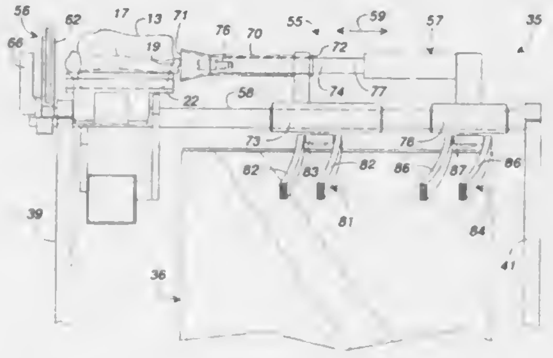
means for removably securing an animal to be skinned to said upper rack during skinning;

means for removably engaging the hide of an animal to be skinned, and;

means for displacing the hide of an animal from said animal on said upper rack to said lower rack.

5,782,685
EXPANDABLE POULTRY THIGH DEBONER

Jacobus E. Hazenbroek, Klaaswaa, Netherlands; Kenneth D. Dillard, Canton, Ga., and Arend Hobbel, Numansdorp, Netherlands, assignors to Systemate Holland, B. V., Numansdorp, Netherlands
Filed Jan. 14, 1997, Ser. No. 782,876
Int. Cl.^{6} A22C *17/04*
U.S. Cl. 452—138 **4 Claims**



1. A poultry processing apparatus for removing the bone from the thigh of a bird comprising:

a stationary cam support;

continuous cam track means extending about said cam support;

a revolving carrier assembly surrounding said cam support and including a continuous series of deboning modules spaced about said cam support and movable along said cam track means;

drive means for revolving said carrier assembly about said stationary cam support;

each of said deboning modules including a meat stripper means and a reciprocatable bone pusher engaging said continuous cam track means and movable toward and away from said meat stripper means in response to revolving about said cam track for engaging and pushing a thigh bone through said meat stripper means;

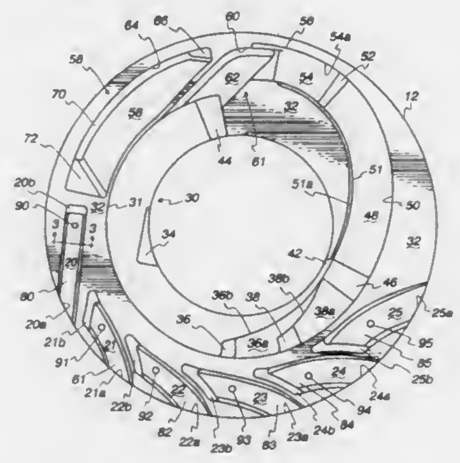
a continuous tray conveyor including a plurality of poultry thigh carrier trays arranged in spaced series for transporting poultry thighs in registration with said carrier modules;

conveyor guide means for guiding each of said carrier trays along a substantially rectilinear loading path toward said revolving carrier assembly, about said revolving carrier assembly, and along a return path to the loading path;

so that poultry thighs are loaded on said carrier trays as the carrier trays move along the loading path, the carrier trays move from the loading path and about the revolving carrier assembly and guide the thighs into registration with said deboning modules, the cam track actuates the bone pushers to push the bones through the meat strippers as the carrier trays move with the revolving carrier to strip the meat from the bones of the thighs, and the carrier trays move away from the revolving carrier along the return path.

5,782,686
DISC COIN SORTER WITH SLOTTED EXIT CHANNELS

Joseph J. Geib, Mt. Prospect; Scott D. Casanova, Roselle, and Douglas U. Mennie, Barrington, all of Ill., assignors to Cummins-Allison Corp., Mt. Prospect, Ill.
Filed Dec. 4, 1995, Ser. No. 566,928
Int. Cl.^{6} G07D *3/16*
U.S. Cl. 453—10 **32 Claims**



27. A coin sorting system, comprising:

a coin sorter for sorting a plurality of coins of mixed denominations, said coin sorter including a coin-driving member and a stationary coin-guiding member having a coin-engaging surface opposing said coin-driving member, said coin-driving member moving said coins along said coin-engaging surface of said stationary coin-guiding member in a coin path, said coin path including a plurality of exit regions for selectively allowing exiting of said coins based upon their respective diameters;

a slot in said coin-engaging surface extending lengthwise in the direction of said coin path, said slot being positioned entirely within said coin path such that said coins simultaneously contact regions of said coin-engaging surface on both sides of said slot, said coin contacting regions on both sides of said slot being approximately coplanar, said slot being defined by at least one surface in said coin-engaging surface, said one surface being vertically displaced away from said coin-driving member; and

at least one coin sensor for sensing said coins guided by said coin-guiding member, said coin sensor being disposed in said slot.

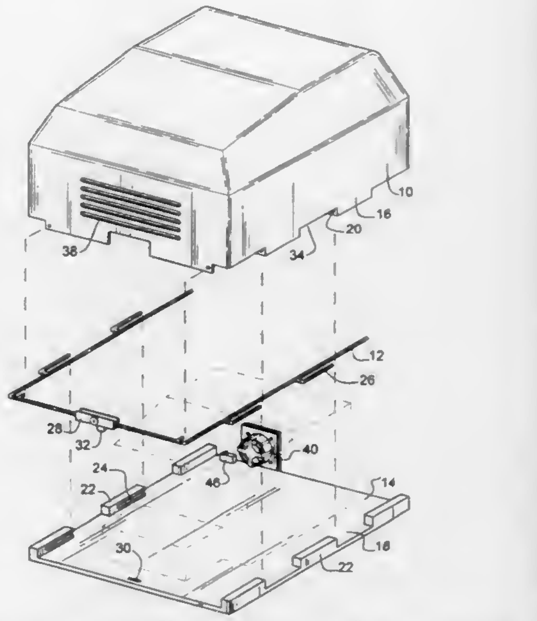
5,782,687
SECURITY COVER FOR FAX MACHINE

James Sniegocki, 8901 Blossom La., Louisville, Ky. 40242
Filed Jan. 15, 1997, Ser. No. 779,655
Int. Cl.^{6} H05K *5/00*
U.S. Cl. 454—184 **11 Claims**

1. A security device for a facsimile machine comprising:

a base member having alternating tongue and groove sections at selected locations along opposed sides of the base member;

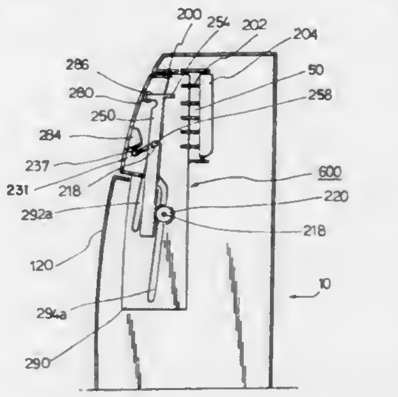
a cover having alternating tongue and groove sections along opposed sides of a lower terminating edge of the cover, said tongue and groove sections of said cover being in mating relation with said base member tongue and groove section; and,



a locking bar having means engageable with the tongue sections of the base member and cover whereby upon engagement with the tongue sections of the base member and the cover, the cover is secured to the base member.

5,782,688
APPARATUS FOR CLOSING AN AIR OUTLET DOOR OF AN AIR CONDITIONER

Chul-Ho Baek, Seongnam, and Jong-Whal Kim, Suwon, both of Rep. of Korea, assignors to Samsung Electronics Co., Ltd, Suwon, Rep. of Korea
Filed Mar. 13, 1997, Ser. No. 816,384
Claims priority, application Rep. of Korea, Mar. 21, 1996, 1996-7778; Mar. 21, 1996, 1996-7779; Mar. 21, 1996, 1996-7781; Jan. 22, 1997, 1997-1791
Int. Cl.^{6} F24F *1/02;13/20*
U.S. Cl. 454—233 **16 Claims**



1. An air conditioner comprising a body having a front panel in which an air outlet is formed; a pair of vertical guides disposed on opposite vertical sides of the air outlet; a vertically movable door for opening and closing the air outlet, said vertical guides cause movement of at least a portion of the door horizontally toward and away from the air outlet during upward and downward movement, respectively, of the door, the door including a pair of vertical edges and a rear surface extending between the vertical edges; a plurality of protrusions projecting outwardly from each of the vertical edges and guided for vertical movement in the vertical guides; driving means disposed within the body; and a movement transmitting means interconnecting the driving means with the rear surface for

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transmitting vertical movement from the driving means to the door, the movement transmitting means accommodating the horizontal movement of the portion of the door.

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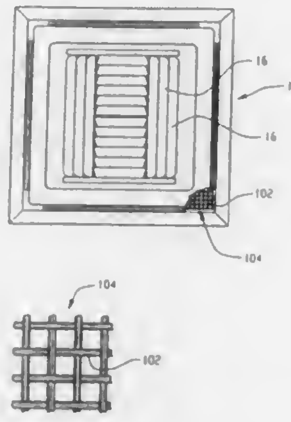
FABRIC FACED AIR DISTRIBUTION DEVICE

Michael E. Woolsey, Oro Valley; G. Michael Kaler, Jr., and Gordon G. Jones, both of Tucson, all of Ariz., assignors to Tomkins Industries Inc., Dayton, Ohio

Filed Jan. 11, 1996, Ser. No. 584,087

Int. Cl.^{6} F24F *13/075*

U.S. Cl. 454—296 **5 Claims**



1. An air circulation device for conditioning a room, comprising
a body defining a passageway for flow of air, the passageway having an opening into the room,
deflectors mounted in the passageway for directing air flow in a predetermined diffuse pattern through the passageway opening and
a fabric covering the passageway opening and being positioned downstream of the deflectors to allow the directed air flow to pass therethrough and into the room in that diffuse air flow pattern.

5,782,690

CURTAIN FIRE DAMPER

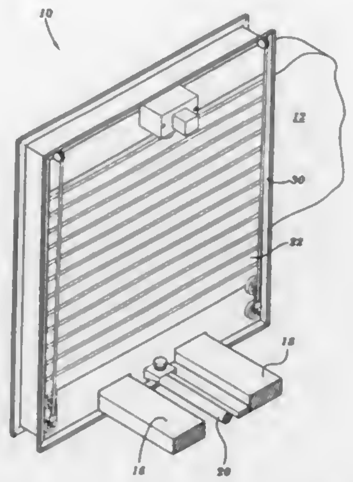
Bradley Kent Gustafson, Burlington; Robert Arthur Horr, Fairfax; David James Miller; Frederick Charles Ringer, Jr., both of Essex Junction, and Conrad Wexelblatt, South Burlington, all of Vt., assignors to International Business Machines Corporation, Armonk, N.Y.

Filed Jun. 6, 1997, Ser. No. 872,127

Int. Cl.^{6} F05F *15/20*

U.S. Cl. 454—369 **20 Claims**

1. A damper system, said system comprising:
an opening in a planar surface;
a track extending through said opening, wherein said track has a defined shape and wherein said track facilitates the movement of an object through said opening; and



a movable damper in said opening to provide closure of said opening, wherein said damper is sealably conformable to said track when said damper is closed.

5,782,691

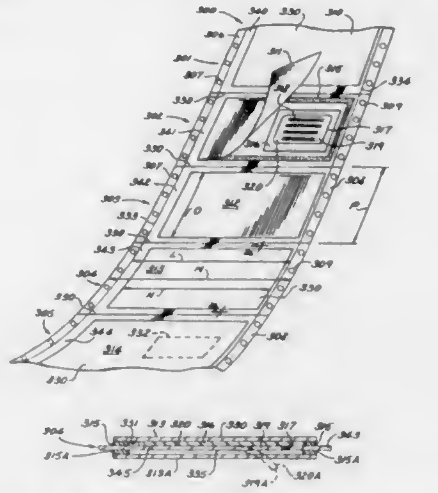
MAILABLE MULTI-SHEET BUSINESS FORM FOR PREVENTION OF TENTING DURING PRINTING

Gary E. Stewart, 2405 E. Desert Crest, Paradise Valley, Ariz. 85253

Continuation-in-part of Ser. No. 423,313, Apr. 18, 1995, Pat. No. 5,630,627, which is a continuation-in-part of Ser. No. 408,887, Mar. 24, 1995, Pat. No. 5,637,369, which is a continuation-in-part of Ser. No. 246,966, May 20, 1994, Pat. No. 5,482,328. This application Oct. 16, 1995, Ser. No. 543,368

Int. Cl.^{6} B42D *15/00;* **B41L** *1/26*

U.S. Cl. 462—4 **4 Claims**



1. A strip of material comprising a plurality of business forms attached end-to-end along transverse parallel lines of weakening, each of said business forms comprising
(a) a first leaf having a front side, a back side, a width, a height, an outer peripheral edge, and an imprinted die cut area lying within said outer peripheral edge;
(b) a second leaf having a front side, a back side, a width, a height, and an outer peripheral edge, the height of said second leaf being less than the height of said first leaf, said second leaf lying within said outer peripheral edge of said first leaf;
(c) means for releasibly securing at least a portion of the outer peripheral edge of said second leaf to the front side of said first leaf such that
(i) the imprinted die cut area lies within said outer peripheral edge of said second leaf and is covered by said second leaf, and

(ii) said second leaf can be peeled off said first leaf to expose the imprinted area;
(d) a third leaf having a front side, a back side, a width, a height and an outer peripheral edge, the height of said third leaf being less than the height of said first leaf, said third leaf lying within said outer peripheral edge of said first leaf; and,
(e) means for releasibly securing at least a portion of the outer peripheral of said third leaf to the back side of said first leaf such that
(i) the imprinted die cut area lies within said outer peripheral edge of said third leaf and is covered by said third leaf, and
(ii) said third leaf can be peeled off said first leaf to expose the imprinted die cut area.

5,782,692

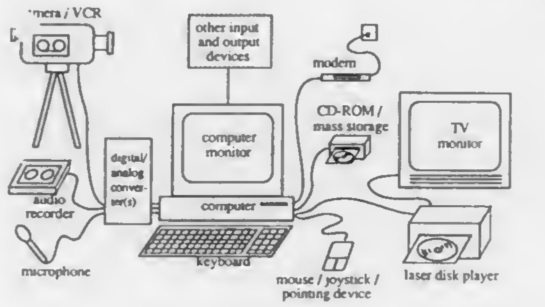
TIME-SEGMENTED MULTIMEDIA GAME PLAYING AND AUTHORING SYSTEM

Jan Stelovsky, 2049 Oswald St., Honolulu, Hi. 96816

Division of Ser. No. 278,946, Jul. 21, 1994, Pat. No. 5,613,909. This application Mar. 22, 1997, Ser. No. 823,333

Int. Cl.^{6} A63F *9/22*

U.S. Cl. 463—1 **8 Claims**



1. A method for playing an interactive multimedia game comprising the steps of:
providing a multimedia presentation comprised of a plurality of recorded media tracks with at least a video track that is clocked in accordance with time address points of a given time axis;
providing a programmed game sequence for play on a player unit, including displaying video images of the video track of the multimedia presentation in conjunction with receiving user input;
dividing at least said video track of said multimedia presentation into a plurality of presentation segments having respective start and end time address points on the given time axis.
linking each of a plurality of game sequence subunits of said programmed game sequence to start and end time address points of respective ones of said video track presentation segments;
displaying game choices stored with each respective one of the game sequence subunits in conjunction with displaying respectively linked video track presentation segment during a time period delimited by the start and end time address points of the respective presentation segment; and
receiving a user input at any time during the time period of said respective presentation segment as a selection of a game choice for the respective game sequence subunit linked to said presentation segment, and providing a game sequence output determined by said game sequence subunit in accordance with said user input selection of said game choice.

5,782,693

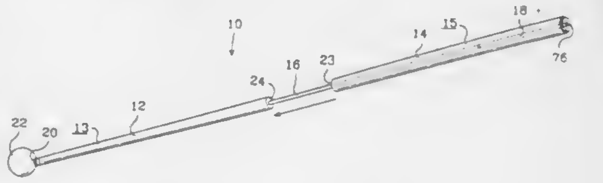
COLLAPSING CUE

Frank L. Jordan, 227 Redfish La., Boise, Id. 83706, and Michael G. Givens, 227 Silver City Dr., Boise, Id. 83713

Continuation-in-part of Ser. No. 571,600, Dec. 13, 1995. This application Jun. 24, 1996, Ser. No. 668,817

Int. Cl.^{6} A63D *15/08*

U.S. Cl. 473—48 **15 Claims**



1. A retractable cue for propelling a game piece, the cue having a longitudinal axis, the cue comprising:
a. front portion having a first interface;
b. a back portion; and
c. a collapsing assembly removably connecting the front portion interface to the back portion so that the front portion, back portion and collapsing assembly are coaxial, the collapsing assembly comprising:
(1) a rod having a first rod being end and a second rod end, the first rod end removably joined to the first interface, the rod being coaxial with the front portion, and having a first glide at the second rod end;
(2) first tube having an interior surface extending from a first tube end to a second tube end, wherein the first glide, in mechanical communication with the interior surface, aligns the first tube on the axis, the first tube having:
(a) a second glide supporting the rod at the first tube end, and provides a first abutment surface in mechanical communication with the first glide
(3) a sleeve having a bore along the axis, the sleeve being in mechanical communication with the third glide and having mean to prevent removal of the first tube from the bore, and the sleeve having a second abutment surface that transmits an axial kinetic energy of the back portion to the first portion to propel a game piece when said cue is thrust forward by a user;
wherein said sleeve and said back portion are removably attached to each other at a second interface; and
wherein the cue comprises mean for interchangeable connecting said back portion to said first interface of the front portion upon removal of said collapsing assembly from the cue front and back portion.

5,782,694

DAMPER DISC ASSEMBLY HAVING A PLATE FORMED WITH LUBRICATING MEMBERS FOR REDUCING FRICTION CAUSED BY ENGAGEMENT WITH DAMPER SPRINGS

Hisashi Honjo, Moriguchi; Ikuo Murata, Neyagawa; Hideyuki Imanaka, Moriguchi, and Hiroyuki Matsubara, Neyagawa, all of Japan, assignors to Exedy Corporation, Osaka, Japan

Filed Jul. 10, 1996, Ser. No. 676,659

Claims priority, application Japan, Jul. 21, 1995, 7-186042; Sep. 12, 1995, 7-234389

Int. Cl.^{6} F16D *3/14;3/52*

U.S. Cl. 464—64 **11 Claims**

1. A damper disc assembly comprising:
a first rotary plate having a first receiving portion, said first rotary plate formed with opposite radially and circumferentially extending surfaces, a portion of each of said extending surfaces radially outward from and adjacent to said first receiving portion being formed with circumferentially extending recesses;
a pair of second rotary plates disposed concentrically on either side of said first rotary plate, said second rotary plates being

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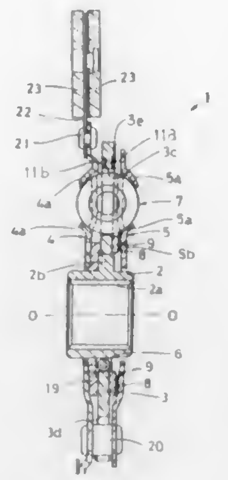


rotatable relative to said first rotary plate and having second receiving portions corresponding to said first receiving portion;

an elastic member disposed within said first receiving portion and said second receiving portions elastically coupling the first rotary plate to said second rotary plates in the circumferential direction; and

a pair of lubricant-impregnated members disposed in said circumferentially extending recesses such that, in response to centrifugal forces said elastic member contacts said lubricant-impregnated members.

5,782,695

AXIALLY FIXED HOMOKINETIC TRANSMISSION JOINT HAVING A SLEEVE WITH CENTERING LUGS ENGAGED WITH SPHERICAL WALL SURFACES OF A DRIVING BARREL

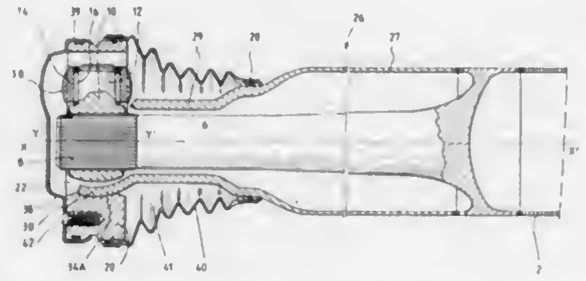
Bernard Poulin, Conflans-Sainte-Honorine, France, assignor to GKN Automotive AG, Lohmar, Germany

Filed Apr. 11, 1995, Ser. No. 419,703

Claims priority, application France, Jun. 23, 1994, 94 07734

Int. Cl.⁶ F16D *3/26*

U.S. Cl. 464—111 **11 Claims**



1. An articulated homokinetic transmission joint, comprising:

a tripod element having three trunnions thereon and three rollers respectively mounted on said three trunnions;

a driving barrel defining a central cavity and comprising three pairs of raceways spaced on the periphery of said central cavity and three spherical wall portions, said driving barrel receiving said tripod element in said central cavity thereof;

a stem connected to rotate with a shaft, said stem carrying said tripod element; and

a sleeve in which said stem substantially axially extends, said sleeve having a first end portion connected to said shaft and a second end portion defining an outwardly spherical bell mouth, said outwardly spherical bell mouth having three recesses defining three lugs on said outwardly spherical bell mouth for radially centering said sleeve in said central cavity of said driving barrel, said three lugs cooperating with said three spherical wall portions so as to axially position said tripod element relative to said barrel.

5,782,696

FIXED BALL-TYPE HOMOKINETIC JOINT

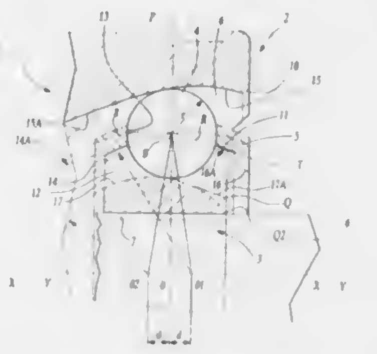
Pierre L. Guimbretiere, Neauphle le Chateau, France, assignor to GKN Automotive, Germany

Filed Feb. 25, 1997, Ser. No. 805,586

Claims priority, application France, Mar. 4, 1996, 96 02692

Int. Cl.⁶ F16D *3/224*

U.S. Cl. 464—145 **13 Claims**



1. Fixed ball-type homokinetic joint comprising a combination:

a bell element (**2**) having an axis (X—X) of rotation for connection to a first shaft, said bell element having an entrance end and an inner end and defining a cavity which has an at least partly spherical surface (**8**) and six first grooves (**9**), each first groove having a directrix line (**14**A;**14**B) contained in an axial plane of said bell element;

a hub element having an axis (Y—Y) of rotation for connection to a second shaft (**6**), said hub element defining an at least partly spherical outer surface (**11**) and six second grooves (**12**), each second groove having a directrix line (**16**A;**16**B;**16**C;**16**D) contained in an axial plane of said hub element;

six balls (**4**) respectively and partly received in pairs of said first and second grooves;

a cage (**5**) cooperative with said balls for retaining said balls (**4**) in a bisecting plane (PB) of said joint when said joint is flexed, said cage comprising spherical outer and inner surfaces respectively substantially conjugate to said at least partly spherical surface (**8**) of said bell element and said at least partly spherical surface (**11**) of said hub element, said directrix lines of said first and second grooves being constantly symmetric relative to said bisecting plane and each comprising, for said first grooves (**9**), a first arc having a center of curvature (**01**) offset toward said entrance end of said bell element relative to the center (**0**) of said joint and, for said second grooves, a second arc having a center of curvature (**02**) which is offset toward said inner end of said bell element relative to said center (**0**) of said joint, wherein

in considering for each second groove (**12**), (i) a predetermined first point (R;B) of said directrix line (**16**A;**16**B;**16**D;**16**G) in a position selected from the group consisting of a position in which said first point is spaced from a diametral plane (P) of said hub element perpendicular said axis of said hub element, toward said entrance end of said bell element and a position in which said first point is contained in said diametral plane, (ii) the tangent (T), at said first point, to the circle (C) centered on the corresponding center of curvature (**02**;**03**;**0**B) of said directrix line, and (iii) a reference point (V) positioned radially outside a point (L) of said circle which is positioned in said bisecting plane (PB) of the joint when the joint is flexed at a maximum angle, wherein:

the directrix line of said second groove (**16**A;**16**B;**16**C;**16**D) is a curve which is tangent to said tangent (T) at said first point (R;B) and passes through said reference point (V).

5,782,697

SHAFT ABUTMENT SCREW, ESPECIALLY FOR AN ELECTRIC MOTOR, AND A METHOD OF MAKING SUCH A SCREW

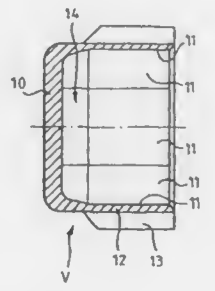
Stephane Hommelet, and Xavier Savy, both of Chatellerault, France, assignors to Valeo Systemes D'Essuyage, La Verriere, France

Filed Apr. 9, 1996, Ser. No. 631,696

Claims priority, application France, Apr. 11, 1995, 95 04313

Int. Cl.⁶ B21H *3/02*

U.S. Cl. 470—8 **3 Claims**



1. A method of making a shaft abutment screw for cooperation with an armature shaft of an electric motor, wherein the method comprises the steps of:

(a) pressing out a flat blank of mild steel;

(b) carrying out a drawing operation on the blank so as to form a hollow component comprising a generally flat base wall and a generally cylindrical skirt portion extending from the base wall and defining a screw driving socket circumscribed by the skirt portion;

(c) forming a screw thread on the outside of the said skirt portion; and then

(d) nitriding the component.

5,782,698

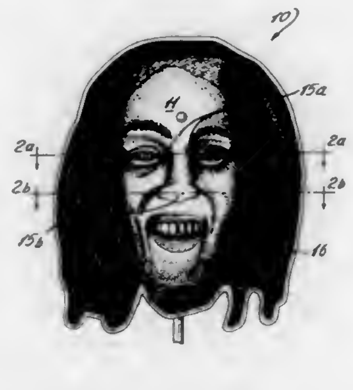
OPTICAL ILLUSION DEVICE

Allan Keller, 358 Nagel Avenue, Orleans, Ottawa, Ontario, Canada, K1E 1R6

Filed Apr. 5, 1996, Ser. No. 628,279

Int. Cl.⁶ A63J *5/02*

U.S. Cl. 472—61 **17 Claims**



1. An optical illusion device comprising:

a substrate having a negative image-forming surface; and

a shading coloration applied to said surface, said coloration corresponding to a shape of said negative image-forming surface such that portions of said surface which are more recessed are generally made lighter in shade and portions of said surface which are less recessed are generally made darker in shade, whereby perception of a three-dimensional image is enhanced without generating shade variation artifacts in the image perceived.

5,782,699

STEERABLE SWINGING DEVICE

Neil Horace Harrap, 11 St Mary Street, Thorndon, Wellington, New Zealand

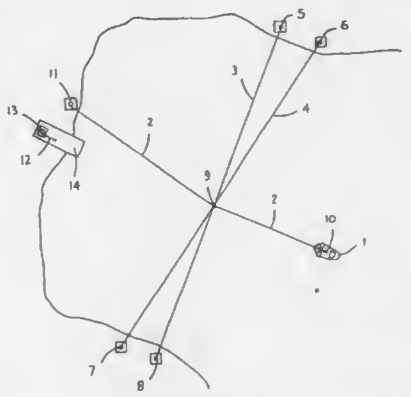
PCT No. PCT/NZ95/00019, § 371 Date Aug. 22, 1996, § 102(e) Date Aug. 22, 1996, PCT Pub. No. WO95/22385, PCT Pub. Date Aug. 24, 1995

PCT Filed Feb. 22, 1995, Ser. No. 696,940

Claims priority, application New Zealand, Feb. 22, 1994, 250943

Int. Cl.⁶ A63G *9/12*

U.S. Cl. 472—118 **13 Claims**



1. A steerable swinging device for swinging a rider attached to a carrier through the air for amusement, the steerable swing device comprising:

a support means extending between at least two anchor points, said anchor points positioned substantially opposite each other at a height above the ground and located respectively on support members that are spaced apart from each other;

a swing cable suspended vertically from the support means at a position approximately midway between at least two anchor points;

a carrier adapted to support a rider during a ride, the carrier attached to the lower end of the swing cable; and

a reposition system adapted to reposition the carrier to a height above the ground suitable for release of the carrier at the start of a ride;

the carrier being provided with control means operable by the rider during the ride such that the rider is able to control the direction of lateral movement of the carrier during the ride as the carrier swings from its launch position about the support means.

5,782,700

GOLFING TARGET RINGS

Edward Franklin Haas, 840 Diana Pl. NE., Albuquerque, N. Mex. 87123

Filed Dec. 16, 1996, Ser. No. 766,944

Int. Cl.⁶ A63B *69/36*

U.S. Cl. 473—195 **1 Claim**

1. A golf target device for practice and play, comprising:

(1) a flat substantially circular ring of predetermined diameter and thickness;

(2) said ring having a centrally located hole approximately the size of a conventional golf hole;

(3) said ring being inclined toward the vertical with respect to the horizontal plane;

(4) said ring being attached by permanent means to a support device such that said rings' lowest edge touches the same plane the support device sets upon;

(5) said support device provides a receptacle for the perpendicular positioning of a conventional size flag pin, with flag, up through the center of said golf size hole;

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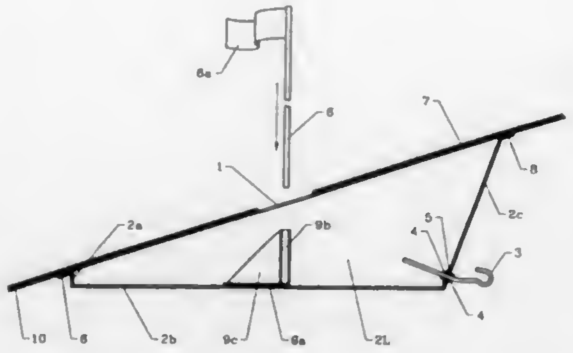


(6) said support device has one side with a lower edge which slopes inward towards the centrally located hole, and upon which a tow hook is centered and permanently attached;

whereby any golf shot skills other than putting may be acquired, during practice or play sessions, by striking a golf ball with the appropriate golfing club in an attempt to touch the circular ring with a golf ball.

5,782,701

GOLF PRACTICE AID

Sean Joseph O'Bryan, Flat 8, 27 Walton Crescent, Abbotsford, NSW 2046, Australia

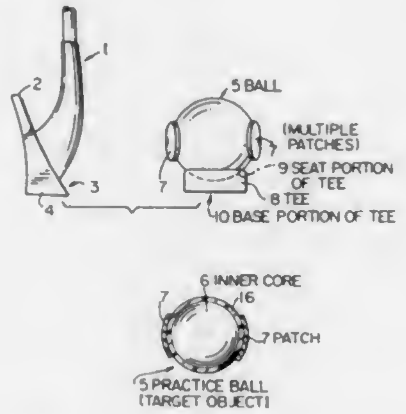
PCT No. PCT/AU95/00153, § 371 Date Sep. 17, 1996, § 102(e) Date Sep. 17, 1996, PCT Pub. No. WO95/25566, PCT Pub. Date Sep. 28, 1995

PCT Filed Mar. 20, 1995, Ser. No. 714,151

Claims priority, application Australia, Mar. 21, 1994, PM4618

Int. Cl.^{6} A63B *69/36*

U.S. Cl. 473—235 **15 Claims**



1. A golf practice aid suitable for use with, an adapted to be struck by a golf club having a strike face, the aid comprising a simulated golf ball which includes a flexible deformable core surrounded by an energy absorbing outer cover with an adhesive retention means attached to an outer surface of said cover, said adhesive retention means releasably adhering to a complementary adhesive retention means attached to the strike face when struck by said club, wherein said cover comprises a material having a predetermined tensile strength and said core comprises a material having a predetermined density such that when struck said simulated golf ball adheres to the strike face and produces a sound of an actual golf ball being struck by a golf club.

5,782,702

PRACTICE GOLF BALL

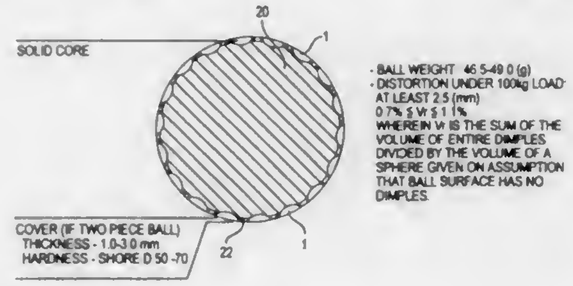
Hisashi Yamagishi; Jun Shindo, and Hiroto Sasaki, all of Chichibu, Japan, assignors to Bridgestone Sports Co., Ltd., Tokyo, Japan

Filed Apr. 30, 1997, Ser. No. 841,669

Claims priority, application Japan, May 1, 1996, 8-134249

Int. Cl.^{6} A63B *37/14;69/36*

U.S. Cl. 473—280 **4 Claims**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SOLID CORE
- BALL WEIGHT 46.5-49.0 (g)
- DISTORTION UNDER 100kg LOAD AT LEAST 2.5 (mm)
0.7% ≦ Vr ≦ 1.1%
WHEREIN Vr IS THE SUM OF THE VOLUME OF ENTIRE DIMPLES DIVIDED BY THE VOLUME OF A SPHERE GIVEN ON ASSUMPTION THAT BALL SURFACE HAS NO DIMPLES.
COVER (IF TWO PIECE BALL)
THICKNESS - 1.0-3.0 mm
HARDNESS - SHORE D 50-70
22
1

1. A practice golf ball having a multiplicity of dimples formed in its surface, wherein said ball has a weight of 46.5 to 49.0 grams and undergoes a distortion of 2.5 to 4.0 mm under a constant load of 100 kg, and a percent dimple volume Vr is in the range of $0.7\% \leqq Vr \leqq 1.1\%$ wherein the percent dimple volume Vr is the sum of the volumes of the entire dimples divided by the volume of a phantom sphere given on the assumption that the ball surface is free of dimples.

5,782,703

PRACTICE GOLF BALL

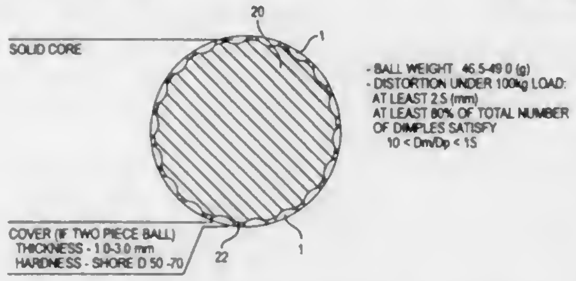
Hisashi Yamagishi; Jun Shindo, and Hiroto Sasaki, all of Chichibu, Japan, assignors to Bridgestone Sports Co., Ltd., Tokyo, Japan

Filed Apr. 30, 1997, Ser. No. 841,678

Claims priority, application Japan, May 1, 1996, 8-134248

Int. Cl.^{6} A63B *37/14;69/36*

U.S. Cl. 473—280 **4 Claims**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SOLID CORE
- BALL WEIGHT 46.5-49.0 (g)
- DISTORTION UNDER 100kg LOAD: AT LEAST 2.5 (mm)
AT LEAST 80% OF TOTAL NUMBER OF DIMPLES SATISFY
10 < Dm/Dp < 15
COVER (IF TWO PIECE BALL)
THICKNESS - 1.0-3.0 mm
HARDNESS - SHORE D 50-70
22
1

1. A practice golf ball having a multiplicity of dimples formed in its surface, wherein said ball has a weight of 46.5 to 49.0 grams and undergoes a distortion of 2.5 to 4.0 mm under a constant load of 100 kg, and those dimples having a Dm/Dp ratio between 10/1 and 15/1 occupy at least 80% of the total number of dimples wherein an individual dimple has a diameter Dm and a depth Dp.

5,782,704

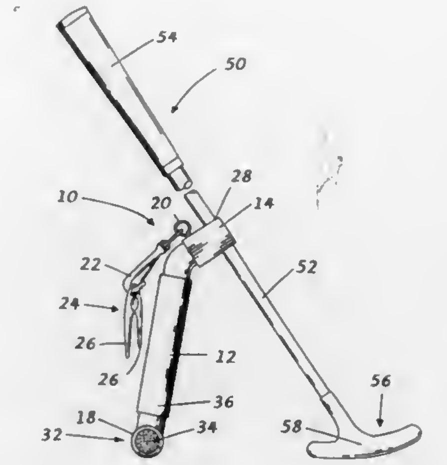
GOLF CLUB HOLDER

Sean D. Tetler, and Christopher P. Tetler, both of 124 Hillside Rd., North Andover, Mass. 01845

Filed Jun. 12, 1997, Ser. No. 873,548

Int. Cl.^{6} A63B *55/10*

U.S. Cl. 473—282 **13 Claims**



1. A device for supporting a golf club by engaging a shaft portion of the golf club to maintain a grip portion of the golf club that is located along the shaft portion of the golf club above a surrounding portion of ground on which a head portion of the golf club rests, the golf club support device comprising:

- a generally rigid and elongate support member for providing an angular support for a golf club to be supported wherein the support member comprises a single tubular member with a first end and a second end;
- a shaft clamp attached to the first end of the support member;
- a channel in the shaft clamp aligned with the support member for receiving and gripping the shaft portion of a golf club to be supported; and
- a means connected to the support member for providing lateral support to the device;

whereby the shaft portion of a golf club may be supported by the device to maintain the grip portion of the golf club above a surrounding portion of ground thereby supporting the golf club in an easily visible position, preventing the grip portion of the club from becoming wet or soiled, and easing retrieval of the golf club.

5,782,705

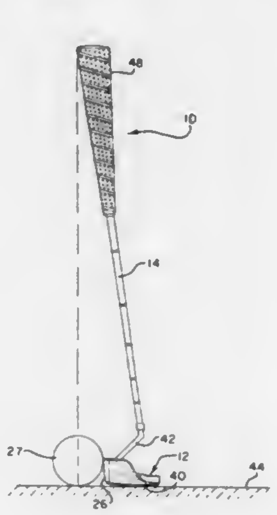
PUTTER CONSTRUCTION

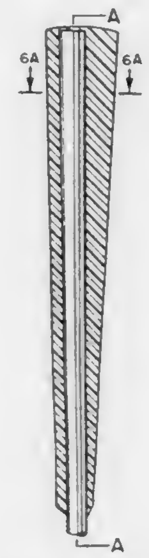
Ray L. Solari, 101 Montreal St., Playa del Ray, Calif. 90293

Filed Nov. 26, 1996, Ser. No. 756,717

Int. Cl.^{6} A63B *53/04;53/00;53/14*

U.S. Cl. 473—300 **4 Claims**





1. A putter golf club comprising: a ball striking head including, an elongated base portion with a heel end and a toe end, and a smooth bottom surface, a ball striking plate secured onto a surface of the base portion extending between the heel and toe ends, said plate having an outer ball striking face that both intersects the base portion bottom surface at an angle in the range of 90–95 degrees and is continuously convexly curved away from the base portion between the heel and the ends;

- a shaft having a lower end affixed to the base portion and extending in a direction angularly upwardly and forwardly of the head and ball striking plate, said shaft including a first straight-line portion and a second integral portion angularly disposed to said first portion and having a lower outer end affixed to an upper surface of the head base portion, the angle between said first and second shaft portions being about 45 degrees, said second portion extending upwardly from the said head and rearwardly away from the striking plate; and
- grip means received onto the shaft upper end, said grip means being oblong in cross-section along the axis of the shaft and including an opening for the shaft located off center closer to the forward hand when the club is gripped for use.

5,782,706

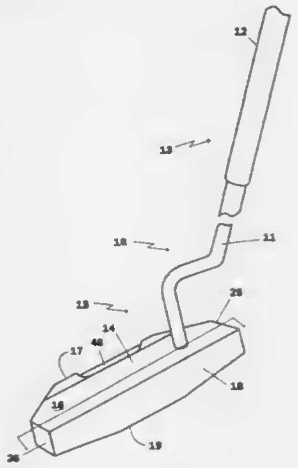
GOLF PUTTER, COMPONENTS THEREOF AND METHODS OF MAKING THE SAME

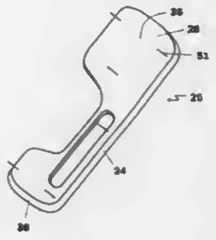
Dennis K. DePriest, 4948 N. Pine Hill Dr., Ozark, Mo. 65721

Filed Jun. 23, 1997, Ser. No. 880,841

Int. Cl.^{6} A63B *53/04*

U.S. Cl. 473—341 **20 Claims**





1. A golf putter having a shaft with a grip at one end and a head at the opposite end, said head having a heel end, a toe end spaced longitudinally from said heel end, a top surface, a rear surface, a bottom surface and a substantially planar front striking face, said head comprising a open molded compounded thermoset polymeric resin composite having a weighted mass fully enclosed therein, the terminal end of said shaft residing in an aperture in said mass and said shaft fixedly attached to said head, said weighted mass (has) having needle like projections extending to said bottom surface of said thermoset polymeric head supporting said weighted mass above said bottom surface.

5,782,707

THREE-PIECE SOLID GOLF BALL

Hisashi Yamagishi, and Hiroshi Higuchi, both of Chichibu, Japan, assignors to Bridgestone Sports Co., Ltd., Tokyo, Japan

Filed Mar. 10, 1997, Ser. No. 812,925

Claims priority, application Japan, Mar. 11, 1996, 8-082121

Int. Cl.^{6} A63B *37/06;37/12;37/14*

U.S. Cl. 473—374 **6 Claims**

1. A three-piece solid golf ball of the three-layer structure comprising a solid core, an intermediate layer, and a cover, having a plurality of dimples in the ball surface wherein

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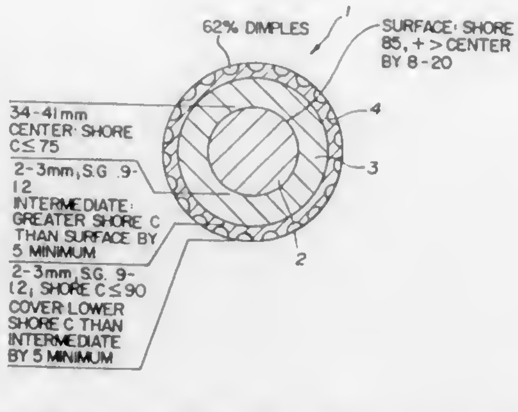

62% DIMPLES
1
SURFACE: SHORE C ≤ 85, + > CENTER BY 8-20
4
3
2
34-41mm CENTER: SHORE C≤75
2-3mm, S.G .9-1.2 INTERMEDIATE: GREATER SHORE C THAN SURFACE BY 5 MINIMUM
2-3mm, S.G. .9-1.2, SHORE C≤90 COVER: LOWER SHORE C THAN INTERMEDIATE BY 5 MINIMUM

the solid core, intermediate layer, and cover each have a hardness as measured by a JIS-C scale hardness meter wherein the core center hardness is up to 75 degrees, the core surface hardness is up to 85 degrees, the core surface hardness is higher than the core center hardness by 8 to 20 degrees, the intermediate layer hardness is higher than the core surface hardness by at least 5 degrees, and the cover hardness is lower than the intermediate layer hardness by at least 5 degrees, and the dimples occupy at least 62% of the ball surface.

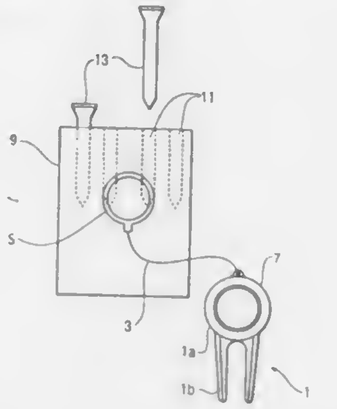
5,782,708
RETRACTABLE GOLF TOOL

Madison D. Kimball, Jr., 202 Southgate Dr., Hot Springs, Ark. 71913

Filed Aug. 26, 1997, Ser. No. 917,482

Int. Cl.^{6} A63B *57/00*

U.S. Cl. 473—408 **11 Claims**



1. A golf tool, comprising:

a housing;

a fastener connected to the housing for releasably fastening the housing to a golfer's apparel;

a retractable cord mechanism mounted in the housing and presenting a retractable cord with an end emerging from the housing; and

a divot repair tool including a pair of prongs secured to the end of the cord.

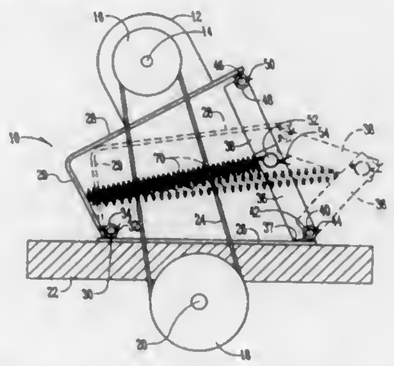
5,782,709
BELT TENSIONING DEVICE AND METHOD OF ADJUSTING BELT TENSION

Floyd D. Greimann, Sheffield, Iowa, assignor to Greimann Accu-Spray, Sheffield, Iowa

Filed Feb. 8, 1996, Ser. No. 598,777

Int. Cl.^{6} F16H *7/08*

U.S. Cl. 474—110 **11 Claims**



1. A method of adjusting the tension of a drive belt in a pulley drive mechanism including a motor with a drive shaft, a drive pulley operatively mounted on the drive shaft, an idler pulley rotatably mounted in a base, and a drive belt trained about the pulleys, the method comprising:

installing a scissor jack between the drive pulley and idler pulley, the scissor jack including a base plate, a motor mount plate pivotally connected to the base plate, and scissor arms pivotally extending between the base plate and mount plate;

attaching the base plate to the base of the pulley mechanism and mounting the motor on the mount plate; and

actuating the jack to adjust the spacing between the pulleys and thereby adjust the tension of the drive belt.

5,782,710
AUTOMATIC CLUTCH CONTROL

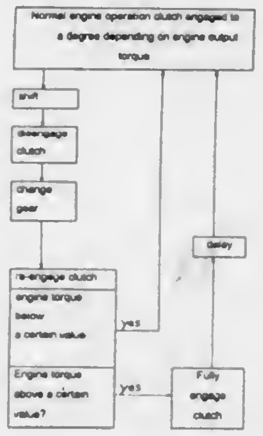
Franz Kosik, Ostfildern, and Günter Wörner, Kernen, both of Germany, assignors to Mercedes-Benz AG, Stuttgart, Germany

Filed Aug. 19, 1996, Ser. No. 699,664

Claims priority, application Germany, Aug. 21, 1995, 19530610.4

Int. Cl.^{6} B60K *23/02*

U.S. Cl. 477—86 **4 Claims**


Normal engine operation clutch engaged to a degree depending on engine output torque
shift
disengage clutch
change gear
delay
re-engage clutch
engine torque below a certain value
yes
Engine torque above a certain value?
yes
Fully engage clutch

1. A method of controlling an automatic clutch disposed between a motor and a drive train of a vehicle which includes a transmission, said method comprising the steps of: engaging said clutch during operation of said vehicle in dependence on the torque generated by said motor such that a torque which can be transmitted by said clutch is higher, by a predetermined amount, than the torque generated by said motor, and, immediately after a gear change of said transmission, first fully engaging said clutch for the transmission of maximum torque if the motor torque as represented by a torque value exceeds a certain threshold value.

5,782,711
HYDRAULIC PRESSURE CONTROL APPARATUS FOR AN AUTOMATIC TRANSMISSION

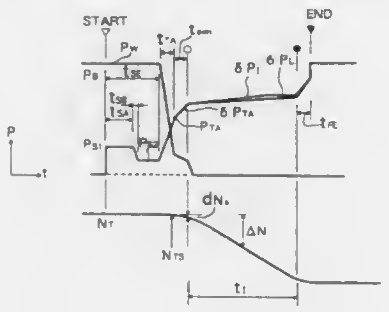
Hiroshi Tsutsui, Nishio; Kazumasa Tsukamoto, Toyota; Masahiro Hayabuchi; Masaaki Nishida, both of Anjo; Yoshihisa Yamamoto, Nishio; Toshihiro Kano, Anjo; Takayuki Kubo, Nishio, and Saoto Tsuchiya, Anjo, all of Japan, assignors to Aisin AW Co., Ltd., Japan

Filed Dec. 18, 1996, Ser. No. 768,462

Claims priority, application Japan, Dec. 19, 1995, 7-330895

Int. Cl.^{6} F16H *5/40*

U.S. Cl. 477—156 **11 Claims**



1. A hydraulic pressure control apparatus for controlling an automatic transmission of a vehicle comprising:

an automatic shift mechanism for changing a transmission input shaft rotational speed over transmission paths by engaging and disengaging a plurality of friction engagement elements through operation of hydraulic servos, said automatic shift mechanism providing output rotation to a wheel of said vehicle;

a changeover valve that switches to supply hydraulic pressure to or discharge it from at least one of said hydraulic servos to engage and disengage at least one of said friction engagement elements;

at least one pressure regulator for regulating said hydraulic pressure to said hydraulic servos; and

a control unit for controlling regulation of said hydraulic pressure by said pressure regulator, said control unit comprising:

input torque calculation means for calculating an input torque of said input shaft to said automatic shift mechanism based on a running condition of said vehicle,

target hydraulic pressure calculation means for calculating a target hydraulic pressure in accordance with the input torque, for a condition immediately before said input rotational speed starts to change, and

hydraulic pressure control means for outputting a signal to said pressure regulator to provide a first sweep section where said hydraulic pressure is changed to said target hydraulic pressure with a pretermined first gradient, and a second sweep section where said hydraulic pressure is changed from said target hydraulic pressure with a second gradient that is less than the predetermined first gradient.

5,782,712
BICYCLE CHAIN SPROCKET

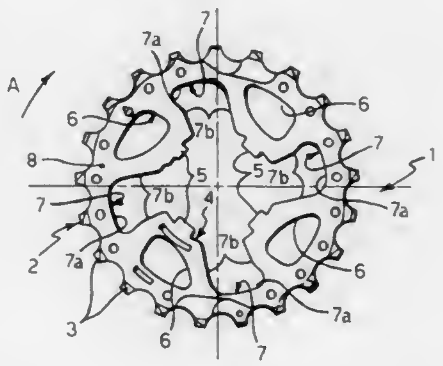
Valentino Campagnolo, Vincenza, Italy, assignor to Campagnolo S.r.l., Vincenza, Italy

Filed Jun. 25, 1997, Ser. No. 882,544

Claims priority, application Italy, Jun. 25, 1996, TO96A0539

Int. Cl.^{6} F16H *55/30*

U.S. Cl. 474—152 **4 Claims**



1. Sprocket to be fixed to the hub of a bicycle rear wheel, for meshing with a bicycle chain, comprising a flat annular body having an outer toothed crown for meshing with the chain and an inner circular edge, including teeth projecting radially inwardly, for coupling of the sprocket on a support fluted body, wherein said inner circular edge is interrupted, between each inner tooth and the adjacent one, by a notch which extends into the body of the sprocket up to in proximity of its outer circumferencial edge, so that the central aperture of said sprocket takes a multi-lobed profile.

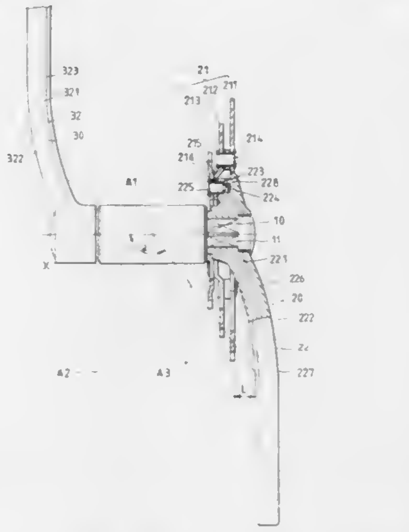
5,782,713
BICYCLE GEAR CRANK ARRESTING DEVICE

Shu-Chiung C. Yang, No. 9-1, Lane 20, Rong-Hua Street, Taichung City, Taiwan

Filed Dec. 6, 1995, Ser. No. 568,377

Int. Cl.^{6} F16H *55/12*

U.S. Cl. 474—160 **7 Claims**



1. A bicycle gear crank arresting device, which comprises:

an axle fastened pivotally with a five-way tube of a bicycle frame and provided with a rotary rod capable of rotating freely;

a first arresting member fastened with one end of said rotary rod and composed of a gear set and a first crank set, said gear set provided with at least one gear piece having a plurality of

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through holes, said first crank set provided with a disk portion and a crank portion, said disk portion having a plurality of slots corresponding in location to said through holes, said slots having respectively a predetermined depth and a female thread engageable with a male thread of a screw received in one of said through holes; and

a second arresting member fastened with another end of said rotary rod;

wherein said crank portion has an arcuate section and a linear section, said arcuate section having an arcuate locus on an inner side thereof facing said locus similar to an arcuate locus of rear forks of said five-way tube of said bicycle frame, said arcuate section and said linear section meeting at an intersection point from which an inclined line extends to a midpoint of an axis between ends of said axle forming a predetermined angle with said axis of said axle and said inclined line meets with a straight line extending from the intersection point and parallel to said axis a distance (L) from an outer side of said gear piece for a predetermined distance, and said linear section is perpendicular to said axis of said axle; and wherein said second arresting member has a crank portion fastened at one end thereof with said rotary rod and at another end thereof with a pedal, said crank portion of said second arresting member being corresponding in profile to said crank portion of said first arresting member.

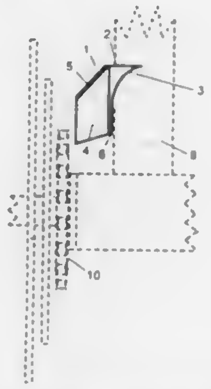
5,782,714
BICYCLE CHAIN GUIDE

Alan G. Osgood, Renton, Wash., assignor to Evergreen Innovations, L.L.C., Redmond, Wash.

Filed Jan. 27, 1997, Ser. No. 789,750

Int. Cl.^{6} B62J *13/00*

U.S. Cl. 474—144 **11 Claims**



1. A one piece chain guide for preventing derailment of a drive chain from a bicycle chain wheel, comprising a plate:

said plate having a frame attachment section with an edge that is permanently attached to a bicycle seat tube; said edge of said frame attachment section conforms to the shape of the bicycle seat tube; and a chain contacting surface, said chain contacting surface provides means for preventing said drive chain from derailing from said bicycle chain wheel.

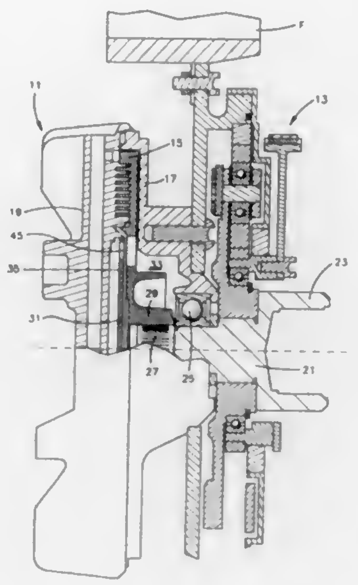
5,782,715
DUAL RATIO VISCOUS FAN DRIVE

Erlen B. Walton, Farmington; James R. DeBrabander, Marshall, and David P. Godlew, Beverly Hills, all of Mich., assignors to Eaton Corporation, Cleveland, Ohio

Filed Aug. 29, 1996, Ser. No. 705,351

Int. Cl.^{6} F16H *47/08*

U.S. Cl. 475—48 **26 Claims**



1. A fluid coupling device of the type including a first rotatable coupling member defining an axis of rotation, and a fluid chamber therein comprising a fluid operating chamber, a second rotatable coupling member disposed in said fluid operating chamber and being rotatable relative to said first coupling member, to transmit torque thereto in response to the presence of viscous fluid in said fluid operating chamber, an input means in driving relationship with said second coupling member, and operable to transmit input torque thereto, characterized by:

(a) speed increasing gear means including an input portion in driven relationship with said input means;

(b) said speed increasing gear means further including an output portion in driving relationship to said first rotatable coupling member;

(c) actuation means for said speed increasing gear means having a first, actuated condition in which said speed increasing gear means transmits input torque from said input means to said first rotatable coupling member at a speed of rotation greater than that of said input means; and, (d) said actuation means having a second, unactuated condition in which substantially all input torque is transmitted from said input means to said second rotatable coupling member.

5,782,716
DRIVING DEVICE FOR A BICYCLE

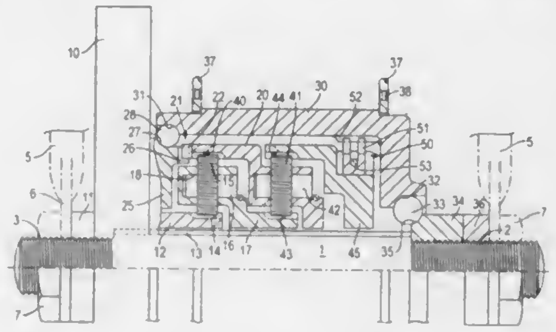
Seiji Hukui, Sakai, and Nobuyuki Matsuo, Shimonoseki, both of Japan, assignors to Shimano, Inc., Osaka, Japan

Filed Jul. 24, 1996, Ser. No. 685,696

Claims priority, application Japan, Jul. 28, 1995, 7-212412

Int. Cl.^{6} B62M *23/02*; B60K *7/00*

U.S. Cl. 475—149 **14 Claims**



1. A driving apparatus for a bicycle comprising:

a hub shaft (**1**,**61**);

a hub body (**30**,**100**) rotatably mounted about the hub shaft (**1**,**61**);

a drive member (**12**,**23**,**72**) mounted coaxially with the hub shaft (**1**,**61**) for coupling to a motor (**10**,**10***a*,**70**);

a one-way clutch (**50**,**90**) disposed in a transmission path between the drive member (**12**,**23**,**72**) and the hub body (**30**,**100**) for transmitting rotation of the drive member (**12**,**23**,**72**) to the hub body (**30**,**100**) only in one direction;

speed reduction means (**14**,**15**,**17**,**20**,**41**,**45**,**74**,**75**,**77**,**80**) disposed in the transmission path between the drive member (**12**,**23**,**72**) and the hub body (**30**,**100**) for stepping down rotation of the drive member (**12**,**23**,**72**) to the hub body (**30**,**100**) so that the hub body (**30**,**100**) rotates slower than the drive member (**12**,**23**,**72**);

wherein the speed reduction means (**14**,**15**,**17**,**20**,**41**,**45**) comprises:

- a first pinion (**14**) disposed on the drive member (**12**,**23**) for rotation therewith;
- a rotating arm (**17**) rotatably mounted about the hub shaft (**1**), the rotating arm (**17**) including a plurality of rotating arm teeth (**43**) disposed along a circumference thereof;
- a plurality of planet gears (**15**) rotatable mounted to the rotating arm (**17**) and meshing with the first pinion (**14**) for rotating in response to rotation of the first pinion (**14**);
- a first ring gear (**20**) fixed to the hub shaft (**1**) and meshing with the plurality of planet gears (**15**);
- a second pinion (**41**) rotatable mounted to the first ring gear (**20**) and meshing with the plurality of rotating arm teeth (**43**) for rotating in response to rotation of the rotating arm teeth (**43**); and
- a second ring gear (**45**) rotatable mounted about the hub shaft (**1**) and meshing with the second pinion (**41**) for rotating in response to rotation of the second pinion (**41**).

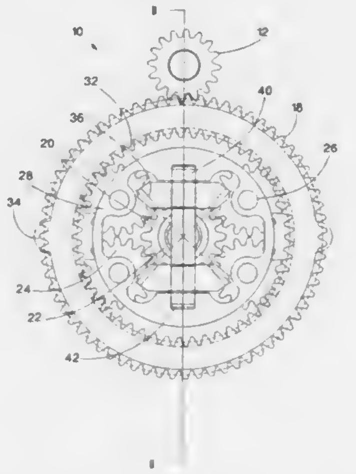
5,782,717
TRANSAXLE WITH DIFFERENTIAL ASSEMBLY

Daryl Smothers, and Raymond Hauser, both of Sullivan, Ill., assignors to Hydro-Gear Limited Partnership, Sullivan, Ill.

Filed Aug. 29, 1996, Ser. No. 697,883

Int. Cl.^{6} F16H *48/06*

U.S. Cl. 475—221 **26 Claims**



1. A transaxle assembly driven by an input shaft, comprising: a hydrostatic transmission comprising a plurality of hydraulic displacement units drivingly engaged to said input shaft;

an output shaft drivingly linked to said transmission;

a differential assembly, comprising:

- a first gear comprised of a spur gear which is adapted to be driven by said output shaft;
- a sun gear movable with said first gear;
- a non-movable ring gear;
- a plurality of planet gears adapted to be drivingly connected to said ring gear and to be driven by said sun gear orbitally thereabout;
- a planet gear carrier for rotatably supporting said plurality of planet gears and movable therewith; and
- a differential carried by said planet gear carrier; and
- an axle drivingly linked to said differential;

wherein the longitudinal axis of said output shaft is spaced from the longitudinal axis of said axle.

5,782,718
WORKING FLUID PRESSURE CONTROL DEVICE FOR HYDRAULIC CONTROL SYSTEM OF CONTINUOUSLY VARIABLE TRANSMISSION

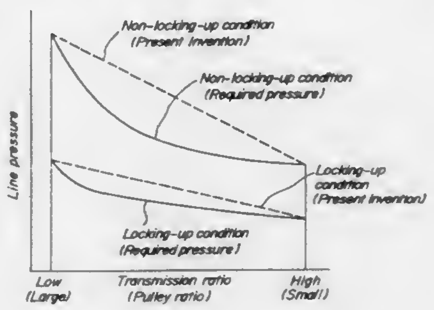
Tatsuo Wakahara, Kawasaki, Japan, assignor to Nissan Motor Co., Ltd., Yokohama, Japan

Filed Jun. 27, 1995, Ser. No. 495,274

Claims priority, application Japan, Jun. 27, 1994, 6-144593; Jun. 27, 1994, 6-144594; Jun. 27, 1994, 6-144595

Int. Cl.^{6} F16H *61/04;9/00*

U.S. Cl. 477—45 **11 Claims**



1. A working fluid pressure control device for a hydraulic control system of a continuously variable transmission, which includes a torque converter with a lock-up mechanism and associated with an engine, a driving pulley with a cylinder chamber for varying a groove width thereof, a driven pulley with a cylinder chamber for varying a groove width thereof, a V-belt for transmitting driving force between the driving and driven pulleys, and at least one clutch mechanism, the working fluid pressure control device comprising:

a line pressure regulator valve for regulating line pressure for the cylinder chambers of the driving and driven pulleys from a source pressure supplied from a hydraulic pump driven by the engine, and varying the line pressure in accordance with a line pressure characteristic relating to a transmission ratio between the driving and driven pulleys;

a pressure reducer valve for reducing output pressure from the line pressure regulator valve to the at least one clutch mechanism; and

line-pressure characteristic changing means for changing the line pressure characteristic, lowering the line pressure characteristic when the lock-up mechanism is locking-up and increasing the line pressure characteristic when the lock-up mechanism is not locking-up,

wherein an incline of the line pressure characteristic relating to the transmission ratio and the line pressure relating to the transmission ratio are different between lower and higher characteristics.

5,782,719
CVT CONTROL SYSTEM

Kazutaka Adachi, Yokohama, Japan, assignor to Nissan Motor Co., Ltd., Yokohama, Japan

Filed Aug. 30, 1996, Ser. No. 706,328

Claims priority, application Japan, Aug. 31, 1995, 7-245235

Int. Cl.^{6} B60K *41/14*

U.S. Cl. 477—46 **8 Claims**

1. In a drivetrain control system including an engine having various engine speeds, a CVT including a ratio control means

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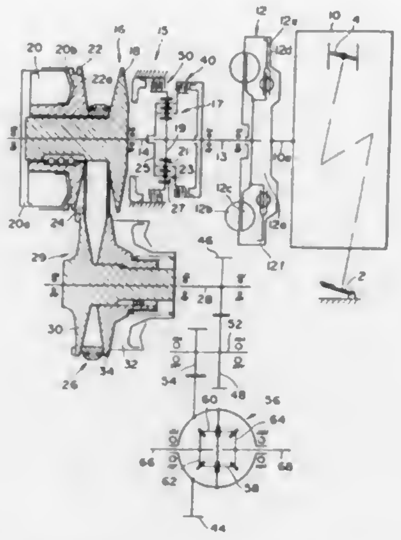


having an input element (**182**) positionable in response to a control signal to establish various speed ratios between input and output shafts of the CVT over a predetermined speed ratio window limited on one hand by a lowest speed ratio and on the other hand by a highest speed ratio, and a controller developing the control signal for positioning the input element, the CVT having various dynamic characteristics for various speed ratios, the improvement wherein:

the controller generates a target speed ratio command (i_{PT});

the controller generates an actual speed ratio (i_{PR});

the controller derives an actual CVT dynamic characteristic constant $\{T_P(i_{PR})\}$ of dynamic characteristic $\{G_P(s)\}$ of the CVT for the actual speed ratio (i_{PR});

the controller derives a target CVT dynamic characteristic constant (T_T) of a target dynamic characteristic $\{G_T(s)\}$ of the CVT;

the controller determines a speed ratio command (i_P) in response to the target speed ratio command, the actual speed ratio, the actual CVT dynamic characteristic constant $\{T_P(i_{PR})\}$ and the target CVT dynamic characteristic constant (T_T);

the controller converts the speed ratio command (i_P) into a corresponding one of different displacement commands (D_S) of the input element (**182**) spread continuously over and beyond a predetermined displacement range of the input element (**182**) which range corresponds to the predetermined speed ratio window; and

the controller develops the control signal determined as a function of the displacement command (D_S).

5,782,720

Patent Not Issued For This Number

5,782,721

Patent Not Issued For This Number

5,782,722

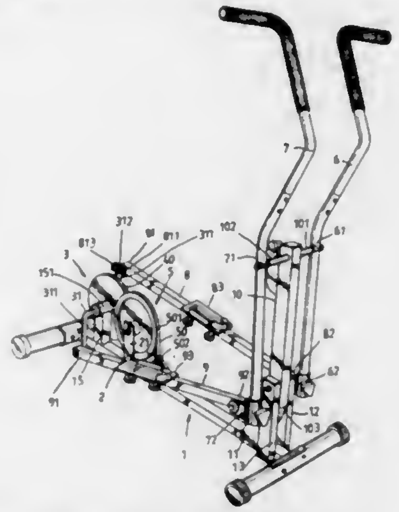
STRUCTURE OF FOLDING COLLAPSIBLE STEP EXERCISER

Lenny Sands, 4555 Reseda Blvd., Tarzana, Calif. 91356, and Johnson Kuo, 5F, No. 6, Lane 12, Sec. 6, Hsin I Rd., Talpel, Talwan

Filed Aug. 27, 1997, Ser. No. 918,104

Int. Cl.^{6} A63B *69/16;22/04*

U.S. Cl. 482—52 **1 Claim**



I. A folding collapsible step exerciser comprising :

a base frame having a front mounting block, two front supports bilaterally and fixedly fastened to said front mounting block, a rear support, and an axle housing transversely and fixedly mounted on a top end of said rear support;

a front upright Pivotably connected between said front supports of said base frame by pivot means, having a bottom end releasably secured to said front mounting block of said base frame by a lock screw and a top end fixedly mounted with two horizontally aligned pivots;

an U-shaped damping wheel holder frame fixedly mounted on said base frame between said front supports and said rear support, having two upright arms;

a driving wheel revolvahly supported on said axle housing of said base frame, having a fixed wheel shaft made in the form of a double crank;

a damping wheel revolvably supported on said upright arms of said U-shaped damping wheel holder frame, having a coupling portion at one side coupled to said driving wheel;

a transmission belt coupled between said driving wheel and the coupling portion of said damping wheel for permitting said damping wheel to be turned with said driving wheel;

a damping device, said damping device comprising a friction belt mounted on said base frame over the periphery of said damping wheel and imparting a friction resistance to said damping wheel, and an adjustment device controlled to adjust the tenion of said frction belt;

an idle wheel pivoted to one upright arm of said U-shaped damping wheel holder frame, and imparting a pressure to said transmission belt to keep it stretched;

two pedals driven to turn said driving wheel, said pedals having a respective rear end respectively pivoted to two opposite ends of said fixed wheel shaft of said driving wheels, a respective front end fixedly mounted with a respective front end, and a respective foot plate disposed at a top side adjacent the respective rear end; and

two handlebar respectively turned about the pivots of said front upright, and a respective bottom end respectively pivoted to the bottom U-frames of said pedals; wherein

one of said pedals has a U-frame invertedly and fixedly secured to its rear end, said U-frame having two screw holes aligned at two parallel side walls thereof; one end of the fixed wheel shaft of said driving wheel has a screw hole mounted with a screw bolt to hold a barrel, said barrel being coupled to said U-frame and secured in place by a locating screw, which is threaded into the screw holes of said U-frame and stopped below said barrel, said barrel having two flanges raised around two opposite ends thereof and bilaterally stopped outside said U-frame.

5,782,723

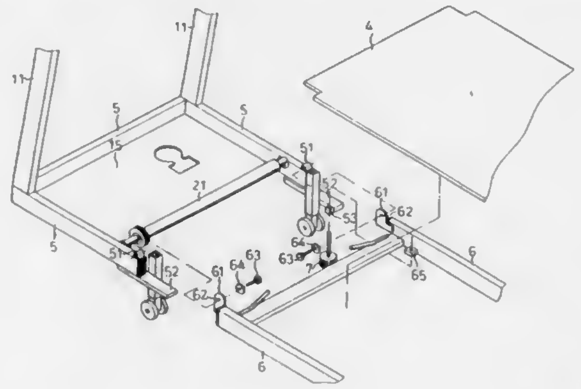
COLLAPSIBLE TREADMILL

Hai Pin Kuo, P.O. Box 82-144, Taipei, Taiwan

Filed Sep. 9, 1997, Ser. No. 925,637

Int. Cl.^{6} A63B *22/02*

U.S. Cl. 482—54 **1 Claim**



1. A collapsible treadmill comprising:

a base body being substantially rectangular and having a front portion and a rear portion;

an upright frame disposed at said front portion of said base body;

two handle bars; and

a dashboard disposed above said handle bars;

said front end of said base body being provided with a bottom plate and an electric motor positioned on said bottom plate, said motor having a wheel at an output shaft thereof;

said base body further having a rotary front shaft having a driven wheel, a rotary rear shaft, a rotary type tread belt fitted between said front shaft and said rear shaft, a transmission belt connecting said wheel of said motor and said driven wheel of said front shaft so that when said motor is actuated, said tread belt rotates to allow a user standing on said tread belt to perform running exercises, wherein said base body comprises a U-shaped frame and a main frame having two side portions and front and rear portions, said U-shaped frame having respective pivot seats at both ends thereof, and said main frame having respective L-shaped pivot plates at respective inner sides of respective front ends of said side portions, said pivot seats of said U-shaped frame and said pivot plates of said main frame being connected by screw bolts so that said main frame may be folded upwardly to lie against said dashboard and between said handle bars with said U-shaped frame supporting the weight of said treadmill, thereby said treadmill occupies relatively small floor space when not in use.

5,782,724

Patent Not Issued For This Number

5,782,725

Patent Not Issued For This Number

5,782,726

Patent Not Issued For This Number

5,782,727

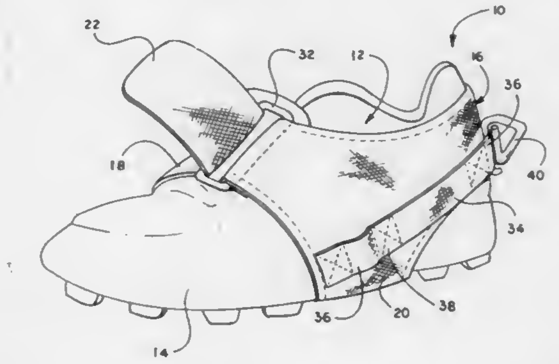
TRAINING DEVICE FOR KICKING

Maynard H. Pierce, 4856 High Forest Dr., Duluth, Ga. 30136

Filed Feb. 10, 1997, Ser. No. 797,399

Int. Cl.^{6} A63B *69/00*

U.S. Cl. 482—129 **7 Claims**



1. A training device for kicking, the training device to be used in connection with an ordinary shoe, the training device comprising:

a harness having a back section, a first side section the first side section removably attaching to the second side section; and a second side section;

a fixed ring connected to the second side section adjacent to the connecting strap;

a U-shaped member having a first end and a second end, the first end connected to the first side section of the harness and the second end connected to the second side section of the harness;

a D-shaped cord attachment ring having a first leg, a second leg, a third leg and a C-shaped extension, the first leg connected to the second leg, the second leg connected to the third leg, and the third leg connected to the extension;

a ring positioning strap attached to the harness, the strap having at least one loop for insertion of the C-shaped extension of the D-shaped ring, the at least one loop being located at a predetermined position along the harness; and

an elastic cord attached at one end to the cord attachment ring and at the other end to a fixed object.

5,782,728

FITNESS DEVICE

Milford D. Morrison, 3999 E. Dartmouth Ave., Denver, Colo. 80210, assignor to Milford D. Morrison, Denver, Colo.

Filed Jun. 23, 1995, Ser. No. 493,887

Int. Cl.^{6} A63B *22/00;* **A63H** *33/26*

U.S. Cl. 482—148 **29 Claims**

14. A physical fitness apparatus for controlling a round member rollable on a support surface comprising:

a handle assembly;

an upstanding member having first and second ends, said upstanding member being interconnectable with said handle assembly at said first end;

an engaging means, interconnected with said second end of said upstanding member, for intermittently contacting the round member to control and guide the round member, said engaging means having a forwardly facing mouth portion: and

a rearwardly facing ramp positioned on said engaging means adapted to propel the round member up and over at least said engaging means, wherein the round member is rollable on said rearwardly facing ramp, said rearwardly facing ramp

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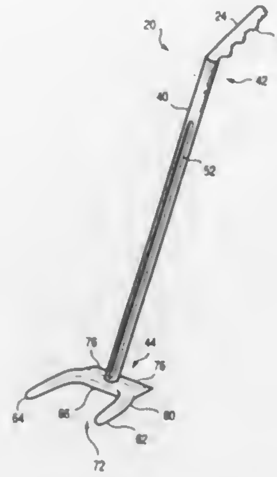


having a sloped surface extending rearwardly and downwardly, relative to and from a top portion of engaging means.

5,782,729

METHOD FOR REGULATING LOADING OF AN ADJUSTABLE-CROWN ROLL AND AN ADJUSTABLE-CROWN ROLL

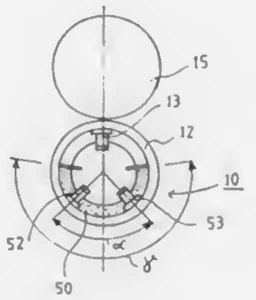
Juhani Vestola, Jyväskylä, Finland, assignor to Valmet Corporation, Helsinki, Finland

Filed Jan. 22, 1996, Ser. No. 589,763

Claims priority, application Finland, Aug. 18, 1995, 953895

Int. Cl.⁶ B23P *15/00*

U.S. Cl. 492—7 **36 Claims**



1. A method for regulating loading of an adjustable-crown roll defining a nip with a back-up roll, said adjustable-crown roll having a stationary roll axle, a roll mantle rotatingly mounted on said roll axle, and loading means arranged on said roll axle in engagement with an inner face of said roll mantle, comprising the steps of:

applying a loading force from said loading means in a nip-loading direction to regulate deflection of said roll mantle and/or a linear load in the nip, the nip-loading direction being the direction toward the nip in a nip plane defined as the plane passing through a central axis of said adjustable-crown roll and a central axis of said back-up roll

applying a force to the inner face of said roll mantle at each of a plurality of different locations in the circumferential direction of said roll and in a different directions to produce a resultant force therefrom acting only in the nip plane in a direction substantially opposite to the nip-loading direction.

5,782,730

PRESSURE ROLLER

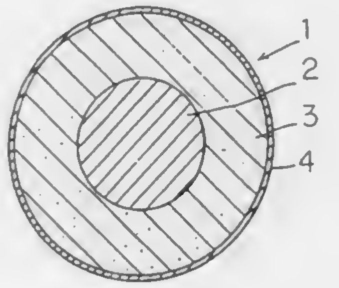
Hiroshi Kawasaki, and Shigeru Maruyama, both of Tokyo, Japan, assignors to Arai Seisakusho Co., Ltd., Tokyo, Japan

Filed Jul. 24, 1996, Ser. No. 686,055

Claims priority, application Japan, Jul. 23, 1996, 8-193544

Int. Cl.⁶ B23P *15/00*

U.S. Cl. 492—56 **6 Claims**



1. A pressure roller comprising:

a metal core,

an elastic layer formed around said metal core, and

a top layer provided over said elastic layer, said top layer having a thickness of not greater than 0.1 mm and being made of a fluororesin, said fluororesin having a coefficient of dynamic friction of 0.25 or more.

5,782,731

METHOD FOR CHECKING THE CORRECT MANUFACTURE OF CROSS BOTTOM VALVE SACKS

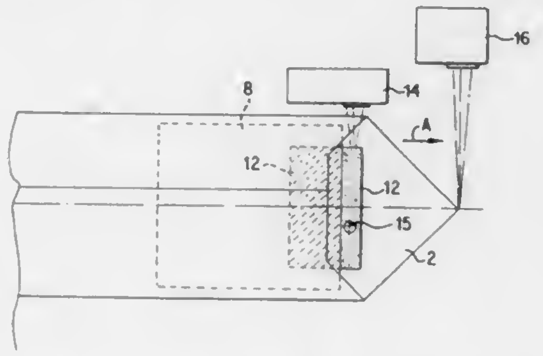
Uwe Köhn, Osnabrück, and Rainer Henze, Lengerich, both of Germany, assignors to Windmoeller & Hoelscher, Lengerich/Westf., Germany

Filed Jan. 29, 1996, Ser. No. 593,409

Claims priority, application Germany, Jan. 30, 1995, 195 02 830.9

Int. Cl.⁶ B31B *49/04*

U.S. Cl. 493—16 **15 Claims**



1. A method for checking a correct position of a valve leaf in the manufacture of cross bottom valve sacks, comprising the steps of:

arranging a cross bottom valve sack blank having a pair of side folds and a pair of corner folds such that said side folds are open and said corner folds are exposed;

providing one of the corner folds with a mark located such that said mark is covered by a valve leaf when the valve leaf is attached to said one of the corner folds in a correct position and such that at least a portion of said mark is exposed when the valve leaf is attached to said one of the corner folds in an incorrect position;

attaching said valve leaf to said one of the corner folds such that said valve leaf will form a tube communicating an inside of the sack with an outside of the sack after said side folds of the sack blank have been folded in;

scanning said one of the corner folds with a scanner to detect whether said portion of said mark is exposed;

eliminating sacks in which said scanner detects said portion of said mark in the scanning step.

5,782,732

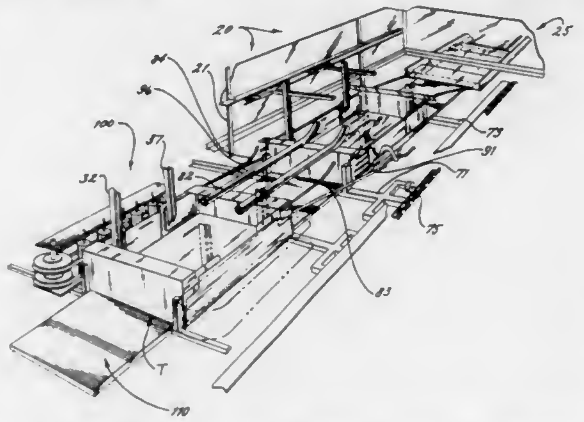
TRAY FORMING APPARATUS AND METHOD OF FORMING SAME

Robert M. Herrin, 5935 Groveline Dr., Orlando, Fla. 32810

Filed Nov. 29, 1996, Ser. No. 758,095

Int. Cl.⁶ B31B *1/36;3/60*

U.S. Cl. 493—131 **40 Claims**



34. A method of forming a tray-type container, the method comprising:

contactingly lifting each of front and rear panels of a blank upwardly and inwardly during travel along a predetermined path of travel in a generally horizontal plane;

applying adhesive only to selected portions of folded front and rear panels of the blank when the blank travels between at least a pair of space-apart adhesive applicators; and

folding side panels of the blank upwardly and inwardly into abutting contact with the selected portions of the folded front and rear panels having adhesive applied thereto.

5,782,733

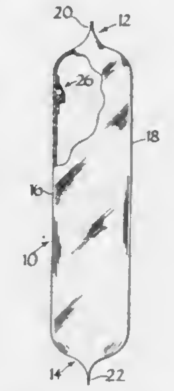
ZIPPERED FILM AND BAG

James W. Yeager, Mobile, Ala., assignor to Innoflex Incorporated, Mobile, Ala.

Division of Ser. No. 501,900, Aug. 9, 1995, abandoned, which is a continuation-in-part of Ser. No. 275,281, Jul. 12, 1994, Pat. No. 5,461,845, which is a continuation of Ser. No. 966,427, Oct. 26, 1992, abandoned. This application Mar. 20, 1997, Ser. No. 821,980

Int. Cl.⁶ B31B *1/90*

U.S. Cl. 493—213 **10 Claims**



1. A method for making reclosable bags comprising:

supplying a substantially continuous web of thermoplastic film material having two parallel side edges by feeding said web in a direction parallel to said side edges;

serially connecting a plurality of reclosable fastener assemblies, each having two profile strips that interlock with each other, to one side of said web of film material by feeding said fastener assemblies in a direction perpendicular to said two side edges at bag length intervals and by providing at least one of said profile strips with a continuous arm and connecting the continuous arm to one side of said film, wherein said one of said profile strips includes an extruded body, with said continuous arm extending from said extruded body and having a width greater than a width of said extruded body, connecting said one of said profile strips to said one side of said film material by seal means joining at least a portion of said continuous arm to said one side of said film adjacent a portion of said film that can be opened to gain access to that one of said reclosable fastener assemblies connecting the other of said profile strips to said one side of said film material wherein, said one side of said film providing an inside surface of a front wall and a back wall of each of said reclosable bags;

folding said web material so that said profile strips of each reclosable fastener assembly are maintained in an interlocked position, to form said front wall and said back wall by overlapping said two side edges; and

joining said front wall to said back wall at bag length intervals to form first and second end seams that are perpendicular to the longitudinal axis of said film material to form a bag therebetween enclosing a single one of said reclosable fastener assemblies, and forming a third seam connecting said side edges of said film to form said reclosable bag that is sealed shut.

5,782,734

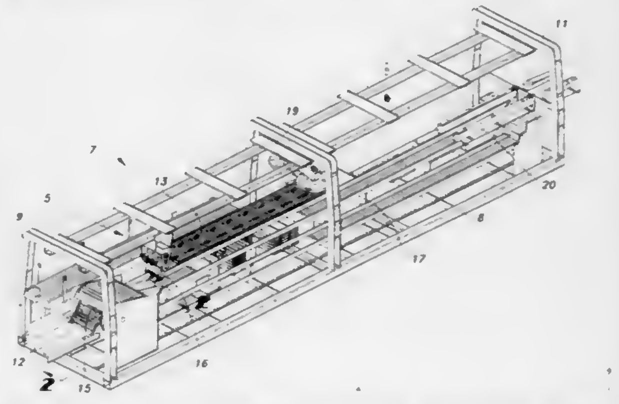
CARTON FEED OPENING WHEEL ASSEMBLY

Urs Reuteler, Kennesaw, Ga., assignor to Riverwood International Corporation, Atlanta, Ga.

Filed Jun. 7, 1996, Ser. No. 660,801

Int. Cl.⁶ B31B *1/80*

U.S. Cl. 493—313 **15 Claims**



1. A carton feed opening wheel assembly for opening carton blanks into cartons on a packaging machine, the packaging machine having a framework with an infeed end and a spaced discharge end, a carton transport conveyor supported on the framework and extending along a path of travel from the infeed end toward the discharge end of the packaging machine, a carton magazine assembly supported at the infeed end of the packaging machine and having a supply of unopened carton blanks, each unopened carton blank having a bottom portion and a juxtaposed top portion, and a carton opening station supported on the framework intermediate the carton magazine assembly and the carton transport conveyor, said carton feed opening wheel assembly comprising:

a) at least one endless vacuum conveyor belt positioned at the carton opening station and extending along the path of travel

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from the carton magazine assembly to the carton transport conveyor, said at least one vacuum conveyor belt being supplied with unopened carton blanks placed thereon by the carton magazine assembly;

b) means for applying a vacuum to the bottom portion of the unopened carton blanks received on said at least one vacuum conveyor belt to hold the bottom portion of the unopened carton blanks on said vacuum conveyor belt as said at least one conveyor belt moves toward the carton transport conveyor;

c) a carton opening wheel positioned at the carton opening station with respect to said at least one vacuum conveyor belt, said carton opening wheel having a wheel frame constructed about a central longitudinal shaft and at least one pair of parallel spaced arms extending radially away from said central shaft, said at least one pair of arms supporting at least one suction cup constructed and arranged for engaging the top portion of the unopened carton blank;

d) drive means for rotating said wheel frame about said central shaft; and

f) a control processor, said control processor having an electronic cam profile programmed therein, said electronic cam profile being programmed to control the speed of said drive means with respect to the speed of said at least one vacuum conveyor belt;

g) wherein said at least one suction cup engages the top portion of the unopened carton blanks being moved on said at least one vacuum conveyor belt in the direction of the path of travel at substantially the same speed and direction as the speed and direction of the carton blanks moving on said at least one vacuum conveyor belt, said control processor signaling said drive means to thereafter retard the speed of said at least one suction cup in the direction of the path of travel with respect to the speed of said vacuum conveyor belt assembly while simultaneously moving said at least one suction cup in a generally perpendicular direction away from said vacuum conveyor belt for lifting the top portion of the carton blank with respect to the bottom portion of the carton blank to open the carton blank.

14. A method of opening carton blanks into cartons on a packaging machine, the packaging machine having a carton magazine assembly, the carton magazine assembly having a supply of unopened carton blanks, each unopened carton blank having a bottom portion and a juxtaposed top portion, and a carton opening station positioned adjacent the carton magazine assembly, the carton opening station having an endless vacuum conveyor belt moving along a path of travel away from the carton magazine assembly, the vacuum conveyor belt being supplied with unopened carton blanks from the carton magazine assembly and applying a vacuum force to the bottom portion of the carton blanks received thereon for holding the bottom portion of the carton blank on the vacuum conveyor belt as it is moved along the path of travel, said method comprising the steps of:

a) positioning a carton opening wheel assembly at the carton opening station with respect to the vacuum conveyor belt;

b) providing a control processor having an electronic cam profile programmed therein and controlling the speed of said carton opening wheel assembly in accordance with said electronic cam profile;

c) moving at least one suction cup supported on said carton opening wheel assembly in the direction of the path of travel and into engagement with the top portion of the unopened carton blank at substantially the same speed and direction as the speed and direction of the carton blank on the vacuum conveyor belt;

d) retarding the speed of said at least one suction cup in the direction of the path of travel with respect to the speed of the vacuum conveyor belt while moving said at least one suction cup in a generally perpendicular direction away from the carton blank held on the vacuum conveyor belt; and

e) lifting the top portion of the carton blank with respect to the bottom portion of the carton blank in response thereto with said at least one suction cup for opening the carton blank.

5,782,735

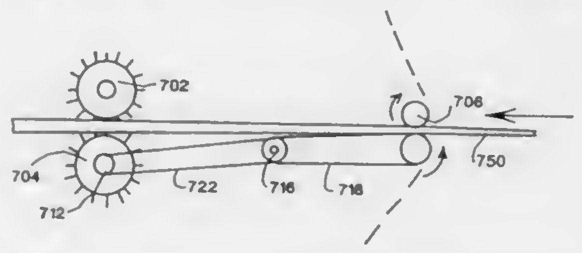
METHOD AND APPARATUS FOR PRODUCING INDIVIDUAL ROLLS OF PACKING MATERIAL

David P. Goodrich, Newtown, Conn.; Michael C. Hurwitz, South Salem, N.Y.; Roger E. Jester, Newtown, and James P. Devine, Bethelehem, both of Conn., assignors to Geopax, Ltd., Sandy Hook, Conn.

Filed Sep. 12, 1994, Ser. No. 304,384

Int. Cl.⁶ B31D *3/02*

U.S. Cl. 493—338 **13 Claims**



1. An apparatus for forming a cushioning material for use as a packaging material comprising:

a source of flexible material in its unexpanded form, said material having:

a plurality of spaced parallel rows of individual slits extending transversely from one end of the sheet material to the opposing end of said sheet material, each of said rows having interval spaces between consecutive slits;

said slits in each row being positioned adjacent the interval space between consecutive slits in the adjacent parallel row of slits;

a first pair of drive rolls, a second pair of expander rolls, said flexible material extending from said source to said pair of driver rolls, said material passing between said drive rolls to said expander rolls,

at least one of said expander rolls having slit material gripping means on its surface, whereby rotation of said driver rolls draws material from its source and rotation of said expander rolls at a rotational speed greater than the rotational speed of said driver rolls expands the material, said gripping means on said expander rolls having projections greater in length than the expanded thickness of said material in its expanded form, thereby engaging said material without crushing the expanded material,

said sheet being expanded by extending the opposing ends of each sheet between said drive rolls and said expander rolls, parallel to the rows of slits whereby the slits form an array of openings, each opening being generally similar in shape and size,

said sheet in substantially expanded form having a sufficient load bearing capacity and sufficient elastic potential energy to protect an article in transit against impact damage, by cushioning the article.

5,782,736

METHOD AND DEVICE FOR SUPPLYING COLLAR-COUPON ASSEMBLIES TO THE WRAPPING LINE OF A PACKING MACHINE FOR PRODUCING RIGID HINGED-LID PACKETS

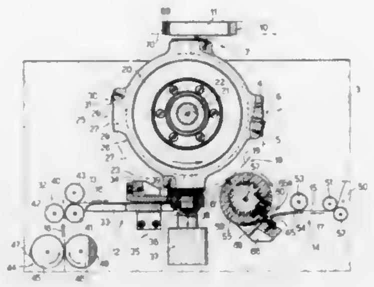
Marco Brizzi, Predosa; Lorenzo Cocchi, and Antonio Gamberini, both of Bologna, all of Italy, assignors to G.D Societa' Per Azioni, Bologna, Italy

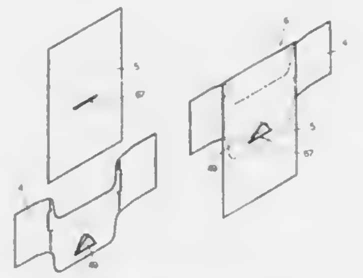
Filed Jun. 26, 1995, Ser. No. 494,705

Claims priority, application Italy, Jun. 27, 1994, BO94A0293

Int. Cl.⁶ B65H *37/04*; B31B *1/90*

U.S. Cl. 493—392 **10 Claims**





1. A method of supplying collar-coupon assemblies to a wrapping line for producing rigid hinged-lid packets; the method comprising the steps of feeding a succession of collars and a succession of coupons along a first and second path respectively and substantially in time with each other to a mating station where a succession of said collar-coupon assemblies is formed; securing the collar and coupon in each assembly in relation to each other via external retaining means; and feeding said succession of assemblies along a third path to a transfer station where the assemblies are transferred to said wrapping line; the method being characterized in that it also comprises a direct connecting step wherein each collar and respective coupon are connected directly to each other, and said direct connecting step including the step of providing respective engaging means for directly connecting each collar and each coupon to each other substantially independently of said external retaining means for enabling said respective collar and coupon to remain directly connected upon release of said external retaining means.

5,782,737

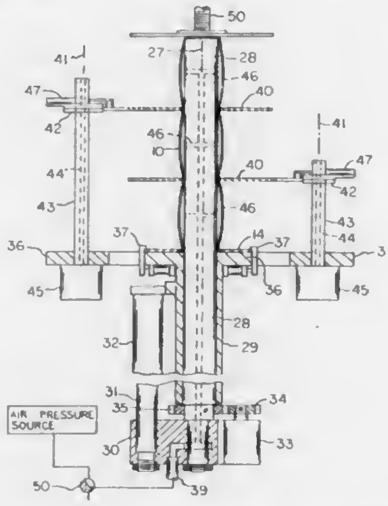
METHOD OF FOLDING A VEHICLE SAFETY AIRBAG

Larry R. Warner, Livonia, Mich., assignor to Ford Global Technologies, Inc., Dearborn, Mich.

Filed Jul. 29, 1996, Ser. No. 688,631

Int. Cl.⁶ B60R *21/16*

U.S. Cl. 493—405 **7 Claims**



1. A method of folding a vehicle safety airbag wherein said bag has an open mouth, said method comprising:

providing an elongated mandrel having a central longitudinal axis;

anchoring said bag at the bag mouth in a fixed position;

moving the mandrel into the bag to stretch the bag along the mandrel axis;

restraining spaced localized areas of the bag against expansion away from the mandrel central axis by moving plural sets of clamping plates edgewise toward the central axis to clamp the localized areas to the mandrel;

rotating the mandrel around the central axis while the clamping plates are moving the localized areas of the bag into contact with the mandrel, whereby the localized areas of the bag are prevented from being pinched between confronting edges of the clamping plates;

ballooning unrestrained areas of the bag outwardly away from the central axis to form respective ballooned areas;

moving the mandrel out of the bag and along the central axis to collapse the bag along said axis, while simultaneously moving the clamping plates toward one another and along a direction parallel to the central axis; and then withdrawing the clamping plates away from the central axis when the ballooned areas of the bag occupy essentially parallel planes normal to the central axis so as to form the folded vehicle safety airbag.

5,782,738

METHOD OF CONSTRUCTION OF AN ANNULAR ELEVATED PLATFORM

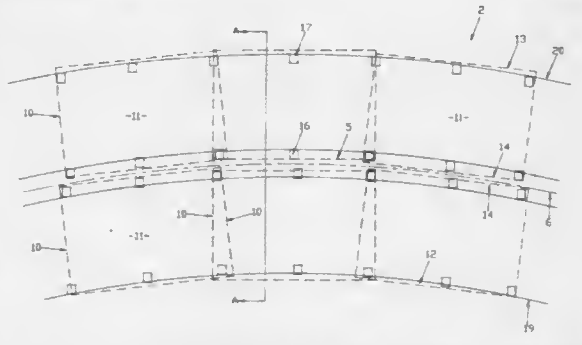
John Murray Bowers, Grey Street, Murchison, New Zealand

Filed Dec. 18, 1995, Ser. No. 574,225

Claims priority, application New Zealand, Apr. 27, 1995, 270997

Int. Cl.⁶ E04B *1/00*

U.S. Cl. 52—742.14 **18 Claims**



1. A method of construction of an annular platform, elevated up to two meters off the ground, said platform comprising an annulus of material which has an inner and an outer edge, said method comprising the steps of:

constructing an adequate foundation to take and support the weight of the platform and the dead and live loads to be applied thereon (when completed);

erecting a curved, flanged metal support beam which is positioned along the centre line of the intended position of the elevated annular platform and elevated to the selected height to ensure the required elevation of the platform, the top of said support beam having an inward and an outward flange or flanged edge;

locating a plurality of metal sheets about each side of said support beam to form a removable base for said annulus such that radially extending ends of adjacent sheets overlap one another at both the inner and outer edges of the annulus such that there is no end gap between any two adjacent sheets, nor any gap between said support beam and said sheets, and such that the edges of the sheets touching the support beam are under the flanges of said support beam;

locating sheet supporting means which support said sheets in position and arranged as described above and adjusting said sheet supporting means to maintain each sheet in the elevated position and support the weight of the platform to be formed on the sheets;

locating an upright edging around each of the inner and outer edges of said annulus, and securing each edging to said

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sheets, thereby providing a mould into which the material of the elevated annular platform can be poured;
positioning and securing within the mould the required reinforcing material;
positioning and securing within the mould the required blanks and packing for cutouts and channels to be formed in the finished platform;
filling the mould with material and allowing it to set and/or cure;
removing the sheet supporting means for said sheets, said sheets and the blanks and packing.

5,782,739
RAPID OPTIMIZATION OF STEREOTACTIC RADIOSURGERY USING CONSTRAINED MATRIX INVERSION

Thomas B. Criss, Dayton, and Jeffery A. Williams, Baltimore, both of Md., assignors to The Johns Hopkins University, Baltimore, Md.

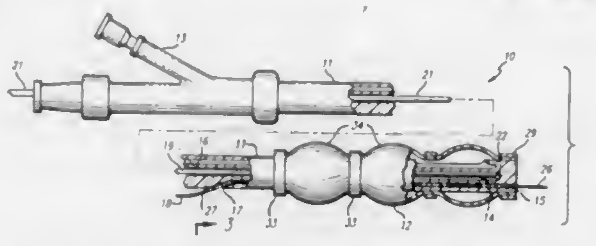
Filed Jun. 12, 1996, Ser. No. 660,953
Int. Cl.^{6} A61N *5/00*
U.S. Cl. 600—1 **9 Claims**

1. A method for optimizing delivery of radiation to the body of a patient admitted for oncology treatment or for stereotactic radiosurgery of a tumor comprising the steps of:
introducing radiation into said body from multiple directions with the beams intersecting at the tumor;
varying the intensities of radiation as a function of angle; and
optimizing by constrained matrix inversion the optimum weights and dosage in the treatment of the tumor.

5,782,740
RADIATION DOSE DELIVERY CATHETER WITH REINFORCING MANDREL

Gary Schneiderman, San Ramon, Calif., assignor to Advanced Cardiovascular Systems, Inc., Santa Clara, Calif.

Filed Aug. 29, 1996, Ser. No. 705,945
Int. Cl.^{6} A61N *5/00*
U.S. Cl. 600—1 **16 Claims**

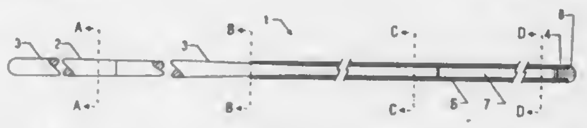


1. An intravascular catheter for delivering and maintaining a radioactive dose in a patient's body lumen, comprising:
an elongated catheter body having proximal and distal ends;
an inflation lumen extending within the elongated catheter body to a location on a distal portion of the elongated body;
an inflatable member disposed on the distal portion of the elongated catheter body and having an interior in fluid communication with the inflation lumen;
a guidewire lumen extending through a portion of the elongated catheter body for receiving a guidewire;
a first guidewire port in the distal end of the catheter body in fluid communication with the guidewire lumen and a second guidewire port in the distal portion of the catheter body which is spaced a short distance from the distal end of the catheter body and a substantial distance from the proximal end of the catheter body and which is in fluid communication with the guidewire lumen;
a blind lumen extending with the elongated catheter body from the proximal end of the catheter body and terminating at a position near the distal end of the inflatable member, the blind lumen adapted to receive a radiation source wire having a radiation source associated therewith for providing a radiation dose in the body lumen; and
a removable reinforcing mandrel disposed within the elongated catheter body for increasing the pushability and stiffness of the catheter body as it is tracked along a guidewire.

5,782,741
TWO-STAGE TREATMENT WIRE

Anthony J. Bradshaw, Missouri City, and Kenneth M. Bueche, Friendswood, both of Tex., assignors to Guidant Coropration, Santa Clara, Calif.

Filed Nov. 12, 1996, Ser. No. 746,467
Int. Cl.^{6} A61N *5/00*
U.S. Cl. 600—3 **40 Claims**

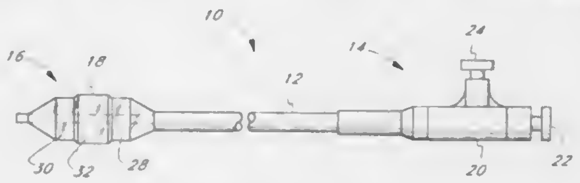


1. A flexible treatment device for treating a selected site within a patient's body comprising:
a flexible, predominantly solid, thin elongate wire having an outer diameter, a proximal end and a distal end, the wire having a tapered neck area between the proximal end and the distal end with the outer diameter of the wire being smaller between the neck area and the distal end than between the neck area and the proximal end;
the wire being constructed from approximately 56% nickel and approximately 44% titanium;
a flexible, hollow, elongated tube having a proximal end, a distal end, an outer diameter and an inner diameter with the outer diameter of the tube being substantially the same as the outer diameter of the wire between the neck area and the proximal end of the wire;
the tube being constructed from approximately 56% nickel and approximately 44% titanium;
the inner diameter of the tube being slightly larger than the outer diameter of the wire between the neck area and the distal end of the wire;
the tube and the wire being operatively coupled to form an elongate assembly having a proximal portion and a distal portion with the proximal end of the tube being laser welded to the neck area so as to encase the wire between the neck area and the distal end of the wire, and the distal end of the tube extending beyond the distal end of the wire to form a cavity;
the distal portion of the elongate assembly being heat treated to be more ductile relative to the proximal portion of the elongate assembly; and
a treating material being secured within the cavity.

5,782,742
RADIATION DELIVERY BALLOON

Michael Crocker, Anaheim; George F. Klck, Laguna Niguel, and Mark A. Siminuk, Lake Forest, all of Calif., assignors to Cardiovascular Dynamics, Inc., Irvine, Calif.

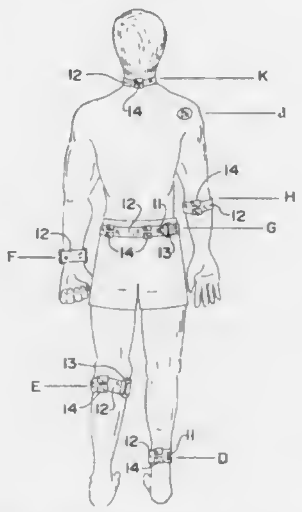
Filed Jan. 31, 1997, Ser. No. 789,969
Int. Cl.^{6} A61M *29/02;36/12;* A61N *5/10*
U.S. Cl. 600—3 **25 Claims**



1. A radiation delivery balloon catheter, comprising:
an elongate flexible tubular body, having a proximal and a distal end;
an inflatable balloon on the tubular body near the distal end thereof, said balloon in fluid communication with an inflation lumen extending axially through the tubular body;
a tubular metal radiation delivery layer on the balloon; and
an outer sleeve surrounding the tubular metal radiation delivery layer.

5,782,743
MAGNETIC MEDICAL TREATMENT DEVICE

John J. Russell, P.O. Box 752, Westbury, N.Y. 11590
Continuation-in-part of Ser. No. 643,485, May 6, 1996, abandoned. This application Apr. 21, 1997, Ser. No. 845,103
Int. Cl.^{6} A61B *17/52*
U.S. Cl. 600—9 **9 Claims**

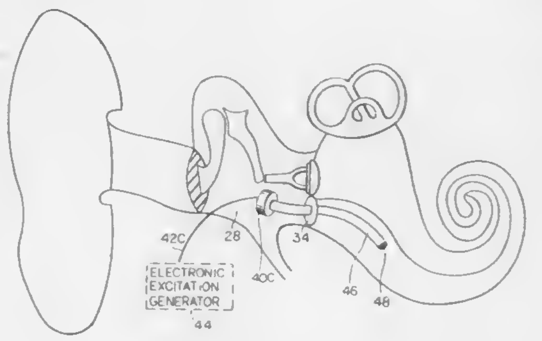


1. Magnetic therapeutic device for non-invasive treatment to ease pain and to promote healing in the body of a user, by directing magnetic field flux energy into a to-be-treated area of the device user's body, which comprises:
at least one compact lightweight high-intensity rare-earth permanent magnet, each said at least one magnet having its upper and lower surfaces parallel to each other and substantially planar, at least one of said surfaces being marked to indicate the magnetic polarity and to facilitate selective orientation thereof, each said at least one magnet having its peripheral shape selected from the group consisting of: circular, elliptical, ovate and polygonal;
at least one magnetizable stainless steel magnet-carrying clip, each said at least one clip being substantially C-shaped and comprising:
a planar generally rectangular front panel having a top, a bottom and at least one recess formed symmetrically therein, each said at least one recess having a planar bottom and being shaped to accommodate fittingly each said at least one magnet therein to a depth which permits a front surface of each said magnet to protrude only marginally above said front panel's surface so that said front panel's surface is substantially coplanar with said magnet's front surface, each said magnet being held in each said recess by magnetic attraction;
transversely bent areas of said clip, said bent areas extending one from the top and one from the bottom of said front panel; and
two rear planar panels extending, one from each said bent area, coplanar with one another and extending toward each other and spacedly parallel to said front panel, said front and rear panels and said bent areas thereby defining a channel between said front panel and said rear panels; and
stretchable elasticized belt means for holding each said at least one clip mounted fittingly, slidably and adjustably thereon through said channel in each said clip, each said recess in said belt means comprising:
a selected length of two-faced elasticized fabric, one face thereof being woven with a smooth surface to be positioned against a user's body, the opposite face thereof having a loop-type surface;
a generally rectangular non-magnetic buckle loop rotatably held and attached by a fabric loop formed at one end of said selected fabric length;
a fastening element attached to, and extending outwardly from, the end of said fabric length opposite said buckle loop, said fastening element having a surface of rigid hooks for engaging the loops of said loop-type surface of said elasticied fabric to secure said belt means fittingly around the device user's selected to-be-treated body area,
whereby, each said magnet's upper surface and each said front panel of each said slidably adjustable clip being substantially coplanar by each magnet being magnetically held in each said recess, the therapeutic magnetic device provides even contact with, and the adjustale slidability of each said clip provides accurate selective positioning, to direct each said magnet's energy flux flow into the device user's selected body area, the synergistic combination of each said magnet and each said clip thereby providing enhanced non-invasive energy flow and deeper penetration of the user's body tissue than each said magnet alone can produce.

5,782,744
IMPLANTABLE MICROPHONE FOR COCHLEAR IMPLANTS AND THE LIKE

David Money, 50 Blackbutt Avenue, Pennant Hills, NSW 2120, Australia

Filed Dec. 5, 1995, Ser. No. 567,261
Claims priority, application Australia, Nov. 13, 1995, PCT/AU95/00753
Int. Cl.^{6} H04R *25/00*
U.S. Cl. 600—25 **21 Claims**



1. A system for aiding a person having hearing deficiency, said system comprising:
a microphone for implantation into said person;
a coupler for coupling pressure variations in a cochlear fluid of said person, said microphone being constructed and arranged to sense said pressure variations, and to generate corresponding electrical signals; and
a generator for generating excitation signals for said person corresponding to said electrical signals.

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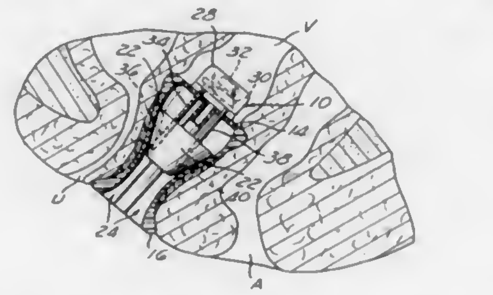
5,782,745
DEVICES AND METHODS FOR ASSESSMENT AND TREATMENT OF URINARY AND FECAL INCONTINENCE

Theodore V. Benderev, 26975 Magnolia Ct., Laguna Hills, Calif. 92653

Filed Nov. 13, 1995, Ser. No. 558,642

Int. Cl.^{6} A61F ***2/00***

U.S. Cl. 600—30 **28 Claims**



1. A device which is adapted to be inserted into a pelvic anatomical passageway of a human being for facilitating the cyclical performance of pelvic muscle strengthening exercises, said device comprising:

a device body which is sized and configured for slidable insertion into said anatomical passageway and be retained therein, and which is alternately transitionable between:

i) a rest mode configuration wherein said device body is adapted to exert no more than a baseline amount of pressure against a predetermined region of said anatomical passageway located adjacent said device; and,

ii) an exercise mode configuration wherein said device body is adapted to exert more than said baseline amount of pressure against said predetermined region of said anatomical passageway; and,

means for causing the device body to intermittently transition between said rest mode configuration and said exercise configuration at predetermined times.

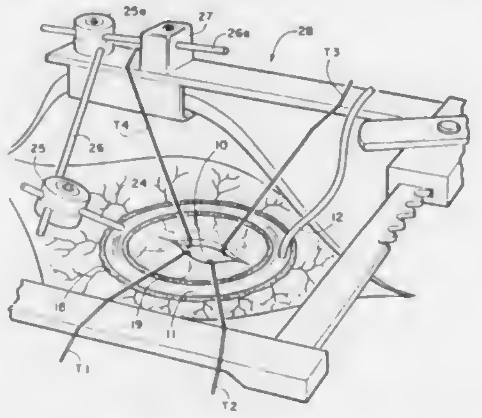
5,782,746
LOCAL CARDIAC IMMOBILIZATION SURGICAL DEVICE

John T. M. Wright, 555 S. Downing St., Denver, Colo. 80209

Filed Feb. 15, 1996, Ser. No. 601,803

Int. Cl.^{6} A61F ***2/00***

U.S. Cl. 600—37 **14 Claims**



1. In a surgical method comprising making an incision through the thoracic wall of a patient, and performing a surgical procedure proximate the surface of the heart, the improvement comprising immobilizing a portion of the surface of the heart upon which surgery is to be performed by temporarily securing to the surface of the heart a cardiac immobilizing member that at least partially surrounds the portion of the surface of the heart upon which the surgery is to be performed thereby substantially fixing the position of the cardiac immobilizing device, the step of securing the immobilizing member comprising applying a partial vacuum to the surface of the heart.

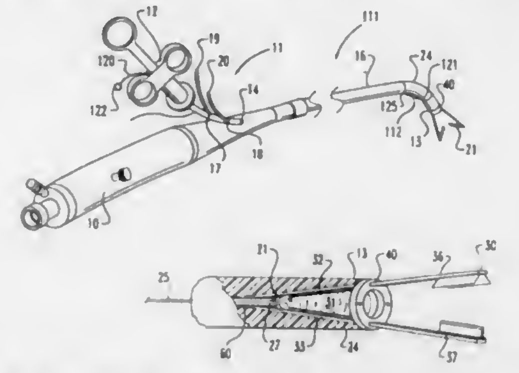
5,782,747
SPRING BASED MULTI-PURPOSE MEDICAL INSTRUMENT

David S. Zimmon, Port Washington, N.Y., assignor to Zimmon Science Corporation, Port Washington, N.Y.

Filed Apr. 22, 1996, Ser. No. 635,766

Int. Cl.^{6} A61B ***1/00***

U.S. Cl. 600—104 **47 Claims**



33. An apparatus for performing a medical procedure, comprising:

an elongated flexible member having an aperture extending longitudinally therethrough, said member having a proximal end and an opposite distal end;

an actuator positioned within said aperture and having a proximal end and an opposite distal end, said actuator being in a close sliding fit to said aperture so as to minimize play therebetween;

a spring jaw connected to said distal end of said actuator, said jaw deployable remotely for performing an internal medical procedure;

an internal jaw guide at the distal end of said member, said jaw guide contacting along said jaw for controlling the precise movement of said jaw, said internal jaw guide defining a cavity within said member for receiving a substantial portion of said jaw therein; and

a jaw guide at the distal end of said member, said jaw guide connecting to said member and having a pair of apertures therein for the passage of said jaw, said jaw guide for minimizing the lateral movement of the jaw during extension and retraction.

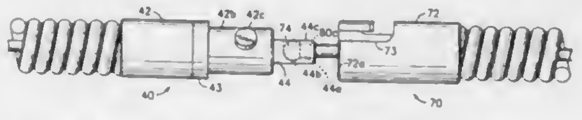
5,782,748
ENDOSCOPIC SURGICAL INSTRUMENTS HAVING DETACHABLE PROXIMAL AND DISTAL PORTIONS

Matthew A. Palmer; Saul Gottlieb, both of Miami, and Nigel MacDonald, Miami Shores, all of Fla., assignors to Symbiosis Corporation, Miami, Fla.

Filed Jul. 10, 1996, Ser. No. 676,614

Int. Cl.^{6} A61B ***1/00***

U.S. Cl. 600—104 **51 Claims**



1. An endoscopic surgical instrument, comprising:

a first tubular member having a proximal end and a distal end;

a first control member having a proximal end and a distal end and extending through said first tubular member;

a proximal actuation means coupled to said proximal ends of said first tubular member and said first control member for imparting movement to one of said first tubular member and said first control member relative to the other;

a second tubular member having a proximal end and a distal end;

a second control member having a proximal end and a distal end and extending through said second tubular member;

a pair of end effectors coupled to said distal end of said second tubular member, at least a first of said pair of end effectors being coupled to said distal end of said second control member such that movement of said second control member relative to said second tubular member moves said at least first of said pair of end effectors relative to a second of said pair of end effectors;

first coupling means protruding from and coupled to said distal ends of said first tubular member and said first control member for removably coupling said proximal actuation means to said pair of end effectors; and

second coupling means coupled to said proximal ends of second tubular member and said second control member for mating with said first coupling means to removably couple said proximal actuation means to said pair of end effectors.

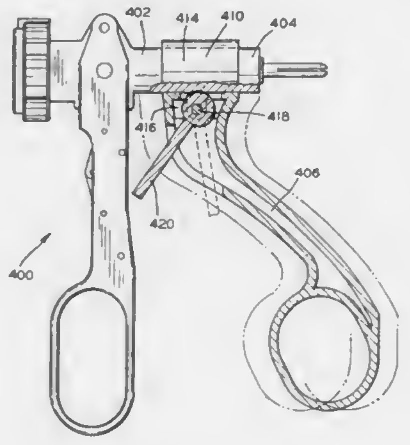
5,782,749
LAPAROSCOPIC SURGICAL INSTRUMENT WITH ADJUSTABLE GRIP

Erol D. Riza, 550 Riverside Dr., Rossford, Ohio 43460

Continuation-in-part of Ser. No. 241,035, May 10, 1994, Pat. No. 5,480,409. This application Jan. 2, 1996, Ser. No. 582,095

Int. Cl.^{6} A61B ***1/00***

U.S. Cl. 600—117 **19 Claims**



1. A handle for a laparoscopic surgical instrument, comprising:

a receiver portion adapted to mount a laparoscopic surgical tool thereon;

an operating mechanism movable relative to said receiver portion to operate a surgical tool mounted on said receiver portion;

a grip portion mounted to said receiver portion, said grip portion being movable relative to said receiver portion independent of the operation of the surgical tool; and

a locking mechanism for selectively preventing movement of said grip portion relative to said receiver portion.

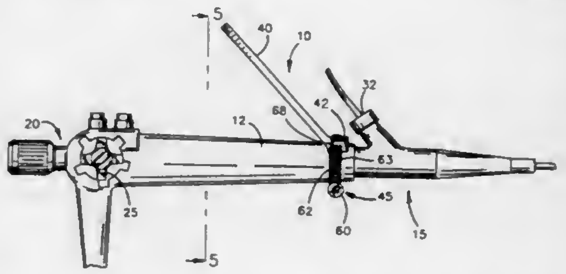
5,782,750
ENDOSCOPY CONTROL END AND BIOPSY CHANNEL SHIELD

Lawrence E. Gluskin, 623 Raintree Rd., Buffalo Grove, Ill. 60089

Filed Mar. 6, 1997, Ser. No. 812,423

Int. Cl.^{6} A61B ***1/04***

U.S. Cl. 600—119 **15 Claims**



1. A shield adapted to be releasably attached to an endoscope barrel, the barrel extending along an axis and located on the endoscope between a control end and a biopsy port, the shield comprising a base, a shield portion, and attaching means, the base comprising an arcuate flange conforming to the outer surface of the barrel and having a relatively small width extending along the barrel axis to allow attachment to the barrel at a point between the biopsy port and the control end of the endoscope, the shield portion joined to and extending from the base, the shield portion having a first component projecting normal to the axis of the barrel to protect the face of an endoscope user during examination procedures, the shield portion having a second component projecting parallel to the axis of the barrel overlying part of the barrel and protecting the hand of the endoscope user during examination and biopsy procedures, and the shield portion being made of semi-rigid thermoplastic material.

5,782,751
SIDE VIEW ENDOSCOPE

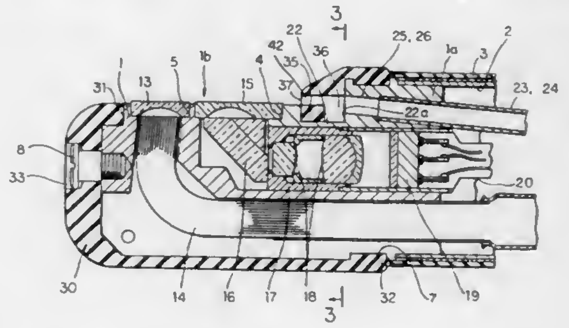
Shinichi Matsuno, Tokyo, Japan, assignor to Asahi Kogaku Kogyo Kabushiki Kaisha, Tokyo, Japan

Filed May 24, 1995, Ser. No. 449,847

Claims priority, application Japan, May 26, 1994, 6-112398; May 26, 1994, 6-112399

Int. Cl.^{6} A61B ***1/012***

U.S. Cl. 600—157 **4 Claims**



1. A side view endoscope comprising:

a front end body having a view window on a side surface thereof;

a detachable front end cover which covers said front end body;

an opening provided on a side surface of said front end cover exposing said view window;

an air supply passage and a water supply passage formed within said front end body, said air supply passage for supplying air and said water supply passage for supplying water;

a nozzle formed and contained directly within said detachable front end cover, said nozzle comprising an enclosed passage-

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way having an open end directly communicating outside said front end cover and not through said front end body;

means for connecting said nozzle to said at least one of said air and water supply passages when said detachable front end cover is attached to said front end body so that air and water can be ejected from said nozzle toward said view window;

a first engaging projection provided on said detachable front end cover;

a first engaging recess provided on said end body, said first engaging projection being fitted in said first engaging recess and aligned with said nozzle to eliminate fluctuation of said front end cover when air or water is ejected from said nozzle;

a second engaging projection provided on said detachable front end cover; and

a second engaging recess provided on said front end body, said second engaging projection being fitted in said second engaging recess to prevent said detachable front end cover from being accidentally detached from said front end body;

wherein said first engaging projection is provided with a connecting groove which constitutes a part of said nozzle, said at least one of said air supply passage and said water supply passage being connected to said connecting groove when the first engaging projection is fitted in the first engaging recess: and,

wherein said air supply passage is adjacent and parallel to said water supply passage and said connecting groove extends perpendicularly to a longitudinal axis of the front end body so that the air supply passage and the water supply passage open into the connecting groove.

5,782,752

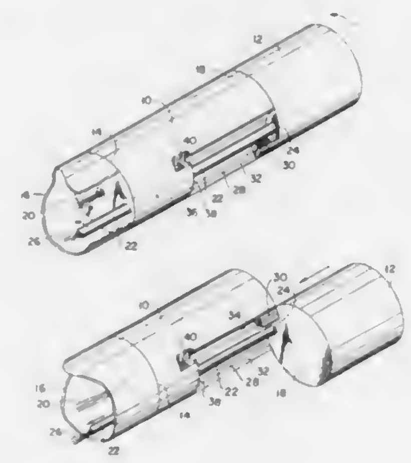
DEVICE FOR CARRYING TWO UNITS IN END TO END DISPOSITION AND FOR MOVING ONE OF THE UNITS ALONGSIDE THE OTHER OF THE UNITS

Philip R. Lichtman, Newton, and Koichiro Hori, Framingham, both of Mass., assignors to Vista Medical Technologies, Inc., Carlsbad, Calif.

Filed Apr. 5, 1996, Ser. No. 628,448

Int. Cl.^{6} A61B *1/05;* **F16H** *27/02*

U.S. Cl. 600—137 **25 Claims**



16. A device comprising:

a base portion;

a shaft fixed at a proximal end thereof to said base portion;

a discrete unit on a distal end of said shaft;

a rod extending lengthwise through said shaft, said rod being offset from an axis of said shaft and being fixed at a distal end thereof to said unit at a location removed from an axis of said unit; and

means on said base portion for effecting rotational movement of said rod to effect rotational movement of said unit to a position removed from alignment with said shaft, and for effecting axial movement of said rod to effect axial movement of said unit into a position alongside said shaft;

wherein said means for effecting rotational and axial movement of said rod comprises a two-way gear mounted on said base portion and fixed to said rod, said gear being drivable rotationally and axially, a first driving gear mounted on said base portion for rotatively driving said two-way gear, a second driving gear mounted on said base portion for axially driving said two-way gear, and power means mounted on said base portion for selectively energizing said first and second driving gears.

5,782,753

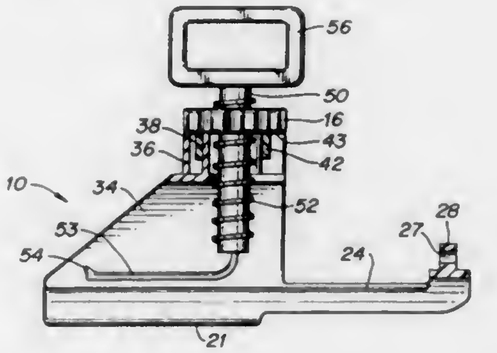
SURGICAL RETRACTOR

Stephan A. DeFonzo, Bridgeport; David M. Farascioni, Danbury, and Corbett W. Stone, Newtown, all of Conn., assignors to United States Surgical Corporation, Norwalk, Conn.

Filed Oct. 20, 1995, Ser. No. 546,008

Int. Cl.^{6} A61B *11/02*

U.S. Cl. 600—210 **24 Claims**



10. A surgical apparatus comprising: a base adapted to lie on the patient's skin, a handle slidably mounted with respect to the base, a tissue retracting blade extending from the handle and movable by movement of the handle, and a locking member cooperating with the handle and movable from at least a first position to a second position to retain the tissue retracting blade in a selected position, wherein the base portion includes a pair of upstanding walls, each wall extending upwardly from the respective legs and terminating in a neck portion to support the locking member, and wherein the base includes two spaced apart legs and the retracting blade is positioned between the legs.

5,782,754

NON-INVASIVE MONITORING OF A CONSTITUENT OF A PHYSIOLOGICAL FLUID

Jakob Korf, Houtwallen 11, Vriea, Netherlands, 9481 ER, and Jaep de Boer, Ludemaborg 32, Groningen, Netherlands, 9722 WE

PCT No. PCT/NL93/00086, § 371 Date Mar. 23, 1995, § 102(e) Date Mar. 23, 1995, PCT Pub. No. WO93/20745, PCT Pub. Date Oct. 28, 1993

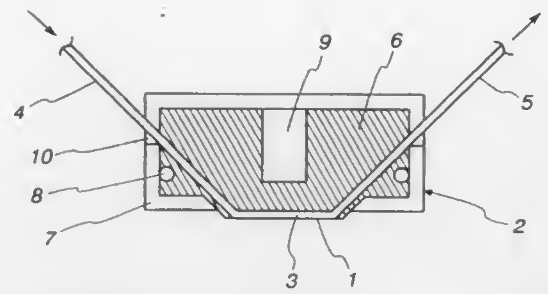
PCT Filed Apr. 22, 1993, Ser. No. 318,840

Claims priority, application Netherlands, Apr. 22, 1992, 9200731

Int. Cl.^{6} A61B *5/00*

U.S. Cl. 600—309 **21 Claims**

1. A method for non-invasively monitoring the concentration of a substance in a liquid produced by a human or an animal, comprising steps of holding a cavity of a pickup unit against the skin, measuring the amount of substance received in the pickup unit, continuously passing a liquid stream through the pickup unit and measuring the concentration of the substance in the continuous liquid stream downstream of the cavity.



5,782,755

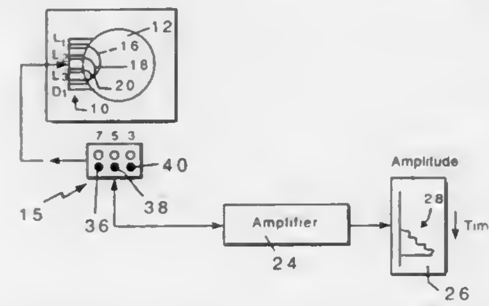
MONITORING ONE OR MORE SOLUTES IN A BIOLOGICAL SYSTEM USING OPTICAL TECHNIQUES

Britton Chance, Marathon, Fla., and Hanli Liu, Philadelphia, Pa., assignors to Non-Invasive Technology, Inc., Philadelphia, Pa.

Continuation-in-part of Ser. No. 150,084, Nov. 15, 1993. This application Dec. 2, 1994, Ser. No. 349,839

Int. Cl.^{6} A61B *5/00*

U.S. Cl. 600—322 **50 Claims**



1. A method for in vivo monitoring one or more solutes in a biological system comprising the steps of:

delivering light from at least one light source of at least one wavelength into a biological system containing one or more solutes, said wavelength being in a range of visible or infrared light and exhibiting substantially no measurable absorption variation for said one or more solutes;

detecting by at least one light detector at least first and second intensity portions of said delivered light at said wavelength, said first portion having traveled through said biological system along photon migration paths characterized by a first average path length, and said second portion having traveled through said biological system along photon migration paths characterized by a second average path length that is greater than said first average path length;

adjusting by a control a relationship between said detected first and second intensity portions and said first and second average path lengths according to a known model thereby obtaining selected initial values of said first and second portions;

detecting over time said first and second intensity portions of said delivered light after said adjusting step;

comparing said detected first and second intensity portions to said initial values of said first and second portions, respectively, according to said model;

fitting to a linear model said first and second compared portions of the delivered light as a function of distances representative of said first and second average path lengths; and

monitoring a measure of a concentration of one or more of said solutes in said biological system based on a parameter of said linear model.

5,782,756

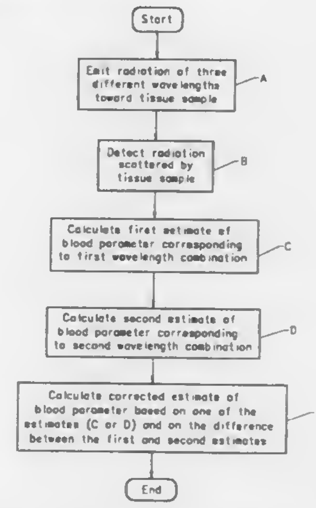
METHOD AND APPARATUS FOR IN VIVO BLOOD CONSTITUENT ANALYSIS

Paul D. Mannheimer, Danville, Calif., assignor to Nellcor Puritan Bennett Incorporated, Pleasanton, Calif.

Filed Sep. 19, 1996, Ser. No. 715,848

Int. Cl.^{6} A61B *5/00*

U.S. Cl. 600—322 **58 Claims**


Start
Emit radiation of three different wavelengths toward tissue sample
A
Detect radiation scattered by tissue sample
B
Calculate first estimate of blood parameter corresponding to first wavelength combination
C
Calculate second estimate of blood parameter corresponding to second wavelength combination
D
Calculate corrected estimate of blood parameter based on one of the estimates (C or D) and on the difference between the first and second estimates
E
End

1. A method for determining a blood constituent comprising the steps of:

emitting electromagnetic radiation of at least three wavelengths toward a patient;

detecting a portion of the electromagnetic radiation scattered by the tissue of said patient for each of said at least three wavelengths and generating at least three signals indicative thereof;

determining a blood constituent result from a combination of said at least three signals, said result being equivalent to the sum of (1) a first blood constituent estimate determined using a first set of at least two of said signals and (2) a multiplicative factor multiplied by a difference between said first blood constituent estimate and a second blood constituent estimate, said second blood constituent estimate being determined using a second set of a different combination of at least two of said signals.

5,782,757

LOW-NOISE OPTICAL PROBES

Mohamed Diab, Mission Viejo; Massi E. Kiani, Laguna Niguel, both of Calif.; David R. Tobler, Westminster, Colo.; Thomas J. Gerhardt, Littleton, Colo.; Eugene M. Mason, Boulder, Colo., and Mike A. Mills, Golden, Colo., assignors to Masimo Corporation, Mission Viejo, Calif.

Continuation-in-part of Ser. No. 333,132, Nov. 1, 1994, Pat. No. 5,638,818, which is a continuation-in-part of Ser. No. 672,890, Mar. 21, 1991, abandoned. This application Oct. 16, 1995, Ser. No. 543,789

Int. Cl.^{6} A61B *5/00*

U.S. Cl. 600—323 **3 Claims**

1. An optical probe for non-invasive measurement of characteristics of a medium, said optical probe comprising:

an emitter which transmits optical radiation;

a detector configured to detect said optical radiation transmitted by said emitter and attenuated by said medium;

a flexible circuit assembly extending between said emitter and said detector, said flexible circuit assembly having electrical circuit paths connecting to said emitter and said detector: and

a substrate forming a surface of said flexible circuit assembly said substrate having an optical obstruction in the path along said surface between said emitter and said detector to reduce light piping between said emitter and said detector, said

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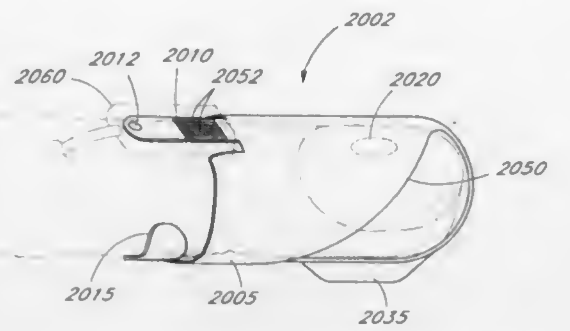
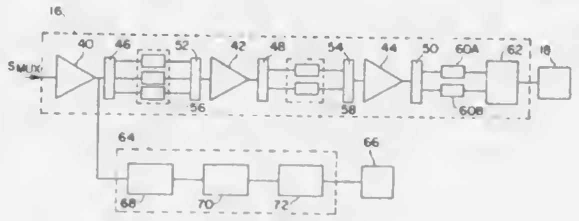


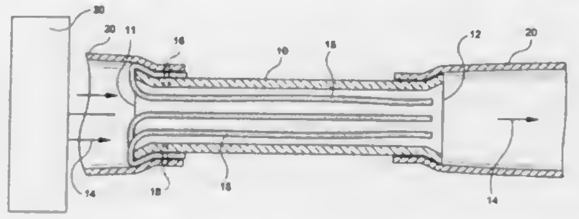
optical obstruction comprising an aperture through said flexible circuit and said substrate, said aperture configured to receive a fingertip when said optical probe is affixed to a finger, said aperture stabilizing said finger within said optical probe so as to reduce optical decoupling between said emitter and said detector.

5,782,758
METHOD AND APPARATUS FOR IDENTIFYING THE PRESENCE OF NOISE IN A TIME DIVISION MULTIPLEXED OXIMETER
Larry B. Ausec, Boulder, and Richard Frey, Louisville, both of Colo., assignors to Ohmeda Inc., Liberty Corner, N.J.
Filed Sep. 23, 1996, Ser. No. 717,954
Int. Cl.⁶ A61B *5/00*
U.S. Cl. 600—336 **27 Claims**



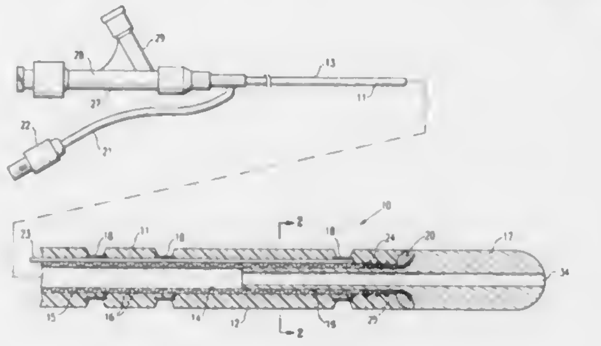
1. A pulse oximetry system using time division multiplexing, said system comprising:
- means for transmitting light of a first wavelength through an appendage of a test subject to create a first transmitted light signal;
- means for transmitting light of a second wavelength through said appendage to create a second transmitted light signal, wherein said second wavelength is different from said first wavelength;
- means for creating a multiplexed signal using said first transmitted light signal and said second transmitted light signal,
- first signal processing means for processing said multiplexed signal to determine an oxygen saturation value for said test subject's arterial blood, said first signal processing means having a predetermined passband;
- means for displaying said oxygen saturation value to an operator;
- means for determining whether an AC noise component in said multiplexed signal has corrupted said oxygen saturation value determined by said first signal processing means; and,
- means for notifying said operator when said oxygen saturation value is corrupted.

5,782,759
CARDIOVASCULAR TESTING DEVICE
Liguo Chi, Ann Arbor; Lori Saganek, Canton; Kim P. Gallagher, Ann Arbor, and Andrew Uprichard, Grass Lake, all of Mich., assignors to Warner-Lambert Company, Morris Plains, N.J.
Filed Dec. 30, 1996, Ser. No. 774,671
Int. Cl.⁶ A61B *5/00*
U.S. Cl. 600—369 **17 Claims**



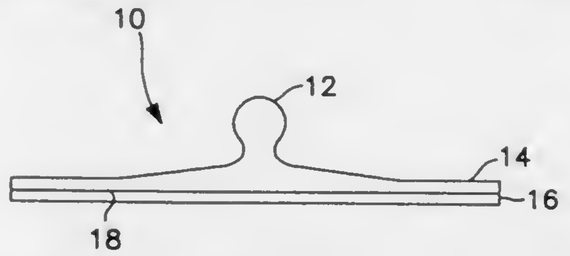
1. A cardiovascular testing device, comprising a hollow tube having an entrance opening and an exit opening and one or more strands extending through the hollow tube wherein the one or more strands are comprised of multi-filament thread and are affixed to the hollow tube at a point adjacent to the entrance opening, and wherein the one or more strands comprises in the range of from one strand to about 25 strands and the strands are coated with material selected from the group consisting of coagulants, anticoagulants and mixtures thereof.

5,782,760
OVER-THE-WIRE EP CATHETER
Alan K. Schaer, Cupertino, Calif., assignor to Cardima, Inc., Fremont, Calif.
Filed May 23, 1995, Ser. No. 447,351
Int. Cl.⁶ A61B *5/042*; A61N *17/39*
U.S. Cl. 600—381 **54 Claims**



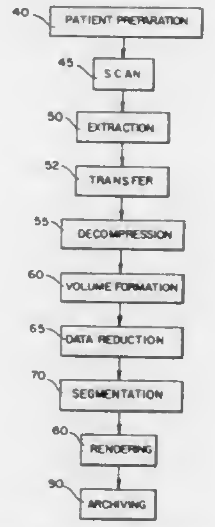
1. An intravascular catheter for sensing electrical activity from within a blood vessel of a patient's heart and forming a lesion in the patient's heart from within the blood vessel by means of high frequency electrical energy comprising:
- a) an elongated shaft having proximal and distal ends, at least a portion of the elongated shaft having an outer diameter of less than 1.65 mm, a port in the distal end, and inner lumen which is configured to slidably receive a guidewire and which extends within the shaft to the port in the distal end;
- b) a plurality of sensing electrodes on a distal shaft section;
- c) an emitting electrode on the distal end of the elongated shaft distal to the sensing electrodes having an exposed exterior surface and which defines at least in part the port in the distal end and a portion of the inner lumen leading to the port;
- d) an electrical conductor extending proximally from and in electrically conducting relationship with each of the sensing electrodes; and
- e) electrical conductor means having a distal end in an electrically conducting relationship with and extending proximal from the emitting electrode and having a proximal end configured to be electrically connected to a high frequency electrical energy source.

5,782,761
MOLDED ELECTRODE
Ignaty Gusakov, East Aurora, N.Y., assignor to Graphic Controls Corporation, Buffalo, N.Y.
Filed Jan. 24, 1996, Ser. No. 590,093
Int. Cl.⁶ A61B *5/0416*
U.S. Cl. 600—391 **12 Claims**



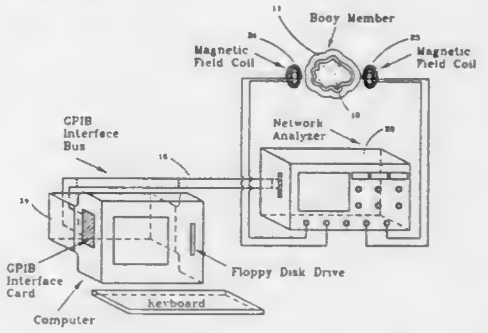
1. An integral, conductive electrode comprising:
- a one-piece component having an electrically conductive stud adapted to detachably couple the electrode to a lead wire and an electrically conductive body integral with said stud, said body having a face disposed opposite said stud with a surface area and a furrow pattern formed therein; and
- a conductive adhesive disposed on said face of said body and adapted to contact a patient, said furrow pattern of said face increasing said surface area of said face of said body in contact with said conductive adhesive and increasing the conductivity between said body and said conductive adhesive.

5,782,762
METHOD AND SYSTEM FOR PRODUCING INTERACTIVE, THREE-DIMENSIONAL RENDERINGS OF SELECTED BODY ORGANS HAVING HOLLOW LUMENS TO ENABLE SIMULATED MOVEMENT THROUGH THE LUMEN
David J. Vining, Winston-Salem, N.C., assignor to Wake Forest University, Winston-Salem, N.C.
Filed Oct. 27, 1994, Ser. No. 331,352
Int. Cl.⁶ A61B *5/05*
U.S. Cl. 600—407 **156 Claims**



1. A method for interactively displaying three dimensional structures comprising the steps of:
- A. forming a three-dimensional volume of data from a series of two-dimensional images representing at least one physical property associated with a three dimensional body;
- B. segmenting a selected region of interest from the volume of data based on selected values of the physical property representing the selected region of interest; and
- C. rendering the segmented region of interest in an interactive three-dimensional display for interaction with internal surfaces of the segmented region of interest, therein producing a virtual three-dimensional environment.

5,782,763
ELECTROMAGNETIC BONE-ASSESSMENT APPARATUS AND METHOD
Bruno Bianco; Alessandro Chiabrera, both of Genoa, Italy, and Jonathan J. Kaufman, Brooklyn, N.Y., assignors to Cyberlogic Inc., New York, N.Y.
Division of Ser. No. 459,184, Jun. 1, 1995. This application Jul. 1, 1997, Ser. No. 886,323
Int. Cl.⁶ A61B *5/00*
U.S. Cl. 600—407 **12 Claims**



1. Apparatus for non-invasive quantitative evaluation of the status of bone tissue in vivo, as measured in a selected bony member of a living body and manifested through one or more of the quantities: bone-mineral density, architecture, strength and fracture risk at a given time, said apparatus comprising:
- circuit means including a pair of spaced magnetic field coils wherein the spacing is adapted to receive the bony member to be analyzed and wherein said circuit means is a two-port electrical circuit,
- network analyzer means included in said circuit means for obtaining a set of three (3) inductively-determined two-port frequency-dependent bone-admittance functions when said circuit means includes said bony member;
- means for selectively using said pair of magnetic field coils and said network analyzer with a medium of known electrical and magnetic properties and path length to thereby establish a set of three (3) inductively-determined two-port frequency-dependent reference-admittance functions, and including means to store each of said reference-admittance functions, and
- means for comparatively evaluating said bone-admittance functions and reference-admittance functions, whereby to estimate one or more of the said quantities.

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5,782,764

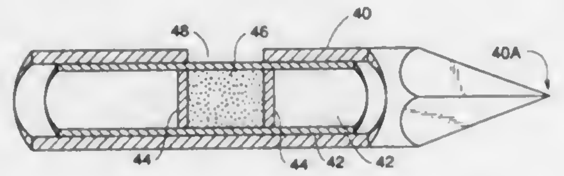
FIBER COMPOSITE INVASIVE MEDICAL INSTRUMENTS AND METHODS FOR USE IN INTERVENTIONAL IMAGING PROCEDURES

Roger W. Werne, San Ramon, Calif., assignor to ITI Medical Technologies, Inc., Livermore, Calif.

Continuation-in-part of Ser. No. 554,446, Nov. 7, 1995. This application Nov. 19, 1996, Ser. No. 754,506

Int. Cl.^{6} A61B *5/05;10/00*

U.S. Cl. 600—411 **22 Claims**



1. An invasive medical instrument for use with a medical imaging system including an imaging region and a means for generating an image of a target object in the imaging region, said image including an image of the target object, said instrument comprising:

an instrument body made of a carbon-fiber composite material, said instrument being sized for use with the target object in the imaging region while said target object is being imaged; and

a volume containing a contrast agent contained within or on a portion of the body of the instrument, wherein the instrument also includes a marked element sized for removable insertion within the instrument body, wherein the marked element is made of a carbon-fiber material and the contrast agent is contained within the marked element.

5,782,765

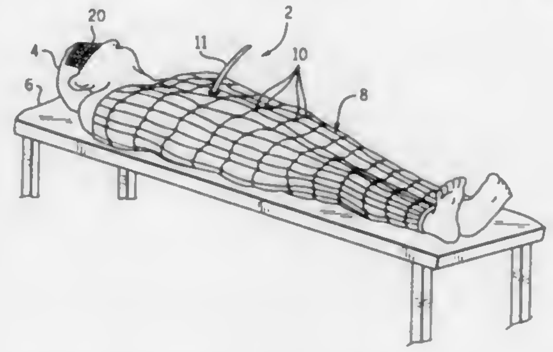
MEDICAL POSITIONING SYSTEM

Kenneth R. Jonkman, Grand Rapids, Mich., assignor to Medtronic, Inc., Minneapolis, Minn.

Filed Apr. 25, 1996, Ser. No. 639,478

Int. Cl.^{6} A61B *5/00*

U.S. Cl. 600—424 **12 Claims**



1. A medical positioning system comprising:

a probe adapted for insertion into a patient, the probe having one of a transmitter and a receiver provided thereon, the transmitter being adapted for generating a signal and the receiver being adapted to detect the signal;

a plurality of nodes provided on a flexible framework and arranged to substantially surround at least a portion of the patient, the nodes having the other of the transmitter and receiver provided thereon; and

a controller electronically connected to the receiver and adapted to interpret the signals received by the transmitter;

whereby the position of the probe with respect to the plurality of nodes can be determined by interpreting the signals controller.

5,782,766

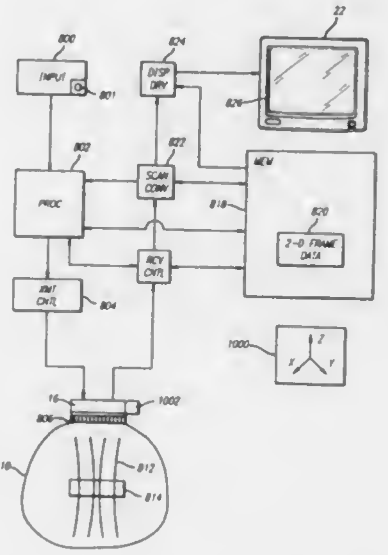
METHOD AND APPARATUS FOR GENERATINGS AND DISPLAYING PANORAMIC ULTRASOUND IMAGES

Lee Weng; Arun P. Tirumalai, and Levin Nock, all of Issaquah, Wash., assignors to Siemens Medical Systems, Inc., Iselin, N.J.

Continuation-in-part of Ser. No. 414,978, Mar. 31, 1995, Pat. No. 5,575,286, and Ser. No. 622,904, Mar. 29, 1996, Pat. No. 5,655,535. This application Nov. 19, 1996, Ser. No. 747,429

Int. Cl.^{6} A61B *8/00*

U.S. Cl. 600—443 **13 Claims**



1. A method for generating a compound image comprising the steps of:

generating a plurality of substantially adjacent image frames of an interrogation region of a patient's body, in which the adjacent frames may be at least partially overlapping;

dividing individual ones of the image frames into a plurality of sub-image regions;

estimating local motion vectors of the respective sub-image regions between consecutive ones of the image frames;

estimating global image motion based on the estimated local motion vectors;

generating and displaying a compound image based on the estimated global image motion; and

generating and displaying real-time probe guide information in addition to the compound image as the compound image itself is being generated and displayed.

5,782,767

COUPLING PAD FOR USE WITH MEDICAL ULTRASOUND DEVICES

Robert A. Pretlow, III, Kirkland, Wash., assignor to Diagnostic Ultrasound Corporation, Redmond, Wash.

Filed Dec. 31, 1996, Ser. No. 777,581

Int. Cl.^{6} A61B *8/00*

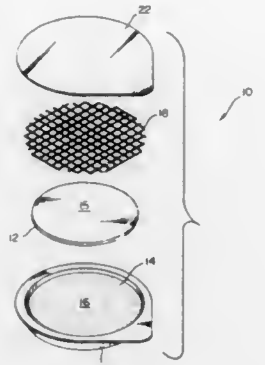
U.S. Cl. 600—443 **12 Claims**

1. An ultrasound coupling assembly, comprising:

a thin pad adapted for coupling of ultrasound signals between an ultrasound probe and a human body;

a support member on which said pad is positioned prior to use, wherein the support member includes an upper surface which is configured and arranged to have a surface tension which is lower between it and the pad than that between the ultrasound probe and the pad, so that when the probe is pressed against the pad and then lifted, the pad remains with the probe, wherein the probe can then be positioned adjacent a desired skin area of the body, the pad being between the probe and the desired skin area; and

a receptacle for the pad and the support member.



5,782,768

METHOD OF DISPLAYING ULTRASONIC IMAGE AND APPARATUS FOR ULTRASONIC DIAGNOSIS

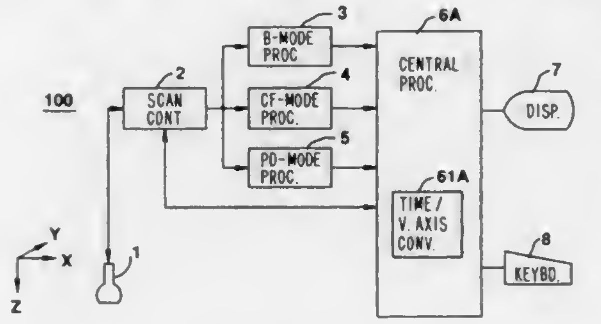
Hiroshi Hashimoto; Yasuhito Takeuchi, and Shigeru Inoue, all of Tokyo, Japan, assignors to GE Yokogawa Medical Systems, Limited, Tokyo, Japan

Filed Feb. 4, 1997, Ser. No. 794,794

Claims priority, application Japan, Mar. 7, 1996, 8-050630

Int. Cl.^{6} A61B *8/00*

U.S. Cl. 600—443 **16 Claims**



1. A method of displaying an ultrasonic image of a subject, comprising the steps of

scanning the subject along a plane using an ultrasonic probe without any probe moving mechanism or controller while probing the subject within a constant depth range and using an instruction driven probe moving means while probing the subject within a variable depth range;

producing a continuous non-interrupted linear image of a portion of the subject located at a certain depth within a constant or variable depth range by using at least one of B-mode image data, CF-mode image data, and PD-mode image data resulting from the scanning, and then comparing time or position points of the used image data against vertical axis data; and

displaying an array of continuous non-interrupted linear images in order of image scanning times or positions.

5,782,769

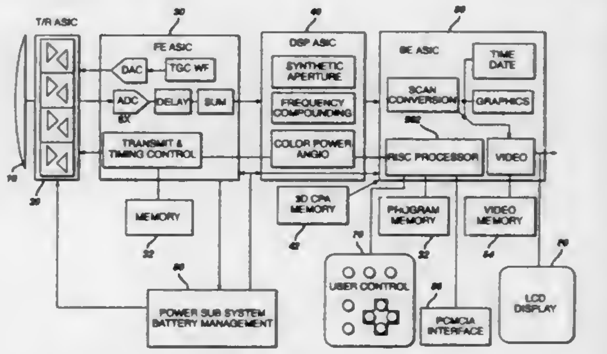
ULTRASONIC DIAGNOSTIC IMAGE FLASH SUPPRESSION TECHNIQUE

Juin-Jet Hwang, Mercer Island, and Lauren S. Pflugrath, Seattle, both of Wash., assignors to Advanced Technology Laboratories, Inc., Bothell, Wash.

Continuation-in-part of Ser. No. 672,782, Jun. 28, 1996, Pat. No. 5,722,412. This application Jun. 12, 1997, Ser. No. 876,384

Int. Cl.^{6} A61B *8/00*

U.S. Cl. 600—454 **22 Claims**



1. A diagnostic ultrasonic imaging system comprising:

means for receiving Doppler signals which may be contaminated with signal or image artifacts;

means for filtering said Doppler signals with a min-max filter to remove signal or image artifacts; and

a Doppler processor for processing said filtered Doppler signals.

5,782,770

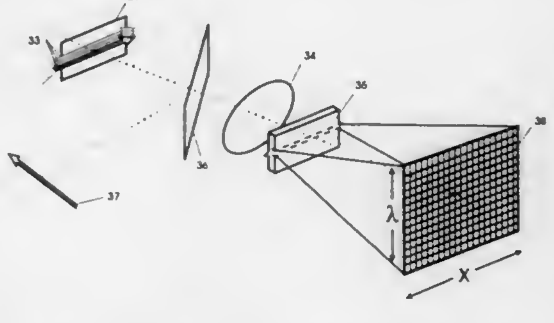
HYPERSPECTRAL IMAGING METHODS AND APPARATUS FOR NON-INVASIVE DIAGNOSIS OF TISSUE FOR CANCER

Greg Mooradian, Mililani, Hi.; Mark Weiderhold, San Diego, Calif.; Ali E. Dabiri, San Diego, Calif., and Chris Coyle, San Diego, Calif., assignors to Science Applications International Corporation, San Diego, Calif.

Continuation-in-part of Ser. No. 241,992, May 12, 1994, abandoned. This application Sep. 8, 1997, Ser. No. 924,912

Int. Cl.^{6} A61B *6/00*

U.S. Cl. 600—476 **5 Claims**



3. A method for diagnosis of tissue comprising the steps:

a) illuminating a tissue sample;

b) forming a hyperspectrally resolved image of the tissue sample;

c) comparing the hyperspectrally resolved image with a reference; and

d) indicating regions of coincidence and regions of non-coincidence with respect to the hyperspectrally resolved image and the reference,

said hyperspectrally resolved image being comprised of a plurality of spectral bands, each spectral band being adjacent to

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another forming a continuous set, each spectral band having a bandwidth less than about 10 nanometers.

5,782,771

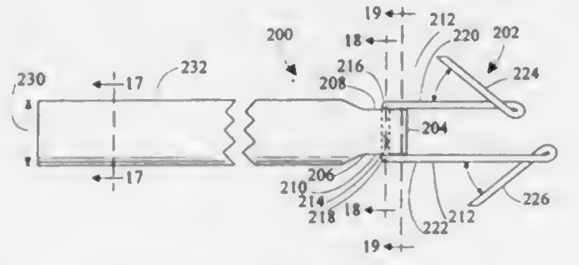
DUAL, FUSED, AND GROOVED OPTICAL LOCALIZATION FIBERS

Karl L. Hussman, 81 Orange St., #301, New Haven, Conn. 06510

Continuation-in-part of Ser. No. 423,077, Apr. 17, 1995. This application Jan. 16, 1996, Ser. No. 585,789

Int. Cl.^{6} A61N ***5/06***

U.S. Cl. 600—478 **6 Claims**



1. An optical localization fiber, comprising:

an optical fiber having a tip and a tip portion adjacent said tip; and,

means for retaining said tip proximate to a chosen location within tissue including said tip portion having a hole therethrough.

5,782,772

DEVICE AND METHOD FOR DETERMINATION OF THE INDIVIDUAL ANAEROBIC THRESHOLD OF A LIVING ORGANISM

Heiner Stegmann, Friedrich-Ebert Anlage 25, D-63411 Hanau, Germany

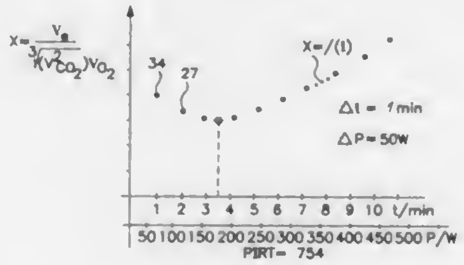
PCT No. PCT/EP95/00711, § 371 Date Dec. 20, 1996, § 102(e) Date Dec. 20, 1996, PCT Pub. No. WO95/22929, PCT Pub. Date Aug. 31, 1995

PCT Filed Feb. 27, 1995, Ser. No. 696,975

Claims priority, application Germany, Feb. 26, 1994, 44 06 286.9

Int. Cl.^{6} A61B ***5/08***

U.S. Cl. 600—520 **5 Claims**



1. A device for dynamic recording of respiratory, metabolic and/or ventilatory quantities during a process or influence conducive to lactate production, comprising:

a data processing unit and also a computing unit,

a second device (**20**) connected via an analysis instrument (**22**) to said data processing unit for determination of respiratory minute volume and also of O2 content or CO2 content of said respiratory minute volume of inhaled or exhaled air, wherein said computing unit using the respiratory measuring quantities of respiratory minute volume Ve of the O2 content of respiratory minute volume VO2 and of the CO2 content of the respiratory minute volume VCO2 according to an algorithm, to permit determination of a quantity x as a function of work performed per unit of time (P),

said device for dynamic recording is used for determination of individual anaerobic threshold, with said computing unit using the respiratory measuring quantities of respiratory minute volume Vel of the O2 content of respiratory minute volume VO2 and of the CO2 content of respiratory minute volume VCO2 according to an algorithm

$$x = \frac{V_e}{\sqrt[3]{(\dot{V}^2_{CO_2})v_{O_2}>}}$$

to permit determination of a quantity x as a function of the work performed per unit time (P), wherein

a curve is adapted to values of x represented by x=f(P) or a curve is passed through these values, with a load value (PIAT)

corresponding to said individual anaerobic threshold determining a point of the curve x=f(P) at which a derivative dx(P)/dP is zero or has a maximum discontinuity.

5,782,773

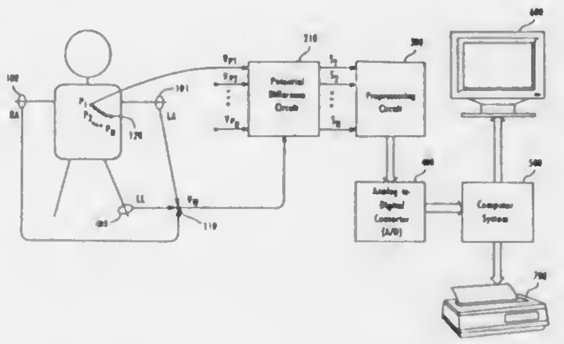
THREE-DIMENSIONAL ELECTROCARDIOGRAM DISPLAY METHOD

Cheng-Deng Kuo, 8F, No. 314, Sec. 2, Shih-Pi Road, Yun-Shin Li, Pei-Tou, Taipei; Hui-Hua Chiang, Taipei, and Chih-Wei Chen, No. 17, Wu-Han Street, Ling-Yai Kao-Shiung, all of Taiwan, assignors to Chih-Wei Chen, and Cheng-Deng Kuo, both of Taipei, Taiwan

Filed May 5, 1997, Ser. No. 851,470

Int. Cl.^{6} A61B ***5/04***

U.S. Cl. 600—523 **19 Claims**


Potential Difference Circuit
Preprocessing Circuit
Analog to Digital Converter (A/D)
Computer System
RA
LA
LL
110

1. A 3-D EKG display method, comprising the steps of:

(1) obtaining a plurality of cardiac signals from a patient;

(2) defining a 3-D rectangular coordinate system having a temporal axis representing the time domain of the cardiac signals, a spatial axis representing the spatial positions from which the cardiac signals are obtained, and an amplitude axis representing the amplitudes of the cardiac signals;

(3) defining an amplitude display scheme in which each quantization level of the amplitude of each of the cardiac signals is mapped to a predetermined visual display manner;

(4) displaying a 3-D representation of the cardiac signals based on the 3-D rectangular coordinate system defined in said step (2) and the amplitude display scheme defined in said step (3); and

(5) displaying a selected aspect of the 3-D representation of the cardiac signals in accordance with a user-selection.

5,782,774

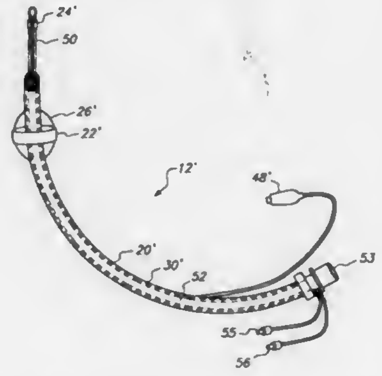
APPARATUS AND METHOD OF BIOELECTRICAL IMPEDANCE ANALYSIS OF BLOOD FLOW

Ascher Shmulewitz, Mercer Island, Wash., assignor to Imagyn Medical Technologies California, Inc., Newport Beach, Calif.

Continuation-in-part of Ser. No. 634,758, Apr. 17, 1996. This application Oct. 4, 1996, Ser. No. 726,822

Int. Cl.^{6} A61B ***5/05***

U.S. Cl. 600—547 **24 Claims**



1. Apparatus for use in combination with a bioelectrical impedance recorder and circuitry for processing the output of the bioelectrical impedance recorder to compute a metric corresponding to a patient's cardiac output, the apparatus comprising:

an endotracheal tube having a proximal portion and a distal portion;

first and second sense electrodes disposed on the distal portion and electrically coupled to the bioelectrical impedance recorder, the first and second sense electrodes spaced apart a first distance;

means for urging the first and second electrodes against a wall of the patient's interior passageway;

a reference mark disposed on the proximal portion of the endotracheal tube to determine angular orientation of the first and second sense electrodes within the patient's interior passageway, the reference mark enabling the first and second sense electrodes to be angularly aligned with the portion of interior passageway nearest the aorta;

first and second source electrodes electrically coupled to the bioelectrical impedance recorder for injecting a sense current into the patient's thorax, the first and second source electrodes spaced apart a second distance greater than the first distance,

wherein the first and second sense electrodes generate a signal corresponding to the bioelectrical impedance of blood flow through the aorta and the signal is provided to the bioelectrical impedance recorder.

5,782,775

APPARATUS AND METHOD FOR LOCALIZING AND REMOVING TISSUE

Keith L. Milliman, Bethel; Mitchell J. Palmer, New Milford, and Lisa W. Heaton, Norwalk, all of Conn., assignors to United States Surgical Corporation, Norwalk, Conn.

Continuation-in-part of Ser. No. 546,482, Oct. 20, 1995. This application Jun. 14, 1996, Ser. No. 665,176

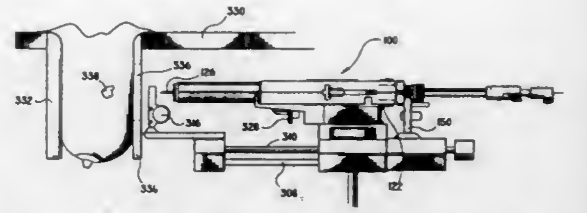
Int. Cl.^{6} A61B ***5/00***

U.S. Cl. 600—567 **34 Claims**

1. A surgical apparatus for localizing and removing tissue, which comprises:

a housing;

an elongated tubular portion extending distally from the housing, the elongated tubular portion defining an opening at a distal end and forming a tissue receiving cavity in communication with the opening;



a localizing needle disposed within the tissue receiving cavity and defining a longitudinal passageway therethrough;

a spacer member having a distal surface which terminates proximal of the distal end opening of the elongated tubular portion, the spacer member being disposed relative to the needle such that the needle is maintained in substantial alignment with the elongated tubular portion and the distal surface of the spacer member defines a proximal end of the tissue receiving cavity;

a tissue marker housed within the longitudinal passageway;

a marker deploying mechanism operatively connected to the marker; and

a tissue cutting member operatively connected to the housing and having an operative portion disposed in proximity to the opening.

5,782,776

GUIDEWIRE ATTACHMENT ASSEMBLY

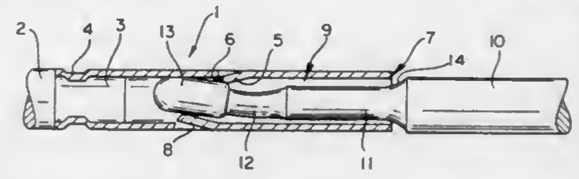
Robert Hani, Unterlunkhofen, Switzerland, assignor to Schneider A.G., Bulach, Switzerland

Division of Ser. No. 442,714, May 11, 1995, Pat. No. 5,605,163. This application Nov. 12, 1996, Ser. No. 747,409

Claims priority, application European Pat. Off., May 11, 1994, 94107357

Int. Cl.^{6} A61B ***5/00***

U.S. Cl. 600—585 **26 Claims**



1. A guidewire attachment assembly comprising:

(a) an elongated member having a resilient longitudinal shaft having a nonuniform outer surface defining at least one recessed area;

(b) a tubular member having an inner surface forming a lumen adapted to receive the elongated member; and

(c) at least one substantially rigid member projecting from the inner surface of the tubular member into the lumen, said at least one rigid member adapted to deflect said resilient longitudinal shaft from a first position and then to at least partly allow return of the resilient longitudinal shaft towards the first position such that the at least one rigid member is disposed at least in part within the at least one recessed area of the resilient longitudinal shaft.

5,782,777

STAGING OF DEMENTIA SEVERITY BY JOINT FUNCTION EXAMINATION

Liduin E. M. Souren-Franssen; Emil H. Franssen, both of 595 Main St., #1102, New York, N.Y. 10044, and Barry Reisberg, 20 Waterside Pl., #7K, New York, N.Y. 10010

Continuation-in-part of Ser. No. 390,359, Feb. 17, 1995, abandoned. This application Jun. 12, 1996, Ser. No. 662,062

Int. Cl.^{6} A61B ***5/103***

U.S. Cl. 600—587 **6 Claims**

1. A method for determination of the progression of diagnosed Alzheimer's disease in an elderly patient comprising determining

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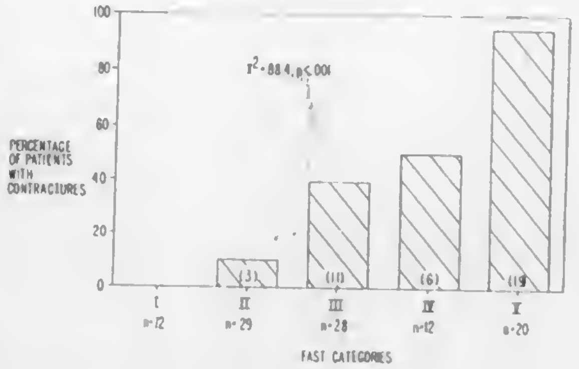
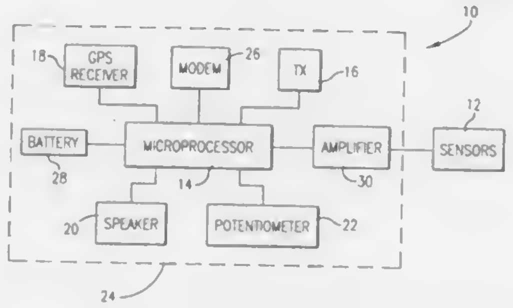


the presence of a contracture by measuring the passive range of motion of a joint, wherein a positive indication of the presence of the disease is a limitation of 50% or greater of the passive range of motion of the joint, secondary to permanent muscle shortening or ankylosis.

5,782,778
APPARATUS AND METHOD FOR DETECTING AND MONITORING THE SEXUAL AROUSAL OF AN INDIVIDUAL

Terry J. De Briere, Ft. Myers, Fla., and Jerry Rea, Parsons, Kans., assignors to Parsons State Hospital Endowment Association Inc., Parsons, Kans.

Filed Oct. 24, 1996, Ser. No. 736,264
Int. Cl.⁶ A61B *5/00*
U.S. Cl. 600—587 **39 Claims**



1. An apparatus for detecting and monitoring the sexual arousal of an individual, said apparatus comprising:

sensing means for sensing physiological changes in the individual that correspond to the sexual arousal of the individual and for generating sensor signals representative of the physiological changes;

computing means coupled with said sensing means for receiving said sensor signals, for converting said sensor signals to control signals representative of the sensor signals, and for storing said control signals;

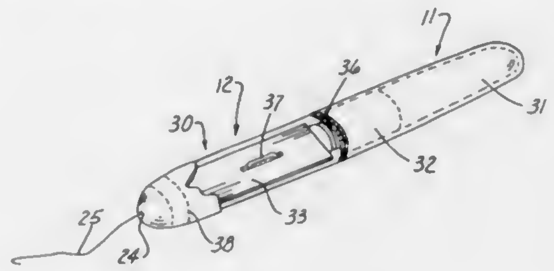
transferring means coupled with and responsive to said computing means for transferring said control signals stored in said computing means to an analyzing device remote from said apparatus for analyzing said control signals to monitor the sexual arousal of the individual; and

attaching means for releaseably attaching said sensing means, said computing means, and said transferring means directly to the individual for permitting the individual to move unrestrictedly while the apparatus remains operably attached to the individual.

5,782,779
VIBRATING TAMPON APPARATUS

Steven A. Kilgore, 910 Ward Rd., Raymore, Mo. 64083

Filed May 23, 1997, Ser. No. 862,214
Int. Cl.⁶ A61H *21/00*
U.S. Cl. 601—70 **8 Claims**



1. A vibrating tampon apparatus comprising:

an inner vibrator member including a vibrator motor contained within a pair of casing segments;

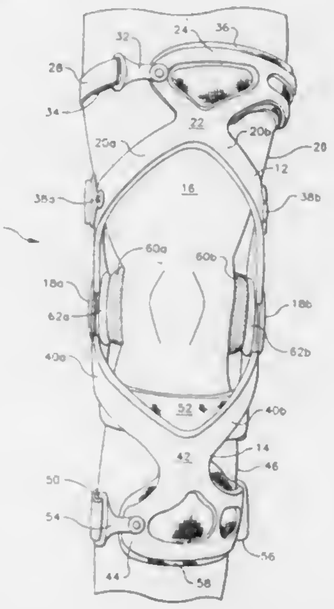
an outer tampon member fabricated from a sterile absorbent material and disposed in a surrounding relationship relative to said inner vibrator member; and

means for activating said vibrator motor.

5,782,780
METHOD OF FORMING A CONTOURED ORTHOTIC MEMBER

Bradley R. Mason, Olivenhain, and Jeffrey T. Mason, Escondido, both of Calif., assignors to Breg, Inc., Vista, Calif.

Filed Jul. 31, 1996, Ser. No. 695,196
Int. Cl.⁶ A61F *5/00*
U.S. Cl. 602—6 **23 Claims**



1. A method of forming an orthotic member conforming to a contour of a body comprising:

providing a flat member, wherein said flat member has a substantially two-dimensional shape and is constructed from a pliable metallic material;

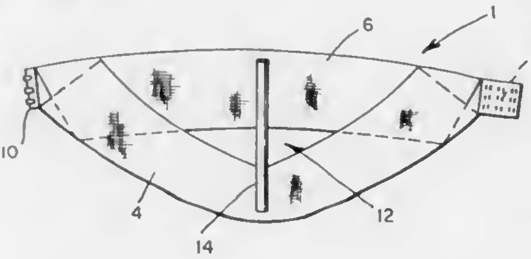
bending said flat member at an ambient temperature into a substantially three-dimensional shape on a form having a pattern approximating a contour of a body, wherein said substantially three-dimensional shape corresponds to said contour; and

performing a heat treating procedure on said pliable metallic material said heat treating procedure including heating said pliable metallic material having said substantially three-dimensional shape to a relatively higher temperature substantially exceeding said ambient temperature to convert said pliable metallic material to a non-pliable metallic material forming said orthotic member contoured to said body, wherein said orthotic member has said three-dimensional shape and is constructed from said non-pliable metallic material.

5,782,781
ALL-IN-ONE GIRDLING BELT FOR LUMBAR AND COXA SUPPORT

Nobuo Nagaoka, 107-11 Hirata-cho, Hikone City, Shiga, Japan, 522

Filed Apr. 25, 1996, Ser. No. 637,990
Int. Cl.⁶ A61F *5/00;5/02*
U.S. Cl. 602—19 **32 Claims**



1. A girdling belt device to tightly bind the abdomen by fitting around the waist and under the buttocks of the user keeping the coxae and lumbar vertebrae in place thereby releasing strain which may be causing pain comprising:

(a) a coxa belt having a first end, a second end, an upper edge and a lower edge, preselected portions being fabricated of elastic material, adapted to encircle and be binding around the buttocks, said lower edge of said coxa belt covering connective structure of the coxae vertebrae lying at the lower part of the spinal column which is connected to the human pelvis;

(b) a lumbar belt having a first end, a second end, an upper edge and a lower edge, preselected portions being fabricated of elastic material, adapted to encircle and be binding around the waist including the upper part of the pelvis and lumbar vertebrae, said lower edge of said lumbar belt being spaced apart from said upper edge of said coxa belt thereby forming a gap;

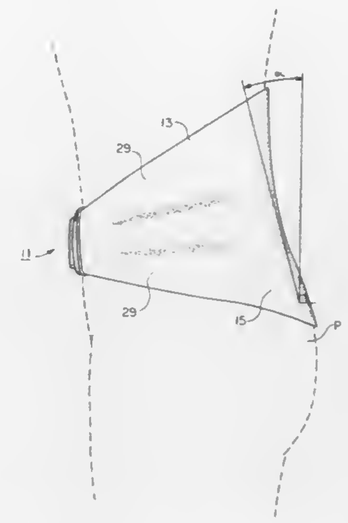
(c) a closing means which fastens together said first end and second end of said coxa belt and said first end and second end of said lumbar belt;

(d) a at least one bridging strap means, bridging across said gap extending between said coxa belt and said lumbar belt at or near the center of each said belt.

5,782,782
SUPPORT BELT WITH CORRECTIVE ANGLE OF LORDOSIS

James R. Miller, Milton, Mass., assignor to Boston Brace International Inc., Avon, Mass.

Filed May 24, 1996, Ser. No. 653,277
Int. Cl.⁶ A61F *5/00*
U.S. Cl. 602—19 **13 Claims**



1. A support belt to be worn around the waist of a person, said support belt comprising an elongated strip of rigid material having a center portion and a pair of ends said ends being fastenable to each other in order to connect about the wearer's waist, said elongated strip of rigid material being sized and shaped so as to encircle the waist of the person with the center portion positionable against the lumbar spinal region of the back of the person, and wherein the center portion of said elongated strip of rigid material is shaped to define an angle of lordosis of approximately 15 degrees.

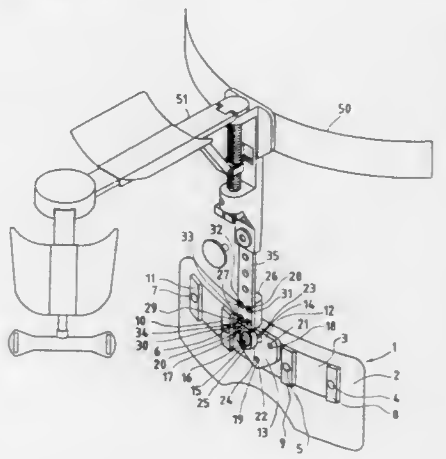
5,782,783
ORTHOSIS FOR THE UPPER BODY

David Ernest Young, Watlington, and Colin Alfred Young, Abingdon, both of United Kingdom, assignors to Protectair Limited, Abingdon, England

Continuation of Ser. No. 508,137, Jul. 27, 1995, abandoned. This application Jul. 31, 1997, Ser. No. 904,123

Claims priority, application United Kingdom, Feb. 16, 1995, 9502988

Int. Cl.⁶ A61F *5/00*
U.S. Cl. 602—20 **4 Claims**



1. An orthosis for the human upper limb comprising a lower plate adapted to be secured to a wearer's waist directly above the hip; a lateral upright member having upper and lower ends and extending generally vertically when a wearer is standing; and connecting means joining said lower end of said upright member to said lower plate for limited relative movement therebetween; said connecting means comprising first spherical joint means for providing antero-posterior pivotal movement of said upright member about a generally horizontal axis, and also for lateral-medial pivotal movement of said upright member, to accommodate bending of a wearer at the waist and variations in torso shape; said connecting means also comprising second rotational joint means for providing rotation of said upright member about an axis substantially parallel with the long axis thereof; an upper plate connected to said

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upper end of said upright member and adapted to be secured to the side of a wearer's chest for maintaining said upright member in generally vertical condition when a wearer is standing; and means connected to said upper end of said upright member adjacent said upper plate for supporting a wearer's arm.

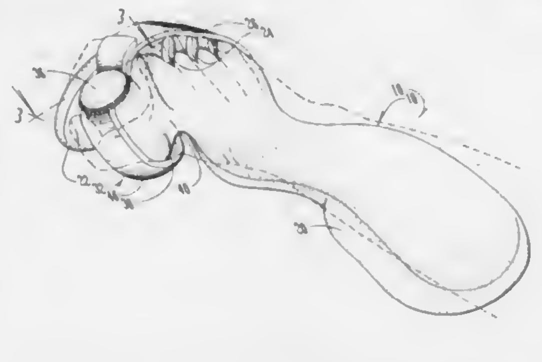
5,782,784
HAND ORTHOSIS WITH INTERCHANGEABLE THUMB SUPPORT

Constance V. Wassermann, Palm Harbor, Fla., assignor to Restorative Care of America Incorporated, Clearwater, Fla.

Filed Feb. 12, 1997, Ser. No. 800,119

Int. Cl.^{6} A61F *5/00*

U.S. Cl. 602—21 **5 Claims**



1. A hand orthosis having a base member including wrist, hand and finger portions, and a cover on said base member, comprising,
- a cylindrical pouch formed from an elongated strap having a first end and a second end, the first end secured to said cover adjacent said hand portion and the second end movably positioned adjacent said finger portions,
- said pouch having an opening therein adapted to receive a detachable cylindrical pad therein,
- a cylindrical pad in said pouch,
- a securing element on the outside of said pouch adapted to secure said pouch in an operating position with respect to said orthosis adjacent said finger portions,
- a thumb strap being on the outside of said pouch to extend over the thumb of a patient wearing said orthosis to retain the thumb of a patient whose hand and fingers are supported on said hand and finger portions.

5,782,785
KNEE BRACE

Thorsten Herzberg, Hamburg, Germany, assignor to Beiersdorf Aktiengesellschaft, Hamburg, Germany

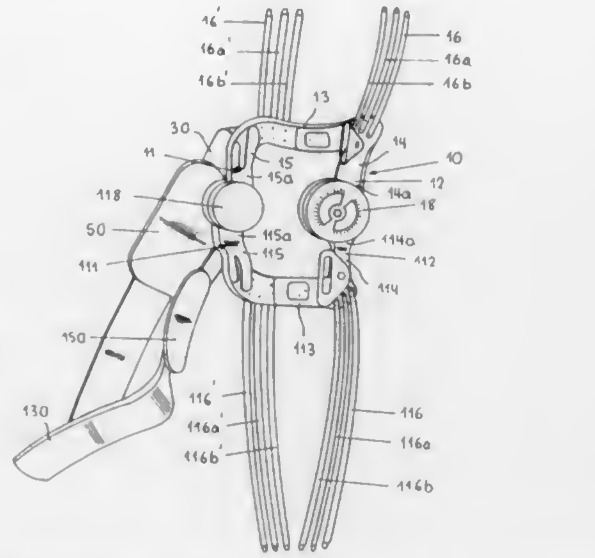
Continuation of Ser. No. 413,707, Mar. 28, 1995, abandoned. This application Oct. 9, 1996, Ser. No. 728,402

Claims priority, application Germany, Apr. 1, 1994, 44 11 469.9

Int. Cl.^{6} A61F *5/00*

U.S. Cl. 602—26 **16 Claims**

1. An orthopedic knee brace for use with a leg having an upper thigh portion, a lower calf portion and an intermediate knee region, said brace comprising:
- an upper half shell frame portion applied dorsally to the upper thigh and formed by an U-shaped bar section, said U-shaped bar section having a semi-circular web and two ends;
- a lower half shell frame portion applied dorsally to the calf portion of said leg and formed by an U-shaped bar section, said U-shaped bar section having a semi-circular web and two ends;
- means for interconnecting said ends of said upper half shell frame portion with said ends of said lower half shell frame portion;



- a first plurality of rigid one-armed fixation rods, having first and second ends, said first ends attached to said semi-circular web of said upper half shell frame portion and extending proximately to said upper half shell frame portion, said fixation rods having sufficient flexibility so as to adapt to the anatomic configuration of the user's thigh;
- a second plurality of rigid one-armed fixation rods, having first and second ends, said first ends attached to said semi-circular web of said lower half shell frame portion and extending distally to said lower half shell frame portion, said fixation rods having sufficient flexibility so as to adapt to the anatomic configuration of the user's calf;
- first fastening brace provided proximate said second ends of said first plurality of fixation rods for securing said fixation rods to said upper thigh;
- second fastening brace provided proximate said second ends of said second plurality of fixation rods for securing said fixation rods to said calf portion;
- third fastening brace provided proximate to said end of said upper half shell frame portion for securing said knee; and
- fourth fastening brace provided proximate to said end of said lower half shell frame portion for securing said knee.

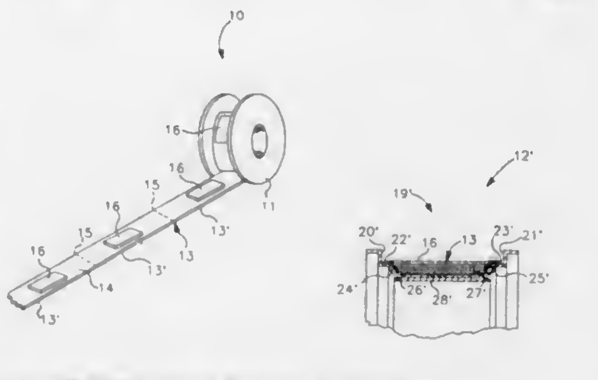
5,782,786
ADHESIVE BANDAGE DISPENSING SYSTEM AND SPOOL THEREFOR

Theodore J. Tomaiuolo, 114 Bohemia St., Plainville, Conn. 06062-2102

Filed Oct. 4, 1996, Ser. No. 720,949

Int. Cl.^{6} A61F *5/00*

U.S. Cl. 602—41 **14 Claims**



1. An adhesive bandage dispensing system comprising:
- an axis-defining bandage retaining and dispensing spool having trough; and

- a continuous elongated bandage strip wound on said spool in said trough and around said axis, said bandage strip comprising a plurality of individual adhesive bandages connected together to form said bandage strip, each of said bandages having a carrier strip with a top surface and an oppositely disposed bottom surface, said carrier strip having an axial width and being coated on the bottom surface with an adhesive, each of said bandages further having an absorbent pad disposed on said carrier strip bottom surface, said pad having an axial width which is less than the axial width of said carrier strip bottom surface and a length which is less than the length of said carrier strip whereby said pad is surrounded by exposed adhesive coated areas of said bottom surface;
- wherein said spool comprises:
  - a hub having first and second opposite ends said hub defining said axis; and
  - first and second rims said first and second rims being respectively disposed at said first and second ends of said hub and having first and second sealing surfaces extending radially outwardly from said hub and diverging axially away from one another to thereby define said trough, said trough extending about said axis and having a varying width which, at a bottom portion thereof, is at least equal to the axial width of said absorbent pads and less than the axial width of said carrier strip whereby said diverging sealing surfaces apply a force to the bandage strip in an edge region adjacent each absorbent pad and whereby each successive winding of th e bandage strip seals the absorbent pad of each adhesive bandage to a preceding bandage along said sealing surfaces.

10. A spool for sealingly retaining and dispensing a plurality of adhesive bandages of a type having an absorbent pad disposed on an adhesive side of a pad-carrier, the bandages being serially connected to form an elongated bandage strip having first and second opposite ends, the absorbent pad and the pad-carrier each having a width measured perpendicular to the elongated direction of the bandage strip, and the width of the pad-carrier being greater than the width of the absorbent-pad, said spool comprising:
- a hub, said hub defining an axis and first and second opposite ends; and
- first and second rims respectively disposed at said first and second opposite ends of said hub and having means defining sealing surfaces curvilinear in cross-section and extending from said hub and diverging away from one another to thereby define a trough which extends about said hub axis, said trough having a bottom with an axial width which is at least as axially wide as the width of the absorbent pads and less than the axial width of the pad-carrier.

5,782,787
MOISTURE-RESPONSIVE ABSORBENT WOUND DRESSING

David Fitzgerald Webster, Percy, United Kingdom, assignor to Smith & Nephew plc, London, United Kingdom

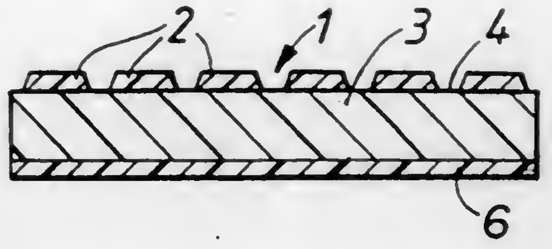
PCT No. PCT/GB94/00291, § 371 Date Aug. 14, 1995, § 102(e) Date Aug. 14, 1995, PCT Pub. No. WO94/17765, PCT Pub. Date Aug. 18, 1995

PCT Filed Feb. 14, 1994, Ser. No. 501,091

Claims priority, application United Kingdom, Feb. 15, 1993, 9302970

Int. Cl.^{6} A61F *5/00*

U.S. Cl. 602—46 **18 Claims**



18. A method of manufacturing an absorbent wound dressing comprising a conformable absorbent hydrophilic polymeric foam layer having a first surface and an opposed second surface permitting the passage of moisture vapor, the first surface having a plurality of discrete zones of a wound-contacting polymeric material, the swellability on contact with water of the polymeric material being less than that of the polymeric foam such that when the dressing is placed with the zones of polymeric material in contact with a wet wound surface, the zones move apart as the foam layer absorbs fluid from the wet wound and swells, said second surface permitting fluid absorbed by the foam layer to escape from said foam layer as moisture vapor across said second surface, said method comprising casting a plurality of discrete zones of said polymeric material into a mould and casting said foam layer to a desired thickness onto the polymeric material.

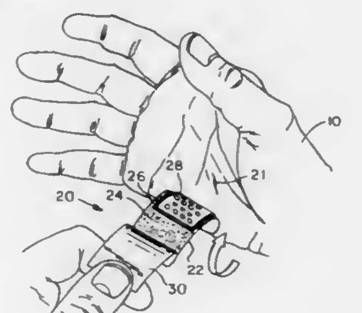
5,782,788
WOUND DRESSING

DeWitt P. Widemire, 3369 Ching Dairy Rd., Mobile, Ala. 36618-4433

Filed Mar. 21, 1997, Ser. No. 822,698

Int. Cl.^{6} A61F *5/00*

U.S. Cl. 602—48 **2 Claims**



1. An improved adhesive pad having an elastic substrate with an adhesive layer thereon, a gauze pad affixed to the substrate by the adhesive layer on the substrate, and release sheets releasibly covering and protecting the adhesive layer on the substrate and the gauze pad prior to use, wherein the improvement comprises a layer of silver foil affixed to the gauze pad that inhibits growth of bacteria, viruses, and fungus in wounds by having its positive ions attracted to the negative DC field of an extremity so as to allow the positive ions to bind avidly to proteins and provide further protection against additional invasion of the bacteria, viruses, or fungi; said layer of silver foil being embossed and functioning as cooling fins dissipating heat from deep and open wounds while holding fluids to the wounds since a wound heals faster if kept cool and cells grow faster in body fluids.

5,782,789
MACROCHANNEL PHOSTHETIC/DELIVERY PATCH

Steve A. Herweck, Nashua, and Theodore Karwoski, Hollis, both of N.H., assignors to Atrium Medical Corporation, Hudson, N.H.

Filed Oct. 19, 1994, Ser. No. 325,787

Int. Cl.^{6} A61F *13/00*

U.S. Cl. 602—52 **15 Claims**

1. A non-tubular shaped patch of about one to three millimeters thickness comprising a porous sheet of biocompatible material selected from the group consisting of a fluorinated polymer and a polyurethane having a thickness with a plurality of channels formed therein, the channels being distinct chambers surrounded by porous material of said sheet and the channels each wholly

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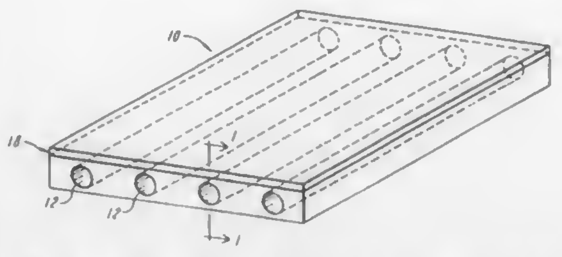
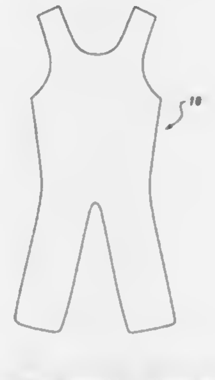


extending along an axis lying in a plane of said sheet parallel to each other form a planar array of holding chambers in said sheet, and bioactive material disposed in said channels, the channels having a diameter between about one-fourth and three-fourths of said sheet thickness effective to contain a substantial volume of material for permeation through said porous sheet to a surface thereof.

5,782,790

FLEXIBLE COMPRESSION AND STABILIZING ORTHOTICS

Cheryl L. Allen, 13505 Cedar Ct. E., Sumner, Wash. 98390
Filed May 31, 1996, Ser. No. 652,644
Int. Cl.^{6} A61F *5/00*
U.S. Cl. 602—75 **19 Claims**



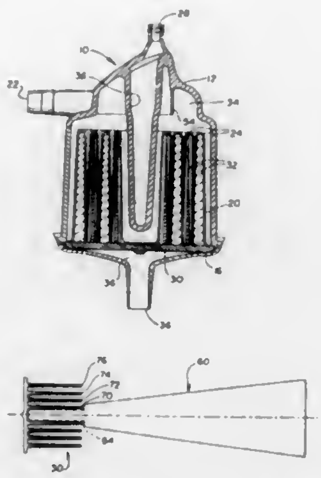
1. A method for providing sensory input and body awareness to a person suffering from a neurological disorder having impaired motor control as a symptom, or autism, or proprioceptive deficits, or deep-sensory deficits, or hypersensitivity, comprising the step of applying a flexible compression and stabilizing orthotic to a person's body, wherein the orthotic consists essentially of a multidirectional stretchable spandex material so as not to provide lines of pull in predetermined directions to the person's body but rather allows for complete freedom of movement and provides sensory input through a compression load to a portion of the body covered by the orthotic.

5,782,791

METHOD OF MANUFACTURING A FLUID FILTER

Richard O. Peterson, Edina, and Robert W. Olsen, Plymouth, both of Minn., assignors to Avecor Cardiovascular, Inc., Plymouth, Minn.
Continuation-in-part of Ser. No. 429,829, Apr. 27, 1995, Pat. No. 5,651,765. This application Mar. 29, 1996, Ser. No. 626,254
Int. Cl.^{6} A61M *37/00;* **B01D** *19/00*
U.S. Cl. 604—4 **53 Claims**

1. A method of manufacturing a fluid filter comprising:
(a) providing a cone having a tip end and an open end and made of a filter material;
(b) providing a support element having a plurality of concentric annular members mounted on a base and having outermost and innermost concentric annular members;

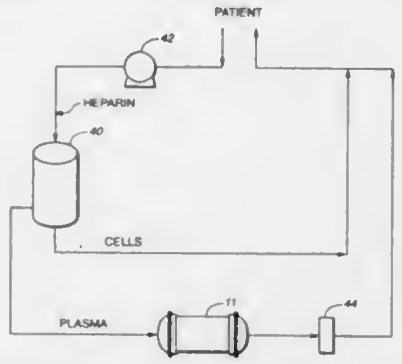


(c) aligning the central axes of the cone and the support element with the tip end of the cone closest to the support element; and
(d) inserting a portion of the cone into a circular area between two concentric annular members by placing a forming sleeve inside the cone and inserting the forming sleeve between the two concentric annular members, the concentric annular members being generally cylindrical and having an interior and an exterior.

5,782,792

METHOD FOR TREATMENT OF RHEUMATOID ARTHRITIS

Frank R. Jones, Edmonds; Harry W. Snyder, Jr., and Joseph P. Balint, Jr., both of Seattle, all of Wash., assignors to Cypress Bioscience, Inc., San Diego, Calif.
Continuation of Ser. No. 878,636, May 5, 1992, abandoned, which is a continuation-in-part of Ser. No. 453,236, Dec. 14, 1989, abandoned, which is a continuation of Ser. No. 344,463, Apr. 26, 1989, abandoned, which is a continuation of Ser. No. 934,272, Nov. 21, 1986, abandoned. This application Dec. 12, 1994, Ser. No. 353,946
Int. Cl.^{6} A61M *37/00*
U.S. Cl. 604—5 **13 Claims**

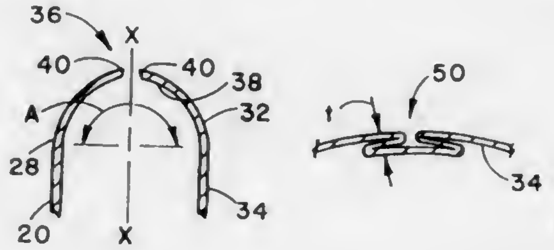


1. A method for treating a patient suffering from rheumatoid arthritis, consisting essentially of
(A) removing blood from the patient and separating cellular components therefrom to provide a cellular-component volume and a plasma volume,
(B) contacting the plasma volume with an immunoadsorbent to effect removal of immunoglobulin G and immune complexes, wherein the immunoadsorbent comprises an inert carrier and protein A bound thereto, and then
(C) mixing and returning directly to the patient the cellular-component volume and the immunoadsorbent-treated plasma volume from step (B), wherein step (C) is effected while step (A) is still being carried out.

5,782,793

TAMPON APPLICATOR HAVING A SEMI-SPHERICALLY SHAPED PLEATED TIP

Steven James Nielsen, Greenville; Tammy Jo Rentmeester, Appleton; Allan James Krueger, Winneconne, and Jeffrey Michael Weyenberg, Appleton, all of Wis., assignors to Kimberly-Clark Worldwide, Inc., Neenah, Wis.
Continuation of Ser. No. 422,117, Apr. 14, 1995, abandoned, which is a continuation-in-part of Ser. No. 294,230, Aug. 22, 1994, abandoned. This application Feb. 18, 1997, Ser. No. 802,458
Int. Cl.^{6} A61F *13/20*
U.S. Cl. 604—14 **9 Claims**

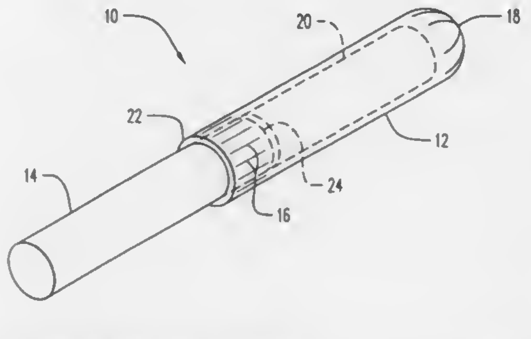


6. In combination, a tampon applicator and a catamenial tampon having a shaped nose, said combination comprising:
a) a catamenial tampon;
b) a first member capable of housing said catamenial tampon, said first member having a central longitudinal axis and first and second ends;
c) an insertion tip integrally formed on said first end of said first member and extending outwardly therefrom, said insertion tip having an aperture extending therethrough with a side wall which is aligned essentially parallel to said central longitudinal axis, said insertion tip including a plurality of pleats arranged to form a semi-spherical configuration, said pleats capable of expanding outward as said tampon is expelled from said first member; and
d) a second member telescopically mounted in said second end of said first member, said second member adapted to expel said catamenial tampon through said insertion tip as it is pushed into said first member.

5,782,794

INFRARED TREATED TAMPON APPLICATORS

Suzanne E. Assenheimer Downs, Ho-Ho-Kus, N.J., assignor to Playtex Products, Inc., Westport, Conn.
Filed Jan. 28, 1997, Ser. No. 788,472
Int. Cl.^{6} A61F *13/20*
U.S. Cl. 604—15 **26 Claims**

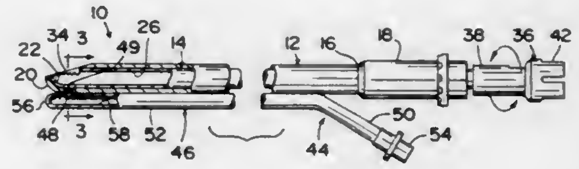


1. A tampon applicator comprising:
a barrel having an outer surface and a first end, said barrel being made of polyvinyl alcohol; and
a plunger adapted to be telescopically mounted in the first end of said barrel,
wherein said outer surface of said barrel is treated by infrared radiation to minimize surface stickiness on initial contact with moisture.

5,782,795

SURGICAL SUCTION CUTTING INSTRUMENT WITH INTERNAL IRRIGATION

F. Barry Bays, Clearwater, Fla., assignor to Xomed Surgical Products, Inc., Jacksonville, Fla.
Filed Jun. 30, 1995, Ser. No. 497,117
Int. Cl.^{6} A61B *17/20*
U.S. Cl. 604—22 **21 Claims**



6. A surgical suction cutting instrument comprising
a tubular outer member having a proximal end and a distal end, said distal end defining a cutting chamber with an opening;
an inner member having a proximal end, a distal end and a cutting edge disposed at said distal end, said inner member being movably received in said tubular outer member to position said cutting edge within said cutting chamber only adjacent said opening to permit said cutting edge to engage and cut bodily tissue when said inner member is moved;
a lumen defined along said inner member to aspirate cut bodily tissue;
a suction inlet defined at a distal end of said lumen to communicate said cutting chamber with said lumen;
a flushing member defining a fluid supply channel along an exterior of said outer member to convey a flushing fluid; and
a fluid supply inlet formed through a wall of said tubular outer member in longitudinal alignment with said cutting edge to communicate all of the fluid conveyed by said fluid supply channel into said cutting chamber so that substantially all of the flushing fluid supplied to said cutting chamber will be aspirated with the cut bodily tissue to reduce clogging without irrigating the surgical site.

5,782,796

FOLDABLE DIALYSIS UNIT WITH INTEGRAL PUMP AND A METHOD FOR PERFORMING SOLUTION EXCHANGE

Shahid Din, Clearwater, and Greg Worsnick, Tampa, both of Fla., assignors to Baxter International Inc., Deerfield, Ill.
Filed Feb. 10, 1995, Ser. No. 387,050
Int. Cl.^{6} A61M *1/00*
U.S. Cl. 604—29 **49 Claims**

1. A system for controlling fluid flow, the system comprising:
a holder capable of holding a first container having a first solution therein;
a processor unit having an integral pump connected to the holder wherein the pump is capable of pumping the first solution from the first container in the holder;
a tray capable of holding a second container wherein the pump is capable of pumping a second solution to the second container; and

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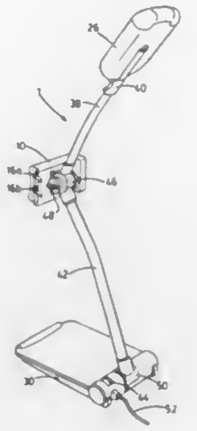


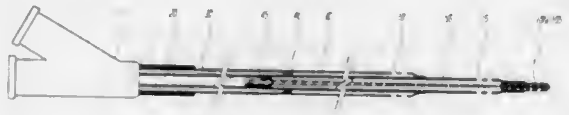
an arm connecting the holder to the processor unit wherein the arm includes a hinge at a point of connection to the processor unit such that the arm is rotatable with respect to the processor unit.

5,782,797
THERAPEUTIC INFUSION DEVICE

Cyril J. Schweich, Jr., St. Paul; Julie A. Brunner, Woodbury, and Todd J. Mortier, Minneapolis, all of Minn., assignors to SCIMED Life Systems, Inc., Maple Grove, Minn.

Filed Jun. 6, 1996, Ser. No. 659,462
Int. Cl.^{6} A61M *31/00*

U.S. Cl. 604—49 **14 Claims**



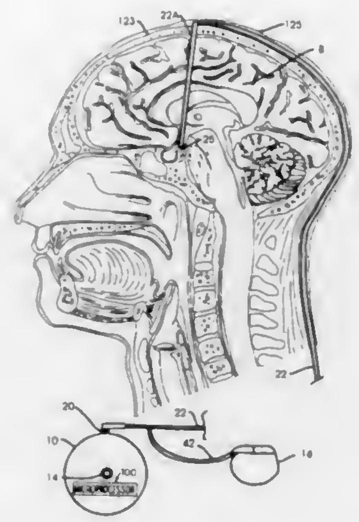
1. A method of treating thrombus that is lodged in a human vasculature, comprising the steps of:
- i. providing a device having:
  - (a) an elongate body with a distal and a first and a second lumen therethrough;
  - (b) a first at least one opening near the distal end of the elongate body, the first at least one opening in fluid communication with the first lumen; and
  - (c) a second at least one opening proximal to the first at least one opening, the second at least one opening in fluid communication with the second lumen;
- ii. advancing the device through the vasculature such that the first at least one opening is distal to the thrombus and the second at least one opening is proximal to the thrombus;
- iii. infusing a first fluid through the first lumen, out the first at least one opening and into the vasculature distal of the thrombus; and
- iv. infusing a second fluid through the second lumen, out the second at least one opening and into the vasculature proximal of the thrombus.

5,782,798
TECHNIQUES FOR TREATING EATING DISORDERS BY BRAIN STIMULATION AND DRUG INFUSION

Mark T. Rise, Monticello, Minn., assignor to Medtronic, Inc., Minneapolis, Minn.

Filed Jun. 26, 1996, Ser. No. 674,498
Int. Cl.^{6} A61M *31/00*

U.S. Cl. 604—49 **48 Claims**



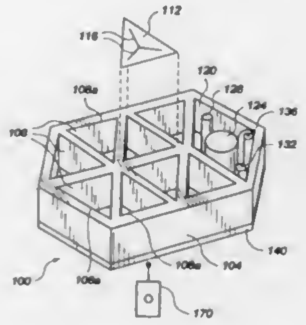
1. A method for therapeutically treating an eating disorder of a patient having a central nervous system including a brain and a spinal cord, by at least one of drug infusion into and electrical stimulation of the central nervous system, the method comprising the steps of:
- surgically implanting at least one electrode having a proximal end coupled to a signal generator and having a stimulation portion that lies adjacent a predetermined stimulation site in the central nervous system of the patient, the predetermined stimulation site being a site on the central nervous system that controls at least one of hunger and satiety for the patient;
- surgically implanting a pump and a catheter having a proximal end coupled to the pump and a discharge portion that lies adjacent a predetermined infusion site in the central nervous system of the patient, the predetermined infusion site being a site on the central nervous system that controls at least one of hunger and satiety for the patient;
- coupling the proximal end of the at least one electrode to the signal generator;
- operating the signal generator to stimulate the stimulation site; and
- operating the pump to discharge a predetermined dosage of at least one drug through the discharge portion of the catheter into the infusion site while the signal generator is stimulating the stimulation site, whereby an eating disorder is treated by at least one of electrical stimulation of the stimulation site and drug infusion of the at least one drug into the infusion site.

5,782,799
METHOD FOR AUTOMATIC DOSING OF DRUGS

Stephen C. Jacobsen, and Gaylen M. Zentner, both of Salt Lake City, Utah, assignors to Sarcos, Inc., Salt Lake City, Utah

Filed Feb. 7, 1997, Ser. No. 797,296
Int. Cl.^{6} A61M *31/00*

U.S. Cl. 604—49 **53 Claims**



1. A method for automatic delivery of one or more drugs, the method comprising:

- a) selecting a microdelivery system having a plurality of compartments disposed therein for holding a plurality of doses of at least a first drug to be administered to an animal/human;
- b) administering the microdelivery system to the animal/human;
- c) actuating the microdelivery system to provide an initial dose of the first drug from at least one compartment of the microdelivery system to the animal/human in sufficient quantity to exceed the efficacy threshold for the first drug in the animal/human; and
- d) actuating the microdelivery system to provide a second dose of the first drug from at least one compartment of the microdelivery system to the animal/human at a predetermined time after the initial dose of the first drug and while the drug supplied by the initial dose remains above the efficacy threshold.

5,782,800
EXPANDABLE MULTIFUNCTIONAL MANIPULATING INSTRUMENTS FOR VARIOUS MEDICAL PROCEDURES AND METHODS THEREFOR

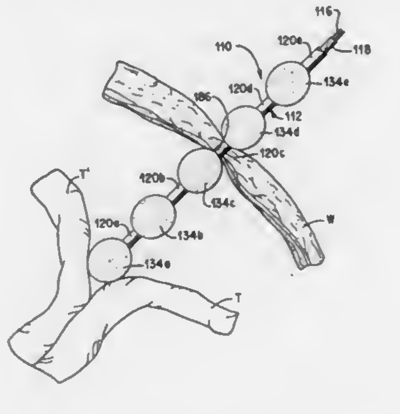
InBae Yoon, 2101 Highland Ridge Dr., Phoenix, Md. 21131

Continuation of Ser. No. 441,465, May 15, 1995, Pat. No. 5,656,013, which is a division of Ser. No. 249,116, May 25, 1994, Pat. No. 5,514,091, which is a continuation-in-part of Ser. No. 596,937, Oct. 15, 1990, abandoned, which is a continuation-in-part of Ser. No. 222,776, Jul. 22, 1988, abandoned. This application Dec. 17, 1996, Ser. No. 768,239

The portion of the term of this patent subsequent to May 15, 2015, has been disclaimed.

Int. Cl.^{6} A61M *31/00*

U.S. Cl. 604—54 **6 Claims**



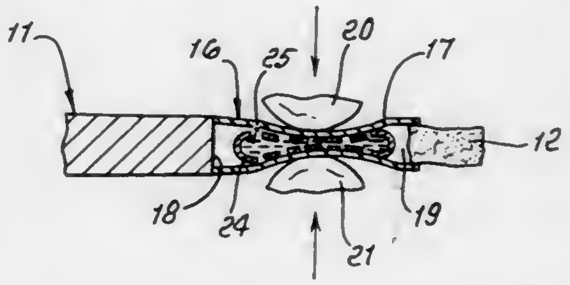
1. A method of performing an operative procedure in an anatomical cavity comprising the steps of
- introducing a distal end of a distensible member of a multifunctional medical instrument in the anatomical cavity through a relatively small size opening in a wall of the anatomical cavity with the distensible member in a non-distended position facilitating introduction of the distensible member through the opening;
- moving the distensible member from the non-distended position to a distended position to increase the cross-sectional size of the distensible member between the distal end and a proximal end of the distensible member;
- constraining selected longitudinally spaced portions of the distensible member between the distal and proximal ends to prevent movement of the selected portions to the distended position to selectively contour the distensible member to have a plurality of longitudinally spaced protuberances for engaging anatomical tissue in accordance with the operative procedure to be performed; and
- performing an operative procedure in the anatomical cavity with the multifunctional instrument with the distensible member in the distended position.

5,782,801
CONTROLLED APPLICATION OF CONTAINED SCREENING OR TREATMENT FLUID TO TISSUE SUCH AS CERVICAL OR VAGINAL TISSUE

James C. Caillouette, 685 Oak Knoll Circle, Pasadena, Calif. 91106

Filed Jan. 31, 1997, Ser. No. 789,835
Int. Cl.^{6} A61M *31/00*

U.S. Cl. 604—55 **18 Claims**



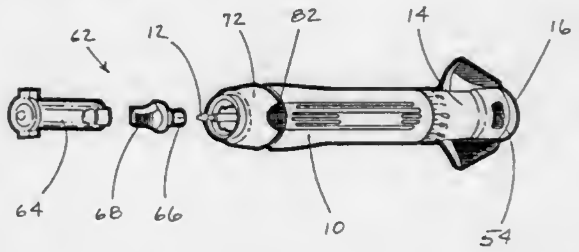
1. In the method of applying screening or treatment fluid to tissue such as cervical tissue or vaginal tissue, the cervix, the steps that include:
- a) providing an elongated assembly including an elongated carrier and a flexible outer container supported on the carrier,
- b) providing a fluid applicator at one end of the assembly to communicate with the interior of the outer container,
- c) providing a frangible inner container protectively located within the outer container, and providing screening or treatment fluid within the inner container,
- d) exerting pressure on the outer container sufficient to rupture the inner container, thereby releasing said screening or treatment fluid into the interior of the outer container, enabling fluid migration to said applicator,
- e) and manipulating said assembly when inserted into the vaginal cavity to cause said applicator to apply said screening or treatment fluid to said tissue.

5,782,802
MULTIPLE USE NEEDLE-LESS HYPODERMIC INJECTION DEVICE FOR INDIVIDUAL USERS

Sergio Landau, Laguna Niguel, Calif., assignor to Vitajet Corporation, Laguna Hills, Calif.

Continuation-in-part of Ser. No. 621,080, Mar. 22, 1996, abandoned. This application Jan. 30, 1997, Ser. No. 792,574
Int. Cl.^{6} A61M *5/30*

U.S. Cl. 604—68 **15 Claims**



1. For a needle-less injection device, a disposable injection head assembly comprising in combination:
- a nozzle member having an elongate generally cylindrical tubular body formed of transparent polymer, said nozzle member including a stepped through bore having a main cylindrical bore portion leading toward an opening at a rear end thereof, and an outwardly tapering portion connecting between the main cylindrical bore portion and an opening of said through bore on the rear end of the nozzle member, which opening is of a diameter greater than said main cylindrical bore portion, adjacent to said rear end said nozzle member including means

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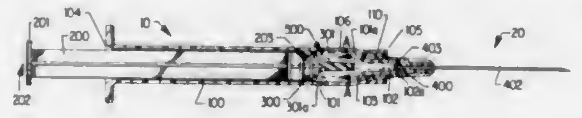
for releasably mounting to an injection power unit, and at a forward end thereof said nozzle member including a disc-like end wall closing said main bore portion except for a reduced-diameter portion of said through bore opening forwardly through said disc-like end wall and providing a forwardly-directed injection orifice via which liquid medicament is projected forwardly from said nozzle member, said through bore including a tapering counter bore portion extending between said main bore portion and said reduced-diameter through bore portion at said disc-like end wall;

a piston tip member having a forward face portion configured to be received into said counter bore portion of said through bore in conforming relationship thereto, a sealing member disposed rearwardly of said forward face portion sized to slidably and sealingly be received in said main bore portion, and a rearward extension defining means for removable attachment of said piston tip to a ram; and

a protective cap member defining a blind bore having an opening and receiving said piston tip with said forward face portion within said blind bore and with sealing engagement of said sealing member upon said cap member to provide environmental protection of said forward face portion in said blind bore, said rearward extension of said piston tip extending outwardly of said blind bore, and said protective cap member outwardly including means for allowing secure manual purchase thereon.

5,782,803
LOW DEAD SPACE, INTERCHANGEABLE NEEDLE SYRINGE

S. William Jentzen, 3000 Arteslao Dr., Cedar Creek, Tex. 78612
Filed Nov. 26, 1996, Ser. No. 756,241
Int. Cl.^{6} A61M *5/00*
U.S. Cl. 604—110 **4 Claims**



1. A low dead space safety syringe, comprising:

(a) a cylindrical barrel including first and second ends, and comprising a first internal diameter wall of a given diameter and a second internal wall having an internal diameter smaller than the diameter of the first internal diameter wall, said second internal diameter wall having an end protruding distally away from the distal end of the first internal diameter wall and terminating at the second barrel end;

(b) a nozzle section on said barrel and including nozzle dead space;

(c) a chamber for receipt of medicinal fluid within said barrel and said nozzle section and between said first and second barrel ends;

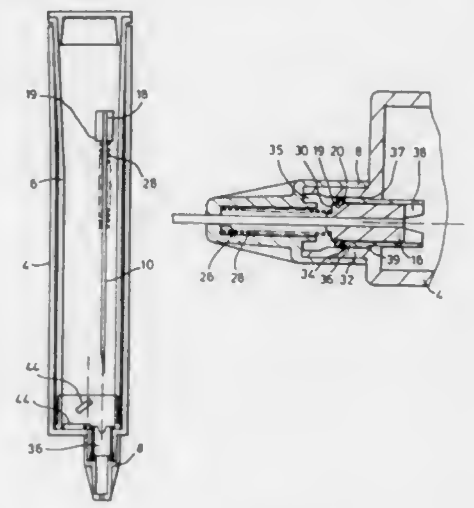
(d) a plunger extendable into said barrel through the first end of said barrel, said plunger having distal and proximal ends, said plunger being selectively moveable from an expanded position to an expended position;

(e) a hollow needle assembly selectively securable to the barrel and around the nozzle section; and

(f) dead space sealing means including an elastomeric sealing member engaged with the plunger immediate the distal end of the plunger for slidable sealing contact with at least one of the first and second internal diameter walls of said barrel, said sealing means further including an elongated nose tip portion slidable along and extending distally through the second internal wall of the barrel, whereby, when said plunger is moved to said expended position said sealing means extends through said barrel and said nozzle section and to the second barrel end to eject the medicinal fluid within said nozzle dead space out of said chamber and said nozzle section.

5,782,804
NEEDLE RETRACTION MECHANISMS

Keith Herd Younie McMahon, Fife, United Kingdom, assignor to NMT Group PLC, Bellshill, United Kingdom
PCT No. PCT/GB95/01894, § 371 Date Jan. 29, 1997, § 102(e) Date Jan. 29, 1997, PCT Pub. No. WO96/05879, PCT Pub. Date Feb. 29, 1996
PCT Filed Aug. 10, 1995, Ser. No. 776,422
Claims priority, application United Kingdom, Aug. 18, 1994, 9416710; May 5, 1995, 9509224
Int. Cl.^{6} A61M *5/00*
U.S. Cl. 604—110 **12 Claims**



1. A fluid handling device having a needle retraction assembly adapted to bring about the retraction of a hollow needle after use, said fluid handling device comprising:

a hollow body portion provided at one end thereof with an end wall having a hollow mounting portion, said mounting portion comprising an annular wall extending distally from said end walt, said mounting portion further including a distal wall having a needle passage therethrough;

a hollow needle having a tissue penetrating end portion and being adapted to be movable between a first position in which the tissue penetrating end portion of the needle protrudes from said needle passage of said hollow mounting portion and a second position in which the needle is withdrawn completely within the hollow body portion, said needle being provided with a collar portion of enlarged diameter at a location spaced from the tissue penetrating end portion thereof, and being located within said hollow mounting portion;

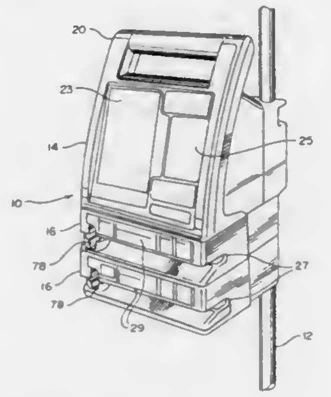
an O-ring positioned against a circumferential shoulder on said collar portion of enlarged diameter and said annular wall of said mounting portion for providing a fluid seal therebetween as well as for retaining the needle in its first position until use is completed;

a spring located between said distal wall of said mounting portion and a distal end of said collar portion of enlarged diameter, said spring for biasing said needle into the second position within said hollow body portion; and

a sleeve located around said collar portion of enlarged diameter and within the hollow mounting portion of said hollow body portion, said sleeve having a distal end in contact with said O-ring, said sleeve being slidable within the mounting portion and which can be forced forwardly to dislodge the O-ring from said shoulder so as to permit the needle to move automatically from its first position into its second position under the influence of said spring.

5,782,805
MEDICAL INFUSION PUMP

Randolph Meinzer, 1703 Spruce St., Spring Grove, Ill. 60081; Grace M. Esche, 603 Gaslight Dr., Algonquin, Ill. 60102; Eric J. Michael, 533 Surryse Rd., Lake Zurich, Ill. 60047; Kimball J. Knowlton, 21793 Brentwood La., Lake Villa, Ill. 60046; Cynthia Bennett, 113 Arthur, Park Ridge, Ill. 60068; Eric Linner, 762 Village Rd., Crystal Lake, Ill. 60014; Kenneth M. Lynn, 2506 Amanda Dr., Spring Grove, Ill. 60081; Joseph Kruft, 818 E. Saratoga Cir., Island Lake, Ill. 60042; Elleen D. Hirotsuka, 211 W. Maple St., McHenry, Ill. 60050; Daniel Kusswurm, 1140 Appleton La., Geneva, Ill. 60134; Jane M. Zeisloft, 25570 N. Wagon Wheel Ct., Barrington, Ill. 60010; Janice Stewart, 203 N. Schoenbeck Rd., Prospect Heights, Ill. 60070; Debra Gelhar, 320 Cromwell Ct., Westmont, Ill. 60559, and Gilbert Rivas, 267 Big Terra La., Gurnee, Ill. 60031
Filed Apr. 10, 1996, Ser. No. 631,819
Int. Cl.^{6} A61M *37/00*
U.S. Cl. 604—131 **46 Claims**



1. An infusion pump comprising:

a main body portion;

a display contained on the main body portion for displaying user interface information;

at least one pump module removably secured to the main body portion and adapted to receive a tube, the pump module having means for applying pumping action to the tube;

an auxiliary display contained on the pump module for displaying supplemental user interface information;

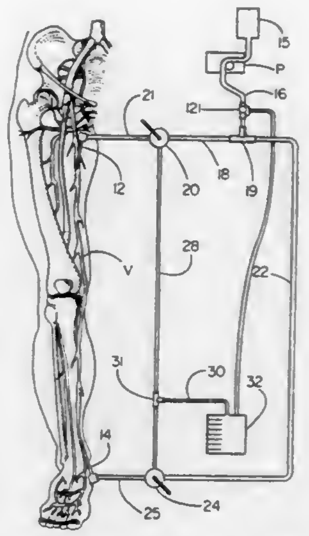
microprocessor means contained in the main body portion for generating user interface information on the display areas; and

means for generating a plurality of pictoral graphic representations as user interface information on the main display;

wherein a plurality of sets of configuration parameters are included as user interface information such that a user can select which of the plurality of sets of configuration parameters to configure the infusion pump.

5,782,806
MEDICAL EVACUATION AND IRRIGATION SYSTEM

Michael N. Knapp; Woodrow W. Watson, and Richard H. Radcliff, all of Flagstaff, Ariz., assignors to W. L. Gore & Associates, Inc., Newark, Del.
Filed Sep. 6, 1996, Ser. No. 711,430
Int. Cl.^{6} A61M *5/20*
U.S. Cl. 604—131 **10 Claims**



1. An irrigation system for irrigation of a surgical site comprising:

(a) a fluid pressure source having an inlet and an outlet;

(b) a first fluid conduit connected to said outlet and terminating at a first location;

(c) a second fluid conduit connected to said outlet and terminating at a second location;

(d) a first selector valve in said first fluid conduit, said first selector valve having a first position establishing fluid communication with said first location and having a second by-pass position communicating with a by-pass outlet;

(e) a second selector valve in said second fluid conduit, said second selector valve having a first position establishing fluid communication with said second location and having a by-pass position communicating with a by-pass outlet;

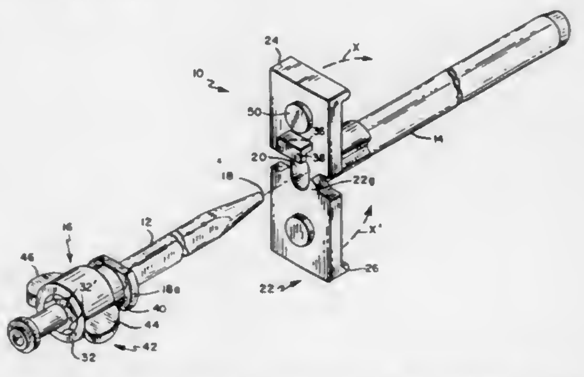
(f) first and second introducer sheaths at said first and second locations, respectively;

(g) a by-pass fluid conduit interconnecting said by-pass outlets; and

(h) a fluid collection container connected communicating with said by-pass conduit whereby said first and second valves are operable to simultaneously provide bi-directional fluid flow to both of said introducer sheaths or selectively direct fluid flow to either introducer sheath and direct return flow via the other introducer sheath to said fluid collection container.

5,782,807
RELEASABLY LOCKING INTRODUCER DEVICES

John Falvai; Frank Bimbo, both of Peterborough, and Richard S. Riddle, Keene, all of N.H., assignors to TFX Medical Incorporated, Jaffrey, N.H.
Filed Oct. 20, 1995, Ser. No. 546,499
Int. Cl.^{6} A61M *5/178*
U.S. Cl. 604—164 **31 Claims**



1. A medical introducer device suitable for inserting a catheter or guide wire into a patient comprising:

a releasably locking dilator and sheath,

the sheath having a bore adapted to receive the dilator and the sheath adapted to circumscribe the dilator,

the dilator having a non-circular shape for at least a portion of its length which inhibits rotation of the dilator within the circumscribing sheath,

a component that completely circumscribes the dilator, the component releasably locking and unlocking the dilator and

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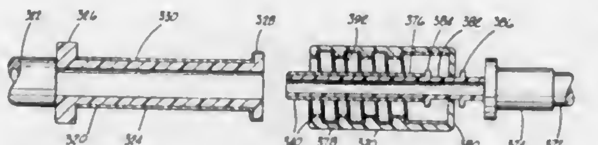
sheath components and can be operationally secured on the dilator with the dilator separated from the sheath.

5,782,808
ANTIBACTERIAL MEDICAL TUBING CONNECTOR

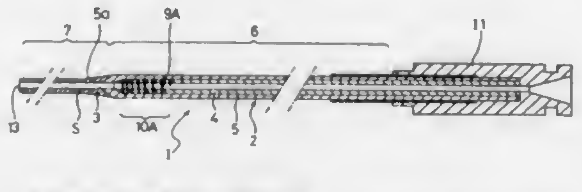
Thomas I. Folden, Alamo, Calif., assignor to Fresenius USA, Inc., Walnut Creek, Calif.
Division of Ser. No. 196,974, Feb. 14, 1994, Pat. No. 5,536,258. This application Jul. 5, 1996, Ser. No. 672,225
Int. Cl.^{6} A61M *5/32*
U.S. Cl. 604—265 **7 Claims**



1. A method for connecting and establishing fluid communication between a first tubing segment and a second tubing segment, comprising attaching to the first tubing segment a first connector portion having a central tube with a radially inner surface for flowing the fluid, a radially outer surface and an end, and the first portion further having a sleeve extending around the central tube, the sleeve having a radially inner surface spaced radially apart from the central tube to define an annular space between the central tube and the sleeve; attaching to the second tubing segment a second connector portion, the second connector portion having a tubular body with a radially inner surface to receive said first portion central tube and a radially outer surface which is received by said annular space, wherein an antimicrobial composition is on at least one of said radially inner surface of the central tube, said radially outer surface of the central tube, said radially inner surface of the sleeve, said radially inner surface of the tubular body, and said radially outer surface of the tubular body; said antimicrobial composition including silver and being applied by ion assisted deposition; and attaching the first connecter portion to the second connector portion to establish fluid communication therethrough, by urging the first connector portion and the second connector portion together so that the tubular body is received by the annular space and the central tube is received by the tubular body.

5,782,809
VASCULAR CATHETER

Akihiko Umeno, and Takahiro Kugo, both of Fujinomiya, Japan, assignors to Terumo Kabushiki Kaisha, Tokyo, Japan
Division of Ser. No. 492,396, Jun. 19, 1995, Pat. No. 5,569,200. This application May 8, 1996, Ser. No. 646,965
Claims priority, application Japan, Jun. 20, 1994, 6-137273
Int. Cl.^{6} A61M *25/00*
U.S. Cl. 604—280 **9 Claims**



1. A vascular catheter comprising

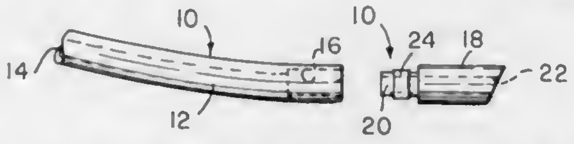
a catheter body which is made up of an inner tube formed of a metal selected from the group consisting of steel, tungsten and copper or a alloy selected from the group of steel alloy, tungsten alloy and copper alloy and an outer tube formed of a synthetic resin covering an outside surface of the inner tube, the inner tube having a distal end and the catheter body having a lumen,

said catheter body having a main portion and a tip portion, the main portion of the catheter body being made up of the inner and outer tubes, a tip of the catheter body being made up of a portion of said outer tube extending from the distal end of the inner tube,

and the inner tube having a distal end portion provided with at least one spiral slit.

5,782,810
MULTIPART RADIOPAQUE AND/OR MAGNETICALLY DETECTABLE TUBE CATHETER AND METHOD OF FABRICATION THEREOF

Miles C. O'Donnell, 50 Sagamore Dr., Andover, Mass. 01810
Filed Nov. 22, 1996, Ser. No. 754,427
Int. Cl.^{6} A61M *25/00*
U.S. Cl. 604—280 **13 Claims**



1. An improved catheter having a detectable marker therein comprising,

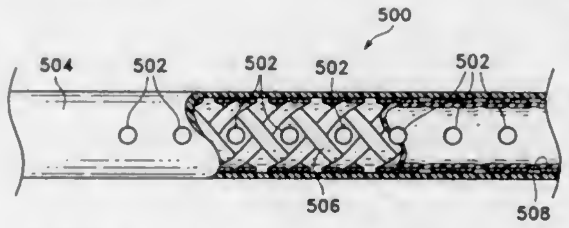
a length of flexible polymeric tubing defining a bore of generally uniform diameter, said tubing defining a first length having a socket at one end of greater diameter than said bore and surrounded by an annular wall having an inside surface and defining a second length having a neck of reduced diameter having an outside surface substantially corresponding to the diameter of said socket,

a marker incorporated into said tubing and disposed between said socket and neck surfaces, and,

means sealing said marker within said tubing to preclude access of body or external fluids thereto.

5,782,811
KINK-RESISTANT BRAIDED CATHETER WITH DISTAL SIDE HOLES

Gene Samson, Milpitas, and Hanh Doan, Santa Clara, both of Calif., assignors to Target Therapeutics, Inc., Fremont, Calif.
Filed May 30, 1996, Ser. No. 652,701
Int. Cl.^{6} A61M *25/00*
U.S. Cl. 604—282 **27 Claims**



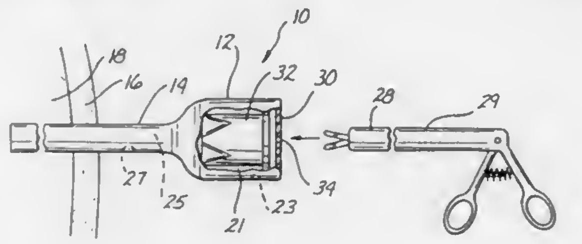
1. A catheter section for infusion of fluids comprising:

an elongate tubular member having an outer surface, a proximal end, a distal end, and a passageway defining an inner lumen extending between those proximal and distal ends, said elongate tubular member comprising
- a.) a braid member extending along at least a portion of the distance between the proximal end and the distal end, said braid member being woven of a plurality of ribbons wound and woven to provide for interstices between said ribbons, at least a majority of which ribbons comprise a superelastic alloy,
- b.) at least one polymeric inner lining member interior to said braid member defining said inner lumen, and
- c.) at least one polymeric outer covering member exterior to said braid member defining said outer surface, and

wherein the elongate tubular member has a plurality of orifices extending from said inner lumen, through said interstices between said ribbons without contacting said ribbons, and to said outer surface.

5,782,812
SEAL ASSEMBLY FOR ACCESS DEVICE

Charles C. Hart, Huntington Beach, and Donald L. Gadberry, San Clemente, both of Calif., assignors to Applied Medical Resources Corporation, Laguna Hills, Calif.
Continuation of Ser. No. 51,609, Apr. 23, 1993, Pat. No. 5,443,452, which is a continuation of Ser. No. 907,706, Jul. 2, 1992, abandoned. This application Jun. 7, 1995, Ser. No. 484,931
Int. Cl.^{6} A61M *5/178*
U.S. Cl. 604—167 **7 Claims**



1. A combination, comprising:

a trocar having a working channel extending between a distal end and a proximal end, the trocar being adapted for disposition across a body wall;

a valve disposed in the working channel of the trocar;

an instrument sized and configured for insertion into the working channel of the trocar and through the valve, insertion of the instrument through the valve resulting in friction forces which inhibit movement of the instrument in the working channel of the trocar;

the valve including a first wall and a second wall intersecting the first wall, the first and second walls having a proximally facing surface with a combined area;

portions of the first wall and the second wall defining a contact surface in proximity to the intersection of the first wall and second wall, the contact surface having an area less than the combined area of the first wall and second wall and providing substantially the only contact between the instrument and the valve as the instrument is inserted into the working channel; whereby

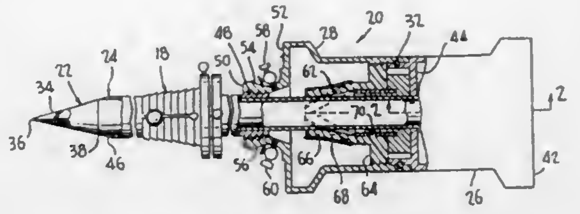
the reduced area of the contact surface significantly lowers the friction forces, thereby facilitating movement of the instrument through the working channel.

5,782,813
SURGICAL INSTRUMENT STABILIZER

InBae Yoon, 2101 Highland Ridge Dr., Phoenix, Md. 21131
Continuation of Ser. No. 392,655, Feb. 23, 1995, Pat. No. 5,472,429, which is a continuation of Ser. No. 170,620, Dec. 20, 1993, Pat. No. 5,445,615, which is a continuation of Ser. No. 788,143, Nov. 6, 1991, abandoned. This application Jun. 19, 1995, Ser. No. 492,346
Int. Cl.^{6} A61M *5/32*
U.S. Cl. 604—174 **19 Claims**

1. In combination, a medical instrument and a stabilizer for stabilizing the medical instrument comprising:

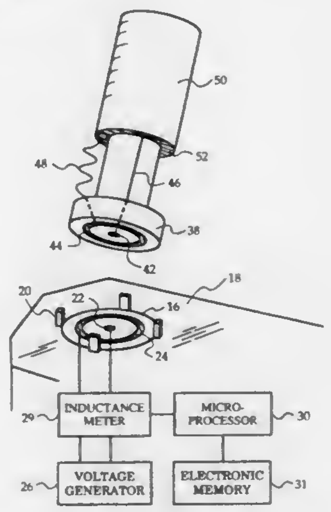
a medical instrument for being positioned to extend through an opening in an anatomical cavity wall and having a distal end for being disposed in the anatomical cavity and a proximal end for being disposed externally of the anatomical cavity; and



a stabilizer including a first member disposed on the instrument and having a longitudinally distal end, said first member being movable from a contracted position wherein said distal end of said first member is disposed close to said instrument to an expanded position wherein said distal end of said first member is disposed further away from said instrument, said first member being movable longitudinally, distally relative to said instrument and into the opening while in said contracted position, and a second member disposed on said instrument and being movable relative to said first member to move said first member from said contracted position to said expanded position after said first member has been positioned in the opening to cause said first member to engage the anatomical cavity wall.

5,782,814
APPARATUS FOR DETERMINING AND RECORDING INJECTION DOSES IN SYRINGES USING ELECTRICAL INDUCTANCE

Stephen J. Brown, Mountain View, Calif., and Erik K. Jensen, Stockton, N.J., assignors to Raya Systems, Inc., Mountain View, Calif.
Continuation-in-part of Ser. No. 278,929, Jul. 22, 1994, Pat. No. 5,569,212. This application Jul. 22, 1996, Ser. No. 681,290
Int. Cl.^{6} A61M *5/00*
U.S. Cl. 604—207 **32 Claims**



1. In combination with a syringe, an apparatus for determining and recording a dose of an agent delivered with said syringe, said syringe being of the type comprising:
- a) a barrel for holding said agent;
- b) a plunger movably positioned in said barrel for expelling said agent, said plunger comprising a magnetically responsive element selected from the group consisting of diamagnetic materials and paramagnetic materials;
- c) an inductive element for generating a magnetic field, said inductive element being coupled to said barrel such that the intensity of said magnetic field varies in dependence upon the position of said plunger in said barrel, and said inductive element having a first terminal and a second terminal;
- d) an input terminal located on the outside of said syringe and electrically connected to said first terminal;

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- e) an output terminal located on the outside of said syringe and electrically connected to said second terminal;

said apparatus comprising:

- a) a housing;
- b) a field on the outside of said housing, said field having an input contact for contacting said input terminal and an output contact for contacting said output terminal;
- c) a voltage generating means for producing a voltage difference across said input contact and said output contact, thereby causing an electric current to flow through said inductive element when said input contact is contacting said input terminal and said output contact is contacting said output terminal;
- d) a magnetic response measuring means located within said housing for measuring said magnetic field and for calculating from the measurement of said magnetic field said dose; and
- e) a recording means connected to said magnetic response measuring means for recording said dose.

5,782,815
GLASS CARTRIDGE FOR INJECTION SYRINGE PREFILLED WITH PHARMACEUTICAL LIQUID

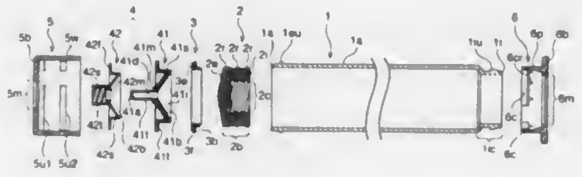
Yuji Yanai, Tokyo, and Mitsuru Kakimi, Nishinomiya, both of Japan, assignors to Yuji Yanai, Tokyo, and Nihon Schering K.K., Osaka, both of Japan

Filed Jan. 24, 1996, Ser. No. 590,479

Claims priority, application Japan, Jan. 26, 1995, 7-030003

Int. Cl.^{6} A61M *5/315*

U.S. Cl. 604—218 **21 Claims**



1. A glass cartridge for an injection syringe prefilled with pharmaceutical liquid, said cartridge comprising:

- a barrel formed of a heat resistant glass, said barrel being provided with a first undercut on an outer surface of an exit end portion of said barrel, and a second undercut on an outer surface of an entrance end portion of said barrel;
- a lid holder disposed on said exit end portion of said barrel in engagement with said first undercut, said lid holder being formed of a flexible material;
- a gasket disposed between said lid holder and an exit end surface of said barrel, said gasket being formed of a soft material;
- a lure lock lid provided between said gasket and said lid holder, said lure lock lid being formed of multiple pieces of flexible material;
- a stopper disposed in said barrel, said stopper also serving as a piston; and
- a flanged cap disposed on said entrance end portion of said barrel in engagement with said second undercut, said flanged cap being formed of a flexible material and including a flange portion, having a central axis, and a hollow cylindrical portion extending axially from a side face of said flange portion,

wherein said entrance end portion of said barrel includes a stepped portion forming a reduced diameter portion, and said flanged cap is received on said reduced diameter portion such that an outer peripheral surface of said cylindrical portion does not project radially beyond said outer peripheral surface of said barrel at any location of said barrel other than said flange portion.

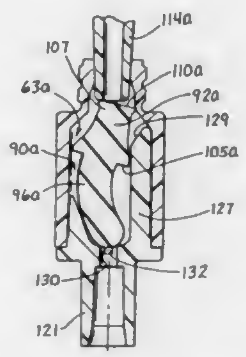
5,782,816
BI-DIRECTIONAL VALVE AND METHOD OF USING SAME

Gary S. Werschmidt, Yorba Linda; Raymond P. Feith, Rialto, both of Calif., and David R. Kipp, 2371 Edna Way, Upland, Calif. 91784, assignors to David R. Kipp, Upland, Calif.

Filed Sep. 7, 1995, Ser. No. 525,837

Int. Cl.^{6} A61M *5/00*

U.S. Cl. 604—256 **24 Claims**



1. A connector adapted to facilitate bi-directional flow between a male Luer fitting and a receptacle tube, comprising:

- a housing having an axis extending between a proximal end and a distal end, the housing having its distal end attached to the intravenous tube and portions defining a valve seat at its proximal end;
- a valve element disposed in the housing and having a second axis, the valve element being movable by insertion of the male Luer fitting into the proximal end of the housing from a first position to a second position, the valve element in the first position forming with the valve seat of the housing a seal; and

the valve element in the second position being disposed with the second axis of the valve element displaced from the first axis of the housing to form a fluid channel from the male Luer fitting to the receptacle tube.

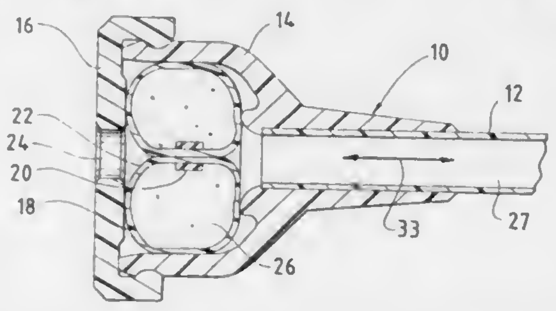
5,782,817
CATHETER INTRODUCER HAVING TOROIDAL VALVE

Raymond C. Franzel, and Roberta D. Goode, both of Miami, Fla., assignors to Cordis Corporation, Miami Lakes, Fla.

Filed Nov. 6, 1995, Ser. No. 554,096

Int. Cl.^{6} A61M *5/00*

U.S. Cl. 604—256 **10 Claims**



1. A catheter introducer which comprises a tubular sheath having an axis and a housing carried on one end thereof, said housing, enclosing a flexible-walled toroidal member defining a central aperture aligned with the tubular sheath axis, said central aperture being normally closed but penetrable by a catheter in sealing manner as the catheter is advanced through said catheter sheath introducer, said normally closed central aperture being surrounded by an elastic sleeve carried by said toroidal member to bias said central aperture into closed position.

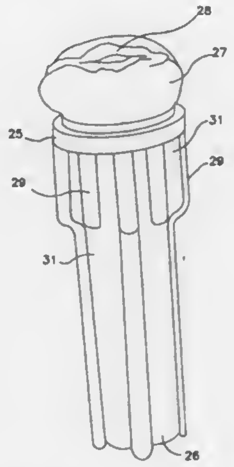
5,782,818
DEVICE FOR DISCREET SPERM COLLECTION

Steven A. Shubin, 801 N. Weston La., Austin, Tex. 78733

Filed May 20, 1997, Ser. No. 859,485

Int. Cl.^{6} A61F *5/44*

U.S. Cl. 604—349 **7 Claims**



1. A device useful for discreet and camouflaged collection of sperm from human males, comprising:

- an outer shell having an inside chamber and an exterior with the appearance of a first device having, said shell having openings to provide access to said inside chamber;
- at least one removable cap on said shell for enclosing at least one end of said inside chamber, said cap having an exterior appearance compatible with said ordinary device; and
- vent means for providing for release of air in said device:
- an insert formed from an elastomeric gel having simulating human flesh of the type forming sexually receptive orifices and removeably mountable into said inside chamber upon removal of said cap, said insert having a first end for insertion into said inside chamber and having a second end having an opening providing an orifice, said second end being positioned to be exposed upon removal of said cap;
- said elastomeric gel being formed from a mixture of plasticizing oil and a block copolymer comprising an admixture of (i) a styrene ethylene butylene styrene block copolymer and (ii) a styrene ethylene propylene styrene block copolymer combined in a ratio of 1:5 to 5:1.

5,782,819
ARTICLE WITH STAY-IN-PLACE FEATURE

Richard Warren Tanzer; Christopher Peter Olson, both of Neenah; Thomas Walter Odorzynski, Green Bay, and Paul John Serbiak, Appleton, all of Wis., assignors to Kimberly-Clark Worldwide, Inc., Neenah, Wis.

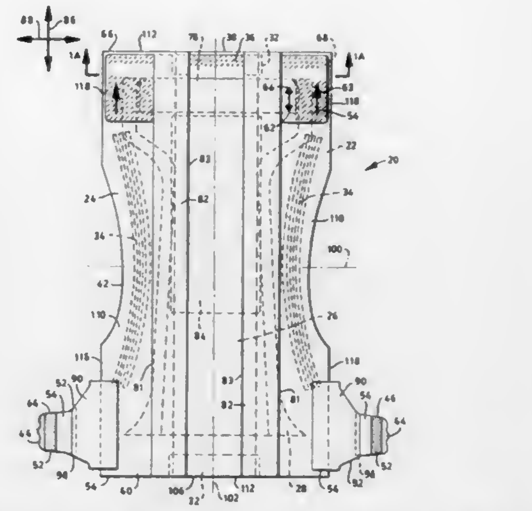
Filed Oct. 17, 1996, Ser. No. 731,676

Int. Cl.^{6} A61F *13/15*

U.S. Cl. 604—385.1 **38 Claims**

1. An article having a front waistband section, a back waistband section, an intermediate section interconnecting said front and back waistband sections, a longitudinal direction, a cross-direction and a laterally extending line which is longitudinally centered in said article, said article comprising:

- at least a first fit panel connected to an inside surface of at least one of said waistband sections, said fit panel having a direction-dependent coefficient of friction value along a basis line of said fit panel, wherein a first coefficient of friction value is exhibited when sliding on said fit panel along said basis line in a first inward direction generally toward said laterally extending line, a second, different coefficient of friction value is exhibited when sliding on said fit panel along said basis line in a second outward direction opposite said first direction, said first and second coefficient of friction values are determined with respect to testing against foam, and the greater of said first and second coefficient of friction values is not more than about 2.4.



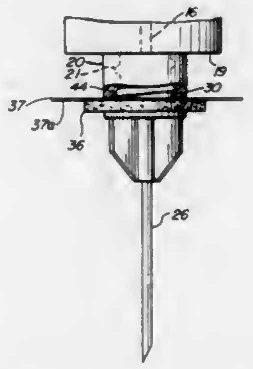
5,782,820
DISPOSABLE SEAL FOR VACUTAINER HOLDER

Patricia D. Roland, 4501 Rising Hill Rd., Altadena, Calif. 91001

Filed Feb. 12, 1996, Ser. No. 598,611

Int. Cl.^{6} A61B *19/00;5/00*

U.S. Cl. 604—411 **5 Claims**



1. An assembly of a holder for a blood collection device associated insertion needle and mounting device, and a disposable seal, the holder including a chamber portion and a proximal portion defining a threaded entry for engaging threads of the mounting device for the insertion needle, the disposable seal comprising:

- a.) a base pad constructed of a blood absorbent material;
- b.) an outer, adhesive layer defining at least one adhesive side;
- c.) an inner layer of plastic film secured to the base pad by one side of the adhesive layer;
- d.) holes defined by the base pad and the adhesive layer, the holes being aligned to expose a portion of the plastic film; whereby:
  - i. the holes are sized and aligned for mounting over the threaded entry of the holder;
  - ii. penetration by the needle and associated mounting device through the disposable seal and the exposed plastic film form a partially torn-away portion of plastic film;
  - iii. when the needle mounting device and associate needle penetrate the holes of the disposable seal and is threadably engaged with the entry threads, the torn-away plastic film is drawn into the entry of the holder and becomes wrapped around the entry threads, thereby improving the seal between the threads, and reducing blood leakage between the holder and the needle mounting device during subsequent use; and,

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iv. the plastic film can be removed from the threads to permit reuse of the holder.

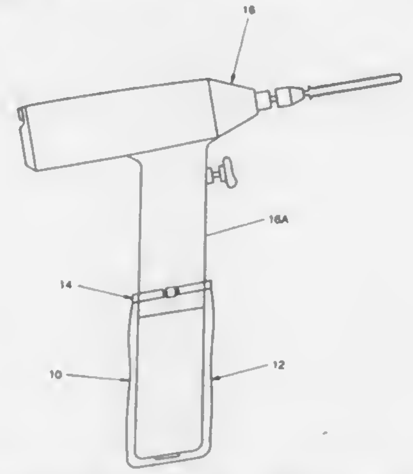
5,782,821
BATTERY BOOT FOR A PORTABLE SURGICAL TOOL

Victor Alan Couch, Cumming, Ga., assignor to Alan Couch, Cumming, Ga.

Filed May 15, 1997, Ser. No. 856,845

Int. Cl.^{6} A61B *17/00;* **B65D** *33/16*

U.S. Cl. 606—1 **4 Claims**



1. A pre-steralized battery boot in combination with a portable surgical battery for a surgical tool, where said boot functions to cover said portable surgical tool battery,

a) an envelope which comprises a top, a bottom , and a middle portion forming a envelope compartment for forming a tool battery therewithin; and

b) at least one fastener circumferentially positioned around a top end of said middle porion,where the surgical tool battery is inserted within said envelope compartment, whereby said at least one fastener functions to frictionally hold said envelope about said portable surgical tool battery.

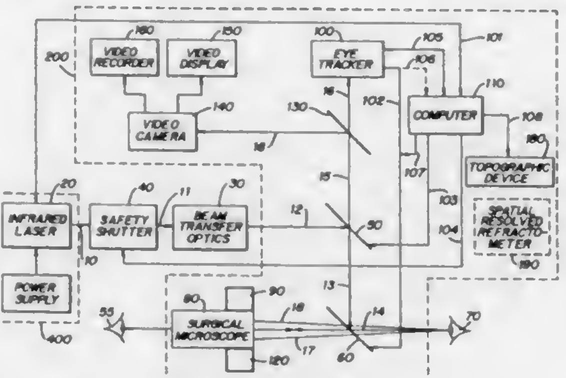
5,782,822
METHOD AND APPARATUS FOR REMOVING CORNEAL TISSUE WITH INFRARED LASER RADIATION

William B. Telfair, San Jose, Calif.; Paul R. Yoder, Jr., Norwalk, Conn., and Hanna J. Hoffman, Palo Alto, Calif., assignors to IR Vision, Inc., San Jose, Calif.

Filed Oct. 27, 1995, Ser. No. 549,385

Int. Cl.^{6} A61N *5/02*

U.S. Cl. 606—5 **26 Claims**



1. A medical apparatus for removing corneal tissue from an eye of a patient, said apparatus comprising:

a laser source that produces pulses of mid-infrared radiation, wherein said infrared radiation has a wavelength approximately corresponding to a corneal absorption peak, and wherein said pulses have a duration of at least about 1 nanosecond; and

a scanner-deflection means to direct the pulsed radiation across an area of said corneal tissue in a predefined pattern to remove portions of said corneal tissue primarily by photospallation.

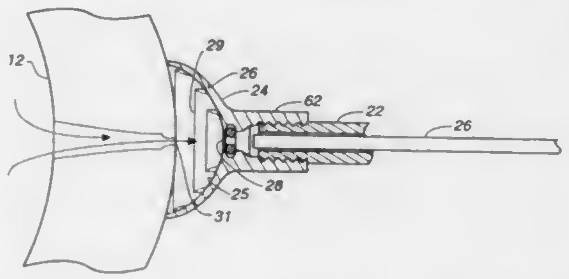
5,782,823
LASER DEVICE FOR TRANSMYOCARDIAL REVASCULARIZATION PROCEDURES INCLUDING MEANS FOR ENABLING A FORMATION OF A PILOT HOLE IN THE EPICARDIUM

Richard L. Mueller, Byron, Calif., assignor to Eclipse Surgical Technologies, Inc., Sunnyvale, Calif.

Filed Apr. 5, 1996, Ser. No. 628,456

Int. Cl.^{6} A61B *17/36*

U.S. Cl. 606—7 **19 Claims**



1. A transmyocardial revascularization (TMR) hand-held device for performing TMR on a patient's heart, the device comprising:

a handle portion;

a tubular neck portion connected to the handle portion;

a head portion on a distal end of the tubular neck portion, the head portion forming a distal end contact surface;

an optical fiber having a proximal end configured for connecting to a laser energy source, the optical fiber extends through the handle portion, the neck portion and the head portion;

an adjustment means disposed on the handle portion for moving the optical fiber within the handle and neck portions and head portion; and

irradiation control means for providing reduced laser pulse energy from the optical fiber's distal end at a first position proximate to the epicardium thereby enabling formation of a pilot hole in the epicardium,

wherein the optical fiber can thereafter be moved axially from the first position by the adjustment means and allow nonreduced laser energy to emanate from the optical fiber's distal end whereby enabling formation of a myocardial revascularization channel.

5,782,824
CARDIAC CATHETER ANCHORING

George S. Abela, Wellesley; Stephan E. Friedl, Watertown; Eric D. Mathews, North Attleboro, and Russell W. Bowden, Tyngsboro, all of Mass., assignors to Abela Laser Systems, Inc., E. Lansing, Mich., and University of Florida Research Foundation, Inc., Gainesville, Fla.

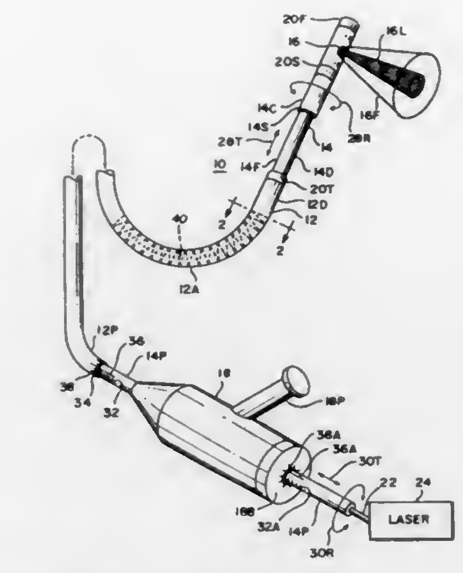
Continuation-in-part of Ser. No. 123,207, Sep. 20, 1993, Pat. No. 5,464,404. This application Jun. 7, 1995, Ser. No. 474,462

Int. Cl.^{6} A61B *17/36*

U.S. Cl. 606—15 **17 Claims**

14. An apparatus for patient treatment comprising:

an outer catheter having a proximal end and a distal end having at least a first passage extending lengthwise therein;



an inner catheter disposed at least partly in said first passage and having a proximal end and a distal end, said inner catheter having an extending portion extendable out said distal end of said outer catheter by a variable amount; and

a steering means for steering said outer catheter; and wherein said steering means includes a coil spring mounted near said distal end of said outer catheter and a control means for bending said outer catheter by bending the coil spring by manipulation at a proximal end of the steering means; and

wherein the inner catheter has an optical fiber therein.

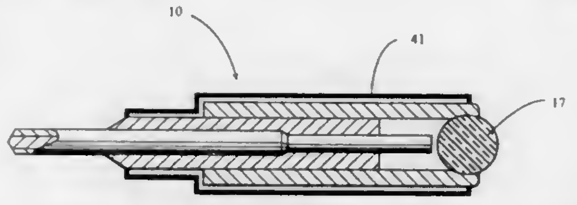
5,782,825
MICROLENS TIP ASSEMBLY FOR LIGHT DELIVERY CATHETER

Steven C. Anderson, Santa Barbara, Calif., assignor to Miravant Systems, Inc., Santa Barbara, Calif.

Filed Mar. 7, 1996, Ser. No. 611,592

Int. Cl.^{6} A61B *17/39*

U.S. Cl. 606—15 **3 Claims**



1. A light delivery catheter having a length wherein the light delivery catheter comprises a fiber optic having a cylindrical light-conducting core coextensive with the length thereof, said catheter having a proximal end adapted to receive light from a source of light and a distal end and a first outer diameter, at least a portion of said core having cladding thereon presenting a second outer diameter, and a microlens affixed to the distal end of said light delivery catheter, the microlens comprising:

(a) a rear mount comprising a transparent cylindrical tubing having a length, an outer diameter, a proximal portion, a distal portion and a cylindrical inner lumen coextensive with the length thereof, said proximal portion of said cylindrical inner lumen having an inner lumen diameter greater than or equal to said second outer diameter of said cladding of said fiber optic and the distal portion of said inner lumen having an inner lumen diameter equal to or greater than said first outer diameter of said core; and

(b) a front mount comprising a transparent cylindrical tubing having an axial cylindrical lumen therewithin and being constructed of a material which is a poor thermal conductor wherein the diameter of said axial cylindrical lumen is dimensioned to snugly accommodate said outer diameter of said rear mount therewithin, said front mount being mounted on said distal end of said rear mount and telescopically movable thereupon, and wherein said distal end has an axially symmetric circular aperture formed therethrough; and

(c) a spherical light transparent lens rigidly affixed within said circular aperture disposed within the distal end of said front mount and axially symmetric with respect to said cylindrical lumen; and

(d) an opaque sheath affixed to and enveloping at least the distal end of the rear mount.

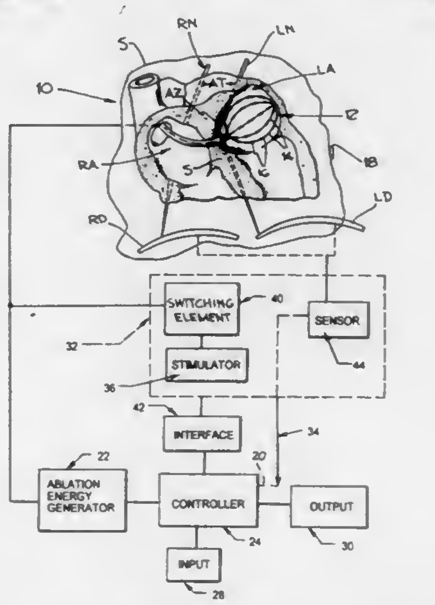
5,782,826
SYSTEM AND METHODS FOR DETECTING ANCILLARY TISSUE NEAR TISSUE TARGETED FOR ABLATION

David K. Swanson, Mountain View, Calif., assignor to EP Technologies, Inc., San Jose, Calif.

Filed Nov. 1, 1996, Ser. No. 742,628

Int. Cl.^{6} A61B *17/39*

U.S. Cl. 606—34 **29 Claims**



1. A tissue ablation system for ablating tissue in a tissue region including ablation targeted tissue and ancillary tissue that is not myocardial tissue and is not targeted for ablation, the system comprising

stimulator means for applying within the tissue region stimulant energy to affect ancillary tissue not targeted for ablation, and

sensor means for providing a first output when the ancillary tissue is affected by the stimulant energy within the tissue region and a second output when the ancillary tissue is not affected by the stimulant energy, the second output being different than the first output.

5,782,827
MULTIPLE ANTENNA ABLATION APPARATUS AND METHOD WITH MULTIPLE SENSOR FEEDBACK

Edward J. Gough, Menlo Park, and Alan A. Stein, Moss Beach, both of Calif., assignors to Rita Medical Systems, Inc., Mountain View, Calif.

Continuation-in-part of Ser. No. 515,379, Aug. 15, 1995, Pat. No. 5,683,384. This application Dec. 19, 1995, Ser. No. 575,208

Int. Cl.^{6} A61B *17/36*

U.S. Cl. 606—41 **63 Claims**

1. An ablation apparatus, comprising:

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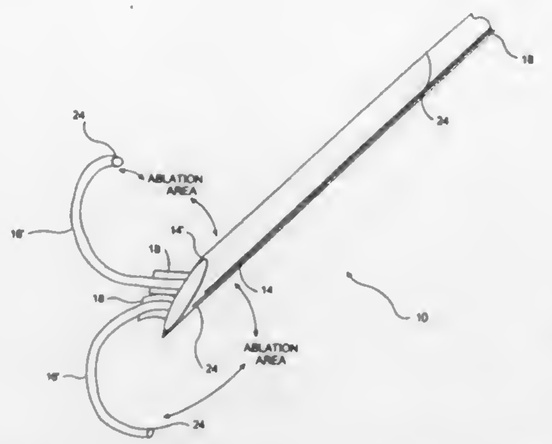


an introducer coupled to an energy source and including a lumen and a distal end sufficiently sharp to penetrate tissue;

a first energy delivery device at least partially positioned in the introducer as the introducer is advanced through tissue, the first energy delivery device including a distal portion configured to be deployable from the introducer at a selected tissue site, wherein at least a part of the first energy delivery device distal portion has at least one radius of curvature when deployed from the introducer;

a sensor positioned at the distal portion of the energy delivery device; and

a feedback control system coupled to the energy source and the sensor, wherein the feedback control system is responsive to a detected characteristic from the sensor and provides a delivery of ablation energy output from the energy source to the first energy delivery device.

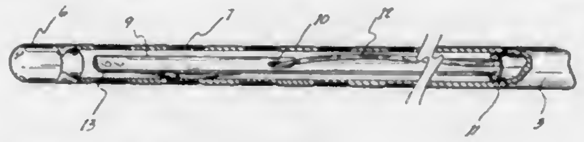
5,782,828
ABLATION CATHETER WITH MULTIPLE FLEXIBLE CURVES

Peter Cheng Chen, Irvine, and Alan de la Rama, Cerritos, both of Calif., assignors to Irvine Biomedical, Inc., Irvine, Calif.

Filed Dec. 11, 1996, Ser. No. 763,614

Int. Cl.^{6} A61B *17/36*

U.S. Cl. 606—42 **7 Claims**



1. An ablation catheter comprising:

(a) a catheter shaft having a distal section, a proximal end, a distal end, and at least one lumen extending therebetween, wherein a plurality of long electrodes are disposed on the distal section, and wherein the distal section is deflectable;

(b) a plurality of temperature sensors located on the plurality of long electrodes;

(c) a programmed control mechanism connected to the plurality of temperature sensors and the plurality of long electrodes for independently selecting and control energy delivery to each of the long electrodes;

(d) a handle attached to the proximal end of the catheter shaft;

(e) a steering mechanism disposed on the handle, wherein the steering mechanism comprises one steering wire and one flat planar wire, wherein at least one slot is positioned at predetermined positions on the flat planar wire, and wherein the steering wire passes through at least one of the slots;

(f) a means on the steering mechanism at the handle for selectively applying tension to the steering wire to cause a plurality of consecutive deflections of the distal section, wherein a next consecutive deflection is on an opposite side of the flat planar wire relative to a prior deflection;

(g) a means connected to the programmed control mechanism and the plurality of long electrodes for delivering RF energy from an external RF generator to each of the plurality of long electrodes, wherein the RF energy delivery to each of the long electrodes is done in one of a simultaneous or sequential mode.

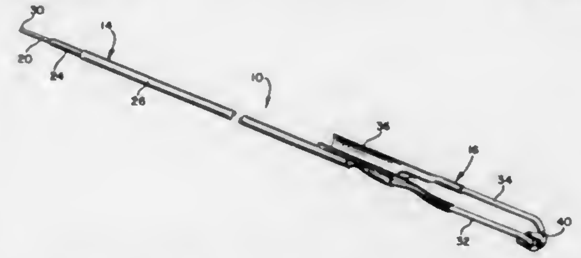
5,782,829
RESECTOSCOPE ELECTRODE ASSEMBLY AND METHODS OF USE

Philip Swiantek, Williamsville, N.Y.; James Muehleisen, Southampton, N.J.; Peter A. Manzie, Berwyn, and Robert Baker, Barrington, both of Ill., assignors to Northgate Technologies Incorporated, Elgin, Ill.

Filed Dec. 6, 1995, Ser. No. 568,130

Int. Cl.^{6} A61B *17/39*

U.S. Cl. 606—46 **40 Claims**



1. A method of using a resectoscope wherein said resectoscope includes an electrode assembly with an electrode tip having a substantially flat, non-rotating working surface, comprising the steps of:

operating the electrode assembly of the resectoscope at a first wattage;

moving a proximal edge of said working surface into a region of tissue to be cut;

moving the electrode tip in a proximal direction to sever the tissue;

bringing the working surface against a region to be ablated; and operating the resectoscope to ablate the region.

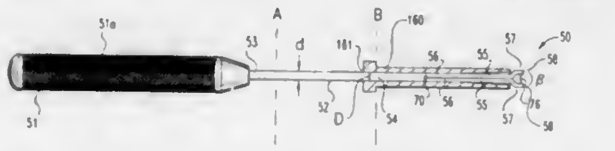
5,782,830
IMPLANT INSERTION DEVICE

Robert A. Farris, Memphis, Tenn., assignor to SDGI Holdings, Inc., Wilmington, Del.

Continuation-in-part of Ser. No. 603,675, Feb. 20, 1996, which is a continuation-in-part of Ser. No. 543,563, Oct. 16, 1995, abandoned. This application Jul. 10, 1996, Ser. No. 677,794

Int. Cl.^{6} A61B *17/56*

U.S. Cl. 606—61 **16 Claims**



1. An implant insertion device, comprising:

a handle;

a shaft having a proximal end and a distal end, said proximal end attached to said handle;

a pair of jaws each having a first end attached to said distal end of said shaft and a free second end, each of said free ends including a gripping element, said free ends of said jaws movable between gripping positions to grasp the implant between said gripping elements and releasing positions to release the implant, said first ends of said jaws forming a first angle in said releasing positions and a smaller second angle in said gripping positions,

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a substantially uniform gripping surface defined on each said gripping element, said gripping surfaces facing one another to contact only the surface of the implant when said jaws are in the gripping positions; and

an actuator operable on said jaws to force said jaws together towards said gripping positions, said actuator includes a hollow sleeve slidably mounted on said shaft and defining an inner bore for receiving said shaft and said first ends of said jaws, said sleeve slidable between a first position adjacent said handle and a second engaging position spaced from said first position in a location between said first position and said free ends of said jaws, said sleeve forcing said jaws together when said sleeve is in the engaging position.

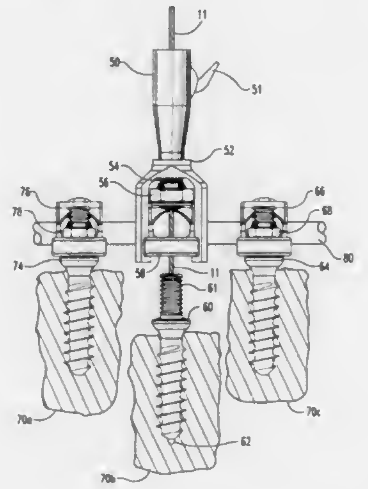
5,782,831
METHOD AN DEVICE FOR SPINAL DEFORMITY REDUCTION USING A CABLE AND A CABLE TENSIONING SYSTEM

Michael C. Sherman, and Troy D. Drewry, both of Memphis, Tenn., assignors to SDGI Holdings, Inc., Memphis, Tenn.

Filed Nov. 6, 1996, Ser. No. 744,616

Int. Cl.^{6} A61B *17/56;17/58*

U.S. Cl. 606—61 **31 Claims**



1. An apparatus for use in reducing a displaced vertebra in the spine, said apparatus comprising:

a longitudinal member positionable along the longitudinal axis of a spine;

an anchor configured to be secured to a displaced vertebra;

an elongated member having a first portion attached to said anchor and a second portion;

a clamping member positionable along said longitudinal member adjacent the displaced vertebra said clamping member defining a channel for receiving said second portion of said elongated member, said clamping member operable between an open configuration permitting movement of said elongated member through said channel and a clamping configuration engaging said elongated member to prevent movement of said elongated member through said channel; and

means for pulling said elongated member through said channel, whereby the displaced vertebra can be pulled toward said longitudinal member.

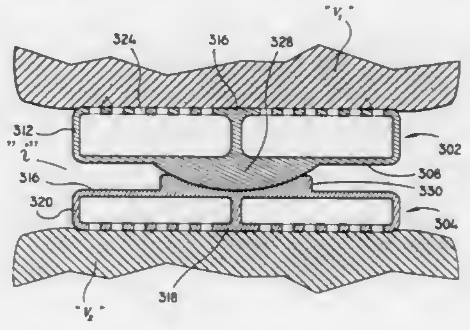
5,782,832
SPINAL FUSION IMPLANT AND METHOD OF INSERTION THEREOF

Scott W. Larsen, Newtown, and Oleg Shikhman, Fairfield, both of Conn., assignors to Surgical Dynamics, Inc., Norwalk, Conn.

Filed Oct. 1, 1996, Ser. No. 725,666

Int. Cl.^{6} A61B *17/56*

U.S. Cl. 606—61 **18 Claims**



1. An implant for insertion within an intervertebral space defined between adjacent vertebrae for supporting the vertebrae in predetermined spaced relation during healing which comprises at least first and second supporting members dimensioned for insertion within the intervertebral space, each supporting member including inner and outer plates arranged in spaced relation to define an internal cavity therebetween, each outer plate of the supporting members having contacting surfaces for contacting vertebral surfaces of the adjacent vertebrae and at least one aperture extending therethrough in communication with the respective internal cavity to permit bone ingrowth, the inner plate of the first supporting member having an arcuate articulating surface cooperating with a correspondingly dimensioned arcuate articulating surface of the inner plate of the second supporting member to permit articulating movement of the first supporting member to accommodate movement of the vertebral column during healing.

5,782,833
PEDICLE SCREW SYSTEM FOR OSTEOSYNTHESIS

Thomas T. Haider, 2357 Knob Hill Dr., Riverside, Calif. 92506

Filed Dec. 20, 1996, Ser. No. 771,133

Int. Cl.^{6} A61B *17/70*

U.S. Cl. 606—61 **5 Claims**

5. A pedicle screw assembly for use in conjunction with a rod for immobilizing bone segments comprising:

a screw having a cylindrical threaded shaft and a head having a larger diameter than the shaft with a generally spherically convex bottom section joined to the shaft and a top section defining a wrench engaging surface so that the screw may be rotatably inserted into a bone segment;

a polyaxial housing having an upper and a lower section with an axial passageway therethrough, the passageway in the lower section being larger than the diameter of the threaded shaft of the screw and smaller than the diameter of the screw head, the passageway in the upper section of the housing being larger than the diameter of the head of the screw, whereby the cylindrical shaft of the screw may pass through the housing while the head is retained within the housing, the upper section of the housing defining at least two spaced arcuate upstanding posts with a threaded inside surface, the posts defining a slot therebetween for receiving the rod;

a cup-shaped cap adapted to be inserted over the top section of the housing, the cap having a bottom defining spaced openings for receiving the posts and a cross-connector having a lower surface adapted to engage the rod;

means for threadably engaging the inside surface of the upstanding posts to capture the rod between the housing and the head of the screw; and

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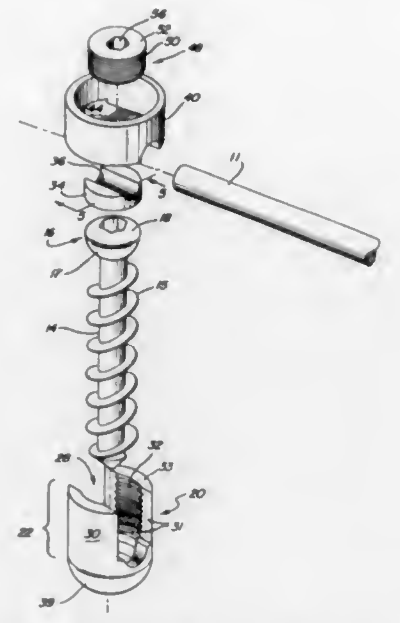


a washer positioned between the head of the screw and the rod, the washer having a lower generally concave spherical surface for engaging the screw head and an upper U-shaped surface for engaging the rod.

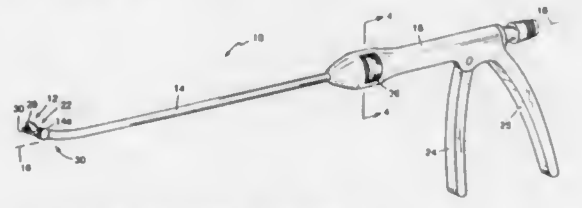
5,782,834
SURGICAL INSTRUMENT

Paul V. Lucey, Sandown, N.H.; Paul A. Torrie, Marblehead; C. Vaughan Seifert, Boxboro, both of Mass., and Graham Smith, Plaistow, N.H., assignors to Smith & Nephew, Inc., Andover, Mass.

Continuation of Ser. No. 319,057, Sep. 23, 1994, Pat. No. 5,620,415, which is a continuation of Ser. No. 11,416, Jan. 29, 1993, abandoned. This application Feb. 14, 1997, Ser. No. 800,426

Int. Cl.^{6} A61B *17/20*

U.S. Cl. 606—22 **39 Claims**



1. A surgical instrument comprising

a stationary member disposed generally along an axis and including a bend region that angularly offsets a distal region of said stationary member from said axis,

an assembly including a driver member and a generally rigid movable member that extend along said stationary member and are movable with respect to each other,

said driver member having a distal end coupled to a surgical tool and being relieved with a first opening pattern to render it at least partially flexible for transmitting a first force applied at a proximal region of said instrument through said bend region of said stationary member to operate said surgical tool, and

said generally rigid movable member having a distal end coupled to said surgical tool and being relieved with a second opening pattern different from said first opening pattern to provide a relatively flexible region axially aligned with said bend region proximally of said surgical tool for transmitting a second, different force applied at said proximal region through said bend region to selectively change a rotational orientation of said surgical tool with respect to said stationary member, at least a portion of said first opening pattern being axially aligned along said axis with at least a portion of said second opening pattern.

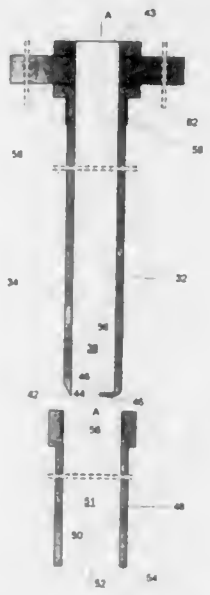
5,782,835
APPARATUS AND METHODS FOR ARTICULAR CARTILAGE DEFECT REPAIR

Rickey D. Hart, Plainville, Mass.; F. Alan Barber, Frisco, Tex., and James C. Chow, Mount Vernon, Ill., assignors to Innovasive Devices, Inc., Marlborough, Mass.

Filed Mar. 7, 1995, Ser. No. 399,428

Int. Cl.^{6} A61B *17/00*

U.S. Cl. 606—79 **24 Claims**



1. A surgical assembly comprising a bone plug removal tool, including:

a cylindrical cutting element having an external surface and having an internal surface defining an internal bore extending along a longitudinal axis of said cutting element from a proximal end to a distal end of said cutting element;

a cutting edge located at the proximal end of said cutting element for cutting a plug of bone as the cutting element is driven into a bone;

at least one cutting tooth located at the proximal end of said cutting element and extending into said internal bore in a direction that is substantially orthogonal to the longitudinal axis of the cutting element, the cutting tooth being defined by substantially orthogonally extending surfaces that are disposed substantially parallel to one another; and

an outer cylindrical sheath arranged concentrically around the external surface of the cylindrical cutting element, the sheath having an internal surface defining an internal bore extending along a longitudinal axis of said sheath, the sheath having a proximal terminus that is spaced-apart from the cutting edge of the cylindrical cutting element.

5,782,836
RESECTING TOOL FOR MAGNETIC FIELD ENVIRONMENT

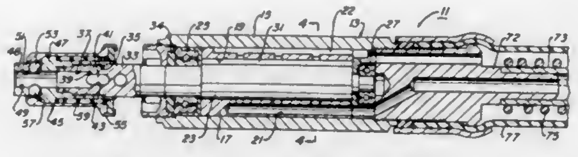
Ray Umber, Arlington; Durrell G. Tidwell, Burleson; Larry Dale Estes, North Richland Hills, and Townesend R. Scantlebury, Arlington, all of Tex., assignors to Midas Rex Pneumatic Tools, Inc., Fort Worth, Tex.

Filed Jul. 30, 1996, Ser. No. 690,634

Int. Cl.^{6} A61B *17/32*

U.S. Cl. 606—79 **12 Claims**

1. A surgical instrument for resecting human bone within an environment containing a strong magnetic field, comprising:



a motor housing having a bore which has an axis;

a rotor rotatably mounted in the bore on spaced apart bearings, the rotor being located on an axis parallel to and offset from the axis of the bore, the rotor having at least one slot which extends radially from the rotor axis;

a spindle integrally formed with the rotor and extending from the motor housing;

at least one nonmetallic vane carried slidably in the slot of the rotor and having an edge which slidingly engages the bore;

an air inlet and an air outlet passage in the motor housing for delivering air pressure to and exhausting from the bore to cause the rotor to spin;

a chuck mounted to the spindle;

a resecting tool formed of a nonferrous material, having a shaft end that releasably couples to the chuck; and

the motor housing, the rotor, the spindle and the chuck being formed of titanium so as to avoid being influenced by the magnetic field.

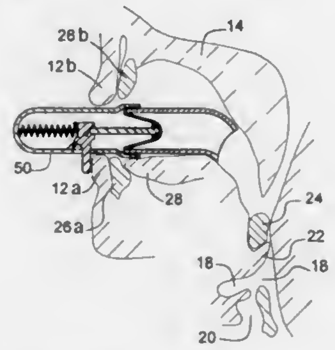
5,782,837
ESOPHAGUS CLEARING DEVICE

Richard York, 4792 Old Scottsville Rd., Alvanton, Ky. 42122

Filed Apr. 23, 1997, Ser. No. 842,040

Int. Cl.^{6} A61B *17/50*

U.S. Cl. 606—106 **11 Claims**



1. A throat and esophagus clearing device comprising:

an elongated object receiving chamber;

a trigger housing threadably connected at a junction to said elongated object receiving chambers, said trigger housing being provided with a central axis in axial alignment with a central axis in said elongated object receiving chamber; and,

means within said trigger housing to create a negative pressure in said elongated object receiving chamber.

5,782,838
CYTOSCOPE DELIVERY SYSTEM

Mordechay Beyar, Tel Aviv, and Oren Globerman, Holon, both of Israel, assignors to Medtronic InStent, Inc., Eden Prairie, Minn.

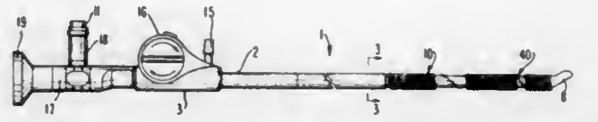
Continuation of Ser. No. 326,607, Oct. 20, 1994, abandoned. This application Apr. 21, 1997, Ser. No. 843,793

Int. Cl.^{6} A61F *11/00*

U.S. Cl. 606—108 **17 Claims**

1. A cystoscope delivery system for implanting a flexible, generally cylindrical, expandable stent, comprising:

a rigid sheath having distal and proximal ends, said sheath defining a central lumen and at least one secondary lumen extending therethrough and having two longitudinally displaced openings extending from a secondary lumen radially to the surface of the sheath,



a cystoscope comprising a distal scope member and a proximal viewing head, the distal scope member extending distally through the central lumen and being removable therefrom,

a flexible, expandable stent having discrete proximal and distal ends, said stent being positioned circumferentially around said sheath,

at least one release wire positioned in and extending through said at least one secondary lumen, and

two or three restraining means, two of which are positioned at said distal and proximal ends of the stent and each having a restraining member extending over a respective end of the stent, said at least one release wire extending through said openings to hold at least one end of the stent and thus to hold the stent in position, such that when said at least one release wire is pulled proximally, at least one end of the stent is released from the restraining member to permit the stent to expand.

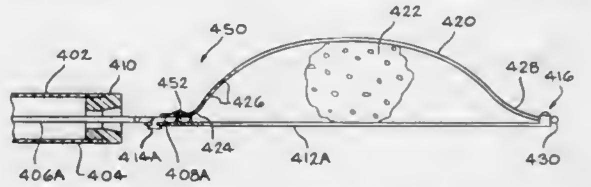
5,782,839
LAPAROSCOPIC SURGICAL GRASPER HAVING A DETACHABLE STRAP

Colin P. Hart, Clarence Center; Norbert W. Frenz, Jr., Williamsville; Richard M. Garlapow, Grand Island; Robert C. Jackson, Clarence; Thomas W. Klementowski, Amherst, and Jack A. Belstadt, Lockport, all of N.Y., assignors to Wilson Greatbatch Ltd., Clarence, N.Y.

Continuation-in-part of Ser. No. 402,344, Mar. 10, 1995, Pat. No. 5,613,973. This application Oct. 20, 1995, Ser. No. 546,304

Int. Cl.^{6} A61B *17/24*

U.S. Cl. 606—113 **9 Claims**



1. A medical device that is insertable into a body cavity to grasp and manipulate a body organ located therein from a remote location outside the cavity during a surgical procedure, which comprises:

a) elongated conduit having a surrounding sidewall providing an inside passage extending to proximal and distal portions having respective spaced apart open ends, wherein the proximal portion of the conduit provides a handle for inserting the distal portion into the body cavity and for manipulating the distal portion from the remote location;

b) flexible strap having a width and a thickness so as to be received in a movable relationship in the inside passage of the conduit, wherein the strap has a first section and a second section; and

c) manipulator operatively associated with the strap and manipulatable from the remote location to move the strap along the inside passage of the conduit between a fully retracted position with the strap substantially housed inside the conduit and a deployed position with the strap completely outside the conduit, wherein the first section of the strap has a first attachment that is attachable to and detachable from a first strap connection provided on the manipulator at an intermediate position located between the proximal and distal portions thereof with the strap in the deployed position and wherein a second attachment provided on the strap is attach-

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able to and detachable from a second strap connection provided at a distal end of the manipulator to thereby define an enclosure adjacent to the distal open end of the conduit that is manipulatable in a surrounding relationship with respect to the body organ to manipulate the same.

5,782,840

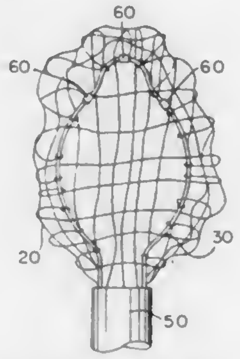
SNARE CAUTERIZATION SURGICAL INSTRUMENT ASSEMBLY AND METHOD OF MANUFACTURE

Naomi L. Nakao, New York, N.Y., assignor to Wilk & Nakao Medical Technology, Inc., New York, N.Y.

Filed Feb. 14, 1997, Ser. No. 800,607

Int. Cl.⁶ A61B *17/24*

U.S. Cl. 606—114 **20 Claims**



1. An improved endoscopic surgical snare cauterization instrument comprising an electrically conductive cauterization loop and a flexible web member, said loop having a cauterization section at its distal end, said web member forming a capture pocket having a mouth defined by said loop, said web member being joined to said loop by a plurality of sliding connecting strands of thermoplastic material, the improvement which comprises means for severably securing at least three connecting strands at fixed positions along the distal end of the cauterization loop.

5,782,841

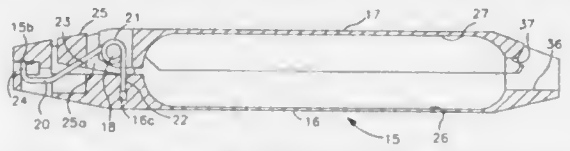
TUNNELING TOOL FOR SUBCUTANEOUS LEAD PLACEMENT

James A. Ritz, Lenexa, Kans., and Brian L. Fideler, Columbia Heights, Minn., assignors to Medtronic, Inc., Minneapolis, Minn.

Filed Aug. 10, 1993, Ser. No. 104,965

Int. Cl.⁶ A61B *17/00*

U.S. Cl. 606—129 **8 Claims**



5. A tool for use in the placement of implantable leads, comprising:

a capsule having a forward end, a rearward end and an internal cavity, said internal cavity open to the rearward end of said capsule, said capsule comprising first and second longitudinally extending sections pivotally mounted to one another at a pivot located adjacent only said forward end, said first section fabricated of a material which may be deformed manually, said capsule further provided with latch means located adjacent only said rearward end, for mechanically latching said first and second sections to one another and for mechanically unlatching said first and second sections from one another in response to manual deformation of said first section between said pivot point and said latch means.

5,782,842

MEDICAL INSTRUMENT GUIDANCE APPARATUS AND METHOD

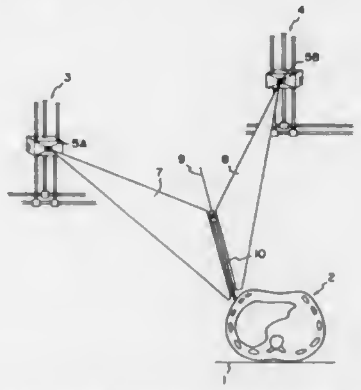
Wolfgang Kloess, and Christian Germany Frahm, both of Luebeck, Germany, assignors to Daum GmbH, Shwerim, Germany

Filed Jan. 16, 1996, Ser. No. 587,240

Claims priority, application Germany, Jan. 16, 1995, 195 01 069.8

Int. Cl.⁶ A61B *19/00*

U.S. Cl. 606—130 **14 Claims**



1. A device for guiding a medical instrument for insertion into a body of a patient along a planned guide path at a planned angle of insertion, the device comprising:

a first source of electromagnetic radiation producing a first ray;

a second source of electromagnetic radiation producing a second ray;

wherein at least the first source is configured and arranged for rotatable adjustment of the first ray to provide an intersection of the first ray and the second ray along the planned guide path at the planned angle of insertion to mark the planned guide path, the first and second rays are visible light rays of different colors which mix at a point of intersection of the first and second rays to produce a third color when reflected by the medical instrument at the point of intersection.

5,782,843

APPARATUS FOR IMPLANTING HAIR-ROOTS, AND A DEVICE FOR PLACING HAIR-ROOTS ON A CONVEYOR BELT FOR USE IN THE APPARATUS

Olav L. Aasberg, PO Box 6796, Oslo, Norway

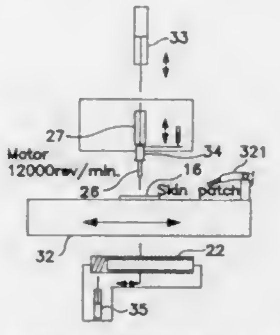
PCT No. PCT/NO95/00067, § 371 Date Oct. 23, 1996, § 102(e) Date Oct. 23, 1996, PCT Pub. No. WO95/28896, PCT Pub. Date Nov. 2, 1995

PCT Filed Apr. 25, 1995, Ser. No. 727,569

Claims priority, application Norway, Apr. 25, 1994, 941494; Jun. 13, 1994, 941494

Int. Cl.⁶ A61B *17/34*

U.S. Cl. 606—133 **20 Claims**



1. A system for mechanical implantation of hair roots in skin by inserting skin grafts each comprising at least one hair root into the skin, said system comprising:

a movable magazine;

a means for extracting grafts from a piece of skin that has been surgically removed and placing the grafts in said movable magazine, said means for extracting and placing grafts comprising

a frame for fixing and tautening the piece of skin,

a cooling device for cooling the piece of skin, and

a hollow drill rod for extracting the grafts from the piece of skin cooled by said cooling device and being movable to deliver the grafts to said magazine; and

an implanting apparatus comprising an incision member and an actuator rod for successively conveying grafts from said movable magazine to an appropriate depth in the skin;

wherein said implanting apparatus is configured such that said incision member and said actuator rod can successively and repeatedly make an incision in the skin, transversely widen the incision and insert a cooled graft from said magazine, and such that said magazine can be rapidly and automatically advanced in a stepwise manner in said implanting apparatus such that each graft in said magazine is maintained in a cooled state until inserted in the skin.

5,782,844

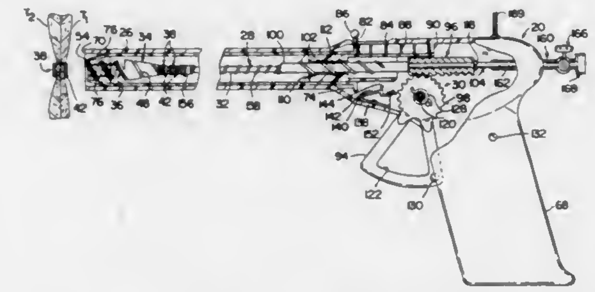
SUTURE SPRING DEVICE APPLICATOR

InBae Yoon, 2101 Highland Ridge Dr., Phoenix, Md. 21131, and Samuel C. Yoon, Timonium, Md., assignors to InBae Yoon, Phoenix, Md.

Filed Mar. 5, 1996, Ser. No. 610,735

Int. Cl.⁶ A61B *17/04*

U.S. Cl. 606—139 **38 Claims**



1. An applicator for applying a suture spring device in or in relation to anatomical tissue, said applicator comprising

a storage portion configured to hold at least one suture spring device in a substantially relaxed, contracted state;

a guide disposed distally of said storage portion and including a hollow, tubular body configured to receive therein a suture spring device in an elastically deformed, expanded state for positioning in or in relation to the anatomical tissue; and

a pusher having a configuration to engage a suture spring device in said guide, said pusher being movable in relation to said guide to control the position of the suture spring device relative to said guide.

5,782,845

TROCAR SITE SUTURING DEVICE

Dwight Shewchuk, 4343 Gloster Rd., Dallas, Tex. 75220

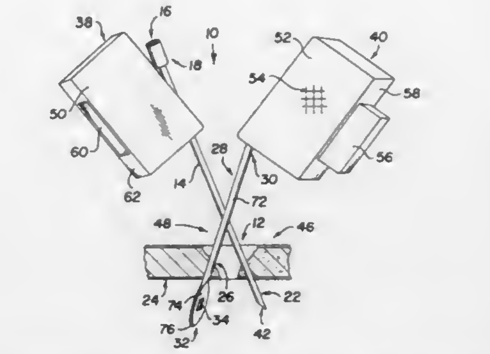
Continuation-in-part of Ser. No. 688,864, Jul. 31, 1996, abandoned. This application Jun. 3, 1997, Ser. No. 868,366

Int. Cl.⁶ A61B *17/04*

U.S. Cl. 606—144 **26 Claims**

1. An apparatus for suturing wounds in a patient comprising:

a first elongated hollow body having a bore extending therethrough; the hollow body having a first end adapted to receive a suturing element and a second end adapted to penetrate at least one tissue layer of the patient;



a second elongated member having a first end and a second end adapted to penetrate at least one tissue layer of the patient; the second end including an aperture therethrough suitable for passing an end of the suture therethrough;

a first alignment device disposed in proximity with the first end of the hollow body and a second, cooperating alignment device disposed in proximity with the first end of the second elongated member; and

the second end of the hollow body being formed with an exit face complementary to the aperture formed in the second elongated member such that the controlled joining of the first alignment device and the second alignment device holds the bore through the hollow body in alignment with the aperture through the second elongated body such that an end of the suture introduced into the bore at the first end of the hollow body may pass through the bore and exit the bore at the second end of the hollow body, and then be communicated through the aperture formed in the second end of the elongated member.

5,782,846

Patent Not Issued For This Number

5,782,847

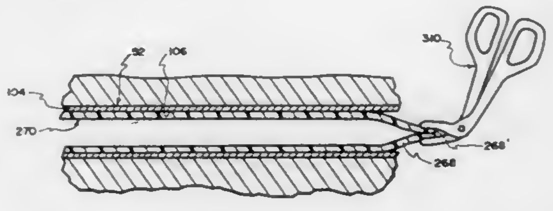
ANTI-STENOTIC METHOD FOR OCCLUDED AND PARTIALLY OCCLUDED ARTERIES

Mark Plaia, Tigard; Vincent A. Reger, Portland, and Gregory N. Nordgren, Wilsonville, all of Oreg., assignors to Endovascular Instruments, Inc., Vancouver, Wash.

Continuation of Ser. No. 402,794, Mar. 13, 1995, abandoned, which is a division of Ser. No. 73,002, Jun. 7, 1993, Pat. No. 5,571,169. This application Aug. 16, 1996, Ser. No. 698,981

Int. Cl.⁶ A61B *17/22*

U.S. Cl. 606—159 **1 Claim**



1. A method of treating a constricted vessel of a patient comprising the steps of:

placing a cutting head through an access passageway into the vessel and advancing the head to a constriction site within the vessel;

axially displacing the cutting head to engage and displace wall tissue comprising intima and plaque to axially cut wall tissue and plaque from the vessel;

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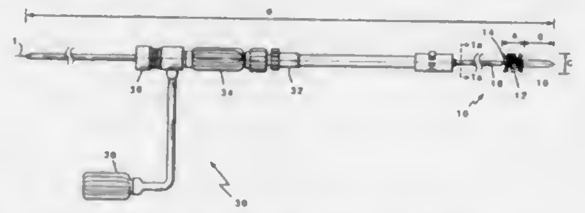
withdrawing the head, severed wall tissue, and plaque from the vessel through the access passageway;

placing a graft within the vessel through the access passageway and displacing the graft to the severance site; and

deploying the graft into adhering relation with the vessel at the severance site.

5,782,848
RESECTING COAGULATED TISSUE

Charles D. Lennox, Hudson, N.H., assignor to Boston Scientific Corporation, Natick, Mass.
Continuation of Ser. No. 235,177, Apr. 29, 1994, abandoned. This application Sep. 3, 1996, Ser. No. 707,060
Int. Cl.^{6} A61B *17/22*
U.S. Cl. **606—159** **27 Claims**



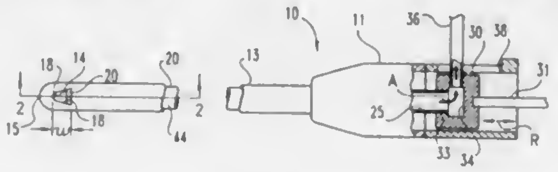
9. A surgical resecting brush assembly, comprising:

an elongated catheter having a proximal and a distal end and being sized and constructed for delivery through a body lumen to a site that is occluded with body matter that has been effected by heat treatment, and

a brush formation near said distal end of said elongated catheter, said brush formation including a bristle structure means of sufficient stiffness for resecting and removing said effected bodily matter when said brush formation is actuated relative to said occluded site to apply a force against said occluded site, and for avoiding substantial damage to adjacent, healthy tissue when said brush formation is actuated against and applies said force against said healthy tissue.

5,782,849
SURGICAL CUTTING INSTRUMENT

Michael E. Miller, Indianapolis, Ind., assignor to SDGI Holdings, Inc., Wilmington, Del.
Continuation of Ser. No. 59,324, May 7, 1993, abandoned. This application Jul. 21, 1994, Ser. No. 278,558
Int. Cl.^{6} A61B *17/00*
U.S. Cl. 606—159 **11 Claims**



1. A surgical cutting instrument for use in cutting tissue within an anatomical space, comprising:

an outer tubular member sized for percutaneous insertion into the anatomical space, said outer tubular member defining a central bore along the length of said outer tubular member and having a proximal end and a distal end, said outer tubular member further defining a cutting opening having a first cutting edge adjacent said distal end and sized to receive tissue therethrough, said cutting opening having a width dimension along the length of said outer tubular member;

a handpiece for supporting said outer tubular member at said proximal end;

a cutting member for slidably disposed within said central bore of said outer tubular member, said cutting member including;

a tubular cutting head portion defining an end opening and a second cutting edge at said end opening, said cutting head portion having a length dimension along the length of said cutting member that is at least equal to said width dimension of said cutting opening;

a tubular body portion extending through said central bore from a distal end adjacent said cutting head portion to a proximal end adjacent said handpiece, wherein said head portion and said body portion have substantially the same outer diameter, which outer diameter is sized relative to the inner diameter of said outer tubular member to provide a close running fit; and

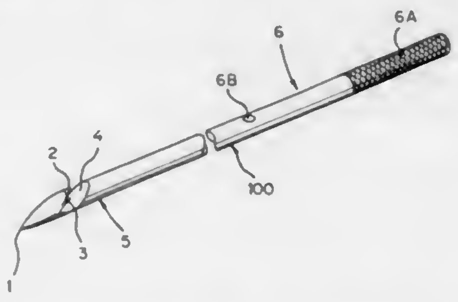
a hinge portion connecting said cutting head portion with said body portion to permit pivoting of said cutting head portion relative to said body portion; and

connecting means within said handpiece for connecting said body portion of said cutting member to a source of reciprocating motion to reciprocate said cutting member within said outer tubular member so said second cutting edge traverses said first cutting edge,

wherein said cutting opening has a transverse dimension along the circumference of said outer tubular member sized to permit said cutting head portion pivoting about said hinge portion at least partially into said cutting opening when said cutting head contacts tissue within said outer tubular member to form an essentially zero clearance between said second cutting edge and said first cutting edge as said cutting member is advanced toward said distal end of said outer tubular member.

5,782,850
METHOD FOR TREATING TRIGGER FINGER, AND MEDICAL INSTRUMENT THEREFOR

Man Tack Ro, 326-101, Olympic Apartment, 89, Pang I Dong, Song Pa Ku, Seoul, Rep. of Korea
Continuation of Ser. No. 510,932, Aug. 3, 1995, abandoned. This application Dec. 30, 1996, Ser. No. 777,116
Claims priority, application Rep. of Korea, Oct. 12, 1994, 1994-26069; Jun. 14, 1995, 1994-15681
Int. Cl.^{6} A61B *17/32*
U.S. Cl. 606—167 **6 Claims**



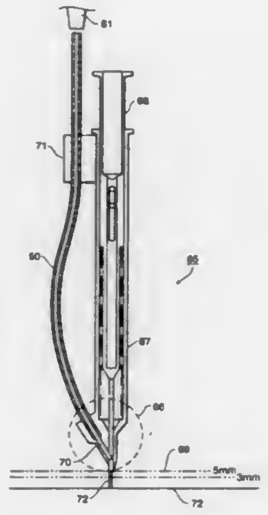
1. A medical instrument for treating a trigger finger, comprising:

an operation portion consisting of a tapered cord pointed front end with a first tip pointed forwardly at the front end, a second pointed tip pointed rearwardly relative to the first tip, and a groovelike transverse depression with a hook-shaped cutting edge extended downwardly and forwardly and along the entire length of the second tip; and

a grip portion.

5,782,851
HAIR TRANSPLANTATION SYSTEM

William R. Rassman, 29391 Laro Dr., Agoura, Calif. 91310
Filed Apr. 10, 1996, Ser. No. 630,244
Int. Cl.^{6} A61B *17/34*
U.S. Cl. 636—167 **16 Claims**



1. An instrument for implanting hair grafts into a patient's scalp, said instrument comprising:

an elongate housing adapted to be manipulated by a surgeon during implantation of the hair grafts, the elongate housing having a bore extending at least part way into the elongate housing from an implanting end of the elongate housing;

a cutting device affixed to the implanting end of said elongate housing for making an incision into the patient's scalp, into which a hair graft is to be implanted;

a feeding station, including a passageway through which a hair graft is fed to a predetermined feed position adjacent to the bore in the elongate housing, the passageway including cartridge receiving means for receiving a cartridge which stores hair grafts sequentially, one behind another, such that an air seal exists between each hair graft and the cartridge, the hair grafts being fed from the cartridge, through the passageway, subcutaneous-end first;

an implanting member which is adapted (1) to move downward through the bore in said elongate housing, (2) to contact the hair graft at the predetermined feed position, and (3) to slide the hair graft into the incision made in the patient's scalp by said cutting device through an opening formed between said cutting device and said elongate housing, wherein as the implanting member slides the hair graft into the incision, air suction draws a next sequential air-sealed hair graft from the cartridge, through the passageway, to the predetermined feed position; and

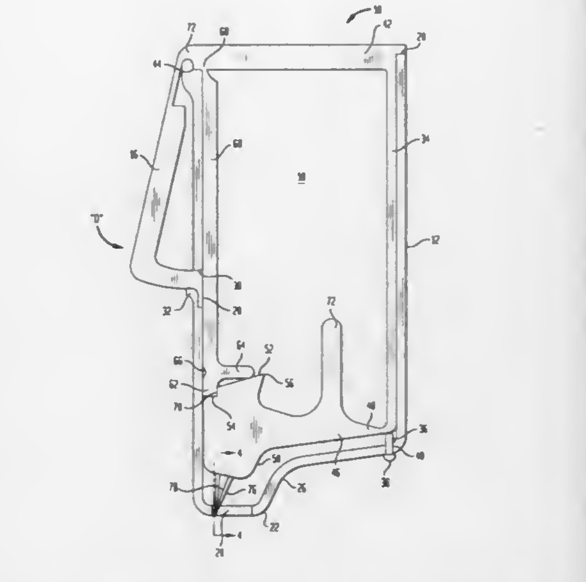
a plunger which is adapted to actuate said implanting member.

5,782,852
PLASTIC INCISION BLADE

Donald Foggia, Ocean; Anthony F. Kuklo, Jr., Bridgewater; James A. Mawhirt, Brooklyn, and Gerald Feldman, Monmouth Junction, all of N.J., assignors to International Technidyne Corporation, Edison, N.J.
Continuation of Ser. No. 722,365, Sep. 27, 1996, abandoned. This application Sep. 19, 1997, Ser. No. 934,212
Int. Cl.^{6} A61D *17/32*
U.S. Cl. **606—182** **20 Claims**

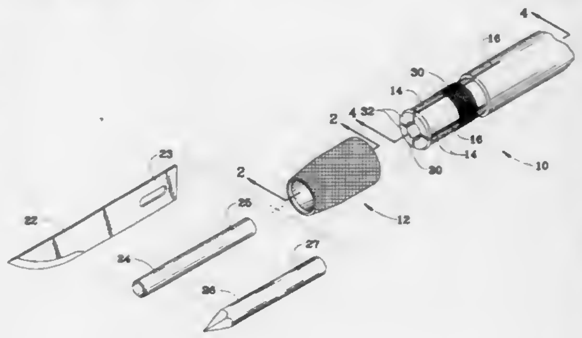
1. A blade for making a skin incision, the blade comprising:

a three-dimensional plastic member having a pyramidal outer peripheral surface defined by at least four individual facets, each facet being oriented in a different plane, and wherein at least two of the facets converge at a terminus to define an incision-making area, wherein the incision making area is oriented in a plane intersecting and relatively transverse to the planes of the at least two converging facets.



5,782,853
SURGICAL HANDLE FOR SURGICAL BLADES AND PUNCHES

Eli I. Zeevi, 2095 California St., Suite 506, San Francisco, Calif. 94109, and Douglas B. Dority, 25 Castlerock Dr., Mill Valley, Calif. 94941
Continuation-in-part of Ser. No. 713,407, Sep. 13, 1996. This application Dec. 23, 1996, Ser. No. 772,266
Int. Cl.^{6} A61B *17/34*
U.S. Cl. 606—187 **6 Claims**



1. A surgical handle kit comprising:

a plurality of surgical implements including at least one surgical knife blade, and at least one cylindrical surgical punch;

a handle body including a distal end and a proximal end;

a plurality of flexible chuck members formed at the distal end of the handle body for securing the knife and the cylindrical punch to the handle;

an elongated slot defined by the plurality of flexible chuck members for receiving the surgical knife blade; and

a cylindrical bore defined by the plurality of flexible chuck members for receiving the cylindrical punch.

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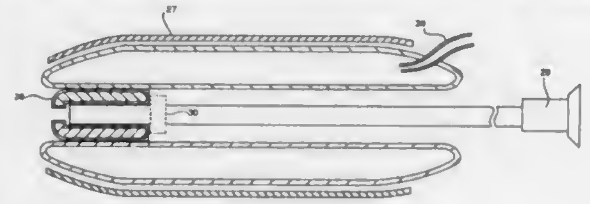
5,782,854
BALLOON LOADED DISSECTING INSTRUMENTS

George D. Hermann, Los Gates, Calif., assignor to General Surgical Innovations, Inc., Palo Alto, Calif.

Continuation of Ser. No. 447,124, May 22, 1995, Pat. No. 5,702,417. This application Mar. 11, 1997, Ser. No. 814,369

Int. Cl.^{6} A61M *29/00*

U.S. Cl. 606—194 **14 Claims**



1. A surgical apparatus comprising:

an elongate tubular balloon having a double wall and a central lumen passing through said tubular balloon, said double wall defining an inflatable chamber;

an inflation port in communication with said inflatable chamber to provide an inflation medium to said inflatable chamber;

a support member disposed within said central lumen of said tubular balloon and coupled to an inner wall of said tubular balloon, said support member having a bearing surface thereon; and

a substantially rigid pushing member insertable into said central lumen of said tubular balloon, said pushing member having a distal end receivable on said bearing surface of said support member and a proximal end which extends to a point beyond the proximal end of said tubular balloon, said pushing member having sufficient rigidity to push said balloon between attached tissue layers free of naturally occurring openings by pushing on said proximal end of said pushing member.

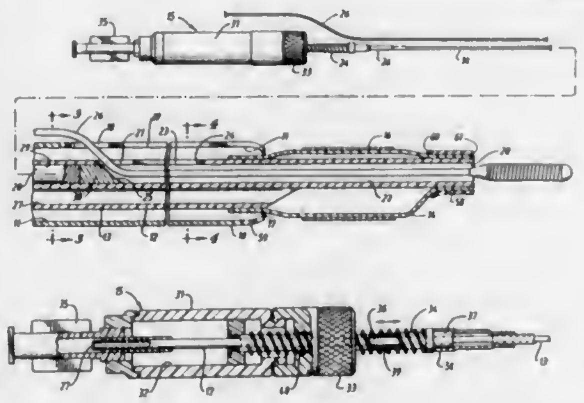
5,782,855
STENT DELIVERY SYSTEM

Lilip Lau, Sunnyvale; William M. Hartigan, Fremont, both of Calif.; Farhad Khosravi, Boston, Mass.; Kurt R. Klemm, Santa Clara, Calif., and Ulrich Sigwart, Morges, Switzerland, assignors to Advanced Cardiovascular Systems, Inc., Santa Clara, Calif.

Division of Ser. No. 85,959, Jul. 6, 1993, Pat. No. 5,507,768, which is a continuation-in-part of Ser. No. 647,464, Jan. 28, 1991, abandoned. This application Apr. 10, 1996, Ser. No. 630,528

Int. Cl.^{6} A61M *29/00*

U.S. Cl. 606—194 **11 Claims**



1. A stent delivery system for delivering a stent within a body lumen, comprising:

an elongated sheath having proximal and distal ends and a wall therebetween, an outer lumen extending therein between said proximal and distal ends, a first port in the distal end, a second port in the proximal end and a side port spaced proximally from the distal end, said ports being in fluid communication with the outer lumen, the sheath having a slit formed in said wall extending between the first port and side port thereof;

an elongated catheter disposed within the outer lumen of the sheath having proximal and distal ends, an expandable member proximally adjacent to the distal end of the catheter which is to receive on the exterior thereof an expandable stent, an inner lumen which is to receive a guide wire therein and which extends between a first port and a side port of the catheter; and

means to adjust the relative axial positions of the catheter and the sheath to expose the expandable member so that upon the expansion thereof an expandable stent disposed about the expandable member will thereby be expanded.

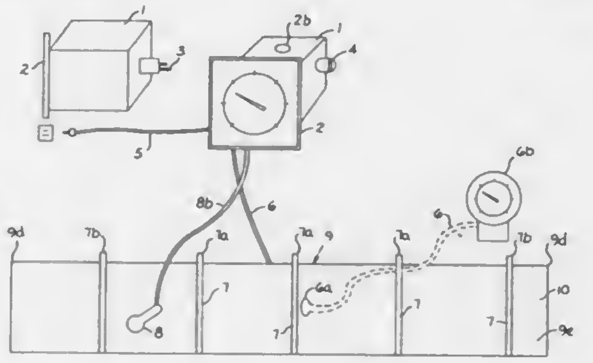
5,782,856
OBSTETRICAL PNEUMOGIRDLE

Maria de la Luz Flores-Valderrama de Gonzalez, Andes #2722, Col. Jardin Obispado, 64010 Monterrey, Nuevo Leon, Mexico

Filed May 29, 1996, Ser. No. 654,617

Int. Cl.^{6} A61B *17/00*

U.S. Cl. 606—201 **5 Claims**



1. An obstetric pneumogirdle system for aiding childbirth, comprising in combination:

a girdle for placement over a patient's womb having inflatable internal chamber means for applying intermittent forces to the womb for aiding childbirth, and

an electronic control system for use of a childbirth attendant to control pressure being exerted by the girdle on the womb providing an intermittently actuable control for applying additional pressure on the womb during expulsion of a fetus in concert with childbirth spasms produced by contractions and for conversely reducing the pressure exerted on the womb after the contractions, comprising: means to release air from said internal chamber, an electric air pump connected to pump air into said internal chamber, electronic switching means for inserting air into and releasing air from the internal chamber, and pressure control means for adjusting the air pressure monitoring means for measuring during childbirth the air pressure within said chamber.

5,782,857
FACE WRINKLE REMOVING DEVICE

Robert Machuron, Saint Paul de Vence, France, assignor to Ronic Industries, Nice, France

Filed Mar. 13, 1997, Ser. No. 816,340

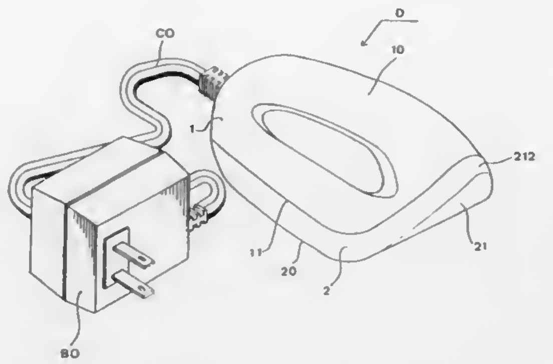
Claims priority, application France, Mar. 20, 1996, 96 03570

Int. Cl.^{6} A61H *1/00*

U.S. Cl. 606—204.35 **7 Claims**

1. A wrinkle-removing device, comprising:

(a) a hollow holding body having a bottom portion including a sole;



(b) heating means including a heating resistor for heating said sole;

(c) vibration means including a motor arranged within said holding body;

(d) power supply means for supplying alternating current power to said motor and to said heating resistor; and

(e) control means including a thermostat for controlling the temperature of said sole in a predetermined temperature control cycle having a first part and a second part;

(f) said heating means being supplied with the first and second half-waves of the alternating current supply during the first part of the temperature control cycle, and with only the first half-waves of the alternating current supply in the opposite direction during the second part of the control cycle;

(g) said vibration means being supplied only with the second half-waves of the alternating current supply during the first part of the temperature control cycle, and only with first half-waves of the alternating current supply during the second part of the control cycle.

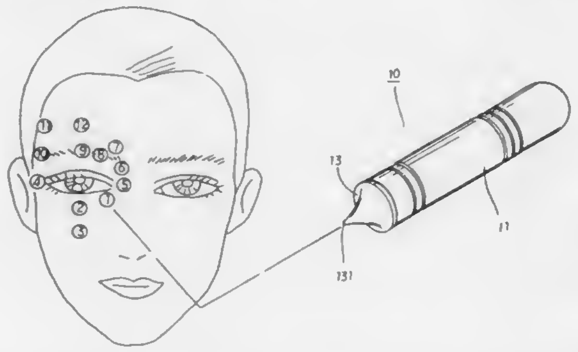
5,782,858
APPARATUS FOR TREATING THE EYES PHYSICALLY

Chih Shun Cheng, 229, Chu Jen Street, Pai Ho Cheng Tainan Hsien, Taiwan

Filed May 19, 1997, Ser. No. 858,733

Int. Cl.^{6} A61H *7/00*

U.S. Cl. 606—204 **2 Claims**



1. A medical apparatus comprising a first magnetic energy device and a second magnetic energy device for acupuncturing acupuncture points of the fingers and around the eyes and stimulating the orbicularis oculi muscle by means of a magnetic resonance, said first magnetic energy device and said second magnetic energy device comprising each a cylindrical casing made from magnetically insulative material having a bottom close and a top open end, an elongated permanent magnet mounted inside said cylindrical casing, and a contact cap made from magnetically conductive material and fastened to the top open end of said cylindrical casing by a screw joint, the contact cap of said first magnetic energy device having a conical front end terminating in a rounded contact tip, the contact cap of said second magnetic energy device having a concave front contact surface.

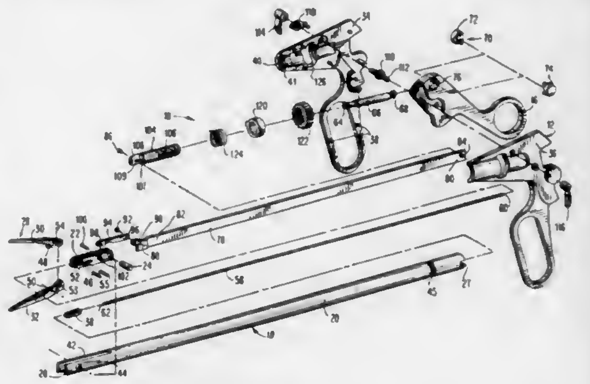
5,782,859
ARTICULATING ENDOSCOPIC SURGICAL APPARATUS

David A. Nicholas, Trumbull; Ernie Aranyi, Easton, both of Conn.; Boris Zvenyatsky, Bronx, N.Y.; Paul A. Matula, Brookfield, Conn.; Stanley H. Remiszewski, Bolton, Mass.; David T. Green, Wesport, and Henry Bolanos, East Norwalk, both of Conn., assignors to United States Surgical Corporation, Norwalk, Conn.

Continuation of Ser. No. 360,015, Dec. 20, 1994, abandoned, which is a continuation of Ser. No. 925,496, Sep. 4, 1992, abandoned, which is a continuation-in-part of Ser. No. 834,687, Feb. 12, 1992, Pat. No. 5,383,888. This application Dec. 30, 1996, Ser. No. 777,115

Int. Cl.^{6} A61B *10/00*

U.S. Cl. 606—205 **20 Claims**



1. A surgical apparatus comprising:

a handle portion;

an endoscopic portion extending axially from said handle portion;

an articulating section pivotably connected to a distal end portion of said endoscopic portion;

tool means disposed adjacent a distal end of said articulating section;

a linkage mechanism extending from said handle portion, through said endoscopic portion to said articulating section for pivoting said articulating section; and

fluid delivery means, integral with said surgical apparatus, for passing fluid through said endoscopic portion to an operative site.

5,782,860
CLOSURE DEVICE FOR PERCUTANEOUS OCCLUSION OF PUNCTURE SITES AND TRACTS IN THE HUMAN BODY AND METHOD

Gordon H. Epstein, Fremont, and Todd E. Lempert, Piedmont, both of Calif., assignors to BioInterventional Corporation, Pleasanton, Calif.

Filed Feb. 11, 1997, Ser. No. 798,870

Int. Cl.^{6} A61B *17/04*

U.S. Cl. 606—213 **42 Claims**

1. A device for percutaneously forming a closure of a puncture in the tissue of the human body comprising a flexible elongate tubular member having proximal and distal extremities and extending along a longitudinal axis, the flexible elongate tubular member having a first lumen extending from the proximal extremity to the distal extremity, a closure assembly carried by the distal extremity of the flexible elongate tubular member, the closure assembly including a closure member movable between contracted and expanded positions, a deformable membrane substantially covering the closure member and secured to the distal extremity of the flexible elongate tubular member, a handle carried by the proximal extremity of the flexible elongate tubular member and adapted to be grasped by the human hand and deployment means carried by the handle and including a push-pull element having proximal and distal extremities, said deployment means extending through the flexible elongate tubular member and being coupled to the closure

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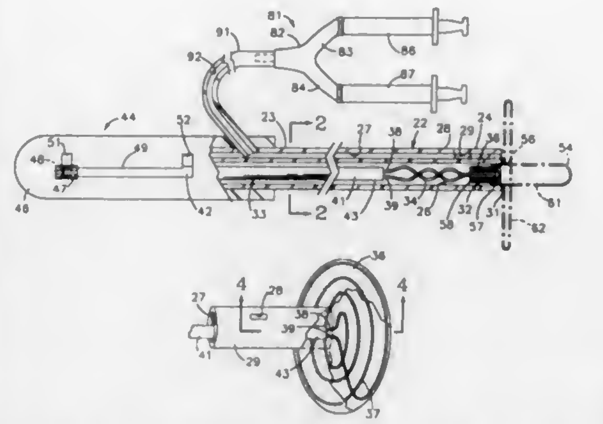


member for moving the closure member between the contracted position permitting introduction into a puncture and the expanded position permitting substantial occlusion of the puncture, and thereafter to the contracted position permitting removal from the puncture.

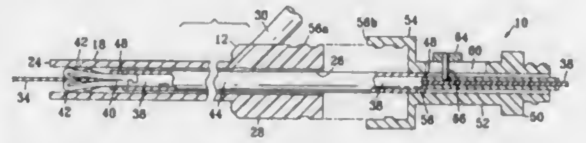
5,782,861
PERCUTANEOUS HEMOSTASIS DEVICE

Andrew H. Cragg, Edina, Minn., and Rodney Brenneman, Dana Point, Calif., assignors to Sub Q Inc.

Filed Dec. 23, 1996, Ser. No. 778,045

Int. Cl.^{6} A61B *17/08;* A61D *1/00*

U.S. Cl. 606—216 **21 Claims**



1. A percutaneous vascular hemostasis device, comprising:

an elongate hollow tube having an open distal end;

an elongate shaft disposed coaxially within the tube and having a proximal end portion and a distal end portion, the distal end portion terminating in at least one pair of resilient prongs, each of the prongs having an inwardly-turned end, whereby the shaft and the tube are axially movable with respect to one another, so that the distal end portion of the shaft may be selectively extended from and partially retracted into the distal end of the tube; and

an actuation member attached to the proximal end portion of the shaft, the actuation member being movable from a first position to a second position respectively to move the shaft from an extended position in which the distal end portion of the shaft extends from the distal end of the tube, to a retracted position in which the distal end portion of the shaft is at least partially retracted into the distal end of the tube;

whereby, when the shaft is in its extended position, the prongs are exposed from the distal end of the tube, whereby their resilience causes them to expand radially to an open position, and when the shaft is in its retracted position, the prongs are partially retracted into the distal end of the tube, radially contracting them to a closed position.

5,782,862
SUTURE ANCHOR INSERTER ASSEMBLY AND METHOD

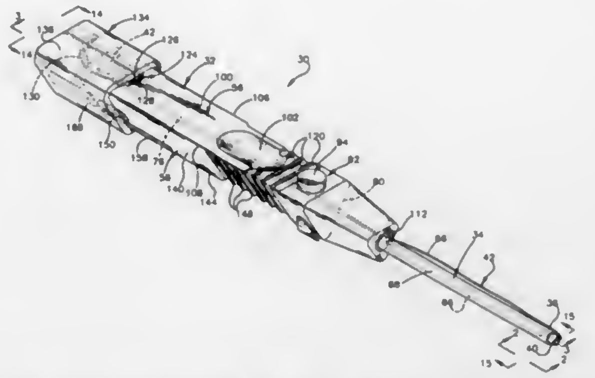
Peter M. Bonutti, 1303 W. Evergreen Plz., Effingham, Ill. 62401

Filed Jul. 1, 1996, Ser. No. 673,923

Int. Cl.^{6} A61B *17/04*

U.S. Cl. 606—232 **272 Claims**

1. An apparatus for use in positioning a suture anchor relative to body tissue, said apparatus comprising a handle, an inner member



having a first end portion fixedly connected with said handle and a second end portion spaced from said handle, and a tubular outer member at least partially enclosing said inner member, said outer member being slidable along said inner member into said handle in a direction parallel to a longitudinal central axis of said inner member, said outer member being slidable along said inner member into said handle to move said outer member from an extended position in which said outer member extends beyond said second end portion of said inner member to a retracted position in which said second end portion of said inner member extends beyond said outer member, said inner and outer members cooperating to form a chamber for receiving the suture anchor when said outer member is in the extended position.

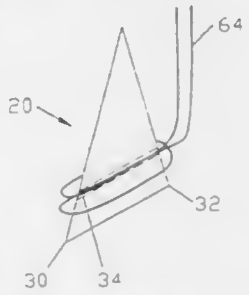
5,782,863
APPARATUS AND METHOD FOR ANCHORING SUTURES

Edwin C. Bartlett, 609 Bremerton Dr., Greenville, N.C. 27858

Continuation of Ser. No. 124,163, Sep. 20, 1993, Pat. No. 5,540,718. This application Jul. 30, 1996, Ser. No. 688,608

Int. Cl.^{6} A61B *17/04*

U.S. Cl. 606—232 **12 Claims**



1. A suture anchor for disposition in a patient bone hole of a selected diameter, the suture anchor comprising:

a rigid body having a leading edge, a biting edge, a base wall interconnecting said leading edge and said biting edge, a trailing edge, a first wall portion interconnecting said leading edge and said trailing edge, a second wall portion interconnecting said biting edge and said trailing edge;

a distance from said first wall portion to said biting edge, taken perpendicularly to said first wall portion, exceeding the patient bone hole diameter;

said body defining a bore extending from said base wall to said second wall portion for receiving and retaining a suture and an inserter tool distal end, said bore being spaced from said first wall portion by less than half of said distance;

wherein upon introduction of said base wall to the patient bone hole, said leading edge and said first wall portion enter the hole and said base wall, proximate said biting edge, engages a bone surface adjacent the hole, causing said body to pivot in the hole such that said leading edge, said first wall portion, and said base wall enter the hole, followed by said biting edge, said second wall portion, and said trailing edge; and

wherein upon movement of said body in the hole, said biting edge bites into a side wall of the hole to lock the anchor in the hole.

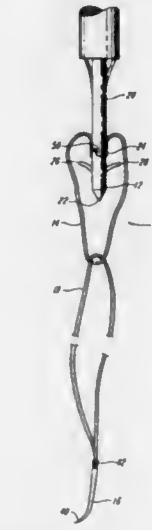
5,782,864
KNOTLESS SUTURE SYSTEM AND METHOD

José E. Lizardi, Franklin, Mass., assignor to Mitek Surgical Products, Inc., Westwood, Mass.

Filed Apr. 3, 1997, Ser. No. 825,760

Int. Cl.^{6} A61B *17/04*

U.S. Cl. 606—232 **23 Claims**



1. A system for anchoring tissue to bone, comprising:

a suture anchor having a first, bone-engaging end and a second, trailing end;

a first loop of suture thread attached to the suture anchor;

a suture needle having a first, tissue penetrating end and a second, trailing end; and

a second loop of suture thread attached to the suture needle, the first and second loops of suture thread being interlocked with one another.

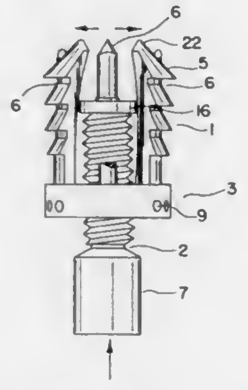
5,782,865
STABILIZER FOR HUMAN JOINTS

Robert Thomas Grotz, 1001 Valleja St., San Francisco, Calif. 94133

Filed Aug. 21, 1996, Ser. No. 712,635

Int. Cl.^{6} A61B *17/04*

U.S. Cl. 606—232 **20 Claims**



1. A soft tissue stabilizing device for securing soft tissue to bone which comprises first and second parts:

(i) wherein the first part comprises a central body defining an opening, the opening defining an axis, said body having proximal and distal faces that extend in a lateral direction with the distal face having bone anchors having distal ends, said ends being movable between a first internal and a second external lateral position, each anchor having a plurality of bone engaging teeth, the teeth increasing in size as they are positioned more distally from the distal face of the central body; and,

(ii) wherein the second part of said device comprises a central plug positioned within the opening of the central body and said plug has a generally elongate shape forming a head, a shank and a distal portion, wherein the shank is movable through the opening of the central body so that the distal portion of the plug is positionable between a first upper and second lower axial position, and wherein the distal portion of the plug is sized to contact the bone anchors so that when the distal portion of the plug is moved into the second axial position, the distal ends of the bone anchors are moved towards the second lateral position.

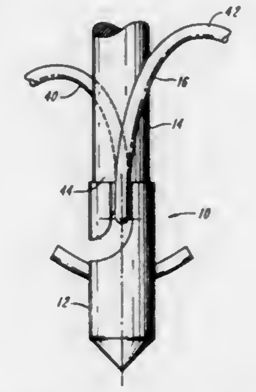
5,782,866
SYSTEM FOR ANCHORING TISSUE TO BONE

Richard F. Wenstrom, Jr., Norwood, Mass., assignor to Ethicon, Inc., Somerville, N.J.

Filed Mar. 25, 1997, Ser. No. 823,826

Int. Cl.^{6} A61B *17/04*

U.S. Cl. 606—232 **27 Claims**



1. A system for anchoring tissue to bone, comprising:

an anchor member adapted to be retained in bone, having a distal end, a proximal end, a sidewall disposed between the distal and proximal ends, a suture seat formed in the interior of the anchor member, and a suture receiving slot defined in and originating in the side wall and extending to the suture seat.

5,782,867
DIAPHRAGM SWITCH

Richard A. Shrock, and Edward B. Shrock, both of Elgin, Ill., assignors to JASB, Inc., Elgin, Ill.

Continuation-in-part of Ser. No. 457,615, Jun. 1, 1995. This application Oct. 11, 1996, Ser. No. 729,162

Int. Cl.^{6} A61J *12/00;* H01H *35/40*

U.S. Cl. 606—234 **22 Claims**

1. A diaphragm switch comprising:

a housing having an interior space;

a substrate in operative communication with said housing supporting an electrical contact;

a flexible membrane having opposite first and second surfaces, the first surface being electrically conductive;

means mounting said flexible membrane in said housing proximate the substrate with the first surface minutely spaced apart from the electrical contact;

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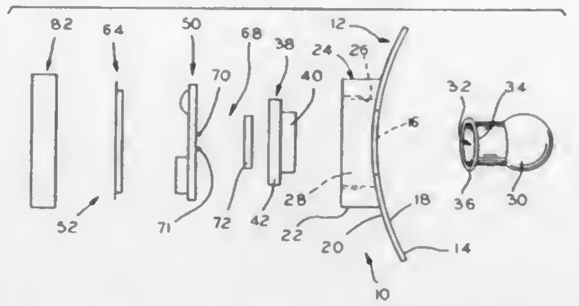
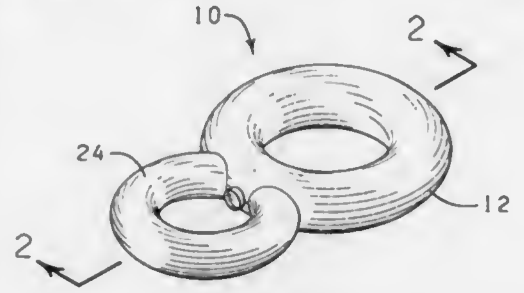


means operatively associated with the housing for communicating an activation pressure to said second surface of the flexible membrane whereby deformation of the flexible membrane caused by the activation pressure closes the minute spacing between the electrically conductive first surface and the electrical contact thereby completing an electrical circuit; and

said mounting means comprising leakage means operatively associated with said flexible for equalizing static pressure on both sides of said flexible membrane whereby the flexible membrane is not deformed and the circuit is not complete in the absence of the activation pressure.

5,782,868
GEL FILLED TEETHING DEVICE
Cratus Dewayne Moore, Jr., and Kristl Lynn Moore, both of 17620 Cranbrook Rd., Edmond, Okla. 73003
Filed Apr. 2, 1997, Ser. No. 832,410
Int. Cl.^{6} A61J *17/02*
U.S. Cl. 606—235 **7 Claims**



1. A teething device, comprising:

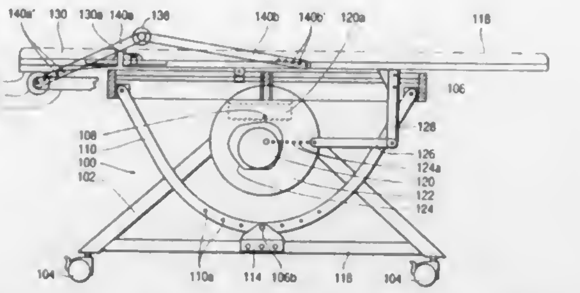
a resilient, fluid impervious body member sized to be received in a mouth of an infant, the body member having an interior cavity; and

a body of self-sustaining, non-flowable, pliable gel disposed in the interior cavity of the body member such that the body of gel substantially fills the interior cavity, the body of gel characterized by the properties of maintaining the self-sustension and pliability over a temperature range of from about −20° to 215° F. whereby the body member and the body of gel can be heated or cooled over a temperature range of from about −20° to 215° F. without substantially altering the resilience of the body member and the pliability of the body of gel.

5,782,869
MULTI-TRAUMA THERAPEUTIC MACHINE
Elberto Berdut, Orquldea No. 98, Santa Maria, Guaynabo, Puerto Rlco, 00926
Filed Nov. 8, 1996, Ser. No. 745,208
Int. Cl.^{6} A61B *17/04*
U.S. Cl. 606—242 **13 Claims**

1. A therapeutic machine comprising:

a chassis;



a stand tiltably supporting said chassis, so as to tilt the chassis at different angles relative to a horizontal plane;

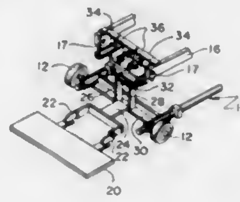
a bed slidably supported on said chassis so as to be slidably along an upper surface thereof;

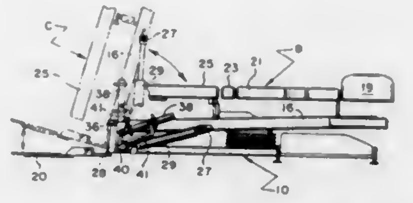
a motor supported on one of said chassis and said stand;

drive means operatively connecting said motor and said bed for driving the bed to reciprocate back and forth along said chassis; and

support means operatively connected with at least one of said chassis and said bed for supporting a limb of a person lying on said bed and for bending the limb in response to the reciprocative movement of said bed.

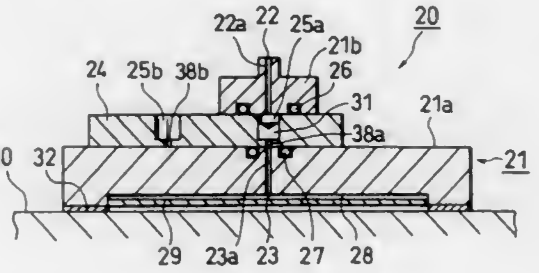
5,782,870
FOOT PLATE CONTROL MECHANISM FOR CHIROPRACTIC TABLE
Brent McAfee, Lisbon, Iowa, assignor to Lloyd Table Company, Lisbon, Iowa
Filed Aug. 6, 1996, Ser. No. 692,632
Int. Cl.^{6} A61F *5/00;* A61G *7/005;7/05*
U.S. Cl. 606—244 **4 Claims**





1. A foot plate attachment for use in combination with a chiropractic table of the tiltable type having a base supporting an upper patient-support portion that is normally generally horizontal but is tiltable relative to the base and which upper patient-support portion includes frame members that extend longitudinally from the head end to the foot end of the table, the upper patient-support portion supporting adjustable sections used in chiropractic procedures, said foot plate attachment comprising: a foot plate pivotly mounted on the base and normally positioned on or near the floor at the foot end of the table when the upper patient-support portion is generally horizontal, lugs having slots therein secured to the frame members of the upper patient support portion of the table near the foot end, stabilizer pins connected to the foot plate and engageable with the slots in the lugs when the patient-support portion is tilted with the foot end downwardly and which pins are disengaged from the lugs as the said portion is returned to a normal horizontal position, and means for controlling the raising and lowering of the foot plate when the lugs engage with and disengage from the stabilizer pins and the patient-support portion tilts and then returns to its normal horizontal position.

5,782,871
SAMPLING DEVICE OF SUCTION EFFUSION FLUID
Hidetaka Fujiwara, and Toru Matsumoto, both of Tokyo, Japan, assignors to NEC Corporation, Tokyo, Japan
Filed Feb. 25, 1997, Ser. No. 804,687
Claims priority, application Japan, Feb. 28, 1996, 8-041785
Int. Cl.^{6} A61M *1/00*
U.S. Cl. 604—313 **13 Claims**



1. A sampling device of a suction effusion fluid including:

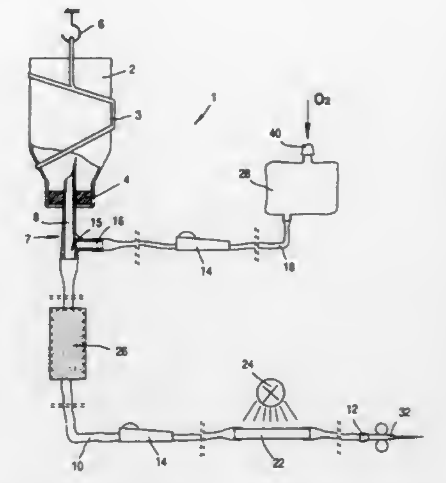
(a) a cell having a vacuum suction port and a skin suction port;
  said vacuum suction port being designed to be connected to a vacuum source on operation;
  said skin suction port being designed to be opposite to a skin surface on operation;

(b) a slide valve formed in said cell to be movable in a plane approximately parallel to said skin surface;
  said slide valve being used for opening or closing a communication path communicating said skin suction port with said vacuum suction port without releasing the vacuum source of said vacuum suction port to maintain an airtight condition; and

(c) a plurality of fluid reservoirs formed in said slide valve;
  each of said fluid reservoirs being alternately communicated with said skin suction port and said vacuum suction port through said communication path by sliding movement of said slide valve;
  each of said fluid reservoirs being used for storing an effusion fluid acquired from said skin surface by vacuum suction through said skin suction port;
  wherein said fluid reservoirs are formed in said slide valve; and
  wherein when said slide valve is located at a position where one of said fluid reservoirs is communicated with said skin suction port and said vacuum suction port, at least one of said remaining fluid reservoirs is exposed to the outside of the cell.

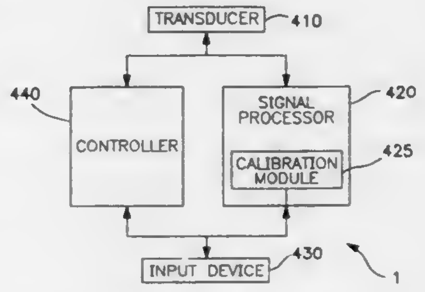
5,782,872
APPARATUS FOR TREATING BLOOD
Hans Müller, Reichenhaller Str. 49, 81547 München, Germany
Division of Ser. No. 604,585, Feb. 21, 1996, abandoned. This application Sep. 18, 1996, Ser. No. 715,614
Claims priority, application Germany, Feb. 22, 1995, 195 06 163.2
Int. Cl.^{6} A61B *19/00*
U.S. Cl. 604—404 **6 Claims**

1. An insertion spike for piercing a closure plug of a vacuum bottle, said insertion spike comprising a front end having a pointed tip and including a first passage extending from said front end to a connecting piece for connection to a pressure compensation structure, said front end having a perforated side wall with a plurality of small holes like a sieve in communication with said first passage for the diffused discharge of gases admitted through said first passage into said vacuum bottle, and a second passage with means



for connection to a blood conduit, said second passage extending to an opening in the side of said insertion spike adjacent said foraminous side wall.

5,782,873
METHOD AND APPARATUS FOR IMPROVING THE FUNCTION OF SENSORY CELLS
James J. Collins, Brighton, Mass., assignor to Trustees of Boston University, Boston, Mass.
Filed Aug. 27, 1996, Ser. No. 703,674
Int. Cl.^{6} A61N *1/00*
U.S. Cl. 607—2 **39 Claims**



1. A method for enhancing the ability of a threshold-based sensory cell to respond to a subthreshold stimulus comprising the steps of:

a) locating an area of the body associated with a sensory cell area;

b) generating a bias signal; and,

c) inputting the bias signal to the located area wherein the bias signal causes the threshold of sensory cells in the sensory cell area to be exceeded in response to the subthreshold stimulus thereby effectively lowering the threshold of the sensory cells in the sensory cell area, wherein the step of generating a bias signal further comprises the step of transducing the subthreshold stimulus to the sensory cell area into an electrical signal and generating the bias signal in response to the electrical signal.

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5,782,874

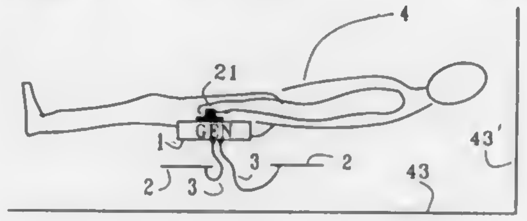
METHOD AND APPARATUS FOR MANIPULATING NERVOUS SYSTEMS

Hendricus G. Loos, 3019 Cresta Way, Laguna Beach, Calif. 92651

Continuation-in-part of Ser. No. 447,394, May 23, 1995, abandoned, which is a continuation of Ser. No. 68,748, May 28, 1993, abandoned. This application Jan. 24, 1997, Ser. No. 788,582

Int. Cl.^{6} A61N *1/40*

U.S. Cl. 607—2 **9 Claims**



1. Electric field generator for manipulating the nervous system of a subject, which comprises:
  - generator means for generating a fluctuating voltage;
  - at least one doublet having two field electrodes such as to form a parallel-plate condensor;
  - distributor means, responsive to the fluctuating voltage, for charging said at least one doublet;
  - said at least one doublet to be positioned and oriented such as to render the subject entirely outside the parallel-plate condensor.

5,782,875

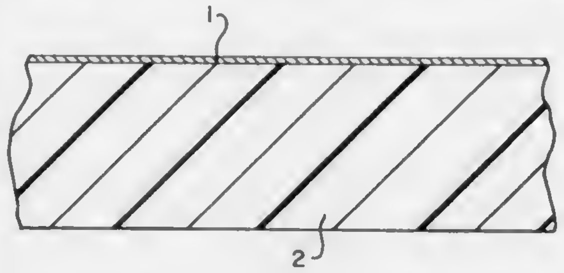
METHOD OF PREVENTING OSTEOPOROSIS

John C. Ledbetter, Billings, Mont., assignor to The Nyvatex Marketing Corporation, Billings, Mont.

Continuation of Ser. No. 484,295, Jun. 7, 1995, abandoned. This application Aug. 1, 1997, Ser. No. 904,820

Int. Cl.^{6} A61N *1/00*

U.S. Cl. 607—2 **3 Claims**



1. A method for preventing osteoporosis in a human patient comprising contacting a patient in need of such treatment with an EM capture and generator device for a time effective for preventing osteoporosis.

5,782,876

METHOD AND APPARATUS USING WINDOWS AND AN INDEX VALUE FOR IDENTIFYING CARDIC ARRHYTHMIAS

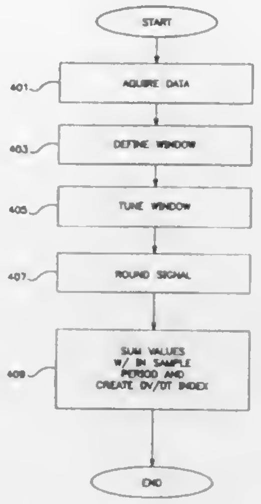
Daniel Flammang, Angouleme, France, assignor to Medtronic, Inc., Minneapolis, Minn.

Filed Apr. 15, 1996, Ser. No. 632,699

Int. Cl.^{6} A61N *1/362;1/368*

U.S. Cl. 607—4 **19 Claims**

1. An implantable system for providing electrical stimulation to a body organ comprising:



  - means for sensing signals in a first chamber of a patient's heart;
  - a first detection apparatus requiring a first level of power, the first detection apparatus having means for acquiring discrete values of the sensed signals in the first chamber of the patient's heart, the means for acquiring discrete values of the sensed signal having a means for detecting noise, means for defining a first window within which the acquired values are clipped and positioned, means for measuring the clipped and positioned values, the means for measuring indicating either a first parameter or a second parameter, means for defining a second window within which the first window values are further clipped and positioned if a first parameter is indicated; means for defining a third window within which the first window values are further clipped and positioned if a second parameter is indicated; means for rounding either the second window or the third window value range, means for summing the rounded second window values or the third window values to create an index value;
  - means for storing a pre-defined range of index values;
  - means for comparing the created index value to the stored range of index values, the means for comparing creating a therapy delivery instruction or a further detect instruction; and
  - means for generating electrical stimulus signals for delivery to a second chamber of a patient's heart according to a programmed protocol;
  - a second detection apparatus requiring a second level of power, the second level of power being greater than the first level of power, the second detection apparatus responding to the further detect instruction, the second detection apparatus comprising means for storing a plurality of different predetermined patterns, each respective pattern containing a set of predetermined parameters representative of a respective cardiac rhythm, means for comparing the sensed signals with the stored plurality of different predetermined patterns, and means for indicating a diagnosed rhythm on the basis of the means for comparing;
  - means for generating electrical stimulus signals for delivery to the second chamber of a patient's heart in response to the therapy delivery instruction or the further detect instruction.

5,782,877

Patent Not Issued For This Number

5,782,878

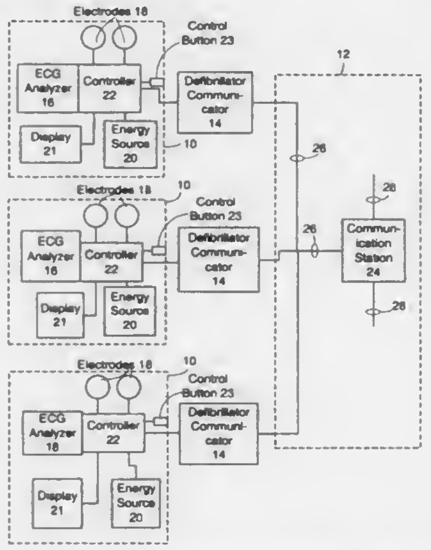
EXTERNAL DEFIBRILLATOR WITH COMMUNICATIONS NETWORK LINK

Carlton B. Morgan; Daniel Powers, both of Bainbridge Island; Clinton Cole, Seattle; Steven T. Mydynski, Bothell, all of Wash., and Michael J. Leventhal, Palo Alto, Calif., assignors to Heartstream, Inc., Seattle, Wash.

Continuation of Ser. No. 351,654, Dec. 7, 1994, Pat. No. 5,593,426. This application Jan. 13, 1997, Ser. No. 783,376

Int. Cl.^{6} A61N *1/39*

U.S. Cl. 607—5 **3 Claims**



1. In a system comprising an external defibrillator, a defibrillator communicator, a holder for the external defibrillator, and a communication network, a method for operating the defibrillator comprising the following steps:
  - automatically establishing a communication link between the defibrillator communicator and a station on the communication network in response to removal of the defibrillator from the holder;
  - applying electrodes to a patient;
  - monitoring ECG signals from the patient;
  - analyzing the ECG signals to determine whether to shock the patient; and
  - locally generating an actuation signal to deliver a shock from the defibrillator to the patient.

5,782,879

APPARATUS AND METHOD FOR DISCRIMINATING FLOW OF BLOOD IN A CARDIOVASCULAR SYSTEM

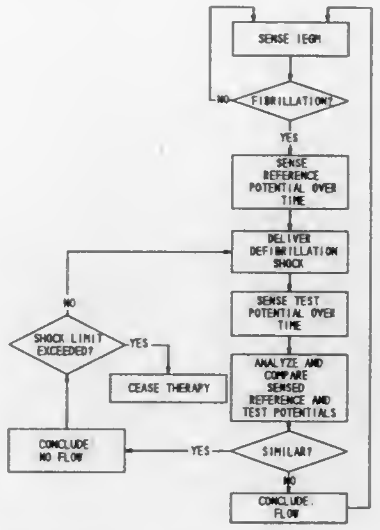
John P. Rosborough, Houston; M. Zafar A. Munshi, Missouri City, and Chris A. Bonnerup, Houston, all of Tex., assignors to Sulzer Intermedics Inc., Angleton, Tex.

Filed Jun. 2, 1995, Ser. No. 458,952

Int. Cl.^{6} A61N *1/39*

U.S. Cl. 607—6 **22 Claims**

1. An implantable cardiac stimulator, comprising:
  - a first implantable electrode configured for implanting in a blood flow path of the cardiovascular system of a body;
  - a second implantable electrode configured for implanting in the body such that an ionically conductive path exists through the body between the first and second electrodes;
  - a reference implantable electrode configured for implanting in the body such that an ionically conductive path exists through the body between the first and reference electrodes;
  - means for detecting cardiac fibrillation, whereby, if fibrillation is detected, a state of substantially no flow of blood at said first electrode can be assumed:


SENSE IEGM
NO
FIBRILLATION?
YES
SENSE REFERENCE POTENTIAL OVER TIME
DELIVER DEFIBRILLATION SHOCK
NO
SENSE TEST POTENTIAL OVER TIME
SHOCK LIMIT EXCEEDED?
YES
CEASE THERAPY
ANALYZE AND COMPARE SENSED REFERENCE AND TEST POTENTIALS
CONCLUDE NO FLOW
YES
SIMILAR?
NO
CONCLUDE FLOW

  - means in electrical communication with said first and second electrodes for delivering a reference shock between said first and second electrodes at a time when there is substantially no flow of blood at said first electrode, and for subsequently delivering a defibrillation shock between said first and second electrodes;
  - means for sensing in the time domain a reference electrical potential between said first electrode and said reference electrode following delivery of said reference shock, and for sensing in the time domain a test electrical potential between said first electrode and said reference electrode following delivery of said defibrillation shock; and
  - means for analyzing and comparing said sensed reference electrical potential and said sensed test electrical potential, and for determining on the basis of said comparison whether blood is flowing following delivery of said defibrillation shock.

5,782,880

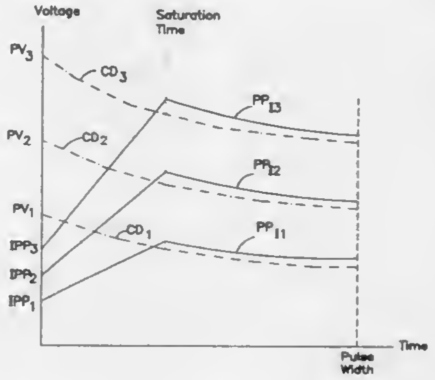
LOW ENERGY PACING PULSE WAVEFORM FOR IMPLANTABLE PACEMAKER

Stuart P. Lahtinen, Minneapolis, and Russell E. Anderson, Marine on St. Croix, both of Minn., assignors to Medtronic, Inc., Minneapolis, Minn.

Filed Apr. 23, 1996, Ser. No. 636,455

Int. Cl.^{6} A61N *1/362*

U.S. Cl. 607—9 **25 Claims**



1. In an implantable pulse generator for providing cardiac pacing pulses through a discharge path including implantable pacing electrodes coupled to a patient's heart in response to a pacing pulse trigger signal defining a predetermined pacing pulse interval, an improved pacing output circuit for reduced energy expenditure comprising:
  - an output capacitor adapted to be charged in a charge path and discharged in said discharge path;

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charging circuit means for charging said output capacitor to a predetermined peak voltage level through said charge path; and

discharge circuit means operable in response to said pacing pulse trigger signal for controllably discharging said output capacitor in said discharge path and providing a pacing pulse output voltage across said implantable pacing electrodes commencing at an initial pulse voltage level less than said predetermined peak voltage level and greater than zero and increasing over an initial fraction of said pacing pulse interval to an intermediate pulse voltage level and thereafter exponentially decreasing in voltage amplitude during a remaining fraction of said pulse interval until a terminal end thereof, whereby pacing pulse energy delivered across said pacing electrodes is decreased and a residual charge of said output capacitor at the end of the pacing pulse interval is increased by restraining the discharge of said output capacitor during said initial fraction of said pacing pulse interval.

5,782,881

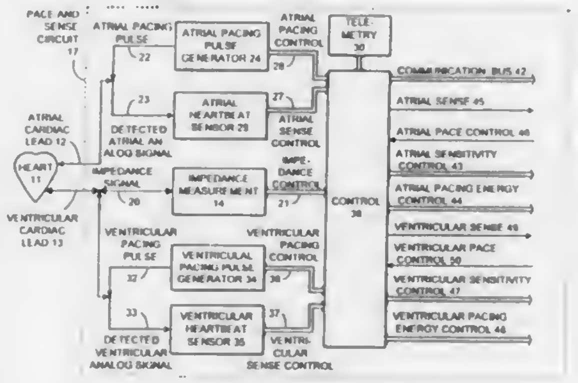
PACEMAKER WITH SAFETY PACING

Richard Lu, 9917 S. Spring Hill Ln., Highlands Ranch, Colo. 80126, and Tibor Nappholz, 8524 E. Jamison Ave., Englewood, Colo. 80112

Filed Sep. 20, 1996, Ser. No. 717,305

Int. Cl.^{6} A61N *1/30*

U.S. Cl. 607—9 **14 Claims**


PACE AND SENSE CIRCUIT 17
ATRIAL PACING PULSE
22
ATRIAL PACING PULSE GENERATOR 24
ATRIAL PACING CONTROL
28
TELEMETRY 30
COMMUNICATION BUS 42
23
ATRIAL HEARTBEAT SENSOR 25
27
ATRIAL SENSE CONTROL
ATRIAL SENSE 45
ATRIAL PACE CONTROL 46
ATRIAL CARDIAC LEAD 12
DETECTED ATRIAL ANALOG SIGNAL
ATRIAL SENSITIVITY CONTROL 43
HEART 11
IMPEDANCE SIGNAL
20
IMPEDANCE MEASUREMENT 14
IMPEDANCE CONTROL
21
CONTROL 38
ATRIAL PACING ENERGY CONTROL 44
VENTRICULAR CARDIAC LEAD 13
VENTRICULAR PACING PULSE
32
VENTRICULAR PACING PULSE GENERATOR 34
VENTRICULAR PACING CONTROL
38
VENTRICULAR SENSE 49
VENTRICULAR PACE CONTROL 50
VENTRICULAR SENSITIVITY CONTROL 47
33
VENTRICULAR HEARTBEAT SENSOR 35
37
VENTRICULAR PACING ENERGY CONTROL 48
DETECTED VENTRICULAR ANALOG SIGNAL
VENTRICULAR SENSE CONTROL

1. A dual chamber pacemaker comprising:

atrial pacing means for generating atrial pacing pulses for the atrium;

ventricular sensing means for sensing activity in the ventricle;

ventricular pacing means for generating ventricular pacing pulses for the ventricle;

a-v interval means for defining an a-v interval between atrial and ventricle activities;

monitoring means for defining a monitoring window within said a-v delay and for detecting an abnormal signal during said monitoring window;

feature extracting means for extracting features of said abnormal signal;

categorizing means for categorizing said abnormal signal as one of a plurality of preselected signals based on said features; and

safety pacing means for generating a ventricular signal if said categorizing means does not categorize said abnormal signal.

5,782,882

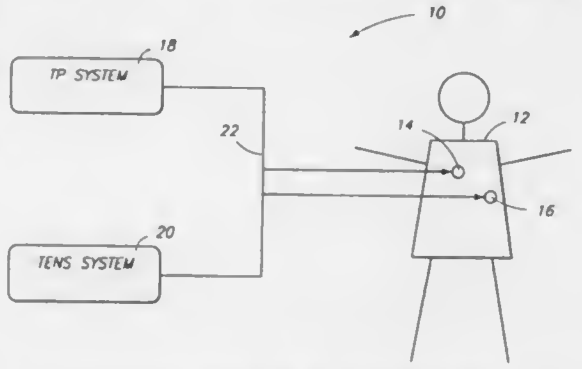
SYSTEM AND METHOD FOR ADMINISTERING TRANSCUTANEOUS CARDIAC PACING WITH TRANSCUTANEOUS ELECTRICAL NERVE STIMULATION

David J. Lerman, and Richard C. Myers, both of McMinnville, Oreg., assignors to Hewlett-Packard Company, Palo Alto, Calif.

Continuation of Ser. No. 565,803, Nov. 30, 1995, abandoned. This application Jul. 14, 1997, Ser. No. 892,621

Int. Cl.^{6} A61N *1/36*

U.S. Cl. 607—10 **20 Claims**



7. A transcutaneous cardiac pacing system comprising:

a set of electrodes adapted for attachment to a cutaneous layer of a patient;

a transcutaneous pacing system coupled to supply pacing pulses to the patient via the set of electrodes, the pacing pulses being effective to stimulate cardiac activity in the patient; and

a transcutaneous electrical nerve stimulation system coupled to supply nerve stimulation pulses to the patient via the set of electrodes, the nerve stimulation pulses being effective to mitigate discomfort in the patient.

5,782,883

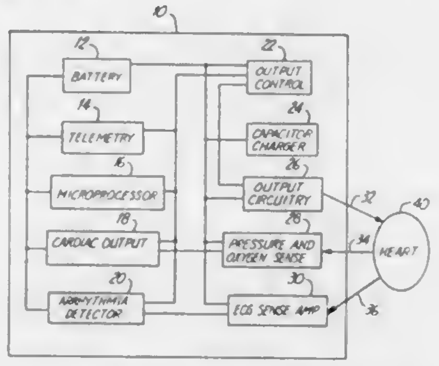
SUBOPTIMAL OUTPUT DEVICE TO MANAGE CARDIAC TACHYARRHYTHMIAS

Kai Kroll, and Mark W. Kroll, both of Minnetonka, Minn., assignors to Galvani Ltd., Minneapolis, Minn.

Continuation-in-part of Ser. No. 251,349, May 31, 1994, abandoned. This application Oct. 25, 1995, Ser. No. 548,013

Int. Cl.^{6} N61N *1/39*

U.S. Cl. 607—14 **23 Claims**



1. An implantable device for maintaining cardiac output of a patient's heart during tachyarrhythmia wherein electrical forcing fields in the form of electrical pulses are applied to the heart until the onset of the tachyarrhythmia is eliminated, the device comprising:

a power supply system including a rechargeable battery;

means for detecting arrhythmia connected to said power supply system;

interface means for adapting to connect said power supply system and said means for detecting arrhythmia to the patient's heart; and

means for controlling electrical output connected to said means for detecting arrhythmia, said power supply system and said interface means to thereby deliver multiple electrical pulses to the heart after detection of said tachyarrhythmia, wherein said electrical pulses include a voltage between 30 and 200 volts, to induce suboptimal contraction in the patient's heart and force a minimum level of cardiac output sufficient to maintain life.

5,782,884

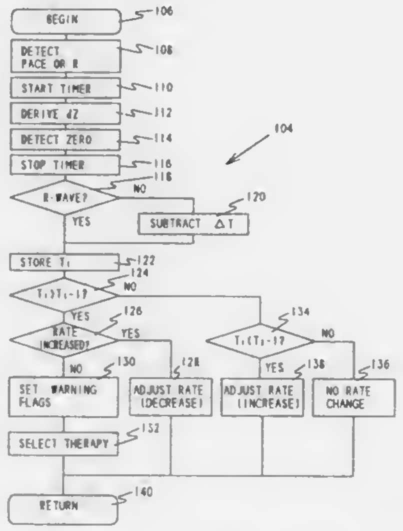
RATE RESPONSIVE CARDIAC PACEMAKER WITH PEAK IMPEDANCE DETECTION FOR RATE CONTROL

Lawrence J. Stotts, and Edward A. Schroeppel, both of Lake Jackson, Tex., assignors to Sulzer Intermedics Inc., Angleton, Tex.

Filed Nov. 5, 1996, Ser. No. 743,299

Int. Cl.^{6} A61N *1/365*

U.S. Cl. 607—17 **16 Claims**



1. An implantable cardiac stimulation apparatus comprising

a hermetically sealed container, said container having therein a battery, and

control circuitry powered by said battery, said control circuitry comprising means for producing an output to stimulate a patient's heart; means for measuring impedance within the patient's body and producing a first signal correlated to said impedance; means for producing a first derivative of said first signal; means for detecting a zero-crossing of said first derivative; means for timing an interval from said output to said zero-crossing; and means for controlling said means for producing said output as a function of said interval.

5,782,885

RATE RESPONSIVE HEART STIMULATION DEVICE USING NEURAL NETWORK AND IEGM CLASSIFIER

Jonas Andersson, Johanneshov, Sweden, assignor to Pacesetter AB, Solna, Sweden

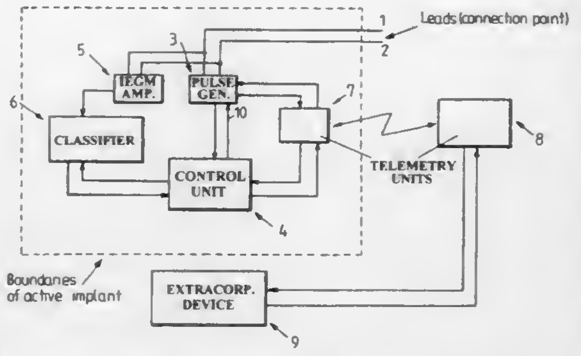
Filed Feb. 10, 1997, Ser. No. 797,422

Claims priority, application Sweden, Feb. 12, 1996, 9600512

Int. Cl.^{6} A61N *1/362*

U.S. Cl. 607—17 **13 Claims**

8. A cardiac assist system for pacing a heart of a patient dependent on a current workload experienced by said patient, said system comprising:



a housing having a size and shape adapted for implantation in a patient;

pulse generator means, disposed in said housing, for generating and emitting stimulation pulses with a variable stimulation interval between successive stimulation pulses, said pulse generator means having an output at which said stimulation pulses are present, and a control input;

electrode means, connectable to said output of said pulse generator means, for delivering said stimulation pulses in vivo to the heart of said patient;

monitoring means, contained in said housing and connected to said electrode means, for registering IEGM signals associated with said heart at different workloads and different stimulation intervals, each IEGM signal having an IEGM waveform associated therewith;

memory means in said housing for storing a plurality of IEGM waveforms respectively associated with said IEGM signals at said different workloads and different stimulation intervals;

classifier means, having access to said memory means and supplied with subsequent IEGM signals from said monitoring means, respectively obtained at predetermined points in time during a predetermined time interval, for classifying a predetermined number of said subsequent IEGM signals by classifying the IEGM waveforms respectively associated with said subsequent IEGM signals as matching an IEGM waveform in said memory means; and

control means, contained in said housing and connected to said classifier means, for generating a control signal dependent on the classification of said subsequent IEGM signals and for supplying said control signal to said control input of said pulse generator means for varying the stimulation interval dependent on the workload associated with the subsequent IEGM signals.

5,782,886

PACEMAKER WITH IMPROVED HYSTERESIS

Edoardo C. Kuiper, Duiven; Hendrik Reineman, Zutpen, and Johannes S. van der Veen, Dieren, all of Netherlands, assignors to Vitatron Medical, B.V., Dieren, Netherlands

Filed Feb. 28, 1997, Ser. No. 808,314

Int. Cl.^{6} A61N *1/365*

U.S. Cl. 607—17 **26 Claims**

1. An implantable pacemaker system for pacing a patient, comprising:

pace means for generating and delivering pace pulses to said patient's heart;

sense means for sensing natural heartbeats from said patient's heart and rate means for determining a measure of the rate (R) of said sensed heartbeats;

escape means for setting and timing out an escape interval following each delivered pace pulse and each sensed heartbeat, and for controlling said pace means to deliver a pace pulse when a said escape interval times out without an intervening sensed heartbeat;

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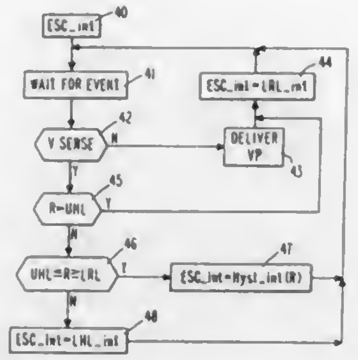
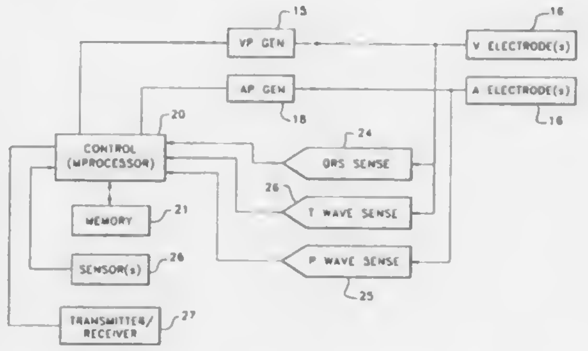


LRL means for normally setting said escape interval to a value corresponding to a lower rate limit (LRL);
band means for defining a hysteresis band with an upper hysteresis rate limit (UHL) at a rate greater than said LRL and a lower hysteresis rate limit (LHL) at a rate lower than said LRL; and
hysteresis means operative in response to a sensed heartbeat having a rate (R) between said LRL and said UHL for adjusting said escape interval to a hysteresis value corresponding to a rate within the range defined by said LRL and said LHL.

5,782,887
PACEMAKER SYSTEM WITH PAC TRACKING BASED ON QT DATA

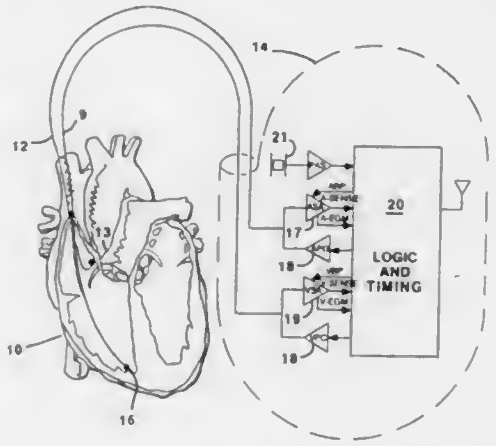
Frits M. van Krieken, and Johannes S. van der Veen, both of Dieren, Netherlands, assignors to Vitatron Medical, B.V., Dieren, Netherlands
Filed Mar. 26, 1997, Ser. No. 824,765
Int. Cl.^{6} A61N *1/362*
U.S. Cl. 607—25 **20 Claims**



1. An implantable dual chamber pacemaker system for pacing the heart of a patient, comprising atrial sense means for sensing atrial beats from the patient's heart, ventricular generator means for generating and delivering ventricular pace pulses to the patient, tracking means for enabling said ventricular generator means to track sensed atrial beats by delivering ventricular pace pulses in timed relation to said sensed atrial beats, QT_int means for obtaining measures of the QT interval between delivered ventricular pace pulses and respective following T-waves, safety means for determining a safety interval as a function of one or more of said QT interval measures, and wherein said tracking means comprises tracking limit means for limiting the rate of said tracking to correspond to said safety interval.

5,782,888
METHOD OF SELECTING AN OPERATING MODE FOR AN IMPLANTABLE MEDICAL DEVICE

Weimin Sun, Plymouth; Eric J. Panken, Minneapolis, and William J. Combs, Eden Prairie, all of Minn., assignors to Medtronic, Inc., Minneapolis, Minn.
Division of Ser. No. 759,494, Dec. 4, 1996. This application Mar. 21, 1997, Ser. No. 823,006
Int. Cl.^{6} A61N *1/37*
U.S. Cl. 607—27 **4 Claims**

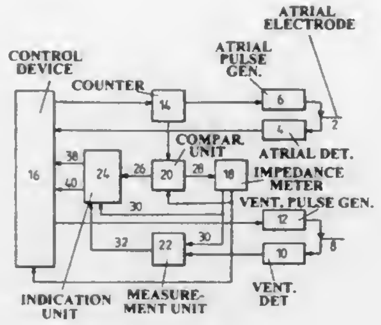


1. In a medical device having multiple operating modes, a method of ensuring that atrial sense events result from intrinsic P-waves originating in the atria and are not far field R-waves for determining the operating mode of the medical device comprising the steps of:
sensing the atrial electrocardiogram from at least one electrode positioned in sensing relation to the patient's atria;
detecting an atrial sense event comprising one of the P-wave or far field R-wave in the atrial electrogram;
sensing the ventricular electrogram from at least one electrode positioned in sensing relation to the patient's ventricle;
detecting a ventricular sense event comprising the R-wave in the ventricular electrogram;
determining the end of the cardiac cycle from successive ventricular sense events;
during each cardiac cycle, discriminating intrinsic P-waves from far field R-waves in the atrial electrogram using Hidden Markov Modeling (HMM), wherein the P-wave and far-field R-wave can each be characterized as a state separated by state transitions in a hidden state sequence and wherein there are discrete probabilities that the states will transition from one to the other in a predetermined order; and
based on the HMM discrimination of the atrial sense events as intrinsic P-waves or far field R-waves, determining an operating mode of the implantable medical device.

5,782,889
CARDIAC STIMULATOR WITH ATRIAL CAPTURE VERIFICATION

Kurt Högnelid, Bromma, and Per Frånberg, Stockholm, both of Sweden, assignors to Pacesetter AB, Solna, Sweden
Filed Jan. 29, 1997, Ser. No. 789,394
Claims priority, application Sweden, Jan. 29, 1996, 9600310
Int. Cl.^{6} A61N *1/365*
U.S. Cl. 607—28 **8 Claims**

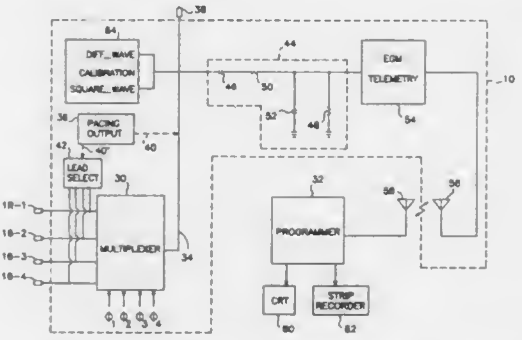
1. A heart stimulator comprising:
an atrial pulse generator which emits a plurality of stimulation pulses;
at least one atrial electrode connected to said atrial pulse generator and adapted for in vivo implantation in an atrium of a heart for delivering said stimulation pulses to said atrium;
a ventricular electrode adapted for in vivo implantation in a ventricle of said heart;



a ventricular detector, connected to said ventricular electrode. which senses depolarization signals in the ventricle of said heart, each stimulation pulse being followed by a depolarization signal;
counter means, connected to said atrial pulse generator, for varying and setting a first interval between successive stimulation pulses; and
comparison means, connected to said ventricular detector, for identifying a second interval between successive depolarization signals sensed by said ventricular detector, and for comparing a variation in at least one first interval with a variation in at least one second interval and generating a signal indicating atrial capture if a result of said comparison has a value less than a predetermined minimum value.

5,782,890
METHOD FOR HEART TRANSPLANT MONITORING AND ANALOG TELEMETRY CALIBRATION

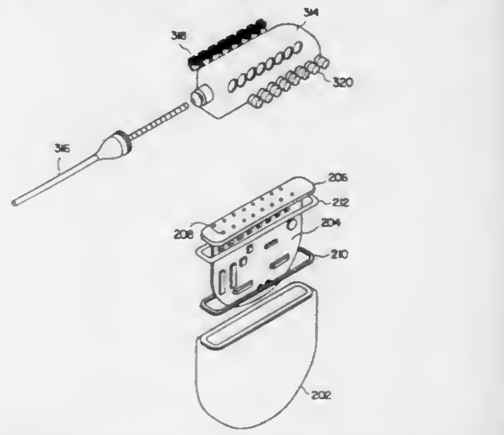
John D. Wahlstrand, Shoreview; Peter M. J. Mulier, St. Paul, and David L. Thompson, Fridley, all of Minn., assignors to Medtronic, Inc., Minneapolis, Minn.
Continuation-in-part of Ser. No. 250,408, May 27, 1994, abandoned, which is a division of Ser. No. 907,259, Jul. 1, 1992, Pat. No. 5,402,794. This application Jan. 19, 1995, Ser. No. 375,034
Int. Cl.^{6} A61N *1/37*
U.S. Cl. 607—32 **7 Claims**



1. A method of operating a telemetry system having a transmitter associated through physical proximity with a patient and a receiver, comprising the steps of:
(a) generating a reference signal having at least one attribute having a defined value, in said transmitter;
(b) acquiring an analog signal from a device that senses a patient attribute also associated through physical proximity with said patient for transmission by said transmitter;
(c) transmitting said reference signal and said analog signal from said transmitter to said receiver;
(d) receiving said reference and analog signals transmitted in step (d);
(e) measuring said attribute of said received reference signal; and
(f) calibrating said received analog signal as a function of said measured attribute.

5,782,891
IMPLANTABLE CERAMIC ENCLOSURE FOR PACING, NEUROLOGICAL, AND OTHER MEDICAL APPLICATIONS IN THE HUMAN BODY

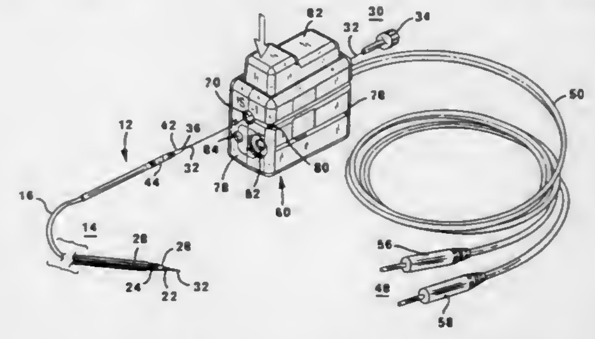
Beth Anne Hassler, Crystal; Adriannus P. Donders, Andover; Craig L. Wiklund, Bloomington, and Daniel A. Lyons, Arden Hills, all of Minn., assignors to Medtronic, Inc., Minneapolis, Minn.
Continuation-in-part of Ser. No. 260,639, Jun. 16, 1994, abandoned. This application Apr. 15, 1996, Ser. No. 632,730
Int. Cl.^{6} A61N *1/375*
U.S. Cl. 607—36 **21 Claims**



1. A packaging arrangement for the outer packaging of an implantable medical device comprising:
a ceramic enclosure having an opening for receiving circuitry of said implantable medical device; and
a multi-layered feedthrough substrate for coupling to said ceramic enclosure at edges around said opening, said substrate having multiple feedthroughs for electrically coupling said circuitry inside said enclosure to the outside of said enclosure.

5,782,892
MEDICAL LEAD ADAPTOR FOR EXTERNAL MEDICAL DEVICE

Vernon P. Castle, Bloomington; Jerrold Nelson, Fridley; George W. Gullickson, Bloomington, and Frank L. Skubitz, Andover, all of Minn., assignors to Medtronic, Inc., Minneapolis, Minn.
Filed Apr. 25, 1997, Ser. No. 843,084
Int. Cl.^{6} A61N *1/372*
U.S. Cl. 607—37 **33 Claims**



1. An external medical lead adaptor for making a rapid electrical connection between an external medical device connector terminal and a proximal lead connector end assembly of an implantable cardiac lead of the type having an elongated implantable lead body extending from the lead connector end assembly toward the distal cardiac lead end, the implantable lead body containing an implantable lead conductor coupled to a proximal lead connector element of the lead connector end assembly and having a lumen formed

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therein for receiving a stylet wire through a lumen end opening, whereby the stylet wire, when received in the lumen, extends proximally from the lumen end opening of the lead connector end assembly so that the stylet wire may be manipulated, the medical lead adaptor comprising:

external conductor means having at least one external electrical conductor therein extending between a first external conductor end thereof to a second external conductor end formed with an external connector element for making electrical contact with the external medical device connector terminal; and

an adaptor connector assembly for receiving the lead connector end assembly and for making electrical contact between each respective implantable lead connector element and each external electrical conductor, the adaptor connector assembly having a proximal end wall and a distal end wall and side walls therebetween defining an adapter connector housing and further comprising:

receiver means internal to the adaptor connector assembly defining an elongated receptacle extending from a proximal end opening to a distal end opening shaped to conformably receive each lead connector element of the lead connector end assembly when inserted axially therein;

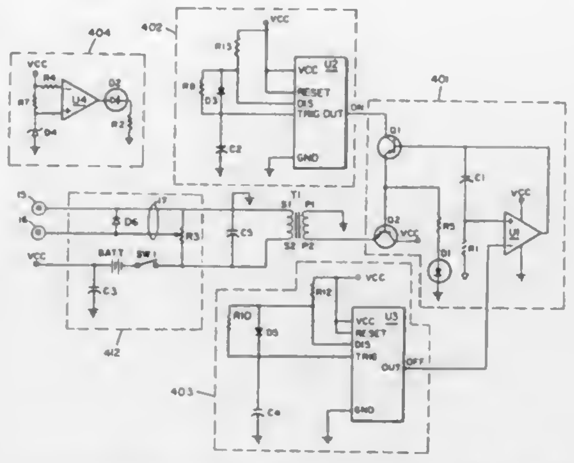
elongated receptacle contact means positioned along said elongated receptacle for making electrical contact with a lead connector element when inserted axially into the elongated receptacle;

means for electrically connecting said elongated receptacle contact means with said first external conductor end;

slot means extending laterally of said elongated receptacle through a side wall of said adaptor connector assembly to an exterior surface thereof for laterally receiving the stylet wire extending proximally from said lumen end opening of said lead connector end assembly to position the stylet wire to extend proximally from said proximal end wall when said lead connector end assembly is axially inserted into said elongated receptacle; and

locking means coupled with said elongated receptacle contact means and manipulatable from a normally closed position, blocking lateral insertion of said stylet wire through said slot means into said elongated receptacle and extending through said distal end wall and blocking axial insertion of said lead connector end assembly into said elongated receptacle, to an open position with respect to said slot means and said elongated receptacle, for allowing said stylet wire extending proximally from said lumen end opening to be inserted laterally through the slot means into the elongated receptacle and for then allowing the implantable lead connector end assembly to be axially inserted into a distal end opening of said elongated receptacle, and to a locked position, wherein said elongated receptacle contact means is applied against a lead connector element with force resisting withdrawal of said lead connector end assembly from said elongated receptacle and assuring secure electrical contact between said elongated receptacle contact means and said lead connector element while allowing manipulation of the stylet wire with respect to said lumen.

5,782,893
NEUROMUSCULAR ELECTRICAL STIMULATOR FOR DEEP VEIN THROMBOSIS TREATMENT
George J. Dennis, III, Huntington Beach, Calif., assignor to J.D. Medical, Inc., Huntington Beach, Calif.
Filed Feb. 26, 1996, Ser. No. 606,970
Int. Cl.^{6} A61N *1/36*
U.S. Cl. 607—48 **19 Claims**



1. A signal generator comprising,

first and second timer means for supplying first and second timing signals, respectively,

each of said first and second timer means includes an operational amplifier and an input control circuit,

each said input control circuit establishes a constant input voltage to the respective operational amplifier whereby the respective timing signals produced by each of said timer means have a constant frequency,

pulse producing means including a further operational amplifier connected to said second timer means to receive said second timing signal and to produce pulses representative of said second timing signals,

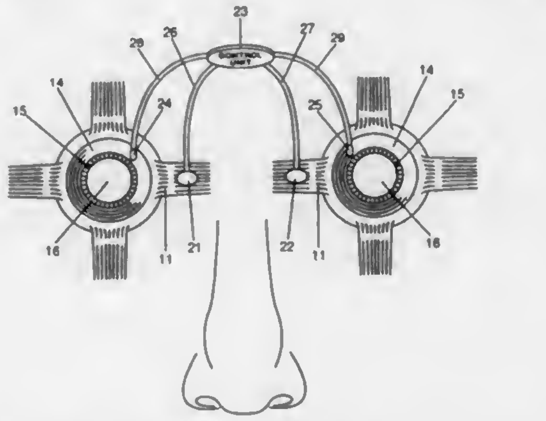
electronic switching means connected to said further operational amplifier and controlled by the pulses produced thereby,

control means connected to said pulse producing means to receive said pulses therefrom and to control the amplitude thereof,

said electronic switching means connected to selectively supply said first timing signal to said control means, and

output means connected to said control means to receive said pulses therefrom.

5,782,894
DEVICE AND METHOD FOR IMPROVING OCULAR FOCUSING AT NEAR VISION POINTS
Ben Israel, 3061 Market Ave., Suite 2, Fayetteville, Ark. 72703
Filed Mar. 5, 1997, Ser. No. 810,892
Int. Cl.^{6} A61N *1/08*
U.S. Cl. 607—53 **31 Claims**



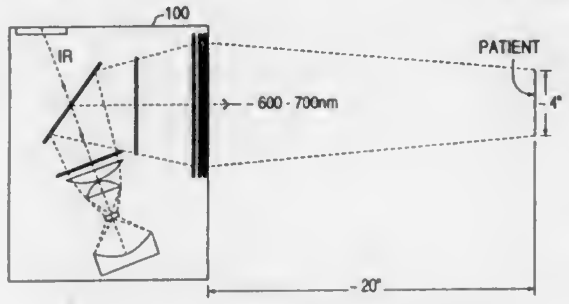
1. An ocular focusing device for a patient having a first eye with a first internal rectus muscle and a first ciliary muscle and a second eye with a second internal rectus muscle and a second ciliary muscle, the device comprising:

a first sensor adapted to be installed on the first internal rectus muscle of the patient's first eye to detect activation of the first internal rectus muscle;

a second sensor adapted to be installed on the second internal rectus muscle of the patient's second eye to detect activation of the second internal rectus muscle;

at least one stimulator adapted to be installed on at least one ciliary muscle of the patient's eyes to stimulate said at least one ciliary muscle to contract when the internal rectus muscles are activated.

5,782,895
ILLUMINATOR FOR PHOTODYNAMIC THERAPY
Carlos E. Zarate, and H. Graciela Zarate, both of Hamilton, Canada, assignors to DUSA Pharmaceuticals, Inc., Toronto, Canada
Division of Ser. No. 136,831, Oct. 18, 1993, Pat. No. 5,441,531. This application Jun. 6, 1995, Ser. No. 466,427
Int. Cl.^{6} A61B *5/00*
U.S. Cl. 607—88 **10 Claims**



1. An illuminator for photodynamic therapy, comprising:

(a) a bulb holder; and

(b) a filter assembly which includes the following components in an optical path

  (1) a high-pass filter to filter out light having wavelengths below a first wavelength value;

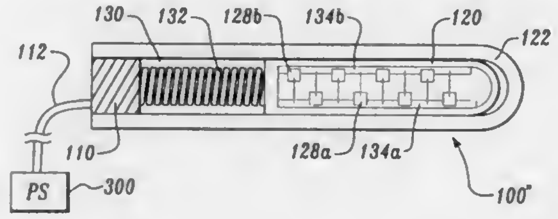
  (2) a low-pass dichroic filter to filter out light having wavelengths above a second wavelength value; and

  (3) a dichroic mirror which reflects light having wavelengths between the first wavelength value and the second wavelength value and which transmits infrared light; and

(c) an exit assembly to direct light transmitted through the high-pass filter and the low-pass dichroic filter and reflected by the dichroic mirror onto a patient;

wherein the exit assembly includes a Fresnel lens and wherein the illuminator includes a mechanism to move the Fresnel lens to vary a spot size on the patient.

5,782,896
USE OF A SHAPE MEMORY ALLOY TO MODIFY THE DISPOSITION OF A DEVICE WITHIN AN IMPLANTABLE MEDICAL PROBE
James C. Chen, Bellevue, Wash., and Brent Wiscombe, Mesa, Ariz., assignors to Light Sciences Limited Partnership, Issaquah, Wash.
Filed Jan. 29, 1997, Ser. No. 788,448
Int. Cl.^{6} A61N *5/06;5/00*
U.S. Cl. 607—88 **28 Claims**



1. Apparatus that includes an enclosed probe in which a position of a device within the probe is selectively changed, comprising:

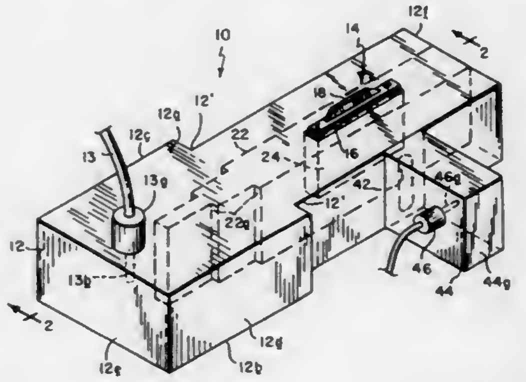
(a) an actuator comprising a shape memory metal, said shape memory metal having a first shape associated with a first state and a second shape associated with a second state, and changing from said first state to said second state as a function of temperature;

(b) a device that is movably coupled to the actuator;

(c) an elongated sheath encapsulating the device and the actuator, said sheath having a proximal end and a distal end; and

(d) means for changing the temperature of the actuator, causing it to transition from the first state to the second state, moving the device within the sheath.

5,782,897
MICROWAVE HEATING APPARATUS FOR RAPID TISSUE FIXATION
Kenneth L. Carr, Harvard, Mass., assignor to Microwave Medical Systems, Inc., Littleton, Mass.
Continuation-in-part of Ser. No. 380,815, Jan. 30, 1995, which is a continuation of Ser. No. 124,928, Sep. 21, 1993, abandoned, which is a continuation of Ser. No. 808,854, Dec. 16, 1991, abandoned, which is a continuation of Ser. No. 67,626, Jun. 26, 1987, Pat. No. 5,073,167. This application Jan. 16, 1996, Ser. No. 586,399
Int. Cl.^{6} A61B *17/36*
U.S. Cl. 607—101 **16 Claims**



1. Microwave heating apparatus for fixating tissue, said apparatus comprising

an electrically conductive waveguide structure having opposite first and second walls each having a longitudinal centerline;

source means for producing conduction currents in said waveguide structure;

a body of non-magnetic dielectric material inside said waveguide structure and which bridges said first and second walls at said centerline;

a pocket extending through a wall of said waveguide structure into said body and for receiving a tissue holder, said pocket having an entrance in the form of a narrow slot in a wall of the waveguide structure which does not appreciably interrupt conduction currents produced in the waveguide structure by the source means, and

a tissue holder in said pocket, said tissue holder containing contents namely a tissue sample and a fixation solution, said holder and contents having a composite dielectric constant which closely matches the dielectric constant of said body.

5,782,898
SYSTEM FOR ANCHORING MID-LEAD ELECTRODE ON AN ENDOCARDIAL CATHETER LEAD
Roger Dahl, Andover, and Duane Zytkovicz, Onamia, both of Minn., assignors to Angeion Corporation, Plymouth, Minn.
Filed Oct. 15, 1996, Ser. No. 729,900
Int. Cl.^{6} A61N *1/05*
U.S. Cl. 607—119 **13 Claims**

1. An endocardial catheter lead comprising:

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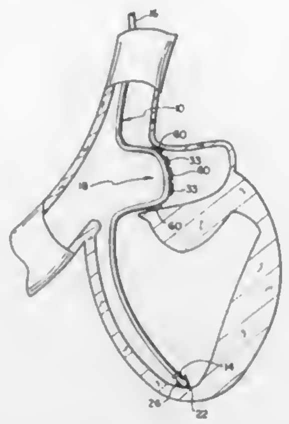


an elongated insulative body member; at least two conductors disposed within the insulative body member, including:
- a first conductor connected at a distal end of the lead body member to a distal end electrode and at a proximal end of the body member to a first connector; and
- a second conductor connected at a mid-lead portion of the body member to a mid-lead electrode and at the proximal end of the body member to a second connector; and at least one fibrosis-anchoring opening defined in an exterior surface of the insulative body member and positioned along the insulative body member proximate the mid-lead electrode and having therein an anchoring material comprising: at least a portion of a sheet having multiple openings defined therein for securing the catheter lead against the interior wall of the heart by fibrosis.

5,782,899

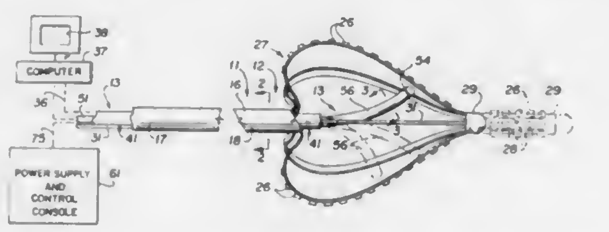
ENDOCARDIAL MAPPING AND ABLATION SYSTEM UTILIZING A SEPARATELY CONTROLLED ABLATION CATHETER AND METHOD

Mir A. Imran, Palo Alto, Calif., assignor to Cardiac Pathways Corporation, Sunnyvale, Calif.

Continuation of Ser. No. 439,663, May 11, 1995, Pat. No. 5,578,007, which is a continuation of Ser. No. 206,463, Mar. 4, 1994, abandoned, which is a division of Ser. No. 894,529, Jun. 5, 1992, Pat. No. 5,324,284. This application Aug. 28, 1996, Ser. No. 697,632

Int. Cl.⁶ A61B *5/04*

U.S. Cl. 607—122 **4 Claims**



1. A catheter system for mapping and ablation within a chamber of the heart formed by a wall having an inner surface comprising a plurality of flexible arms and an ablation electrode positioned within the chamber, said flexible arms having distal extremities and connected at the distal extremities to form a basket configuration, each of said arms including a plurality of mapping electrodes, said arms being expandable into contact with the inner surface to facilitate mapping, said ablation electrode including a support for carrying said ablation electrode and for adjusting the position of the ablation electrode independently of the flexible arms to bring the ablation electrode into engagement with the inner surface while maintaining the flexible arms of the basket in engagement with the inner surface.

5,782,900

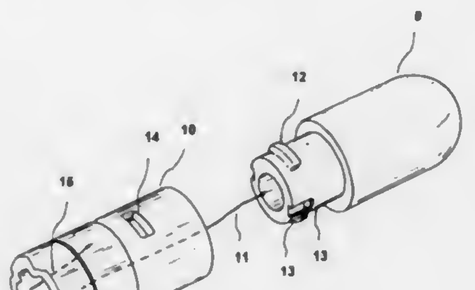
CATHETER SYSTEM HAVING SAFETY MEANS

Alan de la Rama, Cerritos; Weng-Kwen Raymond Chia, Irvine, and Hosheng Tu, Tustin, all of Calif., assignors to Irvine Biomedical, Inc., Irvine, Calif.

Filed Jun. 23, 1997, Ser. No. 880,837

Int. Cl.⁶ A61N *1/05*

U.S. Cl. 607—122 **7 Claims**



1. A catheter system comprising:
- (a) a catheter shaft having a distal section, a distal end, a proximal end, and at least one lumen extending therebetween;
- (b) a handle attached to the proximal end of the catheter shaft;
- (c) a plurality of electrodes disposed at the distal section, wherein a tip electrode is secured at the distal end of the catheter; and wherein a conducting wire is secured to each electrode;
- (d) a plurality of safety anchoring pins secured on the tip electrode for anchoring the said electrode to the catheter shaft; and
- (e) a plurality of matching holes being provided on the catheter shaft for receiving the anchoring pins.

5,782,901

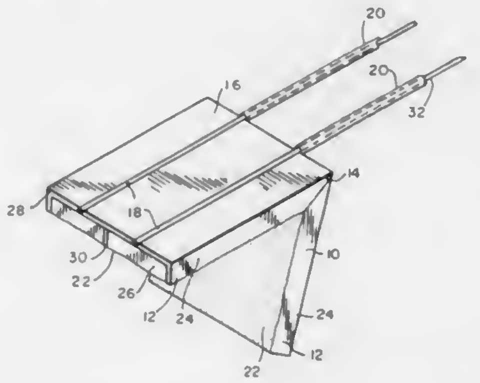
SUTURELESS ELECTRODE CLIP

Peter I. Praeger, 877 Longhill Rd. West, Briarcliff Manor, N.Y. 10510

Filed Apr. 16, 1997, Ser. No. 843,467

Int. Cl.⁶ A61N *1/05*

U.S. Cl. 607—130 **9 Claims**



1. A sutureless clip for use as a temporary pacing device connected to the epicardium of the heart, comprising a generally V-shaped clip having two inner surfaces and two outer surfaces, at least one outer surface having one or more channels each suitable for receiving and engaging an electrode, and the outer surfaces having an insulative coating, wherein the clip is readily deformable to allow for its attachment to heart muscle tissue.

5,782,902

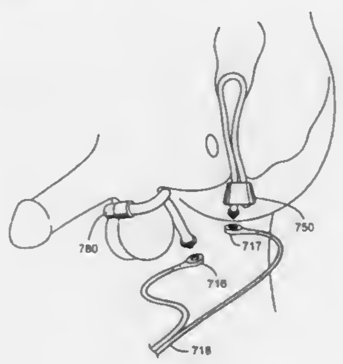
APPARATUS FOR STIMULATING LIVING TISSUE

David Boutos, 4420 Dunlap Crossing St., Las Vegas, Nev. 89129

Continuation-in-part of Ser. No. 568,875, Dec. 7, 1995, Pat. No. 5,697,966, and Ser. No. 369,172, Jan. 5, 1995, Pat. No. 5,571,118. This application Jan. 13, 1997, Ser. No. 782,786

Int. Cl.⁶ A61N *1/05*

U.S. Cl. 607—143 **17 Claims**



1. An electrode apparatus comprising:
- a base having at least first and second sides and first and second holes running from said first side to said second side;
- a tube electrode disposed through said base wherein:
  - a first section of said tube electrode extends from the first side of said base plate from said first hole;
  - a second section of said tube electrode extends from the second side of said base plate from said first hole and to said second hole forming a loop; and
  - a third section of said tube electrode extends from the first side of said base plate from said second hole.

5,782,903

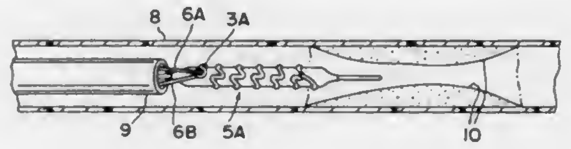
INTRAVASCULAR STENT AND METHOD

Dominik M. Wiktor, Cranford, N.J., assignor to Medtronic, Inc., Minneapolis, Minn.

Continuation-in-part of Ser. No. 872,737, Apr. 22, 1992, which is a continuation of Ser. No. 327,286, Mar. 22, 1989, Pat. No. 5,133,732, which is a continuation-in-part of Ser. No. 109,686, Oct. 19, 1987, Pat. No. 4,886,062. This application Nov. 4, 1994, Ser. No. 334,832

Int. Cl.⁶ A61B *17/00*

U.S. Cl. 623—1 **37 Claims**



1. A stent for providing support to a body lumen comprising:
- (a) a wire wound in a continuous winding into a generally cylindrical shape, the cylindrical shape terminating at one end in a closed loop of the wire; and
- (b) a line of elongated flexible material, the line extending through the closed loop and looped back on itself at the closed loop such that the line is secured to the winding at the closed loop and is freely slideable through the closed loop.

5,782,904

INTRALUMINAL GRAFT

Geoffrey H. White, and Weiyun Yu, both of New South Wales, Australia, assignors to Endogad Research PTY Limited, Sydney, Australia

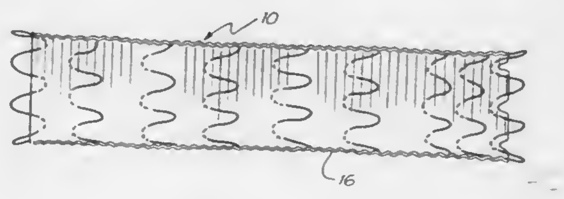
PCT No. PCT/AU94/00586, § 371 Date Jul. 20, 1995, § 102(e) Date Jul. 20, 1995, PCT Pub. No. WO95/08966, PCT Pub. Date Apr. 6, 1995

PCT Filed Sep. 29, 1994, Ser. No. 4 6,672

Claims priority, application Australia, Sep. 30, 1993, PM1537

Int. Cl.⁶ A61F *2/06*

U.S. Cl. 623—1 **10 Claims**



1. An intraluminal graft comprising a tubular graft body having a length, a first end and a second end, and which is circumferentially reinforced along its length by a plurality of separate, spaced-apart wires, each of which has a generally closed sinusoidal shape, a first wire being located adjacent to the first end of the graft body such that alternate apices of the first wire projects beyond at least part of the first end; and wherein the first end of the graft includes an edge which is scalloped between each projecting apex of the first wire.

5,782,905

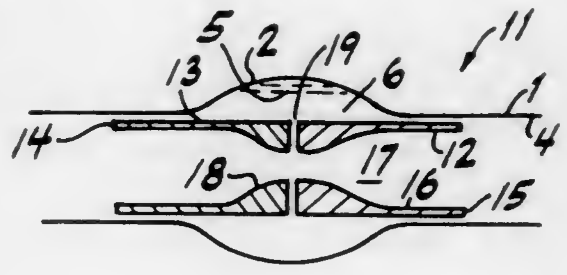
ENDOVASCULAR DEVICE FOR PROTECTION OF ANEURYSM

Jacob Richter, Hasharon, Israel, assignor to Zuli Holdings Ltd., Ramat Hasharon, Israel

Filed May 3, 1996, Ser. No. 643,247

Int. Cl.⁶ A61F *2/06*

U.S. Cl. 623—1 **3 Claims**



1. A prosthesis for imparting structural integrity to a blood vessel having an aneurysm defining an aneurysmal sack, comprising:
- a) a longitudinal member having an external surface, a first end, a second end, and an internal surface defining a longitudinal bore to permit passage of a moving fluid having a velocity, said internal surface provided with means for increasing the velocity of a fluid passing through said longitudinal bore; and
- b) a plurality of apertures in fluid communication with said external surface and said longitudinal bore, said apertures sized and disposed to permit blood to be drawn from said aneurysmal sack into said longitudinal bore.

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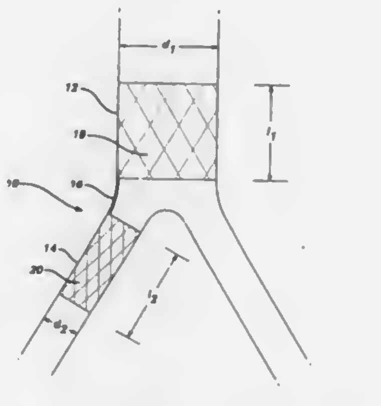
5,782,906
COMBINATION ARTERIAL STENT

Paul Marshall, Washington Crossing, and Anthony S. Miksza, Bethlehem, both of Pa., assignors to Ethicon, Inc., Somerville, N.J.

Division of Ser. No. 434,615, May 4, 1995, Pat. No. 5,609,605, which is a division of Ser. No. 296,216, Aug. 25, 1994, abandoned. This application Oct. 24, 1996, Ser. No. 738,501

Int. Cl.^{6} A61F *2/06*

U.S. Cl. 623—1 **5 Claims**



1. A stent for emplacement into a body lumen comprising:

a first portion having a cylindrical shape and a longitudinal axis, containing an array of slots arranged around the diameter of said cylinder, said slots having a relaxed dimension and an enlarged dimension and the circumference of said cylinder, whereby in said enlarged dimension, said cylindrical shape increases in diameter, and said slots having a predetermined length when said slots are in said relaxed dimension; and

a second portion connected to said first portion, said second portion having a cylindrical shape and a longitudinal axis, containing an array of slots arranged around the diameter of said cylinder, said slots having a relaxed dimension and an enlarged dimension around the circumference of said cylinder, whereby in said enlarged dimension, said cylindrical shape increases in diameter, and said slots having a predetermined length wherein said slots are in said relaxed dimension; and

whereby said first portion and said second portion are created from a single thin-walled metallic tube and wherein said first portion slot lengths are greater than said second portion slot lengths.

5,782,907
INVOLUTED SPRING STENT AND GRAFT ASSEMBLY AND METHOD OF USE

John J. Frantzen, Copperopolis, and Peter S. Brown, Mountain View, both of Calif., assignors to Devices for Vascular Intervention, Inc., Redwood City, Calif.

Filed Jul. 13, 1995, Ser. No. 501,771

Int. Cl.^{6} A61F *2/06*

U.S. Cl. 623—1 **4 Claims**

1. A method of shaping and delivering an intraluminal stent for low profile delivery into a body lumen, the method comprising:

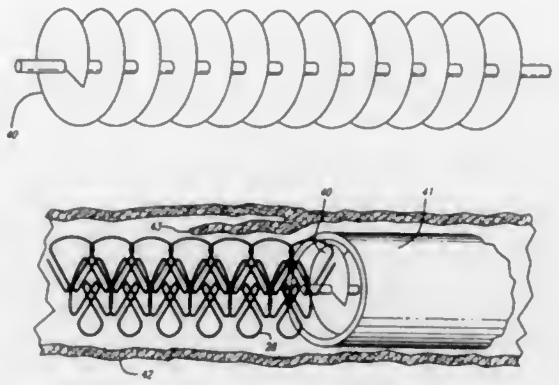
providing a tubular member having a distal end, a proximal end, and an implantable diameter formed by a plurality of helical coils;

reducing said implantable diameter of said tubular member by bending said helical coils into lobe-shaped members to form an involuted spring stent having a delivery diameter;

inserting said involuted spring stent into a sheath by providing a rotating screw within said sheath, and turning said screw to coil said involuted spring stent into said sheath;

delivering said sheath and said involuted spring stent intraluminally through the body lumen; and

withdrawing said sheath proximally and implanting said involuted spring stent in the body lumen.



5,782,908
BIOCOMPATIBLE MEDICAL ARTICLE AND METHOD

Linda L. Cahalan; Patrick T. Cahalan, both of Geleen; Michel Verhoeven, Maastricht; Marc Hendriks, Hoensbroek, and Benedicte Fouache, Maastricht, all of Netherlands, assignors to Medtronic, Inc., Minneapolis, Minn.

Division of Ser. No. 518,129, Aug. 22, 1995, Pat. No. 5,607,475. This application Nov. 14, 1996, Ser. No. 748,991

Int. Cl.^{6} A61F *2/02*

U.S. Cl. 623—1 **15 Claims**

1. A medical device having a metal or glass surface in contact with body fluids, the surface having a coating thereon comprising:

(a) a silane having a structure

$$C_2H_3—R—Si—X_3$$

wherein X is a halogen, methoxy or ethoxy group and R is an optional short chain alkyl group; the silane adherent to the surface such that the C_2H_3— functional group is pendant from the surface; and

(b) a graft polymer formed by free radical reaction from an ethylenically unsaturated monomer, the graft polymer formed on the silane adherent to the surface in the presence of an oxidizing chemical free radical initiator such that the pendant C_2H_3— functionality of the silane is activated by the oxidizing chemical free radical initiator and incorporated into the graft polymer.

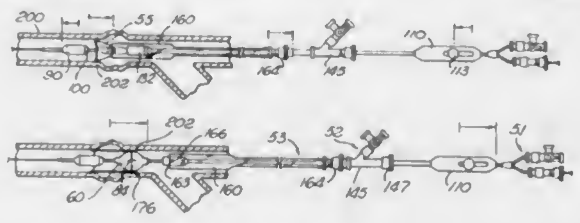
5,782,909
MULTICAPSULE INTRALUMINAL GRAFTING SYSTEM AND METHOD

Dinah B. Quiachon, San Jose; Alec A. Piplani, Mountain View, and Larry G. Baughman, Cambell, all of Calif., assignors to Endovascular Technologies, Inc., Menlo Park, Calif.

Division of Ser. No. 562,351, Nov. 22, 1995, which is a continuation of Ser. No. 102,576, Aug. 5, 1993, abandoned. This application Aug. 14, 1997, Ser. No. 911,379

Int. Cl.^{6} A61F *2/06*

U.S. Cl. 623—1 **17 Claims**



1. A method for securing a graft in a corporeal lumen, said graft having a superior end and an inferior end, said graft further having superior attachment means disposed proximate the superior end and having inferior attachment means disposed proximate the inferior end, said method comprising the steps of:

providing placement means having distal capsule means for containing said superior attachment means and the superior end of said graft, said placement means further having proximal capsule means for containing said inferior attachment means and the inferior end of said graft;

positioning said placement means and said graft at a desired location within the corporeal lumen;

withdrawing said distal capsule means from the superior end of said graft and said superior attachment means;

withdrawing said proximal capsule means from the inferior end of said graft and said inferior attachment means; and

removing said placement means from the corporeal lumen, wherein said graft remains secured within the corporeal lumen.

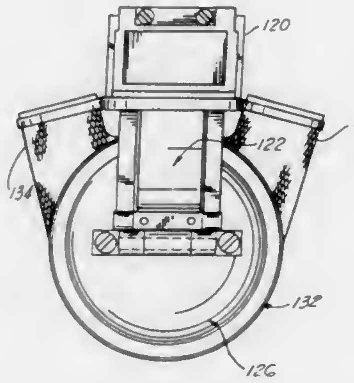
5,782,910
CARDIOVASCULAR IMPLANTS OF ENHANCED BIOCOMPATIBILITY

James A. Davidson, Germantown, Tenn., assignor to Smith & Nephew, Inc., Memphis, Tenn.

Division of Ser. No. 112,599, Aug. 26, 1993, Pat. No. 5,477,864, which is a continuation-in-part of Ser. No. 36,414, Mar. 24, 1993, Pat. No. 5,509,933, which is a continuation-in-part of Ser. No. 986,280, Dec. 7, 1992, abandoned, which is a continuation-in-part of Ser. No. 647,453, Jan. 28, 1991, Pat. No. 5,169,597, which is a continuation-in-part of Ser. No. 454,181, Dec. 21, 1989, abandoned. This application Jun. 6, 1996, Ser. No. 468,536

Int. Cl.^{6} A61F *2/22*

U.S. Cl. 623—3 **17 Claims**



1. An external mechanical heart having component parts including a blood pump, tubes and an electric motor, said pump including moving parts such as input and output valves and cam assemblies, said component parts having enhanced hemocompatibility, comprising:

components of the external mechanical heart, said component parts including a blood pump, tubes, and an electric motor, with said blood pump including moving parts comprising input and output valves and cam assemblies,

wherein said component parts are at least partially fabricated from a metal alloy comprising:

(i) titanium; and

(ii) from about 10 to about 20 wt. % niobium or from about 35 to about 50 wt. % niobium;

wherein the alloy enhances the hemocompatibility of said component parts and is free of toxic elements, except such amounts of said toxic elements as may occur as impurities in the alloy and as contaminants as a result of an alloying process.

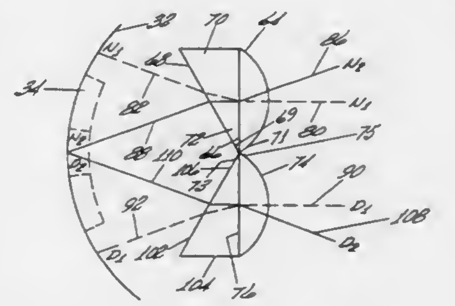
5,782,911
ARTIFICIAL LENS INCLUDING A MULTIFOCAL LENS SYSTEM HAVING ECCENTRIC AXIS AND METHOD

Robert S. Herrick, Rialto, Calif., assignor to Herrick Family Limited Partnership, a Calif Ltd Part., Ranch Cucamonga, Calif.

Continuation of Ser. No. 352,381, Dec. 8, 1994, abandoned. This application May 9, 1997, Ser. No. 853,743

Int. Cl.^{6} A61F *2/14;2/16*

U.S. Cl. 623—5 **26 Claims**



1. An artificial lens system adapted for use in an eye having a macula comprising

a first optical lens system and second optical lens system wherein the principal axis of each optical lens system is eccentric to each other for directing light rays from each image of each of the first optical lens system and the second optical lens system onto a macula of an eye, and wherein the first optical lens system has a predetermined diopter power for receiving light rays from a near object, further including a prism having a preselected diopter power, said prism being positioned on a selected surface of said first optical lens system for directing a portion of the light rays from the near object onto a macula of an eye and the light rays of a different object superior of the macula.

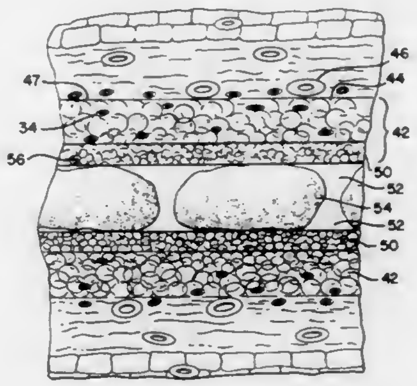
5,782,912
CLOSE VASCULARIZATION IMPLANT MATERIAL

James H. Brauker, Harvard; Robert C. Johnson, Bartlett; Laura A. Martinson, Chicago, and Ronald S. Hill, Grayslake, all of Ill., assignors to Baxter International, Inc., Deerfield, Ill.

Continuation of Ser. No. 933,871, Aug. 21, 1992, abandoned, which is a continuation of Ser. No. 735,401, Jul. 24, 1991, abandoned, which is a continuation-in-part of Ser. No. 606,791, Oct. 31, 1990, abandoned. This application Mar. 17, 1994, Ser. No. 210,068

Int. Cl.^{6} A61F *2/02;2/00;* **A61K** *9/22*

U.S. Cl. 623—1 **5 Claims**



1. A device having a wall defining a chamber for holding living cells for implanting into mammalian host tissue wherein the wall comprises:

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(a) a first zone of a first porous material defining a chamber wherein the first porous material is permeable to the flow of nutrients from the host to the chamber and products from the chamber to the host and impermeable to the host immune cells; and

(b) a second zone of a second porous material proximal to host tissue, the second porous material having a nominal pore size ranging from about 0.6 to about 20 μm and comprising frames of elongated strands that are less than 5 μm in all but the longest dimension wherein said frames define apertures which interconnect to form three dimensional cavities which permit substantially all inflammatory cells migrating into the cavities to maintain a rounded morphology and wherein the second zone promotes vascularization adjacent but not substantially into the second zone upon implantation into the host.

5,782,913

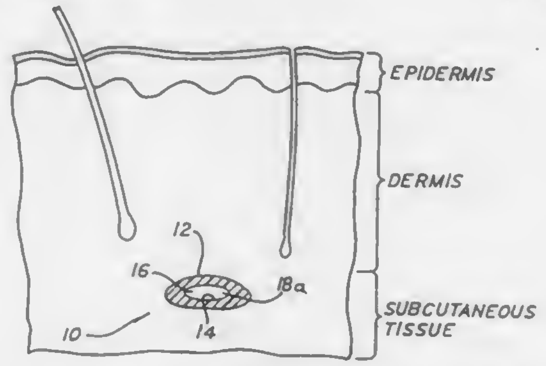
SOFT TISSUE AUGMENTATION APPARATUS

Robert Schindler, San Francisco, and Corey Maas, Sausalito, both of Calif., assignors to The Regents of the University of California, Oakland, Calif.

Division of Ser. No. 379,007, Jan. 27, 1995, Pat. No. 5,607,477, which is a continuation of Ser. No. 90,518, Jul. 12, 1993, abandoned. This application Jul. 8, 1996, Ser. No. 677,635

Int. Cl.^{6} A61F *2/02*

U.S. Cl. 623—11 **6 Claims**



1. A soft tissue tissue augmentation device comprising:

a longitudinally extending implant consisting essentially of a non-degradable, biocompatible material having a cavity longitudinally extending therein from at least one open cavity end thereof, the implant being dimensioned for subcutaneous placement under a glabellar facial wrinkle, a nasal labial fold, or under a lip, the material having pores of about 10 to about 50 microns therein, having textural compatibility with soft tissue, and being configured to maintain, when implanted, sufficient of the cavity for fibrous tissue ingrowth into the cavity through the open end thereof for anchoring of the implant thereby.

5,782,914

METHOD FOR PREPARING HETEROGENEOUS TISSUE GRAFTS

Kemal Schankerell, Stillwater, Minn., assignor to Bio-Vascular, Inc., St. Paul, Minn.

Filed Nov. 29, 1996, Ser. No. 764,686

Int. Cl.^{6} A61F *2/02*

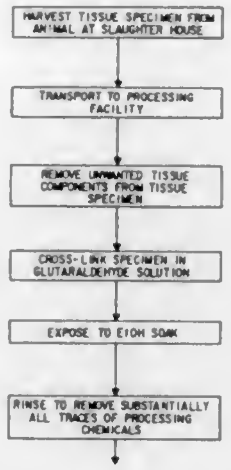
U.S. Cl. 623—11 **12 Claims**

1. A method of preparing animal tissue for use in surgical procedures on humans comprising the steps of:

(a) harvesting a predetermined tissue specimen from a domesticated animal at the time of slaughter of such animal;

(b) cleaning the tissue specimen to remove unwanted components;

(c) chemically cross-linking the cleaned tissue specimen;


HARVEST TISSUE SPECIMEN FROM ANIMAL AT SLAUGHTER HOUSE
TRANSPORT TO PROCESSING FACILITY
REMOVE UNWANTED TISSUE COMPONENTS FROM TISSUE SPECIMEN
CROSS-LINK SPECIMEN IN GLUTARALDEHYDE SOLUTION
EXPOSE TO EtOH SOAK
RINSE TO REMOVE SUBSTANTIALLY ALL TRACES OF PROCESSING CHEMICALS

(d) extracting bioburden from the tissue specimen by exposing the tissue to an ethanol soak for a predetermined time,

(e) rinsing away processing chemicals used in steps (c) and (d);

(f) placing the tissue specimen from step (e) in a vacuum chamber;

(g) evacuating the vacuum chamber to a predetermined vacuum level for a predetermined time sufficient to vacuum-dry the cross-linked tissue specimen;

(h) bringing the vacuum chamber back to ambient pressure and removing the vacuum-dried tissue specimen from the chamber;

(i) placing the vacuum-dried tissue specimen in a package; and

(j) radiation sterilizing the packaged tissue specimen.

5,782,915

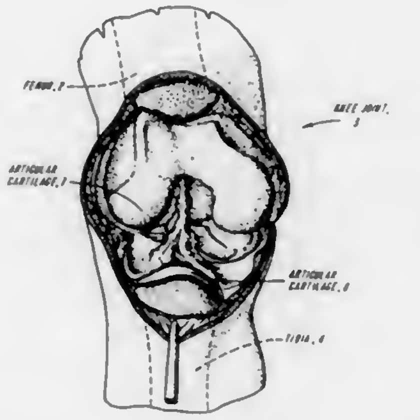
ARTICULAR CARTILAGE HETEROGRAFTS

Kevin R. Stone, 1 Throckmorton La., Mill Valley, Calif. 94941

Continuation of Ser. No. 529,200, Sep. 15, 1995, abandoned. This application Jan. 6, 1997, Ser. No. 779,280

Int. Cl.^{6} A61F *2/02*

U.S. Cl. 623—11 **6 Claims**



1. A method of preparing an articular cartilage heterograft for implantation into a human, which comprises

a. removing at least an intact portion of an articular cartilage from a joint of a nonhuman animal to provide a heterograft;

b. washing the heterograft in water and alcohol; and

c. digesting the heterograft with at least one glycosidase to remove surface carbohydrate moieties from the heterograft;

whereby the heterograft has substantially the same mechanical properties as the native articular cartilage.

5,782,916

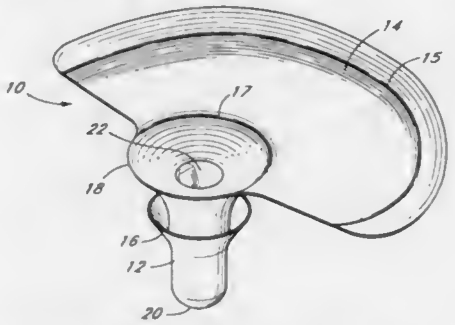
DEVICE FOR MAINTAINING URINARY CONTINENCE

William Pintauro, Ft. Lauderdale, Fla.; Rodney Brenneman, Dana Point, Calif.; Mario Maciel, Pinon Hills, Calif., and Sheila K. Wallin, Irvine, Calif., assignors to Galt Laboratories, Inc., Irvine, Calif.

Filed Aug. 13, 1996, Ser. No. 696,333

Int. Cl.^{6} A61F *2/04;2/02*

U.S. Cl. 623—12 **24 Claims**



1. A prosthetic urethral valve assembly comprising:

a tubular body having a proximal end, a distal end, and a central lumen extending therethrough;

a first anchor attached to the proximal end of the tubular body, said first anchor conforming to a portion of a base of a bladder to resist migration of the prosthetic urethral valve relative to the bladder and a urethra;

a second anchor attached to the tubular body, said second anchor lying within the urethra so that the prosthetic urethral valve remains anchored therein; and

a valve located within the lumen of the tubular body between the proximal end and the distal end of the tubular body;

wherein the distal end of the tubular body lies in the midurethra so that the opening pressure of the valve varies in response to internal forces affecting at least one of the urethra and bladder neck.

5,782,917

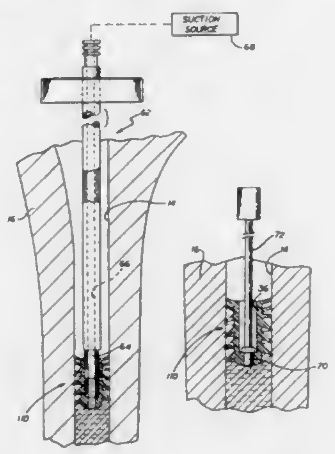
INTRAMEDULLARY BONE PLUG

Ronald M. Carn, Redding, Calif., assignor to Sunmed, Inc., Redding, Calif.

Division of Ser. No. 607,242, Feb. 26, 1996. This application Dec. 2, 1996, Ser. No. 756,944

Int. Cl.^{6} A61F *2/28*

U.S. Cl. 623—16 **2 Claims**



1. A method of installing an intramedullary bone plug into the medullary canal of a patient bone, said method comprising the steps of:

placing the bone plug with an insertion tool at a selected position within the medullary canal of the patient bone;

suctioning body fluid disposed distally of the bone plug within the medullary canal through a suction port formed in the bone plug; and

closing the suction port with a stopper pin.

5,782,918

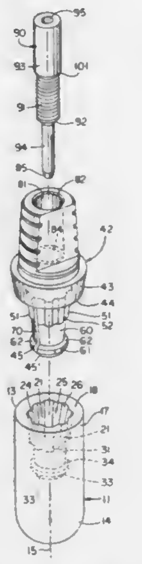
IMPLANT ABUTMENT SYSTEM

Michael Robert Klardie, Birmingham; Ralph Eugene Anstaett, Alabaster, and Aubrey Clint Folsom, Pelham, all of Ala., assignors to Folsom Metal Products, Birmingham, Ala.

Filed Dec. 12, 1996, Ser. No. 762,881

Int. Cl.^{6} A61F *2/28*

U.S. Cl. 623—16 **18 Claims**



1. An implant assembly for securing a prosthesis to a bone, comprising:

a. an implant adapted for osseointegration into a bone, having an axial bore and a longitudinal axis;

b. an abutment having a radially resilient inferior end conformingly received within said axial bore, and a central axis; and

c. means for fixing said abutment within said bore of said implant such that said inferior end is fixed against angular movement and axial displacement within said implant bore upon insertion therein, said fixation means comprising a first surface on an interior surface of said implant bore, a conforming surface feature on an exterior of said inferior end of said abutment cooperatively shaped for engagement with said first feature to prevent relative angular displacement, and wherein said inner surface of said implant bore includes an annular groove and said abutment includes an annular protruding lip engagable with said annular groove to prevent axial relative displacement; said inferior end includes a frusta-conical portion extending downward from said abutment, said annular protruding lip, and a reduced diameter section connecting said frusta-conical section to said lip.

5,782,919

INTERBODY FUSION DEVICE AND METHOD FOR RESTORATION OF NORMAL SPINAL ANATOMY

Thomas Zdeblick, Madison, Wis.; Eddie Ray, III, Cordova, and Lawrence M. Boyd, Memphis, both of Tenn., assignors to SDGI Holdings, Inc., Memphis, Tenn.

Filed Mar. 27, 1995, Ser. No. 411,017

Int. Cl.^{6} A61F *2/44*

U.S. Cl. 623—17 **14 Claims**

1. A fusion device for facilitating arthrodesis in the disc space between adjacent vertebrae, comprising:

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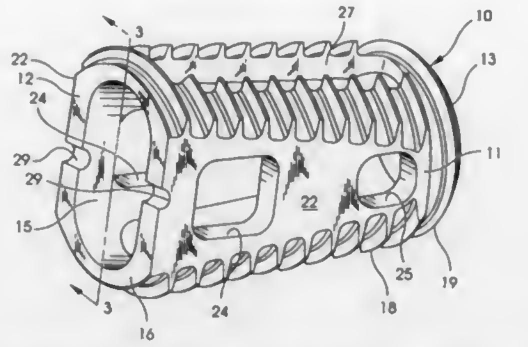


an elongated body having a length between a first end and a second end thereof, and a first diameter at said first end sized to be greater than the space between the adjacent vertebrae, said body further defining a hollow interior sized to receive bone growth promoting material therein;

said body having an outer surface with a pair of opposite cylindrical portions extending along substantially the entire length of said body and defining said first diameter, and a pair of substantially flat opposite side walls connected between said opposite cylindrical portions, said side walls extending along a substantial portion of said length of said body; and

external threads defined on said pair of opposite cylindrical portions of said outer surface and extending along substantially the entire length of said body.

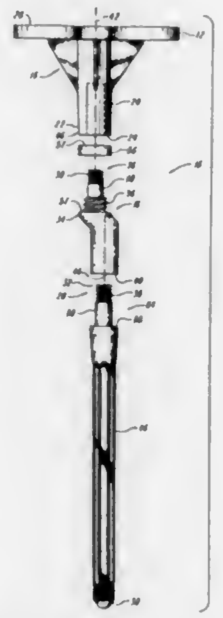
5,782,920
OFFSET COUPLING FOR JOINT PROSTHESIS

Dennis P. Colleran, Plainville, Mass., assignor to Johnson & Johnson Professional, Inc., Raynham, Mass.

Filed Nov. 14, 1996, Ser. No. 748,999

Int. Cl.^{6} A61F *2/30;2/38*

U.S. Cl. 623—18 **19 Claims**



1. A modular joint prosthesis component, comprising:

a tray element having a first surface that is mountable upon bone and a second, opposed surface, the first surface including an extension member;

an adapter element having first and second ends wherein a first longitudinal axis extending through the first end is substantially parallel to but offset from a second longitudinal axis extending through the second end, the first end having a connection surface that is selectively matable with the extension member; and

an elongate stem mountable within bone, the elongate stem having a first end that is selectively matable with a connection surface on the second end of the adapter element, the stem being mountable upon the adapter element such that a longitudinal axis of the elongate stem is colinear with the longitudinal axis of the second end of the adapter element.

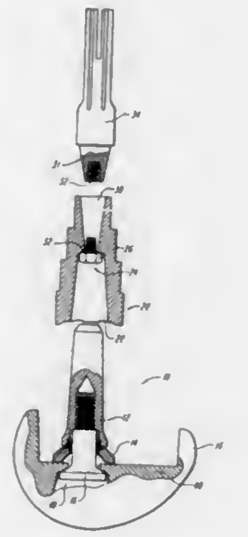
5,782,921
MODULAR KNEE PROSTHESIS

Dennis P. Colleran, Plainville, and Stefan M. Gabriel, Lakeville, both of Mass., assignors to Johnson & Johnson Professional, Inc., Raynham, Mass.

Filed Jul. 23, 1996, Ser. No. 685,289

Int. Cl.^{6} A61F *2/38*

U.S. Cl. 623—20 **10 Claims**



1. A modular knee prosthesis comprising:

a femoral component having a superior surface, an inferior surface, and an aperture extending therebetween;

a bolt including a head portion engagable with the superior surface of the femoral component to inhibit movement of the bolt through the aperture, and an elongate shaft portion extending from the head portion of the bolt, the elongate shaft portion having a length sufficient to protrude through the aperture and beyond the inferior surface of the femoral component;

a post having a Morse taper, the post being engagable with the elongate shaft portion of the bolt to retain the post in a fixed position with respect to the femoral component; and

a collar interposable between the post and the inferior surface of the femoral component,

wherein the collar includes a first end for abutting the inferior surface and defining a first plane, and a second end for abutting the post and defining a second plane, wherein the first plane and the second plane intersect.

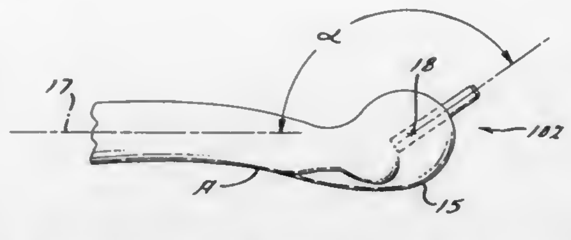
5,782,922
METHOD AND APPARATUS FOR REPLACING THE CAPITELLUM

Mark Victor Vandewalle, Pierceton, Ind., assignor to Biomet, Inc., Warsaw, Ind.

Filed Feb. 7, 1997, Ser. No. 797,291

Int. Cl.^{6} A61F *2/38;5/00*

U.S. Cl. 623—20 **12 Claims**



1. In elbow joint arthroplasty, a method of surgically preparing the natural capitellum of the humerus for accepting a capitellum prosthesis having a stem, wherein the natural capitellum is defined by a partial sphere having a spherical center and a spherical articulating surface, the method comprising the steps of:

determining the spherical center of the natural capitellum;

inserting a reference pin into the natural capitellum through the spherical articulating surface to establish a reference axis;

providing at least one cutting tool adapted to receive the reference pin;

mounting the at least one cutting tool on the reference pin;

shaping the natural capitellum with the at least one cutting tool; and

attaching the capitellum prosthesis to the natural capitellum;

wherein the step of inserting the reference pin into the natural capitellum includes the step of orienting the reference axis to extend through a point on the spherical articulating surface and the spherical center of the natural capitellum.

5,782,923
ENDOPROSTHESIS FOR AN ELBOW JOINT

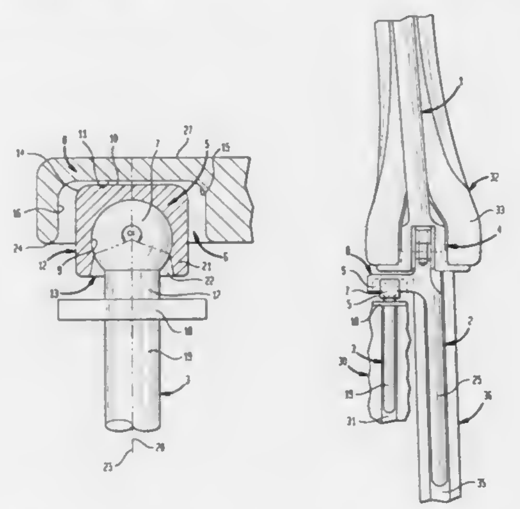
Eckart Engelbrecht, Hamburg, and Arnold Keller, Kayhude, both of Germany, assignors to GMT Gesellschaft Fuer Medizinische Technik MBH, and Waldemar Link GmbH & Co. KG, both of Hamburg, Germany

Filed May 21, 1997, Ser. No. 859,734

Claims priority, application Germany, May 22, 1996, 196 20 525.5

Int. Cl.^{6} A61F *2/38*

U.S. Cl. 623—20 **31 Claims**



1. An endoprosthesis for an elbow joint, comprising:

a humeral component adapted for engagement in a bone canal of a humerus;

an ulnar component adapted for engagement in a bone canal of an ulnar;

a radius component adapted for engagement in a bone canal of a radius;

a swivel bearing for supporting the ulnar component in an area of the humeral component; and

support means connecting the radius component to the ulnar component for articulation, said support means including a socket, and a sliding member guided in the socket for displacement therein, said radius component being swingably mounted in the sliding member.

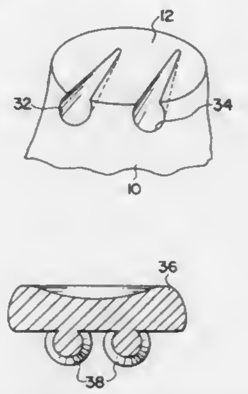
5,782,924
FIXATION METHOD AND APPARATUS FOR TOTAL JOINT PROSTHESIS

Lanny L. Johnson, 2950 E. Mount Hope Rd., Okemos, Mich. 48864

Filed Aug. 8, 1996, Ser. No. 694,467

Int. Cl.^{6} A61F *2/38*

U.S. Cl. 623—20 **1 Claim**



1. An artificial joint prosthesis adapted to be secured to a surface of a bone, said prosthesis comprising:

a body portion having a surface configured to substantially conform with the surface of the bone to which the prosthesis is to be secured;

a plurality of spaced legs projecting from said body portion surface, said legs having major axes substantially parallel to one another and extending substantially parallel to said body portion surface, said legs additionally being tapered in the direction of their respective axis over substantially the entire length of the legs, said tapered legs being configured in cross-section as circular segments having arcs greater than semicircular and chords located at said body portion surface.

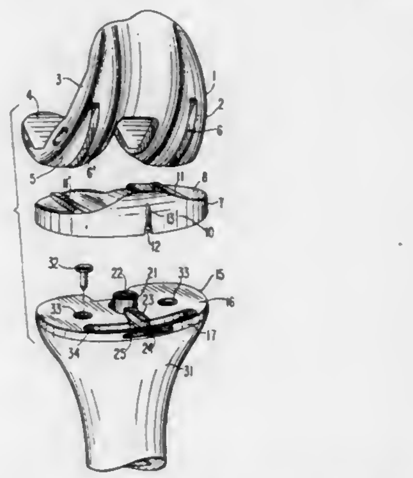
5,782,925
KNEE IMPLANT ROTATIONAL ALIGNMENT APPARATUS

Carlos E. Collazo; Stuart L. Axelson, and Donald G. Eckhoff, all of New York, N.Y., assigoors to Howmedica Inc., New York, N.Y.

Filed Nov. 6, 1997, Ser. No. 965,676

Int. Cl.^{6} A61F *2/38*

U.S. Cl. 623—20 **4 Claims**



1. A knee implant rotational alignment apparatus which comprises a non-implantable femoral trial component having substantially the same configuration as a femoral implant comprising a left condyle and a right condyle, each condyle having an upper concave surface and a lower convex surface, which femoral trial component contains two longitudinal grooves parallel to each other

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cut into the lower surface of the left and right condyle, respectively; a tibial articulating trial component having an upper surface, a lower surface and a forward edge, two parallel guide rails protruding from the upper surface, which rails engage with said grooves in the lower surface of the femoral trial component, which engagement prevents rotation of the femoral trial component relative to the tibial articulating trial component in a transverse plane but allows flexion and extension rotation of both components, an internal bore positioned substantially centrally in said lower surface of the tibial articulating trial component and a groove in said lower surface extending from said bore to the forward edge of said component; a tibial trial baseplate having an outer periphery substantially identical to the outer periphery of a tibial implant baseplate of corresponding size, an upper surface, a lower surface and a forward edge, which upper surface has a central bore connected to a recessed cavity defined by two side walls at an acute angle to each other and extending to the forward edge, which bore and cavity accommodates a spring clip activator comprising a protruding hub with a cylindrical central bore and a connected rotatable arm extending along said recessed cavity whereby the angle of rotation is restricted by the side walls of the cavity, which arm terminates in an anterior tab which protrudes through an aperture in the forward edge of said tibial trial baseplate and is sandwiched between two spring clips located in a radially shaped pocket set in the upper surface of the baseplate adjacent the forward edge, said spring clip activator being attached to the tibial trial baseplate through a post located in the central bore of said protruding hub, which post has a lower portion which is press fitted into a bore between the upper surface and lower surface of the baseplate, said baseplate being releasably connected to said tibial articulating trial by locating said hub and integral arm in said bore and groove, respectively, in the lower surface of said tibial articulating trial.

5,782,926
WRIST PROSTHESIS

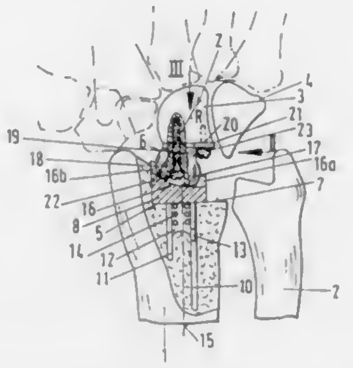
Stefan Lamprecht, Birchwil, Switzerland, assignor to Sulzer Orthopaedie AG, Baar, Switzerland

Filed Jun. 20, 1996, Ser. No. 666,982

Claims priority, application European Pat. Off., Jun. 21, 1995, 95810419

Int. Cl.^{6} A61F *2/42*

U.S. Cl. 623—21 **9 Claims**



1. A wrist prosthesis for executing flexion and extension of a hand comprising a proximal joint part and a distal joint part, said distal joint part configured to be secured to the capitate bone and having a first supporting head with a first crowned supporting surface and a second supporting head with a second crowned supporting surface adjacent said first supporting head along the direction of extension; said proximal joint part configured to be secured to the radius and having a groove-shaped guide track having first and second sections oriented perpendicular to a longitudinal axis of the radius for receipt of each of said first and second supporting heads, respectively, thereby allowing unimpeded extension movement while maintaining lateral stability of the distal joint part throughout the extension movement.

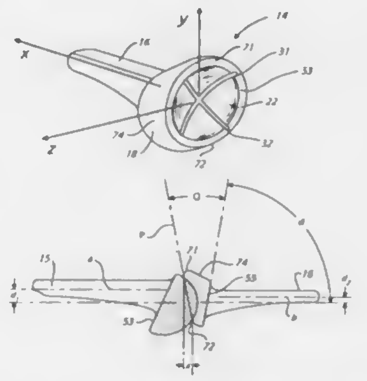
5,782,927
METACARPAL-PHALANGEAL JOINT REPLACEMENT

Jerome J. Klawitter, and William F. Ogilvie, both of Austin, Tex., assignors to Ascension Orthopedics, Inc., Austin, Tex.

Filed Nov. 6, 1996, Ser. No. 743,717

Int. Cl.^{6} A61F *2/42*

U.S. Cl. 623—21 **16 Claims**



1. A prosthetic device designed for replacement of a MP joint of a human finger comprising

a metacarpal element having a stem portion which is shaped to be received within a metacarpal bone cavity, and an articular head portion which has a generally ball-shaped articular surface to replace the proximal articular portion of a metacarpal bone,

a phalangeal element having a stem portion which is shaped to be received within a phalangeal bone cavity, and an articular head portion which has a generally socket-shaped articular surface and conforms to said ball-shaped surface and which is designed to replace a corresponding articular portion of a phalangeal bone; and

said conforming articulating surfaces of said metacarpal and phalangeal elements being substantially congruent, except for groove means located in one of said articular surfaces which extends generally across and to the edge of said congruent articular surface and is orientated transverse to the plane of flexion-extension motion of said MP joint, so that it permits synovial fluid access at said edge into and out of inner regions of contact between the conforming articulating surfaces of said metacarpal and phalangeal elements.

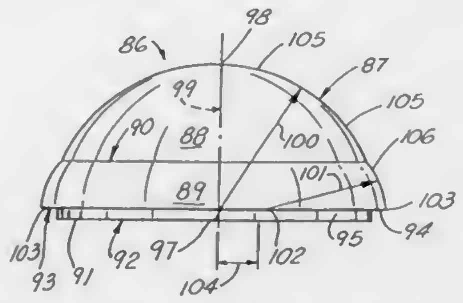
5,782,928
ACETABULAR CUP BODY PROSTHESIS

Michael D. Ries, Cooperstown, N.Y.; Brian Austin, Germantown, Tenn.; David L. Evans, Bartlett, Tenn.; Steve Miller, and Jeff Shea, both of Memphis, Tenn., assignors to Smith & Nephew, Inc., Memphis, Tenn.

Continuation-in-part of Ser. No. 563,219, Nov. 27, 1995, Pat. No. 5,676,704. This application Oct. 23, 1996, Ser. No. 735,516

Int. Cl.^{6} A61F *2/34*

U.S. Cl. 623—22 **22 Claims**



1. A method of surgically implanting a selected one of a plurality of acetabular cup prostheses available in a surgical inventory in a patient's pelvis, comprising the steps of:

a) reaming the patient's acetabulum with a reamer to form a cup-shaped surgically prepared cavity;

b) filling the cup-shaped cavity with the selected one of the plurality of cup-shaped prostheses that is selected from an available surgical inventory, each prosthesis having an annular peripheral buildup portion that forms an interference fit with the pelvis at the cup-shaped cavity;

c) selecting the prosthesis from the plurality of available prostheses by measuring the diameter of the cavity to determine cup prosthesis diameter when selecting the prosthesis; and

d) wherein in steps "b" and "c" the amount of peripheral buildup increases incrementally as cup diameter increases so that the ratio of the volume of the cup prosthesis and the volume of the cup-shaped cavity remain substantially the same for any one of the cup prosthesis selected.

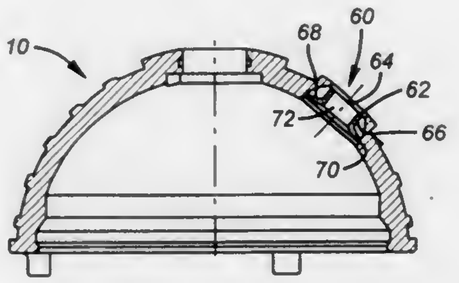
5,782,929
ACETABULAR SHELL HAVING SINTERED SCREW HOLE PLUGS

Gary W. Sederholm, Austin, Tex., assignor to Sulzer Orthopedics Inc., Austin, Tex.

Filed Dec. 31, 1996, Ser. No. 777,268

Int. Cl.^{6} A61F *2/32*

U.S. Cl. 623—22 **15 Claims**



1. An acetabular shell that can be used with or without bone screws, comprising:

a generally cup-shaped metal shell having an inner surface and an outer surface defining a shell wall therebetween, said shell wall having at least one hole wall defining a hole extending from said inner surface to said outer surface, said hole being occluded by a metal plug having a perimetrical edge, said perimetrical edge being in sintered connection with said screw hole wall.

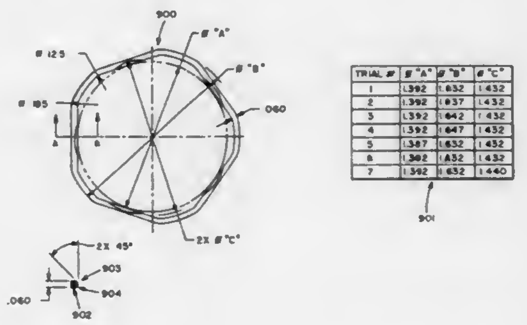
5,782,930
POLYETHERETHERKETONE (PEEK) RETAINING RING FOR AN ACETABULAR CUP ASSEMBLY

Ruey Y. Lin, New City, N.Y.; Ashok K. Chopra, Morris Plains, N.J.; Allen P. Levine, Brooklyn, N.Y., and Bernard Silverstein, North Bergen, N.J., assignors to Hommedica Inc., New York, N.Y.

Filed Feb. 13, 1996, Ser. No. 600,660

Int. Cl.^{6} A61F *2/34;2/32*

U.S. Cl. 623—23 **52 Claims**



1. An acetabular cup assembly for a femur ball, comprising:

(a) an insert bearing component for receiving the femur ball;

(b) an outer shell component, for attachment to an acetabulum to replace a natural hip socket, including a cavity for receiving said insert bearing component therein; and

(c) a locking mechanism for interlocking said insert into said outer shell said locking mechanism comprising a retaining ring that is fabricated at least in part using polyaryletherketone material.

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5,782,931

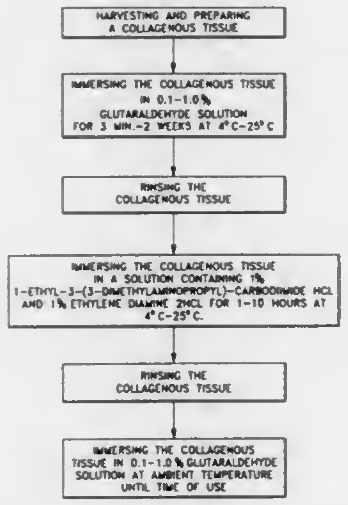
METHODS FOR MITIGATING CALCIFICATION AND IMPROVING DURABILITY IN GLUTARALDEHYDE-FIXED BIOPROSTHESES AND ARTICLES MANUFACTURED BY SUCH METHODS

Jun Yang, Dove Canyon, and Shih-Hwa Shen, Irvine, both of Calif., assignors to Baxter International Inc., Deerfield, Ill.

Filed Jul. 30, 1996, Ser. No. 688,352

Int. Cl.^{6} A61L *27/00*

U.S. Cl. 8—94.11 **33 Claims**


HARVESTING AND PREPARING A COLLAGENOUS TISSUE
IMMERSING THE COLLAGENOUS TISSUE IN 0.1–1.0% GLUTARALDEHYDE SOLUTION FOR 3 MIN.–2 WEEKS AT 4° C–25° C
RINSING THE COLLAGENOUS TISSUE
IMMERSING THE COLLAGENOUS TISSUE IN A SOLUTION CONTAINING 1% 1-ETHYL-3-(3-DIMETHYLAMINOPROPYL)-CARBODIIMIDE HCL AND 1% ETHYLENE DIAMINE 2HCL FOR 1–10 HOURS AT 4° C–25° C.
RINSING THE COLLAGENOUS TISSUE
IMMERSING THE COLLAGENOUS TISSUE IN 0.1–1.0% GLUTARALDEHYDE SOLUTION AT AMBIENT TEMPERATURE UNTIL TIME OF USE

1. A method for preparing a glutaraldehyde-fixed collagenous bioprosthesis haivng mitigated propensity for calcification, said method comprising the steps of:

a) providing a collagen-containing tissue;
b) contacting said tissue with glutaraldehyde to form a glutaraldehyde cross-linked tissue;
c) rinsing the tissue to remove residual glutaraldehyde such that the tissue is free of exogenous compounds which would deter the subsequent formation of activated carboxyl moieties on the tissue;
d) contacting the glutaraldehyde cross-linked tissue with a carboxyl activator compound capable of converting at least some of the carboxyl groups present on the collagen molecules of the tissue to activated carboxyl moieties capable of reacting with amino groups;
e) contacting the tissue from step d) with a compound that will react with the activated carboxyl moieties to form noncarboxyl side groups on the collagen molecules; and, thereafter;
f) again contacting said tissue with glutaraldehyde.

5,782,932

ENZYMATIC COMPOSITION

Willem Robert van Dijk, Oud Beyerland; Marja Ouwendijk, Hellevoetsluis, both of Netherlands, and Peter John Hall, Bromborough, Great Britain, assignors to Lever Brothers Company, Division of Conopco, Inc., New York, N.Y.

Filed Jun. 18, 1996, Ser. No. 665,748

Claims priority, application European Pat. Off., Jun. 22, 1995, 95304401

Int. Cl.^{6} C11D *3/386;3/37;3/36*

U.S. Cl. 8—137 **4 Claims**

1. A detergent composition comprising the following:

(A) 10% to 40% of a surfactant mixture comprising a linear alkyl benzene sulfonate and an ethoxylated alcohol;
(B) 0.005% to 0.100% of sodium lignosulphonate;
(C) 15% to 25% of an electrolyte material selected from the group consisting of phosphate, phosphonate, citrate, and borate;
(D) a protease enzyme in an amount which produces 0.1 to 50 GU/mg of proteolytic liter;
(E) about 1% of a deflocculating polymer;
(f) and the balance is water.

5,782,933

ASCORBIC AND ISOASCORBIC ACIDS TO REMOVE OR ADJUST OXIDATIVE COLOR IN HAIR

Gabriela Wis-Surel, Basingstoke, United Kingdom; Alice Mayer, Bethel, and Irina Tsivkin, Stamford, both of Conn., assignors to Bristol-Myers Squibb Company, New York, N.Y.

Filed Apr. 30, 1997, Ser. No. 846,611

Int. Cl.^{6} A61K *7/06*

U.S. Cl. 8—431 **6 Claims**

1. A one step method of reducing the color of dyed human hair which consists essentially of contacting the hair with an aqueous composition consisting essentially of from about 0.1 percent to about 10 percent by weight based on the total weight of the composition of ascorbic acid, isoascorbic acid or mixtures thereof and maintaining such contact for from about 5 to 30 minutes.

5,782,934

PROCESS OF DYEING WITH DESAZO DUES CONTAINING A FLUOROSULPHONYL GROUP AND USE THEREOF

Nigel Hall, Bury, and Mark Robert James, Rawtenstall, both of United Kingdom, assignors to Zeneca Limited, London, England

PCT No. PCT/GB95/00127, § 371 Date Aug. 8, 1996, § 102(e) Date Aug. 8, 1996, PCT Pub. No. WO95/22649, PCT Pub. Date Aug. 24, 1995

PCT Filed Jan. 24, 1995, Ser. No. 687,611

Claims priority, application United Kingdom, Feb. 18, 1994, 9403133

Int. Cl.^{6} D06P *3/26;3/54;3/72;* **C09B** *31/02*

U.S. Cl. 8—506 **7 Claims**

1. A process for coloring a synthetic textile material or fibre blend thereof which comprises applying to the synthetic textile material a disazo compound of Formula (1):

$$A—N{=}N—D—N{=}N—E \qquad (1)$$

wherein

A is phenyl or phenyl substituted by a group selected from NO_2, SO_2F,—C_{1-6}alkyl and C_{1-6}-alkoxy;
D is selected from 1,4-phenylene, 1,4-naphthylene, 4,4'-biphenylene and thien-2,5-ylene each of which is unsubstituted or substituted by a group selected from Cl, CN, C_{1-6}-alkyl, C_{1-6}-alkoxy and $COOC_{1-6}$-alkyl, and
E is phenyl or quinolinyl each of which is unsubstituted or substituted by a group selected from SO_2F, C_{1-6}-alkyl, $NHCOC_{1-6}$-alkyl and NR^1R^2 wherein R^1 and R^2 are each independently C_{1-10}-alkyl or C_{1-6}-alkyl substituted by a group selected from CN, $OCOC_{1-6}$-alkyl, $COOC_{1-6}$-alkenyl, phenyl and fluorosulphonylphenyl; provided that the disazo compound of Formula (1) contains at least one —SO_2F group.

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5,782,935

PROCESS FOR COLORING POLYTRIMETHYLENE TEREPHTHALATE FIBRES AND USE OF THE FIBRES COLORED BY THIS PROCESS

Peter Hirt, Schorndorf; Gilbert Kühl, Hanau, both of Germany; Hermann Piana, White Plains, N.Y.; Hansjörg Traub, Aalen, and Heinz Herlinger, Seckach, both of Germany, assignors to Degussa Aktiengesellschaft, Frankfurt, Germany

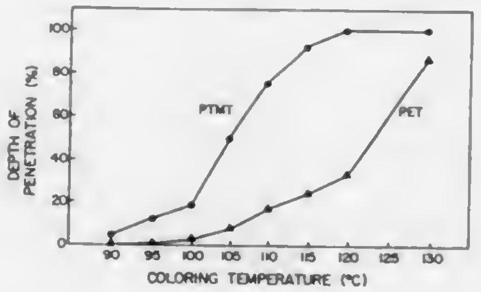
PCT No. PCT/EP95/00455, § 371 Date Dec. 12, 1996, § 102(e) Date Dec. 12, 1996, PCT Pub. No. WO95/22650, PCT Pub. Date Aug. 24, 1995

PCT Filed Feb. 9, 1995, Ser. No. 696,995

Claims priority, application Germany, Feb. 21, 1994, 44 05 407.6

Int. Cl.^{6} D06P *3/54*

U.S. Cl. 8—512 **19 Claims**



1. A process for colouring polytrimethylene terephthalate fibres, in which the fibres are treated in an aqueous liquor containing at least one disperse colorant, in the absence of a carrier and application of pressure,

wherein colouring begins when the liquor temperature is between 20° and 50° C.,

the temperature then being raised over a period of between 20 and 90 minutes, to a maximum temperature of between about 80° and 110° C., which temperature is maintained for at least 20 minutes,

the temperature then being lowered to 20° to 50° C., so that at least 95 wt. % of the colorant present in the liquor is absorbed by the fibres and the disperse colorant penetrates the fibres to a relative depth of at least 5% with respect to the diameter of the fibres being coloured.

5,782,936

ADDITIVE COMPOSITIONS FOR LPG FUEL

Richard A. Riley, Bridgeport, Ohio, assignor to Suburban Propane, L.P., Whippany, N.J.

Filed Apr. 23, 1997, Ser. No. 842,390

Int. Cl.^{6} C10L *3/12*

U.S. Cl. 44—300 **24 Claims**

1. An additive composition for LPG fuel comprising:

(A) about 97.3 to 99.4 volume percent of a petroleum hydrocarbon composition having an initial boiling point of at least about 170° C. and a final boiling point of not greater than about 300° C., said petroleum hydrocarbon composition comprising a mixture of middle petroleum distillates and petroleum naphtha at a volume ratio of 2:1 to 10:1;

(B) about 0.3 to 1.5 volume percent of methanol; and

(C) about 0.3 to 1.2 volume percent of an ethoxylated alkylphenol.

5,782,937

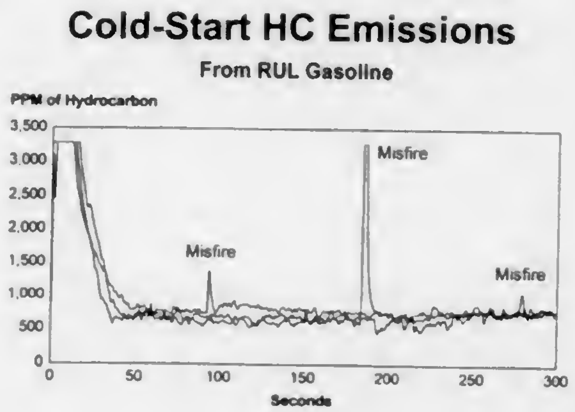
GASOLINE COMPOSITIONS CONTAINING IGNITION IMPROVERS

William J. Colucci; Isaac L. Smith, both of Glen Allen, and Allen A. Aradi, Richmond, all of Va., assignors to Ethyl Corporation, Richmond, Va.

Filed May 19, 1997, Ser. No. 858,316

Int. Cl.^{6} C10L *1/18;1/22*

U.S. Cl. 44—324 **11 Claims**


Cold-Start HC Emissions

From RUL Gasoline

1. A fuel composition containing a major amount of hydrocarbons in the gasoline boiling range with which has been blended from about 1 to about 1000 ppm of at least one organic nitrogen-containing compound selected from the group consisting of:

(a) organic nitrates, selected from the group consisting of alkyl, cycloalkyl and aryl nitrates having up to 10 carbon atoms and nitrate esters of alkoxy substituted aliphatic alcohols;

(b) organic nitro compounds, selected from the group consisting of nitrotoluenes and dinitrotoluenes; and

(c) mixtures thereof;

wherein the hydrocarbons in the gasoline boiling range is unleaded gasoline.

5,782,938

FUEL COMPOSITION

Wei-Yang Su, Austin, Tex., assignor to Huntsman Petrochemical Corporation, Austin, Tex.

Filed May 23, 1997, Ser. No. 862,588

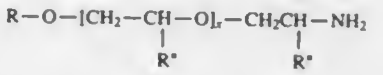
Int. Cl.^{6} C10L *1/22*

U.S. Cl. 44—399 **37 Claims**

1. An amidolalkanolaminoester composition obtained by reacting:

(1) a reaction product of dialkyl maleate and N-alkylalkanolamine; with

(2) a hydrocarbyl oxypolyoxyalkene amine represented by the formula



$$R-O-[CH_2-\underset{\displaystyle R^*}{\underset{|}{CH}}-O]_x-CH_2\underset{\displaystyle R^*}{\underset{|}{CH}}-NH_2$$

in which R represents an alkyl, an alicyclic, an alkylalicyclic radical having from 12 to 30 carbon atoms, or R'—Ar—;

wherein R' represents a hydrocarbyl radical having from 4 to 12 carbon atoms;

wherein x has a value of from about 10 to 16;

wherein each alkyl of the dialkyl maleate has 1 to 2 carbon atoms;

wherein Ar is a divalent aromatic moiety; and

wherein R* is an ethyl or methyl radical or a mixture of methyl and ethyl radicals.

5,782,939

LOW COST COATED ABRASIVES

Burton Farbstein, Mechanicville; Bernard Loughlin, Averill Park, both of N.Y., and Christopher Gruel, Peoria, Ill., assignors to Norton Company, Worcester, Mass.

Filed Aug. 8, 1997, Ser. No. 908,567

Int. Cl.^{6} B24D *11/00*

U.S. Cl. 51—295 **8 Claims**

1. A coated abrasive comprising a backing material and an abrasive layer comprising abrasive grits and a maker coat, in which a under-layer of ground glass is interposed between the abrasive layer and the backing.

5,782,940

PROCESS FOR THE PREPARATION OF ALUMINA ABRASIVES

Ponnarassery Sukumaran Jayan, Cochin; Narayanan Ananthaseshan, Ernakulam; Balachandran Subramaniam, Kochi, and Murugappan Vellayan Murugappan, Chennai, all of India, assignors to Carborundum Universal Limited, Madras, India

Filed Feb. 25, 1997, Ser. No. 805,984

Claims priority, application India, Mar. 15, 1996, 409/MAS/96

Int. Cl.^{6} C09C *1/68*

U.S. Cl. 51—309 **12 Claims**

1. An improved process for the preparation of alumina abrasive grains which comprises the steps of:

(a) dispersing aluminum oxide in water at a temperature in the range of 40° to 80° C.;

(b) adjusting the pH of the dispersed solution to an acidic range of about 4 or less;

(c) seeding the solution by adding submicronized alpha-alumina particles to assist in precipitation;

(d) crushing the recovered precipitate;

(e) calcining the crushed precipitate at a temperature in the range of about 300° to 900° C. for a period in the range of about 30 to 120 minutes; and

(f) sintering the calcined precipitate by microwave at a temperature between about 1200° and 1500° C. for a period of about 5 to 60 minutes.

5,782,941

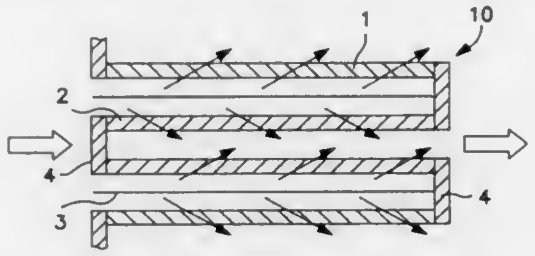
PARTICULATE TRAP FOR DIESEL ENGINE

Kenji Matsunuma; Shiro Nakajima, and Naruhito Nakajima, all of Itami, Japan, assignors to Sumitomo Electric Industries, Ltd., Osaka, Japan

Filed Sep. 23, 1996, Ser. No. 717,895

Int. Cl.^{6} B01D *29/62*

U.S. Cl. 55—282 **5 Claims**



1. A particulate trap for use with a diesel engine, said particulate trap comprising:

a filter made of a heat-resistant material having a thickness of at least 4 mm and a length of no more than 220 mm, said filter having an exhaust incoming surface; and

a regenerating heater spaced a predetermined distance from said exhaust incoming surface of said filter, said regenerating heater having an output of no more than 400 watts and a length of no more than 220 mm such that said regenerating heater can provide said filter with an amount of heat that is at least 0.60 watts per square centimeter;

wherein said filter comprises one selected from the group consisting of a three-dimensionally reticulated metallic porous member, a metallic unwoven fabric, and a combination of a three-dimensionally reticulated metallic porous member and a metallic unwoven fabric; and

wherein said filter comprises a plurality of cylinders having different diameters from one another and arranged concentrically with one another with spaces between adjacent ones of said plurality of cylinders being alternately closed at one and the other ends thereof.

5,782,942

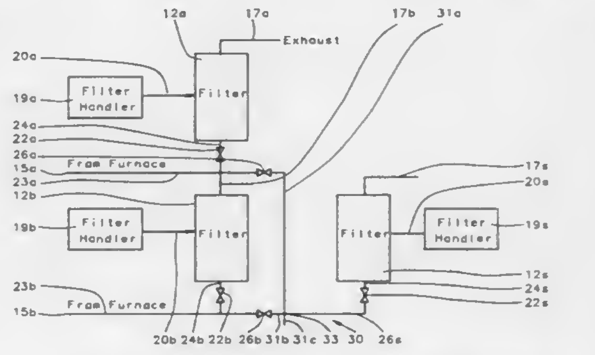
FILTER SYSTEM FOR SEMICONDUCTOR FURNACE

Wen-Kai Wu, Kao-Hsiung, Taiwan, assignor to Vanguard International Semiconductor Corporation, Hsin-Chu, Taiwan

Filed Jan. 11, 1996, Ser. No. 585,065

Int. Cl.^{6} B01D *46/00*

U.S. Cl. 55—312 **5 Claims**



1. In a system having a plurality of semiconductor manufacturing furnaces producing a gas to be filtered, a normal filter (**12***a*, **12***b*) for each furnace and a piping means (**15***a*, **15***b*) connecting the inlet (**22***a*, **22***b*) of each normal filter to the associated furnace, an improvement for simplifying the operation of changing a filter, comprising

a standby filter (**12***s*),

a piping system (**30**) connecting the inlet (**24***s*) of the standby filter to the piping means (**15***a*, **15***b*) of a selected furnace for handling the exhaust of the selected furnace in parallel with the normal filter of the selected furnace,

the piping system connecting the standby filter including a valve (**26***a*, **26***b*) for isolating each furnace from the piping system and the standby filter, and

a valve (**22***a*, **22***b*) for each normal filter located to isolate the filter inlet from the associated pipe to the exhaust producing furnace for isolating the normal filter from the associated furnace to permit replacing the isolated normal filter.

5,782,943

INTEGRATED POWDER COLLECTION SYSTEM FOR PAINT SPRAY BOOTHS

David E. O'Ryan, Clarkston, Mich., and Richard D. Burke, Amherst, Ohio, assignors to ABB Flexible Automation Inc., New Berlin, Wis.

Filed Aug. 9, 1996, Ser. No. 695,861

Int. Cl.^{6} B01D *50/00*

U.S. Cl. 55—332 **11 Claims**

1. A powder collection system for a paint spray booth having a floor through which overspray and air are exhausted, comprising:

a pair of integrated powder collection modules disposed side-by-side beneath the floor generally on opposite sides of a longi-

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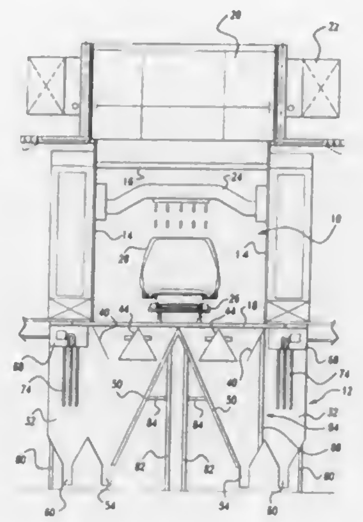


tudinal centerline of an area in which an article is painted within the spray booth, each of said integrated powder collection modules including:

at least two sloped surfaces extending generally from said floor for defining at least one longitudinal slot opening into a chamber;

at least longitudinal air slide disposed in a bottom portion of said chamber;

a filter cartridge disposed in said chamber, said filter cartridge being located laterally to one side of a space defined vertically below said at least one longitudinal slot; and

a vacuum source connected to said filter cartridge.

5,782,944

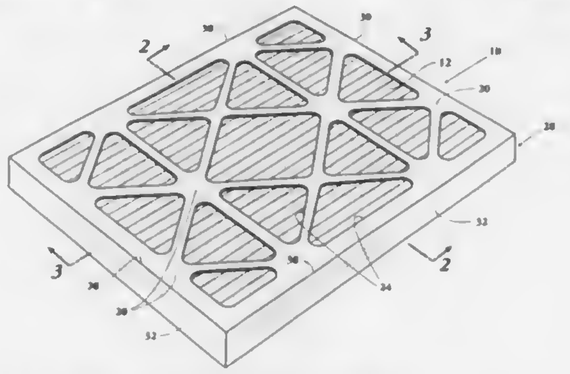
MOISTURE RESISTANT AIR FILTER

Thomas A. Justice, Henderson, N.C., assignor to Purolator Products Air Filtration Company, Henderson, N.C.

Filed Mar. 18, 1997, Ser. No. 819,930

Int. Cl.^{6} B01D *46/00*

U.S. Cl. 55—495 **11 Claims**



1. A moisture resistant air filter comprising:

a generally planer air permeable filter media having a peripheral edge, an upstream surface and a downstream surface;

a frame surrounding said filter media peripheral edge, the frame having a border defining portion to which said filter media peripheral edge is attached;

an upstream panel having edges secured to said frame and contiguous to said filter media upstream surface; and

a downstream panel having edges secured to said frame and contiguous to said filter media downstream surface, said upstream and downstream panels each having large area openings therethrough, said frame being integrally formed of peripheral portions of said upstream and downstream panels, said upstream and downstream panels including the integral portions forming said frame being formed of solid bleached milk carton stock paper board of about 0.016 to 0.060 caliper and coated on both opposite sides thereof with polyethylene or polypropylene.

5,782,945

METHOD FOR FORMING SILVER TRACKS ON GLASS

David L. Gavin, Caversham; Patricia M. Harris, Shinfield, and Detlef Rehorek, Gerendalsweg, all of United Kingdom, assignors to Cookson Matthey Ceramics PLC, London, United Kingdom

Filed Aug. 21, 1996, Ser. No. 701,216

Claims priority, application United Kingdom, Sep. 5, 1995, 9518033

Int. Cl.^{6} C03C *17/00;25/02*

U.S. Cl. 65—60.1 **14 Claims**

1. A method of forming electrically conducting silver tracks on glass, by applying a silver composition comprising solids portion in a carrier medium to the glass and then firing the composition to form the tracks, wherein the silver composition is applied onto an enamel composition on the glass, and before or after application of the silver composition, the enamel composition is fired, whereby after firing the enamel composition and the silver composition, the enamel composition obscures the silver tracks underneath from viewing through the glass; said solids portion comprising 0.01–15 wt % elemental boron, 0–85 wt % glass frit, and the balance comprising elemental silver and/or precursors thereof.

5,782,946

METHOD FOR MANUFACTURING PRESS-MOLDED GLASS OBJECT

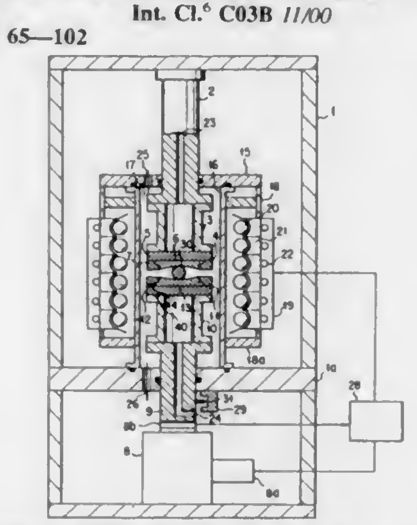
Yoshizo Komiyama, Susono; Tetsuya Tanioka; Toshihisa Kamano, both of Mishima; Isao Matsuzuki, Numazu; Hirotaka Masaki, Mishima, and Kazunori Urushibata, Shizuoka-ken, all of Japan, assignors to Toshiba Machine Co., Ltd., Tokyo, Japan

Filed Jan. 30, 1996, Ser. No. 593,920

Claims priority, application Japan, Jan. 30, 1995, 7-012926; Mar. 9, 1995, 7-049713; Mar. 16, 1995, 7-057071

Int. Cl.^{6} C03B *11/00*

U.S. Cl. 65—102 **2 Claims**



2. A method for manufacturing a molded glass object such that a glass material arranged between a fixed mold and a movable mold is press-molded at a predetermined molding temperature under predetermined molding conditions, comprising the steps of:

heating both said molds and the material to a predetermined heating temperature between a glass softening point and a glass transition point;

moving said movable mold and press-molding the material by a predetermined pressing force which can move said movable mold to a predetermined set position where both said molds are in contact with the material without being in contact with each other, the material being held at a temperature between a glass transition point and glass softening point;

applying a predetermined pressing force which does not deform the material, to the movable mold at the set position, thereby holding the material between both said molds;

cooling both said molds and the material until the temperature thereof is close to the glass transition point; and

final press-molding the material between both said molds by a pressing force which can deform the material at a temperature close to the glass transition point.

5,782,947

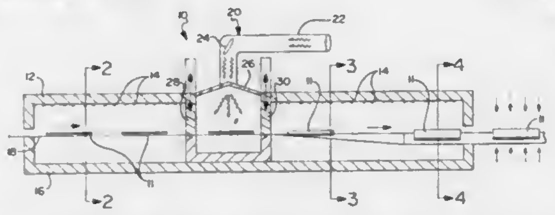
METHOD FOR HEATING A GLASS SHEET

Premakaran Tucker Boaz, Livonia, Mich., assignor to Ford Global Technologies, Inc., Dearborn, Mich.

Continuation of Ser. No. 524,500, Sep. 7, 1995, abandoned. This application Nov. 12, 1997, Ser. No. 969,091

Int. Cl.^{6} C03B *29/00*

U.S. Cl. 65—111 **19 Claims**



1. A method for heating a glass sheet comprising the steps of:

heating a glass sheet to at least a first predetermined temperature;

columnating microwave energy; and

applying a curtain of the columnated microwave energy having a frequency of two to forty gigahertz to the glass sheet to heat the glass sheet to at least a second predetermined temperature greater than said first predetermined temperature to allow the glass sheet to be subsequently formed to a predetermined configuration.

5,782,948

Patent Not Issued For This Number

5,782,949

DEVICE FOR THE MANUFACTURE OF A FLAT GLASS SHEET WITH IMPROVED CHARACTERISTICS

Jean Claude Marique, Sambreville, Belgium, and Pier Paolo Boattini, Vasto, Italy, assignors to Societa Italiana Vetro - SIV - S.p.A., San Salvi CH, Italy

Division of Ser. No. 348,976, Nov. 28, 1994, Pat. No. 5,597,394. This application Sep. 6, 1996, Ser. No. 708,960

Claims priority, application Italy, Nov. 30, 1993, RM93A0797

Int. Cl.^{6} C03B *35/00*

U.S. Cl. 65—182.2 **14 Claims**

1. A device for the manufacture of a flat glass sheet, said device including a molten tin bath stage for forming a glass sheet strip, an annealing lehr having rollers for conveying the glass sheet strip from said molten tin bath stage in a direction of travel, and a fluid bed between said molten tin bath stage and said annealing lehr for pre-cooling the glass sheet strip while supporting the glass sheet strip, said fluid bed comprising:

a first, upstream fluid bed section and a second, downstream fluid bed section, relative to said direction of travel; and

means for supplying a first gas stream mixture to said first section and a second gas stream mixture to said second section from respective first and second supplies that are separate and not in direct fluid communication.

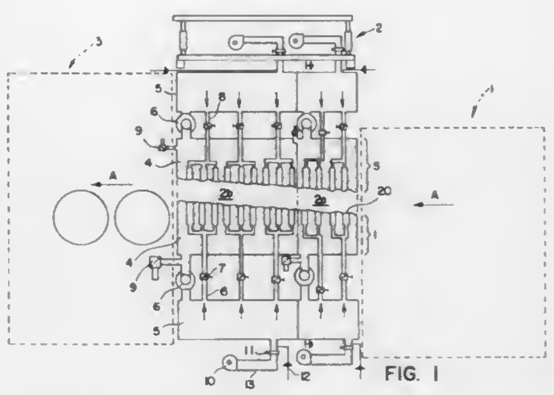


FIG. 1

5,782,950

DEVICE AND PROCESS FOR COMPOSTING AND WET FERMENTATION OF BIOLOGICAL WASTE

Jürgen Kanitz, Bochum, Germany, and Bruno Kesselring, Zizers, Switzerland, assignors to Beg Bioenergie GmbH, Essen, Germany

PCT No. PCT/DE94/00440, § 371 Date Nov. 29, 1995, § 102(e) Date Nov. 29, 1995, PCT Pub. No. WO94/24071, PCT Pub. Date Oct. 27, 1994

PCT Filed Apr. 19, 1994, Ser. No. 545,654

Claims priority, application Switzerland, Apr. 22, 1993, 1267/93; Aug. 6, 1993, 2360/93; Germany, Mar. 19, 1994, 44 09 539.2

Int. Cl.^{6} C05F *11/08*

U.S. Cl. 71—10 **31 Claims**

1. In a device for the production of biogas and compost through wet fermentation and composting of bio-residuals with a first reactor for solid materials built as a worm-press solid-liquid separator, which has a liquid outlet and a subsequently arranged anaerobic reactor for fermentation with biogas extraction and a composting installation, the improvement wherein the reactor for solid materials has an inclined worm press arranged at an angle, that above and parallel to this worm press a table or table plates are arranged and the reactor for solid materials has a valve for the removal of sediment.

5,782,951

PARTICULATE UREA WITH FINELY DIVIDED INORGANIC MATERIAL INCORPORATED FOR HARDNESS NONFRIABILITY AND ANTI-CAKING

Peter B. Aylen, Kamloops, and James C. Blyth, Cochrane, both of Canada, assignors to Western Industrial Clay Products, Inc., Kamloops, Canada

Filed Feb. 20, 1997, Ser. No. 803,501

Int. Cl.^{6} C05C *9/00*

U.S. Cl. 71—28 **22 Claims**

1. A particulate urea having improved hardness, non-friable and anti-caking properties, said urea being transformed into particulate form from an admixture of a molten urea melt or a urea synthesis liquor and a finely divided inorganic material distributed therein, said inorganic material comprising one or more members selected from the group consisting of calcium oxide, calcium hydroxide, cement and fly ash.

7. A particulate urea having improved hardness, non-friable, and anti-caking properties, said urea being transformed into particulate form from an admixture of urea, a finely divided inorganic material, said inorganic material comprising one or more members selected from the group consisting of calcium oxide, calcium hydroxide, cement and fly ash, and finely divided mineral filler,

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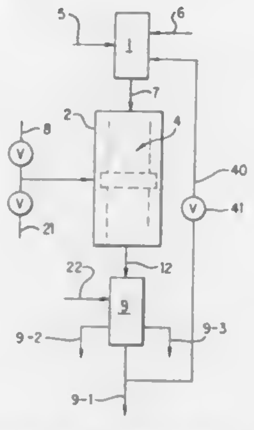
with said mineral filler comprising one or more members selected from the group consisting of diatomaceous earth, sodium bentonite, calcium bentonite, kaolin, zeolite, and ball clay.

21. A particulate urea having improved hardness, non-friable and anti-caking properties, said urea being transformed into particulate form from an admixture of urea and a finely divided cement distributed therein.

5,782,952
METHOD FOR PRODUCTION OF MAGNESIUM

Alexander F. Diaz, Cambridge; Jack B. Howard, Winchester; Anthony J. Modestino, Hanson, and William A. Peters, Lexington, all of Mass., assignors to Massachusetts Institute of Technology, Cambridge, Mass.

Filed Aug. 30, 1996, Ser. No. 706,076
Int. Cl.^{6} C22B *26/22*
U.S. Cl. 75—10.19 **22 Claims**

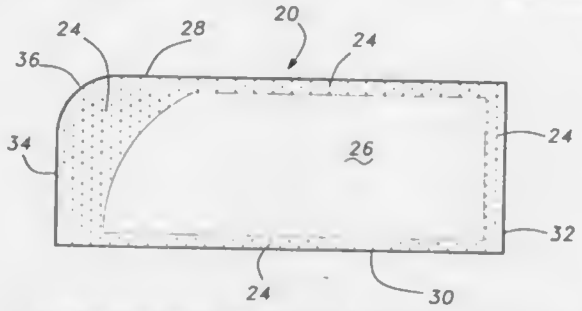


1. A continuous process for the production of elemental magnesium from feed materials comprising magnesium oxide and a light hydrocarbon gas, the process comprising: continuously feeding a feed stream comprising the magnesium oxide and the light hydrocarbon gas directly into a high temperature reaction zone, reacting the magnesium oxide and gas at a temperature of about 1400° C. or greater in the reaction zone to provide a continuous product stream comprising reaction products including elemental magnesium, continuously quenching the product stream, and separating the elemental magnesium from other reaction products.

5,782,953
SURFACE HARDENED POWDERED METAL STAINLESS STEEL PARTS

Suresh Shah, Sherwood, Ark., assignor to Capstan Inland, Hazen, Ark.

Filed Jan. 23, 1997, Ser. No. 789,318
Int. Cl.^{6} C22C *33/02;* **B22F** *3/12*
U.S. Cl. 75—246 **16 Claims**



1. A surface hardened, sintered powder metal part comprising:

a body formed into a shape of a part using metal powder, said body being sintered and surface hardened;

said body further comprising an outer surface layer and an inner core;

said inner core having a relatively soft, substantially ferritic or austenitic microstructure; and

said outer surface layer having a substantially hardened microstructure.

5,782,954
IRON-BASED METALLURGICAL COMPOSITIONS CONTAINING FLOW AGENTS AND METHODS FOR USING SAME

Sydney Luk, Lafayette Hill, Pa., assignor to Hoeganaes Corporation, Riverton, N.J.

Filed Jun. 7, 1995, Ser. No. 482,012
Int. Cl.^{6} B22F *3/12*
U.S. Cl. 75—252 **53 Claims**

1. An improved metallurgical powder composition comprising:

(a) at least about 85 percent by weight of an iron-based metal powder; and

(b) from about 0.005 to about 2 percent by weight of particulate silicon oxide having an average particle size below about 40 nanometers.

5,782,955
LOW OXYGEN-CONTENT METALLURGICAL SILICON AND FERROSILICON

Maurice Sales, Annecy, and Thomas Margaria, Passy, both of France, assignors to Pechiney Electrometallurgie, Courbevoie, France

Filed Jan. 11, 1996, Ser. No. 584,430
Claims priority, application France, Jan. 9, 1995, 95 00330
Int. Cl.^{6} C22C *29/18*
U.S. Cl. 75—255 **10 Claims**

1. Metallurgical silicon or ferrosilicon in the form of granules having an average size of less than 10 mm, with a total oxygen content of less than 0.05% by weight, said total oxygen content including about 0.01% by weight derived from oxygen present in a surface layer of said granules, and less than about 0.04% by weight oxygen present in an inner mass of said granules.

5,782,956
CASTING FLUX

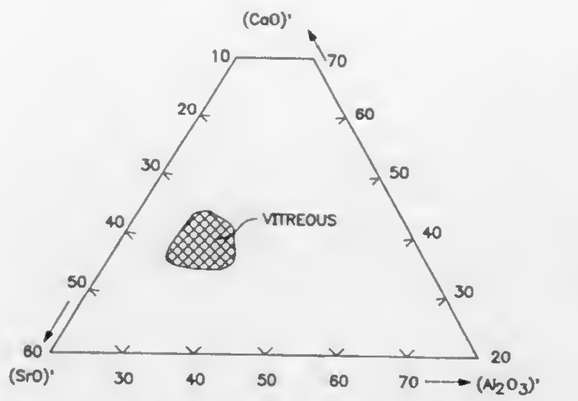
Dieter Janke, Erkrath, and Peter Hammerschmid, Dusseldorf, both of Germany, assignors to Max Planck Institut fur Eisenforschung GmbH, Dusseldorf, and Stollberg GmbH, Oberhausen, both of Germany

PCT No. PCT/EP92/00272, § 371 Date Nov. 18, 1994, § 102(e) Date Nov. 18, 1994, PCT Pub. No. WO92/13661, PCT Pub. Date Aug. 20, 1992

PCT Filed Feb. 7, 1992, Ser. No. 952,757
Claims priority, application Germany, Feb. 8, 1991, 41 03 798.7; WIPO, Feb. 7, 1992, PCT/EP92/00272
Int. Cl.^{6} C22B *9/10*
U.S. Cl. 75—305 **6 Claims**

1. A casting flux contains CaO, Al_2O_3 and SrO suitable for use with steels or alloys based on iron, nickel, or cobalt, consisting essentially of, in % by weight,

20 to 40% CaO,
15 to 30% SrO,
0 to 6% MgO,
0 to 8% MgF_2,
0 to 8% CaF_2,
0 to 8% NaF,
0 to 6% LiF,
balance Al_2O_3,

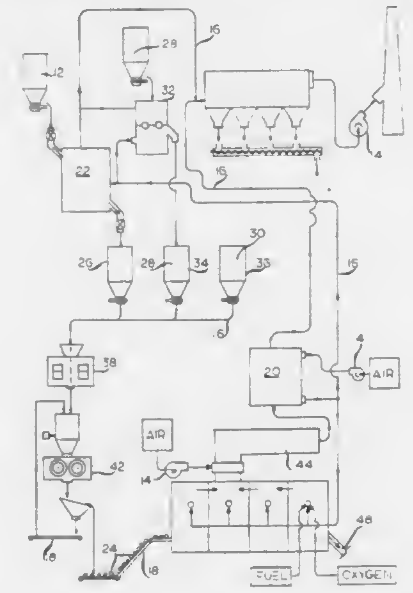


said flux having no more than 15% by weight of an oxygen-yielding compound selected from the group consisting of SiO_2, FeO, Fe_2O_3, MnO, K_2O, Na_2O, P_2O_5, Cr_2O_3, B_2O_3 and combinations thereof.

5,782,957
PROCESS FOR TREATING IRON BEARING MATERIAL

Franklin G. Rinker, Perrysburg, and Deane A. Horne, Toledo, both of Ohio, assignors to Maumee Research & Engineering, Inc., Northwood, Ohio

Continuation-in-part of Ser. No. 519,844, Aug. 25, 1995, Pat. No. 5,601,631. This application Nov. 6, 1996, Ser. No. 746,203
Int. Cl.^{6} C21B *13/00;13/14*
U.S. Cl. 75—436 **26 Claims**



1. A process for treating iron-bearing material selected from the group consisting of virgin iron oxide concentrates and natural iron ore fines containing iron oxide and mixtures thereof to reduce the iron oxide to elemental iron, the process comprising the steps of:

a) providing iron-bearing material and carbonaceous material containing less than about 8 wt % moisture;

b) combining the iron-bearing material with the carbonaceous material to form a dry mixture, wherein the amount of carbonaceous material added exceeds the stoichiometric amount required to reduce the iron oxide to elemental iron;

c) agglomerating the dry mixture to bond the dry mixture and form green compacts;

d) loading the green compacts into a heated furnace;

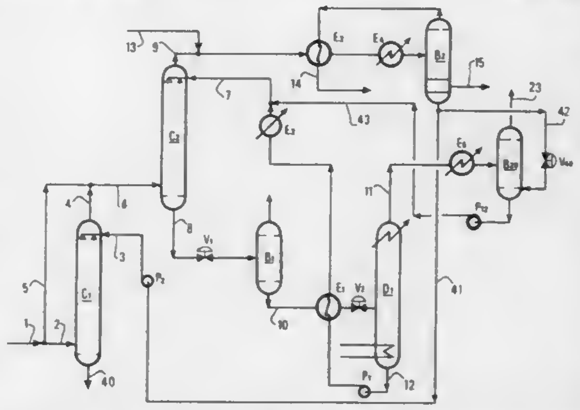
e) heating the green compacts for about 5–25 minutes at a temperature of between about 2100°–2500° F. to reduce the iron oxide containing compacts to compacts containing elemental iron and an excess amount of carbonaceous material wherein the excess amount of carbonaceous material counteracts re-oxidation of the elemental iron; and

f) discharging the reduced iron-bearing compacts from the furnace.

5,782,958
PROCESS FOR THE DEHYDRATION, DEACIDIFICATION AND STRIPPING OF A NATURAL GAS, UTILIZING A MIXTURE OF SOLVENTS

Alexandre Rojey; Etienne Lebas, both of Malmaison; Joseph Larue, Chabourcy, and Ari Minkkinen, Saint Nom La Breteche, all of France, assignors to Institut Francais du Petrole, France

Filed Dec. 30, 1996, Ser. No. 777,442
Claims priority, application France, Dec. 28, 1995, 95 15626
Int. Cl.^{6} B01D *3/26*
U.S. Cl. 95—192 **19 Claims**



1. A process for dehydration and/or deacidification and/or stripping of a gas that is characterized in that:

(a) at least one fraction of the gas is brought into contact with an aqueous phase that contains methanol, with the gas thus being charged with methanol at the output of stage (a);

(b) the gas exiting stage (a) is brought into contact with a mixture of solvents that comprises methanol, water, and a higher boiling solvent than methanol, with the gas exiting stage (b) thus being at least partially free of the acid gases that it initially contained in the process;

(c) at least a portion of the mixture of solvents that is obtained from stage (b) that is charged with acid gases is regenerated by pressure reduction and/or heating by releasing at least a portion of the acid gases, with the mixture of solvents that is at least partially regenerated being, at the end of stage (c), recycled to stage (b); and

(d) the gas that is obtained from stage (b) is cooled sufficiently to produce at least one aqueous phase that contains methanol which is recycled at least in part to stage (a).

5,782,959
PROCESS FOR PREPARING A COMPOSITE INORGANIC MEMBRANE FOR HYDROGEN SEPARATION

Seung-Man Yang; Seung-Bin Park, both of Taejon; Seung-Jin Lee, and Sang-Yon Lee, both of Seoul, all of Rep. of Korea, assignors to Korea Advanced Institute of Science and Technology, Taejon, Rep. of Korea

Filed Jun. 21, 1996, Ser. No. 669,005
Claims priority, application Rep. of Korea, Jun. 23, 1995, 1995-17060
Int. Cl.^{6} B01D *53/22;71/02*
U.S. Cl. 96—11 **8 Claims**

1. A process for preparing an inorganic membrane for hydrogen separation which comprises the steps of:

(i) dip-coating an alumina sol on an alumina support, said alumina sol having a palladium precursor which is uniformly

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dispersed therein, an inside of said alumina support being vacuumized, said alumina sol thereby forming an intermediate layer of thin palladium impregnated alumina membrane having pores;

(ii) immersing the membrane obtained in step (i) in a soaking solution of palladium precursor, drying the palladium precursor soaked membrane under vacuum for 2 to 4 hours, and subjecting the soaked materials to a gradual increase of temperature up to 170° to 190° C. thereby vaporizing said palladium precursor solution and causing said palladium precursor to be deposited onto the pores of the alumina membrane; and,

(iii) heating the alumina membrane whose pores are deposited with palladium at 290° to 210° C. while vacuumizing the inside of the support.

8. An inorganic membrane for hydrogen separation produced by claim 1, which has a separatory layer comprising the intermediate layer between an inner dense layer and an outer coarse layer of the support.

5,782,960

HYDROGEN SEPARATION MEMBER

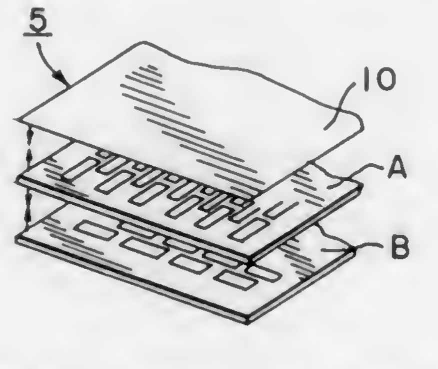
Makoto Ogawa; Toshiro Kobayashi; Minoru Sueda; Takahiro Matsumoto; Tetsuya Imai; Shigenori Shirogane; Hiroshi Shiota; Toshiuki Uchida, and Shinsuke Ota, all of Hiroshima-ken, Japan, assignors to Mitsubishi Jukogyo Kabushiki Kaisha, Japan

Filed Mar. 17, 1997, Ser. No. 819,411

Claims priority, application Japan, Mar. 18, 1996, 8-060883

Int. Cl.^{6} B01D *53/22*

U.S. Cl. 96—11 **17 Claims**



1. A membrane for separating purified hydrogen from a hydrogen-containing gas, comprising:

a hydrogen-permeable member adapted to have said hydrogen-containing gas applied to an input side thereof to produce substantially pure hydrogen at an output side; and

a plurality of reinforcing members mounted adjacent said output side of said hydrogen-permeable member so that substantially all of said hydrogen gas passing through said output side also passes through said reinforcing members, each of said reinforcing members having a plurality of holes therein, each of said holes having a longitudinal and a lateral axis, said longitudinal axis being substantially longer than said lateral axis and said reinforcing members being mounted such that the longitudinal axes of the holes of adjacent reinforcing members intersect.

5,782,961

METHOD FOR THE PROTECTIVE TREATMENT OF MINERAL MATERIAL STRUCTURES, TREATMENT COMPOSITION INTENDED FOR PERFORMING OF THE METHOD AND USE THEREOF

Ernst Folke Jean Karlsson, Vintervägen 21, 4 tr, S-171 34 Solna, Sweden

PCT No. PCT/SE95/00287, § 371 Date Sep. 20, 1996, § 102(e) Date Sep. 20, 1996, PCT Pub. No. WO95/25706, PCT Pub. Date Sep. 28, 1995

PCT Filed Mar. 21, 1995, Ser. No. 716,435

Claims priority, application Sweden, Mar. 22, 1994, 9400952; Nov. 22, 1994, 9404037

Int. Cl.^{6} C04B *41/64*

U.S. Cl. 106—2 **23 Claims**

1. A method for treating structures built from mineral materials which comprises applying to the surfaces of a structure a gel-like composition which comprises essentially solvent-free hydrophobizing substances consisting essentially of 75 to 100% silane and 0 to 25% siloxane together with a vehicle medium which includes an organophil layer-lattice mineral with water swelling properties and removing residues of said medium after the hydrophobizing compound has been drawn into the structure by capillarity.

5,782,962

CLEANING AND POLISHING COMPOSITION

Peter A. Burke, Downingtown, Pa.; Kenneth J. Flanagan, Lakeland, Tenn., and Abul Mansur, Douglassville, Pa., assignors to Sara Lee Corporation, Douglassville, Pa.

Filed Oct. 16, 1996, Ser. No. 730,947

Int. Cl.^{6} C09G *3/18;1/02;1/06;1/12*

U.S. Cl. 106—2 **8 Claims**

1. A surface protective composition comprising in admixture by weight:

a) from about 10 to about 170 percent of a hydrocarbon solvent selected from the group consisting of isoparaffinic, mineral spirits, hexane, heptane and naphtha;

b) from 0 to about 10 percent of a micronized wax;

c) from about 1 to about 10 percent of a crosslinkable silicone compound;

d) from about 1 to about 20 percent of an organopolysiloxane compound;

e) from about 0.1 to about 5 percent of a film forming fluorine containing polymer selected from the group consisting of fluoroacrylic polymers, fluoroalkyl polymers, fluoroamide polymers, fluorosilicone polymers, tetrafluoroethylene and mixtures thereof;

f) from about 0.1 to about 1 percent of a nonionic surfactant or a mixture of nonionic surfactants and anionic surfactants; and

g) water.

5,782,963

COLORANT STABILIZERS

Ronald Sinclair Nohr, Alpharetta, and John Gavin MacDonald, Decatur, both of Ga., assignors to Kimberly-Clark Worldwide, Inc., Neenah, Wis.

Continuation-in-part of Ser. No. 627,693, Mar. 29, 1996, abandoned. This application Nov. 27, 1996, Ser. No. 757,222

Int. Cl.^{6} C09D *11/02*

U.S. Cl. 106—31.27 **36 Claims**

1. A composition comprising a colorant and a stabilizing agent, wherein the stabilizing agent is a porphine.

5,782,964

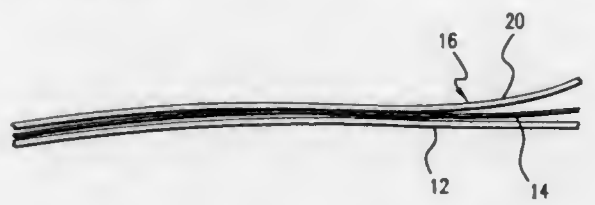
GAS CHROMATOGRAPHY COLUMN ASSEMBLY TEMPERATURE CONTROL SYSTEM

Robert V. Mustacich, Santa Barbara, Calif., assignor to RVM Scientific, Inc., Santa Barbara, Calif.

Filed Jan. 27, 1997, Ser. No. 790,739

Int. Cl.^{6} B01D *15/08*

U.S. Cl. 96—102 **12 Claims**



1. A temperature control system for controlling temperature parameters in a gas chromatography column assembly comprising:

(a) an extended length capillary gas chromatography column member containing a chemical sample to be analyzed;

(b) heating means for heating said capillary gas chromatography column member to a predetermined temperature, said heating means extending substantially throughout said extended length of said capillary gas chromatography column member and located adjacent thereto; and,

(c) temperature sensing means for measuring the temperature of said capillary gas chromatography column member, said temperature sensing means extending throughout at least a portion of said extended length of said capillary gas chromatography column member and mounted adjacent thereto, said temperature sensing means being formed of a substantially dielectric material composition.

5,782,965

INK FOR INK-JET DYEING AND METHOD OF FORMING MIXING COLOR

Ikue Ishida; Genichi Shirasaki; Makoto Iwamura, and Yoshihiro Kanaya, all of Fukui-ken, Japan, assignors to Seiren Co., Ltd., Japan

Continuation of Ser. No. 348,832, Nov. 29, 1994, abandoned. This application Sep. 12, 1996, Ser. No. 710,156

Claims priority, application Japan, Nov. 30, 1993, 5-329915

Int. Cl.^{6} C09D *11/02*

U.S. Cl. 106—31.33 **13 Claims**

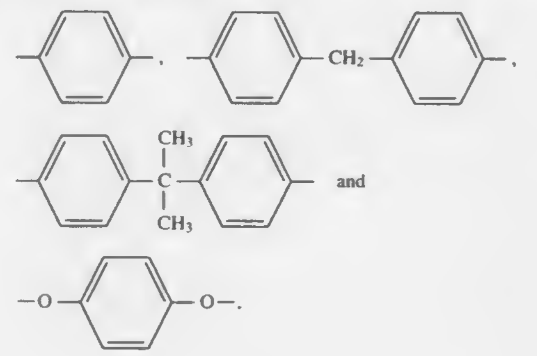
1. An ink for ink-jet dyeing purposes comprising

a) a disperse dye which is insoluble, or slightly soluble, in water; and

b) a dispersing agent of the formula (I)

$$M\text{—}(\text{—}OCH_2CH_2\text{—})_n\text{—}X\text{—}(\text{—}CH_2CH_2O\text{—})_n\text{—}M \qquad (I)$$

wherein M is a hydrogen atom, $—SO_3H$, $—SO_3NH_4$, or $—SO_3Na$ radical, n is an integer ranging from 5–20, and X is a radical selected from the group consisting of



5,782,966

ISOCYANATE-DERIVED MATERIALS FOR USE IN PHASE CHANGE INK JET INKS

Loc V. Bui, Valencia, Calif.; Clifford R. King, Salem; Jeffery H. Banning, Hillsboro, both of Oreg., and Donald R. Titterington, Tualatin, Oreg., assignors to Tektronix, Inc., Wilsonville, Oreg.

Filed Jun. 28, 1996, Ser. No. 672,816

Int. Cl.^{6} C09D *11/02;11/08;11/10;* **B41J** *2/01*

U.S. Cl. 106—31.43 **17 Claims**

1. A phase change ink carrier composition comprising in combination;

(a) a urethane/urea isocyanate-derived material;

(b) a tackifier, and

(c) a mono-amide.

5,782,967

INK-JET INK CONTAINING PHYTIC ACID, AND INK JET RECORDING METHOD AND INK-JET INSTRUMENT USING THE SAME

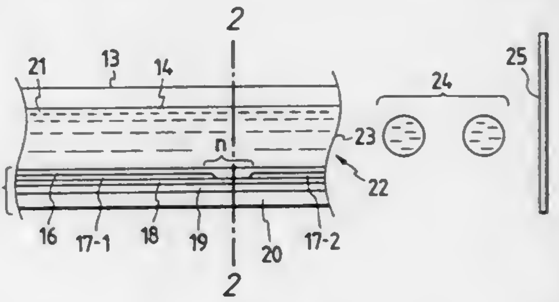
Koromo Shirota, Kawasaki; Masahiro Haruta, Tokyo; Shoji Koike, Yokohama; Tomoya Yamamoto, Kawasaki; Mariko Suzuki, Yokohama, and Shinichi Hakamada, Kawasaki, all of Japan, assignors to Canon Kabushiki Kaisha, Tokyo, Japan

Filed Nov. 20, 1996, Ser. No. 754,068

Claims priority, application Japan, Nov. 30, 1995, 7-334361

Int. Cl.^{6} C09D *11/02*

U.S. Cl. 106—31.58 **12 Claims**



1. An ink-jet ink comprising a recording agent and a liquid medium which performs at least one of dissolving and dispersing the recording agent therein, wherein the ink contains at least one of phytic acid and a salt thereof.

5,782,968

METHOD FOR PRODUCING BLACK PIGMENT

Takayuki Hirayama; Haruyoshi Sato, both of Kawasaki, and Yutaka Otsuki, Yokohama, all of Japan, assignors to Nippon Oil Co., Ltd., Tokyo, Japan

Filed Dec. 4, 1996, Ser. No. 760,377

Claims priority, application Japan, Dec. 6, 1995, 7-318161

Int. Cl.^{6} C09C *1/44*

U.S. Cl. 106—476 **11 Claims**

1. A method for producing a black pigment comprising the step of contacting a polymer (1) containing 5 to 500 mmol of hydroxyl groups per 100 g of the polymer with a carbon material (2) at a temperature of 50° to 250° C., wherein said polymer does not contain an epoxy group, a thioepoxy group, an aziridine group, an oxazoline group, or an N-hydroxyalkylamido group.

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5,782,969
IONIC SPIROPYRAN AND PHOTOCHROMIC CLAY CONJUGATE COMPRISING THE SAME

Katsuhiko Takagi, Aichi-ken, Japan, assignor to Nissho Iwai Bentonite Co., Ltd., Tokyo, Japan

Filed Mar. 19, 1996, Ser. No. 617,573
Claims priority, application Japan, Apr. 20, 1995, 7-117703
Int. Cl.^{6} C08K *5/00*

U.S. Cl. 106—498 **13 Claims**

1. Ionic spiropyran compound having a long chain alkyl group or groups of at least 10 carbon atoms at the 1'- or 8- positions of 3', 3'-dimethyl-6-nitrospiro.

5,782,970
LIGHTWEIGHT, WATERPROOF, INSULATING, CEMENTITIOUS COMPOSITION

Joseph M. Zawada, Ashland, Mont., assignor to Composite Industries of America, Inc., Las Vegas, Nev.

Filed Jan. 3, 1995, Ser. No. 367,878
Int. Cl.^{6} C04B *16/08*

U.S. Cl. 106—681 **10 Claims**

1. A method for forming a lightweight, waterproof building product which includes:

forming a dry mix from a plurality of dry mix components including bentonite, diatomite, calcium oxide, Portland cement and a sawdust containing lightweight filler material by mixing equal volumes of bentonite, diatomite, calcium oxide and Portland cement and a volume of sodium chloride which is half that of the other dry mix components with sawdust containing filler, the volume of said filler being greater than the combined volumes of the other dry mix components,

adding water to the dry mix and mixing the resultant mass,

terminating the mixing of the resultant mass and then adding compressed air to the mass to create air bubbles therein, and terminating the addition of compressed air to the mass, pouring the mass into a containment form, adding compressed air to the mass in the containment form, terminating the addition of compressed air to the mass in the containment form and allowing the mass to cure.

5,782,971
CALCIUM PHOSPHATE CEMENTS COMPRISING AMOROPHOUS CALCIUM PHOSPHATE

Brent R. Constantz, Portola Valley, and Bryan M. Barr, San Jose, both of Calif., assignors to Norian Corporation, Cupertino, Calif.

Continuation-in-part of Ser. No. 963,481, Oct. 16, 1992, which is a continuation-in-part of Ser. No. 722,880, Jun. 28, 1991, abandoned. This application Mar. 19, 1997, Ser. No. 821,021
Int. Cl.^{6} C04B *12/02;* **C01B** *25/32*

U.S. Cl. 106—690 **21 Claims**

1. A calcium phosphate cement composition comprising:

an amorphous calcium phosphate having a calcium to phosphate molar ratio of about 1.6 to 1.8;

at least one additional calcium source; and

a physiologically acceptable aqueous liquid.

5,782,972
ADDITIVE FOR PRODUCTION OF HIGHLY WORKABLE MORTAR CEMENT

Angel Abelleira, Nashua, N.H., and John Hallock, Columbia, Md., assignors to W.R. Grace & Co.-Conn., New York, N.Y.

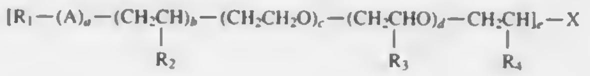
Filed Mar. 21, 1997, Ser. No. 822,165
Int. Cl.^{6} C04B *24/12;24/16*

U.S. Cl. 106—696 **9 Claims**

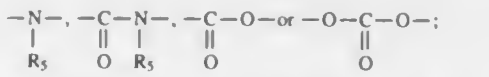
1. A method for modifying workability properties of a mortar cement, comprising introducing into mortar cement a multi-stage polymer comprising a hydrophobically-modified, ionically-soluble polymer stage, the polymer being soluble at a pH of 6 and above; and an air entraining agent, said multi-stage polymer comprising at least two polymer stages wherein:

(A) at least one of said polymer stages is an ionically-soluble polymer, the ionically-soluble polymer being polymerized from a monomer mixture comprising:

(a) about 0.1 to about 55% by weight hydrophobic monomer having the formula



$$[R_1-(A)_a-(\underset{\substack{|\\R_2}}{CH_2CH})_b-(CH_2CH_2O)_c-(\underset{\substack{|\\R_3}}{CH_2CHO})_d-\underset{\substack{|\\R_4}}{CH_2CH}]_e-X$$



$$-\underset{\substack{|\\R_5}}{N}-,\ -\underset{\substack{\|\\O}}{C}-\underset{\substack{|\\R_5}}{N}-,\ -\underset{\substack{\|\\O}}{C}-O-\text{ or }-O-\underset{\substack{\|\\O}}{C}-O-;$$

R_1 and R5 independently are (C_1–C_{10}) alkyl, a (mono, di-, or tri-) (C_1–C_{30}) alkyl-substituted phenyl ring, or a sorbitan fatty ester; R_2, R_3 and R_4 independently are —H or (C_1–C_{10}) aklyl, aryl or alkylaryl; a is 0 or 1; b is 0 to 50; c is 0 to 150; d is 0 to 50; e is equal to or greater than 1 and X is a group containing at least one ethylenic double bond;

(b) about 10 to about 69% by weight (C_3–C_0) ethylenically-unsaturated, ionizable monomer, and

(c) about 0.1 to about 90% by weight nonionic (C_2–C_{30}) ethylenically-unsaturated monomer, and

(d) 0 to about 10% by weight multi-functional compounds;

(B) the ionically-soluble polymer is physically or chemically attached to the polymer particle such that, upon neutralizing the ionically-soluble polymer with base or acid, at least a portion of said ionically-soluble polymer remains attached to the remainder of the polymer particle; and

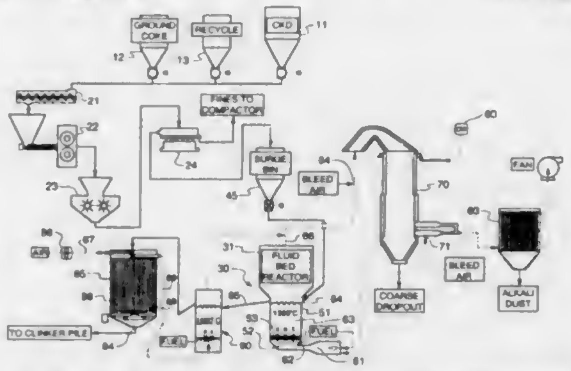
(C) the ionically-soluble polymer comprises from about 1 % to about 99% by weight of the polymer particle.

5,782,973
CEMENT DUST RECOVERY SYSTEM

Sidney M. Cohen, Allentown, and Michael E. Prokesch, Zion Hill, both of Pa., assignors to Fuller Company, Bethlehem, Pa.

Filed Apr. 29, 1997, Ser. No. 841,056
Int. Cl.^{6} C04B *7/45;7/60;* **F27B** *15/00*

U.S. Cl. 106—744 **14 Claims**



1. A process of treating dust from a cement manufacturing operation comprising the steps of:

adding carbon bearing material to the dust catch from a cement manufacturing operation to form a mixture;

forming the mixture into nodules;

sizing the nodules to obtain a feed material having a selected size range;

establishing and maintaining within a vessel a fluidized bed of feed material by passing air for combustion upwardly through a bed of material;

thermal processing the material within the fluidized bed in a mild reducing atmosphere by supplying fuel for combustion in the fluidized bed to maintain temperatures sufficient to volatilize alkali and sulfur compounds in the feed material and produce a product having an increased concentration of cement forming compounds and reduced alkali and sulfur compounds as compared to the feed material, with said fuel for combustion and said feed material being added to the vessel in an amount at a rate sufficient to maintain a mild reducing atmosphere in the fluidized bed;

directing solid product which is discharged by displacement from the vessel to a oxidizing vessel in which said solid product is re-oxidized;

discharging combustion gas, entrained product and volatilized alkali and sulfur compounds from the vessel; and

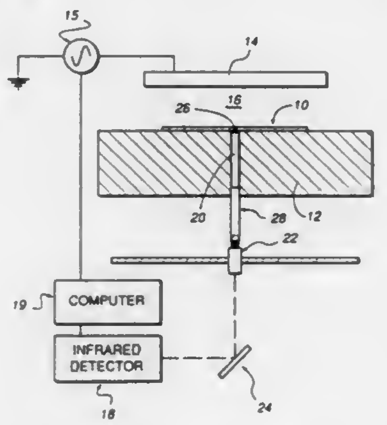
condensing the volatilized alkali and sulfur compounds.

5,782,974
METHOD OF DEPOSITING A THIN FILM USING AN OPTICAL PYROMETER

Carl A. Sorensen, Morgan Hill, and Wendell T. Blonigan, Fremont, both of Calif., assignors to Applied Materials, Inc., Santa Clara, Calif.

Continuation of Ser. No. 461,076, Jun. 5, 1995, abandoned, which is a division of Ser. No. 190,421, Feb. 2, 1994, Pat. No. 5,549,756. This application May 16, 1996, Ser. No. 649,927
Int. Cl.^{6} C23C *14/54;* **G01J** *5/08*

U.S. Cl. 117—82 **30 Claims**



1. A method of depositing thin films of material comprising:

transporting a deposition substrate to a surface of a heated susceptor;

heating said deposition substrate to a target temperature;

passing infrared radiation from said deposition substrate through a hollow lightguide disposed within a channel formed in said susceptor;

collecting said infrared radiation within a range of infrared wavelengths from said deposition substrate;

determining an apparent temperature of said deposition substrate from said infrared radiation collected from said deposition substrate; and

depositing a layer of material on said deposition substrate.

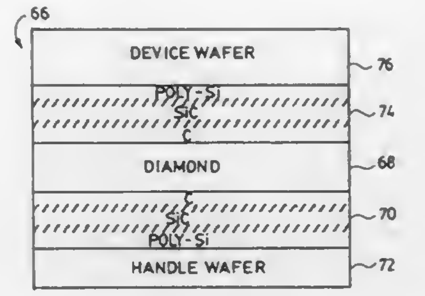
5,782,975
METHOD FOR PROVIDING A SILICON AND DIAMOND SUBSTRATE HAVING A CARBON TO SILICON TRANSITION LAYER AND APPARATUS THEREOF

Jack H. Linn, 512 Southern Hills, Melbourne, Fla. 32940

Division of Ser. No. 190,998, Feb. 3, 1994, Pat. No. 5,526,768. This application Jan. 17, 1996, Ser. No. 587,953
Int. Cl.^{6} C30B *29/04*

U.S. Cl. 117—89 **17 Claims**

1. A method for bonding layers, said method comprising the steps of:



depositing a diamond layer on a substrate, said diamond layer comprising one or more first elements wherein at least one of the first elements is carbon;

depositing a first transition layer on said diamond layer on an opposing side from said substrate; and

depositing a second layer on said first transition layer, said second layer comprising one or more second elements wherein at least one of the second elements is a semiconductor element;

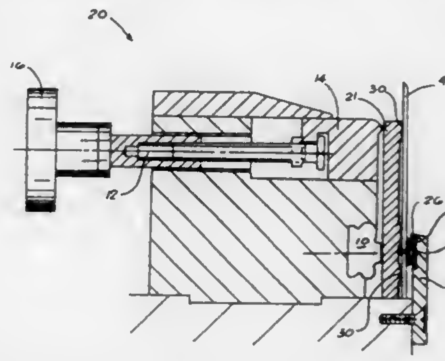
said first transition layer comprising said first and second elements and said first portion of said first transition layer adjacent said diamond layer being comprised of substantially said one or more first elements and said second portion of said first transition layer adjacent said second layer being comprised of substantially said one or more second, semiconductor elements.

5,782,976
CONTINUOUS COATER BLADE

Michael Lawrence Marziale, Paducah, Ky., and Steven Paul Metzler, Covington, Va., assignors to Westvaco Corporation, New York, N.Y.

Filed Jun. 27, 1997, Ser. No. 884,215
Int. Cl.^{6} B05C *11/02*

U.S. Cl. 118—118 **18 Claims**



1. A continuous coater blade assembly for application of coating onto a moving web, wherein said assembly is comprised of:

a base means;

a blade adjustment means operatively connected to said base means;

a blade clamping means operatively connected to said base means and said blade adjustment means; and

a continuous blade means slidingly connected to said blade clamping means wherein said blade means is further comprised of a sliding seal means rigidly attached and adjacent to one end of said blade means.

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5,782,977
BLADE COATING MACHINE HAVING SIDE EDGE LUBRICATION AND PROCESS OF COATING

Tore Eriksson, Klässbol, and Håkan Karlsson, Säffle, both of Sweden, assignors to BTG Källe Inventing AB, Säffle, Sweden

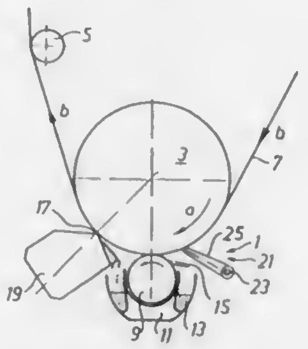
PCT No. PCT/SE94/01206, § 371 Date Jun. 11, 1996, § 102(e) Date Jun. 11, 1996, PCT Pub. No. WO95/17264, PCT Pub. Date Jun. 29, 1995

PCT Filed Dec. 14, 1994, Ser. No. 663,195

Claims priority, application Sweden, Dec. 22, 1993, 9304255

Int. Cl.^{6} B05C *11/02*

U.S. Cl. 118—119 **16 Claims**



1. A device for coating a travelling paper web, comprising a back-up element, a metering means cooperating with said back-up element for applying onto the web across essentially a full width thereof a coating liquid, a coating blade positioned downstream of the metering means and extending across essentially the full width of said web, and means for feeding the web to a nip between the back-up element and the metering means and to a nip between the back-up element and the coating blade, at least one edge lubricating means positioned adjacent to one edge of the web and upstream of the metering means and which is arranged to deposit along said one edge a stripe of lubricating liquid at least up to a position cross-wise and inwardly of the web adjacent to a margin of the coating liquid when applied, wherein said coating blade extends across said stripe of lubricating liquid and the coating liquid when applied to the web such that during evening of said coating liquid uneven wear of the coating blade is avoided;

wherein the edge lubricating means includes a mounting member, a pivot arm carried at one end of said mounting member and an application head carried at the opposite end of the pivot arm for deposition of said stripe of lubricating liquid.

5,782,978
COATING DEVICE WITH MOVABLE FLUID SUPPLY NOZZLE AND ROTATABLE SUBSTRATE HOLDER

Kazuo Kinose; Takeshi Yonezawa, both of Hikone; Taimi Oketani, Matsusaka, and Tomoo Yamamoto, Nara, all of Japan, assignors to Sharp Kabushiki Kaisha, Osaka, Japan

Continuation of Ser. No. 422,316, Apr. 13, 1995, abandoned. This application Jun. 16, 1997, Ser. No. 876,866

Claims priority, application Japan, Apr. 15, 1994, 6-077653

Int. Cl.^{6} B05C *5/00;11/08*

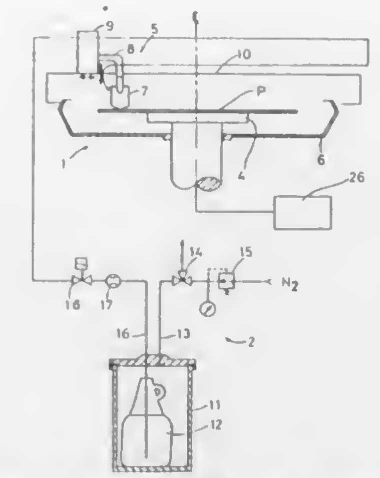
U.S. Cl. 118—321 **17 Claims**

1. A device for coating a substrate having a length with a predetermined treating fluid, said device comprising:

means for holding said substrate in a horizontal position;

treating fluid supply means comprising a treating fluid supply nozzle for supplying treating fluid to said substrate, said treating fluid supply nozzle extending substantially along at least said length of said substrate held in said means for holding;

movement means capable of a movement of said treating fluid supply nozzle in a direction perpendicular to said length of said substrate, and said treating fluid being supplied to said substrate during said movement; and



means for rotating said substrate held by said holding means around a vertical rotational axis of said substrate after said treating fluid is supplied to said substrate.

5,782,979
SUBSTRATE HOLDER FOR MOCVD

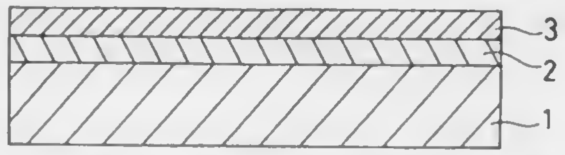
Nobuaki Kaneno; Hirotaka Kizuki; Masayoshi Takemi, and Kenzo Mori, all of Itami, Japan, assignors to Mitsubishi Denki Kabushiki Kaisha, Tokyo, Japan

Division of Ser. No. 189,837, Feb. 1, 1994, abandoned. This application Jun. 13, 1995, Ser. No. 489,773

Claims priority, application Japan, Apr. 22, 1993, 5-095727

Int. Cl.^{6} C23C *16/00*

U.S. Cl. 118—500 **2 Claims**



1. A substrate holder for metal organic chemical vapor deposition comprising:

a molybdenum holder body having a front surface for supporting a compound semiconductor wafer smaller than the body and to which source gases are applied and a rear surface;

an SiC film disposed on a part of the front surface of the molybdenum holder body not covered by a compound semiconductor wafer supported by the holder;

a GaAs polycrystalline film disposed on the SiC film and having a thickness of at least 0.3 μm; and

an InP polycrystalline film disposed on said GaAs polycrystalline film and having a thickness of at least 0.3 μm.

5,782,980
LOW PRESSURE CHEMICAL VAPOR DEPOSITION APPARATUS INCLUDING A PROCESS GAS HEATING SUBSYSTEM

Michael B. Allen; Dennis C. Swartz, and Patrick B. Lee, all of Austin, Tex., assignors to Advanced Micro Devices, Inc.

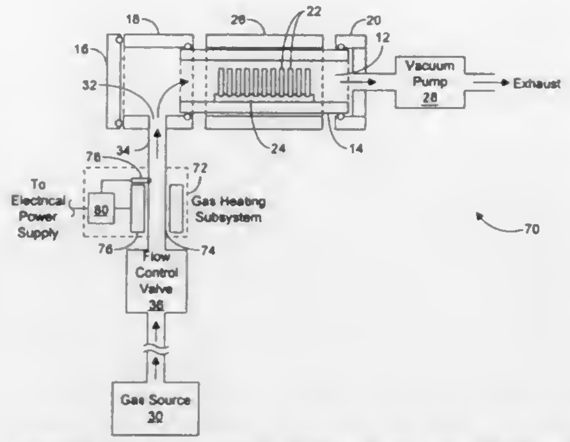
Filed May 14, 1996, Ser. No. 645,619

Int. Cl.^{6} C23C *16/00*

U.S. Cl. 118—715 **19 Claims**

3. A gas heating subsystem to reduce particulate contamination of semiconductor substrates contained within a reaction chamber of a chemical vapor deposition system, comprising:

a gas conduit coupled in a gas feed line of the chemical vapor deposition system and configured to contain a flow of reactant gas from a gas source to the reaction chamber;



a heating element thermally coupled to the gas conduit and configured to heat the flow of gas within the gas conduit;

a temperature sensor extending through a wall of the gas conduit, wherein the temperature sensor is configured to sense the temperature of the heated flow of gas within the gas conduit and to produce a corresponding temperature signal; and

a temperature control unit coupled to receive the temperature signal and control the temperature of the heating element in response to the temperature signal.

5,782,981
SEMICONDUCTOR DEVICE, MANUFACTURING METHOD, AND SYSTEM

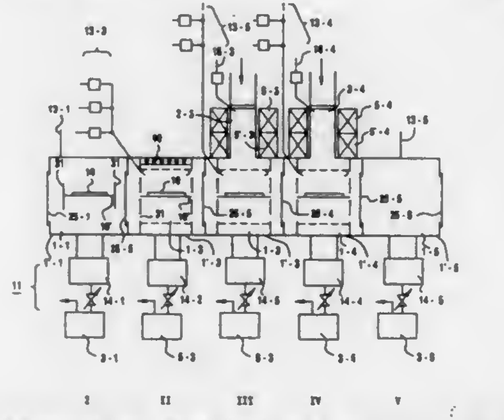
Shunpei Yamazaki, Tokyo, Japan, assignor to Semiconductor Energy Laboratory Co., Ltd., Japan

Division of Ser. No. 220,491, Mar. 31, 1994, which is a division of Ser. No. 895,229, Jun. 10, 1992, which is a continuation of Ser. No. 593,257, Oct. 1, 1990, abandoned, which is a division of Ser. No. 118,892, Nov. 10, 1982, abandoned, which is a continuation-in-part of Ser. No. 929,449, Nov. 12, 1986, abandoned, which is a continuation-in-part of Ser. No. 701,738, Feb. 14, 1985, Pat. No. 4,636,401. This application Nov. 9, 1995, Ser. No. 556,394

Claims priority, application Japan, Nov. 18, 1985, 60-259194; Nov. 25, 1985, 60-253229

Int. Cl.^{6} C23C *16/00*

U.S. Cl. 118—719 **23 Claims**



1. Apparatus for fabricating an electronic device of the thin film type including at least a first layer and a second layer comprising:

means for plasma excited reactant gas CVD forming one of the first layer or the second layer in a first chamber on a single substrate where said plasma CVD forming step includes inputting a first reactive gas to the first chamber where the first reactive gas forms said one of the first and second layers;

means for plasma CVD forming in a second chamber the other one of said first layer and said second layer to thereby form the first and second layers of the device on said single substrate where said last-mentioned plasma CVD forming means includes means for inputting a second reactive gas to the second chamber where the second reactive gas forms said other one of the first and second layers; and

means for confining excited first and second reactive gases within said first and second chambers, respectively, so that flakes are prevented from being formed on inner walls of said first and second chambers;

wherein said single substrate is held horizontally within said first and second chambers.

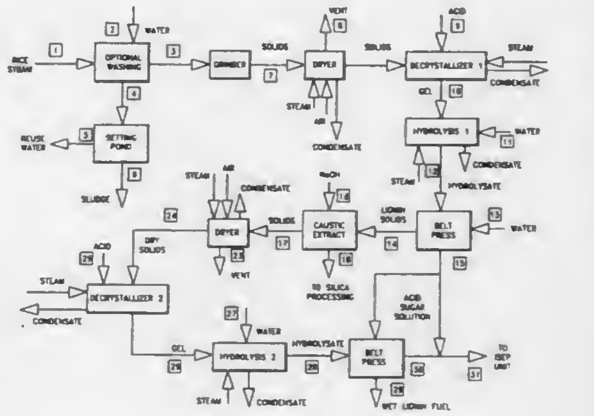
5,782,982
METHOD OF REMOVING SILICA OR SILICATES FROM SOLIDS RESULTING FROM THE STRONG ACID HYDROLYSIS OF CELLULOSIC AND HEMICELLULOSIC MATERIALS

William A. Farone, Irvine, and John E. Cuzens, Santa Ana, both of Calif., assignors to Arkenol, Inc., Mission Viejo, Calif.

Continuation-in-part of Ser. No. 38,628, Mar. 26, 1993, Pat. No. 5,562,777. This application Jun. 7, 1995, Ser. No. 483,454

Int. Cl.^{6} C01B *33/32;* **C13K** *30/00;* **C07H** *1/06;* **C07G** *17/00*

U.S. Cl. 127—37 **14 Claims**



1. A method of removing silica or silicates from materials containing cellulose and hemicellulose, comprising:

mixing the materials with a solution of about 25–90% acid by weight, thereby at least partially decrystalizing the materials and forming a gel that includes a solid and a liquid portion;

diluting said gel to an acid concentration of from about 20% to about 30% by weight and heating said gel, thereby at least partially hydrolyzing the cellulose and hemicellulose contained in said materials;

separating said liquid portion from said solid material;

treating the solid material with a metal hydroxide solution to produce an extract;

reducing the pH of the extract to produce silicic acid; and

removing said silicic acid from said extract.

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5,782,983

DEWATERING CLEANING METHOD, DEWATERING CLEANING APPARATUS, AND CONCENTRATION TYPE FILTER FOR USE THEREIN

Minoru Inada, Yokohama; Yasutaka Imajo; Kimiaki Kabuki, both of Tokyo, and Nobuhiro Saitoh, Ohta, all of Japan, assignors to Kabushiki Kaisha Toshiba, Kawasaki, and Toshiba Silicone Co., Ltd., Tokyo, both of Japan

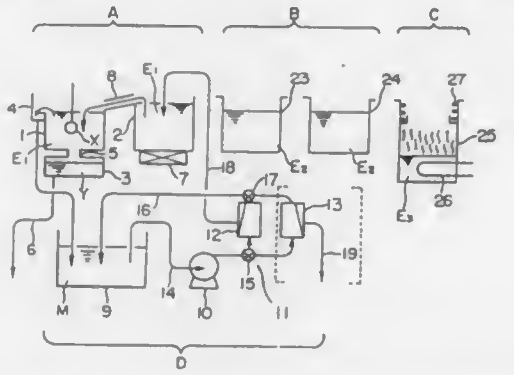
PCT No. PCT/JP92/01088, § 371 Date Apr. 19, 1994, § 102(e) Date Apr. 19, 1994, PCT Pub. No. WO93/04755, PCT Pub. Date Mar. 18, 1993

PCT Filed Aug. 27, 1992, Ser. No. 196,067

Claims priority, application Japan, Aug. 30, 1991, 3-220643

Int. Cl.^{6} B08B *3/12;7/04*

U.S. Cl. 134—1 **43 Claims**



1. A method for removing at least one of residual water and aqueous detergent from a surface of a part, comprising

treating the part with a hydrophobic treating agent in at least one cleaning tank to remove at least one of water and aqueous detergent from the surface of the part, whereby at least a portion of the removed at least one of water and aqueous detergent mingles in at least one cleaning tank with the hydrophobic treating agent,

transmitting the hydrophobic treating agent with the mingled at least one of water and an aqueous detergent from at least one cleaning tank to a reserve tank and temporarily storing the hydrophobic treating agent and the mingled at least one of water and aqueous detergent,

circulating the hydrophobic treating agent with the mingled at least one of water and an aqueous detergent in the reserve tank through at least one filter, whereby the at least one filter removes the mingled at least one of water and aqueous detergent from the hydrophobic agent,

wherein the filter comprises a porous substrate that has a coating formed on an inner surface of the pores, and

returning the hydrophobic treating agent from which at least one of water and aqueous detergent has been removed by the at least one filter to at least one cleaning tank.

28. An apparatus adapted to remove residual water or aqueous detergent from a surface of a part comprising

at least one cleaning tank adapted to contain a hydrophobic treating agent capable of removing at least one of water and an aqueous detergent from the surface of a part,

a reserve tank adapted to temporarily store hydrophobic treating agent,

at least one filter adapted to remove at least one of water and aqueous detergent from the hydrophobic treating agent,

wherein the filter comprises a porous substrate that has a coating formed on an inner surface of the pores, and

a circulation system for circulating the hydrophobic treating agent from the reserve tank to the at least one filter and back to at least one of the cleaning tanks.

37. A filter comprising a porous filter treated on at least an inner surface of the pores, with a liquid hydrophobic agent comprising at least one hydrolyzable organosilane represented by the formula R_nSiX_{4-n}, wherein R is a monovalent hydrocarbon group of 1 to 18 carbon atoms, X is a hydrolyzable group, and n is an integer from 1 to 3.

5,782,984

METHOD FOR CLEANING AN INTEGRATED CIRCUIT DEVICE USING AN AQUEOUS CLEANING COMPOSITION

Kwang-shin Lim, Seoul, and Sang-o Park, Kyungki-do, both of Rep. of Korea, assignors to Samsung Electronics Co., Ltd., Suwon, Rep. of Korea

Filed Feb. 25, 1998, Ser. No. 30,339

Claims priority, application Rep. of Korea, Mar. 7, 1997, 1997 7774

Int. Cl.^{6} C03C *15/00*

U.S. Cl. 134—2 **9 Claims**

1. A method for cleaning an integrated circuit substrate, said method comprising:

cleaning the integrated circuit substrate by contacting the integrated circuit substrate with an aqueous composition comprising from about 0.1 to about 2 percent of hydrogen fluoride based on the volume of the composition, from about 9 to about 15 percent of hydrogen peroxide based on the volume of the composition, and from about 41 to about 47 percent of a C_1 to C_6 alcohol based on the volume of the composition.

5,782,985

PROCESS FOR CLEANING OF PASTA PRESSES

Josef Manser, Uzwil; Werner Seller, Züberwangen; Heinz Resch, Flawil, and Jürg Ebneter, St. Gallen, all of Switzerland, assignors to Bühler AG, Uzwil, Switzerland

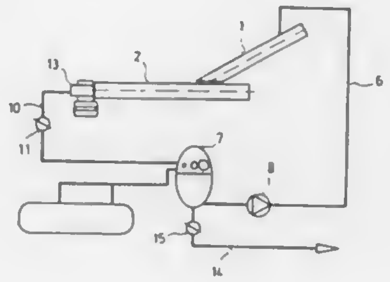
PCT No. PCT/CH95/00084, § 371 Date Dec. 1, 1995, § 102(e) Date Dec. 1, 1995, PCT Pub. No. WO95/31275, PCT Pub. Date Nov. 23, 1995

PCT Filed Apr. 20, 1995, Ser. No. 557,109

Claims priority, application Germany, May 18, 1994, 44 17 357.1

Int. Cl.^{6} B08B *7/04;9/00*

U.S. Cl. 134—10 **5 Claims**



1. A process for cleaning pasta presses, particularly the screws of screw presses and/or kneader mixers in the pasta industry comprising:

providing a plurality of screw presses and/or kneader mixers each being connected to each other in operating position;

conducting a cleaning liquid into a first of said screw presses and/or kneader mixers;

sequentially passing said cleaning liquid through said plurality of screw presses and/or kneader mixers;

discharging said cleaning liquid from a last of said screw presses and/or kneader mixers, said cleaning liquid containing contaminants which had been adhered to the screw of said screw presses and/or kneader mixers.

5,782,986

PROCESS FOR METALS REMOVAL USING BETA-DIKETONE OR BETA-KETOIMINE LIGAND FORMING COMPOUNDS

Jeffery W. Butterbaugh, Chanhassen, Minn., and David C. Gray, Sunnyvale, Calif., assignors to FSI International, Chaska, Minn.

Filed Jan. 11, 1996, Ser. No. 584,179

Int. Cl.^{6} B08B *7/00*

U.S. Cl. 134—1.3 **24 Claims**

1. A method of removing an oxidized metallic material from a portion of the surface of a substrate, the method comprising irradiating the substrate surface portion with ultraviolet light and simultaneously exposing the substrate surface portion to a gaseous environment comprising a ligand forming compound selected from the group consisting of beta-diketone and beta-ketoimine ligand forming compounds so as to form a metal-ligand compound and volatilizing said metal-ligand compound.

5,782,987

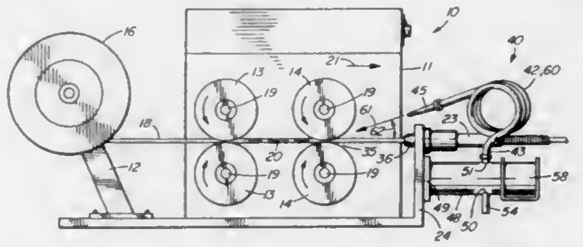
MIG WELDER WIRE CLEANING APPARATUS AND METHOD

James Edmond Furman, 280 Kosikar Road, Lindell Beach, British Columbia, Canada, V2R 5B8

Filed May 2, 1997, Ser. No. 850,774

Int. Cl.^{6} B08B *1/02;* **B23K** *9/00*

U.S. Cl. 134—15 **20 Claims**



1. A cleaning apparatus for a MIG welding apparatus, the welding apparatus having at least one pair of cooperating drive rolls to receive and feed a welding wire engaged by the rolls along a welding wire axis leading into a wire liner spaced closely adjacent the drive rolls, the cleaning apparatus comprising:

(a) a gas conduit having an inlet to receive compressed gas and a nozzle to discharge the gas as a gas jet, the nozzle being directed at a portion of the welding wire axis extending between an outfeed of the drive rolls and an inlet of the wire liner.

5,782,988

RAPID VEHICLE WASHING PROCESS

William J. Whatley, Sr., 1077 Race St., Apt. 1504, Denver, Colo. 80206

Continuation-in-part of Ser. No. 402,779, Mar. 9, 1995, abandoned, which is a continuation-in-part of Ser. No. 199,796, Feb. 22, 1994, abandoned, which is a division of Ser. No. 6,750, Jan. 21, 1993, Pat. No. 5,363,868. This application Jul. 2, 1996, Ser. No. 674,290

Int. Cl.^{6} B08B *7/04;3/02*

U.S. Cl. 134—18 **8 Claims**

1. A method for cleaning at least one stationary vehicle wherein selected external surfaces of said vehicle are treated with one or more cleansing agent solutions and water is impinged on said selected external surfaces to scour dirt and grime from said external surfaces, the improvement characterized by effectively contracting the duration of water impingement which comprises the steps of:

(a) accumulating a predetermined volume of water in at least one water vessel to impinge on said external surfaces with a high pressure pump means;

(b) pressurizing the accumulated water with at least one air receiver tank containing gas at a pressure of at least 200 pounds per square inch and said air receiver tank having a volume of at least four times the volume of said water;

(c) opening a valve between said at least one water vessel and said air tank;

(d) simultaneously opening a second valve outlet of at least one water vessel tank with an electronic controller means to impinge said pressurized water through plurality of nozzles on said selected external surfaces;

(e) closing said valves when a sensor senses a low level of water in said at least one water tank to prevent a loss of said pressurized gas through said plurality of nozzles;

(f) opening a third check valve between said at least one water vessel and said air receiver tank by;

(g) accumulating water with a high pressure pump in said at least one water vessel and forcing gas from said at least one water tank through said check valve into said air receiver tank to a pressure at least 200 pound per square inch;

(h) signaling when said at least one water tank is full;

(i) opening a by pass means on a discharge side of said pump means to allow water from said pump means to bypass said at least one water vessel;

(j) repeating steps (a)–(i) on any waiting vehicle.

5,782,989

SOLVENT SYSTEM AND METHOD FOR REMOVING POLYMER SCALE FROM VINYL POLYMER POLYMERIZATION REACTORS

Michael A. Rueter, Norristown, Pa., assignor to Arco Chemical Technology, L.P., Greenville, Del.

Filed Nov. 19, 1997, Ser. No. 974,401

Int. Cl.^{6} B08B *9/00*

U.S. Cl. 134—22.19 **20 Claims**

1. A vinyl polymer scale removal composition, comprising:

a) about 60 weight percent or more, based on the total weight of the composition, of a polymer scale removing solvent, said polymer scale removing solvent comprising about 80 weight percent or more of acetone based on the weight of said polymer scale removing solvent;

b) from about 0.01 weight percent to about 0.5 weight percent, based on the total weight of the composition, of a strong base soluble in said composition, said strong base selected from the group consisting of alkali metal hydroxides, alkali metal alkoxides, alkyl ammonium hydroxides, and mixtures thereof; and

c) from about 0.5 weight percent to about 30 weight percent of one or more polar organic solvents bearing one or more hydroxyl or amino groups.

5,782,990

METHOD FOR WASHING OBJECTS

Shinya Murakami, Kumamoto-ken; Yuuji Kamikawa, Uto; Sinichiro Izumi, Kumamoto; Noriyuki Anai; Takami Satoh, both of Kumamoto-ken; Hirofumi Shiraishi, Kurume; Koji Harada; Takayuki Tomoeda, both of Kumamoto-ken, and Hiroshi Tanaka, Kurume, all of Japan, assignors to Tokyo Electron Limited, Tokyo, and Tokyo Electron Saga Limited, Tosu, both of Japan

Continuation of Ser. No. 560,630, Nov. 20, 1995, abandoned, which is a division of Ser. No. 880,068, May 7, 1992, Pat. No. 5,488,964. This application Jan. 27, 1997, Ser. No. 789,537

Claims priority, application Japan, May 8, 1991, 3-131673; May 13, 1991, 3-135301; May 13, 1991, 3-135303

Int. Cl.^{6} B08B *3/02*

U.S. Cl. 134—26 **4 Claims**

1. A method for washing wafers comprising the steps of:

supplying pure water to a washing vessel;

immersing a plurality of wafers washed by a chemical solution in the pure water contained in said washing vessel;

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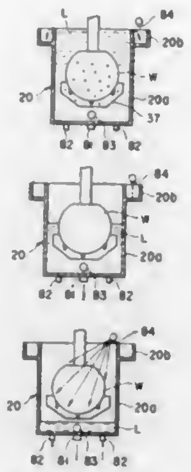


discharging a liquid mixture of the pure water and the chemical solution at least once from the washing vessel whereby at least a portion of the surfaces of the wafers emerge above the surface of the water;

introducing new pure water into the washing vessel so as to immerse the wafers; and

keeping a spraying of new pure water through an upper nozzle onto surfaces of the wafers which emerge above a surface of the water in said washing vessel during a period from said liquid mixture discharging step through said new pure water introducing step, whereby the surfaces of the wafers above the surface of the pure water is moistened and coated with the sprayed new pure water so as to prevent the surfaces of the wafers from being exposed to air and from being dried and stained.

5,782,991
SURFACE TREATING PROCESS

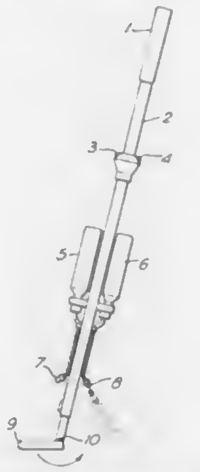
Lambertus Geradus L. van der Heyden; Johny L. te Linde, and Oscar C. Wientjes, all of Maarssen, Netherlands, assignors to Diversey Lever, Inc., Plymouth, Mich.

Filed Feb. 3, 1997, Ser. No. 790,879

Claims priority, application European Pat. Off., Feb. 13, 1996, 96200333

Int. Cl.^{6} B08B *3/04*

U.S. Cl. 134—37 **4 Claims**



1. A process for treating and preparing a hard surface having a polymer film, said process comprising the steps of:

i) cleaning a hard surface having a polymer film with an aqueous cleaning product comprising:
  a) 1–5% by weight of an aminoxide,
  b) a solvent mixture including 1–20% by weight of gamma butyrolactone and 1–20% by weight of methylic diester of glutaric, succinic and adipic acids, and
  c) 1–10% by weight of a builder selected from the group consisting of citrates, phosphates and mixtures thereof, percentages based on the total composition of said aqueous cleaning product, to obtain a cleaned floor surface having said polymer film thereon;

ii) applying to the polymer film of the cleaned floor surface a liquid repair product which dries to provide a repaired surface exhibiting properties as those exhibited by the polymer film including hardness, wear resistance, stick resistance, water resistance, gloss, removability and transparency; and

iii) allowing the repaired surface to dry for at least five minutes.

5,782,992
CONTACT LENS DISINFECTING SOLUTION CONTAINING SODIUM CHLORITE AND POLYVINYL PYRROLIDONE

Anthony P. Frangione, Rancho Santa Margarita, Calif., assignor to Allergan, Waco, Tex.

Continuation of Ser. No. 991,775, Dec. 17, 1992, abandoned. This application Mar. 29, 1994, Ser. No. 219,004

Int. Cl.^{6} A61L *2/18;* **A61K** *31/79;33/20;* **A61N** *59/00*

U.S. Cl. 134—42 **8 Claims**

1. A method of disinfecting and cleaning a contact lens, comprising the step:

contacting a contact lens with a solution consisting essentially of:

an oxidizing agent wherein the oxidizing agent is a source of chlorite ions, and

a polyvinyl pyrrolidone having a molecular weight ranging from 10,000 to 100,000 daltons, wherein said polyvinyl pyrrolidone comprises a plurality of reactive aldehyde end groups, and wherein said polyvinyl pyrrolidone does not contain t-butyl alcohol end groups.

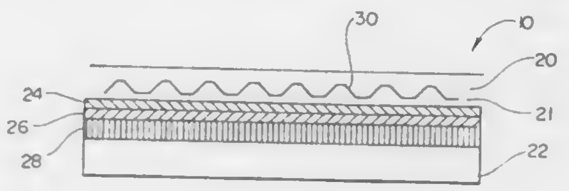
5,782,993
PHOTOVOLTAIC CELLS HAVING MICRO-EMBOSSED OPTICAL ENHANCING STRUCTURES

Jackie Ponewash, P.O. Box 1196, Kapaa, Hi. 96746

Filed Jun. 28, 1996, Ser. No. 671,768

Int. Cl.^{6} H01L *31/048*

U.S. Cl. 136—251 **5 Claims**



1. A photovoltaic device comprising:

a photovoltaic cell having at least one light incident surface; and

a layer of transparent polymer film material having a plurality of optical enhancing structures micro-embossed on an inner surface thereof which is layered in optical connection with the light incident surface of photovoltaic cell.

5,782,994
SOLAR CELL MODULE PROVIDED WITH MEANS FOR FORMING A DISPLAY PATTERN

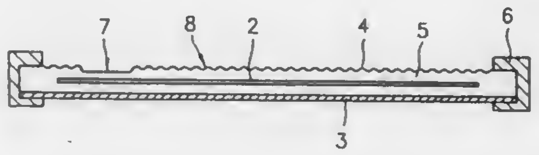
Masahiro Mori, Sora-gun; Kimitoshi Fukae; Yuji Inoue, both of Nara, and Takashi Ohtsuka, Tsuzuki-gun, all of Japan, assignors to Canon Kabushiki Kaisha, Tokyo, Japan

Filed Sep. 30, 1996, Ser. No. 723,826

Claims priority, application Japan, Sep. 18, 1995, 7-273725

Int. Cl.^{6} H01L *31/048*

U.S. Cl. 136—251 **26 Claims**



1. A solar cell module comprising at least one solar cell element and at least a front surface covering material disposed to cover the light receiving face of said at least one solar cell element, said front surface covering material comprising a light transmissive resin and a light transmissive surface protective film situated on the outermost surface in contact with said light transmissive resin, characterized in that said front surface covering material includes means for forming a desired display pattern on the light receiving face of said at least one solar cell element, said means comprising (a) a patterned surface region forming said desired display pattern and (b) another patterned surface region having a surface pattern which is different from that of said patterned surface region (a), and said patterned surface region (a) and said patterned surface region (b) being situated next to each other.

5,782,995
SOLAR BATTERY DEVICE AND METHOD OF FABRICATING THE SAME

Takanori Nanya, and Yasushi Murata, both of Saitama, Japan, assignors to Citizen Watch Co., Ltd., Tokyo, Japan

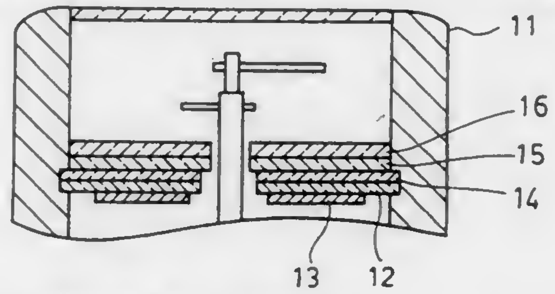
PCT No. PCT/JP94/01861, § 371 Date May 2, 1996, § 102(e) Date May 2, 1996, PCT Pub. No. WO95/12897, PCT Pub. Date May 11, 1995

PCT Filed Nov. 4, 1994, Ser. No. 637,671

Claims priority, application Japan, Nov. 5, 1993, 5-059578 U; Nov. 30, 1993, 5-063999 U; Jul. 14, 1994, 6-161846; Jul. 21, 1994, 6-169106; Sep. 2, 1994, 6-209004; Sep. 14, 1994, 6-219828

Int. Cl.^{6} H01L *31/055;31/18*

U.S. Cl. 136—257 **19 Claims**



1. A solar battery device comprising:

a screening layer disposed on the front side of a solar battery to diffuse light reflected from the solar battery to reduce the quantity of said light traveling outward from the front side of the solar battery;

an optical member disposed on the front side of the screening layer to transmit wavelengths of said light in a predetermined wavelength range included in light incident the front side thereof at a predetermined transmittance;

and a diffusing layer disposed on the front side of the optical member to diffuse and transmit light reflected from the optical member.

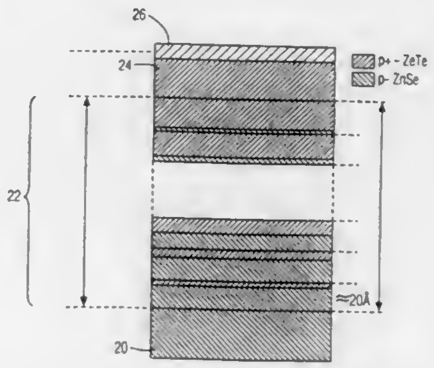
5,782,996
GRADED COMPOSITIONS OF II-VI SEMICONDUCTORS AND DEVICES UTILIZING SAME

Yongping Fan, Dallas, Tex., assignor to Philips Electronics North America Corporation, New York, N.Y.

Filed Aug. 29, 1995, Ser. No. 520,443

Int. Cl.^{6} C30B *29/49*

U.S. Cl. 148—33.1 **8 Claims**



1. A graded composition of a II–VI semiconductor of at least one Group II cation and at least two Group VI anions, in which the fraction of the Group VI anions varies in a super-parabolic grading profile.

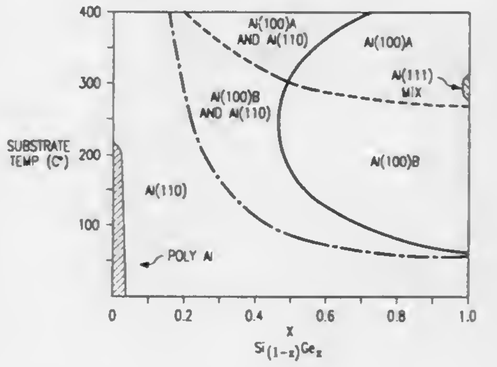
5,782,997
ALUMINUM METALLIZATION FOR SIGE DEVICES

Chih-Chen Cho, and Hung-Yu Liu, both of Richardson, Tex., assignors to Texas Instruments Incorporated, Dallas, Tex.

Division of Ser. No. 224,355, Apr. 7, 1994, Pat. No. 5,501,174. This application Jun. 7, 1995, Ser. No. 474,290

Int. Cl.^{6} C30B *23/06*

U.S. Cl. 148—33.3 **9 Claims**



1. A semiconductor device comprising:

a single-crystal substrate having an $Si_{1-X}Ge_X$ surface of lattice orientation (100) thereon, X greater than 0 and less than 1; and

a single-crystal aluminum layer formed on said $Si_{1-X}Ge_X$ surface, said layer having a permissible crystalline orientation corresponding to X as represented in a graph region of FIG. 1 selected from the group of regions consisting of Al(110), Al(100)A and Al(100)B.

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5,782,998
GRAIN ORIENTED ELECTRICAL STEEL SHEET HAVING SPECULAR SURFACE

Yoshiyuki Ushigami; Takeo Nagashima; Shuichi Yamazaki; Hiroyasu Fujii; Yozo Suga; Tadashi Nakayama, all of Futtsu; Katsuro Kuroki, Kitakyushu, and Yosuke Kurosaki, Himeji, all of Japan, assignors to Nippon Steel Corporation, Tokyo, Japan

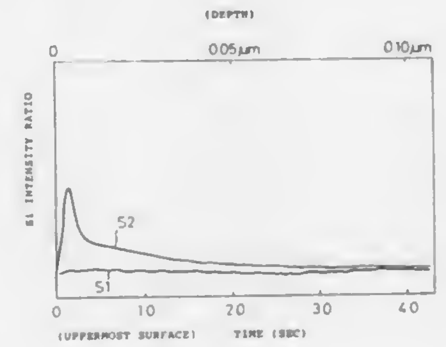
PCT No. PCT/JP93/00136, § 371 Date Jan. 7, 1994, § 102(e) Date Jan. 7, 1994, PCT Pub. No. WO93/23577, PCT Pub. Date Nov. 25, 1993

PCT Filed Feb. 4, 1993, Ser. No. 175,430

Claims priority, application Japan, May 8, 1992, 4-116453; Aug. 5, 1992, 4-209222

Int. Cl.^{6} C21D *8/12*

U.S. Cl. 148—113 **13 Claims**



1. A process for producing a grain oriented silicon steel sheet employing an aluminum nitride inhibitor comprising:

providing a steel material consisting essentially of, in terms of weight percent, 0.8 to 4.8% of Si, 0.012 to 0.05% of acid soluble Al, and 0.01% or less of N with the balance being essentially Fe and unavoidable impurities;

forming said steel material into a steel sheet, said steel sheet having a surface;

subjecting said steel sheet to decarburization annealing and then nitriding after decarburization annealing;

coating an annealing separator on the surface of said steel sheet, wherein said annealing separator is at least one member selected from the group consisting of Al_2O_3, SiO_2, ZrO_2, BaO, CaO, SrO, and $MgSiO_4$, whereby said annealing separator is disposed between adjacent steel sheet surfaces during finish annealing;

preventing occurrence of denitriding of said steel sheet during finish annealing by forming prior to secondary recrystallization taking place a structure means on the surface of said steel sheet for preventing said occurrence of said denitriding during finish annealing, wherein glass film is absent from said structure means;

finish annealing said steel sheet coated with said annealing separator thereby providing a steel sheet having a surface with glass film formation being absent on said surface.

5,782,999
STEEL FOR ENAMELING AND METHOD OF MAKING IT

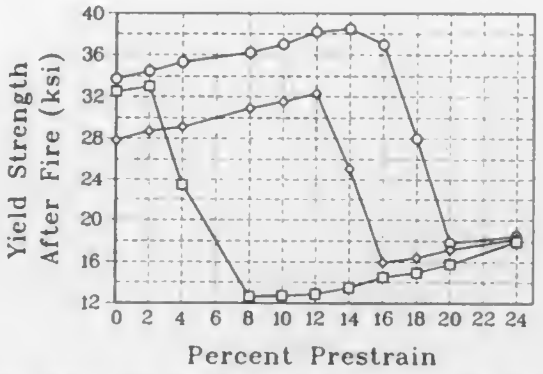
James M. Kostrubanic, Pittsburgh, Pa., assignor to USX Corporation, Pittsburgh, Pa.

Filed Jul. 22, 1996, Ser. No. 685,967

Int. Cl.^{6} C21D *8/02;* **C22C** *38/06;38/12*

U.S. Cl. 148—320 **7 Claims**

1. A steel sheet useful for porcelain enameling comprising, by weight, up to 0.008% carbon, 0.25 to 0.35% Mn, 0.03 to 0.05% Al, 0.010 to 0.014% N, below 0.008% O, and 0.020 to 0.025% Nb, and the balance iron, said steel exhibiting excellent yield strength after fire following 14% prestrain.



5,783,000
METHOD FOR HEAT TREATMENT OF STEEL, AND PRODUCTS OF STEEL

Carl-Lennart Axelsson, Skarpnack; Sten Ljungars, Torshälla; Lars Folke Saltin, Vasteras; Sven-Eric Lunner, Taby, and Sten-Ake Brännvall, Kristinehamn, all of Sweden, assignors to AGA Aktiebolag, Lidingo, and Avesta Sheffield Aktieboug, Avesta, both of Sweden

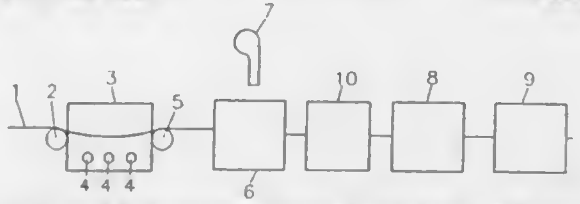
PCT No. PCT/SE95/00243, § 371 Date Sep. 6, 1996, § 102(e) Date Sep. 6, 1996, PCT Pub. No. WO95/24509, PCT Pub. Date Sep. 14, 1995

PCT Filed Mar. 7, 1995, Ser. No. 700,438

Claims priority, application Sweden, Mar. 9, 1994, 9400807

Int. Cl.^{6} C21D *9/08;6/00*

U.S. Cl. 148—605 **15 Claims**



1. A method for heat-treating stainless steel articles, said method comprising heating the articles in a heat treatment oven to a surface temperature above about 900 degrees C., wherein the heat treatment oven includes burners that are fired with a liquid or a gaseous fuel which is burned with the aid of a gas that contains at least 85 percent by volume oxygen and at most 10 percent by volume nitrogen.

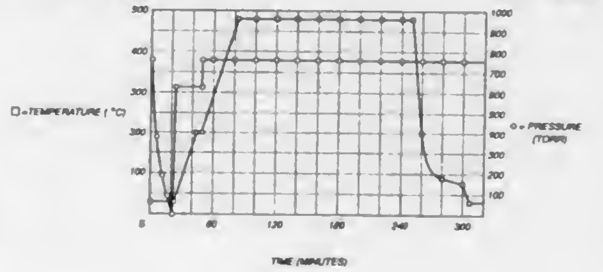
5,783,001
PROCESS FOR THE HEAT TREATMENT OF SURGICAL NEEDLES BY AGING

Timothy Sardelis, Somerset, N.J.; Douglas Warren Ackerman, Gainesville, Ga., and William McJames, Belle Mead, N.J., assignors to Ethicon, Inc., Somerville, N.J.

Filed Nov. 14, 1996, Ser. No. 748,845

Int. Cl.^{6} A61B *17/00;* **C21D** *6/02;9/76*

U.S. Cl. 148—607 **14 Claims**



1. A method of heat treating precipitation hardening stainless steel surgical needles, the method comprising the steps of:

exposing and subjecting a plurality of precipitation hardening stainless steel surgical needles having outer surfaces to a sufficient vacuum and a sufficient temperature in a furnace to effectively remove volatile surface contaminants from the outer surfaces of the needles;

exposing the needles to an inert gas wherein the pressure of the gas is at least ambient;

heating the gas to a sufficient temperature and maintaining the gas at said temperature for a sufficient amount of time to effectively heat treat the needles; and,

lowering the temperature of the gas to reduce the temperature of the needles to ambient temperature.

5,783,002
TIRE TREAD INCLUDING INCISIONS

Alain Lagnier, Romagnat, France, assignor to Compagnie Generale des Etablissements Michelin - Michelin & Cie, Clermont-Ferrand Cedex, France

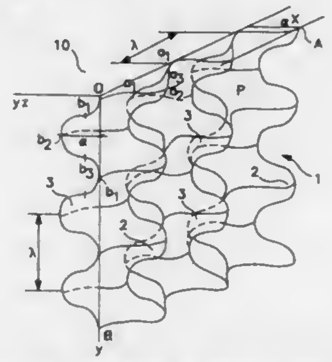
PCT No. PCT/EP95/02455, § 371 Date Jan. 2, 1997, § 102(e) Date Jan. 2, 1997, PCT Pub. No. WO96/01189, PCT Pub. Date Jan. 18, 1996

PCT Filed Jun. 23, 1995, Ser. No. 765,138

Claims priority, application France, Jul. 5, 1994, 94 08377

Int. Cl.^{6} B60C *11/12*

U.S. Cl. 152—209 R **10 Claims**



1. A tire tread (**10**) comprising elements in relief provided with incisions (**1**), characterized by the fact that at least certain elements in relief are provided with at least one incision (**1**) each of the facing walls P of which is a surface in relief, formed of protrusions (**2**) and cavities (**3**) arranged on both sides of a central wall surface (**M**), each of said wall protrusions (**2**) and cavities (**3**) having, on said central wall surface (**M**), a quadrilateral base (b_S, b_C) and a vertex (S, O', A', B', C') spaced from said central wall surface (M), the base b_S of a protrusion (**2**) being completely surrounded by bases b_C of cavities (**3**) and conversely the base b_C of a cavity (**3**) being completely surrounded by bases b_S of protrusions (**2**), the two surfaces in relief of the two walls P respectively being identical so as to form the incision (**1**) having a width e.

5,783,003
TIRE WITH REINFORCEMENT COMPRISING CORD SEGMENTS

Claude Lescoffit, Clermont-Ferrand, France, assignor to Compagnie Generale des Etablissements Michelin-Michelin & Cie, France

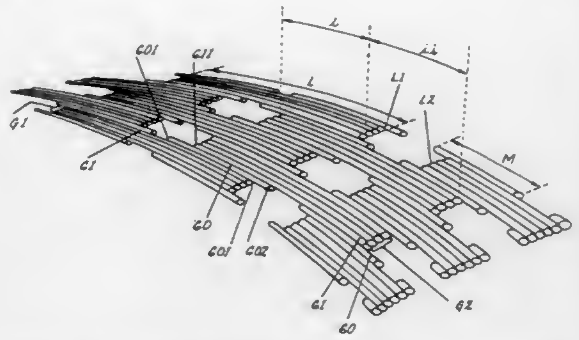
Filed Mar. 13, 1996, Ser. No. 614,709

Claims priority, application France, Mar. 16, 1995, 95 03300

Int. Cl.^{6} B60C *9/00;9/18;9/20;9/22*

U.S. Cl. 152—451 **12 Claims**

1. Tire whose structure of reinforcement is comprised of approximately rectilinear segments of cords disposed parallel to each other and inclined with respect to the circumferential direction of the ply at a given angle α, each segment having two extremities, said segments being disposed in such a way to include the following repetitive arrangement: one or several intermediate segments of length M, bordered laterally on each side by a lateral segment of length L greater than M, each of said lateral segments being disposed in part coextensive with an intermediate segment and in part extending beyond one of the extremities of said intermediate segment, said extending beyond parts of each of the lateral segments being situated circumferentially each on only one side of said intermediate segment or segments, and inclined with respect to the circumferential direction of the ply at said angle α respectively on each side of said intermediate segment or segments, each of the extending beyond parts itself being bordered laterally by another intermediate segment.



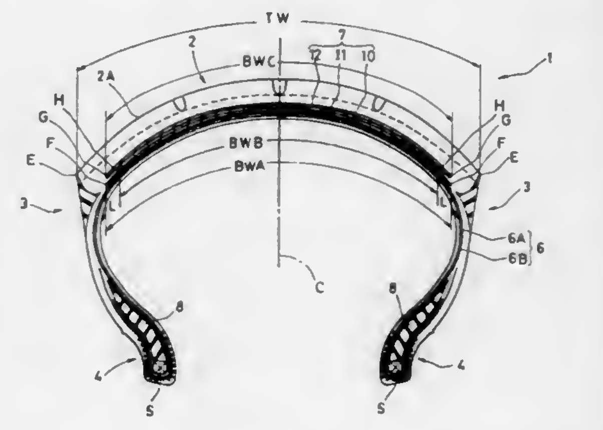
5,783,004
MOTORCYCLE TIRE WITH THREE BELT PLIES

Shigehiko Suzuki, Kobe, Japan, assignor to Sumitomo Rubber Industries, Ltd., Hyogo-ken, Japan

Filed Dec. 4, 1996, Ser. No. 760,569

Int. Cl.^{6} B60C *9/18;9/20*

U.S. Cl. 152—534 **4 Claims**



1. A motorcycle tire comprising

a tread portion having a convexly curved tread face so that the maximum cross-sectional width of the tire lies between the axial edges of the tread portion,

a carcass extending between bead portions through the tread portion and sidewall portions and turned up around respective bead cores in each bead portion,

a belt disposed radially outside the carcass and inside the tread portion, said belt comprising three cut-end plies; a radially inner ply, a radially outer ply and a middle ply disposed therebetween,

the radially inner ply and radially outer ply are made of the same strip of rubberized parallel cords having a strip width of from 85 to 105% the tread width, and

the middle ply is made of a strip of rubberized cords, wherein the difference between the strip width of the middle ply and the strip widths of the inner and outer plies is 10 to 40 mm.

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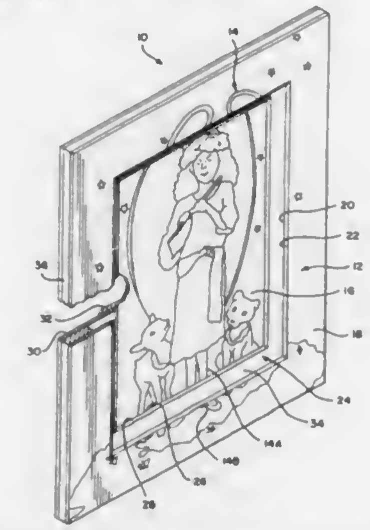
5,783,005
METHOD FOR PRESENTING A PICTURE

Milton E. Handler, Northbrook, Ill., assignor to M&R Pictures, U.S.A., Inc., Fox Lake, Ill.

Filed May 20, 1996, Ser. No. 650,603

Int. Cl.^{6} B32B *31/00*

U.S. Cl. 156—63 **15 Claims**



1. A method for producing a composite work, comprising:

providing a single two-dimensional work piece having an image thereon;

cutting said work piece to define a geometrically shaped center section and a separate one-piece perimeter section, wherein said perimeter section extends adjacent and beyond said center section, thereby dividing the image of said two-dimensional work piece into a broken image regardless of individual sculptural components of the work piece and such that each of said center and perimeter sections displays a respective portion of the broken image; and

assembling the center section and one-piece perimeter section relative to each other such that said perimeter section surrounds said center section and continuity of the image formed by said sections is broken.

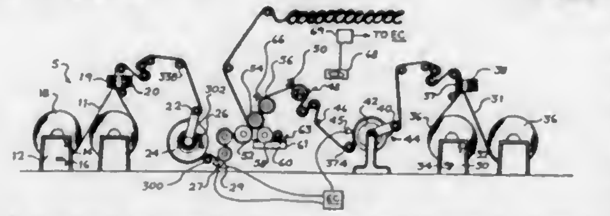
5,783,006
AUTOMATED FABRICATION OF CORRUGATED PAPER PRODUCTS

Jerome J. Klockenkemper, Zionsviolle; Dennis M. Judge, and Charles D. Moore, both of Indianapolis, all of Ind., assignors to Inland Paperboard and Packaging, Inc., Indianapolis, Ind.

Division of Ser. No. 432,038, May 1, 1995. This application Oct. 11, 1996, Ser. No. 730,471

Int. Cl.^{6} B32B *31/00*

U.S. Cl. 156—64 **31 Claims**



8. A method for preparing a paper web for corrugation, comprising the steps of:

providing a paper web having first and second opposed major surfaces and containing moisture;

providing heating means with a curved outer heated surface;

providing a wrap arm for wrapping the paper web across the heating means, with the wrap arm movable between maximum and minimum positions so as to bring greater and lesser portions of the paper web in contact with the heating means;

moving the wrap arm between a series of different positions, between said maximum and said minimum positions so as to bring a changing amount of the first surface of the paper web in contact with the heating means;

sensing, for the different positions of the wrap arm, the moisture of the paper web;

determining a low moisture wrap arm position at which a rate of increase of moisture increases;

determining a high moisture wrap arm position at which a rate of increase of web moisture is negligible;

determining an offset comprising one-half of the difference between the low moisture wrap arm position and the high moisture wrap arm position;

determining a desired operating position of the wrap arm by adjusting the high moisture wrap arm position toward the low moisture wrap arm position by an amount corresponding to the offset; and

moving the wrap arm to the desired operating position.

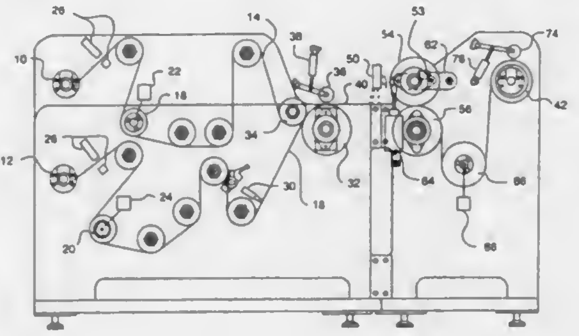
5,783,007
METHOD FOR SPLICING HEAT TRANSFER PRINTING PAPER

William Boyd, Harrisonburg; Malcolm E. Clare, Mt. Crawford; George Stafford, Toms Brook; Thomas Garth, Dayton, all of Va., and Clement Ramdin, Concord, N.C., assignors to Transprint USA, Harrisonburg, Va.

Division of Ser. No. 545,027, Oct. 19, 1995, Pat. No. 5,660,675. This application Mar. 13, 1997, Ser. No. 816,880

Int. Cl.^{6} B32B *31/00*

U.S. Cl. 156—64 **13 Claims**



1. A method for splicing heat transfer printing paper unwound from first and second source rolls located upstream of a rewind roll, the paper on each of said source rolls having a width and moving along parallel paths, together into a single sheet of paper said rewind roll, where said rewind roll has first and second sides and said single sheet of paper on said rewind roll has a width which is no greater than the sum of the widths of the paper on the source rolls and where paper from each source roll has heat transfer printing thereon in a pattern, and said patterns on paper from said source rolls are in registration on the single sheet of paper on said rewind roll, said method comprising:

providing first and second web paths for paper moving in a downstream direction from said first and second source rolls, respectively, to first and second sides of said rewind roll;

adjusting the spacing between said parallel paths such that paper from one of said first and second rolls forms at least a partial overlap with paper from the other of said first and second rolls;

assuring registration, in the direction of movement along said web paths, of paper from one of said first and second rolls with paper from the other of said first and second rolls; and

bonding paper from one of said first and second rolls to paper from the other of said first and second rolls in at least a portion of said overlap.

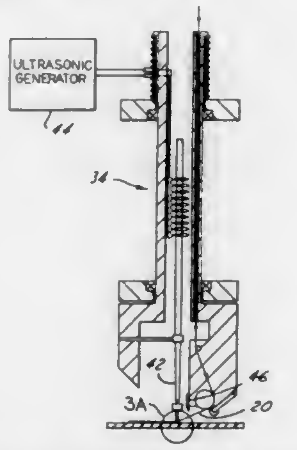
5,783,008
APPARATUS AND METHOD FOR EMBEDDING CONDUCTORS IN A NON-PLANAR SUBSTRATE

Robert Edward Belke, Jr., W. Bloomfield; Robert Bush, Rochester Hills; Brian Daugherty, Ann Arbor; Paul James Mardeusz, Dearborn Heights, and John Trublowski, Troy, all of Mich., assignors to Ford Global Technologies, Inc., Dearborn, Mich.

Filed Mar. 31, 1997, Ser. No. 829,393

Int. Cl.^{6} B32B *31/16*

U.S. Cl. 156—73.2 **9 Claims**



1. A method for embedding conductors in a structure having a non-planar surface with an arcuate cross-section, such as a vehicle instrument panel, the method comprising the steps of:

providing an apparatus having a six-degree-of-freedom conductor embedding head positionable in three dimensions, the conductor embedding head having an ultrasonic stylus at one end thereof;

providing a conductor feeder;

positioning the conductor embedding head at an angle of between 45 and 90 degrees to a line tangent to the non-planar substrate surface at the point at which said stylus contacts said surface;

laying a length of conductor on the surface of said non-planar substrate;

contacting the stylus against the conductor in the substrate surface and ultrasonically vibrating the stylus to soften the surface of the substrate;

pressing a length of conductor into the softened substrate; and

curing the softened substrate to embed the conductor therein.

5,783,009
MANUFACTURING PROCESS OF SHEET-LIKE BODIES COMPRISING SEAT PARTS FOR VEHICLES AND THE LIKE

Juan Singla-Casasayas, Barcelona, Spain, assignor to Fabricacion Asientos Vehiculos Industriales, S.A. (FAINSA), Barcelona, Spain

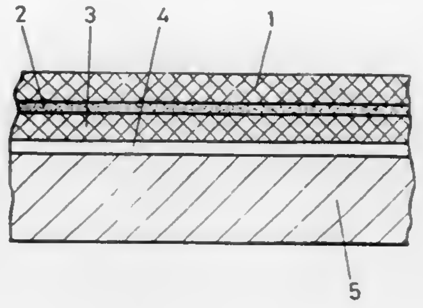
Filed Jun. 22, 1995, Ser. No. 493,777

Claims priority, application Spain, Jun. 22, 1994, 9401359

Int. Cl.^{6} A47C *27/00*

U.S. Cl. 156—90 **9 Claims**

1. A manufacturing process of sheet-like bodies to be used as seat parts for vehicles, said process comprising the subsequent steps of:



fastening an adhesive acrylic resin layer (2) on a surface of a base layer (1), said base layer comprising a woven or unwoven piece of textile fibers, thereby obtaining a first object;

die-pressing said first object, thereby obtaining a second object;

pre-molding and corresponding hot forming of the second object, thereby obtaining a third object;

introducing the third object in a mold, placing a first surface of the third object in contact with the walls of the mold, wherein said first surface is a visible surface of the base layer (1);

depositing on said mold a thermostable material mass (5) formed of polyester-fiber glass, in contact with a second surface of said third object, said second surface being essentially complementary to said first surface; and

hot pressing the contents of the mold, thereby obtaining a single molded sheet-like body.

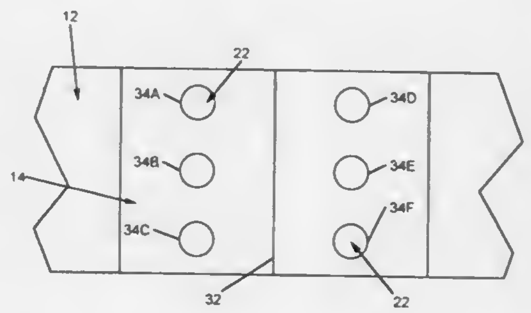
5,783,010
HIGH SPEED SPLICE

Scott D. Fisher, Vadnais Heights, and Jeffrey M. Storeby, South Saint Paul, both of Minn., assignors to HMS Label Specialties, Inc., Minneapolis, Minn.

Filed Apr. 11, 1997, Ser. No. 843,067

Int. Cl.^{6} B31F *5/06;* B32B *3/10*

U.S. Cl. 156—159 **5 Claims**



1. A splice comprising:

a web having a first end and a second end wherein the first and second ends are positioned proximal to each other, wherein the web encloses one or more holes adjacent to each end and further wherein the web has a top side and an underside;

an underside patch adhered to the web so that the underside patch covers the hole or holes and covers each of the ends of the web, the underside patch adhered to the underside of the web by an adhesive layer;

an upper side patch adhered to the web by an adhesive layer, the upper side patch positioned substantially parallel to the underside patch, the upper side patch contacting the underside patch through one or more of the holes;

a coupon or label attached by a reversibly releasable adhesive to be opposite the underside patch so that the coupon or label adheres to the upperside patch of the splice.

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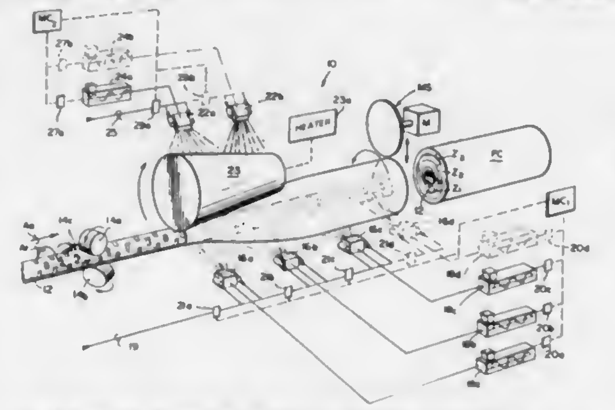
5,783,011
METHOD OF MAKING FILTRATION MEDIA HAVING INTEGRALLY CO-LOCATED SUPPORT AND FILTRATION FIBERS

Steven D. Barboza; Charles S. Hoffman, Jr., both of Baltimore, Md.; Clinton V. Kopp, Castle Hill, Australia; Robert J. Schmitt, Stewartstown, Pa., and Anthony E. Shucosky, Timonium, Md., assignors to Memtec America Corporation, Timonium, Md.

Division of Ser. No. 433,006, May 2, 1995, Pat. No. 5,591,335.
This application May 7, 1996, Ser. No. 646,151
Int. Cl.^{6} D04H *3/16;* B01D *24/00*

U.S. Cl. 156—167 **16 Claims**



11. A method of making filtration medium comprising:

(i) issuing a first stream of melt blown fibers from a first melt blowing die toward a forming mandrel;

(ii) issuing a second stream of melt blown fibers from a second melt blowing die toward a collection/transfer surface positioned adjacent to said forming mandrel such that said second stream of melt blown fibers is blocked from said first stream of melt blown fibers;

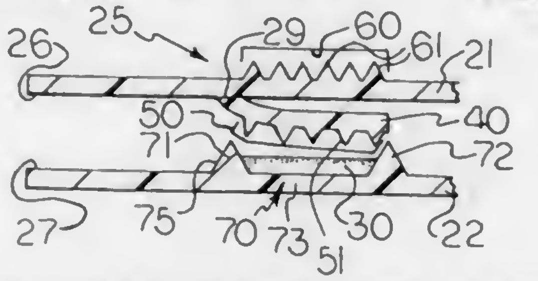
(iii) moving said collection/transfer surface so that said melt blown fibers of said second stream are brought into contact with said melt blown fibers of said first stream and transferred to said forming mandrel.

5,783,012
ADHESIVE CLOSURE HAVING ENHANCED BURST STRENGTH FOR FLEXIBLE BAG

Jose Porchia, Midland, and Brian C. Dais, Sanford, both of Mich., assignors to DowBrands L.P., Indianapolis, Ind.

Division of Ser. No. 228,794, Apr. 15, 1994, Pat. No. 5,487,653.
This application May 31, 1995, Ser. No. 455,121
Int. Cl.^{6} B31B *1/90*

U.S. Cl. 156—66 **8 Claims**



1. A process for producing a thermoplastic bag with an adhesive closure comprising the steps of:

forming a channel strip having a base and an upper rib and lower rib, said strip attached transversely across the longitudinal width of a first inner surface of one of a front wall and rear wall of said bag at a preselected distance from the opening of the bag;

affixing an adhesive strip transversely across the longitudinal width of the channel strip and between said upper and lower ribs; and

affixing a flexible flap member strip transversely across the longitudinal width of a second inner surface of one of a front wall and rear wall of said bag at a preselected distance from the opening of the bag and aligning the flap member on the wall opposite from the adhesive strip, said flexible flap member being affixed to said inner surface along one edge of the flexible flap member strip;

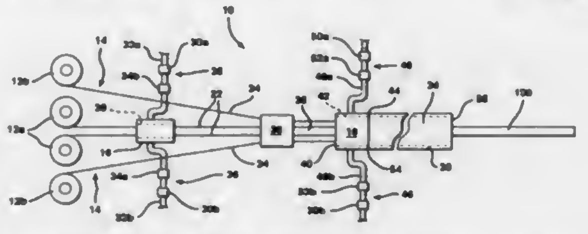
substantially all of the surface area of said flexible flap member of said bag being pressable against and into said adhesive strip and between said upper and lower ribs on said first inner surface to form a seal by contacting said adhesive strip with said flap member of said second inner surface.

5,783,013
METHOD FOR PERFORMING RESIN INJECTED PULTRUSION EMPLOYING MULTIPLE RESINS

Jay J. Beckman, and James V. Gauchel, both of Newark, Ohio, assignors to Owens-Corning Fiberglas Technology Inc., Summit, Ill.

Filed Jun. 7, 1995, Ser. No. 478,131
Int. Cl.^{6} B29C *70/52*

U.S. Cl. 156—180 **19 Claims**



1. A method for performing resin injected pultrusion comprising the steps of:

supplying at least one continuous first interior layer and at least one continuous second exterior layer;

impregnating said at least one first interior layer with at least a first strength imparting resin material;

combining said impregnated first interior layer and said at least one second exterior layer to form a pultrusion reinforcement pack;

passing said reinforcement pack into an injection die; and,

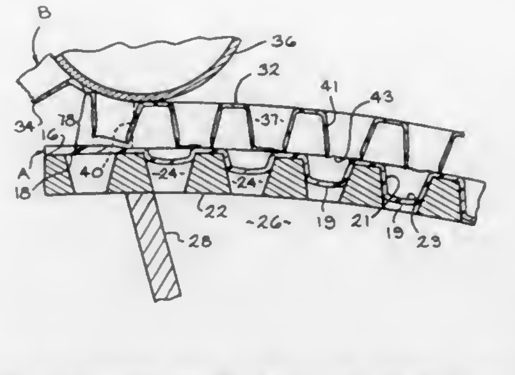
injecting a final resin material into said injection die to impregnate said reinforcement pack with the final resin material to form an impregnated pultrusion reinforcement pack, wherein said first and final resin materials are substantially nonidentical resin materials.

5,783,014
LAMINATION OF APERTURED OR NON-APERTURED THREE-DIMENSIONAL FILMS TO APERTURED OR NON-APERTURED THREE-DIMENSIONAL AND/OR FLAT FILMS

John D. Biagioli; Timothy L. Clark, both of Puyallup, Wash., and Gary A. Otte, Brazil, Ind., assignors to Tredegar Industries, Inc., Richmond, Va.

Division of Ser. No. 467,837, Jun. 6, 1995, Pat. No. 5,698,054, which is a division of Ser. No. 286,475, Aug. 5, 1994, Pat. No. 5,635,275. This application Sep. 3, 1996, Ser. No. 711,365
Int. Cl.^{6} B32B *3/28;31/14*

U.S. Cl. 156—209 **11 Claims**



1. A method for the manufacture of a laminated composite film comprising:

a) supplying at least one layer of a first thermoplastic material at a sufficiently elevated temperature and at a sufficient mass in order to achieve a bond between the first material and a second material, the first material having a top surface and a bottom surface;

b) passing successive portions of the first material into contact with a continuous moving perforated member having perforations which extend through the perforated member, subjecting the bottom surface of the first material to the action of a fluid pressure differential, the fluid pressure differential causing portions of the first material to flow into the perforations of the continuous moving perforated member;

c) maintaining the fluid pressure differential for a period of time sufficiently for a plurality of microprotuberances to be formed in the first material, the microprotuberances having a thickness and mass that are less than a thickness and mass of the material forming the top surface of the first material;

d) supplying at least one layer of the second material comprising a thin, thermally sensitive thermoplastic material, the second material having a top surface and a bottom surface such that the top surface or the bottom surface of the second material is brought into contact with the top surface of the first material after the protuberances have been formed in the first material, wherein the second material laminates or adheres to the first material without substantially distorting the first material or the second material; and,

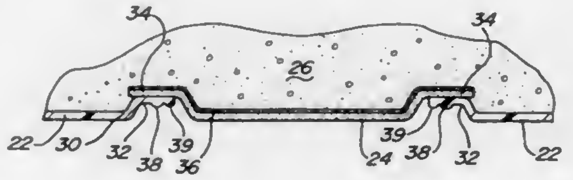
e) continuously removing the laminated first and second materials from the moving perforated member.

5,783,015
METHOD OF MAKING VEHICLE HEADREST HAVING CLOTH FACE BONDED TO PLASTIC SHELL

Lynn F. Hannert, Harrison, and Timothy F. O'Brien, White Lake, both of Mich., assignors to UT Automotive Dearborn, Inc, Dearborn, Mich.

Filed Sep. 22, 1995, Ser. No. 532,370
Int. Cl.^{6} B32B *31/18*

U.S. Cl. 156—213 **9 Claims**



1. A method of forming a component comprising the steps of:

(i) forming a plastic shell having a hollow interior space between forward and rear faces;

(ii) placing a cloth laminate in the interior space between said forward and rear faces of said shell such that at least a portion of a forward face of said cloth contacts said forward face of said shell;

(iii) while maintaining said contact, bonding a portion of said forward face of said shell to said cloth laminate along a bead thereby outlining a shell portion, and removing said shell portion within said bead to expose said cloth face; and

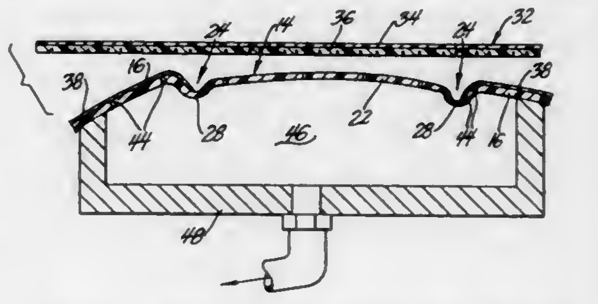
(iv) filling said shell with foam.

5,783,016
INSTRUMENT PANEL HAVING INTEGRATED AIRBAG DEPLOYMENT DOOR

Michael J. Gallagher, Hampton, and Peter J. Iannazzi, Hampstead, both of N.H., assignors to Davidson Textron, Inc., Dover, N.H.

Filed Aug. 21, 1996, Ser. No. 700,980
Int. Cl.^{6} B32B *31/18;* B60R *21/20*

U.S. Cl. 156—214 **5 Claims**



1. A method of manufacturing an instrument panel assembly of an automotive vehicle having an integral airbag deployment door for normally concealing an inflatable airbag of the vehicle, said method comprising the steps of:

molding a retainer from rigid plastics material having a main body portion mountable to a support structure of the vehicle, an airbag deployment door portion, and a molded-in channel extending into the retainer from an outer surface thereof interconnecting the main body and door portions of the retainer as a unitary structure and defining a tear seam line for the door portion enabling the door portion to separate and swing outwardly of the main body portion in response to deployment of the airbag;

preparing a cover comprising an outer skin of flexible plastics material;

applying an adhesive to the outer surface of at least the main body portion of the retainer;

positioning the cover over the outer surface of the retainer and drawing a vacuum on the retainer to urge the cover against the main body and door portions of the retainer and down into the channel;

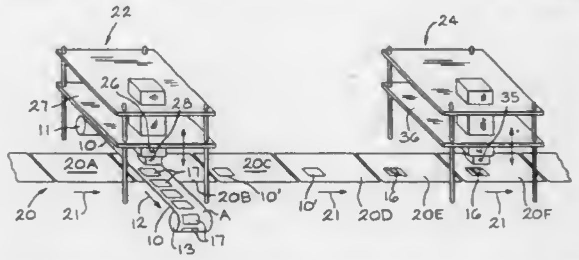
and severing the cover within the channel to reduce the resistance that the cover may offer to the separation and outward swinging of the door portion of the retainer upon deployment of the airbag.

5,783,017
PLASTIC FOIL FOR HOT LEAF STAMPING AND METHOD FOR FORMING

David R. Boswell, Reading, England, assignor to NovaVision Inc., Bowling Green, Ohio

Division of Ser. No. 381,095, Jan. 30, 1995, Pat. No. 5,674,580, which is a continuation-in-part of Ser. No. 222,283, Apr. 4, 1994, Pat. No. 5,464,690. This application May 30, 1997, Ser. No. 865,734
Int. Cl.^{6} B44C *1/00*

U.S. Cl. 156—231 **20 Claims**



1. A method for forming a hot leaf stamping foil composite sheet comprising the steps of:

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(a) providing a film of material selected from the group consisting of a polyester, biaxially oriented polypropylene, cellulosic triacetate, polystyrene, polyethylene and polyvinylchloride;

(b) depositing on said film a layer of metal having a thickness in the range of 20 millimicrons to 100 millimicrons;

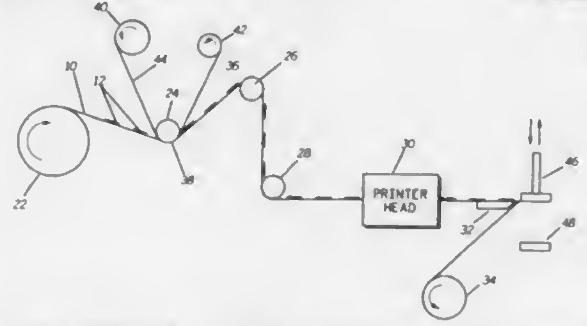
(c) applying to said metal layer a first lacquer coating having a thickness in the range of 0.5 microns to 3 microns, said first lacquer coating being a member selected from the group consisting of acrylic, styrene-acrylonitrile polymer, polyester and nitrocellulose;

(d) applying to said first lacquer coating a second lacquer coating having a thickness in the range of 0.05 microns to 0.2 microns, said second lacquer coating being a member selected from the group consisting of acrylic, styrene-acrylonitrile polymer, polyester and nitrocellulose; and

(e) applying to said second lacquer coating a heat activatible adhesive having a thickness in the range of 0.75 microns to 4 microns.

5,783,018
APPARATUS FOR CLEANING LABELS AND METHOD THEREFOR

Kiron Gore, Libertyville, and Steven Lustig, Wheeling, both of Ill., assignors to Motorola, Inc., Schaumburg, Ill.
Filed Apr. 5, 1996, Ser. No. 628,306
Int. Cl.^{6} B08B *1/04*
U.S. Cl. 156—281 **5 Claims**

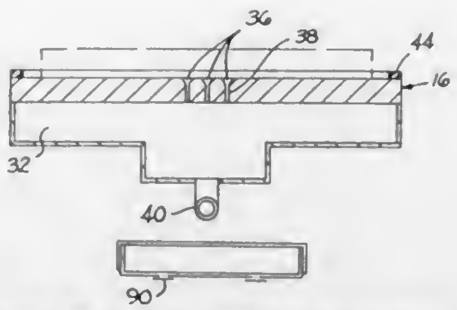


1. An apparatus for cleaning labels having print surfaces, said apparatus comprising:

a guide having a guide surface;
first and second tape reels;
a tape running from said first tape reel, over said guide, to said second tape reel, said tape having an a low-tack adherent surface; and
means for moving said labels past said guide so that said adherent surface contacts said print surfaces of said labels;
wherein said second tape reel is rotated at a rate such that said adherent surface moves in correspondence with said labels and the adherent surface is effectively rolled across the print surface of the labels to provide contact with said print surfaces by unused portions of said adherent surface.

5,783,019
METHOD FOR MANUFACTURING SPA COVER CORES

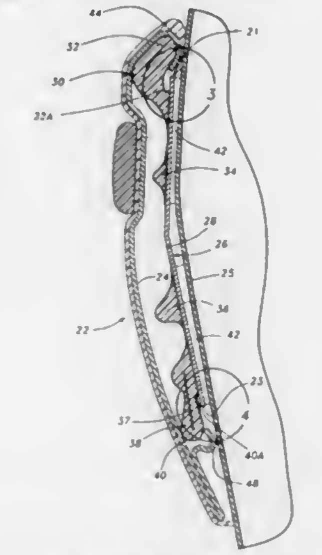
John Bryant Pesterfield, Cleveland, Tenn., assignor to St. John Manufacturing Co., Inc., Cleveland, Tenn.
Filed Aug. 8, 1996, Ser. No. 694,277
Int. Cl.^{6} B29C *69/00;69/20*
U.S. Cl. 156—285 **9 Claims**



1. A method of laminating synthetic plastic film formable when heated and having a heat activated adhesive on one surface about a porous synthetic plastic foam base, said base having upper, lower and side surfaces, said method comprising placing the lower surface of said base onto a table through which a suction may be drawn to the underside of said table under substantially the entire lower surface of said base, clamping a first sheet of film above said base with said one surface facing toward said base, heating said film until said film is readily formable and said adhesive is activated, lowering said film into contact with the upper surface of said base, sealing peripheral portions of said film to the table at dispositions spaced from said base so that said base is isolated from ambient conditions above said film, and applying a sub-atmospheric pressure to the underside of said table to withdraw air from between said base and said film through said base and said table, thereby to collapse and adhere said film onto the upper and side surfaces of said base, trimming excess film extending from side surfaces of said base from the film adhering to said base, providing at least one slit in the film on said upper surface of said base, inverting said base, so that said upper surface and lower surface are inverted, placing the inverted upper surface of said base onto said table so that the inverted lower surface faces away from said table, and laminating a second sheet of such film onto the inverted lower surface of said base to encase said base within film by clamping said second sheet above the base, heating said second sheet, lowering said second sheet onto the inverted lower surface, and applying sub-atmospheric pressure to the underside of said table to withdraw air through said slit.

5,783,020
MOUNTING CLIP

Ronald D. Kress, 41526 Clairpointe, Harrison Township, Macomb County, Mich. 48045, assignor to Ronald D. Kress, Harrison Township, Mich.
Filed Jan. 4, 1996, Ser. No. 582,929
Int. Cl.^{6} B60R *13/04*
U.S. Cl. 156—291 **13 Claims**

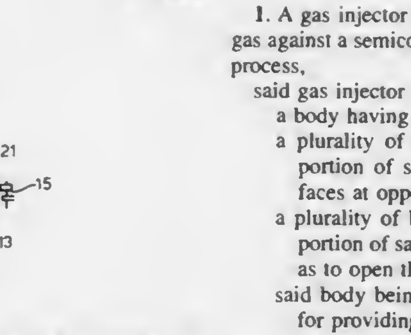


1. A combination for securing an item to a structure comprising:

an item having a front face and a rear face and extending axially along an axis for a first length; and
a clip carried on said rear face of said item, said clip extending along said axis for a length less than said first length, an adhesive face facing rearwardly of said front face, a substrate positioned between said item and said adhesive face, and having opposed lateral edges, and a plurality of plastic bearing surfaces extending from said substrate in a direction towards said item, wherein said bearing surfaces are spaced from said lateral edges of said substrate; and
at least one of said bearing surfaces receiving a metal stiffener.

5,783,021
METHOD OF AND APPARATUS FOR APPLYING A FILM TO A SUBSTRATE

Yasushi Tabuki; Yoichi Matsubara, both of Kanagawa, Japan, and Yoshimitsu Kato, Bridgend, United Kingdom, assignors to Sony Corporation, Tokyo, Japan, and Sony United Kingdom Limited, Weybridge, England
Filed Mar. 14, 1996, Ser. No. 616,064
Claims priority, application United Kingdom, Mar. 15, 1995, 9505199
Int. Cl.^{6} B32B *17/06;31/20*
U.S. Cl. 156—295 **9 Claims**

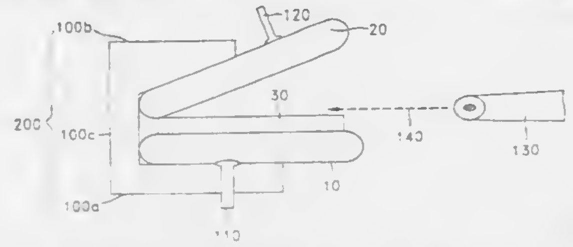


1. A method of applying a film to the surface of a substrate, the method comprising the steps of:

applying a resin to the surface;
pressing, with a pressure member, a part of the film against a first edge part of the surface; and
moving said pressure member across the surface towards a second edge opposite the first edge to press the film against the surface, the pressure applied to the film by said pressure member in a middle part of the surface being less than that applied at parts adjacent the two edges.

5,783,022
APPARATUS AND METHODS FOR WAFER DEBONDING USING A LIQUID JET

Gi-ho Cha, and Byoung-hun Lee, both of Kyungki-do, Rep. of Korea, assignors to Samsung Electronics Co., Ltd., Rep. of Korea
Filed Oct. 31, 1996, Ser. No. 742,938
Claims priority, application Rep. of Korea, Oct. 31, 1995, 1995-39045
Int. Cl.^{6} B32B *35/00*
U.S. Cl. 156—344 **19 Claims**

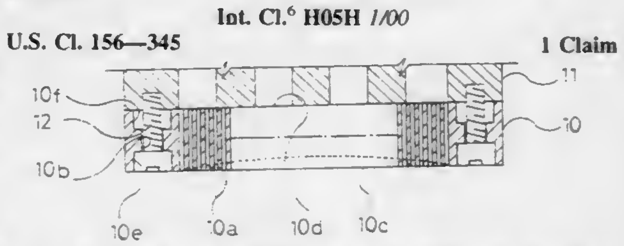


17. A wafer separating method for separating a first wafer and a second wafer at an interface therebetween, said method comprising the steps of:

loading the first wafer and the second wafer into a wafer loader;
holding the first wafer in a substantially fixed position in said wafer loader; and
jetting a liquid from a nozzle toward the interface to separate the second wafer and the first wafer.

5,783,023
GAS INJECTOR FOR USE IN SEMICONDUCTOR ETCHING PROCESS

Jae-young Oh; Suk-yong Jung; Han-sung Kim, and Jin-ho Park, all of Yongin-gun, Rep. of Korea, assignors to Samsung Electronics Co., Ltd., Kyungki-do, Rep. of Korea
Filed Sep. 24, 1996, Ser. No. 716,775
Claims priority, application Rep. of Korea, Oct. 9, 1995, 95-34557
Int. Cl.^{6} H05H *1/00*
U.S. Cl. 156—345 **1 Claim**

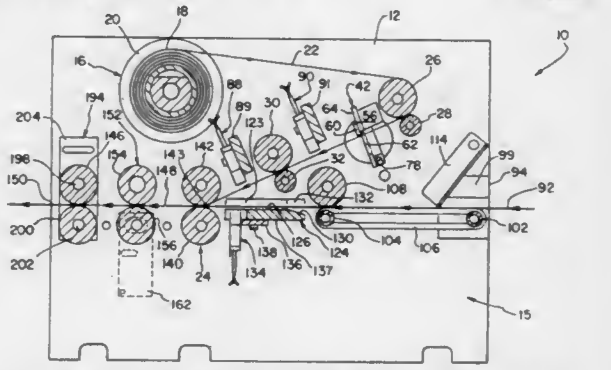


1. A gas injector for securement to a gas supply, for injecting a gas against a semiconductor workpiece, in a semiconductor etching process,

said gas injector comprising:
a body having two opposite faces;
a plurality of gas-injecting holes formed through a central portion of said body so as to open through both of said faces at opposite ends thereof;
a plurality of bolt holes formed through an outer peripheral portion of said body, peripherally of said central portion, so as to open through said body at opposite ends thereof;
said body being recessed where each end of each bolt hole, for providing respective bolt head-accommodating slots in said body, so that said body can be successively secured to the gas supply by bolts with one said face, and with the other said face thereof disposed against the gas supply, and heads of the bolts recessed into respective ones of the bolt head-accommodating slots.

5,783,024
APPARATUS FOR APPLYING HEAT BONDABLE LAMINA TO A SUBSTRATE

Maurice J. Forkert, Fort Wayne, Ind., assignor to NBS Imaging Systems, Inc., Fort Wayne, Ind.
Filed Apr. 12, 1996, Ser. No. 630,681
Int. Cl.^{6} B32B *35/00*
U.S. Cl. 156—351 **12 Claims**



1. An apparatus for making a plurality of laminated substrates by cutting a plurality of protective, transparent laminate sheets from a webless supply of lamina and applying said sheets to a corresponding plurality of planar substrates, each said substrate having information on one face thereof, each said laminate sheet applied over a said one face and substantially completely covering said one face, said apparatus comprising:

a lamina supply member capable of holding a webless supply of lamina material which can be cut into successive sheets of laminate;
a cutter, said cutter capable of cutting said lamina into successive sheets of laminate;

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- a convergence zone at which successive sheets of laminate and corresponding planar substrates are registrably brought into contact such that each said laminate sheet substantially completely covers a said one face of said substrate;
- a lamina supply path extending from said lamina supply member to said convergence zone, said cutter disposed on said lamina supply path;
- a lamina sensor disposed on the lamina supply path between the cutter and the convergence zone, said lamina sensor capable of detecting a predetermined reference of the lamina;
- a laminate transport means for conveying a laminate sheet along the lamina supply path in a direction from the cutter towards the convergence zone;
- a substrate entry zone at which the substrates enter the apparatus;
- a substrate supply path extending from the substrate entry zone to the convergence zone;
- a substrate sensor disposed on the substrate supply path, said substrate sensor capable of detecting a predetermined reference of the substrate;
- a control responsive to the lamina sensor for actuating the cutter to sever a sheet of laminate from the lamina supply when said lamina sensor detects the lamina reference, for actuating said laminate transport means, and for retaining said laminate sheet on said lamina supply path, said control further responsive to said substrate sensor to activate said laminate transport means to cause said laminate sheet and substrate to be registrably brought together at the convergence zone whereby said laminate sheet substantially completely covers said one face of said substrate; and
- a heater for bonding each successive sheet of laminate to a corresponding substrate to form a laminated substrate.

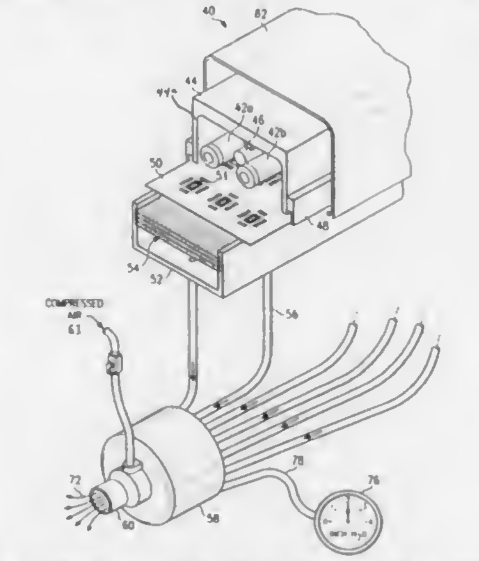
5,783,025
OPTICAL DIEBONDING FOR SEMICONDUCTOR DEVICES

Ming Hwang, Richardson; Leslie E. Stark, and Gonzalo Amador, both of Dallas, all of Tex., assignors to Texas Instruments Incorporated, Dallas, Tex.

Continuation of Ser. No. 255,197, Jun. 7, 1994, abandoned. This application Nov. 6, 1996, Ser. No. 743,691

Int. Cl.⁶ B32B *31/00;* G05G *15/00*

U.S. Cl. 156—359 **4 Claims**



1. An apparatus for curing an polymer die attach material to adhere a semiconductor die to a lead frame, comprising:
- a near infrared lamp;
- a reflector to direct emissions from the near infrared lamp across the width of the lead frame;
- a beltless processing station including a lead frame track rail disposed under the lamp to retain the lead frame having the semiconductor die adhered thereto by the polymer die attach material, the lead frame track rail supporting the lead frame only on the sides that define the width of the lead frame; and
- an exhaust system in fluid communication with said processing station to remove outgassing from the polymer die attach material, the exhaust system including a diffuser screen to equalize exhaust vacuum across the width of the lead frame.

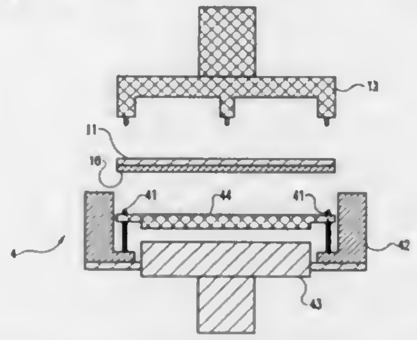
5,783,026
APPARATUS FOR STACKING SHEETS BY CARRIERS

Govindarajan Natarajan, Pleasant Valley; John Ulrich Knickerbocker, Hopewell Junction, and Robert William Pasco, Wappingers Falls, all of N.Y., assignors to International Business Machines Corporation, Armonk, N.Y.

Filed May 24, 1995, Ser. No. 448,692

Int. Cl.⁶ B32B *35/00*

U.S. Cl. 156—378 **11 Claims**



1. An apparatus for stacking sheets, said sheets being provided in advance and each of said sheets being respectively mounted on a carrier, thereby forming a sheet/carrier structure, said apparatus comprising:
- a frame having at least one pin, a stationary plate and a movable plate, said at least one pin being movable relative to said sheet/carrier structure for receiving and aligning said sheet/carrier structure in said stacking apparatus;
- means for removing said carrier from said sheet in said sheet/carrier structure; and
- a tacking device movable relative to said frame for tacking a second sheet of a second sheet/carrier structure received by said frame and having had its carrier removed therefrom, to said sheet.

5,783,027
ZIPPER FUSING MACHINE FOR ATTACHING ZIPPER MATERIAL TO A PLASTIC WEB

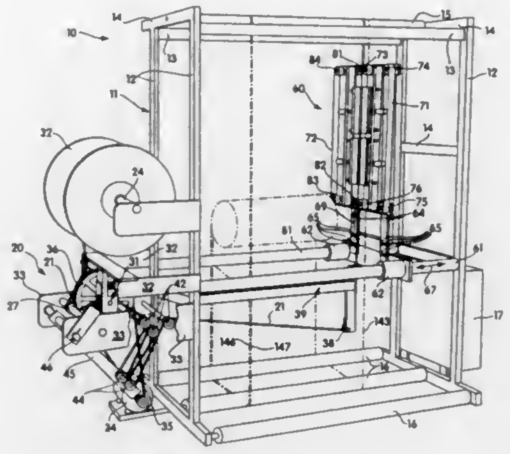
Larry M. Rodenstein, Newton; Bradley G. Glines, Plymouth, and Theodore Amell, Brockton, all of Mass., assignors to Park-Air Corporation, Brockton, Mass.

Continuation of Ser. No. 430,879, Apr. 28, 1995, Pat. No. 5,672,234. This application May 21, 1997, Ser. No. 859,973

Int. Cl.⁶ B30B *5/06;15/34*

U.S. Cl. 156—494 **20 Claims**

1. A machine for fusing a plastic zipper material to a length of a plastic bag film, the plastic bag film including a first edge and a second edge extending along the length thereof and having a width between the first edge and the second edge, the machine comprising:
- a frame having opposing first and second sides;
- a plurality of guide rollers mounted on the frame in a longitudinal direction between the first and second sides, the guide rollers being arranged to guide the plastic bag film through the frame with the width of the plastic bag film extending across the frame in the longitudinal direction;
- a fusing mechanism constructed and arranged to fuse the zipper material to the plastic bag film, the fusing mechanism being mounted on the frame and movable in the longitudinal direction for alignment with a selected fuse path between the first and second edges of the plastic bag film; and
- a zipper supply mechanism constructed and arranged to feed the zipper material along the fuse path.



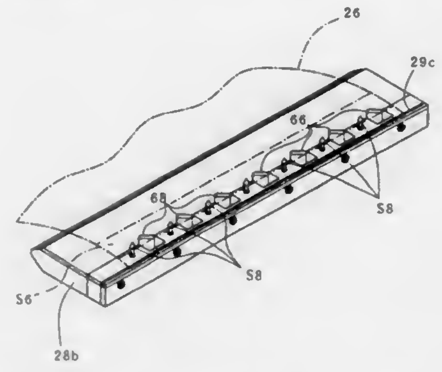
5,783,028
SHEET SPLICING APPARATUS

Masanori Kunimoto, Kani, Japan, assignor to ISOWA Hooperswift, Ltd., Kasugai, Japan

Filed Dec. 4, 1995, Ser. No. 566,684

Int. Cl.⁶ B65H *21/00*

U.S. Cl. 156—504 **16 Claims**



1. A sheet splicing apparatus for splicing a first sheet from a primary roll to a second sheet from a secondary roll;
- wherein said sheet splicing apparatus comprises a sheet holding bar which is arranged along the width of an end portion of the second sheet, and said end portion of the second sheet is removably attached to said sheet holding bar, wherein said sheet holding bar moves between a position for attaching said end portion of the second sheet and a position for splicing said end portion to the first sheet from said primary roll while removably holding the second sheet; and
- wherein a plurality of holding pins, which hold said second sheet by piercing through said second sheet in the thickness direction thereof and have a sheet stopping portion for preventing said second sheet from dropping off said holding pins, are removably mounted on said sheet holding bar along the width of said sheet.

5,783,029
PAPER WEB LEADING EDGE PREPARATION DEVICE

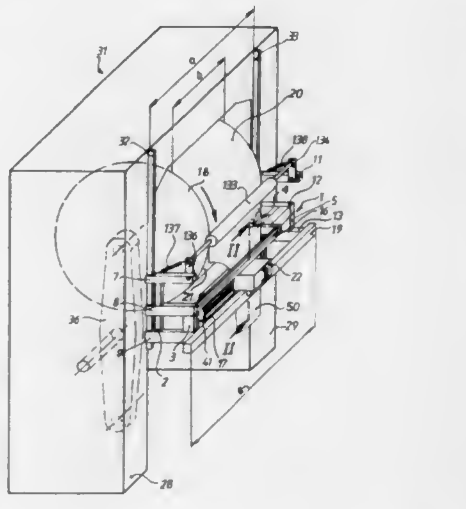
Gerd Erich Stettner, Stadtlauringen, and Hartwig Horst Trutschel, Würzburg, both of Germany, assignors to Koenig & Bauer-Albert Aktiengesellschaft, Wurzburg, Germany

Filed Mar. 27, 1996, Ser. No. 622,136

Claims priority, application Germany, Nov. 2, 1995, 195 40 689.3

Int. Cl.⁶ B32B *31/00;* B65H *19/18*

U.S. Cl. 156—510 **7 Claims**



1. A processing device usable to prepare a paper web supply roll having a paper web supply roll axis of rotation, a paper web leading edge, and spaced first and second lateral side edges for a paper web splice, said processing device comprising:
- a work carriage;
- means to support said work carriage adjacent said paper web leading edge and to clamp said paper web leading edge stationary;
- means to shift said work carriage generally along said paper web leading edge between said first and second lateral side edges in a direction parallel to said paper web supply roll axis of rotation;
- first and second elongated cylindrical paper web lateral edge cutter supports mounted on said work carriage for rotation about first and second paper web lateral edge cutter support axes of rotation, said axes of rotation being inclined at acute angles to said paper web leading edge;
- first and second paper web lateral edge cutters each having an elongated cutting edge and being supported on said first and second elongated cylindrical paper web lateral edge cutter supports, said elongated cutting edges of said first and second paper web lateral edge cutters extending along said first and second elongated cylindrical paper web lateral edge cutter supports parallel to said first and second paper web lateral edge cutter support axes of rotation; and
- means to rotate said first and second paper web lateral edge cutter supports and said first and second paper web lateral edge cutters and to sever a first web corner section from said first lateral side edge of said web adjacent said paper web leading edge using said elongated cutting edge of said first paper lateral edge cutter when said work carriage is initially positioned adjacent said first lateral side edge of said paper web and is held stationary, and to sever a second web corner section from said second lateral side edge of said web adjacent said paper web leading edge using said elongated cutting edge of said second paper lateral edge cutter when said work carriage is subsequently positioned adjacent said second lateral side edge of said paper web and is held stationary, said first and second web corner sections being severed while said paper web leading edge is also held stationary by said means to clamp said paper web leading edge.

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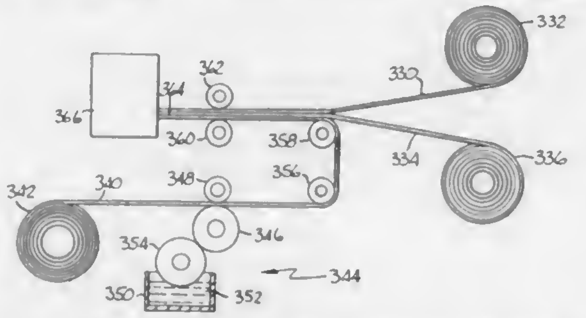
5,783,030
SYSTEM AND METHOD FOR FORMING CARTON BLANKS

Joseph C. Walsh, Longmont, Colo., assignor to Graphic Packaging Corporation, Paoli, Pa.

Continuation-in-part of Ser. No. 352,526, Dec. 9, 1994, abandoned, and Ser. No. 336,982, Nov. 14, 1994, abandoned, each which is a continuation-in-part of Ser. No. 51,628, Apr. 22, 1993, abandoned, which is a continuation-in-part of Ser. No. 994,132, Dec. 21, 1992, abandoned. This application Jan. 17, 1996, Ser. No. 587,495

Int. Cl.^{6} B31B *17/04;* B32B *31/08*

U.S. Cl. 156—549 **10 Claims**



1. A system for forming a laminate of materials comprising:
a pair of laminating rolls having facing portions to form a nip therebetween;
first feeding means which feed a continuous strip of a relatively rigid material into said nip;
second feeding means which feed a continuous film of a relatively flexible fluid impervious material into said nip;
said continuous strip of a relatively rigid material and said continuous film of a relatively flexible fluid impervious material having substantially the same transverse width;
third feeding means which feed a plurality of continuous strips of a relatively flexible material in spaced apart relationship into said nip and located between said continuous strip of a relatively rigid material and said continuous film of a relatively flexible fluid impervious material;
coating means which apply a coating of an adhesive material as required so that said pair of laminating rolls secures said plurality of continuous strips of a relatively flexible material only to spaced apart portions of said continuous film of a relatively flexible fluid impervious material and other portions of said continuous film of a relatively flexible fluid impervious material to portions of said continuous strip of a relatively rigid material as they pass through said nip; and
processing apparatus for further processing said laminated material.

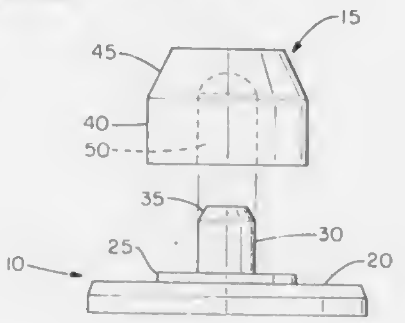
5,783,031
DEVICE FOR INSTALLING LABELS ON COMPACT DISCS

Gail Sievers, 1395 Greg St., Suite 108, Sparks, Nev. 89431

Filed Oct. 25, 1995, Ser. No. 547,938

Int. Cl.^{6} B32B *31/00*

U.S. Cl. 156—556 **5 Claims**



1. A device for concentrically applying an annular label having an internal diameter to a compact disc having a first surface which is non writable/readable and an opposing second surface which is generally writable/readable with a non writable/readable portion near the center thereof, said device comprised of:
a. a means for centering and holding the compact disc over a base such that only the non writable/readable portion of the second surface contacts the base; and
b. a means cooperative with said centering and holding means for centering a label over the compact disc and allowing the label to be attached to the compact disc, said means having an external diameter at least as large as the diameter of the non writable/readable portion of the second surface.

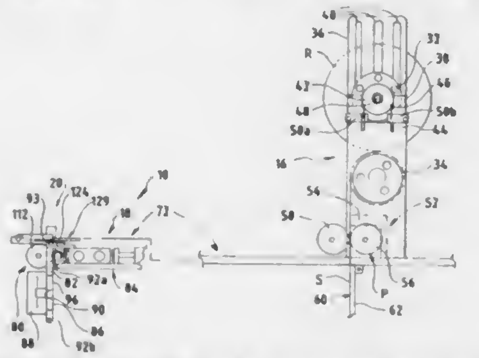
5,783,032
LINERLESS LABEL APPLICATOR

John S. O'Callaghan, Wilmette; Tomasz Bednarek, Niles; Metin M. Durum, Elmhurst, and Narasimha Swamy, Streamwood, all of Ill., assignors to Bell & Howell Postal Systems Inc.

Filed Oct. 4, 1996, Ser. No. 725,245

Int. Cl.^{6} B32B *31/00*

U.S. Cl. 156—556 **19 Claims**



1. A linerless label applicator for forming and applying a discrete linerless label to a document, the linerless label being formed from a continuous source of linerless label material, the apparatus being adapted to receive and advance a plurality of documents, one at a time, along a document path through the applicator, the linerless label material having a first, adhesive carrying side and a second, non-adhesive carrying side, the applicator comprising:
a label storage and feed section adapted to store the continuous source of linerless label material on a label storage member, said section having a drive element being adapted to feed the material therefrom along a label feedpath;
a label cutting section including label drive means, label guide means and a label cutting assembly, said cutting section being adapted to receive the continuous label, advance the material in discrete, predetermined amounts, and cut labels from the continuous label material, said guide means including a vacuum manifold having a surface configured to receive the label material with the non-adhesive carrying side thereon, said surface defining a plurality of vacuum openings therein being in flow communication with an associated vacuum producing source for effecting a vacuum in said openings, said guide means further including a plurality of guide elements projecting from said surface, said guide elements defining a label travel path for guiding the label material through said cutting section, said label cutting assembly including a stationary cutting blade and a moveable cutting blade mounted adjacent to said stationary blade and configured to coact therewith for cutting the label material at a predetermined position to form the discrete label, said moveable blade including a cutting edge and having drive means operably connected thereto for moving said blade in a reciprocating path toward and away from, and transverse to, a plane defined by said label travel path, said moveable blade further including a stripper member mounted thereto in spaced relation to said cutting edge; and

a label application section having a pivotal paddle member mounted thereto, said paddle member having drive means for pivoting said paddle member between a receiving position and an applying position and being configured to receive the label material thereon when in said receiving position and secure the label thereto when the label material is being cut into the discrete label, and further adapted to pivot to said applying position to apply the label to the document passing in proximity thereto along the document path.

5,783,033
LABELING DEVICE

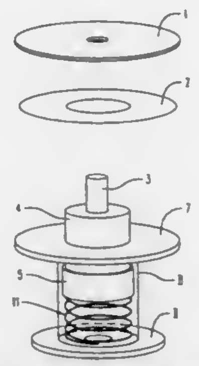
Stanley I. Grossman, Flat 7, 26 Downside Crescent, London, United Kingdom, NW3 2AS

Filed Feb. 26, 1997, Ser. No. 806,316

Claims priority, application United Kingdom, Feb. 26, 1996, 9604048

Int. Cl.^{6} B32B *31/00*

U.S. Cl. 156—556 **4 Claims**



1. A unitary device for applying a first substantially planar member having a central aperture of a first diameter to a second substantially planar member having a central aperture of a second diameter, wherein the first diameter is greater than the second diameter, the device comprising:
an assembly having a circumferential flange with an upper surface capable of supporting the first planar member;
a piston having a top surface and a lower surface;
a first rod having a diameter slightly less than the first diameter, and extending from the top surface of said piston;
a second rod having a diameter slightly less than said second diameter, and extending from said first rod; and
a tube having an upper end, a lower end, and a spring that cooperates with said lower surface, said circumferential flange extending from said upper end of said tube,
wherein said piston is slidably received in said tube and is adapted to move from a first position in which said second rod and at least a portion of said first rod extend above said upper surface to a second position in which at least said first rod is entirely below or is level with said upper surface.

5,783,034
LINT, PET HAIR, DEBRIS AND BUG SNATCHER

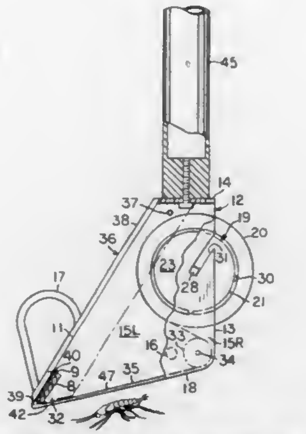
Charles L. Urso, 54 Marivista Av, P.O. Box 1136, Waltham, Mass. 02254

Filed Sep. 30, 1996, Ser. No. 722,978

Int. Cl.^{6} B32B *35/00*

U.S. Cl. 156—579 **20 Claims**

1. A device for snatching objects comprising:
a handle;
roll support means, connected to the handle, for supporting a roll of adhesive tape to rotate about a roll axis;
tape support means, connected to the handle, for supporting a tape portion extending from the roll;
a resilient pad positioned adjacent the tape support means such that the tape portion is backed and cushioned by the pad to conform to target objects thereby enhancing adhesion of the tape portion to target objects; and



a tape cutter connected to the handle for cutting off tape after use wherein the tape cutter is supported for being movable relative to the tape support means between open and closed positions, in the closed position the cutter facilitates cutting the tape.

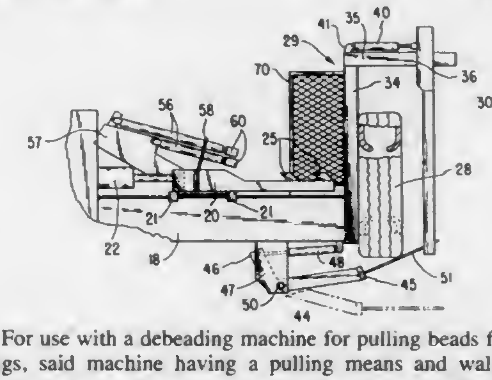
5,783,035
TIRE DEBEADING MACHINE

Les H. Pederson, 4444 S. York St., Sioux City, Iowa 51106

Filed Jan. 21, 1997, Ser. No. 786,638

Int. Cl.^{6} B32B *35/00*

U.S. Cl. 156—584 **8 Claims**



1. For use with a debeading machine for pulling beads from tire casings, said machine having a pulling means and wall means adapted to hold said casing against the force of said pulling means, stripping die means adapted to clear excess casing material from said beads comprising a pair of mirror image parts hingedly attached to said wall means, said die means when closed being formed with an opening through which said beads are pulled, said parts being openable at said opening so that said die can be readily cleaned when separated.

5,783,036
METHOD FOR DRY ETCHING METAL FILMS HAVING HIGH MELTING POINTS

Hideyuki Shoji, Tokyo, Japan, assignor to NEC Corporation, Japan

Continuation of Ser. No. 327,648, Oct. 24, 1994, abandoned. This application Apr. 10, 1996, Ser. No. 630,554

Claims priority, application Japan, Nov. 1, 1993, 5-273352

Int. Cl.^{6} H01L *21/00;* C23F *1/00*

U.S. Cl. 156—643.1 **4 Claims**

1. A method for dry etching a metal film having a high melting point in a semiconductor substrate where said metal film is deposited on a silicon substrate with an underlaying silicon oxide film being interposed therebetween, the method comprising the steps of:

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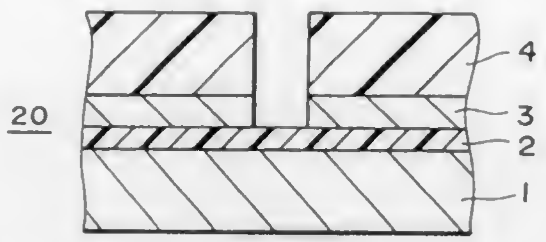


placing said semiconductor substrate in an anode coupled type dry etching system; and

etching said metal film with high selectivity with respect to said silicon oxide film in said dry etching system by utilizing a gas mixture composed of SF_6, Cl_2 and O_2 as an etching gas, wherein said etching gas employs a gas mixture wherein flow rates of SF_6, Cl_2 and O_2 are 20:0.5–1.5:3–7, respectively.

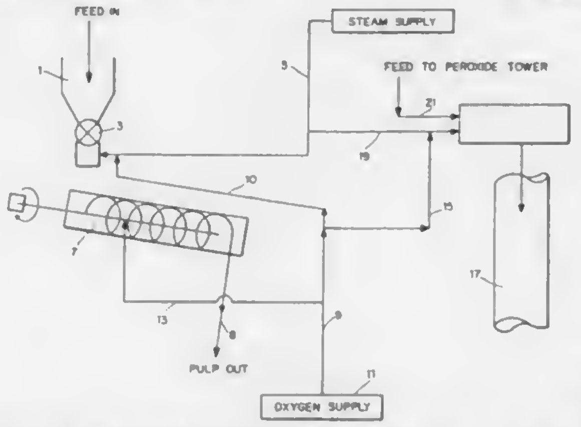
5,783,037

SYSTEM AND METHOD FOR OPERATING A PULP MILL

Sudhir R. Brahmbhatt, Glencoe, Mo., assignor to MG Industries, Malvern, Pa.

Filed Aug. 22, 1996, Ser. No. 701,728
Int. Cl.^{6} D21C *3/00*

U.S. Cl. 162—65 **21 Claims**



1. In a pulp mill, the pulp mill having a digester, the digester being connected to a source of raw material to be digested, the digester including a vessel which contains a digesting medium, the digester also being connected to a source of steam, the source of steam being connected to the digester at an inlet,

the improvement comprising a source of oxygen, and a conduit extending from said source of oxygen to the inlet, wherein the conduit comprises means for introducing oxygen substantially simultaneously with steam, into the digester, the conduit comprising means for causing oxygen and steam to contact the raw material and the digesting medium while the raw material is being digested.

5,783,038

INK JET RECORDING PAPER INCORPORATING NOVEL PRECIPITATED CALCIUM CARBONATE PIGMENT

Douglas Ward Donigian, Bethlehem; Robert Kenneth Resnik, Easton, and Michael Gregory McFadden, Riegelsville, all of Pa., assignors to Minerals Technologies, Inc., New York, N.Y.

Division of Ser. No. 407,422, Mar. 17, 1995, Pat. No. 5,643,631. This application Apr. 14, 1997, Ser. No. 837,191
Int. Cl.^{6} D21F *11/00*

U.S. Cl. 162—135 **3 Claims**

1. An inkjet recording paper comprising a paper base stock, having thereon a coating comprising a heat aged precipitated calcium carbonate pigment, and a binder, said pigment produced by heat aging a slurry of precipitated calcium carbonate particles in the presence of an effective amount of an organophosphonate compound to control the extent or degree of heat aging.

5,783,039

WHOLLY AROMATIC POLYAMIDE FIBER SHEET

Sadamitsu Murayama, Ibaraki, Japan, assignor to Teijin Limited, Osaka, Japan

Filed Feb. 14, 1997, Ser. No. 800,803
Claims priority, application Japan, Feb. 19, 1996, 8-030426
Int. Cl.^{6} D21H *5/12;* D21F *11/00*

U.S. Cl. 162—146 **11 Claims**

1. A wholly aromatic polyamide staple fiber sheet, comprising:

(A) 70 to 96 parts by weight of a staple fiber web comprising a blend of:
  (a) 5 to 30% by weight of meta-type wholly aromatic polyamide staple fibers, and
  (b) 70 to 95% by weight of para-type wholly aromatic polyamide staple fibers, and
(B) 4 to 30 parts by weight of a binder comprising at least one organic resinous material, and incorporated into the staple fiber web (A).

5,783,040

Patent Not Issued For This Number

5,783,041

METHOD FOR IMPARTING STRENGTH TO PAPER

Richard T. Underwood, Columbus, Ga., assignor to Callaway Corporation, Columbus, Ga.

Filed Apr. 18, 1996, Ser. No. 634,431
Int. Cl.^{6} D21H *21/20*

U.S. Cl. 162—164.1 **13 Claims**

1. A method for imparting strength to paper comprising the step of adding to a pulp slurry during a paper-making process (1) a pre-mixed resin solution comprising (i) a thermosetting aminopolyamide-epichlorohydrin resin, and (ii) a glyoxylated acrylamide-diallyldimethyl ammonium chloride resin, respectively, and (2) a non-thermosetting high charge density cationic resin having a cationic charge density of at least about 2.5 meg/g; wherein the pre-mixture and the non-thermosetting high charge density cationic resin are added to the wet end of a paper machine in amounts that are sufficient to impart dry strength to paper produced by the paper machine, wherein the aminopolyamide-epichlorohydrin resin and the glyoxylated acrylamide-diallyldimethyl ammonium chloride resin are present at a weight ratio of about 1:1 to about 5:1, and the high charge density cationic polymer is present in an amount of about 20 to 100% of the total weight of the aminopolyamide-epichlorohydrin resin and the glyoxylated acrylamide-diallyldimethyl ammonium chloride resin.

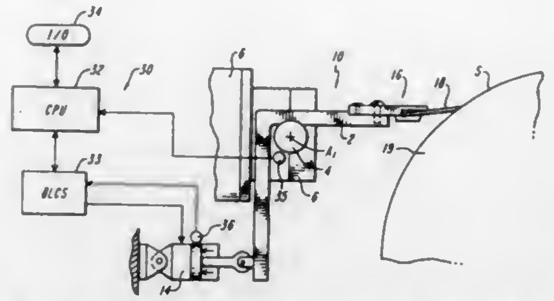
5,783,042

SYSTEM AND METHOD OF MEASURING DEFLECTED DOCTOR BLADE ANGLE AND LOADING FORCE

David A. Leeman, Worcester; Steven J. Coleman, Marlborough; David J. Dziadzio, Belchertown, all of Mass.; William K. Giguere, North Smithfield, R.I., and Ronald F. Goodnow, Leicester, Mass., assignors to Thermo Web Systems, Inc., Auburn, Mass.

Filed Dec. 6, 1995, Ser. No. 567,938
Int. Cl.^{6} D21F *11/00*

U.S. Cl. 162—198 **3 Claims**



1. A method of controlling, with a processor unit having associated sensors, doctor blade loading force in real-time of an arrangement including a doctor apparatus operating in connection with a rotating cylinder, said apparatus having a doctor blade and a support member that pivots about at least one pivot point in response to an externally applied force, which is provided by a force application module, in order to apply said doctor blade to a contact point on said cylinder, said method comprising:

providing to said processor unit an operational value for said externally applied force;

measuring the angle between said doctor blade and the line tangent to said cylinder passing through said contact point with a first sensor and said processor unit;

measuring with a second sensor an actual value of said externally applied force and providing the measurement to said processor;

calculating with said processor unit said blade load as a mathematical function of the moment arm between said force application module and said at least one pivot point acting through said support member, the length between said contact point on said cylinder and said at least one pivot point, the measured angle between said doctor blade and said line tangent to said cylinder passing through said contact point, and the measured actual value of said externally applied forces;

determining the difference between said operational value and said measured actual value of said externally applied force; and

adjusting said externally applied force provided by said force application module in order to minimize the difference between said operational value and said measured actual value of said externally applied force.

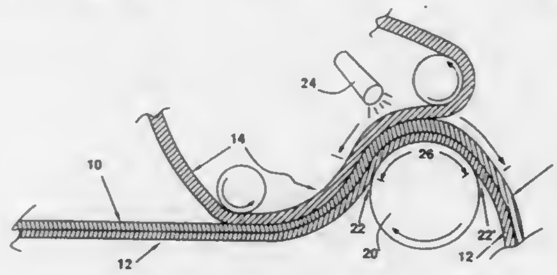
5,783,043

PAPER COATING APPARATUS

Leif Christensen, 811 Range, Manistique, Mich. 49854

Filed Jan. 11, 1996, Ser. No. 584,229
Int. Cl.^{6} B05C *1/14;* B05B *7/00*

U.S. Cl. 162—265 **15 Claims**



1. An apparatus for dispensing a material onto a web, said web having first and second opposite surfaces, comprising:

first conveyor means for transporting the web and having a top surface engaging said first web surface and a bottom surface;

second conveyor means engaging a given portion of said second web surface, said second conveyor means comprising an endless permeable belt having an outer surface engaging said second web surface, and an inner surface; and,

dispensing means mounted adjacent to said second conveyor means for dispensing the material onto said inner surface of said second conveyor means;

wherein at least some of said material passes through the second conveyor means onto the web.

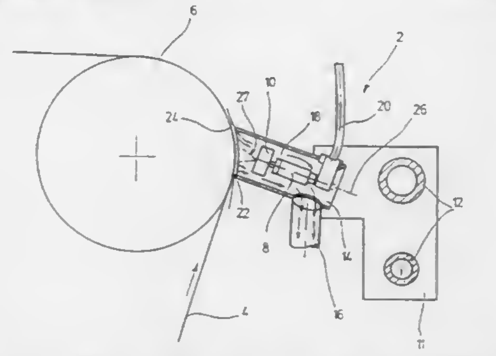
5,783,044

BELT CLEANING DEVICE FOR PAPERMAKING MACHINES

Wolfgang Schneider, Stuttgart; Hans-Peter Sollinger; Karlheinz Straub, both of Heidenheim; Jürgen Banning, Dueren, and Markus Oechsle, Bartholomae, all of Germany, assignors to Voith Sulzer Papiermaschinen GmbH, Germany

Filed Feb. 26, 1996, Ser. No. 605,545
Claims priority, application Germany, Feb. 24, 1995, 195 07 938.8; Oct. 19, 1995, 195 39 015.6
Int. Cl.^{6} D21F *1/32*

U.S. Cl. 162—278 **27 Claims**



1. A device for cleaning a belt of a paper manufacturing machine, comprising:

at least one cleaning nozzle for spraying a jet of gaseous or liquid fluid on the transport belt to dislodge dirt therefrom wherein said nozzle is at an incline to the plane of the belt;

a suction chamber defined around the cleaning nozzle; and

a suction device coupled to the suction chamber to cause dirt and/or water mist detached from the belt or residual water to be drawn into the suction chamber and led away,

in which the cleaning nozzle includes a nozzle head including at least one outlet nozzle, each outlet nozzle having a diameter of from 0.1 mm to 0.8 mm;

including a high-pressure device coupled to and serving to supply to the cleaning nozzle pressurized fluid under a pressure range of from 100 to 1000 bar;

the suction chamber comprising a suction bell which surrounds the cleaning nozzle in the manner of a shell.

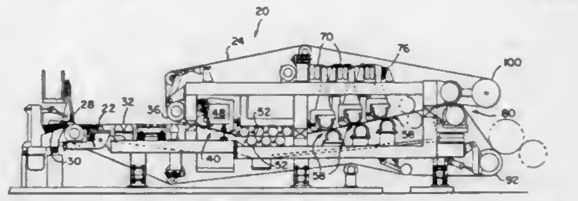
5,783,045

PULP AND LINERBOARD FORMER WITH IMPROVED DEWATERING

Gilmar M. Santos, Campinas, Brazil, and Cornelius Neil Rempel, Beloit, Wis., assignors to Beloit Technologies, Inc., Wilmington, Del.

Filed May 6, 1996, Ser. No. 643,557
Int. Cl.^{6} D21F *1/00*

U.S. Cl. 162—301 **2 Claims**



1. A forming apparatus configured for forming a linerboard web, the apparatus comprising:

a headbox having a slice opening;

a first wire traversing a breast roll positioned beneath the slice opening, wherein the first wire passes over a forming table;

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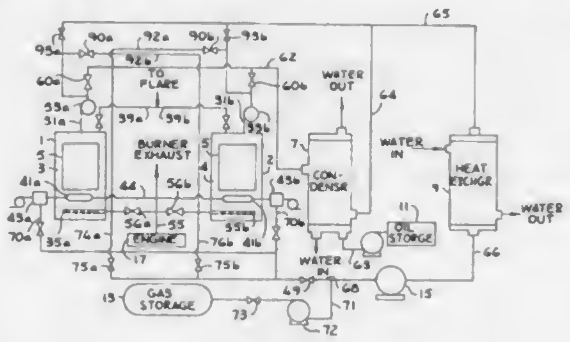
- a web formed from stock ejected from the headbox and draining on the first wire as the web passes over the forming table, the web defining a position on the first wire where the web is sufficiently dewatered to prevent a flow of stock within the web;
- a second wire positioned above the first wire and passing over a top roll positioned above the first wire and spaced downstream of the forming table, wherein the second wire passes over the top roll and approaches the first wire and the web, and wherein the second wire engages the web substantially at the position defined by the web where the web is sufficiently dewatered to prevent a flow of stock within the web;
- a forming shoe engaged with the first wire and the second wire and the web therebetween and causing the wires to follow a curved path;
- a saveall positioned above the second wire as it passes over the shoe, the saveall positioned to remove water which passes upwardly through the second wire;
- a plurality of rolls positioned above and below the first and second wires and the web therebetween, the rolls positioned to cause the web and the first wire and the second wire to traverse a sinuous path through the rolls and thereby wrap a portion of each roll surface;
- at least three presses positioned downstream of the plurality of rolls, wherein each press has an upper press roll which is offset in the machine direction and towards the headbox from a lower press roll to form a nip therebetween, the press rolls being offset so the first and second wires wrap about 15 degrees of each upper press roll;
- the at least three presses including a final press having two rolls which form a nip and defines the end of a joint run of the first and second wires,
- a second top roll contained within the second wire; and
- a turning roll contained within the first wire, the second top roll and the turning roll being spaced apart from one another and downstream of the final press to limit the amount of wrap of the wires on the final press rolls so that the amount of wrap of the final upper press roll is about fifteen degrees.

5,783,046
PROCESS AND APPARATUS FOR THE DESTRUCTIVE DISTILLATION OF RUBBER

Virgil J. Flanigan, Rolla, Mo., assignor to Gentech, Inc., Rolla, Mo.

Filed Nov. 28, 1994, Ser. No. 345,115
Int. Cl.^{6} C10B *51/00*
U.S. Cl. 201—25 **19 Claims**



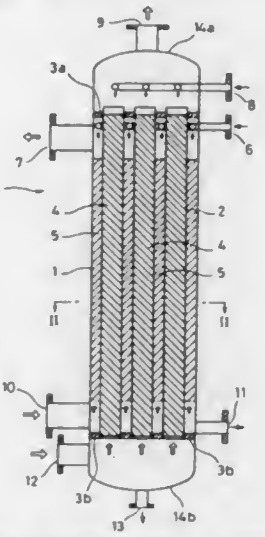
1. A process for the destructive distillation of rubber to produce hydrocarbon and solid carbonaceous char, the process comprising:

- heating a rubber charge in a distillation chamber in the substantial absence of oxygen to a temperature sufficient to pyrolyze the rubber, distill a vapor comprising hydrocarbon from the rubber and produce a solid carbonaceous char;
- partially condensing said vapor to produce a liquid fraction comprising hydrocarbon and a remaining gaseous fraction;
- monitoring the weight loss of said rubber charge in said chamber as a result of pyrolysis; and
- discontinuing the heating of the rubber charge in response to the weight loss of the rubber charge or a function of the weight loss of the rubber charge.

5,783,047
HEAT INTEGRATED DISTILLATION COLUMN

Kazumasa Aso, Kawanishi; Hiroshi Matsuo, Habikino; Hideo Noda, Amagasaki; Tomoaki Takada, and Nobuyuki Kobayashi, both of Tokyo, all of Japan, assignors to Kimura Chemical Plants Co., Ltd.; Kansai Chemical Engineering Co., Ltd., both of Amagasaki, and Maruzen Petrochemical Co., Ltd., Tokyo, all of Japan

Filed Apr. 24, 1996, Ser. No. 637,043
Claims priority, application Japan, Aug. 29, 1994, 228664; Aug. 15, 1995, 230768
Int. Cl.^{6} B01D *3/02*
U.S. Cl. 202—154 **12 Claims**



1. A heat integrated distillation column, comprising

- a monotube or a multitube coupled to a body shell via tube plates at both ends, thereby isolating a tube interior from a tube exterior,
- means for providing a difference in operating pressure between the tube interior and the tube exterior to define a higher pressure side and a lower pressure side so as to differentiate an operating temperature of the tube interior from an operating temperature of the tube exterior so that a wall of said monotube or said multitube functions as a heat transfer surface, and heat can be transferred from the higher pressure side to the lower pressure side, and said higher pressure side functions as an enriching section and said lower pressure side functions as a stripping section.

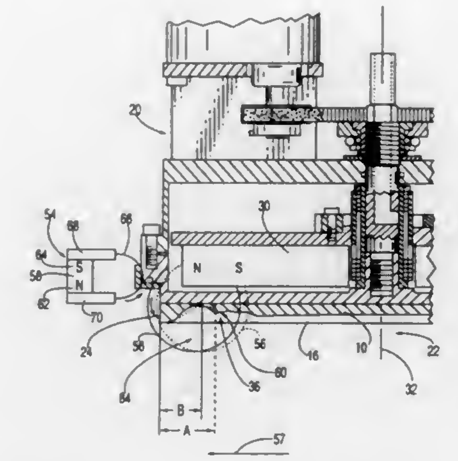
5,783,048
SPUTTERING CATHODE WITH UNIFORMITY COMPENSATION

Steven Hurwitt, Park Ridge, N.J., assignor to Tokyo Electron Limited, Tokyo, Japan

Continuation of Ser. No. 393,614, Feb. 23, 1995, abandoned. This application Oct. 21, 1996, Ser. No. 734,207
Int. Cl.^{6} C23C *14/34*
U.S. Cl. 204—192.12 **12 Claims**

1. A sputtering apparatus for forming a thin film on a substrate, comprising:

- a target for providing target material for forming said thin film, said target having a peripheral wall and a first area adjacent said peripheral wall;
- removal means for removing said target material from said target, said removal means having a plurality of outer portions;

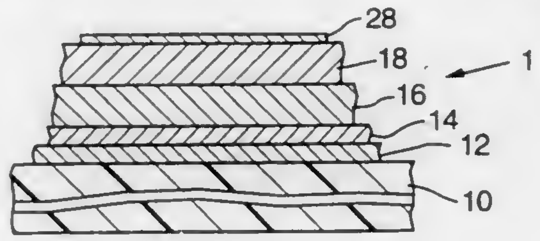


- a magnet positioned adjacent to said first area to form an asymmetric magnet arrangement, said magnet generating a magnetic field of sufficient strength for controlling only selected outer portions of said removal means which are located adjacent to said first area to asymmetrically remove said target material in said first area to form a desired asymmetric erosion pattern on said target for compensating for asymmetries in said removal means.

5,783,049
METHOD OF MAKING ANTIREFLECTIVE COATINGS

Clark I. Bright, Half Moon Bay; F. Eugene Woodard, Los Altos; Steven J. Pace, San Mateo, and Julius G. Kozak, Antioch, all of Calif., assignors to Southwall Technologies Inc., Palo Alto, Calif.

Division of Ser. No. 417,058, Apr. 3, 1995. This application Aug. 16, 1996, Ser. No. 698,847
Int. Cl.^{6} C23C *14/34*
U.S. Cl. 204—192.14 **8 Claims**



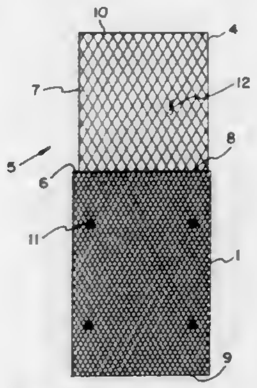
1. A process for imparting antireflection properties to a polymer substrate, comprising the serial steps of:

- (a) sputter-depositing a first layer, closest to the polymer substrate, of light transparent electrically conductive inorganic oxide having an index of refraction of from 1.7 to 2.6 with respect to visible light and a physical thickness of from about 50 to 3000 angstroms,
- (b) AC sputter-depositing onto said first layer a second layer of light transparent inorganic material having an index of refraction of from 1.29 to 1.7 with respect to visible light and a physical thickness of from 50 to 3000 angstroms, thereby forming a layer pair, and
- (c) applying a lubricating layer onto the layer pair.

5,783,050
ELECTRODE FOR ELECTROCHEMICAL CELL

Richard J. Coin, Chardon; Lynne M. Ernes, Willoughby; Andy W. Getsy, Eastlake; Kenneth L. Hardee, Middlefield, and Marilyn J. Niksa, Chardon, all of Ohio, assignors to Eltech Systems Corporation, Chardon, Ohio

Filed May 4, 1995, Ser. No. 434,871
Int. Cl.^{6} C25B *11/03;11/10;11/06;11/16*
U.S. Cl. 204—242 **35 Claims**



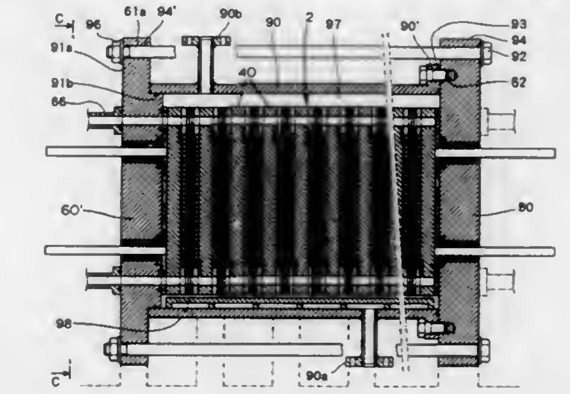
1. A porous, flow-through, fiber-free electrode comprising a rigid core member and autogenously springy exterior wrapping member, which rigid core member comprises a valve metal reinforcement, which core member is in integral engagement with an exterior wrapping member of a multitude of expanded valve metal layers from at least one continuous strip of valve metal mesh wound tightly around said core member, which mesh is a thin, highly flexible mesh of extremely thin strands and small voids, the layers being tightly engaged face-to-face contact with one another.

21. The electrode of claim 1 wherein said electrode is an electrode in a metal ion oxidation or reduction cell, or in a cell for the destruction of organic compounds, or in a salt splitting cell.

5,783,051
APPARATUS FOR PRODUCING HYDROGEN AND OXYGEN

Kiyoshi Hirai, Kakogawa; Shinichi Yasui, Kako-gun; Hiroko Kobayashi, Kobe; Mamoru Nagao, Osaka; Takashi Sasaki, Miki; Akira Asari, Kobe, and Hiroyuki Harada, Tokyo, all of Japan, assignors to Shinko Pantec Co., Ltd., Hyogo, Japan

Filed Mar. 4, 1997, Ser. No. 811,348
Int. Cl.^{6} C25B *9/00*
U.S. Cl. 204—254 **6 Claims**



1. An apparatus for producing hydrogen and oxygen comprising:

- a bipolar water electrolytic cell positioned in a pressure vessel, said bipolar water electrolytic cell comprising a plurality of joined solid electrolyte membrane units, wherein each solid electrolyte membrane unit comprises a solid electrolyte membrane having two opposing surfaces, a porous conductor in contact with each opposing surface of the solid electrolyte membrane, and a bipolar electrode plate in contact with each

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porous conductor, wherein each electrode plate is capable of performing as an anode and a cathode, and wherein

a gap between the interior of the pressure vessel and the exterior of the water electrolytic cell forms a water pressure regulating chamber, said regulating chamber adapted to receive water of a preselected pressure, such that the pressure differential between the pressure inside the water electrolytic cell and the pressure inside the water pressure regulating chamber is maintained within the pressure differential tolerance range of the water electrolytic cell.

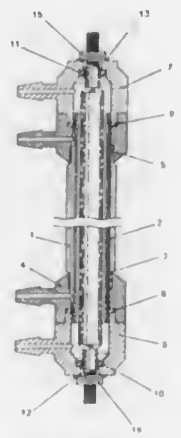
5,783,052
ELECTROCHEMICAL CELL

Vitold M. Bakhir, and Jury G. Zadorozhny, both of Moscow, Russian Federation, assignors to RSCECAT, USA, Inc., Las Vegas, Nev.

Continuation of Ser. No. 613,968, Mar. 11, 1996, Pat. No. 5,635,040. This application Mar. 18, 1997, Ser. No. 820,260

Int. Cl.^{6} C25B *9/00*

U.S. Cl. 204—260 **4 Claims**



1. An electrochemical cell for the treatment of water and/or water solutions comprising:

a) a vertical, cylindrical, variable section internal electrode having a middle section and a pin-end at each end thereof;
b) a vertical, cylindrical external electrode mounted around the internal electrode;
c) a coaxial ceramic diaphragm mounted in an inter-electrode space between the internal electrode and the external electrode;
d) the electrodes are made from materials that are nonsoluble during electrolysis;
e) the external electrode is mounted in a lower dielectric bushing and an upper dielectric bushing, each having a slot on a butt-end thereof;
f) the internal electrode is connected with a positive pole of a power supply and the external electrode is connected with a negative pole of a power supply;
g) the cell further including an upper dielectric collector head and a lower dielectric collector head which each have an axial channel; each collector head being installed in the bushing slots and adapted for turning therein;
h) the diaphragm being fastened by elastic gaskets mounted in the slots of the bushings;
i) the diameter of the middle section of the internal electrode being defined by the formula:

$$2M<D<4M$$

where:

D=diameter of the middle section of the internal electrode in mm, and

M=distance between electrodes in mm and

j) the lower head and the upper head and the lower bushing and the upper bushing having channels for the treated water and/or treated solution supply to be sent into and discharged from the chambers of the internal external electrodes.

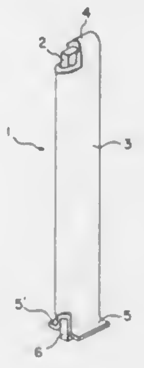
5,783,053
COMBINATION INNER PLATE AND OUTER ENVELOPE ELECTRODE

Charles P. Tomba, Painesville; Joseph J. Scarpucci, and Andy W. Getsy, both of Eastlake, all of Ohio, assignors to Eltech Systems Corporation, Chardon, Ohio

Continuation of Ser. No. 543,679, Oct. 16, 1995, Pat. No. 5,619,793, which is a division of Ser. No. 160,632, Dec. 2, 1993, Pat. No. 5,464,519. This application Feb. 10, 1997, Ser. No. 797,146

Int. Cl.^{6} C25B *11/02;11/10;* **H01R** *43/02*

U.S. Cl. 204—280 **20 Claims**



1. An electrode comprising an inner titanium member of an at least substantially flat, inner titanium plate member having front and back major faces and an edge, an outer cover member of titanium sheet in mesh form, with said titanium mesh tightly engaging said inner titanium plate member on at least the front and back major faces thereof, to pass electrical current between said inner titanium plate member and said outer titanium sheet in mesh form, and a coating on an outer surface of said outer titanium sheet in mesh form.

5,783,054
METHOD FOR PRODUCING IMPROVED SENSOR

Burkhard Raguse, Gordon; Bruce A. Cornell, Neutral Bay; Vijoleta L. Braach-Maksvytis, Dulwich Hill, and Ronald J. Pace, Farrer, all of Australia, assignors to Australian Membrane and Biotechnology Research Institute, Homebush, and University of Sydney, Sydney, both of Australia

Division of Ser. No. 406,853, May 17, 1995, Pat. No. 5,637,201. This application Apr. 9, 1997, Ser. No. 826,903

Claims priority, application Australia, Oct. 1, 1992, PL 5069; Jul. 8, 1993, PL 9863

Int. Cl.^{6} C25B *13/00*

U.S. Cl. 204—296 **20 Claims**

1. A method of producing an electrode membrane combination comprising the steps of:

(1) forming a solution containing reservoir lipids comprising within a same molecule an attachment region, hydrophobic regions, and an hydrophilic region positioned between the attachment region and the hydrophobic region, and optionally a head group attached to the hydrophobic region made from the hydrophilic region; and spacer compounds comprising within the same molecule a hydrophilic group and an attachment group;
(2) contacting the electrode with the solution from step (1), the composition of the electrode and the attachment regions being selected such that the attachment regions chemisorbed to the electrode;
(3) rinsing the electrode;

(4) contacting the coated electrode from step (3) with a solution of lipid and ionophore in a carrier solvent containing less than 2% of an alkane; and
(5) adding an aqueous solution to the electrode from step (4).

5,783,055
MULTI-CHAMBER SPUTTERING APPARATUS

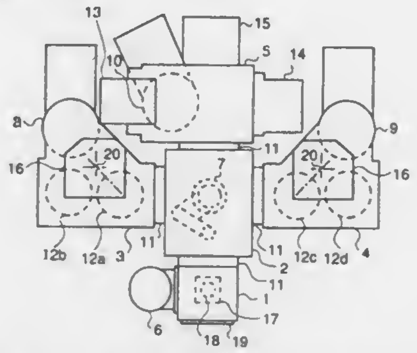
Mitsuhiro Kamei, Takahagi; Eiji Setoyama, Hitachi, and Satoshi Umehara, Hitachioota, all of Japan, assignors to Hitachi, Ltd., Tokyo, Japan

Filed Feb. 27, 1996, Ser. No. 607,431

Claims priority, application Japan, Feb. 28, 1995, 7-039679

Int. Cl.^{6} C23C *14/56*

U.S. Cl. 204—298.04 **4 Claims**



1. A multi-chamber sputtering apparatus comprising:

a plurality of vacuum chambers;

a plurality of target electrodes arranged in one of said vacuum chambers, for forming a film on a substrate by sputtering said target electrodes and piling, on the substrate, sputter particles scattered by the sputtering;

a transfer chamber containing therein a transfer robot for transferring the substrate to and from a first one of the vacuum chambers while maintaining said vacuum chambers in vacuum; and

a substrate transfer mechanism, in said first one of the vacuum chambers, for transferring the substrate between positions respectively facing said plurality of target electrodes, and for changing respective distances between said plurality of target electrodes and the substrate,

wherein said substrate transfer mechanism includes:

a substrate holding mechanism for holding the substrate in a horizontal state from an upper major surface of the substrate;

a rotating mechanism for rotating the horizontally-held substrate around an axis perpendicular to a plane containing the horizontally-held substrate so as to respectively present the substrate to face each of said target electrodes for sputtering; and

a mechanism for moving the horizontally-held substrate in a direction perpendicular to said plane to change the distance between the substrate and the target electrode to which the substrate is presented for sputtering.

5,783,056
ELECTROCHEMICAL ENZYME BIOSENSOR

Norbert Hampp, München; Anton Silber, Mering, and Christoph Brauchle, München, all of Germany, assignors to Bayer Corporation, Pittsburgh, Pa.

Filed Nov. 20, 1995, Ser. No. 560,939

Claims priority, application Germany, Nov. 28, 1994, 44 42 253.9

Int. Cl.^{6} G01N *27/26*

U.S. Cl. 204—403 **9 Claims**

1. Electrochemical enzyme biosensor which comprises noble metal electrodes and with which an electrochemical oxidation of pyridine necleotides takes place, characterized in that the noble metal electrodes have a microtexture rich in surface pores and have catalytic properties which reduce the overpotential required for electrochemical oxidation of the pyridinine necleotides.

5,783,057
METHOD OF PURIFYING COPPER ELECTROLYTIC SOLUTION

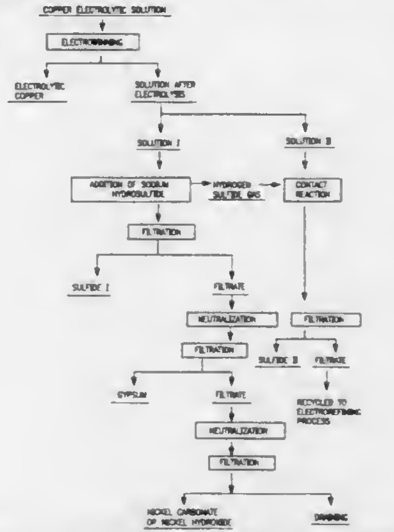
Masatoshi Tomita, Tokyo; Hiroshi Hiai, and Toshinori Ishii, both of Hitachi, all of Japan, assignors to Nippon Mining & Metals Co., Ltd., Tokyo, Japan

Filed Feb. 24, 1997, Ser. No. 804,558

Claims priority, application Japan, Sep. 19, 1996, 8-247958

Int. Cl.^{6} C25C *1/12;* **C25D** *21/18*

U.S. Cl. 205—99 **8 Claims**



1. A method of purifying a sulfuric acid-containing copper electrolytic solution being circulated in a copper electrorefining system wherein a portion of the electrolytic solution is withdrawn from the system and is recycled to the system after having been subjected to purification treatment for preventing the buildup of impurities in the copper electrolytic solution comprising:

dividing the withdrawn electrolytic solution into first and second solution portions,

adding sodium hydrosulfide to the first solution portion to precipitate and separate metals including copper, arsenic, antimony, and bismuth from the first solution portion in the form of sulfides,

further adding excess sodium hydrosulfide to the first solution portion for reaction with residual sulfuric acid in the solution to generate hydrogen sulfide gas,

contacting the second solution portion with the hydrogen sulfide gas thus produced to precipitate and separate metals including copper, arsenic, antimony, and bismuth from the second solution portion in the form of sulfides,

filtering the second solution portion to separate the precipitated sulfides from the second solution portion,

recycling the filtrate from the second solution portion to the electrorefining system.

5,783,058
ANODE ELECTROPLATING CELL AND METHOD

H. Kirk Fowler, Madison; Gerald R. Pohto, Mentor, and Zane A. Wade, Montville, all of Ohio, assignors to Eltech Systems Corporation, Chardon, Ohio

Filed Jun. 6, 1996, Ser. No. 653,119

Int. Cl.^{6} C25D *5/34;17/00;17/10*

U.S. Cl. 205—205 **50 Claims**

1. The method of providing an apparatus for the electrodeposition of a metal, which method is particularly adapted for refurbish-

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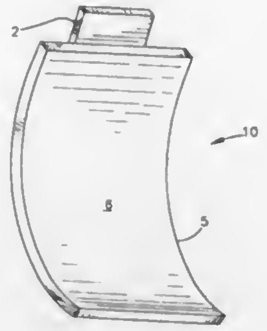


ing said apparatus, the apparatus having a cathode drum rotating about an axis and partially immersed in an electrolyte, which apparatus also has a curved lead anode used in metal electrodeposition, said anode being spaced apart from the cathode with a gap maintained between said cathode and anode for containing said electrolyte, which method comprises:
- machining the lead anode to a machined radius and a freshly machined face to establish a curved support structure of curved surface configuration;
- providing holes in the machined face of said lead support structure of machined radius;
- coating the freshly machined face of said support structure with a metal selected from the group consisting of copper, nickel, silver, their alloys and intermetallic mixtures;
- providing a thin and resilient, solid and insoluble, light gauge flexible anode sheet with a broad active anode front face and broad back face, said sheet anode comprising a multitude of side-by-side, generally elongated, thin and narrow strip anodes, each of which, as formed, has a larger radius than the radius of said curved lead support structure;
- affixing a series of projecting fastening means to the back face of each strip anode;
- introducing said projecting fastening means into said holes in the curved lead support structure;
- flexing said strip anodes into flexed conforming engagement with said support structure, the resulting anode sheet broad back face being in flexed engagement with the machined face of the lead support structure;
- fastening said strip anodes with said projecting fastening means, while in said flexed configuration, to the lead support structure; and
- electrically connecting said anode sheet and said lead support structure, said support structure serving as a current distributor member for said anode sheet.

5,783,059
ELECTRODEPOSITION BATH

Pietro Luigi Cavallotti; Vittorio Sirtori, both of Milan, Italy, and Giovanni Zangari, Pittsburgh, Pa., assignors to International Business Machines Corporation, Armonk, N.Y.

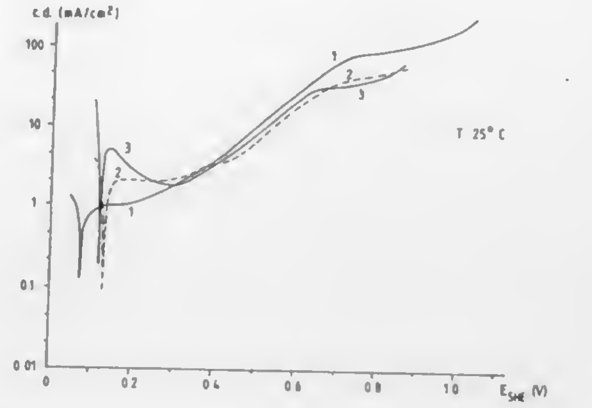
Filed Apr. 22, 1997, Ser. No. 837,860

Claims priority, application United Kingdom, Apr. 26, 1996, 9608665

Int. Cl.^{6} C25D *5/50*

U.S. Cl. 205—226 **13 Claims**

12. A soldering method for soldering electronic components onto a copper substrate using a tin-bismuth solder alloy comprising the steps of:
- electrodepositing said tin-bismuth solder alloy on said copper substrate using an electrodeposition bath containing zinc salt, tin salt, and bismuth salt;
- bringing said electronic components in contact with said tin-bismuth solder alloy; and
- reflowing said tin-bismuth solder alloy to join said electronic components to said copper substrate;



- wherein said zinc salt is present in an amount effective to increase wettability of the electrodeposited alloy and decrease oxidation at the surface of the electrodeposited alloy after solder reflow.

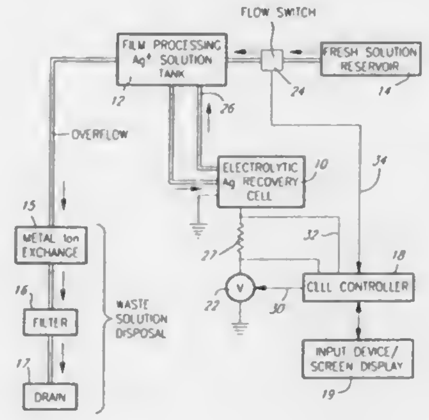
5,783,060
ELECTROLYTIC METAL RECOVERY METHOD

John La Riviere, Beaconsfield; Bernard Gravel, and Gordon Bathurst, both of Pointe Claire, all of Canada, assignors to Metafix Inc., Lachine, Canada

Filed Dec. 4, 1996, Ser. No. 760,305

Iot. Cl.^{6} C25B *15/02*

U.S. Cl. 205—337 **9 Claims**



1. An electrolytic metal recovery method for recovering metal from an electrolytic solution in an electrolytic cell operating either in a standby mode having associated with it a standby current level, or a plating mode having associated with it a plating current level, said method comprising the steps of:
- measuring a concentration of said metal in said solution;
- comparing said concentration to a predetermined recorded acceptable level;
- adjusting as a function of a result of said comparing, if need be, an initial gain current level of said plating current level to increase or decrease a rate of plating;
- adjusting an OFF level as a function of any adjustment of said initial gain current level;
- adjusting voltage in said cell at a beginning of said plating mode such that said plating current level reaches said gain level;
- switching from said plating mode to said standby mode when said plating current level drops below said OFF level, whereby said rate of plating is controlled by setting the gain level as a result of the metal concentration measurement.

5,783,061
METHOD OF REMOVING IRON COMPOUNDS AND CHROMIUM COMPOUNDS FROM AN AQUEOUS ELECTROLYTIC SOLUTION AS WELL AS THE USE OF THIS METHOD IN ELECTROCHEMICAL MACHINING

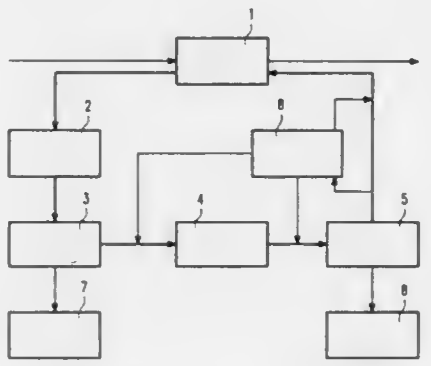
Arend Schuurman, and Johan Faber, both of Drachten, Netherlands, assignors to U.S. Philips Corporation, New York, N.Y.

Filed Mar. 7, 1997, Ser. No. 813,143

Claims priority, application European Pat. Off., Mar. 27, 1996, 96200831

Int. Cl.^{6} C25F *7/02*

U.S. Cl. 205—673 **6 Claims**



1. A method of removing iron compounds and chromium compounds from an aqueous electrolytic solution, said method comprising the succesive steps:
- a) adding hydrogen peroxide to the solution and if the pH value of the resultant solution is not ≧7 adjusting the acidity of said solution so that its pH value is ≧7; thereby forming iron hydroxide;
- b) separating the iron hydroxide from the solution;
- c) adjusting the acidity of the solution so that the pH value of the solution is <4 to thereby convert Cr(VI) present in the solution to Cr III);
- d) adjusting the acidity of the solution so that its pH value is ≧7 thereby forming chromium hydroxide; and separating the chromium hydroxide from the solution.

5,783,062
PROCESS FOR THE TREATMENT, BY AN ELECTROCHEMICAL ROUTE, OF COMPOSITIONS CONTAINING PRECIOUS METALS WITH A VIEW TO THEIR RECOVERY

William Fogel, Ales, and Yves Mottot, Tremblay en France, both of France, assignors to Rhone-Poulenc Chimie, Courbevoie, France

Filed Aug. 1, 1996, Ser. No. 691,057

Claims priority, application France, Aug. 4, 1995, 95 09508; Nov. 10, 1995, 95 13309

Int. Cl.^{6} C22B *7/00*

U.S. Cl. 205—718 **19 Claims**

1. A process for the treatment of a composition including a layer of oxide(s) containing precious metals and being deposited on a metal support, with a view to the recovery of precious metals, comprising the step of:
- (a) separating the layer of oxide(s) containing the precious metals from the metal support, wherein said oxide(s) being alumina or cerium oxide, and said separation being obtained by electrolysis in a vessel subjected to an electrical current and containing at least one electrolyte and at least two electrodes, an anode and a cathode and the composition to be treated is formed by one of said electrodes or is in direct contact with one of said electrodes.

5,783,063
ESTIMATION OF NUCLEIC ACID

John Michael Clarkson, Wilkshire, and Benjamin David Cobb, Wilts, both of United Kingdom, assignors to Hybaid Limited, United Kingdom

Filed Feb. 21, 1997, Ser. No. 804,176

Claims priority, application United Kingdom, Feb. 29, 1996, 9604292.4

Int. Cl.^{6} G01N *27/26*

U.S. Cl. 205—775 **13 Claims**

1. A method for the estimation of a property of parameter of a nucleic acid material, said property or parameter being one to which the electrical conductivity of the nucleic acid material is related, which method comprises measuring the electrical conductivity of the nucleic acid material, and estimating from said measurement the property or parameter of the material by reference to a set relationship between electrical conductivity and said property or parameter.

5,783,064

Patent Not Issued For This Number

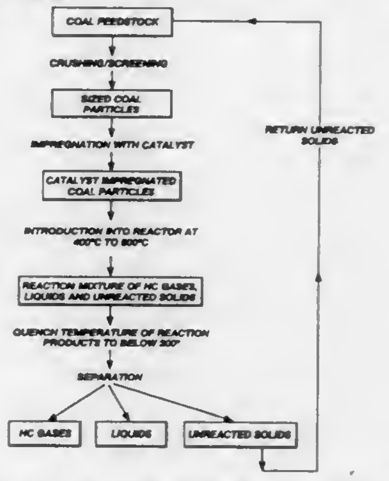
5,783,065
METHOD FOR COAL LIQUEFACTION

Wendell H. Wiser, Kaysville; Alex G. Oblad, and Joseph S. Shabtai, both of Salt Lake City, all of Utah, assignors to University of Utah Research Foundation, Salt Lake City, Utah

Continuation of Ser. No. 236,963, May 2, 1994, abandoned, which is a continuation-in-part of Ser. No. 939,772, Sep. 3, 1992, Pat. No. 5,308,477. This application Sep. 25, 1995, Ser. No. 533,535

Int. Cl.^{6} C10G *1/00;1/06*

U.S. Cl. 208—400 **24 Claims**


COAL FEEDSTOCK
CRUSHING/SCREENING
SIZED COAL PARTICLES
IMPREGNATION WITH CATALYST
CATALYST IMPREGNATED COAL PARTICLES
INTRODUCTION INTO REACTOR AT 400°C TO 800°C
REACTION MIXTURE OF HC GASES, LIQUIDS AND UNREACTED SOLIDS
QUENCH TEMPERATURE OF REACTION PRODUCTS TO BELOW 300°
SEPARATION
HC GASES
LIQUIDS
UNREACTED SOLIDS
RETURN UNREACTED SOLIDS

1. A method for converting more than 50% by weight coal to liquids wherein a ratio of liquids to hydrocarbon gases in a reaction product is greater than about 8:1, by weight comprising the steps of:
- introducing finely divided particles of coal into a thermal cracking zone having a temperature of at least 400° C. and a pressure of from about 250 psi to less than about 1500 psi;
- introducing a hydrogenation catalyst in intimate contact with said coal particles into said thermal cracking zone, said catalyst being substantially simultaneously introduced with said coal particles;
- introducing hydrogen into said thermal cracking zone;
- maintaining said coal particles, hydrogenation catalyst, and hydrogen in said thermal cracking zone for a time period sufficiently short to yield a reaction product having a ratio of liquid to gaseous hydrocarbons in said product in excess of

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8:1 by weight and a liquid content in excess of 50% of the weight of coal particles introduced into said cracking zone; and

quenching rapidly the reaction product to a temperature significantly less than 400° C.

5,783,066
PLASTICS ARTICLES

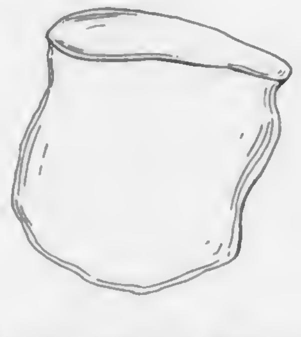
Peter Roger Aylmore, Gloucestershire, Great Britain, assignor to Landbrent Limited, Oxford, United Kingdom

Continuation of Ser. No. 428,083, Jun. 2, 1995, abandoned. This application Nov. 18, 1996, Ser. No. 751,568

Claims priority, application United Kingdom, Aug. 28, 1993, 9317967

Int. Cl.⁶ C02F *3/10;* **B29B** *9/06*

U.S. Cl. 210—150 **19 Claims**



1. A pellet for use in quantity in a filter of a water treatment plant and comprising a mix of two polymer materials which are non-homogenous to one another and have been extruded through a die to form a roughened surface creating a melt fracture appearance and then chopped into pellet form to provide a large surface area pellet of solid form, to be used as a harbour for biomass in water treatment processes.

5,783,067
ELONGATED FILTER SYSTEM, FILTER ELEMENT THEREFOR AND METHODS OF MAKING SAME

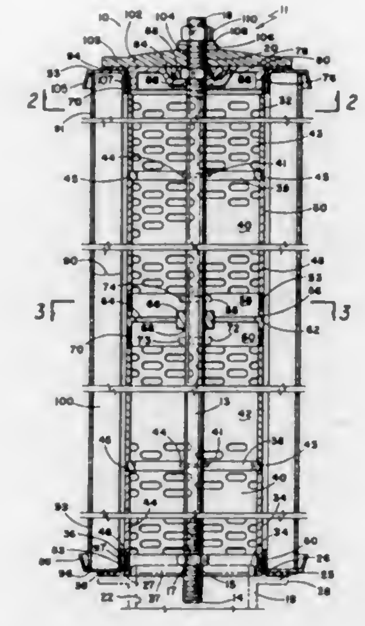
Donald E. Belden, Sand Springs, Okla., assignor to Facet International, Inc., Tulsa, Okla.

Continuation-in-part of Ser. No. 488,877, Jun. 9, 1995, Pat. No. 5,587,071, which is a division of Ser. No. 58,768, Apr. 13, 1993, Pat. No. 5,423,984. This application Jan. 25, 1996, Ser. No. 591,751

Int. Cl.⁶ B01D *29/21;27/08;27/06;35/30*

U.S. Cl. 210—232 **6 Claims**

1. An elongated filter system comprising an elongated filter alignment means, a filter attachment means and an elongated filter means, said elongated filter alignment means being in the form of a central rod removably attached to said filter attachment means, said elongated filter alignment means having means on one end to secure said elongated filter means thereupon in fluid communication with a fluid passageway disposed in said filter attachment means, a yoke secured by said filter alignment means having an outer peripheral area adapted to be in sealing engagement with said filter means, said elongated filter system further including an elongated aperatured center tube assembly having a central opening in a central hub of at least one of a series of interlocking tube sections, each of said central openings being aligned with said filter alignment means, said elongated aperatured center tube assembly having said filter means disposed thereabout, and wherein said elongated aperatured center tube assembly is separate from said filter means, said filter means being disposed about said center tube assembly.



5,783,068
PROCESS FOR DECHLORINATION OF A SPENT OIL FRACTION

Michel Laborde, and Philippe Dolbecq, both of Le Havre, France, assignors to Total Raffinage Distribution, S.A., Puteaux, France

PCT No. PCT/FR95/01162, § 371 Date May 13, 1996, § 102(e) Date May 13, 1996, PCT Pub. No. WO96/08546, PCT Pub. Date Mar. 21, 1996

PCT Filed Sep. 11, 1995, Ser. No. 646,234

Claims priority, application France, Sep. 13, 1994, 94 10899

Int. Cl.⁶ C10G *17/00*

U.S. Cl. 208—262.1 **22 Claims**

1. A hydrocarbon refining process including at least a partial dechlorination of spent lubricating oil, comprising:

(a) passing said spent lubricating oil over a bed consisting essentially of particles of a composition containing one or more active chlorine-fixing compounds selected from the group consisting of Group I metal hydroxides, Group I metal oxides, Group II metal hydroxides and Group II metal oxides, wherein said dechlorination is carried out at a temperature of at least 150° C., whereby sufficient dechlorination is achieved to protect equipment in subsequent refining by the adsorption of chlorine-containing compounds on said chlorine-fixing compounds; and

(b) introducing said dechlorinated lubricating oil as at least part of the feedstock for subsequent steps in the refining process.

5,783,069
PACKING ELEMENTS

Charles Roger Frank, Cumbria, United Kingdom, assignor to Mass Transfer International Ltd., Cumbria, United Kingdom

Filed Mar. 6, 1996, Ser. No. 611,623

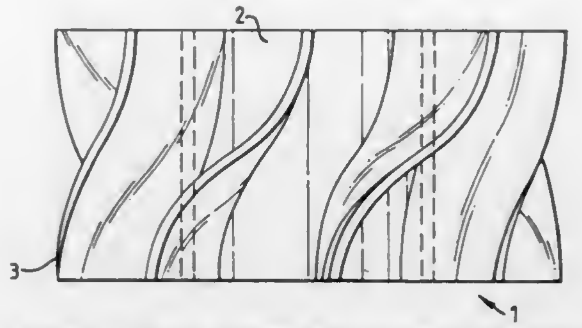
Claims priority, application United Kingdom, Mar. 9, 1995, 9504784

Int. Cl.⁶ B01F *3/04*

U.S. Cl. 210—150 **13 Claims**

1. A biological fluid processing apparatus comprising:

a vessel for containing a flow of a biological fluid; and



a plurality of packing elements disposed in the vessel for being in the contained flow of biological fluid and the packing elements being so disposed as to be rotatable in and with respect to the vessel, each packing element comprising a hollow cylindrical body having a plurality of blade members extending generally radially from the cylindrical body, the blade members being shaped and sized to impart rotational movement to the packing element by the flow of the biological fluid over the blade members.

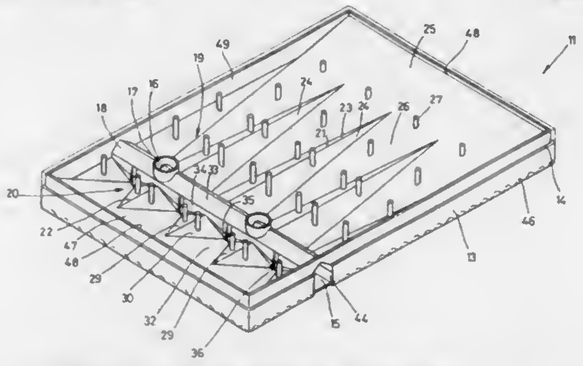
5,783,070
POLLUTANT TRAY FOR AQUARIUM

Chih-Hsiang Lee, 5F-7, No. 63, Sec. 2, Chang-An E. Rd., Taipei, Taiwan, China

Filed Jan. 4, 1997, Ser. No. 778,745

Int. Cl.⁶ A01K *63/04*

U.S. Cl. 210—169 **11 Claims**



1. A pollutant tray for an aquarium comprising:

a) an outer wall having opposite ends interconnected by opposite lateral sides;

b) an interior wall forming a water passage extending between the opposite lateral sides, the interior wail having at least one sloping upper surface to prevent waste substance from accumulating thereon, the interior wall having a plurality of water intake holes communicating with the water passage on at least one side thereof; and,

c) a water channel in communication with each of the plurality of water intake holes, each water channel having a lower surface sloping downwardly toward the associated water intake holes and opposite lateral sides sloping downwardly toward the lower surface.

5,783,071
APPARATUS FOR TREATING WASTEWATER

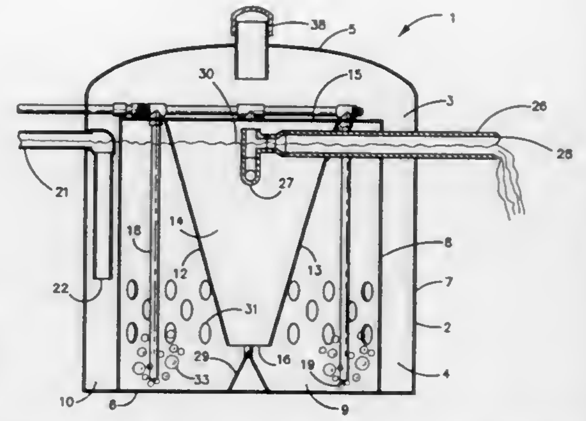
Monroe Wayne Guy, Baton Rouge, La., assignor to Delta Environmental Products, Inc., Denham Springs, La.

Continuation-in-part of Ser. No. 180,122, Jan. 11, 1994, Pat. No. 5,490,935. This application Feb. 12, 1996, Ser. No. 599,755

Int. Cl.⁶ C02F *3/30*

U.S. Cl. 210—195.1 **27 Claims**

1. An apparatus for treating wastewater for use with a compressed air source comprising:



a tank having an upper portion, a lower portion, a top, a bottom, an outer wall and a cylindrical inner wall, said inner wall extending from said lower portion into said upper portion above a desired water level, said inner wall, said top and said bottom defining an inner aerobic zone, said inner wall, said outer wall, said top and said bottom defining an outer anaerobic zone, said outer anaerobic zone having a volume of at least ten percent and no more than one hundred percent the volume of said inner aerobic zone;

a connecting means for connecting said outer anaerobic zone and said inner aerobic zone;

a hopper positioned within said inner aerobic zone, said hopper having sides defining a clarification zone, said hopper also having an upper opening located in said upper level above said desired water level, and a lower opening located in said lower portion below said desired water level, said hopper sides diverging outward from said lower opening to said upper opening, said lower opening being smaller than said upper opening;

a plurality of radially spaced air outlet pipes fluidly connected to said compressed air source, said air outlet pipes extending downward into said inner aerobic zone between said sides of said hopper and said inner wall, each said air outlet pipe containing an aperture, whereby air may be discharged into said inner aerobic zone;

a vent contained in said upper portion of said tank;

an inlet line connected to said tank having an inlet mouth opening into said outer anaerobic zone of said tank; and

an outlet line having an intake end positioned within said clarification zone and an outlet end positioned external to said tank.

5,783,072
LIGHTWEIGHT NONCOMPLIANT DIALYSATE SOLUTION TANK FOR BATCH DIALYSATE PREPARATION SYSTEMS

Rodney S. Kenley, Libertyville; Dennis M. Treu, Gurnee, and Kenneth E. Pawlak, Vernon Hills, all of Ill., assignors to Aksys, Ltd., Lincolnshire, Ill.

Division of Ser. No. 558,234, Nov. 17, 1995, abandoned, which is a division of Ser. No. 388,275, Feb. 13, 1995, Pat. No. 5,591,344. This application Apr. 23, 1997, Ser. No. 842,184

Int. Cl.⁶ B01D *61/25;61/28;61/32;* **A61M** *1/28*

U.S. Cl. 210—195.2 **16 Claims**

1. A hemodialysis machine having a substantially noncompliant dialysate circuit, said hemodialysis machine comprising:

a dialyzer;

a lightweight substantially noncompliant batch quantity dialysate solution tank comprising:

a hollow vessel made from a polymeric material, said vessel reinforced with fibers wound around said vessel, increasing the rigidity of said vessel; said vessel having a fluid inlet and a fluid outlet and a port for receiving dialysate chemicals from a source of dialysate chemicals; and

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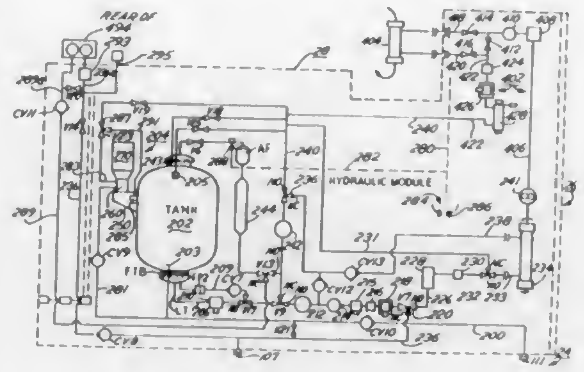


a closed fluid circuit circulating a dialysate solution stored in said tank from said tank to said dialyzer and back to said tank.

5,783,073

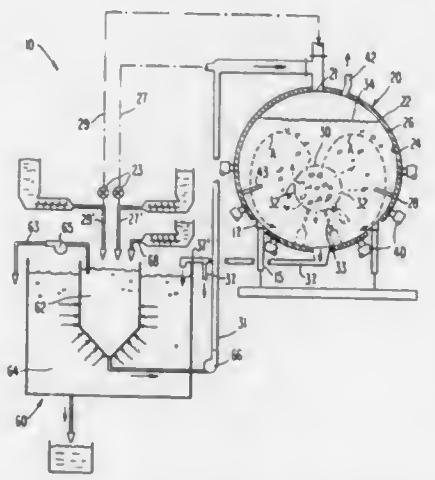
PROCESS AND APPARATUS FOR LIQUID SLUDGE STABILIZATION

Richard W. Christy, and Paul G. Christy, both of Wayne, Pa., assignors to RDP Company, Norristown, Pa.

Division of Ser. No. 443,987, May 18, 1995, Pat. No. 5,681,481. This application Jan. 28, 1997, Ser. No. 789,273

Int. Cl.^{6} C02F *11/14*

U.S. Cl. 210—205 **17 Claims**



1. An apparatus for treatment of sludge that provides an end product of the treatment that can be spread by gravity flow comprising:

(a) means for providing sludge having a solids content in a range in excess of 0% but less than 10% such that the sludge is a liquid at ambient temperature and pressure, including means providing an additive, to a substantially closed reactor vessel, said additive being a caustic compound selected from the group consisting of calcium hydroxide, calcium oxide, calcium carbonate, soda ash, sodium hydroxide and potassium hydroxide, with said additive present in sufficient quantity to adjust the pH of the sludge mixture to a level greater than about 12;

(b) means for mixing the sludge and additive into a sludge mixture to ensure said pH is greater than about 12;

(c) means for controlling the pressure in the reactor relative to ambient pressure to facilitate controlling the reaction

(d) means for maintaining the sludge mixture as a free-flowing liquid that is at least 90% liquid; and

(e) means for discharging the sludge and additive mixture from the reactor vessel in a sufficiently liquid form such that it can be further handled by gravity flow.

5,783,074

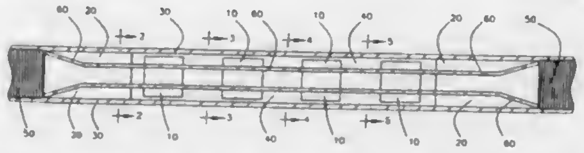
MAGNETIC FLUID CONDITIONER

David Stanley, 3140 Ambassador Caffery Pkwy., Lafayette, La. 70506

Continuation of Ser. No. 509,862, Aug. 1, 1995, abandoned. This application Jan. 7, 1997, Ser. No. 779,917

Int. Cl.^{6} C02F *1/48*

U.S. Cl. 210—222 **1 Claim**



1. An apparatus for magnetically treating a fluid comprising:

a tubular conduit including opposite first and second open ends, said conduit having an outer peripheral surface surrounding a longitudinal axis;

a plurality of banks of magnets mounted on the outer peripheral surface of said conduit, wherein said banks are axially spaced apart from one another with respect to said longitudinal axis, wherein each said bank includes four magnets each having respective planar pole surfaces mounted on the outer peripheral surface of said conduit, wherein the planar pole surface of each said magnet in a respective said bank is parallel to said longitudinal axis and oriented at right angles to the planar pole surface of an adjacent said magnet in the respective said bank, and wherein the planar pole surface of each said magnet in each said bank is coplanar with the planar pole surface of an adjacent said magnet in an adjacent said bank; wherein each confronting pair of said four magnets in each respective said bank have planar pole surfaces that are parallel to one another have opposite magnetic polarities, and wherein the magnetic polarity of the planar pole surface of each said magnet in a respective said bank is opposite to the magnetic polarity of the planar pole surface of an adjacent said magnet in an adjacent said bank.

5,783,075

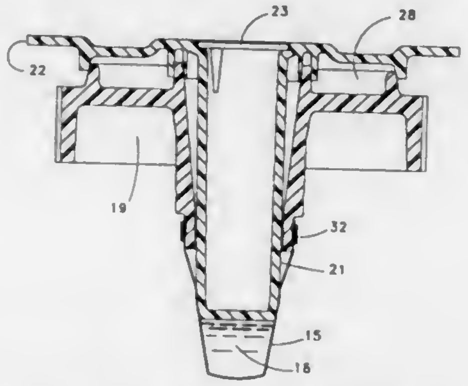
DISPOSABLE DIALYZER APPARATUS

Roy Eddleman, Los Angeles; F. Jesus Martinez, Mission Viejo; William Martin, Lake Forest, and Dieter Stute, San Juan Capistrano, all of Calif., assignors to Spectrum Medical Laboratories, Inc., Laguna Hills, Calif.

Filed Jun. 23, 1997, Ser. No. 880,970

Int. Cl.^{6} B01D *61/28;61/30*

U.S. Cl. 210—232 **17 Claims**



12. A disposable dialysis apparatus comprising:

a membrane support ring having a membrane support tube having an open top and an open bottom;

an insert member having an insert cup within said membrane support tube, said insert cup having a closed bottom, said closed bottom extending below said open bottom of said membrane support tube, said insert member having an upper portion which extends above said membrane support ring; and

a cup-shaped membrane affixed about the open bottom of said membrane support tube, said cup shaped membrane being formed so that it has a closed bottom.

5,783,076

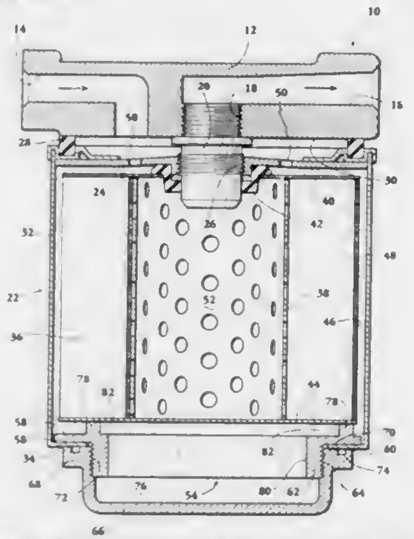
FUEL FILTER HAVING IMPROVED COMMUNICATION WITH A CONTAMINANT CONTAINER

David G. Albers, Jr., Alma, Ark., assignor to Purolator Products Company, Tulsa, Okla.

Division of Ser. No. 544,800, Oct. 18, 1995, Pat. No. 5,637,215. This application Feb. 20, 1997, Ser. No. 804,242

Int. Cl.^{6} B01D *36/04*

U.S. Cl. 210—305 **21 Claims**



1. Apparatus for filtration of a liquid, such as liquid fuel, comprising:

a housing having a peripheral wall and a lower end and having at an upper end including first and second ports defining a flow path within the housing;

a filter positioned within said housing and separating a central chamber from a peripheral chamber, the peripheral chamber being between the filter and said peripheral wall, said first port being in communication with said central chamber and said second port being in communication with said peripheral chamber, the filter having a bottom surface; and

a support plate positioned within said housing and spaced above said lower end providing a contaminant chamber therebelow, the support plate having an upper surface having a spiral upstanding ledge defining, on the spiral ledge, a support surface in contact with said bottom surface, a spiral fluid passageway being defined between adjacent portions of said spiral ledge and said bottom surface providing communication between said housing and said contaminant chamber.

5,783,077

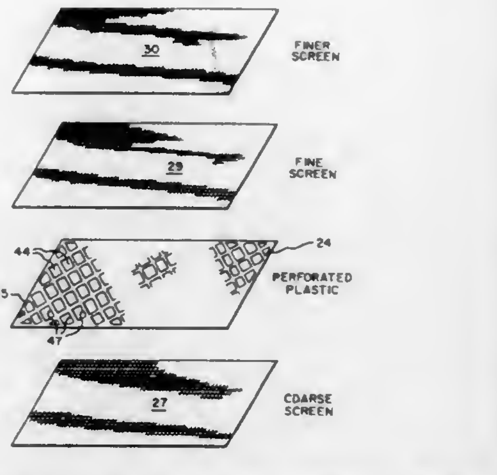
UNDULATING SCREEN FOR VIBRATORY SCREENING MACHINE

John J. Bakula, Grand Island, N.Y., assignor to Derrick Manufacturing Corporation, Buffalo, N.Y.

Continuation of Ser. No. 273,217, Jul. 11, 1994, Pat. No. 5,417,859, which is a continuation-in-part of Ser. No. 127,800, Sep. 28, 1993, abandoned, which is a continuation-in-part of Ser. No. 62,464, May 14, 1993, Pat. No. 5,417,858, which is a continuation-in-part of Ser. No. 4,122, Jan. 13, 1993, abandoned. This application May 17, 1995, Ser. No. 443,377

Int. Cl.^{6} B01D *33/03;* **B07B** *1/46;1/49*

U.S. Cl. 210—388 **133 Claims**



1. A screening screen assembly for screening material in a vibratory screening machine comprising a substantially planar apertured plate, an undulating subassembly of a fine screening screen and a support screen, said undulating subassembly including alternating ridges and troughs, said fine screening screen being bonded in contiguous relationship to said support screen by areas of fused plastic with unobstructed portions of said contiguous screens therebetween, said fused plastic extending substantially symmetrically across said ridges and including at least portions extending substantially perpendicularly to the length dimension of said ridges, and said subassembly being bonded to said apertured plate to form said screen assembly.

5,783,078

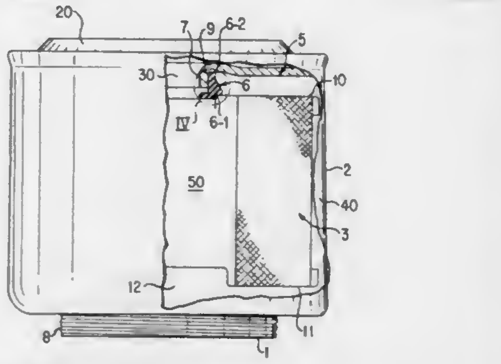
FUEL/WATER SEPARATOR FILTER WITHOUT FLOW DIVERTERS AND METHOD OF MAKING SAME

Mark Allen Roll, Bessemer City, and Willie Luther Stamey, Jr., Kings Mountain, both of N.C., assignors to Dana Corporation, Toledo, Ohio

Filed Oct. 12, 1996, Ser. No. 542,406

Int. Cl.^{6} B01D *35/30*

U.S. Cl. 210—444 **37 Claims**



1. A filter assembly comprising:

a metal housing having a top wall, a bottom wall, and an imperforate sidewall connecting said top wall to said bottom wall, said top wall having a central hole therethrough that communicates with an interior portion of the filter assembly, said hole being defined by a first inwardly facing surface for replaceably mounting the filter assembly;

a filter element, including an upper end cap, a filter medium having first and second ends, and a lower end cap, wherein said first and second ends of said filter medium are in contact with and fixedly attached to said upper and lower end caps, respectively;

an inner fuel chamber disposed inside said filter element, and communicating with said hole;

an outer fuel chamber disposed between an outer periphery of the filter element and said metal housing; and

a support member having a first portion fixedly attached to said top wall of said housing and a second portion fixedly attached to said upper end cap of said filter element, wherein said first portion is radially spaced apart from the central hole in the top

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wall of said housing, wherein at least one of said first and second portions are fixedly attached to said top wall and said upper end cap, respectively, by a chemical bonding agent.

5,783,079
COMPOSITE HOLLOW FIBER MEMBRANE AND PROCESS FOR ITS PRODUCTION

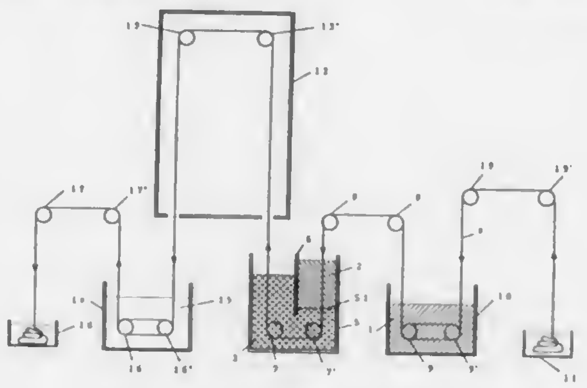
Atsuo Kumano; Hiroshi Oguro, and Takafumi Hayashi, all of Otsu, Japan, assignors to Toyo Boseki Kabushiki Kaisha, Osaka-Fu, Japan

Filed Aug. 17, 1995, Ser. No. 516,460

Claims priority, application Japan, Aug. 29, 1994, 6-203830; Apr. 12, 1995, 7-087054

Int. Cl.^{6} B01D *33/21*

U.S. Cl. 210—500.23 19 Claims



1. A composite hollow fiber membrane comprising a microporous hollow fiber support membrane and a crosslinked polymeric ultrathin layer formed on the outer surface of said microporous hollow fiber support membrane, which composite hollow fiber membrane contains an organic fluorine compound that is substantially insoluble in water and is selected from the group consisting of perfluorocarbon compounds and perfluoroalkyl-containing compounds, wherein the amount of the organic fluorine compound is 1 to 1000 ppm in terms of fluorine content per weight of said composite hollow fiber membrane.

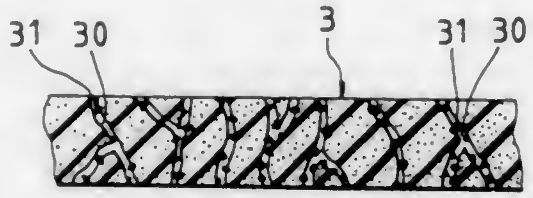
5,783,080
PLATE FILTER WITH HIGH ODOR AND TOXIN REMOVING AND WATER ABSORBING CAPACITY AND ITS MANUFACTURING PROCESSES

Chin-San Hsieh, P.O. Box 28-24, Kaohsiung, Taiwan

Filed Feb. 25, 1997, Ser. No. 805,692

Int. Cl.^{6} B01D *39/00*

U.S. Cl. 210—502.1 8 Claims



8. A plate filter with high odor and toxin removing and water adsorbing capacity comprising a catalyzer II in a proportion of 3.6–10.0 percent by weight, a catalyzer I in a proportion of 4.5–10 percent by weight, a vegetable starch paste in a proportion of 28–47 percent by weight, liquid non-particulate PVA (polyvinyl alcohol) in a proportion of 47–65 percent by weight, and active carbon and fiber in a proportion of 0.3–180 percent by weight of all of said catalyzers, PVA and starch paste.

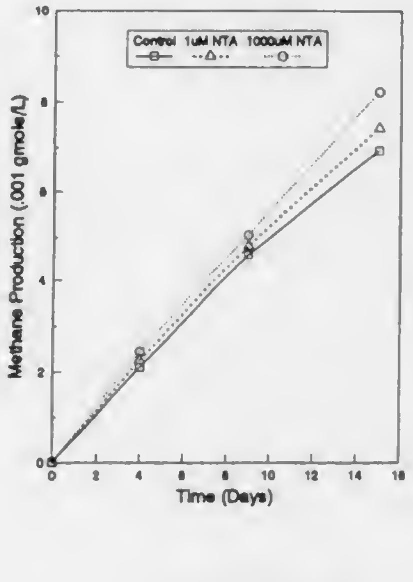
5,783,081
PERFORMANCE OF ANAEROBIC DIGESTERS

James L. Gaddy, 2207 Tall Oaks Dr., Fayetteville, Ark. 72703

Division of Ser. No. 705,725, May 24, 1991, Pat. No. 5,342,524. This application Apr. 6, 1994, Ser. No. 223,844

Int. Cl.^{6} C02F *3/28;3/34*

U.S. Cl. 210—611 22 Claims



Methane Production from NTA Amended Culture

1. A method of improving performance of an operating anaerobic solids digester comprising the step of adding at least one substantially pure culture of at least one methanogen.

5,783,082
CLEANING PROCESS USING CARBON DIOXIDE AS A SOLVENT AND EMPLOYING MOLECULARLY ENGINEERED SURFACTANTS

Joseph M. DeSimone, Chapel Hill; Timothy Romack, Durham; Douglas E. Betts, Chapel Hill, and James B. McClain, Carrboro, all of N.C., assignors to University of North Carolina, Chapel Hill, N.C.

Filed Nov. 3, 1995, Ser. No. 553,082

Int. Cl.^{6} B01D *11/00*

U.S. Cl. 210—634 30 Claims

1. A process for separating a contaminant from a substrate that carries the contaminant comprising:

contacting said substrate with a carbon dioxide fluid containing an amphiphilic species, which amphiphilic species lowers the interfacial tension of the contaminant so that said contaminant associates with said amphiphilic species and becomes entrained in said carbon dioxide fluid, said substrate being selected from the group consisting of metals, ceramics, glass, and composite mixtures thereof; then

separating said substrate from said carbon dioxide fluid having said contaminant entrained therein; and then

separating said contaminant from said carbon dioxide fluid.

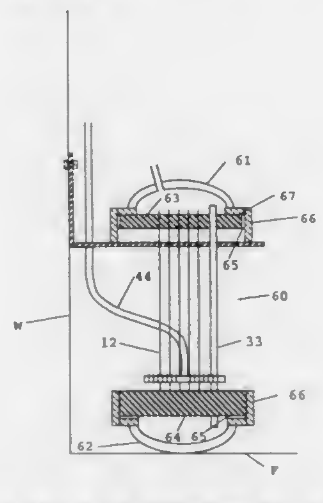
5,783,083
VERTICAL CYLINDRICAL SKEIN OF HOLLOW FIBER MEMBRANES AND METHOD OF MAINTAINING CLEAN FIBER SURFACES

Wayne Jerald Henshaw, Burlington; Mailvaganam Mahendran, Hamilton, and Henry Behmann, Puslinch, all of Canada, assignors to Zenon Environmental Inc., Ontario, Canada

Continuation-in-part of Ser. No. 514,119, Aug. 11, 1995, Pat. No. 5,639,373. This application Jul. 31, 1996, Ser. No. 690,045

Int. Cl.^{6} B01D *61/00*

U.S. Cl. 210—636 14 Claims



13. In a process for maintaining the outer surfaces of hollow fiber membranes essentially free from a build-up of deposits of particulate material while separating a permeate from a multicomponent liquid substrate in a reservoir, said process comprising,

submerging skein fibers in an essentially vertical, cylindrical configuration within said substrate, said fibers being unconfined in a modular shell, and securely held in vertically opposed, upper and lower headers spaced-apart at a fixed distance, said fibers having substantially the same length and from at least 0.1% greater, to about 5% greater than said fixed distance, a transmembrane pressure differential in the range from about 0.7 kPa (0.1 psi) to about 345 kPa (50 psi), and length sufficiently greater than the direct distance between opposed faces of said first and second headers, so as to present said skein in a swayable configuration above a horizontal plane through the horizontal center-line of said lower header;

mounting said headers in fluid-tight open communication with collection means to collect said permeate;

flowing a fiber-cleaning gas through a gas-distribution means proximately disposed relative to said skein, within a zone beneath said skein, and contacting surfaces of said fibers with sufficient physical impact of bubbles of said gas to maintain essentially the entire length of each fibers in said skein awash with bubbles and essentially free from said build-up;

maintaining an essentially constant flux through said fibers substantially the same as an equilibrium flux initially obtained after commencing operation of said process;

collecting said permeate in said collection means; and, withdrawing said permeate,

the improvement comprising,

introducing said cleansing gas between said fibers within said skein to generate a column of said bubbles alongside and in contact with outer surfaces of said fibers; said fibers spaced apart by a flexible support means having a thickness corresponding to a desired lateral spacing between adjacent fibers, said support means extending over only each terminal portion of said fibers near their ends, so as to maintain said ends in closely apart relationship;

restricting movement of said fibers to said vertical zone defined by lateral movement of outer fibers in said skein;

vertically gas-scrubbing said fibers outside surfaces with bubbles which flow upward in contact with said surfaces;

maintaining said surfaces substantially free from said deposits of particulate matter during a period when flux through said fibers has attained equilibrium; and simultaneously, essentially continuously, withdrawing said permeate.

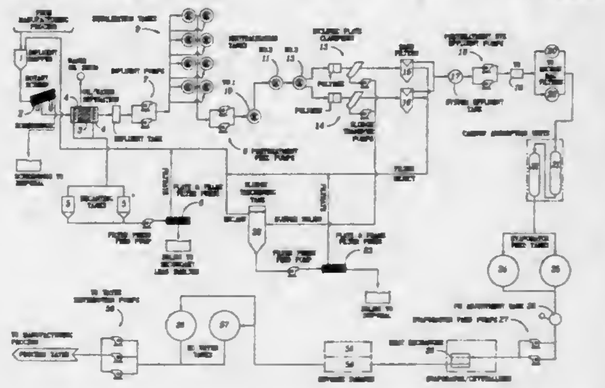
5,783,084
PROCESS FOR THE RECLAMATION OF PROCESS WATER FROM PROCESS WASTEWATER GENERATED IN THE BATTERY MANUFACTURING INDUSTRY AND OTHER METALS RELATED INDUSTRIES

Charles M. Suenkonis, c/o East Penn Manufacturing, Co., Lyon Station, Pa. 19536

Filed May 1, 1997, Ser. No. 848,899

Int. Cl.^{6} C02F *1/04*

U.S. Cl. 210—638 9 Claims



1. A process for converting sulfuric acid based process wastewater generated in battery manufacturing into clean process water and sodium sulfate salt, comprising the steps of

treating the process wastewater to remove impurities and contaminants, including debris, oil/grease, heavy metal oxides, lead and other heavy metals, suspended solids, bacteria, organic compounds, and/or gases, from the wastewater to produce a clean neutral sodium sulfate brine, and

subjecting the brine to heat to produce distilled water and sodium sulfate salt wherein the subjecting the brine to heat step includes evaporating a portion of the brine to produce steam and a concentrated sodium sulfate brine, harvesting sodium sulfate salt from the concentrated sodium sulfate brine, and collecting distilled water as the steam produced during evaporation cools.

5,783,085
BLOOD FRACTIONATION METHOD

Halbert Fischel, Los Angeles, Calif., assignor to Estate of William F. McLaughlin, Deerfield, Ill.

Continuation of Ser. No. 472,670, Jun. 7, 1995, abandoned, which is a division of Ser. No. 135,135, Oct. 12, 1993, Pat. No. 5,464,534, which is a continuation of Ser. No. 985,360, Dec. 2, 1992, abandoned, which is a continuation of Ser. No. 732,405, Jul. 18, 1991, abandoned, which is a division of Ser. No. 52,171, May 8, 1987, Pat. No. 5,034,135, which is a continuation of Ser. No. 449,470, Dec. 13, 1982, abandoned. This application May 15, 1996, Ser. No. 655,292

Int. Cl.^{6} B01D *61/22;61/14;* **A61M** *1/34*

U.S. Cl. 210—651 15 Claims

1. A method of filtering a fluid suspension having at least one biological cellular component that is characterized by having a nonrigid cell membrane free of a rigid outer cell wall, the cellular component being thereby subject to trauma when stressed, the method comprising the steps of

conveying the fluid suspension from a source into a gap defined between a first surface that is located about an axis and a second surface that is concentric with the first surface and that has an attached microporous filter membrane having a pore

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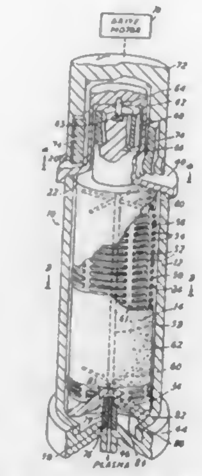


size to separate filtrate from the fluid suspension to leave within the gap a concentrated suspension of the at least one cellular component that is subject to trauma,

holding the first surface stationary while rotating the second surface and, with it, the filter membrane relative to the first surface about the axis at a selected surface velocity, taking into account the size of the gap, to create movement of the fluid suspension within the gap without substantial trauma to the cellular component for inducing transport of the cellular component from the membrane while the fluid suspension is transported to the membrane,

conveying filtrate through the microporous membrane to an outlet,

withdrawing filtrate from the outlet, and withdrawing the cellular component from the gap.

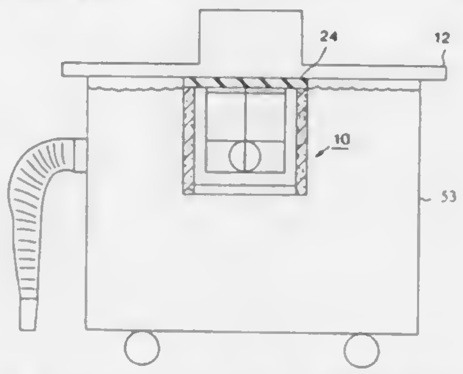
5,783,086
FILTER FOR A WET/DRY VACUUM CLEANER FOR WET MATERIAL COLLECTION

John J. Scanlon, Wilmington; Raymond M. Wnenchak, Newark, and Richard W. Giannetta, Elkton, all of Del., assignors to W. L. Gore & Associates, Inc., Newark, Del.

Continuation of Ser. No. 536,511, Sep. 29, 1995. This application Aug. 21, 1996, Ser. No. 701,142

Int. Cl.^{6} B01D *61/00*

U.S. Cl. 210—651 **5 Claims**



1. A method for employing a wet/dry vacuum for collecting wet material that comprises:

providing a pleated filter cartridge comprising a hydrophobic and air permeable filtration membrane and a liquid-tight gasket, the filtration membrane being sufficiently hydrophobic so as to withstand repeated exposure to water without degradation;

providing a wet/dry vacuum, having a tank, a suction unit and an air exhaust;

mounting the pleated filter cartridge on said suction unit such that a space is created between the filter cartridge and a rim of the tank; and

employing said wet/dry vacuum to collect wet material, wherein when wet material is collected and the filtration membrane in the filter cartridge is completely covered by said wet material, wet material collection is ceased thereby preventing overflow of said collected wet material from said tank.

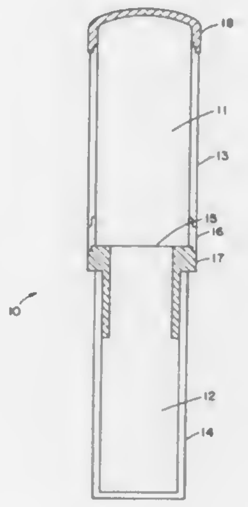
5,783,087
METHOD AND APPARATUS FOR ISOLATION AND PURIFICATION OF IMMUNE COMPLEXES

Daniel R. Vlock, Newton; Artin Malakian, Acton, and Ingeborg Cann, Hathorne, all of Mass., assignors to Millipore Investment Holdings Limited, Wilmington, Del.

Continuation of Ser. No. 225,162, Apr. 8, 1994, abandoned. This application Aug. 29, 1997, Ser. No. 921,106

Int. Cl.^{6} B01D *21/26;61/14*

U.S. Cl. 210—651 **8 Claims**



1. A method of separating intact immune complexes from cellular debris comprising the steps of

a) providing a first centrifugal device for removing said complexes from a fluid, said device comprising at least one capture unit comprising 1) an upper chamber for receiving fluid to be treated; 2) a lower chamber in fluid communication with said upper chamber, for receiving filtrate; 3) a porous immune-affinity membrane layer, said porous immune-affinity membrane layer selected from the group consisting of microfiltration and ultrafiltration membranes, disposed between said upper and lower chambers, said porous immnune-affinity membrane layer having ligands attached thereto for binding said immune complexes;

b) adding a fluid sample to said upper chamber and centrifuging said first centrifugal device to produce a filtrate;

c) removing said filtrate from said lower chamber;

d) eluting said complex off said porous immune-affinity membrane layer by treating said porous immune-affinity membrane layer with an eluting solvent that promotes the dissociation of said complex into its components;

e) centrifuging said first centrifugal device to produce a second filtrate;

f) transferring said second filtrate to a second separation device having 1) an upper chamber for receiving said second filtrate; 2) a lower chamber in fluid communication with said upper chamber, for receiving a third filtrate; and 3) an ultrafiltration membrane layer disposed therebetween that is sized to allow at least one of said components to pass through; and

g) centrifuging said second separation device to produce a third filtrate.

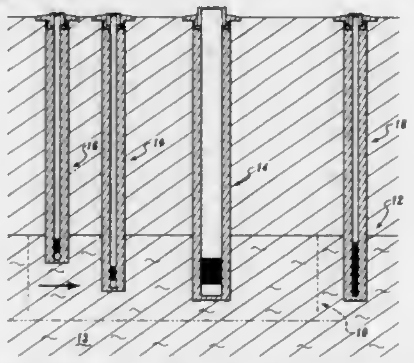
5,783,088
METHOD OF REMOVING OXIDIZED CONTAMINANTS FROM WATER

James E. Amonette; Jonathan S. Fruchter; Yuri A. Gorby, all of Richland; Charles R. Cole; Kirk J. Cantrell, both of West Richmond, and Daniel I. Kaplan, Richland, all of Wash., assignors to Battelle Memorial Institute, Richland, Wash.

Filed Nov. 6, 1995, Ser. No. 554,144

Int. Cl.^{6} C02F *1/28*

U.S. Cl. 210—679 **37 Claims**



1. A method of removing at least one contaminant selected from the group consisting of redox-sensitive contaminant, oxidized contaminant, and combinations thereof from water in a saturated zone beneath a surface of ground, comprising the steps of:

(a) causing to be present within said saturated zone of at least one layered aluminosilicate having bound Fe(II), said layered aluminosilicate(s) having a particle size less than 75 micron; while

(b) adding an amount of colloid from 0 to about 5 vol % of a pore space thereby avoiding significant reduction in a permeability of said saturated zone; and

(c) contacting said water with said layered aluminosilicate(s) for a time and reducing said contaminant with said Fe(II).

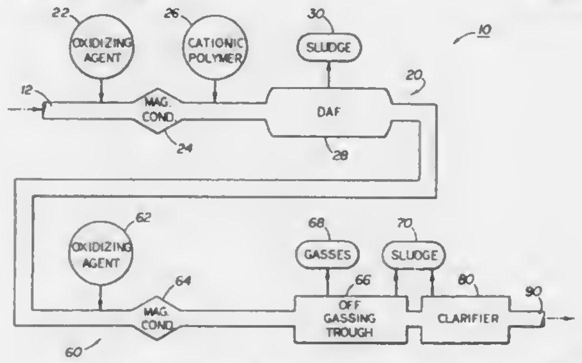
5,783,089
METHOD AND APPARATUS FOR WASTE WATER TREATMENT

Richard Wayne Anderson, and Lee Edward Ellenburg, both of Gainesville, Ga., assignors to Sorin, Inc., Gainsville, Ga.

Filed Jul. 19, 1995, Ser. No. 504,231

Int. Cl.^{6} C02F *1/24;1/48;1/72;9/00*

U.S. Cl. 210—703 **9 Claims**



1. A method for removing contaminants from waste water, comprising the steps of:

a. directing the waste water through a first magnetic field;

b. introducing an ionic polymer into the waste water that has been directed through the first magnetic field so as to cause at least some of the contaminants to flocculate in the waste water;

c. separating the flocculated contaminants from the waste water after the ionic polymer has been introduced to the waste water, thereby forming a waste water effluent;

d. adding an oxidizing agent into the waste water effluent;

e. passing the waste water and the oxidizing agent through a second magnetic field; and

f. injecting into the waste water air bubbles that absorb at least one gas from the waste water and then float to the surface of the waste water and are expelled therefrom.

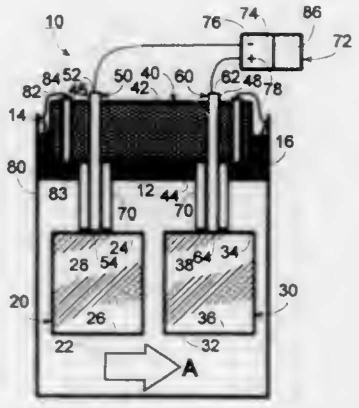
5,783,090
IONIC WATER TREATMENT SYSTEM

George S. Gleen, 1785 Johnson Ferry Rd., Atlanta, Ga. 30319

Continuation-in-part of Ser. No. 453,636, May 26, 1995, abandoned. This application Jul. 18, 1996, Ser. No. 683,709

Int. Cl.^{6} C02F *1/46;1/461;1/467*

U.S. Cl. 210—748 **23 Claims**



1. An apparatus for reducing micro-organism concentrations in a liquid, comprising:

a. a first electrode, a portion of which is disposed within the liquid;

b. a second electrode, a portion of which is disposed within the liquid, spaced apart from the first electrode, the second electrode comprising a copper and silver alloy wherein the ratio of copper to silver is in the range of from 1:1 to 11:3; and

c. a direct current power supply for applying an electrical potential between the second electrode and the first electrode, thereby creating an electrical current from the second electrode to the first electrode and thereby liberating copper ions and silver ions from the second electrode into the liquid.

5,783,091
METHOD FOR THE ALGICIDAL TREATMENT OF WATER

Peter Werle, Gelnhausen; Jolanta Holinej, Hainburg, and Antje Rueckriegel, Linsengericht, all of Germany, assignors to Degussa Aktiengesellschaft, Frankfurt am Main, Germany

Filed May 13, 1996, Ser. No. 645,334

Claims priority, application Germany, May 12, 1995, 195 17 463.1

Int. Cl.^{6} C02F *1/50*

U.S. Cl. 210—755 **16 Claims**

1. A method for the algicidal treatment of water containing algae and chlorophyll comprising adding to said water a sufficient

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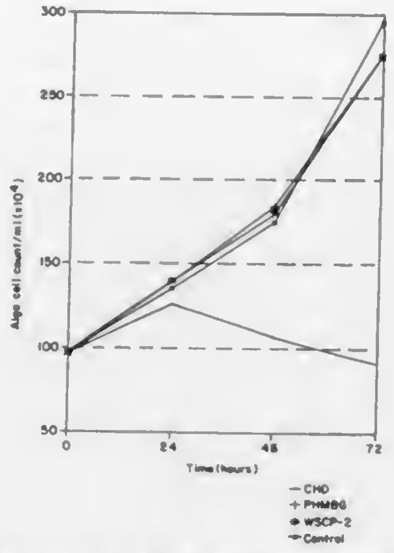


amount of chlorohexidine or a salt thereof to inhibit the growth of said algae and decompose said chlorophyll in said water.

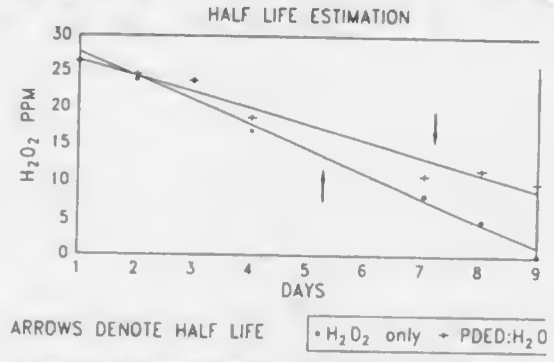
5,783,092
WATER TREATMENT METHOD

Geoffrey A. Brown, Lithonia, Ga.; Mary L. Lines, Bermuda, Fla., and James J. Miller, Norcross, Ga., assignors to Bio-Lab, Inc., Decatur, Ga.

Filed Mar. 18, 1997, Ser. No. 819,731

Int. Cl.^{6} C02F *1/50*

U.S. Cl. 210—759 **3 Claims**



1. A method of treating water, comprising the steps of:

(a) providing hydrogen peroxide and at least one polyquaternary ammonium compound to a recirculating water system; and

(b) intermittently adding to said water system an oxidizing agent selected from the group consisting of chlorine-, bromine- or oxygen-releasing compounds.

5,783,093
BLOOD CELL CONCENTRATES USING A SINGLE SOLUTION FOR ANTICOAGULATION AND PRESERVATION

Stein Holme, Tucson, Ariz., assignor to Haemonetics Corporation, Braintree, Mass.

Filed Jan. 2, 1997, Ser. No. 778,033

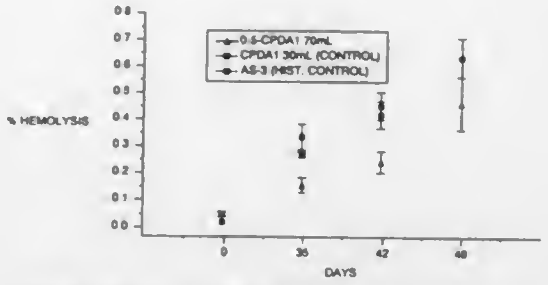
Int. Cl.^{6} A61K *35/14;35/18;* **A61M** *1/36*

U.S. Cl. 210—767 **28 Claims**

1. A method of processing blood from a source, the method comprising the following steps:

a. removing whole blood from a donor;

b. adding a first quantity of an aqueous solution thereto, the solution having a total citrate concentration greater than zero and less than 80 mM;



c. removing plasma from the blood so as to produce a concentrate containing red blood cells; and

d. adding a second quantity of said aqueous solution to the concentrate.

5,783,094
WHOLE BLOOD AND PLATELET LEUKOCYTE FILTRATION METHOD

Menahem A. Kraus, Rehovot; Yephet Gamlieli, Rishon Lezion; Jacob Yonath, Rehovot, and Roni Sazan, Tel Aviv, all of Israel, assignors to Teva Medical Ltd., Ashdod, Israel

Division of Ser. No. 422,274, Apr. 13, 1995, abandoned. This application May 7, 1997, Ser. No. 813,213

Int. Cl.^{6} B01D *37/00;37/02;39/02*

U.S. Cl. 210—767 **2 Claims**

1. A method for selectively removing leukocytes from a suspension which also contains platelets, comprising the step of:

passing the suspension through a filter featuring a substantially neutral coating including at least one species selected from the group consisting of hydroxypropyl cellulose, hydroxyethyl cellulose, hydroxypropylmethyl cellulose, hydroxybutylmethyl cellulose, dextran and hydroxyethyl starch, said coating being substantially retained by said filter during the step of passing the suspension through said filter such that said filter selectively retains the leukocytes and passes the platelets.

5,783,095
APPARATUS AND METHOD FOR SEPARATION OF CONTAMINANTS FLOATING ON THE SURFACE OF A LIQUID

Richard John Forsey, 32 Rydens Road, Walton-on-Thames KT12 3DL, and Gareth Ward Pimm, 10 Cherimoya Gardens, West Molesey, Surrey, KT8 9SA, both of United Kingdom

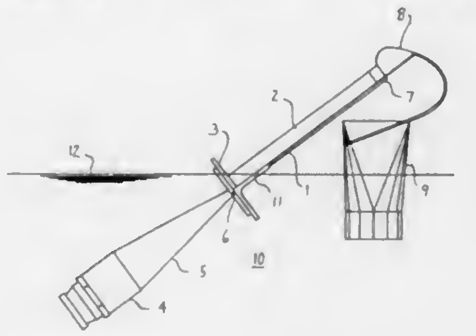
PCT No. PCT/GB95/01187, § 371 Date Nov. 15, 1996, § 102(e) Date Nov. 15, 1996, PCT Pub. No. WO95/32154, PCT Pub. Date Nov. 30, 1995

PCT Filed May 24, 1995, Ser. No. 750,091

Claims priority, application United Kingdom, May 24, 1994, 9410335

Int. Cl.^{6} E02G *15/04*

U.S. Cl. 210—776 **18 Claims**



10. A method of separating contaminants floating on the surface of a body of liquid from the body of liquid comprising the steps of:

positioning a substantially rectangular planar sheet in a body of liquid at an inclination, one edge of the sheet having an intake manifold with a slot aperture, the sheet having a collecting device at the other edge remote from the intake manifold for collecting contaminants and liquid, the inlet manifold and the one edge of the sheet being below the surface of the body of liquid and the collecting device and the other edge of the sheet being above the surface of the body of liquid; and

passing liquid under pressure through the inlet manifold and the slot aperture to emerge as a high velocity film of liquid covering substantially the entire surface of the sheet such that floating contaminants on the body of liquid are entrained in the film of liquid as the film of liquid passes through the surface of the body of liquid and carried upwardly to the collecting device.

5,783,096
METHOD FOR TREATING WASH WATER ORIGINATING FROM THE WASHING OF SUGAR BEETS

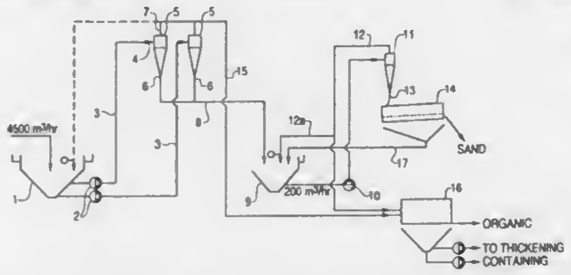
Leendert Jakob Blaak, Zevenhuizen, Netherlands, assignor to Linatex (Nederland) B.V., en Rodenrijs, Netherlands

Filed Dec. 15, 1995, Ser. No. 573,417

Claims priority, application Netherlands, Dec. 15, 1994, 9402130

Int. Cl.^{6} B01D *21/26*

U.S. Cl. 210—806 **3 Claims**



1. A method for treating wash water originating from washing sugar beets, said wash water comprising water, sand, sludge and sugar beet particles, wherein the wash water is subjected to a treatment in a first cyclone, in which wet sand containing a residue of sugar beet particles is separated from the wash water on the basis of specific gravity, followed by a first screen treatment, in which the sugar beet particles are separated from the wash water on the basis of particle size, and followed by a settling of the sludge still present in the wash water.

5,783,097
PROCESS TO AVOID DIELECTRIC DAMAGE AT THE FLAT EDGE OF THE WATER

Chi-Shen Lo; Chao-Hsin Chang; Chia-Hsiang Chen; Hsien-Wen Chang, and Chih-Heng Shen, all of Hsin-Chu, Taiwan, assignors to Taiwan Semiconductor Manufacturing Company, Ltd., Hsinchu, Taiwan

Filed Jun. 9, 1997, Ser. No. 871,503

Int. Cl.^{6} H01L *21/00;* **C03C** *15/00*

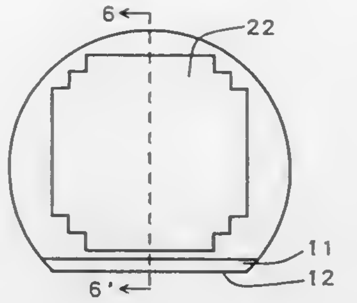
U.S. Cl. 216—41 **20 Claims**

1. A method of fabricating integrated circuit wafers:

providing an integrated circuit wafer having a flat edge and a flat edge region wherein said flat edge region is that part of said integrated circuit wafer between said flat edge and a line parallel to said flat edge;

forming a layer of dielectric material on said integrated circuit wafer;

forming a layer of photoresist material over said layer of dielectric material;



selectively exposing and developing said layer of photoresist thereby forming a photoresist mask by removing that part of said layer of photoresist directly over said flat edge region of said integrated circuit wafer;

etching away that part of said layer of dielectric material directly over said flat edge region of said integrated circuit wafer by means of wet etching using said photoresist mask; and

stripping the remaining photoresist from said integrated circuit wafer.

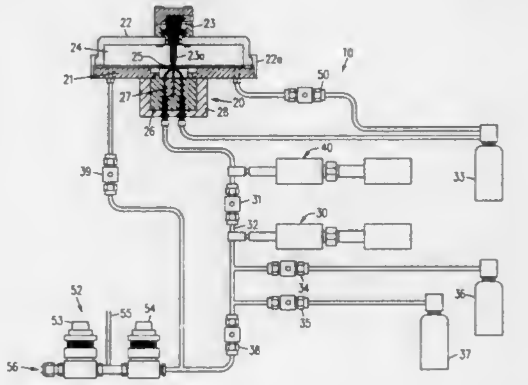
5,783,098
DECAPSULATOR AND METHOD FOR DECAPSULATING PLASTIC ENCAPSULATED DEVICE

Kirk Alan Martin, Aptos, and Richard A. Kanishak, Danville, both of Calif., assignors to Nisene Technology Group, Soquel, Calif.

Continuation-in-part of Ser. No. 656,498, May 31, 1996. This application Nov. 27, 1996, Ser. No. 757,495

Int. Cl.^{6} B44C *1/22*

U.S. Cl. 216—56 **17 Claims**



15. A method of decapsulating a plastic package of resinous material surrounding an encapsulated electronic device comprising:

providing a source of etchant solution and an etching assembly including an etch plate and a movable cover, and an etch head in flow connection to the source of etchant solution;

positioning an electronic device package of resinous material on the etch head;

displacement pumping a volume of etchant solution from the source of etchant solution to the etch head;

displacement oscillating at least a portion of the volume of etchant out of and back into the etch head; and thereby digesting the resinous material to form a hole in said package.

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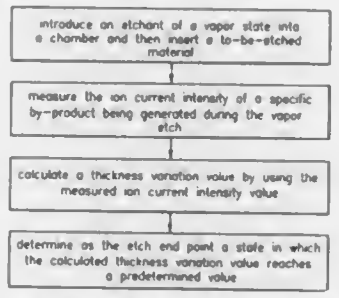
5,783,099
ETCH-ENDING POINT MEASURING METHOD FOR VAPOR ETCH PROCESS

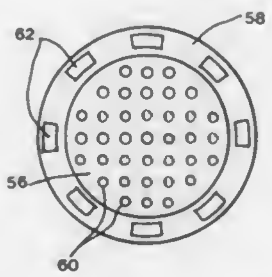
Yun Jun Huh, Seoul, Rep. of Korea, assignor to LG Semicon Co., Ltd., Chungcheongbuk-Do, Rep. of Korea
Filed Jul. 12, 1996, Ser. No. 679,004
Claims priority, application Rep. of Korea, Feb. 28, 1996, 5004/1996
Int. Cl.^{6} G01R *31/00;* **H01L** *21/268*
U.S. Cl. 216—59 **16 Claims**


introduce an etchant of a vapor state into a chamber and then insert a to-be-etched material
measure the ion current intensity of a specific by-product being generated during the vapor etch
calculate a thickness variation value by using the measured ion current intensity value
determine as the etch end point a state in which the calculated thickness variation value reaches a predetermined value

1. A method for determining an etch-ending point using a vapor etch apparatus having a chamber, the method comprising the steps of:
providing a vapor-state etchant in the chamber, the vapor-state etchant containing hydrogen ions;
inserting a material to be etched in the chamber and etching the material by the etchant, the material being one of a silicon oxide layer and a silicon semiconductor layer;
measuring an ion current intensity of a by-product generated during the vapor etch process;
calculating a thickness variation value of the material by using the ion current intensity value; and
stopping the vapor etch process when the thickness variation value reaches a preset value.

5,783,100
METHOD OF HIGH DENSITY PLASMA ETCHING FOR SEMICONDUCTOR MANUFACTURE

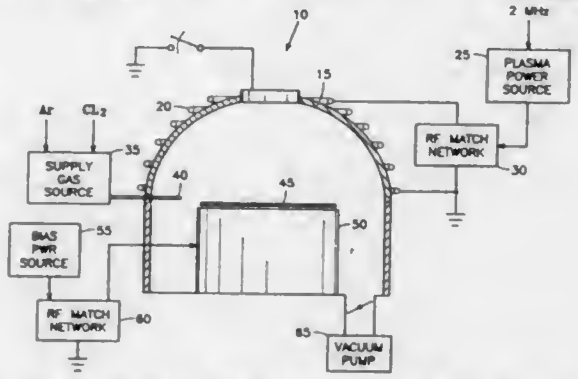
Guy Blalock, and Kevin Donohoe, both of Boise, Id., assignors to Micron Display Technology, Inc., Boise, Id.
Continuation of Ser. No. 213,556, Mar. 16, 1994, abandoned. This application Nov. 19, 1996, Ser. No. 752,064
Int. Cl.^{6} H01L *21/02*
U.S. Cl. 216—67 **15 Claims**



1. A method for etching a substrate comprising:
providing a plasma etching system comprising a magnetic bucket system and a vacuum process chamber at a pressure of 0.1 mtorr–200 mtorr, said vacuum process chamber in flow communication with a plasma generating chamber configured to generate a plasma comprising neutrals and ions with a charge density of from 10^{10}–10^{12} charges/cm^3;
placing the substrate in the reaction chamber in electrical communication with a bias source;
placing an ion filter between the plasma generating chamber and substrate, said ion filter comprising a plate with a plurality of openings therethrough, said openings having inside diameters of from 2 mm to 20 mm and a combined area comprising from 10–80% of a total area of the ion filter; and
accelerating the ions in a flow path towards the substrate with solid areas on the filter, including solid portions of the plate within the inside diameters of the openings, forming a sheath to interrupt and deflect the flow path of the accelerated ions in order to decrease a ratio of ions to neutrals in the plasma striking the substrate.

5,783,101
HIGH ETCH RATE RESIDUE FREE METAL ETCH PROCESS WITH LOW FREQUENCY HIGH POWER INDUCTIVE COUPLED PLASMA

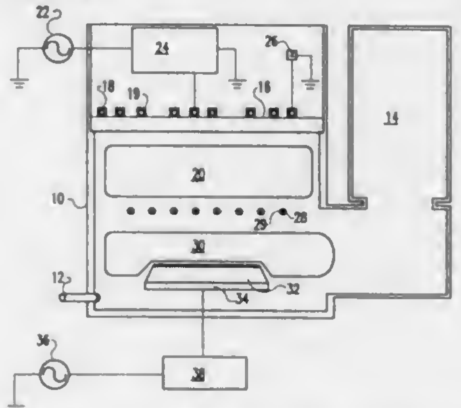
Diana Xiaobing Ma, San Jose; Gerald Zheyao Yin, Cupertino, and Hiroji Hanawa, Sunnyvale, all of Calif., assignors to Applied Materials, Inc., Santa Clara, Calif.
Filed Sep. 16, 1994, Ser. No. 307,870
Int. Cl.^{6} H01L *21/02*
U.S. Cl. 216—68 **31 Claims**



1. An etch process for etching a conductive film on a semiconductor wafer in a plasma reactor having an inductor coil for irradiating said reactor with RF source power and a wafer pedestal for supporting said wafer in said reactor, said etch process comprising the steps of:
applying RF power in excess of 750 Watts at an RF frequency less than 6 MHz to said inductor coil; and
introducing a gas into said plasma reactor comprising one or more etchant species for ethching said conductive film constituting greater than 50% and less than 84% of said gas.

5,783,102
NEGATIVE ION DEDUCTIVE SOURCE FOR ETCHING HIGH ASPECT RATIO STRUCTURES

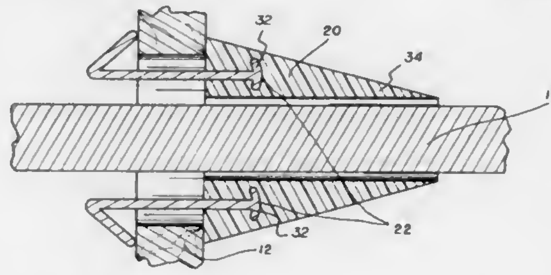
John Howard Keller, Newburgh, N.Y., assignor to International Business Machines Corporation, Armonk, N.Y.
Filed Feb. 5, 1996, Ser. No. 595,438
Int. Cl.^{6} H05H *1/00*
U.S. Cl. 216—68 **17 Claims**



1. A method of etching a work piece with a negative ion plasma comprising the steps of:
providing a work piece on a chuck within an etching chamber;
generating a primary plasma within said etching chamber;
separating the primary plasma from a cold plasma region with a magnetic field, said chuck being located in said cold plasma region;
supplying an asymmetric RF bias signal to said chuck, said asymmetric RF bias signal having a cycle sufficient to accelerate negatively and positively charged ions with little charge accumulation during either half cycle and providing negative ions and electrons with a directive energy equal to at least 10% of a maximum positive ion energy, said magnetic field producing a plurality of hot plasmas located near a magnetic null in said primary plasma, such that plasmas from said hot plasmas diffuse through said magnetic field to form a uniform negative ion plasma over said work piece in said cold plasma region; and
etching said work piece with said negative ion plasma.

5,783,103
SNAP TIE

Kenneth Triplett, Jr., 110 Westview Pl., Kalama, Wash. 98625
Filed Feb. 14, 1997, Ser. No. 799,373
Int. Cl.^{6} E04G *17/07*
U.S. Cl. 249—46 **6 Claims**



1. A snap tie comprising:
at least one conical shaped spacer having a longitudinal passageway therethrough;
an elongated member positioned in the longitudinal passageway and having opposite ends;
a wedge locking cap on each end of the elongated member;
at least one wedge;
a locking slot in the wedge;
the locking cap releasably locked into the wedge locking slot;
a pair of wires each having first and second ends, each said wire being bent at said first end at an angle to form an angle of less than 90 degrees with respect to the elongated member;
the second ends of each of the wires having an arcuate character lodged in the conical shaped spacer, and
wherein the pair of wires are positioned on opposite sides of the elongated member thus enabling the snap tie to remain in place.

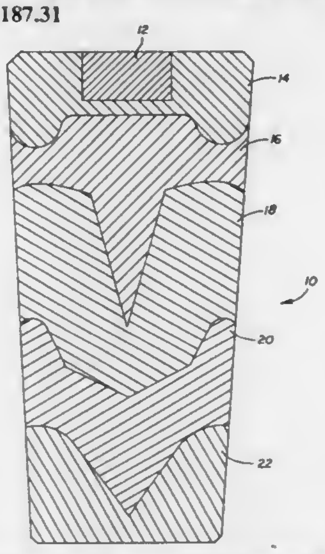
5,783,104
ABSORPTION REFRIGERATION COMPOSITIONS HAVING GERMANIUM BASED COMPOUNDS

Stephen Anthony Kujak, Onalaska, Wis., assignor to Gas Research Institute, Chicago, Ill.
Filed Apr. 16, 1996, Ser. No. 632,841
Int. Cl.^{6} C09K *5/04*
U.S. Cl. 252—69 **6 Claims**

1. A refrigerant/absorbent composition comprising an aqueous solution of:
A. at least one salt, present in an amount, between 10% and 95% by weight of the composition, sufficient to provide utility of said composition as an absorbent; said salt comprising:
i. at least one cation selected from the group consisting of alkali metals, alkaline earth metals, transition metals, zinc and mixtures thereof; and
ii. at least one anion selected from the group consisting of chloride, bromide, iodide, and mixtures thereof; and
B. at least one germanium compound, present in an amount sufficient to inhibit corrosion of metal.

5,783,105
OXYGEN GENERATING COMPOSITIONS

Yunchang Zhang, and James C. Cannon, both of Overland Park, Kans., assignors to Nellcor Puritan Bennett (A Delaware Corporation), Pleasanton, Calif.
Filed Nov. 9, 1995, Ser. No. 554,901
Int. Cl.^{6} C01B *11/14;11/18;* **A62B** *21/00;7/08*
U.S. Cl. 252—187.31 **20 Claims**



1. An oxygen generating composition for producing breathable oxygen gas upon ignition of the composition, comprising:
about 0.5–15% by weight of substantially carbon-free tin powder as a fuel and rheology modifier;
from zero to about 15% by weight of a transition metal oxide catalyst; and
the remainder substantially comprising an oxygen source selected from the group consisting of alkali metal chlorates, alkali metal perchlorates, and mixtures thereof, said composition being operable for producing breathable oxygen gas for a period of several minutes.

5,783,106
LITHIUM DOPED TERBIUM ACTIVATED GADOLINIUM OXYSULFIDE PHOSPHOR

Vaddi Butchi Reddy, and Shellie K. Northrop, both of Sayre, Pa., assignors to Osram Sylvania Inc., Danvers, Mass.
Filed Sep. 23, 1997, Ser. No. 935,645
Int. Cl.^{6} C09K *11/84*
U.S. Cl. 252—301.45 **20 Claims**

1. A terbium activated gadolinium oxysulfide phosphor having an amount of a lithium dopant.

5,783,107
METHOD FOR THE MANUFACTURE OF A LUMINOPHORE

Antoinette Morell, and Annie Marx, both of Villebon S/Yvette, France, assignors to Thomson-CSF, Paris, France
Filed Dec. 9, 1996, Ser. No. 762,801
Claims priority, application France, Dec. 8, 1995, 95 14544
Int. Cl.^{6} C09K *11/01;11/59;11/54*
U.S. Cl. 252—301.6 R **6 Claims**

1. A method for the manufacture of a luminophore comprising the following steps:

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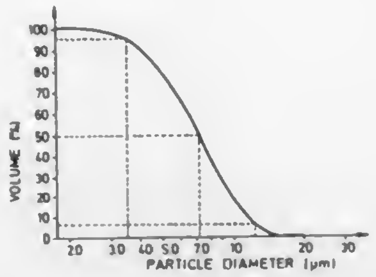


a) the weighing of the different constituent materials in the powder form;
b) mixing in an aqueous medium;
c) the evaporation of the liquid;
d) the screening of the powder obtained with a mesh aperture of 100 µm to disagglomerate the powder;
e) baking at a temperature of 1 100° C. to 1400° C. in a neutral gas atmosphere wherein neutral gas is injected into the interior of the powder;
f) the screening of the baked powder;
g) crushing to reduce the size of the grains and then screening;
h) the annealing of the crushed powder at a temperature ranging from 700° C. to 1200° C. so as to obtain a reorganization of the first atomic layers of the grains of the powder;
i) the mixing of the annealed powder in an aqueous medium, and sedimentation and then removal of the upper part of the liquid containing the powder in suspension;
j) the drying of the removed suspension and the screening of the powder obtained.

5,783,108
INK COMPOSITION

Simon Donald MacKay, Victoria, Australia, assignor to Zone Properties Pty Ltd, Victoria, Australia

Filed Jun. 24, 1997, Ser. No. 881,156
Claims priority, application Australia, Jun. 24, 1996, PO0629
Int. Cl.⁶ C09K *11/08;* **C09D** *5/22*

U.S. Cl. 252—301.36 **4 Claims**

1. An ink composition comprising, by weight:
a) 20 to 35% of an ultraviolet radiation curable carrier;
b) 0.003 to 1.0% of a colored base dye or pigment which emits usable radiation of a first wavelength;
c) 35 to 50% of a luminescent pigment which emits visible radiation by phosphorescent decay or under illumination by long-wave ultraviolet radiation at a second wavelength; and
d) 0 to 25% of a reducer to improve flow properties of the composition.

5,783,109
DISPERSION OF GUMS AND IRON SULFIDE IN HYDROCARBON STREAMS WITH ALKYL PHENOL-POLYETHYLENEPOLYAMINE FORMALDEHYDE RESINS

Kailash N. Sawhney, Sugar Land, Tex., assignor to Nalco/Exxon Energy Chemicals, L.P., Sugar Land, Tex.

Continuation of Ser. No. 298,732, Aug. 31, 1994, abandoned, which is a continuation-in-part of Ser. No. 235,050, Apr. 29, 1994, Pat. No. 5,494,607. This application Aug. 21, 1996, Ser. No. 701,466
Int. Cl.⁶ B01J *13/00;* **C10G** *9/16;* **F21B** *43/28*

U.S. Cl. 252—314 **5 Claims**

1. A method for preventing deposition of iron salt corrosion byproducts selected from the group consisting of iron oxide and iron sulfide in petroleum distillates on petroleum processing equipment, wherein said by-products are formed as a result of petroleum processing, which comprises adding an effective deposit-inhibiting amount of a resin to said petroleum distillate, the resin comprising a monosubstituted alkylphenol-polyethylenepolyamine-formaldehyde resin having a weight average molecular weight of from about 1,000 to about 10,000, and an alkyl substituent containing from about 4 to about 24 carbon atoms, which alkyl substituent may be a linear or branched alkyl group and wherein the polyethylenepolyamine is represented by the formula $H_2N—(CH_2—CH_2—NH—)_nH$ where n is an integer of from 1 to 5.

5,783,110
COMPOSITION FOR THE DETECTION OF ELECTROPHILIC GASES AND METHODS OF USE THEREOF

Robert J. Verdicchio, Succasunna; Stewart R. Kaiser, Hackettstown, and Shawn Walsh, Branchburg, all of N.J., assignors to R-Tect, Inc., Brookyln, N.Y.

Filed Apr. 17, 1997, Ser. No. 837,355
Int. Cl.⁶ B01J *13/00;* **G01M** *3/20*

U.S. Cl. 252—315.1 **16 Claims**

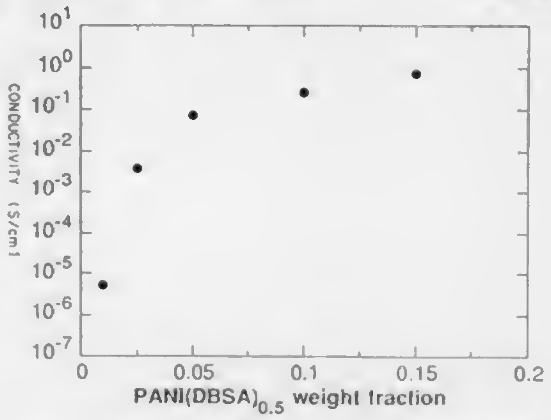
1. A gel composition for the detection of an electrophilic gas consisting essentially of
a) a Lewis base capable of electrophilic reaction with said gas,
b) a dye capable of visibly indicating a color change on protonation or deprotonation,
c) a solvent for said dye, said base and said gas, selected from the group consisting of alkanols, arylalkanols, alkyl halides, alkyl ketones, alkylamines, aralkylamines, alkyl esters of alkanoic acids and dimethylsulfoxide,
d) a rheology modifier capable of producing a non-newtonian gel of components (a)+(b)+(c)+(d) which is sufficiently translucent to permit visual detection of change of color of (b) and of sufficient pseudoplasticity/thixotropy to provide adhesion to vertical and horizontal surfaces.

5,783,111
ELECTRICALLY CONDUCTING COMPOSITIONS

Olli Ikkala, Merikasarminkatu; Lars-Olof Pietilä, Purismiehenkatu, both of Finland; Yong Cao, Goleta, and Alejandro Andreatta, Santa Barbara, both of Calif., assignors to Uniax Corporation, Santa Barbara, Calif., and Neste Oy, Espoo, Finland

Continuation-in-part of Ser. No. 549,557, Oct. 27, 1995, abandoned, which is a continuation of Ser. No. 115,536, Sep. 3, 1993, abandoned. This application Jan. 4, 1996, Ser. No. 582,809
Int. Cl.⁶ H01B *1/12*

U.S. Cl. 252—500 **21 Claims**



1. Liquid-phase processible electrically conductive polymeric composition consisting of an admixture of:
(a) one or more electrically conductive protonated polymer complexes selected from the group consisting of polyaniline, substituted polyanilines, and copolymers thereof;
(b) one or more substituted cyclic organic compounds according to Formula I:

$$A_i—B_j \qquad \text{I}$$

wherein:
i is an integer greater than 0;
j is an integer greater than 1, with the proviso that the sum of i and j is equal to or greater than 3;
A is a moiety which forms ring-ring interactions with the six-membered rings of said electrically conducting polyaniline complexes; and is independently selected so as to be the same or different at each occurrence and is selected from the group consisting of substituted or unsubstituted 3, 4, 5, 6 or 7-membered aromatic or alicyclic rings, which rings may optionally include one or more nitrogen, sulfur or oxygen atoms; and their substituted or unsubstituted condensed rings; and
B is a moiety which forms hydrogen bonds to the electrically conducting polyaniline complex; and is independently selected so as to be the same or different at each occurrence and is selected from the group consisting of —OH, —COOH, —COO—, —CO—, —SO—, $—SO_2—$, —OCOO—, —S—, $—PO_3—$, $—NO_2$, —CON═;
wherein said substituted compound dissolves said electrically conductive polymer complex during melt processing, and wherein said substituted cyclic organic compound has a pKa greater than about 3; and (c) optionally, from about 1 to about 99.95 weight percent of one or more substantially insulating or semiconducting polymers or pre-polymers.

5,783,112
POLYMER COMPOSITIONS COMPRISING ELECTROACTIVE AMPHIPHIL ORGANIC COMPOUNDS AND ELECTROCONDUCTIVE SHAPED ARTICLES PRODUCED THEREFROM

Bernard Chauvel, Eaufonne, and Joel Richard, Chantilly, both of France, assignors to Rhone-Poulenc Chimie, Courbevoie Cedex, France

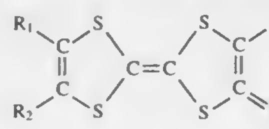
Continuation of Ser. No. 461,979, Jun. 5, 1995, abandoned, which is a division of Ser. No. 132,966, Oct. 7, 1993, abandoned. This application Apr. 15, 1997, Ser. No. 839,643
Claims priority, application France, Oct. 7, 1992, 92 12265
Int. Cl.⁶ H01B *1/06;1/12;1/20*

U.S. Cl. 252—500 **2 Claims**

1. A thermoplastic polymer film bearing a coating of electroconductive polymer shaped articles comprising at least one convertible polymer (Pm) and at least one amphiphilic organic compound (B) which comprises a charge transfer complex or a radical ion salt having the general formula (I):

$$D_dA_aZ_z \qquad \text{(I)}$$

in which;
D is an electron donor having the general formula (VI):


(VI)

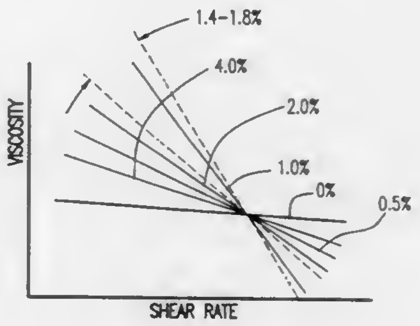
in which R_1 and R_2, which may be identical or different, are each a hydrocarbon radical, at least one of which is a hydrophobic; R_3 and R_4, which may be indentical or different, are each a hydrophilic radical
A is an electron acceptor selected from the group consisting of (HCBD), 1,2,4,5,-tetracyanobenzene (TCNB), 7,7,8,8-tetracyanoquinodimethane (TCNO) or substituted derivative thereof, tetracyanodiquinodimethane (TCNDQ), benzotetracyanoquinodimethane (benzo-TCNQ, 2,3,5,6-(TNB), tetranaphthoquinodimethane (TNAP), thipohenetetracyanoquinodimethane (thiophene-TCNQ), selenophenetetracyanoquinodimethane (selenophena-TCNQ), or tetracyanoquinoquinazolinoquinazoline, or halogenated, alkoxylated, or alkylated derivatives thereof;
Z is a doping agent, selected from the group consisting of I^-, $(I_3)^-$, $(PF_6)^-$, $(ClO_4)^-$, $(BF_4)^-$, $(ReO_4)^-$, $(IO_4)^-$, $(FSO_3)^-$, $(AsF_4)^-$, $(AsF_6)^-$, Br^-, Cl^-, and $(MnCl_6)^-$;
where d, a, and z are all integers greater than 0.

5,783,113
CONDUCTIVE PASTE FOR LARGE GREENSHEET SCREENING INCLUDING HIGH THIXOTROPIC AGENT CONTENT

Jawahar P. Nayak, Wappingers Falls; Michael E. Cropp, LaGrangeville; John M. Wargo, Poughkeepsie; Nancy A. Wier-Cavalieri, Highland, and Charles W. Hunter, Jr., New Windsor, all of N.Y., assignors to International Business Machines Corporation, Armonk, N.Y.

Filed Mar. 27, 1997, Ser. No. 829,809
Int. Cl.⁶ H01B *1/20;1/22*

U.S. Cl. 252—512 **5 Claims**



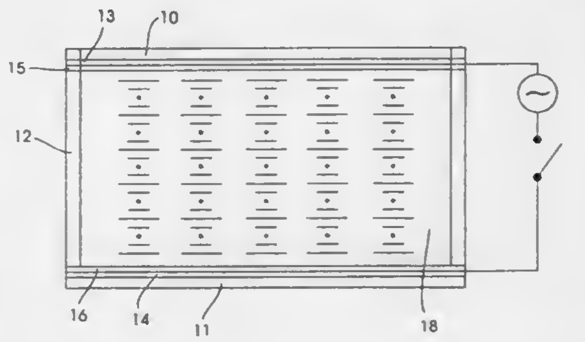
1. A conductive paste including
conductive powder,
an organic vehicle including an organic binder, and
a thixotropic agent comprising hydrogenated castor oil at a concentration of 1.4%–1.8% by weight of the paste.

5,783,114
LIQUID CRYSTALLINE DISPLAY

Daniel John Dyer, and Robert James Twieg, both of San Jose, Calif., assignors to International Business Machines Corporation, Armonk, N.Y.

Filed Dec. 2, 1996, Ser. No. 753,841
Int. Cl.⁶ C09K *19/34;19/52;* **F21V** *9/00*

U.S. Cl. 252—582 **7 Claims**



1. An electro optic device comprising a light-modulating composition disposed between a first and second electrode, the composition comprising light-modulating heterocyclic compound having the formula:

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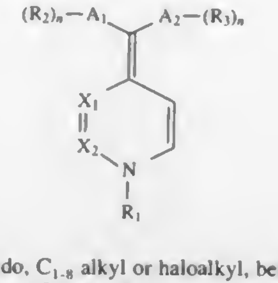


wherein A_1 is hydrido, C_{1-8} alkyl or haloalkyl, benzyl or phenyl or A_2; A_2 is cyano, nitro, C_{1-6} alkylcarbonyl, sulfonyl, C_{1-6} alkylsulfonyl, phenylsulfonyl, sulfinyl, C_{1-6} alkylsulfinyl, aminocarboxy, or C_{1-6} alkylcarboxy or A_1 and A_2 together are 1,3 cyclo C_{5-6} alkyldione, or cyclo pentadiene; X_1, and X_2, are each independently C or N provide at least one of them is N, R_1 R_2 and R_3 are each independently a C_{1-30} mesogenic group and n is 0 or 1.

5,783,115
INDEX MATCHING COMPOSITIONS WITH IMPROVED DNG/DT

Zayn Bilkadi, Mahtomedi; Marc D. Radcliffe, Woodbury, and James C. Novack, St. Paul, all of Minn., assignors to Minnesota Mining and Manufacturing Company, St. Paul, Minn.

Continuation of Ser. No. 189,198, Jan. 31, 1994, abandoned, which is a division of Ser. No. 929,091, Aug. 13, 1992, Pat. No. 5,307,438. This application Sep. 2, 1997, Ser. No. 921,978

Int. Cl.^{6} F21V *9/00*

U.S. Cl. 252—582 **22 Claims**

1. An optically transmissive composition comprising:

a. 20 to 80 parts by weight individually dispersed silica sol particles;

b. 80 to 20 parts by weight of a liquid polysiloxane polymer having a refractive index between 1.44–1.52, wherein said liquid polysiloxane polymer has the formula:

$$(YR^3{}_2SiO)[(R^1{}_2SiO)_n(R^2{}_2SiO)_l(R^1R^2SiO)_m](R^3{}_2SiY$$

wherein:

R^1 is an alkyl group having from 1 to 9 carbon atoms;

R^2 is an aryl group or monohalogenated aryl group having from 6 to 18 carbon atoms;

R^3 is independently R^1 or R^2;

each Y is independently selected from the group consisting of H, R^1, $CH_2{=}CH$, OH, NH_2, OR, ROH, RNHR', $RN(R')_2$, R'NHCONR, or RCOOH, where R is methylene, ethylene or propylene and R' methyl, ethyl or propyl;

l is an integer having a value of from 0 to 2,000;

m is an integr having a value of from 0 to 2,000;

n is an integer having a value of from 0 to 2,000; and

the sum of l, m, and n is less than 2,000; and

c. a liquid polymer selected from the polyether polyols and end-substituted polyether polyols having a refractive index between 1.44–1.52 and having the formula:

$$R1[OR^2—OR^3]_nR^4$$

wherein:

R1 is selected from H, an alkyl radical containing 1 to 12 carbon atoms, $R^5NHC_yH_{2y}$ where R^5 is H or methyl and y=1 to 10, or C_6H_5NHCO;

R^2 is a divalent aliphatic group containing 1 to 5 carbon atoms;

R^3 is a divalent aliphatic group of 1 to 5 carbon atoms that may be identical to R^2, or $CH(C_xH_{2x+1})CO$ where x=1 to 3;

R^4 is H or an alkyl radical containing 1 to 12 carbon atoms, or a halogen atom, or $R^5NHC_yH_{2y}$, or OR^6 where R^6 is either an alkyl radical containing 1 to 12 carbon atoms or C_6H_6NHCO; and

n is an integer from 1 to 50,

said liquid polymer being copolymerized with saidd liquid polysiloxane polymer.

5,783,116
DERIVATIVES OF CARBOCYCLIC FUSED NAPHTHOPYRANS

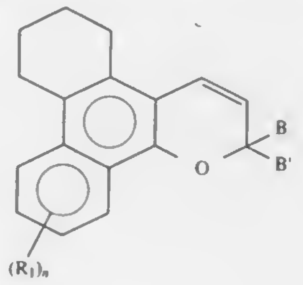
Jibing Lin, Murrysville, Pa., assignor to PPG Industries, Inc., Pittsburgh, Pa.

Filed Oct. 16, 1997, Ser. No. 951,335

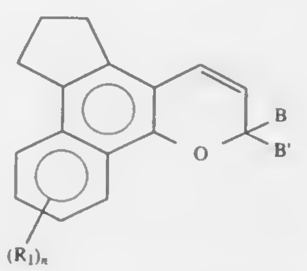
Int. Cl.^{6} G02B *5/23*; **C07D** *311/78*

U.S. Cl. 252—586 **22 Claims**

1. A photochromic compound represented by the following graphic formulae:



or



wherein,

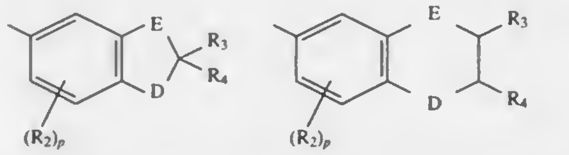
(a) each R_1 is selected from the group consisting of C_1–C_6 alkyl, C_1–C_6 alkoxy, chloro, fluoro, the unsubstituted, mono-, di- and tri-substituted aryl groups, phenyl and naphthyl, and the unsubstituted, mono- and di-substituted heteroaromatic groups pyridyl, furanyl, benzofuran-2-yl, benzofuran-3-yl, thienyl, benzothien-2-yl, benzothien-3-yl, dibenzofuranyl, dibenzothienyl, carbazolyl and fluorenyl, each of said aryl and heteroaromatic substituents being selected from the group consisting of aryl, mono(C_1–C_6)alkoxyaryl, di(C_1–C_6)alkoxyaryl, mono(C_1–C_6)alkylaryl, di(C_1–C_6)alkylaryl, C_3–C_7 cycloalkylaryl, C_3–C_7 cycloalkyl, C_3–C_7 cycloalkyloxy, C_3–C_7 cycloalkyloxy(C_1–C_6)alkyl, C_3–C_7 cycloalkyloxy(C_1–C_6)alkoxy, aryl(C_1–C_6)alkyl, aryl(C_1–C_6)alkoxy, aryloxy, aryloxy(C_1–C_6)alkyl, aryloxy(C_1–C_6)alkoxy, mono- and di(C_1–C_6)alkylaryl(C_1–C_6)alkyl, mono- and di(C_1–C_6)alkoxyaryl(C_1–C_6)alkyl, mono- and di(C_1–C_6)alkylaryl(C_1–C_6)alkoxy, mono- and di(C_1–C_6)alkoxyaryl(C_1–C_6)alkoxy, di(C_1–C_6)alkylamino, diarylamino, N-(C_1–C_6)alkylpiperazino, N-arylpiperazino, aziridino, indolino, piperidino, arylpiperidino, morpholino, thiomorpholino, tetrahydroquinolino, tetrahydroisoquinolino, pyrryl, C_1–C_6 alkyl, C_1–C_6 fluoroalkyl, C_1–C_6 alkoxy, and mono(C_1–C_6)alkoxy(C_1–C_4)alkyl, and n is the integer 0, 1, 2 or 3; and

(b) B and B' are each selected from the group consisting of:

(i) the unsubstituted, mono-, di- and tri-substituted aryl groups, phenyl and naphthyl;

(ii) the unsubstituted, mono- and di-substituted heteroaromatic groups pyridyl, furanyl, benzofuran-2-yl, benzofuran-3-yl, thienyl, benzothien-2-yl, benzothien-3-yl, dibenzofuranyl, dibenzothienyl, carbazolyl and fluorenyl, each of said aryl and heteroaromatic substituents in (b)(i) and (ii) being selected from the group consisting of hydroxy, aryl, mono(C_1–C_6)alkoxyaryl, di(C_1–C_6)alkoxyaryl, mono(C_1–C_6)alkylaryl, di(C_1–C_6)alkylaryl, bromoaryl, chloroaryl, fluoroaryl, C_3–C_7 cycloalkylaryl, C_3–C_7 cycloalkyl, C_3–C_7 cycloalkyloxy, C_3–C_7 cycloalkyloxy(C_1–C_6)alkyl, C_3–C_7 cycloalkyloxy(C_1–C_6)alkoxy, aryl(C_1–C_6)alkyl, aryl(C_1–C_6)alkoxy, aryloxy, aryloxy(C_1–C_6)alkyl, aryloxy(C_1–C_6)alkoxy, mono- and di-(C_1–C_6)alkylaryl(C_1–C_6)alkyl, mono- and di-(C_1–C_6)alkoxyaryl(C_1–C_6)alkyl, mono- and di-(C_1–C_6)alkylaryl(C_1–C_6)alkoxy, mono- and di-(C_1–C_6)alkoxyaryl(C_1–C_6)alkoxy, amino, mono(C_1–C_6)alkylamino, di(C_1–C_6)alkylamino, diarylamino, N-(C_1–C_6)alkylpiperazino, N-arylpiperazino, aziridino, indolino, piperidino, arylpiperidino, morpholino, thiomorpholino, tetrahydroquinolino, tetrahydroisoquinolino, pyrryl, C_1–C_6 alkyl, C_1–C_6 bromoalkyl, C_1–C_6 chloroalkyl, C_1–C_6 fluoroalkyl, C_1–C_6 alkoxy, mono(C_1–C_6)alkoxy(C_1–C_4)alkyl, acryloxy, methacryloxy, bromo, chloro and fluoro;

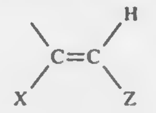
(iii) the groups represented by the following graphic formulae:



wherein E is carbon or oxygen and D is oxygen or substituted nitrogen, provided that when D is substituted nitrogen, E is carbon, said nitrogen substituents being selected from the group consisting of hydrogen, C_1–C_6 alkyl and C_2–C_6 acyl; each R_2 is C_1–C_6 alkyl, C_1–C_6 alkoxy, hydroxy, bromo, chloro or fluoro; R_3 and R_4 are each hydrogen or C_1–C_6 alkyl; and p is the integer 0, 1 or 2;

(iv) C_1–C_6 alkyl, C_1–C_6 bromoalkyl, C_1–C_6 chloroalkyl, C_1–C_6 fluoroalkyl, C_1–C_6 alkoxy(C_1–C_4)alkyl, C_3–C_6 cycloalkyl, mono(C_1–C_6) alkoxy(C_3–C_6)cycloalkyl, mono(C_1–C_6)alkyl(C_3–C_6)-cycloalkyl, bromo(C_3–C_6)cycloalkyl, chloro(C_3–C_6)cycloalkyl and fluoro(C_3–C_6)cycloalkyl; and

(v) the group represented by the following graphic formula:



wherein X is hydrogen or C_1–C_4 alkyl and Z is selected from the unsubstituted, mono-, and di-substituted members of the group consisting of naphthyl, phenyl, furanyl and thienyl, each of said group substituents being C_1–C_4 alkyl, C_1–C_4 alkoxy, bromo, fluoro or chloro; or

(vi) B and B' taken together form fluoren-9 -ylidene, mono- or di-substituted fluoren-9-ylidene or a member selected from the group consisting of saturated C_3–C_{12} spiro-monocyclic hydrocarbon rings, saturated C_7–C_{12} spiro-bicyclic hydrocarbon rings, and saturated C_7–C_{12} spiro-tricyclic hydrocarbon rings, each of said fluoren-9-ylidene substituents being selected from the group consisting of C_1–C_4 alkyl, C_1–C_4 alkoxy, bromo, fluoro and chloro.

5,783,117
EVAPORATIVE HUMIDIFIER

Joe D. Byassee, Bartlett, and Scott P. Bojko, Germantown, both of Tenn., assignors to Hunter Fan Company, Memphis, Tenn.

Filed Jan. 9, 1997, Ser. No. 780,850

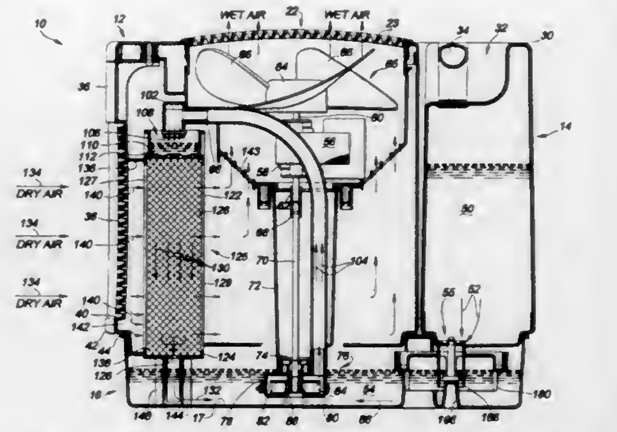
Int. Cl.^{6} B01D *47/00*

U.S. Cl. 261—29 **47 Claims**

1. An evaporative humidifier comprising:

a base platform, said base platform being formed from a material which contains a first biocide for resisting growth of bacteria and fungi on said base platform,

a top cover removably mounted on said base platform,



a water reservoir tank removably mounted on said base platform for releasing water into said base platform to a predetermined depth,

an evaporator panel assembly for holding water received from said base platform, said evaporator panel assembly including a frame mounted on said base platform and an evaporator panel disposed within said frame,

a fan assembly for drawing air into the humidifier across said evaporator panel assembly and for forcing air out of the humidifier.

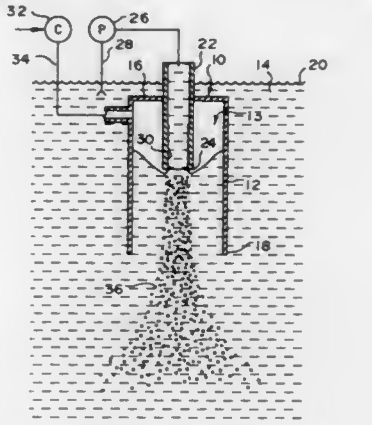
5,783,118
METHOD FOR GENERATING MICROBUBBLES OF GAS IN A BODY OF LIQUID

Ali R. Kolaini, P.O. Box 3484, University, Miss. 38677

Filed Jul. 2, 1997, Ser. No. 887,126

Int. Cl.^{6} G01F *3/04*

U.S. Cl. 261—37 **4 Claims**



1. A method for generating microbubbles of gas in a body of liquid, comprising:

immersing a member defining a chamber having interior walls, a closed end and an open end within a body of liquid with the open end facing downwardly in the liquid so that liquid of said body of liquid is present in the chamber;

pressurizing the interior of the chamber adjacent its closed end with a gas to establish an operating level of liquid within the chamber between the closed and open ends of the chamber;

providing a liquid flow conduit extending into the interior of the chamber and extending downwardly into the liquid within the chamber, the conduit having a terminal outlet end disposed below and closely adjacent the liquid operating level;

said liquid flow conduit being smaller in cross-sectional area than the cross-sectional area of the chamber so as to be spaced from the interior walls of the chamber;

causing a stream of liquid to flow through the liquid flow conduit at a flow rate sufficient to cause periodic oscillation of at least a part of the liquid level adjacent the conduit terminal

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outlet end between a level just above the terminal outlet end and a level just below said terminal outlet end, to thereby periodically entrain gas from above the liquid level in the chamber into the stream of liquid exiting the liquid flow conduit in a form of microbubbles; and

continuing the flow of liquid through the liquid flow conduit, the oscillation of the level of the liquid in the chamber and the periodic entrainment of gas for a time sufficient to produce a desired quantity of microbubbles in the body of liquid.

5,783,119
LIQUID DISTRIBUTOR FOR COLUMNS

Herbert Ulrich, Ettenhausen, and Emil Fehr, Berg am Irchel, both of Switzerland, assignors to Sulzer Chemtech AG, Winterthur, Switzerland

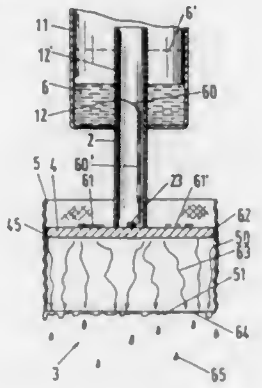
PCT No. PCT/CH95/00203, § 371 Date Jan. 24, 1997, § 102(e) Date Jan. 24, 1997, PCT Pub. No. WO96/09873, PCT Pub. Date Apr. 4, 1996

PCT Filed Sep. 12, 1995, Ser. No. 776,359

Claims priority, application European Pat. Off., Sep. 28, 1994, 94810564

Int. Cl.⁶ B01F *3/04*

U.S. Cl. 261—97 **17 Claims**



1. A liquid distributor for columns, having liquid outlet openings and fine distribution elements associated with them, which respectively comprise a guide wall, wherein a plate-like element communicating with the guide wall is arranged in each fine distribution element, with a communicating chain of capillary openings forming a distribution zone and drain-off zone between the edge of the element and the guide wall, with this chain extending along a horizontal, closed curve, and in that each outlet opening is a metering opening by means of which a preselectable amount of liquid can be supplied into the associated fine distribution element.

5,783,120
METHOD FOR MAKING AN OPTICAL FILM

Andrew J. Ouderkirk, Woodbury; Lockwood W. Carlson, Stillwater; Arthur L. Kotz, White Bear Lake; Timothy J. Nevitt, Red Wing; Carl A. Stover, St. Paul; Michael F. Weber, Shoreview; Richard C. Allen, Mendota Heights, and Biswaroop Majumdar, Woodbury, all of Minn., assignors to Minnesota Mining and Manufacturing Company, St. Paul, Minn.

Filed Feb. 29, 1996, Ser. No. 610,109

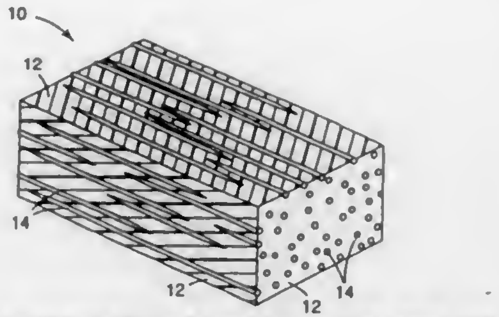
Int. Cl.⁶ B29D *11/00*

U.S. Cl. 264—1.34 **48 Claims**

1. A method for producing an optical body, comprising the steps of:

providing a composition comprising a continuous phase having a birefringence of at least about 0.05 and a disperse phase, wherein the index of refraction of at least one of the continuous and disperse phases is adjustable by orientation; and

orienting the composition until the diffuse reflectivity of the composition along at least one axis for at least one polarization of electromagnetic radiation is greater than about 30% and the indices of refraction of the first and second phases differ by more than about 0.05 along a first of three mutually orthogonal axes but differ by less than about 0.05 along a second of three mutually orthogonal axes.



5,783,121
PREPARATION OF A POLYMER SOLUTION

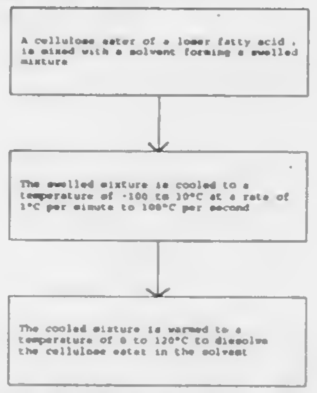
Hidekazu Yamazaki; Tadahiro Tsujimoto, and Yukihiro Katai, all of Kanagawa, Japan, assignors to Fuji Photo Film Co., Ltd., Kanagawa, Japan

Filed Dec. 5, 1996, Ser. No. 759,638

Claims priority, application Japan, Dec. 5, 1995, 7-344614; Jul. 30, 1996, 8-216769

Int. Cl.⁶ B29C *47/00*

U.S. Cl. 264—28 **17 Claims**


A cellulose ester of a lower fatty acid , is mixed with a solvent forming a swelled mixture
The swelled mixture is cooled to a temperature of -100 to 10°C at a rate of 1°C per minute to 100°C per second
The cooled mixture is warmed to a temperature of 0 to 120°C to dissolve the cellulose ester in the solvent

1. A process for preparing a cellulose ester solution, which comprises the steps of: mixing a cellulose ester of a lower fatty acid with a solvent to swell the cellulose ester in the solvent, thereby forming a swelled mixture; cooling the swelled mixture to a temperature of −100° to −100° C. at a rate of 1° C. per minute to 100° C. per second, thereby forming a cooled mixture; and then warming the cooled mixture to a temperature of 0° to 120° C. to dissolve the cellulose ester in the solvent, thereby forming the prepared cellulose ester solution containing the cellulose ester in an amount of 10 to 30 wt. %.

5,783,122
VACUUM EXTRUSION APPARATUS AND METHOD

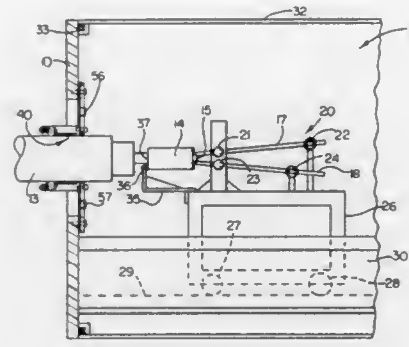
Robert L. Sadinski, Tallmadge, Ohio, assignor to Owens Corning Fiberglas Technology, Inc., Summit, Ill.

Filed Aug. 14, 1996, Ser. No. 696,718

Int. Cl.⁶ B29C *44/20*

U.S. Cl. 264—39 **23 Claims**

15. In a method of extrusion and shaping an extrudate in a vacuum chamber, the steps comprising: inserting an extruder through a bulkhead forming part of said vacuum chamber; mounting an extrusion die on the extruder within said vacuum chamber; providing an extrudate shaper downstream of said extrusion die; providing support means supporting the extrudate shaper for movement in said vacuum chamber; providing means clamping the support means to the extrusion die; and a gland seal between the extruder and bulkhead to permit the extruder; extrusion die, and extrudate shaper to move unitarily with respect to the bulkhead.



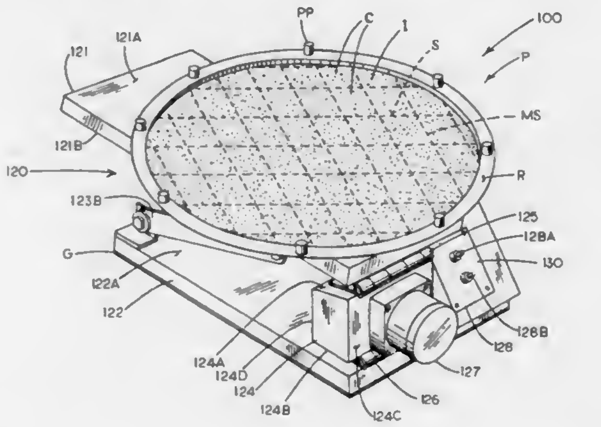
5,783,123
TILTABLE BANDING WHEEL AND METHOD FOR SECURING POTTERY ARTICLE THERETO

Debra C. Edwards, Banner Elk, N.C.; William B. Fountain, Park Forest, Ill.; Kenneth R. Harroff, Asheville, and Jonathan C. Jones, Raleigh, both of N.C., assignors to Appalachian State University, Boone, N.C.

Filed Jan. 29, 1997, Ser. No. 791,773

Int. Cl.⁶ B28B *1/02*

U.S. Cl. 264—39 **10 Claims**



5. A process for releasably securing a pottery article to a banding wheel, the process comprising the steps of:

(a) providing a banding wheel having (i) a turntable, with the turntable being rotatable and being adapted for releasable attachment to a support plate; (ii) a mechanism connected to the turntable and adapted for tilting the turntable, wherein when the tilting mechanism is in its closed position, the turntable is horizontally disposed and when the mechanism is in its open position, the turntable is angularly disposed;

(b) providing a plate comprising (i) a top surface, (ii) a bottom surface, and (iii) a mesh screen affixed to the top surface of the plate and having a wax coating layer thereon;

(c) attaching the plate to the turntable;

(d) placing a heated pottery article on the wax coating layer of the plate; and

(e) securing the pottery article to the banding wheel by allowing the wax coating layer to cool, thereby hardening the coating, whereby the turntable with the pottery article secured thereto may be selectively tilted by the tilting mechanism without the pottery article falling from the support plate.

5,783,124
CELLULOSE ACETATE HEMODIALYSIS MEMBRANE

Tohru Uenishi; Isamu Yamamoto; Kazutake Okamoto; Hideo Sato; Yasuhiro Shiota; Hidehiko Sakurai; Seiji Watanuki, and Mitsuru Suzuki, all of Otsu, Japan, assignors to Toyo Boseki Kabushiki Kaisha, Osaka, Japan

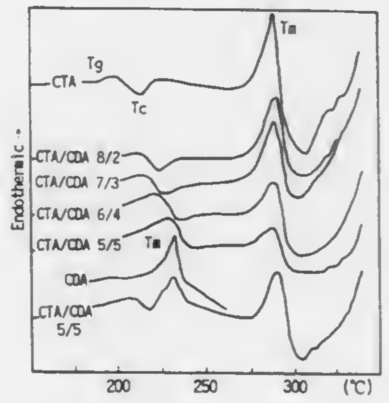
Division of Ser. No. 272,397, Jul. 26, 1994, Pat. No. 5,624,561.

This application Oct. 15, 1996, Ser. No. 730,599

Claims priority, application Japan, Jul. 28, 1993, 5-186336; Aug. 12, 1993, 5-200851; Aug. 20, 1993, 5-206013

Int. Cl.⁶ B01D *33/21*

U.S. Cl. 264—41 **18 Claims**



1. A method for producing a cellulose acetate membrane comprising:

discharging a spinning dope downward from a spinneret while supplying a gas from the center of the spinneret to form a hollow fiber, and

thereafter leading the hollow fiber into a coagulation bath comprising plural guides that change the moving direction of the hollow fiber, wherein the hollow fiber enters the coagulation bath at an angle of less than 90 with the liquid surface of the coagulating bath; and

wherein the produced cellulose acetate membrane comprises a mixture of a cellulose triacetate and cellulose diacetate, wherein both the cellulose diacetate and the cellulose triacetate have an average combined acetic acid content of at least 52%, said membrane has an improved heat stability, and when said membrane is subjected to a differential thermal analysis, said membrane does not substantially exhibits a melting peak of cellulose diacetate, but substantially exhibits a melting pick for the cellulose triacetate;

said membrane satisfying at least one of the following requirements;

(1) ratio of water permeability of the membrane after a high pressure steam treatment of said membrane to that before the treatment is of not less than 0.9,

(2) a ratio of the myoglobin sieving coefficient of the membrane after a high pressure steam treatment of said membrane to that before the treatment is of not less than 0.9, and

(3) a ratio of the urea permeation coefficient of the membrane after treatment with high pressure steam to that before treatment is of not less than 0.65.

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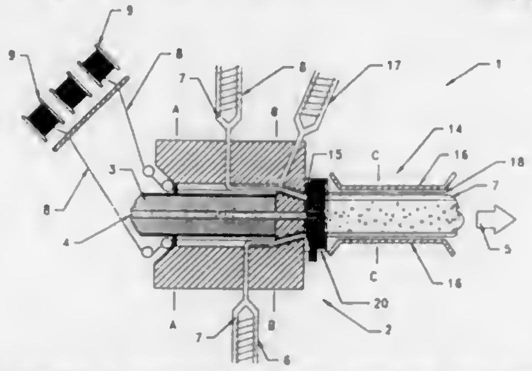
5,783,125
REINFORCED EXTRUSION PRODUCTS AND METHOD OF MAKING SAME

Andrew L. Bastone, Granville; Lawrence E. Lloyd, Alexandria; Charles D. Newby, Bexley; Paul R. Pelfrey, Pickerington; Thomas E. Philipps, Granville; Burch E. Zehner, Pataskala, and Jeffrey R. Brandt, Reynoldsburg, all of Ohio, assignors to Crane Plastics Company Limited Partnership, Columbus, Ohio

Division of Ser. No. 331,348, Oct. 28, 1994, which is a continuation-in-part of Ser. No. 43,037, Apr. 5, 1993, Pat. No. 5,393,536. This application May 17, 1996, Ser. No. 650,887

Int. Cl.^{6} B29C *47/02*

U.S. Cl. 264—45.3 **22 Claims**



1. A method of producing an extruded composite, said method comprising the steps of:

a. extruding a composite precursor coextrusion comprising:
   i. at least one uncured thermoplastic polymeric material; and
   ii. a core mixture of at least one uncured thermosetting resin and a filler material, said filler material comprising hollow polymeric spherules;

   whereby said at least one thermoplastic polymeric material is extruded so as to substantially enclose a space, and whereby said core mixture is pumped into said space; and

b. maintaining said composite precursor under conditions whereby said at least one thermoplastic polymeric material becomes cooled and said at least one thermosetting resin becomes cured so as to form said extruded composite.

5,783,126
METHOD FOR MANUFACTURING ARTICLES HAVING INORGANICALLY FILLED, STARCH-BOUND CELLULAR MATRIX

Per Just Andersen, and Simon K. Hodson, both of Santa Barbara, Calif., assignors to E. Khashoggi Industries, Santa Barbara, Calif.

Continuation-in-part of Ser. No. 288,664, Aug. 9, 1994, Pat. No. 5,660,900, Ser. No. 218,971, Mar. 25, 1994, Ser. No. 109,100, Aug. 18, 1993, abandoned, Ser. No. 95,662, Jul. 21, 1993, Pat. No. 5,385,764, Ser. No. 982,383, Nov. 25, 1992, abandoned, and Ser. No. 929,898, Aug. 11, 1992, abandoned, said Ser. No. 288,664, said Ser. No. 218,971, said Ser. No. 109,100, said Ser. No. 95,662, said Ser. No. 982,383, each is a continuation-in-part of Ser. No. 929,898. This application Aug. 9, 1994, Ser. No. 288,667

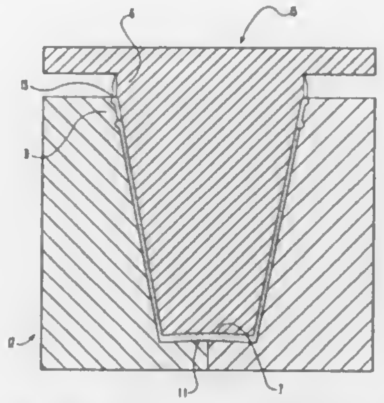
Int. Cl.^{6} B29C *59/00;* **C04B** *31/00*

U.S. Cl. 264—102 **71 Claims**

1. A method for manufacturing an article of manufacture having a starch-bound cellular structural matrix, the method comprising the steps of:

a. preparing a moldable mixture including unimodified starchy water, and an inorganic aggregate, the inorganic aggregate being present in an amount greater than about 20% by weight of total solids in the moldable mixture, the unmodified starch being present in an amount in a range from about 10% to about 80% by weight of total solids in the moldable mixture;

b. positioning the moldable mixture within a mold cavity corresponding to a desired shape of the article of manufacture; and



c. heating the moldable mixture within the mold cavity in order to gelatinize the unmodified starch, remove a substantial portion of the water from the moldable mixture by evaporation, and form the starch-bound cellular structural matrix of the final article, wherein the starch-bound cellular structural matrix is form-stable in less than 15 minutes after being positioned into the desired shape of the article of manufacture.

5,783,127
METHOD FOR SPINNING A SYNTHETIC YARN

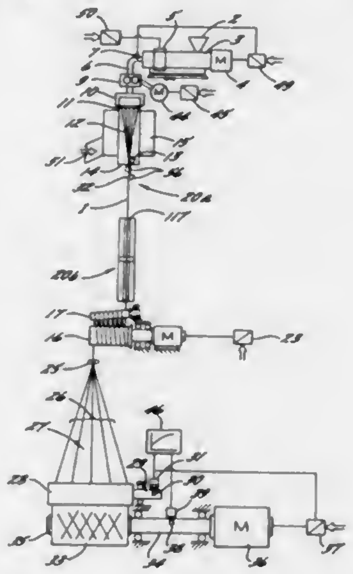
Rahim Gross, and Heinz Schippers, both of Remscheid, Germany, assignors to Barmag AG, Remscheid, Germany

Filed Jul. 19, 1996, Ser. No. 684,389

Claims priority, application Germany, Jul. 19, 1995, 195 26 265.4; Aug. 23, 1995, 195 30 817.4; Nov. 16, 1995, 195 42 769.6

Int. Cl.^{6} D01D *5/16;10/02*

U.S. Cl. 264—103 **16 Claims**



1. A method of spinning a synthetic multi-filament yarn comprising the steps of

extruding a polymeric melt to form a plurality of advancing filaments, and gathering the filaments to form an advancing yarn,

drawing the advancing yarn as it advances through a drawing zone,

subjecting the advancing yarn to a multi-stage heat treatment as it advances through the drawing zone and including
- (1) a first heat treatment wherein the yarn is heated to a temperature of at least the glass transition temperature of the yarn, and
- (2) a second heat treatment wherein the yarn is guided along an elongate heating surface, and then

winding the advancing yarn into a package, and

wherein during at least one of the first and second heat treatments the yarn is subjected to a temperature at least 100° C. higher than the melt point temperature of the yarn, and

wherein during the drawing step the yarn is subjected to a tension which is sufficient for the plastic deformation of the yarn during or immediately downstream of the first heating step.

5,783,128
PRODUCTION OF COMPOSITE INSULATORS

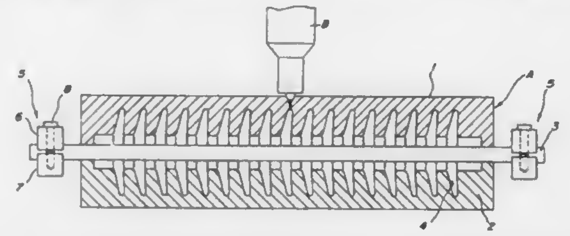
Shigeo Ishino, Niwa-gun, Japan, assignor to NGK Insulators, Ltd., Japan

Filed Mar. 18, 1996, Ser. No. 615,999

Claims priority, application Japan, Mar. 30, 1995, 7-073082; Mar. 4, 1996, 8-045840

Int. Cl.^{6} B29C *45/16;45/36;* **B22B** *7/12*

U.S. Cl. 264—135 **17 Claims**



1. A composite insulator-producing process comprising the steps of:

providing a core member;

providing a housing-forming mold;

applying at least one of a primer and an adhesive to the outer periphery of the core;

placing the core member inside the housing-forming mold;

expanding the core member by substantially (δ–α) or more in which δ is an axially linear expanded length by which the core member would be thermally expanded if the core member is heated to a molding temperature for the housing, and α is an axially linear expanded length by which the mold would be thermally expanded if the mold is heated to a molding temperature;

forming a housing by charging the mold with a housing-forming insulating polymer material; and vulcanizing the housing-forming insulating polymer material around the outer periphery of the core member.

5,783,129
APPARATUS, METHOD, AND COATING DIE FOR PRODUCING LONG FIBER-REINFORCED THERMOPLASTIC RESIN COMPOSITION

Yoshimitsu Shirai, Shizuoka; Toshikatsu Nitoh, Fuji; Takeshi Amaike, Fuji, and Haruji Murakami, Fuji, all of Japan, assignors to Polyplastics Co., Ltd., Osaka, Japan

PCT No. PCT/JP94/01364, § 371 Date Feb. 16, 1996, § 102(e) Date Feb. 16, 1996, PCT Pub. No. WO95/05280, PCT Pub. Date Feb. 23, 1995

PCT Filed Aug. 17, 1994, Ser. No. 596,346

Claims priority, application Japan, Aug. 17, 1993, 5-222755

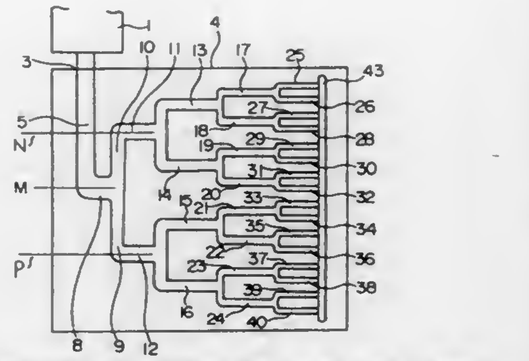
Int. Cl.^{6} B29C *47/02*

U.S. Cl. 264—136 **6 Claims**

1. An apparatus for producing a long fiber-reinforced theremoplastic resin composition comprising:

a fiber loosening device which loosens a moving continuous fiber bundle and thereby form a web-like continuous fiber bundle; and

a coating die which receives the moving continuous fiber bundle loosened by the fiber loosening device, said coating die including a slit having substantially the same width as that of the web-like continuous fiber bundle for coating at least one side of the web-like continuous fiber bundle with a thermoplastic resin melt, wherein



said coating die includes a plurality of resin supply paths in communication with said slit and branched successively on the same plane, said plurality of resin supply paths being in aligned symmetrically relative to a central axis of root paths thereof, and having a length nearly equal to one another, said resin supply paths being turned in a direction toward an outlet of said slit; and wherein

said coating die further includes an impregnating device for impregnating the web-like continuous fiber bundle with the thermoplastic resin melt in which a path of the impregnated web-like continuous fiber bundle has a rough surface.

2. A method for producing a long fiber-reinforced thermoplastic resin composition, comprising the steps of:
- (a) loosening a continuous fiber bundle by a fiber loosening device so as to form a moving web-like continuous fiber bundle;
- (b) coating at least one side of the moving web-like continuous fiber bundle which passes through a coating die with a thermoplastic resin melt which is extruded through a slit disposed in the die, the slit having substantially the same width as that of the web-like continuous fiber bundle, and being in communication with a plurality of resin supply paths branched successively on the same plane, the plurality of resin supply paths being in symmetrical alignment with respect to a central axis of root paths thereof and having a length nearly equal to each other and being turned in a direction toward an outlet of the slit;
- (c) impregnating the web-like continuous fiber bundle with the resin melt through an impregnating step having a path which has a rough surface, and
- (d) shaping the impregnated web-like continuous fiber bundle to form a final product.

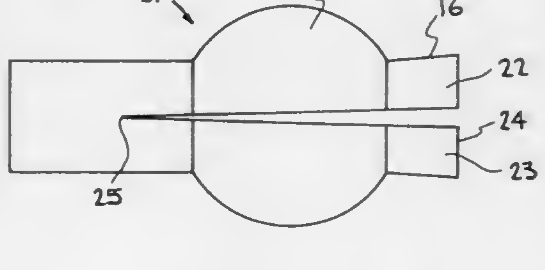
5,783,130
FABRICATION METHOD FOR MINIATURE PLASTIC GRIPPER

William J. Benett, Livermore; Peter A. Krulevitch, Los Altos; Abraham P. Lee, Walnut Creek; Milton A. Northrup, Berkeley, and James A. Folta, Livermore, all of Calif., assignors to Regents of the University of California, Oakland, Calif.

Division of Ser. No. 549,497, Oct. 27, 1995, Pat. No. 5,609,608. This application Nov. 27, 1996, Ser. No. 753,720

Int. Cl.^{6} B29C *37/02;33/40;* **B28B** *7/14*

U.S. Cl. 264—138 **8 Claims**



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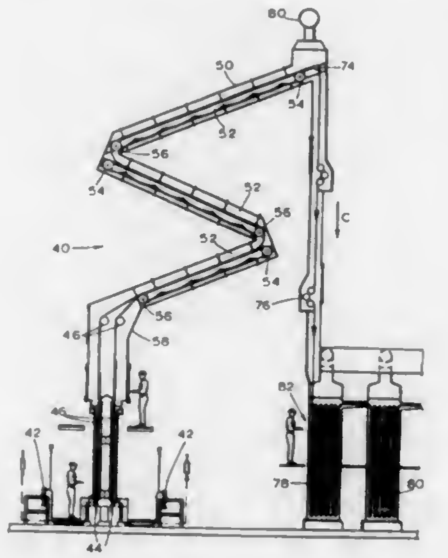
1. A method for fabricating a miniature gripper, to operate in a 250–500 μm area comprising:
providing a tube of deformable materials;
providing a mandrel with a head section and body section;
heating at least the tube;
inserting at least the head section of the mandrel into the tube;
cooling the tube to allow the tube to conform to the configuration of the mandrel inserted therein;
cutting the tube on opposite sides in a horizontally extending direction from a point at the end thereof in which the mandrel is inserted to a point beyond the location of the head section of the mandrel;
removing the mandrel from the tube whereby the tube includes an enlarged section and an end section having a pair of prongs formed by the cuts; and
providing means for moving the pair of prongs with respect to each other, whereby movement of the prongs provides a gripping or releasing action.

5,783,131
METHOD TO SLOWLY REGENERATE CELLULOSIC SAUSAGE CASING

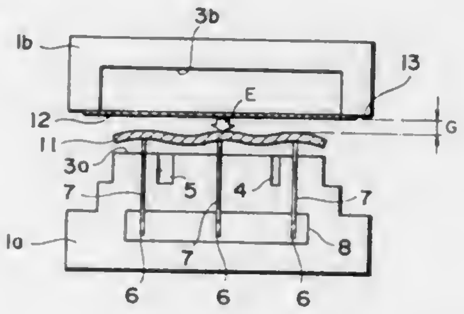
Alan David Stall, Naperville, Ill., and Luis Michelena Garcia, Madrid, Spain, assignors to Alfacel s.a., Madrid, Spain
Filed Aug. 27, 1996, Ser. No. 703,888
Int. Cl.^{6} C08B *16/00*
U.S. Cl. 264—196 **13 Claims**



1. In a method for producing tubular sausage casings of regenerated cellulose wherein viscose is extruded through an annular extrusion die submerged in an aquarium to form a tubular product and coagulation and regeneration of the tubular product is initiated in said aquarium and completed in one or more coagulation/regeneration baths, the improvement comprising
partially gelling and coagulating the extruded gel tubing in the aquarium to an initial level of regeneration characterized by a pH greater than 7, supporting the partially gelled and coagulated tubing on at least two upwardly moving inclined belts such that different sides of the casing are disposed in an upward facing orientation on different said belts and applying an intermediate regenerating solution to said tubing while it is supported by said belts until it is cured to an intermediate level of regeneration characterized by a pH greater than 7 prior to completion of regeneration in said coagulation/regeneration bath wherein the viscose is cured to a level of regeneration characterized by a pH less than 7.

5,783,132
PROCESS FOR PRODUCING A FIBER-REINFORCED THERMOPLASTIC RESIN MOLDED ARTICLE

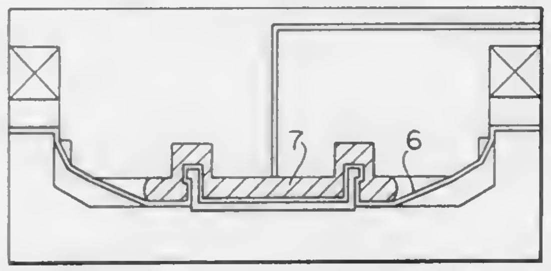
Masahito Matsumoto, Ibaraki; Takeo Kitayama, Takatsuki, and Satoru Funakoshi, Osaka, all of Japan, assignors to Sumitomo Chemical Company, Limited, Osaka, Japan
Filed Jun. 15, 1995, Ser. No. 490,629
Claims priority, application Japan, Jun. 15, 1994, 6-133093
Int. Cl.^{6} B29C *33/12*
U.S. Cl. 264—257 **8 Claims**



1. A process for producing a fiber-reinforced thermoplastic resin molded article, which comprises the steps of:
providing an upper mold and a lower mold,
projecting a sheet-holding member provided in the lower mold from a cavity face of the lower mold towards a cavity face of the upper mold, said upper mold and said lower mold being in an open state,
heating a fiber-reinforced thermoplastic resin sheet to form a softened fiber-reinforced thermoplastic resin sheet,
placing the softened fiber-reinforced thermoplastic resin sheet on the sheet-holding member in such a manner that the softened fiber-reinforced thermoplastic resin sheet does not contact the cavity face of the upper mold or the cavity face of the lower mold,
providing a skin material between the upper mold and the softened fiber-reinforced thermoplastic resin sheet, said skin material and said softened fiber-reinforced thermoplastic resin sheet each having respective upper and under side surfaces separated by a distance to prevent said skin material from being damaged by heat,
closing the upper mold and the lower mold to provide a closed state to thereby mold together the softened fiber-reinforced thermoplastic resin sheet and the skin material to form a fiber-reinforced thermoplastic resin molded article;
wherein, in the step of closing the upper mold and the lower mold, when a distance between a portion of the under side surface of the skin material and a portion of the upper side surface of the softened fiber-reinforced thermoplastic resin sheet reaches a distance of closest position, on the basis of said portions, in the range of 0.1 mm to 50 mm, retracting the sheet-holding member into the lower mold to lower the softened fiber-reinforced thermoplastic resin sheet onto the cavity face of the lower mold before the skin material contacts the softened fiber-reinforced thermoplastic resin sheet,
cooling and solidifying the softened fiber-reinforced thermoplastic resin sheet while maintaining the upper mold and the lower mold in the closed state, and opening the upper mold and the lower mold and removing the fiber-reinforced thermoplastic resin molded article.

5,783,133
METHOD FOR MAKING A MULTILAYER MOLDED ARTICLE

Takahisa Hara, Kawanishi; Masahito Matsumoto, Ibaraki; Tadayuki Oda, Mie-gun; Hiromu Fujita, Ashiya; Yuji Kamiji, Yokkaichi, and Hiromasa Nakatsuka, Mie-gun, all of Japan, assignors to Sumitomo Chemical Company, Limited, Osaka, and Nissen Chemitec Corporation, Ehime-ken, both of Japan
Division of Ser. No. 10,387, Jan. 28, 1993, abandoned. This application Mar. 11, 1994, Ser. No. 208,907
Claims priority, application Japan, Jan. 28, 1992, 4-012966
Int. Cl.^{6} B29C *33/12;45/14*
U.S. Cl. 264—261 **21 Claims**

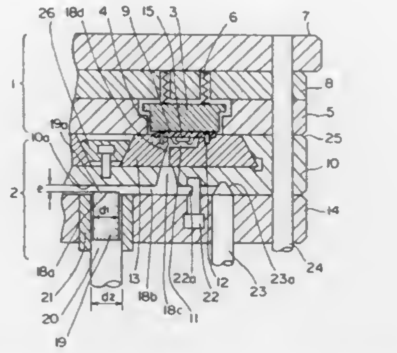


1. A process for producing a multilayer molded article, which comprises:
placing a first member, which is comprised of a first core layer and a first skin material laminated on said first core layer and has at least one protrusion or at least one depression on a back face thereof on which the first skin material is not laminated, between a male and a female mold, wherein said first skin material is in contact with a mold surface of either the male or female mold;
disposing a second skin material between said first member and the mold to which the first skin material is not in contact with;
supplying a resin melt between said second skin material and said mold to which the first skin material is not in contact with; and
pressing together and cooling the male and female molds to thereby mold said resin melt into a second core layer having the second skin material laminated thereon and said first member insert laminated therein over a part of the surface of the second skin material, wherein said first member has at least one undercut.

5,783,134
METHOD OF RESIN-SEALING SEMICONDUCTOR DEVICE

Isao Yabe; Masahiko Yoneyama; Teruo Nayuki; Hiroaki Shimizu; Katsuhiko Ikai, and Kazuhiko Asaumi, all of Tanashi, Japan, assignors to Citizen Watch Co., Ltd., Tokyo, Japan
PCT No. PCT/JP95/00007, § 371 Date Sep. 7, 1995, § 102(e) Date Sep. 7, 1995, PCT Pub. No. WO95/19251, PCT Pub. Date Jul. 20, 1995
PCT Filed Jan. 6, 1995, Ser. No. 522,244
Claims priority, application Japan, Jan. 13, 1994, 6-002055; Jan. 18, 1994, 6-003365; Apr. 28, 1994, 6-091961; May 25, 1994, 6-111314
Int. Cl.^{6} B29C *45/02*
U.S. Cl. 264—272.14 **21 Claims**

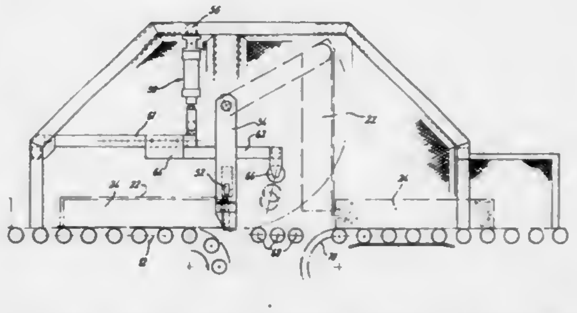
1. A method of resin-sealing a semiconductor device having a circuit board with an IC thereon, comprising:
preparing a metal mold formed of an upper metal mold having a pressing member, and a lower metal mold situated under the upper metal mold and having a cavity for mounting the circuit board therein, a pinpoint gate formed at a lower portion of the cavity and a runner section formed below the cavity and communicating with the pinpoint gate,



positioning the circuit board in the cavity of the lower metal mold and setting the circuit board such that the IC faces downward,
pressing a rear surface of the circuit board where the IC is not mounted by the pressing member,
supplying a resin tablet to a pot formed in the lower metal mold and pushing the resin tablet by a plunger from below to feed a resin obtained from the resin tablet to the runner section, filling the resin in the runner section to the cavity from below through the pinpoint gate formed below the cavity, and
sealing the IC mounted beneath the circuit board by the resin while absorbing a change of a thickness of the circuit board by the pressing member for pressurizing the rear surface of the circuit board by using a spring.

5,783,135
DEMOULDING APPARATUS

Alan John Smith, Swindon; Maurice Roy Sims, and Leslie Richard John Allen, both of Ashbourne, all of Great Britain, assignors to Camas UK Limited, Cheltenham, England
PCT No. PCT/GB94/02308, § 371 Date Jul. 29, 1996, § 102(e) Date Jul. 29, 1996, PCT Pub. No. WO95/11119, PCT Pub. Date Apr. 27, 1995
PCT Filed Oct. 20, 1994, Ser. No. 635,889
Claims priority, application United Kingdom, Oct. 23, 1993, 9321923
Int. Cl.^{6} B28B *7/06;13/06*
U.S. Cl. 264—313 **18 Claims**



15. A demoulding method comprising the steps of supporting a flexible mould (22) with a moulded component (24) therein, and moving the mould (22) with component (24) in a linear path to a location whereat the mould (22) is clamped at one edge thereof, and then moving the mould (22) in a direction away from the supporting means (12), the component (24) continuing to move in the linear path, whereby to strip the mould (22) from one edge of the component (24) to an opposed edge thereof, whereby to remove the mould (22) from the component (24).

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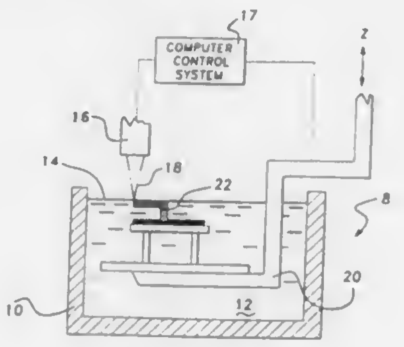
5,783,136
METHOD OF PREPARING A STEREOLITHOGRAPHICALLY PRODUCED PROTOTYPE FOR EXPERIMENTAL STRESS ANALYSIS

Neal Floyd Enke, Tecumseh, Mich., assignor to Ford Global Technologies, Inc., Dearborn, Mich.

Filed Sep. 9, 1996, Ser. No. 711,144

Int. Cl.^{6} B29C *35/08;41/02*

U.S. Cl. 264—401 **10 Claims**



1. A method of preparing a stereolithographically produced prototype for experimental stress analysis comprising:
- creating a prototype through a stereolithographic process from a photocurable material;
- removing any excess material from the prototype;
- curing the prototype by exposing it to a bath of ultraviolet light;
- curing the prototype by raising the temperature of the prototype to a temperature above ambient, the temperature of the prototype being raised to the temperature necessary to break down the secondary bonds in the material such that upon cooling, the secondary bonds reform resulting in a homogeneous and isotropic material; and
- performing an experimental stress analysis procedure on the prototype.

5,783,137
PROCESS FOR THREE DIMENSIONAL FORMING OF A FABRIC

Miguel Alives Porta, Avda. Castellmar 5, 08360-Canet De Mar (Barcelona), Spain

Filed Nov. 16, 1995, Ser. No. 558,854

Claims priority, application Spain, Dec. 2, 1994, 9402479

Int. Cl.^{6} B29C *59/02*

U.S. Cl. 264—510 **7 Claims**

1. A process for three dimensional forming of a fabric having an outer surface and an inner surface, said forming being effected in at least a first flat area of the fabric defining a first perimeter, said process comprising the following steps: (a) providing a countermold of said form; (b) preparing a complex sheet, comprising a sheet of plastics material, a sheet of fabric and a hot-melt material; (c) die cutting said complex sheet, conferring thereon dimensions resulting from enlarging said first area with a wide edge surrounding said first perimeter; (d) superimposing said die cut complex sheet on the inner surface of said fabric, in a position in which said edge, from said first perimeter, extends outwardly from said first area; (e) attachment of said die cut complex sheet to said fabric, by pressing and heating until said fabric is impregnated by melting of said hot melt material; and (f) application of said ensemble of the complex sheet and the fabric to said countermold and simultaneous cooling, by blowing pressurized air.

5,783,138
METHOD FOR MOLDING AN EDGE PROVIDED BETWEEN A MOUTH PORTION AND A BODY PORTION OF A PLASTIC MOLDED HOLLOW ARTICLE

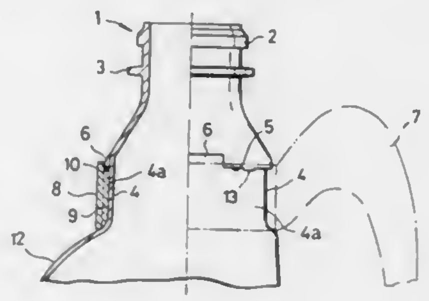
Setsuyuki Takeuchi, Nagano-ken, Japan, assignor to A.K Technical Laboratory Inc., Japan

Continuation of Ser. No. 209,773, Mar. 11, 1994, abandoned, which is a division of Ser. No. 25,823, Mar. 3, 1993, Pat. No. 5,297,686, which is a continuation of Ser. No. 814,112, Dec. 26, 1991, abandoned. This application May 31, 1996, Ser. No. 656,069

Claims priority, application Japan, Dec. 29, 1990, 2-406068; Dec. 29, 1990, 2-417079; Aug. 30, 1991, 3-077101

Int. Cl.^{6} B29C *49/06;49/20*

U.S. Cl. 264—537 **5 Claims**



1. A method for molding a hollow plastic article having a mouth portion atop a body portion, the body portion having an upper end and a lower end, the method comprising the steps of:
- bringing together a neck mold, a cavity mold and a core mold to form an annular mold cavity between the neck mold and the core mold and between the cavity mold and the core mold, the annular mold cavity being adapted to receive molten resin to form a preform, the neck mold for forming a neck portion of the preform, the cavity mold for forming a bottom portion of the preform located below the neck, and the core mold for extending into the cavity mold and the neck mold;
- injecting molten resin into the annular mold cavity to form the preform, wherein the neck mold and the cavity mold are respectively shaped to form a flange on a continuous portion of the preform between the neck portion and the bottom portion, the flange including a substantially straight lower edge;
- releasing the preform from the cavity mold and the core mold while retaining the preform with the neck mold;
- transferring the preform with the neck mold into a blow mold including a cavity having:
- (i) a first section for receiving the neck mold and the neck portion of the preform,
- (ii) a second section for receiving the bottom portion of the preform, the second section defining the shape of the body of the article, and
- (iii) a ledge for receiving at least a portion of the lower edge of the flange;
- closing the blow mold over the neck mold and the preform such that neither the neck nor the lower edge of the flange is enlarged outward when blow molding,
- blow molding the bottom portion of the preform outwardly against the second section of the blow mold cavity such that it is enlarged to merge with the flange and forms the body portion of the article, wherein the neck portion of the preform becomes the mouth portion of the article and the lower edge of the flange is positioned above the lower end of the body; and
- releasing and ejecting the blow molded article.

5,783,139
CERAMIC MATERIALS

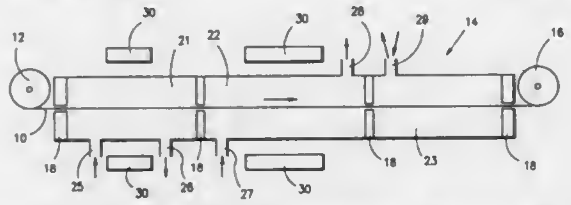
Dennis John Gerard Curran, Willows, Horsham Lane, Wallis Road, Dorking, Surrey BH5 5RL, United Kingdom

Continuation of Ser. No. 937,882, Oct. 19, 1992, abandoned. This application Jan. 17, 1995, Ser. No. 373,897

Claims priority, application United Kingdom, Apr. 18, 1990, 9008723

Int. Cl.^{6} D01F *9/10;* **C04B** *35/00*

U.S. Cl. 264—625 **29 Claims**



1. A method of making a composite core-sheath ceramic fiber of nonhomogeneous composition which comprises spinning a composite polymeric fiber having a core region formed of a first polymeric fiber-forming material comprising at least one ceramic precursor, and a surrounding sheath region formed of a second polymeric fiber-forming material comprising at least one ceramic precursor, wherein at least one of said first and second polymeric fiber-forming materials is a dispersion of a non-fiber-forming organo-metallic ceramic precursor supported in a fiber-forming organic polymer carrier; and thereafter subjecting the spun composite polymeric fiber to pyrolysis conditions of temperature and controlled atmosphere whereby to convert said first polymeric fiber-forming material to a ceramic core and to convert said second polymeric fiber-forming material to a ceramic sheath surrounding said ceramic core, including converting said dispersed organometallic ceramic precursor into a metal:carbon ceramic compound.

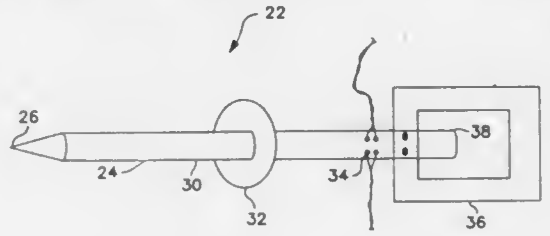
5,783,140
METHOD AND APPARATUS FOR OPENING DISCHARGE OUTLETS

Jack M. Kleinfeld, Bronx, N.Y., assignor to Champion International Corporation, Stamford, Conn.

Continuation-in-part of Ser. No. 507,029, Sep. 1, 1995, Pat. No. 5,635,095. This application May 7, 1997, Ser. No. 852,727

Int. Cl.^{6} C21B *7/12*

U.S. Cl. 266—45 **26 Claims**



1. An improved method for shutting down and starting up a process comprising forming a hot molten material in a vessel, and discharging said material from discharge outlet of said vessel, said method comprising:
- inserting an heating element into said outlet;
- cooling down said material in said vessel and said outlet to solidify said material such that said element is fixed in said solidified material in said outlet; and
- starting up said process by heating said element to a temperature equal to or greater than the melting point of said solidified material to form a molten material and removing said element from said outlet to provide a substantially open outlet for discharge of said molten material from said vessel, said improvement comprising:
  - a heating element comprising:
- a body having a heating section formed from a material having a melting point greater than the melting point of said material;
- heating means inserted in or positioned adjacent to said body, said means capable of generating a heat flux Q_1 at a temperature T_1 which is equal to or greater than the melting point of said material; and
- heat transfer and concentration means capable of transferring said heat from said heating means to said heating section and concentrating said heat in said section such that said heating section has a heat flux Q_2 where Q_2 is greater than Q_1 and a temperature T_2 which is equal to or greater than the melting point of said material and is equal to or less than T_1.

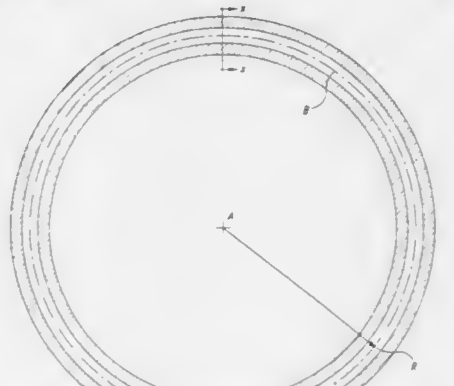
5,783,141
ANNULAR FURNACE

Sushil N. Patel, Lancaster, and Frederick C. Wong, Williamsville, both of N.Y., assignors to The Research Foundation of State University of New York at Buffalo, Amherst, N.Y.

Filed Aug. 4, 1995, Ser. No. 511,347

Int. Cl.^{6} C21D *11/00*

U.S. Cl. 266—87 **18 Claims**



1. A furnace comprising:
- a furnace wall defining an interior chamber having the geometry of an enclosed annulus defined by a mean radius dimension, a height dimension, and a width dimension;
- one or more heating elements disposed on the furnace wall inside said interior chamber;
- wherein the magnitude of said mean radius dimension is greater than 10 centimeters; and
- wherein the magnitude of said height dimension is greater than 1 millimeter and less than one half the magnitude of said mean radius dimension.

5,783,142
KILN SYSTEM FOR TREATMENT OF REACTIVE FINES

Richard D. Lindsay, Brentwood, Tenn., assignor to Plasma Processing Corporation, Brentwood, Tenn.

Division of Ser. No. 436,618, May 8, 1995, Pat. No. 5.613,996. This application Dec. 17, 1996, Ser. No. 767,619

Int. Cl.^{6} B01J *8/10*

U.S. Cl. 266—145 **1 Claim**

1. A kiln system for treating a fine particulate material comprising a closed rotary kiln; means constructed and arranged with said closed kiln for feeding a fine particulate material into an inlet end of said kiln on a continuous basis while said kiln is closed and rotating; means for flowing a treating gas into said kiln on a continuous basis; heating means for heating said material within said kiln; dust collector means in communication with the interior of said kiln for removing dust from within said kiln, and means for

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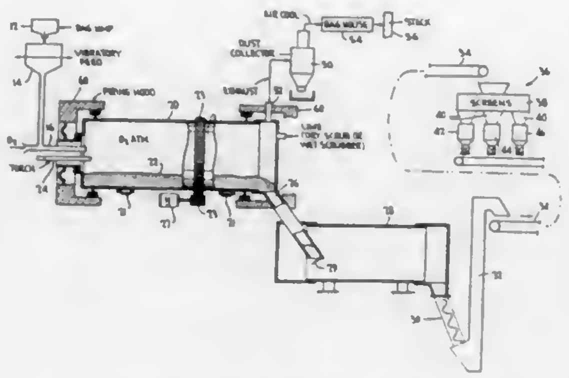


removing treated fine particulate material from an outlet end of said kiln on a continuous basis while said kiln is closed and rotating.

5,783,143

ALLOY STEEL RESISTANT TO MOLTEN ZINC

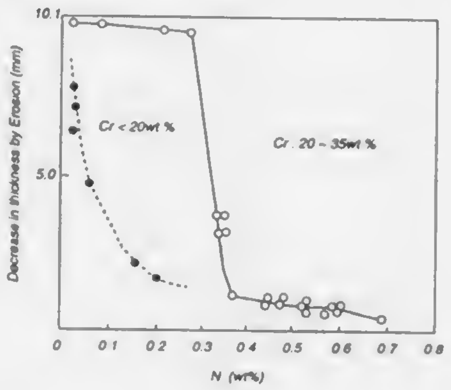
Takuo Handa; Tomohiko Nakajima, and Kazuyoshi Arikata, all of Nippon Chuzo K.K., 2-1 Shiraishi-cho Kawasaki-ku Kawasaki-shi, Kanagawa-ken, Japan

Continuation-in-part of Ser. No. 390,363, Feb. 17, 1995, abandoned. This application Jul. 23, 1996, Ser. No. 685,091

Claims priority, application Japan, Feb. 18, 1994, 6-043256; Feb. 9, 1995, 7-043667

Int. Cl.^{6} C22C *38/44;30/00*

U.S. Cl. 420—52 **3 Claims**



1. A member or a part of zinc plating facility, having contact with molten zinc, manufactured of an alloy steel having an increased resistance to molten zinc consisting essentially of: C: from 0.10 wt % to 0.17 wt %; Si: from 0.3 wt % to 2 wt %; Mn: from 0.3 wt % to 2 wt %; Ni: from 10 wt % to 20 wt %; Cr: from 20 wt % to 35 wt %; Mo: from 0.5 wt % to 5 wt % and N: from 0.4 wt % to 0.75 wt %, the balance consisting substantially of Fe and unavoidable impurities.

5,783,144

Patent Not Issued For This Number

5,783,145

IRON-NICKEL ALLOY AND COLD-ROLLED STRIP WITH A CUBIC TEXTURE

Lucien Coutu, Chauvigny-lés-Bois, and Pierre Louis Reydet, Gimouille, both of France, assignors to Imphy S.A., Puteaux, France

Filed Feb. 27, 1997, Ser. No. 807,771

Claims priority, application France, Feb. 27, 1996, 96 02404

Int. Cl.^{6} C21D *8/12;* **C22C** *38/40;19/03;30/00*

U.S. Cl. 420—94 **13 Claims**

1. An iron-nickel alloy comprising, by weight based on total weight:

$$30\% \leqq Ni+Co \leqq 85\%$$

$$0\% \leqq Co+Cu+Mn \leqq 10\%$$

$$0\% \leqq Mo+W+Cr \leqq 4\%$$

$$0\% \leqq V+Si \leqq 2\%$$

$$0\% \leqq Nb+Ta \leqq 1\%$$

$$0.003\% \leqq C \leqq 0.05\%$$

$$0.005\% \leqq Ti \leqq 0.05\%$$

$$0.001\% \leqq Zr+Hf \leqq 0.25\%$$

$$0.001\% < S+Se+Te < 0.015\%$$

iron and impurities resulting from production; wherein the alloy further satisfies the relationship:

$$0 \leqq Nb+Ta+Ti+Al \leqq 1\%.$$

5,783,146

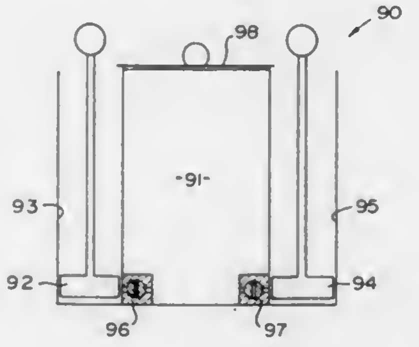
SPORICIDAL COMPOSITIONS, STERLIZATION DEVICES AND METHODS FOR RAPID CLEANING, DISINFECTION, AND STERILIZATION

Robert M. Williams, Jr., 4568 Argyle Ter., NW., Washington, D.C. 20011

Continuation-in-part of Ser. No. 162,312, Dec. 6, 1993, Pat. No. 5,447,684, which is a continuation-in-part of Ser. No. 991,093, Dec. 15, 1992, abandoned. This application Sep. 5, 1996, Ser. No. 708,604

Int. Cl.^{6} A61L *2/16*

U.S. Cl. 422—26 **29 Claims**



1. A rapid sporicidal composition comprising a germicide and a cationic surfactant which is an ethoxylated aliphatic amine selected from the group consisting of bis (2-hydroxyethyl) cocoamine, polyoxyethylene (5) cocoamine, polyoxyethylene (10) cocoamine, and polyoxyethylene (15) cocoamine.

5,783,147

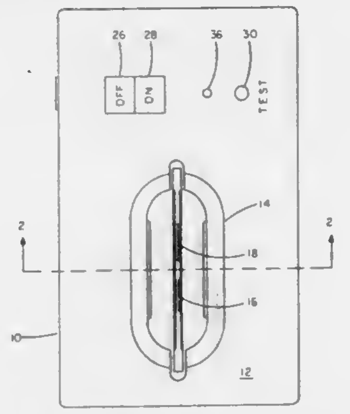
APPARATUS FOR AND METHOD OF STERILIZING MEDICAL AND LABORATORY DEVICES AND CLEANING CONTAMINANTS FROM CONTACT LENSES

Theodore H. Rehmeyer, 3411 Scarborough Dr., Winston-Salem, N.C. 27106, and James R. Shultz, 1267 Wiltshire Rd., York, Pa. 17403

Continuation-in-part of Ser. No. 297,125, Aug. 29, 1994, abandoned. This application Jul. 16, 1996, Ser. No. 680,988

Int. Cl.^{6} A61L *2/02*

U.S. Cl. 422—22 **24 Claims**



1. Apparatus for sterilizing medical instruments and laboratory devices and sterilizing and removing contaminants from contact lenses comprising: a housing including a cleaning well; electrode means positioned within the cleaning well; a power source for supplying electric current to the electrode means positioned within the cleaning well; adsorbent means disposed between the contact lens and the power source; control means for selectively directing current flow to the electrode means; and a predetermined quantity of conductive cleaning solution held within the cleaning well and contiguous with the electrode means completing an electric circuit so that the current flow will pass from the power source through the electrode means, the cleaning solution and solely over the surface of the lens and back to the power source.

5,783,148

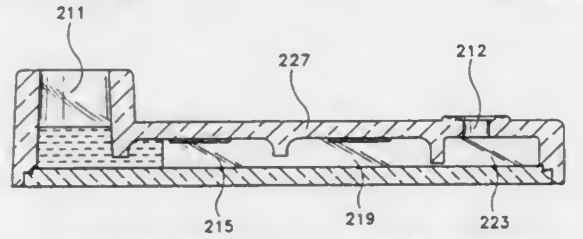
NUCLEIC ACID AMPLIFICATION METHOD AND APPARATUS

Hugh V. Cottingham, Caldwell, N.J.; Allen Reichler, Owings Mills, Md., and Peter Bourdelle, Glen Rock, Pa., assignors to Becton Dickinson and Company, Franklin Lakes, N.J.

Continuation of Ser. No. 213,304, Mar. 14, 1994, abandoned. This application Jun. 27, 1997, Ser. No. 884,331

Int. Cl.^{6} G01N *21/05*

U.S. Cl. 422—56 **33 Claims**



1. An apparatus for performing a biological process on a liquid biological sample using reagents, comprising:

(a) a sample well for introduction and removal of a liquid biological sample;

(b) at least one reaction chamber wherein reagents for the biological process are affixed at discrete locations therein, said reaction chamber in fluid communication with the sample well and being constructed to permit the liquid biological sample to move sequentially between said locations as a discrete bolus in response to an applied pneumatic force, said bolus remaining stationary in the absence of an applied pneumatic force without appreciable sample movement as a result of capillary force;

(c) a pneumatic chamber in pneumatic communication with the reaction chamber and sample well; and

(d) a pneumatic port in the pneumatic chamber for connection of the apparatus to a pneumatic aspiration/dispensing means, said aspiration/dispensing means providing said pneumatic force to cause the movement of said liquid biological sample between the sample well and the reaction chamber and between said locations in said reaction chamber.

5,783,149

KIT FOR DETERMINATION OF RESIDUAL CHLORINE IN WATER WITH 3,3',5,5'-TETRAMETHYLBENZIDINE

Francisco Bosch Serrat, C/ Serpis, 15-5º -9º, 46021 Valencia, Spain

Filed Nov. 30, 1995, Ser. No. 565,571

Claims priority, application Spain, Jul. 27, 1995, 9501517

Int. Cl.^{6} G01N *33/84;21/77*

U.S. Cl. 422—61 **7 Claims**

1. A kit for the determination of chlorine in water comprising:

a) a solution of 3,3',5,5'-tetramethylbenzidine (TMB) at a pH from about 1 to 2, and

b) means for determining the amount of the TMB-Cl reaction product formed.

5,783,150

TEST KIT FOR DETERMINING THE LEVEL OF ASCORBIC ACID IN A PATIENT'S BODY

Alfred B. Ordman, Beloit, Wis., assignor to Harry M. Weiss, Scottsdale, Ariz., a part interest

Division of Ser. No. 317,311, Oct. 3, 1994, Pat. No. 5,558,870. This application Sep. 10, 1996, Ser. No. 709,257

Int. Cl.^{6} G01N *33/48*

U.S. Cl. 422—61 **10 Claims**

1. A test kit for determining the optimal level of intake for an individual of a useful substance that is water soluble, urine excretable, and nontoxic at physiologically beneficial levels, consisting essentially of:

container means for holding a sample of urine from said individual;

reagent means for reacting with an amount of said substance contained in a sample of urine from said individual; and

visual means for indicating to a user a concentration of said substance in said sample of urine in response to a reaction between said reagent means and said amount of said substance.

5,783,151

CONCEALER AND METHOD OF MAKING SAME

Sandra Lee Haroldson, 11019 NE. 141st St., Kirkland, Wash. 98034

Filed Jun. 27, 1997, Ser. No. 884,444

Int. Cl.^{6} B21B *35/00*

U.S. Cl. 427—140 **5 Claims**

5. A method of using a concealer preparation comprising the steps of: cleaning and making dust free an area of a doll to be treated; selecting a concealer of proper color, placing a small amount of said preparation onto a soft lint free cloth, spreading said preparation onto a section to be treated, wiping excess preparation off with a clean dry cloth.

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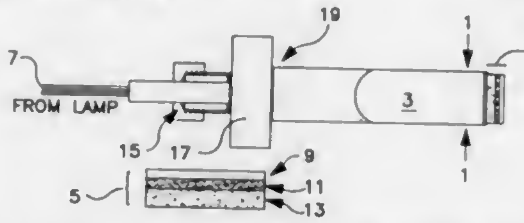
5,783,152
THIN-FILM FIBER OPTIC HYDROGEN AND TEMPERATURE SENSOR SYSTEM

Stanley E. Nave, Evans, Ga., assignor to The United States of America as represented by the United States Department of Energy, Washington, D.C.

Filed Mar. 24, 1997, Ser. No. 824,063
Int. Cl.⁶ G01N *21/75*

U.S. Cl. 422—82.06 **13 Claims**



1. A sensor system capable of measuring hydrogen concentrations and temperatures comprising:

a sensor probe having a rigid housing with one distal open end;
a light transparent lens inside said sensor probe with one end oriented toward the distal open end of the sensor probe and the other end of said lens oriented toward the proximal closed end of the sensor probe;
a sem-conducting solid that is transparent above a temperature dependent minimum wavelength, forming a layer on the distal end of said lens inside said sensor probe;
a reflective metal material that forms a metal hydride upon absorbing hydrogen, forming a layer on top of and contiguous with said semi-conducting solid layer inside said sensor probe;
a coating of hydrogen permeable material on top of, distal, and contiguous with said reflective metal material layer within said sensor probe;
a rigid connector at the proximal end of said sensor probe;
first and second optical fibers positioned at a focal point of the lens inside said sensor probe by a fiber-optic terminator and connector at the proximal end of said sensor probe;
a means for generating light comprising a broad-band light source;
a fiber-optic cable comprising said first and second optical fibers, said first optical fiber connecting the sensor probe to said source of broad-band light;
a controlling processor;
a means for analysis of light information from said sensor probe comprising a spectrometer; and
a means for transmission of light from said reflective metal material layer and said semi-conducting solid layer to said means for analysis.

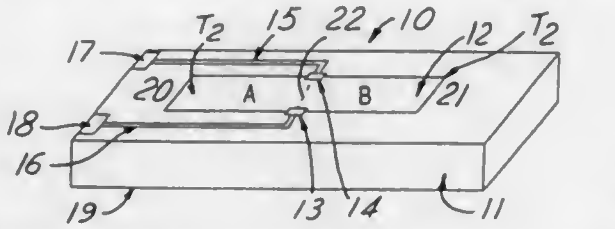
5,783,153
METAL OXIDE OXYGEN SENSORS BASED ON PHASE TRANSFORMATION

Eleftherios Miltiadis Logothetis, Birmingham, and Richard E. Soltis, Saline, both of Mich., assignors to Ford Global Technologies, Inc., Dearborn, Mich.

Filed Aug. 4, 1997, Ser. No. 905,372
Int. Cl.⁶ G01N *27/12*

U.S. Cl. 422—83 **18 Claims**

1. An oxygen sensor for detecting a change of oxygen partial pressure in an ambient atmosphere through a change of a measurable physical property of a sensing material, said sensor comprising:



a sensing material being selected from metal or its oxides and which, when at an elevated temperature and exposed to a gas containing a changing partial pressure of oxygen, is capable of changing from one metal or metal oxide phase to another such oxide phase and vice versa and associated therewith a change in a measurable physical property thereof;
heating means connectable to a power source able to maintain a temperature gradient across said sensing material whereby said material exists, during active sensing operation, in at least two of said phases defining a boundary line therebetween generally perpendicular to the longitudinal axis of said temperature gradient, said boundary line traversing longitudinally along said axis in response to changes in the oxygen partial pressure of the ambient atmosphere; and
means for furnishing an output signal in response to traversal of said boundary line across a fixed detecting location of the sensing material.

5,783,154
SENSOR FOR REDUCING OR OXIDIZING GASES

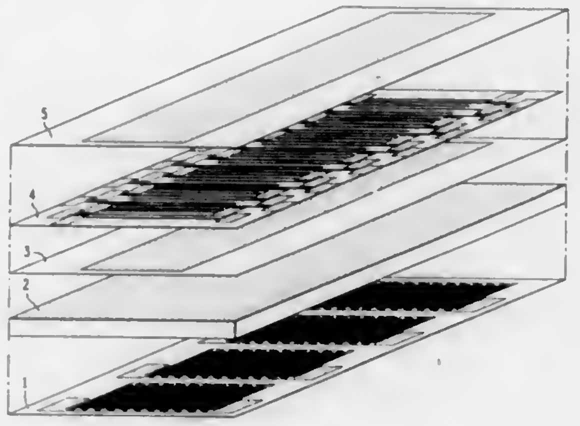
Peter Althainz, Karlsruhe, and Joachim Goschnick, Mühlacker, both of Germany, assignors to Forschungszentrum Karlsruhe GmbH, Karlsruhe, Germany

Filed Nov. 18, 1996, Ser. No. 747,252

Claims priority, application Germany, Jul. 2, 1994, 44 23 289.6

Int. Cl.⁶ G01N *25/16*

U.S. Cl. 422—98 **6 Claims**



1. A gas sensor for reducing or oxidizing gases, comprising:

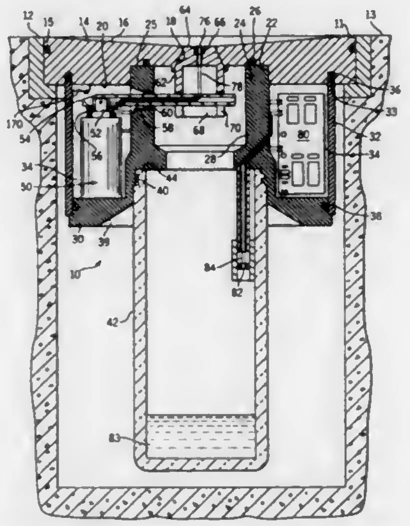
a) a number of gas sensitive, longitudinal segments consisting of a semiconductive metal oxide film,
b) each of said segments having two strip electrodes in contact therewith,
c) said segments having different properties with respect to reducing or oxidizing gases such that different conductivity changes are generated from said segments upon exposure to oxidizing or reducing gases,
d) said segments defining together a continuous surface area, and
e) said strip electrodes including outer electrodes extending at opposite ends of said continuous surface area so as to limit said continuous surface area, and inner electrodes extending between, and parallel to, said outer electrodes so as to divide said continuous surface area into said longitudinal segments.

5,783,155
SHEET FLOW FLUID SAMPLING APPARATUS

Leland S. Greenler, Stoughton; Grant R. Emmel; Farshid Feyzi, both of Madison, and David W. Owens, Verona, all of Wis., assignors to Wisconsin Alumni Research Foundation, Madison, Wis.

Filed Jun. 17, 1996, Ser. No. 664,489
Int. Cl.⁶ B01L *3/00*

U.S. Cl. 422—102 **9 Claims**



1. An apparatus for sampling fluid flowing across a surface, said apparatus comprising:

a plate for mounting in the surface, wherein the plate has opposed first and second surfaces with an aperture extending between the first and second surfaces;
a first housing extending from the second surface of said plate and having a passage in communication with the aperture, said first housing has a hole therethrough;
a vessel removably attached to said first housing to receive fluid passing through the aperture and the passage;
a valve member within said first housing for opening and closing the aperture to fluid flow;
a second housing extending around said first housing and creating a chamber; and
a mechanism within said second housing for operating said valve member to intermittently open and close the aperture in said plate, said mechanism comprising a lever extending through the hole in the first housing and engaging said valve member, a solenoid in the chamber and connected to said lever to produce movement of said valve member to open and close the aperture in said plate, and a control circuit having a timer for energizing the solenoid.

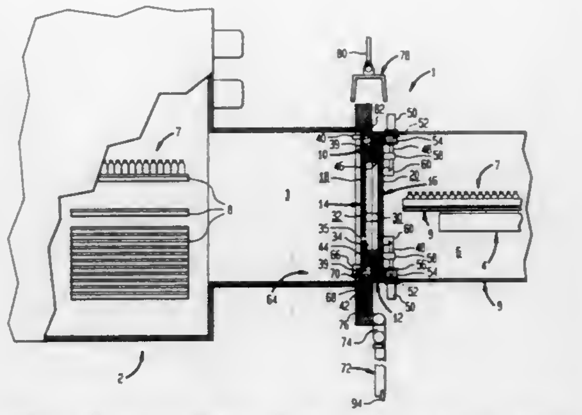
5,783,156
TRANSFER PORT SYSTEM BETWEEN STERILE ENVIRONMENTS

Ernesto Renzi, Youngstown, N.Y., and Johannes W. Krikhaar, Marum, Netherlands, assignors to The BOC Group, Inc., New Providence, N.J.

Continuation-in-part of Ser. No. 401,390, Mar. 9, 1995, abandoned. This application Jul. 17, 1996, Ser. No. 682,250
Int. Cl.⁶ A61L *2/04;* B01L *1/00;11/02*

U.S. Cl. 422—292 **10 Claims**

1. A transfer port system between two sterile environments having docked and undocked positions, said transfer port comprising;



two door frames connected to said two sterile environments and two doors connected to said two door frames so that when said two sterile environments are in said docked position, said two door frames and said two doors are juxtaposed and in contact with one another and when said two sterile environments are in said undocked position, said two door frames are spaced apart from one another and said two doors seal said two sterile environments;
said two door frames and doors having a potentially non-sterile peripheral juncture located at an outer periphery of the two doors when in their said juxtaposition;
door connection means for connecting said two doors to one another when said two sterile environments are in the docked position; and
opening means for opening said two doors, said opening means having means for moving said doors when connected to one another between a closed position sealing said two sterile environments and an open position away from said two door frames permitting transport through said two door frames and between said two sterile environments;
at least one of said two door frames having internal channels for circulation of a heat transfer fluid to heat the two door frames and said two doors and thereby sterilize said potentially non-sterile peripheral juncture, an inlet and an outlet to said internal channels for introducing said heat transfer fluid into said internal channels and for discharging said heat transfer fluid from said internal channels, respectively.

5,783,157

Patent Not Issued For This Number

5,783,158
PROCESS FOR TREATING SULFIDE ORES CONTAINING GOLD AND/OR SILVER AND AS ACCOMPANYING METAL AT LEAST IRON

Michael Tacke, Friedrichsdorf; Walter Pierson, Eschborn, and Eberhard Stolarski, Oberursel, all of Germany, assignors to Metallgesellschaft Aktiengesellschaft, Frankfurt am Main, Germany

Filed Feb. 25, 1997, Ser. No. 805,462

Claims priority, application Germany, Mar. 9, 1996, 196 09 284.1

Int. Cl.⁶ C22B *11/00;11/08;1/00*

U.S. Cl. 423—47 **7 Claims**

1. A process for treating a granular sulfide ore containing a noble metal selected from the group consisting of silver and gold and iron as at least one base metal, which comprises the steps of:

(a) calcining the granular sulfide ore at a temperature of 600° to 900° C. with addition of gas containing free oxygen to produce a noble metal-containing, base metal oxide-containing solids mixture and an SO_2-containing exhaust gas;
(b) cooling the noble metal-containing, base metal oxide-containing solids mixture to a temperature at least 50° C. lower than that of the calcining of step (a) to form a cooled solids mixture;
(c) charging the cooled solids mixture into a fluidized bed reactor and introducing SO_2-containing exhaust gas formed during step (a) into the fluidized bed reactor to produce in the

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cooled solids mixture a base metal sulfate where at least 10% by weight of the sulfur content in the exhaust gas is bound in the form of the base metal sulfate;
- (d) withdrawing the cooled solids mixture containing the noble metal and the base metal sulfate from the fluidized bed reactor;
- (e) stirring the cooled solids mixture in an aqueous acid solution to dissolve base metal sulfate into said aqueous acid solution and separating remaining solids containing the noble metal from the aqueous acid solution; and
- (f) supplying the remaining solids to a recovery of the noble metal.

5,783,159
INORGANIC IMPURITIES REMOVAL IN SODA ASH SOLUTIONS WITH CARBON

Eric Aldinger, Rhône-Poulenc of Wyoming, P.O. Box 513, Green River, Wyo. 82935

Continuation of Ser. No. 536,564, Sep. 29, 1995, abandoned. This application Aug. 12, 1997, Ser. No. 909,529

Int. Cl.^{6} C01D *7/26*

U.S. Cl. 423—179 **7 Claims**

1. A method for reducing inorganic impurities in sodium carbonate solution comprising contacting spent carbon with a sodium carbonate solution wherein the inorganic impurities are reduced.

5,783,160
METHOD FOR PURIFYING COMBUSTION EXHAUST GAS

Yukio Kinugasa; Kouhei Igarashi, both of Susono; Takaaki Itou, Misima; Toshifumi Takaoka, Susono; Michihiro Ohashi, Misima, and Koji Yokota, Nagoya, all of Japan, assignors to Toyota Jidosha Kabushiki Kaisha, Aichi, Japan

Filed Jan. 24, 1996, Ser. No. 590,714

Claims priority, application Japan, Jan. 27, 1995, 7-011903; Oct. 27, 1995, 7-280797

Int. Cl.^{6} B01D *53/58*

U.S. Cl. 423—237 **13 Claims**

1. A process for resolving NH_3 included in a combustion exhaust gas including the steps of:

providing an NH_3 decomposing catalyst in an exhaust passage, wherein the catalyst resolves NH_3 when the temperature of the catalyst is within a predetermined temperature range and an atmosphere in which the catalyst is located is an oxidizing atmosphere, and the catalyst converts NH_3 to NO_x when the temperature of the catalyst is higher than said predetermined temperature range and the atmosphere is an oxidizing atmosphere, and wherein NH_3 passes through the catalyst when the temperature of the catalyst is lower than said predetermined temperature range and the atmosphere is an oxidizing atmosphere, so that exhaust gas flowing out of the NH_3 decomposing catalyst is substantially free from NH_3 and NO_x;

directing a flow of exhaust gas including NH_3 so that the exhaust contacts the catalyst.

5,783,161
STABILIZED HYROXYLAMINE SOLUTIONS

Hans-Michael Schneider, Worms, and Bernd Leutner, Frankenthal, both of Germany, assignors to BASF Aktiengesellschaft, Ludwigshafen, Germany

Filed Jul. 25, 1996, Ser. No. 684,910

Int. Cl.^{6} C01B *21/20*

U.S. Cl. 423—265 **14 Claims**

1. A stabilized hydroxylamine solution which comprises as stabilizer at least one compound of the formula I

$$R^1R^2N—A—NR^3R^4 \quad (I)$$

in which

A is a radical selected from the group consisting of alkylene, alkynylene, cycloalkylene, cycloalkenylene, arylene, o-, - or p-xylylene, a 5- or 6-membered saturated and unsaturated heterocycle having a nitrogen atom, said radicals optionally containing 1, 2 or 3 substituents selected from the group consisting of alkyl, alkoxy and hydroxyl,

or A is $—X—[—NR—B—]_n$

in which

B and X are $—CH_2CH_2—$ or $—CH_2CH_2CH_2—$,

n is 10–50,000,

R is H, alkyl, ethylene or propylene which is substituted by OH, NH_2, $NHCOR^5$ or COOH, or is CSSH, CH_2CN or $CH_2PO_3H_2$, or is a bridge to a nitrogen atom of another polyethyleneimine or polypropyleneimine chain, the bridge being formed by

$$\left[NR—B\right]_o \quad \text{or}$$

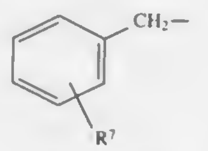
$$CH_2CHOHCH_2\left[OCH_2CH_2\right]_p CH_2CHOHCH_2—$$

where o and p independently of one another are 1–15,

R^5 is H, C_1–C_{18}-alkyl or CHR^6COR^6 where R^6 is C_{12}–C_{18}-alkyl,

R^1, R^2, R^3 and R^4 independently of one another are H, CH_2COOH, $CH_2PO_3H_2$, alkyl, acyl, CH_2CH_2OH, $CH_2CH_2NH_2$ or

where



R^7 is OH, SH, NH_2, CN, COOH, alkyl or alkoxy,

or the salts thereof, with the exception of ethylenediaminetetraacetic acid and N-hydroxyethylenediaminetriacetic acid and salts thereof.

5,783,162
ARGON PURIFICATION PROCESS

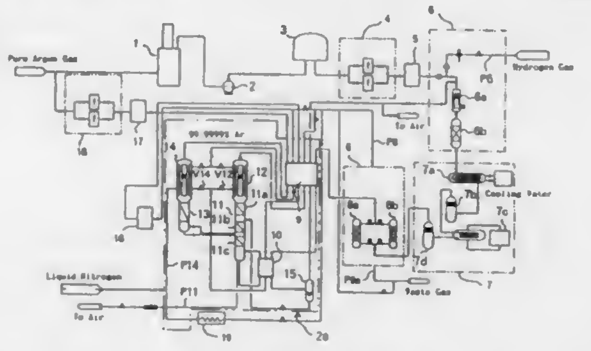
Shinji Tomita; Takashi Nagamura, and Takao Yamamoto, all of Hyogo-ken, Japan, assignors to Teisan Kabushiki Kaisha, Tokyo, Japan

Filed Aug. 30, 1996, Ser. No. 705,696

Claims priority, application Japan, Sep. 5, 1995, 7-228106

Int. Cl.^{6} C01B *13/00;33/02*

U.S. Cl. 423—348 **5 Claims**



1. An argon recovery and purification process, which comprises purifying impure argon gas discharged from a silicon furnace and containing low boiling point impurity components selected from the group consisting of oxygen, nitrogen, and carbon monoxide, and whose boiling points are lower than that of argon, and high boiling point impurity components comprised of hydrocarbons whose boiling points are higher than that of argon to obtain substantially pure argon gas, and supplying said pure argon gas to the silicon furnace again, the process including:

a first step of adding hydrogen into said impure argon gas, and reacting said hydrogen with oxygen contained in the impure argon gas so as to be converted to water, thereby removing the oxygen from said impure argon gas;

a second step of introducing said impure argon gas into an adsorption means for adsorbing water and carbon dioxide contained in said impure argon gas, thereby removing the water and carbon dioxide from said impure argon gas; and

a third step of subjecting said impure argon gas to a low temperature liquefaction and introducing liquefied argon gas into a rectification means which includes

a first rectification column wherein said low boiling point impurity components are removed from said impure argon gas, and a second rectification column wherein said high boiling point impurity components are removed from said impure argon gas introduced from the first rectification column.

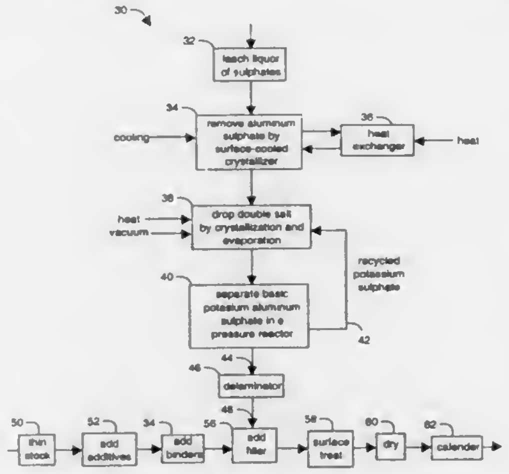
5,783,163
PROCESS FOR MAKING BASIC SODIUM AND/OR POTASSIUM ALUMINUM SULPHATES AND FOR MAKING PAPER WITH SUCH

John S. Rendall, and Massoud Ahghar, both of Albuquerque, N. Mex., assignors to Solv-Ex Corporation, Albuquerque, N. Mex.

Filed Aug. 27, 1996, Ser. No. 703,883

Int. Cl.^{6} C01F *17/74*

U.S. Cl. 423—556 **10 Claims**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leach liquor of sulphates
34
cooling
remove aluminum sulphate by surface-cooled crystallizer
36
heat exchanger
heat
38
heat
vacuum
drop double salt by crystallization and evaporation
recycled potassium sulphate
40
separate basic potassium aluminum sulphate in a pressure reactor
42
44
46
delaminator
48
50
thin stock
52
add additives
54
add binders
56
add filler
58
surface treat
60
dry
62
calender

1. A method for making basic potassium aluminum sulphate (BKAS) K_2SO_4 $3Al_2O_3$ $4SO_3$ $9H_2O$ comprising:

starting with a leach liquor that is essentially saturated with aluminum sulphate $Al_2(SO_4)_3$ and potassium sulphate K_2SO_4;

introducing said leach liquor to a surface-cooled crystallizer;

precipitating and removing crystals of aluminum sulphate $Al_2(SO_4)_3$ $18H_2O$ from said leach liquor in said surface-cooled crystallizer;

precipitating the double salt, $Al_2(SO_4)_3+K_2SO_4+24H_2O$ by concentrating the residual of said leach liquor with heat, vacuum and evaporation; and

reacting said double salt of $Al_2(SO_4)_3+K_2SO_4+24H_2O$ in a heated and pressurized reactor to produce a first basic potassium aluminum sulphate (BKAS) K_2SO_4 $3Al_2O_3$ $4SO_3$ $9H_2O$ having a particle size distribution that includes particles which exceed two microns.

5,783,164
PROCESS FOR THE PREPARATION OF HYDROGEN PEROXIDE

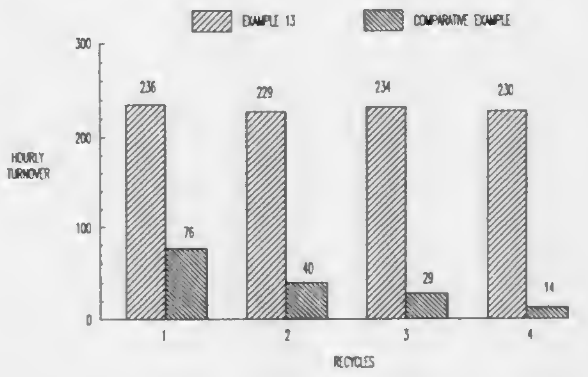
Daniele Bianchi, Arese; Rossella Bortolo, Novara; Rino D'Aloisio, Novara; Marco Ricci, Novara, and Sergio Soattini, Cerano, all of Italy, assignors to Enichem S.p.A., Milan, Italy

Filed Apr. 21, 1997, Ser. No. 844,675

Claims priority, application Italy, May 21, 1996, MI96 A 001015

Int. Cl.^{6} C01B *15/01*

U.S. Cl. 423—584 **34 Claims**



1. A process for the production of hydrogen peroxide which comprises reacting carbon monoxide, oxygen and water in an organic solvent immiscible with water, and in the presence of a catalytic complex soluble in the organic solvent which catalytic complex is the combination of:
- (a) a salt of palladium;
- (b) a non-coordinating organic or inorganic acid; and
- (c) a ligand which is a compound capable of binding itself to the palladium atom, which ligand is a mono or polydentate nitrogenated compound.

5,783,165
METHOD OF MAKING BARIUM TITANATE

James M. Wilson, Victor, and Walter J. Symes, Dundee, both of N.Y., assignors to Ferro Corporation, Cleveland, Ohio

Filed Jan. 8, 1997, Ser. No. 780,497

Int. Cl.^{6} C01G *23/00*

U.S. Cl. 423—598 **11 Claims**

30°C

1. A method of producing barium titanate powder comprising the steps of:
- A. Providing a solution comprising oxalic acid and titanium oxychloride;
- B. Maintaining said solution at a temperature of from about 30° C. to about 90° C.;
- C. Adding barium carbonate to said solution thereby precipitating barium titanyl oxalate; and
- D. Calcining said barium titanyl oxalate so as to provide said barium titanate powder.

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5,783,166

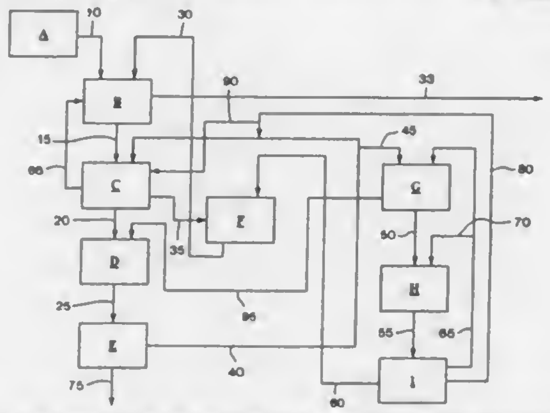
PROCESS FOR PRODUCING ANTIMONY TRIOXIDE

J. Dean Thibault, New Maryland; Michael D. MacDonald, Hanwell, and Donald A. Stevens, Fort Suskatchewan, all of Canada, assignors to Roycefield Resources Ltd., Moncton, Canada

Filed Sep. 12, 1996, Ser. No. 710,115

Int. Cl.^{6} C01B *9/00;* **C01G** *30/00*

U.S. Cl. 423—617 **29 Claims**



1. A process for the production of antimony trioxide comprising the steps of:

(i) reacting antimony trisulfide with iron (III) chloride to produce a first aqueous solution comprising antimony trichloride, and contacting the first aqueous solution with an organic solvent resulting in extraction of antimony trichloride from the first aqueous solution; and

(ii) hydrolyzing the extracted antimony trichloride to produce antimony trioxide.

5,783,167

STRUCTURE MATERIAL OF THE ZEOLITE TYPE WITH ULTRALARGE PORES AND A LATTICE COMPRISED OF SILICONE AND TITANIUM OXIDES: ITS SYNTHESIS AND UTILIZATION FOR THE SELECTIVE OXIDATION OF ORGANIC PRODUCTS

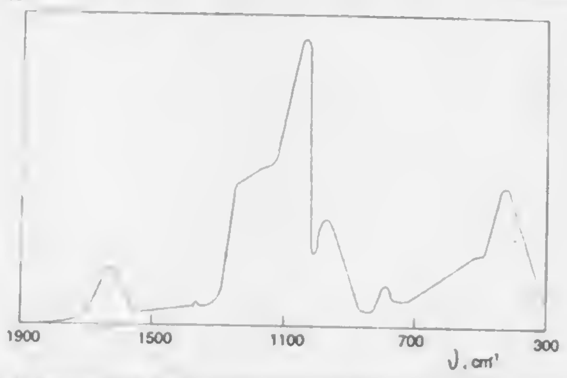
Avelino Corma Canos; Teresa Navarro Villalba, both of Valencia, and Joaquin Perez Pariente, Madrid, all of Spain, assignors to Consejo Superior Investigaciones Cientificas, Madrid, and Universidad Politecnica Valencia, Valencia, both of Spain

Filed Feb. 15, 1995, Ser. No. 413,867

Claims priority, application Spain, Jun. 15, 1993, 9301327

Int. Cl.^{6} C01B *33/20;* **B01J** *29/04*

U.S. Cl. 423—701 **29 Claims**



1. A material for use in selective oxidation of organic products, said material comprising:

a non-pillared crystalline phase having at least one x-ray diffraction peak at a d-spacing of greater that 18Å and having ultralarge pores and a lattice composed of silicon and titanium oxides, the porosity of the material being greater than 0.2 cm^{3}g, the pores having a diameter larger than 10Å and less than 200Å, the material having an intense infrared spectral band at 960±5 cm^{-1} indicating the inclusion of titanium in the lattice;

wherein the material, in anhydrous roasted form, has a composition with the formula:

$YO_2{:}mX_2O_3{:}yTiO_2{:}nM_2O$; wherein:

YO_2 is an oxide in which Y represents one or more cation with a valence of 4, consisting of Si and optionally Ge cations;

X_2O_3 is an oxide wherein X represents one or more cation with a valence of 3 selected from the group consisting of Al, Ga and B cations;

M_2O is an oxide wherein M represents one or more ion-exchangeable cations selected from the group consisting of Na^+, $K^+$and H^+;

m, y and n represent molar proportions of corresponding oxides with regard to YO_2, wherein $m \leqq 0.1$; $10^{-4} \leqq y \leqq 0.2$; and $n \leqq 0.1$.

5,783,168

ZSM-22 ZEOLITE

Johannes Petrus Verduijn, Leefdaal, and Luc Roger Marc Martens, Meise, both of Belgium, assignors to Exxon Chemical Patents Inc., Houston, Tex.

Continuation of Ser. No. 353,427, Dec. 9, 1994. This application Oct. 16, 1996, Ser. No. 734,248

Claims priority, application European Pat. Off., Jun. 5, 1992, 92305181

Int. Cl.^{6} C01B *33/36;39/02*

U.S. Cl. 423—702 **6 Claims**

1. A process for preparing a ZSM-22 zeolite comprising crystallizing a synthesis mixture comprising:

(i) a source of silicon and/or germanium;

(ii) a source of aluminum, iron, chromium, vanadium, molybdenum, arsenic, antimony, manganese, gallium or boron;

(iii) a source of monovalent cation; and

(iv) an organic structure agent; wherein seeds of preformed ZSM-22 are included in the initial synthesis mixture, and crystallization is carried out by agitating under conditions effective for forming a zeolite comprising ZSM-22 ingrown needles of crystals of less than 1 micron and having a ZSM-5/ZSM-22 peak height ratio less than 0.04; and wherein the mixture is stirred at a rate of less than 50 rpm during crystallization so that the level of agitation is reduced compared to a process in which such ZSM-22 crystals are formed under identical reaction conditions, using an initial synthesis mixture containing no seeds of preformed ZSM-22.

5,783,169

RIGID BIFUNCTIONAL CHELATING AGENTS

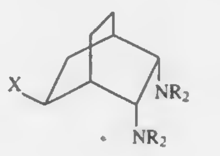
Mark P. Sweet, Coram, N.Y.; Ronnie C. Mease, Fairfax, Va., and Suresh C. Srivastava, Setauket, N.Y., assignors to Brookhaven Science Associates LLC, Upton, N.Y.

Filed Jul. 26, 1995, Ser. No. 506,889

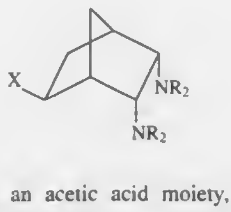
Int. Cl.^{6} A61K *51/00;* **A61M** *36/14*

U.S. Cl. 424—1.65 **7 Claims**

1. A chelating structure comprising a compound of the formula



OR



wherein R represents an acetic acid moiety, 2-mercaptoacetyl, 1-methyl-2-oximidopropylidene, o-hydroxybenzyl or 2-mercatoethyl groups; X represents a hydrogen, an amine, isothiocyanate, bromoacetamide, maleimide or derivatives thereof.

5,783,170

PEPTIDE-METAL CHELATE CONJUGATES

Richard T. Dean, Bedford, N.H., assignor to Diatide, Inc., Londonderry, N.H.

Continuation-in-part of Ser. No. 807,062, Nov. 27, 1991, Pat. No. 5,443,815. This application May 12, 1994, Ser. No. 241,625

Int. Cl.^{6} A61K *51/00;* **A61M** *36/14*

U.S. Cl. 424—1.69 **23 Claims**

1. A composition of matter comprising a specific binding peptide covalently linked to a metal ion-complexing moiety, wherein the peptide specifically binds to somatostatin receptors, and having formula:

cyclo(N-CH_3)-Phe-Tyr-(D-Trp)-Lys-Val-Hcy. (CH_2CO.X)

wherein X is a metal ion complexing moiety having formula

(amino acid)$_n$-B-(amino acid)$_m$-Z,

wherein B is a thiol-containing moiety that is cysteine, homocysteine, isocysteine, or penicillamine;

(amino acid)$_n$ and (amino acid)$_m$ are each independently any primary α-or β-amino acid that does not comprise a thiol group;

Z is —OH or —NH_2;

n is an integer between 2 and 5; and

m is an integer between 0 and 5.

5,783,171

RADIONUCLIDE METAL N_2S_2 CHELATES SUBSTITUTED WITH GLUCOSE AND BIOTIN MOIETIES

Linda M. Gustavson, Seattle; Sudhakar Kasina, Mercer Island, and Alan R. Fritzberg, Edmonds, all of Wash., assignors to NeoRx Corporation, Seattle, Wash.

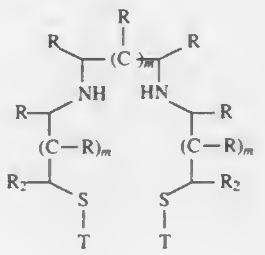
PCT No. PCT/US94/07733, § 371 Date Mar. 11, 1996, § 102(e) Date Mar. 11, 1996, PCT Pub. No. WO95/02418, PCT Pub. Date Jan. 26, 1995

Continuation of Ser. No. 90,421, Jul. 12, 1993, abandoned, which is a continuation-in-part of Ser. No. 973,048, Nov. 6, 1992, Pat. No. 5,250,666, which is a division of Ser. No. 577,959, Sep. 5, 1990, Pat. No. 5,164,176, which is a continuation-in-part of Ser. No. 367,502, Jun. 16, 1989, abandoned. This PCT application Jul. 12, 1994, Ser. No. 591,560

Int. Cl.^{6} A61K *51/00;* **C07F** *5/00;* **C07D** *235/02*

U.S. Cl. 424—1.73 **13 Claims**

1. A compound of the formula:



wherein:

each R independently represents =O, H_2, lower alkyl, —$(CH_2)_n$—COOH, —$(CH_2)_n$—CO-glucose or glucose derivative, —$(CH_2)_n$—NH-glucose or glucose derivative, or R_1—Z;

n is 0 to 3;

R_1 represents a lower alkyl or substituted lower alkyl group;

Z represents biotin or biotin with a linker moiety;

each R_2 independently represents H_2, a lower alkyl group, —$(CH_2)_n$—COOH, —$(CH_2)_n$—CO-glucose or glucose derivative, —$(CH_2)_n$—NH-glucose or glucose derivative, or R_1—Z;

each m is 0 or 1, wherein at most one m is m=1;

each T represents a sulfur protecting group; and

the compound comprises at least one —$(CH_2)_n$—CO-glucose, —$(CH_2)_n$—NH-glucose or glucose derivative and at least one —R_1—Z substituent.

5,783,172

DENTIFRICE COMPOSITIONS COMPRISING AN ABRASIVE SYSTEM AND A SURFACTANT SYSTEM

Jean-Marc Ascione, Paris, and Pascal Sterle, Soisy S/Montmorency, both of France, assignors to L'Oreal, France

Filed Dec. 8, 1995, Ser. No. 569,614

Claims priority, application France, Dec. 9, 1994, 94 14862

Int. Cl.^{6} A61K *33/24;7/16;31/08*

U.S. Cl. 424—49 **12 Claims**

1. A composition comprising, in an aqueous vehicle, an abrasive system containing at least one alkali metal bicarbonate and a surfactant system, wherein said surfactant system comprises at least one nonionic poly(hydroxypropyl ether) surfactant.

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5,783,173

STABLE SUNSCREEN COMPOSITION CONTAINING DIBENZOYLMETHANE DERIVATIVE, E. G., PARSOL 1789, AND C12, C16, C18, BRANCHED CHAIN HYDROXYBENZOATE AND/OR C12, C16, BRANCHED CHAIN BENZOATE STABILIZERS/SOLUBILIZERS

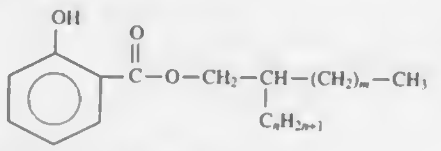
Craig A. Bonda, Wheaton, and Steven P. Hopper, Glen Ellyn, both of Ill., assignors to The C. P. Hall Company, Chicago, Ill.

Filed Nov. 21, 1996, Ser. No. 752,585

Int. Cl.^{6} A61K *7/42;31/24;31/12*

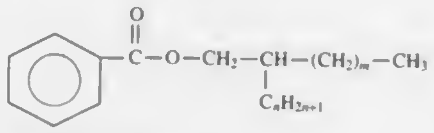
U.S. Cl. 424—59 **23 Claims**

1. A sunscreen composition for topical application to human skin for protection against ultraviolet radiation comprising, in a cosmetically acceptable carrier, 1% to 3% by weight of a dibenzoylmethane derivative and at least 1% by weight of a stabilizing compound selected from the group consisting of formula (I), formula (II), and mixtures thereof:



(I)

wherein m=5, 7, 9 or mixtures
and n=4, 6, 8 or mixtures;



(II)

wherein m=5, 7 or mixtures
and n=4, 6 or mixtures.

5,783,174

PHOTOSTABLE SUNSCREEN COMPOSITIONS

George Endel Deckner, Cincinnati, Ohio, assignor to The Procter & Gamble Company, Cincinnati, Ohio

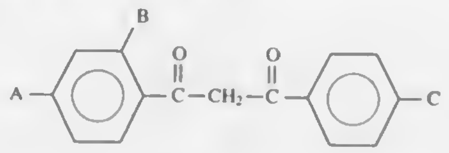
Continuation of Ser. No. 632,696, Apr. 16, 1996, abandoned, which is a continuation of Ser. No. 428,788, Apr. 24, 1995, which is a continuation of Ser. No. 227,912, Apr. 15, 1994, which is a continuation of Ser. No. 54,465, Apr. 28, 1993, which is a continuation of Ser. No. 929,612, Aug. 13, 1992. This application Nov. 26, 1997, Ser. No. 979,144

Int. Cl.^{6} A61K *7/42;7/00*

U.S. Cl. 424—59 **20 Claims**

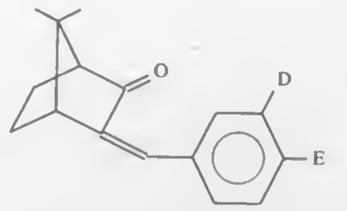
1. A sunscreen composition having improved photostability and broad UVA and UVB coverage, comprising:

(a) from about 0.1% to about 10% of a sunscreen compound (I) having the general structure



wherein A is a substituent selected from the group consisting of H, —OR, and —NR$_2$ wherein each R is independently H, or straight or branched chain alkyl having from about 1 to about 20 carbon atoms; B is a substituent selected from the group consisting of H and —OH; and C is a substituent selected from the group consisting of H, or straight or branched chain alkyl having from about 1 to about 20 carbon atoms;

(b) from about 0.1% to about 10% of a sunscreen compound (II) having the general structure



wherein D and E are substituents independently selected from the group consisting of H, straight or branched chain alkyl having from about 1 to about 20 carbon atoms, and —OR, wherein R is H, or straight or branched chain alkyl having from about 1 to about 20 carbon atoms;

(c) from about 0.1% to about 25% of a physical sunblock; and

(d) a pharmaceutically-acceptable carrier;

wherein the weight ratio of sunscreen compound (I) to sunscreen compound (II) is from about 1:1.5 to about 1.5:1.

5,783,175

DUST-FREE HAIR BLEACH POWDERS

Thomas M. Schultz, Randolph; Michael DeGeorge, Toms River, both of N.J., and David Cannell, New York, N.Y., assignors to Cosmair, Inc., New York, N.Y.

PCT No. PCT/US96/13764, § 371 Date Apr. 29, 1997, § 102(e) Date Apr. 29, 1997, PCT Pub. No. WO97/07776, PCT Pub. Date Mar. 6, 1997

Continuation-in-part of Ser. No. 521,192, Aug. 30, 1995. This PCT application Aug. 27, 1996, Ser. No. 817,959

Int. Cl.^{6} A61K *7/07;7/075;7/135*

U.S. Cl. 424—62 **31 Claims**

1. A substantially dust-free bleach powder, which comprises:

(a) a plurality of particles which comprise a peroxygenated salt,

(b) a substantially hydrophilic de-dusting agent selected from the group consisting of diisopropyl adipate, diisopropyl sebacate, diisopropyl oxalate dimethyl isosorbide, diisopropyl isosorbide, and γ-butyrolactone in an amount that is less than about 10% by weight of the bleach powder, wherein the de-dusting agent coats the particles to prevent dust formation, and

(c) powdered polytetrafluoroethylene in an amount of about 1–5% by weight of the bleach powder.

5,783,176

STABLE HYDROCARBON-FREE COSMETIC ON DERMATOLOGICAL OLEGELS AND W/O EMULSIONS

Uta Meiring, Hamburg, Germany; Anne-Sopie Dussert, Toulouse, France, and Marta Aul, Hamburg, Germany, assignors to Beiersdorf AG, Hamburg, Germany

Filed Nov. 8, 1996, Ser. No. 744,844

Claims priority, application Germany, Nov. 10, 1995, 195 41 968.5

Int. Cl.^{6} A61K *7/40;7/025*

U.S. Cl. 424—64 **11 Claims**

1. Cosmetic formulations which comprise

(a) a lipid phase comprising at least one glycerol mono-, di- and/or tricarboxylic acid ester of branched and/or unbranched monobasic fatty acids having 18– 36 carbon atoms (=mono-, di- and/or triglycerides) and at least one ester prepared from a hydroxycarboxylic acid and a branched or unbranched saturated alcohol having 15–49 carbon atoms,

(d) and optionally comprise water, further lipids, emulsifiers and further active compounds, auxiliaries and/or additives.

5,783,177

CYANOACRYLATE COMPOSITIONS COMPRISING AN ANTIMICROBIAL AGENT

Richard J. Greff, St. Pete Beach, Fla., and Michael M. Byram, Colorado Springs, Colo., assignors to Medlogic Global Corporation, Colorado Springs, Colo.

Division of Ser. No. 781,409, Jan. 10, 1997, Pat. No. 5,684,042. This application Jun. 6, 1997, Ser. No. 870,904

Int. Cl.^{6} A61K *31/02;31/79;* **A01N** *31/02;* **C08J** *5/06*

U.S. Cl. 424—78.17 **11 Claims**

1. An antimicrobial cyanoacrylate composition which comprises:

(a) a polymerizable cyanoacrylate ester;

(b) an antimicrobially effective amount of a complex of iodine molecules with a biocompatible polymer; and

(c) a biocompatible plasticizer.

5,783,178

POLYMER LINKED BIOLOGICAL AGENTS

Alexander Victorovich Kabanov, Omaha, Nebr., and Valery Yulievich Alakhov, D'Urfe, Canada, assignors to Supratek Pharma. Inc., Montreal, Canada

Filed Nov. 18, 1994, Ser. No. 342,079

Int. Cl.^{6} A61K *31/74*

U.S. Cl. 424—78.31 **14 Claims**

1. A conjugate between a biologically active agent and a block copolymer comprising a biologically active agent covalently linked to at least one end group of the block copolymer, wherein the block copolymer comprises

(i) at least one polyether segment which is:

(a) a homopolymer of the ethylene monomer —OCH_2CH_2— or

(b) a copolymer or block copolymer of said ethyleneoxy monomer and the monomer —$OCH(CH_3)CH_2$—,

each of said polyether segments having from about 5 to about 400 monomeric units.

5,783,179

C-REACTIVE PROTEIN FRAGMENT WITH IMMUNOMODULATORY ACTIVITY

John J. Nestor, Jr., Cupertino; Teresa H. Ho, Los Altos; Deborah A. Eppstein, Palo Alto; Philip L. Felgner, San Diego, all of Calif.; Barbara P. Barna, Berea, and Sharad D. Deodhar, Shaker Heights, both of Ohio, assignors to Syntex (U.S.A.) Inc., Palo Alto, Calif.

Filed Aug. 9, 1991, Ser. No. 743,613

Int. Cl.^{6} A61K *45/05;38/04;* **C07K** *5/00*

U.S. Cl. 424—85.2 **15 Claims**

1. A polypeptide having the amino acid sequence A-(SEQ ID NO: 1)-B, A-Ile-Tyr-Leu-Gly-Gly-Pro-Phe-Ser-Pro-Asn-Val-Leu-B, wherein A is H or an acyl group and B is OH or NR$_2$, each R independently selected from H, C_1–C_6 alkyl, C_1–C_6 haloalkyl, and C_1-C_6 aralkyl.

5,783,180

Patent Not Issued For This Number

5,783,181

THERAPEUTIC USES OF FUSION PROTEINS BETWEEN MUTANT IL 4/IL13 ANTAGONISTS AND IMMUNOGLOBULINS

Michael Joseph Browne, Hertfordshire, England; Peter Ronald Young, Lawrenceville, N.J.; Allan Richard Shatzman, King of Prussia, Pa.; Kay Elizabeth Murphy, Hertfordshire, England; Conrad Gerald Chapman, Orpington, England, and Helen Elizabeth Clinkenbeard, Hertfordshire, England, assignors to SmithKline Beecham Corporation, Philadelphia, Pa., and SmithKline Beecham p.l.c., Brentford, England

Filed Jun. 6, 1995, Ser. No. 470,299

Claims priority, application United Kingdom, Jul. 29, 1994, 9415379

Int. Cl.^{6} A61K *38/20*

U.S. Cl. 424—85.2 **9 Claims**

1. A method of treating a patient suffering from a disease selected from the group consisting of an allergic disease, a T-cell mediated disease and a disease associated with an undesired immune response to an infectious agent, said method comprising the step of:

administering to said patient a therapeutically effective amount of a compound comprising an IL4 mutant or variant in which at least one amino acid at positions 120 to 128 inclusive is different from the amino acid naturally occurring in wild type IL4 fused to at least one human immunoglobulin constant domain.

5,783,182

METHOD FOR IDENTIFYING METASTATIC SEQUENCES

Timothy C. Thompson, Houston, Tex., assignor to Baylor College of Medicine, Houston, Tex.

Filed Jan. 30, 1996, Ser. No. 594,031

Int. Cl.^{6} C12N *5/00;15/63;15/79;* **A61K** *48/00*

U.S. Cl. 424—93.21 **42 Claims**

1. A method for identifying a sequence expressed in a metastasis comprising the steps of:

a) transfecting an oncogenic sequence into a mammalian cell to form a population of transfected cells;

b) administering tranfected cells to a primary site of a host mammal to form a primary tumor;

c) maintaining said mammal for a period of time sufficient to develop a metastasis at a secondary site;

d) amplifying expressed RNA sequences of the transfected cells and expressed RNA sequences of the metastasis by differential-display PCR; and

e) comparing the amplified expressed RNA sequences of the transfected cells with the amplified expressed RNA sequences of the metastasis and identifying the sequence expressed at a higher level in the metastasis as compared to the expressed RNA sequences of the transfected cells.

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5,783,183

CLONING OF THE ZYMOCIN GENE AND USE OF ZYMOCIN IN BEVERAGES

Pieter Cornelis Langeveld, Delft; Pieter Van Solingen, Naaldwijk; Jacobus Stark, Rotterdam, and Adrianus Wilhelmus Hermanus Vollebregt, Naaldwijk, all of Netherlands, assignors to Gist-brocades, B.V., Netherlands

PCT No. PCT/EP94/00634, § 371 Date Feb. 22, 1995, § 102(e) Date Feb. 22, 1995, PCT Pub. No. WO94/20620, PCT Pub. Date Sep. 15, 1994

PCT Filed Mar. 3, 1994, Ser. No. 331,657

Claims priority, application European Pat. Off., Mar. 3, 1993, 93200610; May 10, 1993, 93201314

Int. Cl.^{6} A61K *37/48;* **C12N** *9/00*

U.S. Cl. 424—94.1 **8 Claims**

1. A method for preserving non-alcoholic, non-carbonated beverages comprising adding an effective amount of a yeast zymocin to said beverage.

5,783,184

METHOD FOR TREATMENT AND DIAGNOSIS OF IL-5 MEDIATED DISORDERS

Edward Robert Appelbaum, Blue Bell, and Richard Murray Cook, Chester Springs, both of Pa., assignors to SmithKline Beecham Corporation, Philadelphia, Pa.

Continuation-in-part of Ser. No. 470,110, Jun. 6, 1995, Pat. No. 5,693,323, and Ser. No. 467,420, Jun. 6, 1995, Pat. No. 5,683,892, which is a continuation-in-part of Ser. No. 363,131, Dec. 23, 1994, abandoned, said Ser. No. 470,110 is a continuation-in-part of Ser. No. 363,131. This application Jun. 21, 1996, Ser. No. 667,769

Int. Cl.^{6} A61K *39/395;39/40;* **G01N** *33/53;* **C07K** *16/00*

U.S. Cl. 424—130.1 **10 Claims**

1. An improved method for treating interleukin-5(IL-5) mediated conditions associated with excess eosinophil productions wherein the improvement comprises the step of:

administering a neutralizing monoclonal antibody for human IL-5 which does not block binding of human IL-5 to the α-chain of the human IL-5 receptor and which binds both free and receptor complexed IL-5 in an amount effective to ameliorate the symptoms of said conditions.

5,783,185

MONOCLONAL ANTIBODIES TO TRANSFORMING GROWTH FACTOR-BETA AND METHODS OF USE

James R. Dasch, Palo Alto; Doran R. Pace, III, San Francisco, and Wendy O. Waegell, Mountain View, all of Calif., assignors to Celtrix Pharmaceuticals, Inc., Santa Clara, Calif.

Division of Ser. No. 759,109, Sep. 6, 1991, Pat. No. 5,571,714, which is a continuation of Ser. No. 288,432, Dec. 19, 1988, abandoned. This application May 4, 1995, Ser. No. 434,977

Int. Cl.^{6} A61K *39/395;* **C07K** *16/22*

U.S. Cl. 424—133.1 **7 Claims**

1. A method for treating or reducing the likelihood of developing acute or chronic fibrosis, said method comprising administering a therapeutically effective amount of a monoclonal antibody that neutralizes transforming growth factor-β1 and transforming growth factor-β2.

6. The method of claim 1 wherein said monoclonal antibody is a chimeric monoclonal antibody, said chimeric monoclonal antibody comprising an antigen binding portion and a remainder portion, said antigen binding portion obtained from a monoclonal antibody that neutralizes transforming growth factor-β1 and transforming growth factor-β2 and said remainder portion obtained from human antibodies.

7. The method of claim 6 wherein said chimeric monoclonal antibody comprises the antigen binding portion obtained from the monoclonal antibody obtained from hybridoma 1D11.16 having A.T.C.C. Accession No. HB 9849.

5,783,186

ANTIBODY-INDUCED APOPTOSIS

Tsutomu Arakawa, and Yoshiko Kita, both of Thousand Oaks, Calif., assignors to Amgen Inc., Thousand Oaks, Calif.

Filed Dec. 5, 1995, Ser. No. 568,072

Int. Cl.^{6} C07K *16/30;* **C12N** *5/12;* **A61K** *39/395*

U.S. Cl. 424—143.1 **13 Claims**

1. An antibody or fragment thereof which induces apoptosis in cells expressing Her2, wherein the antibody or fragment binds an epitope on a Her2 polypeptide which is recognized by the monoclonal antibody produced by the hybridoma cell line ATCC No. HB 12078.

5,783,187

TREATMENT OF CELL PROLIFERATIVE DISORDERS USING ANTIBODIES WHICH BIND CONNECTIVE TISSUE GROWTH FACTOR

Gary R. Grotendorst, Lutz, Fla., and Douglas M. Bradham, Jr., Baltimore, Md., assignors to University of South Florida, Tampa, Fla.

Division of Ser. No. 167,628, Dec. 14, 1993, Pat. No. 5,408,040, which is a continuation of Ser. No. 752,427, Aug. 30, 1991, abandoned. This application Sep. 11, 1996, Ser. No. 712,302

Int. Cl.^{6} A61K *39/395*

U.S. Cl. 424—158.1 **3 Claims**

1. A method for ameliorating a cell proliferative disorder associated with Connective Tissue Growth Factor (CTGF), comprising administering to a subject having said disorder, at the site of the disorder, a composition comprising a therapeutically effective amount of an antibody or fragment thereof that binds to CTGF, wherein said antibody or fragment thereof does not bind to PDGF.

5,783,188

METHOD OF TREATING RHEUMATOID ARTHRITIS WITH TYPE COLLAGEN PEPTIDE FRAGMENTS CONTAINING REPEATING SEQUENCES

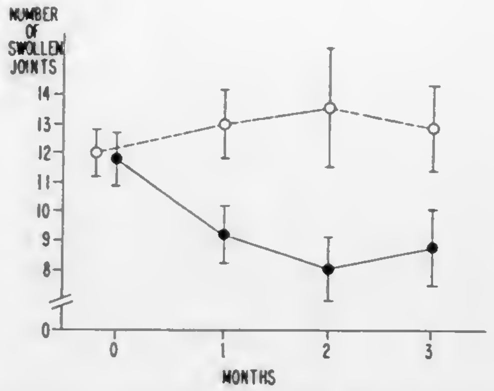
Howard L. Weiner, Brookline; David E. Trentham, North Quincy, and David A. Hafler, West Newton, all of Mass., assignors to AutoImmune, Inc., Lexington, Mass.

Continuation of Ser. No. 124,985, Sep. 21, 1993, which is a continuation-in-part of Ser. No. 951,565, Sep. 25, 1992, Pat. No. 5,399,347, which is a continuation-in-part of Ser. No. 460,852, Feb. 21, 1990, abandoned, and Ser. No. 596,936, Oct. 15, 1990, abandoned, which is a continuation-in-part of Ser. No. 65,734, Jun. 24, 1987, abandoned, Ser. No. 454,806, Dec. 20, 1989, abandoned, Ser. No. 487,732, Mar. 2, 1990, abandoned, and Ser. No. 809,206, Dec. 13, 1991, abandoned, and a continuation of Ser. No. 551,632, Jul. 10, 1990, abandoned, which is a continuation-in-part of Ser. No. 379,778, Jul. 14, 1989, abandoned, Ser. No. 595,468, Oct. 10, 1990, abandoned, and Ser. No. 843,752, Feb. 28, 1992, abandoned. This application Jun. 7, 1995, Ser. No. 480,180

Int. Cl.^{6} A61K *39/00;37/02;37/12*

U.S. Cl. 424—184.1 **25 Claims**

1. A method for treating rheumatoid arthritis comprising oral administration of a collagen II peptide that suppresses an autoimmune response associated with said rheumatoid arthritis and having a sequence of three or more amino acids that repeats either identically or with conservative substitution, said peptide being at least 9 amino acids in length, to a human in need of treatment, in an amount effective and for a period of time sufficient to decrease at least one clinical symptom selected from the group consisting of joint tenderness, joint swelling, morning stiffness, grip strength, and 50-foot walk time.



5,783,189

METHOD FOR TREATING ALCOHOL DEPENDENCE

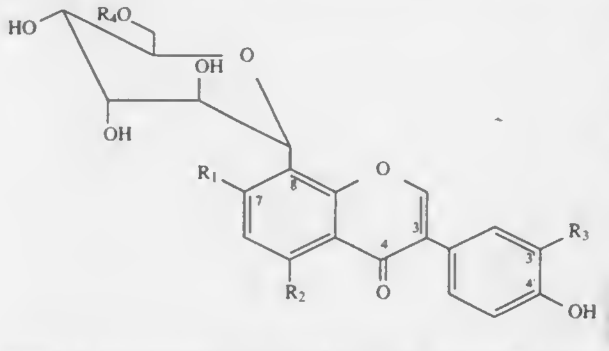
Yue-Hu Pei, Durham; David Overstreet, Chapel Hill; Amir Hosein Rezvani, Chapel Hill, and David Yue-Wei Lee, Chapel Hill, all of N.C., assignors to Natural Pharmacia International, Inc., Research Triangle Park, N.C.

Filed Apr. 23, 1996, Ser. No. 636,347

Int. Cl.^{6} A61K *35/78;39/385*

U.S. Cl. 424—195.1 **11 Claims**

1. A method of treating alcohol dependence which comprises administering to a patient, a pharmaceutical composition comprising, in admixture with a pharmaceutically acceptable carrier, an amount effective to treat alcohol dependence of at least one isoflavenoid-C-glycoside of the formula (I) isolated to a purity of 90% or more:



wherein R_1= H or OH; R_2= H or OH; R_3= H, OH or OR' wherein R' is lower alkyl; and R_4= H, glucosyl or 1,6-apiosyl.

5,783,190

BUCHLOE DACTYLOIDES EXTACTS HAVING INSECTICIDAL PROPERTIES

Thomas H. Czapla, Urbandale; Scott A. Mundell, West Des Moines, and Nandha Kumar Balasubramanian, Des Moines, all of Iowa, assignors to Pioneer Hi-Bred International, Inc., Des Moines, Iowa

Filed May 28, 1996, Ser. No. 653,787

Int. Cl.^{6} A61K *35/78*

U.S. Cl. 424—195.1 **10 Claims**

1. A composition comprising at least one substance suitable for use as an insecticide and obtained from *Buchloe dactyloides* by the steps comprising extracting seeds from said *Buchloe dactyloides* with an aqueous solution to obtain a crude extract having insecticidal properties and purifying the crude extract using separatory techniques to obtain at least one substance with insecticidal properties, which substances has a molecular weight of less than 20 kDa.

5,783,191

Patent Not Issued For This Number

5,783,192

RECOMBINANT FELINE HERPESVIRUS VACCINE

Martha Jacoba Willemse, Nijmegen, and Paulus Jacobus Antonius Sondermeijer, Boxmeer, both of Netherlands, assignors to Akzo Nobel N.V., Arnhem, Netherlands

Continuation of Ser. No. 453,527, May 30, 1995, abandoned, which is a division of Ser. No. 83,849, Jun. 28, 1993. This application Jul. 17, 1996, Ser. No. 664,894

Claims priority, application European Pat. Off., Jun. 26, 1992, 92201898

Int. Cl.^{6} A61K *39/12;39/245*

U.S. Cl. 424—199.1 **13 Claims**

1. A method for the immunization of animals against an infectious disease, comprising administering a vaccine comprising an FHV mutant, said FHV mutant comprising a mutation in the DNA of an open reading frame that encodes the polypeptide shown in SEQ ID NO:2, and/or flanking intergenic sequences thereof, such that the FHV mutant does not produce a functional polypeptide coded for by said open reading frame.

5,783,193

ORAL ADMINISTRATION OF THERAPEUTIC PROTEINS FOR TREATMENT OF AUTOIMMUNE DISEASE, TRANSPLANT REJECTION AND INFECTIOUS DISEASE

J. Gabriel Michael, and Allen Litwin, both of Cincinnati, Ohio, assignors to The University of Cincinnati, Cincinnati, Ohio

Continuation of Ser. No. 329,685, Oct. 26, 1994, Pat. No. 5,609,871, which is a continuation of Ser. No. 178,503, Jan. 7, 1994, abandoned, which is a continuation-in-part of Ser. No. 994,932, Dec. 22, 1992, abandoned, which is a continuation of Ser. No. 719,160, Jun. 21, 1991, abandoned. This application Jun. 5, 1995, Ser. No. 472,712

Int. Cl.^{6} A61K *39/00;9/16;13/00;39/12*

U.S. Cl. 424—207.1 **42 Claims**

1. An orally administrable immunogenic composition for activating the immune system of a warm-blooded animal comprising:

at least one immunogen of an autoimmune antigen microencapsulated in the complete absence of organic solvents with a water based enteric coating.

5,783,194

HOMOGENEOUS ISOLATE OF URABE MUMPS VIRUS AND VACCINES CONTAINING THE ISOLATE

Earl G. Brown, Nepean; Kathryn E. Wright, and Kenneth D. Dimock, both of Gloucester, all of Canada, assignors to University of Ottawa, Ottawa, Canada

Filed Jan. 30, 1996, Ser. No. 594,295

Int. Cl.^{6} A61K *39/155;* **C12N** *7/00*

U.S. Cl. 424—211.1 **8 Claims**

1. A substantially homogeneous and pure Urabe mumps virus strain Am9 characterized by having a codon encoding glutamic acid at amino acid position 335 of the haemagglutinin-neuraminidase (HN) protein and devoid of any other Urabe mumps virus strain not having the characterizing codon.

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5,783,195

RECOMBINANT INFECTIOUS BOVINE RHINOTRACHEITIS VIRUS S-IBR-052 AND USES THEREOF

Mark D. Cochran, Carlsbad, and Richard D. Macdonald, San Diego, both of Calif., assignors to Syntro Corporation, Lenexa, Kans.

Continuation-in-part of Ser. No. 732,584, Jul. 18, 1991, abandoned. This application Feb. 4, 1994, Ser. No. 191,866

Int. Cl.⁶ A61K *39/265;* **C12N** *7/00;7/04*

U.S. Cl. 424—229.1 **13 Claims**

1. A recombinant infectious bovine rhinotracheitis virus designated S-IBR-052, deposited at the American Type Culture Collection as ATCC Accession No. VR 2443.

5,783,196

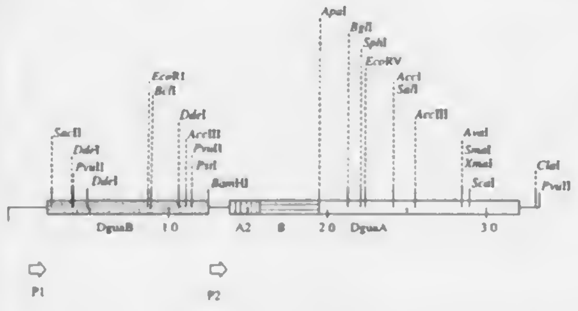
GUA MUTANTS OF SHIGELLA SPP. AND VACCINES CONTAINING THE SAME

Fernando R. Noriega, Baltimore, and Myron M. Levine, Columbia, both of Md., assignors to University of Maryland at Baltimore, Baltimore, Md.

Filed Apr. 9, 1996, Ser. No. 629,600

Int. Cl.⁶ A61K *39/02*

U.S. Cl. 424—234.1 **21 Claims**



1. A Shigella mutant which is incapable of forming de novo guanine nucleotides, wherein said mutant contains a deletion mutation in the guaB-A operon.

5,783,197

EIMERIA POLYPEPTIDE ANTIGEN AND VACCINES CONTAINING THE SAME

Arno Vermeulen, Cuyk; Rein Dijkema, Oss, and Jacobus Johannes Kok, Nijmegen, all of Netherlands, assignors to Akzo Nobel N.V., Arnhem, Netherlands

Division of Ser. No. 371,947, Jun. 27, 1989, Pat. No. 5,602,033. This application Jun. 7, 1995, Ser. No. 473,466

Claims priority, application Netherlands, Jun. 27, 1988, 88.01627

Int. Cl.⁶ A61K *39/00;39/012;* **C12P** *21/06*

U.S. Cl. 424—267.1 **4 Claims**

1. An isolated polypeptide comprising the amino acid sequence of FIG. 2.

5,783,198

Patent Not Issued For This Number

5,783,199

ANAESTHETIC MIXTURES CONTAINING ENFLURANE OR ISOFLURANE IN COMBINATION WITH SEVOFLURANE OR DESFLURANE

John Alexander Strachen Ross, Aberdeen, and Michael Eric Tunstall, Newtonhill, both of Scotland, assignors to British Technology Group Ltd., London, England

PCT No. PCT/GB95/02021, § 371 Date Mar. 7, 1997, § 102(e) Date Mar. 7, 1997, PCT Pub. No. WO96/08241, PCT Pub. Date Mar. 21, 1996

PCT Filed Aug. 25, 1995, Ser. No. 809,040

Claims priority, application United Kingdom, Sep. 14, 1994, 9418532

Int. Cl.⁶ A61K *9/00*

U.S. Cl. 424—400 **10 Claims**

1. A high pressure pre-mixed analgesic anaesthetic gas composition comprising a life supporting gas and a volatile analgesic anaesthetic mixture comprising a first and a second anaesthetic analgesic, said first analgesic being present in an amount effective to prolong palinalgesia and said second analgesic being present in an amount effective to bring about the onset of analgesia.

5,783,200

PERSONAL CLEANSING COMPOSITIONS

Curtis Bobby Motley, West Chester, and Robert Lee Wells, Cincinnati, both of Ohio, assignors to The Procter & Gamble Company, Cincinnati, Ohio

Filed Jan. 21, 1997, Ser. No. 786,521

Int. Cl.⁶ A61K *6/00*

U.S. Cl. 424—401 **20 Claims**

1. A personal cleansing composition in the form of a stable aqueous emulsion, comprising:

a.) from about 4% to about 50%, by weight, of a surfactant system comprising at least one surfactant selected from the group consisting of an anionic, cationic, nonionic, amphoteric, and zwitterionic surfactants and mixtures thereof wherein said surfactant system comprises at least one surfactant selected from the group consisting of alkyl glyceryl sulfonate surfactants, derivatives thereof, and salts thereof,

b.) from above about 0.1 % to less than 1.0%, by weight, of a water soluble polymer selected from the group consisting of nonionic polymers, anionic polymers and mixtures thereof;

c.) from about 0.1% to about 5%, by weight, of a phase separation initiator selected from the group consisting of electrolytes, amphiphiles and mixtures thereof; and

d.) from about 50% to about 95%, by weight, of water

wherein said polymer forms visually distinct aqueous droplets in the aqueous surfactant system.

5,783,201

METHOD FOR TREATING NON-OCULAR EPITHELIAL DISORDERS VIA INCREASING HEME OXYGENASE LEVELS AND/OR DECREASING LEVELS OF ARACHIDONIC ACID DERIVATIVES

Richard D. Levere, Armonk; Nadar G. Abraham; Michal L. Schwartzman, both of Elmsford, and Michael W. Dunn, New Rochelle, all of N.Y., assignors to Hemogen, Inc., Armonk, N.Y.

Continuation of Ser. No. 284,354, Aug. 2, 1994, Pat. No. 5,674,505, which is a continuation-in-part of Ser. No. 77,834, Jun. 15, 1993, abandoned, which is a continuation of Ser. No. 990,793, Dec. 10, 1992, abandoned. This application Apr. 3, 1997, Ser. No. 834,800

Int. Cl.⁶ A61K *7/00;33/24*

U.S. Cl. 424—401 **12 Claims**

1. A method for increasing levels of hemeoxygenase and decreasing levels of an arachidonic acid derivative in non-ocular epidermal tissue, comprising administering to non-ocular epidermal tissue of a subject in need thereof an amount of a Sn containing compound which stimulates production of hemeoxygenase in said non-ocular epidermal tissue.

5,783,202

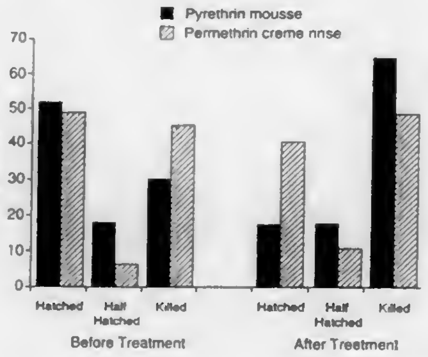
PEDICULICIDAL MOUSSE COMPOSITION FOR KILLING HEAD LICE

Roderick P. Tomlinson, Rowville; Neil G. Halls, Glen Waverley, and Albert Z. Abram, Rowville, all of Australia, assignors to Soltec Research Pty. Ltd., Rowville, Australia

Filed Mar. 14, 1995, Ser. No. 403,110

Int. Cl.⁶ A61K *9/12*

U.S. Cl. 424—405 **29 Claims**



1. A pediculicidal mousse composition consisting essentially of:

Ingredient	% w/w
Water, Purified	from about 35 to about 60
Propylene Glycol	from about 0.5 to about 5
Nonionic Emulsifying Wax	from about 0.5 to about 5
Quaternium-52	from about 0.5 to about 5
Pyrethrins I and II	from about 0.1 to about 5
Piperonyl Butoxide	from about 1 to about 8
Ethanol	from about 20 to about 40
Propane/Butane	from about 3 to about 20

5,783,203

INSECTICIDAL FERTILIZER MIXTURES

Manfred-Heinrich Schütte, Pulheim, and Gerhard Baron, Leverkusen, both of Germany, assignors to Bayer Aktiengesellschaft, Leverkusen, Germany

PCT No. PCT/EP95/01222, § 371 Date Oct. 7, 1996, § 102(e) Date Oct. 7, 1996, PCT Pub. No. WO95/28370, PCT Pub. Date Oct. 26, 1995

PCT Filed Apr. 3, 1995, Ser. No. 722,128

Claims priority, application Germany, Apr. 14, 1994, 44 12 833.9

Int. Cl.⁶ A01N *25/00;25/34;25/08;* **A61K** *31/54*

U.S. Cl. 424—405 **10 Claims**

1. An insecticidal fertilizer mixture comprising:

(a) an agonist or antagonist of the nicotinergic acetylcholine receptor of an insect;

(b) a fertilizer; and

(c) an adhesive;

said mixture being in the form of a stick, plate, tablet or granule.

5,783,204

DEER REPELLENT AND METHOD

James Messina, 58 Califon Rd., Long Valley, N.J. 07853

Filed Nov. 14, 1996, Ser. No. 748,757

Int. Cl.⁶ A01N *25/32*

U.S. Cl. 424—406 **6 Claims**

1. A deer repellent formulation consisting essentially of 68 to 90% water, 6 to 10% of thiram; 0.5 to 2% eggs; 0.5 to 2% coloring dye; and 2 to 16% adhesive.

5,783,205

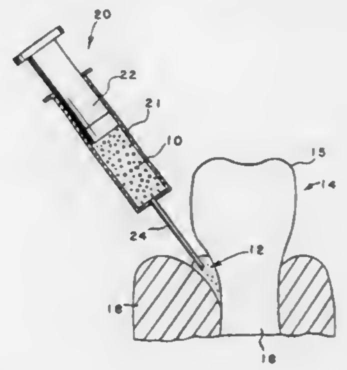
INJECTABLE DRUG DELIVERY SYSTEM AND METHOD

Randall G. Berggren, Livermore; David J. Enscore, Saratoga; Susan M. Marks, San Jose; James L. Osborne, Moutain View; Patrick S.-L. Wong, Palo Alto, and Wouter E. Roorda, Newark, all of Calif., assignors to ALZA Corporation, Palo Alto, Calif.

Continuation of Ser. No. 437,471, May 9, 1995, Pat. No. 5,620,700, which is a continuation of Ser. No. 923,275, Jul. 31, 1992, abandoned, which is a continuation-in-part of Ser. No. 605,863, Oct. 30, 1990, abandoned. This application Apr. 10, 1997, Ser. No. 843,682

Int. Cl.⁶ A61F *2/02;* **A61K** *6/00*

U.S. Cl. 424—426 **10 Claims**



1. A composition for delivering a drug into a periodontal pocket of an animal, the composition comprising:

(a) the drug to be delivered, in a therapeutically effective amount; and

(b) an oligomeric or polymeric matrix material containing the drug, the matrix material being a less- to non-flowable polymer at or below body temperature and a flowable polymer at a physiologically compatible elevated temperature.

5,783,206

Patent Not Issued For This Number

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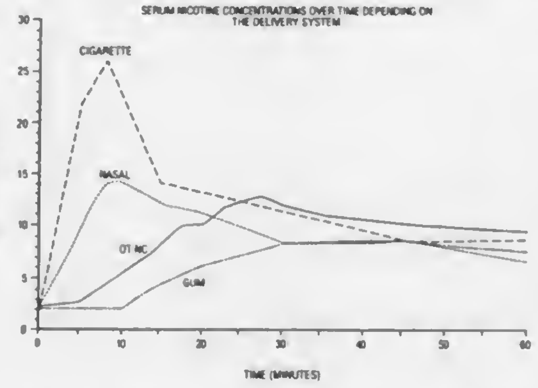
5,783,207
SELECTIVELY REMOVABLE NICOTINE-CONTAINING DOSAGE FORM FOR USE IN THE TRANSMUCOSAL DELIVERY OF NICOTINE

Theodore H. Stanley, Salt Lake City, and Brian Hague, West Valley City, both of Utah, assignors to University of Utah Research Foundation, Salt Lake City, Utah

Continuation of Ser. No. 439,127, May 11, 1995, abandoned, which is a continuation-in-part of Ser. No. 333,233, Nov. 2, 1994, abandoned, which is a continuation of Ser. No. 152,396, Nov. 12, 1993, abandoned, which is a division of Ser. No. 403,751, Sep. 5, 1989, Pat. No. 5,288,497, which is a continuation-in-part of Ser. No. 60,045, Jun. 8, 1987, Pat. No. 4,863,737, which is a continuation-in-part of Ser. No. 729,301, May 1, 1985, Pat. No. 4,671,953. This application Feb. 4, 1997, Ser. No. 795,359

Int. Cl.^{6} A61K *9/68;31/465*

U.S. Cl. 424—440 **19 Claims**



1. A selectively removable nicotine-containing dosage form for use in the transmucosal delivery of nicotine to a patient, the dosage form comprising:

a) a matrix dissolvable in the oral cavity of a patient;

b) a pharmacologically effective dose of nicotine dispersed in the matrix for absorption through the mucosal tissue of the mouth, pharynx, and esophagus of the patient; and

c) an attached holder member secured to the matrix, said holder member being so configured as to permit the selective removal and insertion of the dosage form into and out of the patient's mouth without directly handling the matrix, whereby the nicotine-containing dosage form can be manipulated in a manner that mimics manipulation of a cigarette during smoking in order to satisfy a psychological need or desire for ritualistic oral stimulation.

5,783,208
TRANSDERMAL DRUG DELIVERY MATRIX FOR COADMINISTERING ESTRADIOL AND ANOTHER STEROID

Srinivasan Venkateshwaran, and Charles D. Ebert, both of Salt Lake City, Utah, assignors to TheraTech, Inc., Salt Lake City, Utah

Filed Jul. 19, 1996, Ser. No. 683,892

Int. Cl.^{6} A61F *13/02*

U.S. Cl. 424—448 **9 Claims**

1. A transdermal patch for administering estradiol and another steroid comprising:

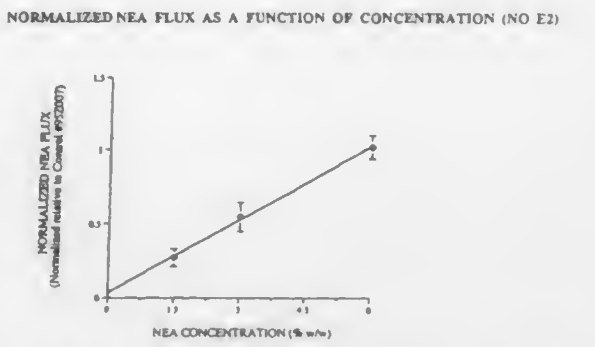
a) a backing layer; and

b) a matrix layer comprising:

(i) a pressure sensitive adhesive copolymer of N-vinyl-2-pyrrolidone-and 2-ethylhexyl acrylate;

(ii) estradiol; and

(iii) another sex steroid other than an estradiol or ester of an estradiol, wherein the flux of said sex steroid from the matrix layer is independent of the concentration of estradiol in the matrix layer and the flux of estradiol from the matrix layer is independent of the concentration of the other sex steroid in the matrix layer.



5,783,209
MEDICAL PRESSURE-SENSITIVE ADHESIVE AND MEDICAL DRESSING MATERIAL PROVIDED WITH THE SAME

Kengo Imamura; Hirofumi Sonoda; Yorinobu Takamatsu, and Hiroyasu Nanakubo, all of Sagamihara, Japan, assignors to Minnesota Mining and Manufacturing Company, St. Paul, Minn.

Continuation of Ser. No. 414,578, Mar. 31, 1995, abandoned. This application Feb. 19, 1997, Ser. No. 801,232

Claims priority, application Japan, Apr. 1, 1994, 6-064890

Int. Cl.^{6} A61F *13/02*

U.S. Cl. 424—448 **7 Claims**

1. A medical pressure-sensitive adhesive, comprising a polymer containing a first unit derived from an alkoxyalkyl acrylate in an amount greater than 50 wt % in the polymer, and a second unit derived from a vinyl monomer in an amount ranging from 0.1 to 20 wt % in the polymer, wherein the Tg value of a homopolymer of the alkoxyalkyl acrylate is −35° C. or less and the Tg value of a homopolymer of the vinyl monomer is at least 25° C. as measured by a dynamic viscoelasticity measuring device and wherein the pressure-sensitive adhesive has a steam permeability of at least 1100 g/m^2 for about 24 hours or more at 37° C. and an RH of about 40%, and wherein the adhesive strength of the adhesive is suitable for medical use.

5,783,210
PHOSPHOLIPID COMPOSITION

Paul A. Tremblay, Hamilton; Robert L. Suddith, Robbinsville, and John J. Kearns, Princeton, all of N.J., assignors to The Liposome Company, Inc., Princeton, N.J.

Division of Ser. No. 303,592, Sep. 9, 1994, Pat. No. 5,429,823, which is a continuation of Ser. No. 212,323, Mar. 14, 1994, abandoned, which is a continuation of Ser. No. 512,557, Apr. 12, 1990, abandoned, which is a continuation of Ser. No. 119,572, Nov. 17, 1987, abandoned, which is a continuation-in-part of Ser. No. 938,563, Dec. 5, 1986, abandoned, which is a continuation-in-part of Ser. No. 935,919, Nov. 28, 1986, abandoned. This application May 24, 1995, Ser. No. 453,132

Int. Cl.^{6} A61K *9/127*

U.S. Cl. 424—450 **12 Claims**

1. A method of preparing a pharmaceutical quality lipid composition from a mixture comprising lipids which comprises:

(a) applying the lipid to a silica gel chromatographic medium comprising particles having sizes of from about 5 microns to about 500 microns;

(b) eluting the medium with a first mobile phase comprising hexane, ethanol and water;

(c) eluting the medium with a second mobile phase comprising:

(i) hexane;

(ii) ethanol;

(iii) water; and,

(iv) an organic acid or an ammonium salt; and,

(d) collecting the eluate.

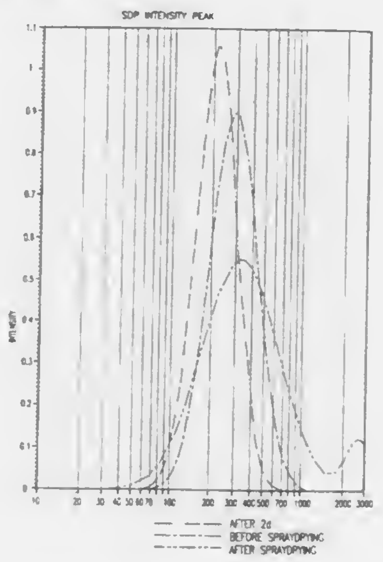
5,783,211
LIPOSOME ENCAPSULATED ACTIVE AGENT DRY POWDER COMPOSITION

Robert P. Manzo, Goshen; Jürgen Vollhardt, Bevern; Nisha Malkan, Nanuet, all of N.Y., and Gary Friars, Midland Park, N.J., assignors to Dragoco, Inc., Totowa, N.J.

Continuation of Ser. No. 715,598, Sep. 18, 1996, abandoned. This application Nov. 3, 1997, Ser. No. 962,906

Int. Cl.^{6} A61K *9/127;9/133*

U.S. Cl. 424—450 **18 Claims**



1. A dry body powder composition formed by a process comprising incorporating a biologically active agent into the aqueous interior of liposomes, forming an aqueous mixture of active agent encapsulating liposomes, starch and a hydrocolloid gum, and spray drying said mixture to form a dry powder composition.

5,783,212
CONTROLLED RELEASE DRUG DELIVERY SYSTEM

Reza Fassihi, Ambler, and Libo Yang, Philadelphia, both of Pa., assignors to Temple University—of the Commonwealth System of Higher Education, Philadelphia, Pa.

Filed Feb. 2, 1996, Ser. No. 595,660

Int. Cl.^{6} A61K *9/32;9/20;9/30*

U.S. Cl. 424—472 **29 Claims**

1. A controlled release pharmaceutical tablet comprising:

a first barrier layer comprising a first swellable, erodible polymer;

a drug layer comprising a second swellable, erodible polymer; and

a second barrier layer comprising a third swellable, erodible polymer, wherein

said first and second barrier layers are adapted to swell and to erode faster than said drug layer;

said faster swellability and erodibility of said first and third layers adapted to increase drug delivery from the onset of dissolution.

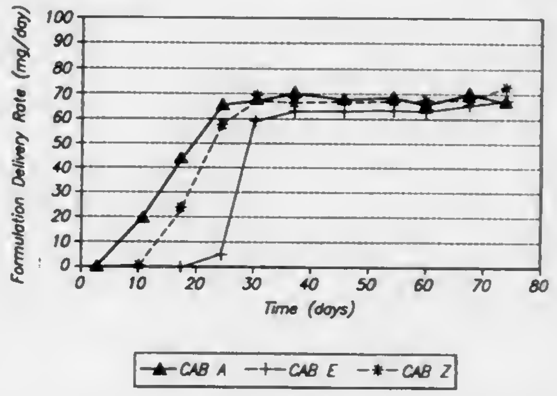
5,783,213
OSMOTIC MEMBRANE AND DELIVERY DEVICE

David L. Rivera, San Jose; Sonya Merrill, Redwood City; James B. Eckenhoff; Jeremy C. Wright, both of Los Altos, and James L. Osborne, Mountain View, all of Calif., assignors to ALZA Corporation, Palo Alto, Calif.

Continuation of Ser. No. 387,967, Feb. 10, 1995, Pat. No. 5,609,885, which is a continuation of Ser. No. 945,082, Sep. 15, 1992, abandoned. This application Mar. 6, 1997, Ser. No. 811,812

Int. Cl.^{6} A61K *9/24*

U.S. Cl. 424—473 **19 Claims**



1. An improved osmotic delivery device, wherein the device comprises a semipermeable wall comprising cellulose acetate butyrate and surrounding an internal compartment containing a beneficial agent or medicament formulation and a fluid-activated expandable driving member, and exit means in the semipermeable wall; and wherein the improvement comprises selecting and using as the cellulose acetate butyrate component of the semipermeable wall cellulose acetate butyrate having a differential scanning calorimetry ("DSC") profile wherein the primary DSC peak has a minimum temperature peak above 228° C. and the secondary DSC peak area is equal to or less than about 30% of the total combined areas of the primary and secondary DSC peaks.

5,783,214
BIO-ERODIBLE MATRIX FOR THE CONTROLLED RELEASE OF MEDICINALS

Garfield P. Royer, Cashtown, Pa., assignor to Buford Biomedical, Inc., Cashtown, Pa.

Filed Jun. 13, 1994, Ser. No. 258,672

Int. Cl.^{6} A61K *9/14;9/50;37/22;* **A61E** *2/00*

U.S. Cl. 424—499 **28 Claims**

1. A gel matrix medicinal delivery system comprising

(i) at least one matrix protein selected from the group consisting of gelatin and albumin,

(ii) a protected medicinal protein,

(iii) an amine specific polymeric stabilizer and/or an amine specific external cross-linker, and optionally

(iv) an enzyme capable of degrading said protein or said polymeric stabilizer, wherein said system is stabilized by said matrix protein being crosslinked with said polymeric stabilizer and/or said external cross-linker.

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5,783,215

PHARMACEUTICAL PREPARATION

Hans Arwidsson, Mariefred, and Lars Stubberud, Södertälje, both of Sweden, assignors to Astra Aktiebolag, Sodertalie, Sweden

PCT No. PCT/SE95/00676, § 371 Date Jun. 22, 1995, § 102(e) Date Jun. 22, 1995, PCT Pub. No. WO96/01621, PCT Pub. Date Jan. 25, 1996

PCT Filed Jun. 7, 1995, Ser. No. 464,773

Claims priority, application Sweden, Jul. 8, 1994, 9402422

Int. Cl.^{6} A61K *9/50;9/58;9/14;9/22*

U.S. Cl. 424—501 **22 Claims**

1. A controlled release bead or multiple thereof having a size varying between 0.2–3.0 mm, comprising:

(a) a multiple of a core unit of an insoluble or soluble inert material of a size of 0.1–2 mm;

(b) a first layer on the core unit comprising an active ingredient dispersed in a hydrophilic polymer; wherein the ratio of the active ingredient to the hydrophilic polymer is in the range of from about 10:1 to about 1:1, and the ratio of the active ingredient to the inert insoluble or soluble core is in the range of from about 5:1 to about 1:2;

(c) an optional second layer of hydrophilic polymer covering the first layer; and

(d) an outermost membrane layer effective for controlled release of the active ingredient;

the bead or multiplicity thereof exhibiting improved mechanical and release properties so as to withstand alteration in terms of bioavailability and clinical efficacy due to compaction into a multiple unit tablet.

5,783,216

METHODS FOR INHIBITING REJECTION OF TRANSPLANTED TISSUE

Denise Faustman, Weston, Mass., assignor to The General Hospital Corporation, Boston, Mass.

Division of Ser. No. 671,517, Mar. 19, 1991, Pat. No. 5,283,058, which is a continuation-in-part of Ser. No. 575,150, Aug. 30, 1990, abandoned. This application Aug. 26, 1993, Ser. No. 112,709

The portion of the term of this patent subsequent to Feb. 1, 2011, has been disclaimed.

Int. Cl.^{6} A61K *35/26;39/395;* **C07K** *1/00;14/00*

U.S. Cl. 424—578 **19 Claims**

1. A porcine sample for xenotransplantation into a human patient, said sample containing cells of a type normally bearing a surface class I antigen capable of causing a T-lymphocyte-mediated response, wherein said class I antigen on cells of said sample is modified, masked, or has been eliminated to decrease said T-lymphocyte-mediated response, without causing lysis of said cells following xenotransplantation into said human patient.

5,783,217

LOW TEMPERATURE CALCIUM PHOSPHATE APATITE AND A METHOD OF ITS MANUFACTURE

Dosuk D. Lee, Brookline, Mass.; Christian Rey, Castanet, France; Maria Aiolova, Brookline, and Ali Tofighi, Belmont, both of Mass., assignors to Etex Corporation, Cambridge, Mass.

Filed Nov. 7, 1995, Ser. No. 554,817

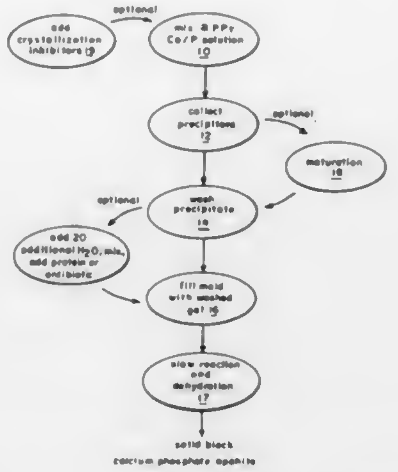
Int. Cl.^{6} A61K *33/42;* **C01B** *25/32*

U.S. Cl. 424—602 **41 Claims**

1. A method of preparing a low crystallinity calcium phosphate apatite, comprising:

precipitating a low crystallinity calcium phosphate from an aqueous solution comprising calcium and phosphate ions;

collecting the low crystallinity calcium phosphate from the solution; and


optional
add crystallization inhibitors 19
mix & PPt Ca/P solution 10
collect precipitate 12
optional
maturation 18
optional
wash precipitate 14
add 20 additional H_2O, mix, add protein or antibiotic
fill mold with washed gel 16
slow reaction and dehydration 17
solid block calcium phosphate apatite

dehydrating the low crystallinity calcium phosphate in a relative humidity of less than 100% and at a temperature to obtain a low crystallinity calcium phosphate apatite block solid.

34. A method of preparing a low crystallinity calcium phosphate apatite, comprising

precipitating a low crystalline calcium phosphate from an aqueous solution comprising calcium and phosphate ions;

collecting the low crystallinity calcium phosphate from the solution; and

lyophilizing the collected precipitate to obtain a low crystallinity calcium phosphate apatite.

41. A low crystallinity calcium phosphate apatite characterized as a solid block material having a porosity in the range of about 30 Å to about 100 Å and a hardness in the range of about 20 VHN to about 40 VHN.

5,783,218

MECHANISM FOR POWDERING BREAD DOUGH BEING STRETCHED

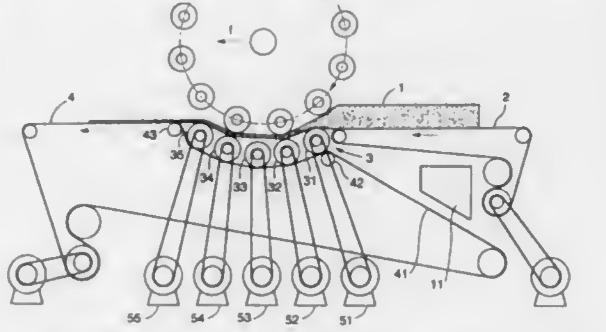
Michio Morikawa, Utsunomiya, Japan, assignor to Rheon Automatic Machinery Co., Ltd., Tochigi-ken, Japan

Filed Aug. 27, 1997, Ser. No. 918,908

Claims priority, application Japan, Sep. 2, 1996, 8-250969

Int. Cl.^{6} A21C *3/02*

U.S. Cl. 425—101 **6 Claims**



1. An apparatus for stretching bread dough, comprising:

a conveying device having a first plurality of rollers, an inlet, and an outlet,

a second roller mechanism disposed above the first plurality of rollers in such a position that the bread dough is stretched as said bread dough passes between the first plurality of rollers and the second roller mechanism,

a powder-supply source **11**,

a supply conveyor **2** positioned at the inlet of the conveying device,

a discharge conveyor having at least a first part positioned at the outlet of the conveying device for receiving the bread dough that has been stretched, and

a powder-supply conveyor belt **41** having a portion abutting lower surfaces of the first plurality of rollers, and configured to receive powder from the powder-supply source and to supply the powder to the bread dough being stretched.

5,783,219

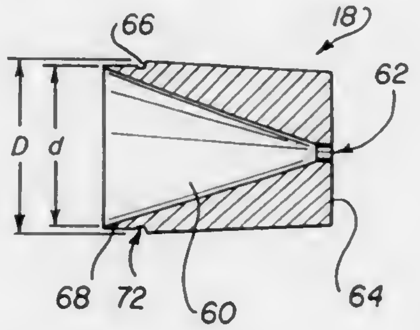
DIE MEMBER FOR USE IN CROSS-HEAD DIE APPARATUS

James A. Milliman, 8644 Emerald Cir. South, Rome, N.Y. 13440

Division of Ser. No. 581,845, Jan. 2, 1996, Pat. No. 5,665,164. This application Jun. 16, 1997, Ser. No. 876,259

Int. Cl.^{6} B29C *47/02;47/10*

U.S. Cl. 425—113 **1 Claim**



1. A one-piece die member of predetermined axial length between front and rear ends for positioning in a uniformly tapering, frustoconical portion of an axial bore in the body of a cross-head type, coextrusion coating apparatus, said frustoconical portion having an axial length greater than said predetermined length, said die member having:

a) front and rear ends in parallel, first and second planes, respectively, spaced by said predetermined distance;

b) a first, external surface portion extending rearwardly from said first plane to an third plane, parallel with said first and second planes and tapering outwardly from said first plane in the same configuration as said frustoconical portion of said axial bore to a diameter D at said third plane, whereby said die member may be placed in said axial bore with said first surface portion in mating engagement with said frustoconical portion of said axial bore;

c) a second, external surface portion extending axially from said third plane to said second plane, said second surface portion having a cylindrical configuration with a diameter d, between about 85% and 95% of D, whereby said second surface portion is spaced from the opposing surface of said frustoconical portion of said axial bore by a distance which increases from said third to said second plane;

d) a groove of uniform width and substantially semi-circular cross section extending into and 360° about said second surface portion rearwardly adjacent said third plane, said uniform width being less than one-half the axial distance between said third and second planes; and

e) a conical, internal surface extending forwardly and inwardly from said third plane to communicate with an orifice in said front end of said die member.

5,783,220

RESIN SEALING AND MOLDING APPARATUS FOR SEALING ELECTRONIC PARTS

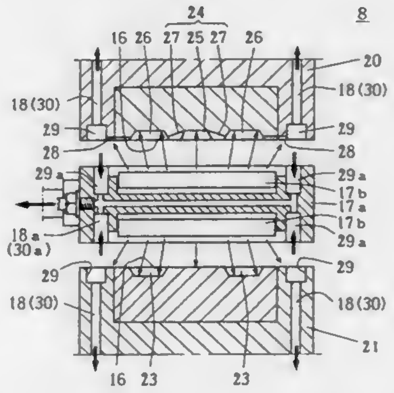
Michio Osada, and Keiji Maeda, both of Kyoto, Japan, assignors to Towa Corporation, Uji, Japan

Filed Oct. 25, 1996, Ser. No. 738,095

Claims priority, application Japan, Oct. 30, 1995, 7-306911

Int. Cl.^{6} B29C *45/14;45/17*

U.S. Cl. 425—116 **15 Claims**



1. A resin portion apparatus for sealing an electronic part with a resin material, said apparatus comprising

an apparatus body,

at least one molding unit that is detachably mounted on said apparatus body, that includes at least one mold having a mold surface, and being adapted to have the electronic part supplied into said mold before a molding operation of sealing the electronic part with the resin material in said mold and to have the electronic part removed from said mold after the molding operation, and

a UV application mechanism arranged to direct UV radiation at said mold surface for cleaning contaminants from said mold surface,

wherein said UV application mechanism is mounted so as to be freely reciprocative between a retracted position in which said UV application mechanism does not interfere with a supply operation of supplying the electronic part into said mold and a removal operation of removing the electronic part from said mold, and a deployed position close to said mold surface of said mold.

5,783,221

CONTROL SYSTEM FOR AN INJECTION MOLDING MACHINE

Michiaki Takizawa; Yoshitomi Uchikawa, and Osamu Ichikawa, all of Nagano, Japan, assignors to Nissei Plastic Industrial Co., Ltd., Nagano-Ken, Japan

Filed Oct. 7, 1996, Ser. No. 726,790

Claims priority, application Japan, Oct. 12, 1995, 7-290327

Int. Cl.^{6} B29C *45/78*

U.S. Cl. 425—143 **5 Claims**

1. A control system for an injection molding machine having a setting function and a display function of temperature, comprising:

temperature scale setting means for selectively setting a temperature scale for temperature setting and displaying data in at least one of a first temperature scale and a second temperature scale, each temperature scale including at least one of a Centigrade mode and a Fahrenheit mode;

a display switching function portion for switching the displayed data from at least one of the first temperature scale to the second temperature scale and from the second temperature scale to the first temperature scale;

a display switching release function portion for releasing switching by said display switching function portion to restore the displayed data to at least one of the first and second temperature scales as set by said temperature scale setting means; and

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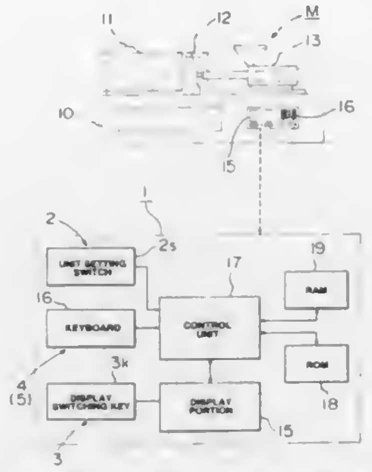


a setting inhibiting function portion for inhibiting setting of temperature while said display switching function portion is activated.

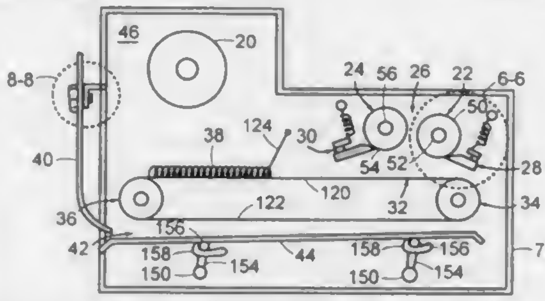
5,783,222
DOUGH MOLDER

Andrew D. Voyatzakis, and George Athanasiadis, both of Arlington, Mass., assignors to Somerset Industries, Inc., N. Billerica, Mass.

Filed Oct. 25, 1996, Ser. No. 739,114

Int. Cl.^{6} A21C *11/00;* **B29C** *43/46;53/32*

U.S. Cl. 425—151 **15 Claims**



13. A dough molder for molding an irregular lump of dough into a compressed approximately cylindrical shape, said dough molder comprising:

(a) a sheeter for flattening said dough, said sheeter including a pair of parallel sheeting rollers that rotate in opposite directions, each of said sheeting rollers having an outer surface and a scraper for removing said dough from said sheeting roller outer surfaces;

(b) a gap between said sheeting rollers through which said dough moves, said gap being adjustable by moving one of said sheeting rollers relative to the other of said sheeting rollers.

(c) a continuous conveyor belt onto which said dough is directed by said sheeting rollers, the movement of said belt being directed by a belt drive roller and a belt idler roller, said belt drive roller driving said belt approximately horizontally, said belt drive roller and said belt idler roller dividing said belt into an upper leg and a lower leg, said legs being substantially parallel to each other and moving in opposite directions;

(d) a dough former for rolling said dough being transported by said belt, said dough former being a chain link screen that is flexible in the direction of movement of said upper leg and said dough being propelled by said upper leg between said screen and said upper leg;

(e) a dough compressor for compressing said dough after being rolled by said dough former, said dough compressor including a removable pressure plate having an approximately flat surface that extends approximately the length of said lower leg and that is mounted below said lower leg such that said dough is propelled by said lower leg between said flat surface and said lower leg from an ingress to an egress, the distance between said flat surface and said lower leg being greater at said ingress than at said egress, the distance between said flat surface and said lower leg being adjustable;

(f) a dough guide for directing said dough from said dough former to said dough compressor;

(g) a removable cleaning tray between said upper and lower legs; and

(h) an electric motor for driving said sheeter and said belt.

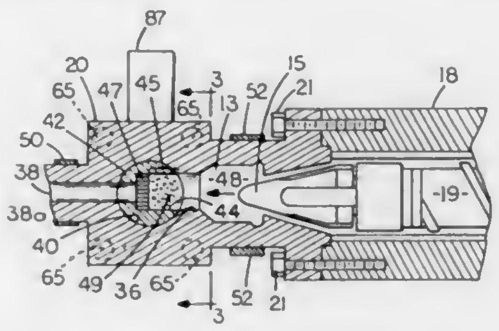
5,783,223
PLASTIC INJECTION MOLDING MACHINE WITH CONTINUOUS REMOVAL OF PARTICULATE CONTAMINANTS

Dennis C. Anderson, Northfield, Minn., assignor to National Polymers Inc.

Filed Aug. 27, 1996, Ser. No. 704,386

Int. Cl.^{6} B29C *45/58*

U.S. Cl. 425—185 **9 Claims**



1. A plastic injection molding apparatus having a provision for continuous removal of foreign particulate contaminants from molten plastic resin, said apparatus comprising,

a molding assembly,

a filter assembly connected to the molding assembly for receiving molten plastic that is fed into the molding assembly, said filter assembly having a housing with an inlet passage for molten plastic resin extending therethrough

a movable filter body containing a plurality of removable filters, said filter body being movably supported within the filter assembly for shifting between at least two alternate positions, one of which communicates with the passage, whereby each of the filters is moved between an operative position communicating with the passage containing the molten plastic resin and a non-aligned inoperative position,

the filter body has a plurality of openings,

a) each containing one of the removable filters, and

b) each opening includes an accumulation chamber located between a mouth at one end of the opening and the filter for the storage of foreign material that becomes lodged upstream of the filter,

whereby foreign material collected in the accumulation chamber within the movable filter body remains within the filter body for removal and is carried with the filter body when the filter body is shifted from the operative position to the non-aligned inoperative position where the foreign material is removed from the filter assembly.

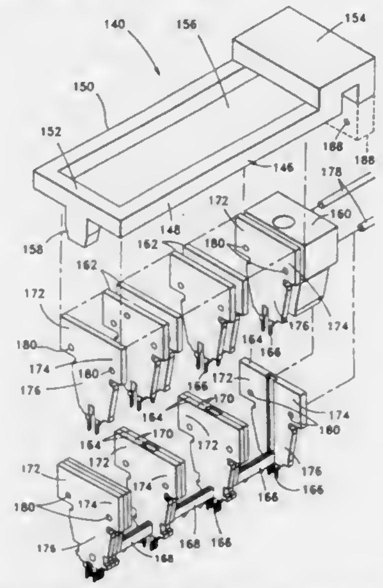
5,783,224
MOLD LAMINATE ASSEMBLY FOR AN INJECTION MOLD MACHINE

Frederick Jay Heinlen, Etters, Pa.; Louis vanderSanden, Hertogenbosch, Netherlands, and Bruce Merrill Whitney, Southern Pines, N.C., assignors to The Whitaker Corporation, Wilmington, Del.

Filed Aug. 22, 1996, Ser. No. 701,409

Int. Cl.^{6} B29C *45/33*

U.S. Cl. 425—192 R **17 Claims**



1. A mold laminate assembly for use in an injection mold for producing a molded part comprising:

(a) a plurality of mold laminates each of which includes a first end having mold features, an opposite second end, and an intermediate shank between said first and second ends; and

(b) a mounting frame having an opening defined by two side walls and two end walls, said opening having a width for closely receiving said second end of each of said laminates with no appreciable lateral play, and said opening having a length for closely receiving said second ends of said plurality of laminates with no appreciable end to end play, said laminates being stacked side by side to form an array of laminates within said opening,

wherein said mold laminate assembly is adapted to be received within a mold body of an injection mold.

5,783,225
APPARATUS FOR PROCESSING THERMOPLASTIC SYNTHETIC PLASTICS MATERIAL

Helmut Bacher, Bruck/Hausleiten 17; Helmuth Schulz, Badstrasse 20, both of St. Florian A-4490, and Georg Wendelin, Waldbothenweg 84, Linz A-4033, all of Austria

Continuation of Ser. No. 663,237, Jun. 18, 1996, abandoned. This application Oct. 16, 1997, Ser. No. 950,111

Claims priority, application Austria, Dec. 21, 1993, 2577/93; Dec. 16, 1994, 2349/94

Int. Cl.^{6} B29B *13/00*

U.S. Cl. 425—202 **32 Claims**

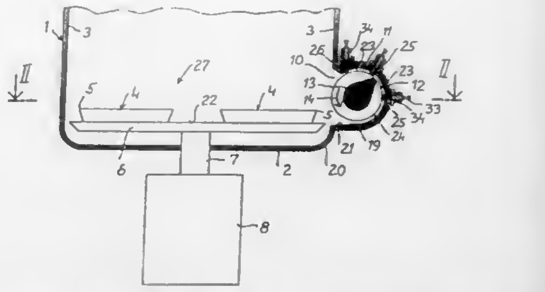
1. An apparatus for processing thermoplastic synthetic plastic material, the apparatus comprising:

an elongate housing defined by a wall having an inner surface and an outer surface;

a screw extending along a longitudinal axis and conveying thermoplastic synthetic material within said housing;

an intake opening formed in said wall through which said thermoplastic material is introduced into said housing;

a receptacle for receiving the material to be processed, said receptacle being defined by walls connected to said intake opening;



supply means for stuffing said plastic material into said intake opening with a component of motion of the plastics material directed perpendicularly to the longitudinal axis of said screw, said supply means having at least one tool driven for rotation around an axis so that the tool moves relative to said walls of said receptacle near the intake opening and within said receptacle;

at least two wide pockets positioned on the inner surface of the wall of said housing, said pockets extending at least over a major part of said intake opening when viewed in a direction of the axis of the screw, and surrounding said screw along circular ring segments when viewed in a section perpendicular to the axis of the screw, one of said pockets being open adjacent said intake opening so that the material stuffed into the intake opening by the supply means can freely enter said open pocket;

ribs confining said pockets, said ribs being narrower than the width of said pockets when measured in a peripheral direction of the inner surface of the wall of said housing,

one of said ribs being adjustably positioned adjacent said intake opening for closing said open pocket adjacent said intake opening, said rib being adjustable to and from the screw, said adjustable rib being disposed at an edge of the intake opening at which the periphery of the screw during its rotation leaves the housing and enters the intake opening.

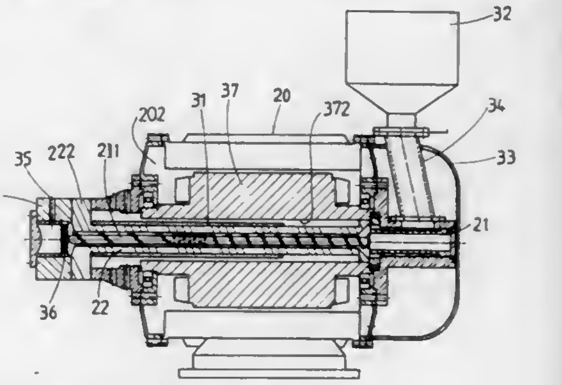
5,783,226
EXTRUDER DEVICE

Huo Teng Chi, P.O. Box 63-99, Taichung, Taiwan

Filed Aug. 13, 1997, Ser. No. 910,357

Int. Cl.^{6} B29B *7/42;7/50;* **B29C** *47/38*

U.S. Cl. 425—205 **3 Claims**



1. An extruder device comprising:

a housing including an interior,

a rotor rotatably engaged in said interior of said housing and including a bore,

a tube secured to said rotor and including an outer peripheral portion having a helical screw,

a screw member engaged in said bore of said rotor and including a first end secured in said tube and rotated in concert with said tube and said rotor,

a nozzle secured to said housing and including an outlet, and

means for supplying a material to said outer peripheral portion of said tube for allowing the material to be extruded and

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moved to said screw member by said helical screw and for allowing the material to be extruded outward of said nozzle via said outlet.

5,783,227

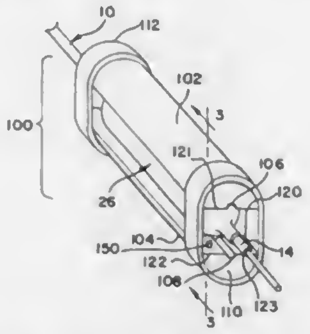
CATHETER BALLOON FOLDING DEVICE

Susan L. Dunham, Pembroke Pines, Fla., assignor to Cordis Corporation, Miami Lakes, Fla.

Filed Jan. 22, 1996, Ser. No. 589,766

Int. Cl.^{6} B29C *53/08*

U.S. Cl. 425—318 **18 Claims**



1. A device for configuring an inflatable balloon of a balloon catheter assembly to a distal end portion of the catheter by forming folds in the balloon in a manner such that said fold formed in said balloon may be wound around said catheter, wherein the balloon includes a foldable body portion having a preselected working length, the balloon body portion enclosing a portion of the catheter distal end portion and having a diameter greater than a diameter of said catheter distal end portion, the device comprising: a press body having at least two balloon-contacting planar surfaces disposed thereon, the balloon-contacting surfaces of said press body being disposed in a generally confronting relationship with each other; a longitudinal passage disposed in said press body, the passage being further disposed adjacent at least one of said balloon-contacting surfaces, said passage substantially enclosing said distal end portion of said balloon catheter assembly therein when said distal end portion is placed into said device such that portions of said balloon, when inflated, extend away from said distal end portion and contact at least one of said balloon-contacting surfaces of said press body; and, means for urging said balloon-contacting surfaces together when they are substantially aligned together in face-to-face contact and pressing a portion of said balloon into a space between said balloon-contacting surfaces to form a fold in said balloon.

5,783,228

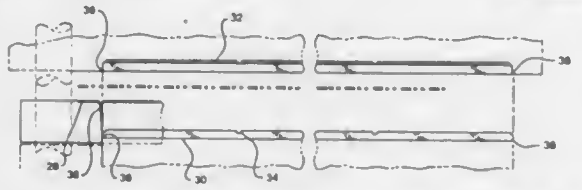
MOLDED AND LAMINATED CURVED SURFACE COMPOSITES

Stewart M. Holmes, Grantham, N.H., assignor to CRX Limited, Grantham, N.H.

Filed Feb. 5, 1996, Ser. No. 597,164

Int. Cl.^{6} A01J *21/00*

U.S. Cl. 425—344 **6 Claims**



1. A molding press for simultaneously molding a product and laminating a pattern layer to the surface of the molded product comprising a bottom mold plate, a top mold plate, a mold ring element containing an inner edge surrounding the mold plates and moveable independently of the top and bottom mold plates, an upper surface on said mold ring for engaging a peripheral edge of the top mold plate, and a flat groove in said mold ring upper surface adjacent said inner edge of said mold ring and surrounding the interior periphery of said mold ring which is slightly deeper than the thickness of a pattern layer to be laminated to the top surface of the final molded product.

5,783,229

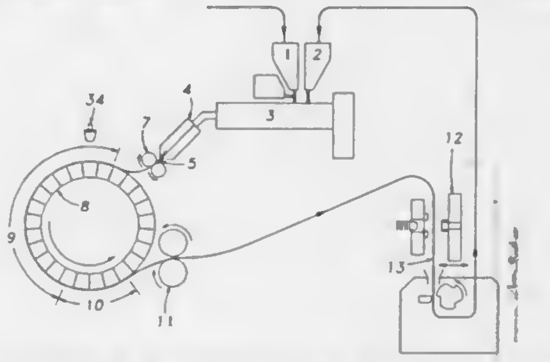
THERMOFORMING PROCESS AND APPARATUS

Steven F. Manlove, Odenton, Md., assignor to International Container Corp., Stevensville, Md.

Continuation-in-part of Ser. No. 266,564, Jun. 28, 1994, Pat. No. 5,459,960, which is a continuation-in-part of Ser. No. 120,955, Sep. 15, 1993, abandoned. This application Sep. 26, 1994, Ser. No. 312,090

Int. Cl.^{6} B29C *51/10;51/22*

U.S. Cl. 425—388 **1 Claim**



1. Apparatus for thermoforming rigid thermoplastic articles comprising:

a sheet extrusion die for extruding a sheet of thermoplastic said extrusion die being oriented on a 45 degree angle from the vertical and held at a fixed elevation;

a set of extrusion rolls each adapted to rotate about an axis so as to feed the extruded sheet down and away from the extrusion die, each axis of said extrusion rolls lying within a plane that is approximately 45 degrees from the vertical and perpendicular to the extrusion die;

a forming wheel comprised of a plurality of mold facets, said mold facet containing at least one mold cavity;

means for rotating said forming wheel about a horizontal axis so that each said mold facet is moved through sectors dedicated to forming said sheet into said articles and ejecting said articles, said horizontal axis lying below and parallel to said plane defined by said extrusion roll axes;

a thermoforming assist plug wherein said assist plug is arranged over said forming sector of said forming wheel;

means for synchronizing movement of said thermoforming assist plug with the movement of said molding facets as said forming wheel rotates;

means for actuating said thermoforming assist plug into said thermoplastic sheet and said mold cavity;

means for evacuation of air from within said mold cavity thereby forming an article associated with each said mold cavity wherein portions of said sheet remain unformed;

a machine frame being configured to permit th use of alternate diameter forming wheels while said extrusion die is held at said 45 degree angle and fixed elevation;

said machine frame having a platform that is set parallel to said plane defined by said extrusion rolls, said machine frame platform holding an axle located on said horizontal axis about which said forming wheel rotates;

said mold facets being comprised of a static upper mold facet section and a dynamic lower mold facet section;

said dynamic lower mold facet section containing said mold cavity;

said static and dynamic mold facet sections support circuits for circulating a temperature control medium and vacuum;

a stationary ejection shoe; and

a guide rod assembly including a means for actuating and guiding movement of said dynamic lower mold facet section towards said forming wheel axle when the means for actuating and guiding comes into contact with said stationary election shoe during rotation of said forming wheel.

5,783,230

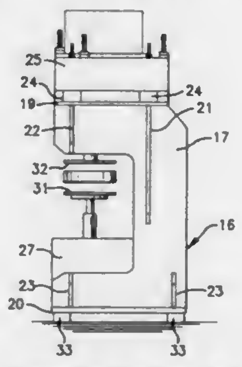
COMPACTING INSTALLATION

Gijsbert Toet, Eksel, Belgium, and Anne Huig Den Boer, Streefkerk, Netherlands, assignors to Den Boer Staal B.V., Groot-Ammers, Netherlands

Continuation of Ser. No. 496,437, Jun. 29, 1995, abandoned. This application Feb. 20, 1997, Ser. No. 802,917

Int. Cl.^{6} B29G *43/32*

U.S. Cl. 425—421 **6 Claims**



4. Installation for compacting concrete mixing, comprising:

a frame having two parallel C-shaped walls, each of said walls having a vertical section which connects an upper horizontal arm and a lower horizontal arm;

an upper support plate positioned on the upper horizontal arm, and a lower support plate position on the lower horizontal arm, said upper and lower support plates being fixed respectively to said upper and lower horizontal arms by support strips;

an upper vibrating plate and a lower vibrating plate for accommodating concrete mix therebetween;

an upper massive body connected to the upper plate, and a lower massive body connected to the lower plate, one of the upper plate and the lower plate being connected to its respectively massive body via an exciter;

means operatively associated to the exciter for pressing said upper plate and lower plate in a direction towards one another, and for vibrating said plates which respect to one another to compact the mix; and

first spring mountings positioned on said upper support plate for supporting the upper massive body, and second spring mountings fitted on said lower support plate for supporting the lower massive body.

5,783,231

MOLD CLOSING DEVICE WITHOUT CROSS-BEAM

Klaus Füller, Schwerin, and Christian Hopp, Consrade, both of Germany, assignors to Hemscheidt Maschinentechnik Schwerin GmbH & Co., Schwerin, Germany

Filed Dec. 20, 1995, Ser. No. 575,219

Claims priority, application Germany, Jan. 19, 1995, 195 01 469.3

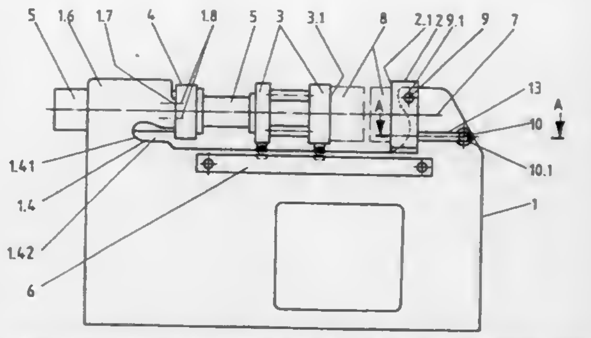
Int. Cl.^{6} B29C *45/64;33/20;49/56*

U.S. Cl. 425—451.9 **19 Claims**

15. A molding machine comprising:

a machine frame having a first end and a second end;

a positioning device positioned near the first end of said machine frame, said positioning device movably supports a movable adapter plate including a first substantially vertical mold mounting face;



a fixed adapter plate fixedly attached near the second end of said machine frame including a second substantially vertical mold mounting face;

a first mold half attachable to the first substantially vertical mold mounting face and a second mold half attachable to the second substantially vertical mold mounting face; and

a flexible weakened section positioned between the first end and the second end of the machine frame, said weakened section is adapted to provide a controlled deformation of the molding machine resulting from occurring closing and holding forces during operation of the molding machine and for maintaining the mold mounting surfaces substantially vertical.

5,783,232

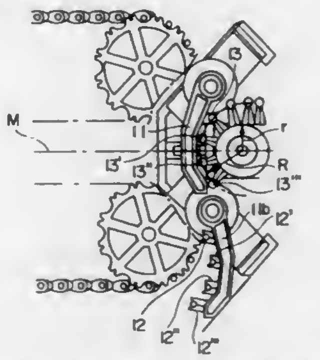
BLOW MOLDING MACHINE USING REHEAT METHOD FOR PRODUCING HOLLOW PLASTIC ARTICLES

Uwe-Volker Roos, Bodenteich; Gottfried Mehnert, Berlin, and Franz Gittner, Soltendieck, all of Germany, assignors to Bekum Maschinenfabriken GmbH, Germany

Filed Dec. 18, 1996, Ser. No. 767,842

Int. Cl.^{6} B29L *49/64*

U.S. Cl. 425—526 **7 Claims**



1. A blow molding machine using the reheat method for producing hollow plastic articles, comprising a heating path for heating cold parisons taken from a supply device, from which path, after having been heated, they are transferred to a blow path at a greater spacing from one another, which corresponds to the spacing of the blow mold cavities, than on the heating path, on which blow path they are introduced into one or a plurality of blow molds and in which blow molds they are blown to form hollow plastic articles of a desired shape, are then cooled and taken from said molds for the accommodation of new parisons, wherein said heating and blow paths (**1**,**7**) include straight transportation devices (**2**,**10**) guided around deflection devices (**3**,**9**) for said parisons, and that at least along one side of said transportation device (**2**) heating means (**6**) are arranged and along one side of said transportation device (**10**) at least one blow mold (**8**) is arranged, that said transportation device (**2**) of said heating path (**1**) includes arms (**4**) having mandrel receiving means (**5**) for receiving said parisons in close pitch, which arms (**4**) laterally project in such a manner that the deflection radius (r) of said transportation device (**2**) is smaller than the deflection radius (R) of the mandrel receiving means (**5**) on said arms (**4**), and that for a removal from said heating path and a transfer to said blow path of a plurality of successive parisons at a

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time, a transfer device (11) is interposed between a deflection portion of said heating path and the section of said blow path (7) that faces said deflection portion, and is controlled such that the transfer device (11) grips said parisons and puts them on said blow path whenever on the deflection portion of said heating path said parisons have a spacing corresponding to the spacing of said blow mold cavities on said blow path.

5,783,233

COOLING DEVICE OF AN INJECTION MOLD FOR MAKING AN OPTICAL DISK SUBSTRATE

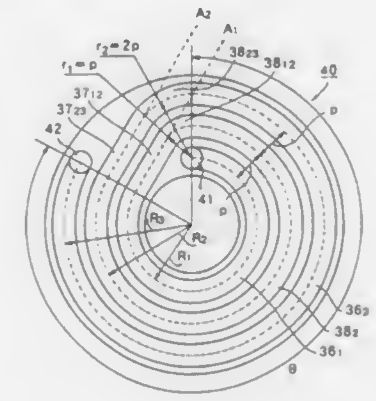
Mitsuo Takahashi, Matsudo, Japan, assignor to Seikoh Giken Co., Ltd., Chiba-Ken, Japan

Filed Nov. 29, 1996, Ser. No. 758,446

Claims priority, application Japan, Dec. 12, 1995, 7-346394

Int. Cl.^{6} B29C *45/73*

U.S. Cl. 425—547 **9 Claims**



1. A cooling device of an injection mold for making an optical disk substrate, wherein a plurality of concentric main arc-shaped passages are arranged around a center of a disk cavity plate have a radius R_1 through R_n respectively, each arc-shaped passage having the same cross-sectional shape throughout the length thereof, said arc-shaped passages being provided on a rear surface of the disk cavity plate, and are connected in sequence to share the same water flow direction so as to form a single, continuous, approximately centrifugal cooling water passage; said cooling device comprising:

a connecting arc-shaped passage having a radius of (i−1)p from a center of an inlet, where i is an integer ≧2 and p is a pitch determined by the radii of the main arc-shaped passages, said connecting arc-shaped passage, connecting an (i−1)th main arc-shaped passage having a radius of $R_{(i-1)}$ with an (i)th main arc-shaped passage having a radius of R_i, via a connecting segment passage, so that the centerline of said connecting arc-shaped passage is tangentially connected to said (i)th main arc-shaped passage, and which said connecting arc-shaped passage having the same cross-sectional shape as the concentric main arc-shaped passages, the centerline of said connecting segment passage being tangentially connected to the connecting arc-shaped passage and said (i−1)th main arc-shaped passage having the radius of $R_{(i-1)}$ and which shares the same cross-sectional shape of said concentric main arc-shaped passages; and

the inlet and an outlet for a refrigerant which are respectively connected to an open end of said main arc-shaped passage having a radius R_1 on the innermost circumference of said disk cavity plate and to an open end of said main arc-shaped passage having a radius R_n on the outermost circumference of said disk cavity plate.

5,783,234

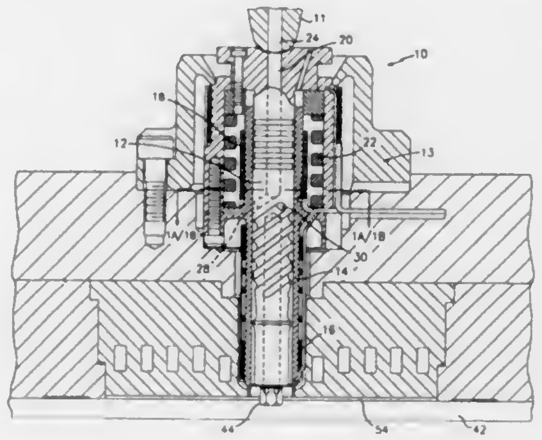
HOT RUNNER VALVE GATE FOR ELIMINATING UNIDIRECTIONAL MOLECULAR ORIENTATION AND WELD LINES FROM SOLIDIFIED RESIN USED FOR FORMING MOLDED ARTICLES

Alex Teng, Etobicoke, Canada, assignor to Husky Injection Molding Systems Ltd., Canada

Filed Jul. 25, 1996, Ser. No. 690,411

Int. Cl.^{6} B29C *45/23*

U.S. Cl. 425—549 **42 Claims**



1. A valve gate injection nozzle, comprising:

a movable valve stem means for processing guiding and stopping a flow of melt to a molding area, said valve stem means including an input area for receiving said melt, a central area following said input area for processing said melt and an output area following said central area for connection of said nozzle with said molding area, said central area including a first zone means for partially splitting said melt into a plurality of streams, a second zone means for partially mixing said plurality of streams, and a third zone means for completely mixing said plurality of streams and forming a single recombined and substantially homogenized stream of melt for subsequent direction to said output area; and

a nozzle body portion enclosing said valve stem means.

5,783,235

METHOD OF PREPARING A FULL HOP FLAVORED BEVERAGE OF LOW BITTERNESS

Patrick L. Ting, Brookfield; Hetvin A. Wilkinson, Wauwatosa, both of Wis.; David S. Ryder, Libertyville, Ill.; Matthew L. Tripp, Nashotah, Wis.; Sydney Rader, Fredonia, Wis., and Henry Goldstein, Brookfield, Wis., assignors to Miller Brewing Company, Milwaukee, Wis.

Continuation-in-part of Ser. No. 218,559, Mar. 28, 1994, abandoned. This application Apr. 30, 1996, Ser. No. 641,130

Int. Cl.^{6} C12C *3/08;11/00*

U.S. Cl. 426—16 **1 Claim**

1. A method of preparing a fermented, hop flavored beverage having the same hop flavor but less bitterness than an otherwise identical beverage made with whole hops, consists of adding to a wort, prior to or during boiling, as the sole hopping material, a solid hop residue obtained by extracting whole hops with carbon dioxide; boiling the resulting wort and solid hop residue mixture to extract the hop flavor and aroma contributing components; removing solids from the mixture to obtain a remaining liquid; and then fermenting the remaining liquid with yeast to bioconvert hop flavor and aroma contributing components from the solid hop residue and the wort to obtain the desired full hop flavored beverage.

5,783,236

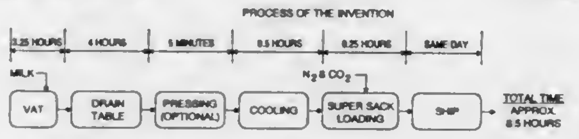
MANUFACTURE OF PARTICULATE NATURAL CHEESE WITHOUT BLOCK FORMATION

Ronald L. Meibach, Deerfield; Dale A. Kyser, Vernon Hills; Gary F. Smith, Highland Park; David Kaganoff, and Ronald D. Gee, both of Chicago, all of Ill., assignors to Kraft Foods, Inc., Northfield, Ill.

Filed Dec. 5, 1995, Ser. No. 568,592

Int. Cl.^{6} A23C *19/06*

U.S. Cl. 426—36 **13 Claims**



1. A method for making a particulate natural cheese suitable for preparation of process cheese comprising, providing a coagulum from milk by fermenting said milk with a lactic acid starter culture to provide a fermented milk and adding a milk coagulating enzyme to said fermented milk, cutting said coagulum to provide cheese curds and whey, draining said whey from said cheese curds while agitating said curds and cooling said cheese curds with agitation from a temperature of from about 85° F. to about 95° F. to a temperature of from about 40° F. to about 50° F. in less than about 30 minutes so as to provide said cheese curds as separate particles which do not knit during storage.

5,783,237

RECYCLING SALT SOLUTION IN FOOD PROCESSING AND APPARATUS THEREFOR

Wayne Barry Sanderson; Anthony Phillip Brady, both of Brunswick; Graeme Frank Whitehead, Rochester; Ian James Oldham, Cobram, all of Australia, and Ian Percival Brockwell, Edina, Minn., assignors to Murray Goulburn Co-Operative Co. Limited, Australia

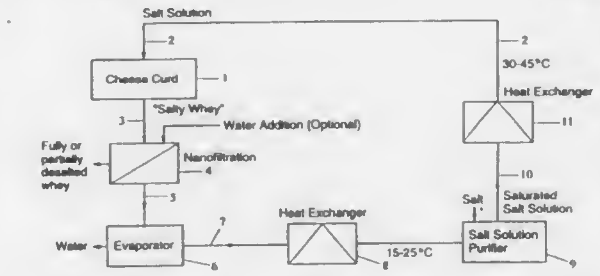
PCT No. PCT/AU94/00178, § 371 Date Apr. 15, 1996, § 102(e) Date Apr. 15, 1996, PCT Pub. No. WO94/23586, PCT Pub. Date Oct. 27, 1994

PCT Filed Apr. 11, 1994, Ser. No. 583,049

Claims priority, application Australia, Apr. 13, 1993, PL 8239

Int. Cl.^{6} A01J *27/02;25/16*

U.S. Cl. 426—36 **9 Claims**



1. A process for the recovery and reuse of a salt solution obtained from salty whey resulting from the salt spraying of cheese curd particles, comprising:

(1) passing said salty whey, optionally after removing any fine particles therefrom, through a nanofiltration device which separates the salt in the form of a salt solution from the whey components;
(2) passing said salt solution through an evaporator to decrease the water content thereof;
(3) adjusting the temperature of the salt solution, so as to control the concentration of the saturated salt solution obtained in step (4) herein below;
(4) adding salt to said salt solution to produce a saturated salt solution;
(5) subsequently, adjusting the temperature of the saturated salt solution to that required in the salting of the cheese curd particles; and
(6) thereafter, spraying said salt solution onto the cheese curd particles.

8. Apparatus for the recovery and reuse of a salt solution obtained from salty whey resulting from the salt spraying of cheese curd particles, comprising:

(1) a nanofiltration device for removing food residues from the salty whey to produce a salt solution;
(2) an evaporator connected to said nanofiltration device to decrease the water content of the salt solution emanating from said nanofiltration device;
(3) a first heat exchanger connected to said evaporator for controlling the temperature of the salt solution emerging from the evaporator to control the concentration of the saturated salt solution referred to in paragraph 4 below;
(4) means connected to said first heat exchanger for adding salt to the salt solution to produce a saturated salt solution; and
(5) a second heat exchanger to control the temperature of the salt solution, prior to the spraying of said salt solution onto the cheese curd particles.

5,783,238

METHOD OF MAKING A FEED ADDITIVE FOR RUMINANT ANIMALS

William E. Julien, Omaha, Nebr., assignor to Biovance Nebraska, Omaha, Nebr.

Continuation of Ser. No. 486,226, Jun. 7, 1995, Pat. No. 5,709,894. This application Sep. 26, 1997, Ser. No. 938,151

Int. Cl.^{6} A23K *1/06*

U.S. Cl. 426—63 **8 Claims**

1. A method for preparing a feed additive for ruminants, comprising drying glutamic acid fermentation solubles, corn fermentation solubles, or a mixture thereof to a total moisture content of less than 30% by weight to produce dried solubles, said drying being accomplished at a temperature of 80°–900° F., wherein said dried solubles enhance ruminal microbial fermentation and increase the amount of microbial protein delivered to the digestive organs of a ruminant when fed to a ruminant as compared to said solubles which have not been dried.

5,783,239

FROZEN CONFECTIONERY CONTAINING GRANULATES FOR EFFERVESCENCE UPON CONSUMPTION

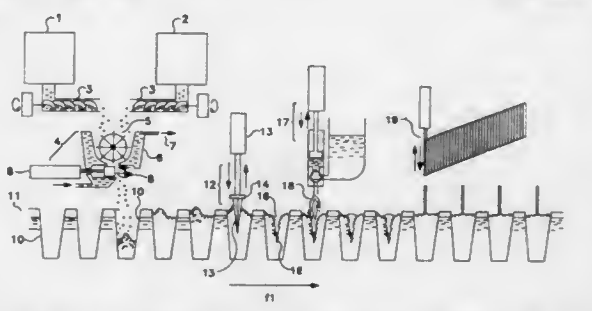
Ginette Callens, and Philip Igor Cathenaut, both of Beauvais, France, assignors to Nestec S.A., Vevey, Switzerland

Filed Dec. 11, 1996, Ser. No. 763,126

Claims priority, application European Pat. Off., Dec. 12, 1995, 95203450

Int. Cl.^{6} A23G *9/00*

U.S. Cl. 426—68 **33 Claims**



1. A frozen confectionery article comprising first and second frozen granitas in admixture wherein the first and second granitas comprise frozen water containing differing effervescent reagents and wherein the first granitas contain a first effervescent reagent and the second granitas contain a different, second effervescent reagent which, in aqueous solution, reacts with the first reagent to produce carbon dioxide.

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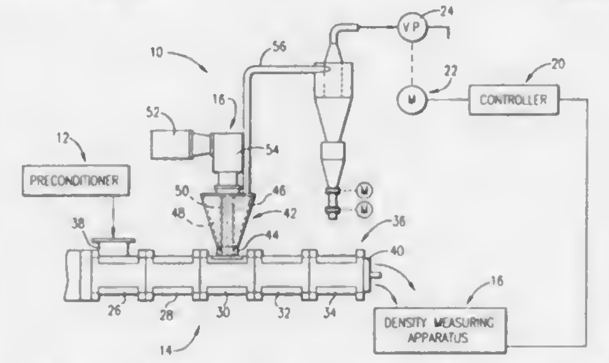
5,783,240
METHOD OF PRODUCING HIGH PROTEIN, HIGH FAT SINKING AQUATIC FEED

Lavon G. Wenger; Bobbie W. Hauck, both of Sabetha, and Elmer J. Osterhaus, Senaca, all of Kans., assignors to Wenger Manufacturing, Inc., Sabetha, Kans.

Filed Oct. 16, 1996, Ser. No. 733,118

Int. Cl.^{6} A23K *1/00*

U.S. Cl. 426—231 **17 Claims**



1. A method of preparing a high protein, high fat sinking aquatic feed comprising the steps of:

providing a starting mixture including from about 15–55% by weight protein and at least about 1% by weight starch, said starch being present as a separated free component;

preconditioning said starting mixture by adding moisture thereto and subject the starting mixture to conditions of heat and agitation; and

passing the preconditioned starting mixture into and through an extruder having an elongated barrel with an elongated, axially rotatable, flighted screw therein and an endmost extrusion die to form a self-sustaining extrudate having a specific gravity of greater than 1,

said passing step including the steps of creating a condition of reduced pressure at a zone along the length of and within said barrel upstream of said die for densifying the preconditioned starting mixture within said barrel,

said method further including the step of adding fat to said starting mixture and/or extrudate so that the extrudate has a total fat content of from about 10–40% by weight.

5,783,241
METHOD FOR PRODUCING CYLINDRICAL GEL FOOD PRODUCTS

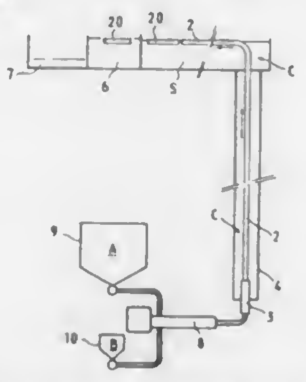
Gilles Bocabeille, and Patrice Gaudet, both of Vannes, France, assignors to Soreal S.A., Malansac, France

Filed Aug. 11, 1995, Ser. No. 514,068

Claims priority, application France, Aug. 17, 1994, 94 10191

Int. Cl.^{6} A23L *1/00*

U.S. Cl. 426—276 **10 Claims**



1. A method for producing a cylindrical food product having a basic alginate or pectin gel by means of gelatinization extrusion, comprising the steps of:

mixing a natural ground food product selected from the group consisting of fruit and vegetable, a gelatinizing agent selected from the group consisting of alginate and pectin, and water to form a gel mixture;

extruding the gel mixture in the form of a continuous cylindrical gel food product into a vertically elongated receiving bath having a predetermined temperature and containing sufficient amount of free calcium ions to immediately set the gel on the outer surface of said cylindrical gel food product, the receiving bath having a density such that the cylindrical gel food product remains free from any stress which would cause warping of the cylindrical gel food product before the cylindrical gel food product has sufficiently hardened;

conveying the continuous cylindrical gel food product through the elongated receiving bath; and

removing the continuous cylindrical gel food product from the receiving bath.

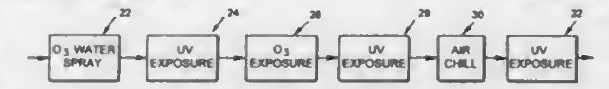
5,783,242
METHOD FOR TREATING FOODSTUFFS

Fred B. Teague, Columbus, Ind., assignor to MBA Consultant, Inc., Winchester, Ind.

Filed Jan. 27, 1995, Ser. No. 379,730

Int. Cl.^{6} A23B *4/16*

U.S. Cl. 426—320 **18 Claims**



1. A method of treating a foodstuff contaminated with organisms to reduce the population of organisms in preparation for consumption, the method comprising the step of exposing the foodstuff to a gaseous atmosphere containing a disinfectant gas, the step of exposing the foodstuff to a gaseous atmosphere containing disinfectant gas comprising the step of generating the disinfectant gas substantially in situ at the site where the foodstuff is to be exposed to the gaseous atmosphere containing the disinfectant gas, the disinfectant gas capable of being treated to cause it to decompose into non-hazardous by-products substantially immediately upon treatment of the disinfectant gas, and, substantially immediately after exposure of the foodstuff to the atmosphere containing the disinfectant gas, treating the foodstuff to convert disinfectant gas remaining thereon into non-hazardous by-products.

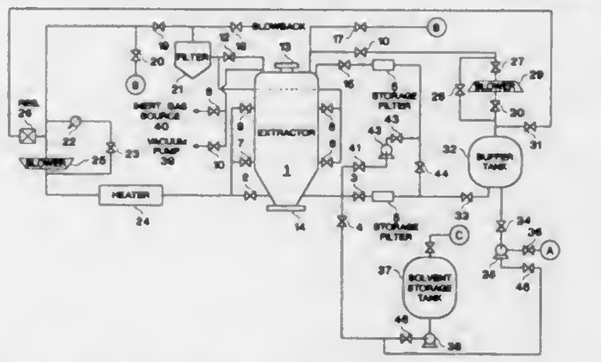
5,783,243
PROCESS FOR EXTRACTING AND DESOLVENTIZING NATURAL OIL-CONTAINING FOOD PRODUCTS WITH MINIMUM STRUCTURAL DAMAGE

Adam L. Benado, P.O. Box 1055, Freeport, Tex. 77541

Filed Jun. 24, 1996, Ser. No. 669,247

Int. Cl.^{6} A23L *1/015*

U.S. Cl. 426—425 **20 Claims**



1. A process for extracting oil-containing nutmeat pieces to reduce the oil content thereof by at least 25% by weight from the starting oil content thereof, said nutmeat pieces having a minimum

dimension of $^1/_{16}$th inch and substantially retaining their natural physical structural integrity, which comprises the steps of contacting a mass of said nutmeat pieces in an extraction vessel with a liquefied hydrocarbon solvent having 3 to 4 carbon atoms under low liquefaction pressure in an amount sufficient to immerse said mass for a period of at least two hours to form a micella, separating the micella from a marc derived from the mass of said pieces, contacting said marc with a second amount of said solvent sufficient to immerse said marc for a second period of at least two hours to form a second micella and separating the second micella from the marc, and repeating said contacting and separating steps a sufficient number of times to reduce the oil content of said nutmeat pieces by at least 25%.

5,783,244
FLAVORING COMPOSITION CONTAINING GAMMA-JASMOLACTON

Anton Vlas, Naarden, and Hans Julius Wille, Bussum, both of Netherlands, assignors to Unilever Patent Holdings B.V., Rotterdam, Netherlands

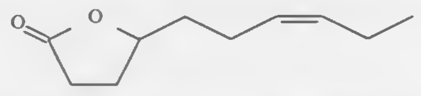
Continuation of Ser. No. 740,516, Aug. 5, 1991, abandoned. This application Feb. 2, 1993, Ser. No. 12,801

Claims priority, application European Pat. Off., Aug. 7, 1990, 90202156

Int. Cl.^{6} A23L *1/22*

U.S. Cl. 426—536 **5 Claims**

1. A composition which comprises an ingestible food or beverage, and an effective amount of gamma-jasmolactone of the formula:



sufficient to impart a fruity flavor to said composition.

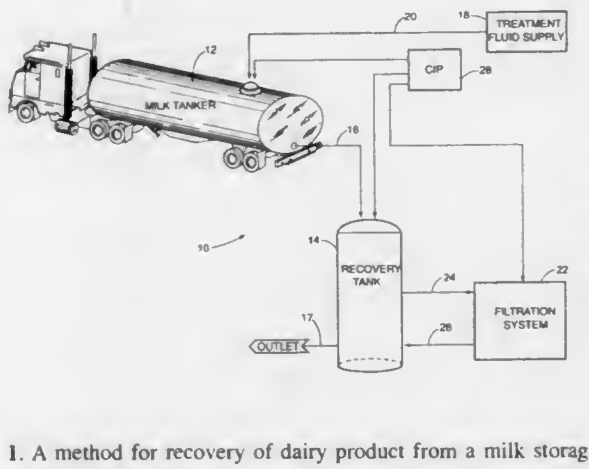
5,783,245
METHOD AND APPARATUS FOR PROCESSING DAIRY PRODUCT

Robert P. Simpson, II, Barrington, Ill., assignor to APV Crepaco, Inc., Rosemont, Ill.

Filed Apr. 17, 1997, Ser. No. 838,271

Int. Cl.^{6} A23C *1/00;19/02;21/00;21/02*

U.S. Cl. 426—580 **16 Claims**



1. A method for recovery of dairy product from a milk storage tank including the steps of,

emptying the raw milk product from the storage tank with a conventional drain system with at least a residual raw milk product remaining in the storage tank,

applying a burst of treated fluid to the storage tank to loosen the residual milk product from the storage tank and providing a diluted milk fluid,

emptying the diluted milk fluid from the storage tank and supplying the diluted milk fluid to a recovery tank,

filtering the diluted milk fluid received from the recovery tank with a filtration system and providing at least a first resulting product with an increased solid content, and

selectively recirculating the first resulting product as filtered diluted milk fluid back to the recovery tank at a desired fat concentration.

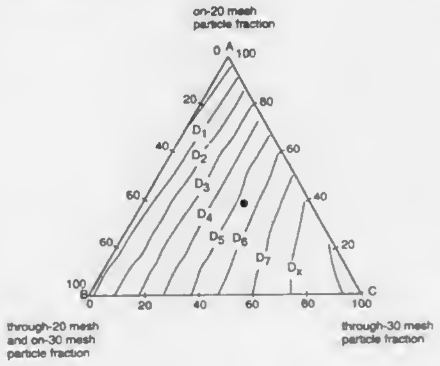
5,783,246
PREPARATION OF COFFEE PRODUCTS WITH IMPROVED PARTICLE PACKING CHARACTERISTICS

Vincent Y. Wong, Hamilton; Leonard E. Small, Cincinnati, and Richard J. Sackenheim, Hamilton, all of Ohio, assignors to The Procter & Gamble Company, Cincinnati, Ohio

Continuation of Ser. No. 439,928, May 12, 1995, abandoned, which is a continuation of Ser. No. 92,738, Jul. 16, 1993, abandoned. This application Jun. 7, 1996, Ser. No. 660,471

Int. Cl.^{6} A23F *5/00;5/10*

U.S. Cl. 426—594 **12 Claims**



1. Particulate roast and ground coffee products with improved particle packing characteristics, which products comprise from about 40% to about 85% noncompacted roast and ground coffee particles having average particle diameters greater than about 600 micrometers, and from about 15% to about 60% compacted roast and ground coffee particles which consist essentially of fine roast and ground coffee particles having a compacted bulk density of from about 0.40 to about 0.70 gm/cc and average particle diameters of less than about 600 micrometers,

wherein the coffee products have an isodensity profile as set forth in the FIG. 1 isodensity ternary graph, where bulk density values for any ternary mixture of particles as represented on the graph increase with increased fractions of fine roast and ground coffee particles in said coffee products, and

wherein the coffee products have an isobrew solid profile as set forth in the FIG. 2 isobrew solid ternary graph, where brew solid values for any ternary mixture of particles as represented on the graph increase with increased fractions of fine roast and ground coffee particles in said coffee products.

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5,783,247

FLAVOURING COMPOSITION CONTAINING OXIDIZED TRIGLYCERIDE FATS, FATTY ACIDS, OF FATTY ACID DERIVATIVES

Arnoldus Van Der Heijden, 's Gravenzande; Graham Andrew Cross, Rotterdam; Krijn Mostert, Vlaardingen; David Simon Bot, Utrecht, and Matthias Berger, Rotterdam, all of Netherlands, assignors to Van Den Berg Foods Co., Division of Conopco, Inc., New York, N.Y.

PCT No. PCT/EP94/02026, § 371 Date Dec. 28, 1995, § 102(e) Date Dec. 28, 1995, PCT Pub. No. WO95/01106, PCT Pub. Date Jan. 12, 1995

PCT Filed Jun. 20, 1994, Ser. No. 578,705

Claims priority, application European Pat. Off., Jul. 2, 1993, 93201933

Int. Cl.^{6} A23L *1/221*

U.S. Cl. 426—650 **27 Claims**

1. Flavouring composition obtained by oxidation of a fatty acid or fatty acid derivative or mixtures of them, not being a dairy fat, wherein the fatty acid comprises at least one poly-unsaturated fatty acid with an omega-3 non-conjugatable double bond system in an amount of >0.01 wt. % on fatty acids.

5,783,248

PROCESS FOR PRODUCING A BIOCERAMIC COMPOSITE MATERIAL CONTAINING NATURAL BONE MATERIAL ON AN ALUMINA SUBSTRATE

Ruey-Mo Lin; Nan-Chung Wu, and Kuang-Hsing Liu, all of Tainan, Taiwan, assignors to National Science Council of R.O.C., Taipei, Taiwan

Filed Aug. 28, 1995, Ser. No. 519,935

Int. Cl.^{6} B05D *3/00*

U.S. Cl. 427—2.27 **9 Claims**

1. A process for producing a bioceramic composite comprising:

a) preparing an alumina based ceramic substrate;

b) forming on said substrate a layer of calcium phosphate material;

c) heating a natural bone material in an amount sufficient to obtain a porous natural bone material;

d) coating said porous natural bone material with a calcium phosphate material;

e) placing said coated porous natural bone material on said layer of calcium phosphate material on said substrate to form a composite and thereafter sintering said composite to bond said porous natural bone material to said alumina based ceramic substrate.

5,783,249

DISPOSABLE TOOTHBRUSH HAVING MINT FLAVORED TOOTHPASTE COMPOSITION BONDED TO BRISTLES THEREOF

Mohan L. Sanduja, Flushing, N.Y.; Kenneth Sugathan, Piscataway, N.J.; Carl Horowitz, and Lina Zilberman, both of Brooklyn, N.Y., assignors to GMZ Holding Company, Jericho, N.Y.

Division of Ser. No. 409,909, Mar. 23, 1995, Pat. No. 5,605,756, which is a continuation of Ser. No. 150,599, Nov. 10, 1993, abandoned, which is a continuation-in-part of Ser. No. 121,161, Sep. 14, 1993, abandoned. This application Nov. 1, 1996, Ser. No. 742,462

Int. Cl.^{6} A46B *11/00*

U.S. Cl. 427—2.29 **18 Claims**

1. A method of bonding a flavored toothpaste composition to a substrate, the substrate being the bristles of a toothbrush, comprising the steps of:

(a) applying a prime coat to the bristles of the toothbrush, the prime coat including a flavoring and a prepolymer;

(b) curing the prime coat;

(c) applying a top coat over the prime coat, the top coat including a monomer, a catalyst, a graft initiator, pigment and auxiliary excipients; and

(d) curing the top coat.

5,783,250

GEL-COATED SEED PROCESSING METHOD AND APPARATUS THEREFOR

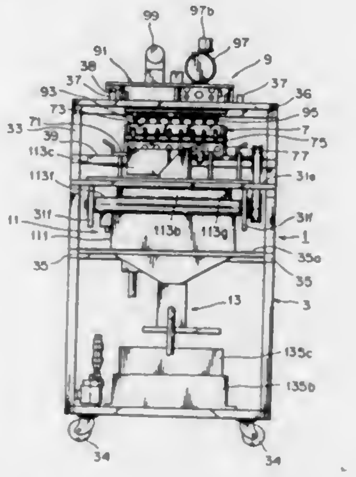
Yasushi Kohno, Susono, Japan, assignor to Yazaki Corporation, Tokyo, Japan

Filed Nov. 27, 1996, Ser. No. 757,938

Claims priority, application Japan, Nov. 29, 1995, 7-310702

Int. Cl.^{6} A01G *1/00*

U.S. Cl. 427—4 **7 Claims**



1. A gel-coated seed processing method comprising the steps of:

substantially linearly transporting seeds to be processed:

coating said seeds to be processed with a gelatinization agent at a destination to produce coated seeds;

substantially linearly moving said coated seeds in a curing agent while being immersed in the curing agent such that a direction that said coated seeds is transported in the curing agent when observed from above coincides with a direction that said seeds to be processed are transported when observed from above to harden the coated agent through reaction with the curing agent and obtain gel-coated seeds.

3. A gel-coated seed processing apparatus comprising:

seed transporting means for at least horizontally and substantially linearly transporting seeds to be processed;

gel processing means cooperating with said seed transporting means for coating said seeds to be processed with a gelatinizing agent to produce coated seeds at a destination of said seed transporting means and for feeding the coated seeds to a curing agent in a curing vessel; and

gel guide means for receiving and at least horizontally and substantially linearly transporting said coated seeds fed from said gel processing means in the curing agent, said gelatinizing agent being hardened through reaction with the curing agent during the transportation by said gel guide means to produce gel-coated seeds,

wherein said gel guide means is disposed in relation to said seed transporting means and said gel processing means such that the direction of movement of said coated seeds caused by said gel guide means coincides with the direction of movement that said seeds to be processed are transported by said seed transporting means.

5,783,251

METHOD FOR SUPPRESSING ELECTRIFICATION AND OBSERVING OR INSPECTING AN ARTICLE

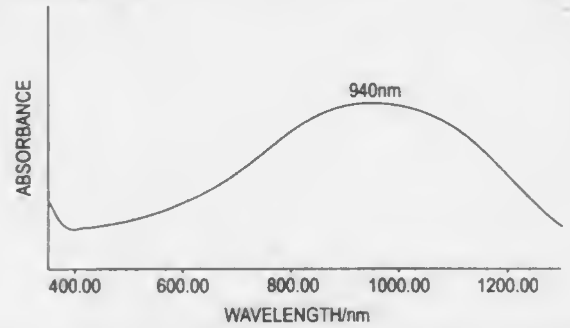
Hideki Tomozawa; Yoshihiro Saida; Junya Kato, all of Chiba; Yukie Akakabe, Tokyo; Yoshiaki Ikenoue, Chiba, and Reiko Ichikawa, Osaka, all of Japan, assignors to Showa Denko K.K., Tokyo, Japan

Continuation of Ser. No. 351,444, Dec. 21, 1994, abandoned. This application May 27, 1997, Ser. No. 863,831

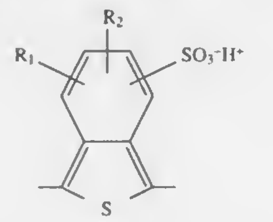
Claims priority, application Japan, May 28, 1993, HEI 5-127315; May 25, 1994, HEI 6-111410

Int. Cl.^{6} H05H *1/00*

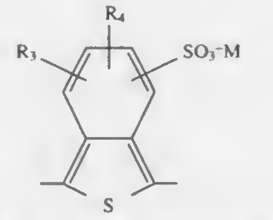
U.S. Cl. 427—8 **8 Claims**



1. A method for suppressing electrification of an article during the production or use of the article, said method comprising forming an electroconductive film on the article, said electroconductive film comprising a water-soluble electroconductive polymer comprising at least one repeating unit selected from a structural unit represented by formula (Ia) and a structural unit represented by formula (IIa), and having π-electron conjugated double bonds in the main chain of said polymer:



(Ia)



(IIa)

wherein R_1, R_2, R_3, and R_4 each independently represents a hydrogen atom or a monovalent group selected from the group consisting of a linear or branched, saturated or unsaturated alkyl, alkoxy or alkyl ester group each having from 1 to 20 carbon atoms, SO_3^-M in which M represents H^+ for R^1 or R^2, a halogen atom, a nitro group, a cyano group, a primary, secondary or tertiary amino group, a trihalomethyl group, and a substituted or unsubstituted phenyl group; M represents a quaternary ammonium cation represented by $NR_5R_6R_7R_8^+$, a quaternary cation of a Group Vb element represented by $PR_5R_6R_7R_8^+$ or $AsR_5R_6R_7R_8^+$, or an alkali metal ion, wherein R_5, R_6, R_7, and R_8 each independently represents a hydrogen atom, a linear or branched, substituted or unsubstituted alkyl group having from 1 to 30 carbon atoms or a substituted or unsubstituted aryl group having from 6 to 30 carbon atoms, in which said alkyl or aryl group may contain a group containing an element other than carbon and hydrogen; R_1 and R_2, R_3 and R_4, or two or more of R_5, R_6, R_7, and R_8 may be connected together at any optional position to form at least one divalent chain which forms, together with two carbon atoms of the substituted ring or a substituted atom of the Group Vb element, at least one saturated or unsaturated ring structure; the alkyl group represented by R_1, R_2, R_3, R_4, R_5, R_6, R_7 or R_8 or the alkoxy or alkyl ester group represented by R_1, R_2, R_3 or R_4 may contain in the chain thereof at least one bond selected from the group consisting of a carbonyl group, an ether group, an ester group, an amido group, a sulfide group, a sulfinyl group, a sulfonyl group, and an imino group, wherein said production or use of the article includes a step of irradiating charged particle beams onto the article.

5,783,252

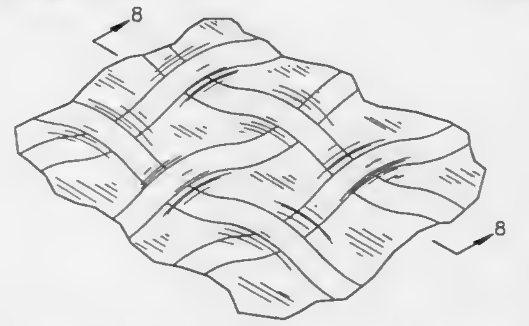
TECHNIQUE FOR FORMING RESIN-IMPREGNATED FIBERGLASS SHEETS

Bernd Karl Appelt, Apalachin; William Thomas Fotorny, Endicott; Robert Maynard Japp, Vestal; Kostantinos Papathomas, Endicott, and Mark David Poliks, Vestal, all of N.Y., assignors to International Business Machines Corporation, Armonk, N.Y.

Division of Ser. No. 716,814, Sep. 10, 1996, Pat. No. 5,756,405. This application Jul. 9, 1997, Ser. No. 890,090

Int. Cl.^{6} B05D *3/02*

U.S. Cl. 427—379 **2 Claims**



1. A method of for forming a core comprising the steps of:

providing at least one sheet of material, which material comprises:

a sheet of cloth having fibers and interstices between the fibers,

a first coating of a selected thermosetting resin surrounding said fibers, but with essentially all of said interstices unfilled,

a second coating of said selected thermosetting resin disposed over said first coating and essentially filing all said interstices unfilled by said first coating,

said first coating being cured sufficiently beyond B stage cure so that it has not dissolved in the uncured resin of the second coating,

said second coating being B stage cured,

a transition zone between said first and second coatings that is smooth, substantially continuous with crosslinking between said first and second coatings providing an essentially continuous polymer of two layers, and

laminating said at least one sheet of material between two sheets of metal by application of pressure and heat sufficient to essentially fully cure said resins impregnated in the cloth whereby to substantially reduce cathodic anodic filament faults.

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5,783,253

METHOD FOR FORMING A DIELECTRIC FILM AND METHOD FOR FABRICATING A CAPACITOR USING THE SAME

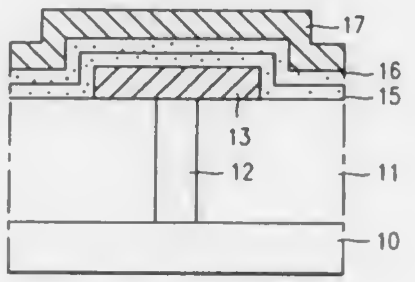
Jae Sung Roh, Kyungki-do, Rep. of Korea, assignor to LG Semicon Co., Ltd., Cheongju, Rep. of Korea

Filed Mar. 5, 1997, Ser. No. 810,919

Claims priority, application Rep. of Korea, Sep. 7, 1996, 38788/1996

Int. Cl.^{6} B05D *5/12*

U.S. Cl. 427—81 **19 Claims**



1. A method of forming a dielectric film comprising the steps of:
(a) providing a substrate;
(b) forming a first barium strontium titanate (BST) dielectric layer on the substrate, the first BST dielectric layer having a first composition; and
(c) forming a second BST dielectric layer on the first BST dielectric layer, the second BST dielectric layer having a second composition that is different than the first composition.

5,783,254

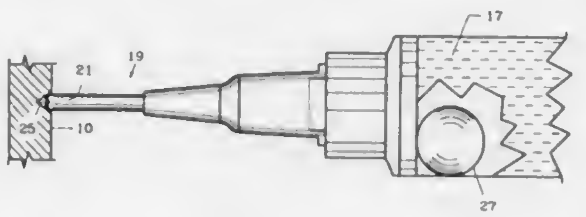
PAINT APPLICATOR METHOD

Robert G. Maynard, 597 Cedar Dr., Lexington, N.C. 27292

Filed Sep. 29, 1997, Ser. No. 939,222

Int. Cl.^{6} B32B *35/00;* **B05D** *3/10;1/36;* **B67D** *5/42*

U.S. Cl. 427—140 **8 Claims**



1. A method of touching up blemishes in vehicle body paint using a syringe having a reservoir, said method comprising the steps of:
a) providing said syringe with a removable, elongated needle having a blunted distal end;
b) filling the reservoir with pigmented paint;
c) placing a ball bearing within the reservoir;
d) agitating the ball bearing within the reservoir to mix said paint;
e) positioning the distal end of the needle proximate the blemish in the vehicle body paint,
f) discharging paint from said reservoir through the blunted distal needle end into the blemish
g) applying a coat of a transparent sealant over the discharged paint; and
h) removing excess paint.

5,783,255

METHOD FOR PRODUCING SHAPED ARTICLE OF SILICON CARBIDE

Yoshihisa Suda, Maebashi, and Yasushi Yamamoto, Takasaki, both of Japan, assignors to Mitsubishi Pencil Co., Ltd., Tokyo, Japan

Filed Jun. 27, 1997, Ser. No. 884,164

Claims priority, application Japan, Jun. 28, 1996, 8-169639

Int. Cl.^{6} B05D *3/02*

U.S. Cl. 427—228 **6 Claims**

1. A method for producing a shaped article of silicon carbide by forming a silicon carbide film layer on a surface of a carbon substrate and then removing the carbon substrate, wherein a composite of graphite and amorphous carbon obtained by firing a mixture of powdery graphite and an organic substance is used as the carbon substrate.

5,783,256

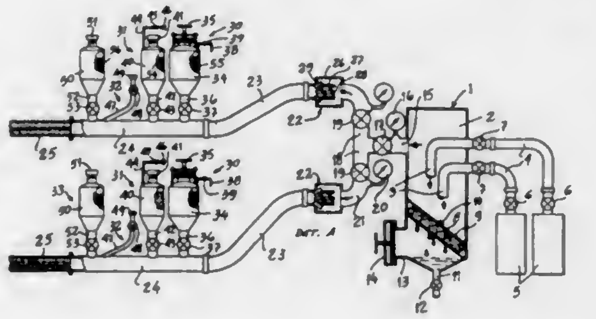
PROCESS AND EQUIPMENT FOR THE SIMULTANEOUS RECOVERY OF TWO PIPES OR TUBES WITH A HIGH DEGREE OF OBSTRUCTION

Shinichi Matsuda, and Kikue Matsuda, both of Rua Cubatão, 966-Apto. 63, São Paulo, Brazil

Filed Jan. 31, 1996, Ser. No. 594,530

Int. Cl.^{6} B05I *3/00*

U.S. Cl. 427—238 **11 Claims**



1. Process for the simultaneous recovery of a plurality of pipes or tubes having a high degree of obstruction comprising:
providing a source of compressed air stream from a single conduit;
dividing the source of compressed air stream into a designated conduit for each of said plurality of pipes or tubes;
causing the compressed air stream in each of said designated conduits to have a spiral motion as it proceeds axially through each of said designated conduits defining a spiraling air stream;
directing said spiraling air stream in each designated conduit into a pipe or tube which has a high degree of obstruction;
adding water to said spiraling air stream;
then adding to said spiraling air stream one of;
a) first a cleaning solution or volatile liquid and then an abrasive material;
b) substantially simultaneously a cleaning solution or volatile liquid and an abrasive material, thereby cleaning said pipe or tube;
then, after the aforesaid a) or b) is stopped, adding a coating material to said spiraling air stream.

5,783,257

METHOD FOR FORMING DOPED POLYSILICON FILMS

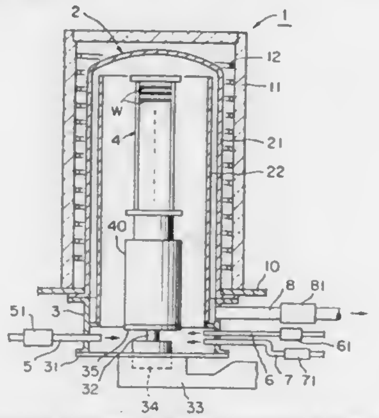
Seiichi Shishiguchi, Tokyo-To; Kazuhide Hasebe, and Nobuaki Shigematsu, both of Yamanashi-Ken, all of Japan, assignors to Tokyo Electron Limited, Tokyo; Electron Tohoku Limited, Tokyo-To, and NEC Corporation, Iwate-ken, all of Japan

Continuation of Ser. No. 490,090, Jun. 13, 1995, abandoned. This application May 29, 1997, Ser. No. 864,907

Claims priority, application Japan, Jun. 17, 1994, 6-159532

Int. Cl.^{6} C23C *16/22*

U.S. Cl. 427—255.2 **3 Claims**



1. A method for forming a doped polysilicon film by a thermal CVD process comprising the steps of:
loading objects to be processed into a reaction vessel maintained air-tight;
supplying a film forming gas and a doping gas into the reaction vessel to form silicon films on the objects to be processed by the thermal CVD process; and
supplying a gas containing a component which hinders growth of silicon crystals into the reaction vessel incessantly throughout film forming processing, wherein the gas containing the component which hinders growth of silicon crystals is one selected from the group consisting of N_2O, O_2, O_3, and CO_2.

5,783,258

METHOD FOR TREATING LUMBER

Ronald T. Garapick, 11706 Park Point Pl., Strongsville, Ohio 44136

Filed Mar. 6, 1997, Ser. No. 812,733

Int. Cl.^{6} B05D *3/00;1/28*

U.S. Cl. 427—298 **35 Claims**

1. A method for treating lumber comprising:
filling a vessel with a treatment composition including white mineral oil and a fungicide having didecyl dimethyl ammonium chloride;
submerging lumber in the treatment composition for a predetermined period of time; and
removing the lumber from the treatment composition.

30. A non-toxic treatment composition for treating wood flooring blocks consisting of: approximately 95% to 99% white mineral oil by volume; and
approximately 1% to 5% fungicide by volume.

5,783,259

METHOD OF MANUFACTURING MOLDS, DIES OR FORMING TOOLS HAVING A CAVITY FORMED BY THERMAL SPRAYING

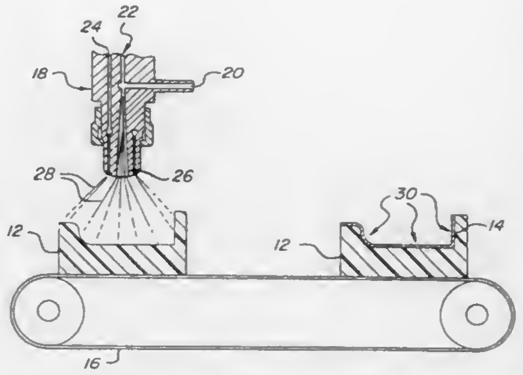
Robert R. McDonald, Traverse City, Mich., assignor to Metallamics, Inc., Traverse City, Mich.

Continuation of Ser. No. 349,252, Dec. 5, 1994, Pat. No. 5,609,922. This application Mar. 7, 1997, Ser. No. 812,521

Int. Cl.^{6} B05D *1/10;* **B29C** *33/38*

U.S. Cl. 427—447 **14 Claims**

1. A method of making a mold or die comprising the steps of:



(a) providing a porous heat exchanging body support member having a defined porosity;
(b) forming a cavity of predetermined configuration in a surface of the support member; and
(c) applying to the configured cavity in the support member a metallic surface thereby producing a mold or die.

5,783,260

THIN-FILM FORMING METHOD

Yoshifumi Kato; Yoshifumi Fujita; Atsushi Hozumi, and Akiteru Nishio, all of Kariya, Japan, assignors to Kabushiki Kaisha Toyoda Jidoshokki Seisakusho, Kariya, Japan

Division of Ser. No. 420,209, Apr. 11, 1995, Pat. No. 5,571,569. This application Jul. 25, 1996, Ser. No. 686,366

Claims priority, application Japan, Apr. 14, 1994, 6-076179; Nov. 18, 1994, 6-285616; Dec. 20, 1994, 6-316773

Int. Cl.^{6} B05D *3/02;3/06*

U.S. Cl. 427—493 **12 Claims**

$$CF_3(CF_2)_7CH_2CH_2Si(OCH_3)_3 + nH_2O$$
$$\longrightarrow CF_3(CF_2)_7CH_2CH_2Si(OCH_3)_{3-n}(OH)_n + nCH_3OH$$

1. A method of making a multi-layer composite comprising:
applying a primer layer to a resin substrate;
applying an uncured layer over the primer layer, said
uncured layer containing a silicone abrasion-resistant thermally curable composition and a silane coupling agent having a fluoro-alkyl group, or a long-chain alkyl group having at least 8 carbon atoms; and
polymerizing the uncured layer by heating to a temperature not higher than 120° C., whereby said multi-layer composite has a top surface which is water-repellent and abrasion-resistant.

5,783,261

USING A COATED FUEL INJECTOR AND METHOD OF MAKING

Timothy Potter, Dearborn; Marcus W. Fried, Belleville, and Ellsworth Schanergerger, Livonia, all of Mich., assignors to Ford Global Technologies, Inc., Dearborn, Mich.

Filed Jul. 11, 1996, Ser. No. 678,309

Int. Cl.^{6} C23C *14/04*

U.S. Cl. 427—526 **12 Claims**

1. A method of using an amorphous carbon-based coating to extend the operating life of a fuel injector valve having a needle operating within a valve body, comprising:
(a) providing an injector having a needle operating within a value body, the needle and valve body having steel surfaces subject to repeated impact and sliding friction contact over the operating life of the injector, at least one of said needle and valve body having its steel surfaces coated with an ion implanted stabilized amorphous carbon-based coating in a thickness of 1–10 micrometers, said coating having low internal stresses and low coefficient of friction independent of humidity, said coating being stabilized by the presence of up

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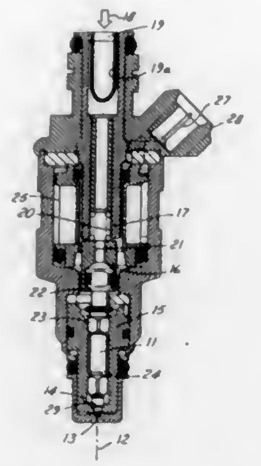


to 30% by weight of a carbide-forming material selected from the group of silicon, titanium, and tungsten; and

(b) repeatedly cyclically actuating the fuel injector needle between open and closed valve positions using a cycle time of 0.5–1.5 milliseconds while subjecting the valve coated surfaces to sliding contact or impact stress, said actuation being carried out in the absence of lubricious fuel at said coated surfaces, whereby wear is significantly reduced by atomic transfer of coating atoms to mating surfaces during impact or sliding contact.

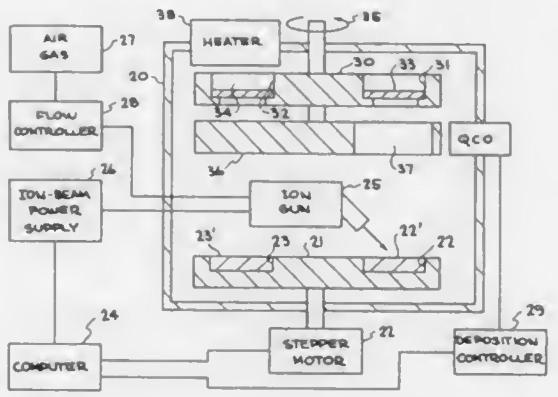
5,783,262
GROWTH OF OXIDE EXCHANGE BIAS LAYERS

Alison Chalken, Fremont, Calif., and Richard P. Michel, Bloomington, Minn., assignors to Regents of the University of California, Oakland, Calif.

Filed Dec. 9, 1996, Ser. No. 762,087

Int. Cl.^{6} C23C *14/08*

U.S. Cl. 427—529 **14 Claims**



1. In a process for forming an oxide exchange bias layer, the improvement comprising:

depositing the oxide layer by ion beam sputtering of a metal oxide target in an atmosphere consisting of an inert sputtering gas,

whereby ion beam sputtering is carried out in the absence of oxygen gas.

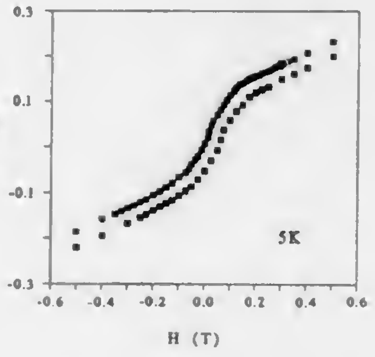
5,783,263
PROCESS FOR FORMING NANOPARTICLES

Sara Majetich; Michael McHenry; Joseph Artman, all of Pittsburgh, and Stuart Staley, Hidden Valley, all of Pa., assignors to Carnegie Mellon University, Pittsburgh, Pa.

Division of Ser. No. 265,008, Jun. 24, 1994, Pat. No. 5,549,973, which is a continuation-in-part of Ser. No. 85,298, Jun. 30, 1993, Pat. No. 5,456,986. This application Jun. 5, 1996, Ser. No. 658,788

Int. Cl.^{6} H01T *14/00*

U.S. Cl. 427—580 **26 Claims**



1. A method for forming a metal or alloy nanoparticle comprising the steps of:

a. preparing a graphite rod, said graphite rod being packed with said metal or alloy or an oxide of said metal or alloy;
b. subjecting said packed graphite rod to a carbon arc discharge to produce soot containing magnetic metal alloy nanoparticles and non-magnetic species; and
c. applying a magnetic field gradient to said soot to separate said magnetic metal alloy nanoparticles from said non-magnetic species.

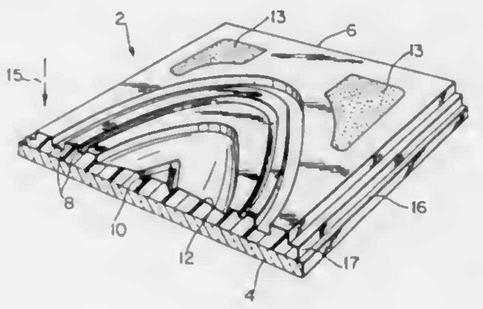
5,783,264
DECORATIVE WINDOWS WITH CONTOURED PLASTIC RESIN LAMINATED TO GLASS

Stephen Edwin Howes, 3481 W. Hillsboro Blvd., Apt. 102, Coconut Creek, Fla. 33064

Continuation of Ser. No. 807,236, Dec. 16, 1991, abandoned. This application Dec. 18, 1995, Ser. No. 573,764

Int. Cl.^{6} B44F *1/06*

U.S. Cl. 428—13 **20 Claims**



1. A decorative glass window comprising:

a first glass sheet and a hardened, continuous layer of plastic resin of substantial thickness molded to the first glass sheet, wherein the layer of plastic resin includes a flat side adhered to a first surface of the first glass sheet and an opposite, contoured side including grooves and bevels in a predetermined pattern.

5,783,265
SIGN, PREFERABLY REGISTRATION SIGN FOR VEHICLES, AND METHOD FOR THE MANUFACTURE THEREOF

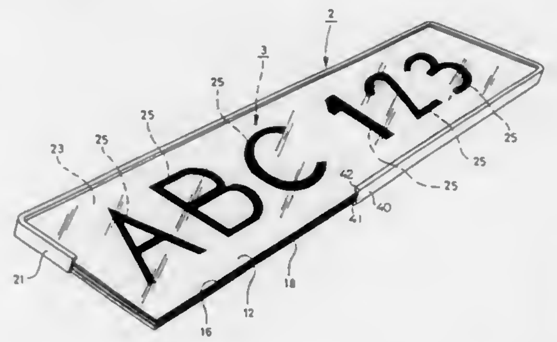
Göthe Anders Krister Parkander, Ljungby, Sweden, assignor to Stralfors AB, Ljungby, Sweden

Continuation of Ser. No. 201,010, Feb. 24, 1994, abandoned. This application Feb. 14, 1997, Ser. No. 800,473

Claims priority, application Sweden, Mar. 5, 1993, 9300734

Int. Cl.^{6} B60R *13/10*

U.S. Cl. 428—13 **9 Claims**



1. A registration sign for vehicles, said sign (**2**) comprising:

a sign portion (**16**) including a film (**6**) and having a light reflecting surface (**23**), said portion (**16**) being provided with characters (**3**) formed by toner material (**25**) applied to said light reflecting surface (**23**) by means of an ionographic printer (**24**) whereby said toner material (**25**) is fixed onto said light reflecting surface (**23**) of said portion (**16**) by a cold pressure and fixing method,

a bottom plate (**18**) with a top face and a bottom face,

a front plate (**12**) with a top face and a bottom face and which plates (**18** and **12**) are located respectively on opposite sides of said portion (**16**), said bottom plate (**18**) and said front plate (**12**) both being of substantially the same size and shape as said portion (**16**) and said bottom plate (**18**) and front plate (**12**) and portion (**16**) having peripheral edges essentially registered with one another, said front plate (**12**) being made of such transparent material that the registration characters (**3**) on said portion (**16**) are visible therethrough, said portion (**16**) being attached to said top face of said bottom plate (**18**) by a layer of adhesive (**39**) extending over essentially the entirety of said top face of said bottom plate and said portion (**16**) being attached to said bottom face of said front plate (**12**) by at least one other layer of adhesive (**37**) extending over essentially the entirety of said bottom face of said top plate so that said layers of adhesive obstruct penetration of moisture and contaminants between said portion (**16**) and said bottom and front plates (**18** and **12**), said portion (**16**) and bottom and front plates (**18** and **12**) forming a sign package (**38**) having a periphery (**44**), and

a frame (**21**) made of injection molded plastic surrounding said periphery (**44**) of said sign package (**38**), said frame having a substantially U-shaped cross section with a web portion (**40**) which outwardly covers said peripheral edges of said bottom plate (**18**) and of said sign portion (**16**) and of said front plate (**12**), and said U-shaped cross section of said frame (**21**) also having one shank (**41**) heat sealed to said bottom face of said bottom plate (**18**) and another shank (**42**) heat sealed to said top face of said front plate (**12**), so that said frame obstructs penetration of moisture and contaminations into said sign package and prevents unauthorized manipulation thereof.

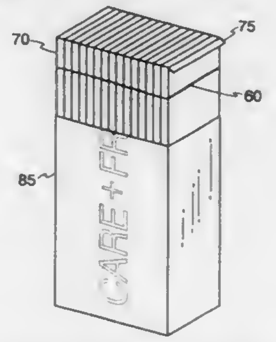
5,783,266
EASY-OPEN INDIVIDUAL SEALED SERVING PACKAGING

Russ Gehrke, 6721 Woodenshoe La., Neenah, Wis. 54956

Continuation of Ser. No. 225,281, Mar. 11, 1994, abandoned. This application Oct. 4, 1995, Ser. No. 538,947

Int. Cl.^{6} B65D *33/28;65/02*

U.S. Cl. 428—34.3 **43 Claims**



1. A packaging system adapted for packaging a product comprising a first packaging substrate said first packaging substrate being adapted when sealed to form an air tight package and a second separate packaging substrate completely enclosed within said first packaging substrate, wherein said first and second packaging substrates are not fixedly joined together and wherein said second packaging substrate forms a separate individually sealed package within said first packaging substrate, said second packaging substrate in contact with the product to be packaged comprising a sheet having a first layer, a second layer, and a barrier layer disposed between said first layer and said second layer, said second layer material selected from the group consisting essentially of polyester, oriented polypropylene, nylon and paper and said first layer of a polyolefin selected from the group consisting essentially of ethylene methacrylate, ethylene vinyl acetate, blends of low density polyethylene and linear low density polyethylene and blends of ethylene vinyl acetate and linear low density polyethylene, and ionomers, said sheet of said second packaging substrate having an easy-open feature and said sheet of said second packaging substrate having a thickness from about 0.25 mils to 2.0 mils.

5,783,267
ARTICLES OF MICROORGANISM-LADEN GLASS AND METHOD OF MANUFACTURING THE SAME

Taro Soejima, c/o Soejima Glass Industrial Co., Ltd., 106, Sayanomoto-machi, Saga-shi, Saga-ken, Japan

Filed Jul. 22, 1996, Ser. No. 684,744

Claims priority, application Japan, Jul. 26, 1995, 7-211022; Jul. 17, 1996, 8-207909

Int. Cl.^{6} C04B *33/00;* **B08B** *7/00*

U.S. Cl. 428—34.4 **2 Claims**

1. A glass article formed of glass having an EM culture embedded in a glass matrix.

5,783,268
HIGH AIR VELOCITY DUCT BOARD HAVING MINIMAL TURBULENCE

Patrick M. Noonan, Boggstown; Robert D. Hauk, Shelbyville, and Frederick M. Beyer, St. Paul, all of Ind., assignors to Knauf Fiber Glass GmbH, Shelbyville, Ind.

Continuation of Ser. No. 378,704, Jan. 26, 1995, abandoned, which is a continuation-in-part of Ser. No. 104,975, Aug. 11, 1993, abandoned. This application Nov. 21, 1996, Ser. No. 753,257

Int. Cl.^{6} F16L *9/14;* **B32B** *17/02*

U.S. Cl. 428—34.5 **45 Claims**

1. A rigid air duct for conducting flowing air, the air duct comprising

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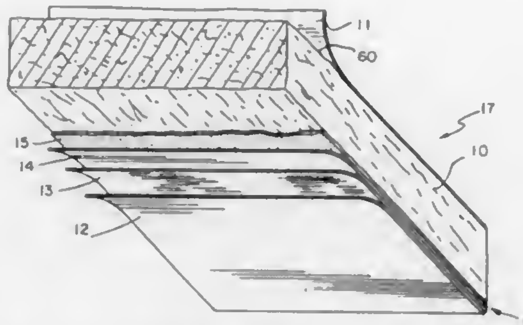


a fiber glass board having an interior surface and an exterior surface, the fiber glass board being deformed to cause the interior surface to define a channel for conducting flowing air, and

a mat facing adhered to the interior surface of the fiber glass board to provide a smooth air-contacting surface lining the channel to maximize laminar flow of air flowing through the channel, the mat facing being a fabric made of glass and organic polymer fibers.

5,783,269

NON-PVC MULTILAYER FILM FOR MEDICAL BAGS

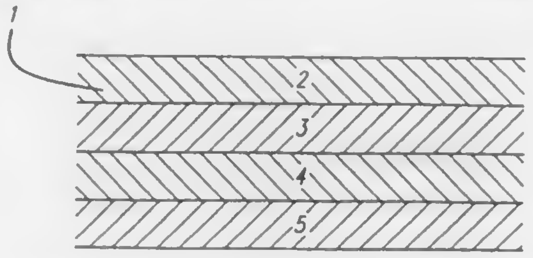
Klaus Heilmann, St. Wendel, Germany; Thomas Nicola, Spicheren, France, and Thomas Kreischer, Saarbrucken, Germany, assignors to Fresenius AG, Germany

Filed Apr. 26, 1996, Ser. No. 638,249

Claims priority, application Germany, Apr. 26, 1995, 195 15 254.9

Int. Cl.^{6} B32B *1/08*

U.S. Cl. 428—35.2 **19 Claims**



1. Non-polyvinyl chloride multi-layer film (1) comprising an outer layer (2), a supporting layer (4) together with at least one interposed central layer (3), characterised in that the outer (2) and supporting (4) layers comprise polymers having softening temperatures of above approximately 121° C. at least one central layer (3) comprises polymers having softening temperatures of below approximately 70° C., and the ratio of the thickness for the outer layer (2) to central layer (3) to supporting layer (4) is within the range of 1:9:1 and 1:4.5:1.

5,783,270

PACKAGING FILM, PACKAGES AND METHODS FOR USING THEM

David C. Fischer, Pittsford; James I. Ririe, Fairport; Richard Mink, Rochester, and Monty Bates, Victor, all of N.Y., assignors to W. R. Grace & Co.-Conn., Duncan, S.C.

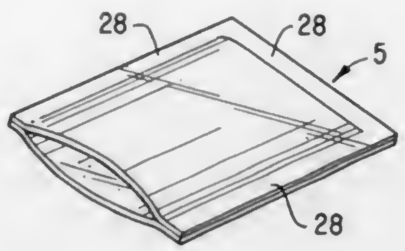
Division of Ser. No. 54,961, Apr. 30, 1993, Pat. No. 5,523,136. This application Jun. 3, 1996, Ser. No. 660,162

Int. Cl.^{6} B65B *55/00;* **A21D** *10/02*

U.S. Cl. 428—35.2 **27 Claims**

1. A method for packaging a product comprising heat sealing a film so as to form a package, said film comprising

a first outer layer comprising styrene-butadiene copolymer and



a second layer comprising a single site catalyst polyethylene, wherein said film has an oxygen transmission rate of about 150–450 or greater up to about 1000 cc/100 in^2/24 hr. and can be sealed with resistance seals or on a form, fill, and seal machine.

5,783,271

BIODEGRADABLE ALIPATHIC POLYSTER, MELT-EXTRUSION FILM THEREOF, AND PROCESS FOR THE PRODUCTION THEREOF

Haruo Nishida; Mitsuhiro Yamashita; Norikazu Hattori; Yoshiki Ochi, and Tetsuo Kuwaki, all of Tokuyama, Japan, assignors to Tokuyama Corporation, Tokuyama, Japan

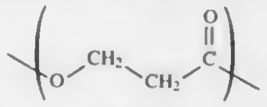
Division of Ser. No. 428,640, Apr. 25, 1995. This application Apr. 24, 1996, Ser. No. 637,084

Claims priority, application Japan, Oct. 29, 1993, 5-272012; Dec. 28, 1993, 5-337623; Jun. 22, 1994, 6-139905

Int. Cl.^{6} B32B *1/02;33/00*

U.S. Cl. 428—35.5 **3 Claims**

1. A biodegradable bag formed of a biodegradable aliphatic polyester melt-extrusion film comprising a biodegradable aliphatic polyester containing a recurring unit of the formula (1)



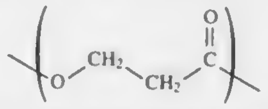
$$\left(-O-CH_2-CH_2-\overset{\overset{O}{\|}}{C}-\right)$$

(1)

as a main recurring unit and having a weight average molecular weight of 20,000 to 2,000,000 and which has a water vapor transmission rate of 300 to 700 g/m^2·24 hours·25 μm and heat fusing strength of 500 to 5,000 gf/15 mm; at least part of the film being heat-fusion bonded to form a bag.

3. Biodegradable aliphatic polyester particles excellent in handling properties,

(a) which comprises a biodegradable aliphatic polyester containing a recurring unit of the formula (1),



$$\left(-O-CH_2-CH_2-\overset{\overset{O}{\|}}{C}-\right)$$

(1)

as a main recurring unit and having a weight average molecular weight of 20,000 to 2,000,000,

(b) of which at least 70% by weight is present in the particle diameter range of 150 μm to 3 mm in a particle size distribution histogram, and

(c) which has a bulk specific gravity in the range of 0.3 to 0.6 g/ml.

5,783,272

EXPANDABLE FILMS AND MOLDED PRODUCTS THEREFROM

Raymond S. Wong, San Ramon, Calif., assignor to Dexter Corporation, Pittsburg, Calif.

Division of Ser. No. 400,069, Mar. 7, 1995, Pat. No. 5,540,963, which is a division of Ser. No. 103,988, Aug. 10, 1993, Pat. No. 5,397,611,. This application Feb. 5, 1996, Ser. No. 597,021

Int. Cl.^{6} B32B *1/08;1/10;5/16*

U.S. Cl. 428—35.7 **53 Claims**

1. A thin and drapable, non-pourable, in situ-expandable film having a uniform thickness of ±10% variation, of up to about 3.5 millimeters, that contains (i) a non-pourable thermosetting matrix resin system and (ii) particles of a microcellular in situ-expandable thermoplastic polymer containing an expansion agent therein suitable for forming expanded closed-cell microspheres in which both (i) and (ii) are uniformly distributed throughout the film, so that upon expansion of the thermoplastic polymer into closed-cell microcells in the non-pourable film, the resulting film is a molded thermoset thin film closed-microcell syntactic foam the thickness of which is about 1.01 to about 4 times greater than the non-expanded film.

5,783,273

PTP OR BLISTER PACKAGING ARTICLES AND PACKAGING MATERIAL THEREFOR

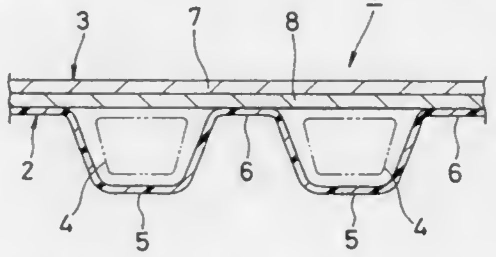
Yohzoh Yamamoto; Shinji Ohsato, and Shiro Honma, all of Kuga-gun, Japan, assignors to Mitsui Petrochemical Industries, Ltd., Tokyo, Japan

Filed May 13, 1993, Ser. No. 59,969

Claims priority, application Japan, May 14, 1992, 4-121492; Jan. 29, 1993, 5-013595; Apr. 6, 1993, 5-079599

Int. Cl.^{6} B32B *15/08;15/20;27/08;27/32*

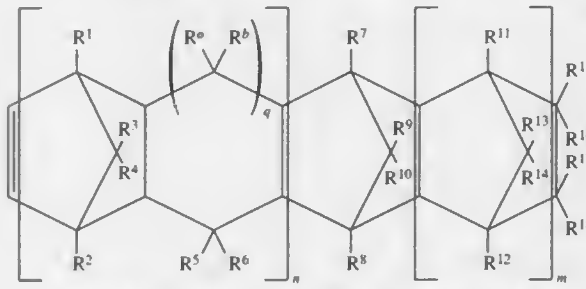
U.S. Cl. 428—35.9 **25 Claims**



1. Press through packaging or blister package, comprising a formed product having blisters thereon prepared by forming a sheet or film of a non-stretched and moisture proof layer made of one or more non-crystalline polyolefin resins (A) selected from the group consisting of

a cycloolefin random copolymer which is obtained from a non-ring-opening polymerization of ethylene and a cycloolefin having a molecular structure represented by the general formula (1) given below, with an intrinsic viscosity (η) of 0.01–10 dl/g determined in decalin at 135° C. and a softening temperature (TMA) of 50°–200° C., and

a graft-modified product of said cycloolefin random copolymer,



(1)

in which n is zero or 1, m is zero or any positive integer, q is zero or 1, R^1–R^{18} as well as R^a and R^b represent each independently with each other an atom or a radical selected from the group consisting of hydrogen atom, halogen atoms and hydrocarbon groups, wherein R^{15}–R^{18} may form a monocyclic ring or a polycyclic ring by combining with each other or may form an alkylidene group by a chemical combination of R^{15} with R^{16} or R^{17} with R^{18} and wherein the monocyclic or polycyclic ring formed from R^{15}–R^{18} may have one or more double bonds and, in the case of q=0, a five-membered ring is formed there by combining each of the chemical bonds.

5,783,274

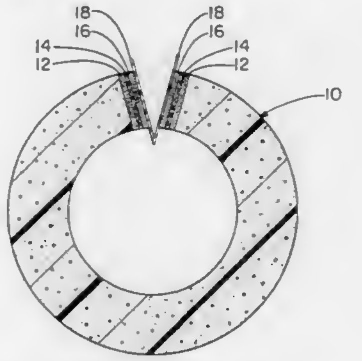
PRESSURE SENSITIVE ADHESIVE CLOSURE SYSTEM FOR FOAM INSULATION

Gerald H. Knittel, Brecksville; Paula J. Butcher, Stow, and Judith A. Roth, Akron, all of Ohio, assignors to Morgan Adhesives Company, Stow, Ohio

Filed Jul. 7, 1995, Ser. No. 499,319

Int. Cl.^{6} B29D *23/00*

U.S. Cl. 428—36.9 **12 Claims**



1. A sealable insulation enclosure comprising:

(a) an essentially tubular body of foamed insulation material having a longitudinal slit and an opening disposed therethrough, the slit having a pair of essentially opposed surfaces;

(b) at least one first adhesive bonded to said opposed surfaces of said longitudinal slit, said first adhesive characterized in having high adherence to the foamed insulation;

(c) a layer of scrim overlaying the first adhesive, the scrim having a plurality of openings disposed therethrough, the first adhesive penetrating said scrim;

(d) at least one layer of one second pressure-sensitive adhesive, said second adhesive characterized in having high adherence to itself and bonded to the first adhesive wherein the first and second adhesives are of different composition; wherein said at least one second adhesive adheres to one another to close said longitudinal slit.

5,783,275

ANTIFALSIFICATION PAPER

Hajo Mück, Dachau, and Siegfried Harms, Unterschleissheim, both of Germany, assignors to Giesecke & Devrient GmbH, Munchen, Germany

Continuation of Ser. No. 235,535, Apr. 29, 1994, abandoned. This application Jul. 13, 1995, Ser. No. 501,875

Claims priority, application Germany, May 1, 1993, 43 14 380.6

Int. Cl.^{6} B42D *15/00*

U.S. Cl. 428—138 **4 Claims**

1. A security document comprising first and second paper layers laminated together to form a document having a total thickness and a security band partially imbedded in the first paper layer, said first paper layer including at least one window in one side thereof extending to said security band, said first paper layer including randomly distributed flaw openings located in the side of the first

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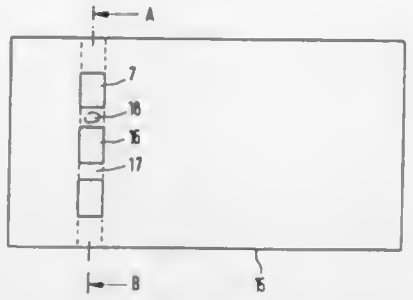
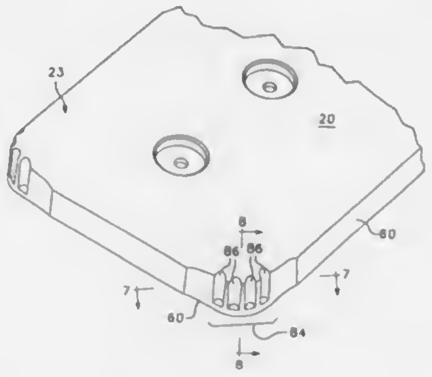


paper layer opposite the side including said at least one window, said flaw openings also extending to and exposing said security band; said second paper layer completely covering the side of said first paper layer containing said openings and having a second layer thickness constituting from 10 to 50% of the document total thickness; said second paper layer extending over and closing said flaw openings to cover said security band in said openings.

5,783,276
INSERT MOLDED BEZEL AND METHOD OF MANUFACTURING

J. Steve Lyford, Portland, Oreg., assignor to Tektronix, Inc., Wilsonville, Oreg.

Filed May 13, 1997, Ser. No. 855,064
Int. Cl.^{6} B32B *3/02;* **B28B** *5/00*
U.S. Cl. 428—79 **20 Claims**

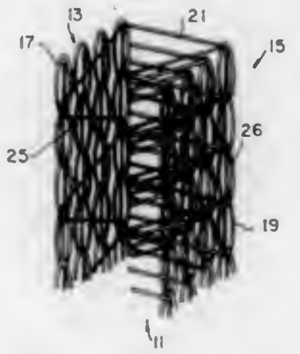


8. A bezel comprising:
a central panel portion having an exterior surface facing a first direction and an interior surface facing an opposite second direction;
a skirt depending from a periphery of the panel portion and angularly disposed therefrom at least somewhat toward the second direction;
the skirt having a major first surface facing away from the central panel portion, and at least slightly toward the first direction;
the skirt having a second surface meeting the first surface at a parting line edge, and facing away from the central panel portion and at least slightly toward the second direction, such that the first and second surfaces have draft angles in opposite directions; and
a single sheet of printed material covering and defining the exterior surface of the central panel portion and extending over the first surface of the skirt, and covering and defining at least a portion of the second surface of the skirt.

5,783,277
THREE-DIMENSIONAL KNIT SPACER FABRIC FOR FOOTWEAR AND OUTERWEAR

Moshe Rock, Andover, Mass.; Karl Lohmueller, Hampstead, N.H., and Douglas Lumb, Metheun, Mass., assignors to Malden Mills Industries, Inc., Lawrence, Mass.

Filed Apr. 17, 1997, Ser. No. 839,296
Int. Cl.^{6} B32B *5/26;33/00;* **A41D** *27/06;27/28*
U.S. Cl. 428—86 **11 Claims**

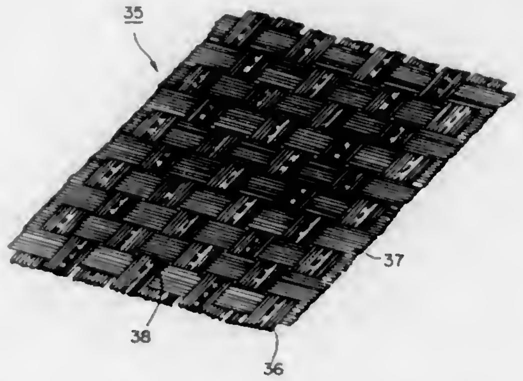


1. A three-dimensional knit spacer fabric comprising:
a first fabric layer made from a first stitch yarn and a backing yarn, a second fabric layer made from a second stitch yarn and a backing yarn, and a pile yarn interconnecting said first and second layers;
wherein each of said layers is identical to the other such that either said stitch yarn of each said layers or said pile yarn adjacent said layers is raised.

5,783,278
REINFORCING WOVEN FABRIC AND METHOD AND APPARATUS FOR MANUFACTURING THE SAME

Akira Nishimura, Iyo-gun; Kiyoshi Homma, Omihachiman, and Ikuo Horibe, Matsuyama, all of Japan, assignors to Toray Industries, Inc., Japan

PCT No. PCT/JP95/01781, § 371 Date Nov. 6, 1996, § 102(e) Date Nov. 6, 1996, PCT Pub. No. WO96/27701, PCT Pub. Date Sep. 12, 1996
PCT Filed Sep. 7, 1995, Ser. No. 737,196
Claims priority, application Japan, Mar. 8, 1995, 7-078274
Int. Cl.^{6} B32B *5/02;5/06;5/28;* **D03D** *15/00*
U.S. Cl. 428—102 **39 Claims**

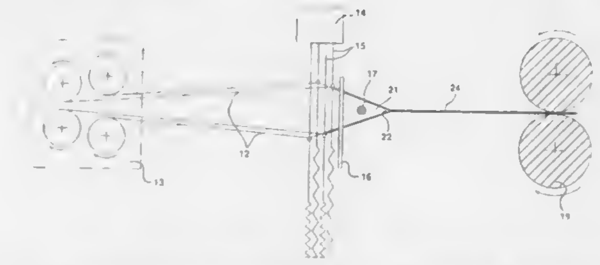


1. A reinforced woven fabric having as weaving threads flat and substantially untwisted multifilaments of reinforcing fibers having less than 0.5 wt. % of sizing agent provided thereon, and bound together with a cohesion of 400–800 mm in hook drop value.

5,783,279
FIBRE PREFORMS FOR STRUCTURAL COMPOSITE COMPONENTS

Raymond Edgson, and Stephen Temple, both of Cambridge, England, assignors to Cambridge Consultants Limited, Cambridge, England

PCT No. PCT/GB92/01525, § 371 Date Feb. 21, 1995, § 102(e) Date Feb. 21, 1995, PCT Pub. No. WO93/04224, PCT Pub. Date Mar. 4, 1993
PCT Filed Aug. 19, 1992, Ser. No. 190,207
Claims priority, application United Kingdom, Aug. 19, 1991, 9117863
Int. Cl.^{6} B32B *3/12*
U.S. Cl. 428—116 **39 Claims**

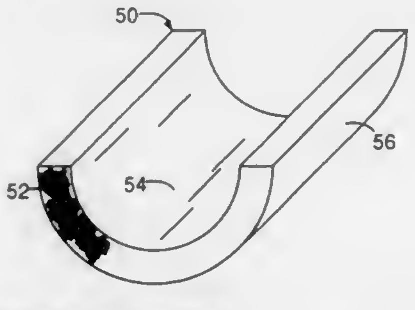


1. A fibre preform comprising at least one flange including a plurality of yarns at least one web woven in one piece with the flange or flanges, in which the or each web includes a plurality of yarns each of which extends repeatedly from a said flange to a free edge of the web or to another flange so as to be interlocked therewith, the preform being woven such that at least some of the web yarns zig zag along the web by repeatedly extending alternately from the flange at a first angle to the plane of the flange and returning to the flange at a second angle to the plane of the flange, the web yarns forming a transversely concentrated substantially continuous wall of fibre.

5,783,280
RIGID THERMAL INSULATION

John S. Rendall, and Massoud Ahghar, both of Albuquerque, N. Mex., assignors to Solv-Ex Corporation, Albuquerque, N. Mex.

Division of Ser. No. 429,195, Apr. 26, 1995, Pat. No. 5,589,023, which is a continuation-in-part of Ser. No. 183,477, Jan. 18, 1994, abandoned. This application Oct. 7, 1996, Ser. No. 726,958
Int. Cl.^{6} B32B *3/26*
U.S. Cl. 428—131 **6 Claims**

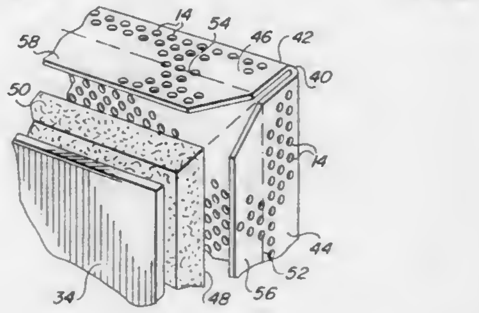


1. A rigid insulation, comprising:
a rigid foam obtained from a mix of a hydrated crystlline form of a double salt of aluminum potassium sulphate $Al_2K_2(SO_4)_4$ precipitated from a liquor, and a binding agent, wherein heat has been used to dehydrate said double salt of aluminum potassium sulphate to-cause, it and said binding agent to foam and expand within a mold;
a thin-film coating of carbon releasing agent on the foam that provides for a separation of the foam from said mold; and
a backing sheet attached to a surface of the foam and releasing agent and providing for moisture and abrasion protection.

5,783,281
APERTURED DISPLAY BOARD

Erik Man, 2295 San Pablo Ave., Suite B, Berkeley, Calif. 94702

Filed Jul. 10, 1995, Ser. No. 500,484
Int. Cl.^{6} G09F *7/06;* **B32B** *3/24*
U.S. Cl. 428—138 **3 Claims**

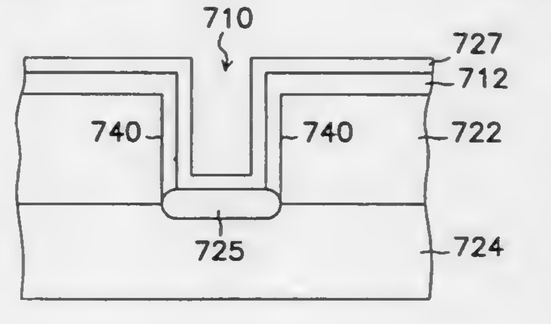


1. A display board for removably retaining inserted pins supporting notices, and indicia, said display board comprising in combination:
(a) a substrate for receiving and removably gripping each inserted pin, said substrate including a front surface, a rear surface and a plurality of straight edges disposed about the perimeter of said front surface and interconnecting said front surface with said rear surface;
(b) a cover of impermeable material for covering said front surface of said substrate, said cover comprising a plurality of fold lines, each of said fold lines corresponding with one of the straight edges disposed about the perimeter of said front surface of said substrate, a plurality of panels delineated on one side by a respective one of said fold lines, said plurality of panels being folded adjacent the corresponding edges of said substrate, each fold line of a further plurality of fold lines delineating another side of one of said plurality of panels, a plurality of further panels extending from respective ones of said further plurality of fold lines, said plurality of further panels being folded along the respective one of said further plurality of fold lines adjacent said rear surface of said substrate, each panel of said plurality of panels having opposed ends extending perpendicularly to the respective one of said plurality of fold lines, each panel of said further plurality of panels having opposed ends extending at an angle from the respective further fold line of said plurality of further fold lines and toward one another; and
(c) a plurality of discrete apertures formed in said cover for penetrably receiving inserted pins to locate the notices and indicia adjacent said cover and wherein said plurality of apertures are also disposed in said plurality of panels.

5,783,282
RESPUTTERING TO ACHIEVE BETTER STEP COVERAGE OF CONTACT HOLES

Shane P. Leiphart, Boise, Id., assignor to Micron Technology, Inc., Boise, Id.

Filed Oct. 7, 1996, Ser. No. 726,657
Int. Cl.^{6} B32B *3/10;* **C23C** *14/00*
U.S. Cl. 428—138 **16 Claims**



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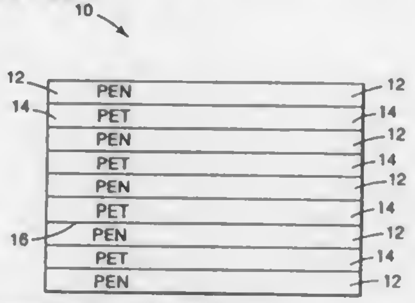
1. A contact hole, defined by a bottom and sidewalls, comprising titanium silicide on the bottom and a substantially continuous layer of titanium nitride on the sidewalls, wherein the titanium nitride is formed by:

physical vapor deposition of titanium into the contact hole;
resputtering the titanium onto the sidewalls; and
annealing the contact hole in a nitrogen-containing ambient.

5,783,283
MULTILAYER POLYESTER FILM WITH A LOW COEFFICIENT OF FRICTION

James A. Klein, Minneapolis; Brandt K. Carter, Woodbury; Sheldon J. Israel, Minneapolis, and Raymond L. Lucking, Hastings, all of Minn., assignors to Minnesota Mining and Manufacturing Company, St. Paul, Minn.

Filed Mar. 8, 1996, Ser. No. 612,526
Int. Cl.^{6} B32B *5/00;27/08;27/36*
U.S. Cl. 428—141 **33 Claims**



1. A multilayer film, comprising:

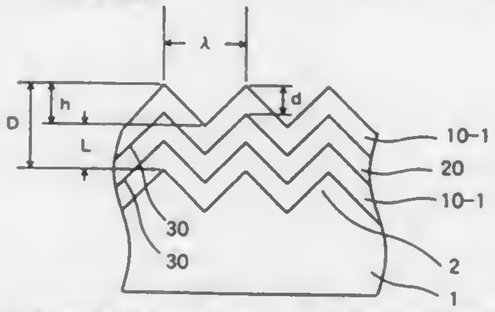
a surface layer comprising a first polymer; and
a second layer, adjacent to said surface layer, comprising a second polymer;

wherein said surface layer and said second layer are devoid of particulate slip agents, wherein said second polymer is crystallized into a plurality of crystalline structures, and wherein said surface layer is sufficiently deformed by said crystalline structures such that said surface layer has a surface roughness R_A of at least about 10 nm as measured by the Rodenstock technique.

5,783,284
MAGNETIC MULTILAYER FILM, MAGNETORESISTANCE ELEMENT, AND METHOD FOR PREPARING MAGNETORESISTANCE ELEMENT

Teruya Shinjo, 39-1055, Kohata-ogurayama, Uji-shi, Kyoto, and Satoru Araki, Chiba, both of Japan, assignors to TDK Corporation, Tokyo, and Teruya Shinjo, Uji, both of Japan

Filed Jan. 31, 1996, Ser. No. 594,486
Claims priority, application Japan, Feb. 1, 1995, 7-036311
Int. Cl.^{6} G11B *5/127;* **B32B** *3/00*
U.S. Cl. 428—161 **11 Claims**



1. A magnetic sensor comprising at least two magnetic layers formed on a substrate having a major surface, with a non-magnetic layer intervening between the magnetic layers, wherein

each interface between said magnetic layers and said non-magnetic layer has corrugations in both X and Y directions, with the proviso that the X direction is a direction parallel to the substrate major surface and the Y direction is a direction orthogonal to the X direction and parallel to said substrate major surface, wherein

among the corrugations in said X and Y directions all of the corrugations in at least one direction satisfy the following formula:

$$2d \leqq (D-h) \leqq 9D/10$$

and wherein all of the corrugations in at least one direction satisfy the following formula:

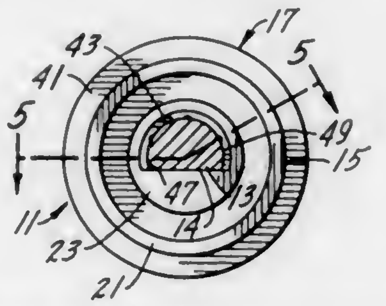
$$0.7 \leqq \lambda/h \leqq 3.5$$

wherein the corrugations have an average amplitude h and an average period λ, said magnetic sensor has a total thickness D and one non-magnetic layer has a thickness d.

5,783,285
METHOD FOR OBTAINING A TIGHT, SECURE CONNECTION BETWEEN INTERFITTING MEMBERS AND THE CONNECTION RESULTING THEREFROM

Robert K. Howie, Jr., Decatur, Ill., assignor to The Grigoleit Company, Decatur, Ill.

Filed Jul. 13, 1995, Ser. No. 502,271
Int. Cl.^{6} B32B *3/00;* **B25G** *3/00*
U.S. Cl. 428—172 **12 Claims**



4. A deformable, tightly gripping connection between two relatively non-deformable members,

a first of said non-deformable members having a socket,
a second of said non-deformable members having a portion which seats in said socket,
a liner of a thermoplastic which is deformable and only slightly compressible installed in said socket, and
a void space formed in one of said members in communication with said liner,
a portion of said liner being displaceable into said void space when said portion of said second non-deformable member is seated in said socket in engagement with said liner to tightly grip said first and second non-deformable members relative to each other.

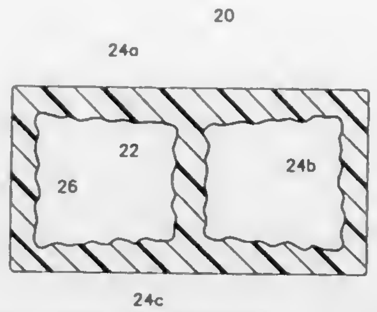
5,783,286
HOLLOW-CORE PLASTIC STRUCTURAL LUMBER ALTERNATIVE

James L. DiNicola, 507 Park Ave., Sycamore, Ill. 61078

Filed Apr. 4, 1996, Ser. No. 628,576
Int. Cl.^{6} B32B *3/20;* **F04C** *2/54;* **D01D** *5/20*
U.S. Cl. 428—188 **12 Claims**

1. A structural lumber alternative comprising:

an extruded member of thermoplastic material having a length which is substantially greater than its cross sectional dimension, the cross section of the extruded member being generally rectangular and hollow having four exterior walls surrounding a central opening, the exterior walls being sufficiently thick and workable to withstand the operations of sawing, nailing, screwing, and gluing;

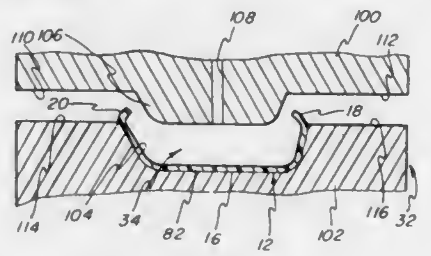


at least one longitudinal web through the central opening joining two opposed walls of the extruded member, the internal web being a unitary non-extruded web characterized by a non-extruded herringbone surface and formed of the same melt which formed the walls; and
the internal web lending sufficient structural rigidity to the extruded member so that the extruded member has strength and weight characteristics comparable to those of lumber.

5,783,287
METHOD OF INSERT MOLDING PLASTIC PARTS TO PROVIDE COVERED EDGE SURFACES AND PLASTIC PARTS MADE THEREBY

Hiroaki Yamamoto, and William Hardgrove, both of Brookville, Ohio, assignors to Green Tokai Co., Ltd., Brookville, Ohio

Continuation of Ser. No. 506,362, Jul. 24, 1995, Pat. No. 5,599,608. This application Oct. 2, 1996, Ser. No. 720,695
Int. Cl.^{6} B32B *9/00*
U.S. Cl. 428—192 **8 Claims**



1. A fused film-plastic part comprising:

a plastic substrate including first and second side portions defining first and second longitudinal edges; and
a film laminate including a first re-entrant edge portion, said film laminate fused to said plastic substrate wherein said first re-entrant edge portion of said film laminate at least partially covers said first longitudinal edge of said plastic substrate.

5,783,288
TONER CARRIER AND METHOD OF PRODUCING THE SAME

Takashi Fujita, Kawasaki; Atsushi Ohta; Mitsuru Hasegawa, both of Yokohama, and Seiji Ishii, Chigasaki, all of Japan, assignors to Ricoh Company, Ltd., Tokyo, Japan

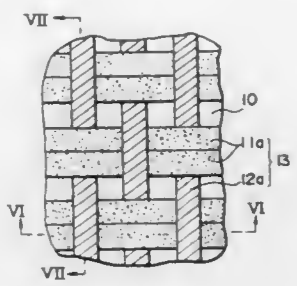
Continuation of Ser. No. 423,046, Apr. 17, 1995, abandoned, which is a division of Ser. No. 323,574, Oct. 17, 1994, Pat. No. 5,456,782, which is a continuation of Ser. No. 966,508, Oct. 23, 1992, abandoned. This application May 7, 1997, Ser. No. 852,687

Claims priority, application Japan, Oct. 24, 1991, 3-305304; Oct. 29, 1991, 3-309652; Feb. 14, 1992, 4-59214; Aug. 31, 1992, 4-255762

Int. Cl.^{6} B32B *3/00*
U.S. Cl. 428—195 **44 Claims**

1. A toner carrier comprising:

a conductive base having an outer surface; and

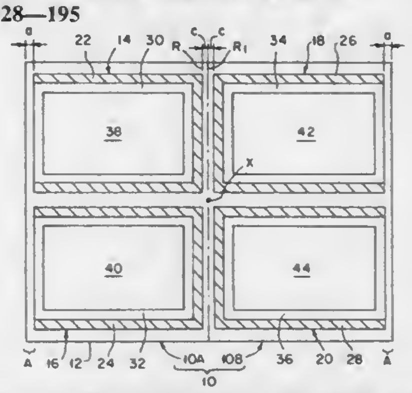


a layer comprising conductive fibers and dielectric fibers and covering the outer surface of said conductive base and formed by melting at least part of at least one of the conductive fibers and dielectric fibers, the layer having an inner surface and an outer surface;
said layer having conductive portions and dielectric portions formed by said conductive fibers and said dielectric fibers and appearing on the outer surface of said layer, said conductive portions contacting said conductive base.

5,783,289
SUBSTRATE FOR FORMING A LIQUID CRYSTAL DISPLAY PANEL AND A METHOD FOR ITS MANUFACTURE

Shunji Suzuki, Yokohama; Hiroyuki Ono, Fujisawa, and Hiroyuki Kamiya, Sagamihara, all of Japan, assignors to International Business Machines Corporation, Armonk, N.Y.

Continuation of Ser. No. 359,776, Dec. 20, 1994, abandoned. This application Jun. 20, 1997, Ser. No. 880,112
Claims priority, application Japan, Dec. 20, 1993, 5-320064
Int. Cl.^{6} B32B *3/00;* **B05D** *5/00*
U.S. Cl. 428—195 **8 Claims**



1. An improved substrate for liquid crystal display panels having a plurality of panel forming areas disposed on a transparent base plate, the panel forming areas having a plurality of patterns therein, at least one of said patterns being asymmetric such that said one pattern is not identical with itself when rotated 180 degrees, and a scribing line being defined along which the transparent plate later is divided to form two parts, at least one of the two parts normally requiring trimming in order to make the two parts identical for further processing, the improved substrate not requiring any trimming of either one of the two parts in order to make the two parts identical, wherein:

the panel forming areas are symmetrically positioned with respect to the scribing line; and
the patterns in the panel forming areas on one side of the scribing line are identical with the patterns in the panel forming areas on the other side of the scribing line but have an orientation that is rotated 180 degrees with respect to the patterns in the panel forming areas on the other side of the scribing line so that said one pattern on the one side of the scribing line corresponds with a pattern on the other side of the scribing line that is oriented upside down,
whereby the two parts of the transparent plate formed by dividing the transparent plate along the scribing line are identical when one of the two parts is rotated by 180 degrees with

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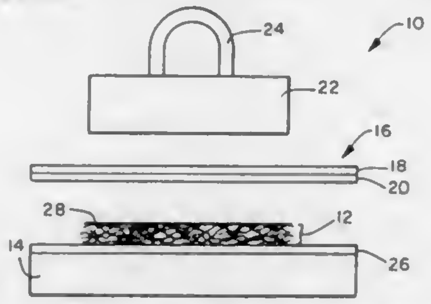
respect to the other one of the two parts without any trimming being required of either one of the two parts.

5,783,290
PROCESS FOR FORMING LIQUID IMPERMEABLE SHEET MATERIAL HAVING A FIBROUS SURFACE AND PRODUCTS FORMED THEREBY

Robert Lewis Isaac, Bethesda, Md.; Bernard Cohen, Berkeley Lake, and Lee Kirby Jameson, Roswell, both of Ga., assignors to Kimberly-Clark Worldwide, Inc., Neenah, Wis.
Division of Ser. No. 159,979, Nov. 30, 1993. This application May 22, 1995, Ser. No. 445,961
Int. Cl.^{6} B32B *3/10;* **D04H** *1/04*
U.S. Cl. 428—198 **14 Claims**



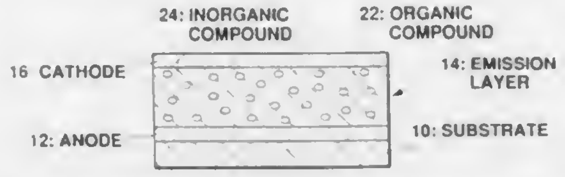
1. A liquid-impermeable, water vapor permeable sheet having a fibrous surface and a liquid impermeable skin, the sheet being formed by a process comprising the steps of:
forming a sheet having a first fibrous surface and a second fibrous surface;
subjecting the sheet to pressure and a z-gradient temperature differential sufficient to melt the fibers of the first surface and form the melt into a liquid impermeable skin without significantly altering the fibers of the second surface; and
aperturing the liquid impermeable skin.

5,783,291

Patent Not Issued For This Number

5,783,292
ELECTROLUMINESCENT DEVICE WITH ORGANIC-INORGANIC COMPOSITE THIN FILM

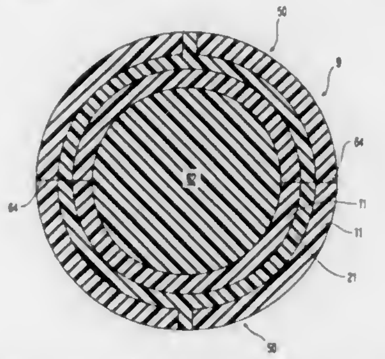
Shizuo Tokito, and Yasunori Taga, both of Nagoya, Japan, assignors to Kabushiki Kaisha Toyota Chuo Kenkyusho, Aichi-ken, Japan
Filed Sep. 28, 1995, Ser. No. 535,338
Claims priority, application Japan, Sep. 29, 1994, 6-261285
Int. Cl.^{6} H05B *33/12;* **B32B** *7/00*
U.S. Cl. 428—212 **22 Claims**



1. An electroluminescent device with an organic-inorganic composite film comprising:
one or more organic-inorganic compound layers, the organic-inorganic compound layers comprising both of an organic compound and an inorganic compound;
a pair of electrodes consisting of an anode disposed on the organic-inorganic compound layers for injecting holes to the organic-inorganic compound layers and a cathode disposed on the organic-inorganic compound layers oppositely to the anodic electrode for injecting electrons to the organic-inorganic compound layers; and
an emission layer to emit light by recombination of the holes and the electrons, the emission layer comprising at least one of the organic-inorganic compound layers or an organic compound layer;
wherein in said one or more organic-inorganic compound layers
  (a) the inorganic compound has a higher melting point than the organic compound; and
  (b) the organic-inorganic compound layers comprise
    (i) a mixed film comprising particles of an organic compound dispersed in an inorganic compound wherein the distance between particles of the organic compound dispersed in the inorganic compound is not larger than 50 Å; and/or
    (ii) a superlattice structure comprising alternating organic compound films and inorganic compound films wherein the inorganic compound films are not thicker than 50 Å.

5,783,293
GOLF BALL WITH A MULTI-LAYERED COVER

Robert N. Lammi, Norton, Mass., assignor to Acushnet Company, Fairhaven, Mass.
Filed Nov. 7, 1996, Ser. No. 745,137
Int. Cl.^{6} B32B *9/00*
U.S. Cl. 428—212 **21 Claims**



1. A golf ball comprising a core and a cover surrounding the core, the cover comprising an inner layer and an outer layer of a first material comprising one or more polymers, and an intermediate layer between the inner and outer layers of a second material comprising one or more polymers wherein the second material is harder than the first material.

5,783,294
ELECTROCONDUCTIVE COMPOSITE PLASTIC RESIN SHEET

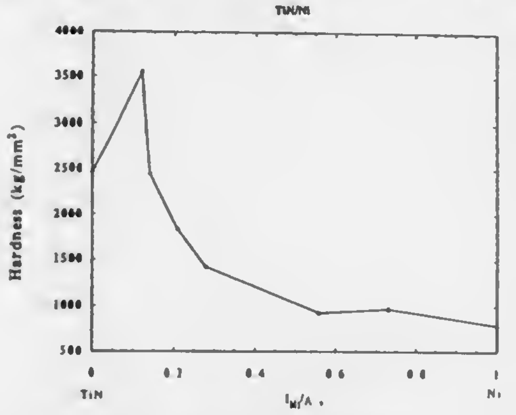
Shigenobu Hiraiwa; Kiyofumi Tanaka, and Hiroshi Kato, all of Omiya, Japan, assignors to Shin-Etsu Polymer Co. Ltd., Tokyo, Japan
Filed Dec. 24, 1996, Ser. No. 772,921
Claims priority, application Japan, Dec. 28, 1995, 7-343316
Int. Cl.^{6} B32B *7/02;* **H01B** *1/00*
U.S. Cl. 428—215 **4 Claims**

1. An electronductive flexible composite plastic resin sheet which consists essentially of:
(A) a base sheet having a thickness in the range from 100 to 1000 μm formed from an electrically insulating polystyrene-based plastic resin selected from the group consisting of homopolymers of styrene, α-methylstyrene, 4-tert-butyl styrene, or 4-methyl styrene; copolymers of styrene monomers and (meth) acrylonitrile, butadiene, butyl (meth) acrylate, methyl (meth) acrylate, ethyl (meth) acrylate, (meth) acrylic acid, or maleic anhydride; and a ternary copolymer of acrylonitrile, butadiene and styrene; and

(B) a coating layer having a surface resistivity in the range form 10^4 to 10^8 ohm at 23° C. and a thickness in the range from 0.1 to 30 μm formed on at least one surface of the base sheet from an electroconductive coating composition comprising:
(a) 100 parts by weight of an acrylic urethane-based resin selected from the group consisting of copolymers of an acrylic monomer with a polyether urethane compound, polyester urethane compound, polycarbonate urethane compound or epoxy-modified urethane compound and plastic alloys consisting of an acrylic resin and a urethane resin as the vehicle of the coating composition to form the matrix phase of the coating layer; and
(b) from 15 to 35 parts by weight of electroconductive particles having an average particle diameter in the range from 0.05 to 1.0 μm uniformly dispersed in the acrylic urethane based resin.

5,783,295
POLYCRYSTALLINE SUPPERLATTICE COATED SUBSTRATE AND METHOD/APPARATUS FOR MAKING SENSE

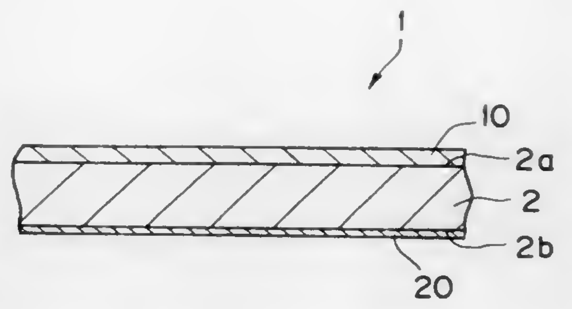
Scott A. Barnett, Evanston; William D. Sproul, Palantine; Ming-show Wong, Northbrook, and Xi Chu, Evanston, all of Ill., assignors to Northwestern University, Evanston, Ill.
Continuation of Ser. No. 973,390, Nov. 9, 1992, abandoned. This application Jul. 5, 1996, Ser. No. 675,797
Int. Cl.^{6} B32B *7/02*
U.S. Cl. 428—216 **9 Claims**



1. A coated article comprising, in combination:
a metal substrate, said substrate having a surface coated with a protective composite coating;
said coating comprising multiple pairs of layers, each layer comprised of a distinct polycrystalline, stoichiometic metal compound deposited by vapor deposition onto the surface and the layers previously deposited thereon alternating layers of said coating having the same composition, adjacent pairs of layers having a nominal thickness in the range greater than about 2 to about 10 nanometers and said adjacent pairs of layers in combination having a Vickers hardness (Kg/mm^2) exceeding about 4000.

5,783,296
MAGNETIC RECORDING MEDIUM

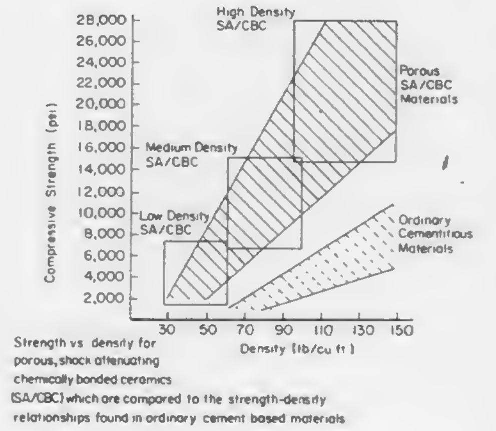
Kazunori Tamazaki; Shigeharu Watase, both of Saku, and Osamu Inoue, Komoro, all of Japan, assignors to TDK Corporation, Tokyo, Japan
Filed Mar. 27, 1997, Ser. No. 835,022
Claims priority, application Japan, Mar. 29, 1996, 8-103440
Int. Cl.^{6} G11B *5/704*
U.S. Cl. 428—216 **5 Claims**



1. A magnetic recording medium comprising a nonmagnetic support, a magnetic layer provided on one surface of the nonmagnetic support and a backcoat layer provided on the other surface of the nonmagnetic support, said nonmagnetic support being provided with such physical properties as Young's moduluses in the longitudinal direction and the lateral direction thereof in the range of 1300–1600 kg/cm^2, respectively, and a breaking elongation in the range of 3–10% and said magnetic recording medium being provided on the magnetic layer side thereof with a convex cupping the magnitude of which is in the range of 0.02–0.20 mm at a width of 3.8 mm.

5,783,297
MATERIALS FOR SHOCK ATTENUATION

Sean Wise, Millersville, and Claudio J. Herzfeld, Suitland, both of Md., assignors to Cemcom Corporation, Baltimore, Md.
Filed Aug. 16, 1995, Ser. No. 515,734
Int. Cl.^{6} B32B *3/26*
U.S. Cl. 428—304.4 **20 Claims**



1. A settable cement mixture from which articles can be cast, said articles comprising a high porosity shock attenuating chemically bonded ceramic material having a density from about 30 to 160 lb/cubic foot and a porosity of about 20 to 80% and a compressive strength between about 500 and 30,000 psi when cast and set, said mixture comprising the following in percent by weight:
(a) Portland Cement 6 to 40;
(b) Silica Fume 4 to 18.86;
(c) Hollow Inorganic Filler Particles 10 to 50;
(d) Fibers 0.05 to 35;
(e) Water 9 to 35; and
(f) Plasticizer up to 2.

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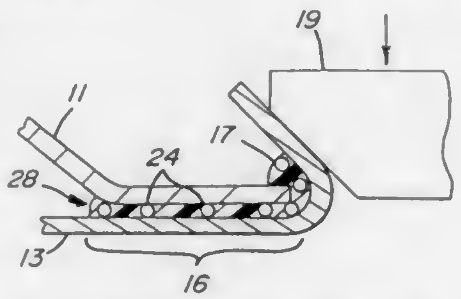
5,783,298
ADHESIVE MIXTURE WITH NON-COMPRESSIBLE BEADS THEREIN

James Morton Herring, Jr., Rochester Hills, and Bruce Norman Greve, Davisburg, both of Mich., assignors to The Budd Company, Troy, Mich.

Continuation of Ser. No. 195,746, Feb. 14, 1994, Pat. No. 5,470,416, which is a continuation of Ser. No. 869,649, Apr. 16, 1992, abandoned. This application Jun. 7, 1995, Ser. No. 486,694

Int. Cl.^{6} B32B *5/16;* **C09J** *4/00;* **A62C** *5/02*

U.S. Cl. 428—323 21 Claims



1. A container having a mixture of at least one part of a two-part epoxy adhesive and a plurality of non-compressible beads therein, the beads having a diameter in the range of about 0.003 to about 0.030 inches, the mixture being capable of being pumped from the container and applied to a member prior to forming a joint with another member, with the adhesive in the joint having a concentration of beads in the range of about 5% to about 20% by weight.

5,783,299
POLARIZER PLATE WITH ANTI-STAIN LAYER

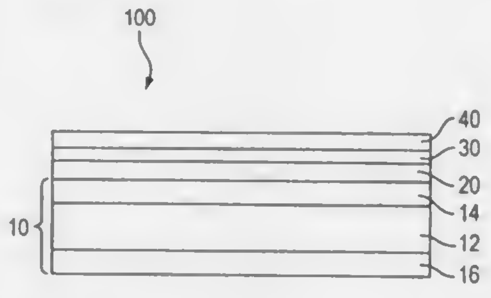
Satoru Miyashita; Kogo Endo; Etsuo Okaue; Mikito Nakajima; Takao Mogami, and Satoshi Kubota, all of Suwa, Japan, assignors to Seiko Epson Corporation, Tokyo, Japan

Continuation-in-part of Ser. No. 183,105, Jan. 18, 1994, Pat. No. 5,622,784, which is a continuation of Ser. No. 20,181, Feb. 16, 1993, abandoned, which is a continuation of Ser. No. 759,990, Sep. 16, 1991, abandoned, which is a continuation of Ser. No. 3,883, Jan. 16, 1987, abandoned. This application Oct. 14, 1994, Ser. No. 324,066

Claims priority, application Japan, Jan. 21, 1986, 61-10468; Feb. 3, 1986, 61-21381; Feb. 3, 1986, 61-21382; Apr. 21, 1986, 61-91568

Int. Cl.^{6} G02B *1/10*

U.S. Cl. 428—329 14 Claims



1. A polarizer plate comprising:

a polarizer substrate including

a polarizer layer of polarizing material having two surfaces, the polarizer layer having supporting layers disposed on both surfaces of said polarizer layer;

an organic resin undercoat layer having a haze as is set forth in Japan Industrial Standard K 6900 from 5% to 30% disposed on one of the supporting layers;

an anti-reflection layer disposed on said undercoat layer; and

an outermost anti-staining layer disposed on said anti-reflection layer, said anti-staining layer including a fluorine-containing silane compound represented by the following formula (1):

$$(R^1)_a(R^2)_b\text{—Si—}X_c \qquad (1)$$

in which:

R^1 is a fluorine-containing organic group;

R^2 is hydrogen or an organic group;

X is an amino group;

a is 1, 2, or 3;

b is 0, 1 or 2; and

c is 1, 2, or 3;

or an oligomer or a polymer containing the unit represented by formula (1).

5,783,300
MAGNETOOPTICAL RECORDING MEDIUM ALLOWING OVERWRITING WITH TWO OR MORE MAGNETIC LAYERS AND RECORDING METHOD UTILIZING THE SAME

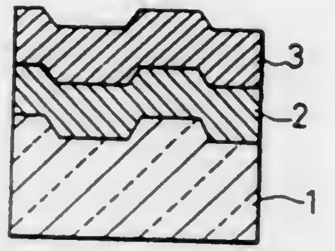
Yoichi Osato, Yokohama; Hisaaki Kawade, Atsugi; Eiichi Fujii, Yokohama; Nobuhiro Kasama, Yokohama, and Tadashi Kobayashi, Yokohama, all of Japan, assignors to Canon Kabushiki Kaisha, Tokyo, Japan

Division of Ser. No. 296,163, Aug. 26, 1994, Pat. No. 5,525,378, which is a division of Ser. No. 237,420, May 3, 1994, abandoned, which is a continuation of Ser. No. 841,015, Feb. 25, 1992, abandoned, which is a division of Ser. No. 475,941, Jan. 30, 1990, Pat. No. 5,132,945, which is a continuation of Ser. No. 71,190, Jul. 8, 1987, abandoned. This application Feb. 29, 1996, Ser. No. 613,431

Claims priority, application Japan, Jun. 18, 1986, 62-153108; Jul. 8, 1986, 61-158787; Aug. 16, 1986, 61-191202; Nov. 5, 1986, 61-262034; Nov. 25, 1986, 61-278566; Nov. 25, 1986, 61-278567; Feb. 2, 1987, 61-20384; Feb. 3, 1987, 61-21675; Feb. 4, 1987, 62-23993; Feb. 6, 1987, 62-24706; Feb. 6, 1987, 62-24707; Feb. 10, 1987, 62-27082; Feb. 10, 1987, 62-27083; Feb. 23, 1987, 62-37736; Mar. 10, 1987, 62-52897; Mar. 26, 1987, 62-70273; Mar. 26, 1987, 62-70274; Mar. 26, 1987, 62-70279; Mar. 26, 1987, 62-72559

Int. Cl.^{6} G11B *5/66;5/64;5/62;11/00*

U.S. Cl. 428—332 3 Claims



1. A magnetooptical recording medium comprising:

a substrates;

a first magnetic layer disposed on said substrate and lying in a plane; and

a second magnetic layer lying in a plane that is parallel to that of said first magnetic layer, said second magnetic layer being exchange-coupled to said first magnetic layer and said second magnetic layer having a higher Curie point and a lower coercive force at room temperature than those of said first magnetic layer,

wherein said substrate and said magnetic layers are arranged in the order: substrate, first magnetic layer, second magnetic layer, and

wherein the following relations hips are satisfied:

$$H_1 > H_2 > \frac{\sigma_w}{2Ms\,L_2}\,,$$

-continued

$$600\ \text{Å} < L_1 + L_2 < 1{,}000\ \text{Å},$$

$$200\ \text{Å} < L_1 \leqq 600\ \text{Å, and } L_2 \leqq 500\ \text{Å}$$

wherein H_1 and H_2 are respectively coercive forces at room temperature of said first and second magnetic layers, Ms is the saturation magnetization of said second magnetic layer measured at room temperature, σ_w is the magnetic wall energy between said first and second magnetic layers measured at room temperature, and L_1 and L_2 are respectively thicknesses of said first and second magnetic layers.

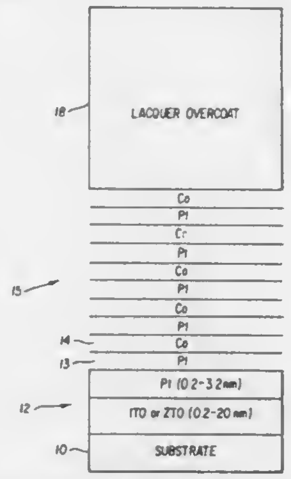
5,783,301
MULTILAYER MAGNETOOPTIC RECORDING MEDIA

Tukaram K. Hatwar, Penfield, and Yuan-Sheng Tyan, Webster, both of N.Y., assignors to Eastman Kodak Company, Rochester, N.Y.

Filed Oct. 29, 1996, Ser. No. 741,416

Int. Cl.^{6} G11B *5/66;5/70;5/716;11/00*

U.S. Cl. 428—332 7 Claims



1. A magnetooptical recording medium comprising a substrate, a seed layer structure having at least two layers including a first layer formed on the substrate and consisting of amorphous ITO and having a thickness of greater than 20 nm but less than 200 nm; and a polycrystalline metal layer formed directly on the first layer having a thickness of 0.2–3.2 nm and a recording multilayer of alternate layers of platinum and cobalt or palladium and cobalt alloy deposited onto the said seed layer structure, whereby the said seed layer structure is selected to improve the recording sensitivity, the coercivity and squareness of the recording multilayer.

5,783,302
THERMOPLASTIC ELASTOMERS

Steven P. Bitler, Menlo Park; Raymond Clarke, Los Altos; David A. Kemp, Sunnyvale; Ray F. Stewart; Valentine Y. Yoon, both of Redwood City, all of Calif., and Robert G. Freelin, McLean, Va., assignors to Landec Corporation, Menlo Park, Calif.

Division of Ser. No. 48,280, Apr. 14, 1993, and a continuation-in-part of Ser. No. 773,047, Oct. 7, 1991, abandoned, Ser. No. 957,270, Oct. 6, 1992, abandoned, and Ser. No. 885,915, May 18, 1992, Pat. No. 5,254,354, which is a continuation of Ser. No. 623,602, Dec. 9, 1990, abandoned, said Ser. No. 957,270 is a continuation-in-part of Ser. No. 773,047. This application May 22, 1995, Ser. No. 445,887

Int. Cl.^{6} B32B *7/12*

U.S. Cl. 428—343 25 Claims

1. A pressure-sensitive adhesive (PSA) composite which comprises

(i) a flexible backing.

(ii) a solvent-free layer of a PSA which is secured to the backing, and which comprises a thermoplastic elastomer (TPE) or is at least partially covered by a layer comprising a TPE, said TPE comprising polymeric molecules which comprise

- (i) polymeric A blocks which
  - (a) are crystalline and have a melting point T_q, or
  - (b) are amorphous and have a glass transition point T_{gh};
- (ii) at least one polymeric B block which is linked to at least two A blocks and which
  - (a) is crystalline and has a melting point T_{ms} which is less than (T_q-10)°C. or less than $(T_{gh}-10)$°C. or
  - (b) is amorphous and has a glass transition point T_{gs} which is less than (T_q-10)°C. or less than $(T_{gh}-10)$°C.;

wherein at least one block selected from the A and B blocks comprises a side chain comprising crystallizable moieties which render the block crystalline.

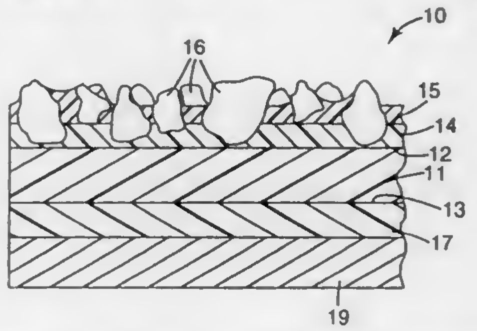
5,783,303
CURABLE WATER-BASED COATING COMPOSITIONS AND CURED PRODUCTS THEREOF

Alexander C. Tsuei, Woodbury, Minn., assignor to Minnesota Mining and Manufacturing Company, St. Paul, Minn.

Division of Ser. No. 598,491, Feb. 8, 1996, Pat. No. 5,643,669. This application Jan. 31, 1997, Ser. No. 794,260

Int. Cl.^{6} C09K *3/14;* **B32B** *27/06;* **C08K** *5/06*

U.S. Cl. 428—354 23 Claims



1. A curable water-based coating composition comprising:

(a) a urethane/acrylic copolymer having a Tg of greater than about 50° C.;

(b) a polyoxyethylene aryl ether plasticizer;

(c) an alkaline-stable crosslinker; and

(d) water;

wherein the curable water-based coating composition includes less than about 5 wt-% volatile organic compounds, based on the total weight of the composition.

5,783,304
ACIDIC OR BASIC GAS ABSORPTIVE FIBER AND FABRIC

Shigeru Nakajima, and Mitsuru Wakitani, both of Okayama, Japan, assignors to Japan Exlan Company Limited, Osaka, Japan

Filed Feb. 6, 1997, Ser. No. 796,815

Claims priority, application Japan, Feb. 26, 1996, 8-065561

Int. Cl.^{6} D02G *3/00*

U.S. Cl. 428—364 12 Claims

1. A fiber having both a degree of acidic gas absorption, as measured according to the following test method I, of 70% or higher, and a degree of basic gas absorption, as measured according to the following test method II, of 80% or higher,

Test Method I

One gram of the fiber as dried absolutely at 105° C. is left in a standard atmosphere at 20° C. and at 65% RH for 10 hours or longer, then airtightly sealed in a Tedlar® bag along with 1000 ml of a mixed gas comprising air and having an acetic

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acid concentration of 50 ppm, and left therein at 20° C. for 2 hours; and the acetic acid concentration in the mixed gas in the bag is measured, from which is obtained the decrease in acetic acid gas therein that indicates the degree of acidic gas absorption of the fiber.

Test Method II

One gram of a fiber sample as dried absolutely at 105° C. is left in a standard atmosphere at 20° C. and at 65% RH for 10 hours or longer, then airtightly sealed in a Tedlar® bag along with 1000 ml of a mixed gas comprising air and having an ammonia concentration of 100 ppm, and left therein at 20° C. for 2 hours; and the ammonia concentration in the mixed gas in the bag is measured, from which is obtained the decrease in ammonia gas therein that indicates the degree of basic gas absorption of the fiber.

5,783,305

FINISH FOR CARBON FIBER PRECURSORS

Takao Masaki, Yamatotakada; Tomoo Komatsubara, Kashiwara; Yoshiaki Tanaka, Kitakatsuragi-gun; Seizi Nakanishi, Higashiosaka; Mikio Nakagawa, and Junji Kanamori, both of Yao, all of Japan, assignors to Matsumoto Yushi-Seiyaku Co. Ltd., Osaka, Japan

PCT No. PCT/JP96/02435, § 371 Date Jan. 24, 1997, § 102(e) Date Jan. 24, 1997, PCT Pub. No. WO97/09474, PCT Pub. Date Mar. 13, 1997

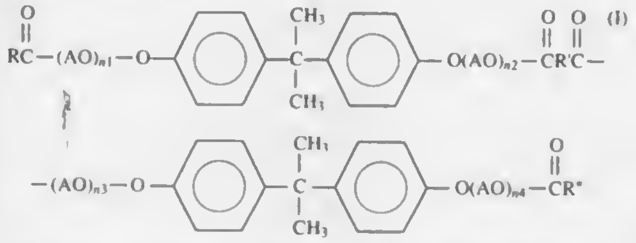
PCT Filed Aug. 30, 1996, Ser. No. 776,239

Claims priority, application Japan, Sep. 6, 1995, 7-228879

Int. Cl.^{6} D01F *9/22*

U.S. Cl. 428—408 **13 Claims**

1. A finish for carbon fiber precursors comprising 20 or more weight percent of (A) the reaction product of a saturated aliphatic dicarboxylic acid, and a monoalkyl ester of an ethylene oxide and/or propylene oxide adduct of bisphenol A, represented by the general formula I;


(I)

wherein R, R', and R" are the same or different alkyl groups: n_1, n_2, n_3, and n_4 are the same or different integer; and AO is an alkylene oxide group including 20 to 50 weight percent of (B) the component produced by the reaction of the condensation product of a dibasic acid and a polyol containing alkylene oxide, and fatty acid alkylol amide.

5,783,306

HYPERPOLARIZABLE COMPOUNDS AND DEVICES FABRICATED THEREFROM

Michael J. Therien, Philadelphia, Pa., and Stephen G. DiMagno, Lincoln, Nebr., assignors to Trustees of the University of Pennsylvania, Philadelphia, Pa.

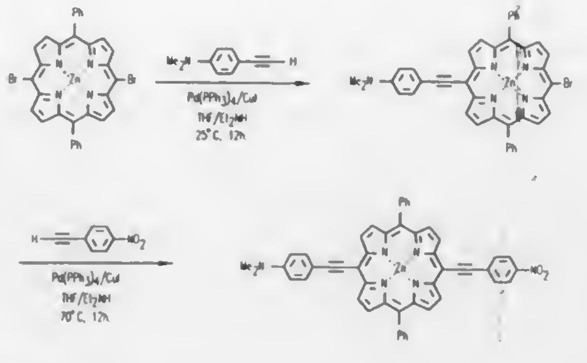
Continuation-in-part of Ser. No. 64,468, May 20, 1993, Pat. No. 5,493,017, which is a continuation-in-part of Ser. No. 929,943, Aug. 14, 1992, Pat. No. 5,371,199. This application Jan. 26, 1996, Ser. No. 592,049

Int. Cl.^{6} C07B *47/00;* **C07D** *487/22;* **H03G** *1/00;* **A01N** *55/02*

U.S. Cl. 428—411.1 **27 Claims**

1. A compound having formula:

$$R_1-R_A-[MC]-[[R_M]_z-[MC]]_m-R_A-R_2$$



wherein:

- each [MC], independently, is a porphyrin, chlorin, phorbin, benzoporphyrin, bacteriochlorin, porphyrinogen, sapphyrin, texaphyrin, or phthalocyanine;
- each R_A, independently, is a covalent bond, alkenyl having 2 to about 20 carbon atoms, cumulenyl having 4 to about 14 carbon atoms, or alkynyl having 2 to about 10 carbon atoms, provided that at least one of R_A is alkenyl, cumulenyl, or alkynyl;
- each R_M, independently, is alkyl having 1 to about 20 carbon atoms, alkenyl having 2 to about 20 carbon atoms, cumulenyl having 4 to about 14 carbon atoms, alkynyl having 2 to about 10 carbon atoms, aryl having 3 to about 50 carbon atoms, arylalkynyl having 10 to about 24 carbon atoms, or thioether having 1 to about 10 carbon atoms;

one of R_1 and R_2 is a chemical group that is electron-donating;
the other of R_1 and R_2 is a chemical group that is electron-withdrawing;
m is 0 to about 50; and
z is 0 or 1.

5,783,307

UV STABILIZED MULTI-LAYER STRUCTURES WITH DETECTABLE UV PROTECTIVE LAYERS AND A METHOD OF DETECTION

David Richard Fagerburg, and Jack Donald Vicars, both of Kingsport, Tenn., assignors to Eastman Chemical Company, Kingsport, Tenn.

Filed Nov. 4, 1996, Ser. No. 743,351

Int. Cl.^{6} B32B *27/36;* **G01J** *1/42;1/00;* **G01N** *21/64;* **F21V** *9/06;* **G02B** *5/20*

U.S. Cl. 428—412 **10 Claims**

1. An ultraviolet stabilized multi-layer structure comprising:

a) an ultraviolet protective layer comprising an ultraviolet absorbing compound; a polymeric base material selected from the group consisting of a polyester, an acrylic and a polycarbonate; and an optical brightener present in an amount sufficient to cause visual illumination of the ultraviolet protective layer upon exposure to a white light source; and

b) a polymeric layer comprising a polyester or a polycarbonate;

wherein said ultraviolet absorbing compound is a fluorescing material with said optical brightener being present in an amount between 1 and 1000 ppm or said ultraviolet absorbing compound is a non-fluorescing material with said optical brightener being present in an amount between 200 and 1000 ppm, the amount of optical brightener being based on the total weight of said polymeric base material in said ultraviolet protective layer.

5,783,308

CERAMIC REINFORCED FLUOROPOLYMER

Howard V. Leendersen, Bellevue, Wash., assignor to Quaker State Corporation, Irving, Tex.

Filed Oct. 25, 1996, Ser. No. 738,015

Int. Cl.^{6} B32B *27/00*

U.S. Cl. 428—422 **15 Claims**

15. A substrate including at least a partial coating comprising an admixture of effective film-forming amounts of at least one particulate boron nitride and at least one particulate fluoropolymer.

5,783,309

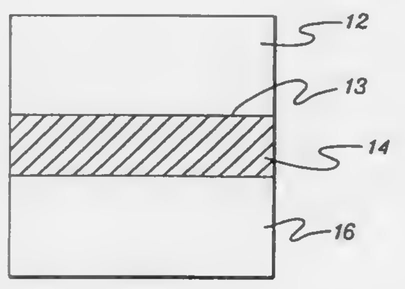
RECOVERY OF AN ANODICALLY BONDED GLASS DEVICE FROM A SUBSTRATE BY USE OF A METAL INTERLAYER

Thomas Benjamin Faure, Georgia; Kurt Rudolf Kimmel, Jericho; Wilbur David Pricer, Charlotte, and Charles Arthur Whiting, Milton, all of Vt., assignors to International Business Machines Corporation, Armonk, N.Y.

Division of Ser. No. 375,769, Jan. 20, 1995, Pat. No. 5,538,151. This application Jan. 19, 1996, Ser. No. 591,253

Int. Cl.^{6} B32B *15/00*

U.S. Cl. 428—432 **10 Claims**



1. A structure which allows the recovery of an anodically bonded glass device therefrom, said structure comprising:

a substrate having a surface;
an oxidizable metal interlayer on said surface, said metal interlayer suitable for anodic bonding to said glass device; and
a glass device anodically bonded to said metal interlayer.

5,783,310

SURFACE-DECORATED ARTICLES BY NOBLE METALS UTILIZABLE IN AN ELECTRONIC RANGE, METHOD FOR PRODUCING SAME, AND LIQUID GOLD FOR INSULATING OVERGLAZE DECORATION

Masato Sano, Nagoya, and Ryuta Yokoyama, Aichi-ken, both of Japan, assignors to Noritake Co., Limited, Japan

Filed Dec. 27, 1995, Ser. No. 578,117

Claims priority, application Japan, Dec. 27, 1994, 6-339122

Int. Cl.^{6} B32B *15/04*

U.S. Cl. 428—434 **8 Claims**

1. An article decorated with noble metal, comprising a decorating material of a noble metal color fused on a surface of a ceramic substrate, wherein said decorating material has a dual-layer structure comprising an insulating noble metal film layer and a frit layer disposed over said insulating noble metal film layer.

5,783,311

CVE SILICONE ELASTOMER COMPOSITIONS AND PROTECTIVE COATING OF VEHICULAR AIRBAGS THEREWITH

Dominique Lorenzetti, Caluire, and Pierre-Michel Peccoux, Lyon, both of France, assignors to Rhone-Poulenc Chimie, Courbevoie Cedex, France

Continuation of Ser. No. 434,190, May 3, 1995, Pat. No. 5,658,674. This application Jan. 27, 1997, Ser. No. 786,732

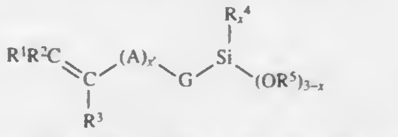
Claims priority, application France, May 3, 1994, 94 05652

Int. Cl.^{6} B32B *27/06*

U.S. Cl. 428—447 **16 Claims**

1. A substrate comprising a fibrous support coated with a CVE silicone coating composition crosslinkable into elastomeric state, said coating composition comprising an intimate admixture of:

(I) at least one polyorganosiloxane having, per molecule, at least two C_2–C_6 alkenyl radicals bonded to a silicon atom,
(II) at least one polyorganosiloxane having, per molecule, at least three hydrogen atoms bonded to a silicon atom,
(III) a catalytically effective amount of at least one curing catalyst which comprises at least one platinum group metal,
(IV) an adhesiveness promoter,
(V) optionally, an inorganic filler material,
(VI) optionally, at least one inhibitor of crosslinking, and
(VII) optionally, at least one polyorganosiloxane resin, said adhesiveness promoter comprising (IV.1) at least one alkoxylated organosilane having the formula:


(IV.1)

in which R^1, R^2 and R^3, which are identical or different, are each a hydrogen atom or a hydrocarbon radical, A is a linear or branched C_1–C_4 alkylene radical, G is a simple valence bond or oxygen, R^4 and R^5, which are identical or different, are each a linear or branched C_1–C_4 alkyl radical, $x'=0$ or 1, and $x=0$ to 2, (IV.2) at least one organosilicon compound having at least one epoxy radical, and (IV.3) at least one chelate of a metal M and/or a metal alkoxide having the formula: $M(OJ)_n$, wherein n is the valency of M and J is a linear or branched C_1–C_8 alkyl radical, and M is Ti.

5,783,312

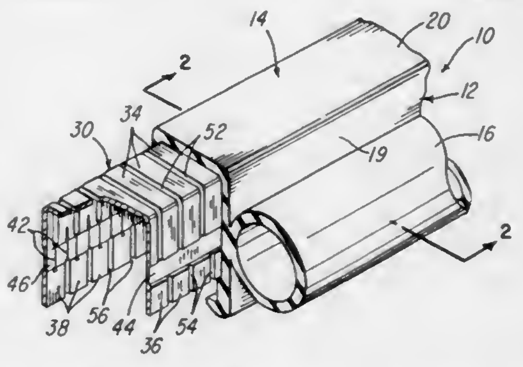
EXPANDED METAL STRIP FOR REINFORCING A RESILIENT PRODUCT

Kerry L. Laughman, Huber Heights; Terry R. Suitts, Englewood; Daniel J. Davis, Beavercreek, and Robert W. Davis, Xenia, all of Ohio, assignors to The Gem City Engineering Co., Dayton, Ohio

Filed Dec. 19, 1996, Ser. No. 772,030

Int. Cl.^{6} E06B *7/22*

U.S. Cl. 428—573 **20 Claims**



1. An elongated expanded sheet metal strip adapted for reinforcing a resilient weatherstrip product, comprising a continuous series of longitudinally spaced and laterally extending sheet metal bars, a

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set of first and second longitudinally extending and parallel spaced splines integrally connecting said bars, each of said splines having a thickness less than the thickness of said bars, said first spline having longitudinally spaced and laterally extending slits interrupting said first spline, and said slits are arranged to provide for stretching said first spline while maintaining an integral connection of said bars by said first spline.

5,783,313

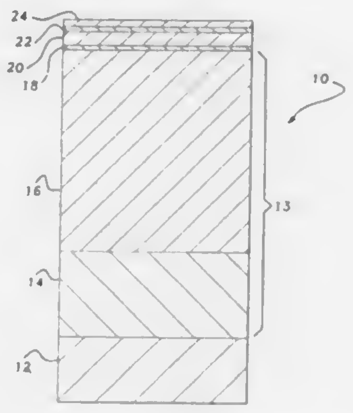
COATED ARTICLE

Stephen R. Moysan, III, Douglasville, and Rolin W. Sugg, Reading, both of Pa., assignors to Baldwin Hardware Corporation, Reading, Pa.

Filed Dec. 22, 1995, Ser. No. 576,887

Int. Cl.^{6} B32B *15/04;15/00;* **C25D** *5/10*

U.S. Cl. 428—627 **21 Claims**



1. An article comprising a metallic substrate having on at least a portion of its surface a multi-layer coating comprising:
   a first layer comprised of semi-bright nickel;
   a second layer comprised of bright nickel;
   a third layer comprised of palladium;
   a fourth layer comprised of ruthenium;
   a fifth layer comprised of zirconium or titanium; and
   a top layer having a thickness effective to at least provide the color of brass comprised of zirconium compound or titanium compound.

5,783,314

SLIDING COMPONENT AND PRODUCTION METHOD THEREOF

Masamichi Yamagiwa; Takao Nishioka; Hisao Takeuchi, and Akira Yamakawa, all of Hyogo, Japan, assignors to Sumitomo Electric Industries, Ltd., Japan

PCT No. PCT/JP96/01660, § 371 Date Sep. 19, 1996, § 102(e) Date Sep. 19, 1996, PCT Pub. No. WO97/00374, PCT Pub. Date Jan. 3, 1997

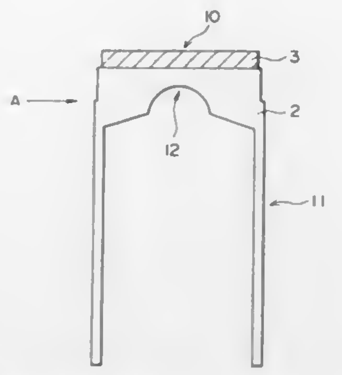
PCT Filed Jun. 17, 1996, Ser. No. 716,446

Claims priority, application Japan, Jun. 19, 1995, 7-151813

Int. Cl.^{6} B32B *18/00;15/00;* **C21D** *1/00*

U.S. Cl. 428—627 **18 Claims**

1. A sliding component characterized in that at least one of the members forming a crown-shaped sliding face is joined or fitted to a portion made of steel, the crown-shaped sliding face having been formed by partially applying a surface quenching treatment to said portion made of steel.



5,783,315

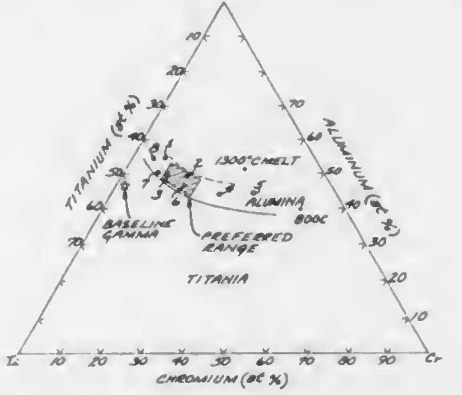
TI-CR-AL PROTECTIVE COATINGS FOR ALLOYS

Jon C. Schaeffer, Milford; Russell L. McCarron, Cincinnati, both of Ohio; Gerald H. Meier, Pittsburgh, Pa.; Roger A. Perkins, Weed, and Joseph F. Cullinan, San Francisco, both of Calif., assignors to General Electric Company, Cincinnati, Ohio

Filed Mar. 10, 1997, Ser. No. 814,128

Int. Cl.^{6} B32B *15/00;15/20*

U.S. Cl. 428—633 **12 Claims**



1. An article having a protective coating thereon, comprising
   a titanium-containing substrate having a substrate composition and a substrate surface; and
   a protective coating contacting and overlying at least a portion of the substrate surface, the protective coating comprising
      a metallic layer contacting the substrate surface and having a composition, in atomic percent, of from about 5 to about 40 percent chromium, from about 44 to about 59 percent aluminum, balance titanium plus incidental impurities.

5,783,316

COMPOSITE MATERIAL HAVING HIGH THERMAL CONDUCTIVITY AND PROCESS FOR FABRICATING SAME

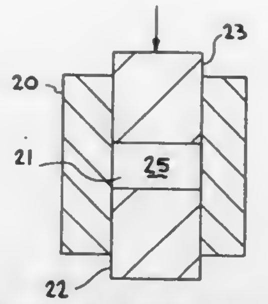
Nicholas J. Colella, Livermore; Howard L. Davidson, San Carlos; John A. Kerns, and Daniel M. Makowiecki, both of Livermore, all of Calif., assignors to Regents of the University of California, Oakland, Calif.

Division of Ser. No. 247,090, May 20, 1994. This application Aug. 22, 1996, Ser. No. 703,914

Int. Cl.^{6} B23K *31/02*

U.S. Cl. 428—660 **11 Claims**

1. A composite material containing a brazeable material and diamond particles constituting up to 75% by volume of the composite materials, and having a thermal conductivity of at least that of copper and less than natural diamond produced by coating diamond particles with regions of selected materials, compacting the coated diamond particles into a porous body of substantially the desired configuration of the composite material, and infiltrating the porous body with a selected braze material.



5,783,317

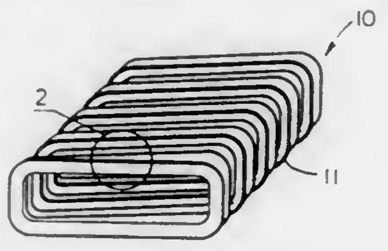
MULTILAYER METAL COMPOSITE FOR MICROWAVE TUBING AND THE LIKE

Joseph P. Mennucci, Manville; Robert P. Willis, Lincoln, both of R.I., and James F. Fasino, Mansfield, Mass., assignors to Brush Wellman Inc., Cleveland, Ohio

Filed Mar. 27, 1996, Ser. No. 624,902

Int. Cl.^{6} B32B *15/01;15/20;* **H01P** *3/00*

U.S. Cl. 428—673 **10 Claims**



1. A tubular wave guide for microwave applications, comprising an interlocked, spiral wound, multilayer metal composite which includes a copper alloy base metal lined with silver and a relatively thin, grain refiner containing copper alloy interliner layer clad between the base metal and the silver, for limiting diffusion of impurities from the base metal into the silver coating and for maintaining relatively smooth surfaces and relatively constant thickness of the silver coating.

5,783,318

REPAIRED NICKEL BASED SUPERALLOY

Charles M. Biondo, Palm Beach Gardens; William J. Gostic, Tequesta; Christopher D. Parmley, and John C. Tanzola, both of Jupiter, all of Fla., assignors to United Technologies Corporation, Hartford, Conn.

Division of Ser. No. 264,147, Jun. 22, 1994, abandoned. This application Jun. 7, 1995, Ser. No. 486,233

Int. Cl.^{6} B32B *15/00*

U.S. Cl. 428—680 **10 Claims**

1. A repaired superalloy comprising a directionally solidified nickel based superalloy substrate having applied thereon a nickel-based repair alloy wherein said repair alloy comprises the following elements, in weight percent:

chromium	6.0–10.0
aluminum	4.75–6.1
tungsten	6.0–12.5
tantalum	0–4.25
molybdenum	0–1.9
cobalt	9.25–13.0
titanium	0–2.25
niobium	0–1.25
rhenium	0–3.25
carbon	0.08–0.16
boron	0.003–0.020
zirconium	0.04–0.12
yttrium	0.02–0.16
hafnium	1.0–2.5
nickel	remainder.

4. A repaired nickel-based superalloy comprising a nickel-based single crystal superalloy substrate and having applied thereon a nickel-based repair alloy;
   wherein said repair alloy comprises the following elements, in weight percent:

chromium	4.75–10.5
aluminum	4.75–5.8
tungsten	3.75–6.2
molybdenum	0–2.1
cobalt	4.5–10.5
titanium	0–1.75
rhenium	0–3.2
tantalum	8.4–12.25
carbon	0.05–0.17
boron	0.003–0.320
zirconium	0.007–0.15
yttrium	0.02–0.16
hafnium	0.03–1.9
nickel	remainder.

5,783,319

WAVEGUIDE TUNABLE LASERS AND PROCESSES FOR THE PRODUCTION THEREOF

Renata Reisfeld; Dimitri Shamrakov, and Yoram Sorek, all of Jerusalem, Israel, assignors to Yissum Research Development Company of the Hebrew University of Jerusalem, Jerusalem, Israel

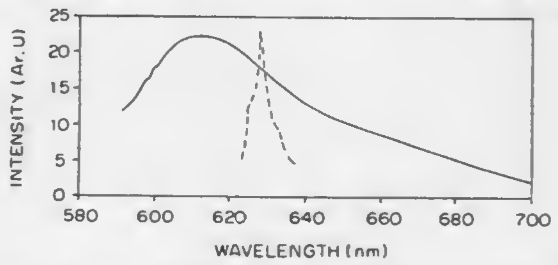
PCT No. PCT/US94/13548, § 371 Date Oct. 30, 1995, § 102(e) Date Oct. 30, 1995, PCT Pub. No. WO95/15021, PCT Pub. Date Jun. 1, 1995

PCT Filed Nov. 23, 1994, Ser. No. 500,944

Claims priority, application Israel, Nov. 26, 1993, 1077744

Int. Cl.^{6} H01S *3/22*

U.S. Cl. 428—690 **40 Claims**



1. A composite glass film waveguide tunable dye laser, said film comprising:
   a. about 10–80 wt. % of a multiplicity of cross-linked networks of silica, said silica networks being optionally modified to include hydrocarbon chains having 2–6 carbon atoms and containing at least one double bond or an oxiran group;
   b. about 20–90 wt. % of a network-forming or network-modifying amount of a metal oxide selected from the group consisting of titania, zirconia, alumina, germania, yittria, or a mixture thereof; and
   c. about 20–90 wt. % of a multiplicity of polyacrylate chains intertwined with said networks,

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wherein said film is doped with a tunable organic monomeric laser dye and deposited on a substrate, said film having a higher refractive index than that of said substrate.

5,783,320
MAGNETO-OPTICAL RECORDING MEDIUM AND PROCESS FOR PRODUCING THE SAME

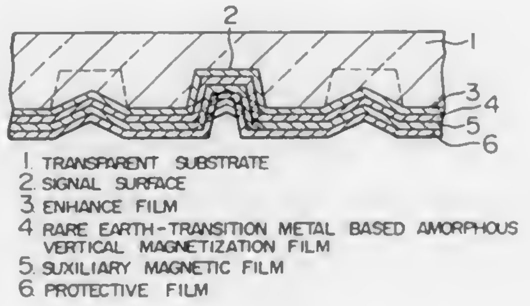
Katsusuke Shimazaki; Satoru Ohnuki; Masatoshi Hashimoto; Yoshinori Shirai; Norio Ohta, all of Ibaraki-ken, Japan; Hideo Fujiwara, Tuscaloosa, Ala.; Masafumi Yoshihiro, Ibaraki-ken, Japan; Yukinori Yamada, Tsukuba, Japan; Eiji Koyama, Tsuchiura, Japan, and Hitoshi Furusho, Ishioka, Japan, assignors to Hitachi Maxell, Ltd., Osaka, Japan

Division of Ser. No. 227,673, Apr. 14, 1994, Pat. No. 5,637,411, which is a continuation-in-part of Ser. No. 918,562, Jul. 24, 1992, abandoned. This application Jan. 10, 1997, Ser. No. 781,711

Claims priority, application Japan, Jul. 29, 1991, 3-210430

Int. Cl.^{6} G11B *5/66*

U.S. Cl. 428—694 ML **27 Claims**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1 TRANSPARENT SUBSTRATE
2 SIGNAL SURFACE
3 ENHANCE FILM
4 RARE EARTH-TRANSITION METAL BASED AMORPHOUS VERTICAL MAGNETIZATION FILM
5 SUXILIARY MAGNETIC FILM
6 PROTECTIVE FILM

1. A magneto-optical recording medium comprising a transparent substrate and, supported thereon, a magneto-optical recording film comprising at least a perpendicular magnetic film based on rare earth metal-transition metal and an auxiliary magnetic film having a spontaneous magnetization which exerts an exchange coupling force, between itself and the magneto-optical recording film, on each other, wherein the auxiliary magnetic film used is a magnetic film which readily rotates its direction of magnetization toward the direction of external magnetic field in the neighborhood of the Curie temperature of the magneto-optical recording film and has a squareness ratio of 1 or less in the neighborhood of the Curie temperature.

5,783,321
ZSM-5 ZEOLITE

Johannes Petrus Verduijn, Leefdaal; Luc Roger Marc Martens, Meise, and Johan Adriaan Martens, Huldenberg, all of Belgium, assignors to Exxon Chemical Patents Inc., Houston, Tex.

PCT No. PCT/EP93/01404, § 371 Date May 15, 1995, § 102(e) Date May 15, 1995, PCT Pub. No. WO93/25476, PCT Pub. Date Dec. 23, 1993

PCT Filed Jun. 4, 1994, Ser. No. 351,351

Claims priority, application European Pat. Off., Jun. 5, 1992, 92305182

Int. Cl.^{6} C01B *39/40;33/34*

U.S. Cl. 423—702 **19 Claims**

1. A crystalline tectosilicate ZSM-5 zeolite comprising substantially needle-shaped agglomerates having an average length of 0.2 to 10 μm, said agglomerates having tapered ends such that the length of that portion of each agglomerate having a diameter less than the maximum diameter is at least 50 % of the total length of the agglomerate, said agglomerates composed of a plurality of smaller crystals agglomerated together, said smaller crystals having an average size of up to about 1 μm.

5,783,322
SECONDARY BATTERY PACK

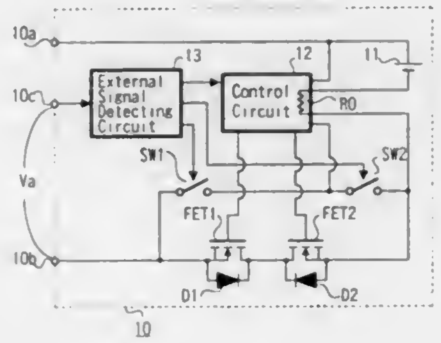
Tamiji Nagai, and Kazunori Ozawa, both of Kanagawa, Japan, assignors to Sony Corporation, Tokyo, Japan

Filed Nov. 6, 1996, Ser. No. 743,809

Claims priority, application Japan, Nov. 9, 1995, 7-291442

Int. Cl.^{6} H01M *10/48*

U.S. Cl. 429—7 **26 Claims**



1. A secondary battery pack comprising:
terminal means connected to an external device;
rechargeable battery means for storing and utilizing electric charges;
switching means for switching operations of said rechargeable battery means between a charge operation and a discharge operation;
detecting means connected to said terminal means for detecting whether a charge operation or a discharge operation is to be carried out;
control means for controlling the switching of said switching means in response to a detection of said detecting means;
first power-source switching means for switching a supply of a power source to said control means and controlled in response to the charge operation or the discharge operation detected by said detecting means; and
second power-source switching means for switching the supply of the power source to said control means and controlled in response to the charge operation or the discharge operation detected by said detecting means.

5,783,323

Patent Not Issued For This Number

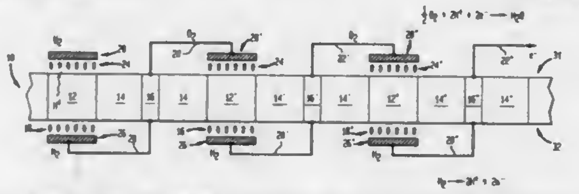
5,783,324
FUEL CELL INCLUDING A SINGLE SHEET OF A POLYMER ELECTROLYTE MEMBRANE (PEM), THE PEM BEING DIVIDED INTO REGIONS OF VARYING ELECTRICAL AND IONIC CONDUCTIVITY

Michael Binder, Brooklyn, N.Y.; Sol Gilman, Rockville, Md., and Robert J. Mammone, South Plainfield, N.J., assignors to The United States of America as represented by the Secretary of the Army, Washington, D.C.

Continuation of Ser. No. 320,611, Oct. 6, 1994, abandoned. This application Nov. 5, 1996, Ser. No. 741,755

Int. Cl.^{6} H01M *8/10*

U.S. Cl. 429—31 **3 Claims**



1. A fuel cell including a single sheet of polymer electrolyte membrane (PEM), comprising:
said PEM sheet being divided by chemical treatments into a plurality of regions;
each of said plurality of regions having varying electrical and ionic conductivity properties further comprising electrical conductivity, ionic conductivity, electrical non-conductivity, ionic non-conductivity and combinations thereof;
said PEM sheet having a means for distributing a fuel to only one side of said PEM sheet and distributing an oxidant only to the other side of said PEM sheet in such manner as to prevent mixing of said fuel and said oxidant;
said plurality of regions of the PEM sheet are further divided into at least three regions with a designation and repeat pattern of ABC-ABC-ABC;
said A region of the plurality of regions being ionically conductive but electrically non-conductive;
said C region of the plurality of regions being electrically conductive but ionically non-conductive and
said B region of the plurality of regions having ionic conductivity lower than said A region, and having electrical conductivity lower than said C region.

5,783,325
GAS DIFFUSION ELECTRODES BASED ON POLY(VINYLIDENE FLUORIDE) CARBON BLENDS

Israel Cabasso; Youxin Yuan, both of Syracuse, N.Y., and Xiao Xu, Fremont, Calif., assignors to The Research Foundation of State of New York, Albany, N.Y.

Filed Aug. 27, 1996, Ser. No. 697,582

Int. Cl.^{6} H01M *4/88*

U.S. Cl. 429—42 **23 Claims**

1. An electrocatalytic gas diffusion electrode for fuel cells comprised of:
an anisotropic gas diffusion layer that is made of a porous carbon matrix through which carbon particles and poly(vinylidene fluoride) are distributed such that the matrix is homogeneously porous in a direction lateral to gas flow and asymmetrically porous to gases in the direction of gas flow, said layer having first and second surfaces that are oppositely disposed to one another, gas permeating through said first surface and exiting said second surface during use of said electrode, the porosity of said gas diffusion layer decreasing from said first to said second surface in the direction of gas flow, said gas diffusion layer having a thickness between about 50 μm and about 300 μm, and
a catalytic layer that is made of a coagulated ink suspension containing metal catalyst loaded carbon particles and a thermoplastic polymer, the catalytic layer covering the second surface of said gas diffusion layer, said catalytic layer having a thickness between about 7 μm and about 50 μm and a metal catalyst loading between about 0.1 mg/cm^2 and about 0.5 mg/cm^2.

5,783,326
NONAQUEOUS ELECTROLYTE SECONDARY BATTERY

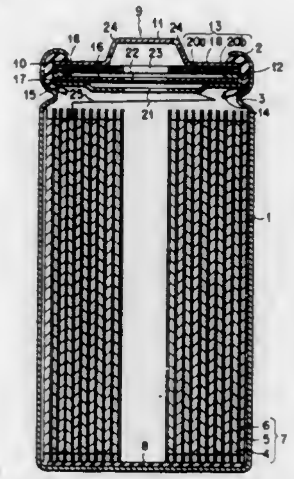
Hiroyuki Hasebe, Chigasaki, Japan, assignor to Kabushiki Kaisha Toshiba, Kawasaki, Japan

Filed Mar. 12, 1997, Ser. No. 815,732

Claims priority, application Japan, Mar. 14, 1996, 8-057969

Int. Cl.^{6} H01M *10/34*

U.S. Cl. 429—57 **11 Claims**



1. A nonaqueous electrolyte secondary battery comprising:
a positive electrode capable of absorbing/desorbing lithium ions;
a negative electrode capable of absorbing/desorbing lithium ions;
a nonaqueous electrolyte; and
a Positive Thermal Coefficient,
wherein said Positive Thermal Coefficient satisfies expression (1) below:

$$50/P<R \qquad (1)$$

where R (mΩ) is a resistance at 25° C. of said Positive Thermal Coefficient and P (Ah) is a nominal capacity of said secondary battery.

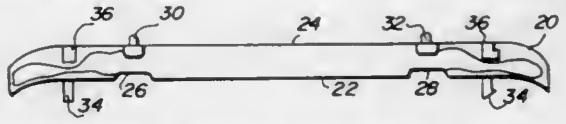
5,783,327
MODULAR STACKABLE BATTERIES FOR CELLULAR PHONES

Gregory S. Mendolia, Forest, Va., assignor to Ericsson Inc., Research Triangle Park, N.C.

Filed Nov. 26, 1996, Ser. No. 756,687

Int. Cl.^{6} H01M *2/34*

U.S. Cl. 429—97 **18 Claims**



1. A battery for an electronic device comprising:

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- a battery casing housing battery components and having an inside surface and an outside surface;
- a first pair of electrical contacts disposed in said inside surface; and
- a second pair of electrical contacts disposed in said outside surface, wherein male contacts of each of said first and second pairs of electrical contacts are disposed within said battery casing.

5,783,328

METHOD OF TREATING LITHIUM MANGANESE OXIDE SPINEL

Enoch I. Wang, Mansfield, Mass., assignor to Duracell, Inc., Bethel, Conn.

Continuation-in-part of Ser. No. 679,497, Jul. 12, 1996, Pat. No. 5,733,685. This application Nov. 26, 1996, Ser. No. 757,055

Int. Cl.^{6} H01M *4/50*

U.S. Cl. 429—137 **20 Claims**

1. A method of treating lithium manganese oxide particles of spinel structure represented by the stoichiometric formula $Li_xMn_2O_{4+d}$ (0.9<x<1.2 and 0<d<0.4) comprising the steps of:

a) treating said lithium manganese oxide particles with at least one water soluble metal salt of a carboxylic acid to form a coating of said metal salt on the surface of said particles, and
b) heating said treated lithium manganese oxide particles in an atmosphere comprising carbon dioxide gas.

5,783,329

ACCUMULATOR WITH PLASTIC CASING

Manfred Kilb, Frankfurt am Main, Germany, assignor to Christoph Emmerich GmbH + Co. KG, Frankfurt am Main, Germany

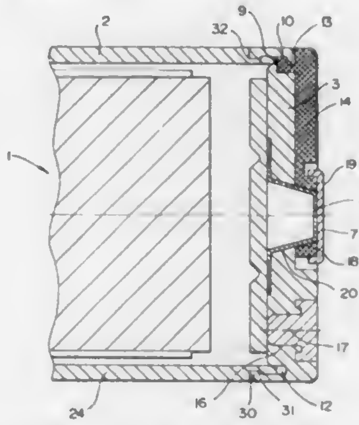
PCT No. PCT/DE94/00836, § 371 Date Apr. 15, 1996, § 102(e) Date Apr. 15, 1996, PCT Pub. No. WO95/04380, PCT Pub. Date Feb. 9, 1995

PCT Filed Jul. 16, 1994, Ser. No. 586,775

Claims priority, application Germany, Jul. 29, 1993, 43 25 464.0

Int. Cl.^{6} H01M *2/08*

U.S. Cl. 429—174 **18 Claims**



1. An accumulator with a gas-tight and liquid-tight electrolyte-filled casing, in which are arranged electrodes that are separated from each other by a separator and are respectively electrically connected to pole contacts that are accessible from outside of said casing, wherein

- in a region of said pole contacts (7, 8) said casing (2, 3) comprises a soft plastic material (14) and a hard plastic material (24) that are fixedly connected together, and
- said soft plastic material (14) forms a seal for at least one of said pole contacts (7, 8) and a feed-through ducting means of said pole contacts.

5,783,330

ELECTRODE MATERIAL AND SECONDARY BATTERY

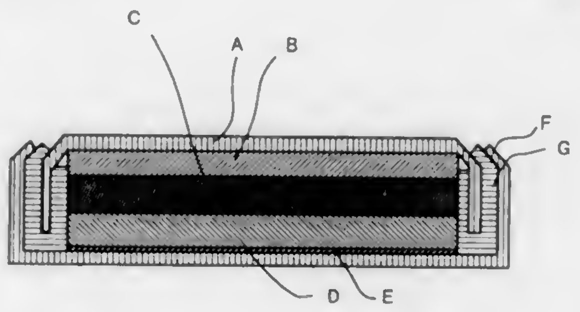
Katsuhiko Naoi, Tokyo; Hiroshi Iizuka, Shizuoka; Yasuhiro Suzuki, Shizuoka, and Akihiko Torikoshi, Shizuoka, all of Japan, assignors to Yazaki Corporation, Tokyo, Japan

Filed Sep. 26, 1996, Ser. No. 715,840

Claims priority, application Japan, Sep. 28, 1995, 7-251404; Aug. 12, 1996, 8-212738

Int. Cl.^{6} H01M *4/02*

U.S. Cl. 429—212 **24 Claims**



1. An electrode comprising: an electrode material including a sulfide compound having an oxadiazole ring as an active substance.

5,783,331

SECOND BATTERY COMPRISING A GEL POLYMER SOLID ELECTROLYTE AND A COPOLYMER OF VINYL PYRIDINE WITH A HYDROXYL-GROUP-CONTAINING (METH) ACRYLATE AS BINDER FOR THE NEGATIVE ELECTRODE

Tomohiro Inoue, Sagamihara; Toshiyuki Ohsawa, Kawasaki; Masahiro Taniuchi, Yokohama; Takayuki Kurohara, and Koji Miura, both of Osaka, all of Japan, assignors to Ricoh Company, Ltd., Tokyo, and Koei Chemical Company, Ltd., Osaka, both of Japan

Filed Jul. 30, 1996, Ser. No. 689,053

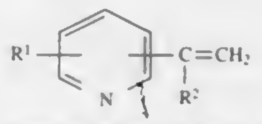
Claims priority, application Japan, Aug. 1, 1995, 7-215361; Dec. 11, 1995, 7-346114

Int. Cl.^{6} H01M *4/62*

U.S. Cl. 429—217 **11 Claims**

1. A secondary battery comprising:

- a positive electrode;
- an electrolyte layer comprising a gel polymer solid electrolyte; and
- a carbon-based negative electrode capable of occluding and releasing lithium, comprising a binder which comprises a resin composition comprising a copolymer of (a) a vinyl pyridine compound of formula (1),



(1)

wherein R^1 is a hydrogen atom, an alkyl group having 1 to 3 carbon atoms or a halogen atom, and R^2 is a hydrogen atom or an alkyl group, having 1 to 3 carbon atoms, and (b) a hydroxyl-group-containing (meth)acrylate compound.

5,783,332

POSITIVE ELECTRODE ACTIVE MATERIAL FOR LITHIUM BATTERY AND A METHOD FOR MANUFACTURING THE SAME

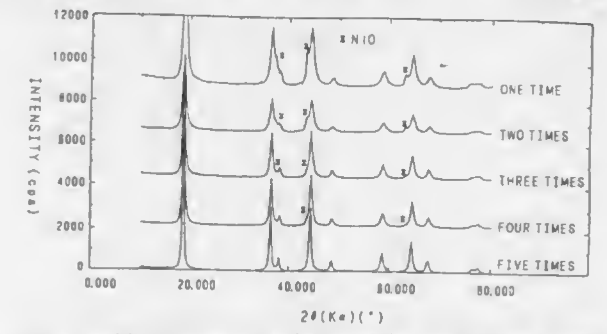
Khalil Amine; Hideo Yasuda, and Yuko Fujita, all of Kyoto, Japan, assignors to Japan Storage Battery Co., Ltd., Kyoto, Japan

Division of Ser. No. 634,803, Apr. 19, 1996. This application Oct. 9, 1996, Ser. No. 727,905

Claims priority, application Japan, Apr. 26, 1995, 7-127275

Int. Cl.^{6} H01M *2/04*

U.S. Cl. 429—218 **2 Claims**



1. A positive electrode active material for lithium battery, wherein a

general formula thereof is $Li_xMn_{2-z}M_zO_4$ (M: a 3-valency element, $0.6 \leqq z \leqq 1$, $1 \leqq x \leqq 2.1$) having cubic spinel structure.

5,783,333

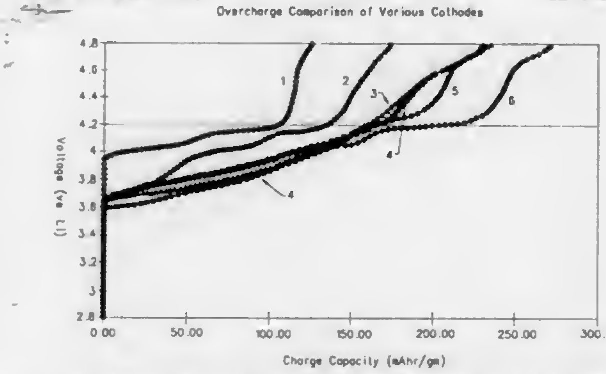
LITHIUM NICKEL COBALT OXIDES FOR POSITIVE ELECTRODES

Steven T. Mayer, San Leandro, Calif., assignor to PolyStor Corporation, Dublin, Calif.

Filed Nov. 27, 1996, Ser. No. 758,007

Int. Cl.^{6} H01M *4/02*

U.S. Cl. 429—223 **12 Claims**



1. A lithium insertion positive electrode comprising a mixture of two or more homogeneous lithium ion insertion materials,

- wherein at least one of the homogeneous lithium ion insertion materials is a chemical compound of the formula $Li_xNi_yCo_zM_nO_2$ having an α-$NaCrO_2$ crystal structure, where M is selected from the group consisting of aluminum, titanium, tungsten, chromium, molybdenum, magnesium, tantalum, silicon, and combinations thereof, x is between about 0 and about 1 and can be varied within this range by electrochemical insertion and extraction, the sum of y+z+n is about 1, n ranges between 0 to about 0.25, y is greater than 0, at least one of z and n is greater than zero, and the ratio z/y ranges from above 0 to about ⅓, and
- wherein at least one of the homogeneous lithium ion insertion materials is a lithium manganese oxide chemical compound of the formula $Li_xMn_{2-r}M1_rO_4$, where M1 is tungsten, titanium, chromium, or combinations thereof, and r ranges between about 0 and 1, and
- wherein $Li_xNi_yCo_zM_nO_2$ and $Li_xMn_{2-r}M1_rO_4$ are present in the positive electrode in a ratio of about 50:50.

5,783,334

METHOD FOR PRODUCING LITHIUM NICKELATE POSITIVE ELECTRODE AND LITHIUM BATTERY USING THE SAME

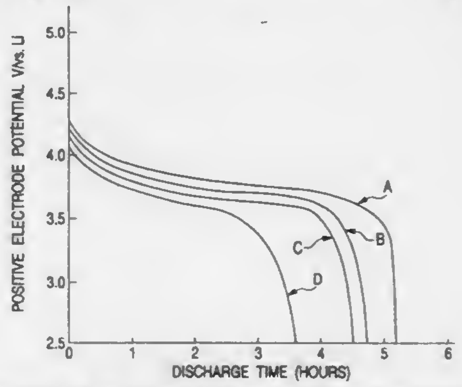
Hideo Yasuda, Kyoto, Japan, assignor to Japan Storage Battery Co., Ltd., Kyoto, Japan

Filed Apr. 1, 1997, Ser. No. 831,520

Claims priority, application Japan, Apr. 1, 1996, 8-104694

Int. Cl.^{6} H01M *4/02*

U.S. Cl. 429—223 **28 Claims**



1. A method for producing a lithium nickelate positive electrode comprising the steps of:

- holding a material comprising one selected from the group consisting of nickel hydroxide and nickel oxyhydroxide into an electrically conductive porous substrate to form an electrode;
- treating said electrode with an alkaline solution containing lithium; and
- heating said electrode treated with the alkaline solution.

5,783,335

FLUIDIZED BED DEPOSITION OF DIAMOND

Joseph R. Laia, Jr.; David W. Carroll; Mitchell Trkula; Wallace E. Anderson, all of Los Alamos, and Steven M. Valone, Santa Fe, all of N. Mex., assignors to The Regents of the University of California, Office of Technology Transfer, Alameda, Calif.

Filed Apr. 7, 1992, Ser. No. 864,725

Int. Cl.^{6} B01J *8/24*

U.S. Cl. 427—459 **6 Claims**

2. A process for coating a substrate with diamond comprising:

- maintaining a substrate within a bed of particles capable of being fluidized, said particles having substantially uniform dimensions and said substrate characterized as comprised of a different material than the particles;
- fluidizing the bed of particles;
- depositing a coating of diamond upon the substrate by chemical vapor deposition of a carbon-containing precursor gas mixture, said precursor gas mixture introduced into the fluidized bed of particles in quantities, at pressures and at temperatures, under conditions resulting in excitation mechanisms sufficient to form said diamond coating.

5,783,336

MASK FOR EXPOSURE

Masami Aoki, Yokohama; Yusuke Kohyama, Yokosuka; Soichi Inoue, and Akiko Nikki, both of Yokohama, all of Japan, assignors to Kabushiki Kaisha Toshiba, Kawasaki, Japan

Filed Oct. 10, 1996, Ser. No. 729,281

Claims priority, application Japan, Oct. 13, 1995, 7-265862; Oct. 13, 1995, 7-265863

Int. Cl.^{6} G03F *9/00*

U.S. Cl. 430—5 **20 Claims**

1. A mask for exposure, comprising:

a light transmitting substrate;

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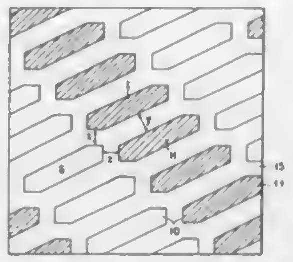
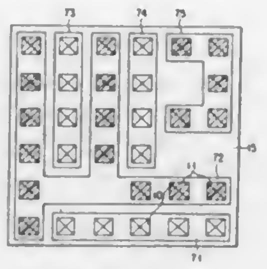




a plurality of substantially oblong, island-like light transmitting sections arranged periodically on said substrate;
an opaque section formed on said substrate except where said light transmitting sections are arranged; and
a plurality of phase shifter layers selectively formed in said light transmitting sections,
wherein said light transmitting sections include paired light transmitting sections arranged substantially in line and opposed to each other at one end portion of each of said paired light transmitting sections, and one of said plurality of phase shifter layers is formed in one of said paired light transmitting sections, an interval between said paired light transmitting sections at the one end portion being smaller than any interval between adjacent ones of said light transmitting sections at portions other than the one end portion.

5,783,337

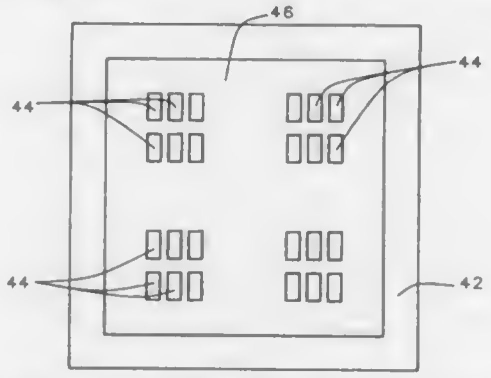
PROCESS TO FABRICATE A DOUBLE LAYER ATTENUATED PHASE SHIFT MASK (APSM) WITH CHROME BORDER

San-De Tzu, Taipei; Chih-Chiang Tu, Jauyan; Wen-Hong Huang, Hsin-Chu, and Chia-Hui Lin, Hsin-Chu, all of Taiwan, assignors to Taiwan Semiconductor Manufacturing Company, Ltd., Hsin-Chu, Taiwan

Filed May 15, 1997, Ser. No. 856,786

Int. Cl.^{6} G03F *9/00*

U.S. Cl. 430—5 **22 Claims**



1. The method of fabricating an attenuating phase-shifting photomask comprising:
providing a photomask blank comprising a phase-shifting layer overlying a substrate, a chromium layer overlying said phase-shifting layer, and a resist layer overlying said chromium layer;
exposing said resist layer of said photomask blank to electron-beam energy in a single step wherein a main pattern area of said photomask blank is exposed to a first dosage of said electron-beam energy and wherein a border area surrounding said main pattern area is not exposed to said electron-bean energy and wherein a secondary pattern area between said main pattern area and said border area is exposed to a second dosage of said electron beam energy wherein said second dosage is lower than said first dosage;
developing said exposed resist layer wherein said resist within said main pattern area is removed to expose said chromium layer;
etching through said exposed chromium layer to expose underlying said phase-shifting layer;
etching through said exposed phase-shifting layer to expose said substrate;
etching away said resist overlying said chromium layer within said secondary pattern area;
etching away said chromium layer within said secondary pattern area; and
stripping said resist within said border area to leave a patterned phase-shifting layer in said main pattern area and a chromium layer in said border area to complete fabrication of said attenuated phase-shifting photomask.

5,783,338

METHOD FOR MANUFACTURING BLACK MATRIX OF ACTIVE MATRIX LIQUID CRYSTAL DISPLAY

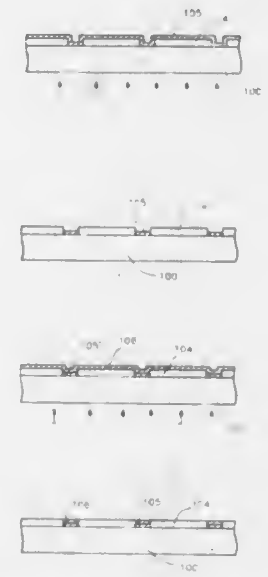
Kyu-Chul Cho, Anyang, Rep. of Korea, assignor to LC Electronics Inc., Seoul, Rep. of Korea

Filed Nov. 18, 1996, Ser. No. 751,488

Claims priority, application Rep. of Korea, Feb. 9, 1996, 1996/3155

Int. Cl.^{6} G02B *5/20*; G02F *1/1335*

U.S. Cl. 430—7 **19 Claims**



1. A method for manufacturing a light shielding layer for a liquid crystal display device having a substrate, the method comprising the steps of:
forming a color filter layer including RGB colors over the substrate;
coating a first light shielding material on the color filter layer and the substrate;
performing a first back exposure to form first hardened portions and first unhardened portions of the first light shielding material;
developing the unhardened portions;
coating a second light shielding material on the color filter layer and the first light shielding material;
performing a second back exposure to form second hardened and second unhardened portions of the second light shielding material; and
developing the second unhardened portions.

5,783,339

METHOD FOR PREPARING A COLOR FILTER

Tsutomu Watanabe, Itami; Jun-ichi Yasukawa, Chigasaki; Toshiaki Ota, Narashino, and Tuyoshi Tokuda, Yachiyo, all of Japan, assignors to Sumitomo Chemical Company, Limited, Osaka, Japan

Continuation-in-part of Ser. No. 530,908, Sep. 20, 1995, abandoned. This application Dec. 11, 1996, Ser. No. 762,679

Claims priority, application Japan, Oct. 13, 1994, 6-275620

Int. Cl.^{6} G02B *5/20*

U.S. Cl. 430—7 **8 Claims**

5. A method for preparing a color filter which comprises the steps of:
(a) preparing a transparent substrate having a front surface which carries transparent electroconductive layers and color layers on the transparent electroconductive layers, the front surface being covered with a layer of a negative photosensitive composition containing a black colorant,
(b) exposing the transparent substrate to light emitted from a light emitting means positioned on a side opposite to the front surface of the transparent substrate followed by development to eliminate the negative photosensitive composition unexposed to light, to obtain a color filter,
(c) checking the color filter to determine whether it has a defective part on the color layer such that adversely affects the display qualities, transferring said color filter having said defective part to the following steps (d) and (e).
(d) eliminating the defective part of the color layer to produce a blank having a diameter of not more than 250 μm there, to obtain a modified color filter, and
(e) filling the blank of the modified color filter with a negative photosensitive composition containing a black colorant to obtain a second modified color filter and exposing the second modified color filter to light emitted from the light emitting means of step (b).

5,783,340

METHOD FOR PHOTOLITHOGRAPHIC DEFINITION OF RECESSED FEATURES ON A SEMICONDUCTOR WAFER UTILIZING AUTO-FOCUSING ALIGNMENT

Anthony J. Farino; Stephen Montague; Jeffry J. Sniegowski; James H. Smith, and Paul J. McWhorter, all of Albuquerque, N. Mex., assignors to Sandia Corporation, Albuquerque, N. Mex.

Continuation-in-part of Ser. No. 524,700, Sep. 6, 1995. This application Jul. 31, 1997, Ser. No. 903,985

Int. Cl.^{6} G01B *11/00*; G03F *9/00*

U.S. Cl. 430—22 **27 Claims**

1. A method for photolithographically defining device features recessed below a surface of a semiconductor wafer using an auto-focusing photolithographic stepper exposure system comprising steps for:
(a) forming a plurality of equal-depth cavities within a die field on a top surface of the semiconductor wafer, including a focusing cavity formed at a predetermined position of a focusing light beam from the auto-focusing photolithographic stepper exposure system and at least one device cavity proximate to the focusing cavity;
(b) forming a material layer within each cavity, thereby raising a bottom surface of each cavity by a thickness of the material layer;
(c) covering the material layer with a photoresist layer;
(d) focusing the photolithographic stepper exposure system by reflecting the focusing light beam off the material layer in the focusing cavity and generating a detected light signal for vertically positioning the bottom surface of each cavity at a focal plane of the stepper exposure system; and
(e) exposing the photoresist layer for photolithographically defining the recessed device features to be formed in the material layer within the device cavity.

5,783,341

ALIGNMENT FOR LAYER FORMATION THROUGH DETERMINATION OF TARGET VALUES FOR TRANSLATION, ROTATION AND MAGNIFICATION

Shigeyuki Uzawa, Tokyo, Japan, assignor to Canon Kabushiki Kaisha, Japan

Continuation of Ser. No. 445,717, May 22, 1995, abandoned. This application Oct. 15, 1997, Ser. No. 950,904

Claims priority, application Japan, May 25, 1994, 6-111021

Int. Cl.^{6} G03F *9/00*

U.S. Cl. 430—22 **9 Claims**

9. A method for manufacturing devices comprising the steps of:
coating a resist on a wafer on which a plurality of layers A and B, are laminated and on which a layer C will be formed, wherein the translation error between layers A and C and between layers A and B are denoted by ϵ_a and ϵ_b, respectively,
measuring the positions of marks formed on each of layers A and B;
determining rotation and magnification errors of the layer C to be formed on the wafer with respect to layers A and B based on the measured positions:
determining the translation error E_{b-c} between layers B and C according to the equation:

$$E_{b-c}=(\tfrac{1}{2}(\epsilon^2_a+\epsilon^2_a+\epsilon^2_b))^{\frac{1}{2}};$$

determining target values for the translation, rotation, and magnification of the layer C to be formed on the wafer based on the determined translation, rotation, and magnification errors:
aligning the wafer with the mask based on the determined target values;
transferring a pattern on a mask onto the resist on the surface of the wafer by forming an image of the pattern on the surface of the wafer; and
developing the resist on the wafer to form the layer C on the surface of the wafer.

5,783,342

METHOD AND SYSTEM FOR MEASUREMENT OF RESIST PATTERN

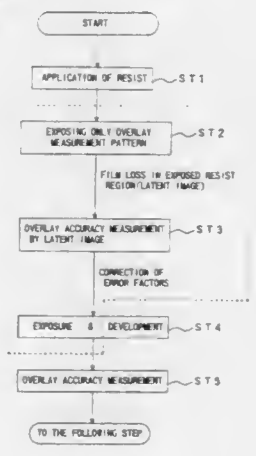
Kazuhiro Yamashita, Hyogo, and Masahiro Muro, Osaka, both of Japan, assignors to Matsushita Electric Industrial Co., Ltd., Osaka, Japan

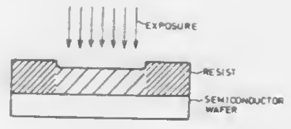
Filed Dec. 27, 1995, Ser. No. 579,355

Claims priority, application Japan, Dec. 28, 1994, 6-326624; Sep. 22, 1995, 7-244061

Int. Cl.^{6} G03F *7/20*

U.S. Cl. 430—30 **17 Claims**


START
APPLICATION OF RESIST
ST 1
EXPOSING ONLY OVERLAY MEASUREMENT PATTERN
ST 2
FILM LOSS IN EXPOSED RESIST REGION(LATENT IMAGE)
OVERLAY ACCURACY MEASUREMENT BY LATENT IMAGE
ST 3
CORRECTION OF ERROR FACTORS
EXPOSURE & DEVELOPMENT
ST 4
OVERLAY ACCURACY MEASUREMENT
ST 5
TO THE FOLLOWING STEP



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1. A resist-pattern measurement method comprising the steps of:
(a) providing a source of electromagnetic waves including light or radiation capable of performing a function of producing a chemical change in a resist film that is composed of a polymer and an acid generator applied to a surface of a wafer;
providing a mask having a specific pattern made up of an electromagnetic wave-transmitting region and an electromagnetic wave-shielding region;
exposing said resist film to electromagnetic waves emitted from said source through said mask;
(b) leaving said post-exposure resist film without performing a development process thereon, to manifest a resist pattern;
said resist pattern being made up of an exposed resist region of said resist film that has undergone a change in thickness and an unexposed resist region of said resist film, the thickness of which has remained unchanged;
(c) measuring a transverse position of said exposed region by sensing reflection light reflected by a surface of said exposed resist region and reflection light reflected by a surface of said unexposed resist region.

5,783,343

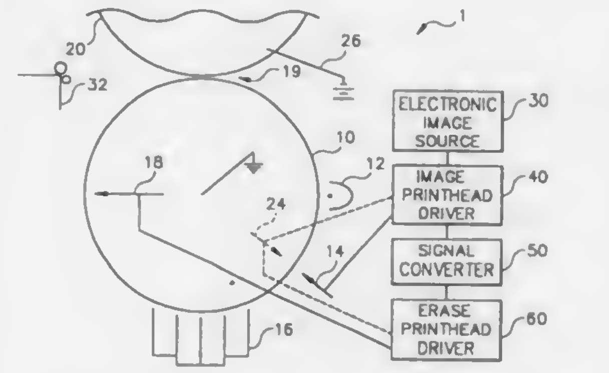
IMAGE FORMING METHOD AND APPARATUS USING PRETRANSFER ERASE

Thomas N. Tombs, Brockport, and John W. May, Rochester, both of N.Y., assignors to Eastman Kodak Company, Rochester, N.Y.

Filed Nov. 21, 1994, Ser. No. 343,055

Int. Cl.^{6} G03G *13/01;13/045;15/01;15/045*

U.S. Cl. 430—47 **23 Claims**



1. A method of forming toner images comprising:
forming an electrostatic image having a plurality of potential levels on a first side of a photoconductive image member,
applying charged toner to the electrostatic image to deposit toner of a single color in densities that are a function of said potential levels to form a toner image defined by the electrostatic image and having at least two portions of the toner image containing toner of said single color which have different densities, a higher density and a lower density of the toner image,
applying erasing radiation to the toner image while electronically imagewise varying the amount of erasing radiation according to the density of the toner image, and
transferring the toner image as a single color toner image to a receiving surface in the presence of an electric field of a direction urging such transfer.

5,783,344

ELECTROPHOTOGRAPHIC PHOTOSENSITIVE MEMBER

Toshio Kobayashi; Kazuki Kubo; Suguru Nagae, and Takamitsu Fujimoto, all of Tokyo, Japan, assignors to Mitsubishi Denki Kabushiki Kaisha, Tokyo, Japan

Filed Oct. 16, 1997, Ser. No. 951,558

Claims priority, application Japan, Mar. 26, 1997, 9-073709

Int. Cl.^{6} G03G *5/14*

U.S. Cl. 430—65 **8 Claims**

1. An electrophotographic photosensitive member which comprises an aluminum substrate having an aluminum oxide film at its surface and a photosensitive layer formed on the substrate, which contains a photoconductive material, wherein the aluminum oxide film has a thickness of from 3 to 15 μm, a resistivity of from 10^9 to 3×10^{10} Ω/3.14 cm^2 when a DC voltage of 20V is applied, and an impedance of from 1 to 20 MΩ at 100 Hz.

5,783,345

IMAGE FORMING METHOD

Susumu Yoshino; Suk Kim; Takashi Imai; Kazuhiko Yanagida, and Koichi Takashima, all of Minami-ashigara, Japan, assignors to Fuji Xerox Co., Ltd., Tokyo, Japan

Filed Nov. 25, 1996, Ser. No. 755,661

Claims priority, application Japan, Nov. 30, 1995, 7-311983

Int. Cl.^{6} G03G *13/08*

U.S. Cl. 430—102 **21 Claims**

1. An image forming method, comprising:
forming a developer layer on a layer forming material supported on a rotating developer supporting body and
developing an electrostatic latent image on a rotating electrostatic latent image supporting body with said developing layers wherein said electrostatic latent image supporting body is disposed in a position opposed to said developer supporting body,
wherein a direction of rotation of said developer supporting body is the same as a direction of rotation of said electrostatic latent image supporting body and a ratio of peripheral speed of said developer supporting body to said electrostatic latent image supporting body ranges from 0.7 to 1.8, and
wherein the developer layer comprises a carrier and a toner, and said toner comprises a conductive inorganic fine powder having an average particle diameter of from 5 to 1000 nm.

5,783,346

TONER COMPOSITIONS INCLUDING POLYMER BINDERS WITH ADHESION PROMOTING AND CHARGE CONTROL MONOMERS

Thomas A. Jadwin, Rochester; Dinesh Tyagi, Fairport, both of N.Y., and Gary Lee Burroway, Doylestown, Ohio, assignors to Eastman Kodak Company, Rochester, N.Y., and Goodyear Tire & Rubber Company, Akron, Ohio

Continuation of Ser. No. 611,582, Mar. 6, 1996, abandoned. This application Jan. 6, 1997, Ser. No. 779,190

Int. Cl.^{6} G03G *9/087*

U.S. Cl. 430—106 **15 Claims**

1. A toner composition which comprises a binder and a colorant, wherein said binder comprises
a copolymer of a vinyl aromatic monomer; a second monomer selected from the group consisting of conjugated diene monomers or acrylate monomers selected from the group consisting of alkyl acrylate monomers and alkyl methacrylate monomers; a third monomer which is a crosslinking agent; a fourth monomer which is an adhesion promoting vinyl monomer containing a hydroxyl group; and a fifth monomer which is a charge control vinyl monomer containing an amine group.

5,783,347

POSITIVELY CHARGEABLE SINGLE-COMPONENT DEVELOPER AND IMAGE-FORMING APPARATUS FOR USING THE SAME

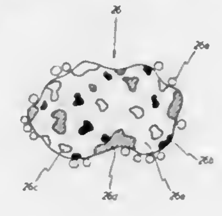
Jun Ikami, Nagoya, Japan, assignor to Brother Kogyo Kabushiki Kaisha, Nagoya, Japan

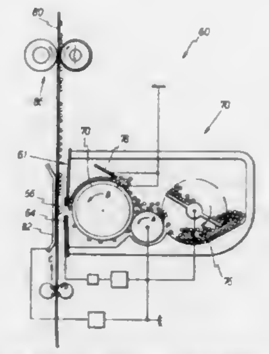
Filed Jun. 10, 1997, Ser. No. 872,184

Claims priority, application Japan, Jun. 27, 1996, 8-167644

Int. Cl.^{6} G03G *9/097;15/08*

U.S. Cl. 430—110 **20 Claims**





1. A positively chargeable single-component developer for visualizing electrostatic latent images, comprising:
a binding resin having an acid value of 1.5 to 10 (KOH mg/g);
a colorant; and
an additive having an electron attractive group, wherein;
the additive is added in an amount of 0.05 part by weight to 2 parts by weight with respect to 100 parts by weight of the positively chargeable single-component developer.

5,783,348

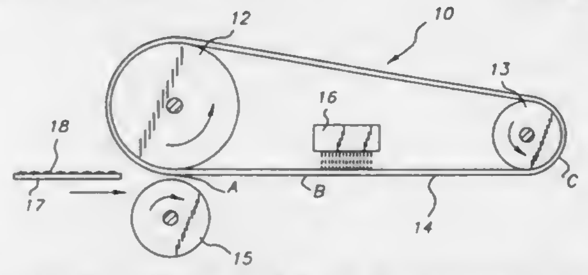
METHOD OF FUSING TONER

Dinesh Tyagi, Fairport; Louis J. Sorriero, and Muhammed Aslam, both of Rochester, all of N.Y., assignors to Eastman Kodak Company, Rochester, N.Y.

Continuation-in-part of Ser. No. 778,225, Jan. 8, 1997, abandoned. This application Sep. 26, 1997, Ser. No. 938,879

Int. Cl.^{6} G03G *13/20*

U.S. Cl. 430—124 **14 Claims**



1. A method for fusing and fixing an electrostatographic toner image to a receiver and imparting a selected degree of gloss and texture to the fused image, which comprises
depositing toner particles on said receiver in an image pattern, said toner particles comprising a thermoplastic binder polymer and having a surface energy less than 35 mN/m at 150° C.,
providing a toner belt fuser system having a flexible fuser belt of a surface texture adapted to provide the selected degree of gloss and texture to the toner image, the surface energy of said belt being at least 5 mN/m at 150° C. greater than that of the toner particles,
and heating and pressing said toner particles on said receiver by passing the receiver through said fuser system in contact with said fuser belt.

5,783,349

LIQUID DEVELOPER COMPOSITIONS

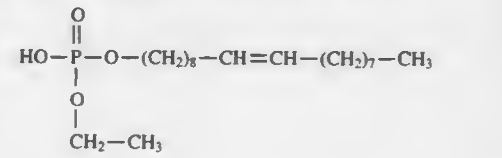
John W. Spiewak, Webster, N.Y.; Mary Ann Machonkin, Homosassa, Fla.; David H. Pan, Rochester, N.Y.; Scott D. Chamberlain, Macedon, N.Y., and Christopher M. Knapp, Fairport, N.Y., assignors to Xerox Corporation, Stamford, Conn.

Filed Jun. 30, 1997, Ser. No. 886,064

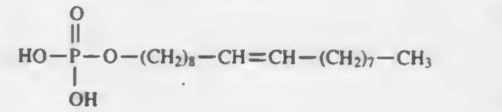
Int. Cl.^{6} G03G *9/135;* **H01B** *1/06*

U.S. Cl. 430—115 **27 Claims**

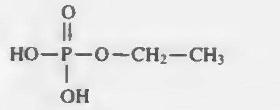
1. A liquid developer comprised of a nonpolar liquid, resin, optional colorant, a charge director, and an optional charge control agent, and wherein the charge director is comprised of a mixture of phosphoric acid esters I, II and III, and IV a nonpolar liquid soluble organic aluminum complex of the formulas


I

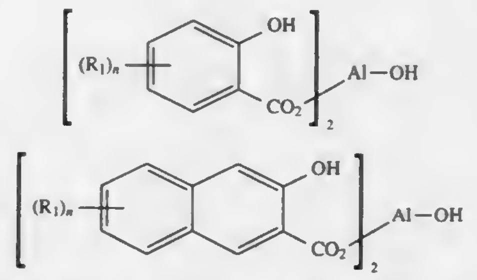
$$\mathrm{HO{-}\underset{\underset{\displaystyle CH_2{-}CH_3}{\underset{|}{O}}}{\underset{|}{\overset{\overset{\displaystyle O}{\|}}{P}}}{-}O{-}(CH_2)_8{-}CH{=}CH{-}(CH_2)_7{-}CH_3}$$


II

$$\mathrm{HO{-}\underset{\underset{\displaystyle OH}{|}}{\overset{\overset{\displaystyle O}{\|}}{P}}{-}O{-}(CH_2)_8{-}CH{=}CH{-}(CH_2)_7{-}CH_3}$$


III

$$\mathrm{HO{-}\underset{\underset{\displaystyle OH}{|}}{\overset{\overset{\displaystyle O}{\|}}{P}}{-}O{-}CH_2{-}CH_3}$$


IV

hydrates thereof or mixtures thereof, wherein R_1 is selected from the group consisting of hydrogen and alkyl, and n represents a number of from about 1 to about 6.

5,783,350

DEVELOPER FOR ELECTROSTATIC PHOTOGRAPHY AND IMAGE FORMING METHOD

Hirotaka Matsuoka, and Takako Kobayashi, both of Minami-ashigara, Japan, assignors to Fuji Xerox Co., Ltd., Tokyo, Japan

Filed Dec. 9, 1996, Ser. No. 762,396

Claims priority, application Japan, Dec. 14, 1995, 7-325462

Int. Cl.^{6} G03G *9/125*

U.S. Cl. 430—116 **12 Claims**

1. A developer for electrostatic photography, comprising toner particles containing a thermoplastic resin and a colorant which tone particles are dispersed in an electrically insulating carrier,
wherein the thermoplastic resin is insoluble in the electrically insulating carrier at a temperature below the melting point of

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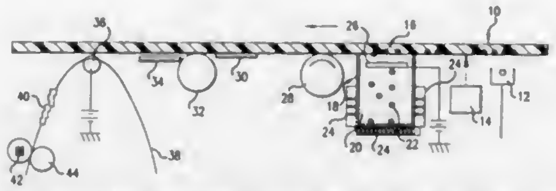


the electrically insulating carrier but becomes solvated with the electrically insulating carrier at a temperature above the melting point of the electrically insulating carrier.

5,783,351

MULTIACTIVE ELECTROSTATOGRAPHIC ELEMENTS HAVING A SUPPORT WITH BEADS PROTRUDING ON ONE SURFACE

David Michael Woytek, Rochester, N.Y., assignor to Eastman Kodak Company, Rochester, N.Y.

Filed Jan. 11, 1996, Ser. No. 585,130

Int. Cl.^{6} G03G *5/10*

U.S. Cl. 430—133 **23 Claims**

1. A method of making a multiactive photoconductive element; said element comprising a support, a conductive layer; a charge generation layer and a charge transport layer; wherein said method comprises the steps of:

A. providing a roll of knurl free planar polymeric support having beads added to the entire cross section of the support and said beads protrude from the support surface opposite the surface upon which the conducting layer resides and the charge transport layer is free of beads;

B. vacuum coating a metal on the polymeric support surface opposite the surface bearing the beads;

C. applying a charge generation layer on the metal layer; and

D. solvent coating a bead free charge transport layer on the charge generation layer.

5,783,352

METHOD OF PRODUCING ELECTROPHOTOGRAPHIC TONER

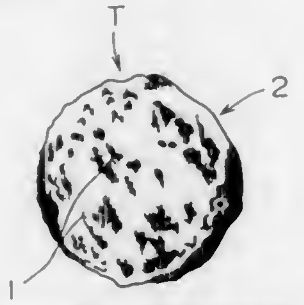
Toshiro Okae, and Masami Tsujihiro, both of Osaka, Japan, assignors to Mita Industrial Co., Ltd., Osaka, Japan

Division of Ser. No. 325,929, Oct. 18, 1994, abandoned. This application Oct. 23, 1996, Ser. No. 734,843

Claims priority, application Japan, Oct. 20, 1993, 5-262594; Oct. 29, 1993, 5-272597

Int. Cl.^{6} G03G *9/08*

U.S. Cl. 430—137 **14 Claims**



1. A method of producing an electrophotographic toner comprising

preparing a monomer-phase mixture wherein said mixture contains: (i) a polymerizable monomer serving as a raw material of a fixing resin of said toner and (ii) fine particles selected from the group consisting of fine particles of crosslinking resin having a primary particle size of 1% to 30% of a particle size of said toner, and water insoluble inorganic fine particles which have said primary particle size and which have been treated to increase their affinity with said monomer, wherein a mixing ratio of said fine particles to said monomer is in a range of 0.1% to 100% by weight, and wherein said fine particles are added to said monomer and said fine particles and monomer are subsequently added to a dispersion medium; and

polymerizing said monomer-phase mixture while suspended, in the form of drops, in said dispersion medium in which said polymerizable monomer is insoluble,

wherein said toner is provided on a surface thereof with numerous projections made of said fine particles.

5,783,353

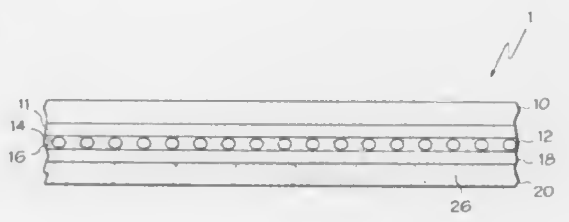
SELF-CONTAINED IMAGING ASSEMBLY

Joseph C. Camillus, Dayton; Mark A. Johnson, Chillicothe; John M. Taylor, Miamisburg, all of Ohio; Darrell A. Terry, Greenwood, S.C.; William Lippke, and S. Thomas Brammer, both of Dayton, Ohio, assignors to Cycolor, Inc., Miamisburg, Ohio

Continuation-in-part of Ser. No. 258,329, Jun. 10, 1994, abandoned. This application Dec. 11, 1995, Ser. No. 570,658

Int. Cl.^{6} G03C *1/73;1/76*

U.S. Cl. 430—138 **6 Claims**



1. A sealed self-contained photohardenable imaging assembly comprising:

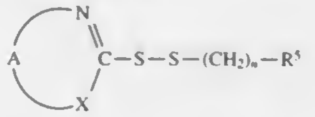
a first transparent polymeric film support;

a second polymeric film support which may be opaque or transparent;

an imaging layer disposed between said first transparent support and said second support, said imaging layer comprising a developer material and a plurality of microcapsules;

a subbing layer disposed between said first transparent support and said imaging layer, said subbing including a polymer having chemical moieties which bond to said microcapsules; and an adhesive material disposed between said imaging layer and said second support;

said microcapsules encapsulating a photohardenable composition containing a color precursor, a polyethylenically unsaturated compound, a cyanine dye/borate photoinitiator and a disulfide having the formula:



where X is selected from the group consisting of S and O; n represents 0 or 1; A represents the residue of the ring containing the N, C and X atoms, the ring containing five or six members and, in addition, said ring members may be fused to an aromatic ring; and R^5 is an aromatic radical selected from the group consisting of (i) phenyl, (ii) benzothiazolyl, (iii) benzoxazolyl, (iv) tetrazolyl, (v) pyridinyl, (vi) pyrimidinyl, (vii) thiazolyl, (viii) oxazolyl, (ix) quinazolinyl, and (x) thiadiazolyl, wherein the imaging layer exhibits a residual stain of less than about 0.3 density units, wherein said microcapsules are melamine-formaldehyde microcapsules formed in the presence of pectin and said developer material is a phenolic resin essentially free of water soluble acid salts.

5,783,354

POSITIVE-WORKING RADIATION-SENSITIVE MIXTURE

Reinhold Schwalm, Wachenheim; Dirk Funhoff, Weinheim, and Horst Binder, Lamperthelm, all of Germany, assignors to BASF Aktiengesellschaft, Ludwigshafen, Germany

Filed Sep. 9, 1996, Ser. No. 711,016

Claims priority, application Germany, Sep. 11, 1995, 195 33 608.9

Int. Cl.^{6} G03F *7/004;7/039*

U.S. Cl. 430—170 **9 Claims**

1. A positive-working radiation-sensitive mixture essentially consisting of

(a_1) at least one water-insoluble, organic polymeric binder which contains acid-labile groups and becomes soluble in aqueous alkaline solutions as a result of the action of acid, or

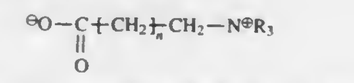
($a_{2.1}$) a polymeric binder which is insoluble in water and soluble in aqueous alkaline solutions and

($a_{2.2}$) a low molecular weight organic compound whose solubility in an aqueous alkaline developer is increased as a result of the action of acid, and

(b) at least one organic compound which produces an acid under the action of actinic radiation, and, if required,

(c) one or more further organic compounds which differ from (b),

wherein at least one of the components (a_1), ($a_{2.1}$), (a2.2), (b) and (c) contains a bonded group of the formula (I) $-O^{\ominus}\ N^{\oplus}\ R_4$, or component (c) is of the formula (II)



$$^{\ominus}O-\underset{\overset{\|}{O}}{C}+CH_2+_{n}CH_2-N^{\oplus}R_3 \qquad (II)$$

where R is alkyl of 1 to 6 carbon atoms and n is from 1 to 6.

5,783,355

RADIATION-SENSITIVE POSITIVE RESIST COMPOSITION

Ayako Ida, Kobe; Haruyoshi Osaki, Toyonaka; Takeshi Hioki, Tondabayashi; Yasunori Doi, Takatsuki; Yasunori Uetani, Toyonaka, and Ryotaro Hanawa, Ibaraki, all of Japan, assignors to Sumitomo Chemical Company, Limited, Osaka, Japan

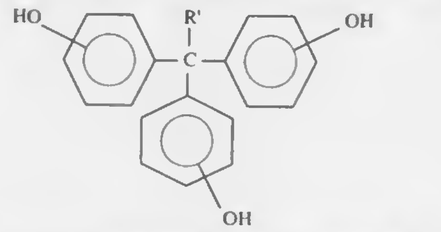
Continuation of Ser. No. 224,566, Apr. 7, 1994, abandoned, which is a division of Ser. No. 60,725, May 13, 1993, abandoned, which is a continuation of Ser. No. 569,915, Aug. 20, 1990, abandoned. This application Jun. 14, 1995, Ser. No. 490,512

Claims priority, application Japan, Aug. 24, 1989, 1-219194; Aug. 25, 1989, 1-219089; Sep. 8, 1989, 1-234380; Oct. 5, 1989, 1-261375; Oct. 6, 1989, 1-262712; Oct. 6, 1989, 1-262713; Dec. 27, 1989, 1-341457; Dec. 27, 1989, 1-341458; Dec. 27, 1989, 1-341459

Int. Cl.^{6} G03F *7/023*

U.S. Cl. 430—191 **11 Claims**

1. A positive resist composition comprising an admixture of: a 1,2-quinonediazide compound; an alkali-soluble resin (I) obtainable through a condensation reaction of a mixture of m-cresol, 2,3,5-trimethylphenol and optionally p-cresol with an aldehyde in the presence of an acid catalyst, said aldehyde being selected from the group consisting of formaldehyde, paraformaldehyde, acetaldehyde and glyoxal; and a compound of the general formula (III):



(III)

wherein R' is a hydrogen atom or a C_1–C_3 alkyl group.

5,783,356

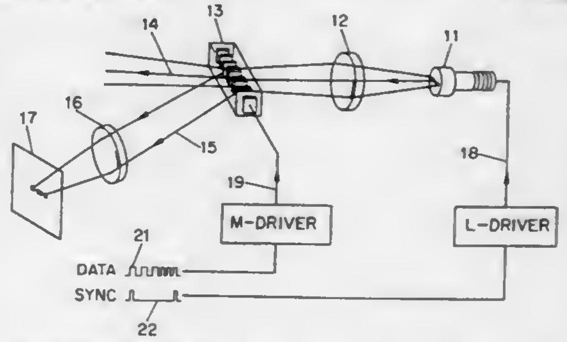
HALFTONE REPRODUCTION BY SINGLE SPOT MULTIBEAM LASER RECORDING

Jacobus Bosschaerts; Robert Overmeer, both of Mortsel; Paul Delabastita, Antwerp, and Johan Van Hunsel, Hasselt, all of Belgium, assignors to Agfa-Gevaert, N.V., Mortsel, Belgium

Filed Mar. 6, 1997, Ser. No. 812,451

Int. Cl.^{6} G03F *7/22;7/07;7/20*

U.S. Cl. 430—240 **2 Claims**



1. A method for generating a screened reproduction of a contone image on a lithographic printing plate comprising the steps of:

screening said contone image to obtain screened data representative for tones of said contone image, and suitable for driving exposure of microdots m on a radiation sensitive imaging element; and

exposing said microdots according to said screened data by at least one set or plurality p of radiation beams b, on a lithographic printing plate precursor having a surface capable of being differentiated in ink accepting and ink repellant areas upon exposure, and an optional development step, wherein said exposure of each microdot uses a set p of radiation beams b the number of which is varied in accordance with a particular tone to be reproduced.

5,783,357

TERTIARY AMINO CONTRAST INCREASERS FOR ULTRAHIGH CONTRAST SILVER HALIDE RECORDING MATERIAL

Reinhold Rüger, Rödermark, Germany, assignor to E. I. du Pont de Nemours and Company, Wilmington, Del.

Filed Mar. 15, 1996, Ser. No. 616,407

Claims priority, application Germany, Mar. 23, 1995, 195 10 614.8

Int. Cl.^{6} G03C *1/10;5/29*

U.S. Cl. 430—264 **11 Claims**

1. A light-sensitive silver halide recording material for the production of black-and-white negative images, with at least one light-sensitive layer having a silver halide emulsion on at least one side of a support, the light-sensitive layer containing at least one hydrazine compound and characterized in that the light-sensitive layer contains at least one contrast-increasing compound having at least one tertiary amino group and at least one sulfonyl urea or sulfonyl urethane group in its molecule.

5,783,358

STABILIZATION OF LIQUID RADIATION-CURABLE COMPOSITIONS AGAINST UNDESIRED PREMATURE POLYMERIZATION

Adrian Schulthess, Tentlingen; Bettina Steinmann, Praroman, and Manfred Hofmann, Marly, all of Switzerland, assignors to Ciba Specialty Chemicals Corporation, Tarrytown, N.Y.

Filed Mar. 6, 1996, Ser. No. 611,914

Int. Cl.^{6} G03C *9/08;* **G03F** *7/029;7/031;* **C08G** *59/68*

U.S. Cl. 430—269 **7 Claims**

1. In a process for the production of three-dimensional articles in a stereolithographic bath which process comprises the step of

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sequentially irradiating a plurality of layers of a liquid radiation-curable composition comprising a cationically polymerizable compound and a photoinitiator for cationic polymerization, the improvement of stabilizing said composition in said stereolithographic bath against a premature commencement of the polymerization associated with an unintended increase of the viscosity of the composition during the time period of its use comprising bringing a basic ion exchanger material into contact with said composition, for a time sufficient to effect said stabilization.

5,783,359

RUBBER PHOTORESIST COMPOSITE AND A METHOD FOR PRODUCING A CIRCUIT BOARD USING THEREOF

Shigeru Tomisawa; Yasuhiro Yoneda, and Masahiko Sugimura, all of Kawasaki, Japan, assignors to Fujitsu Limited, Kanagawa, and Nippon Zeon Co., Ltd., Tokyo, both of Japan
Continuation of Ser. No. 489,931, Jun. 13, 1995, abandoned.
This application Apr. 28, 1997, Ser. No. 848,521
Claims priority, application Japan, Jun. 13, 1994, 6-130617
Int. Cl.^{6} G03K *1/695;* **G03F** *7/004;7/012*
U.S. Cl. 430—270.1 **1 Claim**

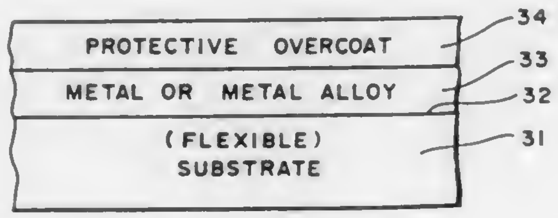
1. A rubber photoresist composite comprising: a photosensitive agent, a cyclized rubber and a solvent,

wherein said solvent is a mixture of xylene and decahydronaphthalene, and a content of said decahydronaphthalene in said solvent is 10–50% by weight.

5,783,360

FLEXIBLE OPTICAL MEDIUM WITH DIELECTRIC PROTECTIVE OVERCOAT

Roger W. Phillips, and Lauren R. Wendt, both of Santa Clara, Calif., assignors to Flex Products, Inc., Santa Rosa, Calif.
Continuation of Ser. No. 227,271, Apr. 13, 1994, abandoned.
This application Jan. 10, 1997, Ser. No. 781,454
Int. Cl.^{6} G11B *7/24*
U.S. Cl. 430—270.12 **1 Claim**



1. A flexible optical medium for operating with a laser beam having a predetermined laser design wavelength comprising a flexible substrate having a surface, a metal imaging layer having a thickness ranging from 100 to 300 Å carried by said surface and a protective overcoat layer of a dielectric non-conducting material on said imaging layer to provide an optimum reflection and abrasion resistance for said imaging layer, said protective overcoat of material being formed of a pair of layers comprised of SiO_2 and TiO_x (x=1.0–2.0) respectively wherein the SiO_2 layer has a thickness less than ¼ of optical thickness at the laser design wavelength and the TiO_x layer has a thickness greater than one-quarter of optical thickness at the laser design wavelength.

5,783,361

MICROLITHOGRAPHIC STRUCTURE WITH AN UNDERLAYER FILM CONTAINING A THERMOLYZED AZIDE COMPOUND

Willard Earl Conley, Cornwall; James Thomas Fahey, Poughkeepsie, both of N.Y.; Wayne Martin Moreau, Wappingers Falls, N.Y.; Ratnam Sooriyakumaran, San Jose, Calif., and Kevin Michael Welsh, Plymouth, Minn., assignors to International Business Machines Corporation, Armonk, N.Y.
Continuation of Ser. No. 354,579, Dec. 13, 1994, Pat. No. 5,663,036. This application Feb. 4, 1997, Ser. No. 794,822
Int. Cl.^{6} G03C *1/492;1/52;1/815;1/06*
U.S. Cl. 430—271.1 **11 Claims**

1. A microlithographic structure comprising:

a) a microlithographic substrate;

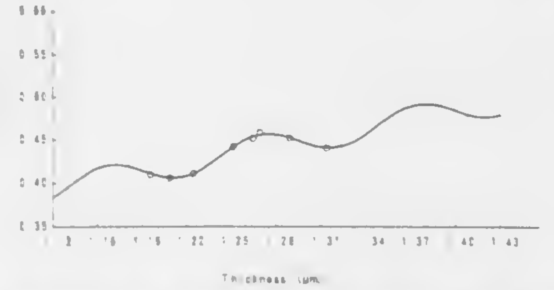
b) applied to the surface of said substrate, an underlayer film comprising a polymeric binder selected from the group consisting of polyarylether sulfones, polyarylether ketones, poly(vinyl naphthalenes), and polycarbonates and a basic species, wherein said basic species has been produced by thermolyzing a precursor of said basic species, wherein the precursor is an azide selected from the group consisting of 4,4'-diazidostilbene, 4,4'-diazidochalcone, 4,4'-diazidobenzophenone, 1,6-diazidopyrene, 4,4'-diazidodiphenylmethane, 3,3'-diazidodiphenyl sulfone, polymeric azides, and precursors comprising one or more phenylsulfonylazide substituents; and

c) overlaying said underlayer film, a chemically amplified photoresist film, wherein an acid is generated upon exposure to radiation.

5,783,362

LIQUID COATING COMPOSITION FOR USE IN FORMING PHOTORESIST COATING FILMS AND A PHOTORESIST MATERIAL USING SAID COMPOSITION

Kazumasa Wakiya; Masakazu Kobayashi, and Toshimasa Nakayama, all of Kanagawa-ken, Japan, assignors to Tokyo Ohka Kogyo Co., Ltd., Kanagawa-ken, Japan
Division of Ser. No. 427,900, Apr. 26, 1995, Pat. No. 5,631,314.
This application Feb. 12, 1997, Ser. No. 797,988
Claims priority, application Japan, Apr. 27, 1994, 6-110163
Int. Cl.^{6} G03C *1/76*
U.S. Cl. 430—273.1 **18 Claims**



1. A photoresist material comprising a photoresist film overlaid with a coating film formed from a liquid coating composition comprising a water-soluble, film-forming component and a fluorosurfactant, the said fluorosurfactant being at least one member selected from the group consisting of the salt of a compound represented by the following general formula (I):

$$RfCOOH \quad (I)$$

wherein Rf is a fluorohydrocarbon group having part or all of the hydrogen atoms in a C_2–C_{20} saturated or unsaturated hydrocarbon group replaced by fluorine atoms with an alkanolamine and the salt of a compound represented by the following general formula (II):

$$R'fSO_3H \quad (II)$$

wherein R'f is a fluorohydrocarbon group having part or all of the hydrogen atoms in a C_2–C_{20} saturated or unsaturated hydrocarbon group replaced by fluorine atoms with an alkanolamine.

5,783,363

METHOD OF PERFORMING CHARGED-PARTICLE LITHOGRAPHY

Michael E. Thomas, Milpitas, Calif., assignor to National Semiconductor Corporation, Santa Clara, Calif.
Continuation of Ser. No. 878,556, May 28, 1992, abandoned.
This application Jan. 21, 1997, Ser. No. 786,196
Int. Cl.^{6} G03F *7/00*
U.S. Cl. 430—296 **3 Claims**

1. In a process for performing charged-particle lithography employing a trilevel resist having a planarizing layer, a transfer layer and an active resist, the improvement comprising the step of spinning an electrically-conductive transfer layer on the planarizing layer,

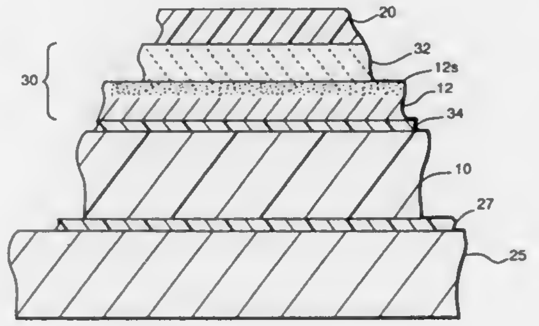
wherein said conductive transfer layer comprises a silioxane resin and a conductive dopant, and

wherein said conductive dopant comprises a metal soap.

5,783,364

THIN-FILM IMAGING RECORDING CONSTRUCTIONS INCORPORATING METALLIC INORGANIC LAYERS AND OPTICAL INTERFERENCE STRUCTURES

Ernest W. Ellis, Harvard, Mass., and Thomas E. Lewis, E. Hampstead, N.H., assignors to Presstek, Inc., Hudson, N.H.
Filed Aug. 20, 1996, Ser. No. 700,287
Int. Cl.^{6} B41N *1/08*
U.S. Cl. 430—302 **61 Claims**



47. A lithographic printing member directly imageable by laser discharge, the member comprising:

a. a topmost first layer which is polymeric;

b. an optical interference structure underlying the first layer; and

c. a third layer underlying the optical interference structure;

wherein

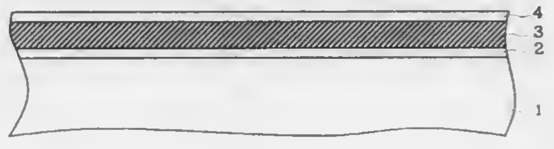
d. the optical interference structure is subject to ablative absorption of imaging radiation whereas the first layer is not; and

e. the first and third layers exhibit different affinities for at least one printing liquid selected from the group consisting of ink and an adhesive fluid for ink.

5,783,365

MANUFACTURING METHOD OF SEMICONDUCTOR DEVICE

Kouichirou Tsujita, Tokyo, Japan, assignor to Mitsubishi Denki Kabushiki Kaisha, Tokyo, Japan
Filed Nov. 22, 1995, Ser. No. 561,851
Claims priority, application Japan, Dec. 16, 1994, 6-313396
Int. Cl.^{6} G03C *5/00*
U.S. Cl. 430—311 **6 Claims**



1. A method of manufacturing a semiconductor device for patterning by using a chemically amplified resist in which a reaction is promoted by an acid serving as a catalyst, said method comprising the steps of:

(a) forming a thermally oxidizable foundation layer including forming a silicon nitride film having a first

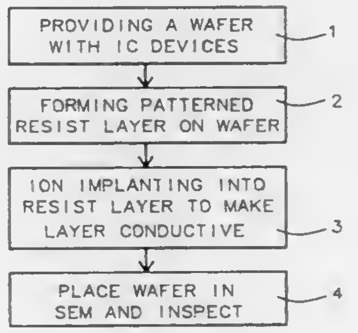
(b) forming a thermal oxide film on said silicon nitride film by thermally oxidizing said foundation layer; and

(c) applying said chemically amplified resist on said thermal oxide film and then forming a resist layer having a predetermined pattern by exposing said chemically amplified resist to light.

5,783,366

METHOD FOR ELIMINATING CHARGING OF PHOTORESIST ON SPECIMENS DURING SCANNING ELECTRON MICROSCOPE EXAMINATION

Hsin-Pai Chen, and Dong-Shiuh Cheng, both of Hsin-chu, Taiwan, assignors to Taiwan Semiconductor Manufacturing Company Ltd., Hsin-Chu, Taiwan
Filed Dec. 7, 1995, Ser. No. 568,721
Int. Cl.^{6} G03C *5/00*
U.S. Cl. 430—311 **13 Claims**


PROVIDING A WAFER WITH IC DEVICES
1
FORMING PATTERNED RESIST LAYER ON WAFER
2
ION IMPLANTING INTO RESIST LAYER TO MAKE LAYER CONDUCTIVE
3
PLACE WAFER IN SEM AND INSPECT
4

7. A method for examining a semiconductor wafer, having integrated circuit devices and an insulative layer with a photoresist mask thereon, using a scanning electron microscope(SEM) without occurrence of surface charge accumulation during SEM examination comprising providing a semiconductor wafer having integrated circuit devices, and an insulation layer with a photoresist mask thereon,

making said photoresist mask conductive by implanting ions into its surface,

mounting said wafer on the specimen holder of an SEM;

placing said mounted wafer into the specimen chamber of an SEM; and examining said wafer.

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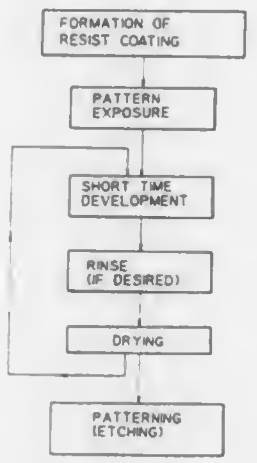
PROCESS FOR PRODUCTION OF SEMICONDUCTOR DEVICE AND RESIST DEVELOPING APPARATUS USED THEREIN

Takashi Maruyama, Tokyo; Tatsuo Chijimatsu, Kawasaki; Koichi Kobayashi, Yokohama; Keiko Yano, and Hiroyuki Kanata, both of Kawasaki, all of Japan, assignors to Fujitsu Limited, Kawasaki, Japan

Continuation of Ser. No. 13,668, Jan. 28, 1993, abandoned, which is a continuation of Ser. No. 630,650, Dec. 20, 1990, abandoned, which is a continuation-in-part of Ser. No. 575,875, Aug. 31, 1990, abandoned. This application Jan. 27, 1995, Ser. No. 379,025

Int. Cl.⁶ G03F *7/30*

U.S. Cl. 430—313 **21 Claims**



1. A process for producing a semiconductor device comprising:
coating an article to be fabricated into a semiconductor device with a resist material to thereby form a coating of the resist material on the article, said resist material being initially soluble in an organic solvent developer and convertible by exposure to radiation into a cross-linked polymeric substance that is insoluble in said organic solvent developer;
exposing the coating to a radiation pattern to thereby form a corresponding latent image of the pattern in said coating, said image comprising at least one exposed area of the coating that is insoluble in said organic solvent developer and an adjacent unexposed area of the coating that is soluble in said organic solvent developer;
contacting said coating with said organic solvent developer for a first period of time which is insufficient to allow the organic solvent developer to permeate into said exposed area to a degree such that the exposed area becomes substantially deformed as a result of the permeation of the organic solvent developer thereinto to thereby present a partially developed coating;
evaporating organic solvent developer from the partially developed coating to thereby dry said exposed area;
contacting said partially developed coating with said organic solvent developer for a second period of time which is insufficient to allow the organic solvent developer to permeate into said exposed area to a degree such that the exposed area becomes substantially deformed as a result of the permeation of the organic solvent developer thereinto to thereby present a further developed coating;
evaporating organic solvent developer from the further developed coating to thereby dry the exposed area for a second time; and
fabricating a semiconductor device from the article using the exposed area as at least a portion of a mask.

5,783,368

METHOD OF FORMING CONDUCTIVE PATHS ON A SUBSTRATE CONTAINING DEPRESSIONS

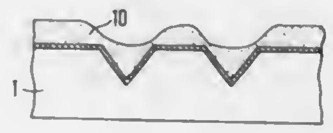
Horst Richter, Böblingen; Walter Jörg, Stuttgart, and Johann Springer, Aichwald, all of Germany, assignors to Alcatel N.V., Rijswijk, Netherlands

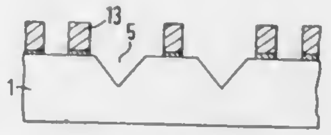
Filed Dec. 11, 1995, Ser. No. 570,314

Claims priority, application Germany, Dec. 24, 1994, 44 46 509.2

Int. Cl.⁶ G03C *5/00*

U.S. Cl. 430—315 **9 Claims**





1. A method of forming conductive paths of an electrically conductive material adjacent an end of V-grooves in a substrate that is covered with a metal layer (6), characterized by:
covering the metal layer (6) with a layer of a plastic material (7), wherein said covering includes closing the V-grooves (5) thereby forming closed V-grooves;
forming an opening (8) in the selected material to expose the metal layer (6) at said selected distance;
filling said opening with metal to form a column of metal (9) from said metal layer to a surface level of said layer of plastic material (7);
forming said conductive paths (4) on the layer of selected material and on the column of metal at said selected distance; and
opening the closed V-grooves for insertion of an optical fiber (3).

5,783,369

METHOD OF PRODUCING A SEMICONDUCTOR DEVICE

Masahide Shinohara, Tokyo, Japan, assignor to NEC Corporation, Japan

Filed Apr. 18, 1996, Ser. No. 634,442

Claims priority, application Japan, Apr. 24, 1995, 7-123184

Int. Cl.⁶ G03C *5/00*

U.S. Cl. 430—317 **9 Claims**

1. A method of producing a semiconductor device, comprising the steps of:
(a) forming a metallic wiring pattern on a semiconductor substrate;
(b) forming an insulating film on said metallic wiring pattern;
(c) forming a polyimide film on said insulating film;
(d) patterning said polyimide film to thereby form a polyimide pattern;
(e) selectively etching said insulating film by using said polyimide pattern as a mask;
(f) following step (e), oxygen ashing a surface of said polyimide pattern by oxygen plasma; and
(g) following step (f), heating said polyimide pattern to harden said polyimide whereby to reform imide coupling dissociated by the oxygen ashing step.

8. A method of producing a semiconductor device comprising the steps of:
(a) forming a metallic wiring pattern on a semiconductor substrate;
(b) forming an insulating film on said metallic wiring pattern;
(c) forming a polyimide film on said insulating film;

(d) patterning said polyimide film to thereby form a polyimide pattern;
(e) subjecting said polyimide pattern to a first heat treatment;
(f) selectively etching said insulating film by using said polyimide pattern as a mask;
(g) following step (f), oxygen ashing a surface of said polyimide pattern by oxygen plasma; and
(h) following step (g), subjecting said polyimide pattern to a second heat treatment to harden said polyimide whereby to reform imide coupling dissociated by the oxygen ashing step.

5,783,370

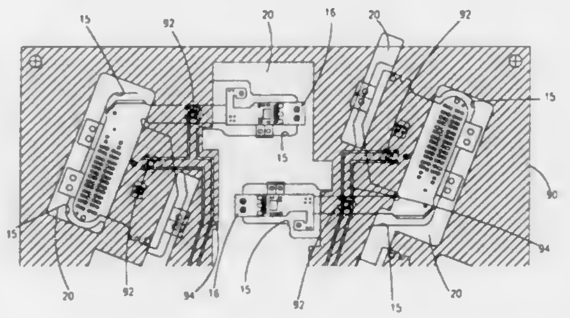
PANELIZED PRINTED CIRCUIT CABLES FOR HIGH VOLUME PRINTED CIRCUIT CABLE MANUFACTURING

John Michael Groom, Scotts Valley, and Chau Chin Low, Santa Cruz, both of Calif., assignors to Seagate Technology, Inc., Scotts Valley, Calif.

Filed Jul. 24, 1996, Ser. No. 685,705

Int. Cl.⁶ G03C *5/00;* **H05K** *7/02;3/30*

U.S. Cl. 430—318 **16 Claims**



1. An assembly for simultaneously holding a plurality of printed circuit cables comprising:
a. a plurality of printed circuit cables, said printed circuit cables formed from a polyimide base sheet coated with a layer of copper and further coated with a photo-imaging material layer, having said copper layer and said photo-imaging material layer photo-etched away at certain locations,
b. a cover layer applied on top of said printed circuit cables, said cover layer extending laterally from said printed circuit cables, and forming laterally extending tabs at a plurality of locations, and
c. a panel having a plurality of apertures passing therethrough, said apertures each dimensioned to receive a printed circuit cable therein, said laterally extending tabs being connected to said panel thereby supporting said printed circuit cable at a position entirely received in said aperture, said aperture affording simultaneous access to a top surface and a bottom surface of said printed circuit cable.

9. A method of simultaneously fabricating a plurality of printed circuit cables consisting of the sequentially performed steps of:
a. cutting a plurality of pieces from a polyimide base sheet, said polyimide base sheet being coated with a copper layer,
b. applying a photo-imaging material layer over the top of said copper layer on each of said pieces,
c. photo-imaging away said copper layer and said photo-imaging material layer at a plurality of locations on said pieces,
d. applying a cover layer on top of said pieces, said cover layer being formed to extend laterally from said pieces at a plurality of locations thereby forming laterally extending tabs, and
e. mounting said pieces in a panel with a plurality of apertures cut therethrough, each of said apertures being dimensioned to entirely receive one of said pieces therein and said laterally extending tabs connecting said each of said pieces to said panel thereby suspending said piece in said aperture at a position affording simultaneous access to a top surface and a bottom surface of said printed circuit cable.

5,783,371

PROCESS FOR MANUFACTURING OPTICAL DATA STORAGE DISK STAMPER

Thomas G. Bifano, Mansfield, Mass., assignor to Trustees of Boston University, and Peter Ciriello, both of Dover, Mass., part interest to each

Continuation-in-part of Ser. No. 281,971, Jul. 29, 1994, Pat. No. 5,503,963. This application Apr. 1, 1996, Ser. No. 625,820

Int. Cl.⁶ G11B *7/26*

U.S. Cl. 430—321 **36 Claims**

1. A process for manufacturing an optical data storage disk stamper, comprising the steps of:
providing an ion machinable amorphous metal substrate having a toughness of at least about 10 MPa$\sqrt{m}$;
depositing a layer of photoresist on a surface of said substrate;
exposing said photoresist with a source of electromagnetic energy to form a data pattern in said photoresist;
developing said photoresist; and
ion machining said data pattern, such that a spiral track of at least one ridge and at least one land is formed in said substrate.

5,783,372

DIGITAL IMAGING WITH HIGH CHLORIDE EMULSIONS CONTAINING IODIDE

Jerzy Antoni Budz; Jerzy Mydlarz, both of Fairport; Benjamin Teh-Kung Chen, Penfield, and James Lawrence Edwards, Rochester, all of N.Y., assignors to Eastman Kodak Company, Rochester, N.Y.

Filed Feb. 14, 1996, Ser. No. 601,642

Int. Cl.⁶ G03C *1/035;1/09*

U.S. Cl. 430—363 **4 Claims**

1. A method of imaging providing a photographic element for digital exposure comprising at least one layer comprising an emulsion of cubic silver iodochloride grain wherein said grain has been sensitized with a gold compound and with less than 1 μmole per silver mole of sulfur, wherein said iodochloride grain comprises between 0.1 and 1 mole percent iodide and wherein the iodide of said iodochloride grain is present in the outer 15 percent by mass of the grains of the emulsion, and subjecting said element to digital exposure wherein said gold compound comprises 0.10 to 100 milligrams of gold sulfide per mole of silver.

5,783,373

DIGITAL IMAGING WITH HIGH CHLORIDE EMULSIONS

Jerzy Z. Mydlarz; Jerzy A. Budz, both of Fairport, and Eric L. Bell, Webster, all of N.Y., assignors to Eastman Kodak Company, Rochester, N.Y.

Filed Oct. 30, 1996, Ser. No. 740,535

Int. Cl.⁶ G03C *1/09;1/035*

U.S. Cl. 430—363 **29 Claims**

1. An electronic printing method which comprises subjecting a radiation sensitive silver halide emulsion layer of a recording element to actinic radiation of at least 10^{-4} ergs/cm^2 for up to 100μ seconds duration in a pixel-by-pixel mode, wherein the silver halide emulsion layer is comprised of
(1) silver halide grains
  (a) containing greater than 50 mole percent chloride, based on silver,
  (b) having greater than 50 percent of their surface area provided by {100} crystal faces, and
  (c) having a central portion accounting for from 95 to 98 percent of total silver and containing three dopants each selected to satisfy a different one of the following class requirements:
  (i) a metal coordination complex containing a nitrosyl or thionitrosyl ligand in combination with a transition metal chosen from groups 5 to 10 inclusive of the periodic table of elements,

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(ii) a shallow electron trapping dopant, and

(iii) an iridium coordination complex having ligands which are more electropositive than a cyano ligand, and

(2) a gelatino-peptizer for the silver halide grains that contains less than 30 micromoles of methionine per gram.

5,783,374

PROCESS FOR PROCESSING PHOTOGRAPHIC BATHS FROM COLOR PROCESSES

Roger Noero, Graf-Eberstein-Str. 6, D-76199 Karlsruhe, Germany

Filed May 16, 1997, Ser. No. 857,676

Claims priority, application Germany, May 16, 1996, 196 19 828.3

Int. Cl.^{6} G03C *7/44*

U.S. Cl. 430—400 **10 Claims**

1. Process for processing spent photographic baths from colour processes, namely bleaching or bleaching-fixing baths with a preponderant content of ammonium-Fe-EDTA (ethylene diamine tetraacetic acid) as the sequestering agent, fixing baths with a preponderant content of thiosulphates, particularly ammonium thiosulphate and optionally sodium thiosulphate, and developing baths with a preponderant content of sulfite, particularly sodium sulfate, characterized in that, following the deposition of the silver contained in the baths, the multipart starting solution is adjusted to a pH of approximately 13.5 to 14 using NaOH and the $Fe(OH)_3$ obtained through the decomposition of the Fe complex is separated, the remaining, first intermediate solution is adjusted to pH-10 by adding acid and the resulting ammonia separated, the remaining, second intermediate solution is brought to a pH of approximately 0.5 with concentrated HCl, the thiosulphates being decomposed into elementary sulphur and sulphurous acid and the sulphur is separated, the remaining, third, sulphurous acid intermediate solution is brought to a pH of approximately 1.5 with inorganic liquor and the crystallizing out EDTA is drawn off, the residual solution being mixed with developing baths, raised to pH-3 and the sulfate contained therein is transformed into SO_2, which is separated.

5,783,375

METHOD OF PROCESSING A COLOR PHOTOGRAPHIC SILVER HALIDE MATERIAL

Peter Jeffery Twist, Great Missenden, United Kingdom, assignor to Eastman Kodak Company, Rochester, N.Y.

Filed Aug. 29, 1996, Ser. No. 705,474

Claims priority, application United Kingdom, Sep. 2, 1995, 9517895

Int. Cl.^{6} G03C *7/42*

U.S. Cl. 430—414 **16 Claims**

1. A method for processing comprising:

A) color developing a photographic silver halide color material comprising two or more silver halide layers sensitized to different regions of the visible spectrum having associated therewith appropriate dye image forming couplers, and

B) treating said color developed material with an amplifier/bleach/fix solution comprising:

a redox oxidant that is capable of bleaching a silver image,

a fixing agent that does not poison the catalytic properties of said silver image, and that does not react with said redox oxidant, said fixing agent being present in an amount of from 10 to 100 g/l, and

a fixing accelerator in an amount of from 0.01 to 150 g/l.

5,783,376

SULFO-SUBSTITUTED CARBOXYLATES AS BUFFERS FOR PHOTOGRAPHIC BLEACHES AND BLEACH-FIXES

Stuart Terrance Gordon, Pittsford; John Michael Buchanan, and Sidney Joseph Bertucci, both of Rochester, all of N.Y., assignors to Eastman Kodak Company, Rochester, N.Y.

Continuation of Ser. No. 432,737, May 2, 1995, abandoned, which is a continuation-in-part of Ser. No. 230,261, Apr. 20, 1994, abandoned. This application May 14, 1997, Ser. No. 856,365

Int. Cl.^{6} G03C *7/42*

U.S. Cl. 430—460 **19 Claims**

1. A composition for bleaching or bleach-fixing a silver halide photographic material,

said composition having a pH of from 2 to 9, and consisting essentially of at least 0.02 mol/l of a bleaching agent that is either a persulfate salt or a polyvalent metal complex of an aminopolycarboxylic acid, and from 0.01 to 2.0M of a sulfo-substituted carboxylate represented by Formula (I)

$$(MO_3S)_n—R—(COOM)_m \qquad (I)$$

wherein R is a benzene ring or a straight, branched or cyclic saturated aliphatic group having 2 to 8 carbon atoms,

M is hydrogen or an organic or inorganic cation;

n is 1 to 7,

with the proviso that if R is an aliphatic group, m is 2 to 4, and m and n combined cannot equal more than the number of carbon atoms in R plus two, and if R is a benzene ring, m is 2 to 5 and m and n combined cannot equal more than six,

and further provided that said composition does not include a peroxide bleaching agent.

5,783,377

INFRARED ABSORBER DYES

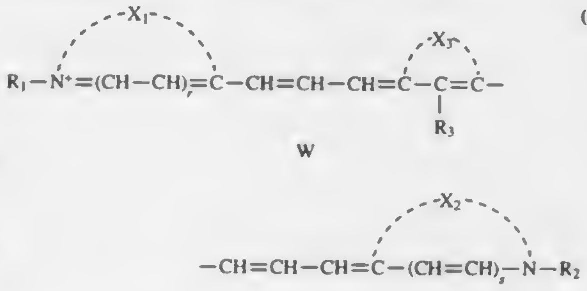
John David Mee, Rochester, N.Y., and Colin James Gray, Harrow, United Kingdom, assignors to Eastman Kodak Company, Rochester, N.Y.

Filed Sep. 4, 1996, Ser. No. 708,861

Int. Cl.^{6} G03C *1/40*

U.S. Cl. 430—522 **20 Claims**

1. A photographic element having a light sensitive layer and which element contains a dye of the formula (I):



(I)

$$R_1—N^+{=}(CH{-}CH)_r{=}C{-}CH{=}CH{-}CH{=}C{-}\underset{R_3}{C}{=}C{-}\;W\;{-}CH{=}CH{-}CH{=}C{-}(CH{=}CH)_s{-}N{-}R_2$$

wherein:

X_1 and X_2 each independently represents the atoms necessary to complete a 5- or 6-membered heterocyclic nucleus;

X_3 represents the atoms necessary to form a 5- or 6- membered ring structure, which may be substituted;

R_1 and R_2 each independently represents a substituted or unsubstituted alkyl group or a substituted or unsubstituted aryl group;

R_3 represents H, a substituted or unsubstituted alkyl group or a substituted or unsubstituted aryl group;

r and s independently are 0 or 1; and

W represents one or more counterions as needed to balance the charge of the molecule;

and wherein said dye is water soluble and contains at least two acid groups selected from sulfo, phosphato and phosphono groups.

5,783,378

HIGH CHLORIDE EMULSION THAT CONTAINS A DOPANT AND PEPTIZER COMBINATION THAT INCREASES HIGH DENSITY CONTRAST

Jerzy Z. Mydlarz; Jerzy A. Budz, both of Fairport, and Eric L. Bell, Webster, all of N.Y., assignors to Eastman Kodak Company, Rochester, N.Y.

Filed Oct. 30, 1996, Ser. No. 739,980

Int. Cl.^{6} G03C *1/09;1/35*

U.S. Cl. 430—567 **18 Claims**

1. A radiation-sensitive emulsion comprised of

(1) silver halide grains

(a) containing greater than 50 mole percent chloride, based on silver,

(b) having greater than 50 percent of their surface area provided by (100) crystal faces, and

(c) having a central portion accounting for from 95 to 98 percent of total silver and containing three dopants each selected to satisfy a different one of the following class requirements:

(i) a metal coordination complex containing a nitrosyl or thionitrosyl ligand in combination with a transition metal chosen from groups 5 to 10 inclusive of the periodic table of elements,

(ii) a shallow electron trapping dopant, and

(iii) an iridium coordination complex having ligands which are more electropositive than a cyano ligand, and

(2) a gelatino-peptizer for the silver halide grains that contains less than 30 micromoles of methionine per gram.

5,783,379

X-RAY SILVER HALIDE PHOTOGRAPHIC MATERIAL SUITABLE FOR MAINTENANCE IN BRIGHT DARKROOM LIGHTING CONDITIONS

Peter Willems, Stekene, and Freddy Henderickx, Olen, both of Belgium, assignors to Agfa-Gevaert, N.V., Mortsel, Belgium

Filed Jul. 15, 1996, Ser. No. 680,404

Claims priority, application European Pat. Off., Jul. 18, 1995, 95201975

Int. Cl.^{6} G03C *1/815;5/16*

U.S. Cl. 430—603 **14 Claims**

1. A silver halide photographic material for industrial radiography comprising a film support and on one or both sides thereof at least one gelatino silver halide emulsion layer wherein each silver halide emulsion layer comprises silver chloride and/or silver chlorobromide grains having an amount of bromide at most 25 mole %; a gelatin to silver halide (expressed as silver nitrate) ratio from 2:10 to 6:10 and an amount of silver halide corresponding to from 5 g to 15 g of silver per m^2 and wherein said photographic material has been fore-hardened to such an extent that when immersed in demineralized water at 25° C. for 3 minutes an amount of less than 2.5 g of water per gram of gelatin is absorbed and wherein, said silver chloride or silver chlorobromide grains have been chemically ripened in the presence of at least one sulphur compound and at least one gold compound, wherein gold is present in an amount from 0.01 to 1 μmole per mole of silver halide and wherein a molar ratio of sulphur to gold is less than 1.0.

5,783,380

THERMALLY PROCESSABLE IMAGING ELEMENT

Dennis Edward Smith, Rochester; Sharon Marilyn Melpolder, Hilton, and John Leonard Muehlbauer, Rochester, all of N.Y., assignors to Eastman Kodak Company, Rochester, N.Y.

Filed Sep. 24, 1996, Ser. No. 719,105

Int. Cl.^{6} G03C *1/498*

U.S. Cl. 430—619 **19 Claims**

1. A thermally processable imaging element comprising:

(1) a support;

(2) a thermographic or photothermographic imaging layer on one side of the support;

(3) a protective layer overlying the image-forming layer; said protective layer comprising:

(A) a film forming binder;

(B) a dye dispersed throughout said protective layer in an amount sufficient to impart a pre-selected color thereto; and

(C) matte particles, the color of which substantially matches the color of the protective layer.

5,783,381

CHEMILUMINESCENT 1,2-DIOXETANES

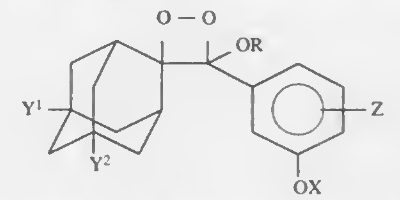
Irena Bronstein, Newton; Brooks Edwards, Cambridge; Alison Sparks, North Andover, and John C. Voyta, Sudbury, all of Mass., assignors to Tropix, Inc., Bedford, Mass.

Filed Oct. 19, 1995, Ser. No. 545,174

Int. Cl.^{6} C12Q *1/00*

U.S. Cl. 435—4 **29 Claims**

1. A chemically triggerable dioxetane of the Formula:



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wherein X is H or $(E)_3Si$, wherein each E is C_{1-12} alkyl or C_{6-12} aryl,

wherein R is a moiety of 1–20 carbon atoms and is alkyl, aryl, aralkyl, alkaryl, heteroalkyl, heteroaryl, cycloalkyl or cycloheteroalkyl, in each case where R comprises a heteroatom, said heteroatom being O, N or S, and wherein R is unsubstituted or substituted with 1–3 halo moieties, 1–3 alkoxy moieties of 1–3 carbons each,1–3 hydroxy moieties, 1–2 amide moieties, a carboxy group or a sulfonic acid group,

Y^1 and Y^2 are independently hydrogen, hydroxy, Cl, F, Br, I, unsubstituted lower alkyl, hydroxy lower alkyl, halo lower alkyl, phenyl, halophenyl, alkoxy phenyl, cyano or amide, Z is 1, 2, or 3 groups which are selected from the group consisting of chloro, fluoro, alkoxy, aryloxy, trialkylammonium, trialkylphosphonim, alkylamido, arylamido, arylcarbamoyl, alkylcarbamoyl, cyano, nitro, ester, alkyl or arylsulfonamido, trifluoromethyl, aryl, alkyl, trialkyl-, triaryl- or alkylarylsilyl, alkyl or arylamidosulfonyl, alkyl or aryl sulfonyl, and alkyl or arylthioethers,

with the proviso that at least one of Y^1, Y^2, and Z is not hydrogen.

5,783,382

METHOD FOR STORING LIQUID DIAGNOSTIC REAGENTS

Norihito Aoyama, Gotenba; Minako Sakakibara, and Akira Miike, both of Sunto-gun, all of Japan, assignors to Kyowa Medex Co., Ltd., Tokyo, Japan

Filed Jan. 24, 1997, Ser. No. 786,966

Claims priority, application Japan, Jan. 26, 1996, 8-011585

Int. Cl.^{6} C12Q *1/00;1/48;1/32;1/28*

U.S. Cl. 435—4 **12 Claims**

1. A method for storing a liquid diagnostic reagent, which comprises keeping the liquid diagnostic reagent in the presence of a disoxidant inside a closed container.

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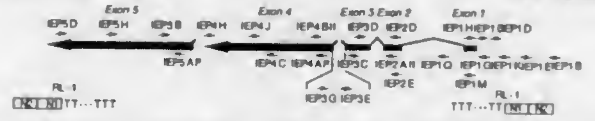
METHOD OF DETECTING CYTOMEGALOVIRUS (CMV)

Kazuhiro Kondo, Osaka, Japan, and Edward S. Mocarski, Jr., Portola Valley, Calif., assignors to The Board of Trustees of the Leland Stanford Junior University, Stanford, Calif.

Filed May 23, 1995, Ser. No. 450,945

Int. Cl.^{6} C12Q *1/70;1/68;* **A61K** *38/00;* **C07K** *1/00*

U.S. Cl. 435—5 **10 Claims**



1\. A method of detecting cytomegalovirus (CMV) in a sample, comprising,

contacting a sample, containing an antibody, with a purified polypeptide (i) encoded by CMV DNA sequences and (ii) produced specifically during latent infection, where said antibody is immunoreactive with said polypeptide, and

detecting the binding of said antibody to said polypeptide, where said detecting indicates the presence of CMV in the sample.

5,783,384

SELECTION OF BINDING-MOLECULES

Gregory L. Verdine, Somerville, Mass., assignor to President and Fellows of Harvard College, Cambridge, Mass.

Continuation-in-part of Ser. No. 29,331, Feb. 10, 1993, abandoned, which is a continuation-in-part of Ser. No. 819,855, Jan. 13, 1992, abandoned. This application Mar. 30, 1994, Ser. No. 220,272

Claims priority, application WIPO, Jan. 13, 1993, PCT/US93/00321

Int. Cl.^{6} C12Q *1/68*

U.S. Cl. 435—6 **14 Claims**

1\. A method of identifying a sequence-specific DNA binding molecule, comprising the steps of:

a) combining: 1) a target DNA sequence comprising a first thiol group which forms a disulfide bond with a second thiol group and; 2) a test-molecule which is an organic molecule to be assessed for its ability to bind a region of the target DNA sequence, said test-molecule comprising the second thiol group, thereby producing a combination;

b) maintaining the combination produced in a) under conditions appropriate for formation of a disulfide bond between the first thiol group of the target DNA and the second thiol group of the test molecule, and binding of the test-molecule to the target DNA sequence, thereby producing target DNA sequence test-molecule complexes;

c) subjecting complexes produced in b) to a reducing agent which cleaves the disulfide bond, thereby producing a mixture which contains complexes, uncomplexed target DNA sequences, and uncomplexed test-molecules; and

d) determining the identity of test-molecules present in the complexes, wherein the presence of a test-molecule in a complex is an indication of a sequence-specific DNA binding molecule.

5,783,385

METHOD FOR HOMOLOGOUS-RECOMBINATION SCREENING OF RECOMBINANT-DNA CLONES IN YEAST HOST LIBRARIES

Douglas A. Treco, Arlington, and Allan M. Miller, Medford, both of Mass., assignors to Transkaryotic Therapies, Inc., Cambridge, Mass.

Continuation of Ser. No. 552,183, Jul. 3, 1990, abandoned. This application Sep. 6, 1994, Ser. No. 300,919

Int. Cl.^{6} C12Q *1/68;* **C12P** *19/34;* **C12N** *15/09;15/81*

U.S. Cl. 435—6 **29 Claims**

1\. A homologous-recombination method for screening a recombinant-DNA (r-DNA) library constructed in host yeast cells and isolating a desired r-DNA clone sequence present as a single copy or in low-copy number in the library, comprising the steps of:

a) providing a r-DNA library in a population of host yeast cells, wherein the host yeast cells are Saccharomyces or Schizosaccharomyces;

b) introducing into the population of host yeast cells containing the r-DNA library a targeting DNA molecule which is nonreplicating in the yeast host and comprises a selectable marker gene for selection in the host yeast cells and a targeting DNA sequence homologous in part to a target r-DNA clone sequence contained as a single copy or in low-copy number in the r-DNA library;

c) selecting a host yeast cell containing a target r-DNA clone sequence having stably incorporated therein by homologous recombination the selectable marker gene for selection in the host yeast cell and a portion of the targeting DNA sequence present in the targeting DNA molecule; and

d) isolating the target r-DNA clone sequence from the host yeast cell selected in step c).

29\. Plasmid pTKENDA.

5,783,386

MYCOBACTERIA VIRULENCE FACTORS AND A NOVEL METHOD FOR THEIR IDENTIFICATION

William R. Jacobs, Jr., City Island; Barry R. Bloom, Hastings-on-Hudson, both of N.Y.; Desmond Michael Collins; Geoffrey W. de Lisle, both of Wellington, New Zealand; Lisa Pascopella, Hamilton, Mont., and Riku Pamela Kawakami, Wellington, New Zealand, assignors to Agresearch, New Zealand Pastoral Agriculture Research Institute Ltd., New Zealand, and Albert Einstein College of Medicine of Yeshiva University, Bronx, N.Y.

Continuation-in-part of Ser. No. 292,695, Aug. 18, 1994, abandoned, which is a continuation-in-part of Ser. No. 265,579, Jun. 24, 1994, abandoned, which is a continuation-in-part of Ser. No. 201,880, Feb. 24, 1994, abandoned. This application Dec. 23, 1994, Ser. No. 363,255

Int. Cl.^{6} C12Q *1/68;* **C12P** *19/34;* **C12N** *15/00*

U.S. Cl. 435—6 **3 Claims**

1\. A method for identifying a DNA sequence or sequences associated with virulence determinants in *M. tuberculosis* and *M. bovis* and substantially similar DNA sequences in other tuberculosis complex strains and in strains of other slow-growing mycobacterial species comprising the steps of:

a) preparing a genomic DNA library of the slow-growing mycobacterial species;

b) constructing an integrating shuttle vector containing genomic inserts prepared in step a);

c) transforming via homologous recombination using the integrating shuttle vector of step b) a population of avirulent organisms;

d) isolating the recombinants;

e) inoculating a subject with an adequate inoculum of the recombinants in order to select virulent recombinants;

f) isolating the virulent recombinants; and

g) identifying the DNA inserts which confer virulence.

5,783,387

METHOD FOR IDENTIFYING AND QUANTIFYING NUCLEIC ACID SEQUENCE ABERRATIONS

Joe N. Lucas, San Ramon; Tore Straume, Tracy, and Kenneth T. Bogen, Walnut Creek, all of Calif., assignors to The Regents of the University of California, Oakland, Calif.

Filed Feb. 6, 1995, Ser. No. 384,497

Int. Cl.^{6} C12Q *1/68;* **C07H** *21/02;21/04;* **C12N** *15/00*

U.S. Cl. 435—6 **51 Claims**

1\. A method for detecting nucleic acid aberrations in a sample of chromosomal DNA characterized by a rearrangement which forms a nucleic acid sequence which includes a first sequence unique to a

first region of a chromosome, a second sequence unique to a second, different region of the same chromosome or a different chromosome and a region connecting the first and second regions which includes a site of the rearrangement, the method comprising:

a) contacting a first hybridization probe which includes a nucleic acid sequence complementary to the first region and a first complexing agent capable of attaching to a second complexing agent with a sample of chromosomal DNA under conditions favorable for hybridization such that the first hybridization probe hybridizes to chromosomal DNA including a nucleic acid sequence from the first region;

b) contacting a second hybridization probe which includes a detectable marker and a nucleic acid sequence complementary to the second region with the sample of chromosomal DNA under conditions favorable for hybridization such that the second hybridization probe hybridizes to chromosomal DNA in the sample which include a nucleic acid sequence from the second region selectively over chromosomal DNA which include a nucleic acid sequence from the first region;

c) contacting a second complexing agent attached to a solid support with the first complexing agent attached to the first hybridization probe such that the first and second complexing agents become attached, thereby immobilizing the first hybridization probe on the solid support; and

d) after performing steps a-c in any order, detecting any detectable marker attached to the second hybridization probe which is immobilized on the solid support by the hybridization of the second hybridization probe to chromosomal DNA containing nucleic acid sequences from the first region which are hybridized to the first hybridization probe which is immobilized on the solid support, the first and second hybridization probes being selected such that the presence of a detectable marker immobilized on the solid support indicates the presence of a nucleic acid sequence aberration without indicating the sequence of the region connecting the first and second regions.

5,783,388

Patent Not Issued For This Number

5,783,389

SURFACE ENHANCED RAMAN GENE PROBE AND METHODS THEREOF

Tuan Vo-Dinh, Knoxville, Tenn., assignor to Lockheed Martin Energy Research Corporation, Oak Ridge, Tenn.

Division of Ser. No. 543,212, Oct. 13, 1995. This application Jan. 31, 1997, Ser. No. 791,981

Int. Cl.^{6} C12Q *1/68;* **C12P** *19/34*

U.S. Cl. 435—6 **3 Claims**

1\. A method for using a SER gene probe for detection and identification of target DNA strands that have been amplified through Polymerase Chain Reaction comprising the steps of:

a) preparing a SERS active substrate having adsorbed thereon at least one unlabeled DNA strands of known sequence. being complementary to a target region of a target DNA strand, said target DNA strand comprising double strands of DNA complementary to one another, and said SERS active substrate being disposed on a support means;

b) synthesizing at least one SER gene probe as a primer wherein said SER gene probes comprises an oligonucleotide strand complementary to sites on the opposite DNA strands of said target DNA strand wherein said primer has a sequence which is identical to the 5' end of one DNA strand of said target DNA strand, said SER gene probe further comprises a SERS label attached to said oligonucleotide strand;

c) heating said target DNA strand to a temperature sufficient for denaturization of said double strands of said target DNA to occur to form single-stranded DNA templates;

d) annealing said primer to said DNA template at a temperature sufficient for said primer to bind to said complementary sequence at the 3' end of said opposite DNA strand of said target DNA strand;

e) adding DNA polymerase to extend the DNA molecule through said target region of said target DNA strand yielding amplified products, said amplified products being SERS labeled amplified DNA segments;

f) immersing said SERS active substrate in a sample containing said amplified products;

g) incubating said SERS active substrate in said sample for a time sufficient enough as for hybridization between said SERS labeled amplified DNA segments and said unlabeled DNA strands on said substrate to occur to completion and a SERS signal is detected; and

h) analyzing said SERS signal.

5,783,390

MALE INFERTILITY Y-DELETION DETECTION BATTERY

Marijo Kent First, and Alexaoder I. Agoulnik, both of Madison, Wis., assignors to Promega Corporation, Madison, Wis.

Filed Jun. 7, 1995, Ser. No. 472,416

Int. Cl.^{6} C12Q *1/68;* **C07H** *21/04;21/00;* **C12N** *15/00*

U.S. Cl. 435—6 **39 Claims**

1\. A method for detecting deletions in a Y chromosome which are indicative of male infertility comprising:

(a) combining at least one plurality of distinct oligonucleotide primer pairs capable of priming at least one corresponding plurality of human chromosome loci selected from the group consisting of

DYS209, DYF43S1, DYS210, DYS211, DYS33, DYS1, SMCX;

DYS218, DYS219, DYF51S1, DYS205, DYS212, DYS281, SMCX;

DYS201, DYS241, DYS198, SRY, DYS197, DYS196, SMCX;

DYS240, DYS238, DYS271, DYS221, KAL182, SMCX;

DYS224, DYS226, DYS222, DYS227, SMCX;

DY848S1, DYZ1, DYS230, DYF49S1, DYF50S1, DYS228, SMCX;

DYF65S1, SMCY, DYS217, DYS229, DYS199, DYS220, DYS235,DYS237, DYS215, SMCX; and

YRRM1, SMCY, ZFY, BKM, SMCX,

with isolated genomic DNA of a test subject;

(b) amplifying the at least one plurality of distinct oligonucleotide primer pairs by at least one corresponding multiplex polymerase chain reaction to yield amplified chromosomal DNA fragments;

(c) separating the amplified chromosomal DNA fragments;

(d) comparing the amplified chromosomal DNA fragments to corresponding amplified chromosomal DNA fragments from normal male subjects, whereby deletions in the Y chromosome of the test subject are detected.

5,783,391

METHOD FOR AMPLIFICATION AND DETECTION OF RNA AND DNA SEQUENCES

John J. Rossi, Glendora, Calif., assignor to City of Hope, Duarte, Calif.

Division of Ser. No. 334,398, Nov. 3, 1994, which is a continuation of Ser. No. 180,740, Apr. 12, 1988, which is a continuation-in-part of Ser. No. 165,915, Mar. 10, 1988, abandoned. This application Jul. 12, 1995, Ser. No. 501,647

Int. Cl.^{6} C12P *19/34;* **C12Q** *1/68*

U.S. Cl. 435—6 **6 Claims**

1\. The method which comprises:

(i) providing an RNA sample which may have a target nucleotide sequence:

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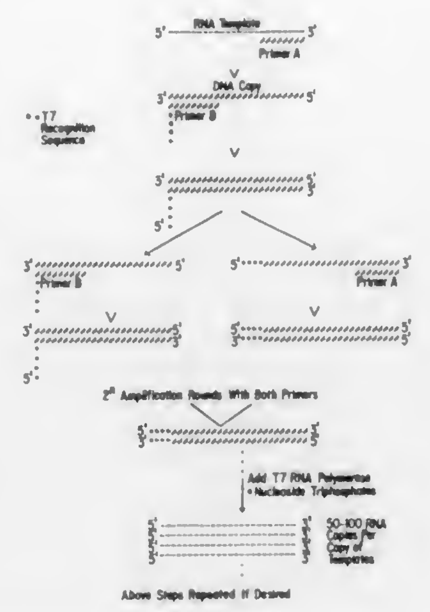
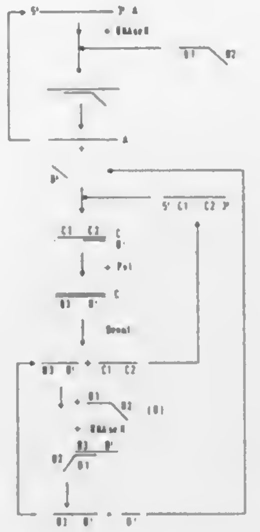

RNA Template
Primer A
DNA Copy
T7 Recognition Sequence
Primer B
2° Amplification Rounds With Both Primers
Add T7 RNA Polymerase + Nucleoside Triphosphates
50-100 RNA Copies Per Copy of Templates
Above Steps Repeated If Desired

(ii) providing a first primer and a second primer for reverse transcriptase-polymerase chain reaction amplification of said RNA sample
at least one of said first and second primers having a 5' terminal moiety which is a recognition sequence for an RNA polymerase,
(iii) subjecting said RNA sample to reverse transcriptase polymerase chain reaction amplification including thermal denaturation between cycles denaturation between cycles, to produce a first amplification product;
said amplification product having said recognition sequence for an RNA polymerase of said at least one of said first and second primers,
(iv) providing an RNA polymerase which recognizes the said recognition sequence of said at least one of said primers;
(v) subjecting said first amplification product of step (iii) to transcription by said RNA polymerase of step (iv) to produce a second amplification product;
(vi) subjecting said second amplification product of step (v) to reverse transcriptase polymerase chain reaction amplification to produce a third amplification product;
(vii) determining whether said target nucleic acid sequence is present in said third amplification product.

5,783,392
METHOD FOR THE PARTICULARLY SENSITIVE DETECTION OF NUCLEIC ACIDS

Rudolf Seibl, Penzberg, and Viola Rosemeyer, Wavre, both of Germany, assignors to Boehringer Mannheim GmbH, Mannheim, Germany
Filed Nov. 22, 1995, Ser. No. 561,632
Claims priority, application Germany, Nov. 23, 1994, 44 41 626.1
Int. Cl.^{6} C12Q *1/68;* C12N *15/00;* C12P *19/34*
U.S. Cl. 435—6 40 Claims

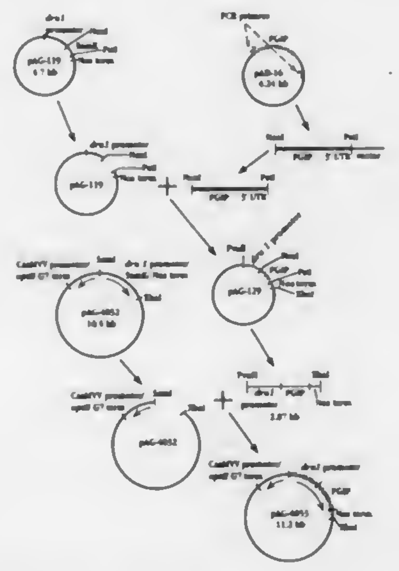
1. A method of detecting a target nucleic acid A, comprising:
a) hybridizing the target nucleic acid A with a probe nucleic acid B comprising (1) a sequence B1 which base pairs with at least a part of the target nucleic acid A, and (2) a sequence B2, to produce a first hybrid,
b) cleaving the hybridized probe nucleic acid B to produce a cleavage product B' comprising the sequence B2,
c) hybridizing the cleavage product B' with a template nucleic acid C comprising (1) a sequence C2 which base pairs with at least a part of the cleavage product B', and (2) a sequence C1 which does not hybridize with the sequence B1 of the probe nucleic acid B, to produce a second hybrid,



d) extending the hybridized cleavage product B' with an extension sequence B3 which is template-specific to at least a part of the sequence C1, to produce a first extension product,
e) hybridizing a probe D with the first extension product to produce a third hybrid, wherein the probe D comprises (1) a sequence D1 which base pairs with the extension sequence B3, and (2) a sequence D2, and
detecting the products formed in at least one of the steps b), d) and e).

5,783,393
PLANT TISSUE/STAGE SPECIFIC PROMOTERS FOR REGULATED EXPRESSION OF TRANSGENES IN PLANTS

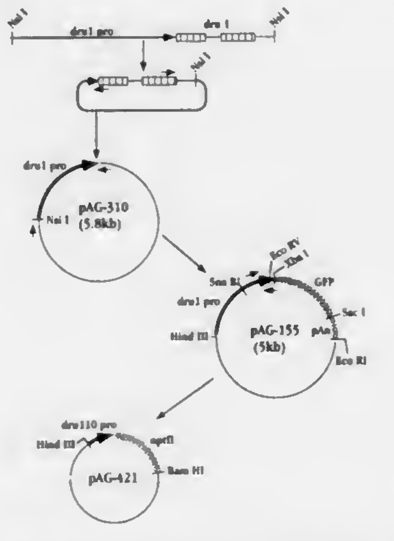
Jill Anne Kellogg, and Richard Keith Bestwick, both of Portland, Oreg., assignors to Agritope, Inc., Beaverton, Oreg.
Filed Jan. 29, 1996, Ser. No. 592,936
Int. Cl.^{6} C12Q *1/68;* C12N *15/29;5/04;* C07H *21/04*
U.S. Cl. 435—6 13 Claims



1. A chimeric gene, comprising
(i) a DNA sequence encoding a product of interest, and (ii) a dru1 promoter from a plant dru1, where said DNA sequence is heterologous to said promoter and said DNA sequence is operably linked to said promoter to enable expression of said product.

5,783,394
RASPBERRY PROMOTERS FOR EXPRESSION OF TRANSGENES IN PLANTS

Richard K. Bestwick, and Jill Anne Kellogg, both of Portland, Oreg., assignors to Agritope, Inc., Beaverton, Oreg.
Continuation-in-part of Ser. No. 592,936, Jan. 29, 1996. This application Jan. 24, 1997, Ser. No. 788,928
Int. Cl.^{6} C12Q *1/68;* C12N *15/29:5/04;* C07H *21/04*
U.S. Cl. 435—6 34 Claims



1. A chimeric gene which is expressed in plant cells, comprising:
(i) a raspberry dru1 promoter, and
(ii) a DNA sequence encoding a product of interest, where said DNA sequence is heterologous to said promoter and said DNA sequence is operably linked to said promoter to enable constitutive expression of said product.

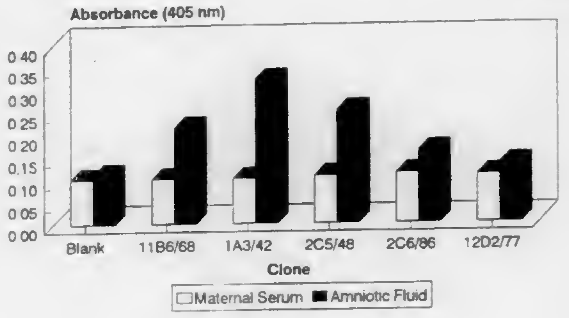
5,783,395
OLIGONUCLEOTIDE FOR DETECTING STRIPE DISEASE RESISTANT RICES, AND A METHOD FOR USING THE OLIGONUCLEOTIDE TO DETECT STRIPE DISEASE RESISTANT RICES

Yuriko Saito, Hokkaido, Japan, assignor to General Manager of Hokkaido National Agricultural Equipment Station, Sapporo, Japan
Filed Jul. 3, 1996, Ser. No. 674,878
Claims priority, application Japan, Mar. 12, 1996, 8-083207
Int. Cl.^{6} C12P *19/34;* C12Q *1/68;* C07H *21/04*
U.S. Cl. 435—6 9 Claims

2. A method for specifically detecting stripe disease resistant rices, said method comprising the steps of:
(1) isolating a genomic DNA from rice leaves;
(2) amplifying DNA fragments from genomic DNA by polymerase chain reaction using an oligonucleotide for specifically detecting stripe disease resistant rices as a primer, said oligonucleotide consisting of the nucleic acid sequence of SEQ. ID NO: 1; and
(3) detecting the presence of an amplified DNA fragment by means of agarose gel electrophoresis, wherein the presence of an amplified DNA fragments is indicative of a stripe disease resistant rice.

5,783,396
METHOD OF DETECTING RUPTURE OF THE AMNIOTIC MEMBRANES IN PREGNANT MAMMALS

Victor Voroteliak, 342 Lillian Avenue, Salisbury, Queensland, 4107, Australia, and David Michael Cowley, 16 Mapleleaf Street, Eight, Mile Plains, Brisbane, Queensland 4113, Australia
PCT No. PCT/AU94/00144, § 371 Date Sep. 7, 1995, § 102(e) Date Sep. 7, 1995, PCT Pub. No. WO94/21687, PCT Pub. Date Sep. 29, 1994
PCT Filed Mar. 23, 1993, Ser. No. 513,902
Claims priority, application Australia, Mar. 23, 1993, PL7945
Int. Cl.^{6} G01N *33/53;* A61K *39/00;* C07K *16/00;14/00*
U.S. Cl. 435—7.1 12 Claims



1. An antigen located in amniotic fluid characterised by possessing the following physical properties:
(i) a sub-unit molecular weight of approximately 55,000 daltons performed by SDS-PAGE with gels of different acrylamide concentrations;
(ii) a native molecular weight analysis as determined by gel permeation chromatography revealing an apparent molecular weight of approximately 330,000 daltons. (iii) a band observed having an isolectric point of approximately 4.9 revealed by isoelectric focussing studies; and
(iv) immunoreactive with a monoclonal antibody 1A3 deposited at the European Animal Cell Culture Collection and having Accession No. 94V31901.

7. A method of detection of rupture of the amniotic membrane in pregnant mammals including humans including the steps of:
(i) obtaining a sample of vaginal fluid from a pregnant female;
(ii) reacting the sample with antibody derived from an antigen characterized by possessing the following physical properties:
(a) a sub-unit molecular weight of approximately 55,000 daltons performed by SDS-PAGE with gels of different acrylamide concentrations;
(b) a native molecular weight analysis as determined by gel permeation chromatography revealing an apparent molecular weight of approximately 330,000 daltons
(c) a band observed having an isoelectric point of approximately 4.9 revealed by isolectric focussing studies; and
(d) immunoreactive with a monoclonal antibody 1A3 deposited at the European Animal Cell Culture Collection and having Accession No. 94V31901; and
(iii) detecting reactivity in step by means of an immunoassay (ii).

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5,783,397

SCREENING NATURAL SAMPLES FOR NEW THERAPEUTIC COMPOUNDS USING CAPILLARY ELECTROPHORESIS

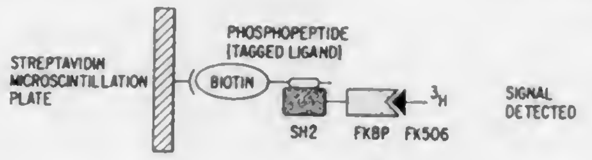
Dallas E. Hughes, Dover, and Barry L. Karger, Newton, both of Mass., assignors to Northeastern University, Boston, Mass.
Filed Jun. 12, 1996, Ser. No. 662,085
Int. Cl.^{6} G01N *33/53;33/00;21/00;* **C25D** *13/00*
U.S. Cl. 435—7.1 26 Claims

1. A method of screening complex biological material for previously unidentified ligands of a selected target, said method comprising, in the order given, the steps of:
- (1) providing a sample of complex biological material;
- (2) combining said sample of complex biological material with said selected target to form a sample/target mixture;
- (3) injecting an aliquot of said sample/target mixture from step (2) into an apparatus for capillary electrophoresis without sieving matrix;
- (4) subjecting said aliquot of said sample/target mixture to capillary electrophoresis without sieving matrix;
- (5) tracking the migration of said target upon said capillary electrophoresis;
- (6) determining whether the migration pattern of said target from step (5) indicates the presence of a candidate unidentified ligand in said sample of complex biological material;
- (7) isolating said candidate compound from said complex biological material; and
- (8) determining whether said isolated compound has not been previously identified as interacting with said target.

5,783,398

HIGH THROUGHPUT ASSAY USING FUSION PROTEINS

Alice Marcy, Westfield; Scott P. Salowe, Dayton, and Douglas Wisniewski, Monmouth Junction, all of N.J., assignors to Merck & Co., Inc., Rahway, N.J.
Filed Sep. 4, 1996, Ser. No. 707,792
Int. Cl.^{6} G01N *33/53;33/544;33/566;33/68*
U.S. Cl. 435—7.1 42 Claims

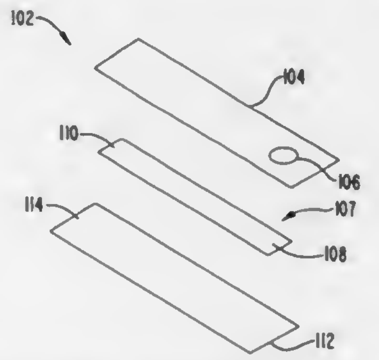

STREPTAVIDIN MICROSCINTILLATION PLATE
PHOSPHOPEPTIDE (TAGGED LIGAND)
BIOTIN
SH2
FKBP
FK506
^{3}H
SIGNAL DETECTED

1. A method of screening for compounds capable of binding to a fusion protein, which is defined as an FK506-binding protein linked to a target protein through a peptide linker, which comprises the steps of:
- a) mixing a test compound, a tagged- ligand for the target protein, which is selected from a biotinylated ligand or an epitope-tagged ligand, the fusion protein, a radiolabeled ligand selected from [^{3}H]- or [^{125}I]-labeled F506 analog and a coated microscintillation plate selected from a streptavidin-coated or anti-antibody coated or protein A-coated microscintillation plates;
- b) incubating the mixture from between about 1 hour to about 24 hours;
- c) measuring the plate-bound counts attributable to the binding of the tagged ligand to, the fusion protein in the presence of the test compound using scintillation counting; and
- d) determining the binding of the tagged ligand to the fusion protein in the presence of the test compound relative to a control assay run in the absence of the test compound.

5,783,399

CHEMILUMINESCENT ASSAY METHODS AND DEVICES FOR DETECTING TARGET ANALYTES

Mary Ann Childs; Gregory K. Shipman, both of Baltimore, Md.; William P. Trainor, Hillsboro Beach, Fla.; Erick Gray, Columbia, and David Bernstein, Eldersburg, both of Md., assignors to Universal Healthwatch, Inc., Columbia, Md.
Filed Nov. 17, 1995, Ser. No. 560,094
Int. Cl.^{6} G01N *33/53;33/554;* **C12Q** *1/00;1/02*
U.S. Cl. 435—7.2 16 Claims



1. A method of performing a chemiluminescent assay for a target analyte, comprising the steps of:
- A. providing a device comprising:
  - i. a container that is substantially impermeable to liquid;
  - ii. a sampling portion physically associated with said container, said sampling portion comprising an adsorbent material;
  - iii. a second absorbent material located within said container, said second absorbent material having a longitudinal axis, said first and second absorbent materials being in proximity to or in physical contact with each other; and
  - iv. at least one reagent portion that is positioned along said longitudinal axis of said second absorbent material, said reagent portion comprising a reagent that participates in a chemiluminescent reaction,
  - wherein said container comprises a light-permeable portion that permits at least a portion of light generated from a chemiluminescent reaction within said container to pass to the outside of said container;
- B. contacting a test sample suspected of containing the target analyte with said sampling portion;
- C. introducing to said sampling portion at least one carrier liquid that transports target analyte from said sampling portion into said second adsorbent material; and
- D. detecting light produced within said container due to the presence of said target analyte in the sample during a chemiluminescent reaction in step c.

5,783,400

METHOD FOR THE ISOLATION OF LIPOPROTEIN ALLOWING FOR THE SUBSEQUENT QUANTIFICATION OF ITS MASS AND CHOLESTEROL CONTENT

Christine P. Gebski, Bradford; C. William Christopher, Rockport, and James F. Ollington, Chelmsford, all of Mass., assignors to Genzyme Corporation, Cambridge, Mass.
Continuation-in-part of Ser. No. 393,337, Feb. 23, 1995, which is a continuation of Ser. No. 515,596, Apr. 27, 1990, Pat. No. 5,403,745, and a continuation-in-part of Ser. No. 198,430, Feb. 22, 1994, Pat. No. 5,547,873. This application Jun. 7, 1995, Ser. No. 479,700
Int. Cl.^{6} C12Q *1/60;* **G01N** *33/573*
U.S. Cl. 435—7.4 25 Claims

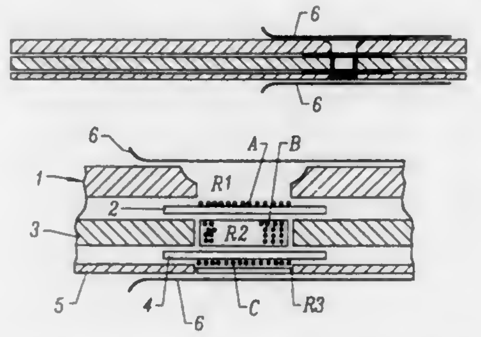
1. A method for preparing substantially any and all lipoprotein (a) (Lp(a)), from a volume of a biological fluid sample, so as to remove interfering cholesterol-containing lipoprotein, of another class, the method comprising:
- (i) subjecting the sample to ultracentrifugation;

- (ii) after centrifugation, collecting at least one fraction containing Lp(a);
- (iii) subjecting the at least one fraction to a reaction with an immobilized ligand for selectively binding the interfering cholesterol-containing lipoprotein of another class, the Lp(a) remaining unbound; and
- (iv) collecting the unbound Lp(a) in a liquid phase, the preparation being suitable for use in the analysis of any of protein concentration, protein isoform determination or cholesterol assays.

5,783,401

IMMUNOENZYMATIC DETECTION DEVICE

Jacques Toledano, Paris, France, assignor to Quidel Corporation, San Diego, Calif.
Continuation of Ser. No. 782,161, Oct. 24, 1991, abandoned, which is a continuation of Ser. No. 368,329, Jan. 17, 1990, abandoned. This application Jul. 1, 1994, Ser. No. 269,637
Claims priority, application France, Oct. 5, 1987, 87 13879
Int. Cl.^{6} G01N *33/53*
U.S. Cl. 435—7.9 20 Claims



1. A device for detecting the presence of at least one analyte in a liquid sample comprising:
- (a) an upper reservoir for receiving said liquid sample comprising:
  - (i) a first film having a first cut-out which defines the lateral walls of said upper reservoir,
  - (ii) a first membrane comprised of gelatin and glass fibers situated at the base of said first cut-out thereby forming the bottom of said upper reservoir, wherein said first membrane is capable of retaining said liquid sample in said upper reservoir for a predetermined period of time until contact with said liquid sample dissolves said gelatin thereby permitting liquid in said upper reservoir to flow into a median reservoir, and
  - (iii) a predetermined amount of a first reagent provided in said upper reservoir, said first reagent selected from the group consisting of (1) a conjugate of said at least one analyte and an enzyme, a fluorescent or a radioactive label, and (2) a conjugate of an antibody which specifically binds said at least one analyte and an enzyme, a fluorescent or a radioactive label;
- (b) said median reservoir comprising:
  - (i) a second film having a second cut-out which defines the lateral walls of said median reservoir positioned for receiving the upper reservoir liquid passing through said first membrane,
  - (ii) a second membrane comprised of gelatin and glass fibers situated at the base of said second cut-out thereby forming the bottom of said median reservoir, wherein said second membrane is capable of retaining said upper reservoir liquid in said medium reservoir for a predetermined period of time until contact with said upper reservoir liquid dissolves said gelatin thereby permitting liquid in said median reservoir to flow into a lower reservoir, and
  - (iii) a predetermined amount of a second reagent provided in said median reservoir, said second reagent selected from the group consisting of microspheres coated with said at least one analyte and microspheres coated with said antibody; and
- (c) said lower reservoir comprising:
  - (i) a third film having a third cut-out which defines the lateral walls of said lower reservoir positioned for receiving the median, reservoir liquid passing through said second membrane,
  - (ii) an adhesive film situated at the base of said third cut-out thereby forming the bottom of said lower reservoir and capable of retaining liquid within said lower reservoir, and
  - (iii) where the label of said first reagent is an enzyme, a predetermined amount of a third reagent comprising a substrate specific for said enzyme label to provide a chromogen indicative of the presence of said at least one analyte in said liquid sample; wherein said first, second and third films are superimposed and said first, second and third cut-outs coincide.

5,783,402

METHOD OF IDENTIFYING LIGANDS AND ANATGONISTS OF G-PROTEIN COUPLED RECEPTOR

Monika Konig, Washington, D.C.; Jon Marsh; Lawrence C. Mahan, both of Bethesda, Md.; Michael J. Brownstein, Rockville, Md., and J. Stephen Fink, Wellesley, Mass., assignors to The United States of America as represented by the Secretary of the Department of Health and Human Services, Washington, D.C.
Division of Ser. No. 176,310, Jan. 3, 1994, Pat. No. 5,532,157, which is a continuation of Ser. No. 768,053, Oct. 1, 1991, abandoned. This application Jul. 1, 1996, Ser. No. 673,906
Int. Cl.^{6} C12Q *1/00;* **C12N** *15/00*
U.S. Cl. 435—721 13 Claims

1. A method of identifying ligands which bind to a G-protein coupled receptor that modulates adenylate cyclose, comprising:
- expressing the G-protein coupled receptor in a cell wherein said cell contains a cyclic AMP sensitive reporter construct and said cell is from cell line LVIP2.OZc having ATCC Accession No. CRL 10871 transfected with a gene or cDNA encoding the G-protein coupled receptor;
- adding a test ligand to said cell; and
- determining whether the test ligand binds to the receptor by determining whether the amount of cyclic AMP is inhibited or induced compared to the test cell to which the test ligand has not been added.

5,783,403

MALIGNANT CELL TYPE MARKERS OF THE INTERIOR NUCLEAR MATRIX

Gary Toukatly, Amhurst, N.H., and Graham P. Lidgard, Wellesley, Mass., assignors to Matritech, Inc., Newton, Mass.
Continuation of Ser. No. 901,701, Jun. 22, 1992, abandoned. This application Feb. 14, 1994, Ser. No. 195,487
Int. Cl.^{6} G01N *33/574;* **C07K** *16/00;* **C12P** *21/08;* **A61K** *38/00*
U.S. Cl. 435—7.23 16 Claims

1. A method of detecting a malignant cell type in a sample containing cells or cell nucleus debris, the method comprising the steps of:
- (a) contacting the sample with a binding protein that recognizes an epitope on a marker protein for said malignant cell type, said marker protein comprising an amino acid sequence encoded by the DNA of Seq. ID No. 1 or 3; and
- (b) detecting the presence in the sample of said marker protein or a fragment thereof, wherein the presence of said marker protein or said fragment thereof in the sample is indicative of the presence of said malignant cell type in the sample.

12. A method for determining the level of cell death in a sample of tissue, the method comprising the steps of:
- (a) contacting first and second samples of said tissue, separately, with a binding protein that recognizes an epitope on a marker

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protein for cell death, said marker protein comprising an amino acid sequence encoded by the DNA of Seq. ID No. 1 or 3, wherein said second sample is isolated from said tissue after said first sample; and

(b) measuring, in each of said first and second samples, the concentration of said marker protein or protein fragment thereof recognized specifically by said binding protein; and

(c) comparing the concentration measured in each of said first and second samples, wherein an increase in concentration in said second sample relative to said first sample is indicative of an increase in cell death in said tissue and a decrease in concentration in said second sample relative to said first sample is indicative in a decrease of cell death in said tissue.

5,783,404

METHODS AND COMPOSITIONS FOR DETERMINING HER-2/NEU EXPRESSION USING MONOCLONAL ANTIBODIES

Raymond A. Koski, Old Lyme, Conn., assignor to Amgen Inc., Thousand Oaks, Calif.

Filed Apr. 13, 1995, Ser. No. 421,356

Int. Cl.^{6} G01N *33/574;33/577;* **C12N** *5/20;* **C07K** *16/30*

U.S. Cl. 435—7.23 **13 Claims**

1. A monoclonal antibody, or fragment thereof, which binds preferentially to a denatured epitope of the HER-2/neu protein rather than to the HER-2/neu protein in its native conformation, wherein the denatured epitope comprises a subset of amino acid residues 96–191 of the HER-2/neu protein as shown in FIG. 1B (SEQ ID NO:3), the antibody being produced by a hybridoma cell line having an ATCC accession no. HB11861 or HB11862.

5,783,405

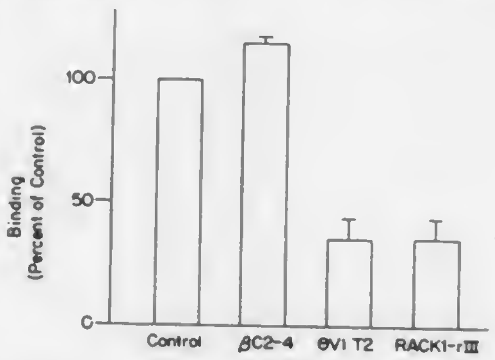
RAPID SCREENING METHOD FOR EFFECTORS OF SIGNAL TRANSDUCTION

Daria Mochly-Rosen, Menlo Park; Dorit Ron, San Francisco; Lawrence M. Kauvar, San Francisco, and Eugene W. Napolitano, San Francisco, all of Calif., assignors to Terrapin Technologies, Inc., San Francisco, Calif.

Continuation-in-part of Ser. No. 487,072, Jun. 7, 1995, Ser. No. 477,346, Jun. 7, 1995, Ser. No. 473,089, Jun. 7, 1995, and a continuation-in-part of Ser. No. 190,802, Feb. 1, 1994, Pat. No. 5,519,003. This application Oct. 10, 1995, Ser. No. 541,964

Int. Cl.^{6} C12Q *1/48;1/68*

U.S. Cl. 435—15 **12 Claims**



1. A method to ascertain a modulator of intracellular signal transduction mediated by the signal-generating protein, protein kinase C (PKC), from a library of candidate molecules, which method comprises

providing the cognate receptor for activated kinase C (RACK) or a peptide derived from said PKC or the cognate RACK which binds specifically to the catalytically active PKC via a noncatalytic site of said PKC;

testing the candidate molecules of said library for the ability to modulate positively or negatively the binding of said cognate RACK or said peptide to the PKC in an assay not dependent on purity of the cognate RACK or PKC; and

ascertaining as said modulator any candidate molecule that enhances or diminishes said binding.

5,783,406

ALLELIC LADDERS FOR SHORT TANDEM REPEAT LOCI

James W. Schumm, and Christoph Puers, both of Madison, Wis., assignors to Promega Corporation, Madison, Wis.

Continuation of Ser. No. 515,236, Aug. 15, 1995, Pat. No. 5,674,686, which is a division of Ser. No. 219,633, Mar. 28, 1994, Pat. No. 5,599,666. This application Dec. 9, 1996, Ser. No. 761,950

Int. Cl.^{6} C12Q *1/68;* **C07H** *21/04*

U.S. Cl. 435—6 **4 Claims**

1. An assay for detecting three distinct, corresponding short tandem repeat sequences from DNA at tandem repeat loci HUMCSF1PO, HUMFESFPS, and HUMTH01, comprising:

a. preparing DNA from a sample to be tested;

b. co-amplifying three distinct, corresponding short tandem repeat sequences from within the DNA by polymerase chain reaction using locus-specific primers for the short tandem repeat loci HUMCSF1PO, HUMFESFPS, and HUMTH01; and

c. comparing the three co-amplified short tandem repeat sequences to allelic ladders of the HUMCSF1PO, HUMFESFPS, and HUMTH01 loci, whereby alleles of each of the three distinct short tandem repeat sequences are detected.

2. An allelic ladder for the short tandem repeat locus HUMCSF1PO.

5,783,407

METHOD OF MEASURING BILIRUBIN

Fred Shu-Cheng Yein, Fullerton, and Cecilia Z. Schultz, Garden Grove, both of Calif., assignors to Beckman Instruments, Inc., Fullerton, Calif.

Filed Apr. 5, 1996, Ser. No. 628,419

Int. Cl.^{6} C12Q *1/26*

U.S. Cl. 435—25 **25 Claims**

1. An assay for detecting in a test sample, an analyte that undergoes auto-oxidation, the method comprising the steps of:

a) forming a reaction mixture by combining, in an aqueous medium, (i) a sample containing the analyte and (ii) a stabilizer that reduces the rate of free radical mediated auto-oxidation of the analyte;

b) incubating the reaction mixture and detecting the rate of auto-oxidation;

c) when the detected rate of auto-oxidation is substantially zero, adding to the mixture a sufficient quantity of an enzyme that catalyzes the oxidation of the analyte that in the presence of the stabilizer, the analyte is oxidized to a product species; and

d) detecting the product species, the analyte, or both.

5,783,408

METHOD FOR SCREENING POTENTIAL ANTI-OBESITY AGENTS

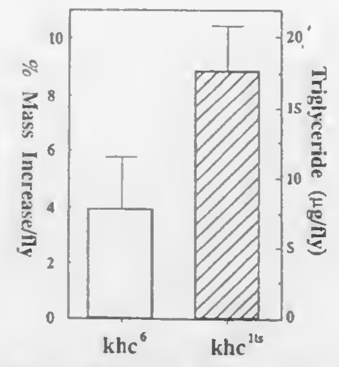
Bradford S. Hamilton, D7 - 245 Howland Avenue, Toronto, Ontario, Canada, M5R 3B7; Daniel A. K. Roncari, deceased, late of North York, Canada, and by Lubov Roncari, executor, 144 Esther Crescent, Thornhill, Ontario, Canada, L4J 3L4

Filed Jun. 7, 1995, Ser. No. 487,424

Int. Cl.^{6} C12Q *1/02;1/00;* **G01N** *31/00;* **C07D** *239/00*

U.S. Cl. 435—29 **9 Claims**

1. A method for screening a compound as a potential anti-obesity agent, the method comprising the steps of:



culturing cellular material in the presence of the compound; and

ascertaining whether the compound increases the level of micromotion of the

cellular material beyond a predetermined level, which predetermined level is at least as great as micromotion of the cellular material in the absence of the compound, whereby a said determined level of micromotion above the predetermined level indicates that the compound is a potential anti-obesity agent in mammals.

5,783,409

Patent Not Issued For This Number

5,783,410

BACTERIA IDENTIFICATION METHOD AND APPARATUS

Lin He, 3 Dongnenbei Rd, Shenzhen City, Guangdong 518001; Qiuming Liu, Guangdong; Baoduo Liang, Guangdong, and Jinliang Wang, Tianjin, all of China, assignors to Lin He, Guangdong, China

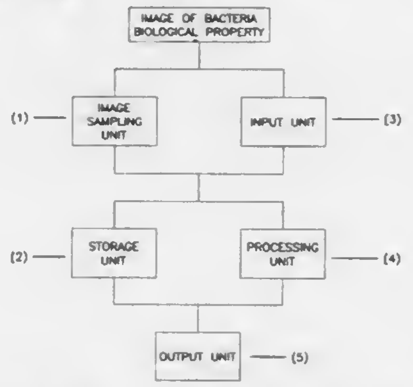
PCT No. PCT/CN94/00044, § 371 Date May 28, 1996, § 102(e) Date May 28, 1996, PCT Pub. No. WO94/29480, PCT Pub. Date Dec. 22, 1994

PCT Filed Jun. 14, 1994, Ser. No. 569,210

Claims priority, application China, Jun. 14, 1993, 93 1 06932.7; Jun. 14, 1993, 93 1 06931.9

Int. Cl.^{6} C12Q *1/04;1/34;1/54*

U.S. Cl. 435—34 **6 Claims**



1. A bacteria identification method which uses coding test items and biochemical property, identifying papers that detect biological properties of bacterial strains characterized in that the coding test items in the bacteria-coding identification system are one of the following 12 kinds of combination;

(1) the coding test items of identifying parenteral gram-negative bacilli are 15 tests of 2-keto-gluconate (2 KG), 3-hydroxybenzoate (3 HB), 3-hydroxy-butyrate (OBU), citrate (CIT), L-proline (LPR), histosc (HIS), N-acetyl-D-glucosamine (NAG), glycogen (GLY), maltose (MAL), sucrose (SUC), D-melibiose (MEL), L-fucose (FUC), D-glucose (GLU), inositol (INO), and manitol (MAN);

(2) the coding test items of identifying enteric gram-negative bacilli are 15 tests of oxidase (OXI), growth in MCK agar (MCK), motility (MOT), lysine decarboxylase (LDC), ornithint decarboxylase (ODC), arginine dihydrolase (ADH), indole production (IND), urease (URE), citrate utilization (CIT), glucose oxidation (GLO), mannitol fermentation (MAN), sucrose fermentation (SUC), rhamnose fermentation (RHA), amygdalin fermentation (AMY), and sorbitol fermentation (SOR);

(3) the coding test items of identifying Enterobacteriaceae bacteria are 12 tests of lysine decarboxylase (LDC), ornitine decarboxylase (ODC), malonate utilization (MAU), urease (URE), cellobiose fermentation (CEL), D-sorbitol fermentation (SOR), L-arabinose fermentation (LAE), adoonitol fermentation (ADO), surcose fermentation (SUC), dulcitol fermentation (DUL), α-methyl-D-glucose fermentation (AMG) and D-mannitol fermentation (MAN);

(4) the coding test items of identifying anerobic bacteria are 14 tests of gram stain (GRS), sporulation (SPO), α-arabirosidase (AAR), β-glucosidase (BGL), β-galactosidase (BGA), β-glucuronidase (BGU), laucine arylamidaes (LAA), proline arylamidase (PRA), alakaline phosphatase (ALP), indole production (IND), mannose fermentation (MAS), and β-N-acetyl-glycosaminidase (NAG);

(5) the coding test items of identifying neisserial hemophilus are 9 tests of catalose (CAT), growth in Martin-Thayer medium (MTM), lucose fermentation (GLU), maltose fermentation (MLT), β-glucosidase (BGL), phenylphosphonate (OPS), glycine anglamidase (GLY), γ-glutamyl arylamidase (GGT), proline arylamidase (PRO) and reduction of resazurin (RES);

(6) the coding test items of identifying compylbacter are 9 tests of catalase (CAT), reduction of nitrate (NIT), urease (URE), succinate assimilation (SUT), acetate assimilation (ACE), hippurate hydrolysis (HIP), hydrogen sulfide production (HYS), γ-glycotamyl transferase (GGT) and alkaline phosphatose (ALP);

(7) the coding test items of identifying yeast-like fungi are 15 tests of 2-keto-gluconate (2 KG), actidine (ACT), erythritol (ERY), mannitol (MAN), inositol (INO), N-acetyl-glucosamine (NAG), L-arabinose (LAR), galatose (GAL), raffinose (RAF), cellobose (CEL), lactose (LAC), maltose (MAL), melibiose (MEL), trehalsoe (TRE) and esculin (ESC);

(8) the coding test items of identifying corynebacteria are 9 tests of reduction of nitrate (NIT), urease (URE), esculin hydrolysis (ESC), L-maltose fermentation (MAL), sucrose fermentation (SUC), ribose fermentation (RIB), lactose fermentation (LAC), α-glucosidase (AGL) and β-galactosidase (BGA);

(9) the coding test items of identifying micrococcaceae bacteria are 12 tests of urease (URE), reduction of nitrte (NIT), 3-hydroxyl-butanone production (HYB), arginine dihydrolase (ADH), ornithine decarboxylase (ODC), alkaline phosphatase (ALP), β-galactosidase (BGA), β-glucuronidase (BGU), glucose fermentation (GLF), sucrose fermentation (SUC), mannitol fermentation (MAN) and trehalose fermentation;

(10) the coding test items of identifying Streptoccaceae bacteria are 13 tests of hemdysis (HEM), 3-hydroxy-butanone production (HYB), hippurate hydrolysis (HIP), arginine dihydrolase (ADH), L-leucine arylamidase (LAA), β-glucuronidase (BGU), β-galactosidase (BGA), ribose fermentation (RIB), raffinose fermentation (RAF), sorbitol fermentation (SOR), L-arabinose fermentation (LAR) and trehalose fermentation (TRE);

(11) the coding test items of identifying bacilli are: 15 tests of arginine dihydrolase (ADH), urease (URE), citrate utilization (CIT), β-glucosidase (BGL), starch dyrolysis (AMD), L-arabinose fermentation (LAR), ribose fermentation (RIB), sorbitol fermentation (SOR), D-tagatose fermentation (DTA), N-acetyl-glucosamine fermentation (NAG), fructose fermentation (FRU), mannose fermentation (MAS), galactose fermentation (GAL), gentiobiose fermentation (GEN) and α-methyl-D-mannoside fermentation (MDM);

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(12) the coding test items of identifying lactobacilli are 15 tests of arbutine fermentation (ARB), ribose fermentation (RIB), N-acetyl-glucosamine fermentation (NAG), D-xylose fermentation (DXY), trehalose fermentation (TRE), sorbitol fermentation (SOR), sucrose fermentation (SUC), lactose fermentation, (LAC), celloblose fermentation (CEL), melibiose fermentation (MEL), L-arabinose fermentation (LAR), rhamnose fermentation (RHA), D-tagatose fermentation (DTA), gluconate fermentation (GNT) and strach hydrolysis (AMD) and that the

kind of bacteria biochemical properties-identifying papers that detect biological properties of bacteria according to the bacteria identification method are characterized in that the bacteria biochemical test mediums added in the paper-holes are one of the following 12 groups;

(1) the biochemical properties-identifying papers of parenteral gram-negative bacilli are assimilation test mediums of 2-keto-gluconate (2 KG), 3-hydroxybenzoate (3 HB), 3-hydroxy-butyrate (OBU), citrate (CIT), L-proline (LPR), histose (HIS), N-acetyl-D-glucosamine (NAG), glycogen (GLY), maltose (MAL), sucrose (SUC), D-melibiose (MEL), L-fucose (FUC), D-glucose (GLU), inositol (INO) and manitol (MAN);

(2) the biochemical properties-identifying papers of enteric gram-negative bacilli are test mediums of lysine decarboxylas (LDC), ornithint decarboxylase (ODC), arginine dihydrolase (ADH), indole production (IND), urease (URE), citrate utilization (CIT), glucose oxidation (GLO), mannitol fermentation (MAN), sucrose fermentation (SUC), rhammose fermentation (RHA), amygdelin fermentation (AMY) and sorbitol fermentation (SOR);

(3) the biochemical properties-identifying papers of Enterobacteriaceae bacteria are test mediums of lysine decarboxylase (LDC), ornitine decarboxylase (ODC), malonate utilization (MAU), urease (URE), cellobiose fermentation (CEL), D-sorbitol fermentation (SOR), L-arabinose fermentation (LAR), adonitol fermentation (ADO), sucrose fermentation (SUC), dulcitol fermentation (DUL), α-methyl-D-glucoside fermentation (ANG) and D-mannitol fermentation (MAN);

(4) the biochemical properties-identifying papers of anaenobic bacteria are test mediums of α-glucosidase (AGL,), α-galactósidase (AGA), α-arabinosidase (AAR), β-glucosidase (BGL), β-galactosidase (BGA), β-glucuronidase (BGU), leucine anglamidase (LAA), proline arylamidase (PRA), alkaline phosphatase (ALP), indole production (IND), mannose fermentation (MAS) and N-acetyl-D-glucosaminidase (NAG);

(5) the biochemical properties-identifying papers of neisserial hemophilus are test mediums of growth in Martin-Thayer medium (MTM), glucose fermentation (GLU), maltose fermentation (MLT), β-glucosidase (BGL), phenylphosphonate (OPS), glycine arylamidase (GLY) Y-glutamyl arylamidase (GGT), proline arylamidase (PRO), and reduction of resazurin (RES);

(6) the biochemical properties-identifying papers of camylobacter are test mediums of catalase (CAT), reduction of intrate (NIT), urease (URE), succinate assimilation (SUT), acetate assimulation (ACE) hippurate hydrolysis (HIP), hydrogen sulfide production (HYS), Y-glutamyl transferase (GGT) and alkaline phosphatase (ALP);

(7) the biochemical properties-identifying papers of yeast-like fungi are assimilation test mediums of 2-keto-gluconate (2 KG), actidione (Act), erythritol (ERY), mannitol (MAN), inositol (INO), N-acetyl-glucosamine (NAG), L-arabinose (LAR), galactose (GAL), raffinose (RAF), cellobose (CEL), lactose (LAC), maltose (MAL), malibiose (MEL), trehalose (TRE) and esculin (ESC);

(8) the biochemical properties-identifying papers of corynebacteria are the mediums of redact of intrate (MI), urease (URE), esculin hydrolysis (ESC), L-maltose fermentation (MAL), sucrose fermentation (SUC), riborse fermentation (RIB), lactose fermentation (LAC), α-glucosidase (AGL), and β-galactosidase (BGA);

(9) the biochemical properties-identifying papers of micrococcaceae aceria are test medium of urease (URE), reduction of nitrate (NIT), 3-hydroxyl-butanone production (HYB), arginine dihyrolase (ADH), ornithinic decarboxylase (ODC), alkaline phosphatase (ALP), β-galactosidase (BGA), β-glucuronidase (BGU), glucose fermentation (GLF), sucrose fermentation (SUC), mannitol fermentation (MAN) and trehalose fermentation (TRE);

(10) the biochemical properties-identifying papers of Streptoccaceae bacteria are test mediums of 3-hydroxybutanone production (HYB), hippurate hydrolysis (HIP), arginine dihydrolase (ADH), α-leucine arylamidase (LAA), b-glucuronidase (BGU), β-galactosidase (BGA), ribose fermentation (RIB), raffinose fermentation (RAF), sorbitol fermentation (SOR), L-arabinose fermentation (LAR) and trehalose fermentation (TRE);

(11) the biochemical properties-identifying papers of bacilli are test mediums of arginine dihydrolase (ADH), urease (URE), citrate utilization (CIT), β-glucosidase, (BGL), starch hydrolysis (AMD), L-arabinose fermentation (LAR), ribose fermentation (RIB), sorbitol fermentation (SOR), D-tagatose fermentation (DTA), N-acetyl-glucosamine fermentation (NAG), fructose fermentation (FRU), mannose fermentation (MAS), galactose fermentation (GAL), gentiobiose fermentation (GEN) and α-methyl-D-mannoside fermentation (MDM); and

(12) the biochemical properties-identifying papers of lactobacilli are test mediums of arbutine fermentation (ARB), ribose fermentation (RIB), N-acetyl-glucosaine fermentation (NAG), d-xylose fermentation (DXY), trehalose fermentation (TRE), sorbitol fermentation (SOR), sucrose fermentation (SUC), lactose fermentation (LAC), cellobiose fermentation (CEL), melibiose fermentation (MEL), L-arabinose fermentation (LAR), rhamnose fermentation (RHA), D-tagotose fermentation (DTA), gluconate fermentation (GNT) and starch hydrolysis (AMD), said method comprising the steps of:

(a.) selecting the coding test items for bacteria identification according to known bacteria biological properties;

(b.) preparting bacteria biochemical property, identifying papers based upon the selected coding test items;

(c.) using the bacteria biochemical, identifying papers to detect the biochemical properties of the bacterial strain to be identified.

5,783,411

BACTERIAL CONTROL OF FUSARIUM DRY ROT OF POTATOES

David A. Schisler, Morton; Rodney J. Bothast, East Peoria, and Patricia J. Slininger, Metamora, all of Ill., assignors to The United States of America as represented by the Secretary of Agriculture, Washington, D.C.

Division of Ser. No. 295,583, Aug. 25, 1994, Pat. No. 5,552,315, which is a continuation-in-part of Ser. No. 199,409, May 22, 1994, abandoned, which is a division of Ser. No. 68,872, May 28, 1993, abandoned. This application Apr. 15, 1996, Ser. No. 633,913

Int. Cl.^{6} C12Q *1/04*

U.S. Cl. 435—34 **5 Claims**

1. A method for identifying a bacterial antagonist which will suppress in potato tubers a fungal species-induced potato disease comprising the steps:

(a) cultivating a sample of microbes comprising putative bacterial antagonists of the fungal species on potato tissue that is substantially potato periderm and under conditions suitable for propagation of microbes in said sample that utilize said potato periderm for growth and thereby propagating said microbes and obtaining a sample enriched with said microbes

(b) obtaining from said enriched sample of microbes obtained in (a) a disease suppressive community of microbes comprising said antagonists by cultivating said enriched sample in a first competitive assay against the fungal species on a first wounded potato tuber tissue sample, wherein the conditions of the first competitive assay favor the propagation of said suppressive community of microbes; and

(c) obtaining an antagonist from the suppressive community identified in (b) by cultivating individual isolates recovered from the suppressive community in a second competitive assay for suppression of the fungal species on a second wounded potato tuber tissue sample, and identifying as an antagonist an isolate that suppresses the fungal species by observance of reduced fungal species growth on said second potato tissue sample as compared to a control.

5,783,412

METHOD OF DETECTION OF CARCINOGENIC HUMAN PAPILLOMAVIRUS

Brian James Morris, Redfern, and Brian Nightingale, Burwood, both of Australia, assignors to Biosearch International Pty. Ltd., New South Wales, Australia

Filed Aug. 25, 1989, Ser. No. 423,401

Claims priority, application Australia, Feb. 26, 1987, PI0559

Int. Cl.^{6} C12Q *1/68;1/70;* **C12P** *19/34;* **C07H** *21/04*

U.S. Cl. 435—5 **12 Claims**

1. A method for detection of carcinogenic human papillomavirus HPV16 and HPPV33 or HPV18 which comprises:

(a) applying a polymerase chain reaction technique to a sample of human cervical tissue cells so as to amplify the amount of a selected nucleotide sequence located within the E6 region and characteristic of carcinogenic HPV16 and HPV33 or HPV18 present, comprising the steps of:

(i) heating to dissociate the DNA strands,

(ii) adding oligonucleotide primers defining each end of said nucleotide sequence,

(iii) cooling to allow the primers to anneal to the dissociated DNA strands,

(iv) adding DNA polymerase,

(v) allowing formation, at the cooled temperature, and repeating steps (iii) to (vi), optionally omitting step (iv) where a heat stable DNA polymerase is used; and

(b) detecting the presence or absence in the amplified sample of said nucleotide sequence of HPV16 and HPV33 or HPV18 wherein the pair of primers defining the selected nucleotide sequence are:

for HPV16 and HPV33 $^{5'}$TGAGGTATATGACTTTGCTTTT$^{3'}$ and $^{3'}$AATTAATCCACATAAT$^{5'}$ or for HPV18 $^{5'}$ACAGTATTGGAACTTACAGA$^{3'}$and $^{3'}$TTTACATATCTAAAAATAAG$^{5'}$.

5,783,413

ENZYMATIC PROCESS FOR PRODUCING A DESIRED PROTEIN FROM AN AMINO TERMINAL EXTENDED PROTEIN

John Pedersen, Kokkedal; Conni Lauritzen, Rødovre, and Mads Thorup Madsen, Copenhagen, all of Denmark, assignors to Unizyme Laboratories A/S, Hørosholm, Denmark

PCT No. PCT/DK95/00184, § 371 Date Feb. 5, 1997, § 102(e) Date Feb. 5, 1997, PCT Pub. No. WO95/30685, PCT Pub. Date Nov. 16, 1995

PCT Filed May 9, 1995, Ser. No. 737,757

Claims priority, application Denmark, May 9, 1994, 0533/94

Int. Cl.^{6} C12P *21/06*

U.S. Cl. 435—68.1 **12 Claims**

1. An enzymatic process for producing a desired protein, wherein an amino terminally extended protein of the formula

A-Glutamine-Protein I

wherein Protein is the desired protein, Glutamine is a glutamine residue attached directly to the amino terminal of the desired protein, and A is an amino acid sequence which is attached directly to the glutamine residue, is reacted with (i) at least one aminopeptidase other than pyroalutainine aminopeptidase, (ii) glutamine cyclotransferase and (iii) pyroglutamine aminopeptidase to produce said desired protein.

5,783,414

EXPRESSION SYSTEM, INTEGRATION VECTOR AND CELL TRANSFORMED BY THIS INTEGRATION VECTOR

Dirk Carrez, Strombeek-Bever, and Joël Roos, Frasnes-lez-Auraing, both of Belgium, assignors to Genencor International, Inc., Rochester, N.Y.

Filed Jan. 27, 1995, Ser. No. 379,926

Claims priority, application Belgium, Jan. 28, 1994, 09400102; Jun. 17, 1994, 09400586; Jan. 9, 1995, 09500014

Int. Cl.^{6} C12P *21/02*

U.S. Cl. 435—69.1 **28 Claims**

1. An expression system comprising:

a promoter,
a glucose oxidase secretion signal sequence,
a gene encoding mature glucose oxidase, and
a terminator;
wherein said promoter, signal sequence, gene and terminator are each derived from a filamentous fungus.

5,783,415

METHOD OF PRODUCING AN IL-8 RECEPTOR POLYPEPTIDE

James Lee, San Bruno; William E. Holmes, Pacifica, and William I. Wood, San Mateo, all of Calif., assignors to Genentech, Inc., So San Francisco, Calif.

Division of Ser. No. 234,494, Apr. 28, 1994, abandoned, which is a continuation of Ser. No. 677,211, Mar. 29, 1991, abandoned. This application Mar. 24, 1995, Ser. No. 410,454

Int. Cl.^{6} C12N *15/63;* **C07K** *14/715*

U.S. Cl. 435—69.1 **3 Claims**

1. A method of producing an IL-8 receptor polypeptide, comprising the steps of expressing a nucleic acid molecule encoding an IL-8 receptor polypeptide comprising the N-terminal extracellular domain of the receptor polypeptide amino acid sequence of SEQ ID NO.1 in a cultured host cell transfected with a vector comprising the nucleic acid molecule operably linked to control sequences recognized by the host cell transfected with the vector, and recovering the IL-8 receptor polypeptide from the host cell.

5,783,416

HUMAN SPASMOLYTIC POLYPEPTIDE IN GLYCOSYLATED FORM

Lars Thim, Gentofte; Kjeld Norris, Hellerup; Fanny Norris, Hellerup; Søren Bjørn, Lyngby; Mogens Christensen, Gentofte, and Per Franklin Nielsen, Varløse, all of Denmark, assignors to Novo Nordisk A/S, Bagsvaerd, Denmark

PCT No. PCT/DK94/00037, § 371 Date Aug. 2, 1995, § 102(e) Date Aug. 2, 1995, PCT Pub. No. WO94/17102, PCT Pub. Date Aug. 4, 1994

PCT Filed Jan. 20, 1994, Ser. No. 491,976

Claims priority, application Denmark, Jan. 21, 1993, 0068/93

Int. Cl.^{6} C12N *15/63;1/15;* **A61K** *38/17;* **C07K** *14/47*

U.S. Cl. 435—69.1 **17 Claims**

1. Human spasmolytic polypeptide (HSP) characterized by being in glycosylated form, and wherein glycosylation is at Asn15, and wherein said HSP has an amino acid sequence that differs from SEQ ID NO:1 by comprising one or more of the following substitutions: Lys2 replaced by Asn, Gln7 replaced by Asn, Arg10 replaced by Asn, Gly20 replaced by Thr or Ser, Gly23 replaced by Asn, Ile24 replaced by Asn, Phe36 replaced by Asn, Asp37 replaced by Asn, Ser39 replaced by Asn, Gln53 replaced by Asn,

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Trefoil family of peptides

Peptide		Number of trefoil domains	Species
Intestinal Trefoil Factor	(ITF)		Rat Human
Breast cancer associated peptide	(pS2)		Human
Spasmolytic polypeptide	(hSP) (PSP) (mSP)		Human Porcine Mouse
Spasmolysins	(xP1)		Frog
	(xP4)		Frog

Glu61 replaced by Asn, Asp64 replaced by Asn, Arg66 replaced by Thr or Ser, Gly69 replaced by The or Ser, Gly72 replaced by Asn, Ile89 replaced by Thr or Ser, Pro98 replaced by Asn or Val101 replaced by Thr or Ser, and wherein said HSP has spasmolytic activity.

5,783,417
HUMAN-DERIVED TUMOR CELL GROWTH INHIBITORS

Toshi Komurasaki; Kiyoshi Nakazawa; Hitoshi Toyoda; Masayoshi Takahashi; Daisuke Uchida; Kazunori Hanada, all of Tokyo, and Shigezo Udaka, Aichi, all of Japan, assignors to Taisho Pharmaceutical Co., Ltd., Japan

PCT No. PCT/JP94/00895, § 371 Date Feb. 5, 1996, § 102(e) Date Feb. 5, 1996, PCT Pub. No. WO94/29340, PCT Pub. Date Dec. 22, 1995

PCT Filed Jun. 2, 1994, Ser. No. 549,757

Claims priority, application Japan, Jun. 4, 1993, 5-134854; Jun. 4, 1993, 5-134855

Int. Cl.^{6} C12N *15/12;15/74;15/75*

U.S. Cl. 435—69.1 **7 Claims**

1. An isolated human-derived tumor cell growth inhibitor consisting of the amino acid sequence shown by formula (1) (Seq. I.D. No. 1):

Val—Ser—Ile—Thr—Lys—Cys—Ser—Ser—
Asp—Met—Asn—gly—Tyr—Cys—Leu—His—
Gly—Gln—Cys—Ile—Tyr—Leu—Val—Asp—
Met—Ser—Gln—Asn—Tyr—Cys—Arg—Cys—
Glu—Val—Gly—Tyr—Thr—Gly—Val—Arg—
Cys—Glu—His—Phe—Phe—Leu.(1)

5,783,418
HUMAN HOMOLOG OF THE RAT G PROTEIN GAMMA-5 SUBUNIT

Janice Au-Young, Berkeley; Susan G. Stuart, Montara; Lynn E. Murry, Portola Valley; Karl J. Guegler, Menlo Park, and Jeffrey J. Seilhamer, Los Altos Hills, all of Calif., assignors to Incyte Pharmaceuticals, Inc., Palo Alto, Calif.

Continuation-in-part of Ser. No. 440,743, Jun. 12, 1995, which is a continuation-in-part of Ser. No. 320,011, Oct. 5, 1994. This application Feb. 27, 1996, Ser. No. 606,789

Int. Cl.^{6} C12N *15/12;15/63;15/85*

U.S. Cl. 435—69.1 **4 Claims**

1. A purified polynucleotide consisting of the sequence of SEQ ID NO:1, or its complement.

5,783,419

Patent Not Issued For This Number

5,783,420
METHOD AND COMPOSITIONS FOR CONTROLLING GENE EXPRESSION

Eric H. Davidson, Pasadena, Calif., assignor to California Institute of Technology, Pasadena, Calif.

Division of Ser. No. 660,275, Jun. 7, 1996, Pat. No. 5,712,379. This application Aug. 27, 1997, Ser. No. 919,002

Int. Cl.^{6} C12P *21/02;* **C12N** *15/63;15/13*

U.S. Cl. 435—69.1 **5 Claims**

1. A method for altering the expression of a gene in a eukaryotic cell, the expression of said gene being under the regulatory control of at least three cis-regulatory DNA sequence elements, said method comprising:

introducing into said cell at least an expression vector encoding at least first and second antibody derivatives, said derivatives specifically binding to first and second cis-regulatory DNA sequence elements, respectively,

wherein said first antibody derivative comprises an N-terminal nuclear localization signal, a light chain variable region derived from an antibody capable of specifically binding to a transcription factor protein and a C-terminal DNA binding domain derived from a protein capable of specifically binding to said first cis-regulatory DNA sequence element;

wherein said second antibody derivative comprises an N-terminal nuclear localization signal, a heavy chain variable region derived from an antibody capable of specifically binding to said transcription factor protein and a C-terminal DNA binding domain derived from a protein capable of specifically binding to said second cis-regulatory DNA sequence element;

wherein said first and second antibody derivatives are expressed and transported into the nucleus of said cell, said first and second antibody derivatives specifically binding to said adjacent first and second cis-regulatory DNA sequence elements, respectively, of said gene and when bound to said adjacent first and second cis-regulatory DNA sequence elements, forming an antibody binding site for said transcription factor protein that specifically binds to a third cis-regulatory DNA sequence element of said gene, said antibody binding site thereby competing with said third cis-regulatory DNA sequence element for binding of said transcription factor protein,

wherein said antibody binding site specifically binds to said transcription factor protein, thereby altering the expression of said gene.

5,783,421
DNA ENCODING NOVEL POLYPEPTIDE HAVING FACTOR XA INHIBITORY ACTIVITY

Elisha P. Zeelon, Mishmar Hashiva; Moshe M. Werber, Tel Aviv, and Avigdor Levanon, Rehovot, all of Israel, assignors to Bio-Technology General Corp., Iselin, N.J.

Division of Ser. No. 225,442, Apr. 8, 1994, abandoned, which is a continuation-in-part of Ser. No. 45,805, Apr. 9, 1993, abandoned. This application Jun. 6, 1995, Ser. No. 468,347

Int. Cl.^{6} C07K *14/81;14/815;* **C12N** *15/15*

U.S. Cl. 435—69.2 **22 Claims**

1. An isolated and purified DNA encoding a polypeptide comprising the amino acid sequence

X – Y – CYS GLN GLU GLU GLU CYS PRO ASP PRO
TYR LEU CYS SER PRO VAL THR ASN ARG CYS GLU
CYS THR PRO VAL LEU CYS ARG MET TYR CYS LYS
PHE TRP ALA LYS ASP GLU LYS GLY CYS GLU ILE
CYS LYS CYS GLU GLU LEU CYS GLN ASN GLN ASN
CYS THR LYS ASP MET LEU CYS SER SER VAL THR
ASN ARG CYS ASP CYS GLN ASP PHE LYS CYS PRO

-continued

GLN SER TYR CYS – Z (SEQ ID NO. 1)

wherein X is MET or absent;

Y is 0–29 amino acids of the sequence LYS MET CYS TRP ASN LYS GLY CYS PRO CYS GLY GLN ARG CYS ASN LEU HIS ARG ASN GLU CYS GLU VAL ILE ALA GLU ASN ILE GLU, (SEQ. ID NO. 2) with the proviso that if Y is more than 0 amino acids, then the carboxy-terminal sequence of Y beginning with Glu as the carboxy-terminal amino acid is present and wherein Val^{24} may be preceded by Gly; and Z is absent or all or a part of the sequence Pro^{110}–Lys^{156} shown in FIG. 7, with the proviso that if Z is more than 0 amino acids, then the amino-terminal sequence of Z beginning with Pro as the amino-terminal amino acid is present.

5,783,422
DNA FRAGMENT CODING FOR SQUAMOUS CELL CARCINOMA-ASSOCIATED ANTIGEN

Yoshinori Suminami; Hiroshi Kato, both of Ube; Kiyoshi Sekiguchi, and Katsumichi Takeda, both of Matsudo, all of Japan, assignors to Dainabot Co., Ltd., Japan

Division of Ser. No. 99,259, Jul. 29, 1993, abandoned, which is a continuation of Ser. No. 800,952, Dec. 2, 1991, abandoned. This application Dec. 6, 1995, Ser. No. 568,147

Claims priority, application Japan, Nov. 30, 1990, 2-330155

Int. Cl.^{6} C12P *21/02;* **C12N** *15/12;15/11*

U.S. Cl. 435—69.3 **6 Claims**

1. A method for recombinant production of human squamous cell carcinoma-associated antigen which comprises cultivating a host cell containing an expression vector comprising an isolated nucleic acid consisting of a nucleotide sequence coding for a polypeptide having an amino acid sequence of any one of SEQ ID NO:12, SEQ ID NO:13, SEQ ID NO:14, SEQ ID NO:15, SEQ ID NO:16 or SEQ ID NO:17, under conditions for sufficient for expression of said polypeptide.

5,783,423
YEAST STRAINS

Patricia Carolyn Wood, Burton-on-Trent, and Alan Victor Quirk, Costock, both of United Kingdom, assignors to Delta Biotechnology Ltd., United Kingdom

PCT No. PCT/GB95/01317, § 371 Date Feb. 20, 1997, § 102(e) Date Feb. 20, 1997, PCT Pub. No. WO95/33833, PCT Pub. Date Dec. 14, 1995

PCT Filed Jun. 7, 1995, Ser. No. 750,077

Claims priority, application United Kingdom, Jun. 7, 1994, 9411356

Int. Cl.^{6} C12P *21/02;* **C12N** *1/19;* **C07K** *1/14*

U.S. Cl. 435—69.6 **29 Claims**

1. A process for preparing a desired protein from a heat shock protein 150 (Hsp150)-deficient yeast comprising: culturing the Hsp150-deficient yeast, obtaining said desired protein from said cultured Hsp150-deficient yeast, wherein said desired protein is not Hsp150 or an Hsp150 fusion protein.

5,783,424

Patent Not Issued For This Number

5,783,425
AMINO AND PEPTIDO MODIFIED ENZYMATIC NUCLEIC ACID

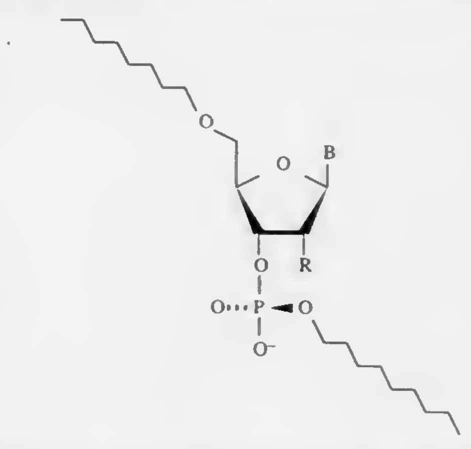
Lech Dudycz, Worcester, Mass.; Jasenka Matulic-Adamic, Boulder, and Leonid Beigelman, Longmont, both of Colo., assignors to Ribozyme Pharmaceuticals, Inc., Boulder, Colo.

Continuation-in-part of Ser. No. 143,832, Oct. 27, 1993, abandoned. This application Dec. 16, 1994, Ser. No. 357,577

Int. Cl.^{6} C07H *21/00;* **C12N** *5/00;5/08*

U.S. Cl. 435—91.31 **16 Claims**

1. An enzymatic nucleic acid molecule, comprising a moiety having the formula:



wherein B is a nucleotide base or hydrogen; R is selected from the group consisting of aminoacyl group, and NHR$_4$ group, wherein said R$_4$ is independently selected from the group consisting of a peptidyl group containing between 2 and 5 amino acids inclusive, and CO—CR$_1$R$_2$R$_3$, wherein R$_1$, R$_2$ and R$_3$ independently is selected from the group consisting of hydrogen, an alkyl group containing between 2 and 10 carbon atoms inclusive, and an alkyl amine; and the zigzag lines are independently hydrogen or a bond.

5,783,426
SEMICONDUCTOR DEVICE HAVING SEMICONDUCTOR CHIP MOUNTED IN PACKAGE HAVING CAVITY AND METHOD FOR FABRICATING THE SAME

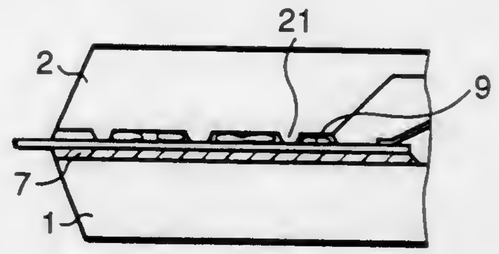
Katsuhiko Suzuki; Isamu Sorimachi; Akira Haga; Hiroyuki Uchida, and Katsunobu Suzuki, all of Tokyo, Japan, assignors to NEC Corporation, Tokyo, Japan

Filed Aug. 7, 1995, Ser. No. 511,618

Claims priority, application Japan, Aug. 18, 1994, 6-216550

Int. Cl.^{6} H01L *21/44*

U.S. Cl. 438—115 **3 Claims**



1. A semiconductor device having a base plate, a cap, a plurality of leads sandwiched between said base plate and said cap, a semiconductor chip mounted within a cavity formed between said cap and said base plate, said leads and said semiconductor chip being electrically interconnected by internal leads of said leads and electrodes of said semiconductor chip, wherein the improvement comprises a plurality of looped projections for intercepting a path that may be formed for a gas to escape from said cavity, said

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plurality of looped projections being provided at an undersurface peripheral portion of the cap such that said cavity is surrounded by said loop projections.

5,783,427

PROCESS FOR PREPARING D-AMINO ACIDS

Masakatsu Furui, Takatsuki; Eiji Takahashi, Osaka; Hiroyasu Seko, Nara-ken, and Takeji Shibatani, Kobe, all of Japan, assignors to Tanabe Seiyaku Co., Ltd., Osaka, Japan

Filed Mar. 26, 1996, Ser. No. 621,970

Claims priority, application Japan, Mar. 28, 1995, 7-068459; Sep. 7, 1995, 7-229899; Jan. 23, 1996, 8-009452

Int. Cl.^{6} C12P *13/08;13/06;41/00*

U.S. Cl. 435—115 8 Claims

1. A process for preparing a D-amino acid selected from the group consisting of D-valine, D-leucine and D-isoleucine, which comprises the steps of:

making a culture or treated culture of a microorganism, having ability to asymmetrically degrade a L-amino acid selected from the group consisting of L-valine, L-leucine and L-isoleucine, which acts on a racemic amino acid corresponding to said L-amino acid; and

separating and collecting the remaining D-amino acid;

wherein the microorganism belongs to Proteus, Providencia or Yarrowia.

5,783,428

METHOD OF PRODUCING FUMARIC ACID

Makoto Goto; Terukazu Nara; Izuru Tokumaru; Nobutake Fugono; Yasukazu Uchida; Masato Terasawa, and Hideaki Yukawa, all of Inashiki-gun, Japan, assignors to Mitsubishi Chemical Corporation, Tokyo, Japan

Continuation of Ser. No. 503,645, Jul. 18, 1995, abandoned. This application Feb. 20, 1997, Ser. No. 804,144

Claims priority, application Japan, Jul. 19, 1994, 6-167103; Mar. 30, 1995, 7-097956; May 15, 1995, 7-139994

Int. Cl.^{6} C12P *7/46;13/20*

U.S. Cl. 435—145 11 Claims

1. A method of producing fumaric acid comprising the steps of:

reacting a culture of a microorganism capable of growing at a temperature above 40° C., and which produces maleate isomerase that exhibits a maximum activity at not less than 50° C. or a treated product of said culture having maleate isomerase activity and obtained by subjecting the culture to at least one treatment selected from the group consisting of immobilization, rupture, extraction and purification with maleic acid in an aqueous solution; and

isomerizing maleic acid by an enzyme reaction in said reaction mixture to produce fumaric acid,

said microorganism being selected form the group consisting of *Bacillus stearothermophilus, Bacillus brevis* and Bacillus sp. MI-105.

5,783,429

ENZYMATIC OXIDATION OF ALCOHOLS TO ALDEHYDES IN A CONTINUOUS REACTION SYSTEM

Alan Gabelman, West Chester, Ohio, and Gary A. Luzio, Newark, Del., assignors to Givaudan Roure Flavors Corporation, Cincinnati, Ohio

Continuation-in-part of Ser. No. 524,911, Sep. 8, 1995, Pat. No. 5,593,872, which is a continuation of Ser. No. 165,748, Dec. 10, 1993, abandoned. This application Oct. 9, 1996, Ser. No. 728,085

Int. Cl.^{6} C12P *7/24*

U.S. Cl. 435—147 9 Claims

1. A process for the enzymatic oxidation of alcohols to aldehydes in a continuous reaction system of two reactors operated in series comprising:

continuously producing a fermenter effluent containing growing intact methylotrophic yeast cells at a cell concentration of about 0.5 to about 3% by weight of the effluent by continuous culture of the yeast cells using a carbon source consisting essentially of methanol in a first reactor, said yeast cells having intracellular methanol oxidase and catalase activity;

continuously introducing the effluent from the first reactor without purification of the effluent, to a second reactor;

adding an alcohol feed and oxygen to the second reactor to form the reaction mixture, said reaction mixture comprising about 0.2% to about 10% by weight of said feed alcohol, the alcohol being selected from the group consisting of ethanol, n-propanol, n-butanol, 2-chloroethanol, 2-bromoethanol, allyl alcohol, 2-buten-1-ol, benzyl alcohol and mixtures thereof;

enzymatically oxidizing said alcohol in the reaction mixture to its aldehyde while maintaining a steady-state aldehyde and alcohol concentration in the reaction mixture wherein said alcohol concentration is about 0.1 to about 9% by weight of the reaction mixture by controlling the rates of introduction of said effluent and said alcohol feed to the reaction mixture; and

recovering the aldehyde from the reaction mixture.

5,783,430

Patent Not Issued For This Number

5,783,431

METHODS FOR GENERATING AND SCREENING NOVEL METABOLIC PATHWAYS

Todd C. Peterson, Chula Vista; Lyndon M. Foster, Carlsbad, and Paul Brian, San Diego, all of Calif., assignors to Chromaxome Corporation, San Diego, Calif.

Continuation-in-part of Ser. No. 639,255, Apr. 24, 1996. This application Oct. 24, 1996, Ser. No. 738,944

Int. Cl.^{6} C12N *15/64;* **C07H** *21/04*

U.S. Cl. 435—172.3 25 Claims

1. A mobilizable combinatorial gene expression library, comprising a pool of expression constructs, each expression construct comprising a shuttle vector that replicates in different species or strains of host cell, said shuttle vector containing one or more cDNA or genomic DNA fragments, wherein the cDNA or genomic DNA fragments in the pool of expression constructs are derived from a plurality of species of donor organisms, and wherein the cDNA or genomic DNA fragments are each operably-associated with one or more regulatory regions that drives expression of genes encoded by the cDNA or genomic DNA fragments in an appropriate host organism.

5,783,432

FABH

Daniel Robert Gentry, Pottstown; John Timothy Lonsdale, Exton; David John Payne, Phoenixville, and Stewart Campbell Pearson, Berwyn, all of Pa., assignors to SmithKline Beecham Corporation, Philadelphia, Pa.

Division of Ser. No. 746,797, Nov. 18, 1996. This application Aug. 25, 1997, Ser. No. 927,387

Int. Cl.^{6} C12N *9/00;1/20;15/00;* **C12P** *21/06*

U.S. Cl. 435—183 2 Claims

1. An isolated FabH polypeptide consisting of an amino acid sequence which is at least 70% identical to amino acid 1 to 324 of SEQ ID NO:2.

5,783,433

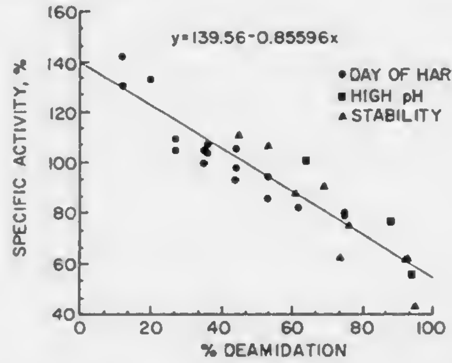
PURIFIED FORMS OF DNASE

John Frenz, Millbrae, and Mary B. Sliwkowski, San Carlos, both of Calif., assignors to Genentech, Inc., South San Francisco, Calif.

Continuation of Ser. No. 409,631, Mar. 22, 1995, abandoned, which is a continuation of Ser. No. 348,284, Nov. 30, 1994, abandoned, which is a continuation of Ser. No. 116,186, Sep. 2, 1993, abandoned, which is a continuation of Ser. No. 895,300, Jun. 8, 1992, Pat. No. 5,279,823. This application Jun. 2, 1995, Ser. No. 458,367

Int. Cl.^{6} C12N *9/22*

U.S. Cl. 435—199 3 Claims



1. A process comprising separating deamidated and non-deamidated human DNase by use of a tentacle cation exchange resin.

5,783,434

CATHEPSIN AND METHODS AND COMPOSITIONS FOR INHIBITION THEREOF

Jay S. Tung, 2224 Semeria Ave., Belmont, Calif. 94002; Sukanto Sinha, 808 Junipero Serra Blvd., San Francisco, Calif. 94127; Lisa McConlogue, 283 Juanita Way, San Francisco, Calif. 94127; Gwen Tatsuno, 5910 Pinewood Rd., Oakland, Calif. 94611; John Anderson, 21 Bucareli Dr., San Francisco, Calif. 94132, and Susanna Chrysler, 448-1/2 San Bruno Ave., Brisbane, Calif. 94005

Filed Jun. 6, 1995, Ser. No. 467,607

Int. Cl.^{6} C12N *9/00;* **C07H** *21/02;21/04;* **C12Q** *1/68*

U.S. Cl. 435—219 2 Claims

1. An isolated and purified polypeptide comprising acid sequence set forth in FIG. 4 (SEQ ID NO:3).

5,783,435

PROSTATE CANCER DRUG SCREENINGS

Henry G. Lamparski, 422 S. El Dorado, San Mateo, Calif. 94402; Eric R. Schuur, 20350 Stevens Creek Blvd., #305, Cupertino, Calif. 95014, and Daniel R. Henderson, 995 Matadero Ave., Palo Alto, Calif. 94306

Filed Aug. 6, 1996, Ser. No. 692,759

Int. Cl.^{6} C12H *1/20;* **G01H** *33/53;* **C07H** *21/04*

U.S. Cl. 435—252.3 13 Claims

1. A method for screening drugs for the treatment of prostate cancer employing prostate cells containing an endogenous androgen receptor and an expression construct, wherein the expression construct comprises a transcriptional initiation region of a prostate specific enhancer from a prostate specific antigen (PSA) gene and a promoter and a gene whose expression product provides a detectable signal, wherein said gene is under the transcriptional control of said transcriptional initiation region, the method comprising:

combining said cells with a candidate drug in the presence of an androgen for sufficient time for detectable expression of said gene; and

detecting the level of expression of said gene as compared to the level of expression in the absence of said candidate drug.

5,783,436

NUCLEIC ACIDS ENCODING MUTANT UREASE

Robert P. Hausinger, East Lansing, Mich., assignor to Board of Trustees operating Michigan State University, East Lansing, Mich.

Division of Ser. No. 687,645, Jul. 26, 1996. This application Nov. 11, 1997, Ser. No. 967,513

Int. Cl.^{6} C12N *1/21;15/63;* **C07H** *21/04*

U.S. Cl. 435—252.3 5 Claims

2. A DNA as carried on plasmid pKAU17 αH219Q in *Escherichia coli* strain DH5 deposited as ATCC 98103 which produces a mutant urease designated as αH219Q.

5,783,437

Patent Not Issued For This Number

5,783,438

Patent Not Issued For This Number

5,783,439

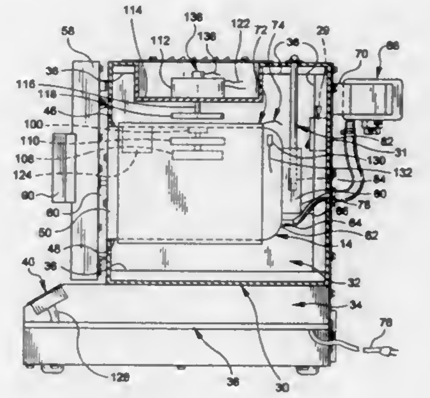
FORCED HOT AIR HEATING DEVICE

Allen Reichler, Livingston, Tex., and Raymond Cracauer, Plymouth, Minn., assignors to Becton Dickinson and Company, Franklin Lakes, N.J.

Filed Apr. 30, 1997, Ser. No. 846,395

Int. Cl.^{6} C12M *3/00*

U.S. Cl. 435—286.1 33 Claims



1. An apparatus for heating biological samples to a selected temperature, said apparatus comprising:

a housing having top, bottom, opposite side walls and at least one end wall, said housing having at least one air inlet for receiving outside air into said housing;

a heating chamber positioned in said housing and providing an air space between said housing and an outer surface of said heating chamber, said heating chamber having a sample opening for receiving biological samples;

a closure member for closing said sample opening in said heating chamber and hermetically sealing said heating chamber;

at least one heating element positioned on an outer surface of said heating chamber for heating an interior of said heating chamber;

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a vent in said heating chamber for maintaining said heating chamber substantially at ambient pressure during a heating cycle; and

a filter coupled to said vent for capturing particulate materials escaping from said heating chamber.

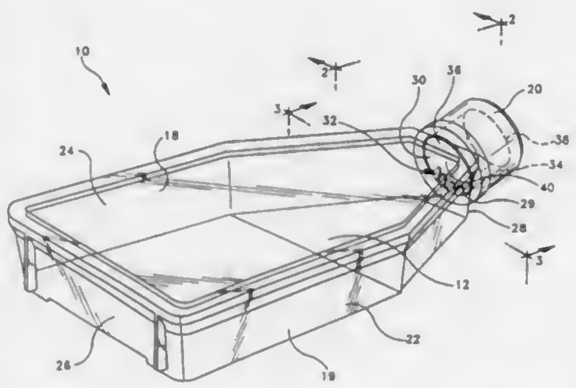
5,783,440
CULTURE VESSEL

Timothy A. Stevens, Warwick, N.Y., assignor to Becton Dickinson and Company, Franklin Lakes, N.J.

Filed Sep. 30, 1996, Ser. No. 719,827

Int. Cl.^{6} C12M *1/24*

U.S. Cl. 435—304.3 **4 Claims**



1. A vessel comprising:

a body having a generally flat bottom wall, upwardly extending front, back and lateral walls bounding said bottom wall, and an upper, generally planar cover surface that is parallel to said bottom wall;

a generally circular opening in said front wall;

a neck extending from said opening in said front wall, said neck having inner and outer cylindrical walls;

an interface area between said neck and said opening in said front wall; and

means for minimizing media beaching or liquid travel into said neck from said body located at said interface area, wherein said means for minimizing beaching is a breaker wall zone.

5,783,441
GENE AND PROTEIN APPLICABLE TO THE PREPARATION OF VACCINES FOR *RICKETTSIA PROWAZEKII* AND *RICKETTSIA TYPHI* AND THE DETECTION OF BOTH

Mitchell Carl, San Diego, Calif.; Michael E. Dobson, Rockville, Md.; Wei-Mei Ching, Bethesda, Md., and Gregory A. Dasch, Wheaton, Md., assignors to The United States of America as represented by the Secretary of the Navy, Washington, D.C.

Continuation-in-part of Ser. No. 742,128, Aug. 9, 1991, abandoned. This application Dec. 20, 1993, Ser. No. 169,927

Int. Cl.^{6} C12N *15/00;1/20;* A61K *39/00;* C07H *21/02*

U.S. Cl. 435—320.1 **2 Claims**

1. A plasmid consisting of a recombinant DNA insert having the nucleotide sequence of Sequence ID No. 1 (or FIG. 4) which encode the surface layer protein of *R. prowazekii* in a host selected from the group consisting of bacteria, viruses or fungi.

5,783,442
CLONING VECTOR PLASMID, VECTOR-PRIMER DERIVED THEREFROM AND PREPARATION METHOD OF CDNA BANK USING THE SAME

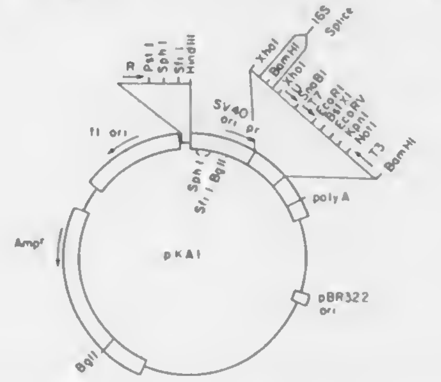
Seishi Kato, Sagamihara; Takashi Aoki, Tanashi, and Yuri Umezawa, Chigasaki, all of Japan, assignors to Sagami Chemical Research Center, Tokyo, Japan

Division of Ser. No. 466,111, Jun. 6, 1995, Pat. No. 5,624,826, which is a continuation of Ser. No. 255,799, Jun. 7, 1994, abandoned, which is a continuation of Ser. No. 115,796, Sep. 3, 1993, abandoned, which is a continuation of Ser. No. 606,826, Oct. 31, 1990, abandoned. This application Sep. 9, 1996, Ser. No. 709,733

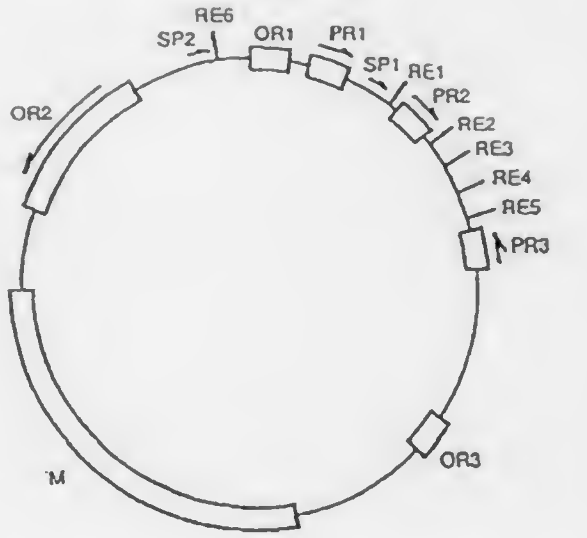
Claims priority, application Japan, Oct. 31, 1989, 1-283674; Sep. 7, 1990, 2-238332

Int. Cl.^{6} C12N *15/63;15/66*

U.S. Cl. 435—320.1 **6 Claims**



1. A cloning vector comprising isolated DNA represented by the formula:



wherein

PR1 represents a promoter acting in mammalian cells;

PR2 and PR3 represent promoters for RNA polymerase, which have sequences different from each other;

SP1 and SP2 represent sequencing primer regions which are different from each other;

OR1 represents an origin for replication in mammalian cells;

OR2 represents an origin for replication of a single-stranded phage;

OR3 represents an origin for replication in *E. coli;*

M represents a selectable marker;

RE1 and RE5 each represent a restriction site selected from the group consisting of Not I, SnaBI, SfiI and SpeI;

RE2 represents a unique restriction site generating a 3'-protruding dN homooligomer end of about 4 bases after restriction enzyme digestion and wherein RE2 is a recognition site of a restriction enzyme;

RE3 represents a restriction site;

RE4 represents a unique restriction site generating a 3'-protruding end after restriction enzyme digestion;

RE6 represents more than one restriction site generating a 3'-protruding end after restriction enzyme digestion;

the position of OR2, OR3 and M being arbitrary within the portion of the cloning vector between RE6 and PR3 that is distal from OR1, PR1, SP1, RE1, PR2, RE2, RE3, RE4 and RE5.

5,783,443

Patent Not Issued For This Number

5,783,444

Patent Not Issued For This Number

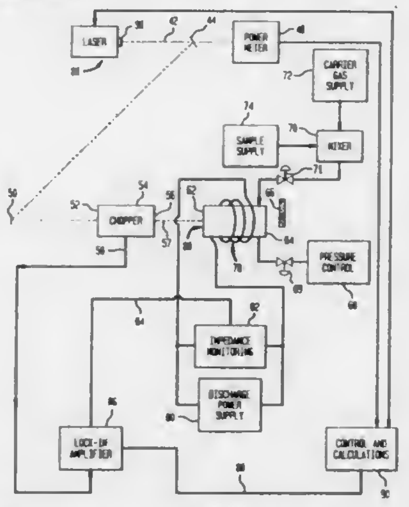
5,783,445
METHODS AND APPARATUS FOR ISOTOPIC ANALYSIS

Daniel E. Murnick, Bernardsville, N.J., assignor to Rutgers, The State University, Piscataway, N.J.

Division of Ser. No. 829,416, Feb. 3, 1992, Pat. No. 5,394,236. This application Oct. 3, 1994, Ser. No. 317,265

Int. Cl.^{6} G01N *33/00;27/66*

U.S. Cl. 436—35 **9 Claims**



1. A method of determining the isotopic composition of an analyte including multiatomic isotope-bearing species incorporating a plurality of isotopes comprising the steps of:

(a) providing said analyte in a condition such that said multiatomic isotope-bearing species are present in excited states, whereby excited multiatomic isotope-bearing species incorporating different isotopes will have different transition energies between excited states;

(b) applying radiation to said analyte at plural wavelengths corresponding to said different transition energies between excited state, whereby applied radiation at each of said wavelengths will interact selectively with excited multiatomic isotope-bearing species in said analyte incorporating different ones of said isotopes; and

(c) monitoring response of said analyte to applied radiation so as to determine a magnitude of said response for each of said wavelengths; the method further comprising the step of deriving said analyte from a test subject so that the amounts of said isotopes in said analyte vary depending upon a characteristic of said test subject, whereby said magnitudes of responses for each different wavelengths will indicate said characteristic of said test subject.

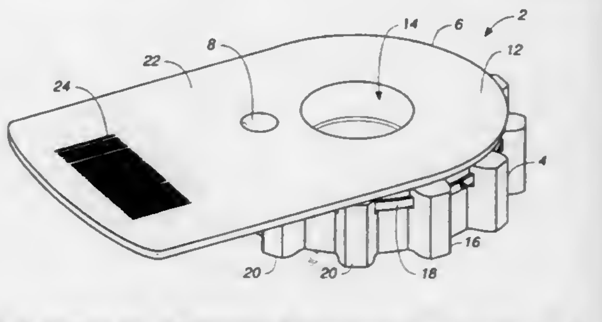
5,783,446
PARTICLE ASSAY USING FLUID VELOCITY GRADIENTS

Tom Saul, El Granada, and Hans O. Ribi, Hillsborough, both of Calif., assignors to Biocircuits Corporation, Sunnyvale, Calif.

Filed Mar. 4, 1996, Ser. No. 613,983

Int. Cl.^{6} G01N *21/07*

U.S. Cl. 436—45 **10 Claims**



1. A method for determining the presence of an analyte in a sample, where at least one selected from the group consisting of said analyte and a member of a reagent composition is a particle, and said analyte and said reagent composition member are a specific binding pair, which upon binding result in agglutination, said method comprising:

combining in an assay medium said sample and said reagent composition;

applying a circumferential fluid velocity gradient and a vertical fluid velocity gradient to said assay medium to promote mixing and binding of said analyte and said specific binding pair to form agglutinates, wherein said agglutinates form in relation to the amount of analyte present in said sample; and

detecting the presence of agglutinates as indicative of the presence of analyte in said sample.

5,783,447
HYPERCOAGULABILITY COMPARATIVE DETERMINANTS OBTAINED USING DETECTION SYSTEMS WITH VARIABLE FORCE-INDUCED ENERGY INPUTS

Charles R. Spillert, West Orange, and Eric J. Lazaro, Jersey City, both of N.J., assignors to University of Medicine and Dentistry of New Jersey, Piscataway, N.J.

Filed Oct. 2, 1996, Ser. No. 731,177

Int. Cl.^{6} G01N *33/86*

U.S. Cl. 436—69 **76 Claims**

1. A method of analyzing a whole blood sample from a mammal for determination of whether or not there is a significant difference or change in values of comparative determinants of hypercoagulability in a whole blood sample of said mammal, said comparative determinants being derived from detection systems which provide variable force-induced energy inputs to said blood sample when used together with or as part of a coagulation measuring device, in order to identify the presence or incipiency of a symptomatic or asymptomatic pathology caused by or leading to said hypercoagulability, comprising:

A. preparing anticoagulated aliquots from a whole blood sample collected from a mammal;

B. placing a first said aliquot in a suitable container to be used as a control aliquot;

C. placing a second said aliquot in a suitable container to be used as an active aliquot;

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D. incubating said control and said active aliquots at from about 35° C. to about 40° C. for an incubation period of up to about 1 hour or more;

E. initiating endogenous blood coagulation altering processes in said control and said active aliquots by substantially eliminating anticoagulation;

F. measuring a blood coagulation altering process parameter and obtaining data which are values of comparative determinants of hypercoagulability in the control and active aliquots by using two or more different detection systems or two or more different components of a single detection system which provide significantly different force-induced energy inputs to each of the control and active aliquots being measured; and

G. identifying the presence or incipiency of a symptomatic or asymptomatic pathology caused by or leading to said hypercoagulability, by analysis of said values of the comparative determinants of hypercoagulability obtained by steps A–F for said control and active aliquots, wherein said values for each of said control and active aliquots are obtained (1) at different times from said mammal, (2) under conditions of significantly changed homeostasis of said mammal, (3) in the absence or presence of, a modulator, or (4) from the same type of mammal in a healthy state, free of said pathology, and from said mammal being tested, respectively, or any combination of (1)–(4).

5,783,448

Patent Not Issued For This Number

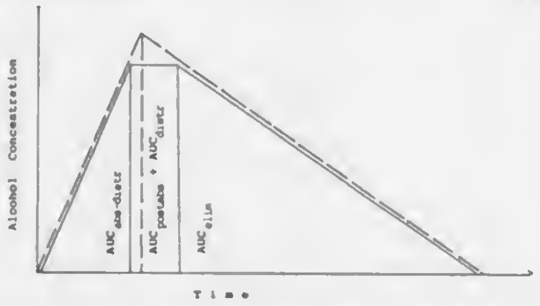
5,783,449
METHOD FOR QUANTIFYING ALCOHOL CATABOLISM

Oleg Kuznetsov, 322 Veazle St., #B, Providence, R.I. 02904

Filed Oct. 25, 1996, Ser. No. 736,671

Int. Cl.^{6} G01N *33/497*

U.S. Cl. 436—132 **2 Claims**



1. A method for quantifying an individual's catabolic activity for alcohol, comprising the steps of:

a. providing a single dose of alcohol of standardized alcohol intake to an individual;

b. repeatedly measuring the subject's Breath (Blood) Alcohol Concentration before it reaches zero;

c. based on the measurements obtained in step b, plotting the alcohol concentration levels for an individual versus time and using computerized techniques to obtain value of the Area Under the Curve (AUC) for the ascending and descending parts of the plotted data;

d. dividing the individual's alcohol eliminition AUC as determined by the descending plotted part of the curve in step c by the plotted AUC for the ascending part of the pharmacokinetical curve to obtain a representation of alcohol catabolism presented as an Index-K value; and

e. determining said Index-K according to the formula:

$$\text{Index} - K = \frac{AUC\text{elim}}{AUC\text{abs-distr}}$$

wherein AUCelim is defined as the elimination of ethanol and is equal to the descending segment of the plotted curve, and the term AUCabs-distr is defined as the sum of the absorption-distrihution of ethanol and is equal to the area under the plotted ascending part of the pharmacokinctical curve.

5,783,450
ANALYTICAL METHOD AND INSTRUMENT FOR ANALYSIS OF LIQUID SAMPLE BY LIQUID CHROMATOGRAPHY

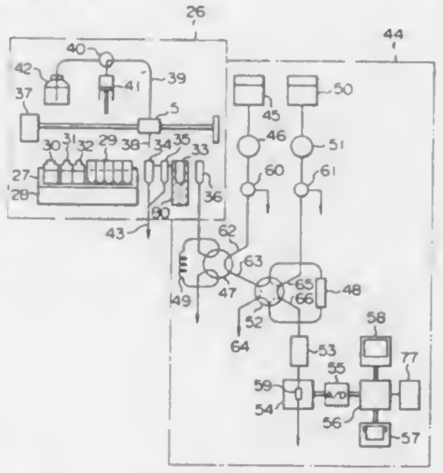
Kasumi Yoshida, Mito; Junkichi Miura, Katsuta; Yoshio Fujii, Katsuta; Hiroshi Satake, Katsuta; Masahito Ito, Katsuta, and Masao Kamahori, Hitachi, all of Japan, assignors to Hitachi, Ltd., Tokyo, Japan

Continuation of Ser. No. 96,272, Jul. 26, 1993, abandoned, which is a continuation of Ser. No. 597,412, Oct. 15, 1990, abandoned. This application May 12, 1995, Ser. No. 440,359

Claims priority, application Japan, Oct. 18, 1989, 1-268945

Int. Cl.^{6} G01N *30/02*

U.S. Cl. 436—161 **8 Claims**



2. An analytical method for analyzing a plurality of samples, which is performed by an instrument having an analytical section including, in a flow line, a metering conduit, a precolumn, a first changeover means intermediate said metering conduit and said precolumn for selectively connecting and disconnecting flow between said metering conduit and said precolumn, said first changeover means being connected to a device for providing a carrier liquid to said precolumn through the first changeover means and when said first changeover means is connecting said metering conduit and said precolumn, said carrier liquid being directed through said metering conduit for transferring a mixture in the metering conduit to the precolumn, a separation column and a detector, a second changeover means in said flow line between said precolumn and said separation column for selectively connecting and disconnecting flow between said precolumn and said separation column, said second changeover means being connected to a device for providing eluent to the separation column through the second changeover means and when said second changeover means is connecting said precolumn and said separation column said eluent being directed through the precolumn in order to transfer labeled constituents of the sample which are withdrawn in the precolumn to the separation column and a preparing section including, outside of said flow line, sample containers, a labeling reagent container, a mixing container and a pipette having a pipette nozzle, said analytical method comprising the steps:

a first step of delivering a sample from any one of the sample containers to the mixing container, delivering a labeling reagent from the labeling reagent container to the mixing container and delivering a mixture of the sample and reagent from the mixture container to an injection port of the flow line to fill the metering conduit of the analytical section with the mixture, each said delivering being performed by actuating the pipette nozzle;

a second step of transferring the mixture from the metering conduit through the flow line by way of said first changeover means to the precolumn and withdrawing labeled constituents from the mixture in said precolumn;

a third step of transferring withdrawn labeled constituents from the precolumn through the flow line by way of said second changeover means to the separation column to separate the labeled constituents and detecting the separated labeled constituents with said detector; and

wherein while a first sample is subjected to said first step, a second sample, preceding the first sample, is subjected to said second step and a third sample, preceding the second sample, is subjected to said third step.

5,783,451
PIPETTING UNIT AND METHOD FOR LIQUIDS

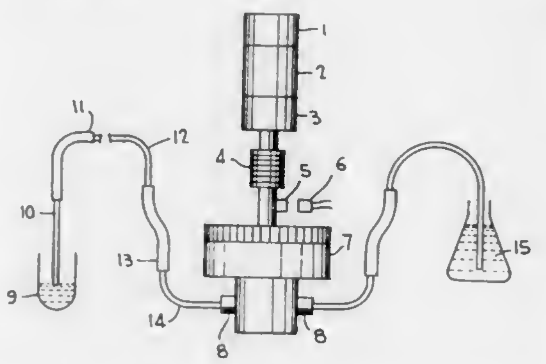
Peter Van Praet, Bergenstraat 49, 3053 Hassrode, Belgium

Continuation of Ser. No. 417,952, Apr. 6, 1995, abandoned. This application Jan. 13, 1997, Ser. No. 782,820

Claims priority, application Belgium, Apr. 15, 1994, 09400392

Int. Cl.^{6} G01N *1/10;1/14*

U.S. Cl. 436—180 **7 Claims**



1. A method of pumping fluids using in combination a volumetric pump, a motor, a motor shaft, a motor driver, an encoder, and a computing unit operatively associated with a calculation unit, wherein movement of the shaft includes two simultaneous motions, a first motion of an up and down movement of the shaft to displace fluid in conjunction with a second motion of rotating the shaft thereby moving a volume of fluid from an input port to a separate output port, wherein movement of the shaft provides quasi-sinusoidal pulsed fluid volume discharges, the method comprising:

providing a reference position means to monitor rotational position of the motor shaft;

monitoring the rotational position of the shaft using the reference position means;

operating the calculation means in relation to the reference position means;

calculating with the calculation means a fractional pulsed volume of fluid that corresponds to a calculated number of degrees of rotation of the shaft based on a monitored rotational position of the shaft;

causing the shaft to move the calculated number of degrees of rotation so as to discharge said fractional pulsed volume based on the calculated number of degrees of rotation.

5,783,452
COVERED MICROCHANNELS AND THE MICROFABRICATION THEREOF

Steve D. Jons; Paul J. O'Connor, and Ing-Fen Hu, all of Midland, Mich., assignors to University of Washington, Seattle, Wash.

Filed Feb. 2, 1996, Ser. No. 595,683

Int. Cl.^{6} G01N *33/00;30/02;* G03C *5/00*

U.S. Cl. 436—183 **8 Claims**

1. A method of preparing a covered microchannel comprising the steps of:

a) coating a filler material onto a laminate which comprises a substrate having adhered thereto an etchable material having a groove, so that the filler material covers the etchable material and fills the groove;

b) removing filler material from the etchable material but not from the groove;

c) coating the etchable material and the filler material remaining in the groove with an adhering, formable, capping material to form a capped laminate;

d) uncovering the filler material that remains in the groove at both ends of the groove; and

e) removing the filler from the groove with a solvent for the filler, so that the capping material and the etchable material form the covered microchannel.

5,783,453
NON-SEPARATION SPECIFIC BINDING CHEMILUMINESCENT ASSAY

Eve H. Barlow, Holliston; Eddie Carroll, III, Waltham; Joseph E. Connolly, Dedham; Michael J. Lee, Sherborn; Richard A. Martinelli, Brighton, and John T. Unger, Medfield, all of Mass., assignors to Chiron Diagnostics Corporation, East Walpole, Mass.

Filed Jun. 29, 1995, Ser. No. 496,549

Int. Cl.^{6} G01N *33/543;33/551;33/553;* C12G *1/00*

U.S. Cl. 436—518 **22 Claims**

1. A non-separation specific binding assay to detect or quantify the presence of an analyte, said assay comprising:

(a) contacting a sample with a solid phase, which comprises a metal oxide and to which is attached a first binding conjugate, and with a tracer, which comprises an acridinium or benzacridinium ester labeled second binding conjugate, wherein said first and second binding conjugates may be the same or different;

(b) allowing said solid phase, tracer and sample to react to form a reaction mixture comprising a specific binding complex attached to said solid phase and a free fraction unattached to said solid phase;

(c) contacting said reaction mixture with an activating agent to flash said acridinium or benzacridinium ester tracer and provide a modulated chemiluminescent signal;

(d) measuring said modulated signal; and

(e) associating said modulated signal with a reference to determine the amount or presence of said analyte in said sample;

wherein said modulated signal is the total chemiluminescent signal from the reaction mixture including the quenched chemiluminescent signal contributed by the tracer that is bound to the solid phase and the chemiluminescent signal from any tracer remaining in said free fraction;

wherein the amount of tracer of said step (a) is separately activated to emit a chemiluminescent light emission that is measured in the absence of said solid phase resulting in a unquenched signal count measurement;

wherein a % quench effect is calculated using said modulated signal of said step (d) and the unquenched signal count by an equation:

$$\%\ \text{Quench} = \left(1 - \frac{\text{Modulated Signal Counts}}{\text{Unquenched Signal Counts}}\right)$$

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wherein said % quench effect is associated with said reference of said step (e) to provide a determination of the presence or the amount of said analyte.

5,783,454

METHOD FOR THE PREPARATION OF FREE RADICAL PHARMACEUTICALS USING SELENIUM CONJUGATES

Julian E. Spallholz, 6105 Elmwood Ave., Lubbock, Tex. 79424, and Ted W. Reid, 3511 43rd St., Lubbock, Tex. 79413

Continuation-in-part of Ser. No. 243,709, May 17, 1994, abandoned. This application May 9, 1995, Ser. No. 432,584

Int. Cl.^{6} G01N *33/553*

U.S. Cl. 436—525 10 Claims

1. A method for making a selenium-carrier conjugate for in vivo administration comprising:

covalently attaching (i) an organic selenium compound reactive in vivo with thiol for the generation of superoxides, said selenium compound being selected from the group consisting of RSeH, RSeR, RSeR', RSeSeR and RSeSeR', wherein R and R' are the same or different and each comprises an aliphatic residue containing at least one reactive group selected from the group consisting of aldehyde, amino, alcoholic, phosphate, sulfate, halogen, phenolic reactive groups and combinations thereof, to (ii) a carrier selected from the group consisting of proteins, peptides, carbohydrates, lipids, vitamins, drugs, lectin, plasmid, liposome, nucleic acids and implantable devices for specific attachment to an in vivo target site, said carrier having a constituent for forming a covalent bond with said selenium-carrier conjugate.

5,783,455

REGENERABLE SOLID PHASE FOR CARRYING OUT SPECIFIC BINDING REACTIONS

Andreas Wiegand, Schwalmstadt, and Rudolf Schmidtberger, Marburg, both of Germany, assignors to Behring Diagnostics GmbH, Marburg, Germany

Filed Oct. 12, 1995, Ser. No. 542,026

Claims priority, application Germany, Oct. 15, 1994, 44 36 910.7

Int. Cl.^{6} G01N *33/553*

U.S. Cl. 436—525 11 Claims

1. A method for the detection and determination of one or more analytes in a sample of a biological material, which method comprises the steps of;

a) adsorbing a binding partner specific for the one or more analytes onto a regenerable precious metal solid phase;
b) contacting the sample of the biological material with the regenerable solid phase;
c) determining the amount of the one or more analytes bound to the regenerable solid phase;
d) determining the prescence or amount of the one or more analytes in the sample from the amount of the one or more analytes bound to the regenerable solid phase; and
e) regenerating the regenerable solid phase by desorbing the binding partner specific for the one or more analytes from the regenerable solid phase;

wherein said regenerated solid phase is capable of adsorbing the same or a different binding partner onto the regenerable solid phase and repeating steps b)–e).

5,783,456

Patent Not Issued For This Number

5,783,457

METHOD OF MAKING A FLASH MEMORY CELL HAVING AN ASYMMETRIC SOURCE AND DRAIN POCKET STRUCTURE

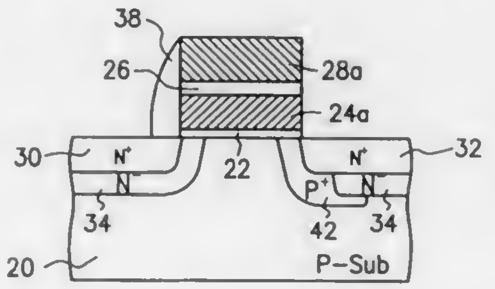
Chen-Chung Hsu, Taichung, Taiwan, assignor to United Microelectronics Corporation, Taiwan

Filed Feb. 26, 1997, Ser. No. 807,887

Claims priority, application Taiwan, Dec. 27, 1996, 85116177

Int. Cl.^{6} H01L *21/8247;21/265*

U.S. Cl. 437—35 14 Claims



1. A method of making a flash memory cell having an asymmetric source and drain pocket structure, comprising:

successively forming a tunnel oxide layer, a first conductive layer, a dielectric layer, and a second conductive layer over a semiconductor substrate of a first conductivity type;

patterning the second conductive layer, the dielectric layer, the first conductive layer, and the tunnel oxide layer to form a gate electrode structure;

performing a first ion implantation procedure to introduce a first impurity of a second conductivity type into the semiconductor substrate, thereby to form a heavily-doped source region and a heavily-doped drain region;

performing a second ion implantation procedure at a tilt angle of 25° to 45°, to introduce a second impurity of the second conductivity type into the semiconductor substrate, so as to form a pair of asymmetric lightly-doped regions, with one of the asymmetric lightly-doped regions surrounding the heavily-doped source region, and the other of the asymmetric lightly-doped regions beneath the heavily-doped drain region;

forming an insulating spacer on sidewalls of the gate electrode structure;

coating a photoresist layer over exposed surfaces of the gate electrode structure, the insulating spacer, and the heavily-doped source and drain regions;

patterning the photoresist layer to form an opening and expose a portion of the gate electrode structure, the insulating spacer, and the heavily-doped drain region;

removing the exposed portion of the insulating spacer;

performing a third ion implantation procedure at a tilt angle of 25° to 45°, to introduce an impurity of the first conductivity type into the semiconductor substrate, and forming a heavily-doped pocket region surrounding the heavily-doped drain region; and

removing the photoresist layer.

5,783,458

ASYMMETRICAL P-CHANNEL TRANSISTOR HAVING NITRIDED OXIDE PATTERNED TO ALLOW SELECT FORMATION OF A GROWN SIDEWALL SPACER

Daniel Kadosh; Robert Dawson, and Fred N. Hause, all of Austin, Tex., assignors to Advanced Micro Devices, Inc., Sunnyvale, Calif.

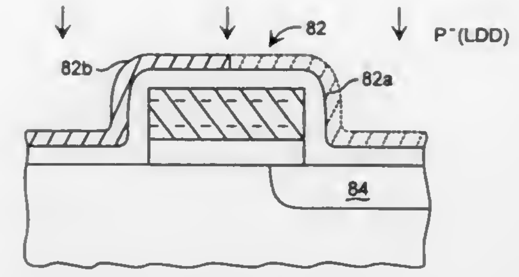
Filed Oct. 1, 1996, Ser. No. 720,731

Int. Cl.^{6} H01L *21/265;21/44*

U.S. Cl. 437—44 15 Claims

1. A method for forming a p-channel transistor, comprising:

providing a silicon substrate having a source region and a drain region laterally spaced from each other by a gate conductor;



implanting a first p-type dopant into said source region and said drain region;

exposing said drain region, said source region and said gate conductor to a nitrogen and oxygen ambient to form a nitrided oxide;

forming an opening through said layer of nitrided oxide to expose only said drain region and a sidewall surface of said gate conductor adjacent said drain region;

growing a drain-side spacer oxide upon the exposed said drain region and said sidewall surface; and

while retaining said layer of nitrided oxide, implanting a second p-type dopant into said source region and said drain region.

5,783,459

METHOD FOR FABRICATING A SEMICONDUCTOR DEVICE

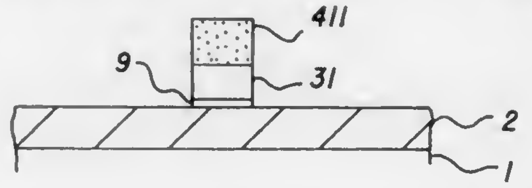
Tamotsu Suzuki, Kawasaki, and Kouichi Kawahara, Satsuma-gun, both of Japan, assignors to Fujitsu Limited, Kawasaki, and Kyushu Fujitsu Electronics Limited, Satsuma-gun, both of Japan

Filed Feb. 9, 1994, Ser. No. 193,747

Claims priority, application Japan, May 20, 1993, 5-117482

Int. Cl.^{6} H01L *21/312;21/461*

U.S. Cl. 437—194 18 Claims



1. A method for forming a metal wiring, comprising aluminum, on a semiconductor substrate said method comprising the steps of:

disposing an insulation layer on a semiconductor substrate;

disposing an undercoating layer on the insulating layer;

disposing a metal layer, comprising aluminum, on the undercoating layer;

disposing a resist layer on the metal layer;

impinging first ultra violet radiation on the resist layer to produce a resist pattern on the metal layer;

developing said optically patterned resist layer to form a resist pattern mask which exposes a portion of said metal layer therethrough;

irradiating said resist pattern mask with a plurality of curing second ultraviolet rays of different wavelengths whereby producing a cured resist pattern mask;

etching the metal layer, with reactive gas including chlorine, through the cured resist pattern mask, leaving metal in the shape of wiring under the cured resist pattern mask;

wherein, in the absence of said irradiating with said second ultraviolet curing radiation, said etching is carried out under conditions which would produce aluminum chloride reacting with said resist pattern mask to form a decomposed polymer on said mask; and thereafter

ashing the cured resist pattern mask with ashing gas comprising oxygen and at least one of hydrogen and hydrogen monoxide;

wherein said plurality of second ultraviolet rays which are impinged on said resist pattern mask are in an amount, for a time, and of a plurality of wavelengths sufficient to cure the resist pattern mask to an extent sufficient to at least reduce the amount of a decomposed polymer, which is not ashed to a substantial extent by reaction with said ashing gas, comprising oxygen and at least one member selected from the group consisting of hydrogen (H) and hydrogen oxide (OH), which would otherwise be formed of at least a portion of said resist pattern mask upon etching said metal layer with said reactive gas comprising chlorine.

5,783,460

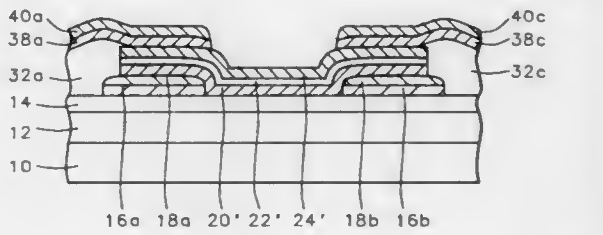
METHOD OF MAKING SELF-ALIGNED DUAL STRIPE MAGNETORESISTIVE (DRMR) HEAD FOR HIGH DENSITY RECORDING

Cherng-Chyi Han, and Mao-Min Chen, both of San Jose, Calif., assignors to Headway Technologies, Inc., Milpitas, Calif.

Filed Oct. 25, 1996, Ser. No. 738,208

Int. Cl.^{6} H01L *21/00*

U.S. Cl. 438—3 10 Claims



1. A method for forming a dual stripe magnetoresistive (MR) sensor element comprising:

providing a substrate layer;

forming upon the substrate layer a pair of patterned first conductor lead layers;

forming and aligning upon the pair of patterned first conductor lead layers a pair of patterned first anti-ferromagnetic longitudinal magnetic biasing layers, the horizontal separation of the pair of patterned first conductor lead layers and the pair of patterned first anti-ferromagnetic longitudinal magnetic biasing layers defining a track width of the substrate;

forming upon the substrate layer a blanket first magnetoresistive (MR) layer, the blanket first magnetoresistive (MR) layer contacting and completely covering the track width of the substrate and contacting and at least partially covering the pair of patterned first anti-ferromagnetic longitudinal magnetic biasing layers;

forming upon the blanket first magnetoresistive (MR) layer a blanket inter-stripe dielectric layer;

forming upon the blanket inter-stripe dielectric layer a blanket second magnetoresistive (MR) layer;

forming upon the blanket second magnetoresistive (MR) layer a first lift off stencil comprising:

- a first patterned soluble underlayer; and
- a first patterned masking layer formed symmetrically overhanging upon the first patterned soluble underlayer, the first lift off stencil completely overlapping the track width of the substrate and at least partially overlapping the pair of patterned first antiferromagnetic longitudinal magnetic biasing layers;

employing the first lift off stencil as an etch mask to form from the blanket second magnetoresistive (MR) layer, the blanket inter-stripe dielectric layer and the blanket first magnetoresistive (MR) layer a patterned second magnetoresistive (MR) layer, a patterned inter-stripe dielectric layer and a patterned first magnetoresistive (MR) layer with fully aligned edges;

employing then the first lift off stencil as a lift off mask to form a patterned dielectric layer over the substrate, the patterned dielectric layer covering the fully aligned edges of the pat-

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terned second magnetoresistive (MR) layer, the patterned inter-stripe dielectric layer and the patterned first magnetoresistive (MR) layer;

removing then the first lift off stencil from the patterned second magnetoresistive (MR) layer;

forming a second lift off stencil upon the patterned second magnetoresistive (MR) layer, the second lift off stencil comprising:

a second patterned soluble underlayer; and

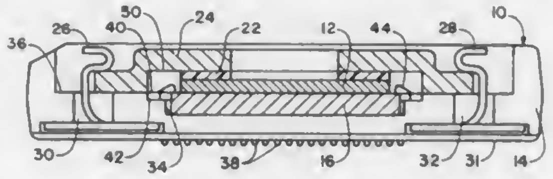
a second patterned mask layer formed symmetrically overhanging upon the second patterned soluble underlayer, where the second lift off stencil is substantially equal to and substantially centered within the track width of the substrate;

employing the second lift off stencil as a lift off mask to form upon the patterned second magnetoresistive layer a pair of patterned second longitudinal magnetic biasing layers having formed and aligned thereupon a pair of patterned second conductor lead layers.

5,783,461
TEMPORARY SEMICONDUCTOR PACKAGE HAVING HARD-METAL, DENSE-ARRAY BALL CONTACTS AND METHOD OF FABRICATION

David R. Hembree, Boise, Id., assignor to Micron Technology, Inc., Boise, Id.

Filed Oct. 3, 1996, Ser. No. 726,349
Int. Cl.^{6} H01L *23/34;21/66;* G01R *31/26*
U.S. Cl. 438—17 **31 Claims**



1. A temporary package for testing a semiconductor die, comprising:

a base comprising an array of metal ball contacts and a plurality of contact members configured to establish electrical communication with the die; and

a plurality of electrical paths on the base electrically connecting the ball contacts and the contact members;

the ball contacts comprising a wear resistant metal;

the ball contacts comprising generally spherically shaped members configured for multiple electrical engagements with mating electrical connectors of a test apparatus.

5,783,462
METHOD OF MAKING AN EXTERNAL CONTACT TO A MOSFET DRAIN FOR TESTING OF STACKED-CAPACITOR DRAMS

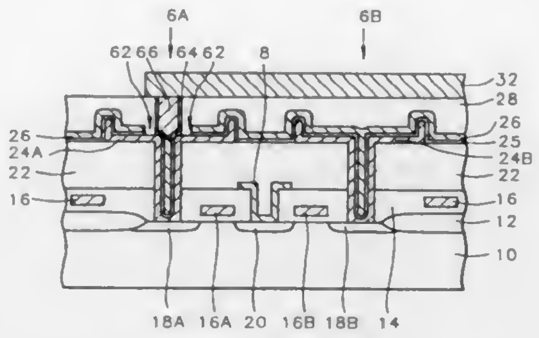
Julie Huang, Hsin Chu, Taiwan, assignor to Taiwan Semiconductor Manufacturing Company, Ltd., Hsin-Chu, Taiwan

Filed Jan. 22, 1997, Ser. No. 787,195
Int. Cl.^{6} H01L *21/66;21/8242*
U.S. Cl. 438—17 **4 Claims**

1. A method of forming an external electrical contact to the MOSFET drain of a stacked capacitor DRAM cell comprising:

(a) providing a silicon wafer having:
  i. a MOSFET formed within its surface;
  ii. a polysilicon wordline forming the gate of said MOSFET;
  iii. a polysilicon bitline connected to the source of said MOSFET;
  iv. a capacitor storage plate connected to the drain of said MOSFET;

(b) depositing a layer of dielectric material over said wafer;



(c) depositing a doped polysilicon layer over said layer of dielectric material;

(d) depositing and patterning a first photoresist layer to define a first opening in said doped polysilicon layer over said storage plate;

(e) etching said doped polysilicon layer and said layer of dielectric material to form said first opening in said doped polysilicon layer and said layer of dielectric material thereby exposing said capacitor storage plate;

(f) removing said first photoresist layer;

(g) depositing an insulative layer;

(h) planarizing said insulative layer;

(i) depositing and patterning a second photoresist layer;

(j) etching said insulative layer to form a second opening, smaller than, and concentric with said first opening, exposing said capacitor storage plate;

(k) removing said second photoresist layer;

(l) forming a conductive plug in said second opening;

(m) depositing a metal layer;

(n) depositing and patterning a third photoresist layer;

(o) etching said metal layer thereby forming a metal stripe connected to said conductive plug;

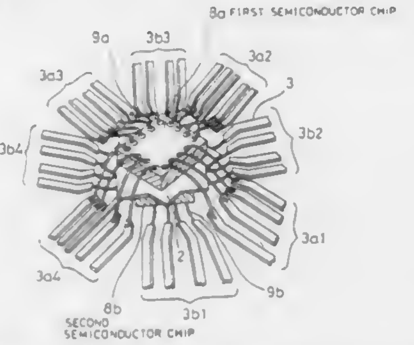
(p) removing said third photoresist layer;

(q) providing means for connecting electrical test instrumentation to said polysilicon wordline, said polysilicon bitline, said silicon wafer and said metal stripe.

5,783,463
SEMICONDUCTOR DEVICE AND METHOD OF PRODUCING SAID SEMICONDUCTOR DEVICE

Shinitsu Takehashi, and Kenzo Hatada, both of Osaka, Japan, assignors to Matsushita Electric Industrial Co., Ltd., Osaka, Japan

Division of Ser. No. 421,183, Apr. 13, 1995, Pat. No. 5,640,044. This application Feb. 4, 1997, Ser. No. 795,185
Claims priority, application Japan, Apr. 15, 1994, 6-077112
Int. Cl.^{6} H01L *21/60*
U.S. Cl. 438—112 **7 Claims**



1. A method of producing a semiconductor device comprising:

a first step of placing, on a first face of a die pad of a lead frame, a first semiconductor chip having a polygonal flat shape, and fixing said first semiconductor chip onto said die pad with adhesives;

a second step of placing, on a second face of said die pad, a second semiconductor chip having a polygonal flat shape in which the number of the sides is the same as that of the sides of said first semiconductor chip, said second semiconductor chip being secured to said die pad with adhesives;

a third step of connecting bonding pads of said first semiconductor chip to inner leads through bonding wires;

a fourth step of connecting bonding pads of said second semiconductor chip to inner leads through bonding wires; and

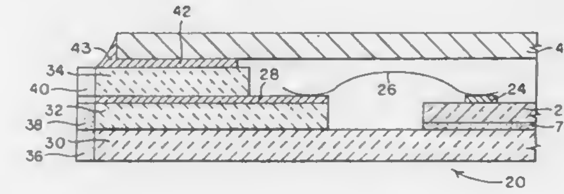
a fifth step of sealing, with resin, said first and second semiconductor chips, said bonding wires and said inner leads such that they are embedded in said resin,

said first and second semiconductor chips being disposed at said first and second steps such that the projected lines, on said die pad, of the corresponding sides of the polygons forming said first and second semiconductor chips, intersect with each other at a predetermined angle.

5,783,464
METHOD OF FORMING A HERMETICALLY SEALED CIRCUIT LEAD-ON PACKAGE

Carmen D. Burns, Austin, Tex., assignor to Staktek Corporation, Austin, Tex.

Division of Ser. No. 380,541, Jan. 30, 1995, which is a continuation-in-part of Ser. No. 905,587, Jun. 26, 1992, abandoned. This application Feb. 11, 1997, Ser. No. 798,556
Int. Cl.^{6} H01L *21/60*
U.S. Cl. 438—112 **14 Claims**



1. A method of manufacturing a hermetically sealed ceramic integrated circuit package, comprising the steps of:

mounting at least one integrated circuit die in a ceramic housing, said housing comprising a base, an electrical connection portion and a seal ring, said integrated circuit die having a face with integrated circuit connection pads thereon;

attaching an internal lead frame to a substantial portion of said face of said integrated circuit die, said internal lead frame having a plurality of electrical conductors, said conductors being selectively connected to said integrated circuit connection pads, each said electrical conductor being aligned with and connected to an electrically conductive via formed in said electrical connection portion of said housing and extending therefrom through said ceramic housing base, each said via being electrically connected to an electrical contact disposed on an exterior surface of said ceramic housing base;

attaching a cover to said ceramic housing seal ring, said cover and housing being hermetically sealed together;

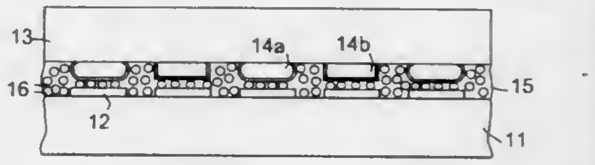
attaching an external lead frame to said exterior surface of said ceramic housing base, said external lead frame having a plurality of lead connection tips, each said lead connection tip being aligned with a said electrical contact; and

connecting said lead connection tips to selected ones of said electrical contacts.

5,783,465
COMPLIANT BUMP TECHNOLOGY

Everett Joseph Canning, Trenton, N.J.; Donald W. Finley, Fairless Hills, Pa.; Charles K. Hoppes, Whippany, N.J., and Michael Sheridan, Sandown, N.H., assignors to Lucent Technologies Inc., Murray Hill, N.J.

Filed Apr. 3, 1997, Ser. No. 826,606
Int. Cl.^{6} H01L *21/60*
U.S. Cl. 438—119 **11 Claims**



1. Method for bonding two elements together, said two elements consisting of an electrical or photonic component and a substrate for supporting said component, the method comprising the steps of:

a. forming a plurality of bonding pad on the first of said elements,

b. depositing a layer of photodefinable polymer on the surface of said second element, said photodefinable polymer having a glass transition temperature T_g,

c. masking said layer of photodefinable polymer with a mask having a plurality of actinic light transparent features corresponding to a plurality of bumps,

d. exposing said masked photodefinable layer to actinic light,

e. developing said photodefinable layer to produce a plurality of bump features on the surface of said second element, each of said plurality of bump features having a to p surface and sidewall surfaces exposed by the developing step e.,

f. coating the top surface and the sidewall surfaces of each of said bumps with a metal coating so that the polymer bump is substantially completely encased in said metal coating,

g. positioning the said plurality of bumps in registration with said plurality of bonding pads,

h. providing a layer of anisotropic conductive film between the plurality of bonding pads and the plurality of bumps,

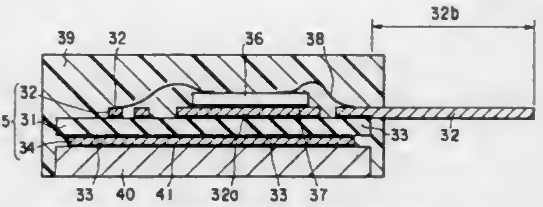
i. urging said first and second elements together,

j. heating said first and second elements to a bonding temperature, while applying pressure to said elements to bond said plurality of bumps to said plurality of bonding pads.

5,783,466
SEMICONDUCTOR DEVICE AND METHOD OF MANUFACTURING THE SAME

Wataru Takahashi, Tokyo; Noriaki Dousen, and Nobuyuki Sato, both of Yokohama, all of Japan, assignors to Kabushiki Kaisha Toshiba, Kawasaki, Japan

Continuation of Ser. No. 316,483, Sep. 30, 1994. This application Mar. 20, 1997, Ser. No. 821,385
Claims priority, application Japan, Oct. 25, 1993, 5-266336
Int. Cl.^{6} H01L *21/60*
U.S. Cl. 438—122 **6 Claims**



1. A method for manufacturing a semiconductor device, comprising the steps of:

mounting a semiconductor element on a metallic pattern member fixed onto one major surface of a substrate by an alloy layer interposed between the pattern member and the substrate, said alloy layer composed of material constituting the

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pattern member and the substrate, said metallic pattern member configured to have an external terminal portion extending from said substrate substantially parallel with said one major surface of said substrate, and said substrate made of an electrically insulative material having a relatively high thermal conductivity;

fixing a metallic layer onto another major surface of said substrate by an alloy layer interposed between the metallic layer and the substrate, said alloy layer composed of material constituting the metallic layer and the substrate;

fixing a heat dissipation plate onto said metallic layer; and

coating both said substrate mounted with said semiconductor element and said heat dissipation plate with an insulative material so as to expose the external terminal portion.

5,783,467

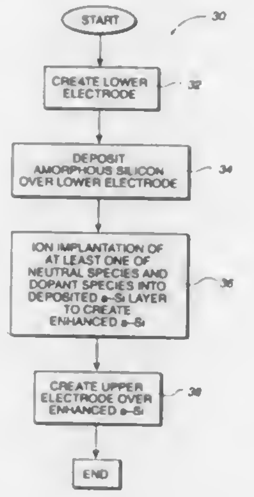
METHOD OF MAKING ANTIFUSE STRUCTURES USING IMPLANTATION OF BOTH NEUTRAL AND DOPANT SPECIES

Yu-Pin Han, Dallas, Tex.; Ying-Tsong Loh, Saratoga, Calif., and Ivan Sanchez, San Antonio, Tex., assignors to VLSI Technology, Inc., San Jose, Calif.

Filed Dec. 29, 1995, Ser. No. 582,844

Int. Cl.^{6} H01L *21/82*

U.S. Cl. 438—131 **19 Claims**


START
30
CREATE LOWER ELECTRODE
32
DEPOSIT AMORPHOUS SILICON OVER LOWER ELECTRODE
34
ION IMPLANTATION OF AT LEAST ONE OF NEUTRAL SPECIES AND DOPANT SPECIES INTO DEPOSITED a-Si LAYER TO CREATE ENHANCED a-Si
36
CREATE UPPER ELECTRODE OVER ENHANCED a-Si
38
END

1. A method of making an antifuse structure comprising the steps of:

forming a substantially planar lower electrode;

depositing a substantially planar amorphous silicon layer over said lower electrode such that a first surface of said amorphous silicon layer thereof is in electrical contact with said lower electrode, wherein said amorphous silicon layer is deposited over said lower electrode such that said amorphous silicon layer is in physical contact with substantially only said lower electrode;

ion-implanting both a neutral species and a dopant species into at least a portion of a second surface of said amorphous silicon layer which opposes said first surface of said amorphous silicon layer; and

forming an upper electrode over said amorphous silicon layer in electrical contact at least with said portion of said second surface after said portion of said second surface is ion-implanted with both said neutral species and said dopant species.

5,783,468

SEMICONDUCTOR CIRCUIT AND METHOD OF FABRICATING THE SAME

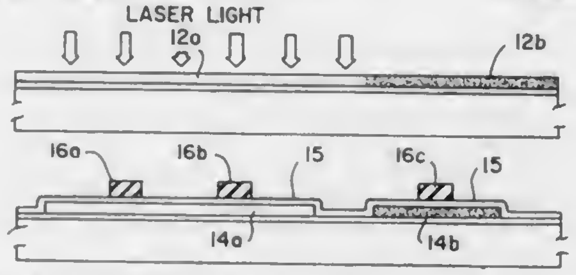
Hongyong Zhang; Toru Takayama, and Yasuhiko Takemura, all of Kanagawa, Japan, assignors to Semiconductor Energy Laboratory Co. Ltd., Kanagawa, Japan

Division of Ser. No. 207,185, Mar. 8, 1994, Pat. No. 5,569,610. This applicatioo Apr. 10, 1996, Ser. No. 630,628

Claims priority, application Japan, Mar. 12, 1993, 5-79004; Mar. 12, 1993, 5-79005

Int. Cl.^{6} H01L *21/84*

U.S. Cl. 438—166 **15 Claims**



1. A method of fabricating a semiconductor circuit comprising the steps of:

forming a semiconductor film comprising silicon over a substrate, said film having a surface;

forming a substance containing at least one catalytic element in contact with all of said surface of said semiconductor film for promoting a crystallization of said semiconductor film;

selectively irradiating a first portion and not a second portion of said semiconductor film with light to crystallize said first portion of the semiconductor film; and

annealing said semiconductor film by heating after said irradiating step to crystallize at least said second portion of said semiconductor film.

5,783,469

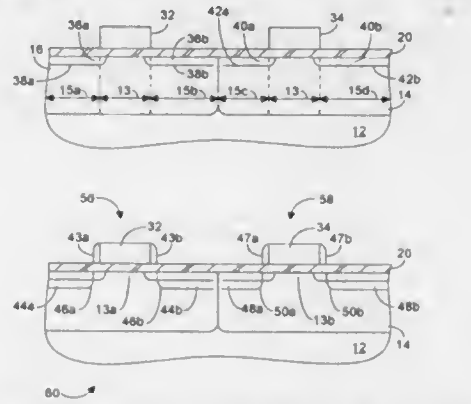
METHOD FOR MAKING NITROGENATED GATE STRUCTURE FOR IMPROVED TRANSISTOR PERFORMANCE

Mark I. Gardner, Cedar Creek, and Mark C. Gilmer, Austin, both of Tex., assignors to Advanced Micro Devices, Inc.

Filed Dec. 10, 1996, Ser. No. 763,240

Int. Cl.^{6} H01L *21/8238*

U.S. Cl. 438—199 **13 Claims**



1. A method of fabricating an integrated circuit comprising:

providing a semiconductor substrate, wherein said semiconductor substrate comprises a p-well region and an n-well region laterally displaced from said p-well region, and

wherein said p-well and said n-well regions each further comprise a channel region laterally displaced between a pair of source/drain regions;

forming a dielectric layer on an upper surface of said semiconductor substrate;

forming a conductive gate layer on said dielectric layer;

introducing a nitrogen-bearing impurity distribution into said dielectric layer and said conductive gate layer;

annealing said conductive gate layer and said dielectric layer with a rapid thermal anneal process in which an ambient is maintained between approximately 900° to 1100° C. for a duration less than approximately 5 minutes; and

patterning said conductive gate layer to form a first and a second conductive gate structure wherein said first and second conductive gate structures are positioned over said p-well channel region and said n-well channel region.

5,783,470

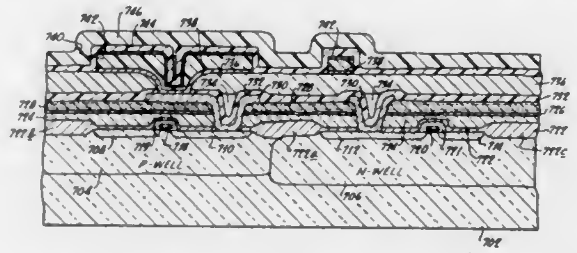
METHOD OF MAKING CMOS DYNAMIC RANDOM-ACCESS MEMORY STRUCTURES AND THE LIKE

Michael D. Rostoker, Boulder Creek, Calif., assignor to LSI Logic Corporation, Milpitas, Calif.

Filed Dec. 14, 1995, Ser. No. 572,665

Iot. Cl.^{6} H01L *21/8242*

U.S. Cl. 438—253 **19 Claims**



1. A self-aligning photolithographic method of making a CMOS-DRAM device having multiple memory cells, each said multiple memory cells including a FET and a capacitor, comprising the steps of:

providing a substrate of silicon semiconductor material;

forming a first silicon nitride layer on said substrate;

patterning said first silicon nitride layer to define an opening through said first silicon nitride layer to said substrate;

forming a first well by a method that includes the steps of:

- implanting a first dopant of a first conductivity type into a first sub-surface region of said substrate through said opening, such that said sub-surface region is self aligned with a portion of said substrate that is aligned with said opening; and
- using said first silicon nitride layer to substantially prevent said substrate from being implanted with said first dopant except at said opening;

forming a first layer of silicon oxide in said opening;

removing said silicon nitride layer;

forming a second well adjacent said first well by a method that includes the steps of:

- implanting a second dopant of a conductivity type opposite to the first conductivity type of the first dopant into a second subsurface region of said substrate that is adjacent to said first layer of silicon oxide; and
- using said first layer of silicon oxide to substantially prevent implantation of said second dopant into said first well;

forming in said first well region of said substrate a spaced apart pair of source and drain implants of the same conductivity type which is opposite to the conductivity type of said first well region;

forming a gate element over said substrate aligned between said pair of source and said drain implants to define said FET;

coating said gate element with a second layer of silicon oxide over said substrate;

forming a material layer over said second layer of silicon oxide;

forming a capacitor structure over said substrate in alignment with one of said source and drain implants;

including in said capacitor structure a conductive one capacitor plate structure with a portion electrically connecting through both said second layer of silicon oxide and said material layer and contacting one of said source and drain implants;

wherein forming said material layer over said second layer of silicon oxide includes the steps of:

- forming a first intermediate oxide layer over said second layer of oxide, which first intermediate oxide layer has an irregular upper surface;
- planarizing said upper surface of said first intermediate oxide layer; and
- forming a second intermediate oxide layer over said planarized upper surface of said first intermediate oxide layer.

5,783,471

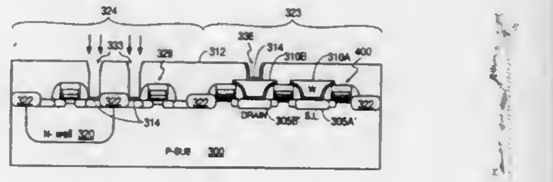
STRUCTURE AND METHOD FOR IMPROVED MEMORY ARRAYS AND IMPROVED ELECTRICAL CONTACTS IN SEMICONDUCTOR DEVICES

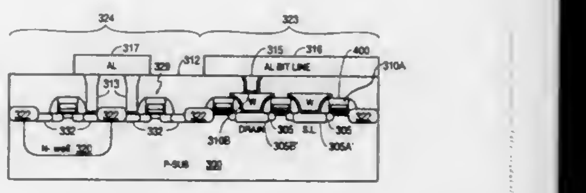
Sam Chu, San Jose, Calif., assignor to Catalyst Semiconductor, Inc., Santa Clara, Calif.

Division of Ser. No. 968,721, Oct. 30, 1992, abandoned. This application Nov. 9, 1994, Ser. No. 336,819

Int. Cl.^{6} H01L *21/8247*

U.S. Cl. 438—257 **31 Claims**





1. A method of forming a memory array on a substrate, said method comprising:

forming gate structures for a plurality of memory cells on said substrate;

forming source/drain regions in said substrate, between said gate structures;

depositing a first insulating layer on said gate structures and said substrate;

forming from said first insulating layer, sidewall spacers on sidewalls of said gate structures;

depositing a first conductive layer which fills spaces between adjacent sidewall spacers; and

patterning said first conductive layer to form a first plurality of conductive plugs in contact with a plurality of said source/drain regions, wherein each conductive plug in said first plurality of conductive plugs provides a source line for said memory array.

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5,783,472

METHOD OF MAKING AN SOI TRANSISTOR

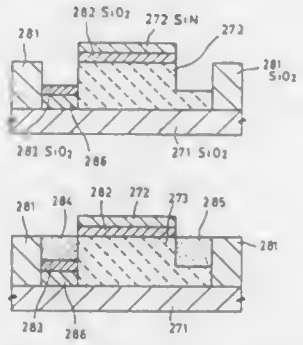
Hiroyuki Miwa; Takayuki Gomi, and Katsuyuki Kato, all of Kanagawa, Japan, assignors to Sony Corporation, Japan

Division of Ser. No. 319,150, Oct. 6, 1994, Pat. No. 5,629,217, which is a division of Ser. No. 245,767, May 18, 1994, Pat. No. 5,580,797, which is a division of Ser. No. 51,765, Apr. 26, 1993, abandoned. This application Jan. 23, 1997, Ser. No. 787,797

Claims priority, application Japan, Apr. 27, 1992, 5-160263; May 1, 1992, 4-112714; May 27, 1992, 4-160264; May 27, 1992, 4-160265; May 28, 1992, 4-162306

Int. Cl.^{6} H01L *21/331*

U.S. Cl. 438—335 **2 Claims**



1. A method of manufacturing a semiconductor device having a bipolar transistor in a silicon substrate on an insulating film, which comprises

a step of injecting a first impurity into a first region of said silicon substrate,

a step of removing a portion of said first region,

a step of forming an insulating layer on a remaining portion of said first region,

a step of forming poly Si on said insulating layer,

a step of injecting said first impurity to said poly Si and then applying heat treatment,

a step of opening a contact hole to a second region of said silicon substrate, and

a step of injecting a second impurity to said first region and said second region and then applying heat treatment.

5,783,473

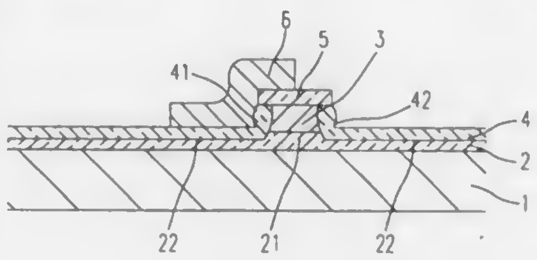
STRUCTURE AND MANUFACTURING PROCESS OF A SPLIT GATE FLASH MEMORY UNIT

Kuo-Tung Sung, Hsinchu, Taiwan, assignor to Mosel Vitelic, Inc., Hsinchu, Taiwan

Filed Jan. 6, 1997, Ser. No. 777,276

Int. Cl.^{6} H01L *21/8247*

U.S. Cl. 438—265 **16 Claims**



1. A process for manufacturing a split gate flash memory unit, comprising the steps of:

(a) providing a silicon substrate having a first insulating layer, and forming a first conductive layer on said first insulating layer, and forming a third insulating layer on said first conductive layer;

(b) removing part of said third insulating layer and part of said first conductive layer to expose left and right sidewalls of said first conductive layer and part area of the first insulating layer;

(c) performing an oxidation process to form a second insulating layer on left and right sidewalls of said first conductive layer and on said part area of said first insulating layer, wherein by a blocking function of said third insulating layer on said second insulating layer an asperity effect on left and right edges of said first conductive layer is reduced; and

(d) forming a second conductive layer on said second and third insulating layers to form said split gate flash memory unit.

5,783,474

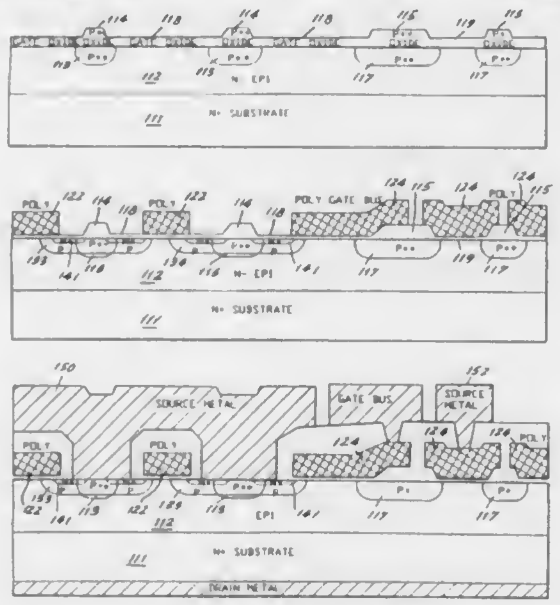
REDUCED MASK PROCESS FOR MANUFACTURE OF MOS GATED DEVICES USING DOPANT-ENHANCED-OXIDATION OF SEMICONDUCTOR

Janardhanan S. Ajit, Redondo Beach, Calif., assignor to International Rectifier Corporation, El Segundo, Calif.

Continuation-in-part of Ser. No. 390,099, Feb. 17, 1995, Pat. No. 5,474,946. This application Dec. 11, 1995, Ser. No. 570,517

Int. Cl.^{6} H01L *21/265*

U.S. Cl. 438—279 **25 Claims**



1. A process for the manufacture of a MOS gated semiconductor device, comprising the steps of:

(a) forming a masking layer atop a major surface of a silicon wafer;

(b) patterning said masking layer in a first mask step to expose openings in said masking layer;

(c) implanting first species atoms in the exposed openings in the masking layer to form at least one region in said silicon wafer doped with said first species atoms;

(d) etching the masking layer away completely;

(e) growing an insulation layer over the surface of the silicon wafer to define at least one first insulation area, disposed over said region doped with said first species atoms, which is relatively thicker than at least a second insulation area adjacent to said first insulation area;

(f) depositing a polysilicon layer atop said insulation layer and patterning said polysilicon layer in a second masking step to cover and mask a third area and to expose a fourth area atop said insulation layer;

(g) implanting second species atoms through said insulation layer in said exposed fourth area and diffusing said implanted second species atoms through said exposed fourth area to form at least one base region in said silicon wafer;

(h) implanting third species atoms through said insulation layer in said exposed fourth area at an energy sufficient to penetrate said second insulation area but insufficient to penetrate said first insulation area, thereby to form at least one source region in said at least one base region; and

(i) thereafter forming a source contact which contacts said at least one source region and said at least one base region.

5,783,475

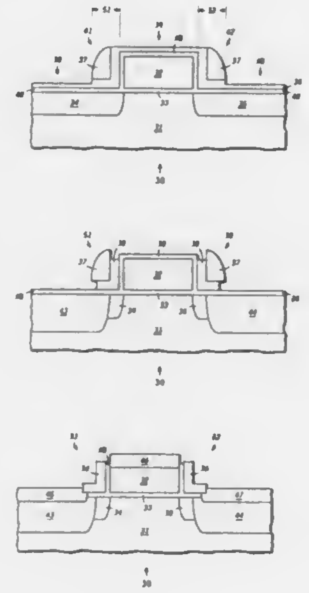
METHOD OF FORMING A SPACER

Shrinath Ramaswami, Gilbert, Ariz., assignor to Motorola, Inc., Schaumburg, Ill.

Continuation of Ser. No. 555,648, Nov. 13, 1995, abandoned. This application Nov. 20, 1997, Ser. No. 974,894

Int. Cl.^{6} H01L *21/336*

U.S. Cl. 438—303 **20 Claims**



10. A method of fabricating a semiconductor component, the method comprising the steps of:

providing a substrate having a feature;

sequentially providing a first layer, a second layer, and a third layer over the substrate and adjacent to the feature; and

forming a spacer adjacent to the feature by sequentially etching the third layer, the second layer, and the first layer, wherein etching the third layer uses a first etchant to selectively etch the third layer over the second layer and leaves a portion of the third layer overlying the second layer, wherein etching the second layer uses a second etchant different from the first etchant to selectively etch the second layer over the first layer, and wherein etching the first layer exposes a portion of the substrate and removes the portion of the third layer.

5,783,476

INTEGRATED CIRCUIT DEVICES INCLUDING SHALLOW TRENCH ISOLATION

Norbert Arnold, New Hempstead, N.Y., assignor to Siemens Aktiengesellschaft, Munich, Germany

Filed Jun. 26, 1997, Ser. No. 883,356

Int. Cl.^{6} H01L *21/76*

U.S. Cl. 438—425 **1 Claim**

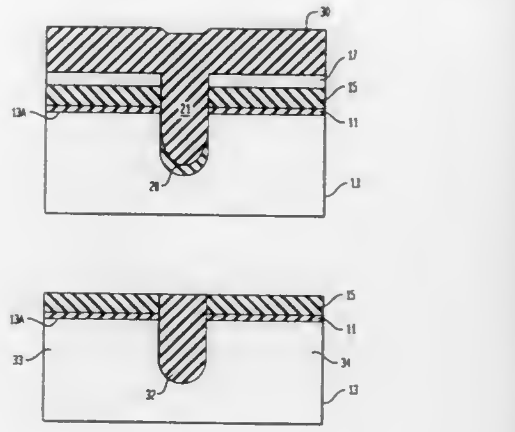
1. A process for fabricating semiconductor devices including the steps of forming an isolation trench comprising:

forming in a semiconductor substrate a trench;

implanting oxygen ions into the trench;

heating the substrate to form silicon oxide where the oxygen was implanted; and

filling the trench with a dielectric layer.



5,783,477

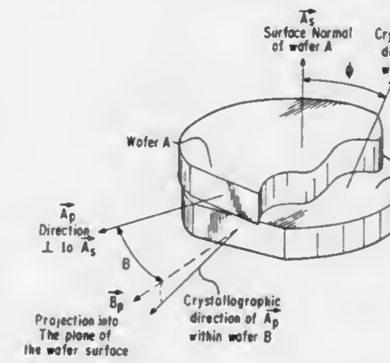
METHOD FOR BONDING COMPOUNDS SEMICONDUCTOR WAFERS TO CREATE AN OHMIC INTERFACE

Fred A. Kish, Jr., San Jose, and David A. Vanderwater, Santa Clara, both of Calif., assignors to Hewlett-Packard Company, Palo Alto, Calif.

Division of Ser. No. 718,223, Sep. 20, 1996, Pat. No. 5,661,316. This application Apr. 14, 1997, Ser. No. 835,948

Int. Cl.^{6} H01L *29/22*

U.S. Cl. 438—455 **15 Claims**


$\vec{A_s}$ Surface Normal of wafer A
$\vec{B_s}$ Crystallographic direction of $\vec{A_s}$ within wafer B
ϕ
Wafer A
Wafer B
$\vec{A_p}$ Direction ⊥ to A_s
B
$\vec{B_p}$ Projection into The plane of the wafer surface
Crystallographic direction of $\vec{A_p}$ within wafer B

1. A method for bonding at least two semiconductor surfaces to form a bonded interface that exhibits low electrical resistance with a minimal accompanying voltage drop, at least one of the surfaces being bonded comprising a compound semiconductor, the two surfaces having similar doping types, the method comprising the steps of:

heating the two semiconductor surfaces;

aligning the surface orientation of the two semiconductor surfaces;

aligning the rotational alignment of the two semiconductor surfaces; and

applying uniaxial pressure to the heated, oriented and aligned surfaces.

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5,783,478

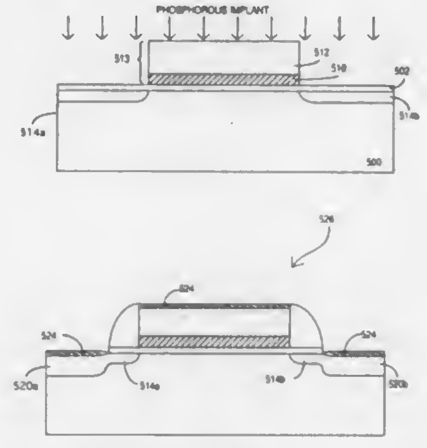
METHOD OF FRABRICATING A MOS TRANSISTOR HAVING A COMPOSITE GATE ELECTRODE

Robert S. Chau, Beaverton, Oreg.; David B. Fraser, Danville, Calif.; Kenneth C. Cadien, Portland, Oreg.; Gopal Raghavan, Mountain View, Calif., and Leopoldo D. Yau, Portland, Oreg., assignors to Intel Corporation, Santa Clara, Calif.

Division of Ser. No. 384,352, Feb. 2, 1995, Pat. No. 5,625,217, which is a continuation of Ser. No. 989,080, Dec. 11, 1992, abandoned. This application Apr. 29, 1996, Ser. No. 639,776

Int. Cl.^{6} H01L *21/3205*

U.S. Cl. 438—592 **10 Claims**



1. A method of fabricating a lightly doped drain metal oxide semiconductor transistor, comprising the steps of:

forming a gate insulating layer on a substrate of a first conductivity type;

forming a composite gate electrode having laterally opposite sidewalls, comprising the steps of:

forming a conductive layer on said gate insulating layer;

forming a polysilicon layer on said conductive layer, said conductive layer selected from the group consisting of TiN, W, polycrystalline carbon, and metallic suicides;

forming a photoresist mask on said polysilicon layer;

dry etching said polysilicon layer; and

dry etching said conductive layer, wherein said polysilicon layer has approximately the same length and width as said conductive layer;

forming a pair of lightly doped drain regions of a first concentration of a second conductivity type in said substrate in alignment with said laterally opposite sidewalls of said composite gate electrode;

forming a pair of spacers adjacent to said laterally opposite sidewalls of said composite gate electrode, wherein said spacers laterally enclose said conductive layer;

forming a pair of source/drain regions of a second concentration of said second conductivity type by ion implantation in alignment with the outside edges of said spacer; and

reacting a refractory metal with said polysilicon layer and said substrate to form a silicide layer on said polysilicon layer and on said pair of source/drain regions.

5,783,479

STRUCTURE AND METHOD FOR MANUFACTURING IMPROVED FETS HAVING T-SHAPED GATES

Horng-Chih Lin, and Tiao-Yuan Huang, both of Hsinchu, Taiwan, assignors to National Science Council, Taipei, Taiwan

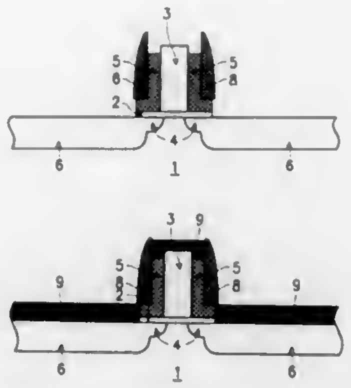
Filed Jun. 23, 1997, Ser. No. 880,471

Int. Cl.^{6} H01L *21/3205;21/4763*

U.S. Cl. 438—592 **9 Claims**

1. A method for manufacturing improved FETs having T-shaped gates, comprising the steps of:

providing a substrate on which a polysilicon gate, a thin oxide layer and extended source/drain regions are already formed;



forming a first dielectric layer on said substrate;

forming source/drain regions by use of an ion implantation process;

forming a second dielectric layer on said first dielectric layer;

etching said second dielectric layer to form spacers;

etching said first dielectric layer and said thin oxide layer to expose the top of said polysilicon gate and said source/drain regions; and

forming a conductive layer on the top of said polysilicon gate and said source/drain regions, wherein said conductive layer and said polysilicon gate make up a T-shaped gate conductive layer.

5,783,480

LAYOUT METHOD FOR SEMICONDUCTOR MEMORY DEVICE OBTAINING HIGH BANDWIDTH AND SIGNAL LINE

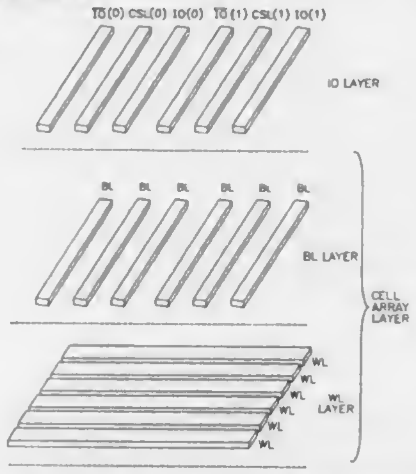
Dong-Il Seo, Suwon, and Se-Jin Jeong, Seoul, both of Rep. of Korea, assignors to Samsung Electronics Co., Ltd., Kyungki-do, Rep. of Korea

Division of Ser. No. 352,090, Nov. 30, 1994, Pat. No. 5,537,346. This application Dec. 29, 1995, Ser. No. 580,595

Claims priority, application Rep. of Korea, May 20, 1994, 11050

Int. Cl.^{6} H01L *23/528*

U.S. Cl. 438—599 **6 Claims**



1. A signal line layout method of a semiconductor memory device comprising steps of:

forming a memory cell array by arranging a plurality of reference blocks for respectively storing a plurality of memory cells in a form of a matrix;

forming a word line for selecting a row of said plurality of memory cells extended in a length direction of said device;

forming a pair of bit lines for selecting a column of said plurality of memory cells extended in a longitudinal direction perpendicular to said length direction, said pair of bit lines including a bit line and a complementary bit line;

forming a pair of data input/output lines over said memory cell array in said longitudinal direction, said pair of data input/output lines including a data input/output line and a complementary data input/output line;

forming a column select line adjacent to said data input/output line and said complementary data input/output line, wherein said column select line and said pair of data input/output lines form a basic unit structure; and

correspondingly connecting said pair of data input/output lines to a plurality of said pair of bit lines.

5,783,481

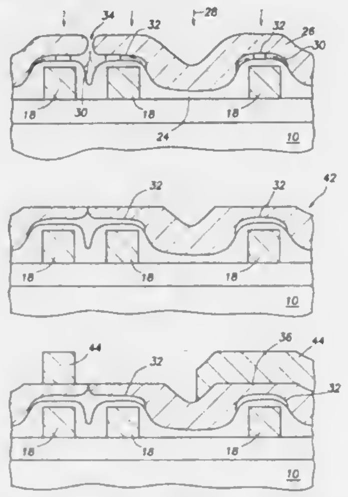
SEMICONDUCTOR INTERLEVEL DIELECTRIC HAVING A POLYMIDE FOR PRODUCING AIR GAPS

William S. Brennan; Robert Dawson; H. Jim Fulford, Jr.; Fred N. Hause; Basab Bandyopadhyay, all of Austin, and Mark W. Michael, Cedar Park, all of Tex., assignors to Advanced Micro Devices, Inc., Sunnyvale, Calif.

Filed Jun. 5, 1996, Ser. No. 659,167

Int. Cl.^{6} H01L *21/44;21/48*

U.S. Cl. 438—623 **17 Claims**



1. A method for forming a dielectric between a first set and a second set of conductors arranged on substantially dissimilar elevational levels, comprising:

forming, in a single patterning step, a first set of conductors spaced from each other upon a dielectric-covered semiconductor topography;

forming a layer of polymer upon and between said first set of conductors to form a polymer-covered set of conductors;

depositing a dielectric upon and between the polymer-covered set of conductors, wherein said dielectric is deposited in the presence of thermal energy sufficient to form air gaps within said dielectric at a midline between polymer-covered set of conductors which are spaced less than 10.0 microns apart; and

forming, in a single patterning step, a second set of conductors spaced from each other upon dielectric.

5,783,482

METHOD TO PREVENT OXIDE PEELING INDUCED BY SOG ETCHBACK ON THE WAFER EDGE

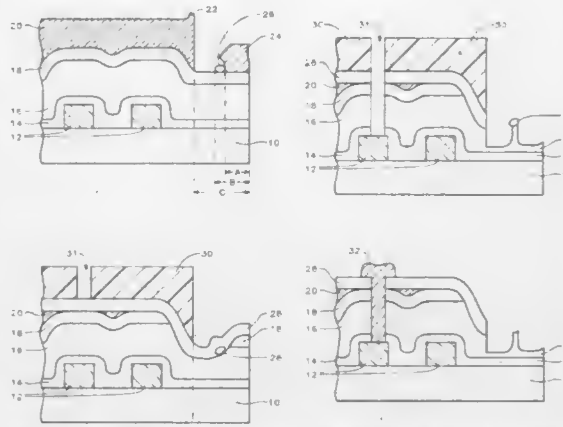
Shing-Long Lee; Yeong-Rong Chang, both of Shin-Chu; Weng Liang Fang, Hsin-Chu, and Cheng-Hao Huang, Taipei, all of Taiwan, assignors to Taiwan Semiconductor Manufacturing Company, Ltd., Hsin-Chu, Taiwan

Filed Sep. 12, 1997, Ser. No. 928,228

Int. Cl.^{6} H01L *21/31*

U.S. Cl. 438—624 **14 Claims**

1. A method of removing polymer buildup at the edge of a wafer in the fabrication of an integrated circuit device comprising:



providing semiconductor device structures in and on a semiconductor substrate;

forming an interlevel dielectric sandwich layer overlying said semiconductor device structures comprising:

depositing a first oxide layer overlying said semiconductor device structures;

coating a spin-on-glass layer overlying said first oxide layer and rinsing said spin-on-glass layer whereby an edge bead rinse hump is formed a first distance from said edge of said wafer;

etching back said spin-on-glass layer wherein said wafer is held at said edge by a clamp a second distance from said edge of said wafer wherein said second distance is smaller than said first distance and wherein said etching back of said spin-on-glass layer forms said polymer on the surface of said first oxide layer under said clamp at a third distance between said first and second distances; and

depositing a second oxide layer overlying said etched back spin-on-glass layer and overlying said polymer at said edge of said wafer to complete said interlevel dielectric sandwich layer;

coating a layer of photoresist overlying said interlevel dielectric sandwich layer wherein said photoresist layer does not extend closer to said edge of said wafer than said third distance;

patterning said photoresist layer to form a photoresist mask;

etching away said interlevel dielectric sandwich layer where it is not covered by said photoresist mask to form via openings wherein said second oxide layer overlying said polymer is etched away; and

stripping said photoresist mask whereby said polymer is also removed at said edge of said wafer in the fabrication of said integrated circuit device.

5,783,483

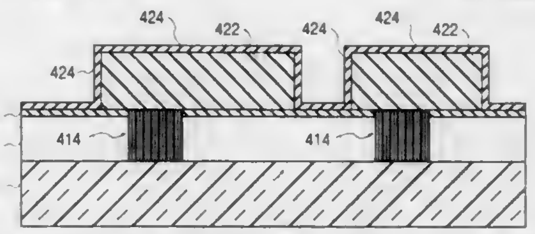
METHOD OF FABRICATING A BARRIER AGAINST METAL DIFFUSION

Donald S. Gardner, Mountain View, Calif., assignor to Intel Corporation, Santa Clara, Calif.

Division of Ser. No. 22,349, Feb. 24, 1993, abandoned. This application Aug. 13, 1996, Ser. No. 696,270

Int. Cl.^{6} H01L *21/4763*

U.S. Cl. 438—627 **28 Claims**



1. A method of forming a barrier layer for preventing the diffusion of a metal interconnect through an interlayer dielectric of an integrated circuit, said method comprising the steps of:

forming a first metal layer on said interlayer dielectric;

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- oxidizing said first metal layer to form a metal-oxide barrier layer; and
- forming a second metal layer on and in direct contact with said metal oxide barrier layer.

5,783,484
INSULATING LAYER PLANARIZING METHOD FOR SEMICONDUCTOR DEVICE USING MUTUALLY ENGAGED INSULATING LAYERS TO IMPROVE STRENGTH AND THERMAL DEFORMATION

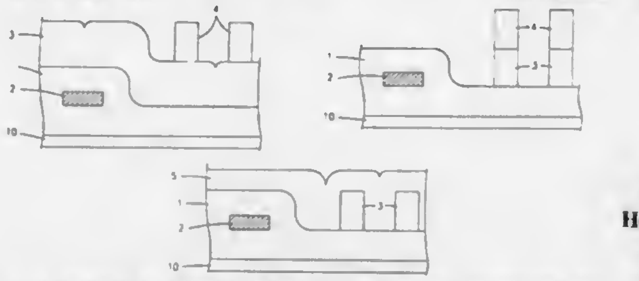
Young Kwon Jun, Seoul, Rep. of Korea, assignor to LG Semicon Co., Ltd., Cheongju, Rep. of Korea

Filed Dec. 15, 1995, Ser. No. 573,103

Claims priority, application Rep. of Korea, Sep. 2, 1995, 1995 28690

Int. Cl.^{6} H01L *21/469*

U.S. Cl. 438—631 **24 Claims**



1. A method for planarizing an insulating layer comprising the steps of:
- providing a substrate;
- forming a base insulating layer having a step coverage to form an upper region and a lower region on the substrate with a vertical step height;
- forming a first insulating layer on the base insulating layer;
- selectively etching the first insulating layer to form at least one first insulating layer pattern at the lower region of the base insulating layer, said first insulating layer pattern being separated from the upper region of the step coverage by a prescribed horizontal distance; and
- forming a second insulating layer on the base insulating layer and the first insulating pattern.

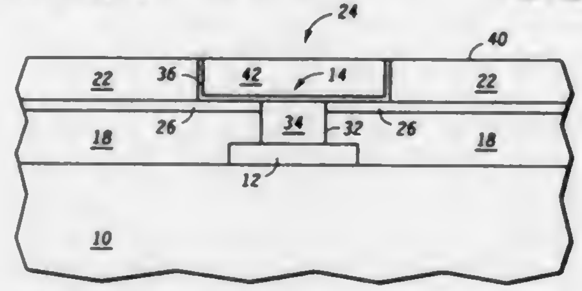
5,783,485
PROCESS FOR FABRICATING A METALLIZED INTERCONNECT

T. P. Ong; Robert W. Fiordalice; Ramnath Venkatraman, and Elizabeth J. Weitzman, all of Austin, Tex., assignors to Motorola, Inc., Schaumburg, Ill.

Filed Jul. 19, 1996, Ser. No. 684,069

Int. Cl.^{6} H01L *21/44*

U.S. Cl. 438—637 **16 Claims**



1. A process for fabricating a semiconductor device comprising the steps of:
- providing a semiconductor substrate having an electrically conductive body;
- forming an multi-layered insulator overlying the electrically conductive body, wherein the multi-layered insulator includes a first dielectric layer overlying the semiconductor substrate and the electrically conductive body, an interface layer overlying the first dielectric layer, and a second dielectric layer overlying the interface layer;
- forming an opening in the multi-layered insulator exposing a contact portion of the electrically conductive body, the opening having a via portion extending from the contact portion of the electrically conductive body to an upper surface of the interface layer, and an interconnect portion extending from the interface layer to an upper surface of the second dielectric layer;
- selectively depositing a first aluminum layer onto the contact portion of the electrically conductive body and at least partially filling the via portion of the opening, wherein the step of selectively depositing is carried out after forming the via portion and the interconnect portion of the opening;
- forming a metal adhesion layer overlying the first aluminum layer and the interconnect portion; and
- blanket depositing a second aluminum layer onto the metal adhesion layer and filling the interconnect portion of the opening.

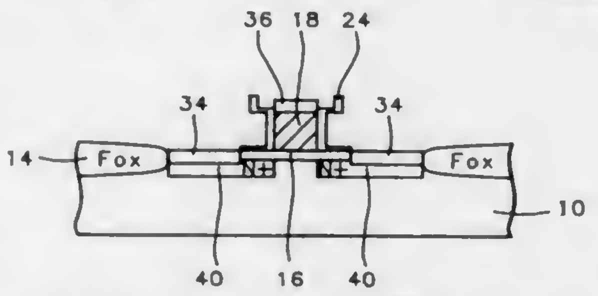
5,783,486
BRIDGE-FREE SELF ALIGNED SILICIDE PROCESS

Horng-Huei Tseng, Hsinchu, Taiwan, assignor to Vanguard International Semiconductor Corporation, Hsin-Chu, Taiwan

Filed Oct. 18, 1996, Ser. No. 734,066

Int. Cl.^{6} H01L *21/44*

U.S. Cl. 438—682 **21 Claims**



1. A method of forming a transistor having silicide contacts to gate, source and drain regions in a semiconductor structure comprising:
- a) providing a semiconductor structure having spaced field oxide regions and active areas;
- b) forming a gate structure on the active areas, said gate structure comprising a gate oxide, a gate and a gate insulating layer;
- c) laterally etching said gate to remove a first width of said gate, said gate and said gate insulating layer having sidewalls;
- d) depositing a second dielectric layer over said sidewalls of said gate, and insulating layer and over said substrate;
- e) anisotropically etching said second dielectric layer forming sidewall spacers on the sidewalls of said gate and said gate insulating layer; said sidewall spacers extending above said gate;
- f) removing said gate insulating layer; said sidewall spacers extending above said gate and extending horizontally out from said gate a distance of said first width;
- g) depositing a metal layer over the resulting surface;
- h) heat treating said metal layer forming a gate silicide contact on said gate, and source and drain silicide contacts on said active areas and leaving unreacted metal over said sidewall spacers;
- i) removing said unreacted metal over said sidewall spacers and said field oxide regions; and
- j) implanting impurity ions in said active areas using said gate as an ion implant barrier forming source and drain regions under said source and drain silicide contacts and doping said gate.

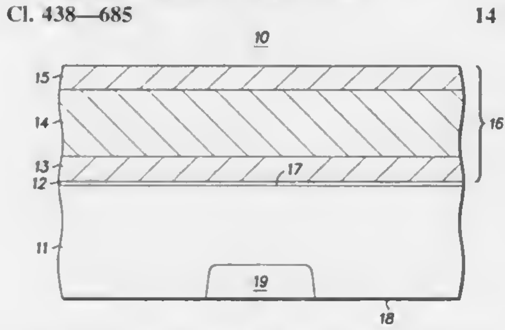
5,783,487
METHOD OF COUPLING TITANIUM TO A SEMICONDUCTOR SUBSTRATE AND SEMICONDUCTOR DEVICE THEREOF

Anthony R. Weeks, Gilbert; Vincent J. Kasarskis, Jr., Scottsdale, and Henry L. Eudy, Jr., Tempe, all of Ariz., assignors to Motorola, Inc., Schaumburg, Ill.

Filed Feb. 20, 1996, Ser. No. 603,294

Int. Cl.^{6} H01L *21/44*

U.S. Cl. 438—685 **14 Claims**



1. A method of manufacturing a semiconductor device comprising:
- providing a semiconductor substrate having a first surface opposite a second surface;
- forming at least one transistor at the first surface of the semiconductor substrate;
- thinning the semiconductor substrate at the second surface to produce a substantially smooth surface opposite the first surface;
- growing an oxide layer on the second surface of the semiconductor substrate in an environment having a higher oxygen content than ambient; and
- disposing a layer comprised of titanium overlying the oxide layer wherein the layer is electrically coupled to the at least one transistor.

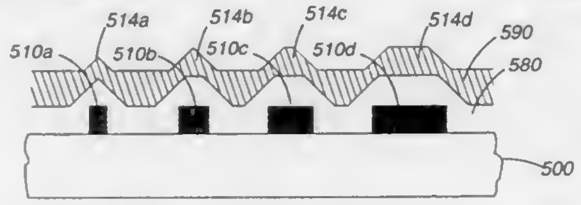
5,783,488
OPTIMIZED UNDERLAYER STRUCTURES FOR MAINTAINING CHEMICAL MECHANICAL POLISHING REMOVAL RATES

Subhas Bothra, and Milind G. Weling, both of San Jose, Calif., assignors to VLSI Technology, Inc., San Jose, Calif.

Filed Jan. 31, 1996, Ser. No. 594,874

Int. Cl.^{6} H01L *21/302*

U.S. Cl. 438—692 **19 Claims**



1. In the manufacture of integrated circuits, a method of processing a semiconductor wafer having at least one integrated circuit, the method comprising the steps of:
- forming a multiplicity of active conductive traces on a substrate of the wafer, the active conductive traces each being arranged to electrically couple associated elements of an associated integrated circuit on the wafer, there being gaps between adjacent ones of the active conductive traces;
- forming a multiplicity of additional elements on the substrate, wherein the additional elements are not arranged to electrically couple any elements in the integrated circuit;
- forming an insulating layer over the active conductive traces and the additional elements, wherein sharp peaks are formed in the insulating layer over the additional elements during a sputter etching process; and.
- polishing the surface of the insulating layer having the sharp peaks using a polishing pad, wherein during polishing, the sharp peaks in the insulating layer abrade the polishing pad to condition the polishing pad.

5,783,489
MULTI-OXIDIZER SLURRY FOR CHEMICAL MECHANICAL POLISHING

Vlasta Brusic Kaufman, Geneva, and Shumin Wang, Naperville, both of Ill., assignors to Cabot Corporation, Boston, Mass.

Filed Sep. 24, 1996, Ser. No. 718,937

Int. Cl.^{6} B44C *1/22*

U.S. Cl. 438—692 **38 Claims**

1. A chemical mechanical polishing slurry comprising:
- an aqueous medium of:
- an abrasive;
- from about 0.2 to about 10.0 weight percent of a first oxidizer;
- from about 0.5 to about 10.0 weight percent of a second oxidizer; and
- from about 0.5 to about 15.0 weight percent of at least one organic acid, wherein the pH of the chemical mechanical polishing slurry ranges from about 2.0 to about 8.0.

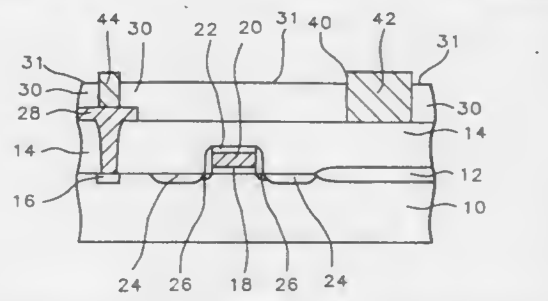
5,783,490
PHOTOLITHOGRAPHY ALIGNMENT MARK AND MANUFACTURING METHOD

Horng-Huei Tseng, Hsinchu, Taiwan, assignor to Vanguard International Semiconductor Corporation, Hsin-Chu, Taiwan

Filed Apr. 21, 1997, Ser. No. 845,253

Int. Cl.^{6} H01L *21/00*

U.S. Cl. 438—692 **21 Claims**



1. A method of forming an alignment mark, comprising the steps of:
- providing an integrated circuit wafer having devices formed therein;
- providing a planarized first dielectric layer having first contact holes formed over said integrated circuit wafer;
- providing a patterned layer of first conductor material formed over said planarized first dielectric layer wherein said first conductor material fills said first contact holes;
- forming a planarized second dielectric layer having a first surface and a second surface over said planarized first dielectric layer and said patterned layer of first conductor material wherein said second surface of said planarized second dielectric is adjacent to said first dielectric layer and said patterned layer of first conductor material;
- forming a third dielectric layer having a first surface and a second surface over said first surface of said planarized second dielectric layer wherein said second surface of said third dielectric layer is adjacent to said first surface of said planarized second dielectric layer;
- forming alignment mark holes in said planarized second dielectric layer and said third dielectric layer;
- forming a layer of second conductor material over said first surface of said third dielectric layer whereby said second conductor material fills said alignment mark holes and extends above said first surface of said third dielectric layer;

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removing that part of said layer of second conductor material extending above said first surface of said third dielectric layer; and

etching away said third dielectric layer after removing that part of said layer of second conductor material extending above said first surface of said third dielectric layer thereby forming alignment marks of second conductor material wherein said alignment marks extend above said first surface of said planarized second dielectric layer by a step height.

5,783,491

METHOD OF FORMING A TRUCK MOS GATE OR A POWER SEMICONDUCTOR DEVICE

Katsumi Nakamura; Tadaharu Minato, both of Itami; Shuuichi Tominaga, Fukuoka, and Katsuomi Shiozawa, Amagasaki, all of Japan, assignors to Mitsubishi Denki Kabushiki Kaisha, Tokyo, Japan

Filed Feb. 2, 1995, Ser. No. 382,581

Claims priority, application Japan, Feb. 4, 1994, 6-012559; Jan. 9, 1995, 7-001347

Int. Cl.^{6} H01L *21/20;21/76;21/311*

U.S. Cl. 438—702 **13 Claims**

1. A method of fabricating a semiconductor device, comprising the steps of:

(a) anisotropically etching a semiconductor substrate to form a trench extending in a direction of the thickness of said substrate;
(b) performing a first thermal oxidation to form a first sacrificial oxide film in said trench;
(c) removing said first sacrificial oxide film;
(d) performing a second thermal oxidation to form a second sacrificial oxide film in said trench after said step (c);
(e) removing said second sacrificial oxide film;
(f) forming an insulating film comprising a part of a control electrode in said trench after said step (e); and
(g) filling said trench to form said control electrode opposed to said substrate through said insulating film comprising said part of said control electrode.

5,783,492

PLASMA PROCESSING METHOD, PLASMA PROCESSING APPARATUS, AND PLASMA GENERATING APPARATUS

Kimihiro Higuchi; Chishio Koshimizu; Ryoichiro Koshi, all of Yamanashi-ken; Teruo Iwata, Nirasaki, and Nobuo Ishii, Yamanashi-ken, all of Japan, assignors to Tokyo Electron Limited, Tokyo, Japan

Filed Mar. 3, 1995, Ser. No. 399,939

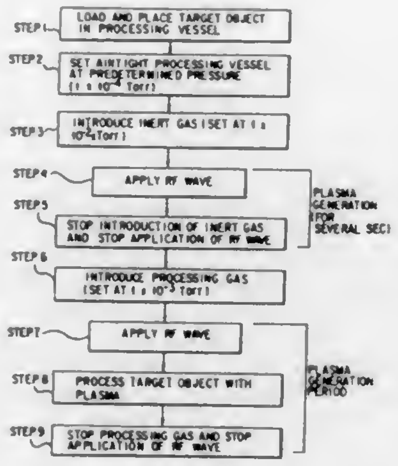
Claims priority, application Japan, Mar. 4, 1994, 6-060133; Mar. 14, 1994, 6-042402; Mar. 25, 1994, 6-079726

Int. Cl.^{6} H01H *1/00*

U.S. Cl. 438—710 **10 Claims**

1. A plasma processing method of processing a target object arranged in a processing vessel with a plasma, comprising:

a first step of introducing an inert gas into said processing vessel at a pressure of 1 to 100 mTorr;
a second step of generating a plasma of the inert gas in said processing vessel;
a third step of stopping the plasma of the inert gas;
a fourth step of introducing a processing gas for processing said target object into said processing vessel at a pressure of 10^{-6} Torr to 10 mTorr, and wherein the pressure in said processing vessel in the fourth step is set lower than the pressure in said processing vessel in the first step; and
a fifth step of generating a plasma of the processing gas in said processing vessel to process said target object.


STEP1
LOAD AND PLACE TARGET OBJECT IN PROCESSING VESSEL
STEP2
SET AIRTIGHT PROCESSING VESSEL AT PREDETERMINED PRESSURE (1 x 10⁻⁴ Torr)
STEP3
INTRODUCE INERT GAS (SET AT 1 x 10⁻² Torr)
STEP4
APPLY RF WAVE
STEP5
STOP INTRODUCTION OF INERT GAS AND STOP APPLICATION OF RF WAVE
PLASMA GENERATION FOR SEVERAL SEC)
STEP6
INTRODUCE PROCESSING GAS (SET AT 1 x 10⁻³ Torr)
STEP7
APPLY RF WAVE
STEP8
PROCESS TARGET OBJECT WITH PLASMA
STEP9
STOP PROCESSING GAS AND STOP APPLICATION OF RF WAVE
PLASMA GENERATION PERIOD

5,783,493

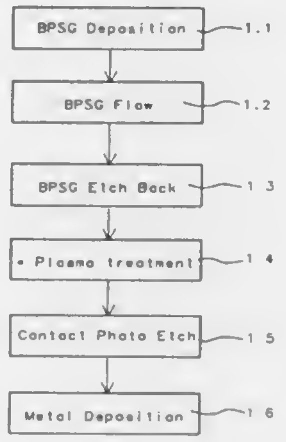
METHOD FOR REDUCING PRECIPITATE DEFECTS USING A PLASMA TREATMENT POST BPSG ETCHBACK

Rann Shyan Yeh, Taichun; Chao-Hsin Chang, and Hsien-Wen Chang, both of Hsin-Chu, all of Taiwan, assignors to Taiwan Semiconductor Manufacturing Company Ltd., Hsin-Chu, Taiwan

Filed Jan. 27, 1997, Ser. No. 789,718

Int. Cl.^{6} H01L *21/00*

U.S. Cl. 438—718 **13 Claims**



1. A method of fabrication of an interlevel dielectric layer comprising:

a) preparing a semiconductor substrate having electrical element thereon and therein;
b) depositing a dielectric layer containing boron and phosphorous on said substrate;
c) performing a reflow process on said dielectric layer;
d) etching back said dielectric layer; and
e) performing a surface treatment, after said etching back, on said dielectric layer through a plasma treatment, said plasma treatment uses a plasma source gas of a gas selected from a group consisting of: Ar, NO_2, N_2, and O_2.

5,783,494

SELECTIVE DRY ETCHING METHOD OF UNDOPED AND DOPED SILICON THIN FILMS

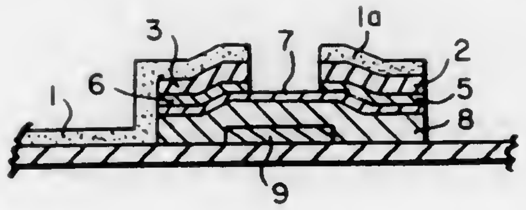
Takehisa Sakurai, Kusatsu; Hitoshi Ujimasa, Higashiosaka; Katsuhiro Kawai, Yamatotakada; Atsushi Ban, Nara; Masaru Kajitani, Osaka, and Mikio Katayama, Ikoma, all of Japan, assignors to Sharp Kabushiki Kaisha, Osaka, Japan

Continuation of Ser. No. 157,938, Nov. 24, 1993, abandoned. This application Sep. 7, 1995, Ser. No. 524,886

Claims priority, application Japan, Nov. 30, 1992, 4-321023

Int. Cl.^{6} H01L *21/302*

U.S. Cl. 438—719 **18 Claims**



1. A method for selectively etching a second silicon layer of a multilayer structure which includes a first silicon layer and a second silicon layer formed on the first silicon layer and doped with impurities,

wherein the second silicon layer is selectively etched by using an etching gas including a freon-14 gas and a gas selected from a group consisting of hydrogen chloride gas and chlorine gas and excluding carbon tetrachloride and hydrogen bromide.

5,783,495

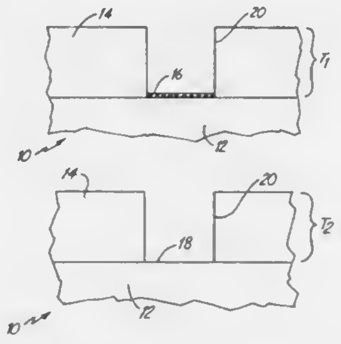
METHOD OF WAFER CLEANING, AND SYSTEM AND CLEANING SOLUTION REGARDING SAME

Li Li, Meridian; Donald L. Westmoreland, Boise; Richard C. Hawthorne, deceased, late of Nampa, by Elvia M. Hawthorne, heir, and Kevin Torek, Boise, all of Id., assignors to Micron Technology, Inc., Boise, Id.

Continuation-in-part of Ser. No. 559,188, Nov. 13, 1995, abandoned. This application Jun. 5, 1996, Ser. No. 659,145

Int. Cl.^{6} H01L *21/302;* **C09K** *13/00*

U.S. Cl. 438—738 **39 Claims**



1. A method of cleaning wafer surfaces, the method comprising the steps of:

providing a wafer surface; and
cleaning the wafer surface using a solution comprising at least hydrofluoric acid (HF) and an etch reducing component, the etch reducing component being from the group of $(R)_4NOH$ wherein $R=(C_1–C_{20})$alkyls, either straight or branch chained, and further wherein each R is independently a $(C_1–C_{20})$alkyl.

5,783,496

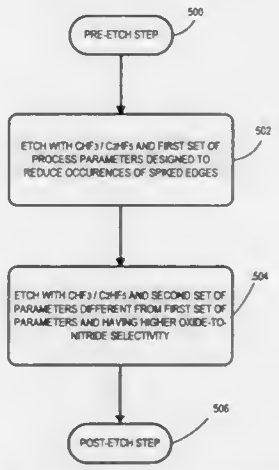
METHODS AND APPARATUS FOR ETCHING SELF-ALIGNED CONTACTS

Janet M. Flanner, Union City; Prashant Gadgil; Linda N. Marquez, both of Fremont; Adrian Doe, and Joel M. Cook, both of Pleasanton, all of Calif., assignors to Lam Research Corporation, Fremont, Calif.

Filed Mar. 29, 1996, Ser. No. 623,526

Int. Cl.^{6} H01L *21/00*

U.S. Cl. 438—743 **21 Claims**


PRE-ETCH STEP
500
ETCH WITH CHF3 / C2HF5 AND FIRST SET OF PROCESS PARAMETERS DESIGNED TO REDUCE OCCURENCES OF SPIKED EDGES
502
ETCH WITH CHF3 / C2HF5 AND SECOND SET OF PARAMETERS DIFFERENT FROM FIRST SET OF PARAMETERS AND HAVING HIGHER OXIDE-TO-NITRIDE SELECTIVITY
504
POST-ETCH STEP
506

1. In a plasma processing chamber, a method for etching through a selected portion of an oxide layer of a wafer's layer stack to create a self-aligned contact opening, said wafer stack comprising a substrate, a polysilicon layer disposed above said substrate, a nitride layer disposed above a polysilicon layer, said oxide layer being disposed above said nitride layer, said method comprising:

a first etching step for etching partially through said oxide layer of said layer stack with a first chemistry and a first set of process parameters, said first chemistry comprising essentially of CHF_3 and C_2HF_5, said first set of process parameters represents a set of parameters for etching through said oxide layer without creating a spiked etch; and
a second etching step for etching said oxide layer through to said substrate with a second chemistry comprising CHF_3 and C_2HF_5 and a second set of process parameters, said second set of process parameters being different from said first set of process parameters and representing a set of parameters for etching said oxide layer through to said substrate without substantially damaging said nitride layer.

5,783,497

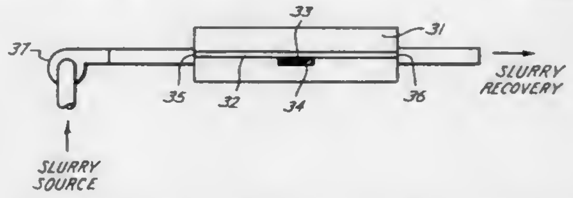
FORCED-FLOW WAFER POLISHER

Scott Runnels, and Anthony J. Toprac, both of Austin, Tex., assignors to Sematech, Inc., Austin, Tex.

Filed Aug. 2, 1994, Ser. No. 284,316

Int. Cl.^{6} H01L *21/00*

U.S. Cl. 438—747 **5 Claims**



1. A method of providing selective erosion of a material layer having higher and lower profile features fabricated on a surface of a semiconductor material in order to uniformly planarize said material layer, comprising the steps of:

placing said semiconductor material in a confined channel having an enclosed boundary and wherein said semiconductor material is disposed within said channel;

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flowing a chemical slurry within said channel and across said material layer of said semiconductor material at a set pressure and flow rate;

wherein distance of said channel separating said semiconductor material and a boundary opposite said material layer is sufficiently narrow to impose varying hydrodynamic stress on features present on said material layer, said stress being inversely related to a distance between a given feature and its opposite boundary, such that higher profiled features of said material layer are subjected to relatively higher stress than lower profiled features and are selectively eroded at a faster rate than said lower profiled features in order to uniformly planarize said material layer.

5,783,498

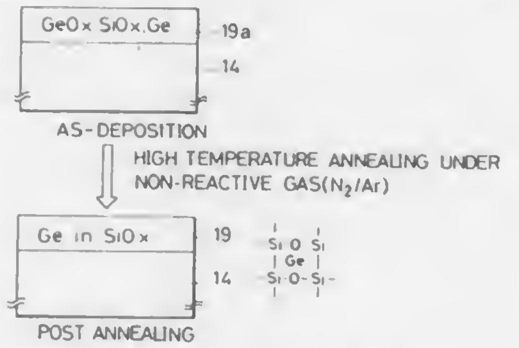
METHOD OF FORMING SILICON DIOXIDE FILM CONTAINING GERMANIUM NANOCRYSTALS

Achyut Kumar Dotta, Tokyo, Japan, assignor to NEC Corporation, Japan

Filed May 28, 1996, Ser. No. 654,121

Int. Cl.^{6} H01L *21/31;21/469*

U.S. Cl. 438—778 **24 Claims**



1. A method of forming a silicon dioxide film containing germanium (Ge) nanocrystals, comprising the steps of:

(a) depositing a Ge doped silicon dioxide film on a substrate by means of atmospheric pressure chemical vapor deposition by which a Si-based organic source, a Ge-based organic source and ozone are to be reacted with one another; and

(b) annealing the thus deposited Ge doped silicon dioxide film in a nonreactive or reducing gas atmosphere at a temperature sufficient to break Ge-O bondings.

5,783,499

METHOD FOR THE FABRICATION OF A SEMICONDUCTOR DEVICE

Yang Kyu Choi, Kyoungki-do, Rep. of Korea, assignor to Hyundai Electronics Industries Co., Ltd., Kyoungki-do, Rep. of Korea

Continuation of Ser. No. 489,710, Jun. 13, 1995, abandoned. This application Nov. 7, 1996, Ser. No. 743,750

Claims priority, application Rep. of Korea, Jun. 30, 1994, 94-15435

Int. Cl.^{6} H01L *21/31*

U.S. Cl. 438—787 **1 Claim**

1. A method for fabricating a semiconductor device adopting a structure of multilayer metal wiring, comprising the steps of:

depositing a lower oxide layer on a transistor structure atop a semiconductor substrate;

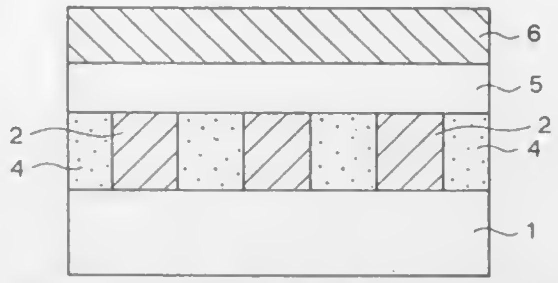
depositing a first metal layer on the lower oxide layer and forming photoresist film patterns on the first metal layer;

etching the first metal layer with the photoresist film patterns serving as a mask, to form first metal wirings and to expose areas of the lower oxide layer;

selectively growing oxide layers on the exposed areas of the lower oxide layer between the first metal wirings to a thickness similar to the height of the first metal wirings by using a liquid phase deposition process resulting in a planarized structure;

removing the photoresist film patterns and depositing an insulating layer on the planarized resulting structure; and

depositing a second metal layer on the insulating layer.



5,783,500

Patent Not Issued For This Number

5,783,501

PAPER MACHINE FELTS

Gustav Schuetze, Domat/Ems, and Jürgen Spindler, Domat7Ems, both of Germany, assignors to EMS-Inventa AG, Zurich, Switzerland

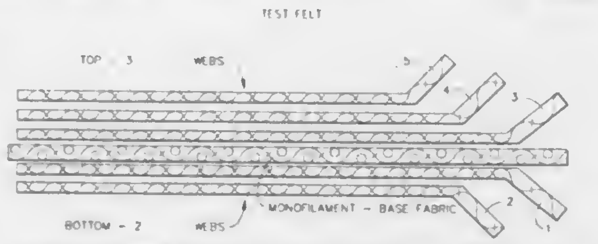
PCT No. PCT/EP94/03337, § 371 Date Aug. 14, 1995, § 102(e) Date Aug. 14, 1995, PCT Pub. No. WO95/16810, PCT Pub. Date Jun. 22, 1995

PCT Filed Oct. 10, 1994, Ser. No. 505,206

Claims priority, application Germany, Dec. 16, 1993, 43 43 067.8; Sep. 29, 1994, 44 34 898.3

Int. Cl.^{6} D21F *7/08*

U.S. Cl. 442—57 **14 Claims**



1. Paper machine felts having decreased in-use fiber loss and decreased in-use change in air permeability comprising a polyamide base fabric and a polyamide coating needled thereon, said base fabric and coating being postcondensed after formation, and said paper machine felts having a relative solution viscosity in sulfuric acid in accordance with the DIN 53,727 standard of 5 or more.

5,783,502

VIRUS INACTIVATING COATINGS

Melvin J. Swanson, Carver, Minn., assignor to BSI Corporation, Eden Prairie, Minn.

Filed Jun. 7, 1995, Ser. No. 482,872

Int. Cl.^{6} D03D *3/00*

U.S. Cl. 442—123 **33 Claims**

1. An article useful for inactivating viruses upon contact, the article comprising a fabric substrate bearing a coating of immobilized polymer molecules that provides the substrate with nonleachable antiviral activity, wherein the polymer molecules comprise a hydrophilic polymer having pendant antiviral groups comprising a plurality of pendant cationic groups and a plurality of pendant hydrocarbon chains, and wherein the pendant cationic groups are, independently, selected from the group consisting of quaternary ammonium groups and phosphonium groups.

5,783,503

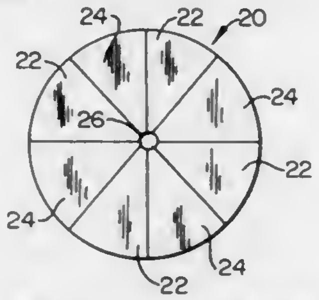
MELTSPUN MULTICOMPONENT THERMOPLASTIC CONTINUOUS FILAMENTS, PRODUCTS MADE THEREFROM, AND METHODS THEREFOR

Jay Darrell Gillespie, Simpsonville, S.C.; David Bruce Christopher, Camas, Wash.; Harold Edward Thomas, Greer; John Henry Phillips, Greenville, both of S.C.; Scott Louis Gessner, Encinitas, Calif.; Lloyd Edwin Trimble, Gilbert, Ariz., and Jared Asher Austin, Greer, S.C., assignors to Fiberweb North America, Inc., Simpsonville, S.C.

Filed Jul. 22, 1996, Ser. No. 681,244

Int. Cl.^{6} D04H *1/58;* **D02G** *3/00*

U.S. Cl. 442—340 **19 Claims**



1. A nonwoven web comprising at least first and second individual spun-laid or spun-bonded microfilaments comprising at least a first component and a second component, respectively, wherein the first and second components are different from each other, and wherein the individual filaments originate from a common capillary.

5,783,504

NONWOVEN/FILM BIODEGRADABLE COMPOSITE STRUCTURE

Philippe Ehret, Fortschwihr, and Kimmo Lahteenkorva, Kaysersberg, both of France, assignors to Fiberweb, Biesheim, France

Filed Apr. 26, 1996, Ser. No. 641,077

Claims priority, application France, Apr. 26, 1995, 95 05186

Int. Cl.^{6} B32B *27/34*

U.S. Cl. 442—395 **10 Claims**

1. A composite structure comprising at least one ply of nonwoven of thermoplastic homopolymer, copolymer or blend of homopolymer or copolymer of lactic acid and at least one ply of film of thermoplastic homopolymer of biodegradable aliphatic polyester.

5,783,505

COMPOSTABLE AND BIODEGRADABLE COMPOSITIONS OF A BLEND OF NATURAL CELLULOSIC AND THERMOPLASTIC BIODEGRADABLE FIBERS

Kermit E. Duckett; Gajanan S. Bhat, and Hageun Suh, all of Knoxville, Tenn., assignors to The University of Tennessee Research Corporation, Knoxville, Tenn.

Filed Jan. 4, 1996, Ser. No. 582,767

Int. Cl.^{6} D04H *1/42;1/54;1/64;1/74*

U.S. Cl. 442—411 **38 Claims**

1. A compostable nonwoven fabric comprising a blend of natural cellulosic fibers and biodegradable thermoplastic fibers wherein the ratio of the natural cellulosic fibers to the biodegradable thermoplastic fibers is such that the rate of biodegradability of the blend is greater than the rate of biodegradability of either of the natural cellulosic fibers or the biodegradable thermoplastic fibers alone, and wherein the natural cellulosic fiber is selected from the group consisting of cotton, jute, flax, ramie, hemp, kenaf, abaca, sisal, kapok, bagasse, and eucalyptus.

32. A process for the manufacture of a compostable non-woven fabric comprising a blend of natural cellulosic fibers and thermoplastic biodegradable fibers, which process comprises thoroughly mixing the natural cellulosic fibers with the thermoplastic biodegradable fibers to obtain a fibrous blend, wherein the ratio of the natural cellulosic fibers to the biodegradable thermoplastic fibers is such that the rate of biodegradability of the blend is greater than the rate of biodegradability of either of the natural cellulosic fibers or the biodegradable thermoplastic fibers alone, and carding the blend to obtain the non-woven fabric.

5,783,506

CERAMIC GLAZE INCLUDING PEARLESCENT PIGMENT

Richard A. Eppler, Cheshire, Conn., and Jack S. Polonka, Peekskill, N.Y., assignors to Engelhard Corporation, Iselin, N.J.

Filed Jan. 31, 1997, Ser. No. 797,670

Int. Cl.^{6} C03C *8/14;8/16*

U.S. Cl. 501—14 **20 Claims**

1. A vitreous coating composition comprising frit, suspending agent, binder, mica and pearlescent pigment, said composition having a viscosity of about 10 to 50 seconds as measured by a Zahn cup with an orifice diameter of 0.108 inches.

5,783,507

PARTIALLY CRYSTALLIZING LEAD-FREE ENAMEL COMPOSITION FOR AUTOMOBILE GLASS

George E. Sakoske, Mayfield Heights, Ohio, assignor to Cerdec Corporation, Washington, Pa.

Filed Jan. 16, 1997, Ser. No. 784,924

Int. Cl.^{6} C03C *8/14;* **C03B** *27/012;32/02*

U.S. Cl. 501—17 **19 Claims**

1. A ceramic enamel composition comprising:

40–80% by weight of at least one lead-free metal oxide glass frit containing precursors of Zn_2SiO_4, wherein the sum of the weight percentage amounts of said precursors of Zn_2SiO_4 in said lead-free metal oxide frit is less than about 35% by weight of said lead-free metal oxide frit;

0.05–15% by weight of a zinc silicate seed material; and

19–37% by weight of a pigment, wherein the sum of the weight percentage amounts of said at least one lead-free metal oxide frit, zinc silicate seed material, and pigment does not exceed 100%.

5,783,508

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5,783,509
PROCESS FOR PREPARING A REFRACTORY POWDER FROM SPENT CONTACT MASSES ISSUING FROM THE PRODUCTION OF SILANES, AND TO REFRACTORY PRODUCTS OBTAINED THEREFROM

Fernanda Manler, Passy, France, assignor to PEM Abrasifs Refractaires, La Defense, France

Filed Feb. 28, 1997, Ser. No. 807,699

Claims priority, application France, Mar. 4, 1996, 96 02982

Int. Cl.^{6} C04B *35/584*

U.S. Cl. 501—97.1 **7 Claims**

1. A process for preparation, by nitriding to form a refractory powder containing more than 40% of silicon nitride by weight from spent contact masses issuing from chlorosilane synthesis, said process comprising the steps of:

(a) treating the spent masses so as to remove any copper;
(b) mixing said treated masses with silicon or a silicon-rich alloy and optionally a powdered refractory compound so a non-oxidized silicon content of the mixture to be nitrided is adjusted to a value of >30% by weight;
(c) heating the mixture in a nitrogen atmosphere to trigger an exothermic nitriding reaction to obtain a nitrided product; and
(d) reducing said nitrided product to obtain a powder.

5,783,510
MONOLITHIC REFRACTORY COMPOSITION WALL

Otojiro Kida; Eri Suzuki, both of Yokohama, and Yasushi Ono, Takasago, all of Japan, assignors to Asahi Glass Company Ltd., Tokyo, Japan

Filed Jun. 27, 1996, Ser. No. 671,546

Claims priority, application Japan, Jul. 4, 1995, 7-169037

Int. Cl.^{6} C01B *35/10*

U.S. Cl. 501—127 **9 Claims**

1. A self flowable batch prepared by mixing, together with at most 12 parts by weight of water, 100 parts by weight of a monolithic refractory composition comprising refractory aggregates, a refractory powder, an aluminum alloy powder and sodium tetraphosphate ($Na_6P_4O_{13}$) as a dispersant, wherein the aluminum alloy powder is contained in an amount of from 0.05 to 3 parts by weight per 100 parts by weight of the total amount of the refractory aggregates and the refractory powder, said self flowable batch having a flowability such that when the batch immediately after the mixing is fed to fill a truncated cone mold having open upper and lower ends and having an upper end inner diameter of 50 mm, a lower and inner diameter of 100 mm and a height of 150 mm, then the truncated cone mold is withdrawn upward, and the batch is left to stand still for 60 seconds, the mean spread diameter of the batch is at least 190 mm.

5,783,511
PROCESS FOR SELECTING RAW MATERIAL AND MAKING A BLEACHING CLAY

Amos Banin, Rehovot, Israel; Dov Shaked, Buffalo Grove, Ill.; Marc A. Herpfer, Thomasville, Ga., and William F. Moll, Crystal Lake, Ill., assignors to Oil-Dri Corporation of America, Chicago, Ill.

Filed Nov. 30, 1995, Ser. No. 564,853

Int. Cl.^{6} B01J *21/16;20/12;* **C04B** *33/04*

U.S. Cl. 501—146 **8 Claims**

1. In a method for the manufacture of a bleaching clay product by combining a non-acidic clay mineral comprising palygorskite and smectite with sulfuric acid the improvement which comprises contacting the clay mineral with sulfuric acid so as to maintain a substantially constant ratio of surface acidity to added acidity for the clay mineral while the sulfuric acid is combined with the clay mineral; the sulfuric acid added being in an amount sufficient to provide in the bleaching clay product no more than about 1.5 milliequivalents of added acidity per gram of the bleaching clay product.

5,783,512
CATALYST COMPONENT DISPERSION COMPRISING AN IONIC COMPOUND AND SOLID ADDITION POLYMERIZATION CATALYSTS CONTAINING THE SAME

Grant B. Jacobsen, Houston, Tex.; Theo J. P. Stevens, Dwarsstraat, and Pierre H. H. Loix, Langenakkerstraat, both of Belgium, assignors to The Dow Chemical Company, Midland, Mich.

Filed Dec. 18, 1996, Ser. No. 768,518

Int. Cl.^{6} C08F *4/645*

U.S. Cl. 502—124 **49 Claims**

1. A catalyst component dispersion comprising (a) an ionic compound comprising (a(1) a cation and (a)(2) an anion having up to 100 nonhydrogen atoms and said anion containing at least one substituent comprising an active hydrogen moiety, wherein (a) is in solid form in the absence of a support material and is dispersed in a diluent in which (a) is insoluble or sparingly soluble.

34. A nonsupported catalyst produced from components comprising, in the absence of a support material, (a) an ionic compound comprising (a)(1) a cation and (a)(2) an anion having up to 100 nonhydrogen atoms and the anion containing at least one substituent comprising a moiety having an active hydrogen, (b) a transition metal compound, and (c) an organometal or metalloid compound wherein the metal is selected from the Groups 1–14 of the Periodic Table of the Elements.

5,783,513
PROCESS FOR MAKING DOUBLE METAL CYANIDE CATALYSTS

George Combs, Downington, Pa.; Harry R. Hinney, Cross Lanes, and Paul T. Bowman, Hurricane, both of W. Va., assignors to ARCO Chemical Technology, L.P., Greenville, Del.

Filed Mar. 13, 1997, Ser. No. 816,611

Int. Cl.^{6} B01J *27/26*

U.S. Cl. 502—175 **21 Claims**

1. A process which comprises reacting aqueous solutions of a metal salt and a metal cyanide salt in the presence of an organic complexing agent in a manner effective to produce a substantially non-crystalline double metal cyanide (DMC) catalyst, wherein the metal salt has an alkalinity within the range of about 0.2 to about 2.0 wt. % as metal oxide based on the amount of metal salt.

5,783,514
SHELL CATALYST, A PROCESS FOR ITS PRODUCTION AND ITS USE

Klaus-Peter Schick; Franz-Josef Carduck, both of Haan; Gerd Goebel, Koeln, and Hans-Georg Rollberg, Dusseldorf, all of Germany, assignors to Henkel Kommanditgesellschaft auf Aktien, Dusseldorf, Germany

PCT No. PCT/EP93/00643, § 371 Date Sep. 26, 1994, § 102(e) Date Sep. 26, 1994, PCT Pub. No. WO93/18856, PCT Pub. Date Sep. 30, 1993

PCT Filed Mar. 18, 1993, Ser. No. 307,759

Claims priority, application Germany, Mar. 26, 1992, 42 09 832.7

Int. Cl.^{6} B01J *21/18*

U.S. Cl. 502—185 **5 Claims**

1. In a process for the production of a shell catalyst containing 0.3 to 5% by weight, based on the weight of the dried catalyst, of palladium on an active carbon support by impregnating the support with an aqueous acidic palladium salt solution, precipitation of palladium and reduction of the palladium, the improvement which comprises: impregnating, a dry, alkaline, activated carbon having a pH value of at least 8, with the palladium salt solution, in the absence of an oxidizing agent, and separating the carbon from the supernatant liquid after a pH of the supernatant liquid has increased from a pH below 1 to a pH of at least 1 whereby an outer shell comprising palladium is formed on the active carbon.

5,783,515
CATALYST FOR TREATING EXHAUST GASES CONTAINING DIOXINES, PRODUCTION PROCESS FOR THE CATALYST AND METHOD OF TREATING THE EXHAUST GASES

Toshihiko Sakurai; Toshihiko Iwasaki, and Eiichi Shibuya, all of Tokyo, Japan, assignors to N.E. Chemcat Corporation, and NKK Corporation, Tokyo, Japan

Continuation of Ser. No. 310,090, Sep. 22, 1994, abandoned. This application Dec. 27, 1995, Ser. No. 580,959

Claims priority, application Japan, Sep. 24, 1993, 5-261723

Int. Cl.^{6} B01J *21/02*

U.S. Cl. 502—207 **8 Claims**

1. A catalyst for treating exhaust gases containing dioxines comprising at least one element selected from the group consisting of Ir and Ir oxides, in an amount of 0.1 to 10 g based on one liter of the catalyst; and a silica-boria-alumina composite oxide on which said at least one element is carried.

5,783,516
HERBICIDAL AND PLANT GROWTH REGULANT COMPOSITIONS AND THEIR USE

Ralph W. Magin; Joe D. Sauer, and Dru L. DeLaet, all of Baton Rouge, La., assignors to Albemarle Corporation, Richmond, Va.

Filed Jun. 28, 1996, Ser. No. 672,777

Int. Cl.^{6} A01N *25/32;57/02*

U.S. Cl. 504—206 **38 Claims**

1. A method of controlling vegetation which comprises applying to plant foliage a herbicidal or plant growth regulant amount of a composition formed by intimately mixing the following ingredients with water:

a) at least one agriculturally acceptable glyphosate salt; and
b) at least one water-soluble aryloxyalkyl quaternary ammonium compound represented by the formula:

$$R^1R^2R^3R^4N^{\oplus}X^{\ominus}$$

wherein R^1 is an aryloxyalkyl group having from 8 to about 10 carbon atoms, R^2 is an alkyl group having in the range of about 10 to about 14 carbon atoms, R^3 is a methyl or ethyl group, R^4 is, independently, a methyl or ethyl group, and X is a chlorine or bromine atom.

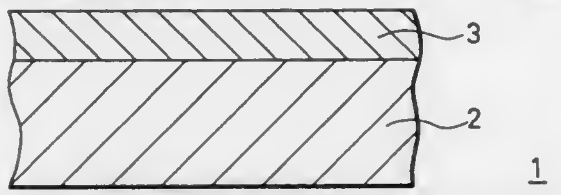
5,783,517
PRINTING PAPER FOR THERMAL TRANSFER

Hidemi Tomita, Tokyo; Huy Sam, Miyagi; Miyuki Kuromiya, Kanagawa; Seiichi Yamamoto, Saitama, and Masataka Mizoguchi, Chiba, all of Japan, assignors to Sony Corporation, and Fujikura Kasei Co., Ltd., both of Tokyo, Japan

Filed Feb. 22, 1996, Ser. No. 603,878

Int. Cl.^{6} B41M *5/035;5/38*

U.S. Cl. 503—227 **7 Claims**



7. A thermal transfer recording method comprising the steps of: superposing an ink ribbon having an ink layer of a sublimation or thermal diffusion dye on a printing sheet having a dye receiving layer so that the ink layer is disposed adjacent the dye receiving layer; and heating the ink layer to provide imagewise transfer of the dye from the ink layer to the dye receiving layer, wherein the printing sheet comprises a base sheet having a surface; and a dye receiving layer disposed on said surface, said dye receiving layer comprising at least about 50% by weight, based on the weight of said dye receiving layer, of a copolymer having a glass transition temperature, T_g, of greater than or equal to 45° C. and having a weight average molecular weight of from about 50,000 to about 1,000,000, said copolymer comprising from about 50 to about 90% by weight of first monomeric units of at least one substituted or unsubstituted phenoxy-polyethyleneglycol (meth) acrylate monomer and from about 1 to about 50% by weight of second monomeric units of at least one ethylinically-unsaturated copolymerizable monomer, based upon the weight of said copolymer.

5,783,518
DYE DIFFUSION THERMAL TRANSFER PRINTING

Roy Bradbury, St Helens, and Clive Moscrop, Heywood, both of United Kingdom, assignors to Zeneca Limited, London, England

PCT No. PCT/GB95/00673, § 371 Date Jul. 11, 1996, § 102(e) Date Jul. 11, 1996, PCT Pub. No. WO95/28286, PCT Pub. Date Oct. 26, 1995

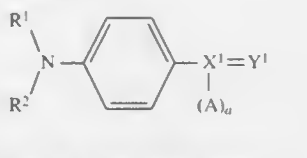
PCT Filed Mar. 27, 1995, Ser. No. 682,510

Claims priority, application United Kingdom, Apr. 19, 1994, 9407775

Int. Cl.^{6} B41M *5/035;5/38*

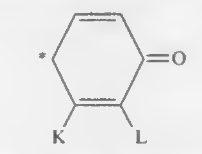
U.S. Cl. 503—227 **7 Claims**

5. A dye diffusion thermal transfer printing process which comprises contacting a transfer sheet comprising a coating comprising at least one dye of Formula (1) with a receiver sheet, so that the coating is in contact with the receiver sheet and selectively applying heat to discrete areas on the reverse side of the sheet whereby the dye on the opposite side of the sheet to the heated areas is transferred to the receiver sheet. said due of Formula (1) being represented as follow:



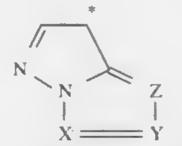
Formula (1)

wherein
R^1 and R^2 are as hereinbefore defined:
X^1 is N or C;
a is 0 when X is N:
a is 1 when X is C:
A is —H. —CN or —COO alkyl:
Y^1 is an optionally substituted group of Formula (2):



Formula (2)

in which K and L each independently is any of the optional substituents listed below or K and L together with the carbon atoms to which the are attached form a 5- or 6-membered carbocyclic or hetrocyclic ring; or an optionally substituted group of Formula (3):



Formula (3)

wherein X, Y and Z each independently is N or C—R^3 in which R^3 is —H, —CN alkyl, alkoxy, cycloalkyl, aryl aralkyl. aryloxy or amino; or an optionally substituted group of Formula (4):

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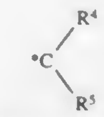
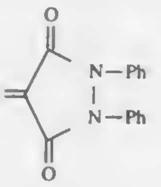
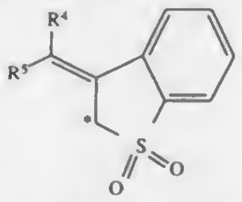


Formula (4)

wherein R^4 and R^6 each independently is an electron withdrawing group or R^4 and R^5 may be joined form a heterocylic ring:

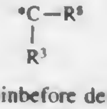


or an optionally substituted group of Formula (5):



Formula (5)

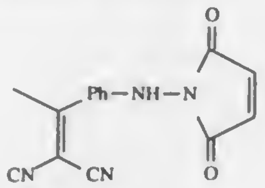
wherein R^4 and R^5 are hereinbefore defined; or an optionally substituted group of Formula (6):



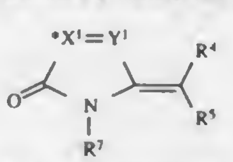
$$\begin{array}{l} {}^{\bullet}C-R^{6} \\ \ | \\ R^{3} \end{array}$$

Formula (6)

wherein R^3 is as hereinbefore defined and R^6 is alkenyl or



or an optionally substituted group of Formula (7) in which X^1 and Y^1 are both C and form a 5 membered heterocyclic ring:



Formula (7)

wherein R^4 and R5 are as hereinbefore defined and R^7 is —H, alkyl or aryl, where * shows the point of attachment to the double bond in Formula (1).

5,783,519

THERMAL TRANSFER SYSTEMS HAVING VANADIUM OXIDE ANTISTATIC LAYERS

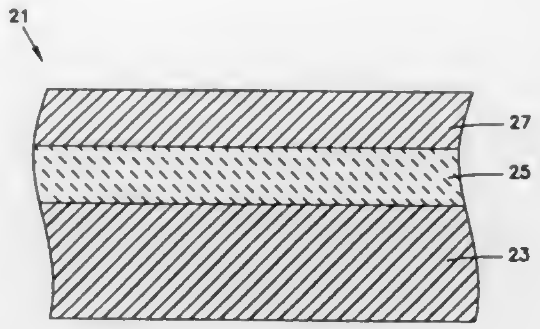
Eric D. Morrison, West St. Paul; Jeffrey C. Chang, North Oaks, and Linda K. Williams, St. Paul, all of Minn., assignors to Minnesota Mining and Manufacturing Company, St. Paul, Minn.

Division of Ser. No. 294,190, Aug. 22, 1994, Pat. No. 5,587,351. This application Nov. 1, 1996, Ser. No. 742,731

Int. Cl.^{6} B41M *5/035;5/38*

U.S. Cl. 503—227 **4 Claims**

1. A thermal transfer receptor sheet comprising a flexible substrate having a frontside and a backside, an image-receiving layer coated on the frontside of the substrate, and a vanadium oxide antistatic layer coated on the flexible substrate.



5,783,520

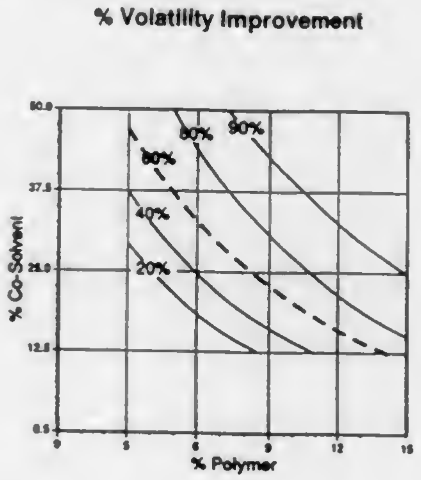
MICROENCAPSULATED HERBICIDAL COMPOSITIONS COMPRISING CLOMAZONE AND EDIBLE OILS

Helen L. Anderson, St. Charles; Salim M. Hakimi, Chesterfield, both of Mo.; Alan P. Lundstedt, Cincinnati, Ohio; Tracy A. Powers, Breckenridge Hills; Sudabathula Rao, St. Louis, both of Mo., and Alan J. Stern, Hamilton, N.J., assignors to Monsanto Company, St. Louis, Mo.

Continuation-in-part of Ser. No. 436,751, Jun. 26, 1995, Pat. No. 5,583,090. This application Dec. 4, 1996, Ser. No. 759,380

Int. Cl.^{6} A01N *43/80;25/28*

U.S. Cl. 504—140 **25 Claims**



1. A sprayable herbicidal formulation comprising an aqueous liquid having suspended therein a multitude of solid microcapsules having a capsule wall of a porous polymer encapsulating clomazone dissolved in a high boiling inert organic solvent which is an edible oil, about 3 percent by weight to about 15 percent by weight of the microcapsules being composed of the said polymer and about 10 percent by weight to about 90 percent by weight of the encapsulated solution being comprised of the organic solvent,

whereby when said formulation is sprayed onto one plot containing vegetation, vapor transfer of the herbicide to a nearby plot containing vegetation is effectively suppressed without substantial sacrifice of herbicidal efficacy of the herbicide in the plot to which the spray is applied.

5,783,521

SUBSTITUTED PYRIDYLSALICYLALDEHYDE OR -SALICYLIC ACID DERIVATIVES, THEIR PREPARATION AND THEIR USE AS HERBICIDES

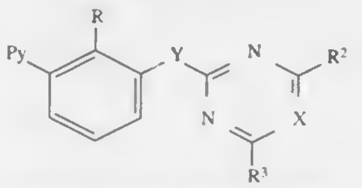
Joachim Rheinheimer; Uwe Josef Vogelbacher, both of Ludwigshafen; Ernst Baumann, Dudenhofen; Matthias Gerber, Limburgerhof; Karl-Otto Westphalen, Speyer, and Helmut Walter, Obrigheim, all of Germany, assignors to BASF Aktiengesellschaft, Ludwigshafen, Germany

Filed Nov. 1, 1994, Ser. No. 332,723

Int. Cl.^{6} C07D *403/12;* **A01N** *43/54*

U.S. Cl. 504—272 **6 Claims**

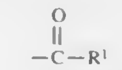
1. A substituted pyridylsalicylaldehyde or —salicylic acid derivative of the formula I



(I)

where the substituents have the following meanings:

R is



$$\begin{array}{c} O \\ \| \\ -C-R^{1} \end{array}$$

and where R^1 has the following meanings:

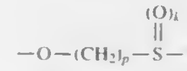
a) hydrogen;

b) a succinylimidoxy group;

c) a 5-membered heteroaromatic linked via a nitrogen atom and containing two to three nitrogen atoms, which can carry one to two halogen atoms and/or one to two of the following radicals:
C_1–C_4-alkyl, C_1–C_4-haloalkyl, C_1–C_4-alkoxy, C_1–C_4-haloalkoxy and/or C_1–C_4-alkylthio;

d) a radical —$(O)_m NR^6R^7$, where m is 0 or 1 and R^6 and R^7, which can be identical or different, have the following meanings:
hydrogen;
C_1–C_8-alkyl, C_3–C_6-alkenyl, C_3–C_6-alkynyl, C_3–C_8-cycloalkyl, these radicals in each case being able to carry one to five halogen atoms and/or one to two of the following groups: C_1–C_4-alkyl, C_1–C_4-alkoxy, C_3–C_6-alkenyloxy, C_3–C_6-alkynyloxy, C_1–C_4-alkylthio, C_3–C_6-alkenylthio, C_3–C_6-alkynylthio, C_1–C_4-haloalkoxy, C_1–C_4-alkylcarbonyl, C_3–C_6-alkenylcarbonyl, C_3–C_6-alkynylcarbonyl, C_1–C_4-alk- oxycarbonyl, C_3–C_6-alkenyloxycarbonyl, C_3–C_6-alkynyloxy- carbonyl, di-(C_1–C_4-alkyl)amino, C_3–C_8-cycloalkyl, phenyl or phenyl which is mono- or polysubstituted by halogen, nitro, cyano, C_1–C_4-alkyl, C_1–C_4-haloalkyl, C_1–C_4-alkoxy, C_1–C_4-haloalkoxy or C_1–C_4-alkylthio;
phenyl which can be substituted by one or more of the following radicals: halogen, nitro, cyano, C_1–C_4-alkyl, C_1–C_4-haloalkyl, C_1–C_4-alkoxy, C_1–C_4-haloalkoxy or C_1–C_4-alkylthio;
R^6 and R^7 together are an unsubstituted or substituted C_4–C_7-alkylene chain closed to give a ring or together are an unsubstituted or substituted C_3–C_6-alkylene chain which is closed to give a ring and contains a heteroatom selected from the group consisting of oxygen, sulfur and nitrogen;

e) R^1 is additionally a group



$$-O-(CH_2)_p-\overset{(O)_k}{\overset{\|}{S}}-R^{8},$$

where R^8 is C_1–C_4-alkyl, phenyl, phenyl which is mono- or polysubstituted by halogen, nitro, cyano, C_1–C_4-alkyl, C_1–C_4-haloalkyl, C_1–C_4-alkoxy, C_1–C_4-haloalkoxy or C_1–C_4-alkylthio, or C_1–C_4-haloalkyl, C_3–C_6-alkenyl or C_3–C_6-alkynyl, p assumes the values 1, 2, 3 or 4 and k assumes the values 0, 1 or 2;

f) a radical OR^9, where R^9 is:
i) hydrogen, an alkali metal cation, the equivalent of an alkaline earth metal cation, the ammonium cation or an organic ammonium ion;
ii) a C_3–C_8-cycloalkyl group, which can carry one to three C_1–C_4-alkyl radicals;
iii) a C_1–C_8-alkyl group, which can carry one to five halogen atoms and/or one of the following radicals:
C_1–C_4-alkoxy, C_1–C_4-alkylthio, cyano, C_1–C_4-alkylcarbonyl, C_3–C_8-cycloalkyl, C_1–C_4-alkoxycarbonyl, phenyl, or phenyl or phenoxy which is mono- or polysubstituted by halogen, nitro, cyano, C_1–C_4-alkyl, C_1–C_4-haloalkyl, C_1–C_4-alkoxy, C_1–C_4-haloalkoxy and/or C_1–C_4-alkylthio;
iv) a C_1–C_8-alkyl group, which can carry one to five halogen atoms and carries one of the following radicals: a 5-membered heteroaromatic, containing one to three nitrogen atoms, or a 5-membered heteroaromatic, containing one nitro atom and an oxygen or sulfur atom, which can carry one to four halogen atoms and/or one to two of the following radicals: nitro, cyano, C_1–C_4-alkyl, C_1–C_4-haloalkyl, C_1–C_4-alkoxy, C_1–C_4-haloalkoxy and/or C_1–C_4-alkylthio;
v) a C_2–C_6-alkyl group, which in the 2-position carries one of the following radicals: C_1–C_4-alkoxyimino, C_3–C_6-alkenyloxyimino, C_3–C_6-haloalkenyloxyimino or benzyloxyimino;
vi) a C_3–C_6-alkenyl group or a C_3–C_6-alkynyl group, where these groups in turn can carry one to five halogen atoms;
vii) a phenyl radical which can carry one to five halogen atoms and/or one to three of the following radicals: nitro, cyano, C_1–C_4-alkyl, C_1–C_4-haloalkyl, C_1–C_4-alkoxy, C_1–C_4-haloalkoxy and/or C_1–C_4-alkylthio;
viii) a 5-membered heteroaromatic linked via a nitrogen atom and containing one to three nitrogen atoms, which can carry one to two halogen atoms and/or one to two of the following radicals: nitro, cyano, C_1–C_4-alkyl, C_1–C_4-haloalkyl, C_1–C_4-alkoxy, C_1–C_4-haloalkoxy and/or C_1–C_4-alkylthio;
ix) R^9 is additionally a group $—N{=}CR^{10}R^{11}$, where R_{10} and R^{11}, which can be identical or different, are:
C_1–C_{12}-alkyl, C_3–C_6-alkenyl, C_3–C_6-alkynyl, C_3–C_8-cycloalkyl, these radicals being able to carry a C_1–C_4-alkoxy or C_1–C_4-alkylthio radical and/or a phenyl radical:
phenyl which can be substituted by one or more of the following radicals: halogen, nitro, cyano, C_1–C_4-alkyl, C_1–C_4-haloalkyl, C_1–C_4-alkoxy, C_1–C_4-haloalkoxy or C_1–C_4-alkylthio;
or R^{10} and R^{11}together form a C_3–C_{12}-alkylene chain which can carry one to three C_1–C_4-alkyl groups;

g) or R^1 forms a radical $—NH—SO_2—R^{12}$, where R^{12} is:
C_1–C_4-alkyl, C_1–C_4-haloalkyl, C_3–C_6-alkenyl, C_3–C_6-alkynyl, C_3–C_8-cycloalkyl, these radicals being able to carry a C_1–C_4-alkoxy or C_1–C_4-alkylthio radical and/or a phenyl radical;
phenyl which can be substituted by one or more of the following radicals: halogen, nitro, cyano, C_1–C_4-alkyl, C_1–C_4-haloalkyl, C_1–C_4-alkoxy, C_1–C_4-haloalkoxy or C_1–C_4-alkylthio;

R^2 is halogen, C_1–C_4-alkyl, C_1–C_4-haloalkyl, C_1–C_4-alkoxy, C_1–C_4-haloalkoxy or C_1–C_4-alkylthio;

X is CR^{13}, R^{13} being hydrogen or halogen or together with R^3 forming a 3- to 4-membered alkylene or alkenylene chain in which one methylene group in each case is replaced by oxygen;

R^3 is halogen, C_1–C_4-alkyl, C_1–C_4-haloalkyl, C_1–C_4-alkoxy, C_1–C_4-haloalkoxy or C_1–C_4-alkylthio, or R^3 is linked with R^{13} as indicated above to give a 5- or 6-membered ring;

Y is oxygen or sulfur;

Py is a pyridine ring linked in any desired C-position, which carries four substituents R^{14}, R^{15}, R^{16} and R^{17}.

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R^{14} is a C_1–C_8-alkoxy group, which can carry one to five halogen atoms and/or one of the following radicals: C_1–C_4-alkoxy, C_1–C_4-halogenalkoxy, C_1–C_4-alkylthio, cyano, C_3–C_8-cycloalkyl or di-C_1–C_4-alkylamino;

R^{15}, R^{16} and R^{17} are in each case independently of one another, hydrogen, nitro, halogen, C_1–C_8-alkyl, C_1–C_8-haloalkyl and the radicals mentioned for R^{14}.

5,783,522

SUBSTITUTED 2-PHENYLPYRIDINES

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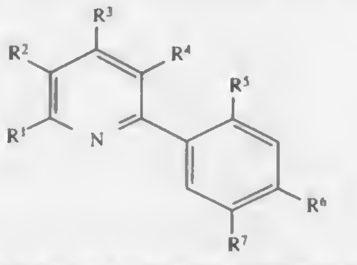
Claims priority, application Germany, Jul. 16, 1993, 43 23 916.1

Int. Cl.^{6} A01N *43/40;* C07D *213/61*

U.S. Cl. 504—294 **15 Claims**

1. A substituted 2-phenylpridine of the formula I



(I)

in which the variables have the following meanings:

R^1 hydrogen, halogen, C_1–C_4-alkyl, C_1–C_4-haloalkyl, C_1–C_4-alkoxy-C_1–C_4-alkyl, C_1–C_4-alkoxy-C_1–C_4-alkoxy, C_1–C_4-haloalkoxy, (C_1–C_5-alkyl)carbonyloxy, (C_1–C_5-haloalkyl)carbonyloxy, SH, C_1–C_4-alkylthio, C_1–C_4-alkylsulfinyl, C_1–C_4-alkylsulfonyl, C_1–C_4-haloalkylthio, C_1–C_4-haloalkylsulfinyl, C_1–C_4-haloalkylsulfonyl, formyl, cyano, hydroxycarbonyl, (C_1–C_4-alkoxy) carbonyl, C_1–C_4-alkoxy(C_1– C_4-alkoxy)carbonyl, (C_1–C_4-haloalkoxy)carbonyl, (C_1–C_4-alkyl(carbonyl, (C_1–C_4-haloalkyl) carbonyl, C_1–C_4-alkoxy(C_1– C_4-alkyl)carbonyl, $CONH_2$, (C_1–C_4-alkyl)aminocarbonyl, di-(C_1 –C_4-alkyl)aminocarbonyl, pyrrolidinylcarbonyl, piperidinylcarbonyl morpholinylcarbonyl, nitro, amino, C_1–C_4-alkylamino, di-(C_1–C_4-alkyl)amino, pyrrolidinyl, piperidinyl, morpholinyl, (C_1–C_4-alkyl)carbonylamino, (C_1–C_4-haloalkyl)carbonylamino or C_1–C_4-alkylsulfonylamino;

R^2 halogen, cyano, nitro, C_1–C_4-alkyl, C_1–C_4-haloalkyl, C_1–C_4-alkoxy, C_1–C_4-haloalkoxy, C_1–C_4-alkylthio, or C_1–C_4-haloalkylthio,

or together with R^1 or with R^3 a trimethylene or tetramethylene chain;

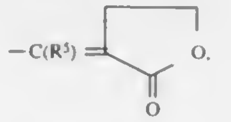
R^3 hydrogen, halogen, C_1–C_4-alkyl, C_1–C_4-haloalkyl, C_1–C_4-alkoxy-C_1–C_4-alkyl, C_1–C_4-alkoxy, C_1–C_4-alkoxy-C_1–C_4-alkoxy, hydroxyl, C_1–C_4-haloalkoxy, (C_1–C_5-alkyl)carbonyloxy, (C_1–C_5-haloalkyl)carbonyloxy, SH, C_1–C_4-alkylthio, C_1–C_4-alkylsulfinyl, C_1–C_4-alkylsulfonyl, C_1–C_4-haloalkylthio, C_1–C_4-haloalkylsulfinyl, C_1–C_4-haloalkylsulfonyl, formyl, cyano, hydroxycarbonyl, (C_1–C_4-alkoxy)carbonyl, C_1–C_4-alkoxy(C_1–C_4-alkoxy)carbonyl, (C_1–C_4-haloalkoxy)carbonyl, (C_1–C_4-alkyl)carbonyl, (C_1–C_4-haloalkyl)carbonyl, C_1–C_4-alkoxy-(C_1–C_4C-alkyl)carbonyl, $CONH_2$, (C_1–C_4-alkyl)aminocarbonyl, di-(C_1–C_4-alkyl)aminocarbonyl, pyrrolidinylcarbonyl, piperidinylcarbonyl, morpholinylcarbonyl, nitro, amino, C_1–C_4-alkylamino, di-(C_1–C_4-alkyl)amino, pyrrolidinyl, piperidinyl, morpholinyl, (C_1–C_4-alkyl)carbonylamino, (C_1–C_4-haloalkyl)carbonylamino or C_1–C_4-alkylsulfonylamino;

R^4 halogen, C_1–C_4-alkyl, C_1–C_4-haloalkyl, C_1–C_4-alkoxy-C_1–C_4-alkyl, C_1–C_4-alkoxy, C_1–C_4-alkoxy, hydroxyl, C_1–C_4-haloalkoxy, (C_1–C_5-alkyl)carbonyloxy, (C_1–C_5-haloalkyl)carbonyloxy, SH, C_1–C_4-alkylthio, C_1–C_4-alkylsulfinyl, C_1–C_4-alkylsulfonyl, C_1–C_4-haloalkylthio, C_1–C_4-haloalkylsulfinyl, C_1–C_4-haloalkylsulfonyl, formyl, cyano, hydroxycarbonyl, (C_1–C_4-alkoxy)carbonyl, C_1–C_4-alkoxy-(C_1–C_4-alkoxy)carbonyl, (C_1–C_4-haloalkoxy)carbonyl, (C_1–C_4-alkyl)carbonyl, (C_1–C_4-haloalkyl)carbonyl, C_1–C_4-alkoxy-(C_1–C_4-alkyl)carbonyl, nitro, amino, C_1–C_4-alkylamino, di-(C_1–C_4-alkyl)amino, pyrrolidinyl, piperidinyl, morpholinyl, (C_1–C_4-alkyl)carbonylamino, (C_1–C_4-haloalkyl)carbonylamino or C_1–C_4-alkylsulfonylamino;

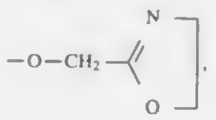
R^5 is hydrogen or halogen;

R^6 is halogen, cyano, nitro, hydroxyl, trifluoromethyl, C_1–C_6-alkyl or C_1–C_4-alkoxy;

R^7 chlorine, bromine, iodine, cyano, nitro, C_1–C_8-alkyl, C_2–C_8-alkenyl, C_2–C_8-alkynyl, C_1–C_8-haloalkyl, C_2–C_8-haloalkenyl, C_2–C_8-haloalkynyl, —(C_1–C_8-alkylene)-O—R^8, —(C^2–C_8-alkenylene)-O—R ^{8}-alkenylene-S— R^8, —C_2–C_8-alkenylene)-S—R^8, —(C_2–C_8-alkylene)-S—R^8, —C_1–C_8-alkylene)-SO—R^8, —(C_2–C_8-alkenylene)-SO—R^8, —(C_2–C_8-alkynylene)-SO—R^8, —(C_1–C_8-alkylene)-SO_2—R^8, —(C_2–C_8-alkenylene)-SO_2—R^8, —(C_2–C_8-alkynylene)-SO_2—R^8, —O—R_8, —S—R^8, —SO—R^8, —SO_2—R^8, chlorosulfonyl, —SO_2—O—R^8, —SO_2—N(R^9,R^{10}), —SO_2—NR^9(CO—R^{12}), —N(R^9,R^{10}), —NR^{11}(CO—R^{12}), —NR^{11}(SO_2— R^{13}), —N(SO_2—R^{13})(SO_2—R^{14}), —N(SO_2—R^{13})(CO—R^{12}), —NH—CO—O—R^8, —O—CO—NHR^9, —O—CO—R^{12}, —NH—CO—NHR^9, —O—CS—N(C_1–C_4-alkyl)$_2$, —O—CS—NH_2, cyano-C_1–C_4-alkyl, —CO—R^8, —CO—O—N=C(R^{26},R^{27}), —CO—O—CH_2—O—N=C(R^{30},R^{31}), —CO—O—C(R^{28},R^{29})—CH_2—ON=C(R ^{30},R^{31}), —CO—N(R^9,R^{10}), —CS—N(R^9,R^{10}), —CO—NH—SO_2—(C_1–C_4-alkyl), isoxazolinylcarbonyl, formyl, —CO—R^{15}, hydroxycarbonyl-C_1–C_6-alkyl, (C_1–C_6-alkoxy)carbonyl-C_1–C_6-alkyl, —CR^{15}=C(R^{16})—CHO, —C(R^{15})=C(R^{16})—CO—O—R^8, —C(R^{15})=C(R^{16})—CO—N(R^9,R^{10}), —C(R^{15})=C(R^{16})—CO—R^{17}, —CH=N—O—R^8, —CH(XR^{18},YR^{19}), —CH_2— CH(halogen)-CO—O—R^8, —CH_2—CH(halogen)-CO—N(R^9,R^{10}), —CH_2—CH(halogen)-CO—(C_1–C_4-alkyl), —CH_2—CH(halogen)-CN, —C(C_1–C_4-alkoxy)=N— O—R^8, —C(R^{15})=C(R^{16})—C(C_1–C_4-alkoxy)=N—O—R^8, —CH=CH—CH=CH—CO—O—R^8,



—C(R^{15})=N—O—R^8, —CO—OCH=N—OH, —CO—OCH=N— O—(C_1–C_4alkyl), —CO—OC(C_1–C_4-alkyl)=N—OH, —CO—OC(C_1–C_4-alkyl)=N— O—(C_1–C_4-alkyl), —CO—O—(CO_1–C_4-alkylene)—CH=N—OH, —CO—O—(C_1–C_4-alkylene)-CH=N—O— (C_1–C_4-alkyl), —CO—O—(C_1–C_4-alkylene)-C(C_1–C_4-alkylene)-C(C_{11}–C_4-alkyl)=N—OH, —CO— O—(C_1–C_4-alkyl)=N—O—(C_1–C_4-alkyl), —(C_1–C_8-alkylene)-O—CO—(C_1–C_4-alkyl), —CH=C=CH_2, —CH=C=CH—(C_1–C_4-alkyl),



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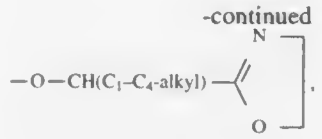

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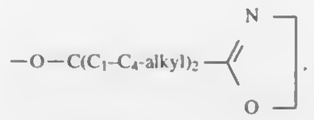

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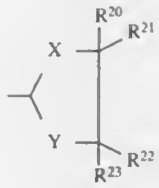

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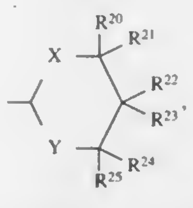

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5- or 6-membered heteroaryl with one to three hetero atoms selected from a group comprising one or two nitrogen atoms and one oxygen or sulfur atom, it being possible for each heteroaromatic ring atom which can be substituted to carry a radical selected from the group comprising nitro, halogen, C_1–C_4-alkyl, C_1–C_4-alkoxy, C_1–C_4-alkylthio and (C_1–C_4-alkoxy)carbonyl;

R^8 hydrogen, C_1–C_8-alkyl, C_1–C_8-haloalkyl, C_4–C_7-cycloalkyl, which in turn can carry one to three C_1–C_3-alkyl radicals, C_3–C_6-alkenyl, C_5–C_7-cycloalkenyl, which in turn can carry one to three C_1–C_3-alkyl radicals, C_3–C_6-haloalkenyl, cyano-C_1–C_8-alkyl, C_3–C_6-alkynyl, C_2–C_8-alkoxyalkyl, 2-tetrahydrofuranyl-C_1–C_8-alkyl, 3-oxetanyl, 3-thietanyl, carboxyl-C_1–C_6-alkyl, (C_1–C_8-alkoxy) carbonyl-C_1–C_6-alkyl, (C_1–C_6-alkoxy)carbonyl-(C_3–C_7 -cycloalkyl), C_1–C_4-alkoxy-(C_1–C_4-alkoxy)carbonyl-C_1–C_6-alkyl, cyclopropylmethyl, (1-methylthiocyclopropyl)methyl, —CH(SH)—CO—OH, —CH(SH)—CO—(C_1–C_8-alkoxy), —CH (C_1–C_8alkylthio)-COOH, —CH(C_1–C_4-alkylthio)-CO—(C_1–C_8-alkoxy), —CH_2—CO—N(R^9)—R^{10}, —CH(C_1–C_4-alkyl)-CO—N(R^9)—R^{10}, —(C_1–C_4-alkyl)$_2$—CO—N(R^9)—$R^{10.}$ —CH_2—CO—N(^{9})—SO_2— (C_1–C_4-alkyl), —CH(C_1–C_4-alkyl)-CO—N(R^9)—SO_2—C(C_1–C_4-alkyl)$_2$-CO—N(R^9)—SO_2 —(C_1–C_4-alkyl), —S—CO—NH_2,—S—CO—N(C_1—alkyl)-(C_1–C_4-alkyl), CH_2—CO—O—(C_1–C_6-alkylene)-COOH, —CH_2—CO—O—(C_1–C_6-alkylene)-CO— (C_1–C_6-alkoxy), —C(C_1–C_4-alkyl)$_2$—CO—O—(C_1–C_6-alkylene)-COOH, —(C_1–C_4-alkyl)$_2$—CO—O—(C_1–C_4-alkylene)—CO—(C_1–C_6-alkoxy), —CH(C_1–C_4-alkyl)-CO—O—(C_1–C_6-alkylene)-COOH, —CH(C_1–C_4-alkyl)-CO—O—(C_1–C_6-alkylene)-CO—(C_1–C_6-alkoxy), C_3– C_9-(α-alkylalkylidene)iminooxy-C_1–C_6-alkyl, phenyl, phenyl-C_1–C_6-alkyl, phenyl-C_3–C_6-alkenyl, phenyl-C_3– C_6-alkynyl or phenoxy-C_1–C_6-alkyl, where the phenyl ring can in each case be unsubstituted or carry one to three radicals selected from the group comprising halogen, nitro, cyano, C_1–C_4-alkyl, C_1–C_4-alkoxy, C_1–C_4-alkylthio, C_1–C_4-haloalkyl and C_2-C_6-alkenyl;

5- or 6-membered heteroaryl, heteroaryl-C_1–C_6-alkyl, heteroaryl-C $_3$–C_6-alkenyl, heteroaryl-C_3–C_6-alkynyl or heteroaryloxy-C_1–C_6-alkyl, where the heteroaryl radical in each case contains one to three hetero atoms selected from a group comprising one or two nitrogen atoms and one oxygen or sulfur atom, and it being possible for each heteroaromatic ring atom which can be substituted also to carry a radical selected from the group comprising hydroxyl, halogen, C_1–C_4-alkyl, C_1–C_4-alkoxy, C_1–C_4-alkylthio and C_1–C_4-haloalkyl;

R^9 and R^{10} hydrogen, C_1–C_8-alkyl, C_2-C_8-alkenyl, C_3–C_8-alkynyl, C_1–C_8-haloalkyl, C_1–C_4-alkoxy-C_1–C_4-alkyl, C_1–C_4-alkylthio-C_1–C_4-alkyl, cyano-C_1–C_8-alkyl, carboxyl-C_1–C_4-alkyl, (C_1–C_4-alkoxy)carbonyl-C_1–C_4-alkyl, (C_1–C_6-alkoxy)carbonyl-(C_3–C_7-cycloalkyl), C_1–C_4-alkylsulfonyl-C_1–C_4-alkyl, C_3–C_8-cycloalkyl, C_1–C_6-alkoxy, (C_3–C_6-cycloalkoxy)carbonyl-C_1–C_4-alkyl, C_1–C_4-alkoxy-(C_1–C_4 -alkoxy)carbonyl-C_1–C_4-alkyl, phenyl, phenyl-C_1–C_4-alkyl, where the phenyl ring can in each case be unsubstituted or carry one to three radicals selected from the group comprising halogen, nitro, cyano, C_1–C_4-alkyl, C_1–C_4-alkoxy, C_1–C_4-alkylthio, C_1–C_4-haloalkyl and C_2–C_6-alkenyl,

5- or 6-membered heteroaryl or heteroaryl-C_1–C_4-alkyl, where the heteroaryl radical contains one to three hetero atoms selected from a group comprising one or two nitrogen atoms and one oxygen or sulfur atom, and it being possible for each heteroaromatic ring atom which can be substituted also to carry a radical selected from the group comprising hydroxyl, halogen, C_1–C_4-alkyl, C_1–C_4-alkoxy, C_1–C_4-alkylthio and C_1–C_4-haloalkyl; or

R^9 and R^{10} together a tetramethylene, pentamethylene or ethyleneoxyethylene chain, it being possible for each chain to carry a (C_1–C_6-alkoxy)carbonyl radical;

R^{11} hydrogen, C^1–C_4-alkyl, C_3–C_6-alkenyl, C_3–C_6-alkynyl, C_1–C_4-alkoxy-C_1–C_4-alkyl, sodium, potassium, calcium, magnesium, ammonium or ammonium which is substituted by one to four C_1–C_4-alkyl- or benzyl radicals and can carry one to three further C_1–C_4-alkyl radicals;

R^{12} hydrogen, C_1–C_6-alkyl, C_1–C_6-haloalkyl, C_1–C_4-alkoxy-C_1C $_4$-alkyl, C_3–C_7-cacloalkyl, which can in turn carry one to three radicals selected from the group comprising halogen, C_1–C_4-alkyl, C_1–C_4-alkoxy and C_1–C_4-alkylthio, phenyl or phenyl-C_1–C_6-alkyl, where the phenyl ring can in each case be unsubstituted or carry one to three radicals selected from the group comprising halogen, nitro, C_1–C_4-alkyl, C_1–C_4-alkoxy, C_1–C_4-alkylthio and C_1–C_4-haloalkyl;

R^{13} and R^{14}, independently of one another, C_1–C_4-alkyl, phenyl or thienyl, where the phenyl or thienyl radical can be unsubstituted or carry one to three radicals selected from the group comprising halogen, nitro, C_1–C_4-alkyl, C_1–C_4-alkoxy, C_1–C_4-alkylthio and C_1–C_4-haloalkyl;

R^{15}, R^{16} and R^{17}, independently of one another, hydrogen, halogen, C_1–C_4-alkyl, C_2–C_4-alkenyl, C_1–C_4-haloalkyl, C_1–C_4-alkoxy-C_1–C_4-alkyl or C_1–C_4-alkylthio-C_1–C_4-alkyl;

R^{18} and R^{19}, independently of one another, C_1–C_8-alkyl, C_1–C_4-alkoxy-C_1–C_4-alkyl or C_1–C_8-haloalkyl;

R^{20}, R^{21}, R^{22}, R^{23}, R^{24} and R^{25}, independently of one another, hydrogen, cyano, C_1–C_8-alkyl, C_1–C_4-alkoxy-C_1–C_4-alkyl, halo -C_1–C_8-alkyl, C_1–C_8-alkoxy, C_1–C_4-alkoxy-C_1–C_4-alkoxy, —CO—O—R^8, —CO—N (R^9,R^{10}), —CO—R^{15}, —S—R^8, —SO_2—R^8, —O—CO—R^{12} or C_3–C_7-cycloalkyl, which can in turn carry from one to three radicals selected from the group comprising halogen, C_1–C_4-alkyl, C_1–C_4-alkoxy and C_1–C_4-alkylthio;

R^{26} C_1–C_6-alkyl, C_1–C_6-alkylthio, C_1–C_6-alkoxycarbonyl or C_1–C_6 -alkoxycarbonyl-C_1–C_4-alkyl;

R^{27} C_1–C_6-alkyl, trifluoromethyl, C_1–C_6-alkoxy-C_1–C_4-alkyl, C_2–C_7-alkoxycarbonyl-C_1–C_4-alkyl, di-(C_1–C_6-alkoxycarbonyl)-C_1– C_4-alkyl, C_3–C_6-cycloalkyl, C_1–C_6-alkoxy, C_1–C_6-alkylthio, C_1–C_6-alkanoyl, C_1–C_6-alkoxycarbonyl, 2-furyl or phenyl which can be unsubstituted or in turn carry one to three radicals selected from the group comprising halogen, C_1–C_4-alkyl and C_1–C_4-alkoxy; or

R^{26} and R^{27} together with the carbon to which they are bonded a cyclopentane or cyclohexane ring which can in turn carry one to three C_1–C_4-alkyl radicals;

R^{28} hydrogen or C_1–C_4-alkyl;

R^{29} hydrogen, C_1–C_4-alkyl, phenyl or benzyl;

R^{30} hydrogen or C_1–C_6-alkyl;

R^{31} C_1–C_6-alkyl, C_3–C_6-cycloalkyl or phenyl;

X and Y, independently of one another, oxygen or sulfur;

and the N-oxides of I and the agriculturally utilizable salts of I where these exist,

excepting those compounds I where R^2 is C_1–C_4-alkoxy and R^1 and/or

R^3 is carboxyl, its salt, ester or amide.

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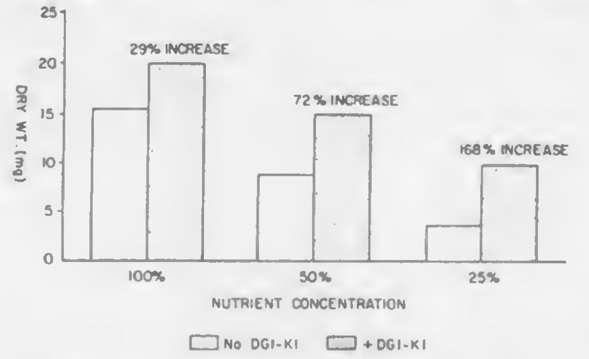
5,783,523
METHOD AND COMPOSITION FOR ENHANCED HYDROPONIC PLANT PRODUCTIVITY WITH POLYAMINO ACIDS

Larry P. Koskan, Orland Park; Abdul Rehman Y. Meah, Justice; J. Larry Sanders, Lockport, and Robert J. Ross, Elmhurst, all of Ill., assignors to Donlar Corporation, Bedford Park, Ill.

Continuation-in-part of Ser. No. 313,436, Sep. 27, 1994, Pat. No. 5,593,947, which is a continuation-in-part of Ser. No. 972,375, Nov. 5, 1992, Pat. No. 5,350,735. This application Jan. 10, 1997, Ser. No. 781,414

Int. Cl.^{6} A01N *37/18*

U.S. Cl. 504—320 **36 Claims**



1. A method for enhancing plant productivity which comprises supplying to a plant a productivity enhancing amount of a water-soluble co-polymer of a non-acidic amino acid and an acidic amino acid having an acidic alkyl group, —ROOCH, in which R contains 1 to about 22 carbon atoms, wherein the acidic amino acid constitutes at least about 20 mole percent of the co-polymer, the co-polymer having a molecular size larger than about 1,500 Daltons.

5,783,524
USE OF GLYCINE-N,N-DIACETIC ACID DERIVATIVES AS COMPLEXING AGENTS FOR ALKALINE EARTH METAL AND HEAVY METAL IONS IN THE PRODUCTION AND TRANSPORT OF PETROLEUM AND NATURAL GAS

Thomas Greindl, Bad Dürkheim, and Wilhelmus Slotman, Ludwigshafen, both of Germany, assignors to BASF Aktiengesellschaft, Ludwigshafen, Germany

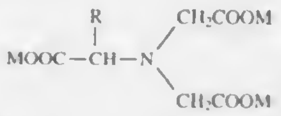
Filed Dec. 5, 1995, Ser. No. 567,479

Claims priority, application Germany, Dec. 14, 1994, 44 44 347.1

Int. Cl.^{6} C09K *3/00;7/00;* **E21B** *43/26;* **F21B** *43/28*

U.S. Cl. 507—90 **7 Claims**

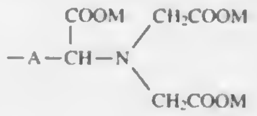
1. A process for complexing alkaline earth and heavy metal ions in petroleum or natural gas or both, which comprises adding to said petroleum or natural gas or both containing said alkaline earth and heavy metal ions an effective amount of a glycine-N,N-diacetic acid compound of the formula (I):



$$\mathrm{MOOC{-}CH(R){-}N(CH_2COOM)_2} \qquad (I)$$

wherein:

R is C_1–C_{30}-alkyl or C_2–C_{30}-alkenyl, each of which is unsubstituted orS substituted with up to 5 hydroxyl groups, formyl groups, C_1–C_4-alkoxy groups, phenoxy groups or C_1–C_4-alkoxycarbonyl groups and which are uninterrupted or interrupted by up to five non-adjacent oxygen atoms, phenylalkyl groups with 1 to 20 carbon atoms in the alkyl group, C_1–C_{20}-alkyl groups substituted with an unsaturated or saturated heterocyclic ring with up to three heteroatoms therein selected from the group consisting of nitrogen, oxygen and sulfur, wherein the heterocyclic ring is optionally benzo-fused, and wherein all of the phenyl nuclei and heterocyclic rings defined by R are optionally substituted with up to three C_1–C_4-alkyl groups, hydroxyl groups, carboxyl groups, sulfo groups, or C_1–C_4-alkoxycarbonyl groups, or a radical of the formula:



$$\mathrm{{-}A{-}CH(COOM){-}N(CH_2COOM)_2}$$

wherein A is a C_1–C_{12}-alkylene bridge o; a chemical bond, and M is hydrogen, alkali metal, allaline earth metal, ammonium or substituted ammonium.

5,783,525
OIL IN WATER EMULSION WELL SERVICING FLUIDS

José Blanco, San Jose, and Lirio Quintero, Las Mercedes, both of Venezuela, assignors to Intevep, S.A., Caracas, Venezuela

Filed Apr. 24, 1997, Ser. No. 842,495

Int. Cl.^{6} C09K *7/02*

U.S. Cl. 507—252 **23 Claims**

1. A thermally stable well servicing fluid, comprising:

a fluid portion in the form of an oil-in-water emulsion; and

a surfactant mixture comprising an anionic surfactant selected from the group consisting of alkali metal salts of alkyl sulphates, alkali metal salts of alkyl sulphonates, and mixtures thereof, and a non-ionic surfactant selected from the group consisting of ethoxylated alkyl phenols, ethoxylated aliphatic alcohols and mixtures thereof, said surfactant mixture containing said anionic surfactant and said non-ionic surfactant at a ratio by weight of between about 70:30 to about 80:20, said fluid being stable at temperatures exceeding about 220° F.

5,783,526
PROCESS TO ENHANCE REMOVAL OF ADHERING SOLIDS FROM THE SURFACE OF WELLBORES AND SAND CONTROL DEVICES THEREIN

James W. Dobson, Jr., Houston; James P. Cashion, Missouri City, and Robert S. Lauer, Richmond, all of Tex., assignors to Texas United Chemical Company, LLC., Houston, Tex.

Filed Mar. 6, 1997, Ser. No. 810,822

Int. Cl.^{6} C09K *7/02*

U.S. Cl. 507—261 **13 Claims**

1. A process for enhancing the removal of adhering solids from the surface of a borehole in a hydrocarbon-containing subterranean formation which comprises contacting the borehole surface with an acidic soak solution containing a water soluble polyglycol having the empirical formula:

$$\mathrm{HO{-}[({-}CH_2{-}(CH_2)_1{-}O{-})_a({-}CH_2{-}CH_2{-}O{-})_b]{-}H}$$

where:

a=0 and

b is greater than 0 and less than or equal to 250, and thereafter contacting the surface of the borehole with a wash solution to remove the solids from the borehole.

5,783,527
WELL DRILLING AND SERVICING FLUIDS WHICH DEPOSIT AN EASILY REMOVABLE FILTER CAKE

James W. Dobson, Jr., Houston, and Thomas C. Mondshine, Sugarland, both of Tex., assignors to Texas United Chemical Company, LLC., Houston, Tex.

Continuation-in-part of Ser. No. 212,814, Mar. 15, 1994, Pat. No. 5,607,905. This application Oct. 16, 1996, Ser. No. 732,151

Int. Cl.^{6} C09K *7/02*

U.S. Cl. 507—269 **13 Claims**

1. In an alkaline water base well drilling or servicing fluid which contains one or more polysaccharide polymers in an alkaline aqueous liquid which is a saturated solution of a water soluble salt and which contains a particulate sized bridging agent which is a water soluble salt which is not soluble in the saturated solution, the improvement wherein a peroxide selected from the group consisting of alkaline earth metal peroxides, zinc peroxide, and mixtures thereof is suspended therein.

5,783,528
SYNTHETIC LUBRICANT BASED ON ENHANCED PERFORMANCE OF SYNTHETIC ESTER FLUIDS

Douglas Rodenberg, Sharonville, Ohio, assignor to Diversey Lever, Inc., Plymouth, Mich.

Filed Jan. 7, 1997, Ser. No. 779,532

Int. Cl.^{6} C10M *169/04*

U.S. Cl. 508—200 **17 Claims**

1. A lubricant composition comprising 1 to 70% of a polyaromatic lubricant having a viscosity greater than 25 cSt at 40° C., said aromatic lubricant selected from the group consisting of alkyl polyaromatic lubricant and alkoxy polyaromatic lubricants; and 30 to about 99% by weight of an ester lubricant.

5,783,529
RHAMSAN GUM AS MIST SUPPRESSANT IN METAL WORKING FLUIDS

Sanjay Kalhan, Willoughby Hills, and Edward A. Collins, Avon Lake, both of Ohio, assignors to The Lubrizol Corporation, Wickliffe, Ohio

Filed Oct. 24, 1997, Ser. No. 957,296

Int. Cl.^{6} C10M *173/00*

U.S. Cl. 508—216 **23 Claims**

1. A method for lubricating a workpiece in an operation which is susceptible to formation of lubricant mist, comprising: supplying to said workpiece a lubricating composition comprising (a) water and (b) a water-soluble hetero-polysaccharide having a tetrasaccharide repeating unit which contains a carboxylic group and a saccharide substituent at carbon 6 of each 3-linked backbone glucose, in an amount suitable to reduce mist formation from said composition.

5,783,530
NON-STAINING SOLID LUBRICANTS

Mark Howard Foster, and Christopher Pargeter, both of Banbury, Great Britain, assignors to Alcan International Limited, Quebec, Canada

Continuation of Ser. No. 847,104, Jun. 15, 1992, abandoned. This application Mar. 1, 1994, Ser. No. 203,879

Claims priority, application United Kingdom, Oct. 31, 1989, 8924457

Int. Cl.^{6} C10M *129/68;129/06*

U.S. Cl. 508—505 **11 Claims**

1. A method of cold forming a metal workpiece consisting essentially of:

providing on the surface of the metal workpiece a solid film of a lubricant consisting essentially of cetyl alcohol and petroleum jelly, wherein the petroleum jelly is present in an amount not greater than 25% by weight based on the weight of the solid film, the solid film being provided on the metal surface by applying thereto a solution of cetyl alcohol and petroleum jelly in an inert volatile organic solvent and evaporating the inert volatile organic solvent;

subjecting the workpiece to a cold forming operation; and

removing the solid film of lubricant from the surface of the metal workpiece by the application of heat, wherein the solid film is removed without staining the metal surface.

5,783,531
MANUFACTURING METHOD FOR THE PRODUCTION OF POLYALPHAOLEFIN BASED SYNTHETIC GREASES (LAW500)

David Leslie Andrew, Arkona, and Brian Leslie Slack, Sarnia, both of Canada, assignors to Exxon Research and Engineering Company, Florham Park, N.J.

Filed Mar. 28, 1997, Ser. No. 828,446

Int. Cl.^{6} C10M *107/10;117/02;169/06*

U.S. Cl. 508—510 **10 Claims**

1. A method for improving the yields of polyalphaolefin base oil greases of different grease viscosity grades, wherein the grease viscosity grade is determined by the viscosity of the final base oil in the grease comprising (a) forming a thickener in a quantity of a first polyalphaolefin oil, said first polyalphaolefin oil having a viscosity which is lower than the final base oil viscosity of the grease, to form a first thickened mass, (b) adding to the first thickened mass a sufficient quantity of a second polyalphaolefin oil which has a viscosity which is higher than that of the final base oil viscosity of the grease to thereby produce a finished grease product containing a final mixture of polyalphaolefin oils having the desired viscosity of the final, total base oil.

5,783,532
ENZYME COMPOSITIONS AND METHODS FOR CONTACT LENS CLEANING

Stanley W. Huth, Newport Beach, Calif., assignor to Allergan, Waco, Tex.

Continuation-in-part of Ser. No. 673,993, Jul. 1, 1996, Pat. No. 5,630,884, which is a division of Ser. No. 343,284, Nov. 22, 1994, abandoned, which is a continuation of Ser. No. 79,195, Jun. 17, 1993, abandoned. This application Aug. 14, 1996, Ser. No. 696,708

Int. Cl.^{6} C11D *3/00*

U.S. Cl. 510—114 **20 Claims**

1. A composition useful for cleaning a contact lens comprising:

an acid acting enzyme component effective to remove protein-based debris from a contact lens in an amount when released in a liquid medium effective to remove protein-based debris from a contact lens located in the liquid medium and produce a cleaned contact lens; and

an acidity reducing component selected from the group consisting of basic salts, basic buffers, other basic components and mixtures thereof in an amount when released in the liquid medium effective to reduce the acidity of the liquid medium to deactivate said enzyme component located in the liquid medium relative to the initial activity of said enzyme component in the liquid medium in a period of time less than 6 hours after being released in the liquid medium sufficiently to allow the cleaned contact lens to be taken directly from the liquid medium and placed in a human eye for safe and comfortable wear.

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5,783,533

AMPHOTERIC AGENTS AS MODIFIERS OF LAMELLAR PHASES OF DETERGENTS OR LIQUID OR PASTY COSMETIC COMPOSITIONS

Yves Kensicher, Lozanne, and Jean-Marc Suau, Lucenay, both of France, assignors to Coatex S.A., Genay Cedex, France

Filed Mar. 22, 1996, Ser. No. 620,360

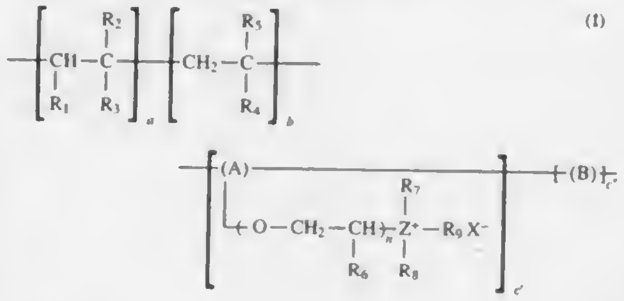
Claims priority, application France, Mar. 23, 1995, 95 03646

Int. Cl.⁶ C11D *3/37;* **A61K** *7/06*

U.S. Cl. 510—119 **19 Claims**

1. A method for modifying the rheological properties of a detergent or cosmetic composition containing a lamellar phase, said method comprising adding to said composition an amphoteric copolymer comprising at least a first type of monomeric unit being derived from one or more ethylenically unsaturated monomers having an anionic charge, said second type of monomeric unit being derived from one or more ethylenically unsaturated monomers having a cationic charge, with one at least of said cationic charged monomers having a surface-active structure, and optionally comprising a third type of monomeric unit derived from one or more ethylenically unsaturated nonionic monomers, and

wherein said copolymer has the formula (I):



$$-\left[\underset{R_1}{CH}-\underset{R_3}{\overset{R_2}{C}}\right]_a-\left[CH_2-\underset{R_4}{\overset{R_5}{C}}\right]_b-\left[(A)\left(O-CH_2-\underset{R_6}{CH}\right)_n-\underset{R_8}{\overset{R_7}{Z^+}}-R_9X^-\right]_{c'}-(B)_{c''}- \quad (I)$$

in which:

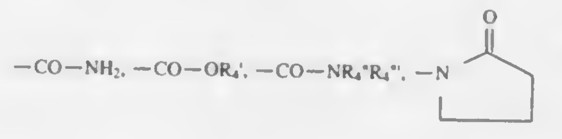
R_1 is H or COOH,

R_2 is H or CH_3,

R_3 is a group having at least an acidic function which may be totally or partially neutralized, and

a is a number such that the weight percentage of the anionic monomeric unit, based on the total weight of all monomers is, limits included, between 95 and 15;

R_4 is



$-CO-NH_2$, $-CO-OR_4'$, $-CO-NR_4''R_4'''$, $-N$

in which

R_4' is an alkyl or alkoxy radical having 1 to 4 carbon atoms,

R_4'' is H or alkyl radical having 1 to 4 carbon atoms,

R_4''' is an alkyl radical having 1 to 4 carbon atoms,

R_5 is H or CH_3, and

b is a number such that the weight percentage of the nonionic monomeric unit, based on the total weight of all monomers is, limits included, between 0 and 65;

A is a monomeric unit derived from a polymerizable unsaturated radical selected from the group consisting of acrylic, methacrylic, maleic, itaconic, crotonic, and vinylphthalic esters, maleic, itaconic, vinylphthalic hemiesters, acrylurethane, methacrylurethane, α,α-dimethyl-m-isopropenyl benzylurethane, allylurethane, allylic ethers, substituted or unsubstituted acrylamides, substituted or unsubstituted methacrylamides, and vinyl groups;

R_6 is H or CH_3,

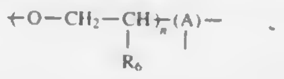
n=2 to 30,

R_7 is an alkyl group having 1 to 4 carbon atoms,

Z is N or S,

X is a sulfate or halogen counter-ion and when Z is N:

R_8 is an alkyl chain having 8 to 22 carbon atoms or a linking group to another polymeric chain of formula (I) having the following formula:



$$-\left(O-CH_2-\underset{R_6}{CH}\right)_n-\underset{|}{(A)}-$$

with n=2 to 30,

where A has the same meaning as above and the two bonds from A are connected to two monomer units in another polymer chain of formula (I), and

R_9 is an alkyl chain having 8 to 22 carbon atoms and when Z is S:

R_8 does not exist

R_9 is an alkyl chain having 8 to 22 carbon atoms, and c' is a number such that the weight percentage, based on the total weight of all monomers, of the cationic charged monomer having a surface-active structure, is, limits included, between 5 and 60 with c'+c"=c; c representing the weight percentage of all cationic monomers and varying between 5 and 60, limits included; and

B is a cationic monomeric unit,

c" is a number such that the weight percentage, based on the total weight of all monomers, of the cationic monomer which does not contain a surface-active structure is, limits included, between 0 and 55.

5,783,534

PROCESS FOR THE PRODUCTION OF SOLID ESTERQUATS

Bernd Wahle, Kaarst, Germany; Joaquim Bigorra Llosas, Sabadell, Spain; Rafael Pi, Granollers, Spain; Antoni Soler Codina, Terassa, Spain; Emili Brau Balague, Santa Barbara, Spain; Yvonne Reichert, Krefeld, Germany, and Peter Waltenberger, Breitscheld, Germany, assignors to Henkel Kommanditgesellschaft auf Akien, Duesseldorf, Germany

PCT No. PCT/EP94/03743, § 371 Date Jul. 15, 1996, § 102(e) Date Jul. 15, 1996, PCT Pub. No. WO95/14654, PCT Pub. Date Jun. 1, 1995

PCT Filed Nov. 11, 1994, Ser. No. 648,100

Claims priority, application Germany, Nov. 20, 1993, 43 39 643.7

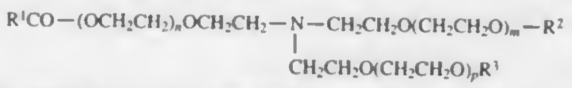
Int. Cl.⁶ A61K *7/075;* **Z07C** *219/02;* **C07C** *209/00*

U.S. Cl. 510—124 **19 Claims**

1. A process for the production of a solid esterquat free from solvents comprising the steps of

A) forming a mixture comprising

(i) at least one fatty acid triethanolamine ester of formula (I)



$$R^1CO-(OCH_2CH_2)_nOCH_2CH_2-\underset{CH_2CH_2O(CH_2CH_2O)_pR^3}{\underset{|}{N}}-CH_2CH_2O(CH_2CH_2O)_m-R^2 \quad (I)$$

in which R^1CO is a saturated and/or unsaturated acyl radical containing 6 to 22 carbon atoms, R^2 and R^3 independently of one another represent hydrogen or have the same meaning as R^1CO, and n, m and p together stand for O or for a number of from 1 to 10;

(ii) at least one fatty alcohol polyglycol ether, and

(iii) at least one fatty acid partial glyceride; and

B) adding an alkylating agent to the above mixture to form said solid esterquat; wherein in step A) components (i), (ii), and (iii) are present in a ratio by weight of about (40 to 60):(10 to 25):(15 to 50), with the proviso that these numbers add up to 1 00 parts by weight.

14. In a fabric softener and conditioner or hair care formulation, the improvement wherein the esterquat prepared by the process of claim 1 is present therein.

5,783,535

DETERGENT COMPOSITION COMPRISING AN AMIDOETHER DERIVATIVE MIXTURE AND A CONDITIONING COMPONENT

Kazuo Isobe; Toshikazu Azuma; Hideyo Nishikawa, and Takashi Imamura, all of Wakayama-ken, Japan, assignors to Kao Corporation, Tokyo, Japan

Continuation of Ser. No. 510,274, Aug. 2, 1995, abandoned. This application Jun. 17, 1997, Ser. No. 877,504

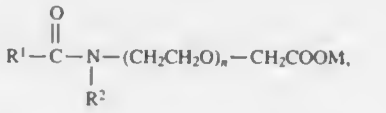
Claims priority, application Japan, Aug. 2, 1994, 6-181330

Int. Cl.⁶ C11D *3/32;1/62;9/36;3/37*

U.S. Cl. 510—126 **11 Claims**

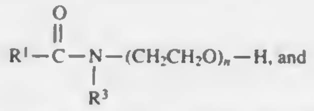
1. A detergent composition comprising components (A) and (B): wherein (A) is an amidoether derivative mixture comprising:

(i) an amidoether carboxylic acid or a salt thereof represented by formula (1),



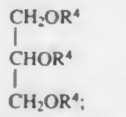
$$R^1-\overset{O}{\overset{\|}{C}}-\underset{R^2}{\underset{|}{N}}-(CH_2CH_2O)_n-CH_2COOM, \quad (1)$$

(ii) an amidoether represented by formula (2),



$$R^1-\overset{O}{\overset{\|}{C}}-\underset{R^3}{\underset{|}{N}}-(CH_2CH_2O)_n-H, \text{ and} \quad (2)$$

(iii) a glycerin derivative represented by formula (3);



$$\begin{array}{l} CH_2OR^4 \\ | \\ CHOR^4 \\ | \\ CH_2OR^4; \end{array} \quad (3)$$

wherein R^1 represents a straight-chain or branch alkyl or alkenyl group having 7 to 17 carbon atoms or a phenyl group substituted with an alkyl group having 7 to 17 carbon atoms;

R^2 represents a hydrogen atom or an alkyl group having 1 to 3 carbon atoms;

M represents a hydrogen atom, an alkali metal, an alkaline earth metal, an ammonium group, an alkanolamine or a basic amino acid;

n and m, which may be the same or different, each represent a number of from 1 to 10;

R^3 represents a hydrogen atom, or an alkyl group having 1 to 3 carbon atoms; and

R^4 represents a hydrogen atom, $-(CH_2CH_2O)_nCH_2COOM$ or $-(CH_2CH_2O)_mH$;

in which R^1, M, n, and m in formulae (1), (2) and (3) may be the same or different; wherein

the total amount of the amidoether carboxylic acid or a salt thereof (1) and the amidoether (2) is 50% by weight or more based on the solid content of the amidoether derivative mixture (A);

the weight ratio of the amidoether carboxylic acid or a salt thereof (1) to the amidoether (2) is from 95:5 to 60:40; and

the amount of the glycerin derivative (3) is 5% by weight or less based on the solid content of the amidoether derivative mixture (A), and

wherein (B) is a conditioning component which is at least one member selected from the group consisting of a cationic polymer, a silicone, a silicone derivative, a quaternary ammonium salt, and a tertiary amine other than (1) and (2), and

wherein the amounts of the amidoether derivative mixture (A) and the conditioning component (B) are from 5 to 50% by weight and from 0.01 to 10% by weight, respectively, based on the total amount of the detergent composition.

5,783,536

BAR COMPOSITION COMPRISING ADDITIVE FOR DELIVERING BENEFIT AGENT

Terence Farrell, Guttenberg; Georgia Shafer, Rutherford, and James Dalton, Cliffside Park, all of N.J., assignors to Lever Brothers Company, Division of Conopco, Inc., New York, N.Y.

Filed Jun. 26, 1996, Ser. No. 670,887

Int. Cl.⁶ C11D *9/36;17/00;3/12*

U.S. Cl. 510—141 **9 Claims**

1. An extruded toilet bar composition comprising 20–40% by wt. of a first chip comprising:

(a) 40% to about 80% by wt. of chip composition of a polyalkylene glycol having a molecular weight from about 4,000 to 20,000;

(b) 10% to 40% by wt. of chip composition of a silicone benefit agent;

(c) 0.01% to 10% by wt. of chip composition of a fumed silica;

(d) 0% to 10% by wt. of chip composition of water; and

(e) 0% to 15% by wt. of chip composition of a C_8 to C_{22} fatty acid;

and 80% to 60% by wt. of a second chip comprising 5% to 90% by wt. of a surfactant system wherein the surfactant is selected from the group consisting of soap, anionic surfactant, nonionic surfactant, amphoteric surfactant, cationic surfactant and mixtures thereof.

5,783,537

ENZYMATIC DETERGENT COMPOSITION AND METHOD FOR DEGRADING AND REMOVING BACTERIAL CELLULOSE

Fahim U. Ahmed; James E. Goldschmidt, and Gerald E. La Cosse, all of Greensboro, N.C., assignors to Kay Chemical Company, Greensboro, N.C.

Filed Mar. 5, 1996, Ser. No. 610,946

Int. Cl.⁶ C11D *3/386;3/10;3/37;3/18*

U.S. Cl. 510—193 **24 Claims**

1. An enzymatic detergent drain cleaner consisting essentially of:

(a) about 0.015% to about 20% by weight of an acid cellulase enzyme having hydrolytic activity specific to β-glucosidic bonds;

(b) about 1 % to about 70% by weight of a water soluble carbonate salt;

(c) about 1 % to about 70% by weight of a water soluble acid that reacts in an aqueous medium at standard temperature and pressure with the carbonate salt to form at least 100 ppm of carbon dioxide that dissolves in the aqueous medium;

(d) about 0.1% to about 10% by weight of a surfactant; and

(e) about 0.05% to about 5% by weight of a thickening agent.

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5,783,538
DETERGENT COMPOSITION

Takatoshi Totoki, Sagamihara, Japan, assignor to Minnesota Mining and Manufacturing Company, St. Paul, Minn.

PCT No. PCT/US95/05102, § 371 Date Dec. 12, 1996, § 102(e) Date Dec. 12, 1996, PCT Pub. No. WO96/00769, PCT Pub. Date Jan. 11, 1996

PCT Filed May 4, 1995, Ser. No. 765,231

Claims priority, application Japan, Jun. 30, 1994, 6-149318

Int. Cl.^{6} C11D *1/83;1/14;1/22;3/10*

U.S. Cl. 510—197 6 Claims

1. A detergent composition formulated with a combination of ingredients, based on 100 parts by weight of water, comprising:
1 to 50 parts by weight of an inorganic alkali salt,
1 to 50 parts by weight of a water-insoluble organic solvent,
0.1 to 30 parts by weight of an amine,
0.1 to 30 parts by weight of a water insoluble pyrrolidone compound,
1 to 200 parts by weight of polyhydric alcohol, and
0.1 to 50 parts by weight of anionic surface active agent.

5,783,539
PROCESS FOR INCORPORATING ALUMIUM SALTS INTO AN AUTOMATIC DISHWASHING COMPOSITION

Petrus Andrianus Angevaare, Soest, Netherlands, and Richard Gerald Gary, West New York, N.J., assignors to Lever Brothers Company, New York, N.Y.

Continuation-in-part of Ser. No. 444,503, May 19, 1995, Pat. No. 5,624,892. This application Jan. 16, 1997, Ser. No. 786,357

Int. Cl.^{6} C11D *1/94;7/14;7/42*

U.S. Cl. 510—223 20 Claims

1. An automatic dishwashing detergent composition which substantially inhibits lead corrosion of fine tableware comprising:
a) an effective amount of an aluminum-sequestrant complex;
b) 1 to 20 wt. % of a bleaching agent selected from a group consisting of a peroxygen agent, a hypohalite agent, corresponding salts and its mixtures thereof;
c) 1 to 75 wt. % of a builder;
d) 0 to 40 wt. % of a surfactant; and
e) 0 to less than 5 wt. % of a silicate,
wherein the composition is prepared by forming the aluminum-sequestrant complex premix by:
i) dissolving an effective amount of a sequestrant in water to form a sequestrant solution having a pH not less than one pH unit greater than the pKa of at least one of the ionizable groups on the sequestrant,
ii) adding the aluminum salt to the sequestrant solution to form an aluminum and sequestrant solution,
iii) adjusting the pH of the aluminum and sequestrant solution to the same pH as the sequestrant solution in (i) above to form the aluminum-sequestrant complex premix, and
iv) adding remaining components of the composition to the aluminum-sequestrant complex premix to form an automatic dishwashing composition wherein an aqueous solution of the composition has a pH of 5 to less than 9.

5,783,540
MACHINE DISHWASHING TABLETS DELIVERING A RINSE AID BENEFIT

Isaac Israel Secemski, Teaneck, N.J.; David John Lang, Ossining, N.Y.; John Richard Nicholson, Ramsey, and Bozena Marianna Piatek, Cedar Grove, both of N.J., assignors to Lever Brothers Company, Division of Conopco, Inc., New York, N.Y.

Filed Dec. 23, 1996, Ser. No. 780,061

Int. Cl.^{6} C11D *17/00;3/39*

U.S. Cl. 510—224 9 Claims

1. A detergent composition in solid form useful for machine dishwashing comprising:
(a) a first layer comprising
(i) an effective amount of an oxygen bleaching system to bleach soils from tableware washed in a machine dishwasher, the oxygen bleaching system selected from the group consisting of a peroxyqen bleach source, a peracid, a peracid precurser with a source of hydrogen peroxide, a bleach catalyst, a diacylperoxide and mixtures thereof,
(ii) an effective amount of a buffering system to deliver a pH of about 8.5 to about 11 in wash water, selected from the group consisting of water soluble alkali metal carbonates, bicarbonates, sesquicarbonates, borates, silicates, layered silicates, metasilicates, phytic acid, borate, crystalline aluminosilicates, amorphous aluminosilicates and mixtures thereof,
(iii) about 5 wt. % to about 90 wt. % of a builder selected from the group consisting of alkali metal pyrophosghates, orthophosphates, polyphosphates, alkali metal citrates, nitrilotriacetates, oxydisuccinates, polyphosphonates, acrylate/maleate copolymers, acrylate/maleate/vinylalcohol terpolymers and mixtures thereof, and
(iv) 1 to about 5wt. % of an enzyme selected from the group consisting of proteases, amylases, and mixtures thereof,
wherein the first layer dissolves to deliver a pH of about 8.5 to about 11 in the wash water; and
(b) a second layer comprising
(i) an effective amount of an acidity agent to provide a pH of rinse water after the release of the acidity agent below about pH 9, the acidity agent selected from a group consisting of a monocarboxylic acid, dicarboxylic acid, polycarboxylics acid, a boric acid, organo phosphonic acids, alkali metal and alkali earth metal salts of bicarbonate, hydrogen sulfate and hydrogen phosphate, and mixtures thereof,
(ii) an effective amount of a material of a continuous medium to act as a carrier for the acidity agent and anti-scaling agent, the continuous medium having a melting point in the range of from about 55° C. to about 70° C., and selected from the group of materials consisting of paraffin waxes, microcrystalline waxes, natural waxes, polyvinyl ethers, long chain fatty acids, alkonamides, glyceryl esters, mono-, di-, and triglycerides, alkali metal salts of fatty acids and fatty alkyl phosphate esters, polyethylene waxes, sorbitan esters, polyoxyethylene sorbitan fatty acid esters, polyethylene glycols, polyvinyl alcohols, ethylene-vinylacetate,styrene-vinylacetate and ethylene-maleic anhydride copolymers, partially esterified polymers of maleic anhydride, acrylic acid or methacrylic acid, and mixtures thereof, and
(iii) up to about 10% of an anti-scaling agent selected from a group consisting of polyacrylates having a molecular weight of from 1000 to about 400,000; acrylic acid/maleic acid; acrylic acid/vinyl pyrrolidone; acrylic acid/methacrylic acid; acrylic acid/phosphonate; acrylic acid/maleic acid/vinyl acetate; acrylic acid/acrylamide; acrylic acid/sulfophenyl methallyl ether; acrylic acid/2-acrylamido- 2-methylpropane sulfonic acid; acrylic acid/sulfonic acid; acrylic acid/sulfonic acid/sodium styrene sulfonate; acrylic acid/methyl methacrylic acid/sodium methylallyl sulfonate/sulfoethyl methylallyl ether; polymaleate; polymethacrylate; polyaspartate; ethylenediamine disuccinate; organo Dolyphosphonic acid and salts thereof; and mixtures thereof,
wherein the second layer dissolves in the wash water to deliver a pH of from about 6.5 to about 9.

5,783,541
UNIT PACKAGED DETERGENT

Joris Josef Gustaaf Tack, Rome, Italy; Jean-Luc Andre Varlet, Uccle, and Bruno Van De Pol, Mechelen, both of Belgium, assignors to Procter & Gamble Company, Cincinnati, Ohio

PCT No. PCT/US95/11165, § 371 Date Mar. 12, 1997, § 102(e) Date Mar. 12, 1997, PCT Pub. No. WO96/08555, PCT Pub. Date Mar. 21, 1996

PCT Filed Sep. 1, 1995, Ser. No. 793,884

Claims priority, application European Pat. Off., Sep. 12, 1994, 94870148

Int. Cl.^{6} C11D *11/00;17/00;3/37*

U.S. Cl. 510—224 8 Claims

1. A unit packaged detergent for dish washing, said unit packaged detergent comprising a detergent composition wrapped in a film made of a water dissolvable material, wherein said water dissolvable material protects the wrapped detergent from dissolution until the start of a main wash of a dish washing machine, and further wherein at least one outer side of the water dissolvable material is provided with a coating of a water dissolvable glue.

5,783,542
ANIONIC STABILIZED ENZYME BASED CLEAN-IN-PLACE SYSTEM

Carol A. Rouillard, Taylor, Mich., assignor to Diversey Lever, Inc., Plymouth, Mich.

Continuation-in-part of Ser. No. 508,124, Jul. 27, 1995, Pat. No. 5,571,446. This application Jun. 7, 1996, Ser. No. 660,530

Int. Cl.^{6} C11D *17/00;17/04;3/00*

U.S. Cl. 510—234 12 Claims

1. A two-part enzyme-based cleaning system comprising first and second liquid concentrates stored in separate containers for use in preparing a dilute use solution,
A. the first concentrate consisting of:
i) 1.75 to 7.5 percent by weight of a source of alkalinity selected from the sources of hydroxide based alkaline composition;
ii) 1 to 16 percent by weight of a water conditioner selected from the group consisting of polyacrylic acids and polyphosphates;
iii) balance water, and
B. the second concentrate consisting of:
1) 5 to 45 percent by weight of an enzyme stabilizing blend of an alkali salt of a (C_6 to C_{12}) fatty acid and a linear (C_8–C_{18}) polyoxyalkylene alcohol;
ii) an effective amount of a proteolytic enzyme;
iii) water and optionally an enzyme compatible non-aqueous liquid polyol filler; and
iv) balance water.

5,783,543
SCATTERABLE CARPET CLEANING FORMULATION CONTAINING ROLLABLE PARTICLES

Theo Fleckenstein, Hilden; Alexander Ditze, Remscheid; Franz Kresse, Hilden, and Thomas Hahn, Duesseldorf, all of Germany, assignors to Henkel Kommanditgesellschaft auf Aktien, Duesseldorf, Germany

PCT No. PCT/EP95/01040, § 371 Date Oct. 30, 1996, § 102(e) Date Oct. 30, 1996, PCT Pub. No. WO95/27023, PCT Pub. Date Oct. 12, 1995

PCT Filed Mar. 21, 1995, Ser. No. 718,557

Claims priority, application Germany, Mar. 30, 1994, 44 11 047.2

Int. Cl.^{6} C11D *3/382;1/14;* **B08B** *3/04*

U.S. Cl. 510—280 11 Claims

1. A carpet cleaning composition consisting essentially of:
(a) from about 40 to 50% by weight of a powder-form solid adsorbent selected from the group consisting of wood flour, cellulose powder, starch, cork powder, synthetic organic polymers in powder form, silicon dioxide, aluminum oxide in powder form, ground foam glass, fine-particle soluble salts, and mixtures thereof;
(b) from about 0.1 to 2% by weight of flakes of viscose sponge, the flakes having a length of from 3 mm to 10 mm, and a diameter equal to at least 20% of the length;
(c) from about 0.2 to 1.5% by weight of sodium olefin sulfonate;
(d) from about 1 to 10% by weight of a low-aromatic organic solvent; and
(e) remainder, water, all weights being based on the total weight of the composition.

5,783,544
COMPOSITION FOR REDUCING MALODOR IMPRESSION ON INANIMATE SURFACES

Toan Trinh, Maineville; Jerome Paul Cappel, Cincinnati; Philip Anthony Geis, West Chester; Judith Ann Hollingshead, Batavia; Mark Lee McCarty, Loveland, and Susan Schmaedecke Zwerdling, Wyoming, all of Ohio, assignors to The Procter & Gamble Company, Cincinnati, Ohio

Division of Ser. No. 543,350, Oct. 16, 1995, Pat. No. 5,663,134, which is a continuation of Ser. No. 289,991, Aug. 12, 1994, abandoned. This application Apr. 14, 1997, Ser. No. 834,611

Int. Cl.^{6} C11D *17/00;7/26;7/12*

U.S. Cl. 510—293 30 Claims

1. An article of manufacture, which comprises:
A. an aqueous composition for reducing malodor impression, comprising:
i. from about 0.01% to about 1%, by weight of the composition, of perfume which provides a freshness impression; and
ii. aqueous carrier; and
B. a spray dispenser; and
wherein said composition is essentially free of any material that would soil or stain fabric so that when the composition is used as a spray to reduce malodor at a level that is effective, it is not discernible when dried on the surface and wherein said composition contains less than about 5%, by weight of the composition, of low molecular weight monohydric alcohol.

5,783,545
ENZYME PREPARATION CONTAINING A SILVER CORROSION INHIBITOR

Kathleen Paatz; Wilfried Raehse; Juergen Haerer, all of Duesseldorf, Germany; Werner Pichler, Kundl, Austria, and Birgit Burg, Alpen, Germany, assignors to Henkel Kommanditgesellschaft auf Aktien, Duesseldorf, Germany

PCT No. PCT/EP94/04152, § 371 Date Jul. 24, 1996, § 102(e) Date Jul. 24, 1996, PCT Pub. No. WO95/17493, PCT Pub. Date Jun. 29, 1995

PCT Filed Dec. 14, 1994, Ser. No. 663,301

Claims priority, application Germany, Dec. 23, 1993, 43 44 215.3

Int. Cl.^{6} C11D *3/00;7/18;7/54*

U.S. Cl. 510—305 20 Claims

1. An enzyme containing granule, suitable for incorporation in particulate detergents, which comprises:
(1) a core which comprises the enzyme, at least one carrier material selected from the group consisting of inorganic carrier material and organic carrier material and optionally granulation auxiliaries; and
(2) a coating layer which comprises a silver corrosion inhibitor which is not $CoSO_4$.

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AMYLASE-CONTAINING DETERGENT COMPOSITIONS

Jean-Luc Philippe Bettiol, Newcastle upon Tyne; Michael Alan John Moss, Northumberland; Christiaan Arthur Jacques Kamiel Thoen, Tyne & Wear, all of United Kingdom; Stanton Lane Boyer, Fairfield; Michael Stanford Showell, Cincinnati, both of Ohio, and Janice Jeffrey, Newcastle upon Tyne, United Kingdom, assignors to Procter & Gamble Company, Cincinnati, Ohio

PCT No. PCT/US95/04710, § 371 Date Oct. 18, 1996, § 102(e) Date Oct. 18, 1996, PCT Pub. No. WO95/04710, PCT Pub. Date Nov. 2, 1995

PCT Filed Apr. 17, 1995, Ser. No. 722,088

Claims priority, application European Pat. Off., Apr. 22, 1994, 94302878

Int. Cl.^{6} C11D *3/386;3/30;3/36*

U.S. Cl. 510—305 **7 Claims**

1. A detergent composition comprising the following:
(a) 3% to 20% of an anionic surfactant component which comprises an alkyl sulfate and an alkyl ethoxy sulfate;
(b) 5% to 40% of a nonionic surfactant which comprises alkyl ethoxylate and alkyl n-methyl glucose amide;
(c) 3% to 30% of a bleaching agent which is a percarbonate bleach;
(d) 2% to 15% of a bleach activator which comprises N,N,N,N-tetra acetyl ethylene diamine and diethylene triamine penta phosphonic acid;
(e) 0.1% to 0.5% of an amylase which is a 1,4-D-glucan glucano-hydrolase obtained from Asperillys oryzae having CMCase activity;
(f) additional adjuvants selected from the group consisting of additional enzymes, builders, fillers, soil release polymers, brighteners, suds suppressors, and perfume ingredients.

5,783,547

ENZYME GRANULATES

Carole Patricia Denise Wilkinson, Brussels, Bosnia/Herzegovina, assignor to The Procter & Gamble Company, Cincinnati, Ohio

PCT No. PCT/US95/02706, § 371 Date Sep. 24, 1996, § 102(e) Date Sep. 24, 1996, PCT Pub. No. WO95/25783, PCT Pub. Date Sep. 28, 1995

PCT Filed Mar. 10, 1995, Ser. No. 702,463

Claims priority, application European Pat. Off., Mar. 24, 1994, 94200767

Int. Cl.^{6} C11D *3/386;3/37;3/10*

U.S. Cl. 510—320 **1 Claim**

1. An enzyme-containing granulate comprising:
(a) 0.5% to 20% of an enzyme selected from amylases, proteases, and mixtures thereof;
(b) 0.1% to 25% of polymeric binding material which is a detergent active ingredient selected from the group consisting of polyamine N-oxide, copolymers of N-vinylpyrrolidone and N-vinylimidazole, polyvinyloxazolidone, polyvinylimidazole, polyaspartic acid and its salts, polymers and copolymers of maleic and acylic acid and their salts, and mixtures thereof;
(c) 3% to 97.5% filler salt material which are active detergent ingredients selected from the group consisting of alkali metal or alkaline earth metal salts of carbonate, bicarbonate, citrate, phosphate, citric acid, and mixtures thereof;
and wherein the enzyme-containing granulate comprises a coating selected from the group consisting of coating A which consists of zeolite A, tallow ethoxylated alcohol having an average of 50 ethylene oxide units, polyethylene glycol having a molecular weight of 4,000 and carboxymethyl cellulose, coating B which consists of zeolite MAP, titanium dioxide, tallow ethoxylated alcohol having an average of 50 ethylene oxide units, and polyethylene glycol having a molecular weight of 4,000 and coating C which consists of zeolite x, silica, polyethylene glycol having a molecular weight of 4,000, and an alcohol ethoxylate having an average of 5 moles of ethylene oxide.

5,783,548

STABLE LIQUID DETERGENT COMPOSITIONS INHIBITING DYE TRANSFER

Abdennaceur Fredj, Strombeek-Bever, and Patrick Willy M. Goethals, Eeklo, both of Belgium, assignors to The Procter & Gamble Company, Cincinnati, Ohio

Continuation of Ser. No. 432,128, Aug. 17, 1995, abandoned. This application Dec. 31, 1996, Ser. No. 777,567

Claims priority, application European Pat. Off., Nov. 6, 1992, 92870182

Int. Cl.^{6} C11D *3/42;1/12*

U.S. Cl. 510—324 **19 Claims**

1. A liquid dye transfer inhibiting composition essentially free of aromatic anionic surfactants comprising:
(a) from 0.01% to 5% of a polyamine N-oxide containing polymer
(b) from 0.01% to 1% of a brightener
(c) from 5% to 30% of non-aromatic anionic surfactant
wherein said brightener comprises at least 40% or more of a hydrophobic brightener.

5,783,549

POLYCARBOXYLATE POLYMERS FOR RETARDING THE GELATION OF SODIUM CARBONATE SLURRIES

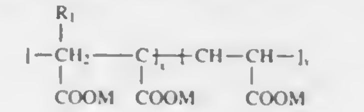
Sridhar Gopalkrishnan, Woodhaven; Kathleen M. Guiney, Wyandotte, and John V. Sherman, Allen Park, all of Mich., assignors to BASF Corporation, Mount Olive, N.J.

Filed Jul. 15, 1996, Ser. No. 680,192

Int. Cl.^{6} C11D *3/37*

U.S. Cl. 510—337 **9 Claims**

1. An aqueous sodium carbonate slurry comprising a polycarboxylate polymer having the following structure;



$$\left[-\overset{R_1}{\underset{COOM}{CH_2}}-\underset{COOM}{C}\right]_x\left[CH-\underset{COOM}{CH}-\right]_y$$

where x is 20–60% by weight of the total polycarboxylate polymer and y is 40–80% by weight of the total polycarboxylate polymer; R_1=H or CH_3: M is a alkali metal, and the molecular weight of said polycarboxylate polymer is from about 700–3000, wherein further, said polycarboxylate polymer is useful in retarding the gelation of said aqueous sodium carbonate slurry.

2. A slurry according to Claim 1 wherein x is 20–50% by weight of the total polymer and y is 50–80% by weight of the total polymer.

5,783,550

MOLD REMOVAL COMPOSITION AND MOLD BLEACHING METHOD

Yasuhisa Kuriyama; Jun Kokubu, both of Yokkaichi; Yasuo Hiro, Suzuka; Yoshiko Tsuji, Yokkaichi; Tsuneo Kobayashi, Ninomiya-Machi; Masahito Mikami, Hadano, and Shuzo Nakamura, Minoo, all of Japan, assignors to S. C. Johnson & Son, Inc., Racine, Wis.

PCT No. PCT/JP95/01717, § 371 Date Jul. 2, 1997, § 102(e) Date Jul. 2, 1997, PCT Pub. No. WO96/06911, PCT Pub. Date Mar. 7, 1996

PCT Filed Aug. 30, 1995, Ser. No. 793,532

Claims priority, application Japan, Aug. 31, 1994, 6-229044

Int. Cl.^{6} C11D *3/39;* **A01N** *59/24*

U.S. Cl. 510—372 **2 Claims**

1. A mold removal composition, comprising:
(a) 0.2–30 wt % of dicyandiamide;
(b) 0.1–10 wt % of an alkali metal hydroxide or alkaline-earth metal hydroxide;
(c) 40–99 wt % of water; and
(d) 0.5–59.7 wt % of a peroxide, wherein the pH of the composition is 8.0–13.0.

5,783,551

PARAFFINIC CLEANING SOLUTIONS

Jeffrey Mirsky, 8930 Ridgemont Dr., Atlanta, Ga. 30350

Continuation of Ser. No. 296,089, Aug. 25, 1994, abandoned, which is a continuation of Ser. No. 875,979, Apr. 29, 1992, abandoned. This application Jul. 2, 1996, Ser. No. 675,357

Int. Cl.^{6} C11D *3/18;3/44*

U.S. Cl. 510—407 **12 Claims**

1. A cleaning agent consisting of a solution of from about 60% to 100% by weight of n-paraffins, wherein said n-paraffins have hydrocarbon lengths substantially in the range of from about C_9 to C_{16}, from about 2% to 25% by weight of at least one terpene, and optionally at least one n-paraffin emulsifying agent.

5,783,552

DRYER-ACTIVATED FABRIC CONDITIONING COMPOSITIONS CONTAINING UNCOMPLEXED CYCLODEXTRIN

Toan Trinh, Maineville, and Helen Bernardo Tordil, West Chester, both of Ohio, assignors to The Procter & Gamble Company, Cincinnati, Ohio

Division of Ser. No. 590,711, Jan. 24, 1996, Pat. No. 5,681,506, which is a continuation of Ser. No. 278,703, Jul. 21, 1994, abandoned, which is a continuation of Ser. No. 40,703, Mar. 31, 1993, abandoned. This application May 6, 1997, Ser. No. 851,758

Int. Cl.^{6} C11D *3/22*

U.S. Cl. 510—441 **14 Claims**

1. Solid, dryer-activated fabric conditioning composition comprising an effective amount, sufficient to absorb and control odor of uncomplexed cyclodextrin having a particle size of less than about 12 microns and from about 10% to about 95% of fabric softening agent.

5,783,553

ALKYL POLYGLYCOSIDES HAVING IMPROVED AESTHETIC AND TACTILE PROPERTIES

Sureshchandra G. Desai, Wayne, N.J.; John Frederick Hessel, Doylestown, Pa.; Allen D. Urfer, Plainfield, Ind.; Charles B. Allen, Norristown, Pa.; Stephen A. Fischer, Yardley, Pa., and Patrick M. McCurry, Lansdale, Pa., assignors to Henkel Corporation, Plymouth Meeting, Pa.

Continuation-in-part of Ser. No. 338,701, Nov. 10, 1994, Pat. No. 5,567,808. This application Nov. 1, 1995, Ser. No. 551,657

Int. Cl.^{6} C07G *3/00;* **C07H** *15/00;15/02*

U.S. Cl. 510—470 **69 Claims**

1. An alkyl polyglycoside composition comprising:
(a) a first alkyl polyglycoside having the general formula I

$$RO(Z)_a \qquad (I)$$

wherein R is a monovalent organic radical having from about 8 to about 18 carbon atoms; Z is a saccharide residue having 5 or 6 carbon atoms; and a is a number having a value from about 1 to about 6;
(b) an additive selected from the group consisting of C_6–C_{10} alkyl sulfates, unsaturated aliphatic carboxylic acids including hydroxy-substituted derivatives thereof or their salts, unsaturated aliphatic sorbitan esters, C_8–C_{36} branched aliphatic di-carboxylic acids, C_6–C_{54} branched aliphatic tri-carboxylic acids, alkyl sulfosuccinates, a second alkyl polyglycoside wherein the alkyl group has from 4 to 10 carbon atoms, alkyl alkoxylates, alkyl and aryl phosphate esters, branched aliphatic carboxylic acids, unsaturated alcohols, Guerbet alcohols, alkoxylated C 6 to C 18 alkyl polyglycosides, alkoxylated penterythritol, alkoxylated penterythritol esters, alkyl and aryl sulfonates, alkyl sulfonates, alkenyl sulfonates, alkyl amino carboxylates or imino dicarboxylates, betaines, carboxylated imidazoline derivatives, carboxylate surfactants, and mixtures thereof, in a weight ratio of alkyl polyglycoside to additive in a range of from about 500:1 to about 15:1; and
(c) a viscosity-controlling additive consisting of an aliphatic alcohol having from 1 to about 20 carbon atoms.

5,783,554

CLEANING COMPOSITIONS CONTAINING ANIONIC SURFACTANTS HAVING MULTIPLE HYDROPHOBIC AND HYDROPHILIC GROUPS

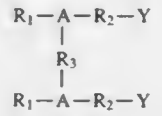
Ji Li, East Windsor; Manilal Dahanayake, Princeton Junction; Robert Lee Reierson, Cranbury, and David James Tracy, Plainsboro, all of N.J., assignors to Rhodia Inc., Cranbury, N.J.

Division of Ser. No. 292,907, Aug. 19, 1994, Pat. No. 5,643,864. This application Jun. 30, 1997, Ser. No. 886,105

Int. Cl.^{6} C11D *1/04;1/28;1/34;1/66*

U.S. Cl. 510—488 **22 Claims**

1. A cleaning composition comprising an aqueous solution having a cleaningly effective amount of a surfactant of the formula:



$$\begin{array}{c} R_1-A-R_2-Y \\ | \\ R_3 \\ | \\ R_1-A-R_2-Y \end{array}$$

wherein R_1 represents R_4—B—R_5 wherein R_4 can be an alkyl or hydroxy substituted or perfluorinated alkyl of from 1 to about 22 carbon atoms and the hydroxy-substituted derivatives thereof; R_5 represents an alkylene group of 1 to 12 carbons and the hydroxy substituted derivatives thereof; B represents an amide group —C(O)N(R_6)—, wherein R_6 independently represents a lower alkyl or hydroxy-substituted alkyl of from 1 to about 6 carbons or hydrogen; R_2 can independently represent a C_1 to about C_{10} alkylene and the hydroxy-substituted derivatives thereof, an amide group —C(O)N(R_6)—, a polyether group —(R_7—O)$_x$ or R_8—D_1—R_8 wherein R_6 has been hereinbefore defined and R_7 independently represents a C_2 to about C_4 alkyl with x being a number between 1 and 20 and R_8 can independently be a C_1 to about C_6 alkylene and the hydroxy-substituted derivatives thereof and D_1 represents —O—, —S—, an amide group —C(O)N(R_6)—, or —N(R_9)— wherein R_9 independently represents a C_1 to about C_{12} alkyl and the hydroxy-substituted derivatives thereof or hydrogen; R_3 can independently be an alkylene or alkylaryl of from 1 to about 10 carbon atoms and the hydroxy-substituted derivatives thereof or R_{10}—D_2—R_{10} wherein R_{10} can independently be an alkylene of from 1 to about 6 carbon atoms and the hydroxy-substituted derivatives thereof as well as aryl, and D_2 represents —O—, —S—, —SO_2—, a carbonyl group, a polyether group —O(R_7—O)$_x$—, (R_{11}N(R_{11}))$_z$ or aryl wherein R_{11} represents a carbon chain of from 1 to about 12 carbon atoms and the hydroxy-substituted derivatives thereof or hydrogen, R_7 being as defined hereinabove with x being a number between about 1 and 20 and z is a number from 1 to about 4; "A" independently represents —N=and Y independently represents hydrogen, —SO_3H, —OSO_3H, —OP(O)(OH)$_2$, —P(O)(OH)$_2$, —COOH, —CO_2—C_6H_4—SO_3H and the salts thereof.

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5,783,555
ULINASTATIN-CONTAINING SUPPOSITORY

Shigeharu Suzuki, and Katsumi Takaada, both of Tokyo, Japan, assignors to Mochida Pharmaceutical Co., Ltd., Tokyo, Japan

PCT No. PCT/JP95/02762, § 371 Date Aug. 29, 1996, § 102(e) Date Aug. 29, 1996, PCT Pub. No. WO96/20726, PCT Pub. Date Jul. 11, 1996

PCT Filed Dec. 28, 1995, Ser. No. 605,202

Claims priority, application Japan, Dec. 29, 1994, 6-338313

Int. Cl.^{6} A61K *38/22*

U.S. Cl. 514—2 **4 Claims**

1. An ulinastatin-containing suppository composition produced by the steps comprising:
- preparing an aqueous solution of ulinastatin comprising 0.05 to 5% by weight in total suppository composition of a stabilizer,
- uniformly emulsifying the solution in an oily base in the presence of an emulsifier of 0.05 to 10% by weight in total suppository composition, and
- solidifying the emulsion;
- wherein said stabilizer is at least one member selected from the group consisting of basic amino acids and salts thereof, acidic amino acids and salts thereof, gelatin, albumin, disaccharides and sugar alcohols; and
- wherein said emulsifier is at least one member selected from the group consisting of sucrose fatty acid esters, concentrated glycerin, glycerol, polyoxyethylene polyoxypropylene glycols, and polyoxyethylene hydrogenated caster oil.

5,783,556
FURMULATED INSULIN-CONTAINING COMPOSITION

Ross G. Clark, Pacific; James Q. Oeswein, Moss Beach, and Douglas A. Yeung, Fremont, all of Calif., assignors to Genentech, Inc., South San Francisco, Calif.

Filed Aug. 13, 1996, Ser. No. 696,314

Int. Cl.^{6} A61K *38/00:38/24:38/30*

U.S. Cl. 514—4 **48 Claims**

1. A parenteral composition comprising IGF-I and NPH insulin, in amounts of from about 1 to 10 mg IGF-I and from about 0.2 to 2 mg NPH insulin, in a parenterally acceptable carrier.

5,783,557
THF-γ2 ANALOGS AND PHARMACEUTICAL COMPOSITIONS COMPRISING THEM

Yigal Burstein, and Nathan Trainin, both of Rehovot, Israel, assignors to Yeda Research and Development Company Ltd at Weizmann Institute of Science, Rehovot, Israel

PCT No. PCT/US94/05504, § 371 Date Mar. 29, 1996, § 102(e) Date Mar. 29, 1996

PCT Filed Jun. 28, 1994, Ser. No. 571,985

Claims priority, application Israel, Jul. 1, 1993, 106214

Int. Cl.^{6} A61K *38/00;* **A01N** *37/18;* **C04K** *5/00;7/00*

U.S. Cl. 514—11 **5 Claims**

1. A peptide being a thymic humoral factor γ2 (THF-γ2) analog of at least six amino acids or a functional derivative or a salt thereof, able to enhance by at least 30% either concanavalin A (ConA)-induced IL-2 production in mouse spleen cells and/or the number of granulocyte-monocyte colony forming cells of mouse bone marrow, said peptide having the sequence of THF-γ2 of the formula I (SEQ ID No:1):

Leu—Glu—Asp—Gly—Pro—Lys—Phe—Leu (I)
1 2 3 4 5 6 7 8 amino acid [residue] number

but differing therefrom by
- (i) deletion of one or two amino acids except for a two amino acid deletion consisting of residues 7 and 8, or
- (v) linkage of two to four sequences of sequence (I) or modified sequences of (I) corresponding to (i) through a peptidic or non-peptidic linkage.

5,783,558
PARATHORMONE FRAGMENTS, THEIR PREPARATION AND MEDICAMENTS CONTAINING THESE

Christian Duvos, Stade; Hubert Mayer, Wolfenbüttel; Bernd Mueller-Beckmann, Grünstadt; Klaus Strein, Hemsbach, and Edgar Wingender, Wolfenbüttel, all of Germany, assignors to Boehringer Mannheim GmbH, Mannheim, Germany

PCT No. PCT/EP93/00259, § 371 Date Jul. 20, 1994, § 102(e) Date Jul. 20, 1994, PCT Pub. No. WO93/15109, PCT Pub. Date Aug. 5, 1993

PCT Filed Feb. 4, 1993, Ser. No. 256,363

Claims priority, application Germany, Feb. 4, 1992, 42 03 040.4

Int. Cl.^{6} A61K *38/29;* **C07K** *14/635*

U.S. Cl. 514—12 **10 Claims**

1. A peptide fragment of a parathyroid hormone (PTH) selected from the group consisting of bovine PTH beginning at residue 1 and ending a residue 35 or 36; and porcine PTH beginning at residue 1 and ending at residue 35 or 36.

5,783,559
SOLUTION CONTAINING IGF-1

Ebba Florin-Robertsson, Stockholm; Jonas Fransson, Uppsala, and Diane Moore, Upplands Väsby, all of Sweden, assignors to Pharmacia & Upjohn Aktiebolag, Stockholm, Sweden

PCT No. PCT/SE94/00010, § 371 Date Oct. 16, 1995, § 102(e) Date Oct. 16, 1995, PCT Pub. No. WO94/15584, PCT Pub. Date Jul. 21, 1994

PCT Filed Jan. 10, 1994, Ser. No. 491,902

Claims priority, application Sweden, Jan. 15, 1993, 9300105

Int. Cl.^{6} A61K *38/08;38/22*

U.S. Cl. 514—12 **13 Claims**

1. Stable solution consisting essentially of IGF-I and a phosphate buffer in an amount of 5–20 mmol giving a pH of 5.5 to 6.5 in an isotonic solution for injection and which after +5±3° C. storage for at least 24 months has a remaining activity of at least 90% of its original value.

5,783,560
USE OF HUMAN GROWTH HORMONE FOR PREOPERATIVE ADMINISTRATION

Peter Gluckman, Auckland, Netherlands, assignor to Pharmacia & Upjohn Aktieholag, Stockholm, Sweden

PCT No. PCT/SE94/00596, § 371 Date Nov. 27, 1995, § 102(e) Date Nov. 27, 1995, PCT Pub. No. WO95/00167, PCT Pub. Date Jan. 5, 1995

PCT Filed Jun. 16, 1994, Ser. No. 553,375

Claims priority, application Sweden, Jun. 25, 1993, 247990

Int. Cl.^{6} A61K *38/00;31/195;31/70;31/715*

U.S. Cl. 514—12 **20 Claims**

1. Method for preoperative treatment of patients in need of reduction of protein loss by administration of an effective amount of hormone (GH).

5,783,561
ANTI-GRAM-POSITIVE BACTERIAL METHODS AND MATERIALS

Arnold Horwitz, Los Angeles; Lewis H. Lambert, Jr., Fremont, and Roger G. Little, II, Benicia, all of Calif., assignors to XOMA Corporation, Berkeley, Calif.

Continuation of Ser. No. 372,783, Jan. 13, 1995, Pat. No. 5,578,572, which is a continuation-in-part of Ser. No. 274,299, Jul. 11, 1994, abandoned, which is a continuation-in-part of Ser. No. 209,762, Mar. 11, 1994, Pat. No. 5,733,872, which is a continuation-in-part of Ser. No. 183,222, Jan. 14, 1994, abandoned. This application Nov. 25, 1996, Ser. No. 758,116

Int. Cl.^{6} A61K *38/16;38/17*

U.S. Cl. 514—12 **24 Claims**

1. In a method of treating a subject infected with a gram-positive bacterial species with an antibiotic, wherein the gram-positive bacterial species is selected from the group consisting of *Bacillus subtilis, Staphylococcus aureus, Staphylococcus epidermidis, Staphylococcus hominis, Staphylococcus scirui, Staphylococcus saprophyticus, Staphylococcus haemolyticus, Staphylococcus hyicus, Staphylococcus intermedius, Staphylococcus simulans, Streptococcus pneumoniae, Streptococcus pyagenes, Streptococcus agalactia, Streptococcus bovis, Enterococcus faecalis, Enterococcus faecium, Enterococcus gallinarum, Enterococcus raffinosus, Enterococcus casseliflavus* and *Enterococcus durans*, the improvement comprising the step of administering to said subject an amount of a BPI protein product effective to increase the susceptibility of said gram-positive bacterial species to said antibiotic.

5,783,562
LUTEINIZING HORMONE RELEASING HORMONE ANALOGS

Xiao Shaobo, Tianjin, China, assignor to Asta Medica Aktiengesellschaft, Germany

Continuation-in-part of Ser. No. 265,631, Jun. 24, 1994, abandoned, which is a continuation of Ser. No. 789,730, Nov. 12, 1991, abandoned. This application May 23, 1995, Ser. No. 450,951

Claims priority, application Switzerland, Nov. 10, 1990, 90108955.9

Int. Cl.^{6} A61K *38/00;38/24;* **A01N** *37/18;* **C04K** *5/00*

U.S. Cl. 514—15 **8 Claims**

1. A peptide having the sequence NAc-D2Nal^1-AA^2-AA^3-Ser^4-AA^5-D 3Pal^6-Leu^7-AA^8-Pro^9-DAla^{10}-NH$_2$, wherein AA^5 is Mop^5 or Arg^5, provided that
- when AA^5=Mop^5, then AA^2=DpClPhe^2, AA^3=D3Pal^3, and AA^8=Arg^8; and
- when AA^5=Arg^5 and AA^3=DPhe^3 then AA^2=DpClPhe^2, and AA^8=Arg^8; and
- when AA^5=Arg^5 and AA^3=D3Pal^3, then AA^2=DpClPhe^2 and AA^8=Pap^8.

5,783,563
METHOD FOR TREATMENT OR PROPHYLAXIS OF VENOUS THROMBOSIS

Karl Thomas Antonsson, Lindome; Ruth Elvy Bylund, Västra Frölunda; Nils David Gustafsson, Kullavik, and Nils Olov Ingemar Nilsson, Fjärås, all of Sweden, assignors to Astra Aktiebolag

Continuation of Ser. No. 382,036, Aug. 19, 1994. This application Jun. 6, 1995, Ser. No. 470,258

Claims priority, application Sweden, Jun. 3, 1993, 9301916

Int. Cl.^{6} A61K *38/00;* **A01N** *43/40*

U.S. Cl. 514—19 **1 Claim**

1. A method of treatment or prophylaxis of venous thrombosis in a mammal in need of such treatment or prophylaxis, which comprises administering to the mammal an effective amount of HOOC—CH$_2$—(R)Cgl-Aze-Pab or a stereoisomer thereof or a physiologically acceptable salt thereof.

5,783,564
SIALIC ACID DERIVATIVES

Haruyuki Chaki; Naoko Ando; Yasuhiro Morinaka; Ken-ichi Saito; Tomoko Yugami, and Rie Yoshida, all of Yokohama, Japan, assignors to Mitsubishi Chemical Corporation, Tokyo, Japan

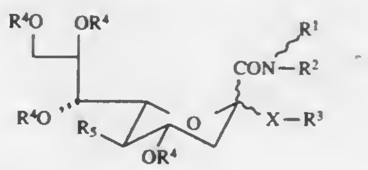
Continuation-in-part of Ser. No. 362,947, Dec. 23, 1994. This application Jun. 24, 1996, Ser. No. 669,219

Claims priority, application Japan, Dec. 24, 1993, 5-328454

Int. Cl.^{6} A61K *31/70;31/58*

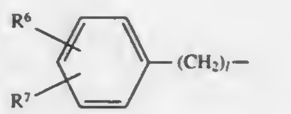
U.S. Cl. 514—42 **5 Claims**

1. A method for the treatment of senile dementia, which comprises administering to a patient who requires such treatment, an effective amount of a sialic acid derivative represented by the general formula (1):

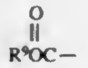


(1)

wherein
- R^1 represents a steroidal compound residue:
- R^2 represents hydrogen or C$_1$–C$_4$ alkyl;
- R^3 represents
  - (1) C$_1$–C$_{15}$ alkyl
  - (2)



wherein each of R^6 and R^7 independently represents
- (a) hydrogen,
- (b) halogen,
- (c) C$_1$–C$_4$ alkyl,
- (d) hydroxyl,
- (e) R^{8}O—,
  wherein R^8 represents C$_1$–C$_4$ alkyl, phenyl or phenyl-(C$_1$–C$_3$)alkyl,
- (f) nitro,
- (g) amino,
- (h) C$_1$–C$_4$ alkylamino,
- (i) C$_2$–C$_8$ dialkylamino, or
- (j)

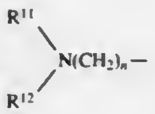


$R^9OC(=O)—$

wherein R^9 represents hydrogen, C$_1$–C$_4$ alkyl, phenyl or phenyl-(C$_1$–C$_3$) alkyl, and

l represents an integer of 0–6,
- (3) R^{10}O(CH$_2$)$_m$—
  wherein R^{10} represents
  - (a) hydrogen,
  - (b) C$_1$–C$_4$ alkyl,
  - (c) phenyl which is unsubstituted or is substituted by at least one member of the group consisting of C$_1$–C$_4$ alkyl, halogen, hydroxyl, nitro, amino and carboxyl, or
  - (d) phenyl-(C$_1$–C$_3$)alkyl which is unsubstituted or is substituted by at least one member of the group consisting of C$_1$–C$_4$ alkyl, halogen, hydroxyl, nitro, amino and carboxyl, and

  m is an integer of 2–6, or
- (4)



wherein
- R^{11} represents hydrogen or C$_1$–C$_4$ alkyl,
- R^{12} represents

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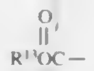
- (a) hydrogen,
- (b) C_1–C_4 alkyl,
- (c) C_2–C_7 acyl,
- (d) C_1–C_4 alkylsulfonyl,
- (e) phenylsulfonyl which is unsubstituted or is substituted by at least one member selected from the group consisting of C_1–C_4 alkyl, halogen, hydroxyl, nitro, amino and carboxyl, or



(f) $R^{13}O\overset{O}{\overset{\|}{C}}-$

wherein R^{13} represents C_1–C_4 alkyl, phenyl, or phenyl-(C_1–C_3)alkyl, and

n is an integer of 2–6,

R_4 represents hydrogen or C_2–C_7 acyl,

R_5 represents

- (1) $R^{14}O$—
  wherein R^{14} is hydrogen or C_2–C_7 acyl, or
- (2) $R^{15}NH$—
  wherein R^{15} represents
  - (a) C_2–C_7 acyl,
  - (b) $R^{16}O(CH_2)_pCO$—
    wherein R^{16} represents hydrogen, C_1–C_6 alkyl, phenyl or phenyl-(C_1–C_3)alkyl, and p represents an integer of 0 to 4,
  - (c) C_7–C_{11} aroyl which is unsubstituted or is substituted by at least one member of the group consisting of C_1–C_4 alkyl, halogen, hydroxyl, nitro, amino and carboxyl,
  - (d) phenyl-(C_1–C_3)alkylcarbonyl which is unsubstituted or is substituted by at least one member of the group consisting of C_1–C_4 alkyl, halogen, hydroxyl, nitro, amino and carboxyl,
  - (e) C_1–C_4 alkylsulfonyl, or
  - (f) phenylsulfonyl which is unsubstituted or is substituted by at least one member of the group consisting of C_1–C_4 alkyl, halogen, hydroxyl, nitro, amino and carboxyl,

X represents O or S,

or a pharmaceutically acceptable salt, hydrate or solvate thereof.

5,783,565
CATIONIC AMPHIPHILES CONTAINING SPERMINE OR SPERMIDINE CATIONIC GROUP FOR INTRACELLULAR DELIVERY OF THERAPEUTIC MOLECULES

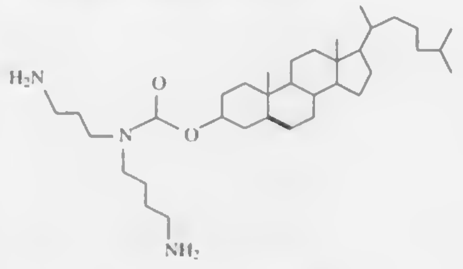
Edward R. Lee, Quincy; David J. Harris, Lexington; Craig S. Siegel, Woburn; Seng H. Cheng, Wellesley; Simon J. Eastman, Marlboro; John Marshall, Milford, and Ronald K. Scheule, Hopkinton, all of Mass., assignors to Genzyme Corporation, Framingham, Mass.

Continuation of Ser. No. 546,087, Oct. 20, 1995, which is a continuation-in-part of Ser. No. 540,867, Oct. 11, 1995, Pat. No. 5,747,471, which is a continuation-in-part of Ser. No. 352,479, Dec. 9, 1994, Pat. No. 5,650,096. This application Feb. 1, 1996, Ser. No. 595,375

Int. Cl.⁶ A61K *9/127;48/00;* **B01F** *17/16;* **C12N** *15/00*

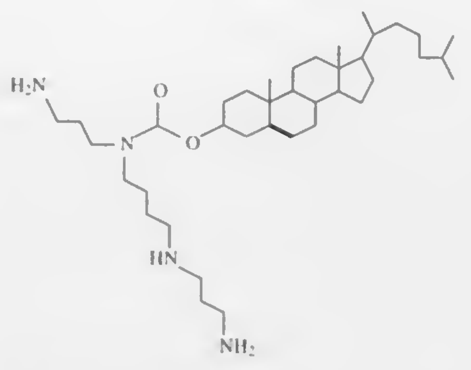
U.S. Cl. 514—44 **4 Claims**

1. A cationic amphiphile selected from



N^4-spermidine cholesteryl carbamate, and

-continued



N^4-spermine cholesteryl carbamate

wherein said cationic amphiphile is in the free base form.

5,783,566
METHOD FOR INCREASING OR DECREASING TRANSFECTION EFFICIENCY

Kimberly Ann Mislick, Los Angeles, Calif., assignor to California Institute of Technology, Pasadena, Calif.

Filed May 10, 1996, Ser. No. 644,095

Int. Cl.⁶ A61K *38/00;48/00;* **C12N** *5/00;15/00*

U.S. Cl. 514—44 **37 Claims**

1. A method for administering genetic material to cells, comprising administering to the cells an effective amount of a complex of genetic material and a cationic species and an effective amount of a compound that increases proteoglycan expression on the cell surface to increase the transfection efficiency relative to when the cells exhibit normal proteoglycan expression, wherein the genetic material is administered in vitro, in vivo, or ex vivo.

5,783,567
MICROPARTICLES FOR DELIVERY OF NUCLEIC ACID

Mary Lynne Hedley, Belmont, Mass.; Joanne M. Curley, San Mateo, Calif., and Robert S. Langer, Newton, Mass., assignors to Pangaea Pharmaceuticals, Inc., Cambridge, Mass.

Filed Jan. 22, 1997, Ser. No. 787,547

Int. Cl.⁶ A61K *48/00;* **C12N** *15/63;15/11*

U.S. Cl. 514—44 **32 Claims**

1. A preparation of microparticles, each of which comprises a polymeric matrix and nucleic acid, the polymeric matrix consisting essentially of one or more synthetic polymers having a solubility in water of less than about 1 mg/l, wherein

at least 90% of the microparticles have a diameter less than about 100 microns, and

the nucleic acid is an expression vector selected from the group consisting of RNA molecules, at least 50% of which are closed circles; and circular plasmid DNA molecules, at least 50% of which are supercoiled.

5,783,568
METHODS FOR TREATING CANCER AND OTHER CELL PROLIFERATIVE DISEASES

Joseph Schlessinger, New York, N.Y.; Irit Lax, Fair Lawn, N.J.; John E. Ladbury, New York, N.Y., and Peng Cho Tang, Moraga, Calif., assignors to Sugen, Inc., Redwood City, Calif., and New York University, New York, N.Y.

Filed Jun. 10, 1994, Ser. No. 258,307

Int. Cl.⁶ A61K *31/715;* **C08B** *37/10*

U.S. Cl. 514—53 **9 Claims**

1. A method for treating a cancer or angiogenic abnormality involving abnormal cell proliferation induced by the binding of an

oligomerized heparin growth factor ligand-heparin complex to its receptor, which comprises administering to a patient in need of such treatment an amount of sucrose octasulfate effective to prevent oligomerization of heparin growth factor, wherein said amount is in excess of that sufficient to activate said receptor.

5,783,569
USES FOR UNDERIVATIZED, AQUEOUS SOLUBLE β(1-3) GLUCAN AND COMPOSITIONS COMPRISING SAME

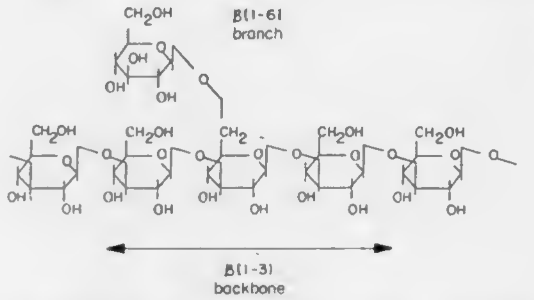
Spiros Jamas, Boston; D. Davidson Easson, Jr., Shrewsbury, and Gary R. Ostroff, Worcester, all of Mass., assignors to Alpha-Beta Technology, Inc., Worcester, Mass.

PCT No. PCT/US93/07904, § 371 Date Jan. 26, 1995, § 102(e) Date Jan. 26, 1995, PCT Pub. No. WO94/04163, PCT Pub. Date Mar. 3, 1994

Continuation-in-part of Ser. No. 934,015, Aug. 21, 1992, Pat. No. 5,622,939. This PCT application Aug. 20, 1993, Ser. No. 373,251

Int. Cl.⁶ C07H *1/00;* **C08B** *37/00;* **A61K** *31/715*

U.S. Cl. 514—54 **87 Claims**



1. A method for inducing an immune response in an animal or human, comprising administering to the animal or human an underivatized, aqueous soluble β(1-3)-glucan in a triple helix conformation having immunostimulating properties, which does not stimulate or prime the production of interleukin-1 or tumor necrosis factor or both, in virro, in an amount sufficient to induce an immune system response.

5,783,570
ORGANIC SOLVENT-SOLUBLE MUCOPOLYSACCHARIDE, ANTIBACTERIAL ANTITHROMBOGENIC COMPOSITION AND MEDICAL MATERIAL

Hideyuki Yokota; Masakazu Tanaka; Masahiro Seko; Noriko Monden; Susumu Arimori, and Shigeji Konagaya, all of Ohtsu, Japan, assignors to Toyo Boseki Kabushiki Kaisha, Osaka, Japan

Filed Dec. 23, 1996, Ser. No. 774,288

Claims priority, application Japan, Dec. 26, 1995, 7-339263; Jan. 8, 1996, 8-000954; Jan. 9, 1996, 8-001573; Nov. 25, 1996, 8-313475; Nov. 28, 1996, 8-317910

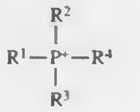
Int. Cl.⁶ A61K *31/70;* **C08B** *37/10*

U.S. Cl. 514—56 **22 Claims**

1. An organic solvent-soluble ionic complex of at least one mucopolysaccharide and a quaternary phosphonium.

2. The organic solvent-soluble ionic complex of claim 1, wherein the mucopolysaccharide is selected from the group consisting of heparin and heparin derivatives.

3. The organic solvent-soluble ionic complex of claim 1, wherein the quaternary phosphonium has the formula (1)



$$R^1-\overset{\overset{\displaystyle R^2}{|}}{\underset{\underset{\displaystyle R^3}{|}}{P^+}}-R^4 \qquad (1)$$

wherein R^1, R^2 and R^3 are the same or different and each is alkyl having 1 to 12 carbon atoms, aryl having 6 to 12 carbon atoms or aralkyl having 7 to 20 carbon atoms, and R^4 is alkyl having 1 to 25 carbon atoms.

17. A method for imparting antibacterial property and antithrombogenicity to a medical material, which comprises admixing the organic solvent-soluble ionic complex of any one of claims 1 to 3 with the medical material.

5,783,571
METHOD OF ALTERING HYPOTHALAMIC FUNCTION BY NASAL ADMINISTRATION OF ESTRENE STEROIDS

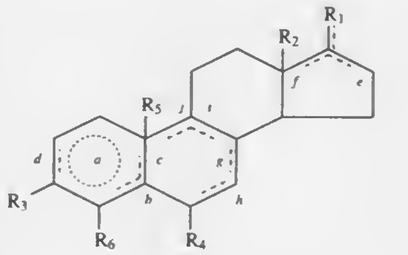
David L. Berliner, Atherton, Calif.; Nathan William Adams, and Clive L. Jennings-White, both of Salt Lake City, Utah, assignors to Pherin Corporation, Menlo Park, Calif.

Continuation-in-part of Ser. No. 903,525, Jun. 24, 1992, abandoned, which is a continuation-in-part of Ser. No. 707,862, May 31, 1991, abandoned, which is a continuation-in-part of Ser. No. 638,743, Jan. 7, 1991, abandoned. This application Sep. 28, 1993, Ser. No. 127,980

Int. Cl.⁶ A61K *31/56*

U.S. Cl. 514—177 **19 Claims**

1. A pharmaceutical composition in dosage unit form adapted for nasal administration in a human subject, said composition comprising, per dosage unit, an effective amount in a range to effect the nervous system through the vomeronasal organ but ineffective to have a systemic effect by absorption into the circulatory system, of at least one Estrene steroid and, a pharmaceutically acceptable carrier, where in said Estrene steroid has the formula:



wherein R_1 is selected from the group consisting of one or two hydrogen atoms, methyl, methylene, and one or two halo atoms; R_2 is absent or is selected from the group consisting of hydrogen and methyl; R_3 is selected from the group consisting of oxo, hydroxy, lower alkoxy, lower acyloxy, benzoyl, cypionyl, glucuronide and sulfonyl; R_4 is selected from the group consisting of hydrogen, oxo, hydroxy, lower alkoxy, lower acyloxy and halo; R_5 is absent or is selected from the group consisting of hydrogen, hydroxy, lower alkoxy and lower acyloxy; R_6 is a hydrogen or a halo; and "a" represents optional aromatic unsaturation of ring A of said steroid, or "b", "c", and "d" are each optional double bonds; and "e", "f", "g", "h", "i" and "j" are each optional double bonds.

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5,783,572
QUINOXALINEDIONE NMDA RECEPTOR ANTAGONISTS

Charles Eric Mowbray; Alan Stobie; Michael Jonathan Fray; David John Bull, and Christopher Lee Carr, all of Sandwich, United Kingdom, assignors to Pfizer Inc., New York, N.Y.

PCT No. PCT/EP95/03483, § 371 Date Mar. 12, 1997, § 102(e) Date Mar. 12, 1997, PCT Pub. No. WO96/08485, PCT Pub. Date Mar. 21, 1996

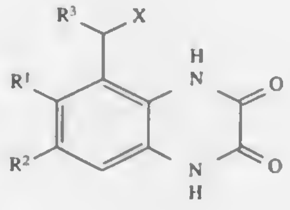
PCT Filed Sep. 1, 1995, Ser. No. 793,896

Claims priority, application United Kingdom, Sep. 13, 1994, 9418443

Int. Cl.⁶ A61K *31/55;31/495;* **C07D** *403/06*

U.S. Cl. 514—212 **7 Claims**

1. A compound having the formula:



or a pharmaceutically acceptable salt thereof,

wherein R^1 and R^2 are each independently Cl, Br, CH_3, CH_2CH_3 or CF_3;

R^3 is H, CH_3 or CH_2CH_3;

and X is a 5-membered heteroaromatic group having up to four nitrogen atoms in the heteroaromatic ring, with each group being directly attached via a ring-nitrogen atom, the group being optionally substituted by C_1–C_6 alkyl or $(CH_2)_n NR^4R^5$, wherein n is an integer from 1 to 5 and R^4 and R^5 are independently H, C_1–C_6 alkyl, C_3–C_6 cycloalkyl or C_1–C_4 alkyl substituted by phenyl or pyridyl, or R^4 and R^5 are linked to form, together with the nitrogen atom which they are attached a pyrrolidine, piperidine, piperazine, N-(C_1–C_4 alkyl) piperazine, morpholine or azepine group, or, when X is triazolyl, said group may optionally be benzofused.

5,783,573
PHARMACEUTICALS WHICH PROMOTE GASTROINTESTINAL BLOOD CIRCULATION

Susanna Rozsa; Julius Gy. Papp, both of Szeged, Hungary; Dirk Thormaehlen, Rheden, and Harald Waldeck, Isernhagen, both of Germany, assignors to Solvay Pharmaceuticals GmbH, Hanover, Germany

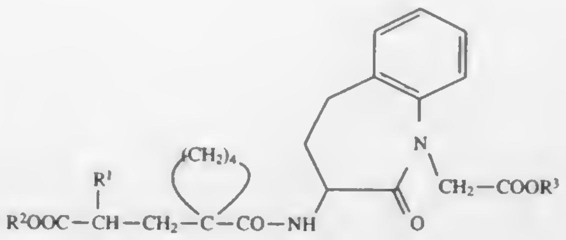
Filed Sep. 15, 1997, Ser. No. 929,114

Claims priority, application Germany, Sep. 18, 1996, 196 38 020.0

Int. Cl.⁶ A61K *31/55*

U.S. Cl. 514—213 **6 Claims**

1. A method of promoting gastrointestinal blood circulation in a mammal, said method comprising administering to said mammal an effective gastrointestinal blood circulation promoting amount of a compound corresponding to the formula I



wherein

R^1 represents a phenyl-lower alkyl group which can optionally be substituted in the phenyl ring by lower alkyl, lower alkoxy or halogen, or represents a naphthyl-lower alkyl group,

R^2 denotes hydrogen or a biolabile ester-forming group, and

R^3 denotes hydrogen or a biolabile ester-forming group,

or a physiologically acceptable salt of an acid of formula I.

5,783,574
IMIDAZOLYLAKYL DERIVATIVES OF IMIDAZO [5,1-C][1,4]BENZOXAZIN-1-ONE PROCESS FOR THEIR PREPARATION

Mario Varasi, Milan; Franco Heidempergher, Parabiago; Carla Caccia, Gallarate, and Patricia Salvati, Arese, all of Italy, assignors to Pharmacia & Upjohn S.p.A., Milan, Italy

PCT No. PCT/EP95/01650, § 371 Date Jan. 24, 1996, § 102(e) Date Jan. 24, 1996, PCT Pub. No. WO95/32208, PCT Pub. Date Nov. 30, 1995

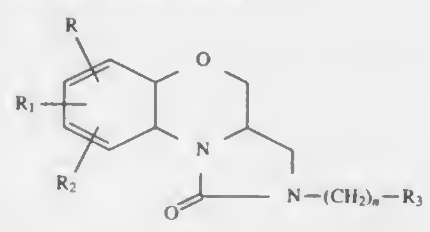
PCT Filed May 2, 1995, Ser. No. 578,549

Claims priority, application United Kingdom, May 25, 1994, 9410469

Int. Cl.⁶ C07D *498/04;* **A61K** *31/535*

U.S. Cl. 544—230.2 **6 Claims**

1. A compound having formula (I)



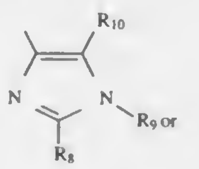
(I)

wherein

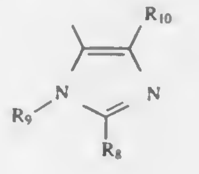
n is 1, 2 or 3;

each of R, R_1, and R_2, which may be the same or different, is hydrogen, halogen, hydroxy, cyano, C_1–C_6 alkyl, CF_3, C_1–C_6 alkoxy, C_1–C_6 alkylthio, formyl, C_2–C_6 alkanoyl, carboxy, C_1–C_6 alkoxycarbonyl, nitro, —$N(R_4R_5)$ in which each of R_4 and R_5 independently is hydrogen, C_1–C_6 alkyl, formyl or C_2–C_6 alkanoyl; or a $(R_6R_7)N$—SO_2 group, in which each of R_6 and R_7 independently is hydrogen or C_1–C_6 alkyl;

R_3 is an imidazolyl group of formula



a)



b)

wherein each of R_8 and R_{10} which may be the same or different is hydrogen or C_1–C_6 alkyl, R_9 is hydrogen, C_1–C_6 alkyl or a nitrogen protecting group; and the pharmaceutically acceptable salts thereof.

5,783,575
ANTAGONISTS, THEIR PREPARATION AND USE

Palle Jakobsen, Væløse; Anders Kanstrup, Virum; Peter Faarup, Væerløse; Preben H. Olesen, København NV, and Jane Marie Lundbech, Glostrup, all of Denmark, assignors to Novo Nordisk A/S, Bagsvaerd, Denmark

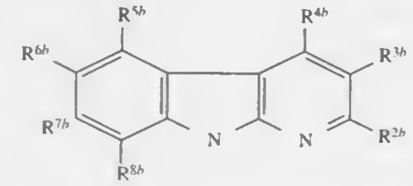
Continuation-in-part of Ser. No. 403,357, Mar. 14, 1995, Pat. No. 5,536,721. This application Jul. 31, 1995, Ser. No. 509,471

Claims priority, application Denmark, Mar. 14, 1994, 0295/94

Int. Cl.⁶ A61K *31/445;31/535*

U.S. Cl. 514—232.8 **7 Claims**

1. A method of treating a disease in the central nervous system via the metabotropic glutamate receptor system comprising administering to a subject in need thereof an effective amount of a compound of formula Ib



(Ib)

wherein

R^{1b} is H; $C_{1\text{-}6}$-alkyl optionally substituted with halogen; $C_{2\text{-}6}$-alkenyl; $C_{2\text{-}6}$-alkynyl; $C_{3\text{-}6}$-cycloalkyl; $C_{1\text{-}6}$-alkyl substituted with $C_{3\text{-}6}$-cycloalkyl; carboxy; —COR^{9b}; —$COOR^{9b}$; $C_{1\text{-}6}$-alkyl substituted with dimethylamino; —R^{9b}—O—R^{10b}; —R^{9b}—O—R^{10b}—O—R^{11b}; phenylsulfonyl; benzoyl; benzyl or phenyl, wherein each aromatic group is optionally substituted with $C_{1\text{-}6}$-alkyl, $C_{1\text{-}6}$-alkoxy, halogen, carboxy or nitro; wherein R^{9b}, R^{10b}, and R^{11b} are independently $C_{1\text{-}6}$-alkyl;

R^{2b} is amino optionally substituted with one or two $C_{1\text{-}6}$-alkyl which alkyl group(s) is/are optionally substituted with hydroxy, morpholino, amino unsubstituted or mono or disubstituted with $C_{1\text{-}6}$-alkyl, phenyl, phenylsulfonyl or benzyl; piperidino; morpholino; or piperazino optionally N-substituted with $C_{1\text{-}6}$-alkyl;

R^{3b} is H; carboxy; cyano; nitro; $C_{1\text{-}6}$-alkyl optionally substituted with hydroxy; —R^{12b}—O—R^{13b}; —$COOR^{12b}$; morpholinocarbonyl; thiomorpholinocarbonyl; piperazinylcarbonyl optionally substituted with $C_{1\text{-}6}$-alkyl; tetrazolyl; oxadiazolyl or thiadiazolyl optionally substituted with $C_{1\text{-}6}$-alkyl or $C_{3\text{-}6}$-cycloalkyl; morpholinomethyl; amino unsubstituted or mono or disubstituted with $C_{1\text{-}6}$-alkyl; methylamino unsubstituted or N-mono or disubstituted with $C_{1\text{-}6}$-alkyl; sulfamoyl unsubstituted or mono or disubstituted with $C_{1\text{-}6}$-alkyl; or carbamoyl unsubstituted or mono or disubstituted with $C_{1\text{-}6}$-alkyl which alkyl group(s) is/are optionally substituted with dimethylaminomethyl, halogen, phenyl or benzyl; wherein R^{12b} and R^{13b} are independently $C_{1\text{-}6}$-alkyl;

R^{4b} is H or $C_{1\text{-}6}$-alkyl; and

R^{5b}, R^{6b}, R^{7b}, and R^{8b} are independently H; nitro; amino; halogen; trifluoromethyl; trifluoroacetyl; sulfo; carboxy; carbamoyl; sulfamoyl; —COR^{14b}; —$COOR^{14b}$; $C_{1\text{-}6}$-alkoxy; or $C_{1\text{-}6}$-alkyl optionally substituted with halogen; wherein R^{14b} is $C_{1\text{-}6}$-alkyl; or a pharmaceutically acceptable salt thereof.

5,783,576
BENZOYL GUANIDINE DERIVATIVES, THE PREPARATION THEREOF AND THEIR USE IN PHARMACEUTICAL COMPOSITIONS

Otto Roos, Schwabenheim; Georg Speck, Ingelheim; Walter Losel, Gau-Algesheim; Dietrich Arndts, and Wolf-Dietrich Bechtel, both of Appenheim, all of Germany, assignors to Boehringer Ingelheim KG, Ingelheim am Rhein, Germany

PCT No. PCT/EP94/03581, § 371 Date Aug. 9, 1996, § 102(e) Date Aug. 9, 1996, PCT Pub. No. WO95/12584, PCT Pub. Date May 11, 1995

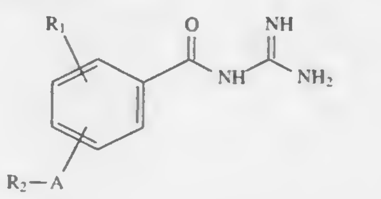
PCT Filed Oct. 31, 1994, Ser. No. 649,614

Claims priority, application Germany, Nov. 4, 1993, 43 37 611.8

Int. Cl.⁶ C07D *401/04;247/02;* **A61K** *31/495;31/505*

U.S. Cl. 514—242 **4 Claims**

1. A compound of formula 1

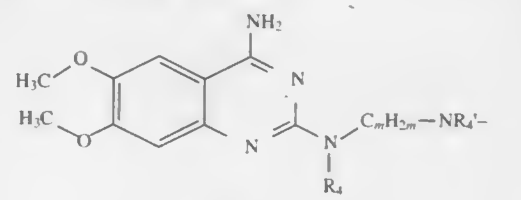


(I)

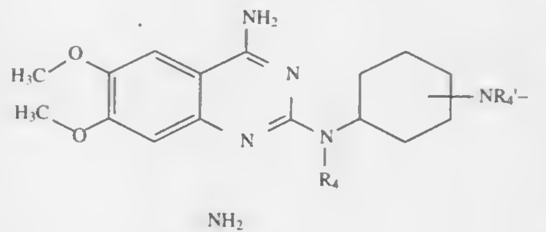
wherein

R_1 is R'—SO_2— or R'—NH—SO_2— (R' being C_1–C_5-alkyl, halogen or phenyl-substituted C_1–C_5-alkyl, in which the phenyl groups may contain up to three substituents selected from the group consisting of halogen, C_1–C_4-alkyl or C_1–C_4-alkoxy), F, Cl or CF_3;

R_2—A— is a group of formula



(II')



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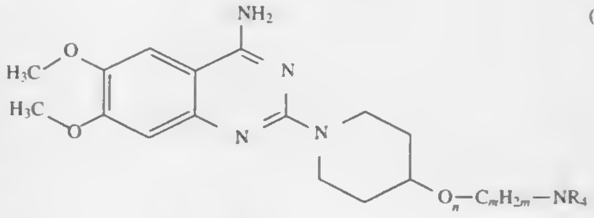

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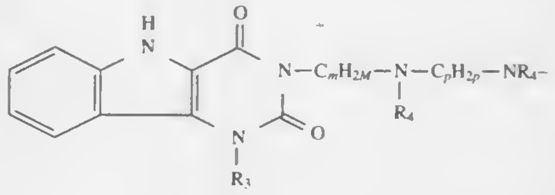
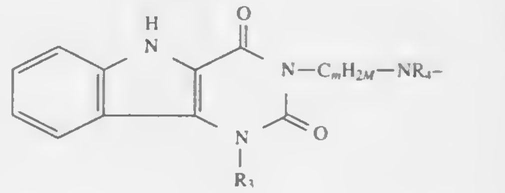


(V')



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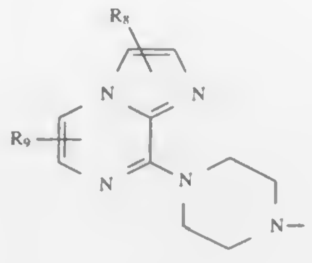

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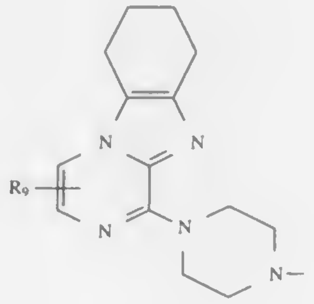

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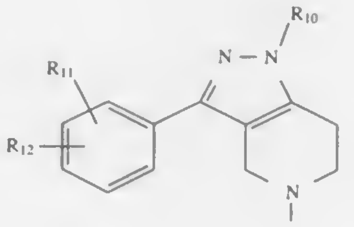

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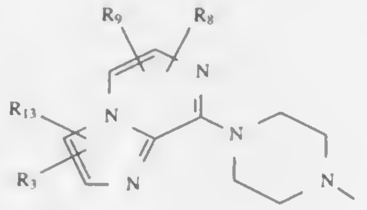

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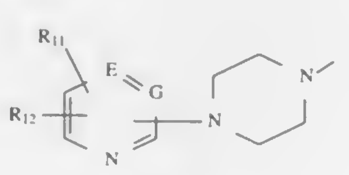

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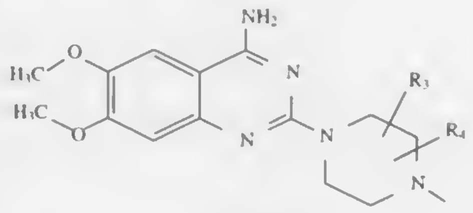

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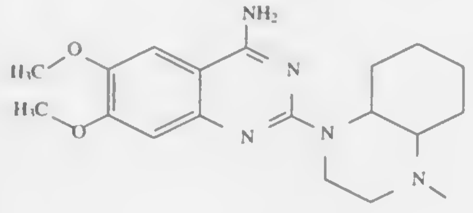

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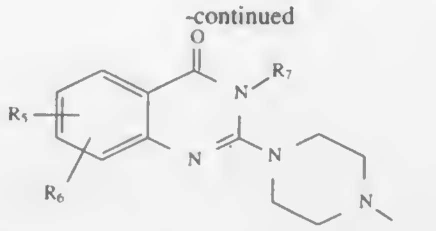

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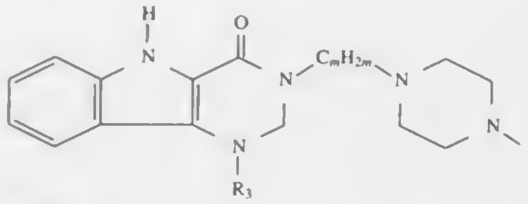


(XV')

wherein

R3, R4 and R4' which may be the same or different, are hydrogen or a C_1–C_3-alklyl radical and R4 and R4' may also be phenyl, benzyl or C_3–C_7-cycloalkyl;

R_5 and R_6, which may be the same or different, are hydrogen, methyl, methoxy, hydroxy or halogen;

R_7 is hydrogen, C_1–C_4-alkyl, benzyl or benzyloxy;

R_8 and R_9, which may be the same or different, are hydrogen, C_1–C_4-alkyl, phenyl or halogen;

R_{10} is hydrogen or C_1–C_6-alkyl, which may also be substituted by phenyl or methyl-, methoxy- or halogen-substitute phenyl;

R_{11} and R_{12}, which may be the same or different, are hydrogen, methyl, methoxy, phenyl, benzyl, nitro, cyano, halogen, trifluormethyl, amino, $NR_{10}R_{13}$, 1-pyrrolidinyl, 1-pyrazolinyl, 1-imidazolidinyl, 1-piperidinyl, 1-piperazinyl or carbamoyl, R_{11} may also be a benzene ring fused by condensation, which may have up to three substituents selected from the group consisting of methyl, methoxy, halogen, CF_3 and CN;

R_{13} is hydrogen, C_1–C_4-alkyl, which may also be substituted by phenyl, phenoxy, benzyloxy or halogen;

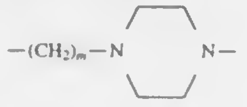
E and G, which may be the same or different, are N or CH, or

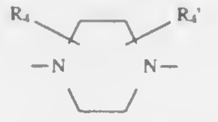
R_2 is phenyl optionally substituted up to three times with R_{11} and or R_{12}, which may be the same or different, and

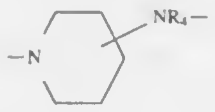
A is a structure selected from the group consisting of the following

$$-C_mH_{2m}-NR_4-C_pH_{2p}-NR_4'-$$

$$-NR_4-C_mH_{2m}-NR_4'-$$







and

m is an integer selected from the group consisting of 2,3,4,5 and 6,

n is 0 or 1 and

p is 2, 3 or 4,

an individual stereoisomer, or cis/trans-isomer or a mixture of such isomers thereof.

5,783,577
SYNTHESIS OF QUINAZOLINONE LIBRARIES AND DERIVATIVES THEREOF

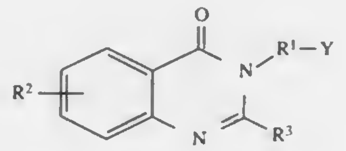
Richard A. Houghten, Del Mar, and John M. Ostresh, Encinigas, both of Calif., assignors to Trega Biosciences, Inc., San Diego, Calif.

Filed Sep. 13, 1996, Ser. No. 713,409

Int. Cl.⁶ A61K *31/495;* **C07D** *237/00;* **G01N** *33/00*

U.S. Cl. 514—247 **14 Claims**

1. A combinatorial library of quinazolinones comprising quinazolinones of the structure:



wherein:

R^1 is selected from the group consisting of a hydrogen atom, C_1 to C_6 alkyl; C_1 to C_6 substituted alkyl, C_7 to C_{12} phenylalkyl, C_7 to C_{12} substituted phenylalkyl, phenyl, substituted phenyl, C_3 to C_7 cycloalkyl, and C_3 to C_7 substituted cycloalkyl;

R^2 is selected from the group consisting of a hydrogen atom, halo, hydroxy, protected hydroxy, cyano, nitro, C_1 to C_6 alkyl, C_2 to C_7 alkenyl, C_2 to C_7 alkynyl, C_1 to C_6 substituted alkyl, C_2 to C_7 substituted alkenyl, C_2 to C_7 substituted alkynyl, C_1 to C_4 alkoxy, C_1 to C_7 acyloxy, C_1 to C_7 acyl, C_3 to C_7 cycloalkyl, C_3 to C_7 substituted cycloalkyl, C_3 to C_7 cycloalkenyl, C_3 to C_7 substituted cycloalkenyl, a heterocyclic ring, C_7 to C_{12} phenylalkyl, C_7 to C_{12} substituted phenylalkyl, phenyl, substituted phenyl cyclic C_2 to C_{10} alkylene, substituted cyclic C_2 to C_{10} alkylene, cyclic C_2 to C_{10} heteroalkylene, substituted cyclic C_2 to C_{10} heteroalkylene, carboxy, protected carboxy, hydroxymethyl, protected hydroxymethyl, (monosubstituted)amino, protected (monosubstituted)amino, (disubstituted)amino, carboxamide, protected carboxamide, C_1 to C_4 alkylthio, C_1 to C_4 alkylsulfonyl, methylsulfonylamino, C_1 to C_4 alkylsulfoxide, phenylthio, substituted phenylthio, phenylsulfoxide, substituted phenylsulfoxide, phenylsulfonyl, and substituted phenylsulfonyl;

R^3 is selected from the group consisting of C_1 to C_6 alkyl, C_2 to C_7 alkenyl, C_2 to C_7 alkynyl, C_1 to C_6 substituted alkyl, C_2 to C_7 substituted alkenyl, C_2 to C_7 substituted alkynyl, C_3 to C_7 cycloalkyl, C_3 to C_7 substituted cycloalkyl, C_7 to C_{12} phenylalkyl, C_7 to C_{12} substituted phenylalkyl, phenyl, and substituted phenyl;

Y may be absent and, if present, is selected from the group consisting of a carboxylic acid, carboxamide, protected carboxamide, an amino resin, a hydroxy resin, methylamine, and N-alkylated methylamine.

5,783,578

Patent Not Issued For This Number

5,783,579
SPIRO-SUBSTITUTED AZACYCLIC-SUBSTITUTED PIPERAZINO DERIVATIVES AS NEUROKININ ANTAGONISTS

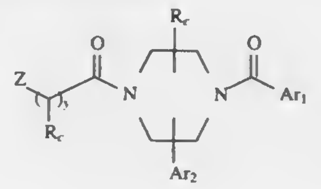
Kevin D. McCormick, Edison, N.J., assignor to Schering Corporation, Kenilworth, N.J.

Filed Dec. 20, 1996, Ser. No. 771,714

Int. Cl.⁶ A61K *31/495;31/54;* **C07D** *401/00;403/00*

U.S. Cl. 514—255 **6 Claims**

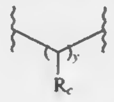
1. A compound of the formula:



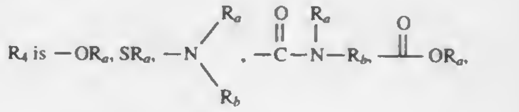
wherein

y is 1 to 3;

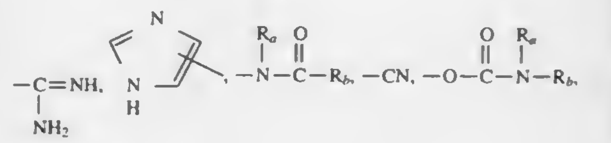
each R_c is independently selected from the group consisting of H, C_1–C_6 alkyl and $-(CH_2)_{n1}$-R_4, wherein n_1 is 1 to 6, with the proviso that no more than one R_c is other than H in the

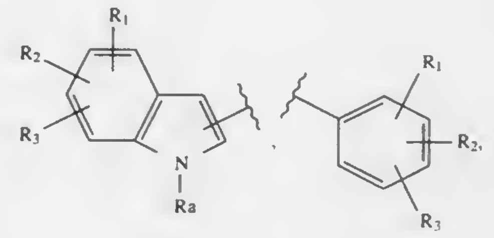


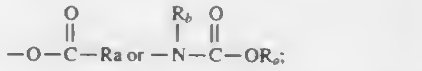
moiety;



$$R_4 \text{ is } -OR_a, SR_a, -N\begin{matrix}R_a\\ \\R_b\end{matrix}, -\overset{O}{\overset{\|}{C}}-\overset{R_a}{\overset{|}{N}}-R_b, -\overset{O}{\overset{\|}{C}}-OR_a,$$

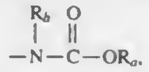






$$-O-\overset{O}{\overset{\|}{C}}-Ra \text{ or } -\overset{R_b}{\overset{|}{N}}-\overset{O}{\overset{\|}{C}}-OR_a;$$

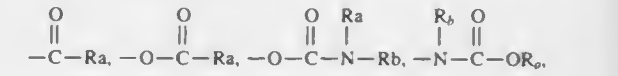
each R_a and R_b is independently selected from the group consisting of H, C_1–C_6 alkyl, phenyl, substituted phenyl, benzyl, substituted benzyl and allyl; with the proviso that when R_4 is



$$-\overset{R_b}{\overset{|}{N}}-\overset{O}{\overset{\|}{C}}-OR_a,$$

R_a is not H; or when R_a and R_b are attached to the same nitrogen, then R_a and R_b, together with the nitrogen to which they are attached, can form a 4 to 7 member ring;

each R_1 and R_2 is independently selected from the group consisting of H, C_1–C_6 alkyl, $-CF_3$, $-C_2F_5$, Cl, Br, I, F, $-NO_2$, $-OR_a$, $-CN$, $-NR_aR_b$,



$$-\overset{O}{\overset{\|}{C}}-Ra, -O-\overset{O}{\overset{\|}{C}}-Ra, -O-\overset{O}{\overset{\|}{C}}-\overset{Ra}{\overset{|}{N}}-Rb, -\overset{R_b}{\overset{|}{N}}-\overset{O}{\overset{\|}{C}}-OR_a,$$

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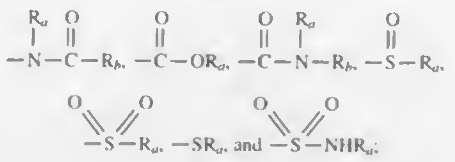
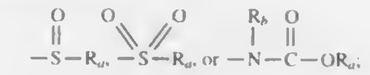


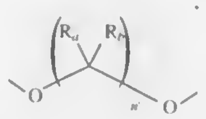
$-N(R_a)-C(=O)-R_b$, $-C(=O)-OR_a$, $-C(=O)-N(R_a)-R_b$, $-S(=O)-R_a$, $-S(=O)_2-R_a$, $-SR_a$, and $-S(=O)_2-NHR_a$;

provided R_a is not H in



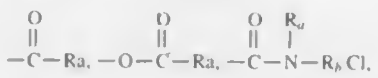
$-S(=O)-R_a$, $-S(=O)_2-R_a$, or $-N(R_b)-C(=O)-OR_a$;

or when R_1 and R_2 are on adjacent carbons on a ring, they can form



wherein n' is 1 or 2;

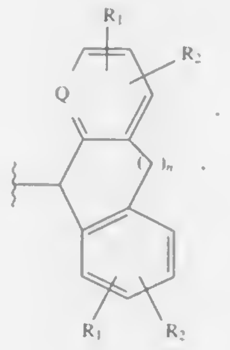
each R_3 is independently selected from the group consisting of H, C_1–C_6 alkyl, $-CF_3$, $-C_2F_5$,

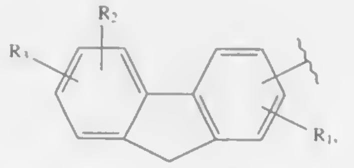


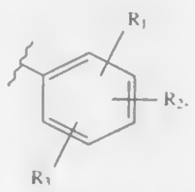
$-C(=O)-Ra$, $-O-C(=O)-Ra$, $-C(=O)-N(R_a)-R_b$, Cl,

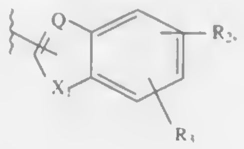
Br, I, F, $-OR_a$, $-OCF_3$ or phenyl;

Ar_1 is









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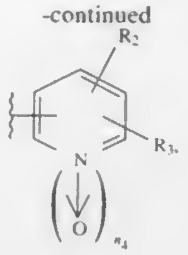

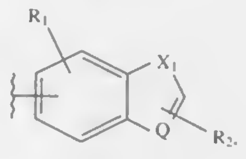

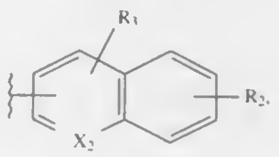

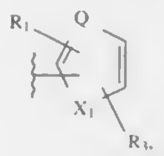

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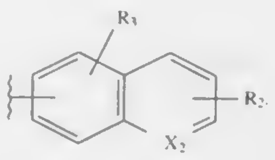


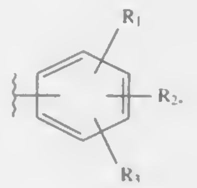
each X_1 is independently $-O-$, $-S-$ or $-NR_a-$;

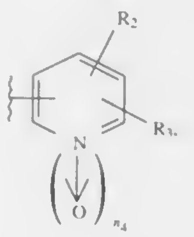
each X_2 is independently $=CH-$ or $-N=$;

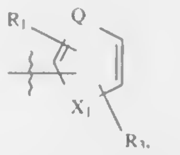
n_4 is 0 or 1;

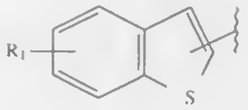
Q is $=N-$ or $=CH-$;

Ar_2 is









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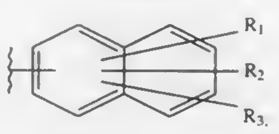
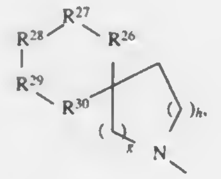
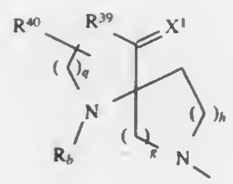


Z is





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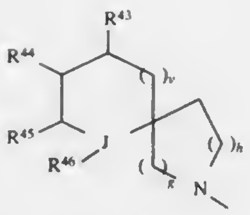


wherein the nitrogen in the unsubstituted ring is optionally quaternized with C_{1-4} alkyl or phenyl-C_{1-4} alkyl or is optionally present as the Noxide (N^+O^-); g and h are each independently 0, 1, 2, 3, 4, or 5, with the proviso that g+h is equal to 1, 2, 3, 4, or 5;

v is 0, 1 or 2;

R^{26} is selected from the group consisting of
- (1) a covalent bond
- (2) C_{1-3} alkylene, unsubstituted or substituted with a substituent selected from the group consisting of $=O$, $-OH$, $-OR^{35}$, halogeno, $-CF_3$, phenyl or mono, di or trisubstituted phenyl, wherein the substituents on the phenyl are independently selected from $-OH$, $-CN$, halogeno and $-CF_3$,
- (3) $S(O)_k$
- (4) (C_{1-3} alkylene)-$S(O)_k$
- (5) $S(O)_k$—(C_{1-2} alkylene)
- (6) $S(O)_kNH$
- (7) $S(O)_j$—NR^{35}
- (8) $S(O)_j$—NR^{35}—(C_{1-2} alkylene)
- (9) CONH
- (10) $CONR^{35}$—(C_{1-2} alkylene)
- (11) CO_2 and
- (12) CO_2—(C_{1-2} alkylene)

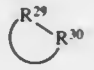
wherein j is 1 or 2 and k is 0, 1 or 2;

R^{27} is $-NR^{37}-$, $-O-$, $-S-$, $-S(O)-$, or $-SO_2-$, with the proviso that when R^{26} is a covalent bond and R^{28} is C_{1-3} alkyl, R^{27} must be NR^{37};

R^{37} is selected from a group consisting of:
- (1) H,
- (2) C_{1-8} linear or branched alkyl, unsubstituted, monosubstituted or multiply substituted with $-OR^{35}$, $=O$, $-NHCOR^{35}$, $-NR^{35}R^{36}$, $-CN$, -halogeno, $-CF_3$, -phenyl or substituted phenyl, wherein the substituents on phenyl are selected from the group consisting of $-OH$, $-CN$, halogeno and $-CF_3$;
- (3) $S(O)R^{38}$, wherein R^{38} is C_{1-6} linear or branched alkyl, unsubstituted, mono di or trisubstituted with a substituent selected from the group consisting of $=O$, $-CN$, $-OR^{35}$, $-NR^{35}R^{36}$, $-NR^{36}OR^{36}$, -halogeno, $-CF_3$, -phenyl or mono, di or trisubstituted phenyl, wherein the substituents on the phenyl are independently selected from the group consisting of $-OH$, $=O$, $-CN$, $-NR^{35}R^{36}$, $-NR^{35}COR^{36}$, -halogeno, $-CF_3$ and C_{1-3} alkyl;
- (4) SO_2R^{38},
- (5) COR^{38},
- (6) CO_2R^{38};
- (7) $CONR^{36}R^{38}$;

R^{28} is selected from the group consisting of
- (1) a covalent bond
- (2) C_{1-3} alkylene, unsubstituted or substituted with a substituent selected from the group consisting of $=O$, $-OR^{35}$, halogeno, $-CF_3$, phenyl or mono, di or trisubstituted phenyl, wherein the substituents on the phenyl are independently selected from the group consisting of $-OR^{35}$, halogeno and $-CF_3$;
- (3) $S(O)_k$
- (4) (C_{1-3} alkylene)-$S(O)_k$
- (5) $S(O)_k$—(C_{1-2} alkylene)
- (6) $NHS(O)_j$
- (7) NH(C_{1-2} alkylene)-$S(O)_j$
- (8) $S(O)_jNR^{35}$
- (9) $S(O)_j$—NR^{35}—(C_{1-2} alkylene)
- (10) NHCO—(C_{1-2} alkylene)
- (11) $NR^{35}CO$
- (12) NR^{35}—(C_{1-2} alkylene)-CO
- (13) O(CO) and
- (14) (C_{1-2} alkyl)O(CO);

R^{29}–R^{30} considered together are 2 adjoining atoms of the ring



said ring being a phenyl, naphthyl or heteroaryl group, and wherein the phenyl, naphthyl or heteroaryl group is unsubstituted, mono, di or tri substituted, wherein heteroaryl is selected from the group consisting of benzimidazolyl, benzofuranyl, benzoxazolyl, furanyl, imidazolyl, indolyl, isoxazolyl, isothiazolyl, oxadiazolyl, oxazolyl, pyrazinyl, pyrazolyl, pyridyl, pyrimidyl, pyrrolyl, quinolyl, tetrazolyl, thiadiazolyl, thiazolyl, thienyl and triazolyl; and wherein the substituents are independently selected from the group consisting of:
- (a) C_{1-6} alkyl, branched or unbranched, unsubstituted or mono or disubstituted by hydroxy
- (b) $=O$
- (c) OR^{35}
- (d) halogeno
- (e) CF_3
- (f) NO_2
- (g) CN
- (h) $NR^{35}R^{36}$
- (i) $NR^{35}COR^{36}$
- (j) $NR^{35}CO_2R^{36}$
- (k) $NR^{35}S(O)_jR^{36}$
- (l) $CONR^{35}R^{36}$
- (m) COR^{35}
- (n) CO_2R^{35}
- (o) $S(O)_jR^{35}$
- (p) heteroaryl, or mono or di substituted heteroaryl, wherein heteroaryl is as defined above and the substituents are selected from the group consisting of: C_{1-6} alkyl, branched or unbranched, unsubstituted or mono or disubstituted by OH; $=O$; OR^{35}; CF_3; $-NO_2$; CN; $NR^{35}R^{36}$; $NR^{35}COR^{36}$; $NR^{35}CO_2R^{36}$; $NR^{35}S(O)_jR^{36}$; $CONR^{35}R^{36}$; COR^{35}; CO_2R^{35}; $S(O)_jR^{35}$; and phenyl;

R^{35} and R^{36} are independently selected from:
- (a) H,
- (b) C_{1-6} alkyl, or mono or disubstituted C_{1-6} alkyl, wherein the substituents independently selected from the group consisting of phenyl, unsubstituted or substituted with $-OH$, C_{1-3}

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alkyl, —CN, halogeno, —CF_3 or C_{1-4} alkoxy; —OH; =O; —CN; halogeno; or —CF_3;

(c) phenyl, pyridinyl or thiophene, or mono, di or trisubstituted phenyl, pyridinyl or thiophene, wherein the substituents are independently selected from the group consisting of —OH, C_{1-4} alkyl, —CN, halogeno and —CF_3;

(d) C_{1-3} alkyloxy, or

R^{35} and R^{36} are joined together to form a 5-, 6-, or 7-membered monocyclic saturated ring containing 1 or 2 heteroatoms independently selected from nitrogen, oxygen, and sulfur, and in which the ring is unsubstituted or mono or disubstituted, wherein the substituents are independently selected from the group consisting of —OH, =O, —CN, halogeno and —CF_3;

q is 1 or 2;

X^1 is =O or =S;

R^{39} is —NR_b— or —CH_2—;

R^{40} is H, C_1–C_6 alkyl, =O, phenyl, substituted phenyl, benzyl, substituted benzyl or allyl

J is carbon and R^{43}, R^{44}, R^{45} and R^{46} are independently selected from the group consisting of H, —OH, =O, —$NR^{47}R^{48}$ or —$NR^{47}C(O)$—$NR^{47'}R^{48}$, wherein the nitrogen of —$NR^{47}R^{48}$ is optionally quaternized with C_{1-4} alkyl or phenyl-C_{1-4} alkyl or is optionally present as the Noxide; or R^{43} and R^{44}, or R^{44} and R^{45}, together form a carbon-carbon bond; or R^{43} and R^{44} or R^{44} and R^{45}, or R^{45} and R^{46}, together with the carbons to which they are attached form an aryl or heteroaryl ring, wherein heteroaryl is as defined above, and wherein the aryl or heteroaryl group is unsubstituted, mono, di or tri substituted, wherein the substituents are independently selected from the group consisting of:

(a) C_{1-6} alkyl, branched or unbranched, unsubstituted or mono or disubstituted by hydroxy

(b) =O

(c) OR^{47}

(d) halogeno

(e) CF_3

(f) NO_2

(g) CN

(h) $NR^{47}R^{48}$

(i) $NR^{47}COR^{48}$

(j) $NR^{47}CO_2R^{48}$

(k) $NR^{47}S(O)_iR^{48}$

(l) $CONR^{47}R^{48}$

(m) COR^{47}

(n) CO_2R^{47}

(o) $S(O)_iR^{47}$

(p) heteroaryl, or mono or di substituted heteroaryl, wherein heteroaryl is as defined above and the substituents are selected from the group consisting of: C_{1-6} alkyl, branched or unbranched, unsubstituted or mono or disubstituted by OH; =O; OR^{47}; CF_3; —NO_2; CN; $NR^{47}R^{48}$;

$NR^{47}COR^{48}$; $NR^{47}CO_2R^{48}$; $NR^{47}S(O)_iR^{48}$; $CONR^{47}R^{48}$; COR^{47}; CO_2R^{47};

$S(O)_iR^{47}$; and phenyl;

or R^{43}, R^{44} and R^{45} are as defined above and J-R^{46} is oxygen or $S(O)_i$, wherein i is 0, 1, or 2; and

R^{47}, $R^{47'}$ and R^{48} are independently selected from the group consisting of:

(a) H,

(b) C_{1-6} alkyl, or mono or disubstituted C_{1-6} alkyl, wherein the substituents independently selected from the group consisting of phenyl, —OH, =O, —CN, halogeno and —CF_3;

(c) phenyl, naphthyl, or mono, di or trisubstituted phenyl or naphthyl, wherein the substituents are independently selected from the group consisting of —OH, C_{1-3} alkyl, —CN, halogeno and —CF_3; and

(d) C_{1-3} alkyloxy; or

R^{47} and R^{48} are joined together to form a 5-, 6-, or 7-membered monocyclic saturated ring containing 1 or 2 heteroatoms independently selected from nitrogen, oxygen, and sulfur, and in which the ring is unsubstituted or mono or disubstituted, wherein the substituents are independently selected from the group consisting of —OH, =O, —CN, halogeno and —CF_3;

or an enantiomer or diastereomer thereof,

or a pharmaceutically acceptable salt thereof.

5,783,580
α-PYRIMIDINYL ACRYLIC ACID DERIVATIVES

Martin Eberle, Bottmingen; Fritz Schaub, Aesch, and Gerald Wayne Craig, Basel, all of Switzerland, assignors to Sandoz, Ltd., Basel, Switzerland

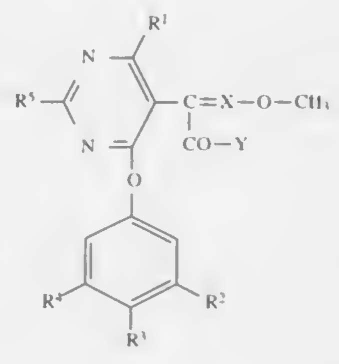
Division of Ser. No. 370,992, Jan. 10, 1995, Pat. No. 5,547,919. This application May 23, 1996, Ser. No. 652,865

Int. Cl.⁶ C07D *239/47;* A01N *43/54*

U.S. Cl. 514—269 **14 Claims**

1. 2-(4-Phenoxypyrimidin-5-yl)-acrylic acid derivatives of formula I

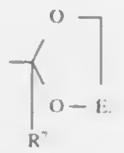
(I)



wherein

R^1 is C_{1-4}alkoxy or —NR^8R^9,

R^2 pyridyl, pyrimidinyl, thienyl, ozazolyl, oxadiazolyl, triazolyl, thiadiazolyl, furyl, isoxazolyl, thiazolyl, imidazolyl, pyrazolyl, benzothiazolyl, benzoxazolyl, pyridyloxy, pyrimidinyloxy, thienyloxy, oxazolyloxy, oxadiazolyloxy, triazolyloxy, thiadiazolyloxy, furyloxy, isoxazolyloxy, thiazolyloxy, imidazolyloxy, pyrazolyloxy, benzothiazolyloxy, benzoxazolyloxy; each optionally substituted with no more than two substituents independently selected from the group of halogen, C_{1-4}alkyl, C_{1-4}alkoxy, C_{1-4}haloalkyl, cyano and nitro; or R^2 is a group



R^3 is hydrogen, C_{1-4}alkyl, C_{1-4}alkoxy, cyano, nitro or halogen,

R^4 is hydrogen, halogen, C_{1-4}alkoxy or C_{1-4}alkyl,

R^5 is hydrogen or methyl,

R^7 is hydrogen or methyl,

R^8 and R^9 are independently C_{1-4}alkyl or together C_{3-4}alkylene,

E is C_{1-3}alkylene,

X is CH or nitrogen, and Y is OCH_3, NH_2, $NHCH_3$ or $N(CH_3)_2$.

5,783,581

Patent Not Issued For This Number

5,783,582
PIPERIDINES AND HEXAHYDRO-1H-AZEPINES SPIRO SUBSTITUTED AT THE 4-POSITION PROMOTE RELEASE OF GROWTH HORMONE

Liangquin Guo, Fords; Arthur Patchett, Westfield, and Lihu Yang, Edison, all of N.J., assignors to Merck & Co., Inc., Rahway, N.J.

PCT No. PCT/US95/08854, § 371 Date Jan. 16, 1997, § 102(e) Date Jan. 16, 1997, PCT Pub. No. WO96/02530, PCT Pub. Date Feb. 1, 1996

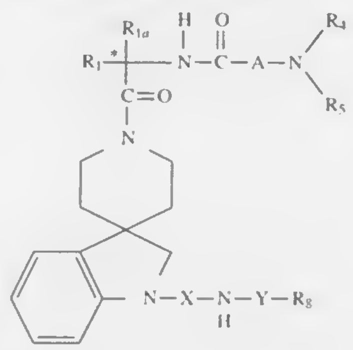
PCT Filed Jul. 17, 1995, Ser. No. 776,041

Int. Cl.⁶ A01N *43/42;* C07D *211/00;* A61K *31/44*

U.S. Cl. 514—278 **16 Claims**

1. A compound of the formula I:

1



wherein:

R_1 is selected from the group consisting of: C_1–C_{10} alkyl-, aryl-, aryl(C_1–C_6 alkyl)-, heteroaryl-, heteroaryl(C_1–C_6 alkyl)-, (C_3–C_7 cycloalkyl)-(C_1–C_6 alkyl)-, (C_1–C_5 alkyl)-K-(C_1–C_5 alkyl)-, aryl-K-(C_1–C_5 alkyl)-, aryl-(C_1–C_5 alkyl)-K-(C_1–C_5 alkyl)-, heteroaryl-K-(C_1–C_5 alkyl)-, heteroaryl-(C_1–C_5 alkyl)-K-(C_1–C_5 alkyl)-, (C_3–C_7 cycloalkyl)-K-(C_1–C_5 alkyl)-, and (C_3–C_7 cycloalkyl)-(C_1–C_5 alkyl)-K-(C_1–C_5 alkyl)-, wherein K is —O—, —$S(O)_m$—, —$N(R_2)C(O)$—, —$C(O)N(R_2)$—, —OC(O)—, —C(O)O—, —CR_2=CR_2— or —C≡C—, wherein R_2 and the alkyl groups are optionally further substituted with 1 to 9 halo, —$S(O)_mR_{2a}$, 1 to 3 of —OR_{2a}, or —$C(O)OR_{2a}$, and wherein aryl is phenyl or naphthyl, and heteroaryl is selected from indolyl, thiopheneyl, furanyl, benzothiopheneyl, benzofuranyl, pyridinyl, quinolinyl, triazolyl, imidazolyl, thiazolyl, and benzimidazolyl, wherein aryl and heteroaryl are unsubstituted or substituted with phenyl, phenoxy, halophenyl, 1 to 3 of —C_1–C_6 alkyl, 1 to 3 of halo, 1 to 2 of —OR_2, methylenedioxy, —$S(O)_mR_2$, 1 to 2 of —CF_3, —OCF_3, nitro, —$N(R_2)(R_2)$, —$N(R_2)C(O)(R_2)$, —$C(O)OR_2$, —$C(O)N(R_2)(R_2)$, —$SO_2N(R_2)(R_2)$, —$N(R_2)SO_2$-aryl, or —$N(R_2)SO_2R_2$;

R_{1a} is hydrogen or C_1–C_4 alkyl;

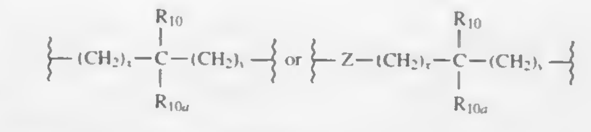
R_2 is selected from the group consisting of: hydrogen, —C_1–C_6 alkyl, —C_3–C_7 cycloalkyl, and —CH_2-phenyl, wherein the alkyl or the cycloalkyl is unsubstituted or substituted with hydroxyl, C_1–C_3 alkoxy, thioalkyl, $C(O)OR_{2a}$, and wherein, if two —C_1–C_6 alkyl groups are present on one atom, the groups are optionally joined to form a C_3–C_8 cyclic ring optionally including oxygen, sulfur, or NR_{2a}, the C_3–C_8 cyclic ring being selected from the group consisting of pyrrolidine, piperidine, piperazine, morpholine, and thiomorpholine;

R_{2a} is hydrogen or C_1–C_6 alkyl;

R_4 and R_5 are independently selected from the group consisting of: hydrogen, C_1–C_6 alkyl, substituted C_1–C_6 alkyl where the substituents are selected from: 1 to 5 halo, 1 to 3 hydroxy, 1 to 3 C_1–C_{10} alkanoyloxy, 1 to 3 C_1–C_6 alkoxy, phenyl, phenoxy, 2-furyl, C_1–C_6 alkoxycarbonyl, and —$S(O)_m(C_1$–C_6 alkyl);

or wherein R_4 and R_5 are optionally taken together to form —$(CH_2)_rL_a(CH_2)_s$—, wherein L_a is —$C(R_2)_2$—, —O—, —$S(O)_m$— or —$N(R_2)$—, wherein r and s are independently 1 to 3, and R_2 is defined above;

A is:



$$-(CH_2)_x-\overset{R_{10}}{\underset{R_{10a}}{C}}-(CH_2)_y- \quad \text{or} \quad -Z-(CH_2)_x-\overset{R_{10}}{\underset{R_{10a}}{C}}-(CH_2)_y-$$

wherein x and y are independently 0, 1, 2 or 3;

Z is —$N(R_9)$— or —O—, wherein R_9 is hydrogen or C_1–C_6 alkyl;

R_{10} and R_{10a} are independently selected from the group consisting of: hydrogen, C_1–C_6 alkyl, trifluoromethyl, phenyl, and substituted C_1–C_6 alkyl wherein the substituents are selected from the group consisting of: imidazolyl, phenyl, indolyl, naphthyl, p-hydroxyphenyl, —OR_2, —$S(O)_mR_2$, —$C(O)OR_2$, —C_3–C_7 cycloalkyl, —$N(R_2)(R_2)$, and —$C(O)N(R_2)(R_2)$;

or R_{10} and R_{10a} are optionally independently joined to one or both of R_4 and R_5 groups to form an alkylene bridge between the terminal nitrogen and the alkyl portion of the R_{10} or R_{10a} groups, wherein the bridge contains 1 to 5 carbons atoms;

R_8 is hydrogen, C_1–C_{10} alkyl, phenyl, benzyl or diphenyl methyl wherein the phenyl, benzyl or diphenyl groups may be substituted by halo, methyl or OR_2;

X is SO_2;

Y is selected from: SO_2, CO, C(O)O, $C(O)N(R_2)$, and $SO_2N(R_2)$;

m is 0, 1, or 2;

n is 1 or 2;

and pharmaceutically acceptable salts and individual diastereomers thereof.

5,783,583
17-(CYCLOPROPYLMETHYL)-4,5ALPHA-EPOXY-6-METHYLENEMORPHINAN-3,14-DIOL, HYDROCHLORIDE SALT FOR THE PURPOSE OF RAPID NARCOTIC DETOXIFICATION

David Lew Simon, P.O. Box 618, Mansfield Center, Conn. 06250

Filed Apr. 12, 1996, Ser. No. 631,081

Int. Cl.⁶ A01N *43/42;* A61K *31/44*

U.S. Cl. 514—282 **6 Claims**

1. A method for detoxifying a patient who is addicted to and who is currently using exogenous narcotics, said method comprising the steps of:

(a) anesthetizing the patient to produce a state of unconsciousness;

(b) inducing acute withdrawal by administering nalmefene; and

(c) allowing the patient to regain consciousness after acute withdrawal is complete.

5,783,584
THA ANALOGS USEFUL AS CHOLINESTERASE INHIBITORS

Yuan-Ping Pang, Ponte Vedra Beach, Fla., and Stephen Brimijoin, Rochester, Minn., assignors to Mayo Foundation for Medical Education and Research, Rochester, Minn.

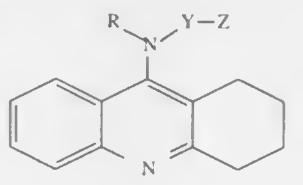
Filed Dec. 11, 1995, Ser. No. 570,160

Int. Cl.⁶ A61K *31/44;* C07D *219/12*

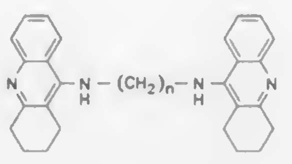
U.S. Cl. 514—297 **14 Claims**

1. A compound of the general formula (I):

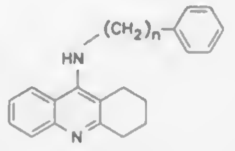
(I)



VOL 1212 ISS 3 JL 21 1998 UMI



1



2

a:n=7; b:n=8; c:n=9; d:n=10.

a:n=4; b:n=5; c:n=6; d:n=7; e:n=8; f:n=9; g:n=10.

wherein R is H or $(C_1–C_4)$alkyl, Y is $(C_4–C_{15})$alkylene or $(C_4–C_{15})$alkylene N(R) and Z is 1,2,3,4-tetrahydroacridin-9-yl; or a pharmaceutically acceptable salt thereof.

5,783,585

SOLID BULK COMPOSITIONS CONTAINING QUINOLONE CARBOXYLIC ACIDS OR NAPHTHYRIDINE CARBOXYLIC ACIDS IN FREE BASE FORM

Gary Jay Dozeman, Zeeland; Kenneth Thomas Porter, and James Norton Wemple, both of Holland, all of Mich., assignors to Warner-Lambert Company, Morris Plains, N.J.

Division of Ser. No. 452,208, May 26, 1995, Pat. No. 5,602,254. This application Sep. 30, 1996, Ser. No. 723,797

Int. Cl.^{6} A61K *31/435;31/47*

U.S. Cl. 514—300 **3 Claims**

1. A solid bulk pharmaceutical chemical composition comprising:

a. 7-(3-Amino-1-pyrrolidinyl)-8-chloro-1-cyclopropyl-6-fluoro-1,4-dihydro-4 -oxoquinoline-3-carboxylic acid or 7-[3-S-(2-S-aminopropionylamino)pyrrolidin- 1-yl]-1-cyclopropyl-6-fluoro-1,4-dihydro-4-oxo-1,8-naphthyridine-3-carboxylic acid in free base form; and

b. Calcium in an amount in the range of 0.001% to about 1.0% by weight of the 7 -(3-amino-1-pyrrolidinyl)-8-chloro-1-cyclopropyl-6-fluoro-1,4-dihydro-4 -oxoquinoline-3-carboxylic acid or 7-[3-S-(2-S-aminopropionylamino)pyrrolidin- 1-yl]-1-cyclopropyl-6-fluoro-1,4-dihydro-4-oxo-1,8-naphthyridine-3-carboxylic acid.

5,783,586

HETEROARYLMETHOXYPHENYLTHIOALKYL CARBOXYLATES AS INHIBITORS OF LEUKOTRIENE BIOSYNTHESIS

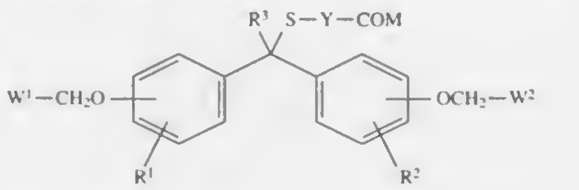
Teodozyj Kolasa, Lake Villa; Clint D. W. Brooks, Libertyville, both of Ill., and David E. Gunn, Hamden, Conn., assignors to Abbott Laboratories, Abbott Park, Ill.

Filed Oct. 1, 1996, Ser. No. 724,200

Int. Cl.^{6} C07D *215/14;* **A61K** *31/47*

U.S. Cl. 514—311 **8 Claims**

1. A compound of formula:



or a pharmaceutically acceptable salt thereof;

wherein W^1 and W^2 are independently selected from the group consisting of

(a) quinolyl;

(b) quinolyl substituted with a substituent selected from the group consisting of
halogen,
alkyl of one to six carbon atoms,
haloalkyl of one to six carbon atoms, and
alkoxy of one to six carbon atoms;

(c) benzothiazolyl;

(d) benzothiazolyl substituted with a substituent selected from the group consisting of
halogen,
alkyl of one to six carbon atoms,
haloalkyl of one to six carbon atoms, and
alkoxy of one to six carbon atoms,

(e) benzoxazolyl;

(f) benzoxazolyl substituted with a substituent selected from the group consisting of
halogen,
alkyl of one to six carbon atoms,
haloalkyl of one to six carbon atoms, and
alkoxy of one to six carbon atoms;

(g) benzimidazolyl;

(h) benzimidazolyl substituted with a substituent selected from the group consisting of
halogen,
alkyl of one to six carbon atoms,
haloalkyl of one to six carbon atoms, and
alkoxy of one to six carbon atoms;

(i) quinoxalyl;

(j) quinoxalyl substituted with a substituent selected from the group consisting of
halogen,
alkyl of one to six carbon atoms,
haloalkyl of one to six carbon atoms,
alkoxy of one to six carbon atoms,
pyridyl, and
pyridyl substituted with a substituent selected from the group consisting of
halogen,
alkyl of one to six carbon atoms, and
alkoxy of one to six carbon atoms;

(k) naphthyl;

(l) naphthyl substituted with a substituent selected from the group consisting of
halogen,
alkyl of one to six carbon atoms,
haloalkyl of one to six carbon atoms, and
alkoxy of one to six carbon atoms;

R^1 and R^2 are independently selected from the group consisting of:
(a) hydrogen,
(b) alkyl of one to six carbon atoms,
(c) halolalkyl of one to six carbon atoms,
(d) alkoxy of one to six carbon atoms, and
(e) halogen;

R^3 is selected from the group consisting of:
(a) thienyl,
(b) furyl,
(c) phenyl,
(d) naphthyl,
(e) benzo[b]thienyl,
(f) alkyl of one to six carbon atoms,
(g) hydroxyl, and
(h) hydrogen;

Y is an alkylene of one to six carbon atoms; and

M is selected from the group consisting of

a) a pharmaceutically acceptable metabolically cleavable group,

(b) $—OR^4$ where R^4 is selected from the group consisting of hydrogen and alkyl of one to six carbon atoms,

c) $—NR^5R^6$ where R^5 and R^6 are independently selected from the group consisting of
hydrogen,
alkyl of one to six carbon atoms,
hydroxy, and
alkoxy of one to six carbon atoms,
or R^5 and R^6 taken together define a five- to eight-membered ring, with the proviso that R^5 and R^6 may not simultaneously be hydroxyl,

(d) $—NR^4SO_2R^7$ wherein R^4 is as defined above and R^7 is alkyl of one to six carbon atoms,

(e) —NH-Tetrazolyl, and

(f) glycinyl.

5,783,587

BENZOYL PIPERIDINES/PYRROLIDINES FOR ENHANCING SYNAPTIC RESPONSE

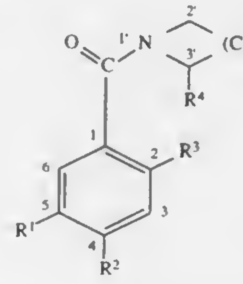
Gary A. Rogers, and Lena Nilsson, both of Santa Barbara, Calif., assignors to The Regents of the University of California, Oakland, Calif.

Division of Ser. No. 458,967, Jun. 2, 1995, Pat. No. 5,650,409. This application Mar. 21, 1997, Ser. No. 822,027

Int. Cl.^{6} A61K *31/445;31/40;* **C07D** *211/06;295/00*

U.S. Cl. 514—330 **15 Claims**

1. A compound having the formula, with ring vertices numbered as shown:



in which:

one of R^1 and R^2 is H and the other is CH_2OR^5, in which R^5 is a member selected from the group consisting of $C_1–C_6$ alkyl, an aromatic carbocyclic moiety, an aromatic heterocyclic moiety, an aromatic carbocyclic alkyl moiety, an aromatic heterocyclic alkyl moiety, and any such moiety substituted with one or more members selected from the group consisting of $C_1–C_3$ alkyl, $C_1–C_3$ alkoxy, hydroxy, halo, amino, alkylamino, dialkylamino, and methylenedioxy;

R^3 and R^4 are each H; and

n is 2 or 3.

5,783,588

Patent Not Issued For This Number

5,783,589

2-SACCHARINYLMETHYL ARYL AND ARLOXY ACETATES USEFUL AS PROTEOLYTIC ENZYME INHIBITORS AND COMPOSITIONS AND METHOD OF USE THEREOF

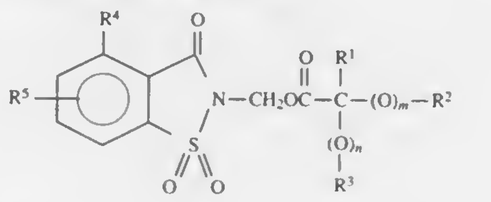
Lee Hamilton Latimer, Brighton, and Richard Paul Dunlap, Penfield, both of N.Y., assignors to Sanofi, Paris, France

Division of Ser. No. 287,372, Aug. 8, 1994, Pat. No. 5,489,604, which is a division of Ser. No. 109,849, Aug. 20, 1993, Pat. No. 5,385,923, which is a continuation of Ser. No. 815,740, Dec. 30, 1991, abandoned. This application May 24, 1995, Ser. No. 449,641

Int. Cl.^{6} C07D *275/04;* **A61K** *31/425*

U.S. Cl. 514—373 **7 Claims**

1. A compound having the formula:



wherein:

m is zero, n is one;

R^1 is hydrogen or lower-alkyl;

R^2 is hydrogen or lower-alkyl;

R^3 is phenyl or phenyl substituted by from one to three, the same or different, members of the group consisting of lower-alkyl, perfluorolower-alkyl, lower-alkoxy and halogen;

R^4 is halogen, perfluorolower-alkyl, perchlorolower-alkyl, lower-alkenyl, lower-alkynyl, cyano, carboxamido, amino, lower-alkylamino, dilower-alkylamino, lower-alkoxy, benzyloxy, lower-alkoxycarbonyl, hydroxy or phenyl; and

R^5 is hydrogen or from one to two substituents in any of the 5-, 6- or 7-positions selected from halogen, cyano, nitro, N=B, lower-alkyl-2-pyrrolyl, lower-alkylsulfonyl-amino, polyfluorolower-alkylsulfonylamino, polychlorolower-alkylsulfonylamino, aminosulfonyl, lower-alkyl, polyfluorolower-alkyl, polychlorolower-alkyl, cycloalkyl, lower-alkoxy, hydroxy, carboxy, carboxamido, hydroxylower-alkyl, methylenedioxy, cycloalkyloxy, formyl, aminomethyl, polyfluorolower-alkylsulfonyl, polychlorolower-alkylsulfonyl, lower-alkylsulfonylaminosulfonyl, di(lower-alkyl)phosphonoxy, lower-alkoxypoly-lower-alkyleneoxy, hydroxy-lower-alkoxy, polyhydroxy-alkoxy, or acetal or ketal thereof, polyalkoxy-alkoxy, —SR, —SOR, $—SO_2R$, —OCOR, $—O—(C_1–C_{10}$ alkylene)-COOR, $—O—(C_2–C_{10}$ alkylene)-N=B where R is lower-alkyl, phenyl, benzyl or naphthyl, or phenyl or naphthyl substituted by from one to two substituents selected from lower-alkyl, lower-alkoxy or halogen and where N=B in each instance is amino, lower-alkylamino, dilower-alkylamino, 1-azetidinyl, 1-pyrrolidinyl, 1-piperidinyl, 4-morpholinyl, 1-piperazinyl, 4-lower-alkyl-1-piperazinyl, 4-benzyl-1-piperazinyl, 1-imidazolyl or (carboxylower-alkyl)amino, or R^5 is a 5- or 6-membered saturated ring fused to the saccharin ring at the 5,6 or 6,7 positions, said ring containing two heteroatoms chosen from the group consisting of nitrogen, oxygen and sulfur or a methylated derivative of said ring; or

R^4 is hydrogen, or lower-alkyl; and

R^5 is from one to two substituents in any of the 5-, 6- or 7-positions selected from halogen, cyano, nitro, N=B, lower-alkyl-2-pyrrolyl, lower-alkylsfonyl-amino, polyfluorolower-alkylsulfonylamino, polychlorolower-alkylsulfonylamino, aminosulfonyl, lower-alkyl polyfluorolower-alkyl, polychlorolower-alkyl, cycloalkyl, hydroxy, carboxy, carboxamido, hydroxylower-alkyl, methylenedioxy, cycloalkyloxy, formyl, aminomethyl, polyfluorolower-alkylsulfonyl, polychlorolower-alkylsulfonyl, lower-alkylsulfonylaminosulfonyl, di(lower-alkyl)phosphonoxy, lower-alkoxypoly-lower-alkyleneoxy, hydroxy-lower-alkoxy, polyhydroxy-alkoxy, or acetal or ketal thereof, —SR, —SOR, $—SO_2R$, —OCOR, $—O—(C_1–C_{10}$ alkylene-COOR, $—O—(C_2–C_{10}$ alkylene)-N=B where R is lower-alkyl, phenyl, benzyl or naphthyl, or phenyl or naphthyl substituted by from one to two substituents selected from lower-alkyl, lower-alkoxy or halogen and where N=B in each instance is amino, lower-alkylamino, dilower-alkylamino, 1-azetidinyl, 1-pyrrolidinyl, 1-piperidinyl, 4-morpholinyl, 1-piperazinyl, 4-lower-alkyl-1-piperazinyl, 4-benzyl-1-piperazinyl, 1-imidazolyl or (carboxylower-alkyl)amino; or R^5 is a 5- or 6-membered saturated ring fused to the saccharin ring at the 5,6 or 6,7 positions, said ring containing two heteroatoms chosen from the group consisting of nitrogen, oxygen and sulfur or a methylated derivative of said ring;

or acid-addition salts of basic members thereof or base-addition salts of acidic members thereof.

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5,783,590

6-HETEROCYCLIC-4-AMINO-1,2,2A,3,4,5-HEXAHYDROBENZ[CD]INDOLES

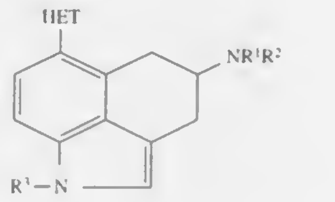
Richard N. Booher; Michael E. Flaugh, both of Indianapolis; David E. Lawhorn, Greenfield; Michael J. Martinelli; Charles J. Paget, Jr., both of Indianapolis, and John M. Schaus, Zionsville, all of Ind., assignors to Eli Lilly and Company, Indianapolis, Ind.

Division of Ser. No. 954,171, Sep. 30, 1992, Pat. No. 5,347,013, which is a continuation-in-part of Ser. No. 676,679, Mar. 28, 1991, Pat. No. 5,244,911. This application Jun. 20, 1994, Ser. No. 263,910

Int. Cl.^{6} A61K *43/76*

U.S. Cl. 514—374 13 Claims

1. A compound of the formula



wherein:

R^1 is hydrogen; C_1–C_4 alkyl, C_3–C_4 alkenyl, cyclopropylmethyl, phenyl (C_1–C_4 alkyl), naphthyl (C_1–C_4 alkyl), phenyl (C_1–C_4 alkyl) substituted with one or two substituents selected from the group consisting of C_1–C_3 alkoxy, halo, hydroxy, C_1–C_3 thioalkyl, nitro, C_1–C_3 alkyl or trifluoromethyl, naphthyl (C_1–C_4 alkyl) substituted with one or two substituents selected from the group consisting of C_1–C_3 alkoxy, halo, hydroxy, C_1–C_3 thioalkyl, nitro, C_1–C_3 alkyl or trifluoromethyl, —$(CH_2)_nS(C_1$–C_4 alkyl), —$C(O)R^4$, or —$(CH_2)_nC(O)NR^5R^6$;

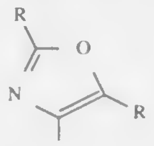
R^2 is hydrogen, C_1–C_4 alkyl, cyclopropylmethyl or C_3–C_4 alkenyl;

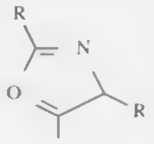
R^3 is hydrogen, C_1–C_4 alkyl or an amino blocking group; n is $1 \geqq 4$;

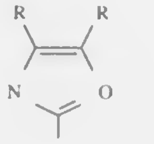
R^4 is hydrogen, C_1–C_4 alkyl, C_1–C_4 haloalkyl, C_1–C_4 alkoxy or phenyl;

R^5 and R^6 are independently hydrogen, C_1–C_4 alkyl, or C_5–C_8 cycloalkyl with the proviso that when one of R^5 or R^6 is a cycloalkyl the other is hydrogen;

HET is a heterocyclic ring selected from the group consisting







where each R is independently hydrogen, C_1–C_3 alkyl, halogen, hydroxy, C_1–C_3 alkoxy, C_1–C_3 thioalkyl, NH_2, CN or phenyl; or pharmaceutically acceptable salts thereof.

5,783,591

ADMINISTRATION OF OXAZOLIDINONE AND PYROLIDINONE COMPOUNDS FOR THE TREATMENT OF INFLAMMATION

Walter Klose; Gerald Kirsch; Andreas Huth; Wolfgang Froehlich, and Henry Laurent, all of Berlin, Germany, assignors to Schering Aktiengesellschaft, Germany

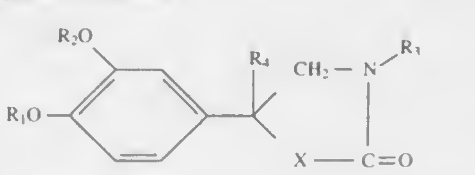
Continuation of Ser. No. 119,804, Sep. 13, 1993, abandoned, which is a continuation of Ser. No. 977,972, Nov. 18, 1992, abandoned, which is a continuation of Ser. No. 854,788, Mar. 23, 1992, abandoned. This application Nov. 17, 1994, Ser. No. 504,719

Claims priority, application Germany, Oct. 19, 1984, 34 38 839.7

Int. Cl.^{6} A61K *31/42;31/40*

U.S. Cl. 514—376 19 Claims

1. A method for the treatment of inflammations, consisting of administering topically to a host in need of such treatment, an effective amount of an anti-inflammatory agent comprising at least one compound of Formula I



(I)

wherein

X is an oxygen atom,

R_1 and R_2 represent a hydrogen atom or a hydrocarbon residue of maximally eight carbon atoms, optionally interrupted by an oxygen atom,

R_3 is a hydrogen atom or a hydrocarbon residue of maximally eight carbon atoms, optionally substituted by an oxo group, and

R_4 is a hydrogen atom or an alkyl group of maximally four carbon atoms.

5,783,592

FORMULATIONS FOR LIPOPHILIC COMPOUNDS

Donna Pruess Schwartz, San Mateo, and Laura Kay Shawver, San Francisco, both of Calif., assignors to Baylor College of Medicine, Houston, Tex.

Continuation of Ser. No. 429,206, Apr. 26, 1995, Pat. No. 5,610,173, which is a continuation-in-part of Ser. No. 370,574, Jan. 6, 1995, which is a continuation-in-part of Ser. No. 179,570, Jan. 7, 1994. This application Mar. 6, 1997, Ser. No. 813,377

Int. Cl.^{6} A61K *31/42;31/165*

U.S. Cl. 514—378 11 Claims

1. A formulation made by a process comprising the step of producing a mixture by combining:

a pharmaceutically acceptable surfactant,

ethanol, and

at least 1 mg/ml of a lipophilic compound, wherein said lipophilic compound comprises either an isoxazole group or a cyanoacetamide group.

5,783,593

INHIBITORS OF SQUALENE SYNTHETASE AND PROTEIN FARNESYLTRANSFERASE

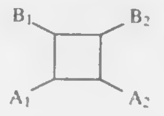
William R. Baker, Bellevue, Wash.; Saul H. Rosenberg, Grayslake, Ill.; Anthony K. L. Fung, Gurnee, Ill.; Todd W. Rockway, Grayslake, Ill.; Stephen A. Fakhoury, Mundelein, Ill.; David S. Garvey, Dover, Mass.; B. Gregory Donner, Mundelein, Ill.; Stephen J. O'Connor, Wilmette, Ill.; Rajnandan N. Prasad, Vernon Hills, Ill.; Wang Shen, Skokie, Ill.; David M. Stout, Mettawa, Ill., and Gerard M. Sullivan, Round Lake Beach, Ill., assignors to Abbott Laboratories, Abbott Park, Ill.

Continuation-in-part of Ser. No. 429,095, May 3, 1995, abandoned, which is a continuation-in-part of Ser. No. 322,783, Oct. 18, 1994, abandoned, which is a continuation-in-part of Ser. No. 289,711, Aug. 12, 1994, abandoned, which is a continuation-in-part of Ser. No. 147,708, Nov. 4, 1993, abandoned. This application Apr. 29, 1996, Ser. No. 633,262

Int. Cl.^{6} A61K *31/16;31/19;31/215;31/41*

U.S. Cl. 514—381 26 Claims

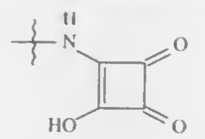
1. A compound of the formula:



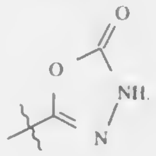
wherein

A_1 and A_2 are independently selected from —C(O)—G wherein G is —$N(R_1)(R_2)$ wherein at each occurrence R_1 is independently selected from (a) loweralkyl, (b) cycloalkyl and (c) cycloalkylalkyl and at each occurrence R_2 is independently selected from aryl and arylalkyl wherein the aryl group or aryl part of the arylalkyl group is substituted with —Z—R_4 wherein at each occurrence Z is independently selected from (i) —O— and (ii) —S— and at each occurrence R_4 is independently selected from (i) aryl, (ii) arylalkyl, (iii) cycloalkyl, (iv) cycloalkylalkyl, (v) heterocyclic and (vi) (heterocyclic)alkyl and

B_1 and B_2 are independently selected from —Q—C(O)—R_6, —W—R_5 and



wherein at each occurrence Q and W are independently selected from a covalent bond and alkylene, R_6 is —OR_7 wherein R_7 is hydrogen or a carboxy-protecting group and R_5 is 5-tetrazolyl or



5,783,594

CELL DIFFERENTIATION INDUCTION WITH MEVALONATE AND MEVALONOLACTONE DERIVATIVES

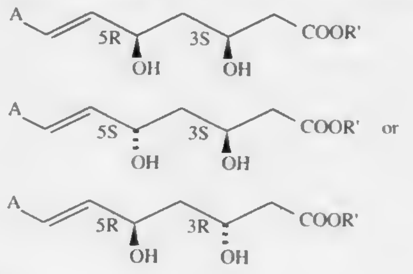
Terence J. Scallen, and Paul L. Mann, both of Albuquerque, N. Mex., assignors to University of New Mexico, Albuquerque, N. Mex.

Continuation of Ser. No. 314,457, Sep. 28, 1994, abandoned, which is a continuation of Ser. No. 786,215, Oct. 31, 1991, abandoned, which is a continuation-in-part of Ser. No. 694,284, May 1, 1991, abandoned. This application May 31, 1995, Ser. No. 456,116

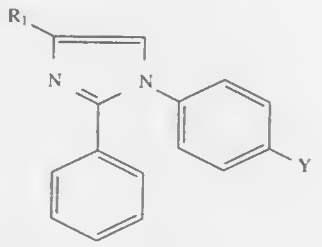
Int. Cl.^{6} A61K *31/415*

U.S. Cl. 514—400 5 Claims

1. A method for treating a glioma or colon carcinoma in a mammal comprising administering to the mammal a therapeutically effective amount of a compound of the formula:



wherein A is



wherein R_1 is C_{1-6} alkyl,

Y is fluoro-, chloro- or bromo- and

wherein R' is hydrogen, a physiologically-acceptable cation or cation complex or a physiologically acceptable ester group.

5,783,595

Patent Not Issued For This Number

5,783,596

TREATMENT FOR ATHEROSCLEROSIS AND OTHER CARDIOVASCULAR AND INFLAMMATORY DISEASES

Russell M. Medford; Margaret K. Offermann; R. Wayne Alexander, and Sampath Parthasarathy, all of Atlanta, Ga., assignors to Emory University, Atlanta, Ga.

Division of Ser. No. 240,858, May 10, 1994, abandoned, which is a continuation-in-part of Ser. No. 969,934, Oct. 30, 1992, Pat. No. 5,380,747. This application Jun. 7, 1995, Ser. No. 477,881

Int. Cl.^{6} A61K *31/40;31/54;31/265;31/185*

U.S. Cl. 514—423 10 Claims

1. A method for the treatment of an inflammatory skin disease that is mediated by VCAM-1 comprising administering an effective amount to inhibit the expression of VCAM-1 of the dithiocarbamate of the formula A-SC(S)-B

wherein A is selected from the group consisting of hydrogen, a pharmaceutically acceptable cation, and a physiologically cleavable leaving group;

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and B is selected from the group consisting of alkyl, alkenyl, alkynyl, alkaryl, aralkyl, haloalkyl, haloalkenyl, haloalkynyl, aryl, alkaryl, heterocyclic, alkylheterocyclic, C_{1-6}alkoxy-C_{1-10}alkyl, C_{1-6}alkylthio-C_{1-10}alkyl, NR^2R^3, —$(CHOH)_nCH_2OH$, wherein n is 0, 1, 2, 3, 4, 5, or 6, —$(CH_2)_nCO_2R^1$, including alkylacetyl, alkylpropionyl, and alkylbutyryl, and hydroxy (C_{1-6})alkyl—, wherein R^1 is hydrogen or a pharmaceutically acceptable cation, and R^2 and R^3 are independently isopropyl, butyl, isobutyl, t-butyl, pentyl, cyclopentyl, isopentyl, neopentyl, hexyl, isohexyl, or cyclohexyl, —(CHOH)n(CH2)OH, wherein n is 0, 1, 2, 3, 4, 5, or 6, or R^2 and R^3 together constitute a bridge.

5,783,597

2,5-DISUBSTITUTED THIOPHENES: INHIBITORS OF 5-LIPOXYGENASE AND INDUCIBLE CYCLOOXYGENASE (COX-2) ENZYMES, COMPOSITION AND USE

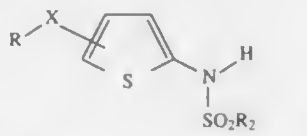
Scott Alan Beers, Flemington, and Michael Paul Wachter, Bloomsbury, both of N.J., assignors to Ortho Pharmaceutical Corporation, Raritan, N.J.

Filed Mar. 4, 1997, Ser. No. 810,848

Int. Cl.^{6} A61K *31/38;* **C07D** *333/36;333/42*

U.S. Cl. 514—447 **16 Claims**

1. A compound having a structure that corresponds to the formula I:



I

wherein,

R_2 is CF_3, C_1–C_{10} alkyl, or phenyl;

X is O, S, or CH_2; and

R is aryl, C_1–C_{10} alkyl, or C_3–C_8 cycloalkyl, wherein aryl is a phenyl or naphthyl moiety which may be substituted by one or more of the following: halogen, CF_3, C_1–C_4 alkyl, alkoxy, alkylthio, or alkylsulfonyl; and the pharmaceutically acceptable salts, esters and pro-drug forms thereof.

5,783,598

ANTIRETROVIRAL NAPHTHOQUINONE COMPOUNDS COMPOSITIONS AND USES THEREOF

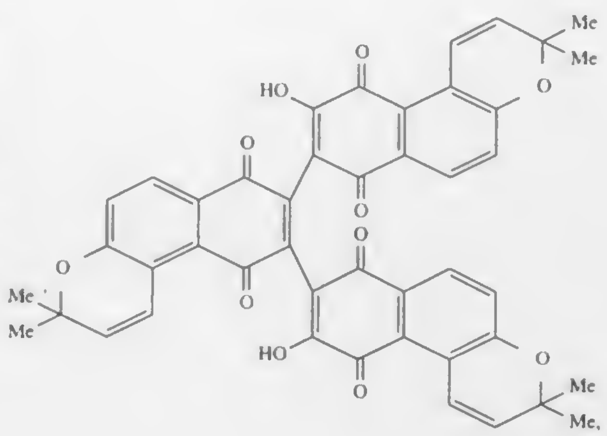
Michael R. Boyd, Ijamsville; John H. Cardellina, II, Walkersville; Kirk R. Gustafson, Mt. Airy, all of Md.; Laurent A. Decosterd, Nyon, Switzerland; Ian Parson, Ithaca, N.Y.; Lewis Pannell, Silver Spring, Md.; James B. McMahon, Frederick, Md., and Gordon M. Cragg, Bethesda, Md., assignors to The United States of America as represented by the Secretary of the Department of Health and Human Sevices, Washington, D.C.

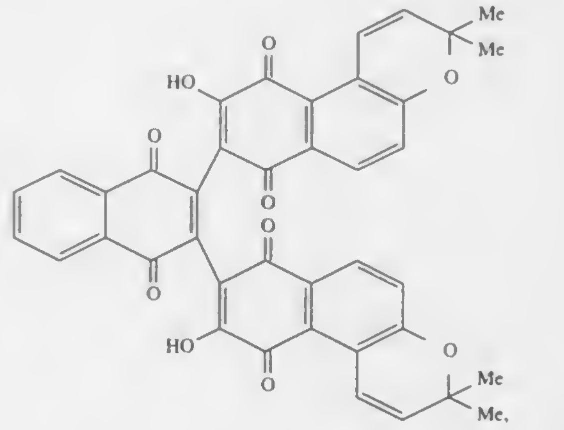
Continuation of Ser. No. 11,183, Jan. 29, 1993, Pat. No. 5,672,607. This application Mar. 8, 1996, Ser. No. 613,162

Int. Cl.^{6} A61K *31/35;* **C07D** *407/14*

U.S. Cl. 514—454 **21 Claims**

1. An antiviral naphthoquinone selected from the group consisting of:





and a prodrug thereof, wherein said prodrug is an ester of the quinol formed by the reduction of said antiviral naphthoquinone.

5,783,599

METHODS OF TREATING CANCER AND VIRAL INFECTIONS WITH 5-IODO-6-AMINO-AND 5-IODO-6-NITROSO-1 2-BENZOPYRONES

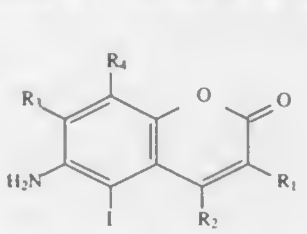
Ernest Kun, 8 Helens La., Mill Valley, Calif. 94941, and Jerome Mendeleyev, 1292 Stanyan St., San Francisco, Calif. 94117

Continuation of Ser. No. 21,989, Feb. 24, 1993, Pat. No. 5,519,053. This application Feb. 27, 1996, Ser. No. 607,480

Int. Cl.^{6} A61K *31/35*

U.S. Cl. 514—457 **20 Claims**

1. A method for the treatment of tumorigenic cancers, sensitive to the compounds identified below said method comprising the step of administering to a mammal in need thereof a therapeutically effective amount of a compound having the chemical formula:



or a pharmaceutically acceptable salt thereof, wherein R_1, R_2, R_3 and R_4 are each independently selected from the group consisting of hydrogen, hydroxy, amino, $(C_1$–$C_6)$ alkyl, $(C_1$–$C_6)$ alkoxy, $(C_3$–$C_7)$ cycloalkyl, halo and phenyl; and wherein at least three of the four R_1, R_2, R_3 and R_4 substituents are always hydrogen.

5,783,600

CARBOXYALKYLETHERS, FORMULATIONS, AND TREATMENT OF VASCULAR DISEASES

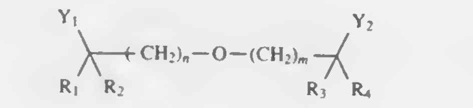
Charles Larry Bisgaier; Paul Leroy Creger; Alan Robert Saltiel, all of Ann Arbor, and Sherrie Rae Tafuri, Dexter, all of Mich., assignors to Warner-Lambert Company, Morris Plains, N.J.

Division of Ser. No. 409,780, Mar. 24, 1995, Pat. No. 5,648,387. This application Feb. 25, 1997, Ser. No. 806,580

Int. Cl.^{6} A61K *31/225*

U.S. Cl. 514—547 **8 Claims**

1. A method for elevating plasma HDL-cholesterol comprising administering to a mammal an effective amount of a compound of the formula



I

wherein

n and m independently are integers from 2 to 9;

R_1, R_2, R_3 and R_4 independently are C_1–C_6 alkyl, C_2–C_6 alkenyl, and R_1 and R_2 together with the carbon to which they are attached, and R_3 and R_4 together with the carbon to which they are attached, independently can complete a carbocyclic ring having from 3 to 6 carbons;

Y_1 and Y_2 independently are COOH, CHO, tetrazole, and $COOR_5$ where R_5 is C_1–C_6 alkyl, C_2–C_6 alkenyl, C_2–C_6 alkynyl;

and where the alkyl, alkenyl, and alkynyl groups may be substituted with one or two groups selected from halo, hydroxy, C_1–C_6 alkoxy, and phenyl, and the pharmaceutically acceptable salts thereof.

5,783,601

EXTERNAL SKIN-CARE COMPOSITION

Masanori Tanahashi; Takahide Minami, both of Tokyo; Yukihiro Ohashi, Ichikai-machi; Shinya Amano, Ichikai-machi, and Kouichi Niinaka, Ichikai-machi, all of Japan, assignors to Kao Corporation, Tokyo, Japan

Filed Apr. 15, 1996, Ser. No. 631,987

Claims priority, application Japan, Apr. 13, 1995, 7-088283

Int. Cl.^{6} A61K *31/19*

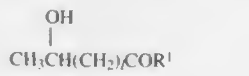
U.S. Cl. 514—557 **20 Claims**

1. An external skin-care composition, comprising:

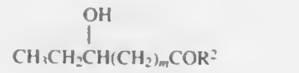
(a) a hydroxycarboxylic acid or a derivative thereof represented by the following general formula (1) or a salt thereof;

(b) a hydroxycarboxylic acid or a derivative thereof represented by the following general formula (2) or a salt thereof; and

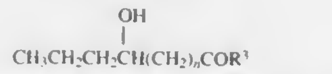
(c) a hydroxycarboxylic acid or a derivative thereof represented by the following general formula (3) or a salt thereof:



$$CH_3\overset{OH}{\overset{|}{CH}}(CH_2)_lCOR^1 \qquad (1)$$



$$CH_3CH_2\overset{OH}{\overset{|}{CH}}(CH_2)_mCOR^2 \qquad (2)$$



$$CH_3CH_2CH_2\overset{OH}{\overset{|}{CH}}(CH_2)_nCOR^3 \qquad (3)$$

wherein R^1, R^2, and R^3 are each independently a hydroxyl group, an amino group or an alkoxyl group which may be substituted by 1–3 hydroxyl groups, l is a number of 7–11, m is a number of 6–10, and, wherein when l is a number equal to x, m is a number equal to x−1 and n is a number equal to x−2.

5,783,602

LEUKOTRIENE-B4 DERIVATIVES, PROCESS FOR THEIR PRODUCTION AND THEIR USE AS PHARMACEUTICAL AGENTS

Werner Skuballa; Bernd Buchmann; Josef Heindl; Wolfgang Fröhlich; Roland Ekerdt, and Claudia Giesen, all of Berlin, Germany, assignors to Schering Aktiengesellschaft, Berlin, Germany

PCT No. PCT/EP94/00215, § 371 Date Dec. 4, 1996, § 102(e) Date Dec. 4, 1996, PCT Pub. No. WO95/20563, PCT Pub. Date Aug. 3, 1995

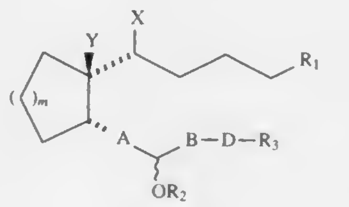
PCT Filed Jan. 27, 1994, Ser. No. 682,699

Int. Cl.^{6} C07C *59/54;* **A61K** *31/557*

U.S. Cl. 514—557 **3 Claims**

1. Leukotriene-B_4 derivatives of general formula I,

(I)



in which

R_1 represents CH_2OH, CH_3, CF_3, $COOR_4$, $CONR5R_6$, and

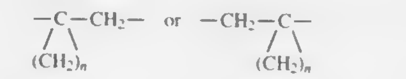
R_2 represents H or an organic acid radical with 1–15 C atoms,

R_3 symbolizes H; C_1–C_{14} alkyl, C_3–C_{10} cycloalkyl optionally substituted singly or multiply; C_6–C_{10} aryl radicals, independently of one another, optionally substituted singly or multiply by halogen, phenyl, C_1–C_4 alkyl, C_1–C_4 alkoxy, fluoromethyl, chloromethyl, trifluoromethyl, carbonyl, carboxyl or hydroxy; or a 5-to 6-membered aromatic heterocyclic ring with at least 1 heteroatom,

R_4 means hydrogen, C_1–C_{10} alkyl, C_3–C_{10} cycloalkyl; C_6–C_{10} aryl radicals optionally substituted by 1–3 halogen, phenyl, C_1–C_4 alkyl, C_1–C_4 alkoxy, fluoromethyl, chloromethyl, trifluoromethyl, carboxyl or hydroxy; CH_2—CO—$(C_6$–$C_{10})$ aryl or a 5- to 6-membered ring with at least 1 heteroatom,

A symbolizes a trans, trans—CH=CH—CH=CH, a —CH_2CH_2—CH=CH— or a tetramethylene group,

B symbolizes a C_1–C_{10} straight-chain or branched-chain alkylene group, which optionally can be substituted by fluorine or the group



$$-\underset{(CH_2)_n}{\underset{/\,\backslash}{C}}-CH_2- \quad \text{or} \quad -CH_2-\underset{(CH_2)_n}{\underset{/\,\backslash}{C}}-$$

D means a direct bond, oxygen, sulfur, —C≡C—, —$CH=CR_7$, or together with B can also mean a direct bond,

R_5 and R_6 are the same or different, and represent H or C_1–C_4 alkyl optionally substituted by hydroxy groups or R_6 represents H and R_5 represents C_1–C_{15} alkanoyl or R_8SO_2,

R_7 means H, C_1–C_5 alkyl, chlorine, bromine,

R_8 has the same meaning as R_3,

m means 1–3,

n is 2–5, and, if R_4 means hydrogen, their salts with physiologically compatible bases and their cyclodextrin clathrates,

X and Y mean a direct bond, whereby the resulting olefin can be E- or Z-configured or X represents a fluorine atom in α- or β-position, and Y means a hydrogen atom in β-position.

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5,783,603
POTASSIUM HYDROXYCITRATE FOR THE SUPPRESSION OF APPETITE AND INDUCTION OF WEIGHT LOSS

Muhammed Majeed; Vladimir Badmaev, both of Piscataway, N.J., and R. Rajendran, Bangalore, India, assignors to Sabinsa Corporation, Piscataway, N.J.

Continuation of Ser. No. 440,968, May 15, 1995, abandoned. This application Mar. 31, 1997, Ser. No. 829,143

Int. Cl.^{6} A61K *31/19*

U.S. Cl. 514—574 **9 Claims**

1. A method for suppressing appetite in a patient in need of such effect comprising administering to said patient an appetite suppressing effective amount of potassium hydroxycitric acid composition comprising less than 2% by weight of potassium hydroxycitric lactone, based on the combined amount of potassium hydroxycitric acid and potassium hydroxycitric lactone.

5,783,604
GERMICIDAL COMPOSITIONS CONTAINING IODINE COMPOUNDS

Maria Rosalia Garcla Nunez, Porto Cristo 10, Alcorcon, Spain, 28924

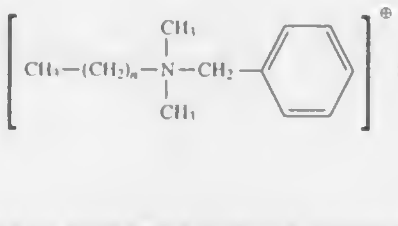
Continuation-in-part of Ser. No. 399,807, Mar. 7, 1995, abandoned, which is a continuation-in-part of Ser. No. 907,869, Jul. 2, 1992, abandoned. This application Dec. 10, 1996, Ser. No. 762,729

Int. Cl.^{6} A01N *33/12;37/18*

U.S. Cl. 514—627 **3 Claims**

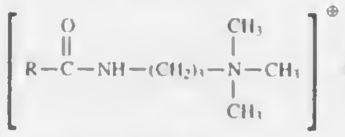
1. A germicide composition comprising:

a) 35–50% by weight compared to the total composition weight of alkyl-dimethyl-benzyl-ammonium iodide, having the formula:



where n is a whole number between 8 and 18 (both included);

b) 3–10% by weight compared to the total composition weight of N-1-(3-trimethylammonium)-propyl-undecylenamide iodide, having the following formula:



$$\left[R-\overset{\overset{O}{\|}}{C}-NH-(CH_2)_3-\underset{\underset{CH_3}{|}}{\overset{\overset{CH_3}{|}}{N}}-CH_3 \right]^{\oplus} I^{\ominus}$$

where R is a decylenic group; and

c) the remaining 40–62% by weight comprising:
undecylenic acid diethanolamide;
a fatty alcohol oxyethylenated with 8 moles of ethylene oxide;
an oxyethylenated fatty acid monoglyceride;
glycerine;
hexylenglycol
an inorganic acid in a quantity sufficient to provide a pH of 4.5.

5,783,605
HELPER INDUCERS FOR DIFFERENTIATION THERAPY AND CHEMOPREVENTION OF CANCER

Sheng-Chu Kuo, 5F-1, 19, Lane 238, Ssu-Ping Road, and Jau-Hong Lee, 7F-5, 229, Ching-Tao Road, Section 3, both of Taichung, Taiwan

Continuation of Ser. No. 398,304, Feb. 27, 1995, abandoned. This application Oct. 15, 1996, Ser. No. 730,737

Int. Cl.^{6} A61K *31/19*

U.S. Cl. 514—629 **2 Claims**

1. A method of inducing terminal differentiation in cancer cells by a differentiation inducer, comprising the step of administering to said cancer cells an effective amount of a helper inducer selected from the group consisting of methyl phenylacetamide and ethyl phenylacetamide.

5,783,606
DEPRENYL COMPOUND FOR TREATMENT OF GLAUCOMA

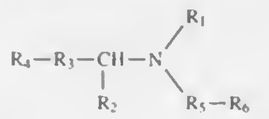
William G. Tatton, Halifax, Canada, assignor to The University of Toronto Innovations Foundation, Toronto, Canada

Continuation-in-part of Ser. No. 515,893, Aug. 16, 1995, abandoned, which is a continuation of Ser. No. 394,003, Feb. 10, 1995, abandoned. This application Feb. 9, 1996, Ser. No. 598,845

Int. Cl.^{6} A61K *31/135*

U.S. Cl. 514—649 **19 Claims**

1. A method for treating a subject for glaucoma. comprising:
administering a therapeutically effective amount of a deprenyl compound to a subject such that the subject is treated for glaucoma, wherein the deprenyl compound prevents or delays death of retinal or optic nerve cells and wherein the deprenyl compound is represented by the structure:



in which
R_1 is hydrogen, alkyl, alkenyl, alkynyl, aralkyl, alkylcarbonyl, arylcarbonyl, alkoxycarbonyl, or aryloxycarbonyl;
R_2 is hydrogen or alkyl;
R_3 is a single bond, alkylene, or $—(CH_2)_n—X—(CH_2)_m$; in which X is O, S, or N-methyl; m is 1 or 2; and n is 0,1, or 2;
R_4 is alkyl, alkenyl, alkynyl, heterocyclyl, aryl or aralkyl; and
R_5 is alkylene, alkenylene, alkynylene and alkoxylene; and
R_6 is C_3–C_6 cycloalkyl or

$$—C{\equiv}CH\,;$$

and pharmaceutically acceptable salts thereof.

5,783,607
PROCESS FOR CONVERTING SYNTHESIS GAS IN THE PRESENCE OF A CATALYST BASED ON COBALT AND TITANIUM

Patrick Chaumette, Bougival; Olivier Clause, Chatou, and Hedi Azih, L'Hay les Roses, all of France, assignors to Institut Francais du Petrole, Cedex, France, and AGIP Petroli S.P.A., Rome, Italy

Filed Apr. 8, 1997, Ser. No. 835,523

Claims priority, application France, Apr. 9, 1996, 96 04417

Int. Cl.^{6} C07C *27/00;1/00;* **B01J** *23/00*

U.S. Cl. 518—713 **9 Claims**

1. A process for the synthesis of essentially linear and saturated hydrocarbons containing at least 25% by weight of C_5^+ hydrocarbons with respect to the total amount of hydrocarbons formed, from a synthesis gas $CO—(CO_2)—H_2$, in the presence of a catalyst, in which the synthesis gas is converted to hydrocarbons at a total pressure which is in the range 0.1 to 15 MPa, a temperature which is in the range 150° C. to 350° C., an hourly space velocity which is in the range 100 to 20000 volumes of synthesis gas per volume of catalyst per hour, and an H_2/CO molar ratio in the synthesis gas in the range 1:2 to 5:1, said catalyst comprising (a) a support formed of at least one oxide of an element selected from the group consisting of: Si, Al, Ti, Zr, Sn, Zn, Mg or Ln (wherein Ln is a rare earth); (b) cobalt; (c) titanium; and (d) at least one additional element A selected from the group consisting of copper, ruthenium, platinum, palladium, scandium and yttrium, said catalyst having been produced by at least the following successive steps:
(1) forming a precursor comprising cobalt, element A and the support;
(2) at least partial reduction of said precursor in the presence of at least one reducing compound; and
(3) depositing titanium on the reduced precursor.

5,783,608
PROCESS FOR PRODUCING SEPARATION FUNCTIONAL FIBERS AND ION-EXCHANGE FIBERS PRODUCED THEREFROM

Takanobu Sugo, Gunma-ken; Toshihiko Yamada, Chiba-ken; Hiroyuki Shima, and Kunio Fujiwara, both of Kanagawa-ken, all of Japan, assignors to Ebara Corporation, and Japan Atomic Energy Research Institute, both of Tokyo, Japan

Continuatinn of Ser. No. 474,987, Jun. 7, 1995, abandoned. This application Feb. 21, 1997, Ser. No. 804,520

Claims priority, application Japan, Nov. 22, 1994, 6-288435

Int. Cl.^{6} C08J *5/20*

U.S. Cl. 521—29 **9 Claims**

1. A gas adsorber produced by the steps of
exposing fibers with a core/sheath structure to an ionizing radiation and then grafting a polymerizable monomer onto the sheath to provide a sulfonic group thereon for gas adsorption. wherein said sheath is a polyolefin and the core is polyester.
whereby said sheath and said core are partially separated from one another over part of their interface and partially contact one another along their interface.
forming a fabric from said fibers, and
heat-bonding sheaths of adjacent fibers to one other.

5,783,609
PROCESS FOR RECOVERING ORGANOALKOXYSILANE FROM POLYORGANOSILOXANE

Tsurahide Cho, Tokyo; Yoshiro Ohta, Kanagawa; Toshitsura Cho, Tokyo; Tohru Yamashita, Tokyo; Nobuaki Ohkawa, Tokyo, and Makoto Nishida, Tokyo, all of Japan, assignors to Tama Chemicals Co., Ltd., and Toshiba Silicone Co., Ltd., both of Tokyo, Japan

PCT No. PCT/JP94/02281, § 371 Date Jun. 27, 1996, § 102(e) Date Jun. 27, 1996, PCT Pub. No. WO95/18174, PCT Pub. Date Jul. 6, 1995

PCT Filed Dec. 28, 1994, Ser. No. 666,458

Claims priority, application Japan, Dec. 28, 1993, 5-334084

Int. Cl.^{6} C08G *77/01*

U.S. Cl. 521—47.5 **33 Claims**

1. A process for recovering a silicon-containing compound from a high molecular weight polyorganosiloxane. which comprises:
(I) reacting
  (A) a high molecular weight polyorganosiloxane or a composition containing the same,
  (B) in the presence of at least one alcoholate compound selected from the group consisting of an alkali metal alcoholate and a quaternary ammonium alcoholate, with
  (C) an alkoxysilane, at a temperature of lower than 300° C.: and
(II) recovering the resulting
  (a) an organoalkoxysilane; or at least one of the following (b) to (d) in addition to said (a)
  (b) a distillable polyorganosiloxane low molecular weight compound;
  (c) a non-volatile liquid polyorganosiloxane having a weight average molecular weight of less than 1.000; and
  (d) a silica.

5,783,610
HIGH-STRENGTH SYNTHETIC RESIN FOAM AND PROCESS OF FABRICATION THEREOF

Toshiharu Fukushima, and Takako Itoh, both of Shizuoka, Japan, assignors to Yamaha Corp., Japan

Filed Jun. 5, 1996, Ser. No. 658,647

Claims priority, application Japan, Jun. 7, 1995, 7-140878

Int. Cl.^{6} C08J *9/34*

U.S. Cl. 521—51 **12 Claims**

1. A structure of synthetic resin foam comprising a skin layer of non-foamed thermoplastic resin, and a core layer of thermoplastic resin foam merged with said skin layer and lower in crystallinity than said skin layer. cells with an average diameter ranging from 0.1 micron to 10 microns forming said core layer.

5,783,611
COMPOSITION AND PROCESS FOR ROTATIONAL MOLDING FOAMED ARTICLES

Jeffrey J. Strebel, Cincinnati, Ohio, assignor to Millennium Petrochemicals Inc., Cincinnati, Ohio

Filed Apr. 17, 1997, Ser. No. 842,777

Int. Cl.^{6} C08J *9/00*

U.S. Cl. 521—51 **16 Claims**

1. A composition usefull for rotomolding foamed articles having a smooth exterior skin comprising:
(a) 25 to 75 percent by weight, based on the weight of the total composition, ethylene polymer pellets ranging in size from $^1/_{16}$ inch to $^3/_{16}$ inch in diameter and containing 0.25 to 7.5 weight percent chemical foaming agent, based on the weight of the ethylene polymer, said ethylene polymer having a melt index from 0.25 g/10 mins. up to 25 g/10 mins., and
(b) 75 to 25 percent by weight, based on the weight of the total composition, ethylene polymer powder containing:
(i) a major proportion of fractional melt index ethylene polymer powder wherein 80 percent or more of the powder particles are greater than 250 microns in size and
(ii) a minor proportion of ethylene polymer powder wherein 80 percent or more of the powder particles are less than 250 microns in size and the ethylene polymer has a melt index greater than 1 g/10 mins., and with the proviso that the mean particle size of (b)(i) and (b)(ii) differ by at least 100 microns.

5,783,612
EXPANDABLE STYRENE POLYMERS

Karl-Heinz Batscheider, Mutterstadt; Klaus Hahn, Kirchheim; Frank Braun, and Joachim Rösch, both of Ludwigshafen, all of Germany, assignors to BASF Aktiengesellschaft, Ludwigshafen, Germany

Filed Jul. 24, 1997, Ser. No. 899,646

Claims priority, application Germany, Jul. 24, 1996, 196 29 791.5

Int. Cl.^{6} C08J *9/18;9/20*

U.S. Cl. 521—56 **2 Claims**

1. A process for the preparation of expandable styrene bead polymers by polymerization of styrene, optionally in the presence of further comonomers. in aqueous suspension in the presence of

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suspension stabilizers and conventional styrene-soluble polymerization catalysts and with the addition of a blowing agent and from 0.2 to 20% by weight, based on the monomers, of an expansion assistant, wherein the expansion assistant is an oligomeric aliphatic olefin which is liquid at room temperature and has 2 to 20 carbon atoms and a number average degree of polymerization of from 2 to 200.

5,783,613

PVC FOAM COMPOSITIONS

George F. Beekman, Westchester, and Lionel R. Price, Cincinnati, both of Ohio, assignors to Morton International, Inc., Chicago, Ill.

Division of Ser. No. 820,192, Mar. 19, 1997, Pat. No. 5,710,188. This application Sep. 24, 1997, Ser. No. 936,356

Int. Cl.^{6} C08J *9/00*

U.S. Cl. 521—89 **8 Claims**

1. A rigid, cellular composition consisting essentially of a vinyl chloride polymer, an organotin halide having the formula:

$$R_{(4-x)}SnX_x \qquad I$$

wherein R is an alkyl radical having from 1 to 18 carbon atoms, and X is halogen of atomic weight 35 to 127, and x is from 1 to 3; and

at least one stabilizer selected from the group consisting of:

(A) an organotin mercaptide of a mercaptocarboxylic acid ester having the formula:

$$R^1_{(4-y)}Sn[SZ(COOR^2)_m]Y \qquad II$$

wherein R^1 is an alkyl or cycloalkyl group having from 1 to 30 carbon atoms, z is a bivalent organic radical having from 1 to 30 carbon atoms, R^2 is an organic group derived from an alcohol having from 1 to 4 hydroxyl groups and from 1 to 30 carbon atoms, m is 1, and y is any number from 1 to 3; with the proviso that when y is less than 3, the R^1 groups may be the same or different, and

(B) a sulfide of an organotin mercaptide of Formula II.

5,783,614

POLYMERIC-COATED DIELECTRIC PARTICLES AND FORMULATION AND METHOD FOR PREPARING SAME

Jing Hong Chen, Bethlehem, Pa.; Frederic E. Schubert, Shoreham, and Wei-Hsin Hou, Setauket, both of N.Y., assignors to Copytele, Inc., Huntington Station, N.Y.

Filed Feb. 21, 1997, Ser. No. 803,716

Int. Cl.^{6} C08K *9/04*

U.S. Cl. 523—205 **19 Claims**

1. An electrophoretic suspension comprising a plurality of pigment particles having a pre-determined density and suspended in a fluid medium, wherein the pigment particles are coated with polypentafluorostyrene having substantially the same density as the pigment particles.

5,783,615

VINYL ETHER COMPOUNDS HAVING ADDITIONAL FUNCTIONAL GROUPS OTHER THAN VINYL ETHER GROUPS AND THE USE THEREOF IN THE FORMULATION OF CURABLE COMPOSITIONS

Bettina Steinmann, Praroman; Adrian Schulthess, Tentlingen, and Max Hunziker, Düdingen, all of Switzerland, assignors to Ciba Specialty Chemicals Corporation, Tarrytown, N.Y.

Division of Ser. No. 555,821, Nov. 9, 1995, Pat. No. 5,705,316, which is a division of Ser. No. 304,464, Sep. 12, 1994, Pat. No. 5,605,941. This application Apr. 16, 1997, Ser. No. 834,404

Claims priority, application Switzerland, Sep. 16, 1993, 2786/93; Mar. 8, 1994, 0684/94

Int. Cl.^{6} C08F *2/46;* **C08J** *3/28;* **G03C** *9/08*

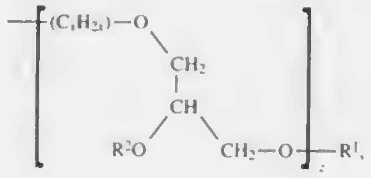
U.S. Cl. 522—170 **15 Claims**

1. A method of producing a cured product comprising treating a curable composition, in which a compound having at least one vinyl ether group which also contains in the molecule at least one further functional group selected from acrylate, methacrylate, epoxy, alkenyl, cycloalkenyl and vinylaryl groups having the formula

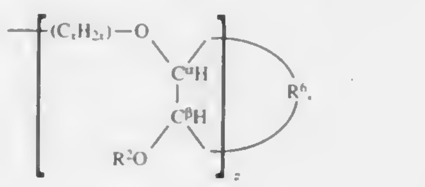
$$[H_2C{=}CH{-}O]_z{-}A$$

the symbols used in that formula and in the formulae below having the following definitions:

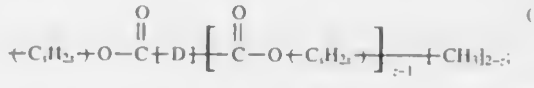
A is a z-valent radical selected from the radicals of the following formulae (1), (2), (3) and (4)



(1)

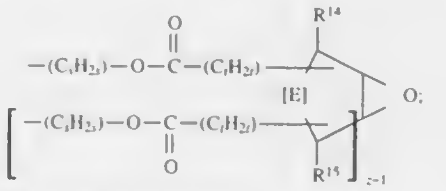


(2)



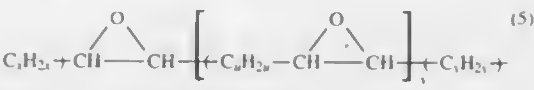
(3)

$$+C_tH_{2t}+O-\overset{O}{\overset{\|}{C}}+D+\left[-\overset{O}{\overset{\|}{C}}-O+C_tH_{2t}+\right]_{z-1}+CH_3]_{2-z};$$



(4)

[D] is a group of the formula



(5)

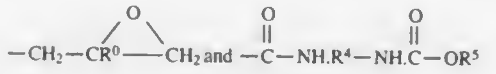
[E] is a C_1 or a C_2-alkylene group;

R^0 is a hydrogen atom or a methyl group;

R^1 is a z-valent radical selected from aliphatic, cycloaliphatic, aromatic, aliphatic-aromatic and aliphatic-cycloaliphatic radicals and polyoxyalkylene radicals with the proviso that R^1 is not directly bonded to one of the z vinylether groups of the formula

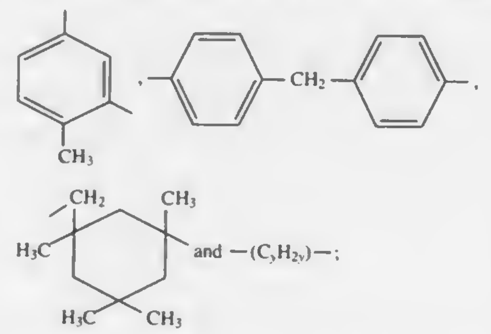
$$[H_2C{=}CH{-}O]_z{-}A,$$

R^2 is a radical selected from the radicals of the formulae



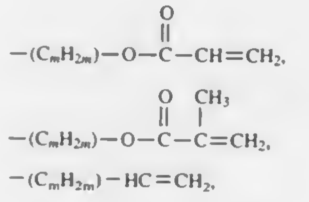
$$-CH_2-CR^0\!\overset{O}{\diagdown\!\diagup}\!CH_2 \text{ and } -\overset{O}{\overset{\|}{C}}-NH.R^4-NH.\overset{O}{\overset{\|}{C}}-OR^5$$

R^4 is a group selected from the groups of the formulae



and $-(C_yH_{2y})-$;

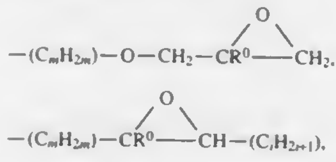
R^5 is a group selected from the groups of the formulae

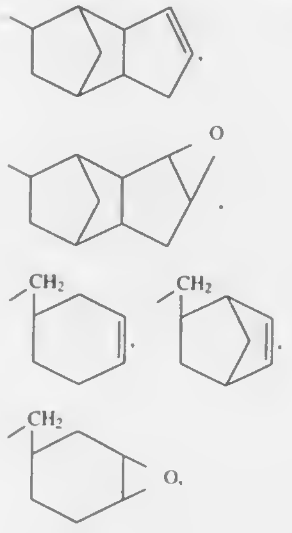


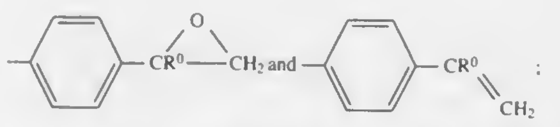
$$-(C_mH_{2m})-O-\overset{O}{\overset{\|}{C}}-CH{=}CH_2,$$

$$-(C_mH_{2m})-O-\overset{O}{\overset{\|}{C}}-\overset{CH_3}{\overset{|}{C}}{=}CH_2,$$

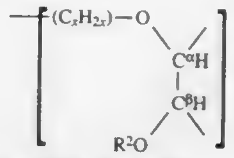
$$-(C_mH_{2m})-HC{=}CH_2,$$







R^6 is a (2·z)-valent organic group which, together with the carbon atoms C^α and C^β of each of the z groups of the formula



(6)

in a radical of formula (2), forms a cycloaliphatic ring having at least 5 carbon atoms;

R^{14} and

R^{15} are each a hydrogen atom or, when [E] is a C_2alkylene group, are each a hydrogen atom or together form a methylene group;

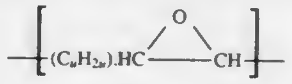
i is an integer from 0 to 20;

m is an integer from 1 to 20;

s is an integer from 2 to 10;

t is an integer from 0 to 10;

u in the individual units of the formula



in formula (5) are independently of one another an integer from 1 to 20;

v is an integer from 0 to 4;

x and

y are independently of one another an integer from 2 to 20, and

z is the number 1 or 2,

is a polymerizable component thereof, with actinic radiation.

5,783,616

GRAFT COPOLYMERS OF UNSATURATED MONOMERS AND SUGARS, A PROCESS FOR THE PRODUCTION AND THE USE THEREOF

Frank Krause, Kleve, and Helmut Klimmek, Krefeld, both of Germany, assignors to Chemische Fabrik Stockhausen GmbH, Krefeld, Germany

Division of Ser. No. 713,538, Sep. 13, 1996, which is a division of Ser. No. 364,436, Dec. 29, 1994, Pat. No. 5,580,941. This application Apr. 4, 1997, Ser. No. 833,007

Claims priority, application Germany, Jul. 2, 1992, 42 21 381.9

Int. Cl.^{6} C08K *5/07*

U.S. Cl. 524—58 **2 Claims**

1. A detergent or cleaning composition comprising at least one surface-active agent and a graft copolymer obtained by radical graft copolymerization of from 40 to 95 parts by weight of a monomer mixture in the presence of from 5 to 60 parts by weight of a saccharide component selected from the group consisting of monosaccharides, disaccharides, oligosaccharides, saccharide derivatives, and mixtures thereof; said saccharide derivatives being selected from the group consisting of sorbitol, mannitol, gluconic acid, glucuronic acid, alkyl glycosides, and alkyl-, hydroxyalkyl- and carboxyalkyl- ethers of saccharides; said monomer mixture comprising the following components:

A) 36.95 to 96%-wt. of at least one monoethylenically unsaturated C3–C10 monocarboxylic acid, or salt thereof with a monovalent cation;

B) 4 to 55%-wt. of at least one monoethylenically unsaturated monomer comprising a monosulfonic acid group, monoethylenically unsaturated sulfuric acid ester, vinylphosphonic acid or a salt thereof with a monovalent cation;

C) 0 to 30%-wt. of at least one water-soluble, monoethylenically unsaturated polyalkyleneglycol ether of (meth)allyl alcohol or polyalkyleneglycol ester of (meth)acrylic acid, containing 2 to 50 moles of alkylene oxide units per mole of (meth) allyl alcohol or (meth) acrylic acid;

D) 0 to 45%-wt. of at least one further, water-soluble, radically polymerizable monomer or a monomer which comprises at least two ethylenically unsaturated double-bonds, or an ethyl-

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enically unsaturated double-bond and a cross-linkable functional group other than an ethylenically unsaturated double-bond, and

E) 0 to 30%-wt. other radically polymerizable monomers which are slightly soluble or insoluble in water selected from the group consisting of C$_1$ to C$_{18}$ alkyl(meth)acrylic acid esters, hydroxyalkyl(meth)acrylic, acid esters, mono- and dialkyl esters of maleic acid, N-alkyl and N,N-dialkyl (meth) acrylamides and vinyl carboxylic acid esters,

the sum of components A to E being 100%-wt.

5,783,617

Patent Not Issued For This Number

5,783,618
AQUEOUS WAX AND SILICONE DISPERSIONS, THEIR PROUDUCTION AND USE

Bernard Danner, Riedishelm, France, assignor to Clariant Finance (BVI) Limited, Tortola, Virgin Islands (Br.)

Continuation of Ser. No. 297,457, Aug. 29, 1994, abandoned. This application Jul. 15, 1996, Ser. No. 679,780

Claims priority, application Germany, Aug. 31, 1993, 43 29 244.5

Int. Cl.^{6} C08L *91/06*

U.S. Cl. 524—275 **12 Claims**

1. An aqueous, dispersant-containing wax- and polysiloxanedispersion (P) containing as wax

(A) at least one oxidized hydrocarbon wax of needle-penetration according to ASTM D1321 <4 dmm and optionally

(B) at least one non-oxidized hydrocarbon wax and as polydiorganosiloxane

(C) at least one optionally amino-modified or non-ionically modified polydiorganosiloxane with a nitrogen-content 0.6% by weight wherein the weight ratio of (C)/(A) is in the range of 0.01:1 to 20:1.

5,783,619
POLYACETAL RESIN COMPOSITION AND SLIDING PARTS

Kenichi Shinohara, Kanagawa, Japan, assignor to E. I. du Pont de Nemours and Company, Wilmington, Del.

PCT No. PCT/US95/03202, § 371 Date Oct. 25, 1996, § 102(e) Date Oct. 25, 1996, PCT Pub. No. WO95/25769, PCT Pub. Date Sep. 28, 1995

PCT Filed Mar. 23, 1995, Ser. No. 716,232

Claims priority, application Japan, Mar. 24, 1994, 6-053666

Int. Cl.^{6} C08K *5/10;5/101;5/103*

U.S. Cl. 524—318 **6 Claims**

1. A polyacetal resin composition characterized by containing from 0.5 to 15 parts by weight of olefinic elastomer which is either an ethylene/propylene (EPM) copolymer or an ethylene/propylene/diene (EPDM) copolymer and from 0.1 to 5.0 parts by weight of fatty acid ester having at least 12 carbon atoms per 100 parts by weight of polyacetal resin.

5,783,620
THERMOPLASTIC RESIN COMPOSITION FOR PROFILE EXTRUSION

Nobuyuki Hamashima; Michio Nakata, and Gorou Shimaoka, all of Hiratsuka, Japan, assignors to Mitsubishi Engineering-Plastics Corporation, Japan

Continuation of Ser. No. 644,859, May 10, 1996, abandoned. This application Feb. 18, 1997, Ser. No. 802,407

Claims priority, application Japan, May 17, 1905, 7-118407; May 17, 1995, 7-118406; May 17, 1995, 7-118408

Int. Cl.^{6} C08L *69/00;* B29C *47/00*

U.S. Cl. 524—405 **9 Claims**

1. In a method of forming a molded article by profile extrusion of a thermoplastic aromatic polycarbonate resin wherein said thermoplastic aromatic polycarbonate resin is extruded through a die to form said article, the improvement comprising using as said thermoplastic aromatic polycarbonate resin a thermoplastic resin composition comprising

(A1) 50 to 95% by weight of a thermoplastic aromatic polycarbonate resin;

(A2) 3 to 40% by weight of an acrylonitrile-(ethylenepropylene-diene terpolymer)-styrene resin (AES);

(B) 0.5 to 30% by weight of a polyethylene; and

(C) 0 to 30% by weight of a filler.

said polyethylene as the component (B) being prepared in the presence of a chromium catalyst,

said polyethylene having a melt index of 0.01 to 50 and a density of 0.88 to 0.97, and

said filler being at least one selected from the group consisting of glass fibers, carbon fibers, needle-like titanium oxide, potassium titanate whiskers, aluminum borate whiskers, zinc oxide whiskers, magnesium sulfate, calcium sulfate, wollastonite, clay, talc, mica, silicon carbide and silicon nitride.

5,783,621
METHOD OF DECREASING BLEED FOM ORGANIC-BASED FORMULATIONS AND ANTI-BLEED COMPOSITIONS

Nancy E. Iwamoto, Ramona, and Jesse L. Pedigo, La Mesa, both of Calif., assignors to Johnson Matthey, Inc., Valley Forge, Pa.

Filed Jun. 10, 1996, Ser. No. 664,200

Int. Cl.^{6} C08K *3/08*

U.S. Cl. 524—439 **68 Claims**

1. A method for decreasing bleed from an organic-based formulation used in the assembly of a semiconductor device comprising incorporating in the organic-based formulation at least one compound capable of decreasing bleed from the organic-based formulation, said compound having at least five of the following characteristics.

(a) an end-to-end distance of less than 12.2 angstroms or greater than 12.6 angstroms;

(b) a ratio of formula weight to number of heavy atom bonds of 13 to 16 grams/bond;

(c) a ratio of formula weight to end-to-end distance of 18 to 22 grams/angstrom;

(d) a ratio of heavy atoms to heavy atom bonds of 1 to 1.1 atoms/bond;

(e) a ratio of weight fraction of carbon to formula weight of 0.7 to 0.95;

(f) a ratio of formula weight to number of carbon to carbon bonds of 14 to 20 grams/bond; or

(g) 1 to 2 heteroatoms.

5,783,622
PRECOATED CHROMIUM ALLOYED STEEL WITH ENHANCED PAINT ADHESION FOR EXHAUST APPLICATIONS

Ashok Sabata, Middletown; Joseph A. Douthett, Monroe, and Sherman E. Winkle, Sr., Franklin, all of Ohio, assignors to Armco Inc., Middletown, Ohio

Filed May 5, 1997, Ser. No. 851,259

Int. Cl.^{6} C08K *3/34*

U.S. Cl. 524—444 **20 Claims**

1. A precoated heat resistant steel sheet, comprising:

a steel sheet,

at least one surface of the sheet provided with a protective coating resistant to delamination at temperatures up to about 540° C. including an inner inorganic portion and an outer organic portion with the organic portion including a dry film,

the inner inorganic portion including a chromium based conversion coating containing a particulate material,

the outer organic portion comprising a silicone paint containing at least 20 wt. % silicone resin,

the dry film being a copolymer of thermoplastic acrylic resin and lubricant or polymeric olefin,

the copolymer containing 5–70 wt. % of the lubricant and the polymeric olefin containing at least 90% olefin resin whereby the dry film is tack-free, impervious to moisture, oil, dirt, and the like and the coated sheet being ready for forming into a heat resistant part with minimal delamination of the dried silicone paint without additional external lubricant being required on the sheet.

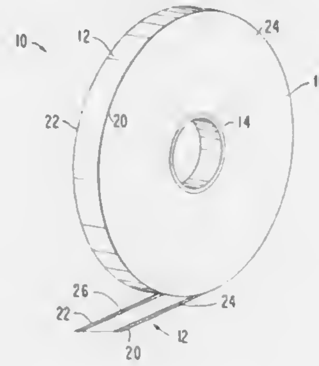
5,783,623
SOLVENT-RESISTANT ADHESIVE FORMULATION FOR EDGE-STABILIZING A ROLL OF TAPE

John Skoufis, Denville; Cary Africk, Montclair, both of N.J.; John M. Questel, Cayahoga Falls, and Wayne Mazorow, Akron, both of Ohio, assignors to The Texwipe Company LLC, Upper Saddle River, N.J.

Division of Ser. No. 369,373, Jan. 6, 1995, Pat. No. 5,571,601. This application May 31, 1996, Ser. No. 655,919

Int. Cl.^{6} C09J *7/02*

U.S. Cl. 524—459 **20 Claims**



1. A solvent-resistant adhesive formulation for edge-stabilizing a roll of tape, comprising an aqueous solution of polyvinyl alcohol, a cross-linking agent and at least one acetylinic surfactant, and at least one defoaming agent, wherein said adhesive formulation is solvent resistant to methyl alcohol or isopropyl alcohol.

5,783,624
TRANSPARENT POLYMER COMPOSITES HAVING A LOW THERMAL EXPANSION COEFFICIENT

Garo Khanarian, Berkeley Heights, and Lak M. Walpita, Basking Ridge, both of N.J., assignors to Hoechst Celanese Corporation, Warren, N.J.

Filed Dec. 13, 1996, Ser. No. 766,718

Int. Cl.^{6} C08K *3/00*

U.S. Cl. 524—494 **29 Claims**

1. A polymer composite moldable into articles, said composite comprising (a) a thermoplastic polymer and (b) a glass or a ceramic, in about 10:90 weight percent to about 90:10 weight percent ratio, wherein said thermoplastic polymer and said glass or ceramic are substantially matched in refractive index and Abbe number, and further wherein said molded articles possess at least about 70 percent transparency, a thermal expansion coefficient not more than 4×10^{-5}/°C., and a coefficient of refractive index change to temperature, dN/dT, in the range -7×10^{-5}/°C. and zero.

5,783,625
ADHESIVE COMPOSITION AND COMPOSITE OF RUBBER WITH FIBER

Osamu Mori, Kamakura, and Mitsugu Ishihara, Kawasaki, both of Japan, assignors to Nippon Zeon Co., Ltd., Tokyo, Japan

Filed Jun. 7, 1995, Ser. No. 477,636

Claims priority, application Japan, Sep. 28, 1994, 6-258690

Int. Cl.^{6} C08L *61/06*

U.S. Cl. 524—509 **7 Claims**

1. An adhesive composition comprising:

A) a latex of a self-crosslinking, carboxyl group containing a nitrile-conjugated diene copolymer rubber having an iodine value not larger than 120 and containing at least 0.02 equivalent weight, per 100 parts by weight of the copolymer rubber, of a carboxyl group; said latex having a pH value not larger than 9.0, and said copolymer rubber being a hydrogenated product of a copolymer comprised, based on the weight of the copolymer of:

a) 30 to 80% by weight of conjugated diene monomer units,

b) 10 to 60% by weight of α, β-unsaturated nitrile monomer units,

c) 0.3 to 10% by weight of an ethylenically unsaturated self-crosslinking monomer units,

d) 1 to 10% by weight of ethyleneically unsaturated carboxylic acid monomer units, and

e) 0 to 50% by weight of at least one copolymerizable other ethylenically unsaturated monomer units, and

B) 5 to 30 parts by weight, based on 100 parts by weight of said copolymer rubber latex, of a resorcinol-formaldehyde resin.

5,783,626
WATERBORNE POLYMERS WITH PENDANT CROSSLINKABLE GROUPS

James Wayne Taylor, 1016 Forrest Ridge Dr., Kingsport, Tenn. 37660, and Martha Jean Collins, 228 Southridge Dr., Blountville, Tenn. 37617

Continuation-in-part of Ser. No. 420,545, Apr. 12, 1995, abandoned. This application Mar. 15, 1996, Ser. No. 616,866

Int. Cl.^{6} C08L *33/14*

U.S. Cl. 524—555 **19 Claims**

16. A waterborne coating composition comprising a blend of water; an allyl-functional polymer having one or more pendant side chains connected thereto, wherein said pendant side chains contain an enamine moiety having the formula

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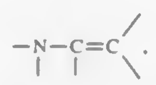


$$-\underset{|}{N}-\underset{|}{C}=C\langle\ .$$

wherein said enamine moiety is bonded to said polymer via a nitrogen atom; and optionally one or more water-dispersible polymers selected from the group consisting of polyesters, polyesteramides, cellulose esters, alkyds, polyurethanes, epoxy resins, polyamides, acrylics, and vinyl polymers.

5,783,627
DENSE GAS-COMPATIBLE ENZYMES

Fu-jung Kao, Dracut, Mass.; Kenneth E. Laintz, Los Alamos, N. Mex.; Samuel P. Sawan, Tyngsborough, Mass.; L. Dale Sivils, Jupiter, Fla., and W. Dale Spall, Los Alamos, N. Mex., assignors to University of Massachusetts, Boston, Mass.

Filed Sep. 9, 1996, Ser. No. 709,651
Int. Cl.^{6} C12N *9/96;11/02*

U.S. Cl. 525—54.1 **21 Claims**

1. A modified enzyme having increased compatibility with a dense gas system, comprising

an enzyme; and

a hydrophobic arm linked covalently to the enzyme, wherein the compatibility of said modified enzyme with a dense gas system is greater than the compatibility of the unmodified enzyme with said dense gas system.

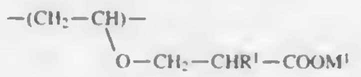
5,783,628
MODIFIED POLYVINYL ALCOHOL

Akira Yada, Shiga; Yoshihiro Kawamori, Kyoto; Hiroshi Nishiguchi, Shiga; Akira Kitada, Shiga, and Yoshiyuki Mori, Shiga, all of Japan, assignors to Dai-Ichi Kogyo Seiyaku Co., Ltd., Kyoto, Japan

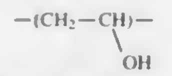
Filed Mar. 7, 1996, Ser. No. 612,434
Int. Cl.^{6} C08F *8/00*

U.S. Cl. 525—59 **13 Claims**

1. A modified polyvinyl alcohol, which comprises the following structural units (I) and (II) and has a weight average molecular weight of from 3,000 to 400,000:



$$-(CH_2-\underset{\textstyle\diagdown O-CH_2-CHR^1-COOM^1}{CH})- \qquad (I)$$

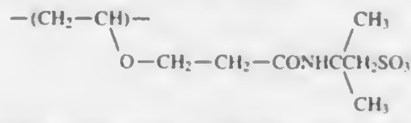


$$-(CH_2-\underset{\textstyle\diagdown OH}{CH})- \qquad (II)$$

wherein R^1 represents H or CH_3;

M^1 represents H, an alkali metal, ammonium, alkylammonium, or alkanolammonium; and

which further comprises the following structural unit (III):



$$-(CH_2-\underset{\textstyle\diagdown O-CH_2-CH_2-CONHC(CH_3)_2CH_2SO_3M^2}{CH})- \qquad (III)$$

wherein M^2 represents H, an alkali metal, ammonium, alkylammonium, or alkanolammonium.

5,783,629
THERMOPLASTIC POLYOLEFINS HAVING IMPROVED PAINTABILITY PROPERTIES

Sachit Srinivasan, Carrollton, and Jeff Her, Grand Prairie, both of Tex., assignors to Solvay Engineered Polymers, Grand Prairie, Tex.

Continuation-in-part of Ser. No. 311,843, Sep. 23, 1994, Pat. No. 5,498,671, which is a continuation of Ser. No. 16,586, Feb. 10, 1993, abandoned. This application Mar. 7, 1996, Ser. No. 612,397
Int. Cl.^{6} C08L *23/00;51/00*

U.S. Cl. 525—63 **18 Claims**

1. A thermoplastic polyolefin composition consisting essentially of:

a polyolefin that is a homopolymer of ethylene, propylene or butylene or a copolymer of propylene and a C_3–C_{10} alpha-olefin;

about 10% to 50% by weight of the composition of a first substantially amorphous polyolefin comprising a terpolymer of ethylene with a C_3–C_{10} alpha-olefin and a diene monomer and having a Mooney Viscosity (ML_{1+4}, 100° C.) of between about 10 and about 120, said first polyolefin optionally being present with a copolymer of ethylene and a C_3–C_{10} alpha-olefin; and

about 1 to 20% by weight of the composition of a second substantially amorphous polyolefin having a number average molecular weight of between about 1,000 and 15,000 and comprising:

(a) a copolymer of ethylene with a C_3–C_{10} alpha-olefin;
(b) a terpolymer of ethylene with a C_3–C_{10} alpha-olefin and a diene monomer;
(c) a block copolymer that includes blocks of a C_3–C_{10} alpha-olefin, butadiene, isoprene, styrene or alpha-methyl styrene;
(d) the reaction product of one of (a), (b) or (c) with a compound that provides a polar functional group, or
(e) a mixture thereof.

5,783,630
POLYETHER AMINE MODIFICATION OF POLYPROPYLENE

Randall Keith Evans, Cypress; Richard J. G. Dominguez, and Richard J. Clark, both of Austin, all of Tex., assignors to Huntsman Petrochemical Corporation, Austin, Tex.

Continuation-in-part of Ser. No. 222,508, Apr. 4, 1994, abandoned, which is a continuation of Ser. No. 90,675, Jul. 13, 1993, abandoned. This application Jul. 7, 1995, Ser. No. 499,521
Int. Cl.^{6} C08L *51/06*

U.S. Cl. 525—74 **34 Claims**

1. A composition useful for making molded automotive body parts, comprising:

polypropylene;

an elastomer; and

the reaction product of a functionalized polypropylene and a polyetheramine.

5,783,631
SELF-CURED RUBBER-THERMOPLASTIC ELASTOMER COMPOSITIONS

Krishna Venkataswamy, Akron, Ohio, assignor to Advanced Elastomer System, L.P., Akron, Ohio

Filed Jul. 26, 1996, Ser. No. 686,782
Int. Cl.^{6} C08L *53/00*

U.S. Cl. 525—92 F **19 Claims**

1. A thermoplastic elastomer composition, comprising:

a thermoplastic polymer phase and a crosslinked rubber phase, said rubber phase comprising a self-cured blend derived from at least two functionalized acrylic rubbers substantially free of a curing agent, at least one of said functionalized acrylic

rubbers having a functional group which is reactive and causes curing with a different functional group of another of said functionalized acrylic rubbers.

5,783,632
COATING COMPOSITIONS INCLUDING HIGH TG ACRYLIC POLYMERS FOR LOW TEMPERATURE CURE AND GOOD ETCH RESISTANCE

Faith S. Loney-Crawford, Detroit, Mich., assignor to BASF Corporation, Southfield, Mich.

Continuation of Ser. No. 282,405, Jul. 28, 1994, abandoned. This application Sep. 13, 1996, Ser. No. 712,661
Int. Cl.^{6} C08F *8/30*

U.S. Cl. 525—123 **8 Claims**

1. A two-component acrylic coating composition comprising

i) an acrylic polymer polymerized from styrene acrylic acid and monomers selected from the group consisting of methyl methacrylate, cyclohexyl methacrylate, ethyl hexyl methacrylate, hydroxy propyl methacrylate, isobornyl methacrylate, and ethyl hexyl acrylate, and mixtures thereof, wherein styrene, is present in an amount ≧25% by weight, and said acrylic polymer has a reactive functionality for reaction with a crosslinker, said acrylic polymer having a glass transition temperature between 53° C. and 86° C., and

ii) a crosslinker selected from the group consisting of polyisocyanates and mixtures thereof.

5,783,633
BICOMPATIBLE POLYISOPRENE-POLYURETHANE INTERPENETRATING POLYMER NETWORK COMPOSITIONS AND MEDICAL DEVICES MADE THEREFROM

Leslie H. Sperling; Clarence J. Murphy, and Vinay Mishra, all of New York, N.Y., assignors to Schneider (USA) Inc, Plymouth, Minn.

Division of Ser. No. 197,030, Feb. 16, 1994, abandoned. This application Jun. 18, 1997, Ser. No. 878,241
Int. Cl.^{6} C08L *75/04*

U.S. Cl. 525—131 **7 Claims**

1. A medical device fabricated from a biocompatible material comprising a composition which is an elastomeric semi-interpenetrating polymer network composed of:

a.) a medical grade of a crystalline, physically crosslinked polyurethane which contains polyether elastomeric blocks alternating with urethane linkages or polyester elastomeric blocks alternating with urethane linkages, said polyurethane having a variable amount of crystallinity, such that when said material is in a relaxed state, said polyurethane is not fully crystalline and contains at least some non-physically crosslinked non-crystalline regions, and such that when said material is in a stretched or extended state, said polyurethane is more crystalline than when said material is in said relaxed state, with said polyurethane then containing a greater number of physically crosslinked crystalline regions, and further such that said amount of crystallinity of said polyurethane is reversible as said material is alternated between said stretched or extended state and said relaxed state; and

(b.) a medical grade of linear, crystalline, chemically crosslinked cis-1,4 polyisoprene, said cis-1,4 polyisoprene having a variable amount of crystallinity, such that when said material is in a relaxed state, said cis-1,4 polyisoprene is chemically crosslinked and is not some non-crystalline regions, and such that when said material is in a stretched or extended state, said cis-1,4 polyisoprene is chemically crosslinked and is more crystalline than when said material is in said relaxed state, with said cis-1,4 polyisoprene then containing a greater number of chemically crosslinked crystalline regions, and further such that said amount of crystallinity of said cis-1,4 polyisoprene is reversible as said material is alternated between said stretched or extended state and said relaxed state;

wherein both said polyurethane and said cis-1,4 polyisoprene have morphologies such that they each exist in a co-continuous phase; and

wherein said polyurethane and said cis-1,4 polyisoprene are present in a ratio of from about 1:99 to about 99:1, by weight, respectively.

5,783,634
THERMOPLASTIC MOLDING MATERIALS BASED ON PARTLY AROMATIC COPOLYAMIDES AND POLYCARBONATES

Martin Weber, Neustadt; Herbert Fisch, Wachenheim; Gunter Pipper, Bad Dürkheim, and Axel Gottschalk, Neustadt, all of Germany, assignors to BASF Aktiengesellschaft, Ludwigshafen, Germany

Continuation of Ser. No. 635,001, Apr. 19, 1996, abandoned. This application Mar. 13, 1997, Ser. No. 815,915
Int. Cl.^{6} C08F *8/30*

U.S. Cl. 525—133 **19 Claims**

1. A thermoplastic molding material containing

A) from 1 to 99% by weight of a partly aromatic copolyamide composed of

a_1) from 30 to 44 mol % of units which are derived from terephthalic acid,

a_2) from 6 to 25 mol % of units which are derived from isophthalic acid,

a_3) from 43 to 49.5 mol % of units which are derived from hexamethylenediamine and

a_4) from 0.5 to 7 mol % of units which are derived from aliphatic cyclic diamines of 6 to 30 carbon atoms,

the molar percentages of components a_1) to a_4) together giving 100%,

B) from 1 to 99% by weight of an aromatic polycarbonate,

C) from 0 to 30% by weight of a polymeric component having OH groups,

D) from 0 to 60% by weight of fibrous or particulate fillers or of a mixture thereof,

E) from 0 to 40% by weight of rubber impact modifiers and

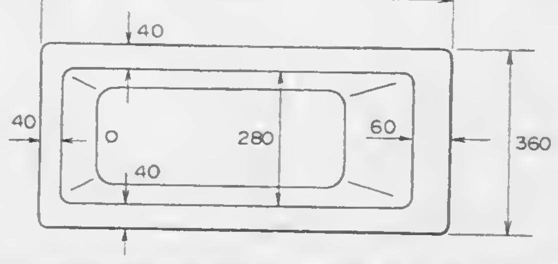
F) from 0 to 40% by weight of conventional additives and processing assistants.

5,783,635
UNSATURATED POLYESTER RESIN COMPOSITION

Koichi Akiyama, Kamakura; Kenichi Morita, Fujisawa, and Hideki Terada, Kamakura, all of Japan, assignors to Takeda Chemical Industries, Ltd., Osaka, Japan

Filed Apr. 30, 1997, Ser. No. 841,556
Claims priority, application Japan, May 9, 1996, 8-114777
Int. Cl.^{6} C08F *8/00;* **C08L** *67/06*

U.S. Cl. 525—168 **7 Claims**



1. An unsaturated polyester resin composition which comprises 100 parts by weight of a resin mixture comprising 25 to 80 parts by weight of an unsaturated polyester, 20 to 60 parts by weight of a comonomer and 1 to 10 parts by weight of a particulate crosslinked polymer and 100 to 400 parts by weight of an inorganic filler and in which the difference in refractive index between a product of copolymerization of the unsaturated polyester with the comonomer and the inorganic filler is 0.02 or below.

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GRADED-REFRACTIVE-INDEX OPTICAL PLASTIC MATERIAL AND METHOD FOR ITS PRODUCTION

Yasuhiro Koike, and Masaki Naritomi, both of Yokohama, Japan, assignors to Yasuhiro Koike, Yokohama, Japan

PCT No. PCT/JP95/00715, § 371 Date Dec. 15, 1995, § 102(e) Date Dec. 15, 1995, PCT Pub. No. WO95/28660, PCT Pub. Date Oct. 6, 1995

PCT Filed Apr. 12, 1995, Ser. No. 553,547

Claims priority, application Japan, Apr. 18, 1994, 6-078828

Int. Cl.^{6} C08L *27/12*

U.S. Cl. 525—199 15 Claims

1. A graded-refractive-index optical plastic material composed of an amorphous fluoropolymer (a) which substantially has no C—H bond and has a cyclic structure on its main chain, and at least one material (b) which differs from the fluoropolymer (a) in refractive index by at least 0.001, wherein the material (b) is distributed in the fluoropolymer (a) so as to have a concentration gradient in a specific direction and a refractive index that varies continuously in said specific direction.

5,783,637

PLASTIC CONTAINER MADE FORM A FUSION BLEND OF POST CONSUMER PLASTIC AND ETHYLENE POLYMERS

James N. Herman, and James E. Hiltner, both of Sylvania, Ohio, assignors to Owens-Illinois Plastic Products Inc., Toledo, Ohio

Division of Ser. No. 369,990, Jan. 9, 1995, Pat. No. 5,534,317, which is a continuation of Ser. No. 542,838, Feb. 27, 1992, abandoned. This application May 28, 1996, Ser. No. 654,438

Int. Cl.^{6} C08L *23/06*

U.S. Cl. 525—240 5 Claims

4. A fusion blend comprising post consumer plastic of homopolymer high density polyethylene plastic and linear low density polyethylene resin such that the fusion blend can be mixed with virgin high density copolymer resin to form a plastic product,

virgin high density polyethylene copolymer resin in said fusion blend,

said virgin high density polyethylene copolymer resin having a density of at least about 0.94 gm/ml, a melt index of less than about 0.5 gm/10 min. and will have polymerized therein at least about 98 mole % ethylene with any comonomer polymerized therein being an alpha-monoolefin containing about 3–12 carbon atoms,

said post consumer resin having a density of about 0.961 and a melt index of about 0.75,

said linear low density polyethylene having a density in the range of about 0.91 to about 0.93 gm/ml, and a melt index of less than about 2.0 and having polymerized about 2–6 mole % of an alpha-monoolefin containing 3–12 carbon atoms with the balance of the monoolefin polymerized therein being ethylene,

said post consumer resin ranging between about 25–95% by weight, said linear low density polyethylene resin ranging between about 2.5 to 25% by weight,

said virgin high density polyethylene copolymer resin ranges between about 2.5–72.5% by weight.

5,783,638

ELASTIC SUBSTANTIALLY LINEAR ETHYLENE POLYMERS

Shih-Yaw Lai, Sugar Land, Tex.; John R. Wilson, Baton Rouge, La.; George W. Knight, Lake Jackson, and James C. Stevens, Richmond, both of Tex., assignors to The Dow Chemical Company, Midland, Mich.

Division of Ser. No. 301,948, Sep. 7, 1994, abandoned, and a continuation-in-part of Ser. No. 166,497, Dec. 13, 1993, abandoned, which is a division of Ser. No. 939,281, Sep. 2, 1992, Pat. No. 5,278,272, said Ser. No. 301,948 is a continuation-in-part of Ser. No. 44,426, Apr. 7, 1993, Pat. No. 5,380,810, which is a division of Ser. No. 776,130, Oct. 15, 1991, Pat. No. 5,272,236. This application Aug. 18, 1995, Ser. No. 454,935

Int. Cl.^{6} C08L *23/06*

U.S. Cl. 525—240 10 Claims

1. A composition comprising an ethylene polymer and at least one other natural or synthetic polymer, wherein the ethylene polymer is characterized as having:

a) a melt flow ratio, I_{10}/I_2, $\geqq 5.63$,

b) a molecular weight distribution, M_w/M_n, defined by the equation:

$$M_w/M_n \leqq (I_{10}/I_2)-4.63, \text{ and}$$

c) a critical shear stress at onset of gross melt fracture greater than about 4×10^6 dyne/cm^2,

d) a single melting point as determined by differential scanning calorimetry between −30 C. and 150 C. and

e) less than about 20 ppm aluminum.

5,783,639

COMPOSITION OF EPOXY GROUP-CONTAINING CYCLOOLEFIN RESIN

Hideaki Kataoka; Eiko Yuda, both of Kanagawa; Shigemitsu Kamiya, Tokyo; Masahide Yamamoto, Kanagawa; Yoshikatsu Ishizuki, Kanagawa; Yasuhiro Yoneda, Kanagawa; Daisuke Mizutani, Kanagawa, and Kishio Yokouchi, Kanagawa, all of Japan, assignors to Nipon Zeon Co., Ltd., Tokyo, and Fujitsu Limited, Kanagawa, both of Japan

Continuation of Ser. No. 404,823, Mar. 14, 1995, abandoned. This application Jan. 13, 1997, Ser. No. 781,385

Claims priority, application Japan, Mar. 14, 1994, 6-069124; Mar. 14, 1994, 6-069125; Jul. 14, 1994, 6-185415; Jan. 25, 1995, 7-028766

Int. Cl.^{6} C08F *255/08;* **C08L** *51/06*

U.S. Cl. 525—286 7 Claims

1. A resin composition comprising:

a) 100 parts by weight of an epoxy group containing thermoplastic norbornene resin obtained by subjecting a thermoplastic norbornene resin to a graft reaction with an epoxy group containing unsaturated monomer, and

b) 0.1-30 parts by weight of a cross-linking agent composed of a photoreactive substance,

wherein the thermoplastic norbornene resin is a hydrogenated product of a ring-opening (co)polymer obtained by the ring-opening (co)polymerization of at least one norborene monomer.

5,783,640

RUBBER COMPOSITIONS CONTAINING A DISODIUM SALT OF 2, 2'-DITHIOSALICYCLIC ACID

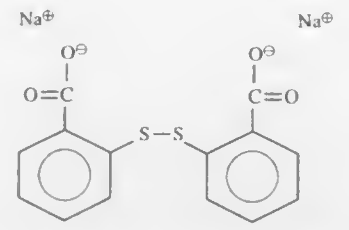
Paul Harry Sandstrom, and Lawson Gibson Wideman, both of Tallmadge, Ohio, assignors to The Goodyear Tire & Rubber Company, Akron, Ohio

Filed Mar. 4, 1997, Ser. No. 811,558

Int. Cl.^{6} C08C *19/20*

U.S. Cl. 525—329.3 4 Claims

1. A sulfur vulcanizable rubber composition comprising (a) an elastomer containing olefinic unsaturation, (b) 0.05 to 10 phr of a disodium salt of 2,2'-dithiosalicyclic acid of the formula:



and (c) from 10 to 250 phr of a particulate precipitated silica, wherein said elastomer containing olefinic unsaturation is selected from the group consisting of natural rubber, neoprene, polyisoprene, butyl rubber, polybutadiene, styrene-butadiene copolymer, styrene/isoprene/butadiene rubber, methyl methacrylate-butadiene copolymer, isoprene-styrene copolymer, methyl methacrylate-isoprene copolymer, acrylonitrile-isoprene copolymer, acrylonitrile-butadiene copolymer, EPDM and mixtures thereof.

5,783,641

PROCESS FOR MODIFYING SURFACES OF POLYMERS, AND POLYMERS HAVING SURFACES MODIFIED BY SUCH PROCESS

Seok-Keun Koh; Hyung-Jin Jung; Seok-Kyun Song; Won-Kook Choi; Young-Soo Yoon, all of Seoul, and Jun-Sik Cho, Inchon, all of Rep. of Korea, assignors to Korea Institute of Science and Technology, Seoul, Rep. of Korea

Filed Feb. 28, 1996, Ser. No. 608,054

Claims priority, application Rep. of Korea, Apr. 19, 1995, 9194/1995; Jun. 26, 1995, 17514/1995; Feb. 1, 1996, 2456/1996

Int. Cl.^{6} C08K *8/00*

U.S. Cl. 525—333.8 9 Claims

1. A process for modifying polymer surfaces by irradiating of ion particles with energy, from a certain distance(irradiation distance), on polymer surfaces, while blowing reactive gas or gases directly on polymer surfaces under vacuum condition, to decrease a wetting angle or to increase adhesive strength for the polymer surfaces.

5,783,642

COATING COMPOSITIONS CONTAINING 1,3,5-TRIAZINE COMPOUNDS SUBSTITUTED WITH ACETAL AND/OR CYCLIZED ACETAL-BASED GROUPS

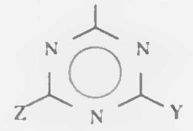
Subban Ramesh, Parsippany, N.J.; Laurence Lyman Williams, Stamford, Conn.; Ram Baboo Gupta, Bronx, N.Y., and Lon-Tang Wilson Lin, Bethel, Conn., assignors to Cytec Industries Inc., Stamford, Conn.

Division of Ser. No. 408,323, Mar. 21, 1995, Pat. No. 5,672,703. This application Jul. 3, 1997, Ser. No. 887,311

Int. Cl.^{6} C08F *8/30*

U.S. Cl. 525—348 28 Claims

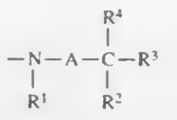
1. A coating composition comprising: (a) a crosslinker component comprising a 1,3,5-triazine compound of the formula (I)



(I)

wherein

X is selected from the group consisting of hydrogen, halogen, alkyl, aralkyl, aryl, alkoxy, aralkoxy, aryloxy, alkylthio, aralkylthio, arylthio, amido, sulfonamido, sulfonate, amino, heterocyclic N-containing group optionally containing a different heteroatom in the ring, a group of the formula (II), a group of the formula (III), and a group of the formula (IV)



$$-\underset{R^1}{\underset{|}{N}}-A-\overset{R^4}{\overset{|}{\underset{R^2}{\underset{|}{C}}}}-R^3 \qquad \text{(II)}$$

wherein

A is an alkylene group of 1 to 8 carbon atoms,

R^1 is selected from the group consisting of hydrogen and a hydrocarbyl,

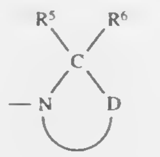
R^2 is selected from the group consisting of hydrogen, a hydrocarbyl, —OR^9 and —SR^{10},

R^3 is selected from the group consisting of hydrogen, a hydrocarbyl, —OR^9 and —SR^{10}, and

R^4 is selected from the group consisting of —OR^{11} and —SR^{12},

with the proviso that at least one of R^2 and R^3 is selected from the group consisting of —OR^9 and —SR^{10},

(III)



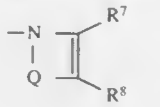
wherein

D is an alkylene group of 3 to 8 carbon atoms,

R^5 is selected from the group consisting of hydrogen, a hydrocarbyl, —OR^9 and —SR^{10}, and

R^6 is selected from the group consisting of hydrogen, a hydrocarbyl, —OR^9 and —SR^{10},

with the proviso that at least one of R^5 and R^6 is selected from the group consisting of —OR^9 and —SR^{10},



(IV)

wherein

Q is an alkylene group of 2 to 7 carbon atoms,

R^7 is selected from the group consisting of hydrogen, a hydrocarbyl, —OR^9 and —SR^{10}, and

R^8 is selected from the group consisting of hydrogen and a hydrocarbyl,

wherein

each R^9 is independently selected from the group consisting of hydrogen and a hydrocarbyl, or together with R^{11} forms a hydrocarbylene group,

each R^{10} is a hydrocarbyl, or together with R^{12} forms a hydrocarbylene group,

each R^{11} is independently selected from the group consisting of hydrogen and a hydrocarbyl, or together with R^9 forms a hydrocarbylene group,

each R^{12} is a hydrocarbyl, or together with R^{10} forms a hydrocarbylene group,

with the proviso that, other than in a group of the formula (II), (III) or (IV), X contains no olefinic unsaturation; and

wherein

each of Y and Z is independently selected from the group consisting of a group of the formula (II), a group of the formula (III) and a group of the formula (IV); and

(b) a polyfunctional material containing on average at least two groups with active hydrogen functionality and/or functionality convertible thereto.

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POLYMER COMPOSITIONS COMPRISING ELECTROACTIVE AMPHIPHILIC ORGANIC COMPOUNDS AND ELECTROCONDUCTIVE SHAPED ARTICLES PRODUCED THEREFROM

Bernard Chauvel, Eaubonne, and Joel Richard, Chantilly, both of France, assignors to Rhone-Poulenc Films, Courbevoie Cedex, France

Continuation of Ser. No. 132,966, Oct. 7, 1993, abandoned, which is a continuation of Ser. No. 705,037, May 21, 1991, abandoned. This application Feb. 21, 1997, Ser. No. 803,213

Claims priority, application France, Oct. 7, 1992, 92 12265

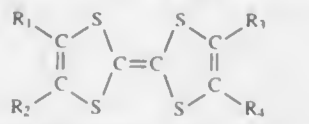
Int. Cl.⁶ H01B *1/06;1/12;1/20*

U.S. Cl. 252—500 **12 Claims**

1. A polymeric composition comprising particulates of at least one convertible polymer (Pm) and at least one amphiphilic organic compound (B) which comprises a charge transfer complex or a radical ion salt having the general formula (I):

$$D_dA_aZ_z \qquad (I)$$

wherein d, a, z are integers greater than zero; D is an electron donor compound having the general formula (VI):



(VI)

in which R1 and R2, which may be identical or different, are each a hydrocarbon radical, at least one of which is a hydrophobic radical; R3 and R4, which may be identical or different, are each a hydrophilic radical; A is an electron acceptor; Z is a doping agent selected from the group consisting of I^-, $(I_3)^-$, $(PF_6)^-$, $(ClO_4)^-$, (BF_4), $(ReO_4)^-$, $(IO_4)^-$, $(FSO_3)^-$, $(AsF_4)^-$, $(AsF_4)^-$, $(AsF_6)^-$, Br^-, Cl^- and $(MnCl_6)^-$; and wherein the amphiphilic compound (B) is implanted into the face surfaces of said convertible polymer particulates.

5,783,644

CURABLE EPOXY RESIN COMPOSITION

Kazuhiko Ando, and Hiroshi Suzuki, both of Tokyo, Japan, assignors to Asahi Denka Kogyo K.K., Tokyo, Japan

Division of Ser. No. 687,002, Jul. 18, 1996, Pat. No. 5,688,876. This application Apr. 15, 1997, Ser. No. 843,331

Claims priority, application Japan, Jul. 28, 1995, 7-193253

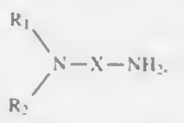
Int. Cl.⁶ C08G *8/28;* **C08L** *61/00*

U.S. Cl. 525—504 **1 Claim**

1. A curable epoxy resin composition comprising:

(I) an epoxy resin having more than one epoxy groups per one molecule,

(II) a Mannich base prepared by reacting (II-①) an aromatic compound having at least one phenolic hydroxyl group in the molecule with (II-②) a carbonyl compound having at least one carbonyl group in the molecule and (II-③) an amino compound represented by the formula:



$$\begin{matrix} R_1 \\ \quad\diagdown \\ \qquad N-X-NH_2, \\ \quad\diagup \\ R_2 \end{matrix}$$

wherein R_1 and R_2 each represents an alkyl group having 1 to 5 carbon atoms, and X represents an alkylene group having 1 to 5 carbon atoms, at a molar ratio of (II-①)/(II-②)/(II-③) of 1/(0.1 to 3.0)/(0.1 to 3.0) and a molar ratio of (II-②)/(II-③) of 1/(1.0 to 2.0), and

(IV) an active amino compound having at least two NH_2 groups, at least two NH groups, or at least one NH_2 group and at least one NH group in the molecule;

wherein the amounts of the Mannich base (II) and the active amino compound (IV) are 1 to 30 parts by weight and 5 to 200 parts by weight respectively, per 100 parts by weight of the epoxy resin (I).

5,783,645

NON-STICKY PREPOLYMERIZED CATALYST, AND USE THEREOF IN PRODUCTION OF NON-STICKY RESIN

Edgar Chapman Baker, Bridgewater, N.J.; Jose Fernando Cevallos-Candau, Charleston, W. Va.; Eric Allan Lucas, Somerville, N.J.; John Gregory Victor, Pittsford, N.Y., and Allan Noshay, East Brunswick, N.J., assignors to Union Carbide Chemicals & Plastics Technology Corporation, Danbury, Conn.

Division of Ser. No. 314,704, Sep. 29, 1994, Pat. No. 5,585,184. This application Jun. 18, 1996, Ser. No. 666,641

Int. Cl.⁶ C08F *2/34*

U.S. Cl. 526—88 **9 Claims**

1. A process for the production of a resin having (A) an outer shell of a non-sticky polymer and (B) an inner core of a sticky polymer, which process comprises contacting ethylene, at least one alpha olefin having 3 to 18 carbon atoms, and optionally at least one diene, in a gas phase fluidized bed in the presence of hydrogen, at a temperature at or above the sticking temperature of the sticky polymer under polymerization conditions in the absence of an inert particulate material fluidization aid with

(I) a non-sticky prepolymerized catalyst comprising a prepolymer portion and a catalyst portion wherein
  (1) the prepolymer portion has (a) 45 to 85 mole % ethylene and at least 15 to 55 mole % of one or more alpha olefins having 3 to 18 carbon atoms; and (b) a flow index of less than 20 decigrams/minute; and wherein
  (2) the ratio of the prepolymer portion to the catalyst portion is 25:1 to 1000:1, with the proviso that said catalyst is prepolymerized in the absence of an inert particulate material fluidization aid;

(II) a co-catalyst; and

(III) optionally a promoter; and wherein the amount of non-sticky polymer is sufficient to essentially prevent agglomeration of the fluidized bed and of the sticky polymer.

5,783,646

PROCESS FOR PRODUCING STYRENE BASE POLYMER

Hayato Kihara, and Masayuki Fujita, both of Ichihara, Japan, assignors to Sumitomo Chemical Company, Limited, Osaka, Japan

Continuation of Ser. No. 747,668, Nov. 12, 1996, abandoned. This application Jul. 24, 1997, Ser. No. 899,641

Claims priority, application Japan, Nov. 10, 1995, 7-292741; Nov. 10, 1995, 7-292741

Int. Cl.⁶ C08F *2/00;12/08*

U.S. Cl. 526—204 **6 Claims**

1. A radical polymerization process for producing a styrene base polymer, which comprises;

(a) subjecting styrene or a styrene compound and a radical scavenger to thermal polymerization,
  (1) a concentration of the radical scavenger to styrene or the styrene compound being from 3.0×10^{-3} to 5.0×10^{-2} mol %, and
  (2) a polymerization temperature ranging from 100° C. to 140° C., provided that the concentration of the radical scavenger (C) and the polymerization temperature (T) satisfy the following formula,

$$100C+0.088T\leqq13.8\,,$$

and

(b) continuing the polymerization to a polymerization conversion of from 40 to 85%.

5,783,647

1,1,2,2-TETRAMETHYLPROPYLPEROXY ESTERS AND METHOD FOR PREPARING VINYL POLYMERS

Takashi Kobayashi; Tadashi Amano, both of Ibaraki-ken; Hideshi Kurihara, Kawasaki; Toshio Shinohara, Gunma-ken; Yoshitaka Okuno, Ibaraki-ken, and Tohru Nishikawa, Aichi-ken, all of Japan, assignors to Shin-Etsu Chemical Co., Ltd., Tokyo, Japan

Filed Dec. 4, 1995, Ser. No. 566,509

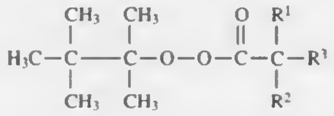
Claims priority, application Japan, Dec. 15, 1994, 6-333472; Dec. 15, 1994, 6-333473

Int. Cl.⁶ C08F *4/34;18/08;14/06;14/08*

U.S. Cl. 526—227 **9 Claims**

1. A 1,1,2,2-tetramethylpropylperoxy ester of the following general formula (1):

(1)



$$H_3C-\underset{CH_3}{\overset{CH_3}{C}}-\underset{CH_3}{\overset{CH_3}{C}}-O-O-\overset{O}{\overset{\|}{C}}-\underset{R^2}{\overset{R^1}{C}}-R^3$$

wherein R^1, R^2 and R^3 are independently selected from normal alkyl groups having 1 to 9 carbon atoms.

5,783,648

CO- AND TERPOLYMERS OF STYRENIC MONOMERS HAVING REACTIVE FUNCTIONAL GROUPS

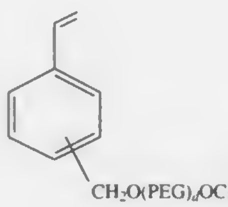
David E. Bergbreiter; Yuefen Zhou, both of College Station, Tex., and Vimala M. Mariagnanam, Duluth, Ga., assignors to The Texas A&M University System, College Station, Tex.

Filed Sep. 20, 1996, Ser. No. 710,608

Int. Cl.⁶ C08F *220/22;228/00*

U.S. Cl. 526—245 **7 Claims**

1. A polymeric material wherein it is a copolymer of a monomer selected from the group consisting of 4-thiocyanatomethylstyrene, 4-thiolmethylstyrene, 4-thioacetoxystyrene, and 4-trifluoroacetoxystyrene; and a styrenic derivative having the structure:



wherein PEG is a polyethylene glycol moiety and d represents molecular weight of said polyethylene glycol moiety, which ranges from about 200 to about 10,000, and mixtures thereof.

5,783,649

POLYMERIZABLE AZO DYES WITH A THIOPHENE STRUCTURE

Stefan Beckmann, Bad Dürkheim; Karl-Heinz Etzbach, Frankenthal, and Rüdiger Sens, Mannheim, all of Germany, assignors to BASF Aktiengesellschaft, Ludwigshafen, Germany

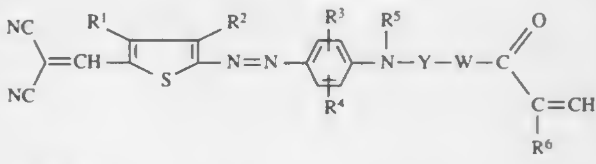
Filed Jun. 10, 1996, Ser. No. 633,404

Claims priority, application Germany, Jun. 13, 1995, 195 21 503.6

Int. Cl.⁶ C08F *134/04;* **C09B** *29/033*

U.S. Cl. 526—256 **11 Claims**

1. An azo dye of the formula I



I

in which

R^1 is an aryl group selected from the group consisting of unsubstituted phenyl and phenyl substituted by 1 to 3 C_1–C_8 alkyl or alkoxy groups,

R^2 is cyano, C_1–C_4-alkoxycarbonyl or nitro,

R^3 and R^4 are hydrogen, C_1–C_{12}-alkyl or C_1–C_6-alkoxy,

R^5 is hydrogen, C_1–C_{12}-alkyl, C_5–C_7-cycloalkyl or C_3–C_4-alkenyl,

R^6 is hydrogen or methyl,

Y is C_2–C_{10}-alkylene which can be interrupted by 1 to 3 nonadjacent oxygen atoms or imino or C_1–C_4-alkylimino groups, and

W is oxygen, imino or C_1–C_4-alkylimino.

5,783,650

POLYMERIC SURFACE COATINGS

Roderick W. J. Bowers; Stephen A. Jones; Peter W. Stratford, and Stephen A. Charles, all of Middlesex, United Kingdom, assignors to Biocompatibles Limited, Middlesex, United Kingdom

Division of Ser. No. 175,348, Mar. 7, 1994, Pat. No. 5,648,442. This application Jun. 7, 1995, Ser. No. 478,651

Claims priority, application United Kingdom, Jul. 5, 1991, 9114619; Aug. 8, 1991, 9117170; Apr. 24, 1992, 9208970; WIPO, Jul. 6, 1994, PCT/GB92/01215

Int. Cl.⁶ C08F *230/02;220/02;228/02;220/06*

U.S. Cl. 526—277 **12 Claims**

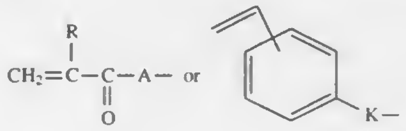
1. A biocompatible polymer formed from monomers consisting of: (A) a radical polymerizable zwitterionic monomer containing a zwitterionic group, (B) a radical polymerizable ionic comonomer containing an ionic group, and, optionally, (C) a radically polymerisable diluent monomer,

wherein the monomer A is a compound of formula Y—B—X,

wherein X is a zwitterionic group;

B is a straight or branched alkylene, oxaalkylene, oligooxaalkylene chain optionally containing one or more flourine atoms up to and including perfluorinated chains, or if X contains a carbon-carbon chain between B and the zwitterion or if Y contains a terminal carbon atom bonded to B, a valence bond;

Y is an ethylenically unsaturated polymerizable group selected from



wherein:

R is hydrogen or a C_{1-4} alkyl group;

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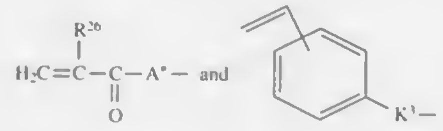
A is —O— or —NR^1— where R^1 is hydrogen or a C_{1-4} alkyl group or R^1 is —B—X where B and X are as defined above; and

K is selected from the group consisting of —$(CH_2)_pOC(O)$—, —$(CH_2)_pC(O)O$—, —$(CH)_2)_pOC(O)O$—, —$(CH_2)_pNR^2$—, —(CH₂)$_pNR^2$ C(O)—, $(CH_2)_pC(O)NR^2$—, —$(CH_2)_pNR^2C(O)O$—, —$(CH_2)_pOC(O)NR^2$—, —$(CH_2)_pNR^2C(O)NR^2$—(in which R^2 may be the same or different, —$(CH_2)_pO$—, —$(CH_2)_pSO_3$—, and, optionally in combination with B, a valence bond and p is from 1 to 12 and R^2 is hydrogen or a C_{1-4} alkyl group;

wherein the comonomer (B) is a compound of formula Y^2—B^9—Q^5;

where Y^2 is an ethylenically unsaturated polymerizable group selected from



where R^{26} is hydrogen or C_{1-4} alkyl;

A" is —O— or NR^{27}—, wherein R^{27} is hydrogen or a C_{1-4} alkyl group or R^{27} is —B^9Q^5,

B^9 is a valence bond, a straight or branched alkylene oxaalklene or oligo-oxaalkylene group;

K^3 is —$(CH_2)_xOC(O)$—, —$(CH)_xC(O))$—, $(CH_2)_xOC(O)$—, —$(CH_2)_xNR^{28}$—, —$(CH_2)_xNR^{28}C(O)$—, —$(CH_2)^xC(O)NR^{28}$—, —$(CH_2)_xNR^{28}C(O)O$—, —$(CH_2)_xOC(O)NR^{28}$—, —$(CH_2)_xNR^{28}C(O)NR^{28}$— (in which the R^{28} groups are the same or different), —(CH ₂)$_x$O—, —$(CH_2)_xSO_3$—, a calence bond, x is from 1 to 12 and R^{28} is hydrogen or a C_{1-4} alkyl group; and

Q^5 is an ionic group,

and wherein the diluent monomer (C) is a monomer not having said zwitterionic group or said ionic group or said ionic group, and is selected from the group consisting of an alkyl(alk)acrylate; an alkyl (alk) acrylamide; a hydroxyalkyl (alk)acrylate; vinyl pyrrolidone; styrene; a polyhydroxyl (alk)acrylate and a polyhydroxyl (alk)acrylamide in which the alkyl group contains from 1 to 4 carbon atoms; a polymerisable C_{2-4} alkene; a polymerisable butadiene; and a polymerisable C_{24} alkene;a polymerisable butadiene; and a polymiserable acrylonitrile.

5,783,651

PROCESS FOR THE PRODUCTION OF POLY (DIORGANOSILOXANE)/POLYCARBONATE BLOCK COPOLYMERS

Annett König, Krefeld, and Steffen Kühling, Meerbusch, both of Germany, assignors to Bayer AG, Leverkusen, Germany

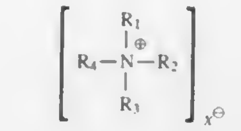
Filed Oct. 15, 1996, Ser. No. 730,105

Claims priority, application Germany, Oct. 23, 1995, 195 39 290.6

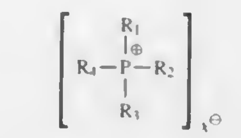
Int. Cl.⁶ C08G *77/06*

U.S. Cl. 528—21 **7 Claims**

1. A process for the production of thermoplastic poly(diorganosiloxane)/polycarbonate block copolymers with average molecular weights M_w (weight average, determined by gel chromatography) of 18000 to 60000 by reacting aromatic, Si-free diphenol, carbonic acid diaryl ester and polydiorganosiloxane in the presence of catalyst at a temperature of between 80° C. and 320° C. and pressures of 1000 mbar to 0.01 mbar, wherein the catalyst is a quaternary ammonium compound and/or quaternary phosphonium compound of the formulae (I) and/or (II)



$$\left[R_4-\overset{R_1}{\underset{R_3}{N^{\oplus}}}-R_2\right]X^{\ominus} \quad (I)$$



$$\left[R_4-\overset{R_1}{\underset{R_3}{P^{\oplus}}}-R_2\right]X^{\ominus} \quad (II)$$

in which R_{1-4} are identical or different C_1–C_{30} alkyl, C_6–C_{10} aryl or C_5–C_6 cycloalkyl, wherein at least one of R_{1-4} is a C_8–C_{30} alkyl and in which X^- is an anion in which the corresponding acid/base pair $H^{\oplus}+X^{\ominus}\leftrightarrows HX$ has a pKB of 1 to 11, in quantities of 10^{-1} to 10^{-8} mol, relative to 1 mol of Si-free diphenol, and further wherein the polydiorganosiloxane component comprises α-ω-bishydroxyaryl-, α-ω-bishydroxyalkyl-, α-ω-bisacyl-, or α-ω-bishydroxyacyl-polydiorganosiloxanes in a quantity by weight of 30 wt. % to 0.5 wt. % relative to the total weight of Si-free diphenol and polydiorganosiloxane.

5,783,652

REACTIVITY IMPROVEMENT OF URETHANE PREPOLYMERS OF ALLOPHANTE-MODIFIED DIPHENYLMETHANE DIISOCYANATES

James W. Rosthauser, Pittsburgh, Pa., and William E. Slack, Moundsville, W. Va., assignors to Bayer Corporation, Pittsburgh, Pa.

Filed Nov. 4, 1997, Ser. No. 963,738

Int. Cl.⁶ C08G *18/10*

U.S. Cl. 528—48 **11 Claims**

1. A mixture comprising

A) from 90 to 99.5% by weight, based on the combined weight of components A) and B), of a stable, liquid MDI-based urethane prepolymer having an NCO content of 5 to 30%, and containing an allophanate-modified MDI, wherein said prepolymer comprises the reaction product of:
  1) an allophanate-modified MDI having an NCO content of 12 to 32.5%, and being prepared by reacting
    a) at least one compound selected from the group consisting of an aliphatic alcohol, an aliphatic diol, an aliphatic triol, an aromatic alcohol, an aromatic diol and mixtures thereof, with
    b) diphenylmethane diisocyanate comprising about 0 to 60% by weight of 2,4'-diphenyl-methane diisocyanate, less than 6% by weight of the 2,2'-diphenylmethane diisocyanate, and the balance being 4,4'-diphenylmethane diisocyanate, and
  2) an organic compound containing from 2 to 6 hydroxyl groups and having a molecular weight of 76 to 6,000; and

B) from 0.5 to 10% by weight, based on the combined weight of components a) and b), of an epoxide having an epoxide equivalent weight of from about 44 to about 400.

5,783,653

DIGITAL VIDEO SUBSTRATE

Masaya Okamoto, Ichihara, Japan, assignor to Idemitsu Petrochemical Co., Ltd., Tokyo, Japan

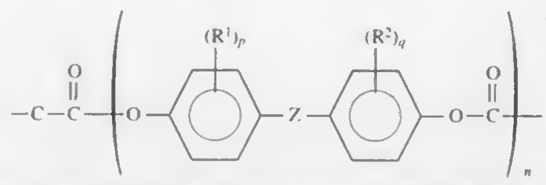
Filed Mar. 6, 1997, Ser. No. 811,717

Claims priority, application Japan, Mar. 7, 1996, 8-050557; Mar. 26, 1996, 8-069555; Dec. 6, 1996, 8-326297

Int. Cl.⁶ C08G *64/00*

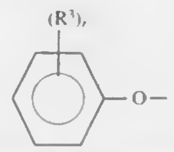
U.S. Cl. 528—196 **14 Claims**

1. A digital video disc substrate comprising a polycarbonate in which a main chain has a structure represented by the general formula (I)

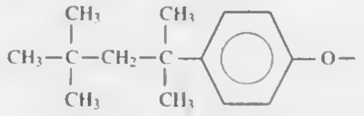

(I)

wherein R^1 and R^2 are each a halogen atom, an alkyl group having 1 to 6 carbon atoms or a phenyl group; Z is a single bond, an alkylene group or an alkylidene group having 1 to 20 carbon atoms, a cycloalkylene group or a cycloalkylidene group having 5 to 20 carbon atoms, —O—, —S—, —SO—, —SO_2— or —CO—; p and q are each an integer of 0 to 4; and n is the number of repeating units,

and a terminal group represented by the general formula (II)


(II)

wherein R^3 is a halogen atom, an alkyl group having 1 to 20 carbon atoms or an aryl group having 6 to 20 carbon atoms; and r is an integer of 0 to 5, at least 25 mol % of this terminal group is a group represented by the formula (III)


(III)

and a viscosity-average molecular weight is in the range of 10,000 to 17,000, wherein the viscosity-average molecular weight is determined by viscosity measurements in a methylene chloride solution at 20° C.

5,783,654

PREPARATION OF POLY-O-HYDROXYAMIDES AND POLY O-MERCAPTOAMIDES

Recai Sezi, and Hellmut Ahne, both of Roettenbach, Germany, assignors to Siemens Aktiengesellschaft, Munchen, Germany

Filed Aug. 29, 1996, Ser. No. 705,575

Claims priority, application Germany, Aug. 31, 1995, 195 32 139.1

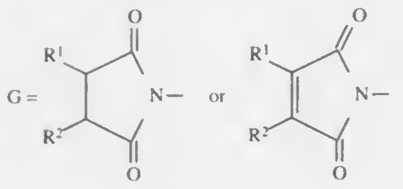
Int. Cl.⁶ C08G *73/10;69/08*

U.S. Cl. 528—310 **10 Claims**

1. A process for the preparation of poly-o-hydroxyamides and poly-o-mercaptoamides comprising the step of reacting a bis-o-aminophenol or a bis-o-amino-thiophenol with a dicarboxylic acid ester having the following structure:

G—O—CO—R*—CO—O—G

where:

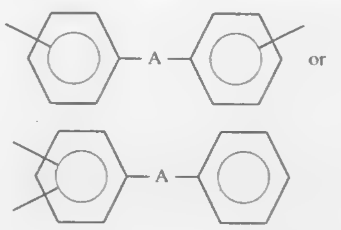


where

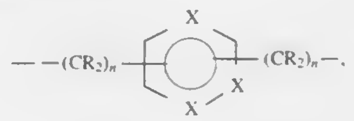
R^1 and R^2=H, F, CH_3, or CF_3 (independently of each other);

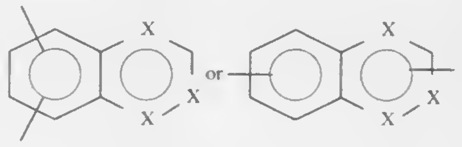
R* has the following meaning:

—$(CR_2)_m$, with R=H, F, CH_3, or CF_3 and m=1 to 10;



where A=$(CH_2)_n$, $(CF_2)_p$, $C(CH_3)_2$, $C(CF_3)_2$, $C(CH_3)$ (C_6H_5), $C(CF_3)$ (C_6H_5) $C(CF_3)$ (C_6F_5), $C(C_6H_5)_2$, CF_2—$CF(CF_3)$ CH═CH, CF═CF, C≡C, O—C_6H_4—O, O, S, CO, or SO_2, where n=0 to 10 and p=1 to 10;



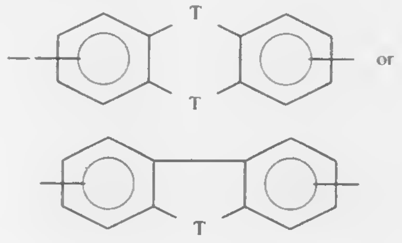


where

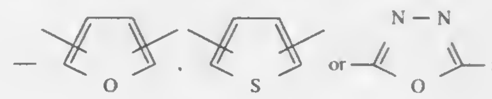
X=CH or N,

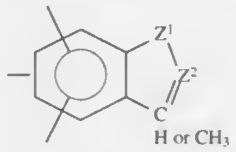
R=H, F, CH_3, or CF_3,

and n=0 to 10;



where T=CH_2, CF_2, CO, O, S, NH, or N(CH_3);





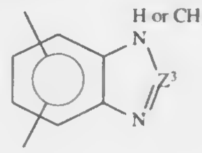
where

Z^1=CH_2 or $CH(CH_3)$ and Z^2=CH or $C(CH_3)$

Z^1=CH_2 or $CH(CH_3)$ and Z^2=N

Z^1=NH or N (CH_3) and Z^2=CH or $C(CH_3)$

Z^1=NH or $N(CH_3)$ and Z^2=N



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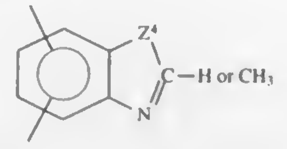
where Z^3=CH, $C(CH_3)$, or N



where Z^4=O or S; where, in each case, all hydrogen atoms (H) in all aromatic partial structures can be replaced by fluorine (F).

5,783,655

AROMATIC POLYAMIDE PULP BY MEANS OF CONTINUOUS TRANSFERABLE POLYMERIZATION-ORIENTATION METHOD AND A PROCESS FOR PREPARATION THEREOF

Du Hyun Kim; Seock Chul Ryu, both of Kumi; Won Jun Choe, Talseou-ku; Young Hwan Park, Kumi, and Chang Seop Ji, Suwon, all of Rep. of Korea, assignors to Kolon Industries, Inc., Seoul, Rep. of Korea

PCT No. PCT/KR93/00108, § 371 Date Jun. 5, 1995, § 102(e) Date Jun. 5, 1995, PCT Pub. No. WO94/13727, PCT Pub. Date Jun. 23, 1994

PCT Filed Dec. 2, 1993, Ser. No. 446,730

Claims priority, application Rep. of Korea, Dec. 4, 1992, 92-23333; Sep. 2, 1993, 93-17448

Int. Cl.⁶ C08G *69/32;69/36*

U.S. Cl. 528—331 **29 Claims**

1. A process for the preparation of aromatic polyamide pulp, which process comprises the steps of: urea-containing solvent, or a mixture thereof, and mixing therewith 20 to 50 wt % of one or more aromatic diacid dichlorides;

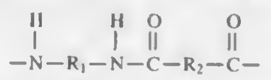
(c) adding said first mixture and the remainder 50 to 80 wt % of aromatic diacid dichloride to a continuous mixer simultaneously with mixing, and then ejecting said mixed solution onto a continuous transferable polymerization-orientation means;

(d) polymerizing and orienting said mixed solution obtained in (c) by polymerization orientation means located on the continuous transferable polymerization-orientation means;

(e) maintaining and maturing said polymerized and oriented mixed solution obtained in (d) in the continuous transferable polymerization-orientation means;

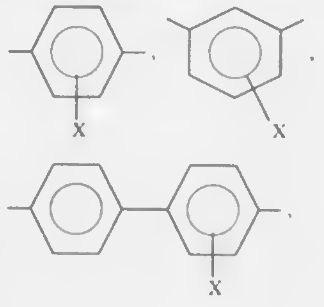
(f) precipitating the material obtained in (e) into a precipitating solution, and then pulverizing and drying the precipitate in pulping means;

(g) obtaining an aromatic polyamide pulp having repeating units represented by the following formula (A):



$$-\overset{H}{\overset{|}{N}}-R_1-\overset{H}{\overset{|}{N}}-\overset{O}{\overset{\|}{C}}-R_2-\overset{O}{\overset{\|}{C}}- \qquad (A)$$

wherein R_1, R_2 are selected from the group consisting of the following aromatic groups,



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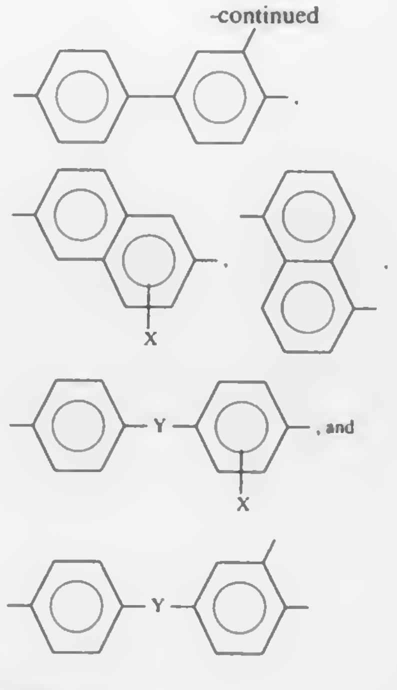
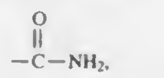
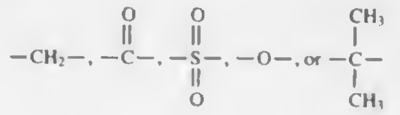


X is H, Cl, Br,



$$-\overset{O}{\overset{\|}{C}}-NH_2,$$

or alkyl or alkoxy group of from 1 to 4 carbon atoms,
Y is



$$-CH_2-,\ -\overset{O}{\overset{\|}{C}}-,\ -\underset{\underset{O}{\|}}{\overset{O}{\overset{\|}{S}}}-,\ -O-,\text{ or }-\underset{\underset{CH_3}{|}}{\overset{CH_3}{\overset{|}{C}}}-$$

5,783,656

POLYAMIC ACID, POLYIMIDE AND LIQUID CRYSTAL ALIGNING AGENT

Masayuki Kimura; Tsukasa Toyoshima; Keiichi Yamamoto; Kengo Wakabayashi; Yasuo Matsuki, all of Yokkaichi, and Kyouyu Yasuda, Tsu, all of Japan, assignors to Japan Synthetic Rubber Co., Ltd., Tokyo, Japan

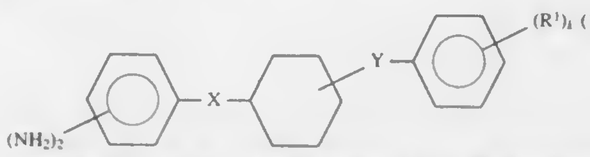
Filed Jan. 31, 1997, Ser. No. 791,616

Claims priority, application Japan, Feb. 6, 1996, 8-019562

Int. Cl.⁶ C08G *73/10;73/12;69/26*

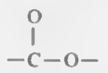
U.S. Cl. 528—353 **7 Claims**

1. A polyamic acid derived by reacting a diamine compound of the formula (1),



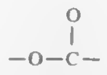
(1)

wherein R^1 is an alkyl group having 1 to 12 carbon atoms, a haloalkyl group having 1 to 12 carbon atoms or a halogen atom, each of X and Y is independently a divalent linking group of one of the following formulae (a) to (d),

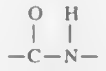


$$-\overset{O}{\overset{|}{C}}-O- \qquad (a)$$

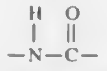
-continued



$$-O-\overset{O}{\overset{|}{C}}- \qquad (b)$$



$$-\overset{O}{\overset{|}{C}}-\overset{H}{\overset{|}{N}}- \qquad (c)$$



$$-\overset{H}{\overset{|}{N}}-\overset{O}{\overset{\|}{C}}- \qquad (d)$$

and k is an integer of 0 to 5, with a tetracarboxylic acid dianhydride.

5,783,657

ESTER-TERMINATED POLYAMIDES OF POLYMERIZED FATTY ACIDS USEFUL IN FORMULATING TRANSPARENT GELS IN LOW POLARITY LIQUIDS

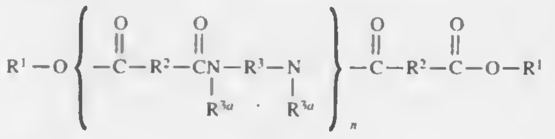
Mark S. Pavlin, Lawrenceville, and Richard C. MacQueen, Phillipsburg, both of N.J., assignors to Union Camp Corporation, Wayne, N.J.

Filed Oct. 18, 1996, Ser. No. 734,523

Int. Cl.⁶ C08G *69/08;73/10*

U.S. Cl. 528—310 **18 Claims**

1. A resin composition comprising ester-terminated polyamide of formula (1):



$$R^1-O\left\{-\overset{O}{\overset{\|}{C}}-R^2-\overset{O}{\overset{\|}{C}}\underset{\underset{R^{3a}}{|}}{N}-R^3-\underset{\underset{R^{3a}}{|}}{N}\right\}_n-\overset{O}{\overset{\|}{C}}-R^2-\overset{O}{\overset{\|}{C}}-O-R^1 \qquad (1)$$

wherein

n designates a number of repeating units such that ester groups are from 10% to 50% of the total of the ester and amide groups;

R^1 at each occurrence is independently selected from an alkyl or alkenyl group containing at least 4 carbon atoms;

R^2 at each occurrence is independently selected from a $C_{4\text{-}42}$ hydrocarbon group with the proviso that at least 50% of the R^2 groups have 30–42 carbon atoms;

R^3 at each occurrence is independently selected from an organic group containing at least two carbon atoms in addition to hydrogen atoms, and optionally containing one or more oxygen and nitrogen atoms; and

R^{3a} at each occurrence is independently selected from hydrogen, $C_{1\text{-}10}$ alkyl and a direct bond to R^3 or another R^{3a} such that the N atom to which R^3 and R^{3a} are both bonded is part of a heterocyclic structure defined in part by R^{3a}—N—R^3, such that at least 50% of the R^{3a} groups are hydrogen.

5,783,658

PHASE CHANGE INK FORMULATION USING A URETHANE ISOCYANATE-DERIVED RESIN AND A URETHANE ISOCYANATE-DERIVED WAX

Jeffery H. Banning, Hillsboro, Oreg.; Loc V. Bui, Valencia, Calif.; Clifford R. King, Salem, and Donald R. Titterington, Tualatin, both of Oreg., assignors to Tektronix, Inc., Wilsonville, Oreg.

Filed Jun. 28, 1996, Ser. No. 678,386

Int. Cl.⁶ C08J *3/00;* **C08K** *5/16;* **C08L** *75/00;* **C03C** *17/00*

U.S. Cl. 528—590 **42 Claims**

1. A phase change ink carrier composition comprising in combination:

(a) a urethane resin

(b) a urethane wax; and

(c) a tackifier.

5,783,659

PERFLUOROALKYLENEETHERTRIAZINE OLIGOMER AND PROCESS FOR PRODUCING THE SAME

Riichi Iwa, Kitaibaraki; Haruyoshi Tatsu, Hitachi, both of Japan; Sokolov Sergey Vasilyevich, and Kollar Alexander Nikolaevich, both of Saint Petersburg, Russian Federation, assignors to Nippon Mektron, Limited, Tokyo, Japan, and S.V. Lebedev, Saint Petersburg, Russian Federation

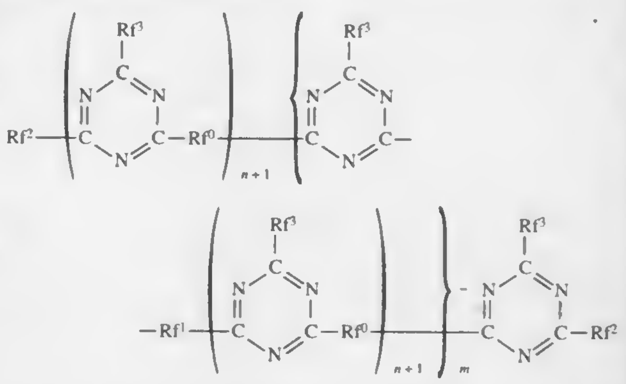
Division of Ser. No. 420,166, Apr. 11, 1995, Pat. No. 5,681,921. This application Dec. 26, 1996, Ser. No. 773,278

Claims priority, application Japan, Apr. 19, 1994, 6-103204

Int. Cl.⁶ C08G *73/00;73/06*

U.S. Cl. 528—362 **1 Claim**

1. A perfluoroalkyleneethertriazine oligomer represented by the following general formula:



wherein RF^0 is —$(CFXOCF_2)a(CF_2)b(CF_2OCFX)c$—, where X is a fluorine atom or a CF_3 group, a is an integer of 1 to 5, b is an integer of 1 to 2 and c is an integer of 1 to 5, or Rf^0 is —$CF_2O(CF_2O)dCF_2$—, where d is an integer of 1 to 8; Rf^1 has the same meaning as that for Rf^0 is Rf^1 is a perfluoroalkylene group having 4 to 8 carbon atoms; Rf^2 is $CF_3(OCF_2)_e$— where e is an integer of 3 to 10; and Rf^3 is $CF_3(OCF_2)_f$—, where f is an integer of 3 to 10.

5,783,660

Patent Not Issued For This Number

5,783,661

HUMAN CYCLINE E POLYPEPTIDES

James M. Roberts; Motoaki Ohtsubo; Andrew C. Koff, all of Seattle, Wash., and Frederick Cross, New York, N.Y., assignors to Fred Hutchinson Cancer Research Center, Seattle, Wash.

Continuation of Ser. No. 947,311, Sep. 16, 1992, Pat. No. 5,449,755, which is a continuation-in-part of Ser. No. 764,309, Sep. 20, 1991, abandoned. This application Jun. 7, 1995, Ser. No. 522,166

Int. Cl.⁶ C07K *5/00;14/00;* **C07H** *21/04*

U.S. Cl. 530—300 **6 Claims**

1. An isolated cycline polypeptide encoded by a nucleic acid capable of hybridizing under stringent conditions to the nucleotide sequence residing between positions 688 and 993 of the cyclin E cDNA hydrophobic alpha helix sequence shown in SEQ ID NO: 1 or its complement.

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5,783,662
POLYPHOSPHOINSITIDE BINDING PEPTIDES FOR INTRACELLULAR DRUG DELIVERY

Paul A. Janmey, Arlington; C. Casey Cunningham, Wayland; John H. Hartwig, Jamaica Plain; Thomas P. Stossel, Belmont, all of Mass., and Roland Vegner, Riga, Latvia, assignors to Brigham & Women's Hospital, Inc., Boston, Mass.

Continuation of Ser. No. 394,027, Feb. 22, 1995, abandoned. This application Apr. 11, 1997, Ser. No. 843,035

Int. Cl.^{6} A61K *38/00;* **C07K** *5/00;7/00*

U.S. Cl. 530—328 **13 Claims**

1. A molecule having the formula X-P, wherein
(a) P is a peptide selected from the group consisting of Seq. I.D. No. 1 and Seq. I.D. No. 2; and
(b) X is rhodamine or a rhodamine derivative, wherein X is covalently coupled to the N-terminus amine of the peptide.

5,783,663
PEPTIDE LIGANDS FOR AFFINITY PURIFICATION OF FIBRINOGEN

Kristine Mondorf; Ruben C. Carbonell, and Joseph A. Buettner, all of Raleigh, N.C., assignors to Bayer Corporation, Berkeley, Calif.

Filed Jan. 23, 1998, Ser. No. 12,343

Int. Cl.^{6} A61K *38/08;* **C07K** *7/06*

U.S. Cl. 530—329 **2 Claims**

1. A composition comprising a peptide having an available fibrinogen binding domain, wherein the binding domain is selected from the group consisting of Trp-Gln-Glu-His-Tyr-Asn(SEQ ID NO=1), Trp-Gln-Glu-Thr-Tyr-Gln(SEQ ID NO=2), and Tyr-Glu-Asn-Tyr-Gly-Tyr(SEQ ID NO=3).

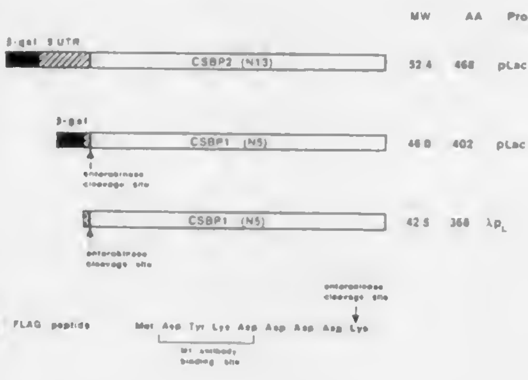
5,783,664
CYTOKINE SUPPRESSIVE ANIT-INFLAMMATORY DRUG BINDING PROTEINS

John C. Lee, Radnor; Jerry L. Adams, Wayne; Timothy F. Gallagher, Harleysville; David W. Green, Bryn Mawr; John Richard Heys, Malvern; Peter C. McDonnell, Fort Washington; Dean E. McNulty, Philadelphia, all of Pa.; James E. Strickler, Milton, Mass., and Peter R. Young, Lawrenceville, N.J., assignors to SmithKline Beecham Corporation, Philadelphia, Pa.

Continuation-in-part of Ser. No. 123,175, Sep. 17, 1993, abandoned. This application May 31, 1994, Ser. No. 250,975

Int. Cl.^{6} C07K *14/435;14/705;* **C12N** *15/12;9/12*

U.S. Cl. 530—350 **6 Claims**



1. An isolated protein which is a human cytokine suppressive anti-inflammatory drug binding protein (CSBP) comprising the amino acid sequence of any of SEQ ID NOs: 12 or 14, conservative substitution variants thereof and naturally occurring allelic variants thereof, further characterized as having kinase activity.

5,783,665
CYTOKINE WHICH IS A LIGAND FOR OX40

Peter R. Baum, Seattle; William C. Fanslow, III, Federal Way; Richard B. Gayle, Woodinville, and Raymond G. Goodwin, Seattle, all of Wash., assignors to Immunex Corporation, Seattle, Wash.

Division of Ser. No. 97,827, Jul. 23, 1993, Pat. No. 5,457,035. This application Jun. 22, 1995, Ser. No. 494,574

Int. Cl.^{6} C07K *14/705*

U.S. Cl. 530—350 **3 Claims**

1. A purified OX40-ligand selected from the group consisting of:
(a) a polypeptide comprising amino acids 1 through 198, inclusive, of the sequence set forth in SEQ ID NO:2;
(b) a polypeptide comprising amino acids 49 through 198, inclusive, of the sequence set forth in SEQ ID NO:2;
(c) a polypeptide comprising a sequence beginning with an amino acid in the sequence between amino acid 49 and amino acid 69, inclusive, through and including an amino acid in the sequence between amino acid 164 and amino acid 198, inclusive, of the sequence set forth in SEQ ID NO:2; and
(d) a polypeptide which differs from that of (a), (b) or (c) by changes in the amino acid sequence selected from the group consisting of inactivated N-linked glycosylation sites, substituted or deleted cysteine residues, and a peptide added to facilitate purification, wherein the OX40 ligand polypeptide binds OX40.

5,783,666
APC (ADENOMATOUS *POLYOSIS COLI*) PROTEIN

Hans Albertsen, Salt Lake City, Utah; Rakesh Anand, Sandbach, England; Mary Carlson; Joanna Groden, both of Salt Lake City, Utah; Philip John Hedge, Winsford, England; Geoff Joslyn, Salt Lake City, Utah; Kenneth Kinzler, Baltimore, Md.; Alexander Fred Markham, Crewe, England; Yusuke Nakamura, Tokyo, Japan; Andrew Thliveris, Salt Lake City, Utah; Bert Vogelstein, Baltimore, Md., and Raymond L. White, Salt Lake City, Utah, assignors to The Johns Hopkins University, Baltimore, Md.; The University of Utah, Salt Lake City, Utah; Zeneca Pharmaceuticals, England, and The Cancer Institute, Tokyo, Japan

Division of Ser. No. 289,548, Aug. 12, 1994, which is a division of Ser. No. 741,940, Aug. 8, 1991, Pat. No. 5,352,775. This application May 25, 1995, Ser. No. 452,655

Claims priority, application United Kingdom, Jan. 16, 1991, 9100962; Jan. 16, 1991, 9100963; Jan. 16, 1991, 9100975; Jan. 16, 1994, 9100974

Int. Cl.^{6} C07K *14/47*

U.S. Cl. 530—350 **5 Claims**

1. A preparation of the human APC (adenomatous polyposis colorectal cancer) protein substantially free of other human proteins, the amino acid sequence of said protein corresponding to that shown in FIG. 3 or 7 (SEQ ID NOS:7 or 2).

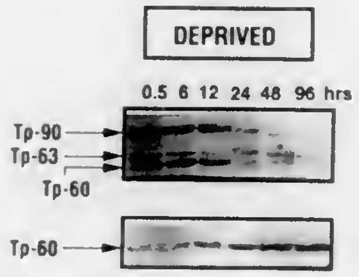
5,783,667
APOPTOSIS SPECIFIC TP30 PROTEIN

Eugenia Wang, Montreal, Canada, assignor to Sir Mortimer B. Davis-Jewish General Hospital, Montreal, Canada

Filed Dec. 23, 1994, Ser. No. 362,221

Int. Cl.^{6} C07K *1/00;* **C12P** *21/08;* **A61K** *39/00;39/395*

U.S. Cl. 530—350 **9 Claims**



1. A terminin apoptosis protein having a molecular weight of about 30 kDa.

5,783,668

Patent Not Issued For This Number

5,783,669
HYALURONAN RECEPTOR EXPRESSED IN HUMAN UMBILICAL VEIN ENDOTHELIAL

Phillip R. Hawkins, Mountain View; Craig G. Wilde, Sunnyvale, and Jeffrey J. Seilhamer, Los Altos Hills, all of Calif., assignors to Incyte Pharmaceuticals, Inc., Palo Alto, Calif.

Division of Ser. No. 402,217, Mar. 10, 1995, Pat. No. 5,587,301. This application Aug. 20, 1996, Ser. No. 700,178

Int. Cl.^{6} C07K *14/705*

U.S. Cl. 530—350 **1 Claim**

1. A purified HR polypeptide whose amino acid sequence is shown in SEQUENCE ID NO 2.

5,783,670
MONOCLONAL ANTIBODIES SPECIFIC FOR HIV AND THE HYBRIDOMAS FOR PRODUCTION THEREOF

Yasuhiko Masuho; Toru Sugano; Yoh-ichi Matsumoto; Takashi Kawamura, all of Tokyo, Japan; Evan Hersh, Tucson, Ariz.; Eskild Petersen, Tucson, Ariz., and Douglas Lake, Tucson, Ariz., assignors to The University of Arizona, Department of Internal Medicine, Section of Hematology and Oncology, Tucson, Ariz., and Teijin Limited, Osaka, Japan

Division of Ser. No. 270,214, Jul. 1, 1994, which is a continuation of Ser. No. 864,540, Apr. 7, 1992, abandoned, which is a continuation-in-part of Ser. No. 342,899, Apr. 25, 1989, abandoned, which is a continuation-in-part of Ser. No. 176,159, Mar. 31, 1988, Pat. No. 5,298,419. This application Jun. 7, 1995, Ser. No. 487,529

Int. Cl.^{6} C07K *16/10;* **A61K** *39/42*

U.S. Cl. 530—388.15 **2 Claims**

1. A method for neutralizing a human immunodeficiency virus type 1 (HIV-1), comprising:
contacting an HIV-1 with human monoclonal IgG1 antibodies produced by hybridoma ATCC Accession No. HB10074 which immunologically bind to gp120 glycoprotein on the surface of said HIV-1 and prevent binding of gp120 glycoprotein to lymphocyte CD4.

5,783,671
METHOD AND COMPOSITION FOR PREPARATION OF FACTOR VIIIC

George Kuo; Frank Masiarz, both of San Francisco; Martha Truett, Oakland; Pablo Valenzuela, San Francisco, all of Calif.; Mirella Ezban Rasmussen, Copenhagen, Denmark, and Jennifer M. Favaloro, Victoria, Australia, assignors to Chiron Corporation, Emveryville, Calif., and Novo Nordisk A/S, Bagsvaerd, Denmark

Continuation of Ser. No. 669,680, Mar. 14, 1991, abandoned, which is a continuation of Ser. No. 570,062, Jan. 12, 1984, Pat. No. 5,004,804. This application Oct. 26, 1993, Ser. No. 143,527

The portion of the term of this patent subsequent to Dec. 29, 2004, has been disclaimed.

Int. Cl.^{6} C07K *16/36*

U.S. Cl. 530—388.25 **1 Claim**

1. A monoclonal antibody capable of specifically binding under binding conditions to a 77/80 kD doublet Factor VIII:C polypeptide but not to a 92.5 kD Factor VIII:C polypeptide, wherein the 77/80 kD doublet polypeptide is capable of forming a calcium-bridged complex with a 92.5 kD polypeptide, and wherein the complex exhibits a biological activity of Factor VIII:C, and the doublet polypeptide comprises an N-terminal amino acid sequence as follows:
Phe-Gln-Lys-Lys-Thr-Arg-His-Tyr-Phe-Ile-Ala-Ala-Val-Glu-Arg-Leu-Trp-Asp-Tyr-Gly-Met.

5,783,672
RECEPTOR FOR ONCOSTATIN M

Bruce Mosley, Seattle, and David J. Cosman, Bainbridge Island, both of Wash., assignors to Immunex Corporation, Seattle, Wash.

Continuation-in-part of Ser. No. 249,553, May 26, 1994, abandoned. This application Sep. 12, 1994, Ser. No. 308,881

Int. Cl.^{6} C07K *14/715*

U.S. Cl. 530—350 **13 Claims**

1. A purified receptor capable of binding oncostatin M, comprising a gp130 polypeptide covalently linked to an oncostatin M receptor β-chain (OSM-Rβ) polypeptide, wherein:
a) said gp130 polypeptide is selected from the group consisting of:
  i) a gp130 polypeptide comprising amino acids 1 to 686 of SEQ ID NO:2; and
  ii) a fragment of the polypeptide of (i);
b) said OSM-Rβ polypeptide is selected from the group consisting of:
  iii) an OSM-Rβ polypeptide comprising amino acids 1 to 952 of SEQ ID NO:6; and
  iv) a fragment of the polypeptide of iii;
wherein said receptor comprising a gp130 polypeptide and an OSM-Rβ polypeptide binds oncostatin M with higher affiniry than does the gp130 polypeptide alone.

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5,783,673

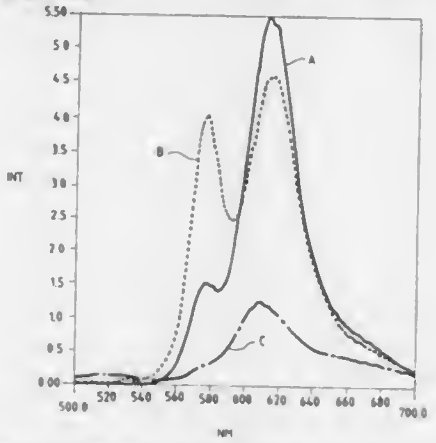
METHOD OF PREFERENTIAL LABELLING OF A PHYCOBILIPROTEIN WITH AN AMINEREACTIVE DYE FOR USE IN A MULTIPLE COLOR ASSAY AND PRODUCT FOR SUCH USE

Ravinder K. Gupta, Pembroke Pines, Fla., assignor to Coulter Corporation, Miami, Fla.

Continuation of Ser. No. 227,573, Apr. 14, 1994, abandoned, which is a continuation of Ser. No. 990,861, Dec. 11, 1992, abandoned, which is a continuation-in-part of Ser. No. 940,026, Sep. 3, 1992, Pat. No. 5,272,257, which is a continuation-in-part of Ser. No. 526,387, May 21, 1990, Pat. No. 5,171,846. This application Oct. 10, 1996, Ser. No. 728,414

Int. Cl.⁶ A61K *35/78;35/80;* **C07K** *17/00;* **G01N** *33/531*

U.S. Cl. 530—400 7 Claims



1. A method of producing a phycobiliprotein-amine reactive dye conjugate which method comprises reacting the phycobiliprotein with the amine reactive dye, desalting the reaction mixture to remove the dye not conjugated with the phycobiliprotein, and further separating the conjugate by hydrophobic interaction chromatography in order to separate out phycobiliprotein underlabelled and overlabelled with amine reactive dye from that having the desired degree of labelling with the amine reactive dye.

5,783,674

METHOD FOR THE USE AND SYNTHESIS OF PEPTIDES

Hendrik Mario Geysen, Menzies Creek, Australia, assignor to Chiron Corporation, Emeryville, Calif.

Division of Ser. No. 752,437, Sep. 6, 1991, Pat. No. 5,539,084. This application Jun. 7, 1995, Ser. No. 475,213

Claims priority, application Australia, Feb. 17, 1989, PJ2788/89

Int. Cl.⁶ C07K *1/00;14/00;16/00;17/00*

U.S. Cl. 530—413 16 Claims

1. A method for the separation of more than one specific binding entity from a mixture of binding entities, which comprises the steps of.

(i) contacting said mixture of binding entities with an array of immobilized peptides in separate reaction vessels, in which a portion of said peptides specifically binds to said specific binding entities to form complexes wherein said peptide contains an amino acid residue which changes its physio-chemical characteristics under different conditions;

(ii) separating the immobilized peptide/specific binding entity complexes from the mixture of binding entities; and

(iii) recovering said specific binding entities by exposing said complexes to conditions which dissociate said binding entities from said peptides and maintain the integrity of said binding entities.

5,783,675

Patent Not Issued For This Number

5,783,676

SYNTHESIS OF SOLID, POWDERY RARE EARTH CARBOXYLATES BY A PRECIPITATION METHOD

Kenan Yunlu, Princeton, N.J., assignor to Rhodia Inc., Cranbury, N.J.

Filed Mar. 29, 1996, Ser. No. 623,722

Int. Cl.⁶ C07F *5/00*

U.S. Cl. 534—15 17 Claims

1. A process for the production of solid, powdery Rare Earth carboxylates comprising the steps of:

a) reacting a carboxylic acid with a base to form a carboxylic salt; and

b) reacting said carboxylic salt with a water soluble Rare Earth salt to form a Rare Earth carboxylate in the presence of a solvent which is selected from the group consisting of water, methanol, and mixtures thereof, wherein a reaction temperature of step b is from about −5° C. to about 25° C., a pH of the reaction of step a ranges from about 7.5 to about 12 and a particle size of said Rare Earth carboxylate is less than about 1260 μm.

5,783,677

DEOXY AND OXYGEN-SUBSTITUTED SUGAR-CONTAINING 14-AMINOSTEROID COMPOUNDS

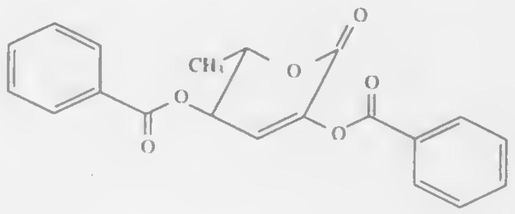
Song Liu; David Edward Portlock, both of Norwich, N.Y.; Gilles Yves Genain, Wyoming, Ohio; Jean-Jacques Koenig, Maisons Lafitte; Jacques de Rostolan, Gif Sur Yvette, both of France, and Randy Stuart Muth, Poolville, N.Y., assignors to Procter & Gamble Pharmaceuticals, Inc.

Division of Ser. No. 299,456, Sep. 6, 1994, abandoned, which is a continuation-in-part of Ser. No. 126,456, Sep. 24, 1993, abandoned. This application Jun. 5, 1995, Ser. No. 463,393

Int. Cl.⁶ C07H *13/08;1/00*

U.S. Cl. 536—4.1 8 Claims

1. A method for making a compound having the structure:



comprising the following steps

(a) adding 6-deoxy-α-L-mannopyranosyl bromide, 2,3,4-tri-O-benzoate: DMSO; a base, selected from the group including tertiary amines, amidines, bicarbonates, carbonates, heteroaryl amine, and a solvent, hydrocarbons, esters, and ethers, in a slurry heated to 50°–150° C.;

(b) stirring the reaction mixture at 50°–150° C. for 5 minutes to 30 minutes;

(c) pouring the reaction mixture over ice water; and

(d) extracting the product with a solvent selected from the group consisting of chlorinated solvents, aromatic hydrocarbons, esters, ethers, and evaporating said layer to give a solid.

5,783,678

ACRYLIC ESTER DERIVATIVE AND PRODUCING OF THE SAME AND ACRYLIC-ESTER-BASED POLYMER

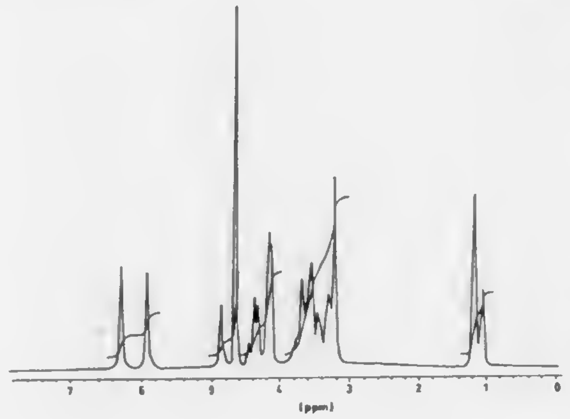
Keiji Yurugi; Koichi Nakagawa; Hideaki Nagano, all of Himeji, and Yuichi Kita, Akashi, all of Japan, assignors to Nippon Shokubai Co., Ltd., Osaka, Japan

Filed Mar. 19, 1996, Ser. No. 617,586

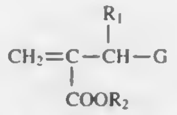
Claims priority, application Japan, Mar. 24, 1995, 7-066300; Mar. 24, 1995, 7-066306

Int. Cl.⁶ C07H *15/10*

U.S. Cl. 536—18.2 6 Claims



1. An acrylic ester derivative expressed by:



$$\begin{array}{c} R_1 \\ | \\ CH_2=C-CH-G \\ | \\ COOR_2 \end{array} \qquad (1)$$

where R_1 represents one of a hydrogen atom and an organic residue, R_2 represents one of a hydrogen atom, a counter ion, and an organic residue, and G represents a saccharic residue, wherein said organic residue for each of R_1 and R_2 is independently selected from the group consisting of a straight-chain, branched chain, or cyclic alkyl group having up to eighteen carbon atoms; a hydroxyalkyl group having up to eight carbon atoms; an alkoxyalkyl group having two to twenty carbon atoms; an alkyl halide group having up to eight carbon atoms; and an aryl group.

5,783,679

PURINE NUCLEOSIDE MODIFICATIONS BY PALLADIUM CATALYZED METHODS AND OLIGONUCLEOTIDES CONTAINING SAME

Chi Tu, Louisville, and Bruce Eaton, Boulder, both of Colo., assignors to NeXstar Pharmaceuticals, Inc., Boulder, Colo.

Continuation of Ser. No. 347,600, Dec. 1, 1994, Pat. No. 5,580,972, which is a continuation-in-part of Ser. No. 76,735, Jun. 14, 1993, Pat. No. 5,428,149. This application May 16, 1995, Ser. No. 441,881

Int. Cl.⁶ C07H *19/16;21/00*

U.S. Cl. 536—23.1 7 Claims

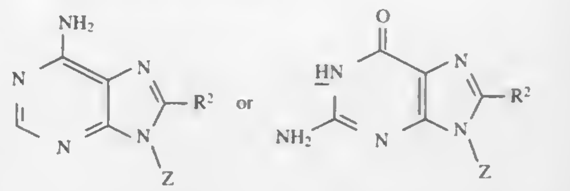
1. Purine nucleosides modified at the 8-position of the purine ring prepared according to a method comprising the steps of:

a) preparing a solution of a palladium catalyst of the formula PdL_3, wherein L is a ligand of palladium;

b) reacting a purine starting material containing a halogen leaving group attached to the 8-position of said purine starting material with an organotin compound of the formula $R^2SnR^1{}_3$, and R^2 displaces the leaving group from the purine starting material, wherein R^1 is a C1 to C15 alkyl, and R^2 is a C1 to C15 alkyl or a C1 to C15 alkenyl, in the presence of the palladium catalyst; and

c) isolating and purifying said purine nucleoside.

2. A compound of the formula:



wherein

R^2 is a C1 to C15 alkyl or a C1 to C15 alkenyl, either of which may be optionally substituted with a member of the group consisting of alcohols, ethers, ketones, esters, amides, amines, C1 to C15 alkanes, C1 to C15 alkenes, sulfides and disulfides; and

Z is selected from the group consisting of a ribose, deoxyribose and dideoxyribose.

5,783,680

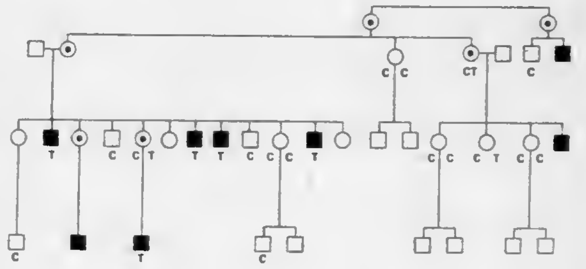
GENETIC DIAGNOSIS AND TREATMENT FOR IMPULSIVE AGGRESSION

H. G. Brunner, Nijmegen, Netherlands, and Xandra O. Breakefield, Newton, Mass., assignors to The General Hospital Corporation, Boston, Mass., and Stichting Katholieke Universiteit, Netherlands

,Filed Oct. 6, 1993, Ser. No. 132,168

Int. Cl.⁶ C12N *15/53;15/12;15/74;15/79*

U.S. Cl. 536—23.2 10 Claims



1. A substantially purified monamine oxidase A gene having a mutation in exon 8 (SEQ ID NO:33) of at least one nucleotide, wherein said gene is a native genomic DNA segment or a cDNA copy of a native cellular RNA transcript and said mutation is a nonsense mutation or a naturally-occurring missense mutation and specifies a monamine oxidase product having decreased activity.

5,783,681

ANDROGEN REGULATION WITH DNA SEQUENCES OF RAT PROBASIN GENE

Robert J. Matusik, Winnipeg, Canada, assignor to University of Manitoba, Winnipeg

PCT No. PCT/CA93/00319, § 371 Date Mar. 8, 1995, § 102(e) Date Mar. 8, 1995, PCT Pub. No. WO94/03594, PCT Pub. Date Feb. 17, 1994

PCT Filed Aug. 9, 1993, Ser. No. 351,365

Claims priority, application United Kingdom, Aug. 7, 1992, 9216851

Int. Cl.⁶ C07H *21/04;* **C12N** *15/00*

U.S. Cl. 536—24.1 17 Claims

1. An isolated DNA molecule comprising the 5'-flanking region of the rat probasin gene which contains at least one androgen responsive element, said 5'-flanking region being contained within the DNA sequence shown in FIG. 1 (SEQ ID NO:1) and being effective to direct prostate-specific expression of a heterologous gene in a prostate-bearing animal under androgen regulation.

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OLIGONUCLEOTIDE MIMICS HAVING NITROGEN-CONTAINING LINKAGES

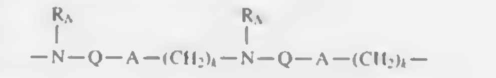
Phillip D. Cook, Carlsbad, and Yogesh S. Sanghvi, San Marcos, both of Calif., assignors to Isis Pharmaceuticals, Inc., Carlsbad, Calif.

Continuation-in-part of Ser. No. 39,979, Mar. 30, 1993, abandoned, Ser. No. 39,846, Mar. 30, 1993, abandoned, Ser. No. 40,933, Mar. 31, 1993, abandoned, Ser. No. 40,903, Mar. 31, 1993, Pat. No. 5,386,023, and Ser. No. 40,526, Mar. 31, 1993, Pat. No. 5,489,677, each which is a continuation-in-part of Ser. No. 903,160, Jun. 24, 1992, abandoned, which is a continuation-in-part of Ser. No. 703,619, May 21, 1991, Pat. No. 5,378,825, which is a continuation-in-part of Ser. No. 566,836, Aug. 13, 1990, Pat. No. 5,223,618, and Ser. No. 558,663, Jul. 27, 1990, Pat. No. 5,138,045. This application Jan. 11, 1994, Ser. No. 180,124

Int. Cl.⁶ C07H *21/04;* **C07K** *1/00*

U.S. Cl. 536—24.3 **7 Claims**

1. A compound having structure:



$$-\underset{\displaystyle R_N}{\overset{}{N}}-Q-A-(CH_2)_k-\underset{\displaystyle R_N}{\overset{}{N}}-Q-A-(CH_2)_k- \qquad I$$

wherein:

each R_N is, independently, H, -T-L, alkyl having 1 to about 10 carbon atoms; alkenyl having 2 to about 10 carbon atoms; alkynyl having 2 to about 10 carbon atoms; aryl having 7 to about 14 carbon atoms; or heterocyclic; provided that at least one R_N is not H or alkyl;

each Q is, independently, $N—R_N$, O, or CH_2, provided that at least one Q is not CH_2;

k is zero or 1;

each A is, independently, an aromatic ring; $N—R_N$; C(O); a single bond; or $(CH_2)_m$ where m is 1–5;

each T is, independently, a single bond, a methylene group or a group having structure II:

$$—[CR^1—R^2]_n—B—[CR^1R^2]_o—[D]_p—[N(R^3)]_q— \qquad II$$

where:

D is C(O), C(S), $C(R^1)(NR^3R^4)$, CH_2R^1, CHR^1R^2, or NR^3R^4;

B is a single bond, CH=CH, C≡C, O, S or NR^4;

each R^1 and R^2 is independently selected from the group consisting of hydrogen, alkyl or alkenyl having 1 to about 12 carbon atoms, hydroxy- or alkoxy- or alkylthio-substituted alkyl or alkenyl having 1 to about 12 carbon atoms, hydroxy, alkoxy, alkylthio, amino and halogen;

R^3 and R^4, independently, are H, -T-L, alkyl having 1 to about 10 carbon atoms; alkenyl having 2 to about 10 carbon atoms; alkynyl having 2 to about 10 carbon atoms; aryl having 7 to about 14 carbon atoms; heterocyclic; or

R^3 and R^4, together, are cycloalkyl having 3 to about 10 carbon atoms or cycloalkenyl having 4 to about 10 carbon atoms;

n and o, independently, are zero to 5;

q is zero or 1;

p is zero to about 10; and

each L is, independently, a nucleosidic base, an amino acid side chain, an aromatic hydrocarbon, a heterocycle moiety containing nitrogen, sulfur, and/or oxygen; a carbohydrate, a drug, a reporter molecule; an RNA cleaving group; a group for improving the pharmacokinetic properties of the compound; or a group for improving the pharmacodynamic properties of the compound; or group capable of hydrogen bonding.

5,783,683

ANTISENSE OLIGONUCLEOTIDES WHICH REDUCE EXPRESSION OF THE FGFRI GENE

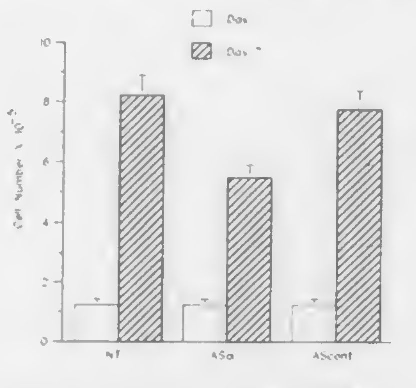
Richard S. Morrison, Redmond, Wash., assignor to Genta Inc., San Diego, Calif.

Filed Jan. 10, 1995, Ser. No. 371,001

Int. Cl.⁶ C07H *21/04;21/02;* **C12N** *15/00*

U.S. Cl. 536—24.5 **6 Claims**

Influence of FGFR1 Antisense Oligonucleotides on the Growth of T98 Human Glioblastoma Cells In Vitro



The addition of 30 µM FGFR1 α exon antisense oligonucleotide resulted in a 34% reduction in cell number. No effect was observed with the control antisense oligonucleotide

1. An antisense oligomer of at least 20 nucleotides in length, which specifically binds to a portion of RNA expressed from the human fibroblast growth factor receptor type 1 (FGFR1) gene, alpha exon, wherein said oligomer is effective for reducing the expression of said FGFR1 gene.

5,783,684

OXIDIZING REAGENT FOR USE IN OLIGONUCLEOTIDE SYNTHESIS

Meda Parameswara Reddy; Firdous Farooqui, both of Brea, and Maged A. Michael, Placentia, all of Calif., assignors to Beckman Instruments, Inc., Fullerton, Calif.

Filed Sep. 11, 1995, Ser. No. 526,184

Int. Cl.⁶ C07H *1/00*

U.S. Cl. 536—25.3 **7 Claims**

1. An oxidizing iodine-containing composition for use in oligonucleotide synthesis comprising a combination of KI and I_2 in a solution to provide a source of iodine.

5,783,685

CHEMICAL PREPARATION OF HIGH SPECIFIC ACTIVITY NUCLEOTIDE PROBES

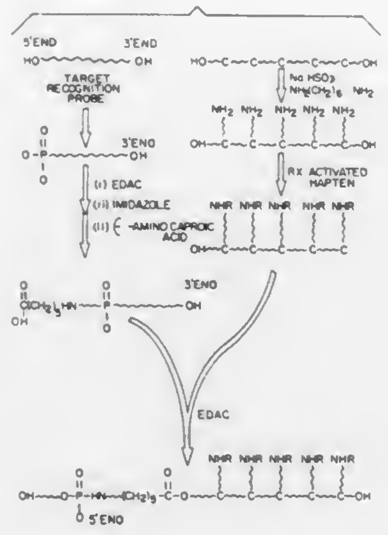
Chander Bahl, Flemington, N.J., and Leopoldo Mendoza, Madison, Wis., assignors to Ortho Diagnostic Systems, Inc., Raritan, N.J.

Division of Ser. No. 142,232, Oct. 25, 1993, Pat. No. 5,521,298, which is a continuation of Ser. No. 285,274, Dec. 16, 1988, Pat. No. 5,324,829. This application Mar. 21, 1996, Ser. No. 620,025

Int. Cl.⁶ C07H *21/00;21/02;21/04;* **C12Q** *1/68*

U.S. Cl. 536—25.3 **7 Claims**

1. A chemical synthesis of a labeled nucleotide probe comprising the steps of:



a) providing a first target recognition moiety comprising a nucleotide sequence of at least about 15 nucleotide bases, said sequence containing at least one 5' end and 3' end,

b) chemically altering said first target recognition moiety to contain a reactive functionality at said 5' end, said 3' end or both, and

c) providing a second signal generating moiety, having at least one terminus containing a functionality that is capable of reacting with at least one reactive functionality provided on said first target recognition moiety, and

d) chemically reacting said first target recognition moiety now containing reactive functionality with said at least one terminus of said second signal generating moiety, to chemically join these two moieties and produce said labeled nucleotide probe;

wherein said reactive functionality of step (b) is a carboxyl group and said terminus of said signal generating moiety is a hydroxyl group.

5,783,686

METHOD FOR PURIFYING NUCLEIC ACIDS FROM HETEROGENOUS MIXTURES

Diana Gonzalez, Placentia, Calif., assignor to Beckman Instruments, Inc., Fullerton, Calif.

Filed Sep. 15, 1995, Ser. No. 529,148

Int. Cl.⁶ C07H *1/00*

U.S. Cl. 536—25.4 **16 Claims**

1. A method for isolating DNA from a homogeneous mixture of DNA and other material, said method comprising the steps of:

a) treating silica with said homogeneous mixture in the presence of chaotrope;

b) washing said treated silica with a first wash solution comprising at least 95 wt % alcohol; and

c) washing said treated and washed silica with a second wash solution, said second wash solution comprising from about 65% to about 95 wt % alcohol in water, said isolated DNA located on the surface of said silica.

5,783,687

DYES DESIGNED FOR HIGH SENSITIVITY DETECTION OF DOUBLE-STRANDED DNA

Alexander N. Glazer, Orinda, and Scott C. Benson, Oakland, both of Calif., assignors to The Regents of the University of California, Berkeley, Calif.

Continuation-in-part of Ser. No. 161,231, Dec. 2, 1993, which is a continuation of Ser. No. 831,823, Feb. 6, 1992, abandoned, which is a continuation-in-part of Ser. No. 493,347, Mar. 14, 1990, abandoned. This application Sep. 5, 1996, Ser. No. 708,666

Int. Cl.⁶ C07H *21/02;* **C12Q** *1/68*

U.S. Cl. 536—26.6 **2 Claims**

1. (N,N'-tetramethyl-1,3-diaminopropane)propyl-TAB.

5,783,688

PURIFICATION OF 3'-FDDU AND RESULTANT COMPOSITIONS

Simon Fenner, Bristol, United Kingdom, assignor to Rhone-Poulenc Chemicals Limited, Hertfordshire, United Kingdom

PCT No. PCT/GB94/01025, § 371 Date Dec. 12, 1995, § 102(e) Date Dec. 12, 1995, PCT Pub. No. WO94/26763, PCT Pub. Date Nov. 24, 1994

PCT Filed May 12, 1994, Ser. No. 545,841

Claims priority, application United Kingdom, May 10, 1993, 9309787

Int. Cl.⁶ C07H *19/073*

U.S. Cl. 536—27.12 **16 Claims**

1. A method of purifying crude 3'-FDDU (2',3'dideoxy-3'-fluorouridine containing anisic acid and a dimer which comprises contacting an aqueous or aqueous methanolic solution of crude 3'-FDDU with adsorbent carbon.

2. A method according to claim **1** wherein the said carbon is an activated carbon.

10. A composition containing 3'-fluoro-2',3'-dideoxyuridine (3'-FDDU) and less than 1% anisic acid purified by the method of claim **2**.

5,783,689

ANTIBACTERIAL AND ANTIFUNGAL NUCLEOSIDES

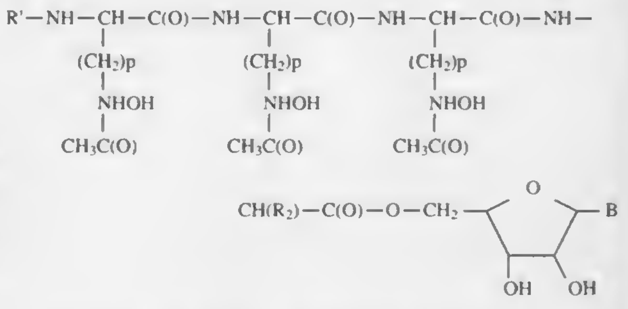
Marvin J. Miller, South Bend, Ind.; Julia M. Dolence, Salt Lake City, Utah, and Manuka Ghosh, Lawrenceville, N.J., assignors to University of Notre Dame, Notre Dame, Ind.

Filed Nov. 12, 1996, Ser. No. 745,732

Int. Cl.⁶ C07H *19/067*

U.S. Cl. 536—28.52 **6 Claims**

1. A compound of the formula



wherein R' is hydrogen or an amino protecting group;

R^2 is selected from the group consisting of, ethyl, n-propyl, iso-propyl, 2-methylbutyl, and 2-butyl;

p is 3 or 4; and

B is 5-fluorouracil-1-yl or 5-fluorocytosin-1-yl.

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PROTECTING GROUP FOR SYNTHESIZING OLIGONUCLEOTIDE ANALOGS

Zacharia S. Cheruvallath; Daniel C. Capaldi, both of San Diego; Vasulinga T. Ravikumar, Carlsbad, and Douglas L. Cole, San Diego, all of Calif., assignors to ISIS Pharmaceuticals, Inc., Carlsbad, Calif.

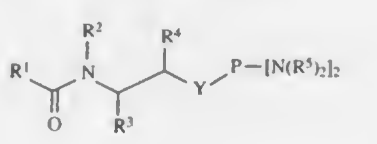
Division of Ser. No. 811,232, Mar. 3, 1997. This application Sep. 18, 1997, Ser. No. 933,133

Int. Cl.^{6} C07H *1/02;* **C07F** *9/02;9/08*

U.S. Cl. 536—55.3 **9 Claims**

1. A phosphitylating reagent of formula (3):

(3)



wherein

R^1 is selected from the group consisting of C_1–C_8 alkyl, substituted C_1–C_8 alkyl, C_2–C_8 heterocycloalkyl containing up to three heteroatoms, substituted C_2–C_8 heterocycloalkyl containing up to three heteroatoms, C_6–C_{14} aryl, substituted C_6–C_{14} aryl, C_3–C_{11} hetaryl containing up to three heteroatoms, substituted C_3–C_{11} hetaryl containing up to three heteroatoms, C_7–C_{18} aralkyl, substituted C_7–C_{18} aralkyl, C_4–C_{15} heterocycloaralkyl containing up to three heteroatoms and substituted C_4–C_{15} heterocycloaralkyl containing up to three heteroatoms;

R^2, R^3 and R^4 are independently selected from the group consisting of hydrogen, C_1–C_8 alkyl, substituted C_1–C_8 alkyl, C_2–C_8 heterocycloalkyl containing up to three heteroatoms, substituted C_2–C_8 heterocycloalkyl containing up to three heteroatoms, C_6–C_{14} aryl, substituted C_6–C_{14} aryl, C_3–C_{11} hetaryl containing up to three heteroatoms, substituted C_3–C_{11} hetaryl containing up to three heteroatoms, C_7–C_{18} aralkyl, substituted C_7–C_{18} aralkyl, C_4–C_{15} heterocycloaralkyl containing up to three heteroatoms and substituted C_4–C_{15} heterocycloaralkyl containing up to three heteroatoms, or

R^3 and R^4 together with the carbon atoms they are bonded to form a C_3–C_8 cycloalkyl group, a substituted C_3–C_8 cycloalkyl group, a C_2–C_8 heterocycloalkyl group containing up to three heteroatoms or a substituted C_2–C_8 heterocycloalkyl group containing up to three heteroatoms;

each R^5 is independently selected from the group consisting of C_1–C_8 alkyl, substituted C_1–C_8 alkyl, C_2–C_8 heterocycloalkyl containing up to three heteroatoms, substituted C_2–C_8 heterocycloalkyl containing up to three heteroatoms, C_6–C_{14} aryl, substituted C_6–C_{14} aryl, C_3–C_{11} hetaryl containing up to three heteroatoms, substituted C_3–C_{11} hetaryl containing up to three heteroatoms, C_7–C_{18} aralkyl, substituted C_7–C_{18} aralkyl, C_4–C_{15} heterocycloaralkyl containing up to three heteroatoms, and substituted C_4–C_{15} heterocycloaralkyl containing up to three heteroatoms; or both R^5 groups together with the nitrogen atom they are bonded to form a member selected from the group consisting of a C_2–C_8 heterocycloalkyl group containing up to three heteroatoms, a substituted a C_2–C_8 heterocycloalkyl group containing up to three heteroatoms, a C_3–C_{11} hetaryl group containing up to three heteroatoms and a substituted C_3–C_{11} hetaryl group containing up to three heteroatoms; and

Y is oxygen or sulfur.

5,783,691

CROSSLINKED HYALURONATE GELS, THEIR USE AND METHOD FOR PRODUCING THEM

Tomas Mälson, and Bengt Lindqvist, both of Uppsala, Sweden, assignors to Biomatrix, Inc., Ridgefield, N.J.

Continuation of Ser. No. 357,131, Dec. 15, 1994, abandoned, which is a continuation of Ser. No. 217,074, Mar. 24, 1994, abandoned, which is a continuation of Ser. No. 921,012, Jul. 23, 1992, abandoned, which is a continuation of Ser. No. 572,955, Sep. 13, 1990, abandoned. This application Apr. 26, 1996, Ser. No. 638,322

Claims priority, application Japan, Feb. 8, 1989, 1-00422-0

Int. Cl.^{6} C07H *5/04*

U.S. Cl. 536—55.1 **14 Claims**

1. A process for preparing gels of crosslinked sodium hyaluronate which comprises reacting a solution of the sodium hyaluronate with a phosphorus (V) acid derivative selected from the group consisting of a phosphorus (V) acid halide, a phosphorus (V) acid oxyhalide and a phosphorus (V) acid anhydride under crosslinking conditions.

14. A gel produced according to the process of claim 1.

5,783,692

ALKYL POLYSACCHARIDE DERIVATIVES AND COMPOSITIONS

Andrew Francis Kirby, Footscray, and Keith Moody, Watsonia North, both of Australia, assignors to ICI Australia Operations Proprietary Limited, Melbourne, Australia

PCT No. PCT/AU95/00871, § 371 Date Aug. 21, 1997, § 102(e) Date Aug. 21, 1997, PCT Pub. No. WO96/20203, PCT Pub. Date Jul. 4, 1996

PCT Filed Dec. 22, 1995, Ser. No. 849,947

Claims priority, application Australia, Dec. 23, 1994, PN0299

Int. Cl.^{6} C07H *13/04;1/00;* **A61K** *31/715;* **A01N** *25/00*

U.S. Cl. 536—123.1 **28 Claims**

1. A composition comprising the product of a reaction between an alkenyl succinic anhydride and at least one alkyl polysaccharide.

5,783,693

METHODS FOR SYNTHESIZING SULFATED DISACCHARIDE INHIBITORS OF SELECTINS

Carolyn Bertozzi, and Steven D. Rosen, both of San Francisco, Calif., assignors to The Regents of the University of California, Oakland, Calif.

Continuation-in-part of Ser. No. 432,849, May 2, 1995, Pat. No. 5,489,578, which is a continuation of Ser. No. 155,947, Nov. 10, 1993, abandoned. This application Aug. 23, 1995, Ser. No. 518,381

Int. Cl.^{6} C07H *1/00;15/00*

U.S. Cl. 536—124 **6 Claims**

1. A method of synthesizing lactose 3'-sulfate, comprising:

(a) reacting gal 1,4βglcβ1-O R_8 with dibutyltin oxide to form a stannylene acetal group at the 3'- and 4'-hydroxyl groups of gal β1,4glcβ1-O R_8, wherein R_8 is an alkyl group, an acetyl group, an acetic acid derivative group, or a linking group;

(b) sulfation with sulfur trioxide, wherein said lactose 3'-sulfate is generated.

5,783,694

IR-ABSORBING PHTHALOCYANINES

Helmut Hagen, Frankenthal, and Bernhard Albert, Forst, both of Germany, assignors to BASF Aktiengesellschaft, Ludwigshafen, Germany

Filed Mar. 24, 1997, Ser. No. 823,368

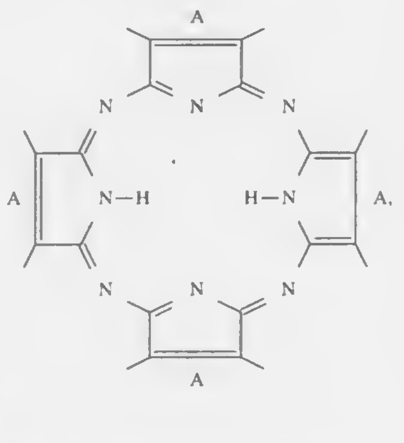
Claims priority, application Germany, Apr. 2, 1996, 196 13 139.1

Int. Cl.^{6} C07D *487/22;* **C09B** *47/20;* **F21V** *9/04*

U.S. Cl. 540—123 **5 Claims**

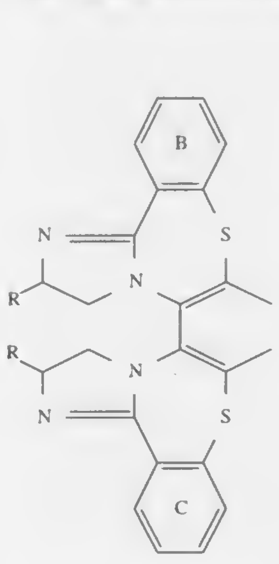
1. A compound of the formula I

I

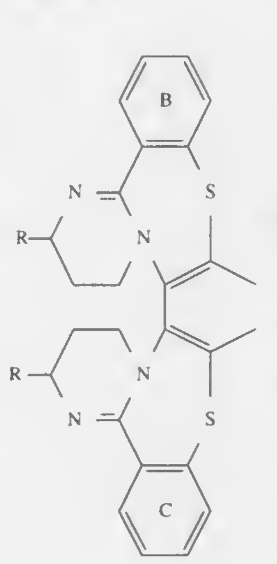


where

the A radicals are, independently of one another,



or



where the rings

B and C can also, independently of one another, be substituted by C_1–C_4-alkyl, C_1–C_4-alkoxy, nitro, hydroxysulfonyl, benzoyl or a fused-on benzo ring,

R is hydrogen or methyl, and the two hydrogen atoms on the nitrogens can be replaced by copper, nickel, vanadyl, magnesium, AlCl or zinc.

5,783,695

Patent Not Issued For This Number

5,783,696

SPECIAL CHEMILUMINESCENT ACRIDINE DERIVATIVES

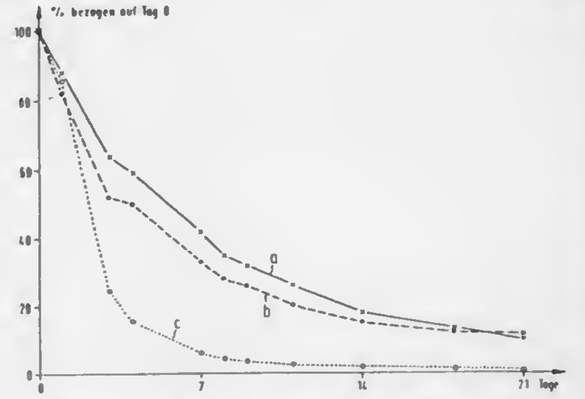
Tonio Kinkel, Frankfurt am Main; Peter Molz, Mainz; Erwin Schmidt, Kelkheim; Gerd Schnorr, Bad Vilbel, and Heinz Jürgen Skrzipczyk, Bad Soden am Taunus, all of Germany, assignors to Hoechst Aktiengesellschaft, Frankfurt am Main, Germany

Division of Ser. No. 93,694, Jul. 20, 1993, which is a continuation of Ser. No. 311,912, Feb. 17, 1989, abandoned. This application Jun. 7, 1995, Ser. No. 474,552

Claims priority, application Germany, Feb. 20, 1988, 38 05 318.7

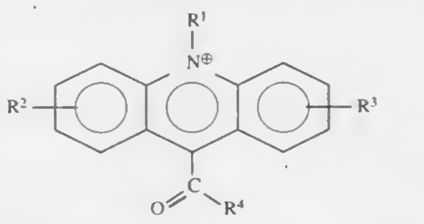
Int. Cl.^{6} C09B *15/00*

U.S. Cl. 544—126 **6 Claims**



1. A process for preparing acridinium compounds of formula I

(I)



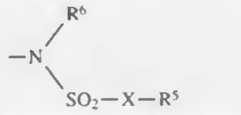
in which

R^1 is hydrogen, an alkyl radical having 1 to 10 carbon atoms, an alkenyl or alkynyl radical having 2 to 10 carbon atoms, or a benzyl or aryl group,

R^2 and R^3 are hydrogen, a halogen atom, an alkyl group having 1 to 4 carbon atoms, a substituted amino, alkoxy, or nitro group,

R^4 represents a radical having formula II as follows:

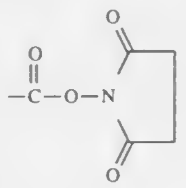
(II)



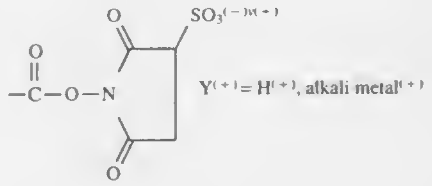
$$-N(R^6)-SO_2-X-R^5$$

R^5 is selected from the group consisting of:

(a)



(b)



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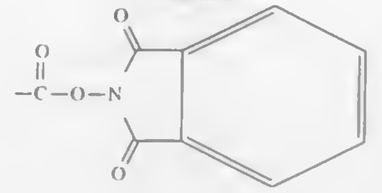
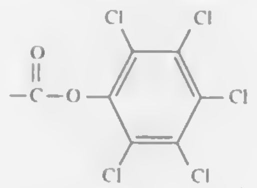
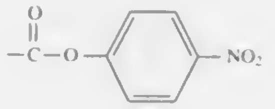
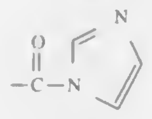
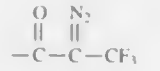

(c)

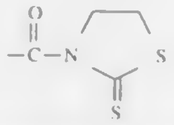

(d)


(e)


(f)


(g)

$-\overset{O}{\overset{\|}{C}}-\overset{N_2}{\overset{\|}{C}}-CF_3$

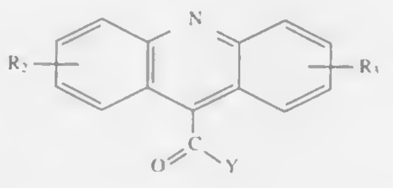

(h)

X denotes an amino carboxylic acid group, or a phenylene group, wherein the phenylene group is bonded to the sulfur atom directly or via an alkylene or oxyalkylene group or is bonded to the R^5 radical via an alkylene or oxyalkylene group, the phenylene group may be unsubstituted or substituted one or more times by alkyl, alkenyl, hydroxyl, amino, alkoxy, or aryloxy groups,

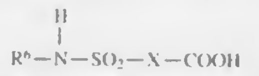
R^6 is a phenyl group substituted by an $(-O-CH_2-CH_2)_n-$OR group, where n is 0-8 and R is an N,N-dimethylamonoethyl group, or a morpholinoethyl group that may be substituted at its nitrogen atom by a lower alkyl group, or R^6 may be anethylenedioxyphenyl group, comprising the steps of:

reacting a compound of formula IX

(IX)



with a protected sulfonamidecarboxylic acid of formula XI


(XI)

$R^6-\overset{H}{\overset{|}{N}}-SO_2-X-COOH$

in which Y is halogen, a hydroxycarbonylalkyl, a hydroxycarbonylaryl or an imidazolide group, X, R^2, R^3, and R^6 are as defined above, and Z is a carboxyl protecting group; removing the carboxyl protecting group to form the corresponding acid, converting the —COOH group in the acid to an R^5 group as defined above; and alkylating the nitrogen of the acridinium skeleton to form a compound of formula I

5,783,697

PREPARATION OF VINYL CARBAMATES

Marc Heider, Neustadt; Jochem Henkelmann, Mannheim; Michael Karcher, Schwetzingen, and Thomas Rühl, Frankenthal, all of Germany, assignors to BASF Aktiengesellschaft, Ludwigshafen, Germany

PCT No. PCT/EP95/02805, § 371 Date Jan. 21, 1997, § 102(e) Date Jan. 21, 1997, PCT Pub. No. WO93/02498, PCT Pub. Date Feb. 1, 1996

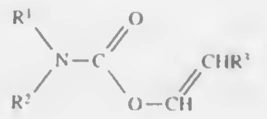
PCT Filed Jul. 18, 1995, Ser. No. 776,107

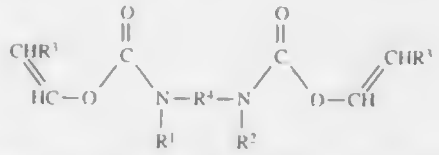
Claims priority, application Germany, Jul. 20, 1994, 44 25 677.9

Int. Cl.^{6} C07D *295/205:211/06;* **C07C** *269/04*

U.S. Cl. 544—172 **14 Claims**

1. A process for preparing a vinyl carbamate compound of the formula (I) or (II)


(I)


(II)

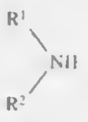
where each of R^1 and R^2 are monovalent hydrocarbon radicals having 1 to 6 carbon atoms; or

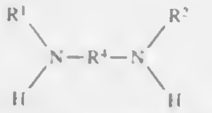
R^1 and R^2, together with the nitrogen to which they are bonded, form a heterocyclic group with 5 to 7 ring members and from 1 to 3 hetero atoms selected from O, N and S;

R^3 is alkyl with 1 to 6 carbon atoms; cycloalkyl with 3 to 10 carbon atoms; aryl or alkaryl with 6 to 10 carbon atoms;

R^4 is a divalent hydrocarbon radical with 1 to 10 carbon atoms; or R^1 and R^4, R^2 and R^4, and R^1 and R^2, together with the nitrogen atom to which they are bonded, form a heterocyclic group with from 5 to 7 ring members and from 1 to 3 hetero atoms selected from O, N and S;

said process comprising reacting a secondary amine of the formula (III) or (IV)


(III)


(IV)

with carbon dioxide and an acetylenically unsaturated compound of the formula (V)

R^3–C↑CH (V)

where R^3 has the above mentioned meanings;

said reaction being carried out in the presence of a compound of a metal from the platinum group; said reaction being carried out in the presence of a tertiary amine; and wherein the acetylene compound is reinjected during the reaction.

5,783,698

CHEMICAL SYNTHESIS OF 1,3-DISUBSTITUTED QUINAZOLINEDIONES

Adrian Leonard Smith, Bishops Stortford, United Kingdom, assignor to Merck Sharp & Dohme Limited, Hoddesdon, United Kingdom

Filed Jan. 7, 1997, Ser. No. 779,498

Claims priority, application United Kingdom, Jan. 23, 1996, 9601293

Int. Cl.^{6} C07D *239/54*

U.S. Cl. 544—285 **7 Claims**

1. A method for the synthesis of 1,3-disubstituted quinazolinedione derivatives which comprises:

(a) reacting a haloformate functionalised polystyrene resin with a substituted anthranilic acid derivative under conditions effective to form a urethane-linkage;

(b) reacting the product of step (a) with a primary amine under conditions effective to form an anthranilamide derivative;

(c) heating the anthranilamide to effect intramolecular cyclisation thereby liberating the 1,3-disubstituted quinazolinedione derivative from the resin into solution; and

(d) isolating the 1,3-disubstituted quinazolinedione by filtration and solvent removal.

5,783,699

CHEMILUMINESCENT ACRIDINIUM SALTS

Phillip Gregory Mattingly, and Larry Gene Bennett, both of Grayslake, Ill., assignors to Abbott Laboratories, Abbott Park, Ill.

Division of Ser. No. 368,258, Jan. 3, 1995, Pat. No. 5,468,646, which is a continuation of Ser. No. 371,763, Jun. 23, 1989, abandoned, which is a continuation of Ser. No. 921,979, Oct. 22, 1986, abandoned. This application May 16, 1995, Ser. No. 442,050

Int. Cl.^{6} C07D *219/04*

U.S. Cl. 546—104 **24 Claims**

1. The chemiluminescent compound 10-methyl-N-(2-carboxyethyl)-N-tosyl-9-acridinium carboxamide.

5,783,700

QUINOLIC ACID DERIVATIVES

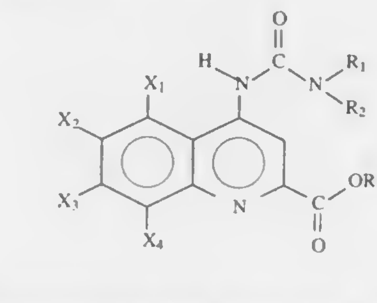
Alfred C. Nichols, 111 West Oak Hill Dr., Florence, Ala. 35633, and K. Lemone Yielding, 511 Woodland Dr., Tuscumbia, Ala. 35674

Filed Jul. 3, 1997, Ser. No. 887,627

Int. Cl.^{6} C07D *215/42*

U.S. Cl. 546—162 **15 Claims**

1. A compound of the formula:



wherein:

R_1, is selected from the group consisting of hydrogen, ethyl, methyl, n-butyl, or phenyl;

R_2 is selected from the group consisting of hydrogen, ethyl, methyl, n-butyl, phenyl, or 3-methoxyphenyl;

R_3 is selected from the group consisting of ethyl, methyl, or hydrogen;

X_1 is selected from the group consisting of hydrogen, fluoro, chloro, bromo, iodo, nitro, cyano, fluoromethyl, any branched or straight-chained alkyl group containing from 1 to 4 carbon atoms, any branched or straight-chained alkoxy group containing from 1 to 4 carbon atoms, any branched or straight-chained alkoxy carbonyl group containing from 1 to 4 carbon atoms, or any branched or straight-chained acyl group containing from 1 to 4 carbon atoms;

X_2 is selected from the group consisting of hydrogen, fluoro, chloro, bromo, iodo, nitro, cyano, fluoromethyl, any branched or straight-chained alkyl group containing from 1 to 4 carbon atoms, any branched or straight-chained alkoxy group containing from 1 to 4 carbon atoms, any branched or straight-chained alkoxy carbonyl group containing from 1 to 4 carbon atoms, or any branched or straight-chained acyl group containing from 1 to 4 carbon atoms;

X_3 is selected from the group consisting of hydrogen, fluoro, chloro, bromo, iodo, nitro, cyano, fluoromethyl, any branched or straight-chained alkyl group containing from 1 to 4 carbon atoms, any branched or straight-chained alkoxy group containing from 1 to 4 carbon atoms, any branched or straight-chained alkoxy carbonyl group containing from 1 to 4 carbon atoms, or any branched or straight-chained acyl group containing from 1 to 4 carbon atoms; and

X_4 is selected from the group consisting of hydrogen, fluoro, chloro, bromo, iodo, nitro, cyano, fluoromethyl, any branched or straight-chained alkyl group containing from 1 to 4 carbon atoms, any branched or straight-chained alkoxy group containing from 1 to 4 carbon atoms, any branched or straight-chained alkoxy carbonyl group containing from 1 to 4 carbon atoms, or any branched or straight-chained acyl group containing from 1 to 4 carbon atoms.

5,783,701

SULFONAMIDE INHIBITORS OF ASPARTYL PROTEASE

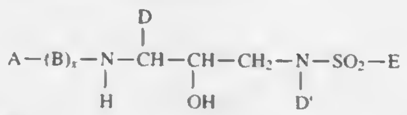
Roger D. Tung, Arlington; Mark A. Murcko, Holliston, and Govinda Rao Bhisetti, Lexington, all of Mass., assignors to Vertex Pharmaceuticals, Incorporated, Cambridge, Mass.

Continuation-in-part of Ser. No. 142,327, Sep. 7, 1993, Pat. No. 5,585,397, which is a continuation-in-part of Ser. No. 941,982, Sep. 8, 1992, abandoned. This application Feb. 23, 1995, Ser. No. 393,460

Int. Cl.^{6} C07D *215/12*

U.S. Cl. 546—169 **18 Claims**

1. A compound of formula I:


(I)

$A-(B)_x-\underset{H}{\underset{|}{N}}-\overset{D}{\overset{|}{CH}}-\underset{OH}{\underset{|}{CH}}-CH_2-\underset{D'}{\underset{|}{N}}-SO_2-E$

wherein:

A is selected from the group consisting of H; Ht; $-R^1-$Ht; $-R^1-C_1-C_6$ alkyl, which is optionally substituted with one to two groups independently selected from the group consisting of hydroxy, C_1-C_4 alkoxy, Ht, —O—Ht, $-NR^2-CO-N(R^2)(R^2)$ and $-CO-N(R^2)(R^2)$; and $-R^1-$ C_2-C_6 alkenyl, which is optionally substituted with one to two groups independently selected from the group consisting of hydroxy, C_1- C_4 alkoxy, Ht, —O—Ht, $-NR^2-CO-N(R^2)(R^2)$ and $-CO-$ $N(R^2)(R^2)$;

each R^1 is independently selected from the group consisting of $-C(O)-$, $S(O)_2-$, $-C(O)-C(O)-$, $-O-C(O)-$, $-O-S(O)_2$, $-NR^2-S(O)_2-$, $-NR^2-C(O)-$ and $-NR^2-C(O)-C(O)-$;

each Ht is independently selected from the group consisting of C_3-C_7 cycloalkyl; C_5-C_7 cycloalkenyl; C_6-C_{10} aryl; and 5-7 membered saturated or unsaturated heterocycle, containing one or more heteroatoms selected from N and O, with the proviso that said heterocycle may not be a pyridyl group and wherein said heterocycle is optionally benzofused; and wherein any member of said Ht is optionally substituted with one to two substituents independently selected from the group consisting of oxo, $-OR^2$, $-R^2$, $-N(R^2)(R^2)$, $-R^2-OH$, $-CN$, $-CO_2R^2$, $-C(O)-N(R^2)(R^2)$, $-S(O)_2-N(R^2)(R^2)$,

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$—N(R^2)—C(O)—R_2$, $—C(O)—R^2$, $—S(O)_n— R^2$, $—OCF_3$, $—S(O)_n—R^7$, methylenedioxy, $—N(R^2)—S(O)_2(R^2)$, halo, $—CF_3$, $—NO_2$, R^7 and $—O—R^7$;

each R^2 is independently selected from the group consisting of H and C_1–C_3 alkyl optionally substituted with R^7;

B, when present, is $—N(R^2)—C(R^3)(R^3)—C(O)—$;

x is 0 or 1;

each R^3 is independently selected from the group consisting of H, Ht, C_1–C_6 alkyl, C_2–C_6 alkenyl, C_3–C_6 cycloalkyl and C_5–C_6 cycloalkenyl, wherein any member of said R^3, except H, is optionally substituted with one to two substituents independently selected from the group consisting of $—OR^2$, $—C(O)— NH—R^2$, $—S(O)_n—N(R^2)(R^2)$, Het, —CN, $—SR^2$, $—CO_2R^2$, and $NR^2—C(O)—R^2$;

each n is independently 1 or 2;

D and D' are independently selected from the group consisting of R^7; C_1–C_4 alkyl substituted with C_3–C_6 cycloalkyl, $—O—R^7$ or R^7, and optionally substituted with one additional substituent selected from C_3–C_6 cycloalkyl, $—O—R^7$, R^7, OR^2 or $—R^3$; C_2–C_4 alkenyl substituted with C_3–C_6 cycloalkyl, $—O—R^7$ or R^7, and optionally substituted with one additional substituent selected from C_3–C_6 cycloalkyl, $—O—R^7$, R^7, OR^2 or $—R^3$; C_3–C_6 cycloalkyl, which is optionally substituted with or fused with R^7; and C_5–C_6 cycloalkenyl, which is optionally substituted with or fused with R^7;

each R^7 is independently selected from the group consisting of phenyl and 3–6 membered carbocyclic ring, wherein said carbocyclic ring may be saturated or unsaturated and wherein R^7 is optionally substituted with one to two groups independently selected from the group consisting of oxo, $—OR^2$, $—R^2$, $—N(R^2)(R^2)$, $—N(R^2)—C(O)—R^2$, $—R^2—OH$, —CN, $—CO_2R^2$, $—C(O)— N(R^2)(R^2)$, halo and $—CF_3$;

E is a 5-membered heterocyclic ring containing one S and optionally containing N as an additional heteroatom, wherein said heterocyclic ring is optionally substituted with one to two groups independently selected from the group consisting of $—CH_3$, R^4 and Ht; and

each R^4 is independently selected from the group consisting of $—OR^2$, $—C(O)—NHR^2$, $—S(O)_2—NHR^2$, halo, $—NR^2—C(O)—R^2$ and —CN.

5,783,702

PREPARATION OF CISAPRIDE

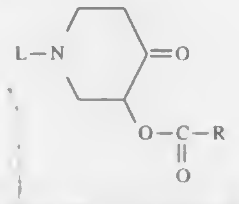
Yee-Fung Lu, Aurora; Clarke Slemon, Willowdale; Raymond So, Richmond Hill; Jan Oudenes, Thornhill, and Teng-Ko Ngool, Richmond Hill, all of Canada, assignors to Torcan Chemical Ltd., Aurora, Canada

Division of Ser. No. 319,681, Oct. 7, 1994, Pat. No. 5,585,387. This application Aug. 21, 1996, Ser. No. 700,907

Int. Cl.⁶ C07D *211/74*

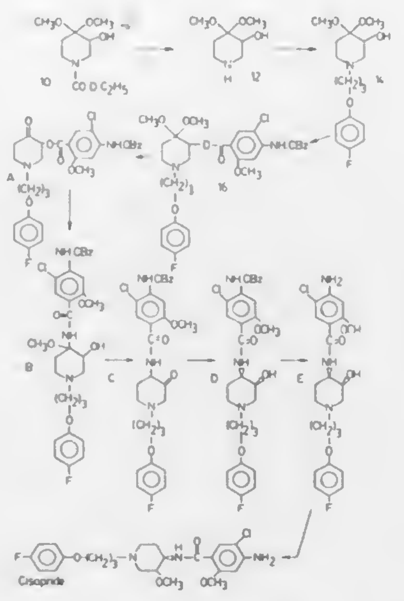
U.S. Cl. 546—220 **5 Claims**

1. 1-Aryloxyalkyl- or 1-aralkyl-3-arylcarbonyloxy-4-oxopiperidines of the general formula A:



(A)

in which L represents aralkyl or aryloxyalkyl in which the alkyl portion has from 1 to 6 carbon atoms and the aryl nucleus is optionally substituted with up to 3 substituents independently selected from halo, lower alkyl and lower alkoxy, or alkyl having from 1 to 6 carbon atoms; and R represents a phenyl group optionally substituted with up to three substituents independently selected from halo, amino, protected amino, alkyl of from 1 to 6 carbon atoms, and alkoxy of from 1 to 6 carbon atoms.



5,783,703

SULFUR-CONTAINING COMPOUNDS METHOD FOR THEIR USE AND PRODCTION

Kazuhiko Hayashi, Iruma-gun; Chisato Sato, Kamifukuoka; Satoshi Tamai, Kawasaki; Takao Abe, Sakado; Takeshi Isoda, Sayama; Ado Mihira, Asaka, and Toshio Kumagai, Kawagoe, all of Japan, assignors to Lederle (Japan), Ltd., Tokyo, Japan

Continuation-in-part of Ser. No. 570,888, Dec. 12, 1995, Pat. No. 5,659,043, and Ser. No. 631,224, Apr. 12, 1996, Pat. No. 5,679,790, which is a division of Ser. No. 267,397, Jun. 29, 1994, Pat. No. 5,534,510. This application Feb. 5, 1997, Ser. No. 795,428

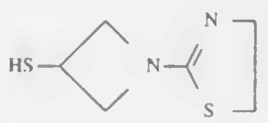
Claims priority, application Japan, Jul. 1, 1993, 5-213306; Mar. 28, 1994, 6-79320; May 12, 1994, 6-122046; Dec. 12, 1994, 6-331423; Sep. 11, 1995, 7-257281

Int. Cl.⁶ C07D *417/04*

U.S. Cl. 548—193 **16 Claims**

1. 3-Mercapto-1-(1,3-thiazolin-2-yl)azetidine represented by formula (I) below and its acid addition salts.

(I)



5,783,704

PYRIDINE DERIVATIVES AS PESTICIDES

Henry Szczepanski, Wallbach; Haukur Kristinsson, Bottmingen; Peter Maienfisch, Rodersdorf, and Josef Ehrenfreund, Allschwil, all of Switzerland, assignors to Novartis Corporation, Summit, N.J.

PCT No. PCT/EP94/04222, § 371 Date Jun. 28, 1996, § 102(e) Date Jun. 28, 1996, PCT Pub. No. WO95/18123, PCT Pub. Date Jul. 6, 1995

PCT Filed Dec. 19, 1994, Ser. No. 669,452

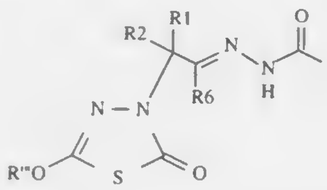
Claims priority, application Switzerland, Dec. 30, 1993, 03904/93; Jul. 19, 1994, 02291/94

Int. Cl.⁶ C07D *285/12*

U.S. Cl. 548—142 **2 Claims**

1. A compound of formula

(XVI)



in free or salt form, or a tautomer thereof,

wherein R_1, R_2 and R_6 are each independently of the other H, halogen, C_1–C_5alkyl, C_1–C_5alkoxy, C_1–C_3alkoxy-C_1–C_5alkyl, hydroxy-C_1– C_5alkyl, C_1–C_5alkoxycarbonyl, C_1–C_5alkylthio; C_1–C_5alkyl substituted by from 1 to 3 substituents selected from the group consisting of halogen, hydroxy, C_1–C_3alkoxy, C_1–C_3alkoxycarbonyl and C_1–C_3alkylthio; C_3–C_6cycloalkyl or C_3–C_6cycloalkyl substituted by from 1 to 3 substituents selected from the group consisting of halogen and C_1–C_3alkyl;

R_1 and R_2 when taken together are =O, =NH or =S and R''' and R'''' are each independently of the other C_1–C_6alkyl.

5,783,705

PROCESS OF PREPARING ALKALI METAL SALYS OF HYDROPHOBIC SULFONAMIDES

Natalie Blok; Chengde Wu; Karin Keller, all of Houston, and Timothy P. Kogan, Sugarland, all of Tex., assignors to Texas Biotechnology Corporation, Houston, Tex.

Filed Apr. 28, 1997, Ser. No. 847,797

Int. Cl.⁶ C07D *261/06;261/14;261/04*

U.S. Cl. 548—247 **11 Claims**

1. A process of making an alkali metal salt of a hydrophobic free sulfonamide comprising the steps of:

(a) dissolving the free sulfonamide in an organic solvent;

(b) washing the dissolved free sulfonamide with a saturated solution of a salt of the alkali metal; and

(c) recovering the alkali metal salt of the sulfonamide.

5,783,706

PROCESS FOR THE PREPARATION OF 1, 3-DISUBSTITUTED IMIDAZOLIDINONES

Jochem Henkelmann, Mannheim, and Thomas Rühl, Frankenthal, both of Germany, assignors to BASF Aktiengesellschaft, Ludwigshafen, Germany

PCT No. PCT/EP95/02806, § 371 Date Mar. 17, 1997, § 102(e) Date Mar. 17, 1997, PCT Pub. No. WO96/02516, PCT Pub. Date Feb. 1, 1996

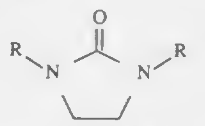
PCT Filed Jul. 18, 1995, Ser. No. 776,105

Claims priority, application Germany, Jul. 20, 1994, 44 25 696.5

Int. Cl.⁶ C07D *233/32;233/58*

U.S. Cl. 548—316.4 **9 Claims**

1. A process for the preparation of a 2-imidazolidinone of the formula (I)



(I)

wherein the radicals R, which are identical or different, are

a) straight-chain, branched or cyclic alkyl radicals with 1 to 12 carbon atoms, which are unsubstituted or substituted by $C_{6\text{-}10}$-aryl, F, Cl, Br;

b) aryl radicals with 6 to 10 carbon atoms, which are unsubstituted or substituted by $C_{1\text{-}12}$-alkyl;

c) heteroalkyl radicals in which the alkyl radicals as defined above are interrupted by one or more heteroatoms selected from O, S and N;

d) heteroaryl radicals with 5 to 10 ring atoms which contain 1 to 3 heteroatoms selected from O, S and N,

which comprises reacting 1,3-dioxolan-2-one (ethylene carbonate) with a least one compound of the formula (II)

$$R—NH_2 \qquad \text{(II)}$$

where R has the above meaning.

5,783,707

2-THIOXO-IMIDAZOLIDIN-4-ONE DERIVATIVES

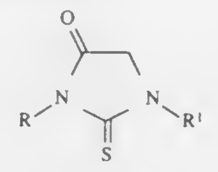
Hassan M. Elokdah, Yardley, Pa.; Sie-Yearl Chai, Lawrenceville, N.J.; Theodore S. Sulkowski, Wayne, and Donald P. Strike, St. Davids, both of Pa., assignors to American Home Products Corporation, Madison, N.J.

Filed Nov. 21, 1996, Ser. No. 754,440

Int. Cl.⁶ C07D *233/86*

U.S. Cl. 548—321.1 **10 Claims**

1. A compound of formula I



I

in which

R^1 is alkyl of 1 to 6 carbon atoms; and

R is 1-(fluorophenyl)ethyl, 5-chloro-2-methoxyphenyl, trifluoromethoxyphenyl, trifluoromethylphenyl, or methylsulfanylphenyl.

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5,783,708
INTERMEDIATE COMPOUNDS FOR THE PREPARATION OF NEW QUINOLONE-AND NAPHTHYRIDONECARBOXYLIC ACID DERIVATIVES

Uwe Petersen, Leverkusen; Michael Ruther, Monheim; Thomas Schenke, Bergisch Gladbach; Klaus Dieter Bremm, Recklinghausen, and Rainer Endermann, Wuppertal, all of Germany, assignors to Bayer Aktiengesellschaft, Leverkusen, Germany

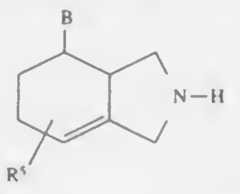
Division of Ser. No. 583,685, Jan. 5, 1996, Pat. No. 5,703,094. This application Aug. 18, 1997, Ser. No. 914,584

Claims priority, application Germany, Jan. 13, 1995, 19500792.1

Int. Cl.^{6} C07D *209/44*

U.S. Cl. 548—470 **9 Claims**

1. Compounds of the formula



wherein

B represents $(CH_2)_m—NR^3R^4$ or $(CH_2)_m—OR^5$, wherein

m represents 0 or 1,

R^3 represents hydrogen, alkyl which has 1 to 3 carbon atoms and is optionally substituted by hydroxyl, acyl having 1 to 3 carbon atoms or alkoxycarbonyl having 1 to 4 carbon atoms in the alkyl part,

R^4 represents hydrogen or methyl and

R^5 represents hydrogen or methyl and

R^6 represents hydrogen or methyl.

5,783,709
STEREOSELECTIVE PROCESS FOR MAKING SUBSTITUTED AMINO ACID DERIVATIVES

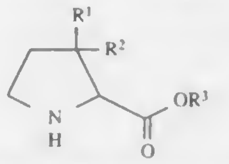
Michael Kress, Somerset; Chunhua Yang, Edison, and Nobuyoshi Yasuda, Mountainside, all of N.J., assignors to Merck & Co., Inc., Rahway, N.J.

Filed Aug. 25, 1997, Ser. No. 918,294

Int. Cl.^{6} C07D *207/16*

U.S. Cl. 548—535 **4 Claims**

1. A method for preparing a compound of formula I

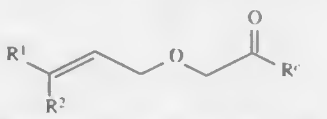


I

or its pharmaceutically acceptable salt, wherein:

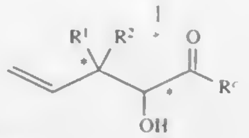
R^1 and R^2 are independently selected from the group consisting of H, C_{1-6} alkyl, and aryl, and R^3 is selected from the group consisting of H, C_{1-6} alkyl, aryl and allyl,

which comprises rearranging a compound of formula 1:



1

through reaction with a strong base at an initial temperature of about −100° C. to about −50° C., for about 30 minutes to about 6 hours, heating the mixture to about −50° C. to about 0° C. to provide a compound of formula Ia,

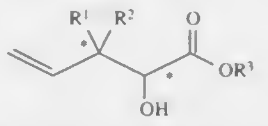


Ia

wherein:

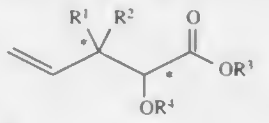
R^1 and R^2 are described above R^c is a group auxiliary and* designates a stereogenic center;

esterification of Ia with an acidic alcohol for about 30 minutes to about 3 hours to give a compound of formula 3 having a hydroxy group;



3

functionalization of the hydroxy group of formula 3 using a tertiary amine to provide a compound of formula 4

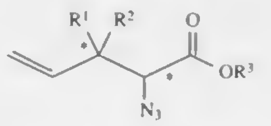


4

wherein

OR^4 is a leaving group;

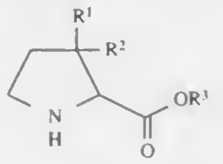
displacing the OR^4 group of formula 4 with sodium azide in the presence of a polar aprotic solvent at a temperature of about 40° C. to about 140° C. to produce a compound of formula 5;



5

and,

hydroboration and cycloalkylation of 5 with a dialkylborane reagent followed by treatment with an acid to give a compound of formula I or its pharmaceutically acceptable salt



I

5,783,710
BENZOTHIOXANTHENE DYES, THEIR PREPARATION AND THEIR USE

Wolfgang Bauer, Maintal; Dieter Baumgart, Egelsbach, and Walter Zöller, Klingenberg, all of Germany, assignors to Hoechst Aktiengesellschaft, Frankfurt, Germany

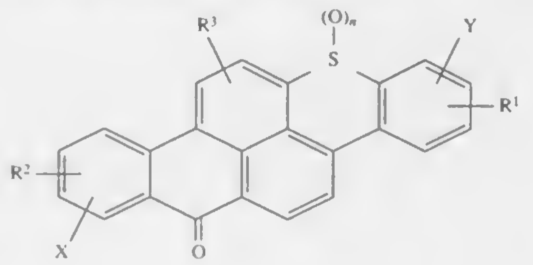
Filed Mar. 10, 1997, Ser. No. 814,483

Claims priority, application Germany, Mar. 11, 1996, 196 09 338.4

Int. Cl.^{6} C07D *335/04;* **G03C** *1/725;* **B41J** *2/175;* **C09B** *67/28*

U.S. Cl. 549—24 **15 Claims**

1. A benzothioxanthene dye of the formula I



(1)

in which

R^1 is $SO_3^{\ominus}M^{\oplus}$ or $SO_2NR^4R^5$;

R^2 and R^3 independently of one another are hydrogen, $SO_3^{\ominus}M^{\oplus}$ or $SO_2NR^4R^5$;

R^4 is hydrogen, $(C_1–C_{22})$-alkyl, $(C_3–C_7)$-cycloalkyl, aryl, heteroaryl, aryl-$(C_1–C_6)$-alkyl, hydroxy-$(C_1–C_4)$-alkyl or carboxy-$(C_1–C_4)$-alkyl;

R^5 is hydrogen, $(C_1–C_{22})$-alkyl, $(C_3–C_7)$-cycloalkyl, aryl-$(C_1–C_6)$-alkyl, hydroxy-$(C_1–C_4)$-alkyl, dihydroxy-$(C_1–C_4)$-alkyl, carboxy-$(C_1–C_4)$-alkyl, dicarboxy-$(C_1–C_6)$-alkyl, (amino)-(carboxy)-$(C_1–C_6)$-alkyl, sulfo-$(C_1–C_6)$-alkyl, amino-$(C_1–C_6)$-alkyl, $(C_1–C_4)$-alkylamino-$(C_1–C_6)$-alkyl, (di-($(C_1–C_4)$-alkyl) amino)-$(C_1–C_6)$-alkyl or the residue of an amino acid which is formally obtained by removing the amino group from the amino acid molecule,

or R^4 and R^5, together with the nitrogen atom to which they are attached, form a 5- to 7-membered heterocyclic ring;

$M^{\oplus}$ is a cation;

X is hydrogen, chlorine or bromine;

Y is hydrogen, chlorine, $(C_1–C_4)$-alkyl or $(C_1–C_4)$-alkoxy; and n is 0, 1 or 2.

5,783,711
PROCESS FOR THE PREPARATION OF HETEROCYCLIC ALDEHYDES

Werner Schnurr, Herxheim; Rolf Fischer, Heidelberg; Joachim Wulff-Döring, Frankenthal; Matthias Irgang, Heidelberg, and Horst Neuhauser, Dudenhofen, all of Germany, assignors to BASF Aktiengesellschaft, Ludwigshafen, Germany

PCT No. PCT/EP95/02071, § 371 Date Feb. 20, 1997, § 102(e) Date Feb. 20, 1997, PCT Pub. No. WO95/33741, PCT Pub. Date Dec. 14, 1995

PCT Filed May 31, 1995, Ser. No. 750,121

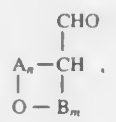
Claims priority, application Germany, Jun. 3, 1994, 44 19 514.1

Int. Cl.^{6} C07D *315/00;307/02*

U.S. Cl. 549—425 **10 Claims**

1. A process for the preparation of an aldehyde of the general formula I

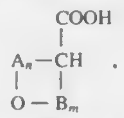
(I)



$$\begin{array}{ll} & CHO \\ & \ \, | \\ A_n- & CH \quad . \\ | & \ \, | \\ O\ - & B_m \end{array}$$

in which the variables A and B stand for methylene groups which may carry one or two substituents inert under the reaction conditions, and m and n stand for 1 to 5, the sum of m and n being greater than 2, wherein a carboxylic acid of the general formula II*a*

(IIa)



$$\begin{array}{ll} & COOH \\ & \ \, | \\ A_n- & CH \quad . \\ | & \ \, | \\ O\ - & B_m \end{array}$$

or one of its esters II*b* derived from a $C_1–C_{10}$ alcohol, is hydrogenated at a temperature of from 200° to 450° C. over a catalyst.

5,783,712
VINYL ETHER COMPOUNDS HAVING ADDITIONAL FUNCTIONAL GROUPS OTHER THAN VINYL ETHER GROUPS AND THE USE THEREOF IN THE FORMULATION OF CURABLE COMPOSITIONS

Bettina Steinmann, Praroman; Adrian Schulthess, Tentlingen, and Max Hunziker, Düdingen, all of Switzerland, assignors to Ciba Specialty Chemicals Corporation, Tarrytown, N.Y.

Division of Ser. No. 555,821, Nov. 9, 1995, Pat. No. 5,105,316, Division of Ser. No. 304,464, Sep. 12, 1994, Pat. No. 5,605,941. This application Aug. 13, 1996, Ser. No. 689,747

Claims priority, application Switzerland, Sep. 16, 1993, 2786/93; Mar. 8, 1994, 0684/94

Int. Cl.^{6} C07D *303/12;* **C07C** *233/00*

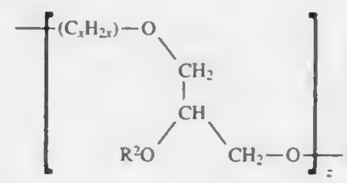
U.S. Cl. 549—554 **15 Claims**

1. A compound having at least one vinyl ether group which also contains in the molecule at least one further functional group selected from acrylate, methacrylate, epoxy, alkenyl, cycloalkenyl and vinylaryl groups having the formula

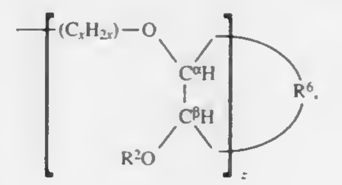
$$[H_2C{=}CH-O]_z-A$$

the symbols used in that formula and in the formulae below having the following definitions:

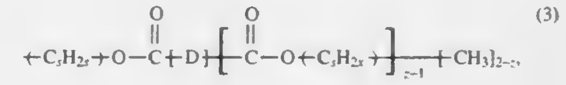
A is a z-valent radical selected from the radicals of the following formulae (1), (2), (3) and (4)



(1)

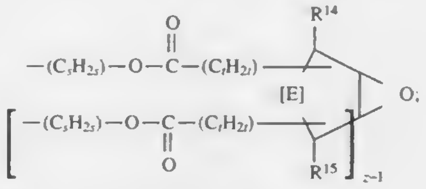


(2)



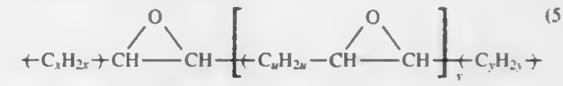
(3)

$$-(C_sH_{2s})-O-\overset{\overset{O}{\|}}{C}-[D]-\left[\overset{\overset{O}{\|}}{C}-O-(C_sH_{2s})-\right]_{z-1}[CH_3]_{2-z},$$



(4)

[D] is a group of the formula



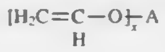
(5)

$$-(C_xH_{2x})-\overset{O}{\overbrace{CH-CH}}-\left[(C_uH_{2u})-\overset{O}{\overbrace{CH-CH}}\right]_v-(C_yH_{2y})-$$

[E] is a C_1- or a C_2-alkylene group;

R^0 is a hydrogen atom or a methyl group;

R^1 is a z-valent radical selected from aliphatic, cycloaliphatic, aromatic, aliphatic-aromatic and aliphatic-cycloaliphatic radicals and polyoxyalkylene radicals with the proviso that R^1 is not directly bonded to one of the z vinylether groups of the formula



$$[H_2C{=}\underset{H}{C}-O]_x-A$$

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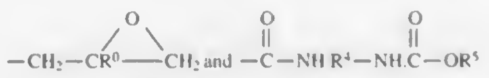
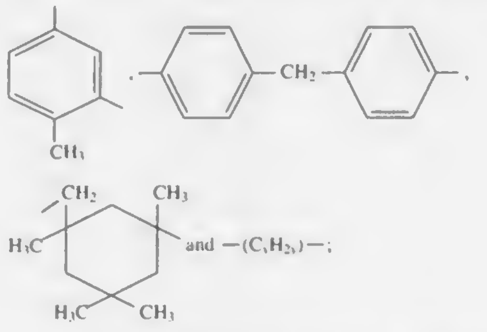
R^2 is a radical selected from the radicals of the formulae



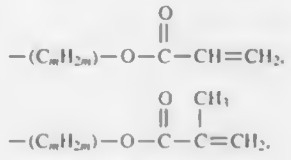
$-CH_2-CR^0(O)CH_2$ and $-C(=O)-NH\,R^4-NH.C(=O)-OR^5$

R^4 is a group selected from the groups of the formulae



and $-(C_sH_{2s})-$;

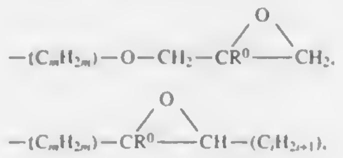
R^5 is a group selected from the groups of the formulae



$-(C_mH_{2m})-O-C(=O)-CH=CH_2$,

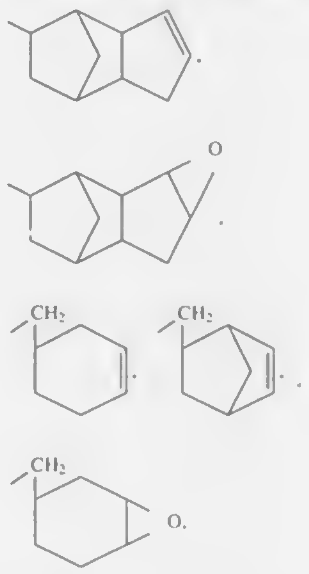
$-(C_mH_{2m})-O-C(=O)-C(CH_3)=CH_2$,

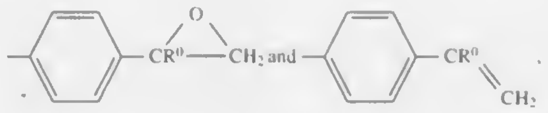
$-(C_mH_{2m})-HC=CH_2$,



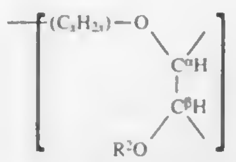
$-(C_mH_{2m})-O-CH_2-CR^0(O)CH_2$,

$-(C_mH_{2m})-CR^0(O)CH-(C_tH_{2t+1})$,





R^6 is a (2.z)-valent organic group which, together with the carbon atoms C^α and C^β of each of the z groups of the formula


(6)

in a radical of formula (2). forms a cycloaliphatic ring having at least 5 carbon atoms;

R^{14} and

R^{15} are each a hydrogen atom or, when [E] is a C_2alkylene group, are each a hydrogen atom or together form a methylene group;

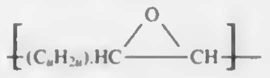
i is an integer from 0 to 20;

m is an integer from 1 to 20;

s is an integer from 2 to 10;

t is an integer from 0 to 10;

u in the individual units of the formula



$-[(C_uH_{2u}).HC(O)CH]-$

in formula (5) are independently of one another an integer from 1 to 20;

v is an integer from 0 to 4;

x and

y are independently of one another an integer from 2 to 20, and

z is the number 1 or 2.

5,783,713

POLYGLYCIDYLPHENYL ETHERS OF ALKYLENE OR ALKYLENEOXY CHAINS FOR USE IN MICROELECTRONICS ADHESIVES

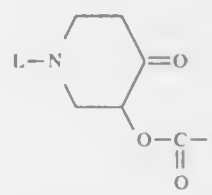
Rose Ann Schultz, Princeton, and Steven P. Fenelli, Hillsborough, both of N.J., assignors to National Starch and Chemical Investment Holding Corporation, Wilmington, Del.

Division of Ser. No. 656,597, May 31, 1996, Pat. No. 5,646,315, which is a continuation-in-part of Ser. No. 482,541, Jun. 7, 1995, abandoned. This application Nov. 27, 1996, Ser. No. 758,603

Int. Cl.^{6} C07D *407/10;407/12;407/14*

U.S. Cl. 549—554 **4 Claims**

1. A flexible epoxy compound, characterized in that it has a total chlorine content of less than 0.1% by weight, having the structural formula:



in which:

R' is H, C_{1-18} alkyl, C_{1-5} alkoxy or aryl or alkylaryl, C_{1-5} perfluoroalkyl, or C_{1-5} acyl; and

n is an integer 1–3; and

the flexible chain is $CH_2CH_2CH_2CH_2O$ wherein r is an integer 1–10; or

the flexible chain is CH_2CH_2O wherein r is an integer 3–10; or the flexible chain is CH_2 wherein r is an integer 10–20.

5,783,714

MANUFACTURE OF ALIPHATIC CALCIUM CARBOXYLATE

Arthur L. McKenna, 6447 Golfview La., Palos Heights, Ill. 60463; Oscar Knott, 10353 S. Nashville, Chicago Ridge, Ill. 60415, and Nina M. McConnell, 2450 Forest Dr., Woodridge, Ill. 60517

Continuation of Ser. No. 363,701, Dec. 23, 1994, abandoned. This application Mar. 17, 1997, Ser. No. 818,412

Int. Cl.^{6} C07C *51/00*

U.S. Cl. 554—156 **23 Claims**

1. A process for manufacturing a calcium salt of an aliphatic carboxylic acid, substantially free of excess calcium hydroxide, having twelve to twenty-two carbon atoms comprising the steps of (1) conveying into a mixing zone at least one aliphatic carboxylic acid having twelve to twenty-two carbon atoms and a calcium hydroxide product having a maximum particle size of 22 microns wherein the proportions of carboxylic acid to calcium hydroxide are in the range of 1.8 to 2.2 moles of carboxylic acid per mole of calcium hydroxide. (2) applying heat as necessary, (3) mixing until the reaction has progressed to the desired end point, and (4) discharging calcium carboxylate salt substantially free of excess calcium hydroxide from the mixing zone.

5,783,715

SILYLATED FERROCENYLDIPHOSPHINES, SILYLATED FERROCENYLDIPHOSPHINES BOUND TO INORGANIC OR POLYMERIC ORGANIC SUPPORTS AND ALSO METAL COMPLEXES THEREOF, THEIR PREPARATION AND USES

Benoît Pugin, Münchenstein, Switzerland, assignor to Novartis Corporation, Summit, N.J.

Division of Ser. No. 606,156, Feb. 23, 1996, Pat. No. 5,627,293. This application Dec. 13, 1996, Ser. No. 767,266

Claims priority, application Switzerland, Feb. 24, 1995, 543/95

Int. Cl.^{6} C07F *7/08*

U.S. Cl. 556—11 **5 Claims**

1. A complex of rhodium or iridium with an inorganic or organic polymeric support material to which are bound ferrocenyldiphosphines in which the 1 and 2 positions of one cyclopentadienyl ring bear tertiary phosphine groups of which one is bound directly and the other via a group CHR_1 to the cyclopentadienyl ring and the other cyclopentadienyl radical bears a silylene group $—Si(R_{12})_2—R_{13}—A—$, bonded via the Si atom, which forms one end of an organic bridging group and at the other end of which the inorganic or polymeric organic support is bound via the group A, directly or via an additional group,

in which

A is NH or $N(C_1–C_{12}alkyl)$;

R_{12} are identical or different radicals and are, independently of one another, $C_1–C_{12}$alkyl, $C_3–C_7$cycloalkyl, benzyl or phenyl or together are $C_6–C_{12}$alkylene; and

R_{13} is $C_1–C_{12}$alkylene or phenylene.

5,783,716

PLATINUM SOURCE COMPOSITIONS FOR CHEMICAL VAPOR DEPOSITION OF PLATINUM

Thomas H. Baum, New Fairfield; Peter S. Kirlin, and Sofia Pombrik, both of Bethel, all of Conn., assignors to Advanced Technology Materials, Inc., Danbury, Conn.

Filed Jun. 28, 1996, Ser. No. 673,372

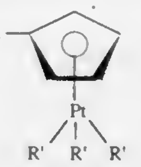
Int. Cl.^{6} C07F *15/00*

U.S. Cl. 556—136 **11 Claims**

1. A platinum source reagent liquid solution, comprising:

(i) at least one platinum source compound selected from the group consisting of compounds of the formulae:

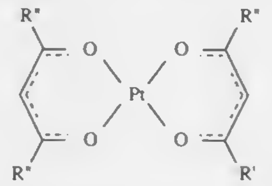
(A) $RCpPt(IV)R'_3$ compounds of the formula:



wherein:

R is selected from the group consisting of hydrogen, methyl, ethyl, i-propyl, n-propyl, n-butyl, i-butyl, t-butyl, trimethylsilyl and trimethylsilyl methyl; and each R' is independently selected from the group consisting of methyl, ethyl, i-propyl, n-propyl, n-butyl, i-butyl, t-butyl, trimethylsilyl and trimethylsilyl methyl; and

(B) Pt(β-diketonates)$_2$ of the formula:



wherein:

each R" is independently selected from the group consisting of methyl, ethyl, n-propyl, i-propyl, n-butyl, i-butyl, t-butyl, trifuromethyl, perfluoroethyl, and perfluoro-n-propyl, and

(ii) a solvent medium therefor, subject to the proviso that when R and all R' are methyl, the solvent is not $CDCl_3$.

5,783,717

METHOD FOR PURIFYING ORGANOMETAL COMPOUND

Hiromi Ohsaki; Toshinobu Ishihara; Kazuyuki Asakura; Isao Kaneko, and Kouhei Satou, all of Niigata, Japan, assignors to Shin-Etsu Chemical Co., Ltd., Tokyo, Japan

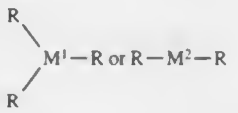
Filed Aug. 21, 1995, Ser. No. 517,093

Claims priority, application Japan, Aug. 19, 1994, 6-195470

Int. Cl.^{6} C07F *5/06;3/00*

U.S. Cl. 556—187 **3 Claims**

1. A method for purifying an organometal compound comprising the steps of mixing an organometal compound represented by the following formula:



R_2M^1-R or $R-M^2-R$

wherein R's may be the same or different and each represents an alkyl group having 1 to 3 carbon atoms; M^1 represents a trivalent metal element; and M^2 represents a divalent metal element with crude product including an oxygen atom-containing compound represented by the following formula:

$$R_{3-n}M^1(OR)_n$$

wherein n is an integer of 1, 2 or 3 or

$$R_{2-m}M^2(OR)_m$$

wherein m is an integer of 1 or 2 as an impurity, and an alkylaluminum chloride represented by the formula:

$$X_{6-q}Al_2R_q$$

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wherein R is the same as that defined above, q is an integer ranging from 1 to 5; and X represents a chlorine atom, and then distilling the resulting mixture.

5,783,718
PROCESS FOR THE PREPARATION OF POLYORGANOSILOXANES BY HYDROLYSIS OF ORGANOHALOSILANES

Loic Doguet, Peage de Roussillon; Patricia Fompeyrine, Ste-Foy-les-Lyon, both of France; Etienne Foucher, New York, N.Y., and Frederic Leising, Avilly St-Leonard, France, assignors to Rhone-Poulenc Chimie, Courbevoie, France

Filed Jun. 11, 1997, Ser. No. 872,678

Int. Cl.^{6} C07P *7/08*

U.S. Cl. 556—453 **22 Claims**

1. A Process for the preparation of polyorganosiloxanes by hydrolysis of one or more organohalosilane of formula (1) $R_aR^1_bSiX_c$, wherein:

R or R^1, identical or different, is an hydrogen atom, a linear C_1–C_6 alkyl, a branched aryl, an alkylaryl or an aralkyl group;

X is a halogen atom; and the sum a+b+c=4, with 0<c<4;

the said process comprising the following steps:

carrying out three or more successive hydrolysis steps (1), (2), (3), of the organosilane (1) to obtain a reaction medium capable of exerting an increasing hydrolysing force on the organohalosilane (1), the said step (1) being a hydrolysis under pressure in the presence of an aqueous solution S_1 of saturated hydrogen halide, at the pressure and temperature of the reaction medium; and

optionally, carrying out one or more coalescence step (4).

5,783,719
METHOD FOR MAKING SILICONE COPOLYMERS

Jing X. Sun, 655 Gingermill La., Lexington, Ky. 40509; Terence E. Franey, 3243 Roxburg Dr. E., Lexington, Ky. 40503; Bradley L. Beach, 1757 Hawthorne La., Lexington, Ky. 40505, and Kathryn E. Dowlen, 122 Lee La., Georgetown, Ky. 40324

Filed May 13, 1997, Ser. No. 855,179

Int. Cl.^{6} C07F *7/08*

U.S. Cl. 556—455 **20 Claims**

1. In a method of making a random silicone copolymer comprising the reaction of a C_{15}–C_{60} 1-alkene with a methylhydrosiloxane in the presence of a catalyst, the improvement which comprises adding the total amount of said catalyst to the reaction mixture in portions throughout the course of the reaction.

5,783,720
SURFACE-ACTIVE ADDITIVES IN THE DIRECT SYNTHESIS OF TRIALKOXYSILANES

Frank D. Mendicino, Marietta; Thomas E. Childress, Newport, both of Ohio; Sebastiano Magri, Asia, Italy; Kenrick M. Lewis, Rego Park, and Hua Yu, White Plains, both of N.Y., assignors to OSi Specialties, Inc., Greenwich, Conn.

Filed Oct. 10, 1996, Ser. No. 729,266

Int. Cl.^{6} C07F *7/04;7/18*

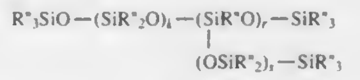
U.S. Cl. 556—470 **18 Claims**

1. A process for producing trialkoxysilane of the formula $HSi(OR)_3$ wherein R is an alkyl group containing 1 to 6 carbon atoms inclusive, comprising

(a) slurrying silicon metal in a thermally stable solvent in the presence of a surface-active additive and of a catalyst precursor which is halogen-free and which comprises copper,

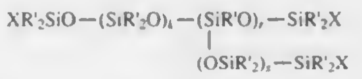
(b) activating said catalyst precursor, thereby generating a catalyst for the reaction of step (c), and

(c) reacting said silicon metal with an alcohol of the formula ROH in the presence of the catalyst generated in step (b) to form said trialkoxysilane; wherein said surface-active additive comprises (i) a mixture of (i)(A) hydrophobized silica particles with average particle sizes in the range of 0.2–5 microns, and specific surface area between 50 and 400 square meters per gram and (i)(B) an organopolysiloxane selected from the group consisting of compounds of the general formula: $R''_3SiO—(SiR''_2O)_a—SiR''_3$, cyclic compounds of the general formula: $(R''_2SiO)_b$, branched oligomers and polymers of the formula



$$R''_3SiO-(SiR''_2O)_k-(\underset{\underset{\displaystyle (OSiR''_2)_s-SiR''_3}{|}}{SiR''O})_r-SiR''_3$$

and mixtures thereof, wherein R" in each occurrence is the same or different and each is a C_1–C_{20} alkyl group, phenyl, alkyl-substituted phenyl, cycloalkyl, or alkyl-substituted cycloalkyl; a, b, k, r and s are greater than zero and have values such that the normal boiling point of the organopolysiloxane is at least 10° C. higher than the temperature of the Direct Synthesis slurry; wherein the weight ratio of (i)(A) to (i)(B) is 1:99 to 99:1, or (ii) an organofluorosiloxane selected from the group consisting of compounds of the general formula $XR'_2SiO—(SiR'_2O)_k—SiR'_2X$, cyclic compounds of the general formula $(R'_2SiO)_n$, branched oligomers and polymers of the formula



$$XR'_2SiO-(SiR'_2O)_k-(\underset{\underset{\displaystyle (OSiR'_2)_s-SiR'_2X}{|}}{SiR'O})_r-SiR'_2X$$

and mixtures thereof, in which R' has the same meaning as R", provided that at least one R' group is wholly or partially substituted with fluorine, X has the same meaning as R' or is optionally an alkoxy group containing eight or fewer carbon atoms, and k, r and s are positive numbers, n is an integer greater than 3, and the values of k, n, r and s are chosen such that the fluorosilicone has a normal boiling point that is at least 10° C. higher than the temperature of the slurry at which step (c) is carried out.

5,783,721
PREPARATION OF SILANES

Hiroshi Tsumura, Annaka; Tetsuo Nakanishi, Usui-gun; Hiroshi Nakayama, and Yukinori Satoh, both of Annaka, all of Japan, assignors to Shin-Etsu Chemical Co., Ltd., Japan

Filed Jan. 10, 1997, Ser. No. 781,209

Claims priority, application Japan, Jan. 12, 1996, 8-022112

Int. Cl.^{6} C07F *7/16*

U.S. Cl. 556—472 **14 Claims**

1. A process for preparing a silane of the formula (1):

$$R_nSiX_{4-n} \qquad (1)$$

wherein R is a lower alkyl group having 1 to 4 carbon atoms, X is a halogen atom, and letter n is an integer of 0 to 4, comprising:

feeding a reactant gas containing an alkyl halide into a reactor containing a contact mass comprising metallic silicon powder and a copper catalyst, whereby the silane is formed by direct synthesis,

the contact mass in the reactor during the progress of reaction consisting of particles having a mean particle size of 5 to 80 μm and containing at least 10% by weight of a fraction of particles having a particle size of up to 30 μm and a fraction of particles having a particle size of at least 90 μm.

5,783,722
2-[4-BIPHENYLOXYMETHYLENE]ANILIDES, PREPARATION THEREOF AND INTERMEDIATES THEREFOR, AND USE THEREOF

Bernd Müller, Frankenthal; Wassilios Grammenos, Ludwigshafen; Hubert Sauter, Mannheim; Franz Röhl, Schifferstadt; Eberhard Ammermann, Heppenheim; Gisela Lorenz, Hambach, and Norbert Götz, Worms, all of Germany, assignors to BASF Aktiengesellschaft, Ludwigshafen, Germany

PCT No. PCT/EP95/04429, § 371 Date May 6, 1997, § 102(e) Date May 6, 1997, PCT Pub. No. WO96/16029, PCT Pub. Date May 30, 1996

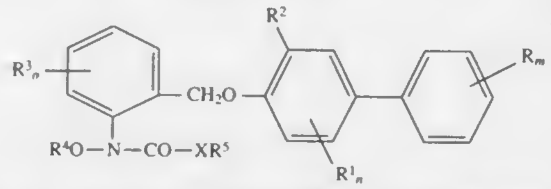
PCT Filed Nov. 10, 1995, Ser. No. 836,547

Claims priority, application Germany, Nov. 23, 1994, 44 41 673.3

Int. Cl.^{6} C07C *26/00;239/00*

U.S. Cl. 560—27 **12 Claims**

1. A 2-[4-biphenyloxymethylene]anilide of the formula I



I

where the indices and the substituents have the following meanings:

R is cyano, nitro, halogen, C_1–C_4-alkyl, C_1–C_4-haloalkyl, C_1–C_4-alkoxy, C_1–C_4-haloalkoxy, C_1–C_4-alkylthio, C_1–C_4-haloalkylthio, C_1–C_4-alkylamino, di-C_1–C_4-alkylamino, C_1–C_4-alkylcarbonyl, C_1–C_4-alkoxycarbonyl, C_1–C_4-alkylaminocarbonyl, di(C_1–C_4-alkyl)aminocarbonyl, C_1–C_4-alkylcarbonylamino, C_1–C_4-alkylcarbonyl(C_1–C_4-alkylamino), C_2–C_4-alkenyl, C_3–C_4-alkenyloxy, C_2–C_4-alkynyl, C_3–C_4-alkynyloxy, C_3–C_6-cycloalkyl or $C(R^a)═NOR^b$;

R^a and R^b are hydrogen, alkyl, alkenyl, alkynyl, cycloalkyl or cycloalkenyl;

m is 1, 2, 3, 4 or 5, it being possible for the radicals R to be different if m is greater than 1;

R^1 is cyano, nitro, halogen, C_1–C_4-alkyl, C_1–C_4-haloalkyl, C_1–C_4-alkoxy, C_1–C_4-haloalkoxy, C_1–C_4-alkylthio, C_1–C_4-haloalkylthio, C_1–C_4-alkylamino, di-C_1–C_4-alkylamino, C_1–C_4-alkylcarbonyl, C_1–C_4-alkoxycarbonyl, C_1–C_4-alkylaminocarbonyl, di(C_1–C_4-alkyl)aminocarbonyl, C_1–C_4-alkylcarbonylamino, C_1–C_4-alkylcarbonyl(C_1–C_4-alkylamino), C_2–C_4-alkenyl, C_3–C_4-alkenyloxy, C_2–C_4-alkynyl, C_3–C_4-alkynyloxy, C_3–C_6-cycloalkyl or $C(R^a)═NOR^b$;

n is 0, 1 or 2, it being possible for the radicals R^1 to be different if n is 2;

R^2 is cyano, nitro, halogen, C_1–C_4-alkyl, C_1–C_4-haloalkyl, C_1–C_4-alkoxy, C_1–C_4-haloalkoxy, C_1–C_4-alkylthio, C_1–C_4-haloalkylthio, C_1–C_4-alkylamino, di-C_1–C_4-alkylamino, C_1–C_4-alkylcarbonyl, C_1–C_4-alkoxycarbonyl, C_1–C_4-alkylaminocarbonyl, di(C_1–C_4-alkyl)aminocarbonyl, C_1–C_4-alkylcarbonylamino, C_1–C_4-alkylcarbonyl(C_1–C_4-alkylamino), C_2–C_4-alkenyl, C_3–C_4-alkenyloxy, C_2–C_4-alkynyl, C_3–C_4-alkynyloxy, C_3–C_6-cycloalkyl or $C(R^a)═NOR^b$;

R^3 is nitro, cyano, halogen,

unsubst. or subst. alkyl, alkenyl, alkynyl, alkoxy, alkenyloxy, alkynyloxy or

C_1–C_4-alkylcarbonyl, C_1–C_4-alkoxycarbonyl, C_1–C_4-alkylaminocarbonyl, di(C_1–C_4-alkyl)aminocarbonyl, C_1–C_4-alkylcarbonylamino, C_1–C_4-alkylcarbonyl(C_1–C_4-alkylamino), $C(R^a)═NOR^b$ or

in the case where o is greater than 1, is additional an unsubst. or subst. bridge bonded to two adjacent ring atoms, which can carry three to four members from the group consisting of 3 or 4 carbon atoms, and 2 or 3 carbon atoms and 1 or 2 nitrogen, oxygen and/or sulfur atoms, it being possible for this bridge, together with the ring to which it is bonded, to form a partially unsaturated or aromatic radical;

o is 0, 1, 2, 3 or 4, it being possible for the substituents R^3 to be different if n is greater than 1;

R^4 is hydrogen,

unsubst. or subst. alkyl, alkenyl, alkynyl, cycloalkyl, cycloalkenyl, alkylcarbonyl or alkoxycarbonyl;

X is a direct bond or CH_2, O or NR^c;

R^c is hydrogen, alkyl, alkenyl, alkynyl, cycloalkyl or cycloalkenyl;

R^5 is alkyl, alkenyl, alkynyl, cycloalkyl or cycloalkenyl, or or in the case where X is NR^c, is additionally hydrogen.

5,783,723
PROCESS FOR THE PREPARATION OF DIALKYL SUCCINYLSUCCINATES

Colin Dennis Campbell, Claymont, Del.; Damien Thurber Cole, Upper Darby, Pa., and Harold Raymond Taylor, III, Wilmington, Del., assignors to Ciba Specialty Chemicals Corporation, Tarrytown, N.Y.

Filed Sep. 24, 1996, Ser. No. 719,044

Int. Cl.^{6} C07C *229/00;69/74;* **C07D** *221/18*

U.S. Cl. 560—48 **25 Claims**

1. A process for the preparation of a dialkyl succinylsuccinate, which comprises: (a) preparing a dialkyl succinylsuccinate di(alkali metal) salt by reacting a mixture consisting essentially of an alkali metal alcoholate, an aliphatic alcohol and an excess of a liquid dialkyl succinate under anhydrous conditions at an elevated temperature; (b) removing the aliphatic alcohol from the reaction mixture; (c) separating the solid dialkyl succinylsuccinate di(alkali metal) salt from an anhydrous supernatant liquid; and (d) neutralizing the dialkyl succinylsuccinate di(alkali metal) salt to yield the dialkyl succinylsuccinate.

5,783,724
ALLYL ESTERS OF 2-NORBORNANE ACRYLIC ACIDS AND 2-NORBORNYLIDENE PROPIONIC AICDS AND PERFUMERY USES THEREOF

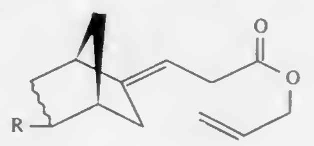
Wilhelmus Johannes Wiegers, Red Bank, and Marie R. Hanna, Keyport, both of N.J., assignors to International Flavors & Fragrances Inc., New York, N.Y.

Division of Ser. No. 450,823, May 25, 1995. This application Mar. 6, 1997, Ser. No. 812,278

Int. Cl.^{6} C07C *67/08*

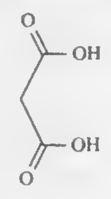
U.S. Cl. 560—120 **2 Claims**

1. A process for preparing an allyl ester defined according to the structure:



wherein the wavy line represents a carbon-carbon single bond or a carbon-carbon double bond; and wherein R represents methyl or hydrogen, comprising the steps of:

(i) reacting malonic acid having the structure:



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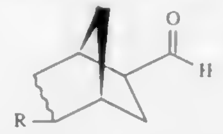
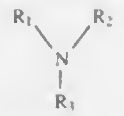
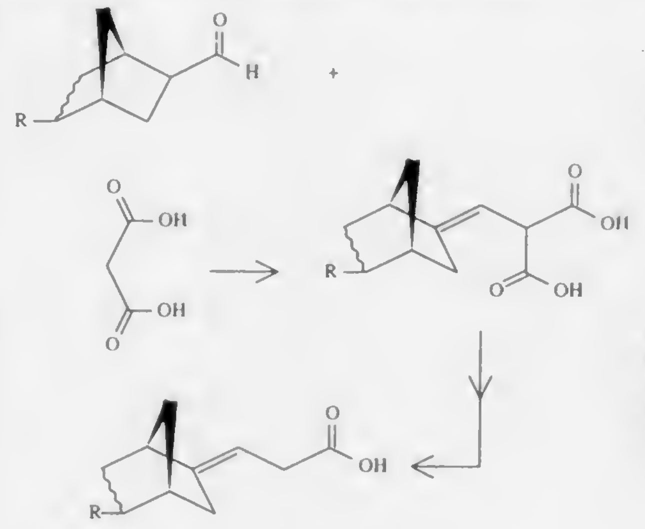
with the aldehyde having the structure:



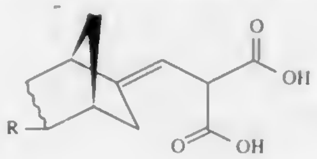
in the presence of the catalyst having the structure:



wherein R_1, R_2 and R_3 are the same or different C_1–C_3 alkyl at a temperature of 90° C. in accordance with the reaction:

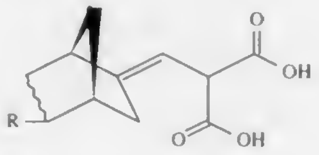


whereby the compound having the structure:

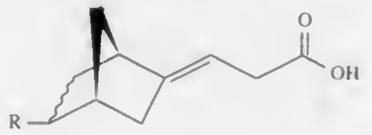


is formed;

(ii) then decarboxylating the resulting compound having the structure:

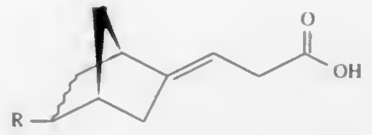


to form the compound having the structure:



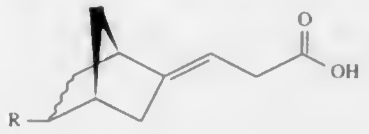
by raising the pH of the reaction mass to approximately 12 and then lowering it to approximately 1.5; and

(iii) then esterifying the resultant compound having the structure:

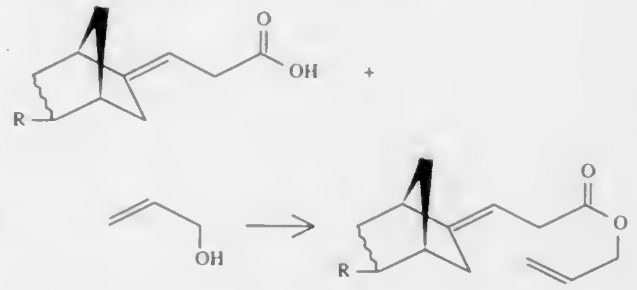


by means of either:

(a) reacting the compound having the structure:

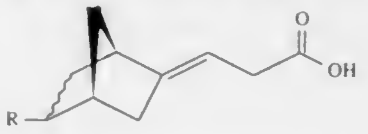


with allyl alcohol according to the reaction:



in the presence of an acid catalyst selected from the group consisting of methane sulfonic acid and an acid ion exchange resin catalyst at atmospheric pressure at a temperature in the range of from about 150° C. up to about 170° C. for a period of time of from about 10 hours up to about 15 hours; or

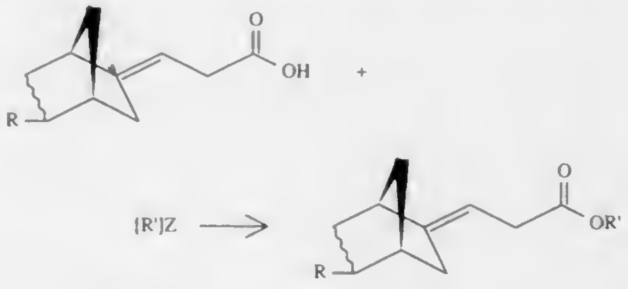
(b) reacting the compound having the structure:



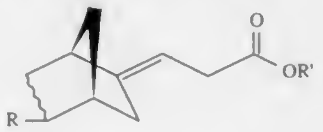
with the esterification reagent having the formula:

[R']Z

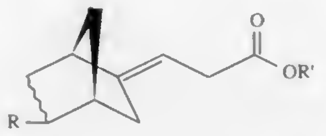
wherein R' is C_1–C_5 alkyl and Z is selected from the group consisting of hydroxyl, iodide and sulfate according to the reaction:



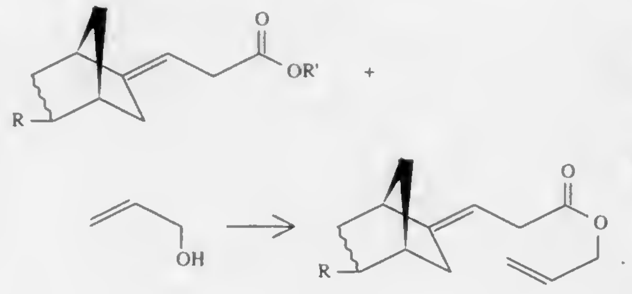
whereby the compound having the structure:



is formed; and then reacting the resulting compound having the structure:



with allyl alcohol according to the reaction:



e) impregnating the microspheroidal particles of fluid bed catalyst precursor with a solution of an alkali metal salt to produce a fluid bed catalyst.

5,783,725
STABILIZED LACTIC ACID MENTHYL ESTER

Walter Kuhn; Alfred Körber, both of Holzminden; Roland Langner, Bevern, and Detlef Hagena, Stahle, all of Germany, assignors to Haarmann & Reimer GmbH, Holzminden, Germany

Filed Feb. 13, 1997, Ser. No. 799,856

Claims priority, application Germany, Feb. 27, 1996, 196 07 278.6

Int. Cl.^{6} C07C *67/62*

U.S. Cl. 560—188 **1 Claim**

1. Mixture of

L-Lactic acid L-menthyl ester and, per part by weight of A,

0.0001 to 0.05 part by weight of alkali metal carbonate and/or bicarbonate and/or alkaline earth metal carbonate and/or bicarbonate.

5,783,726
PROCESS FOR THE PREPARATION OF VINYL ACETATE CATALYST

Michael F. Lemanski, Chester, N.Y.; Christos Paparizos, Willowick, Ohio; Patricia R. Blum, Macedonia, Ohio; Larry M. Cirjak, Burton, Ohio, and Marc A. Pepera, Northfield, Ohio, assignors to The Standard Oil Company, Cleveland, Ohio

Division of Ser. No. 375,867, Jan. 20, 1995, Pat. No. 5,665,667, which is a continuation-in-part of Ser. No. 252,800, Jun. 2, 1994, Pat. No. 5,536,693. This application Apr. 21, 1997, Ser. No. 840,516

Int. Cl.^{6} C07C *67/02*

U.S. Cl. 560—261 **19 Claims**

1. A method for the preparation of vinyl acetate comprising contacting ethylene, oxygen and acetic acid in a fluid bed reactor with a fluid bed catalyst having the formula Pd—M—A where M is selected from the group consisting of Ba, Au, Cd, Bi, Cu, Mn, Fe, Co, Ce, U and mixtures thereof, A is selected from the group consisting of an alkali metal and mixtures thereof and M is present in the range of from 0 to about 5 wt % and A is present in the range of greater than 0 to 10 wt % prepared by a method comprising:

a) preparing a fixed bed catalyst precursor consisting primarily of Pd—M supported on a fixed bed catalyst support,

b) milling the fixed bed catalyst precursor with a fluid bed catalyst binder to form a slurry,

c) drying the slurry to form microspheroidal particles of solid fluid bed catalyst precursor,

d) calcining the dried solid fluid bed catalyst precursor, and

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5,783,727
PRODUCTION OF 2,6-TOLUYLENE DIISOCYANATE FROM A MIXTURE COMPRISING 2,6-TOLUYLENE DIISOCYANATE AND 2,4-TOLUYLENE DIISOCYANATE

Jean-Claude Parron, Caluire; Denis Revelant, Genas, and Francois Vachet, Decines, all of France, assignors to Rhone-Poulenc Chimie, Courbevoie, France

PCT No. PCT/FR95/00366, § 371 Date Jan. 21, 1997, § 102(e) Date Jan. 21, 1997, PCT Pub. No. WO95/26332, PCT Pub. Date Oct. 5, 1995

PCT Filed Mar. 24, 1995, Ser. No. 716,292

Int. Cl.^{6} C07C *249/00*

U.S. Cl. 560—352 **18 Claims**

1. A process for the production of a 2,6-toluylene diisocyanate isomer from a mixture of 2,4- and 2,6-isomers of toluylene diisocyanate, wherein said mixture, comprising at least 50% 2,6-toluylene diisocyanate, is subjected to at least one cycle of crystallization-melting, comprising the following steps:

a crystallization step is carried out by lowering the temperature to a temperature close to that at which the mixture is in a solid form;

a drainage is carried out, which consists in keeping the temperature constant and in allowing the liquid to flow; and

the mixture is melted by raising the temperature from the temperature close to that at which the mixture is in a solid form, up to the melting point of the 2,6- isomer.

5,783,728
PHOSPHINATE COMPOUNDS PREPARED FROM ACETYLENIC COMPOUNDS AND INORGANIC PHOSPHITE SALTS AND DERIVATIVES OF THESE COMPOUNDS

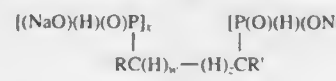
James F. Kneller, LaGrange Park; Donald A. Johnson, Batavia; Vytas Narutis, Riverside, and Binaifer S. Khambatta, Orland Park, all of Ill., assignors to Nalco Chemical Company, Naperville, Ill.

Division of Ser. No. 235,734, Apr. 29, 1994, Pat. No. 5,647,995. This application Jan. 7, 1997, Ser. No. 779,581

Int. Cl.^{6} C07F *9/22*

U.S. Cl. 562—21 **24 Claims**

1. A method for making compounds having the formula:



$$\begin{array}{ccc}[(NaO)(H)(O)P]_x & & [P(O)(H)(ONa)]y \\ | & & | \\ & RC(H)_w—(H)_zCR' & \end{array}$$

and mixtures thereof where R and R' are radicals from the group consisting of H, alkyl, hydroxyalkyl, alkyl carboxylate, carboxyl, carboxylate, cycloaliphatic and substituted cycloaliphatic, phenyl and substituted phenyl and each do not contain more than 18 carbon atoms, x and y are integers ranging between 0–2 with the sum of x+y being equal to 2, w and z are integers having a value ranging between 0–2 which comprises the steps of reacting a compound of the formula:

$RC{\equiv}CR'$

with at least two moles of sodium hypophosphite in the presence of polar solvent soluble free radical catalyst and then recovering the produced compounds.

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5,783,729

CHEMICAL PROCESS FOR THE PRODUCTION OF SULFONYL BENZOIC ACIDS

Stephen Martin Brown, Huddersfield; Martin Charles Bowden, Brighouse, and Keith Moorhouse, Huddersfield, all of United Kingdom, assignors to Zeneca Limited, London, England

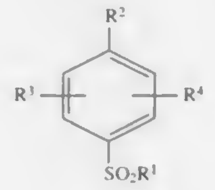
Continuation of Ser. No. 240,352, May 10, 1994, abandoned. This application Nov. 18, 1996, Ser. No. 751,272

Claims priority, application United Kingdom, May 24, 1993, 9310699

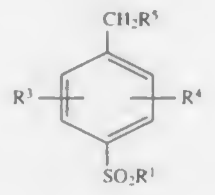
Int. Cl.^{6} C07C *51/16*

U.S. Cl. 562—409 **29 Claims**

1. A process for preparing a compound of formula (I),



where R^1 is optionally substituted alkyl, R^2 is COOH, is selected from hydrogen, halo, haloalkyl, nitro, hydroxy, alkoxy, haloalkoxy or alkoxyalkoxy, and R^4 is selected from halo, haloalkyl, nitro, hydroxy alkoxy haloalkoxy or alkoxyalkoxy; which process comprises oxidising a compound of formula (II)



where R^1, R^3 and R^4 are as defined in relation to formula (I) and R^5 is H, halo or C_{1-4} alkyl with sodium hypochlorite or sodium chlorite in the presence of a catalytic amount of a ruthenium or palladium compound and a phase transfer catalyst in an organic solvent at a pH of 7–11.

5,783,730

FORMATION OF STYRENE PHOSPHONIC ACID

Carl C. Greco, Garnerville, and John Tomko, Dobbs Ferry, both of N.Y., assignors to Akzo Nobel NV, Arnhem, Netherlands

Filed May 2, 1997, Ser. No. 850,312

Int. Cl.^{6} C07F *9/38*

U.S. Cl. 562—8 **7 Claims**

1. A process for the formation of styrene phosphonic acid which comprises the reaction of phosphorous acid with acetophenone to form a hydroxy adduct intermediate thereof which is then reacted with acetic anhydride to form the acyl derivative of the hydroxy adduct, followed by removal of an acetic acid moiety therefrom to form the styrene phosphonic acid product.

5,783,731

REMOVAL OF CARBONYL IMPURITIES FROM A CARBONYLATION PROCESS STREAM

Darrell Andrew Fisher; Michael L. Karnilaw, both of Houston; Kenneth Paul Kidwell, League City; Melchior Albert Meilchen, Corpus Christi; Valerie Santillan, Webster; Mark O. Scates, Friendswood; G. Paull Torrence, Corpus Christi; Richard F. Vogel, Jr., League City, and R. Jay Warner, Corpus Christi, all of Tex., assignors to Hoechst Celanese Corporation, Somerville, N.J.

Filed Sep. 11, 1995, Ser. No. 526,338

Int. Cl.^{6} C07C *51/12*

U.S. Cl. 562—519 **13 Claims**

1. In a process for the carbonylation of methanol to a product of acetic acid, said methanol is carbonylated in a reaction medium containing a Group VIII metal catalyst, an organic iodide, and iodide salt promoter; the products of said carbonylation separated into a volatile phase comprising product and a less volatile phase comprising Group VIII metal catalyst, acetic acid, iodide catalyst promoter, and organic iodide; said product phase distilled in a distillation tower to yield a purified product and an overhead organic iodide, methyl acetate, water, acetic acid, and unreacted methanol, and recycling said overhead to said carbonylation reactor, the improving consisting of:

(a) directing at least a portion of the overhead to an overhead receiver which separates the overhead into a light phase, comprising acetic acid and water, and a heavy phase comprising methyl acetate and organic iodide;
(b) venting a light gas stream from the overhead receiver of (a) to a chiller;
(c) chilling the vented gas stream of (b) under suitable conditions to condense the chilled vented gas stream into a condensed phase and separate in an overhead receiver vessel said condensed phase from noncondensable light gases;
(d) contacting the condensed phase of (c) with an aqueous amino compound which forms water soluble nitrogenous derivatives of carbonyls;
(e) separating out resulting nitrogenous derivatives of carbonyls and returning a purified condensed phase of (c) to the carbonylation reactor.

5,783,732

2:2 MIXED FLUORO-, AND FLUORONITROALKYL ORTHOCARBONATES

William H. Gilligan, Ft. Washington, Md., assignor to The United States of America as represented by the Secretary of the Navy, Washington, D.C.

Filed Mar. 30, 1981, Ser. No. 253,476

Int. Cl.^{6} C07G *43/00;* **C06B** *25/00*

U.S. Cl. 568—590 **20 Claims**

1. A 2:2 mixed orthocarbonate of the formula

$$(RCH_2O)_2C(OCH_2R')_2$$

wherein (R≠R' and wherein R and R' are selected from the group consisting of $—C(N_2)_3$, $—CF(NO_2)_2$, $—CF_2(NO_2)$. $—C(NO_2)_2CH_3$, $—CH(NO_2)CH_3$, $—CH_2(NO_2)$, $—CF_3$, and $—CF_2F_3$.

5,783,733

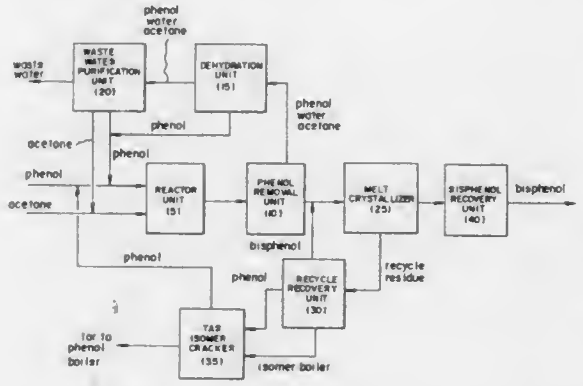
PROCESS FOR MANUFACTURE OF BISPHENOL

Gaylord Michael Kissinger, Evansville, Ind., assignor to General Electric Company, Pittsfield, Mass.

Filed Jun. 13, 1996, Ser. No. 664,079

Int. Cl.^{6} C07C *39/12;39/16*

U.S. Cl. 568—724 **17 Claims**



17. A process for making bisphenols consisting essentially of:
(a) reacting a phenol with a ketone in the presence of an ion exchange resin catalyst to produce bisphenol;
(b) separating unreacted phenol from the bisphenol produced in step (a) in a phenol removal unit;
(c) extracting water and acetone from said separated phenol in a mother liquor dryer unit to obtain a dried phenol and returning the dried phenol to said reactor;
(d) separating the extracted water from the extracted acetone of step (c) in a waste water purification unit and returning said acetone to said reactor and transferring said water to a water discharge facility;
(e) separating phenol, isomers, and tar from said bisphenol obtained from the phenol removal unit in a melt crystallizer by fractional melt crystallization in a falling film dynamic crystallizer;
(f) transferring recycle residue which comprises bisphenol, phenol, tars, and isomers from said melt crystallizer to a recycle recovery unit;
(g) recovering bisphenol from the recycle recovery unit and returning recovered bisphenol to the melt crystallizer;
(h) transferring residual phenol, tars and isomers from said recycle recovery unit to a tar/isomer recovery unit;
(i) recovering phenol from the tar/isomer cracker wherein the phenol is returned to the reactor and the tar is disposed of; and
(j) recovering in a bisphenol recovery unit purified bisphenol from the melt crystallizer.

5,783,734

PROCESS FOR PREPARING N-METHYL-N'-NITROGUANIDINE

Bernd Gallenkamp, and Lothar Rohe, both of Wuppertal, Germany, assignors to Bayer Aktiengesellschaft, Leverkusen, Germany

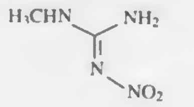
Filed Mar. 18, 1997, Ser. No. 820,274

Claims priority, application Germany, Mar. 25, 1996, 196 11 654.6

Int. Cl.^{6} C07C *277/08*

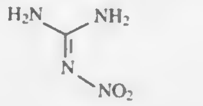
U.S. Cl. 564—108 **1 Claim**

1. A process for preparating N-methyl-N'-nitroguanidine of the formula (I)



(I)

characterized in that nitroguanidine of the formula (II)



(II)

is reacted with aqueous methylamine solution at temperatures between 0° C. and 40° C.

5,783,735

PROCESS FOR PREPARING POLYMERIC AMIDES USEFUL AS ADDITIVES IN FUELS AND LUBRICATING OILS

Jacob I. Emert, Brooklyn, N.Y.; Joseph V. Cusumano, Watchung, N.J.; David C. Dankworth, Whitehouse Station, N.J.; William D. Diana, Belle Mead, N.J.; William B. Eckstrom, Fanwood, N.J.; Keith R. Gorda, Little York, N.J.; Antonio Gutierrez, Mercerville, N.J.; Jon E. Stanat, Westfield, N.J.; Warren A. Thaler, Flemington, N.J., and Stephen Zushma, Clinton, N.J., assignors to Exxon Chemical Patents Inc., Linden, N.J.

Continuation-in-part of Ser. No. 261,554, Jun. 17, 1994. This application May 25, 1995, Ser. No. 441,029

Int. Cl.^{6} C07C *231/02;* **C10M** *149/00;149/18*

U.S. Cl. 564—134 **17 Claims**

1. A process for preparing a polymeric amide comprising the steps of:

(A) reacting (i) a hydrocarbon polymer functionalized to contain functional groups of the formula $—CO—Y—R^3$, the hydrocarbon polymer having a number average molecular weight of at least about 500 prior to functionalization, wherein Y is O or S, R^3 is hydrogen, hydrocarbyl, or substituted hydrocarbyl and wherein at least 50 mole % of the functional groups are attached to a tertiary carbon atom of the polymer backbone, with (ii) a heavy polyamine in an amount and under conditions effective to form a partially derivatized product in which at least about 85% but less than all of the functional groups are converted to heavy amide groups; and
(B) reacting the partially derivatized product with an excess of a light amine having 2 to about 6 carbon atoms and 1 to about 3 amino groups per molecule, at least one of the amino groups being a primary amino group, under conditions effective to convert substantially all remaining functional groups to light amide groups.

5,783,736

PROCESS FOR AMINES

Randall Wayne Stephens, Perkasie, and Renee Caroline Roemmele, Maple Glen, both of Pa., assignors to Rohm and Haas Company, Philadelphia, Pa.

Filed Sep. 26, 1997, Ser. No. 938,551

Int. Cl.^{6} C07C *209/08*

U.S. Cl. 564—484 **22 Claims**

1. A process for the synthesis of an aminoalkyne which comprises the steps of

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a. reacting an alkynyl alcohol with HCl to form a chloroalkyne,

b. reacting said chloroalkyne with a water soluble amination agent in the presence of a surfactant to form an aminoalkyne and, optionally,

c. purifying said aminoalkyne by distillation.

5,783,737

PROCESS FOR THE PREPARATION OF 3-CARBOXY-4-HYDROXYBENZALDEHIDES AND DERIVATIVES THEREOF

Pascal Metivier, Sainte Foy les Lyons, France, assignor to Rhone-Poulenc Chimie, Courbevoie, France

PCT No. PCT/FR96/00779, § 371 Date Jan. 24, 1997, § 102(e) Date Jan. 24, 1997, PCT Pub. No. WO96/37454, PCT Pub. Date Nov. 28, 1996

PCT Filed May 24, 1996, Ser. No. 776,343

Claims priority, application France, May 24, 1995, 95 06186

Int. Cl.⁶ C07C *45/00*

U.S. Cl. 568—432 **29 Claims**

1. A process for the preparation of a 3-carboxy-4-hydroxybenzaldehyde comprising the step of selectively oxidizing to a carboxy group the group in the 2 position of a phenol compound carrying formyl or hydroxymethyl groups in the 2 and 4 positions, and, optionally, selectively oxidizing a hydroxymethyl group in the 4 position to a formyl group.

5,783,738

OPTICALLY ACTIVE DIPHOSPHINES, PREPARATION THEREOF ACCORDING TO A PROCESS FOR THE RESOLUTION OF THE RACEMIC MIXTURE AND USE THEREOF

Francois Mathey, Paris; Frédéric Robin, Montrouge; Francois Mercier, Versailles, and Michel Spagnol, Lyons, all of France, assignors to Rhone-Poulenc Chimie, Courbevoie Cedex, France

PCT No. PCT/FR95/01716, § 371 Date Oct. 4, 1996, § 102(e) Date Oct. 4, 1996, PCT Pub. No. WO96/20202, PCT Pub. Date Jul. 4, 1996

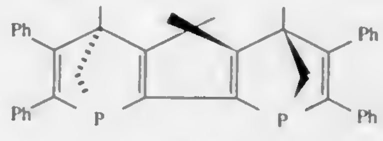
PCT Filed Dec. 22, 1995, Ser. No. 696,824

Claims priority, application France, Dec. 28, 1994, 94 15757; May 29, 1995, 95 06286

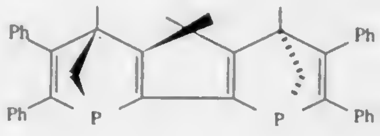
Int. Cl.⁶ C07F *9/547*

U.S. Cl. 568—12 **14 Claims**

1. Optically active bis[1-phospha-2,3-diphenyl-4,5-dimethylnorbornadiene]diphosphines corresponding to the following formulae:



(S,S) – (+) – (Ia)



(R,R) – (–) – (Ib)

5,783,739

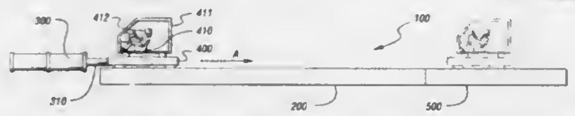
SLED DOCKING SYSTEM

Patrick M. Miller, Alden, N.Y., assignor to MGA Research Corporation, Akron, N.Y.

Filed Aug. 20, 1996, Ser. No. 704,421

Int. Cl.⁶ G01M *17/00*

U.S. Cl. 73—12.04 **25 Claims**



1. A sled docking system for moving a sled carriage on or off a sled rail and along a ground surface, the sled docking system comprising:

a docking assembly for carrying a sled carriage, the docking assembly having a moving member which allows the docking assembly to be moved to any desired location in any direction along the ground surface including a location adjacent to the sled rail such that the sled carriage is movable between the sled rail and the docking assembly.

5,783,740

ANALYTICAL SYSTEM FOR TRACE ELEMENT

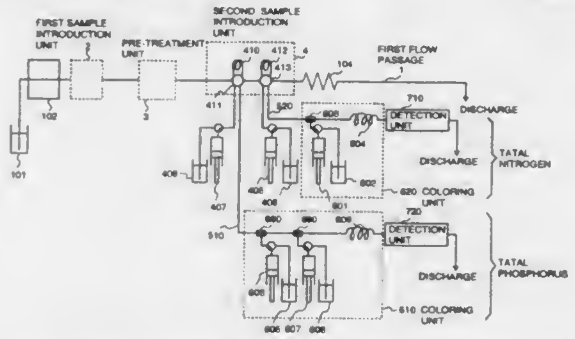
Naomi Tawarayama, Yokohama, and Tadafumi Kuroishi, Naka-gun, both of Japan, assignors to Hitachi, Ltd., Tokyo, Japan

Filed Feb. 4, 1997, Ser. No. 794,699

Claims priority, application Japan, Feb. 9, 1996, 8-023769

Int. Cl.⁶ G01N *30/02;27/04;33/00;* B01D *15/08*

U.S. Cl. 73—19.1 **15 Claims**



1. An analytical system for a trace element in a flow of fluid sample comprising:

a first flow passage;

a pump adapted to establish a pressurized flow in said first flow passage;

a second flow passage;

a sample introduction unit adapted to introduce a sample including said trace element into said first flow passage;

a pre-treatment unit, provided in said first flow passage, adapted to pre-treat said introduced sample;

a sampling unit adapted to sample said pre-treated sample from said first flow passage into said second flow passage in such a manner that the effect of pressurization in said first flow passage is isolated from said second flow passage so as to reduce dispersion of said sample with said trace elements therein;

a reagent introduction unit adapted to introduce reagent into said second flow passage for reaction with said sample; and

an analytical unit adapted to analyze components of said reacted sample sampled in said second flow passage.

5,783,741

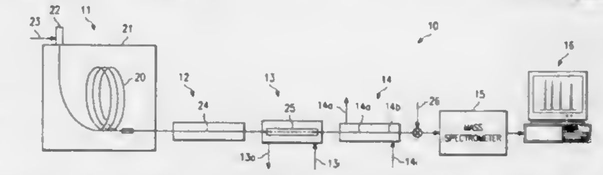
CAPILLARY FURNACE FOR IMPROVED PEAK RESOLUTION IN GAS ISOTOPE CHROMATOGRAPHY

Leroy Ellis, and Ann L. Fincannon, both of Plano, Tex., assignors to Atlantic Richfield Company, Los Angeles, Calif.

Filed Jan. 31, 1997, Ser. No. 791,216

Int. Cl.⁶ B01D *15/08;59/44;* H01J *49/04;* G01N *30/08*

U.S. Cl. 73—23.39 **15 Claims**



1. An isotope ratio monitoring gas chromatograph mass spectrometer (irm-GC/MS) unit for analyzing a gas chromatograph amenable organic sample, said irm-GC/MS unit comprising:

a gas chromatograph (GC) comprising an oven;

a capillary column positioned within said oven and having an inlet adapted to receive said sample;

a furnace having a flowpath therethrough, said flowpath being formed of a capillary combustion tube which is fluidly connected at one end to said capillary column and which has an inside diameter substantially equal to the inside diameter of said capillary column; and

a mass spectrometer fluidly connected to the other end of said capillary combustion tube in said furnace.

5,783,742

METHOD OF INJECTING A SAMPLE INTO GAS CHROMATOGRAPH

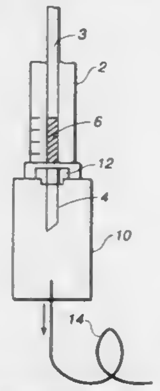
Shigeaki Shibamoto, and Masahito Ueda, both of Kyoto, Japan, assignors to Shimadzu Corporation, Kyoto, Japan

Filed Nov. 14, 1996, Ser. No. 749,197

Claims priority, application Japan, Nov. 27, 1995, 7-332828

Int. Cl.⁶ G01N *1/00*

U.S. Cl. 73—23.41 **2 Claims**



1. A method of injecting a sample into a gas chromatograph, said method comprising:

a first process of causing a needle of a syringe, into which a sample has been introduced together with air so as to prevent vaporization of said sample through said needle into said sample vaporization chamber, to penetrate a septum and be inserted into a sample vaporization chamber, said first process being carried out over a period of over 400 milliseconds;

a second process of pushing a plunger to thereby cause said sample and said air inside said syringe to be injected together into said sample vaporization chamber; and

a third process of pulling said needle out of said sample vaporization chamber, said second process and said third process being carried out within a period of less than 200 milliseconds.

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5,783,743
MOISTURE SENSOR

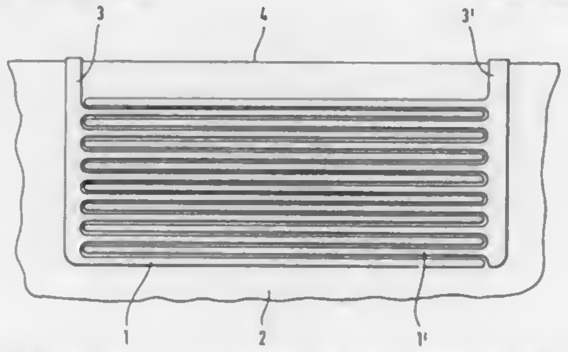
Klaus Weber, Kronberg, Germany, assignor to VDO Adolf Schindling AG, Frankfurt, Germany

Filed Jun. 27, 1996, Ser. No. 671,136

Claims priority, application Germany, Jul. 8, 1995, 195 24 942.9; Jan. 24, 1996, 196 02 354.8

Int. Cl.^{6} H01G *5/20;* **G01N** *27/12;* **H02P** *1/04;* **G01R** *27/26*

U.S. Cl. 73—29.01 **40 Claims**



1. A sensor for detecting moisture on a non-conductive support, suitable for the windshield of a motor vehicle, the sensor having as an eletrode one or more metallic electrically conductive layers which are arranged as teeth in a given pattern on the outer surface of the support without a conductive intermediate layer therebetween, the sensor detecting the moisture by an electrical impedance change resulting from one or more droplets bridging a plurality of the teeth;

wherein the metallic electrically conductive layer comprises a burned-in metallic resinate burned into the support by the action of heat.

5,783,744
ENGINE KNOCKING DETECTION SYSTEM

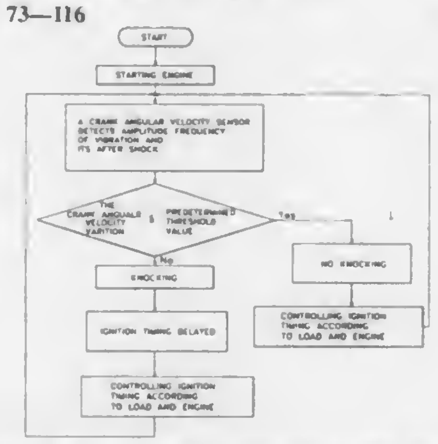
Kwang-Hee Chun, Seoul, Rep. of Korea, assignor to Kia Motors Corporation, Seoul, Rep. of Korea

Filed Aug. 2, 1996, Ser. No. 691,636

Claims priority, application Rep. of Korea, Jun. 5, 1996, 96-15024

Int. Cl.^{6} G01M *15/00*

U.S. Cl. 73—116 **8 Claims**


START
STARTING ENGINE
A CRANK ANGULAR VELOCITY SENSOR DETECTS AMPLITUDE FREQUENCY OF VIBRATION AND ITS AFTER SHOCK
THE CRANK ANGULAR VELOCITY VARITION ≤ PREDETERMINED THRESHOLD VALUE
Yes
No
KNOCKING
NO KNOCKING
IGNITION TIMING DELAYED
CONTROLLING IGNITION TIMING ACCORDING TO LOAD AND ENGINE
CONTROLLING IGNITION TIMING ACCORDING TO LOAD AND ENGINE

1. A knock detection system, comprising a crank angular velocity sensor and an electronic control unit which determines whether knock is present according to an angular velocity variation detected by the crank angular velocity sensor, wherein said electronic control unit compares the detected angular velocity variation with a predetermined threshold value and determines that knock is present when the detected angular velocity variation is larger than the threshold value.

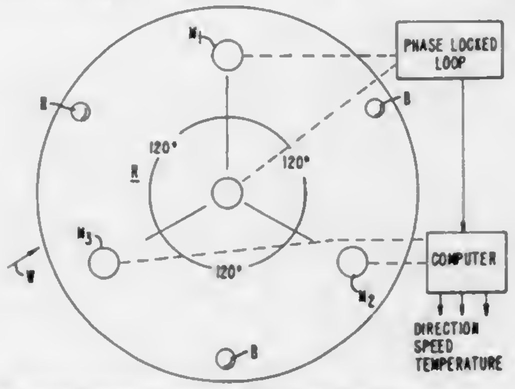
5,783,745
ANEMOMETER/THERMOMETER

John D. Bergman, 1307 "C" St., Antioch, Calif. 94509

Filed Feb. 26, 1997, Ser. No. 805,555

Int. Cl.^{6} G01P *5/18;* **G01W** *1/02*

U.S. Cl. 73—170.13 **8 Claims**



1. An anemometer comprising in combination:

a measurement plane disposed to have wind for measurement passing parallel to the measurement plane;

a sound generating transducer generating sound at a central location;

one fiducial sound receiving transducer for receiving sound from the sound generating transducer;

means for maintaining a constant sound wavelength between the fiducial sound receiving transducer and the sound generating transducer operatively connected between the sound generating transducer and the fiducial sound receiving transducer independent of wind velocity and air temperature;

at least one additional sound receiving transducer for receiving sound from the sound generating transducer on the measurement plane, the one additional sound receiving transducer being located on a radial from the sound generating transducer which does not intersect the fiducial sound receiving transducer; and,

computational means for converting phase of signal received at the fiducial sound receiving transducer and the at least one additional sound receiving transducer into a component of the speed of wind and direction of wind across the measurement plane.

5,783,746

Patent Not Issued For This Number

5,783,747
FLUID ANALYZING DETECTOR FOR DETECTING THE PRESENCE OF A PARTICULAR ANALYTE IN A FLUID MEDIUM

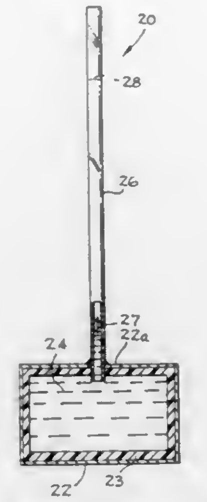
James T. Lindow, Saratoga, and Edward R. McCourt, Jr., Palo Alto, both of Calif., assignors to Mark Products, Inc., Sunnyvale, Calif.

Filed Feb. 27, 1997, Ser. No. 807,070

Int. Cl.^{6} G01N *15/06*

U.S. Cl. 73—61.41 **18 Claims**

1. A fluid analyzing detector for detecting the presence and concentration of a particular analyte in a fluid medium, said detector comprising a sensor member of a material which changes in volume in the presence of said analyte in liquid or gaseous form, means for confining said sensor member in at least one direction while permitting the introduction of an analyte containing fluid substance thereto; a quantity of an incompressible liquid, means for confining said incompressible liquid in pressure transmitting contact with said sensor member, and means for sensing a pressure change in said incompressible liquid when the presence of an analyte containing fluid substance causes said sensor member to change the pressure exerted upon said incompressible liquid.



5,783,748
SEMICONDUCTOR SENSOR INCLUDING PROTECTIVE RESIN PACKAGE

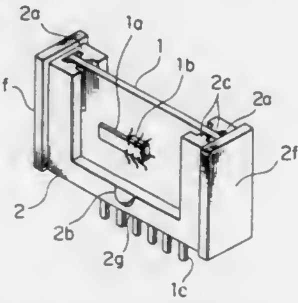
Hiroshi Otani, Tokyo, Japan, assignor to Mitsubishi Denki Kabushiki Kaisha, Tokyo, Japan

Filed Jan. 2, 1996, Ser. No. 582,055

Claims priority, application Japan, Feb. 28, 1995, 7-040199

Int. Cl.^{6} G01P *1/02*

U.S. Cl. 73—493 **16 Claims**



1. A semiconductor sensor and resin package comprising:

a semiconductor sensor including a planar circuit board having edges, a sensing element mounted on the circuit board, and outer electrodes attached to one of the edges of the circuit board and extending outwardly from the circuit board;

a resin package protecting the sensing element, the resin package having a groove in which the edges of the circuit board are disposed, the groove including opposing projections for contacting and restraining the edges of the circuit board; and

a metallic cap fitted onto the resin package and covering at least part of the resin package, the resin package having a sealing groove receiving edges of the metallic cap.

5,783,749
VIBRATING DISK TYPE MICRO-GYROSCOPE

Jong-Hyun Lee; Boo-Yeon Choi; Kyung-Ho Park, and Hyung-Joun Yoo, all of Daejeon, Rep. of Korea, assignors to Electronics and Telecommunications Research Institute, Daejeon, Rep. of Korea

Filed Jul. 5, 1996, Ser. No. 675,970

Claims priority, application Rep. of Korea, Dec. 7, 1995, 95-47433

Int. Cl.^{6} G01P *9/04*

U.S. Cl. 73—504.12 **5 Claims**

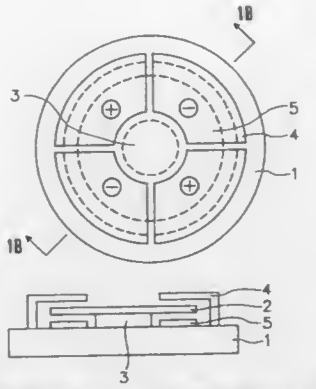
1. A vibrating disk type micro-gyroscope comprising:

a support platform formed on a silicon wafer;

a vibrating disk supported at a center thereof by the support platform to provide a set spacing from the silicon wafer, for converting a resonance frequency into two beat frequencies when vibration of the disk is produced by an electrostatic force;

a circle shaped bottom detection electrode coaxial with the vibrating disk divided into at least four pairs of parts on the silicon wafer, for detecting an angular velocity of the vibrating disk detected from an electrostatic capacitance change between the bottom electrode and the vibrating disk; and

an upper drive electrode, having one end divided into at least two pairs of parts formed on the silicon wafer at a set spacing from the bottom detection electrode and the vibrating disk in a radial direction and extending and bending at a middle thereof and another end formed above the vibrating disk in an axial direction, for driving the vibrating disk.



5,783,750
SEMICONDUCTOR SENSOR INCLUDING LAMINATED SUPPORTING PEDESTAL

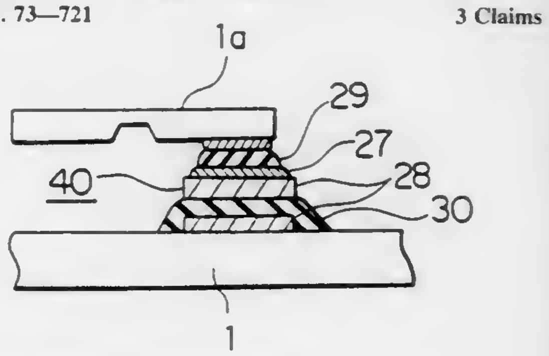
Hiroshi Otani, Tokyo, Japan, assignor to Mitsubishi Denki Kabushiki Kaisha, Tokyo, Japan

Division of Ser. No. 582,055, Jan. 2, 1996. This application Oct. 10, 1996, Ser. No. 731,130

Claims priority, application Japan, Feb. 28, 1995, 7-040199

Int. Cl.^{6} G01L *9/06*

U.S. Cl. 73—721 **3 Claims**



1. A semiconductor sensor comprising:

a circuit board;

a pedestal including stacked board-composing materials disposed on the circuit board, the stacked board-composing materials including, sequentially arranged, a first metal layer, a first glass layer, a second metal layer, a resistance layer, and a second glass layer; and

a sensing element fixed to and supported on the pedestal as a cantilever.

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5,783,751

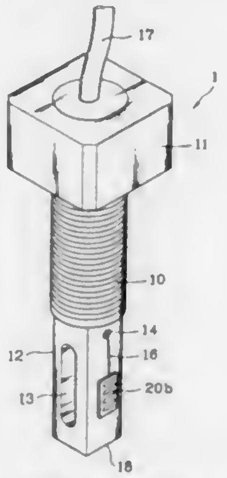
CUTTING FORCE SENSOR IN THE FORM OF A TURRET LOCKING SCREW

Hsieh Chi Maw, Miaoli; Spring C. C. Hung, and Chang-Ming Chen, both of Hsinchu, all of Taiwan, assignors to Industrial Technology Research Institute, Hsinchu, Taiwan

Filed Dec. 31, 1996, Ser. No. 774,577

Int. Cl.^{6} F16B *31/02*

U.S. Cl. 73—761 **6 Claims**



1. A cutting force sensor for a turret in a cutting machine wherein the turret is fixed to the cutting machine via a plurality of turret locking screws, comprising:

a body in a substantially bolt shape including a substantially rectangular strut at one very end near the bottom having a through transverse hole formed therein, and a square head at another end having an axial counterbore formed therein communicating with said transverse hole so as to form a T-shaped channel therein;

a pair of strain gauges attached respectively on two opposite surfaces of the strut below the transverse hole;

two Wheatstone Bridges located in the counterbore connecting at one end via a signal wire with the strain gauges in the T-shaped channel and at another end with a signal cable extending outside of the sensor; and

a slot opening having a predetermined dimension formed in the said rectangular strut below the transverse hole toward the very end and across two opposite surfaces where no strain gauges are mounted;

wherein said body is shaped in the form similar to one of the locking screws locking the turret to the cutting machine so as to be able to replace one of the locking screws.

5,783,752

DIFFUSE SURFACE INTERFERENCE POSITION SENSOR

William G. Thorburn, Whitinsville; Donald K. Mitchell, Newton, and Bruce A. Horwitz, Centre, all of Mass., assignors to MicroE, Needham Heights, Mass.

Filed Feb. 20, 1997, Ser. No. 803,420

Int. Cl.^{6} G01B *11/16*

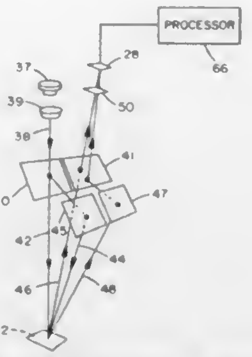
U.S. Cl. 73—800 **20 Claims**

1. A position sensor for sensing position of a diffusely scattering surface comprising:

a source of coherent illumination which illuminates the diffusely scattering surface with first and second input beams angled toward the surface forwardly and rearwardly, respectively, relative to surface motion;

a fringe detector; and

optics to direct light, scattered from the surface in rearward and forward directions, respectively, relative to surface motion, to the detector to form a fringe pattern in the plane of the detector resulting from interference of diffusely scattered light, movement of the surface being detected by the fringe detector through movement of the fringe pattern.



5,783,753

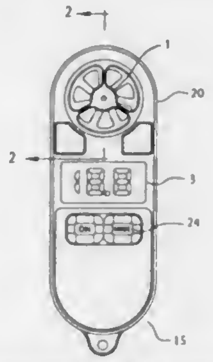
VANE ANEMOMETER HAVING A MODULAR IMPELLER ASSEMBLY

Richard Kellerman, Media, Pa., assignor to Nielsen-Kellerman Company, Chester, Pa.

Filed Apr. 17, 1997, Ser. No. 837,376

Int. Cl.^{6} G01F *1/115*

U.S. Cl. 73—861.94 **27 Claims**



13. A method of constructing a vane anemometer comprising the steps of:

installing a first bearing into a first cage;

inserting a rotatable shaft having an impeller into the first bearing;

sealing a second cage to the first cage to form a modular impeller assembly; and

placing the modular impeller assembly into a cavity in the anemometer without the use of tools.

5,783,754

APPARATUS AND METHOD FOR MEASURING THE GRIPPING STRENGTH OF A VACUUM WAND

John MacPherson, Fremont, Calif., assignor to Integrated Device Technology, Inc., Santa Clara, Calif.

Filed Feb. 28, 1996, Ser. No. 607,413

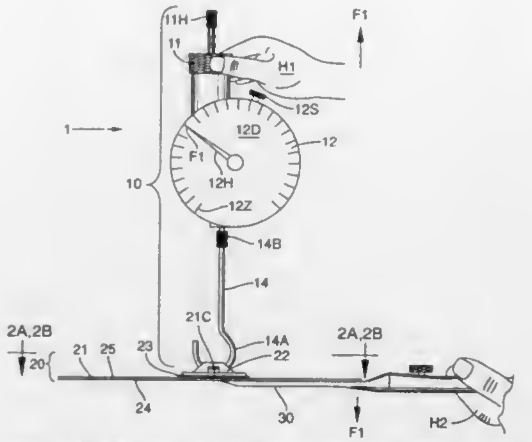
Int. Cl.^{6} G01L *1/00*

U.S. Cl. 73—862.03 **24 Claims**

10. A method comprising:

holding a hold tester using a wafer holder in a manner separable from said wafer holder;

applying a force between said wafer holder and said hold tester until said hold tester becomes separated from said wafer holder; and



measuring a first force applied between said wafer holder and said hold tester during said application of force.

5,783,755

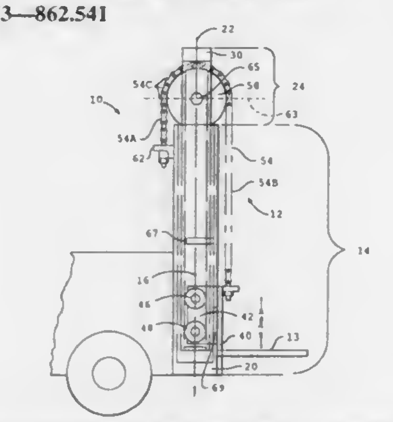
LIFTED DEVICE EMPLOYING AN EQUALIZER SYSTEM TO REDUCE WEIGHT MEASUREMENT ERROR

Robert W. Bruns, Sacramento, Calif., assignor to GageTek Company, Rancho Cordova, Calif.

Filed Mar. 4, 1997, Ser. No. 812,995

Int. Cl.^{6} G01L *1/00*

U.S. Cl. 73—862.541 **15 Claims**



1. A device for lifting a load, said device comprising:

a frame;

a carriage operationally coupled to said frame for movement relative thereto;

a linkage member disposed, relative to said frame, to form two spaced-apart opposing sections, one of which is fixedly secured to said frame, defining an anchor portion, with the remaining section attached to said carriage, defining a load portion, said linkage member having a plurality of links, each link including a pair of spaced apart rollers;

a load bearing member adapted to engage said load, said load bearing member connected to said carriage for movement relative to said frame, exerting a first force on said load portion corresponding to a weight of said load, with said first force producing a second force on said anchor portion;

a load cell transducer coupled to said carriage to sense said second force and produce signals corresponding thereto; and

a sprocket wheel attached to said frame to rotate about an axis, with said linkage member passing over said sprocket wheel so that the centers of a pair of spaced apart rollers subtend an angle 2θ measured between two radii extending from said axis, with e being defined as follows: $\theta=180°/2n$.

5,783,756

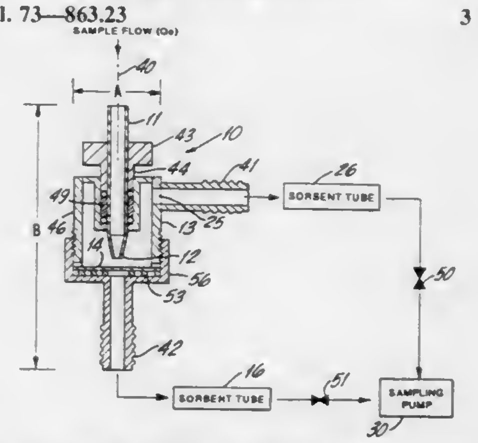
PORTABLE SAMPLER FOR VOLATILE AEROSOLS

Judy Q. Xiong, Nanuet; Beverly S. Cohen, Newburgh, and Ching-Ping Fang, Nanuet, all of N.Y., assignors to New York University, New York, N.Y.

Filed Dec. 8, 1995, Ser. No. 569,504

Int. Cl.^{6} G01N *1/24*

U.S. Cl. 73—863.23 **3 Claims**



1. An air sampler system to collect separate samples of an airborne chemical having simultaneously particles and vapor in the air, the system comprising an air sampler device comprising:

(a) a first conduit having an inlet orifice adapted to receive air drawn into the first conduit and an exit nozzle from which air exits;

(b) a housing at least partly surrounding the first conduit and having a first exit orifice, and a second exit orifice separated from the first exit orifice and not directly aligned with the nozzle;

(c) a particle filter means spaced from the nozzle, aligned with the nozzle and proximate to the nozzle, the filter means being between the nozzle and the first exit orifice, to collect the particles which will enter the filter due to inertia from their mass while vapor and air molecules due to their lower mass, compared to the mass of the particles, will flow along both conduits;

the air sampler system further comprising:

(d) a pair of vapor sorbent tubes; and

(e) an air sampling pump; wherein one end of each sorbent tube is connected for air flow to the sampling pump and the opposite end of the sorbent tubes are connected, for air flow, to respective exit orifices.

5,783,757

METHODS AND APPARATUS FOR MEASURING A SPEED OF FLOW OF A FLUID

Maurice Gilbert Le Van Suu, Romainville, France, assignor to SGS-Thomson Microelectronics S.A., Saint Genis, France

Filed Feb. 13, 1997, Ser. No. 801,604

Claims priority, application France, Feb. 28, 1996, 96 02838

Int. Cl.^{6} G01F *1/68*

U.S. Cl. 73—204.27 **23 Claims**

1. A method for measuring a speed of flow of a fluid by means of a heat sensor placed in the flow of the fluid, the heat sensor being crossed by current that carries the heat sensor to a temperature greater than a temperature of the fluid, the method comprising the steps of:

extracting a first signal from the heat sensor, the first signal representing an exchange of heat between the heat sensor and the fluid for a first value of current flowing through the heat sensor;

making the current flowing through the sensor vary from the first value to a second value;

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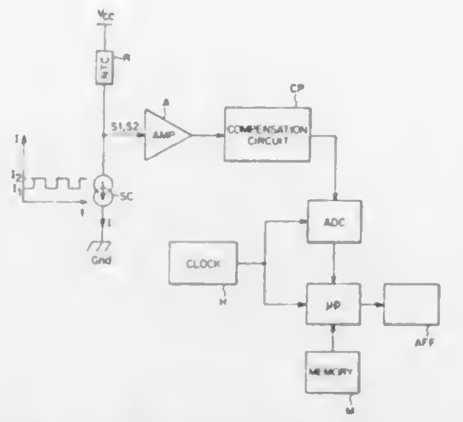


extracting a second signal from the heat sensor, the second signal representing an exchange of heat between the heat sensor and the fluid for the second value of current flowing through the heat sensor; and

determining, using fuzzy logic, the speed of flow of the fluid based on the first and second signals.

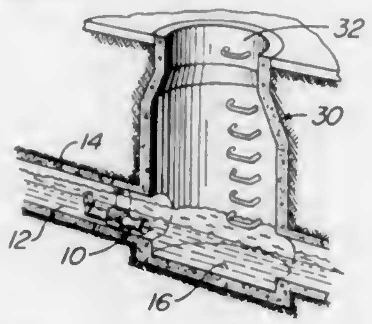
5,783,758
LIQUID SAMPLING APPARATUS FOR CONDUIT LIQUID FLOW

Lynn A. Dudley, Chino, Calif., assignor to Vortox Company, Claremont, Calif.

Filed Feb. 12, 1996, Ser. No. 599,815

Int. Cl.⁶ G01N *1/20*

U.S. Cl. 73—863.52 **39 Claims**



1. In combination:

a liquid receiver having an interior liquid receiving space bounded by a wall,

a liquid sampling apparatus disposed in a sampling position within said space,

mounting means releasably securing said sampling apparatus to said wall to retain said apparatus in said sampling position within said space, and wherein

said liquid sampling apparatus comprises inlet means including a liquid inlet opening to said liquid receiving space, and a sample collection chamber connected to said inlet means for receiving liquid entering through said inlet, and

said mounting means is releasable to permit removal of said sampling apparatus from said liquid receiver for retrieving a liquid sample from the apparatus.

5,783,759
ELEMENT AND SYSTEM FOR COLLECTING, TRANSPORTING AND STORING SAMPLE MATERIAL TO BE ANALYZED

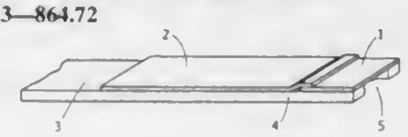
Hans Wielinger, Weinheim; Rolf Lerch, Ilvesheim, and Wolfgang Werner, Mannheim, all of Germany, assignors to Boehringer Mannheim GmbH, Mannheim, Germany

Filed Jun. 24, 1996, Ser. No. 668,916

Claims priority, application Germany, Jun. 24, 1995, 195 23 061.2

Int. Cl.⁶ G01N *1/10;1/18*

U.S. Cl. 73—864.72 **12 Claims**



1. An element for collecting, transporting and storing a sample material to be analyzed, the element comprising:

an inert support material; a first and second layer of absorptive matrix material arranged side by side next to and touching one another on the inert support material in a contact enabling transfer of liquid from the first layer into the second layer when the first layer is filled with liquid, the first layer being completely separable from the second layer after having applied the sample material.

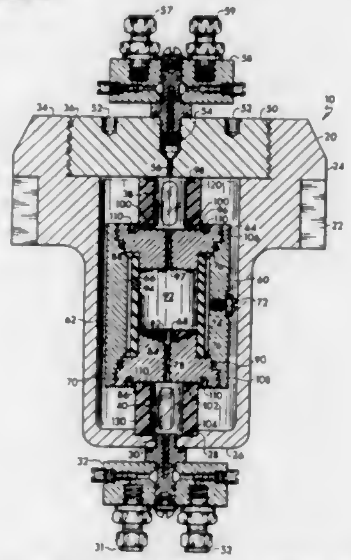
5,783,760
METHOD AND APPARATUS FOR CORE FLOODING STUDIES

Hiemi K. Haines, Englewood; Gary R. Kennedy, Denver, and Richard D. Favinger, Littleton, all of Colo., assignors to Marathon Oil Company, Findlay, Ohio

Division of Ser. No. 376,593, Jan. 20, 1995, Pat. No. 5,563,333. This application Oct. 7, 1996, Ser. No. 726,592

Int. Cl.⁶ G01N *15/08*

U.S. Cl. 73—865.6 **13 Claims**



1. A method for studying fluid replacement in core samples under reservoir temperature and pressure, the method comprising:

(a) providing overburden pressure to a core sample;

(b) loading the core sample into a centrifuge bucket so that the core has a proximal end and a distal end;

(c) flooding the core sample with a core flooding fluid having a substantial volatile fraction and a bubble point pressure less than said reservoir pressure;

(d) supplying at least one replacement fluid to at least one end of the core sample;

(e) providing reservoir pressure to the core flooding fluid and the at least one replacement fluid;

(f) heating the flooded core sample and the at least one replacement fluid to said reservoir temperature;

(g) spinning the bucket in a centrifuge while maintaining the core flooding fluid and the at least one replacement fluid at said reservoir temperature and said reservoir pressure; and

(h) determining at least twice the volumes of the at least one replacement fluid imbibed into the core sample and the core flooding fluid replaced in the core sample as a result of spinning the bucket, said step of determining being performed by optically observing the volumes through at least one pair of windows in said bucket while said bucket is spinning in said centrifuge: and

(i) recording said volumes as a function of time and rotational speed.

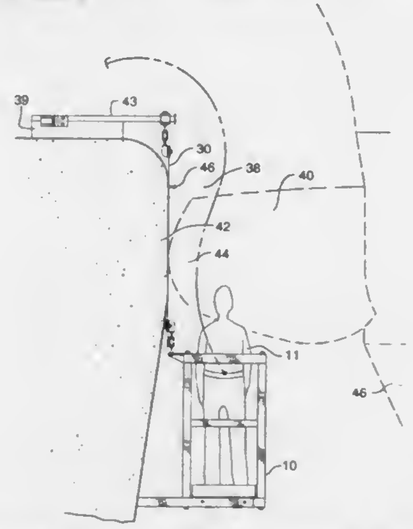
5,783,761
METHOD AND APPARATUS FOR PROPELLER RUNNER INSPECTION

Alfred Mohino, Puslinch, Canada, assignor to Ontario Hydro, Toronto, Canada

Filed Jun. 2, 1997, Ser. No. 867,067

Int. Cl.⁶ B08B *9/00*

U.S. Cl. 73—865.8 **9 Claims**



1. A method of facilitating the inspection of the blades of a runner mounted within a water passage of a hydroelectric facility comprising the step of lowering a portable inspection platform to a position adjacent to and below the blades of the runner, the platform dimensioned and configured to support an inspector, the platform further dimensioned and configured to pass between the blades of the runner.

7. An inspection platform system for supporting an inspector adjacent the blades of a runner mounted within a water channel in a hydroelectric facility comprising:

(a) a portable inspection platform dimensioned and configured to support the inspector and pass between the blades of the runner;

(b) a cable for lowering inspection platform into the desired position, and

(c) the cable dimensioned and configured to safely support the platform and pass between the runner blade and the water channel.

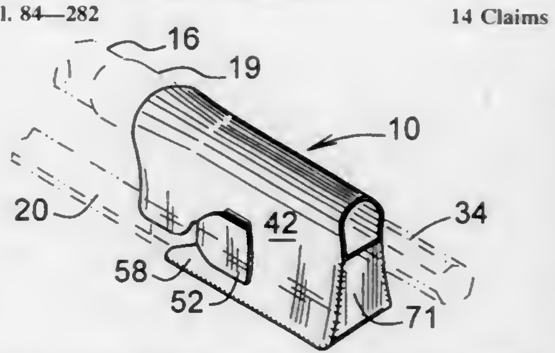
5,783,762
BOW FROG COVER

Diana E. Lindauer, 831 E. Ridge Rd., SE., Corydon, Ind. 47112

Filed Oct. 11, 1995, Ser. No. 541,133

Int. Cl.⁶ G10D *1/00*

U.S. Cl. 84—282 **14 Claims**



1. A frog cover for a bow; the bow including hair, a bow rod and a bow frog, the bow frog including a top portion and an opposite bottom portion and opposed side edges; the bow frog movably mounted at the top portion to the bow rod; the bottom portion of the bow frog receiving the hair at one of the opposed side edges; the frog cover comprising:

a sleeve slidably engaging the bow; said sleeve comprising at least one sheet of material and a means for holding said sleeve in position covering a portion of the bow rod adjacent the bow frog, the bottom portion of the bow frog and the other of said opposed side edges; said at least one sheet of material including a first front side edge, a second front side edge and a rear side edge.

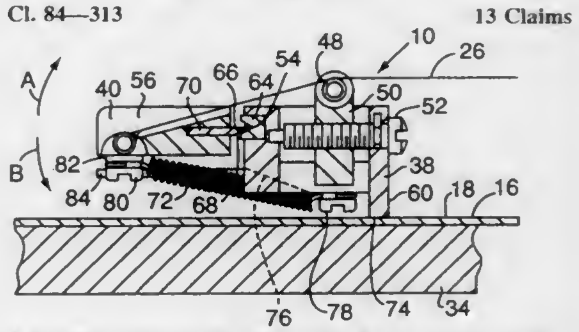
5,783,763
BI-DIRECTIONAL VIBRATO MECHANISM FOR A GUITAR

Helmut F. K. Schaller, Feucht, and Rene Schaller, Pyrbaum, both of Germany, assignors to Schaller Electronic, Feucht, Germany

Filed Feb. 26, 1997, Ser. No. 806,941

Int. Cl.⁶ G10D *3/04*

U.S. Cl. 84—313 **13 Claims**



1. A bi-directional vibrato mechanism for use with a guitar having a body with a top surface and a set of strings extending over a portion of said body above said top surface, said vibrato mechanism comprising:

a front part for attachment to a guitar such as aforesaid, said front part carrying a plurality of supports for supporting the strings of said guitar and having a lowermost bottom surface which, when said front part is attached to a guitar, faces downwardly toward said top surface of the guitar,

a rear part for anchoring attachment to the strings of the guitar,

pivot means supporting said rear part on said front part for movement of said rear part relative to said front part in string tightening and string loosening directions about a pivot axis extending transversely to the strings of the guitar and generally parallel to said top surface of the guitar.

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- at least one spring located above the level of said bottom surface of said front part and working between said front and rear parts to resiliently resist movement of said rear part relative to said front part about said pivot axis in said string tightening direction, and
- at least one other spring located above said level of said bottom surface of said front part and working between said front and rear parts to resiliently resist movement of said rear part relative to said front part about said pivot axis in said string loosening direction.

5,783,764

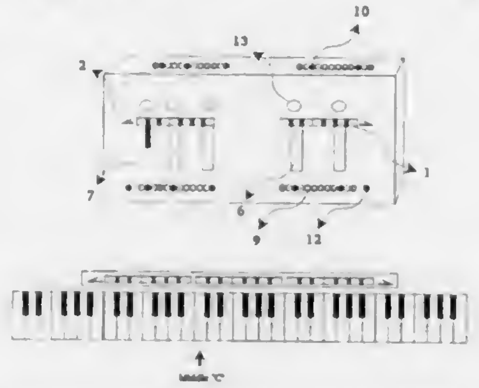
PIANOPICS DISPLAY AND ASSOCIATED MUSICAL NOTATION

Jean-Claude Amar, 109 Lincoln St., Montclair, N.J. 07042

Filed May 30, 1997, Ser. No. 866,893

Int. Cl.⁶ G09B *15/08*

U.S. Cl. 84—479 A **9 Claims**



1. A musical keyboard instruction device for a musical keyboard having a plurality of arrays of keys, each said array having five black keys and seven white keys in a specified order, said device comprising:

- an elongate marking device in the form of a multi-scale ruler having opposed left and right ends and comprising three sets of five dark and seven light rectangular shapes matching in width and order the black and white keys respectively of the keyboard, octave symbol markers on the left and right ends respectively of the marking device, the marking device being configured for placement in proximity to the keys of the keyboard such that the dark and light shapes of the marking device align respectively with the black and white keys of the keyboard; and
- a display bearing a musical notation system comprising a plurality of discrete indicia each of the indicia comprising one horizontal scale bar having five dark rectangular shapes and seven light rectangular shapes disposed in the order of the rectangular shapes on the marking device, elongate vertically aligned dark and light key shapes extending down from selected ones of the rectangular shapes of the scale bar in each of the indicia, said elongate key shapes in each of said indicia representing keys of the musical keyboard to be played as marked by the marking device, said indicia further comprising duration symbols aligned with said elongate key shapes and indicating a beat duration for each key identified by said respective elongate key shapes, and order identifying indicia for indicating any required order of playing keys identified in each of said indicia.

5,783,765

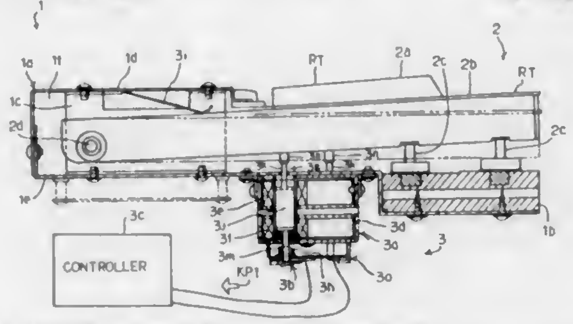
KEYBOARD MUSICAL INSTRUMENT EQUIPPED WITH ELECTROMAGNETIC KEY TOUCH GENERATOR FOR IMPARTING PIANO KEY-TOUCH TO PLAYER

Shigeru Muramatsu, Shizuoka, Japan, assignor to Yamaha Corporation, Shizuoka-ken, Japan

Filed Jul. 2, 1997, Ser. No. 887,176

Int. Cl.⁶ G10H *1/055*

U.S. Cl. 84—615 **10 Claims**



1. A keyboard musical instrument comprising:

- a plurality of keys turnable along trajectories between respective rest positions and respective end positions;
- a plurality of key sensors respectively monitoring said plurality of keys, and respectively producing key status signals each representative of current key status of associated one of said plurality of key sensors;
- a plurality of first resilient members respectively associated with said plurality of keys so as to urge the associated keys toward said rest positions;
- a plurality of second resilient members respectively associated with said plurality of keys so as to urge the associated keys toward said end positions, a first resilient force of each of said plurality of second resilient members being balanced with a second resilient force of associated one of said plurality of first resilient members at the rest position of associated one of said plurality of keys;
- a plurality of key actuators generating forces exerted on said plurality of keys, respectively, so as to build up resistances to key motions from said rest positions toward said end positions; and
- a controller connected to said plurality of actuators, and responsive to said key status signals so as to change each resistance depending upon said current key status of associated one of said plurality of keys on the trajectory.

5,783,766

MUSICAL SOUND PRODUCING DEVICE IN ELECTRONIC MUSICAL INSTRUMENT

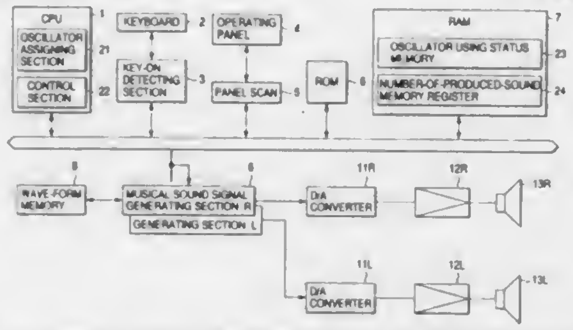
Jiro Tanaka, Shizuoka, Japan, assignor to Kabushiki Kaisha Kawaigakki Seisakusho, Shizuoka, Japan

Filed Jul. 29, 1997, Ser. No. 901,971

Claims priority, application Japan, Jul. 29, 1996, 8-214948

Int. Cl.⁶ G10H *1/057;1/22*

U.S. Cl. 84—618 **17 Claims**



1. A musical sound producing device in an electronic musical instrument of stereophonic sampling system, comprising:

- oscillator using status memory means for storing each order of right and left oscillators which are being used for sound production, in accordance with an order of the sound production;
- number-of-produced-sound memory means for storing each number of stereophonic sounds and a monophonic sound which are being produced at the same time by the oscillators memorized in the oscillator using status memory means; and
- oscillator assigning means for performing calculation in accordance with the numbers of the stereophonic sounds and the monophonic sound stored in the number-of-produced-sound memory means, stopping at least one sound being produced, by damping an oscillator, when a sound is newly keyed on under a condition that the number of oscillators which are being used reaches a total number of oscillators, and assigning the damped oscillator to produce the sound which is newly keyed on.

5,783,767

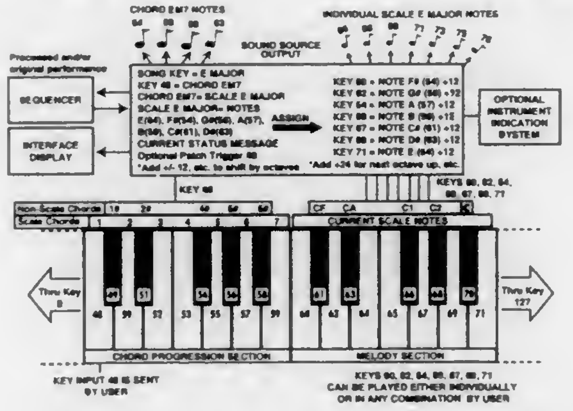
FIXED-LOCATION METHOD OF COMPOSING AND PEFORMING AND A MUSICAL INSTRUMENT

Jeff K. Shinsky, 15531 Mira Monte, Houston, Tex. 77083

Continuation-in-part of Ser. No. 531,786, Sep. 21, 1995, Pat. No. 5,650,584. This application Jul. 22, 1997, Ser. No. 898,613

Int. Cl.⁶ G10H *5/00;* H02M *5/00*

U.S. Cl. 84—657 **1 Claim**



1. A method of generating a chord progression on an electronic instrument, comprising the steps of:

- designating an input controller on the instrument for the performance of musical data, where said musical data comprises note-identifying information, and where said musical data is provided in response to selections and deselections of said input controller;
- selecting a first song key corresponding to said input controller, said first song key defining said first song key's customary scale and customary scale equivalent;
- providing first musical data comprising first note-identifying information, said first note-identifying information identifying notes making up a first chord representing a relative position in said first song key's customary scale or customary scale equivalent;
- selecting a second song key corresponding to said input controller, said second song key defining said second song key's customary scale and customary scale equivalent;
- providing second musical data comprising second note-identifying information, said second note-identifying information identifying notes making up a second chord which represents the same relative position in said second song key's customary scale or customary scale equivalent as said first chord represented in said first song key's customary scale or customary scale equivalent;
- during at least one of said steps of selecting a first song key and providing first musical data or selecting a second song key and providing second musical data, providing at least one indicator corresponding to said input controller, said indicator representing a relative position corresponding to the selected song key for which it is provided, and to the corresponding chord of said selected song key; and
- in at least one of said steps of providing musical data, providing data representative of at least a chord or scale change.

5,783,768

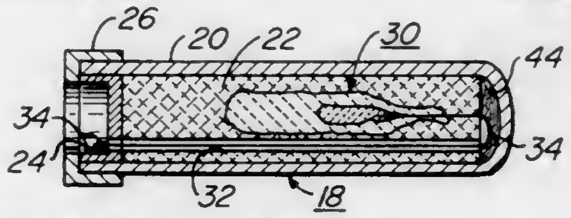
FIRE STARTING FLARE

Michael D. Jacobson, Ridgecrest, Calif., assignor to Quoin, Inc., Ridgecrest, Calif.

Filed Feb. 8, 1996, Ser. No. 598,246

Int. Cl.⁶ F42B *4/26;* C06D *3/00*

U.S. Cl. 102—334 **8 Claims**



1. A fire starting flare comprising:

A. a casing with two ends, one open and the other closed;

B. combustible core material within said casing of 120 grit aluminum powder mixed with equal weight of plaster;

C. a cap placed over the open end of said casing capable of being ruptured by high pressure;

D. an ignitor assembly placed within said combustible core material within said casing; and

E. a fuse which extends from the outside of said predesigned hole in said plug, through said hole and through said combustible core material to said ignitor assembly, to which said fuse is operably connected.

5,783,769

SOLID PROPELLANT WITH NON-CRYSTALLINE POLYETHER/ENERGETIC PLASTICIZER BINDER

John R. Goleniewski, Sandy, and James A. Roberts, Salt Lake City, both of Utah, assignors to Hercules Incorporated, Wilmington, Del.

Filed Mar. 17, 1989, Ser. No. 326,852

Int. Cl.⁶ C06B *45/10*

U.S. Cl. 149—19.6 **3 Claims**

1. In a solid propellant composition comprising an oxidizer, a fuel, a binder, and at least one additive selected from a stabilizer, a bonding agent, a burning rate additive, a scavenger or a catalyst, the improvement comprising using a binder comprising based on the weight of the total propellant composition, of

(a) 3–12% of a non-crystalline polyether having a molecular weight of 1250–9000 and

(b) 1–12% of an energetic plasticizer having a positive heat of explosion, wherein the non-crystalline polyether is selected from random copolymer of ethylene oxide and tetrahydrofuran.

5,783,770

Patent Not Issued For This Number

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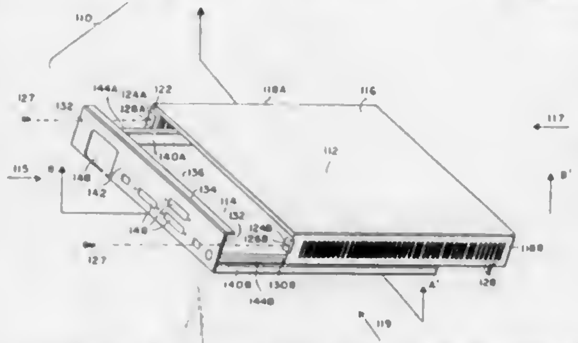
5,783,771
EMI CHASSIS SEAM

Jeffrey P. Copeland, Jefferson, and Dennis C. Robinson, Marlboro, both of Mass., assignors to Digital Equipment Corporation, Maynard, Mass.
Filed Oct. 6, 1995, Ser. No. 550,787
Int. Cl.^{6} H05K *9/00*
U.S. Cl. 174—35 R **25 Claims**



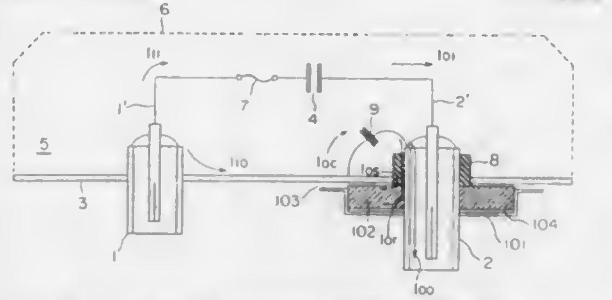
1. A multipiece construction for a wall of an enclosure for housing electronic components, comprising:

a first side portion having a major surface, the first side portion having a longitudinal groove at the major surface and extending along an edge region thereof, the groove having spaced apart longitudinal sidewall regions; and

a second side portion having a major surface, the second side portion having a tongue at the major surface and extending along an edge region thereof, the tongue having a first tongue portion extending laterally from the second side portion and a second tongue portion extending generally orthogonally from the first tongue portion, the second tongue portion being opposed to and spaced apart from the second side portion, the tongue having a shape and a location on the second side portion effective for the first and the second tongue portions to slide into interengaging relationship with the longitudinal sidewall regions of the groove to join the first and second side portions into a unitary wall of the enclosure with the two major surfaces of the first and second side portions being generally parallel to each other and forming an exterior surface of the unitary wall.

5,783,772
LEAKAGE RADIATION PREVENTING ELEMENT

Michiharu Takahashi, Yachiyo; Hitoshi Komine, Bunkyo-ku, and Yuji Ichikawa, Adachi-ku, all of Japan, assignors to Uro Denshi Kogyo Kabushiki Kaisha, Tokyo-To, Japan
Filed Oct. 7, 1996, Ser. No. 726,493
Claims priority, application Japan, Apr. 9, 1996, 8-086794
Int. Cl.^{6} H05K *9/00*
U.S. Cl. 174—35 R **11 Claims**



1. A leakage radiation preventing element, comprising:

a coaxial conductor composed of an inner conductor and an outer conductor and disposed so as to pass through a chassis of an electronic appliance electrically insulated from the chassis;

a conductive disk connected to the outer conductor of said coaxial conductor and extending roughly in parallel to the chassis so as to form a space between said conductive disk and the chassis by surrounding said coaxial conductor concentrically; and

a magnetic substance formed of ferrite and inserted in the space so as to surround said coaxial conductor concentrically.

5,783,773
LOW-RESIDUE AZIDE-FREE GAS GENERANT COMPOSITION

Donald R. Poole, Port Orchard, Wash., assignor to Automotive Systems Laboratory Inc., Farmington Hills, Mich.
Continuation-in-part of Ser. No. 467,182, Jun. 6, 1995, Pat. No. 5,531,941, which is a division of Ser. No. 101,848, Aug. 4, 1993, abandoned, which is a continuation-in-part of Ser. No. 867,439, Apr. 13, 1992, abandoned. This application Sep. 21, 1995, Ser. No. 531,631
Int. Cl.^{6} C06B *47/08*
U.S. Cl. 149—36 **12 Claims**

1. An azide-free and binder-free gas generant composition that produces exhaust gases on combustion for inflating vehicle or aircraft occupant restraint devices in order to provide a clean inflating gas for the benefit of each vehicle or aircraft occupant, said composition consisting of:

a. an oxidizer of the group consisting of a mixture of ammonium nitrate (AN) and potassium salt, and phase stabilized ammonium nitrate (PSAN), and

b. a TAGN fuel of the group consisting of:

i.) TAGN;

ii.) a mixture of TAGN and GN; and

iii.) a mixture of TAGN and oxamide wherein the TAGN of each of ii.) and iii.) is in higher concentration than the concentration of GN and oxamide respectively, the oxidizer being stabilized by simultaneous admixture with wet TAGN fuel while still wet to obtain a wet PSAN/fuel mixture, the resulting PSAN/fuel mixture being dried, powdered and compression pelleted.

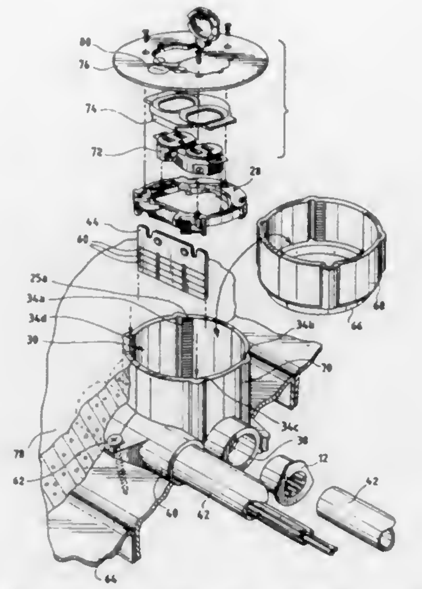
5,783,774
NON-METALLIC FLOOR BOX

Timothy Bowman, Parkersburg, W. Va.; Charles Domigan, Coolville, Ohio; John Stauffer, Parkersburg, W. Va., and Joe Young, Reedsville, Ohio, assignors to Walker Systems, Inc., Williamstown, W. Va.
Continuation of Ser. No. 735,307, Oct. 21, 1996. This application Mar. 11, 1997, Ser. No. 815,057
Int. Cl.^{6} H02G *3/10*
U.S. Cl. 174—48 **18 Claims**

1. A floor box for mounting in a concrete floor, the floor box comprising:

a housing having a base, a vertically extending side wall defining an interior compartment, and a plurality of sets of vertically aligned indexing teeth formed on the interior of the housing side wall:

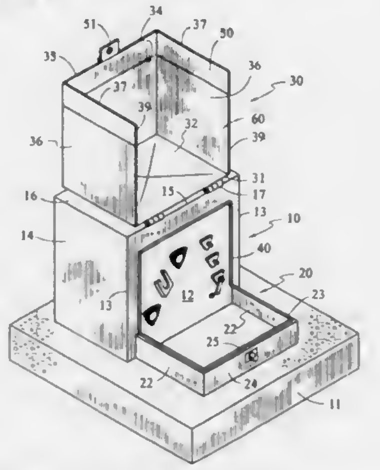
an adapter ring sized for insertion into the housing interior compartment and being adapted to support an activation kit above the housing interior compartment, the adapter ring having a plurality of flanges extending from its periphery which are positioned to reciprocally mate with the sets of vertically aligned indexing teeth when the adapter ring is inserted into the housing interior compartment to secure the adapter ring within the housing: and



wherein the flanges and teeth are constructed to permit the adapter ring to be inserted into the housing but to restrict removal of the adapter ring from the housing after its insertion therein.

5,783,775
TRANSFORMER DOOR WITH CORROSION RESISTANT BOTTOM STRIP

Richard Michael Marusinec, Delafield, Wis., assignor to Cooper Industries, Inc., Houston, Tex.
Filed Jun. 28, 1995, Ser. No. 496,027
Int. Cl.^{6} H02G *3/14*
U.S. Cl. 174—50 **8 Claims**



1. A padmounted transformer, comprising:

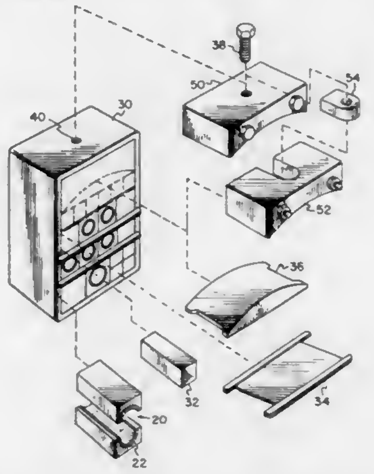
a tank housing a transformer core and coil assembly and including a front plate through which electrical connections for said assembly extend, said front plate having upper, side and lower edges;

a sill extending from said side edges of said front plate adjacent said lower edge; and

a cabinet door pivotally mounted on said upper edge for enclosing said electrical connections, said door including a lower edge for engaging said sill, a portion of said door adjacent said lower edge of the door comprising a corrosion-resistant material that is different from a material from which the balance of said door is made.

5,783,776
ELECTRICAL CABLE PENETRATION SEAL WITH COMPLIANT MODULE

John A. Birmingham, Broken Arrow, and Rogers A. Moore, Afton, both of Okla., assignors to O-Z Gedney Company LLC, Farmington, Conn.
Continuation-in-part of Ser. No. 237,972, May 4, 1994, Pat. No. 5,416,271, which is a continuation of Ser. No. 784,295, Oct. 29, 1991, abandoned. This application Feb. 21, 1995, Ser. No. 391,888
Int. Cl.^{6} H02G *3/18*
U.S. Cl. 174—64 R **20 Claims**



1. An electrical cable penetration seal apparatus for cooperation with a plurality of associated cables which comprises:

a plurality of compliant modules, each compliant module having a generally rectangular inner region in which a passageway is defined, said passageway being dimensioned and configured to surround one of a plurality of associated cables, each of said modules having first and second outer opposed generally planar regions disposed on opposed sides of said inner region, said inner region being an elastomer having a first durometer characteristic and said outer region being an elastomer having a second durometer characteristic; and

means for securing said plurality of compliant modules together;

each of said outer regions in each of said compliant modules having a higher durometer characteristic than said inner region within any one of said compliant modules, each of said inner regions having a durometer characteristic in the range of 25 to 45.

5,783,777
DUMMY FRONT PANEL FACE PLATE FOR CLOSING ELECTRONIC CIRCUIT CARD INSERTION OPENING IN FRONT PANEL OF DIGITAL TERMINAL CHANNEL BANK

Grant Joseph Kruse; James Brian Coker, and Jacob Daniel McCleary, all of Huntsville, Ala., assignors to Adtran, Inc., Huntsville, Ala.
Filed Sep. 20, 1996, Ser. No. 717,499
Int. Cl.^{6} H02G *3/14;* **H05K** *5/03*
U.S. Cl. 174—66 **22 Claims**

1. A dummy panel face plate element for closing a card insertion opening of an electronic equipment cabinet, said card insertion opening being sized to expose a plurality of electronic circuit card slots that contain card insertion tracks into which electronic circuit cards are slidably insertable to engage a backplane connector, and including a respective individual card slot of said plurality of card slots, said dummy panel face plate element comprising:

a face plate sized to fit adjacent to upper and lower confines of said card insertion opening;

an upper lip adjacent to an upper edge, and a lower lip adjacent to a lower edge of said face plate, said upper lip having a first notch sized to receive and capture therein a first portion of

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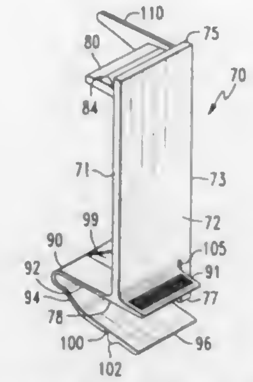
said cabinet adjacent to an upper edge of said card insertion opening, and said lower lip having a second notch sized to receive and capture a second portion of said cabinet adjacent to a lower edge portion of said card insertion opening; and
a simulated circuit card structure having card simulating wall portions extending from and solid with said face plate and being sized to fit within and slidably engage upper and lower card insertion tracks of said individual card slot; and wherein
one of said upper and lower lips is inwardly flexible relative to the other of said upper and lower lips, providing for insertion of said card-simulating wall portions of said dummy panel face plate element into and along only a first portion of a depth of said upper and lower card insertion tracks, said first and second notches receiving and capturing therein said first and second portions of said cabinet, when said one of said upper and lower lips is flexed away from the other of said upper and lower lips.



5,783,778

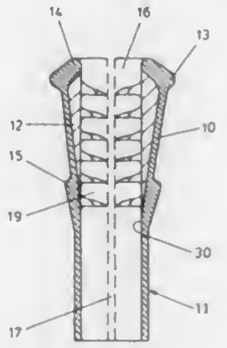
CABLE SEALING AND LOCKING DEVICE

Raymond Charles Foss, and Andrew Stephen Cammack, both of Plymouth, England, assignors to Bowthorpe PLC, West Sussex, England

Filed Mar. 1, 1996, Ser. No. 609,496

Int. Cl.⁶ H01R *13/58*

U.S. Cl. 174—77 R **9 Claims**



1. A cable locking and sealing device comprising an elongate body of elastomeric material, said elongate body having at least one through-passage for receiving a cable and at least one longitudinal slit extending down at least a portion of its length, a region of the interior of said at least one through-passage being formed with a series of annular ribs each tapering in depth to such an extent towards a point adjacent said at least one longitudinal slit that the internal surface of said through-passage immediately adjacent opposite sides of said slit is free of said ribs and smooth, said device being arranged to be pulled into an entry port so that the body of said device becomes radially compressed between said cable and said entry port.

5,783,779

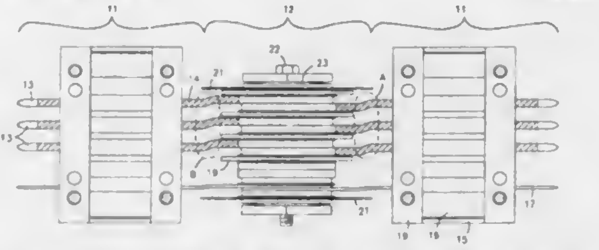
ADJUSTABLE BUSWAY ELBOW SECTION

Eric J. Graham, Farmington, Conn.; Clarence W. Walker, Selmer, Tenn., and Louis A. Rosen, Wallingford, Conn., assignors to General Electric Company, New York, N.Y.

Filed Aug. 23, 1996, Ser. No. 702,775

Int. Cl.⁶ H02G *5/08*

U.S. Cl. 74—88 B **7 Claims**



1. An adjustable busway elbow for interconnecting a pair of adjacent busway sections; said adjustable busway elbow comprising:
a first bus bar end stub having a plurality of electrically insulated first bus bar conductors, each of said first bus bar conductors having a first end portion and a second end portion, said first end portions being equi-spaced;
a second bus bar end stub having a plurality of electrically insulated second bus bar conductors, each of said second bus bar conductors having an opposing first end portion and an opposing second end portion, said opposing first end portions being equi-spaced;
a pressure joint disposed between said first bus bar end stub and said second bus bar end stub to electrically connect each of said second end portions of said first bus bar conductors to each of said opposing second end portions of said second bus bar conductors to form pairs of electrically-connected first and second bus bar conductors;
at least one of said second end portion and said opposing second end portion of each of said pairs of electrically-connected first and second bus bar conductors being offset to retain said frist end portion and said opposing first end portion of each of said pairs of electrically-connected first and second bus bar conductors in planar alignment;
said pressure joint comprising a pair of opposing side pieces, a plurality of electrical insulating plates intermediate each of said pairs of electrically connected first and second bus bar conductors and said opposing side pieces, and a fastener extending through openings in said side pieces, said electrical insulating plates, and each of said pairs of electrically-connected first and second bus bar conductors to thereby connect said insulating plates and each of said pairs of electrically-connected first and second bus bar conductors in a compact relationship, wherein said fastener may be loosened and tightened to adjust and secure said side pieces, said insulating plates, and each of said pairs of electrically-connected first and second bus bar conductors together.

5,783,780

SOUND ABSORPTION STRUCTURE

Kyoichi Watanabe, Yokosuka, and Kouichi Nemoto, Zushi, both of Japan, assignors to Nissan Motor Co., Ltd, Kanagawa, Japan

Filed Nov. 27, 1996, Ser. No. 753,606

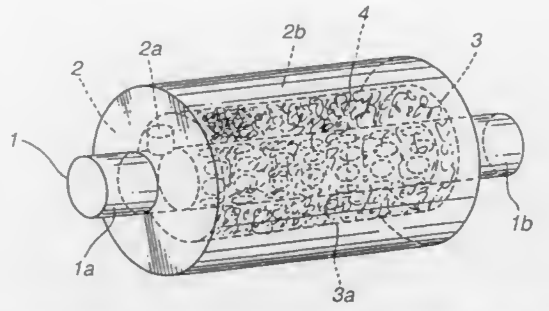
Claims priority, application Japan, Nov. 27, 1995, 7-307917

Int. Cl.⁶ F02M *35/00*

U.S. Cl. 181—229 **12 Claims**

1. A sound absorption structure comprising:
a base duct portion;
an extended duct portion having a diameter greater than that of said base duct portion, said extended duct portion being connected to said base duct portion;
a sound absorption material being located at an interior side of said extended duct portion, said sound absorption material

comprising a fibrous aggregate having a density ranging from 50 to 4000 g/m^2 and including fibers having an average diameter ranging from 0.1 to 60 μm; and
a Helmholtz resonator having a resonant frequency corresponding to a resonant frequency range generated by said extended duct portion, said Helmholtz resonator being integrally connected with said extended duct portion.



5,783,781

DEVICE FOR MODIFYING THE HEIGHT OF AN EXHAUST SILENCER OF A VEHICLE OF MOTORCYCLE TYPE FROM THE GROUND

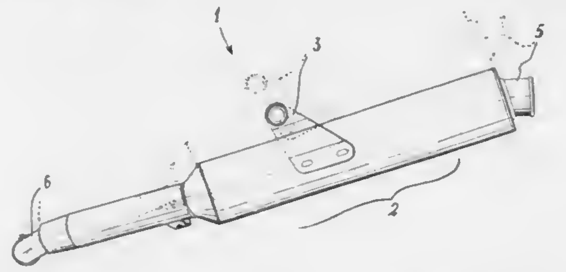
Gianluigi Mengoli, Budrio, and Franco Bilancioni, Bologna, both of Italy, assignors to Ducati Motor, S.p.A., Sondrio, Italy

Filed May 12, 1997, Ser. No. 855,849

Claims priority, application Italy, May 21, 1996, MI960380 U

Int. Cl.⁶ F01N *7/18;* **F16L** *27/00*

U.S. Cl. 181—241 **15 Claims**



1. An height adjustable exhaust silencer for a motorcycle, comprising:
a exhaust silencer having a first end and a second end;
a first mounting element attached to the exhaust silencer, the first mounting element for securing to a motorcycle frame;
an adjustment member, the adjustment member having
  a first cylindrical element connected to the first end of the exhaust silencer,
  a second cylindrical element for connecting to a terminal part of an exhaust pipe, the first and second cylindrical elements being fitted together in socket manner, the first and second cylindrical elements being rotatable relative to each other.

5,783,782

MULTI-CHAMBER MUFFLER WITH SELECTIVE SOUND ABSORBENT MATERIAL PLACEMENT

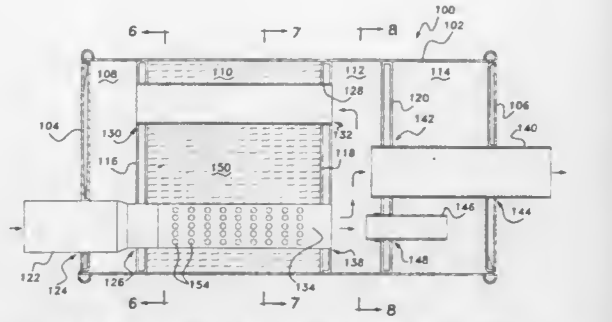
Dale E. Sterrett, Grass Lake; Eric C. Pekrul, Mason, and Thomas P. Turner, Jackson, all of Mich., assignors to Tenneco Automotive Inc., Lake Forest, Ill.

Filed Oct. 29, 1996, Ser. No. 740,415

Int. Cl.⁶ F01N *1/08*

U.S. Cl. 181—272 **13 Claims**

1. An attenuating apparatus comprising:
a shell;
first and second spaced apart walls coupled to said shell so as to define a first chamber;
a sound absorbing material disposed in said first chamber;
an imperforate conduit supported by said first and second walls and extending through said first chamber;
a third wall coupled to said shell in spaced relation to said first wall so as to define a second chamber, said imperforate conduit communicating with said second chamber;
a fourth wall coupled to said shell in spaced relation to said second wall so as to define a third chamber, said imperforate conduit communicating with said third chamber;
a fifth wall coupled to said shell in spaced relation to said fourth wall so as to define a fourth chamber, said forth chamber communicating with said third chamber, and
a perforated conduit supported by said first and second walls and extending through said first chamber.



5,783,783

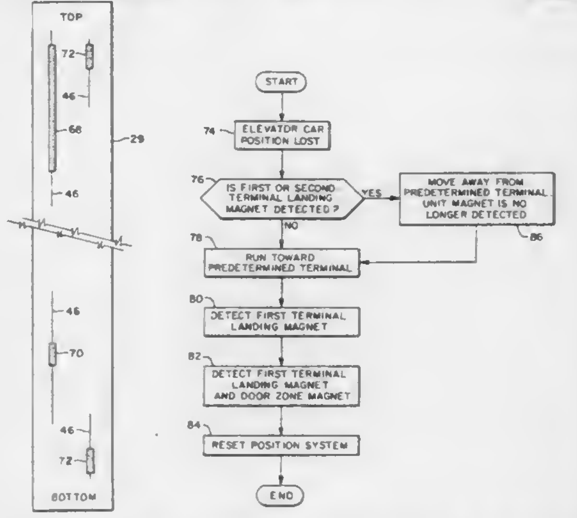
CORRECTION RUN FOR AN ELEVATOR SYSTEM

Mustapha Toutaoui, and Jan Kradin, both of Berlin, Germany, assignors to Otis Elevator Company, Farmington, Conn.

Filed Oct. 5, 1995, Ser. No. 538,996

Int. Cl.⁶ B66B *1/34*

U.S. Cl. 187—394 **5 Claims**


TOP
72
46
68
29
46
46
70
46
72
BOTTOM
START
74
ELEVATOR CAR POSITION LOST
76
IS FIRST OR SECOND TERMINAL LANDING MAGNET DETECTED?
YES
MOVE AWAY FROM PREDETERMINED TERMINAL UNIT MAGNET IS NO LONGER DETECTED
86
NO
78
RUN TOWARD PREDETERMINED TERMINAL
80
DETECT FIRST TERMINAL LANDING MAGNET
82
DETECT FIRST TERMINAL LANDING MAGNET AND DOOR ZONE MAGNET
84
RESET POSITION SYSTEM
END

1. A method for performing a correction run by an elevator system having an elevator car following a loss of an elevator car position information, said method comprising the steps of:
(a) detecting a terminal landing magnet in response to the loss of the elevator position information;
(b) moving the elevator car away from a predetermined terminal landing until the terminal landing magnet is not detected;
(c) running the elevator car toward the predetermined terminal landing in response to not detecting the terminal landing magnet in said moving step;
(d) detecting two magnets simultaneously in response to running the elevator car toward the predetermined landing terminal;
(e) stopping the elevator car in response to simultaneously detecting the two magnets; and
(f) resetting the elevator position information in response to said stopping step.

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5,783,784

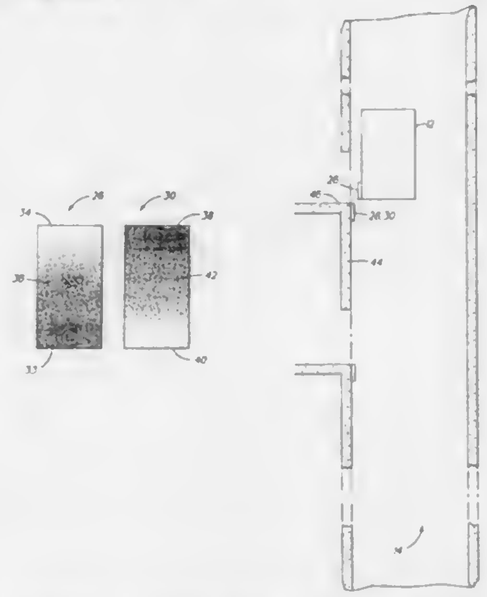
DIFFERENTIAL REFLECTOMETERY FOR POSITION REFERENCE IN AN ELEVATOR SYSTEM

Christophe Durand, Glen, France, assignor to Otis Elevator Company, Farmington, Conn.

Filed Nov. 19, 1996, Ser. No. 752,361

Int. Cl.^{6} B66B *1/34*

U.S. Cl. 187—394 **7 Claims**



1. An apparatus for determining if an elevator car is level with respect to a landing in a hoistway, said apparatus comprising:

a transceiver for transmitting a detection signal;

a first reflector having a varying reflectance between a maximum reflectance end and a minimum reflectance end, said first reflector transmitting a first reflected signal in response to the detection signal transmitted by said transceiver, said transceiver providing a first level signal in response to the first reflected signal;

a second reflector having a varying reflectance between a maximum reflectance end and a minimum reflectance end, said second reflector transmitting a second reflected signal in response to the detection signal transmitted by said transceiver, said transceiver providing a second level signal in response to the second reflected signal;

wherein said first reflector and said second reflector are adjacently aligned such that the maximum reflectance end of said first reflector is adjacent to the minimum reflectance end of said second reflector, and the minimum reflectance end of said first reflector is adjacent to the maximum reflectance end of said second reflector; and

a processor for determining if the elevator car is level with respect to the landing in response to the first and second level signals.

5,783,785

SWITCH INCLUDING TWO STEP SEQUENTIAL OPERATION

Osamu Furukawa, Tokyo, Japan, assignor to Niles Parts Co., Ltd., Japan

Filed Feb. 25, 1997, Ser. No. 810,110

Claims priority, application Japan, Mar. 1, 1996, 8-071367

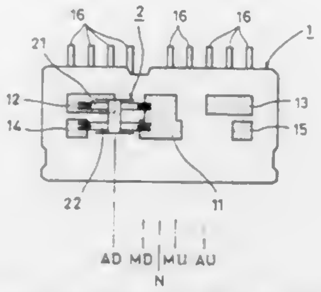
Int. Cl.^{6} H01H *15/04*

U.S. Cl. 200—1 B **7 Claims**

1. A two-step operation switch device comprising:

an insulating plate (1);

a movable contacting piece (2) movable between a neutral position (N), first positions (MU, MD), and second positions (AU, AD) with respect to said insulating plate (1); and



a common fixed contact (**11**), two first fixed contacts (**12**, **13**) and two second fixed contacts (**14**, **15**) disposed on said insulating plate (1), said common fixed contact disposed between said first fixed contacts and said second fixed contacts;

said movable contacting piece (**2**) including a first contacting piece (**21**) sliding in a first region (Z1), in which said common fixed contact (**11**) and said first fixed contacts (**12**, **13**) are juxtaposed, and a second contacting piece (**22**) sliding in a second region (Z2), in which said common fixed contact (**11**) and said second fixed contacts (**14**, **15**) are juxtaposed;

an interval (W2) between said common fixed contact (**11**) and said second fixed contacts (**14**, **15**) in said second region (Z2) is set so as to be greater than an interval (W1) between said common fixed contact (**11**) and said first fixed contacts (**12**, **13**) in said first region (Z1); and

at least one of said common fixed contact (**11**) and said movable contacting piece (**2**) is so shaped that said movable contacting piece (**2**) is connected both with said first fixed contacts (**12**, **13**) in said first region (Z1) and with said common fixed contact (**11**) in said second region (Z2) when said movable contacting piece (**2**) is at said first positions (MU, MD).

5,783,786

Patent Not Issued For This Number

5,783,787

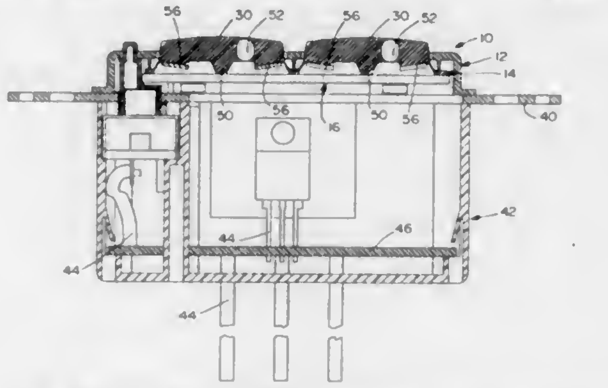
ELECTRICAL SWITCH ASSEMBLY

Mark M. Data, Bolingbrook, Ill., assignor to Molex Incorporated, Lisle, Ill.

Filed Nov. 12, 1996, Ser. No. 748,248

Int. Cl.^{6} H01H *13/70*

U.S. Cl. 200—5 R **3 Claims**



1. An electrical switch assembly, comprising:

a printed circuit board having a pair of spaced planar switch pads thereon;

a rocker actuator fabricated of elastomeric material including an integral peripheral flange joined together by a peripheral flexible skirt, a fulcrum, and wing portions disposed on opposite sides of the fulcrum;

the actuator mounted above the printed circuit board by the peripheral flange held to the printed circuit board with the fulcrum in contact with the printed circuit board where the flange and fulcrum are adapted to allow the actuator limited rockable movement about the fulcrum between the spaced switch pads;

a planar switch contact on each wing portion of the actuator overlying the planar switch pads on the printed circuit board, the planar switch contacts being disposed at predetermined angles to the planar switch pads when out of engagement therewith in an inactive condition of the actuator such that the planar switch contacts move about the fulcrum into engagement with the planar switch pads to effect initial and immediate mutually planar abutment therewith

one of said wing portions of the rocker actuator, alone with its respective planar switch contact, adapted to move toward the respective planar switch pad independent of the other wing portion of the actuator.

5,783,788

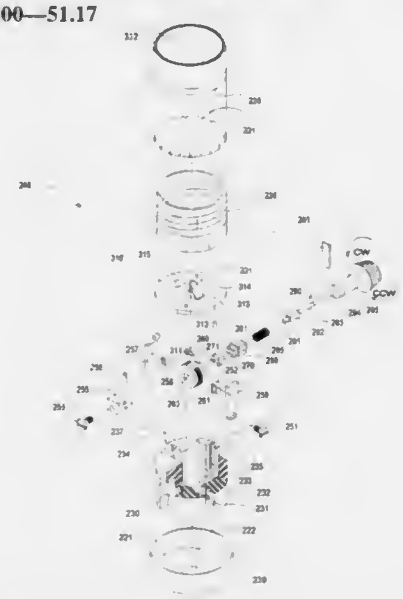
BI-DIRECTIONAL MULTI-POSITION POSITIONING DEVICE

Gary Arthur Jones, Pleasant Grove, Utah, and James Torrie Wellington, Westlake Village, Calif., assignors to Digital Technologies, Inc., Pleasant Grove, Utah

Filed Nov. 7, 1995, Ser. No. 551,826

Int. Cl.^{6} H01H *19/14*

U.S. Cl. 200—51.17 **7 Claims**



1. A bi-directional multi-positioning device for use in a multi-illumination-level light socket comprising:

a disk-shaped surface having a plurality of ratchet teeth extending axially therefrom;

a disk-shaped idler having a plurality of ratchet stops extending axially out from a first side and a second set of ratchet stops extending axially out from a second side;

a slider having a disk-shaped first end having a plurality of ratchet teeth extending axially out therefrom and a second end having a square cross-section; and

a spring positioned within said second end of said slider.

5,783,789

PROCESS FOR PREPARING PEROXIDIC PERFLUOROPOLYETHERS

Pier Antonio Guarda, Turin, and Giuseppe Marchionni, Milan, both of Italy, assignors to Ausimont S.p.A., Milan, Italy

Filed Feb. 14, 1997, Ser. No. 800,017

Claims priority, application Italy, Feb. 14, 1996, MI96 A 000278

Int. Cl.^{6} C07F *1/00;* **C07C** *41/00;409/00*

U.S. Cl. 204—157.6 **14 Claims**

1. Tetrafluoroethylene oxidation process comprising the step of oxidizing tetrafluoroethylene in solution at temperatures comprised between −80° C. and −50° C. in contact with ultraviolet (UV) radiation, oxygen and perfluoroethane (125) as solvent to obtain peroxidic perfluoropolyethers.

5,783,790

WET TREATMENT METHOD

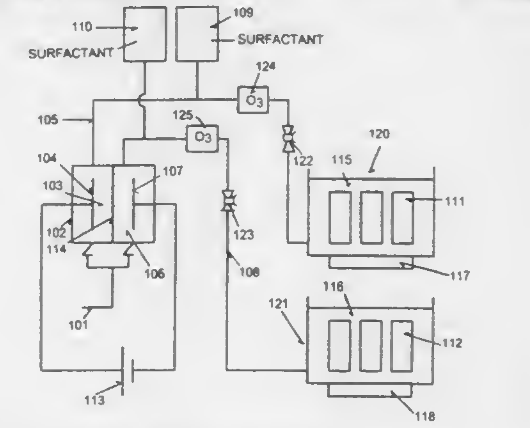
Kenichi Mitsumori; Yasuhiko Kasama, both of Sendai; Koji Yamanaka; Takashi Imaoka, both of Toda, and Tadahiro Ohmi, 1-17-301, Komegafukuro 2-chome, Aoba-ku, Sendai-shi, Miyagi-ken, all of Japan, assignors to Organo Corporation, and Tadahiro Ohmi, both of Japan

Filed Dec. 2, 1996, Ser. No. 759,013

Claims priority, application Japan, Nov. 30, 1995, 7-312366

Int. Cl.^{6} C07C *1/00;* **C02F** *1/461;* **B08B** *6/00*

U.S. Cl. 204—157.15 **17 Claims**



1. A wet treatment method comprising:

electrolyzing deionized water or high purity water to produce anodic or cathodic water,

adding a surfactant at a concentration between 1 and 500 ppm to the anodic or cathodic waters,

and treating an object of treatment with the anodic or cathodic water containing the surfactant while irradiating the object of treatment with an ultrasonic wave having a frequency between 30 kHz and 3 MHz.

5,783,791

GAS INSULATED INTERRUPTER

Wataru Tamura, and Toru Tsubaki, both of Hitachi, Japan, assignors to Hitachi, Ltd., Tokyo, Japan

Filed Feb. 7, 1997, Ser. No. 797,612

Claims priority, application Japan, Feb. 9, 1996, 8-023957

Int. Cl.^{6} H01H *33/88*

U.S. Cl. 218—57 **8 Claims**

1. A gas insulated interrupter comprising:

a stationary main and arc contacts;

a stationary arc contact association with said stationary main contact;

a moving main contact movable into and out of contact with said stationary main contact;

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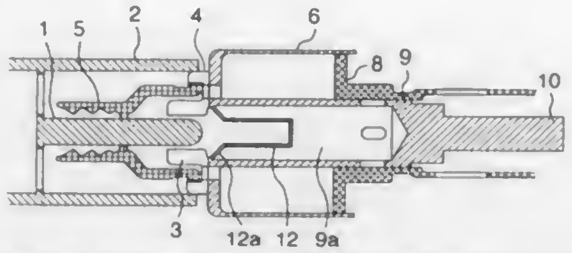


- a moving arc contact associated with said moving main contact movable along with said moving main contact into and out of contact with said stationary arc contact;
- a puffer cylinder defining a puffer chamber for receiving electric insulation gas therein;
- a puffer piston movably associated with said puffer cylinder for compressing gas in said puffer chamber;
- a puffer shaft connecting said moving arc contact with one of said puffer cylinder and said puffer piston for driving said one of said puffer cylinder and said puffer piston;
- an insulated nozzle mounted on said puffer cylinder, said insulated nozzle having a substantially cylindrical shape for covering distal ends of said stationary and moving arc contacts to guide compressed gas from said puffer chamber to said distal ends of said stationary and moving arc contacts;
- a gas discharge passage formed axially through said moving arc contact and said puffer shaft; and
- a duplex puffer chamber provided in said gas discharge passage close to an inlet thereof, said duplex puffer chamber having a bottomed, cylindrical shape for holding electric insulation gas therein, a flange formed on a periphery of said cylindrical duplex puffer chamber and a plurality of gas-flow passages formed through said flange, said duplex puffer chamber being fixedly secured through said flange to an inside of said puffer shaft.

5,783,792

WELDING GUN ARM AND METHOD OF MANUFACTURING SAME

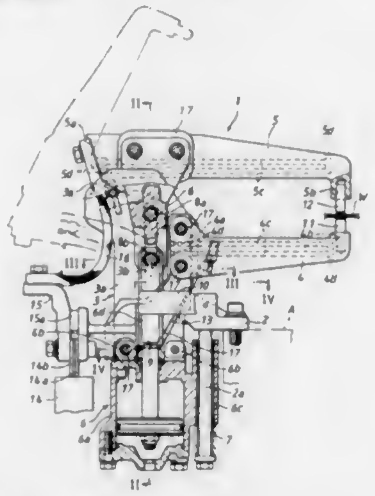
Toshihiro Murakawa; Mitsuo Kuwabara, and Yukihiro Yaguchi, all of Saitama-ken, Japan, assignors to Honda Giken Kogyo Kabushiki Kaisha, Tokyo, Japan

Filed Feb. 27, 1996, Ser. No. 607,856

Claims priority, application Japan, Mar. 8, 1995, 7-048774; Mar. 22, 1995, 7-062736; Mar. 22, 1995, 7-062780

Int. Cl.^{6} B23K *9/28*

U.S. Cl. 219—86.1 **4 Claims**



1. A welding gun arm comprising:

an arm main body formed of an aluminum alloy;

an anodic oxide coating formed on a surface of said arm main body,

wherein said anodic oxide coating includes a porous layer portion, and

wherein at least one of a surface of said anodic oxide coating and said porous layer portion contains a magnetic material.

5,783,793

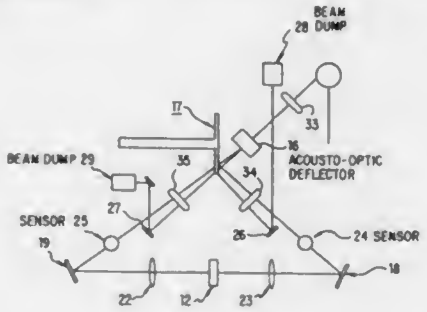
PROCESS FOR PRODUCING A PLURALITY OF HOLES IN DOSAGE FORMS USING A LASER BEAM DEFLECTED BY AN ACOUSTO-OPTIC DEFLECTOR

Neil Emerton, Cambridge; Graham S. Gutsell; Timothy A. Large, both of Cambs, and Stephen Owen, Herts, all of United Kingdom, assignors to Merck & Co., Inc., Rahway, N.J.

Filed Feb. 26, 1997, Ser. No. 806,974

Int. Cl.^{6} B23K *26/08*

U.S. Cl. 219—121.71 **6 Claims**



1. A process for producing a plurality of apertures in a dosage form by deflecting a laser beam with an acousto-optic deflector comprising the steps of:

(a) delivering dosage forms (**12**) to a moving conveyer system (**10**) which transports the dosage form into and out of an optical enclosure (**13**) of a laser (**14**);

(b) a mirror directing the beam of the laser into the optical enclosure (**13**) comprising optical components mounted at approximately 90° to the conveyer system; the optical components comprising:

(i) an acousto-optic deflector (**16**) which steers the laser beam to scan across the dosage form;

(ii) a rotating mirror (**17**) with a 180° lobe; the mirror rotating once for every dosage form that passes a lasing point and diverts the beam of the laser, first to one face of each dosage form, and then to an opposing face, as the lobe passes in and out of a laser beam path;

(iii) two deflecting mirrors (**18**,**19**), each deflecting mirror being positioned so as to direct the beam to the lasing point on either side of the dosage form;

(iv) two lenses (**22**,**23**), one on each side of the dosage form, to focus the beam onto the dosage form; wherein, upon a command issuing from a machine interface, the beam of the laser is directed to the exact position on the tablet where an aperture is to be scored.

5,783,794

METHOD AND MATERIAL FOR RESISTANCE WELDING STEEL-BASE METAL SHEET TO ALUMINUM-BASE METAL SHEET

Hatsuhiko Oikawa; Yasuo Takahashi; Tohru Saito, all of Futtsu; Yutaka Okuda; Kazuo Narita, both of Nagoya; Fuminori Matsuda; Katsutoshi Ueno, both of Toyota, and Goro Watanabe, Aichi-gun, all of Japan, assignors to Nippon Steel Corporation, Tokyo, and Toyota Jidosha Kabushiki Kaisha, Yota, both of Japan

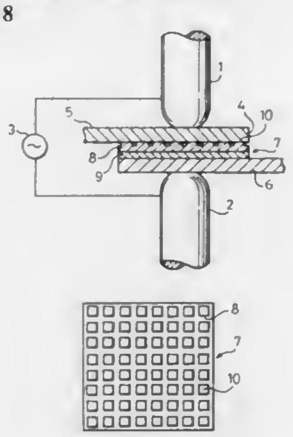
PCT No. PCT/JP94/01933, § 371 Date Jul. 14, 1995, § 102(e) Date Jul. 14, 1995, PCT Pub. No. WO95/13898, PCT Pub. Date May 26, 1995

Continuation of Ser. No. 491,940, Jul. 14, 1995, abandoned. This PCT application Nov. 15, 1994, Ser. No. 908,128

Claims priority, application Japan, Nov. 15, 1993, 5-307036; Apr. 12, 1994, 6-073468

Int. Cl.^{6} B23K *11/14;11/20*

U.S. Cl. 219—118 **5 Claims**



1. A method for resistance welding a plated steel sheet to an aluminum-base metal sheet, comprising the steps of: inserting an aluminum-clad steel sheet comprising a laminate of a steel-base metal sheet and an aluminum-base metal sheet between a plated steel sheet and an aluminum-base metal sheet so that the same types of metals face each other; and subjecting the resultant assembly to resistance welding, characterized in that irregularities are uniformly formed on at least one of the plated steel sheet on the surface to be abutted against the aluminum-clad steel sheet and the aluminum-clad steel sheet on the surface to be abutted against the plated steel sheet to determine a current-carrying area ratio, a melted metal of the plating which is generated by welding heat is accommodated in a recess portion which serves as a non-current carrying portion between the irregularities, so that the current-carrying area ratio is prevented from increasing and an optimum current-carrying area ratio is maintained, and formation of a nugget on the surfaces to be abutted between the steel-base metal layer of the aluminum-clad steel sheet and the plated steel sheet and between the aluminum-base metal layer of the aluminum-clad steel sheet and the aluminum-base metal sheet is accelerated due to the irregularities for determining the current-carrying area ratio.

5,783,795

BONDING OF SPUTTERING TARGET BY VARIABLE POLARITY PLASMA ARC WELDING

Paul S. Gilman, Suffern, and Raymond K. F. Lam, Park Ridge, both of N.Y., assignors to Sony Corporation, Tokyo, Japan, and Materials Research Corporation, Orangeburg, N.Y.

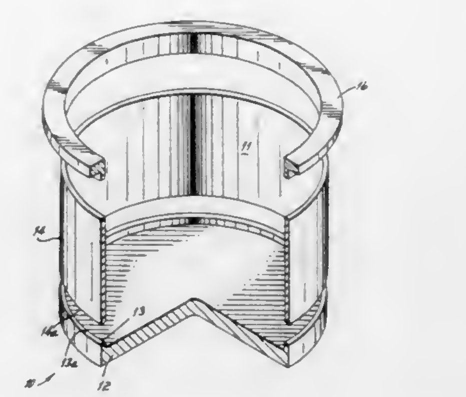
Filed Mar. 20, 1996, Ser. No. 618,903

Int. Cl.^{6} B23K *10/00*

U.S. Cl. 219—121.45 **20 Claims**

17. A method of recycling a sputtering target, comprising the steps of:

separating a used sputtering target from an associated sputtering target support tube along a plane passing through the tube at an approximate angle of 90° to the axis of the tube;



aligning and contacting the periphery of a new target and the end of the sputtering target support tube;

welding said target to said tube by variable polarity plasma arc welding to form a vacuum proof seal;

finishing the surface of said support tube and said target by variable polarity plasma arc welding at the location of said weld.

5,783,796

Patent Not Issued For This Number

5,783,797

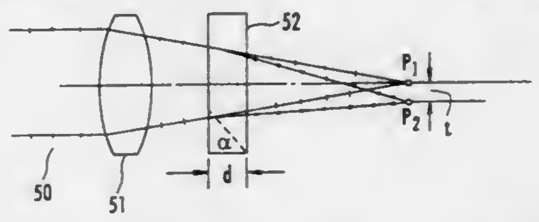
LASER TEXTURING OF MAGNETIC RECORDING MEDIUM USING A CRYSTAL MATERIAL

Jialuo Jack Xuan, Milpitas; Ga-Lane Chen, Fremont, and Wenjun Li, San Jose, all of Calif., assignors to Seagate Technology, Inc., Scotts Valley, Calif.

Filed May 9, 1996, Ser. No. 647,407

Int. Cl.^{6} B23K *26/02*

U.S. Cl. 219—121.69 **28 Claims**



1. A method of manufacturing a magnetic recording medium, which method comprises:

texturing an upper surface of a non-magnetic substrate by passing a pulsed laser light beam through a lens focusing system and then through a crystal material spaced apart from and positioned between the lens focusing system and the upper surface, so that the laser light beam passing through the crystal material has an energy profile exhibiting at least two energy peaks, thereby forming two focus points on the upper surface of the substrate.

5,783,798

LASER BEAM DELIVERY METHOD AND SYSTEM

Martin Abraham, Hod Hasharon, Israel, assignor to Laser Industries Ltd., Tel Aviv, Israel

Filed Dec. 19, 1995, Ser. No. 574,551

Claims priority, application Israel, Dec. 21, 1994, 112108

Int. Cl.^{6} B23K *26/00*

U.S. Cl. 219—121.73 **13 Claims**

1. A method of delivering a laser beam from a laser to a working site, comprising:

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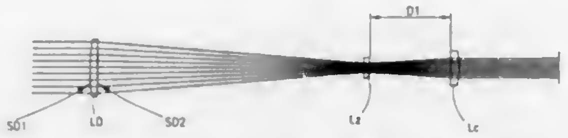


applying the laser beam received from the laser to a first positive optical element which converges the laser beam;

applying the laser beam received from said first positive optical element to a negative optical element which diverges the laser beam;

applying the laser beam received from the negative optical element to a second positive optical element which substantially collimates the laser beam before being applied to the working site;

and varying the distance between said negative optical element and said second positive optical element to thereby vary the diameter of the substantially collimated laser beam applied to the working site;

and wherein said first positive optical element is a lens-grating assembly.

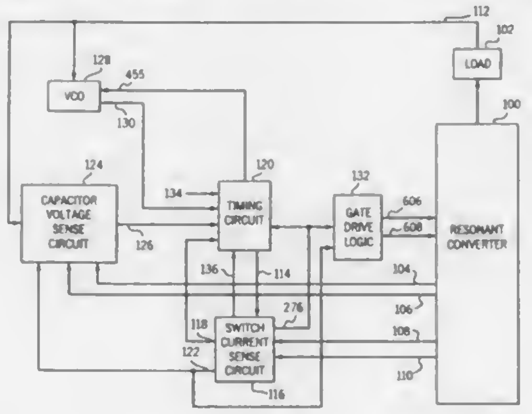
5,783,799
SERIES RESONANT CONVERTER, AND METHOD AND APPARATUS FOR CONTROL THEREOF

Steven J. Geissler, Appleton, Wis., assignor to Illinois Tool Works Inc., Glenview, Ill.

Filed Jan. 11, 1996, Ser. No. 584,404

Int. Cl.^{6} B23K *9/10*

U.S. Cl. 219—137 PS **34 Claims**



6. A method of providing a welding current to a load from a bus current using a series resonant converter power supply, the converter including at least one switch and at least one capacitor, comprising the steps of:

determining an earliest switching time that will prevent a peak voltage on the capacitor from exceeding a predetermined threshold in a next cycle of the converter;

inhibiting a switching of the at least one switch until the earliest switching time has passed; and

providing an output of the converter to a welding arc.

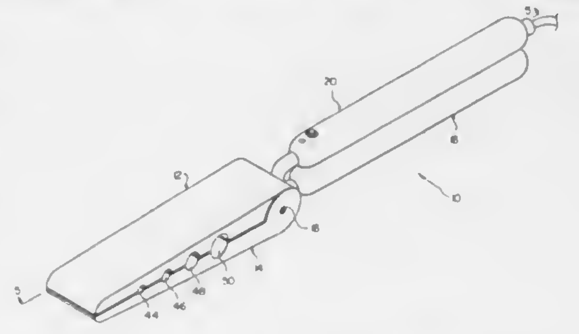
5,783,800
HAIR BRAIDING TOOL WITH MATING SEMI-CYLINDRICAL GROOVE PAIRS HAVING DIFFERENT SIZES

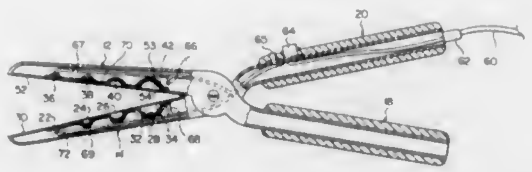
Ivan C. Thompson, 13450 Buchanan Dr., Ft. Washington, Md. 20744; Henry Dawson, 11821 Duley Station Rd., Upper Marlboro, Md. 20772, and Lisa L. Little, 3500 Briarwood Dr., #33 Dumfries, Va. 22026

Filed Aug. 12, 1996, Ser. No. 689,564

Int. Cl.^{6} A45D *26/00;* H05B *1/00*

U.S. Cl. 219—225 **5 Claims**





1. A hair braiding tool comprising first and second members, each of said members having at least one substantially semi-cylindrical groove therein, said grooves each having a closed end defined by a blade, said grooves and said blades being complementary to each other when disposed in mating relation to define at least one passage having a closed end and an open end for receiving an end of a synthetic hair braid and heating means for heating said grooves and said blades to fuse said end to prevent unraveling of the braid.

5,783,801
SEAL FOR SEALING AND AUTOMATICALLY CLEANING A SHEATHED ELEMENT OF A HEATER PLUG FOR DIESEL ENGINES

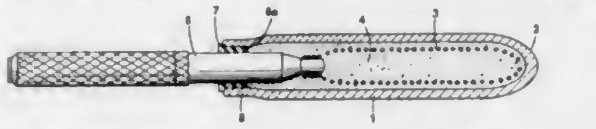
Gianfranco Riti, Milan, and Claudio Tonelli, Modena, both of Italy, assignors to Cooper Industries, Inc., Houston, Tex.

Filed May 30, 1996, Ser. No. 655,441

Claims priority, application Italy, May 31, 1995, T0950127 U

Int. Cl.^{6} F23Q *7/32*

U.S. Cl. 219—270 **4 Claims**



1. A sheathed element for a heater plug for diesel engines, comprising:

a hollow metal sheath that is open at one end, has a closed opposite end, and defines a cavity;

a heating element positioned in the cavity;

insulating powder filling the cavity; and

an elastomeric seal positioned in the open end of the sheath, the seal having an annular projection that projects from a surface of the seal prior to insertion of the seal into the open end of the sheath, the projection establishing a sealing contact with a respective seat of the sheath so that the projection removes particles present on an internal wall of the seat when the seal is inserted into the open end of the sheath.

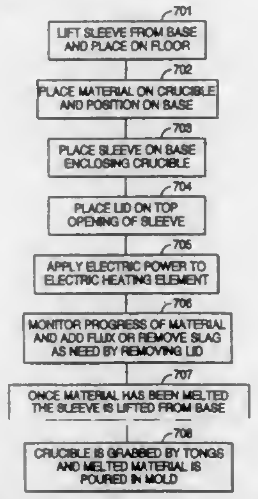
5,783,802
VERTICALLY LIFTED PORTABLE ELECTRIC FURNACE AND METHOD FOR USE THEREOF

John P. Beckley, 1609 S. Springwood Dr., Silver Spring, Md. 20910

Continuation of Ser. No. 459,132, Jun. 2, 1995, Pat. No. 5,585,023, which is a continuation of Ser. No. 267,401, Jun. 29, 1994, Pat. No. 5,539,183. This application Sep. 6, 1996, Ser. No. 709,447

Int. Cl.^{6} F27D *11/00*

U.S. Cl. 219—386 **20 Claims**


701
LIFT SLEEVE FROM BASE AND PLACE ON FLOOR
702
PLACE MATERIAL ON CRUCIBLE AND POSITION ON BASE
703
PLACE SLEEVE ON BASE ENCLOSING CRUCIBLE
704
PLACE LID ON TOP OPENING OF SLEEVE
705
APPLY ELECTRIC POWER TO ELECTRIC HEATING ELEMENT
706
MONITOR PROGRESS OF MATERIAL AND ADD FLUX OR REMOVE SLAG AS NEED BY REMOVING LID
707
ONCE MATERIAL HAS BEEN MELTED THE SLEEVE IS LIFTED FROM BASE
708
CRUCIBLE IS GRABBED BY TONGS AND MELTED MATERIAL IS POURED IN MOLD

1. A method of heating a material being held by a holder positioned on a base using an electric furnace which includes a sleeve for enclosing the holder positioned on the base, an electric heating element disposed on the inner surface of said sleeve, a removable lid for covering a top opening of said sleeve, and at least one handle disposed on the outer surface of said sleeve, said method comprising the steps of:

placing said sleeve including said removable lid, using said at least one handle, on the base enclosing the holder;

applying an electric current to said electric heating element, thereby generating heat which is retained in said electric furnace to heat the material held in the holder; and

removing said sleeve including said removable lid from said base by lifting said sleeve using said at least one handle after the material held in the holder has been heated.

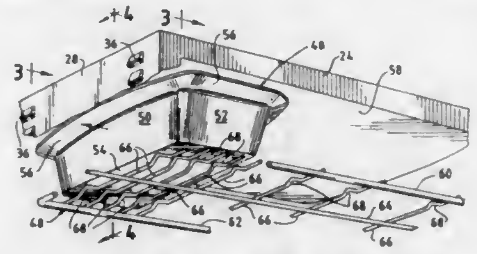
5,783,803
FOOD WARMING APPARATUS

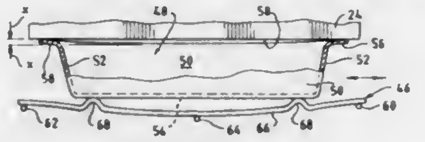
Chester F. Robards, Jr., c/o Prince Castle Inc., 355 E. Kehoe Blvd., Carol Stream, Ill. 60188

Filed Dec. 20, 1995, Ser. No. 575,817

Int. Cl.^{6} F27D *11/00*

U.S. Cl. 219—392 **34 Claims**





1. A food warming apparatus, comprising:

a housing defining at least one warming cavity having a ceiling;

heating means for warming food products within the cavity;

a grate within the cavity spaced below the ceiling of the cavity;

at least one food tray for containing food products and supportable on the grate beneath the ceiling of the cavity;

seal means operatively associated between the top of the tray and the ceiling of the cavity; and

the grate including biasing means for biasing the tray upwardly toward the ceiling to assure operability of the seal means.

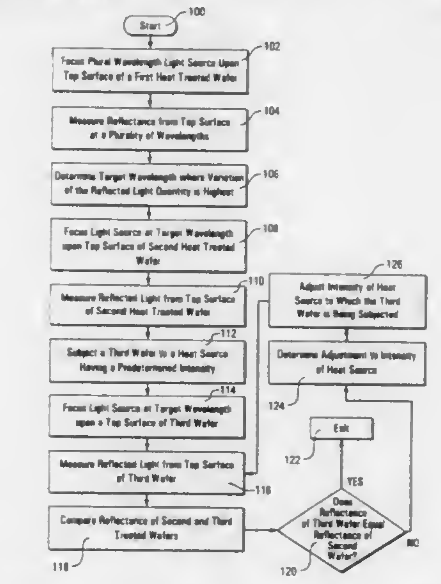
5,783,804
REFLECTANCE METHOD FOR ACCURATE PROCESS CALIBRATION IN SEMICONDUCTOR HEAT TREATMENT SUBSTRATE

Robert James Burke; Russell C. Zahorik; Paul A. Paduano, and Randhir P. S. Thakur, all of Boise, Id., assignors to Micron Technology, Inc., Boise, Id.

Continuation of Ser. No. 346,764, Nov. 30, 1994, Pat. No. 5,618,461. This application Mar. 7, 1997, Ser. No. 813,368

Int. Cl.^{6} H05B *1/02*

U.S. Cl. 219—494 **25 Claims**


100
Start
102
Focus Plural Wavelength Light Source Upon Top Surface of a First Heat Treated Wafer
104
Measure Reflectance from Top Surface at a Plurality of Wavelengths
106
Determine Target Wavelength where Variation of the Reflected Light Quantity is Highest
108
Focus Light Source at Target Wavelength upon Top Surface of Second Heat Treated Wafer
110
Measure Reflected Light from Top Surface of Second Heat Treated Wafer
112
Subject a Third Wafer to a Heat Source Having a Predetermined Intensity
114
Focus Light Source at Target Wavelength upon a Top Surface of Third Wafer
Measure Reflected Light from Top Surface of Third Wafer
116
Compare Reflectance of Second and Third Treated Wafers
118
126
Adjust Intensity of Heat Source to Which the Third Wafer is Being Subjected
Determine Adjustment to Intensity of Heat Source
124
Exit
122
YES
Does Reflectance of Third Wafer Equal Reflectance of Second Wafer?
NO
120

1. A method of measuring a heat treatment status indicative of a heat treatment applied to a semiconductor substrate, the method comprising:

directing a light source having a plurality of predetermined wavelengths to a top surface of a semiconductor substrate;

measuring the quantity and variation thereof of light at each of the predetermined wavelengths that is reflected off the top surface of the semiconductor substrate from the light source;

determining a target wavelength from among the plurality of predetermined wavelengths at which the variation of the quantity of reflected light off the top surface of the semiconductor substrate is the highest variation; and

comparing the measured quantity of light at the target wavelength that is reflected off the top surface of the semiconductor substrate to a predetermined range of quantities to determine whether the measured quantity of light that is reflected off the top surface of the semiconductor substrate is within the predetermined range of quantities.

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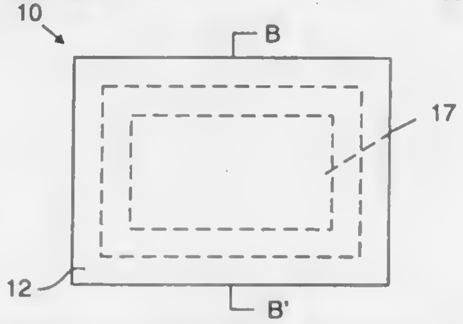
ELECTROTHERMAL CONVERSION ELEMENTS, APPARATUS AND METHODS FOR USE IN COMPARING, CALIBRATING AND MEASURING ELECTRICAL SIGNALS

Fred L. Katzmann, 48 Bennett Ave., Cedar Grove, N.J. 07099-2004

Continuation-in-part of Ser. No. 894,103, Jun. 5, 1992, Pat. No. 5,378,873. This application Dec. 30, 1994, Ser. No. 366,674

Int. Cl.^{6} H05B *1/02;* G01R *5/26*

U.S. Cl. 219—494 **33 Claims**



1. An electrothermal conversion element for use in conversion of a first signal of unknown RMS amplitude to another electrical signal having an amplitude representative of the RMS amplitude of the first signal, said conversion element comprising

- a thin, low mass, low thermal conductivity substrate,
- a first low mass, thin film heater of relatively low temperature coefficient of electrical resistivity on a surface of said substrate, and
- a low mass, thermoresistive sensor element of relatively high temperature coefficient of electrical resistivity positioned to receive IR radiation from said heater.

5,783,806

IMAGE HEATING DEVICE USING ELECTROMAGNETIC INDUCTION

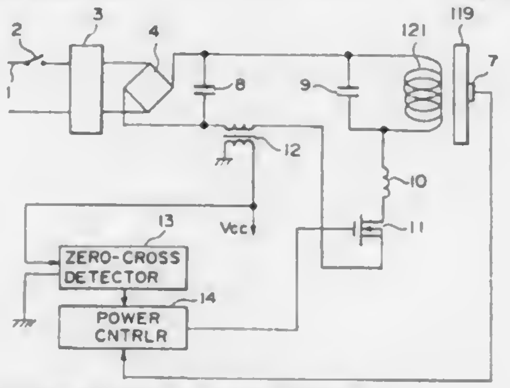
Minoru Hayasaki, Yokohama, Japan, assignor to Canon Kabushiki Kaisha, Tokyo, Japan

Filed Dec. 28, 1995, Ser. No. 579,846

Claims priority, application Japan, Dec. 28, 1994, 6-328012

Int. Cl.^{6} H05B *6/08;* G03G *15/20*

U.S. Cl. 219—635 **10 Claims**



1. An image heating apparatus, comprising:

- an electroconductive heat generating element;
- an excitation coil for producing a magnetic flux, said excitation coil produces a magnetic flux which is effective to generate eddy current in said electroconductive heat generating element to generate heat in said electroconductive heat generating element;
- an electric circuit for energizing said excitation coil, said electric circuit having a series resonance circuit and a switching element connected with said series resonance circuit;
- a current detecting element for detecting a current through said series resonance circuit;
- a temperature detecting element for detecting a temperature of said electroconductive heat generating element;
- electric power supply control means connected to said current detecting element, said temperature detecting element, and said switching element for controlling said switching element to effect switching between an energization state and non-energization state for said series resonance circuit,
- wherein said control means controls said switching element in accordance with both of the current through said series resonance circuit detected by said current detecting element and the temperature detected by said temperature detecting element.

5,783,807

COOKING DEVICE FOR APPROPRIATELY PROCESSING PRE-COOKED FROZEN FOOD

Hiroyuki Uehashi, Koka-gun, and Kazuko Tanaka, Yasu-gun, both of Japan, assignors to Sanyo Electric Co., Ltd., Moriguchi, Japan

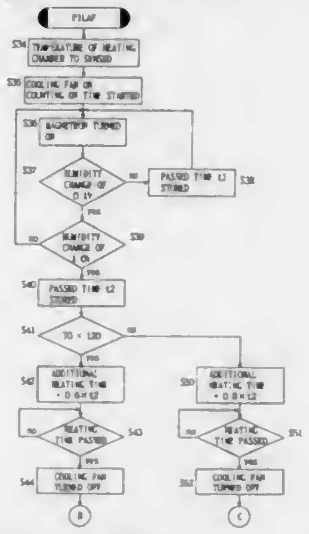
PCT No. PCT/JP96/02087, § 371 Date Mar. 20, 1997, § 102(e) Date Mar. 20, 1997, PCT Pub. No. WO97/05429, PCT Pub. Date Feb. 13, 1997

PCT Filed Jul. 25, 1996, Ser. No. 793,925

Claims priority, application Japan, Jul. 25, 1995, 7-189089

Int. Cl.^{6} H05B *6/68*

U.S. Cl. 219—685 **9 Claims**



1. A cooking device, comprising:

- a heating chamber accommodating food;
- microwave heating means for heating the food in said heating chamber by microwaves;
- heater heating means for heating the food in said heating chamber using a heater;
- a temperature sensor for sensing a temperature in said heating chamber;
- a humidity sensor for sensing a humidity in said heating chamber;
- control means for making such a control that said food is heated by the heater heating means using the heater after said food is heated by microwaves by said microwave heating means; and
- counter means for counting a time period from the start of heating till the sensor output of said humidity sensor exhibits a prescribed humidity change,
- said control means controls said microwave heating means to conduct additional heating before heating by heater heating means by said microwave heating means based on the result of counting by said counter means and the temperature in the heating chamber at the start of heating, sensed by said temperature sensor.

5,783,808

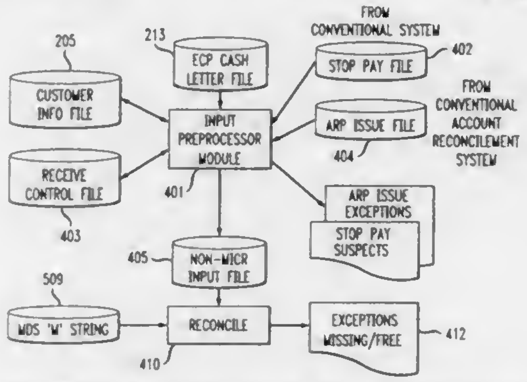
ELECTRONIC CHECK PRESENTMENT SYSTEM HAVING TRANSACTION LEVEL RECONCILIATION CAPABILITY

Stanley M. Josephson, Dallas, Tex., assignor to J. D. Carreker and Associates, Inc., Dallas, Tex.

Filed Jan. 11, 1996, Ser. No. 584,890

Int. Cl.^{6} G06F *17/60*

U.S. Cl. 235—379 **28 Claims**



1. For use by a presenting bank and a payor bank having transaction presentment systems between which transaction-related data may be electronically transmitted, an accelerated method of clearing transactions drawn on the payor bank and received by the presenting bank for payment, said method comprising the steps of:

- electronically transmitting, from the presenting bank to the payor bank, predetermined presentment information relating to the transactions and permitting a determination by the payor bank as to which of the transactions are properly payable by the payor bank;
- reconciling, on a transaction-level basis at the payor bank, from the electronic presentment information received thereby and a non-MICR input file, which of the transactions are properly payable to allow the payor bank to detect potential fraud conditions; and
- electronically transmitting, from the payor bank to the presenting bank, a return notification listing of at least potentially returnable ones of the transactions.

5,783,809

CARD PROCESSING DEVICE

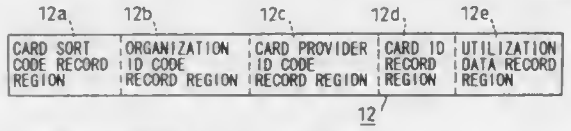
Koji Niino, Miyazaki-gun, and Hideo Yuji, Miyazaki, both of Japan, assignors to Sanwa New Tec Co., Ltd., Japan

Filed Oct. 18, 1996, Ser. No. 734,047

Claims priority, application Japan, Sep. 2, 1996, 8-248513

Int. Cl.^{6} G06K *19/08*

U.S. Cl. 235—380 **23 Claims**


12a
12b
12c
12d
12e
CARD SORT CODE RECORD REGION
ORGANIZATION ID CODE RECORD REGION
CARD PROVIDER ID CODE RECORD REGION
CARD ID RECORD REGION
UTILIZATION DATA RECORD REGION
12

1. A card processing device comprising:

- a card provided on one surface thereof with a magnetic record section which permits magnetic data to be recorded therein and on the other surface thereof with a print record section which permits printing to be carried out thereon; and
- a card reader/writer adapted to be charged therein with said card, said card reader/writer including a data input key section, a printing means for printing on said print record section of said card according to a processing program through an operation of said data input key section and a read/write means for reading and writing data in said magnetic record section of said card when said card is charged in said card reader/writer;
- said magnetic record section of said card including a card sort discrimination code record region for recording therein a card sort discrimination code indicating an application of said card;
- said card reader/writer further including a program storage means in which a plurality of card processing programs are stored and a program selection and execution means for selecting one of the card processing programs from said program storage means depending on the card sort discrimination code read out from said card sort discrimination code record region and executing the one card processing program thus selected.

5,783,810

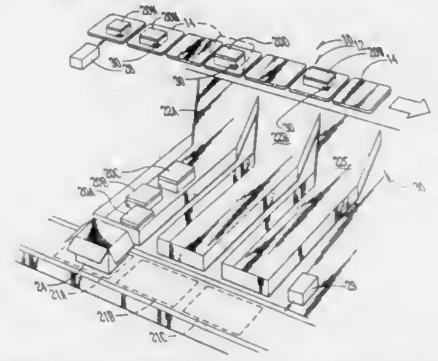
APPARATUS AND METHOD FOR TRACKING INVENTORY OF MULTIPLE GOODS IN MULTIPLE SHIPPING CARTONS

Gerald F. Kelly, Jr., Topeka, Kans., assignor to Payless ShoeSource, Inc., Topeka, Kans.

Division of Ser. No. 711,421, Sep. 5, 1996. This application Sep. 5, 1997, Ser. No. 924,178

Int. Cl.^{6} G06F *17/60*

U.S. Cl. 235—385 **22 Claims**



1. A method of controlling inventory of a plurality of items comprising:

- placing on each item indicia containing information regarding the item;
- placing each item with said indicia in a known order onto a conveyor system which passes by a set of packing lanes;
- correlating each item on the conveyor system with a location on the conveyor system;
- directing each item on the conveyor system to a desired packing lane and preserving the relative order of each item in each packing lane with its relative order on the conveyor;
- packing into a shipping container successive items from each packing lane maintaining their relative order; and
- placing at least a portion of said indicia from the last packed item on the shipping container.

5,783,811

PORTABLE DATA COLLECTION DEVICE WITH LED TARGETING AND ILLUMINATION ASSEMBLY

Chen Feng, and Ynjiun P. Wang, both of Fort Myers, Fla., assignors to Metanetics Corporation, Fort Myers, Fla.

Continuation-in-part of Ser. No. 603,848, Feb. 22, 1996, Ser. No. 580,063, Dec. 20, 1995, Pat. No. 5,703,349, Ser. No. 544,618, Oct. 18, 1995, Pat. No. 5,702,059, and Ser. No. 494,435, Jun. 26, 1995. This application Feb. 26, 1996, Ser. No. 606,619

Int. Cl.^{6} G06K *7/10*

U.S. Cl. 235—472 **20 Claims**

1. A portable data collection device, comprising:

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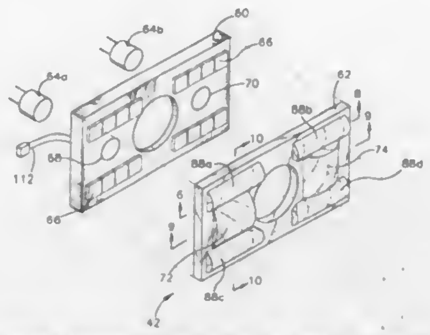


a) a camera assembly, including an array of photosensor elements generating a signal representative of an image of a generally rectangular target area of the device,

b) an optics assembly positioned to focus illumination reflected from the generally rectangular target area onto said photosensor elements, the target area having a height and a width,

c) image processing and decoder circuitry receiving said signal and generating decoded data representative of the dataform, and

d) an illumination assembly directing illumination towards the target area, the illumination assembly including a lens array with a cylindrical optic entry surface with an entry longitudinal axis and a cylindrical optic exit surface with an exit longitudinal axis, the entry longitudinal axis being orientated substantially orthogonal to the exit longitudinal axis.

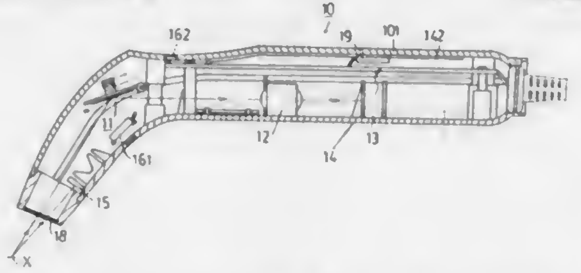
5,783,812
LINEAR CCD HAND HELD BAR CODE READER WITH VIBRATOR

Huang I. Chung, Taipei, Taiwan, assignor to Sun Top Computer Systems Corp., Taipei, Taiwan

Filed May 14, 1996, Ser. No. 649,257

Int. Cl.⁶ G06K *7/10*

U.S. Cl. 235—472 **3 Claims**



1. A linear CCD hand held bar code reader comprising: a vibrator mounted and driven to vibrate when the reader completes reading a bar code; a sensor having a metal antenna around an area to be held by an operator, said metal antenna being induced by a capacitance of a reflector being mounted and shifted between a first and a second reflecting position to reflect an image of a bar code scanned at different scanning lines and driving mechanism installed to shift said reflector between said reflecting positions.

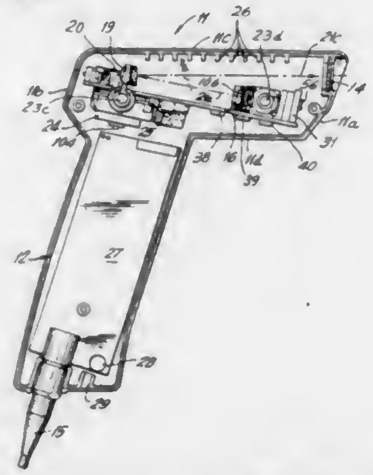
5,783,813
LIMITED WORKING RANGE SCANNER HAVING FOCUSED LIGHT BEAM WAIST SITUATED WITHIN SCANNER HOUSING

Boris Metlitsky; Paul Dvorkis, both of Stony Brook, and Edward Barkan, Miller Place, all of N.Y., assignors to Symbol Technologies, Inc., Holtsville, N.Y.

Division of Ser. No. 642,670, May 3, 1996, abandoned, which is a division of Ser. No. 419,916, Apr. 11, 1995, ahandoned, which is a division of Ser. No. 28,107, Mar. 8, 1993, Pat. No. 5,408,081, which is a continuation-in-part of Ser. No. 721,951, Jun. 27, 1991, abandoned, which is a division of Ser. No. 510,074, Apr. 13, 1990, Pat. No. 5,059,779, which is a continuation-in-part of Ser. No. 367,335, Jun. 16, 1989, Pat. No. 5,124,539. This application Dec. 19, 1996, Ser. No. 769,937

Int. Cl.⁶ G06K *7/10*

U.S. Cl. 235—472 **12 Claims**



1. A triggerless reader for electro-optically reading coded indicia within a limited working range of distances relative to the reader, comprising:

(a) a housing having an interior and an exit window;

(b) a light source in the housing for emitting and directing a light beam along an optical path through the window toward indicia to be read;

(c) scanner means in the housing for scanning the light beam in a scan direction across the indicia; and

(d) optical means in the housing for focusing the light beam to have a beam waist located within said interior of the housing, said beam waist having a minimum beam cross-section as considered along the scan direction, said beam waist being positioned in the optical path between the light source and the window to limit the working range by virtue of the distance traversed by the light beam within the housing.

5,783,814
METHOD AND APPARATUS FOR AUTOMATICALLY FOCUSING A MICROSCOPE

Christopher R. Fairley; Timothy V. Thompson, both of San Jose, and Ken K. Lee, Los Altos, all of Calif., assignors to Ultrapointe Corporation, San Jose, Calif.

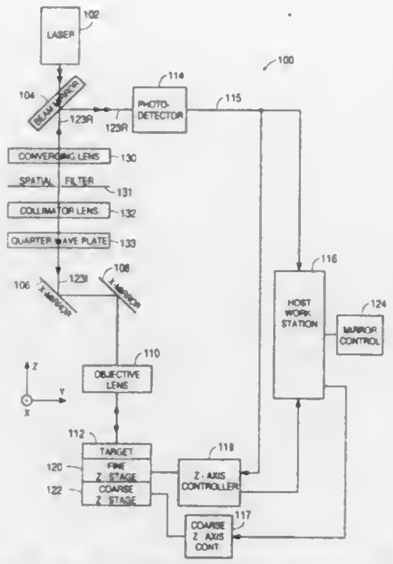
Continuation of Ser. No. 373,145, Jan. 17, 1995, Pat. No. 5,672,861, which is a continuation-in-part of Ser. No. 183,536, Jan. 18, 1994, Pat. No. 5,483,055. This application Dec. 26, 1996, Ser. No. 774,981

Int. Cl.⁶ G01J *1/20*

U.S. Cl. 250—201.3 **22 Claims**

1. A method comprising:

(a) moving a target through a distance in a direction relative to a lens, the distance being defined between first and second target positions;



(b) generating an electronic focus signal during (a), the focus signal having a magnitude that is a function of an intensity of light reflected from the target;

(c) recording, during (a), a plurality of values corresponding to the magnitude of the electronic focus signal at a plurality of points along the distance.

5,783,815
LIGHT RECEIVING DEVICE HAVING LENS FITTING ELEMENT

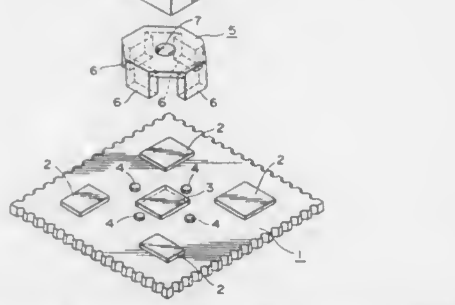
Shigeo Ikeda, Kanagawa, Japan, assignor to Sony Corporation, Tokyo, Japan

Filed Oct. 18, 1996, Ser. No. 734,021

Claims priority, application Japan, Oct. 24, 1995, 7-300637; Feb. 25, 1996, 8-011313

Int. Cl.⁶ H01J *5/02*

U.S. Cl. 250—208.1 **14 Claims**



1. A light receiving device, wherein a light receiving element is mounted on a printed circuit board; a case is fitted which shields an area having said light receiving element mounted on said printed circuit board from outside and has locating holes for a lens fitting member; and portions of said lens fitting member with said lens fitted on are inserted and fitted in the locating holes of said case for said lens fitting member, and the lens is located to a specific position in relation to said light receiving element.

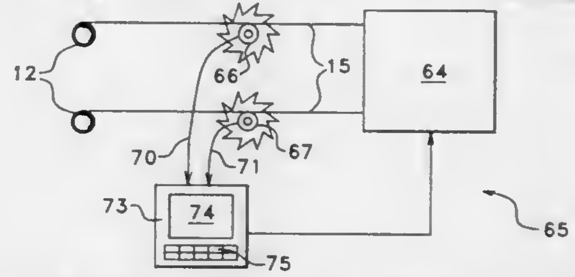
5,783,816
MEASURING DEVICE FOR A HAY BALER

Bobby Roy McPherson, 2065 Rd. 311, New Castle, Colo. 81647

Filed Oct. 9, 1996, Ser. No. 728,038

Int. Cl.⁶ G01D *5/34*

U.S. Cl. 250—231.13 **18 Claims**



1. A hay baler of the kind having a bale forming mechanism which wraps string around the bales as they are being formed and a tying mechanism for tying off the formed bales with the string, and further including a measuring and actuating device for determining when the hay bale being formed has reached a predetermined size and actuating the tying mechanism, wherein the improvement is an improved measuring and actuating device comprising:

string measuring means for measuring movement of the string as it is wrapped around the hay bale being formed, said measuring means generating an electrical measuring signal based upon the movement of the string; and

actuating means connected to the measuring means for actuating the tying mechanism when the electrical measuring signal reaches a predetermined value.

5,783,817
DEVICE FOR DETECTING A POSITION OF AN OBJECT MOVING IN ROTATION OR TRANSLATION RELATIVE TO A BASE

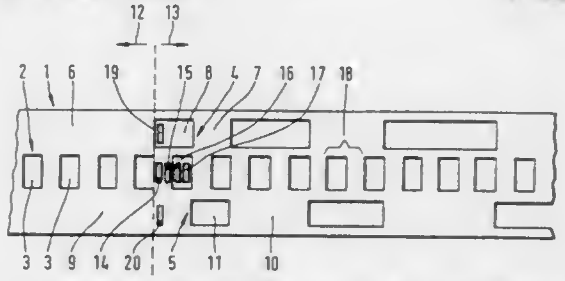
Frank Göhring, Frankfurt, Germany, assignor to VDO Adolf Schindling AG, Frankfurt, Germany

Filed Aug. 23, 1996, Ser. No. 708,033

Claims priority, application Germany, Aug. 23, 1995, 195 30 904.9

Int. Cl.⁶ G01D *5/34*

U.S. Cl. 250—231.14 **10 Claims**



1. A device for detecting a position of an object moving in rotation or translation relative to a base, the device comprising:

an incremental track with periodically recurring marks and an index track having plural index marks serving to provide an absolute value of the position of the object;

a plurality of sensors for scanning the incremental track and the index track, each of said sensors providing a signal in response to a sensing of one of said marks;

logic means responsive to the signals of said sensors for outputting a logical track of digital signals representing a serial code, said logic means being operative to compare various ones of the sensor signals.

5,783,818
INTEGRATED TYPE OPTICAL PICKUP HAVING PACKAGING WITH GAS-TIGHT SEAL

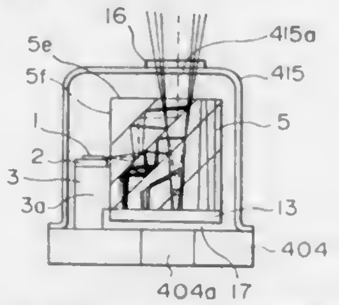
Seiji Manabe, Yamaga; Mikio Tomisaki, Chikushino; Shigeki Takeuchi, Yamaga; Tatsuya Hiwatashi, Kumamoto-ken; Kazuhisa Ide, Tamana; Toshihiro Koga; Makoto Okazaki, both of Kumamoto-ken; Kazuyuki Nakashima, Fukuoka, and Sumio Tate, Kasuga, all of Japan, assignors to Matsushita Electric Industrial Co., Ltd., Osaka, Japan

Filed May 1, 1996, Ser. No. 641,643

Claims priority, application Japan, May 8, 1995, 7-109289; May 31, 1995, 7-133312; Jun. 28, 1995, 7-161823; Jul. 11, 1995, 7-174667; Jul. 20, 1995, 7-183740; Jul. 26, 1995, 7-190162; Jul. 26, 1995, 7-190170; Sep. 29, 1995, 7-253144; Sep. 29, 1995, 7-253158

Int. Cl.^{6} H01J *5/02*

U.S. Cl. 250—239 **12 Claims**



1. An integrated type optical pickup comprising:
a light source for irradiating light onto a medium;
light-receiving means for receiving a portion of the light from the medium and for converting the portion of the light into an electrical signal;
a packaging member having an interior and an opening for passing the light, the packing member containing said light source and said light-receiving means in said interior;
a light transmissive member covering said opening, said interior of the packaging member being sealed in a gas-tight manner; and
gas charged in the interior of said packaging member at a pressure of 0.5 to 1.5 atm.

5,783,819
SOLAR RADIATION SENSOR FOR AN AIR-CONDITIONING SYSTEM OF AN AUTOMOTIVE VEHICLE

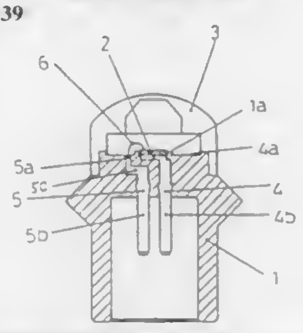
Masaki Shimoyama, Kusatsu-shi, and Noboru Maruyama, Nagano-ken, both of Japan, assignors to Yokogawa IMT Corporation Matsushita Electric Industrial Co., Ltd., Japan

Filed Mar. 29, 1996, Ser. No. 624,216

Claims priority, application Japan, Apr. 7, 1995, 7-082117

Int. Cl.^{6} H01J *5/02*

U.S. Cl. 250—239 **8 Claims**



1. A solar radiation sensor comprising:
a light sensing element detecting the quantity of light entering therein;
first and second lead legs extending perpendicular from beneath said light sensing element each lead leg conducting an electric signal representing the quantity of the light detected by said light sensing element;
a sensor casing body supporting said light sensing element and said first and second-lead legs, said sensor casing body having a flat surface on which said light sensing element is directly mounted;
a cover transparent to the light and protecting said light sensing element mounted on said sensor casing body, wherein each of said first and second lead legs has one end formed into a contact portion connected to said light sensing element and the other end formed into an external connecting terminal.

5,783,820
IMAGE READING APPARATUS HAVING OPTICAL REINFORCING MEMBER FOR LENS HOLDER

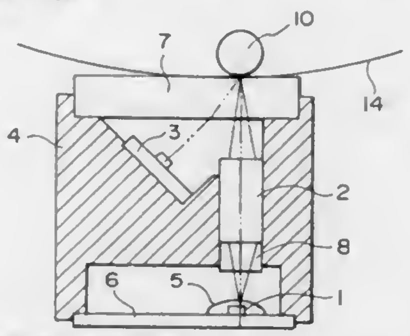
Eiichi Takami, Chigasaki, Japan, assignor to Canon Kabushiki Kaisha, Tokyo, Japan

Continuation of Ser. No. 635,195, Apr. 19, 1996, abandoned. This application Oct. 8, 1997, Ser. No. 947,330

Claims priority, application Japan, Apr. 21, 1995, 7-096813

Int. Cl.^{6} H04N *1/28*

U.S. Cl. 250—239 **12 Claims**



1. A sensor unit comprising:
(a) a sensor for executing a photoelectric conversion;
(b) a rod lens array for transferring light to said sensor, said rod lens array having an optical path that extends to said sensor;
(c) a frame for accommodating said sensor and said rod lens array, said frame having a rod lens array accommodating portion; and
(d) a transparent reinforcing member, located on the optical path between said rod lens array and said sensor, for reinforcing said rod lens array accommodating portion.

5,783,821
PULSE OXIMETER TESTING

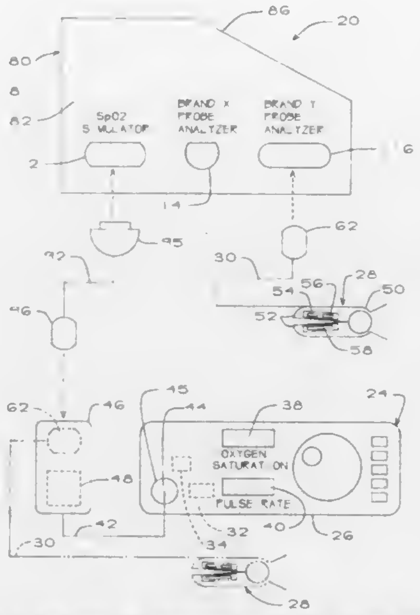
Leo F. Costello, Jr., 12 Beaumont Rd., Wallingford, Conn. 06492

Continuation of Ser. No. 556,749, Nov. 2, 1995, abandoned. This application Oct. 31, 1997, Ser. No. 962,149

Int. Cl.^{6} G01L *25/00*

U.S. Cl. 250—252.1 **53 Claims**

1. An apparatus for testing a pulse oximeter having means for optically sensing SpO_2 values of living tissue, electrical drive means for electrically activating the optically sensing means, and electrical signal processing means responsive to the optically sensing means for producing an oximeter signal corresponding to the SpO_2 value being sensed, said testing apparatus comprising:
first testing means bypassing the optically sensing means and responsive to the electrical drive means for generating selected first electrical test signals respectively representative of selected SpO_2 values in living tissue and for transmitting said first signals to the electrical signal processing means to test the ability of the signal processing means to process said representative SpO_2 values and produce oximeter signals corresponding to the selected SpO_2 values represented by the test signals generated, and
second testing means for generating second electrical test signals, for transmitting the same to the optically sensing means, for receiving response signals from the optically sensing means in response to transmission of the second test signals, and for providing an indication of said response signals thereby to test the optically sensing means separately from said testing by the first testing means.



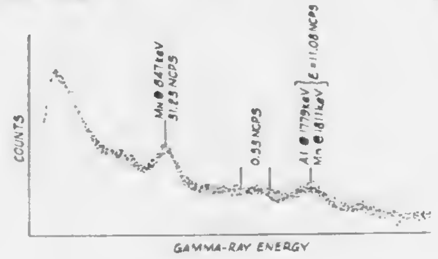
5,783,822
TRACEABLE WELL CEMENT COMPOSITIONS AND METHODS

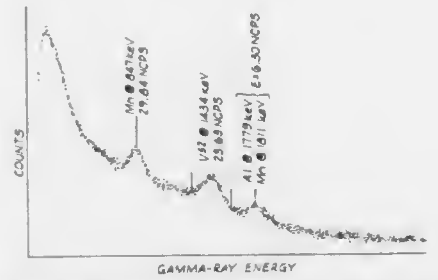
Ronnie J. Buchanan; Jiten Chatterji, and James F. Heathman, all of Duncan, Okla., assignors to Halliburton Energy Services, Inc., Duncan, Okla.

Continuation of Ser. No. 734,316, Oct. 21, 1996, abandoned, which is a continuation-in-part of Ser. No. 572,339, Dec. 14, 1995, abandoned. This application May 16, 1997, Ser. No. 857,845

Int. Cl.^{6} G01V *5/00;5/10*

U.S. Cl. 250—259 **25 Claims**





1. A traceable well cement composition having accelerated early strength comprising:
a hydraulic cement;
sufficient water to form a pumpable slurry;
a normally non-radioactive tracer compound which accelerates the early strength development of said cement composition and which becomes radioactive when exposed to neutrons whereby detectible rays are emitted; and
a normally non-radioactive tracer compound which does not accelerate the early strength development of said cement composition and which becomes radioactive when exposed to neutrons whereby detectible rays are emitted.

5,783,823
APPARATUS TO BE USED IN THE FIELD OF ACCELERATOR MASS SPECTROMETRY

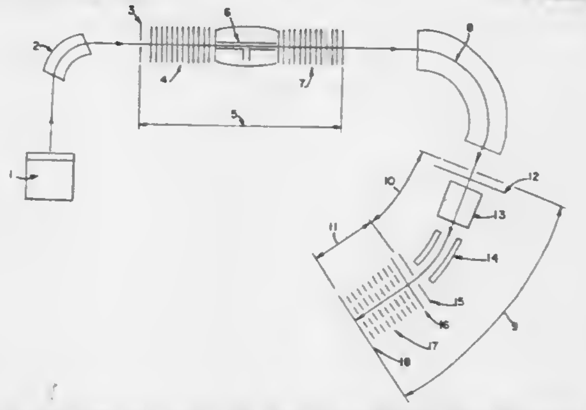
Dirk Jozef Willem Mous, Nieuwegein, Netherlands, and Andreas Ulrich Gottdang, Altenberge, Germany, assignors to High Voltage Engineering Europe B.V., Netherlands

Filed Mar. 10, 1997, Ser. No. 813,988

Claims priority, application European Pat. Off., Mar. 8, 1996, 96200633

Int. Cl.^{6} H01J *49/26*

U.S. Cl. 250—281 **11 Claims**



1. Apparatus for use in the field of accelerator mass spectrometry in the detection of low concentrations of preselected isotopes including, but not limited to chlorine-36 configured to suppress isobaric interferences from isobar elements having a lower atomic number z than said isotopes comprising means for an at least twofold decelaration of said isotopes and said isobar elements by their interaction with matter in order to create an energy difference between said isotopes and said isobar elements based on the z-dependence of their deceleration.

5,783,824
ION TRAPPING MASS SPECTROMETRY APPARATUS

Takashi Baba, Matsuyama, and Izumi Waki, Asaka, both of Japan, assignors to Hitachi, Ltd., Tokyo, Japan

Continuation-in-part of Ser. No. 626,560, Apr. 2, 1996, Pat. No. 5,679,950. This application Jul. 1, 1997, Ser. No. 886,359

Claims priority, application Japan, Apr. 3, 1995, 7-077517; Jul. 2, 1996, 8-172023

Int. Cl.^{6} H01J *49/42*

U.S. Cl. 250—281 **11 Claims**

1. An ion trapping mass spectrometry apparatus comprising a linear ion trapping electrode structure, a driving power source for trapping ions in the linear ion trapping electrode structure, end electrodes disposed at the end or at an extended portion in the direction of the central axis of the linear ion trapping electrode structure and having a central axis in common for preventing ions from escaping out of the linear ion trapping electrode structure in the direction along the central axis of the electrode structure, a power source for applying a predetermined static voltage to the end electrodes, an ionization means for ionizing a specimen and introducing the ions to the linear ion trapping electrode structure, means for exciting the ions kinetically to oscillate in the linear ion trapping electrode structure and ejecting the oscillated ions to the outside of the electrode structure, and an ion detection means for detecting the ejected ions, further comprising, means for eliminat

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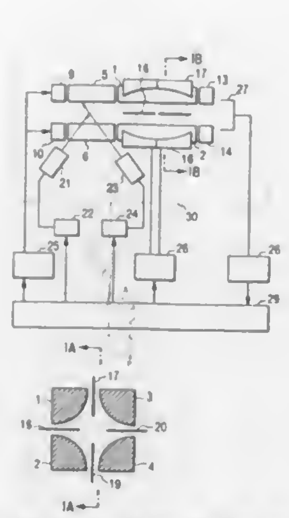


ing the effect of the static voltage of the end electrode upon ejecting ions under selection of mass from the linear ion trapping electrode structure.

5,783,825

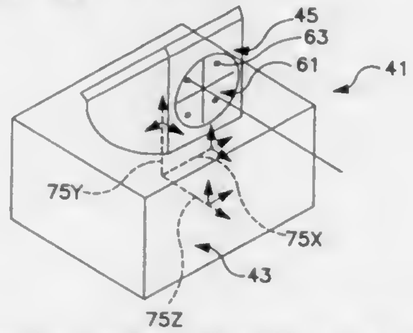
METHOD AND APPARATUS FOR CORRECTING INFRARED SEARCH AND TRACK SYSTEM ERROR

Gary E. Wiese, Orlando, Fla., assignor to Lockheed Martin Corporation, Bethesda, Md.

Filed Aug. 22, 1996, Ser. No. 701,400

Int. Cl.^{6} G01B *11/27*

U.S. Cl. 250—330 **6 Claims**



1. A method for boresighting an infrared search and track sensor to an inertial reference frame provided by a boresight module, comprising the steps of:

projecting a collimated image of a reticle pattern of the boresight module;

scanning the projected image with a detector to obtain a scanned image of the reticle pattern;

isolating rotation of the scanned image due to boresight module roll and distortion of the scanned image due to detector roll; and

removing distortion of the scanned image due to detector roll.

5,783,826

METHOD AND APPARATUS FOR ANALYZING THE PHASES OF A MULTI-PHASE MIXTURE

Gerard Meunier, 5, Boulevard de la Mediterranee, 31400 Toulouse, France

PCT No. PCT/FR95/00599, § 371 Date Nov. 15, 1996, § 102(e) Date Nov. 15, 1996, PCT Pub. No. WO95/31712, PCT Pub. Date Nov. 23, 1995

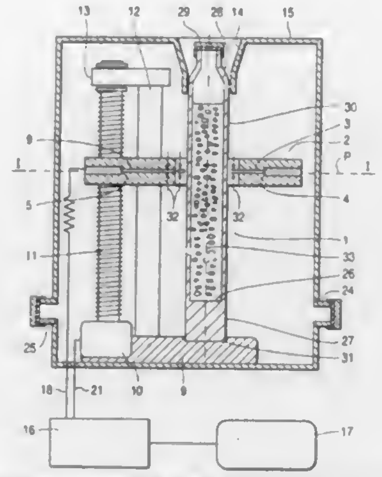
PCT Filed May 9, 1995, Ser. No. 737,575

Claims priority, application France, May 17, 1994, 94 06284

Int. Cl.^{6} G01J *3/06*

U.S. Cl. 250—341.8 **23 Claims**

11. An apparatus for analyzing phases of at least one multi-phase mixture, comprising:



a tubular measurement cell with a cylindrical cross section to house the mixture;

an emitting device that emits electromagnetic radiation in a direction of the measurement cell;

a primary detection device that detects electromagnetic radiation back scattered by the mixture in a plane substantially perpendicular to a longitudinal axis of the tubular measurement cell, the longitudinal axis being arranged substantially vertically and the measurement cell being substantially transparent; and

a moving device that displaces the primary detection device in order to carry out a plurality of detections at a predetermined step over a total length of the longitudinal axis of the tubular measurement cell, the plurality of detections providing a measurement cycle of the mixture.

5,783,827

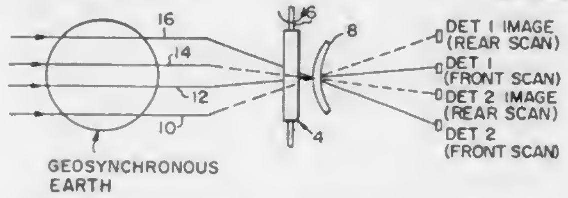
SCANNING EARTH HORIZON SENSOR

James J. Fallon, Bronxville, N.Y.; Gerald Falbel, Stamford, and Richard W. Rhyins, Ridgefield, both of Conn., assignors to Ithaco Space Systems, Inc., Ithaca, N.Y.

Filed Sep. 13, 1996, Ser. No. 714,985

Int. Cl.^{6} G01B *11/26*

U.S. Cl. 250—347 **20 Claims**



1. An earth horizon sensor for spacecraft orbiting the earth, said sensor comprising:

a housing;

a scanning mirror having a first scanning surface and a second scanning surface, said scanning mirror being rotatably mounted within said housing; and

two infrared detectors operatively associated with said scanning mirror;

wherein said sensor provides four scans of the earth using only said two infrared detectors, two of said scans being generated by said first scanning surface of said mirror, and two of said scans being generated by said second scanning surface of said mirror.

5,783,828

APPARATUS AND METHOD FOR TRITIUM MEASUREMENT BY GAS SCINTILLATION

Paolo Pacenti; Fabrizio Campi; Cristina Mascberpa, and Claudia Sterlini, all of Milan, Italy, assignors to European Atomic Energy Community (EURATOM), Plateau de Kirchberg, Luxembourg

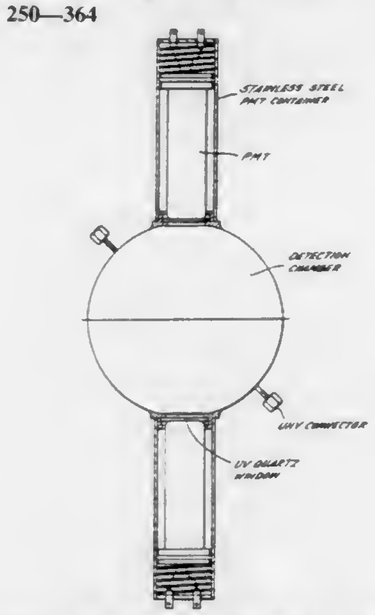
PCT No. PCT/EP96/00394, § 371 Date Dec. 2, 1996, § 102(e) Date Dec. 2, 1996, PCT Pub. No. WO96/24072, PCT Pub. Date Aug. 8, 1996

PCT Filed Jan. 26, 1996, Ser. No. 716,316

Claims priority, application United Kingdom, Feb. 2, 1995, 9502050

Int. Cl.^{6} G01T *1/205*

U.S. Cl. 250—364 **5 Claims**



1. A method for measuring the specific activity of gaseous tritium, said method comprising: mixing a carrier gas scintillator with gaseous tritium, detecting photons emitted from the carrier gas scintillator mixed with the gaseous tritium, and measuring said specific activity from the detected photons.

5,783,829

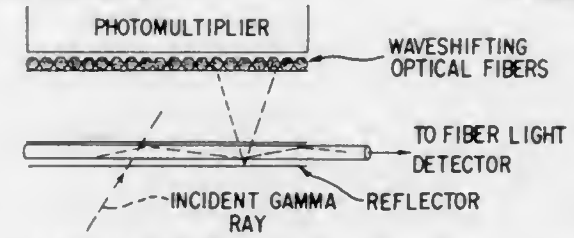
ENERGY AND POSITION SENSITIVE RADIATION DETECTORS

Richard Sealock, Traralgon, Australia; Oscar Rondon-Aramayo, Charlottesville, Va., and Daniel Van Horn Bengis, College Park, Md., assignors to The University of Virginia, Charlottesville, Va.

Filed Nov. 6, 1996, Ser. No. 744,763

Int. Cl.^{6} G01T *1/20*

U.S. Cl. 250—367 **10 Claims**



1. A method for detecting the interaction position of incident radiation comprising the steps of:

positioning a plurality of wave-shifting optical fibers on one surface of a scintillator;

subjecting said scintillator to radiation which causes, in said scintillator, the release of photons of a first wavelength from said scintillator which are absorbed by said plurality of wave-shifting optical fibers;

measuring photons of a second wavelength reemitted from one end of each of said fibers;

forming a representation of the distribution of reemitted photons for each of said wave-shifting optical fiber; and

determining a position where said radiation strikes said scintillator as a function of the centroid of the distribution of detected photons.

5,783,830

SAMPLE EVALUATION/PROCESS OBSERVATION SYSTEM AND METHOD

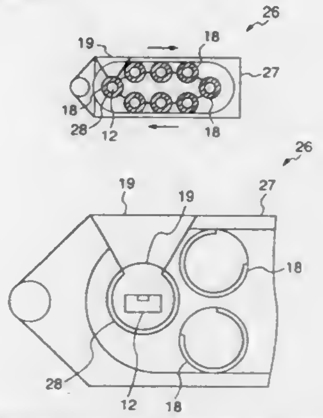
Hiroshi Hirose; Hidemi Koike; Shigeto Isakozawa; Yuji Sato; Mikio Ichihashi, and Motohide Ukiana, all of Hitachinaka, Japan, assignors to Hitachi, Ltd., Tokyo, Japan

Filed Jun. 12, 1997, Ser. No. 873,788

Claims priority, application Japan, Jun. 13, 1996, 8-152101; Jun. 13, 1996, 8-152102

Int. Cl.^{6} H01J *37/20*

U.S. Cl. 250—492.21 **9 Claims**



1. A sample valuation/process observation system comprising:

a common sample stage for accommodating a plurality of samples to be processed, said common sample stage having a processing/observing notch formed therein and also having a movement mechanism for sequentially moving said plurality of samples to said processing/ observing notch to cause the samples to be sequentially exposed to a predetermined processing beam and observing beam;

a beam processing device capable of having said common sample stage removably mounted thereto for irradiating a predetermined processing beam on said plurality of samples through said processing/observing notch to perform arbitrary sequential beam processing over said plurality of samples; and

a beam observation device capable of having said common sample stage removably mounted thereto for irradiating said predetermined observing beam on said plurality of samples through said processing/observing notch to sequentially evaluate and observe shapes of said plurality of samples.

5,783,831

RADIATION EMITTING DEVICE

Klaus Norbert Tusch, London, England, assignor to Colebrand Limited, London, England

PCT No. PCT/GB94/02189, § 371 Date Jun. 4, 1997, § 102(e) Date Jun. 4, 1997, PCT Pub. No. WO96/11412, PCT Pub. Date Apr. 18, 1996

PCT Filed Oct. 5, 1994, Ser. No. 817,709

Int. Cl.^{6} H05B *3/26*

U.S. Cl. 250—495.1 **6 Claims**

1. A radiation emitting device comprising a flexible tube including a heat radiation emitting source and a plurality of discrete infrared radiation emitting sources, said flexible tube having walls being translucent to the radiation emitted by the source therein; and

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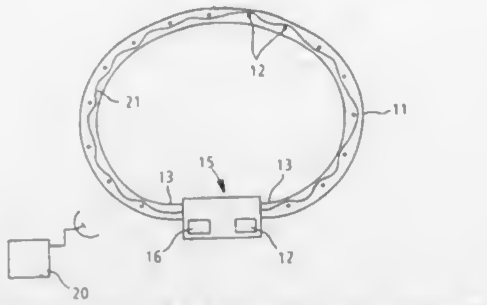


control means to select either a first night-vision mode in which the infrared radiation emitting sources emit radiation in the range to which night vision goggles are sensitive and a second mode in which the heat radiation emitting source emits radiation in the range to which heat sensitive detectors are sensitive.

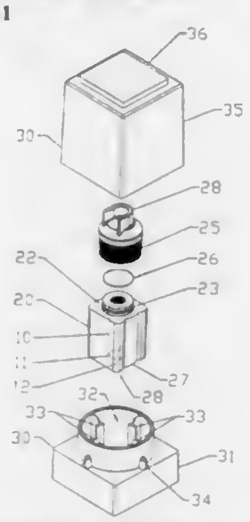
5,783,832
PACKAGING WITH CENTRIFUGE TUBE

Joseph Sandor, Balboa Island, Calif., assignor to ICN Pharmaceuticals, Inc., Costa Mesa, Calif.

Filed Mar. 24, 1997, Ser. No. 822,039

Int. Cl.⁶ G21F *5/00*

U.S. Cl. 250—506.1 **17 Claims**



1. A packaging system for a radioactive material, comprising:

a centrifuge tube;

a radioactive transmission attenuating housing, the housing having a first cavity which removably receives at least part of the centrifuge tube.

5,783,833
METHOD AND APPARATUS FOR ALIGNMENT WITH A SUBSTRATE, USING COMA IMPARTING OPTICS

Ayako Sugaya, Kawasaki, and Masahiro Nakagawa, Yokohama, both of Japan, assignors to Nikon Corporation, Japan

Filed Dec. 12, 1995, Ser. No. 570,924

Claims priority, application Japan, Dec. 12, 1994, 6-307614; Feb. 8, 1995, 7-020325; Apr. 14, 1995, 7-089404

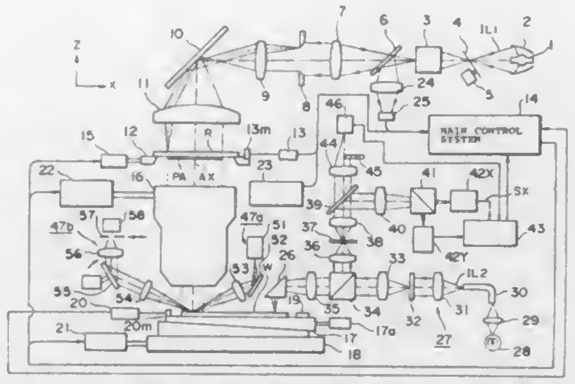
Int. Cl.⁶ G01N *21/86*

U.S. Cl. 250—548 **19 Claims**

1. A method of aligning a mask pattern and a photosensitive substrate with each other in a projection exposure apparatus comprising:

a projection optical system for projecting an image of said mask pattern onto said photosensitive substrate;

an off-axis alignment system for detecting a position of a positioning mark on said photosensitive substrate irrespective of said projection optical system, alignment between said mask



pattern and said photosensitive substrate being performed based on result of the detection by said alignment system;

a first oblique-incidence focus detecting system for applying a first ray of light to said photosensitive substrate obliquely to an optical axis of said projection optical system to measure a deviation along said optical axis between an image plane of said projection optical system and a surface of said photosensitive substrate; and

a second focus detecting system for applying a second ray of light to a region, on said photosensitive substrate, in association with an observation region of said alignment system on said photosensitive substrate and detecting and photoelectrically converting said second ray of light reflected by said photosensitive substrate into a detected signal to measure a deviation between a focused plane of said alignment system and the surface of said photosensitive substrate based on said detected signal,

said method comprising the steps of:

(a) aligning a predetermined measurement spot on said photosensitive substrate with the focused plane of said alignment system based on a deviation, measured by said first focus detecting system, of said predetermined measurement spot from the image plane of said projection optical system;

(b) storing, as a reference detected signal, a detected signal produced by said second focus detecting system when said second ray of light is applied on or near said predetermined measurement spot while said predetermined measurement spot is being aligned with a center of the observation region of said alignment system; and

(c) detecting the position of said positioning mark by said alignment system while the detected signal produced by said second focus detecting system is being set to the same as said reference detected signal.

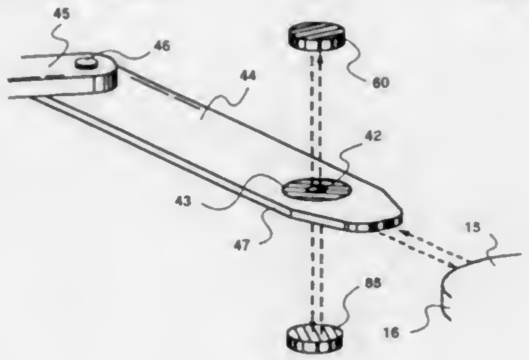
5,783,834
METHOD AND PROCESS FOR AUTOMATIC TRAINING OF PRECISE SPATIAL LOCATIONS TO A ROBOT

Steven C. Shatas, Santa Clara, Calif., assignor to Modular Process Technology, San Jose, Calif.

Filed Feb. 20, 1997, Ser. No. 802,753

Int. Cl.⁶ G01N *21/86*

U.S. Cl. 250—559.33 **36 Claims**



1. An apparatus for teaching a spatial location to a robot having an arm equipped with an end effector operating in a work space where said spatial location is defined by planar coordinates and by a vertical coordinate, said apparatus comprising:

a) a first signal source for generating a first locating beam;

b) a through-hole in said end effector for passing said first locating beam when said end effector is at a desired planar position;

c) a first signal intercepting means for intercepting said first locating beam after said first locating beam has passed said through-hole;

d) a second signal source mounted on said end effector for generating a second locating beam;

e) a vertical calibration means for reflecting said second locating beam when said end effector is at a desired vertical position; and

f) a second signal intercepting means mounted on said end effector for intercepting said second locating beam after said second locating beam has been reflected.

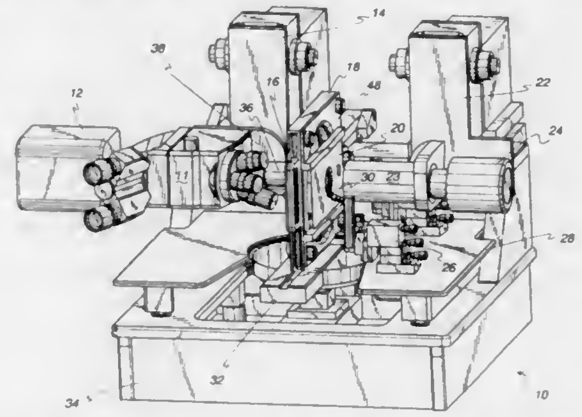
5,783,835
PROBING WITH BACKSIDE EMISSION MICROSCOPY

Kenneth F. Hollman, and Hans E. Karlsson, both of Carson City, Nev., assignors to Probing Solutions, Incorporated, Carson City, Nev.

Filed Mar. 17, 1997, Ser. No. 818,349

Int. Cl.⁶ G01N *21/86*

U.S. Cl. 250—559.46 **20 Claims**



1. An emission probe station apparatus for locating defect sites in an integrated circuit specimen having opposing first and second sides, comprising:

means for positioning a first microscope for observing the first side of the specimen;

means for positioning a second microscope for observing the second side of the specimen;

means for supporting the specimen in a plane perpendicular to the plane of the first microscope and the second microscope;

means for acquiring an illuminated image of the first side of the specimen and generating the illuminated image as corresponding to site indicia of the second side of the specimen;

means for applying electrical test signals to the specimen;

means for acquiring a light emission image of the second side of the specimen in response to the test signals applied to the specimen; and

means for superposing the light emission image with the illuminated image to identify the location of defect sites in the specimen.

5,783,836
OPTICAL SENSOR APPARATUS FOR DETECTING VAPOR OF ORGANIC SOLVENT

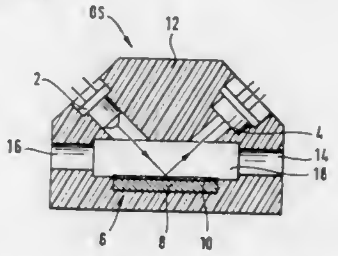
Yuan Liu; Kenji Motosugi; Tetsu Yamamoto, all of Kawagoe, Japan; Christoph Roth, Munich, Germany; Masayuki Arai, Gyouda, Japan, and Hans-Ulrich Simmrock, Sulzbach, Germany, assignors to Hoechst Aktiengesellschaft, Frankfurt, Germany

Filed Dec. 28, 1995, Ser. No. 579,833

Claims priority, application Japan, Dec. 28, 1994, 6-328281

Int. Cl.⁶ G01N *15/06*

U.S. Cl. 250—574 **6 Claims**



1. An optical sensor apparatus utilizing an interference enhance reflection (IER) method for optically detecting at least one of the existence and the concentration of a vapor of an organic solvent, comprising:

a light source unit;

a sensing element comprising a polymer thin film formed on a flat reflecting plate and irradiated by the light emitted from said light source unit, said thin film changing a product of the thickness and the refractive index thereof when making contact with the vapor of the organic solvent;

a light detecting unit for detecting the light reflected by said sensing element; and

a housing for supporting said light source unit, said sensing element and said light detecting unit.

5,783,837

Patent Not Issued For This Number

5,783,838
NON-SINGLE CRYSTALLINE SEMICONDUCTOR PHOTO DETECTOR WITH SUPER LATTICE

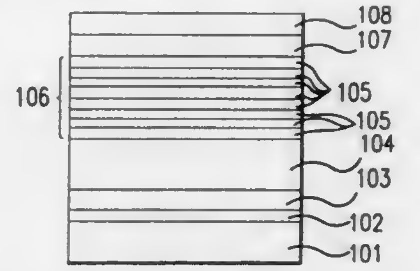
Shinya Kyozuka; Takeshi Nakamura; Takayuki Yamada, and Yasuaki Miyamoto, all of Ebina, Japan, assignors to Fuji Xerox Co., Ltd., Tokyo, Japan

Filed Oct. 30, 1996, Ser. No. 739,194

Claims priority, application Japan, Dec. 28, 1995, 7-343313

Int. Cl.⁶ H01L *27/14;29/04;29/15*

U.S. Cl. 257—21 **10 Claims**



1. In a semiconductor photo detector comprising, between two electrodes, at least one of said electrodes being a transparent electrode, an optical absorption layer which is composed of a non-single crystalline material, absorbs light and generates photo carriers and a carrier multiplication layer which is composed of a

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non-single crystalline material and multiplies the photo carriers generated by the optical absorption layer, the improvement wherein:

said carrier multiplication layer is formed of a multilayer film obtained by stacking films each having plural layers which are composed of non-single crystalline $Zn_xCd_{1-x}M$ ($0 \leqq x \leqq 1$, M represents one selected from the group consisting of S, Se and Te) and are different in a composition ratio in accordance with a change in the value of x in said $Zn_xCd_{1-x}M$.

5,783,839

SEMICONDUCTOR DEVICE HAVING A GESC LAYER BETWEEN SILICON LAYERS WITH TRIANGULAR GE CONCENTRATION

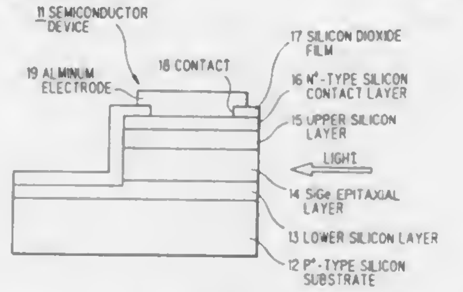
Takenori Morikawa, and Tsutomu Tashiro, both of Tokyo, Japan, assignors to NEC Corporation, Tokyo, Japan

Filed Mar. 21, 1997, Ser. No. 821,926

Claims priority, application Japan, Mar. 22, 1996, 8-066861

Int. Cl.^{6} H01L *29/06*

U.S. Cl. 257—21 **24 Claims**



1. A semiconductor device, which is used as an optical detector, comprising:

a photodiode section which is composed of a first silicon layer, a light-absorbing layer and a second silicon layer which are in turn layered on a silicon substrate;

wherein said light-absorbing layer is formed as a single silicon-germanium epitaxial layer and said single silicon-germanium epitaxial layer has a germanium concentration distribution which provides germanium concentrations of zero at its interfaces to said first silicon layer and said second silicon layer and provides a triangle-shaped concentration profile that a peak concentration value is provided in the middle of said single silicon-germanium epitaxial layer.

5,783,840

UNIVERSAL QUANTUM DOT LOGIC CELL

John N. Randall, Richardson, and Gary A. Frazier, Garland, both of Tex., assignors to Texas Instruments Incorporated, Dallas, Tex.

Continuation of Ser. No. 214,084, Mar. 16, 1994, Pat. No. 5,447,873, which is a continuation of Ser. No. 811,557, Dec. 20, 1991, abandoned. This application Jun. 7, 1995, Ser. No. 472,108

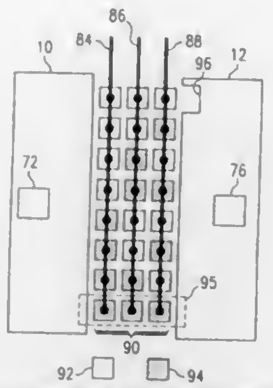
Int. Cl.^{6} H01L *29/06*

U.S. Cl. 257—24 **1 Claim**

1. A quantum-effect logic device, comprising:

a plurality of quantum dot rows in parallel between a source and a drain, said rows with dots of differing quantum states;

a plurality of gates with each of said gates coupled to a quantum dot in each of said rows, said gates operable to modulate quantum states within said quantum dots;



whereby a set of potentials applieds to said plurality of gates permits carrier tunneling from said source to said drain through none or one of said rows.

5,783,841

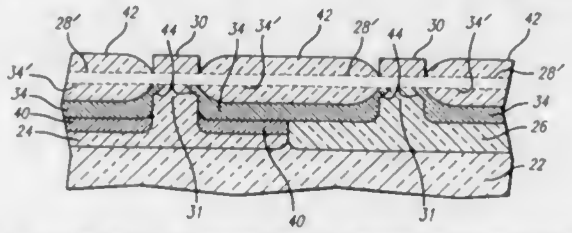
INTEGRATED CIRCUIT WITH ISOLATION OF FIELD OXIDATION BY NOBLE GAS IMPLANTATION AND METHOD OF MAKING SUCH AN INTEGRATED CIRCUIT

Abraham Yee, Cupertino; Sheldon Aronowitz, San Jose, and Yu-Lam Ho, Cupertino, all of Calif., assignors to LSI Logic Corporation, Milpitas, Calif.

Continuation of Ser. No. 641,027, Apr. 29, 1996, abandoned, which is a division of Ser. No. 479,104, Jun. 7, 1995, abandoned. This application Aug. 19, 1997, Ser. No. 918,577

Int. Cl.^{6} H01L *29/04*

U.S. Cl. 257—56 **16 Claims**



1. As an article of manufacture, a manufacturing intermediate article comprising an integrated circuit processing wafer, said processing wafer including a disk-like body of silicon having an upper surface upon which is defined at least one integrated circuit formation area, said integrated circuit formation area including a layer of amorphized-silicon, said layer of amorphized-silicon including noble gas atoms implanted therein which both amorphize silicon of said substrate in said layer of amorphized-silicon, and also maintain said layer of amorphized-silicon in a substantially non-crystalline state.

5,783,842

SEMICONDUCTOR DEVICE HAVING AN INSULATING LAYER HAVING A CONCAVE SECTION FORMED BY OXIDIZING A SEMICONDUCTOR LAYER

Tetsunobu Kohchi, Hiratsuka, and Mamoru Miyawaki, Isehara, both of Japan, assignors to Canon Kabushiki Kaisha, Tokyo, Japan

Continuation of Ser. No. 631,889, Apr. 16, 1996, abandoned, which is a continuation of Ser. No. 181,260, Jan. 13, 1994, abandoned. This application Feb. 20, 1997, Ser. No. 803,499

Claims priority, application Japan, Jan. 18, 1993, 5-021639

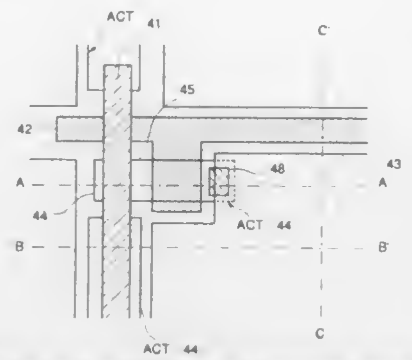
Int. Cl.^{6} H01L *29/04*

U.S. Cl. 257—59 **5 Claims**

1. A liquid crystal display device comprising:

an insulating substrate;

a semiconductor layer provided on a portion on said insulating substrate;



an insulating layer provided on said insulating substrate and said semiconductor layer, wherein said insulating layer is formed by oxidizing said semiconductor layer, and said insulating layer has a thickness at a region on said semiconductor layer thinner than the thickness of the insulating layer at another region, and has a concave section on said semiconductor layer;

a plurality of address lines provided on said insulating layer;

a data line arranged to cross said plurality of address lines on said insulating layer;

a plurality of switching elements arranged in a matrix configuration and connected to said data line;

a plurality of pixel electrodes arranged in a matrix configuration and connected to said plurality of switching elements;

an opposite substrate having a transparent electrode spaced from said insulating substrate; and

a liquid crystal sandwiching between said insulating substrate and said opposite substrate,

wherein at least one of said plurality of address lines and said data line are formed on the concave section of said insulating layer, and a potential of said semiconductor layer under the concave section is at a floating state.

5,783,843

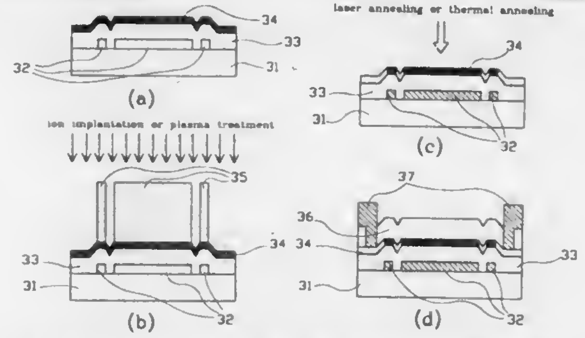
METHOD OF FABRICATING POLYCRYSTALLINE SILICON THIN-FILM TRANSISTOR HAVING SYMMETRICAL LATERAL RESISTORS

Kang-Cheng Lin, Taipei Hsien, Taiwan, assignor to Industrial Technology Research Institute, Hsin-Chu, Taiwan

Division of Ser. No. 689,781, Aug. 14, 1996, Pat. No. 5,658,808. This application Mar. 21, 1997, Ser. No. 822,225

Int. Cl.^{6} H01L *29/76*

U.S. Cl. 257—66 **3 Claims**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(a)
laser annealing or thermal annealing
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(c)
ion implantation or plasma treatment
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34
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(b)
37
36
34
33
31
32
(d)

1. A polycrystalline silicon thin-film transistor comprising:

a silicon substrate or an optically transparent substrate;

a metal or polysilicon layer on top of said substrate, said metal or polysilicon layer including a gate as well as first and second smaller sub-gates, said first and second sub-gates and said gate forming two metal or polysilicon layer openings of substantially identical size on the two sides of said gate;

an insulating layer covering said metal or polysilicon layer and said substrate and filling said openings;

a polycrystalline silicon layer defining a device area for said thin-film transistor above said insulating layer, said polycrystalline silicon layer including:

an undoped center area above said gate;

a first doped area above the area between said first sub-gate and said gate on a first side of said undoped center area;

a second doped area above the area between said second sub-gate and said gate on a second side of said undoped center area, said first and second doped areas being substantially identical;

a first undoped area connecting a doped drain area to said first doped area on said first side;

and a second undoped area connecting a doped source area to said second doped area on said second side, said first undoped area and said second undoped area having substantially identical size;

and a passivation layer covering said device area over said polycrystalline silicon layer, said passivation layer having contact holes filled with metal for contacting said drain area, said source area and said gate respectively;

wherein said first and second undoped areas of said polycrystalline silicon layer form two substantially symmetrical lateral resistors.

5,783,844

OPTICAL SEMICONDUCTOR DEVICE

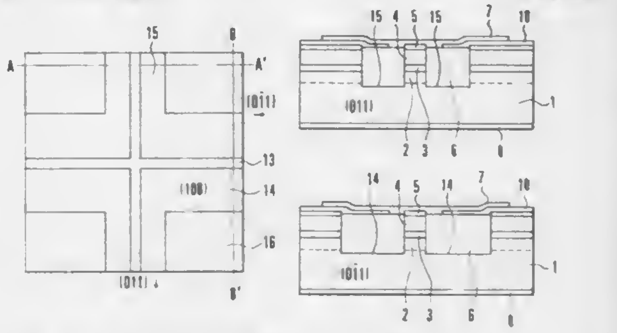
Fumihiko Kobayashi; Takeo Miyazawa, both of Kanagawa; Hidefumi Mori, Tokyo, and Jun-ichi Nakano, Kanagawa, all of Japan, assignors to Nippon Telegraph and Telephone Corporation, Japan

Filed Sep. 27, 1995, Ser. No. 534,333

Claims priority, application Japan, Sep. 28, 1994, 6-232808; Dec. 22, 1994, 6-320341; Dec. 27, 1994, 6-324755

Int. Cl.^{6} G02B *6/10;* **H01L** *33/00*

U.S. Cl. 257—103 **7 Claims**



1. An optical semiconductor device comprising:

a semiconductor substrate;

an optical semiconductor element formed on a portion of said semiconductor substrate, said optical semiconductor element having a thickness defined by opposing sidewalls;

a semiconductor layer having a semi-insulating layer embedded therein and opposing said optical semiconductor element and a first area adjacent said sidewall portions of said optical semiconductor element, said first area having a trench formed therein, said trench having opposing sidewalls; and

a filling-up layer formed in said trench by vapor phase epitaxy, wherein a first distance between a first pair of opposing trench sidewalls is larger than a second distance between a second pair of opposing trench sidewalls, such that said epitaxial growth of said semi-insulating layer is greater along said first pair of opposing trench sidewalls.

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5,783,845
SEMICONDUCTOR DEVICE AND ITS MANUFACTURE UTILIZING CRYSTAL ORIENTATION DEPENDENCE OF IMPURITY CONCENTRATION

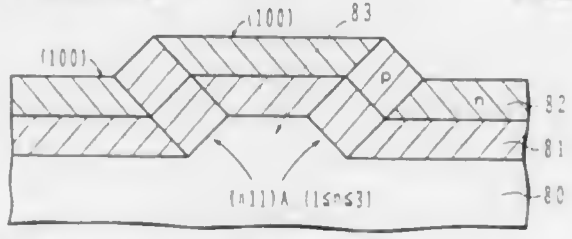
Makoto Kondo; Chikashi Anayama, and Hajime Shoji, all of Kawasaki, Japan, assignors to Fujitsu Limited, Kawasaki, Japan

Division of Ser. No. 398,506, Mar. 3, 1995, Pat. No. 5,668,048. This application Jan. 27, 1997, Ser. No. 789,665

Claims priority, application Japan, Mar. 4, 1994, 6-034883

Int. Cl.^{6} H01L *29/088;29/04*

U.S. Cl. 257—198 **9 Claims**



1. A semiconductor device, comprising:

a substrate made of a group III-V compound semiconductor and having a flat surface exposing an (n 1 1)A plane, wherein n is a real number of about 1≦n≦about 3;

an n-type collector layer epitaxially grown on said substrate;

a p-type base layer epitaxially grown on said n-type layer, said p-type layer containing carbon as the p-type impurity; and

an n-type emitter layer epitaxially grown on said p-type base layer, said n-type emitter layer being made of a material having a forbidden band width wider than a forbidden band width of said p-type base layer.

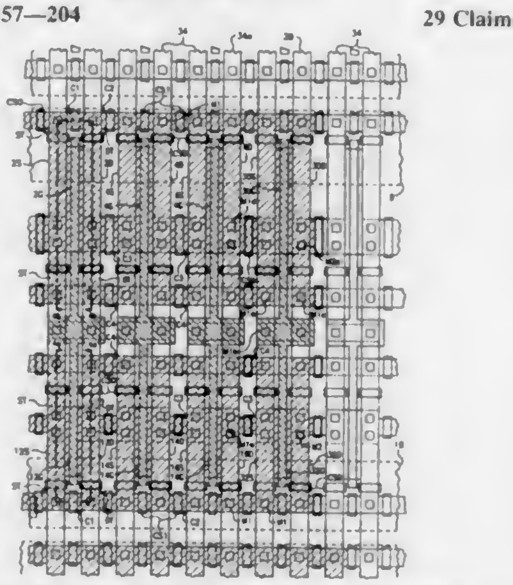
5,783,846
DIGITAL CIRCUIT WITH TRANSISTOR GEOMETRY AND CHANNEL STOPS PROVIDING CAMOUFLAGE AGAINST REVERSE ENGINEERING

James P. Baukus, Westlake Village; Lap Wai Chow, South Pasadena, and William M. Clark, Jr., Thousand Oaks, all of Calif., assignors to Hughes Electronics Corporation, El Segundo, Calif.

Filed Sep. 22, 1995, Ser. No. 532,326

Int. Cl.^{6} H01L *27/10*

U.S. Cl. 257—204 **29 Claims**



1. A camouflaged digital integrated circuit (IC), comprising:

a substrate,

an array of IC multi-transistor logic cells on said substrate having a plurality of respective logic functions, said logic cells having their transistors arranged in substantially the same spatial pattern so that their respective logic functions are not discernable from their transistor patterns,

a common pattern of implant interconnections among the transistors within each cell, some of said interconnections being electrically conductive and the pattern of electrically conductive interconnections within each cell determining its logic function, the remainder of said interconnections comprising electrically conductive implants with interruptions which render the interconnections nonconductive, said interruptions being less discernable than said electrically conductive implants, and external connections to said cells.

5,783,847
DUAL-MODE MICROMETER/MILLIMETER WAVE INTEGRATED CIRCUIT PACKAGE

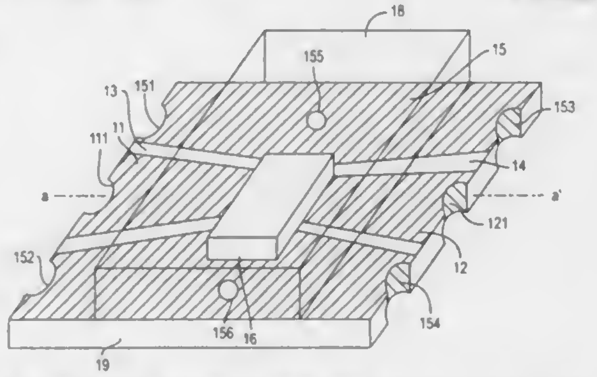
Ching-Kuang Tzuang, Department of Communication Engineering, National Chiao Tung University, 1001 Ta Hsueh Road, Hsinchu, Taiwan, assignor to Ching-Kuang Tzuang, Taiwan

Filed Aug. 18, 1997, Ser. No. 912,693

Claims priority, application Taiwan, Aug. 14, 1997, 86104743

Int. Cl.^{6} H01L *29/80;31/112;23/52*

U.S. Cl. 257—275 **9 Claims**



1. A dual-mode microwave/millimeter wave integrated circuit package comprising a top surface, a bottom surface, and a substrate between said top and bottom surfaces, said top surface including:

an upper left metal strip and an upper right metal strip distributed in zonal areas which extend a distance from the substantially central site of the left edge and the right edge of said top surface, respectively, to the center of said top surface; said left metal strip and right metal strip being connected to said bottom surface through via holes positioned at the left and right edges of said top surface;

a left insulating strip and a right insulating strip located outside said upper left metal strip and upper right metal strip, both of them being spindling and their dimensions being small;

an upper middle metal strip area located on the rest portion of said top surface other than said upper left metal strip, said upper right metal strip, said left insulating strip, and said right insulating strip; said middle metal strip being connected to the bottom surface through via holes which are positioned in the upper and lower side of left edge of said top surface, the upper and lower side of right edge of said top surface, and the substantially central portion in horizontal direction, respectively;

an IC chip placed in the substantially central site, the whole region covered by said IC chip falling into the upper middle metal area without blanketing any via hole; the signal terminals and the ground terminals being located on the top surface of said chip, and said top surface being connected to said upper left metal strip, upper right metal strip, and upper middle metal area through a plurality of bond wires;

an encapsulant covering said IC chip and said bond wires to fix said IC chip;

an injection mold formed above said encapsulant;

said bottom surface including:

a first, a second and a third lower left metal strips distributed in zonal areas which extend a distance from the lower, middle, and upper sides of the left edge of said bottom surface to the right side of said bottom surface, said metal strips being connected to said upper middle metal area, upper left metal strip, and upper middle metal area through via holes, respectively;

a first, a second, and a third lower right metal strips distributed in zonal areas which extend a distance from the lower, middle, and upper side of the right edge of said bottom surface to the left side of said bottom surface, said metal strips being connected to said upper middle metal area, upper right metal strip, and upper middle metal area through via holes, respectively;

a lower middle metal area located on the substantially central site between the upper edge and lower edge, and being connected to said upper middle metal area through via holes.

5,783,848
MEMORY CELL

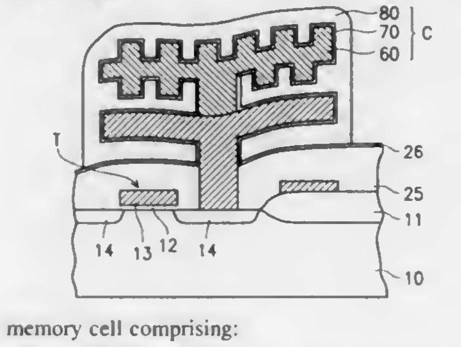
Fang-Ching Chao, Hsinchu, Taiwan, assignor to United Microelectronics Corporation, Taiwan

Filed Oct. 24, 1996, Ser. No. 736,594

Claims priority, application Taiwan, Aug. 16, 1996, 85110006

Int. Cl.^{6} H01L *27/108;29/76;29/94;31/119*

U.S. Cl. 257—296 **15 Claims**



1. A memory cell comprising:

a semiconductor substrate;

a transfer transistor formed on the semiconductor substrate, having a gate electrode and source-drain electrode areas;

an insulating layer formed over the semiconductor substrate and the transfer transistor, having a contact opening exposing one of the source-drain electrode areas as a contact area; and

a storage capacitor formed over the insulating layer and electrically coupled to the contact area;

wherein the storage capacitor includes:

a storage electrode being a first conductive layer formed as a vertical frame contacting the contact area through the contact opening and a horizontal plate extending parallel to the insulating layer and having a plurality of extending areas which extend out vertically from upper and lower surfaces thereof and being disposed asymmetrically on the upper and lower surfaces of the horizontal plate, whereby the vertical frame, the horizontal plate and the extending areas together form the storage electrode of the storage capacitor;

a dielectric layer formed on the surface of the first conductive layer; and

an opposed electrode being a second conductive layer formed on the dielectric layer, whereby the second conductive layer forms the opposed electrode of the capacitor.

5,783,849
SEMICONDUCTOR DEVICE

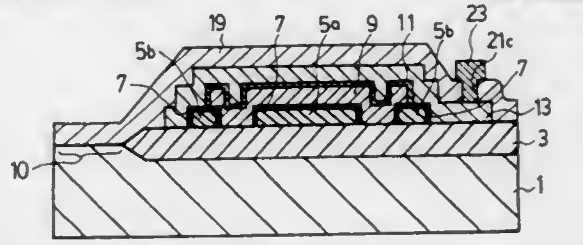
Toshiyuki Kishi, Tokorozawa, and Takashi Toida, Tokyo, both of Japan, assignors to Citizen Watch Co., Ltd., Tokyo, Japan

Filed Feb. 21, 1997, Ser. No. 804,427

Claims priority, application Japan, Feb. 23, 1996, 8-035934

Int. Cl.^{6} H01L *29/72*

U.S. Cl. 257—315 **18 Claims**



1. A semiconductor device comprising:

an insulator film disposed on a semiconductor substrate;

a lower gate electrode disposed on said insulator film;

a lower gate insulator film disposed on said lower gate electrode;

a device region disposed on said lower gate insulator film;

an upper gate insulator film disposed on said device region; and

an upper gate electrode disposed on said upper gate insulator film,

wherein

said device region has island-shaped patterns;

said lower gate electrode includes a first lower gate electrode and a second lower gate electrode;

said first lower gate electrode is positioned in substantially the middle part of said device region;

said second lower gate electrode is positioned in parallel with said first lower gate electrode and at a boundary between said device region and said insulator film; and

said upper gate electrode extends orthogonal to said lower gate electrode.

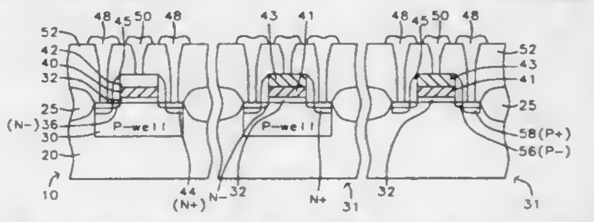
5,783,850
UNDOPED POLYSILICON GATE PROCESS FOR NMOS ESD PROTECTION CIRCUITS

Siu-han Liao, and Jiaus-Ren Shih, both of Hsin-Chu, Taiwan, assignors to Taiwan Semiconductor Manufacturing Company, Hsin-Chu, Taiwan

Continuation-in-part of Ser. No. 429,726, Apr. 27, 1995, Pat. No. 5,532,178. This application Jun. 13, 1996, Ser. No. 663,436

Int. Cl.^{6} H01L *23/62*

U.S. Cl. 257—355 **18 Claims**



1. An integrated-circuit having CMOS product transistors formed on a substrate and a NMOS electro static discharge circuit transistors formed in a P well on the substrate, the substrate having a background impurity of a n-type conductivity, said product transistors and electro static discharge circuit transistors having spaced source/drain regions, gate insulating layers, and gate electrodes, said gate electrodes comprising a bottom polysilicon gate layer and a top metal silicide gate layer; the improvement which includes:

said electro static discharge circuit transistors having an undoped bottom polysilicon gate layer, and said CMOS product transistors having doped gate electrodes.

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5,783,851
SEMICONDUCTOR DEVICE

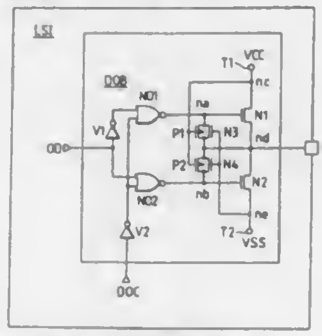
Yoshitaka Kinoshita, Koganei; Yukio Kawashima, Chitose, and Hideaki Nakamura, Kodaira, all of Japan, assignors to Hitachi, Ltd., Tokyo, and Hitachi ULSI Engineering Corp., Tokyo, both of Japan

Continuation of Ser. No. 525,214, Sep. 8, 1995, Pat. No. 5,625,214, which is a continuation of Ser. No. 323,939, Oct. 17, 1994, Pat. No. 5,495,118. This application Mar. 4, 1997, Ser. No. 796,689

Claims priority, application Japan, Oct. 20, 1993, 5-285958; Feb. 28, 1994, 6-054507

Int. Cl.^{6} H01L *29/68*

U.S. Cl. 257—355 **7 Claims**



1. A semiconductor device comprising:
an external output terminal;
a first terminal;
a second terminal;
an N-channel type first output MOSFET having a source-drain path provided between said first terminal and said external output terminal;
an N-channel type second output MOSFET having a source-drain path provided between said second terminal and said external output terminal; and
an N-channel type protective MOSFET having a gate coupled to said second terminal and a source-drain path provided between a gate of said N-channel type first output MOSFET and said external output terminal,
wherein said N-channel type protective MOSFET has a channel length equal to or larger than that of said N-channel type first output MOSFET, and
wherein, during normal operation of said semiconductor device, said first terminal receives a power supply voltage and said second terminal receives a ground potential.

5,783,852
THIN FILM TRANSISTOR AND METHOD FOR FABRICATING THE SAME

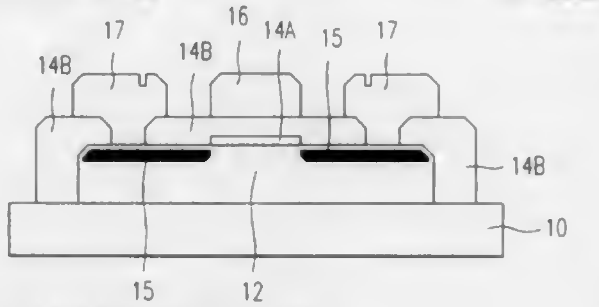
Jin Jang; Kyung-Ha Lee, both of Seoul, and You-Chan Chung, Kyoungsangbuk-do, all of Rep. of Korea, assignors to LG Electronics Inc., Seoul, Rep. of Korea

Filed Aug. 30, 1996, Ser. No. 697,839

Claims priority, application Rep. of Korea, Aug. 31, 1995, 1995 28153

Int. Cl.^{6} H01L *29/76;29/94;31/062;31/113*

U.S. Cl. 257—410 **11 Claims**



1. A thin film transistor, comprising:
a substrate;
a polysilicon pattern having a channel portion on the substrate;
a first nitride layer on the polysilicon pattern corresponding to the channel portion;
heavily doped semiconductor layer regions at upper portions of the polysilicon pattern at sides of the first nitride layer;
an insulating layer directly on upper surfaces of the first nitride layer, and the heavily doped semiconductor layer regions, the insulating layer having a contact hole exposing a portion of each of the heavily doped semiconductor layer regions;
source and drain electrodes connected to the heavily doped semiconductor layer regions through the contact hole; and
a gate electrode directly on an upper surface of the insulating layer over the first nitride layer.

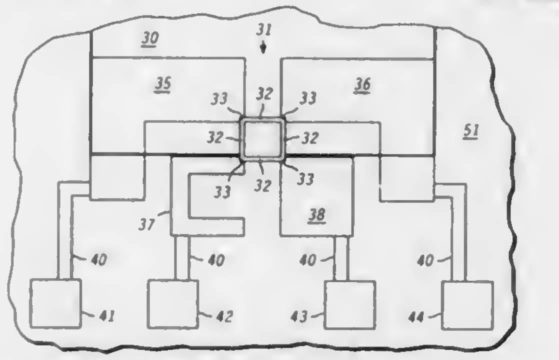
5,783,853
SENSOR HAVING AN OFFSET VOLTAGE AND METHOD OF OPERATION

Dragan Mladenovic, Scottsdale, Ariz., assignor to Motorola, Inc., Schaumburg, Ill.

Filed Jan. 2, 1996, Ser. No. 581,977

Int. Cl.^{6} H01L *29/84*

U.S. Cl. 257—415 **25 Claims**



1. A sensor having an offset voltage comprising:
a diaphragm that flexes in response to a pressure differential across the diaphragm;
a transducer comprising a plurality of legs that are in physical contact with each other, wherein the transducer is coupled to the diaphragm for detecting the pressure differential and generating an electrical response to the pressure differential;
at least two reference pads electrically coupled to the transducer; and a resistive path between the transducer and one of the at least two reference pads so that the at least two reference pads provide an offset voltage, wherein the resistive path is adjacent to the transducer.

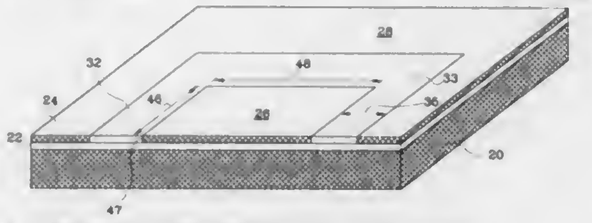
5,783,854
THERMALLY ISOLATED INTEGRATED CIRCUIT

Michael F. Dries, Chanhassen, and Roger L. Roisen, Minnetrista, both of Minn., assignors to Honeywell Inc., Minneapolis, Minn.

Filed Oct. 15, 1996, Ser. No. 729,208

Int. Cl.^{6} H01L *31/058*

U.S. Cl. 257—467 **13 Claims**



1. A thermally isolated integrated circuit comprising:
a semiconductor substrate;
an insulative layer formed on said semiconductor substrate;
a semiconductor layer formed on said insulative layer, said semiconductor layer including an inner portion and an outer portion with a space between said inner portion and said outer portion;
circuit means formed on said inner portion;
a cavity formed in said substrate opposite said inner portion; and
means for heating formed on said inner portion whereby said inner portion is maintained at a first temperature for ambient temperatures below said first temperature.

5,783,855
LATERAL TRANSISTOR

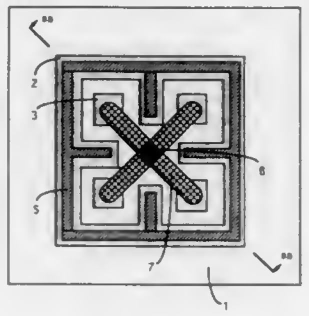
Keisuke Kawakita, and Takahiro Yashita, both of Tokyo, Japan, assignors to Mitsubishi Denki Kabushiki Kaisha, and Mitsubishi Electric Engineering Co., Ltd., both of Tokyo, Japan

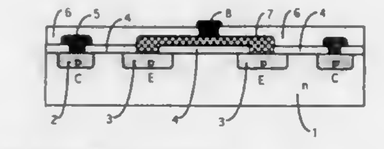
Filed Dec. 22, 1995, Ser. No. 577,373

Claims priority, application Japan, Aug. 18, 1995, 7-210609

Int. Cl.^{6} H01L *29/00*

U.S. Cl. 257—560 **22 Claims**





2. A lateral transistor comprising:
a semiconductor substrate of a first conductivity type and having a major surface;
an emitter region of a second conductivity type in said semiconductor substrate at the major surface;
a collector region of a second conductivity type in said semiconductor substrate at said major surface, including a plurality of sides and corners, and spaced from and surrounding said emitter region except at a first corner;
an electrically insulating film covering said major surface of said semiconductor substrate and including a first penetrating hole extending to said collector region and a second penetrating hole extending to said emitter region;
a collector electrode contacting said collector region through the first penetrating hole and surrounding said emitter region except at said first corner;
an emitter electrode contacting said emitter region through the second penetrating hole; and
an emitter wiring layer contacting said emitter electrode, disposed on said insulating film and extending from said emitter electrode across the first corner.

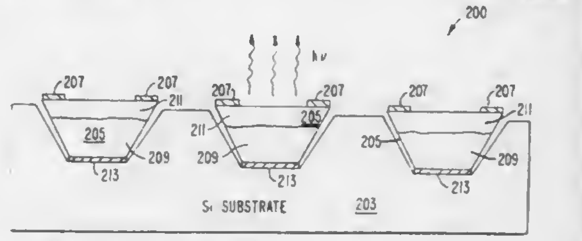
5,783,856
METHOD FOR FABRICATING SELF-ASSEMBLING MICROSTRUCTURES

John Stephen Smith, Berkeley, and Hsi-Jen J. Yeh, Covina, both of Calif., assignors to The Regents of the University of California, Berkeley, Calif.

Division of Ser. No. 169,298, Dec. 17, 1993, Pat. No. 5,545,291. This application May 9, 1995, Ser. No. 437,540

Int. Cl.^{6} H01L *29/72*

U.S. Cl. 257—618 **34 Claims**



1. A microstructure comprising:
a substrate having a plurality of recessed tapered regions thereon; and
a plurality of shaped blocks integral with said recessed regions, each of said shaped blocks having a tapered shape to complement said recessed regions and comprising at least a portion of an integrated circuit thereon, said substrate with said plurality of shared blocks to form at least one integrated circuit when said plurality of shaped blocks are disposed in said recessed regions and appropriately connected.

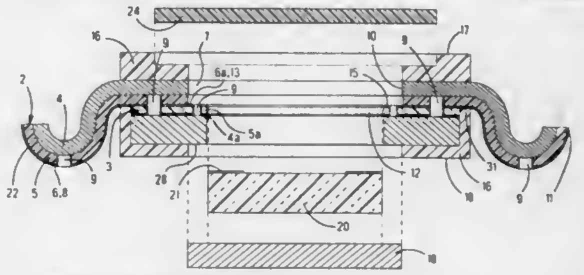
5,783,857
INTEGRATED CIRCUIT PACKAGE

Bernhard Alphonso Ziegner, Westford, Mass., and Robert John Sletten, Bow, N.H., assignors to The Whitaker Corporation, Wilmington, Del.

Filed Jul. 25, 1996, Ser. No. 690,418

Int. Cl.^{6} H01L *29/40*

U.S. Cl. 257—664 **29 Claims**



1. A packaged IC comprising:
an outer interconnect and an inner interconnect, said outer interconnect comprising a transmission layer including at least one conductive lead line, an insulating layer, and a base layer, said inner interconnect comprising a transmission layer including at least one conductive access line, an insulating layer and a base layer, said outer interconnect overlapping a portion of said inner interconnect and at least one lead line of said inner interconnect physically engaging and being electrically connected to respective ones of said at least one access line of said outer interconnect, and an IC having at least one contact, said at least one contact being electrically connected to said at least one access line of said inner interconnect.

5,783,858

Patent Not Issued For This Number

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Patent Not Issued For This Number

5,783,860

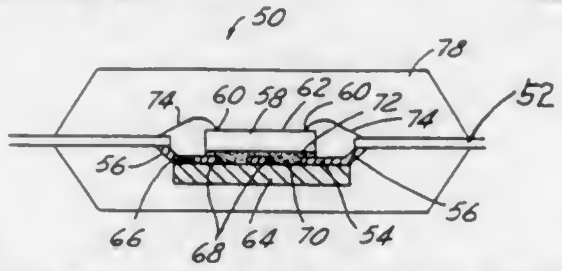
HEAT SINK BONDED TO A DIE PADDLE HAVING AT LEAST ONE APERTURE

Jian Dih Jeng, Hsinchu, and Hsing Seng Wang, Tan-Yuan, both of Taiwan, assignors to Industrial Technology Research Institute, Hsinchu, Taiwan

Division of Ser. No. 594,497, Jan. 31, 1996, Pat. No. 5,672,547. This application Feb. 4, 1997, Ser. No. 794,471

Int. Cl.^{6} H01L *23/495;23/10;23/34;23/28*

U.S. Cl. 257—675 **7 Claims**



1. A plastic molded package of an integrated circuit, comprising:

a lead frame containing a die paddle portion, said die paddle portion having a top surface, a bottom surface, and at least one aperture therethrough,

a heat sink positioned abutting the bottom surface of said die paddle portion,

an integrated circuit die positioned abutting the top surface of said die paddle portion,

an adhesive layer situated between and bonding said integrated circuit die, said die paddle portion, and said heat sink together through said at least one aperture in said die paddle portion, and

a plastic material encapsulating said integrated circuit die, said lead frame having said die paddle portion, and said heat sink in a plastic molded package.

5,783,861

SEMICONDUCTOR PACKAGE AND LEAD FRAME

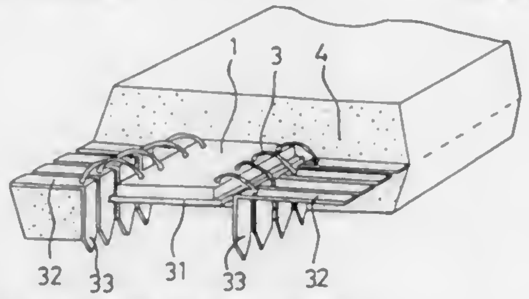
Deog Soo Son, Daegu-si, Rep. of Korea, assignor to LG Semicon Co., Ltd., Chungcheongbuk-do, Rep. of Korea

Continuation of Ser. No. 407,070, Mar. 20, 1995, abandoned. This application Mar. 10, 1997, Ser. No. 812,919

Claims priority, application Rep. of Korea, Mar. 29, 1994, 1994/6391

Int. Cl.^{6} H01L *25/48*

U.S. Cl. 253—693 **20 Claims**



1. A semiconductor package comprising:

a semiconductor chip;

a lead frame having a chip paddle for supporting the semiconductor chip and a plurality of leads, each lead having an inner portion wire-bonded to the semiconductor chip and an outer portion for connecting the semiconductor chip to elements external of the semiconductor chip; and

a molding compound having a bottom surface, said molding compound encompassing and sealing the semiconductor chip and the inner portion of each of the leads but not encompassing the outer portion of each of the leads;

wherein each of the leads includes a first bend and a second bend so that the outer portion of each of the leads extends substantially parallel to the semiconductor chip, said outer portion of each of the leads being exposed on, but not projecting from, a middle portion of the bottom surface of the molding compound.

5,783,862

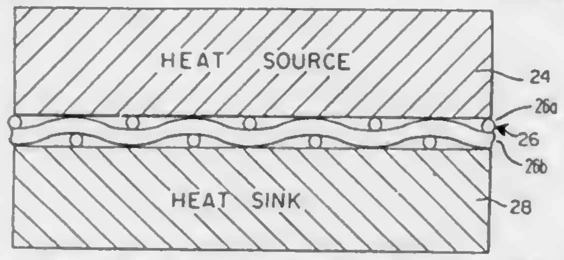
ELECTRICALLY CONDUCTIVE THERMAL INTERFACE

Jeffrey L. Deeney, Ft. Collins, Colo., assignor to Hewlett-Packard Co., Palo Alto, Calif.

Continuation of Ser. No. 720,262, Sep. 26, 1996, abandoned, which is a continuation of Ser. No. 514,349, Aug. 4, 1995, abandoned, which is a continuation of Ser. No. 201,131, Feb. 24, 1994, abandoned, which is a continuation of Ser. No. 855,370, Mar. 20, 1992, abandoned. This application Sep. 26, 1997, Ser. No. 938,282

Int. Cl.^{6} H01L *23/34*

U.S. Cl. 257—714 **22 Claims**



1. A thermal and electrical interface for conducting heat and electricity which may be non-destructively assembled and disassembled, comprising:

a first member;

a second member; and

a woven mesh screen, said woven mesh screen being comprised of metal wires, said metal wires being woven to form interstitial voids between said metal wires, said interstitial voids being filled with a non-metallic thermally conductive wetting compound which is not permanently solid, and said woven mesh screen being compressed between said first member and said second member, said metallic mesh screen also contacting said first member and said second member to form a plurality of electrically and thermally conductive paths between said first member and said second member through said woven mesh screen.

5,783,863

Patent Not Issued For This Number

5,783,864

MULTILEVEL INTERCONNECT STRUCTURE OF AN INTEGRATED CIRCUIT HAVING AIR GAPS AND PILLARS SEPARATING LEVELS OF INTERCONNECT

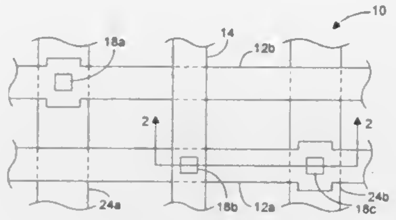
Robert Dawson, Austin; Mark W. Michael, Cedar Park; William S. Brennan, Austin; Basab Bandyopadhyay, Austin; H. Jim Fulford, Jr., Austin, and Fred N. Hause, Austin, all of Tex., assignors to Advanced Micro Devices, Inc., Sunnyvale, Calif.

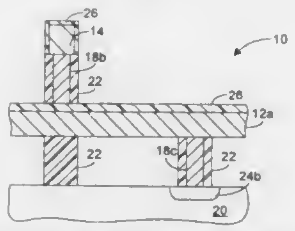
Filed Jun. 5, 1996, Ser. No. 655,248

Int. Cl.^{6} H01L *29/41*

U.S. Cl. 257—758 **5 Claims**

1. A multilevel interconnect structure, comprising:





a first layer of dielectric pillars spaced by air from each other across a semiconductor topography;

a first layer of substantially coplanar conductors spaced by air from each other across the upper ends of said first layer of dielectric pillars; and

a first contact configured within a select one of said dielectric pillars, wherein said contact extends perpendicular to said semiconductor topography from said semiconductor topography to one conductor within said first layer of conductors.

5,783,865

WIRING SUBSTRATE AND SEMICONDUCTOR DEVICE

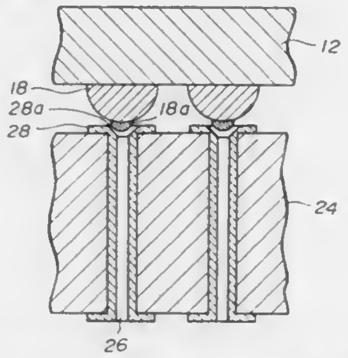
Yutaka Higashiguchi; Mitsuo Inagaki; Makoto Totani; Yasuhiro Teshima, and Hiroshi Iimura, all of Kawasaki, Japan, assignors to Fujitsu Limited

Filed Feb. 16, 1996, Ser. No. 602,423

Claims priority, application Japan, Jul. 31, 1995, 7-195455

Int. Cl.^{6} H01L *23/48;23/52;29/40*

U.S. Cl. 257—774 **7 Claims**



1. A wiring substrate having a semiconductor device mounted thereonto, said semiconductor device having a ball-shaped externally connecting part;

said wiring substrate comprising a through hole at a position corresponding to said ball-shaped externally connecting part and an electric conductor provided inside and around said through hole; and

a land portion of said electric conductor, at which said electric conductor is engaged with said externally connecting part, comprising a sectional tapering portion.

5,783,866

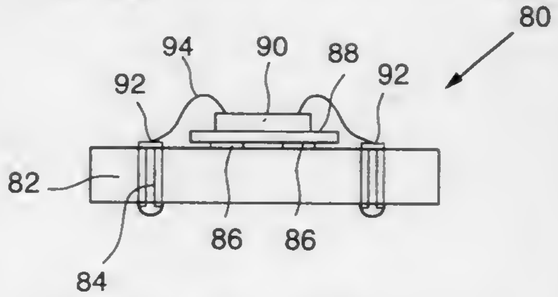
LOW COST BALL GRID ARRAY DEVICE AND METHOD OF MANUFACTURE THEREOF

Shaw Wei Lee, Cupertino; Hem P. Takiar, Fremont; Ranjan J. Mathew, and Hee Jhin Kim, both of San Jose, all of Calif., assignors to National Semiconductor Corporation, Santa Clara, Calif.

Filed May 17, 1996, Ser. No. 649,395

Int. Cl.^{6} H01L *23/48;23/52;29/40;23/04*

U.S. Cl. 257—780 **9 Claims**



7. A ball grid array structure comprising:

a substrate defining a conductive passage therethrough;

a conductor on one side of the substrate, extending at least partially over and contacting said conductive passage;

an insulative base provided over a portion of the conductor on said side of the substrate, the insulative base having a first side adapted for accommodating a semicoductor die, and having a conductive passage electrically coupling said first side to another side of the insulative base;

and

a conductive bump electrically coupled to the conductive passage of the insulative base via the conductive passage of the substrate and the conductor.

5,783,867

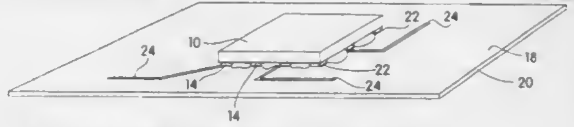
REPAIRABLE FLIP-CHIP UNDERCOATING ASSEMBLY AND METHOD AND MATERIAL FOR SAME

Robert Edward Belke, W. Bloomfield; Bethany Walles, Birmingham; Michael G. Todd, South Lyon, and Brian J. Hayden, Royal Oak, all of Mich., assignors to Ford Motor Company, Dearborn, Mich.

Filed Nov. 6, 1995, Ser. No. 554,181

Int. Cl.^{6} H01L *23/48;23/52;27/40*

U.S. Cl. 257—783 **3 Claims**



1. A repairable flip-chip assembly comprising:

an electrical interconnecting substrate having a plurality of bonding pads at a bonding site on a substrate surface;

a semiconductor electronic flip-chip device having an electronic circuit and a plurality of bonding pads on an active surface facing the substrate surface, the plurality bonding pads of the flip-chip device being coupled to both the electronic circuit and corresponding ones of the bonding pads of the substrate; and

a filled thermoplastic adhesive sandwiched between the flip-chip device and the substrate surface, adhesively fixing the flip-chip device to the substrate.

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5,783,868

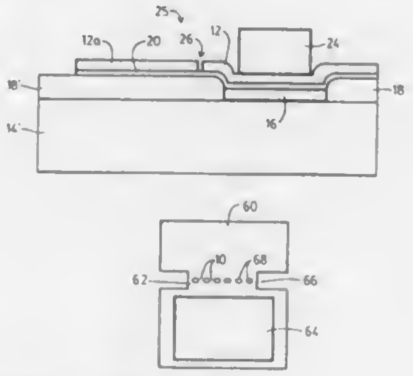
EXTENDED BOND PADS WITH A PLURALITY OF PERFORATIONS

Terry R. Galloway, San Jose, Calif., assignor to Integrated Device Technology, Inc., Santa Clara, Calif.

Filed Sep. 20, 1996, Ser. No. 716,134

Int. Cl.^{6} H01L *23/48;29/54;23/485*

U.S. Cl. 257—784 **29 Claims**



1. A structure comprising:

a die;

a wire bond pad on the die;

a passivation layer over a portion of the die; and

a metal layer on the die and electrically connected to the wire bond pad and extending over a portion of the passivation layer, the metal layer including an extension area extending beyond the wire bond pad, the metal layer including a plurality of perforations.

5,783,869

Patent Not Issued For This Number

5,783,870

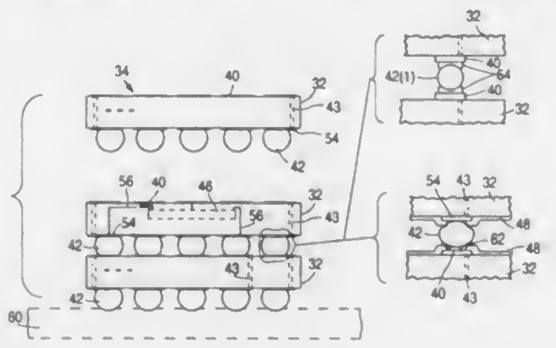
METHOD FOR CONNECTING PACKAGES OF A STACKED BALL GRID ARRAY STRUCTURE

Shahram Mostafazadeh, Santa Clara, and Joseph O. Smith, Morgan Hill, both of Calif., assignors to National Semiconductor Corporation, Santa Clara, Calif.

Continuation-in-part of Ser. No. 405,486, Mar. 16, 1995, abandoned. This application Nov. 14, 1995, Ser. No. 557,264

Int. Cl.^{6} H01L *25/00*

U.S. Cl. 257—791 **15 Claims**



1. An electrical structure comprising:

a first package having first pads located on a bottom surface of the first package and second pads located on an opposite, top surface of the first package, the first package housing one or more integrated circuits electrically connected to selected ones of the first and second pads, wherein one of the first pads is electrically connected to one of the second pads;

a second package physically mounted over the top surface of the first package, the second package having third conductive pads located on a bottom surface, the second package including one or more integrated circuits electrically connected to selected ones of the third pads;

a first conductive ball forming an electrical connection between one of the second pads and one of the third pads; and

a second conductive ball connected to one of the first pads of the first package;

wherein the first conductive ball is attached to said one of the second pads and to said one of the third pads by conductive epoxy,

wherein an outer surface of the first conductive ball comprises a first material having a first melting temperature,

wherein the second conductive ball comprises a second material having a second melting temperature, and

wherein the first melting temperature is higher than the second melting temperature.

5,783,871

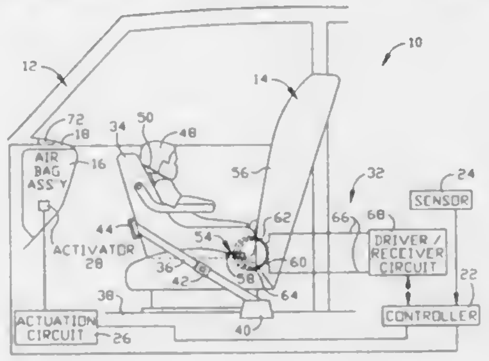
APPARATUS AND METHOD FOR SENSING A REARWARD FACING CHILD SEAT

Thomas John LeMense, Livonia, Mich., assignor to TRW Inc., Lyndhurst, Ohio

Filed Sep. 24, 1996, Ser. No. 719,267

Int. Cl.^{6} B60R *21/00*

U.S. Cl. 307—10.1 **21 Claims**



1. An apparatus for sensing the presence of an object having secured thereon identifier means providing an electromagnetic identifier return signal in response to a transmitted electromagnetic signal, said apparatus comprising:

transmitter means for providing a transmitted electromagnetic signal having a frequency and a time duration, said transmitted electromagnetic signal from said transmitter means causing the identifier means to provide the electromagnetic identifier return signal, the electromagnetic identifier return signal having substantially the same frequency as said transmitted electromagnetic signal and continuing in duration beyond said transmitted electromagnetic signal;

receiver means for receiving an electromagnetic identifier return signal from the identifier means; and

processor means coupled to receive inputs from said transmitter means and said receiver means for determining the presence of the identifier means when said receiver means receives said electromagnetic identifier return signal and providing a signal indicative thereof.

5,783,872

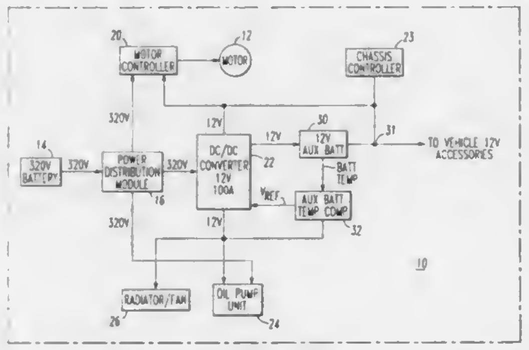
AUXILIARY BATTERY VOLTAGE/TEMPERATURE COMPENSATION FOR AUTOMOTIVE 12 VOLT SYSTEM FOR ELECTRIC VEHICLES

James W. Blair, Catonsville, Md., assignor to Northrop Grumman Corporation, Los Angeles, Calif.

Filed Jul. 25, 1996, Ser. No. 685,886

Int. Cl.^{6} H02J *1/12*

U.S. Cl. 307—46 **18 Claims**



1. A power system for an electric motor vehicle and accessories thereof, comprising:

a first DC power source generating a relatively high DC voltage for powering a vehicle propulsion motor;

a second DC power source comprising a DC to DC converter powered by said first power source and generating a relatively low DC voltage for powering certain accessories of said accessories of said motor vehicle;

an auxiliary DC power source comprising a battery having an output voltage which varies as a function of temperature for powering said accessories upon failure of said first DC power source and consequently said DC to DC converter,

said battery further being coupled to said DC to DC converter and including means for being charged thereby; and

means for regulating the output voltage of said DC to DC converter in response to a feedback signal corresponding to the output voltage of said converter and in response to a temperature reference signal corresponding to the output voltage of said battery so that the DC to DC converter will charge the battery with a voltage which matches a voltage vs. temperature profile of the battery and thus preventing the battery from being overcharged.

5,783,873

MAGNETIC COUPLING-TYPE COMMUNICATION BUS ARCHITECTURE

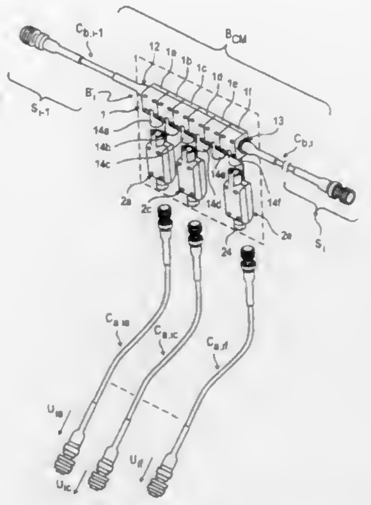
Yves Dohan, Paris; Mekki Boussairy, Change, and Patick Leger, Mulsanne, all of France, assignors to Framatome Connectors International, Courbevoie, France

Filed Apr. 3, 1996, Ser. No. 627,304

Claims priority, application France, Apr. 3, 1995, 95 03878

Int. Cl.^{6} H01F *38/14*

U.S. Cl. 307—104 **17 Claims**



1. Communications bus architecture, the bus (B_{CM}) being of the magnetic coupling type and comprising magnetic coupling and interface elements between said bus (B_{CM}) carrying data signals and "subscribers" (U_i) connected to this bus, wherein said bus is structured in sections (S_1 to S_3) and comprises, in a cascade configuration, a series of cable sections ($C_{b,i-1}$, $C_{b,i}$) forming the bus (B_{CM}) and interconnection blocks (B_i) belonging to these sections, wherein said "subscribers" (U_i) are connected to the bus (B_{CM}) by means of the interconnection blocks (B_i) and wherein the latter comprise magnetic coupling circuits (1) ensuring continuity of said bus (B_{CM}) and of electronic interface circuits (2) arranged between the magnetic coupling circuits and said "subscribers" (U_i).

5,783,874

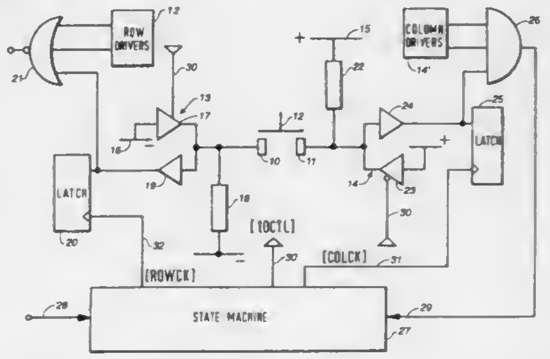
KEYPAD HANDLING CIRCUITS

Philippe Gaglione, Mandelieu la Napoule; Laurent Souef, Opio, and John Whittle, Valbonne, all of France, assignors to VLSI Technology, Inc., San Jose, Calif.

Filed May 6, 1996, Ser. No. 643,756

Int. Cl.^{6} H01H *19/04*

U.S. Cl. 307—113 **12 Claims**



1. A key switch circuit comprising:

a first conductor and a second conductor for connection by a switch element;

a first supply rail and a second supply rail;

a first current driver having an input coupled to said first supply rail and an output coupled to said first conductor;

a second current driver having an input, which is connected to said first conductor, and an output;

a first resistive means connecting said first conductor to said first supply rail;

a third current driver having an input coupled to said second supply rail and an output coupled to said second conductor;

a fourth current driver having an input, coupled to said second conductor, and an output;

a second resistive means connecting said second conductor to said second supply rail; and

circuit means coupled to the outputs of the second current driver and the fourth current driver for enabling said first current driver to provide a current input for said fourth current driver and for enabling said third current driver to provide a current input for said second current driver.

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5,783,875

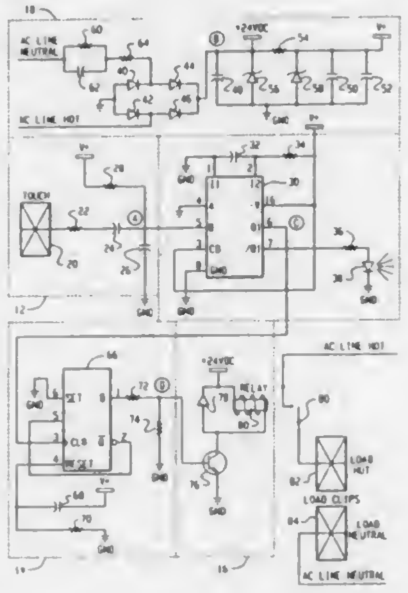
TOUCH SENSOR CIRCUIT

Jeffrey J. Jaros, Beachwood, Ohio, assignor to The Lamson & Sessions Co., Cleveland, Ohio

Filed Feb. 11, 1997, Ser. No. 799,118

Int. Cl.^{6} H01H *35/00*

U.S. Cl. 307—116 **18 Claims**



1. A touch sensor circuit comprising:
- a touch input pad for receiving a person's touch;
- a power switching circuit for applying power from an AC power source to a load when the touch input pad is touched by a person, wherein the AC power source includes line-hot and line-neutral inputs; and
- a sense input circuit coupled between the touch input pad and the power switching circuit, wherein the sense input circuit is referenced to the line-hot input of the AC power source so that when a person touches the touch input pad, a conductive path is established between the line-hot input and earth ground through the sense input circuit and the person's body, thereby generating a detectable sense signal that triggers the power switching circuit to apply AC power to the load.

5,783,876

SWITCH WITH CONTROLLED RISE AND FALL CHARACTERISTICS

András Fazakas, Alvinci u. 30. I/1., Budapest, Hungary, H-1022

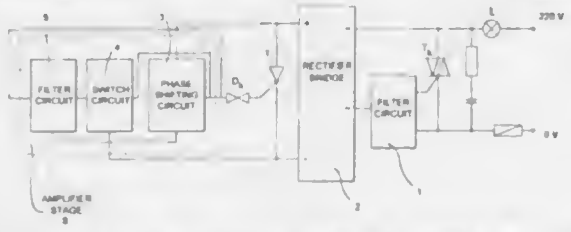
PCT No. PCT/HU95/00012, § 371 Date Jan. 13, 1997, § 102(e) Date Jan. 13, 1997, PCT Pub. No. WO95/31040, PCT Pub. Date Nov. 16, 1995

PCT Filed Apr. 28, 1995, Ser. No. 737,268

Claims priority, application Hungary, May 6, 1994, P9401459; Dec. 20, 1994, P9401459; Apr. 13, 1995, P9401459

Int. Cl.^{6} H01H *9/30*

U.S. Cl. 307—135 **2 Claims**



1. A switch with controlled rise and fall characteristics for electronic switching and power controlling of a load (L), the switch comprising:
- a triac or an SCR switching element (Tk) having a first power electrode for connection in series with a load (L), having a second power electrode and having a gate electrode;
- a rectifier bridge (2) having a first AC input connected to the first power electrode of the switching element (Tk), having a second AC input and having positive and negative DC outputs (+, −);
- a filter circuit (1) connecting the second AC input of the rectifier bridge (2) to the gate electrode of the switching element (Tk);
- a feed-back amplifier stage (6) having an output;
- a low-power SCR (Ti) having first and second electrodes respectively connected to the positive and negative DC outputs (+,−) of the rectifier bridge (2) and having a gate electrode; and
- a diac (Dk) connected between the output of the feed-back amplifier stage (6) and the gate electrode of the low-power SCR (Ti);
- wherein the feedback amplifier stage (6) comprises a phase shifting circuit (3) having first and second inputs and an output, a switching and/or amplifying circuit (4) having first and second inputs and an output and a filter stage (5) having first and second inputs and an output, the first and second inputs of the phase shifting circuit (3) being respectively connected to the positive and negative DC outputs (+,−) of the rectifier bridge (2), the outputs of the phase shifting circuit (3) and the switching and/or amplifying circuit (4) being connected as the output of the amplifier stage (6), second and first inputs of the switching and/or amplifying circuit (4) being respectively connected to the negative DC output (−) of the rectifier bridge (2) and the output of the filter stage (5), the second input of the filter stage (5) being connected to the negative DC output (−) of the rectifier bridge (2) and the first input of the filter stage (5) being connected to the output of the amplifier stage (6); and
- wherein the filter stage (5) comprises a capacitor (C), a fall-control resistor (R1) and a rise-control resistor (R2) for controlling fall and rise characteristics respectively, and a switch (K) each having first and second connection terminals and further comprises a Zener-diode (Z) having anode and cathode terminals, the first connection terminal of the capacitor (C) and the anode of the Zener-diode (Z) being connected in parallel to the first input of the rectifier bridge (2) and the second connection terminal of the capacitor (C) and the cathode of the Zener-diode (Z) each being connected to the first connection terminals of the fall-control resistor (R1) and the rise-control resistor (R2), the second connection terminal of the fall-control resistor (R1) being connected to the first connection terminal of the switch (K), the second connection terminal of the switch (K) being the second output of the filter stage (5) and the first connection terminal of the rise-control resistor (R2) being the first output of the filter stage (5).

5,783,877

LINEAR MOTOR WITH IMPROVED COOLING

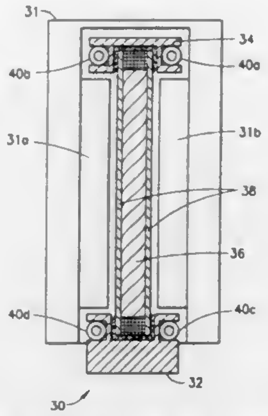
Anwar Chitayat, Fort Salanga, N.Y., assignor to Anorad Corporation, Hauppauge, N.Y.

Filed Apr. 12, 1996, Ser. No. 631,343

Int. Cl.^{6} H02K *9/00;9/19;9/22*

U.S. Cl. 310—12 **21 Claims**

1. A linear motor comprising:
- a magnet plate having a plurality of magnets of alternating polarity affixed thereto;
- an armature block having at least one coil encapsulated in a settable resin;
- said armature block containing substantially no magnetic material;
- a first cold plate affixed to a bottom portion of said armature block;
- a second cold plate affixed to a top portion of said armature block;
- said armature block having a ceramic heat sink plate affixed upon a side thereof;



- said ceramic heat sink plate extending to make thermal contact with each of said first and second cold plates such that heat is effectively removed from a middle portion of said armature block; and
- means for allowing supply of a cooling liquid to said first and said second cold plates such that heat dissipated by said at least one coil in said armature block is removed by said cooling liquid.

5,783,878

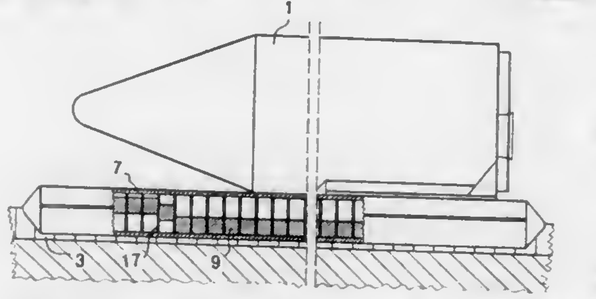
SELF-REGULATING ELECTROMAGNETIC LEVITATION CATAPULT

Oleg V. Tozoni, 11911 Parklawn Dr. #304, Rockville, Md. 20852

Continuation-in-part of Ser. No. 631,002, Apr. 12, 1996. This application Jul. 24, 1996, Ser. No. 685,618

Int. Cl.^{6} H02K *41/00*

U.S. Cl. 310—12 **12 Claims**



1. An electromagnetic catapult for preliminary acceleration of an individual payload, comprising:
- a) a guideway-stator assembly extended along the trajectory of the payload motion and comprising two pairs of mirror-symmetrical three-phased stator windings; the guideway-stator assembly having distinct sections thereof, including a start section, an acceleration section and a deceleration section, each of said stator windings having distinct turn length and cross-section of conductors thereof in said distinct sections;
- b) levitator means providing stable suspension of the payload during movement thereof along said trajectory and including chassis supporting the payload;
- c) a superconductive magnet rotor having changeable size of a rotor pole pitch and comprising a pair of metallic yokes, each affixed on a respective side of said chassis and extended therealong; each said yoke including a plurality of separate cells accommodating superconductive magnets, said superconductive magnets including a group of short magnets and a group of long magnets; and
- d) synchronizing devices coupled operatively with said superconductive magnet rotor and increasing in steps the size of rotor pole pitch during vehicle motion by shifting the short magnets downward in accordance with the turn length of the stator windings in said distinct sections.

5,783,879

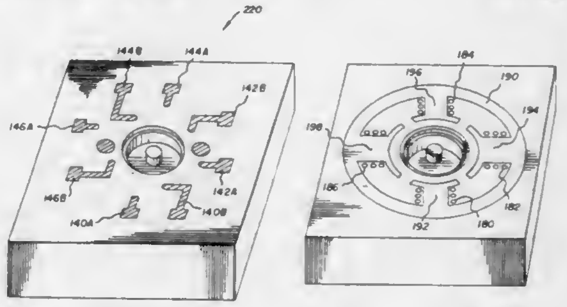
MICROMOTOR IN A CERAMIC SUBSTRATE

Edward P. Furlani, Lancaster; Syamal K. Ghosh, and Dilip K. Chatterjee, both of Rochester, all of N.Y., assignors to Eastman Kodak Company, Rochester, N.Y.

Filed Jun. 3, 1997, Ser. No. 868,098

Int. Cl.^{6} H02K *7/00;9/00;5/00*

U.S. Cl. 310—40 MM **10 Claims**



1. A micromotor in a ceramic substrate, comprising:
- (a) a unitary ceramic body providing a micromotor substrate which has been formed with a first internal cavity and a plurality of second internal cavities and a recess, a ferromagnetic stator located in the first internal cavity, and embedded conductive coil structures formed in the second internal cavities and disposed in operative relationship to the ferromagnetic stator, and;
- (b) a rotor mechanism mounted in the recess and in operative relationship to the ferromagnetic stator and having a rotor member formed of a hard magnetic material which is free to rotate so that when voltages are applied to embedded conductive coil structures, a field is created through the ferromagnetic stator which provides a torque to the rotor member causing it to rotate.

5,783,880

MOTOR FOR DRIVING INFORMATION MEDIUM

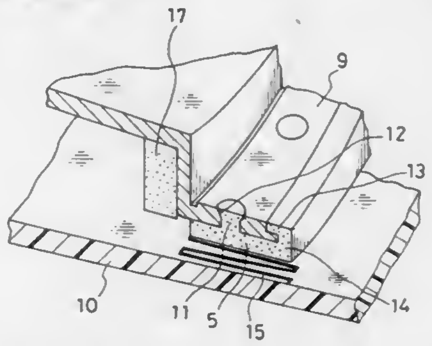
Hiroyoshi Teshima, Saihaku-gun, and Hironobu Nishida, Yonago, both of Japan, assignors to Matsushita Electric Industrial Co., Ltd, Kadoma, Japan

Division of Ser. No. 57,486, May 6, 1993. This application Nov. 22, 1995, Ser. No. 561,916

Claims priority, application Japan, May 8, 1992, 4-30050; May 8, 1992, 4-30051; May 8, 1992, 4-115685; Jan. 26, 1993, 5-1560; Jan. 29, 1993, 5-2143; Jan. 29, 1993, 5-14027

Int. Cl.^{6} H02K *7/14;11/00;21/22;17/42*

U.S. Cl. 310—67 R **3 Claims**



1. A flexible disk drive motor comprising:
- a frequency generation magnet disposed on a magnet set side face of a flange portion provided, on a rotor frame outer periphery. substantially perpendicularly to a shaft, wherein said flange portion comprises:
- a plurality of hole portions which are chamfered on a side face of said flange portion opposite said magnet set side face; and
- a stepped portion, on said flange portion outer periphery end face, such that said magnet set side face protrudes with

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respect to said opposite side face, said frequency generation magnet being integrally molded with said hole portions and said stepped portion so that said stepped portion is embraced by said frequency generation magnet from an outer periphery thereof.

5,783,881
BRUSHLESS ELECTRIC MOTOR WITH HEAT SINK AND MOUNTING ARRANGEMENT THEREOF

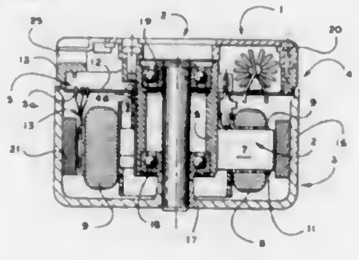
Dieter Best, Ingelfingen; Bernhard Bamberger, Lauda-Unterbalbach; Helmut Lipp, Hohebach, and Franz Jakob, Mulfingen-Zaisenhausen, all of Germany, assignors to emb Elektrobau Mulfingen GmbH & Co., Germany

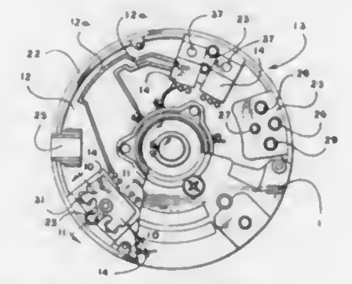
Filed Oct. 21, 1996, Ser. No. 734,693

Claims priority, application Germany, Oct. 21, 1995, 29516656 U

Int. Cl.^{6} H02K *11/00;11/04*

U.S. Cl. 310—68 C **8 Claims**





1. A brushless electric motor comprising:

a stator (2) with stator windings (8) mounted on a stator flange (1);

an external rotor (3) which encloses the stator (2) on a side facing away from the stator flange (1);

an electronic circuit arrangement disposed between the stator and the stator flange and having, on a flange side, a printed board (12) mounted to face the stator (2) and carrying electronic components including power semiconductors (14) arranged to be spatially separate from the printed board (12) and connected to the printed board in an electrically conductive way;

a hollow cylindrical heat sink (13) fastened to a peripheral border region of the printed board (12) and having an inner cylinder wall (22) for receiving the power semiconductors (14) in a heat conducting manner, so that the cylinder wall (22), in a mounted state of the motor, forms part of a peripheral border (20) of the stator flange (1), extending in an axial direction; and

the inner cylinder wall (22) of the heat sink (13) having several holding elements (23) directed radially inwardly, the holding elements (23) being in the form of brackets.

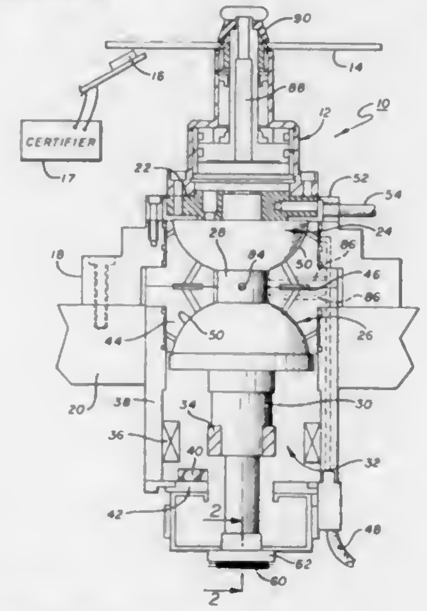
5,783,882
CONDUCTIVE CONTACT FOR AN AIR BEARING SPINDLE

Blasius Brezoczky, San Jose, and Ian C. Fry, Danville, both of Calif., assignors to Phase Metrics, San Diego, Calif.

Filed Dec. 30, 1996, Ser. No. 775,254

Int. Cl.^{6} H02H *7/00*

U.S. Cl. 310—68 R **11 Claims**



1. A spindle motor, comprising:

a housing;

a reservoir of electrically conductive fluid that is electrically coupled to said housing;

a spindle located within said housing, said spindle having a tip that is located within said reservoir such that said electrically conductive fluid provides a conductive path between said spindle and said housing said tip has a surface that is inclined to a longitudinal axis of said spindle; and,

a motor that rotates said spindle relative to said housing.

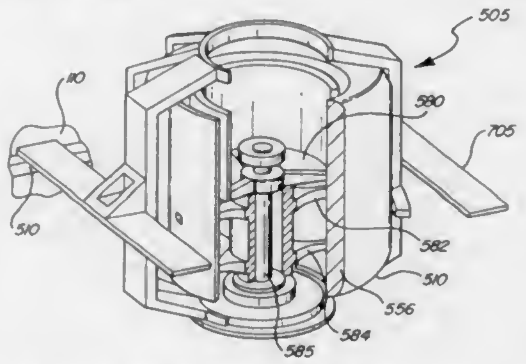
5,783,883
SUBCRITICAL SPOKE FOR HUB TO ROTOR ATTACHMENT

Luka Serdar, Jr., Lexington; Gary M. Colello, Lunenburg; Stephen H. Crandall, Lincoln, all of Mass., and Clifford Gunsallus, Canton, Conn., assignors to Chrysler Corporation, Auburn Hills, Mich.

Filed May 2, 1996, Ser. No. 641,964

Int. Cl.^{6} H02K *7/02*

U.S. Cl. 310—74 **5 Claims**



1. An energy storage apparatus having a rotor and a stator comprising:

a hub rotatably positioned about a stationary axial shaft;

at least one spoke plane projecting radially from the hub, wherein said at least one spoke plane contains at least one spoke; and

said at least one spoke having an in-plane bending stiffness exceeding an out-of-plane bending stiffness.

5,783,884
COIL COMPONENTS AND MOTOR USING THE COIL COMPONENTS

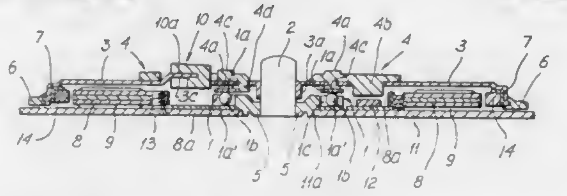
Makoto Fujishima; Shigeru Kasai, and Noriyuki Kawabara, all of Nagano, Japan, assignors to Sankyo Seiki Mfg. Co., Ltd, Nagano-ken, Japan

Filed Mar. 5, 1997, Ser. No. 811,920

Claims priority, application Japan, Mar. 6, 1996, 8-048512

Int. Cl.^{6} H02K *5/16;7/08*

U.S. Cl. 310—90 **6 Claims**



1. A floppy disk driving motor comprising:

a rotor having a rotatably supported shaft;

a rotor case rotating together with said shaft;

a hub seat attached to said rotor case for mounting a disk hub and a chucking magnet for magnetically attracting said disk hub;

a thrust ball bearing having a washer, a plurality of balls, and a retainer for holding said balls and supporting the load in the thrust direction of said rotor;

a flatness control section, which passes through said rotor case to contact said washer of said thrust ball bearing and controls the flatness of said washer,

a position control section, which passes through said rotor case to contact an inner circle surface of said washer of said thrust ball bearing and controls said washer in the thrust direction; and

wherein said chucking magnet, flatness control section and position control section are integrally molded of resin.

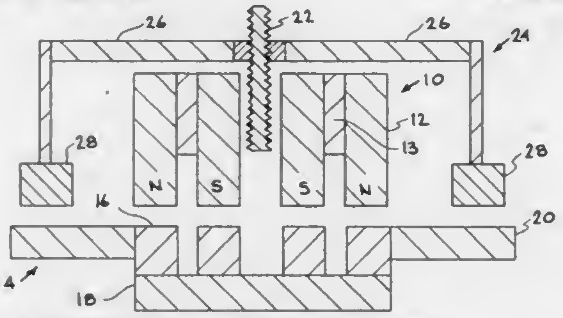
5,783,885
SELF-ADJUSTING MAGNETIC BEARING SYSTEMS

Richard F. Post, Walnut Creek, Calif., assignor to The Regents of the University of California, Oakland, Calif.

Filed Aug. 7, 1995, Ser. No. 511,981

Int. Cl.^{6} H02K *7/09;7/06;49/00*

U.S. Cl. 310—90.5 **30 Claims**



1. A self-adjusting magnetic bearing, comprising:

a stationary bearing element;

a rotatable bearing element magnetically levitated by said stationary bearing element;

wherein said self-adjusting magnetic bearing is intrinsically radially stable; and

active means for automatically adjusting the magnetic parameters of said stationary bearing element with respect to said rotatable bearing element, resulting in axial stability, such that the force balance of said self-adjusting magnetic bearing is maintained near the point of metastable equilibrium,

wherein said stationary bearing element comprises at least one first annular iron pole piece

wherein said rotatable bearing element comprises at least one second annular iron pole piece fixedly attached to an annular conducting plate comprising non-magnetic material,

wherein said at least one first annular pole piece and said at least one second annular pole piece are configured to exert magnetically attractive forces upon each other such that said rotatable bearing element tends to be pulled toward said stationary bearing element, and

wherein said means for automatically adjusting the magnetic parameters comprises a stationary drive screw supporting an assembly comprising a magnetic shunt pair with an internal thread, each shunt of said shunt pair supporting a slotted pole.

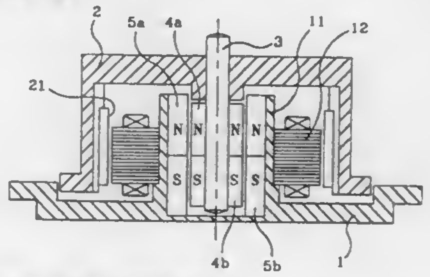
5,783,886
SPINDLE MOTOR HAVING MAGNETIC BEARING

Weon Ki Hong, Kyunggi-Do, Rep. of Korea, assignor to Samsung Electro-Mechanics Co., Ltd., Suwon, Rep. of Korea

Filed Aug. 6, 1996, Ser. No. 692,776

Int. Cl.^{6} H02K *7/09*

U.S. Cl. 310—90.5 **7 Claims**



1. A spindle motor comprising:

a housing assembly having a cylindrical hub and a stator secured onto a circumferential outer surface of the cylindrical hub; means for energizing said stator;

a spindle hub having a rotor magnet secured onto a circumferential inner surface thereof in facing relation to said stator;

a rotatable shaft secured to and passing through the spindle hub into a space defined in the cylindrical hub;

a plurality of first permanent magnets fitted onto a circumferential outer surface of the rotatable shaft and having opposite magnetic polarities in upper and lower portions thereof, and

a plurality of second permanent magnets fitted onto a circumferential inner surface of the cylindrical hub and having opposite magnetic polarities in upper and lower portions thereof;

said first and second magnets facing one another whereby the rotatable shaft can be rotated without any frictional contact, in a floating state, by magnetic forces produced by the first and second permanent magnets,

a magnetic center of the upper portion of the first permanent magnet being lower than a magnetic center of the upper portion of the second permanent magnet and a magnetic center of the lower portion of the first permanent magnet being higher than a magnetic center of the lower portion of the first permanent magnet, to produce magnetic forces directed radially and axially between said first and second magnets, said forces which are directed axially in said upper and lower portions of the first and second magnets acting in opposite directions towards a common boundary area between said upper and lower portions of said first and second permanent magnets.

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5,783,887
MAGNETIC BEARING SPINDLE DEVICE FOR MACHINE TOOLS

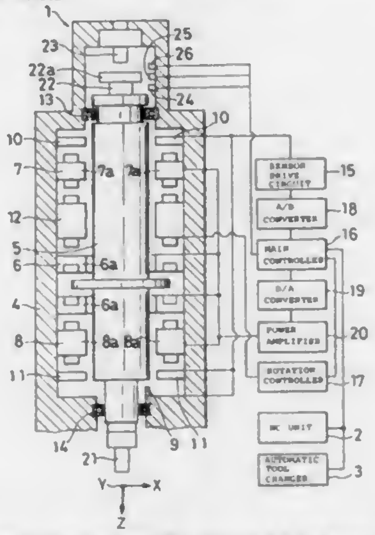
Hirochika Ueyama, Hirakata, and Manabu Taniguchi, Kashihara, both of Japan, assignors to Koyo Seiko Co., Ltd., Osaka, Japan

Filed Jul. 18, 1997, Ser. No. 896,770

Claims priority, application Japan, Aug. 7, 1996, 8-208265

Int. Cl.^{6} H02K *7/09*

U.S. Cl. 310—90.5 **4 Claims**



1. A magnetic bearing spindle device for machine tools which comprises a spindle for mounting a tool element as changeably attached to a forward end thereof, a plurality of controllable magnetic bearings for contactlessly supporting the spindle, rotating drive means for rotating the spindle as contactlessly supported by the magnetic bearings, and a draw bar inserted through the spindle and axially movable for unclamping and clamping the tool element, the spindle device being characterized in that the device comprises a tool state sensor means for detecting the axial position of the draw bar to detect a state of having no tool element, an unclamping state or a clamping state, and control means for controlling the support of the spindle by the magnetic bearings and the rotation of the spindle by the drive means based on the result of detection by the sensor means.

5,783,888
ROTARY ELECTRIC MACHINE

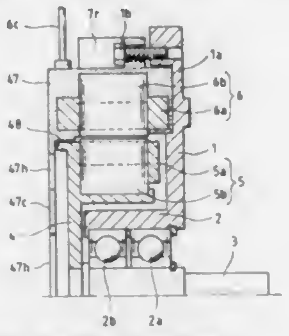
Kenji Yamano, Kanagawa, Japan, assignor to Fuji Electric Co., Ltd., Kanagawa, Japan

Filed Mar. 9, 1995, Ser. No. 401,004

Claims priority, application Japan, Mar. 17, 1994, 6-046257

Int. Cl.^{6} H02K *5/00;1/04;5/16;9/00*

U.S. Cl. 310—91 **6 Claims**



1. A rotary electric machine comprising:
an annular disk;
a flange to which an opponent machine is attached, said flange being formed on an outer end surface of said annular disk;
a pair of bearings;
a shaft engaged with said bearing;
a cylindrical bearing box integrally formed at an axis of said annular disk and engaged with said pair of bearings;
a rotary disk attached to said shaft on a side opposite to said flange, an end of said shaft being projected to the flange side;
a rotor integrally formed on said rotary disk, said rotor being arranged on the outside of said bearing box in the radial direction;
a stator having a winding and iron core and attached to a stationary side of the electric machine, said stator being arranged on the outside of said rotor through a magnetic clearance;
a synthetic resin member having an electrical insulating property and heat conductivity molded on an entire circumference of said stator including said winding and iron core so that said synthetic resin member is in close contact with said annular disk on a side surface of said flange, said synthetic resin member being exposed to air throughout its periphery for cooling; and
a cover enclosing an end surface of the electric machine on the side opposite to the flange, joined to said synthetic resin member, and having a ventilating hole.

5,783,889

Patent Not Issued For This Number

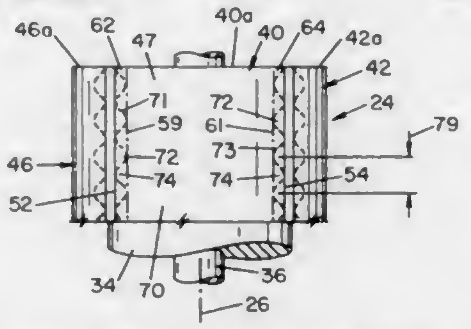
5,783,890
IMPRINTED GEOMETRIC MAGNETIC ANTICOG PERMANENT MAGNET MOTOR

Robert L. Mulgrave, Sanddown, N.J., assignor to Cleveland Motion Controls, Inc., Cleveland, Ohio

Filed Jun. 26, 1995, Ser. No. 494,404

Int. Cl.^{6} H02K *23/42*

U.S. Cl. 310—156 **23 Claims**



1. A permanent magnetic motor comprising:
a housing including a stator having an inner cylindrical surface from which a plurality of teeth between slotted openings extend radially outward therefrom for receiving windings wound between said teeth to define stator poles;
a rotor carrying a plurality of identical permanent magnets of alternating polarity affixed at equal circumferential increments about a longitudinally-extending rotatable shaft concentric with said inner surface, said magnets extending longitudinally along said shaft a distance about that of said inner surface and having an outer, generally cylindrical surface concentric with and spaced radially inward from said inner surface to define a constant physical, annular air gap therebetween; each magnet's outer surface circumferentially extending between a longitudinally-extending leading edge surface to a longitudinally-extending trailing edge surface;
each magnet further having an imaginary trailing line and an imaginary leading line, each line positioned between said leading and trailing edges with said trailing line generally adjacent but spaced from said trailing edge to define a trailing edge margin of said magnet therebetween and said leading line generally adjacent but spaced from said leading edge to define a leading edge margin of said magnet therebetween;

each magnet being uniformly magnetized to a first magnetic field strength between said leading and trailing edge margins while being magnetized to a periodic, undulating magnetic field strength which varies from said first magnetic field strength to a lesser second magnetic field strength along the length of said leading and trailing margins whereby cogging of said magnet is minimized.

5,783,891
BRUSHLESS SYNCHRONOUS MACHINE

Herbert Auinger, Nürnberg; Jürgen Bredthauer, and Bernhard Wachta, both of Berlin, all of Germany, assignors to Siemens Aktiengesellschaft, Munich, Germany

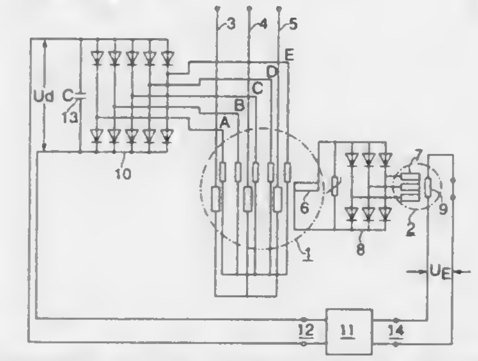
PCT No. PCT/DE94/00231, § 371 Date Oct. 23, 1995, § 102(e) Date Oct. 23, 1995, PCT Pub. No. WO94/21031, PCT Pub. Date Sep. 15, 1994

PCT Filed Feb. 28, 1994, Ser. No. 513,839

Claims priority, application Germany, Mar. 2, 1993, 43 07 268.2

Int. Cl.^{6} H02K *19/26*

U.S. Cl. 310—180 **9 Claims**



1. A brushless, three-phase synchronous machine comprising:
an exciter, said exciter comprising only one field excitation winding, said field excitation winding being powered by a regulator, said regulator being connected to a separate auxiliary winding in a stator of a main machine, said auxiliary winding having a plurality of phases, a number of said phases of said auxiliary winding being different from a harmonic number of a most salient harmonic wave of a field of said main machine during a short circuit, said auxiliary winding operating in a multi-phase manner, said auxiliary winding having a four or five phase design, said auxiliary winding gaining excitation from a fundamental wave and from a third harmonic wave, said phases of said auxiliary winding having turns with different coil widths.

5,783,892
STATOR FOR DYNAMOELECTRIC MACHINES

Hidetoshi Kanzaki; Takayuki Hattori, both of Yokkaichi, and Akihiko Dousaka, Mie-ken, all of Japan, assignors to Kabushiki Kaisha Toshiba, Kanagawa-ken, Japan

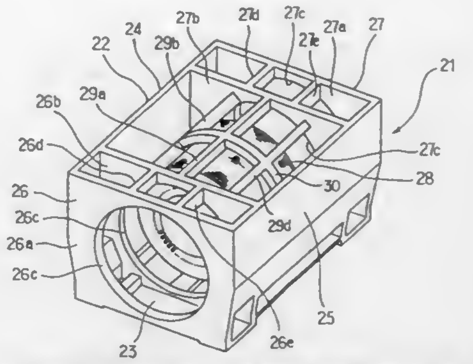
Filed Apr. 26, 1996, Ser. No. 634,898

Claims priority, application Japan, Jun. 26, 1995, 7-159129; Jul. 25, 1995, 7-189406

Int. Cl.^{6} H02K *1/12*

U.S. Cl. 310—258 **9 Claims**

1. A stator for a dynamoelectric machine which includes a rotor, comprising:
a stator core: and
a stator frame including:
a main frame; and
a plurality of axial ribs cylindrically arranged in the main frame to extend substantially parallel with an axis of rotation of the rotor, thereby defining a space; and
wherein the main frame includes:
a bottom wall having two radial ends and two axial ends;



two side walls standing from both radial ends of the bottom wall respectively, with each side wall having two ends; and
two connecting walls standing from both axial ends of the bottom wall and interconnecting both ends of the side walls, respectively; and
wherein each axial rib has two opposite ends respectively connected to the respective connecting walls and an intermediate portion between the ends, the intermediate portion being spaced away from the side walls;
wherein the axial ribs except a pair vertically sandwiching the stator core are disposed to be unsymmetrical with respect to an axis of the stator core; and
wherein the stator core formed of a stack of laminations of steel sheets and fitted in the space defined by the axial ribs to be held in position.

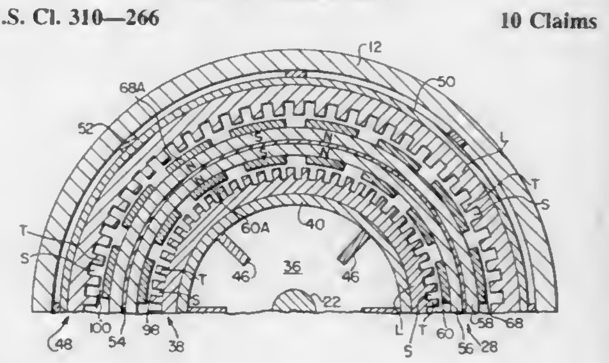
5,783,893
MULTIPLE STATOR, SINGLE SHAFT ELECTRIC MACHINE

Thomas B. Dade, Poquoson, and Chester A. Garis, Jr., Gloucester, both of Va., assignors to Newport News Shipbuilding and Dry Dock Company, Newport News, Va.

Filed Oct. 20, 1995, Ser. No. 546,317

Int. Cl.^{6} H02K *16/00*

U.S. Cl. 310—266 **10 Claims**



1. An electric machine comprising:
a machine housing and a shaft rotatively supported within said housing;
a rotor coupled to said shaft, said rotor including a set of inner magnetic poles and a set of outer magnetic poles;
an inner stator secured within said housing and an outer stator secured within said housing;
an inner air gap radially separating said inner stator from said inner rotor poles and an outer air gap radially separating said outer stator from said outer rotor poles;
a magnetic isolator positioned between said inner and outer rotor poles for magnetically isolating said inner rotor poles from said outer rotor poles to permit said electric machine to operate independently with said rotor interacting solely with said inner stator or independently with said rotor interacting solely with said outer stator.

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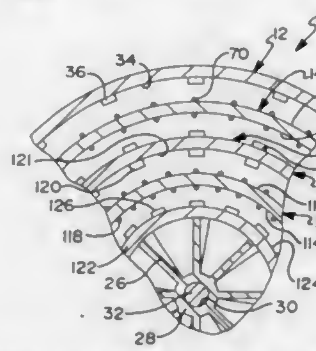
5,783,894
METHOD AND APPARATUS FOR GENERATING ELECTRICAL ENERGY

Thomas A. Wither, 1204 Grove Ave., Royal Oak, Mich. 48067
Filed Oct. 31, 1995, Ser. No. 550,897
Int. Cl.^{6} H02K *16/04*
U.S. Cl. 310—266 **1 Claim**



1. An apparatus for generating electricity, said apparatus comprising:

a first fixedly mounted stator, said first fixedly mounted stator constructed of a non-magnetic material and having a generally cylindrical cross section with an inner periphery and an outer periphery, said stator constructed of a non-conductive material;

a second fixedly mounted stator having a generally cylindrical cross section with an inner periphery and an outer periphery, said second stator disposed concentrically with said first stator;

a rotor mounted in the apparatus for rotation about an axis;

first and second groups of permanent magnets attached to said rotor, the permanent magnets of said first and second groups each being radially axially arranged about said axis, said first and second groups of permanent magnets further being arranged concentrically at different radial distances about said axis, said first and second groups of permanent magnets being arranged to produce a plurality of first magnetic fields in at at least one plane perpendicular to said axis;

a third group of permanent magnets attached to said rotor and disposed adjacent said second fixedly mounted stator;

a fourth group of permanent magnets attached to said rotor and disposed adjacent said second fixedly mounted stator, said third and fourth groups of permanent magnets arranged to produce a plurality of second magnetic fields in a plane perpendicular to said axis;

a first plurality of field windings mounted to extend about said inner periphery of said first stator in a serpentine manner such that said first plurality of field windings is facing said first group of permanent magnets;

a second plurality of field windings mounted to extend about an outer periphery of said first stator In a serpentine manner such that said second plurality of field windings is facing said second group of permanent magnets;

a third plurality of field windings mounted to extend about said inner periphery of said second stator in a serpentine manner such that said third plurality of field windings is facing said third group of permanent magnets;

a fourth plurality of windings mounted to extend about said outer periphery of said second stator in a serpentine manner such that said fourth plurality of field windings is facing said fourth group of permanent magnets;

means for rotating said first, second, third and fourth groups of permanent magnets simultaneously relative to said first, second, third and fourth pluralities of field windings;

wherein said first and second pluralities of field windings pass through said plurality of first magnetic fields as said first and second groups of permanent magnets are rotated relative to said first stator;

wherein said third and fourth pluralities of field windings pass through said plurality of second magnetic fields as said third and fourth groups of permanent magnets are rotated relative to said second stator;

wherein said first plurality of field windings is attached to said inner periphery of said first stator in a repetitive pattern including alternating clockwise and counter-clockwise windings;

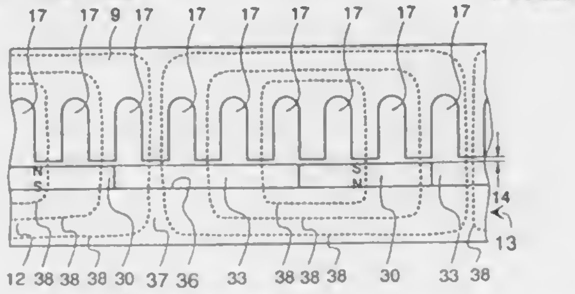
wherein said second plurality of field windings is attached to said outer periphery of said first stator in a repetitive pattern including alternating clockwise and counter-clockwise windings;

wherein said third plurality of field windings is attached to said inner periphery of said second stator in a repetitive pattern including alternating clockwise and counter-clockwise windings; and

wherein said fourth plurality of field windings is attached to said outer periphery of said second stator in a repetitive pattern including alternating clockwise and counter-clockwise windings.

5,783,895
ELEVATOR MOTOR WITH FLAT CONSTRUCTION

Harri Hakala, Hyvinkää; Esko Aulanko, Kerava, and Jorma Mustalahti, Hyvinkää, all of Finland, assignors to Kone Oy, Helsinki, Finland
Continuation-in-part of Ser. No. 266,696, Jun. 28, 1994, Pat. No. 5,665,944. This application Apr. 3, 1995, Ser. No. 415,458
Claims priority, application Finland, Apr. 7, 1994, 941596
Int. Cl.^{6} H02K *1/22*
U.S. Cl. 310—268 **8 Claims**



1. An elevator motor comprising:

an annular stator built on a stator disc and provided with windings;

a rotor built on a rotor disc, the excitation of the rotor being implemented using permanent maanets wherein the permanent magnets include magnets attached to a surface at a supporting portion of the rotor disc and further wherein the supporting portion of the rotor disc forms part of the magnetic circuit of the rotor;

the excitation of the motor being effective for raising and lowering an elevator car; and

a substantially annular sealing member attached to the stator disc and engaging against the surface of the rotor disc outside of a circumference formed by the permanent magnets.

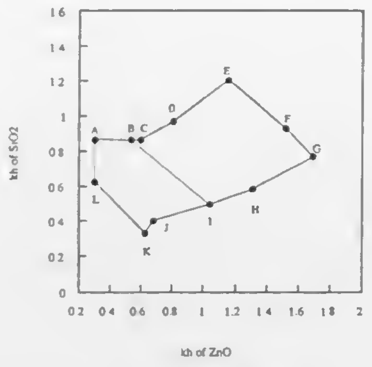
5,783,896
DIAMOND-ZN0 SURFACE ACOUSTIC WAVE DEVICE

Hideaki Nakahata; Kenjiro Higaki; Satoshi Fujii; Hiroyuki Kitabayashi, and Shin-Ichi Shikata, all of Itami, Japan, assignors to Sumitomo Electric Industries, Ltd., Japan
Continuation-in-part of Ser. No. 689,296, Aug. 7, 1996. This application Jan. 31, 1997, Ser. No. 791,894
Claims priority, application Japan, Nov. 7, 1996, 8-295183; Jan. 28, 1997, 9-014158
Int. Cl.^{6} H03H *9/145*
U.S. Cl. 310—313 A **55 Claims**

1. A surface acoustic wave device for 2nd mode surface acoustic wave of a wavelength λ (μm) comprising:

(i) a diamond layer,

(ii) a ZnO layer disposed on said diamond layer, said ZnO layer having a thickness t_z,



$0.033 \leq kh$ of $Al \leq 0.099$

(iii) an interdigital transducer (IDT) disposed on said ZnO layer, said IDT having a thickness of t_A, and

(iv) a SiO_2 layer disposed over said interdigital transducer onto said ZnO layer, said SiO_2 layer having a thickness of t_s;

wherein a parameter $kh3=2\pi(t_A/\lambda)$ is:

$0.033 \leqq kh3 \leqq 0.099$,

and wherein a parameter $kh1=2\pi(t_z/\lambda)$ and a parameter $kh2=2\pi(t_s/\lambda)$ are given within a region ABCDEFGHIJKLA in a two-dimensional Cartesin coordinate graph having abscissa axis of kh1 and ordinate axis of kh2,

the outer edge of said region ABCDEFGHIJKLA being given by a closed chain in said Cartesian coordinate consisting of points A, B, C, D, E, F, G, H, I, J, K and L and lines A–B, B–C, C–D, D–E, E–F, F–G, G–H, H–I, I–J, J–K, K–L and L–A;

said point A being given by a coordinate point (kh1=0.30, kh2=0.87);

said point B being given by a coordinate point (kh1=0.54, kh2=0.87);

said point C being given by a coordinate point (kh1=0.60, kh2=0.87);

said point D being given by a coordinate point (kh1=0.81, kh2=0.97);

said point E being given by a coordinate point (kh1=1.16, kh2=1.20);

said point F being given by a coordinate point (kh1=1.52, kh2=0.93);

said point G being given by a coordinate point (kh1=1.69, kh2=0.77);

said point H being given by a coordinate point (kh1=1.31, kh2=0.59);

said point I being given by a coordinate point (kh1=1.04, kh2=0.50);

said point J being given by a coordinate point (kh1=0.68, kh2=0.40);

said point K being given by a coordinate point (kh1=0.63, kh2=0.33); and

said point L being given by a coordinate point (kh1=0.30, kh2=0.63).

5,783,897
VIBRATING GYROSCOPE

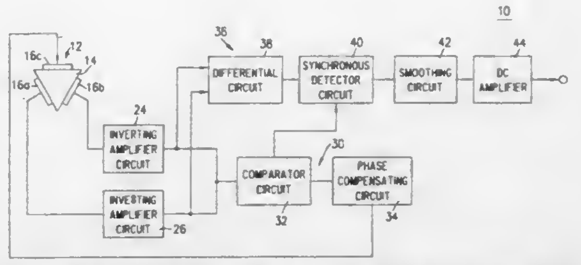
Kenjiro Okaguchi, Shiga-ken, Japan, assignor to Murata Manufacturing Co., Ltd., Japan
Filed Dec. 26, 1995, Ser. No. 578,265
Claims priority, application Japan, Dec. 27, 1994, 6-339032
Int. Cl.^{6} G01C *19/56;* **H01L** *41/107*
U.S. Cl. 310—316 **4 Claims**

1. A vibrating gyroscope, comprising:

a vibrating member;

a plurality of detecting pieces, provided on said vibrating member, for obtaining output signals corresponding to a rotational angular velocity;

one driving piece, provided on a side of said vibrating member, for vibrating said vibrating member;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38
40
42
44
16c
12
14
16a
16b
DIFFERENTIAL CIRCUIT
SYNCHRONOUS DETECTOR CIRCUIT
SMOOTHING CIRCUIT
DC AMPLIFIER
24
INVERTING AMPLIFIER CIRCUIT
30
COMPARATOR CIRCUIT
PHASE COMPENSATING CIRCUIT
INVERTING AMPLIFIER CIRCUIT
26
32
34

means for sensing the output signals obtained from said detecting pieces and for generating a plurality of detection signals;

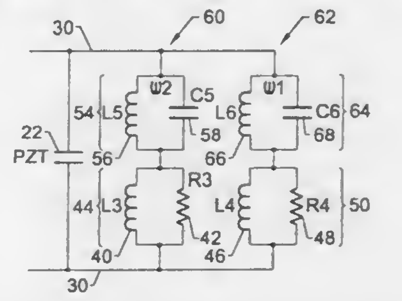
an oscillator circuit responsive to said sensing and generating means for feeding a signal to said driving piece to provide a driving signal, said oscillator circuit including a comparator circuit for shaping the waveforms of the detection signals obtained from said sensing and generating means, and a phase compensating circuit for adjusting a phase of an output signal obtained from said comparator circuit and feeding the output signal back to said driving piece as said driving signal;

a differential circuit for sensing any difference of the detection signals obtained from said sensing and generating means; and

a synchronous detector circuit for detecting an output signal from said differential circuit in synchronism with said output signal obtained from said comparator circuit.

5,783,898
PIEZOELECTRIC SHUNTS FOR SIMULTANEOUS VIBRATION REDUCTION AND DAMPING OF MULTIPLE VIBRATION MODES

Shu-Yau Wu, Artesia, Calif., assignor to McDonnell Douglas Corporation, Huntington Beach, Calif.
Filed Feb. 26, 1996, Ser. No. 606,579
Int. Cl.^{6} H01L *41/10;* **H02H** *1/04*
U.S. Cl. 310—316 **12 Claims**



1. A mechanical vibration control device, comprising:

a piezoelectric material for damping mechanical vibrations in a structure having at least two vibrational modes with natural frequencies of w_1 and w_2, said piezoelectric material having a pair of electrical leads extending therefrom:

a first shunt circuit connected across the electrical leads of the piezoelectric material, the first shunt circuit having a natural frequency of w_2 such that the first shunt circuit damps vibrations having a natural frequency of w_2, the first shunt circuit including a first energy dissipation circuit element comprising
  a first dissipation element resistor, and

a first frequency tuning element inductor connected in parallel with the dissipation element resistor and

a first isolator circuit element connected in series with the first energy dissipation circuit element, wherein the first isolator circuit element is tuned to have an anti-resonant frequency of w_1; and

a second shunt circuit connected across the electrical leads of the piezoelectric material in parallel with the first shunt circuit, the second shunt circuit having a natural frequency of w_1 such that the second shunt circuit damps vibrations having a natural frequency of w_1, the second shunt circuit including
  a second energy dissipation circuit element comprising
    a second dissipation element resistor, and

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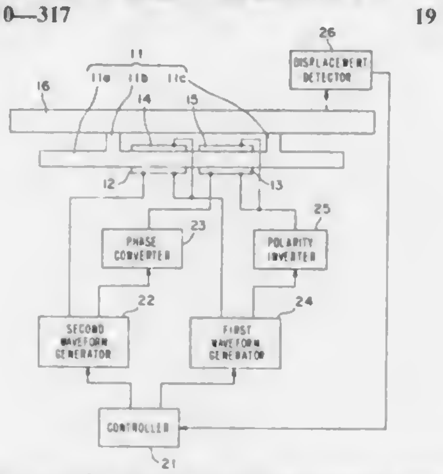
a second frequency tuning element inductor connected in parallel with the second dissipation element resistor, and
a second isolator circuit element connected in series with the second energy dissipation circuit element, wherein the second isolator circuit element is tuned to have an anti-resonant frequency of w_2.

5,783,899
ULTRASONIC VIBRATION MOTOR AND METHOD FOR PERFORMING COARSE AND FINE MOVEMENTS

Mitsuhiro Okazaki, Kawasaki, Japan, assignor to Nikon Corporation, Tokyo, Japan
Continuation of Ser. No. 665,080, Jun. 14, 1996, abandoned, which is a continuation of Ser. No. 415,216, Apr. 3, 1995, abandoned. This application Jun. 6, 1997, Ser. No. 870,268
Claims priority, application Japan, Apr. 1, 1994, 6-065252
Int. Cl.^{6} H02N *2/00;* **H01L** *41/08*
U.S. Cl. 310—317 **19 Claims**

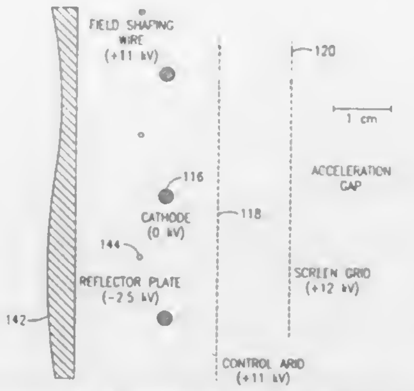


1. A linear motor for moving a relative movement member, the linear motor comprising:
an elastic body contacting the relative movement member;
a plurality of electro-mechanical conversion elements contacting the elastic body; and
a drive signal generation unit, comprising
a first drive signal generator to generate first drive signals to be transmitted to said plurality of electro-mechanical conversion elements, the first drive signals having a first waveform part wherein a drive voltage is changed slowly and a second waveform part wherein the drive voltage is changed rapidly, and
a second drive signal generator to generate second drive signals having a different waveform than the first and second waveform parts, the second drive signals to be transmitted to only some of said plurality of electro-mechanical conversion elements.

5,783,900
LARGE-AREA ELECTRON IRRADIATOR WITH IMPROVED ELECTRON INJECTION

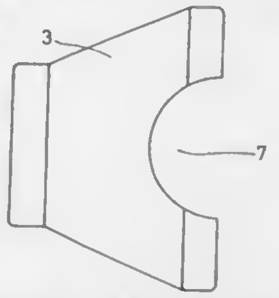
Stanley Humphries, Jr., Albuquerque, N. Mex., and Ralph D. Genuario, Alexandria, Va., assignors to Virginia Accelerators, Inc., Alexandria, Va.
Filed Sep. 23, 1996, Ser. No. 710,817
Int. Cl.^{6} H01J *29/70;1/46;21/10;29/46*
U.S. Cl. 313—420 **10 Claims**

1. A large-area electron irradiator in which an electron emitter portion generates a broad beam of electrons and includes a planar array of cathode rods and field shaping electrodes to align paths of the emitted electrons in a proximal-distal axis; an anode positioned distally of said emitter portion includes a foil exit window that permits high velocity electrons to pass through and a hibachi supporting structure comprising an array of ribs for supporting said foil exit window; an acceleration gap is defined between said emitter portion and said anode portion; and supply means apply appropriate electrical voltages to said cathode rods and said field shaping electrodes; said emitter portion comprising
said plurality of cathode rods disposed in a plane transverse to said axis and spaced at a predetermined interval from one another in said plane;
a reflector plate disposed proximally of said cathode rods and biased negative relative thereto;
a plurality of field-shaping wires disposed in a plane parallel to said cathode rods and between the same and said reflector plate, with the respective field-shaping wires being disposed parallel to said rods and midway between successive ones of said rods;
a control grid disposed in a plane transverse to said axis and distal of said cathode rods; and
a screen grid disposed parallel to and distal of said control grid;
said supply means providing said field-shaping wires with a bias that is positive relative to said cathode rods, said control grid with a bias that is positive relative to said cathode rods, and said screen grid with a bias that is positive relative to said control grid.



5,783,901
DEFLECTION YOKE WITH A CORE HAVING A HIGHER MAGNETIC RELUCTANCE AT THE TOP AND BOTTOM PORTIONS THAN THE SIDES

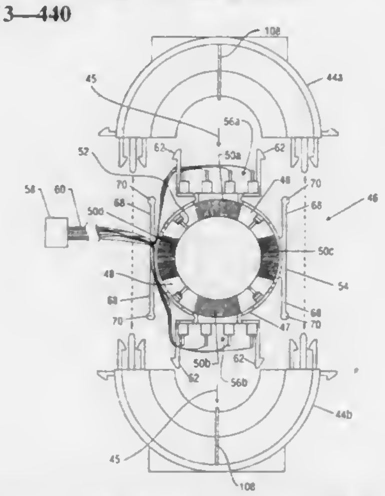
Koji Shimada, Shiga; Akitsugu Ishii, and Toshio Ose, both of Osaka, all of Japan, assignors to Matsushita Electronics Corporation, Osaka, Japan
Filed Aug. 29, 1995, Ser. No. 520,484
Claims priority, application Japan, Sep. 5, 1994, 6-211076; Sep. 5, 1994, 6-211551
Int. Cl.^{6} H01J *29/70;29/50;29/46;* **H01H** *1/00*
U.S. Cl. 313—440 **24 Claims**



1. A self-convergence type deflection yoke comprising a saddle shaped horizontal deflection coil, a vertical deflection coil located outside the saddle shaped horizontal deflection coil and a core having a screen side end and an electron gun side end located outside the saddle shaped vertical deflection coil, wherein a central upper portion and a central lower portion of the screen side end of the core have a magnetic reluctance that is higher than that of the right and left portions.

5,783,902
CONVERGENCE COIL ASSEMBLY

Timothy T. McCann, Mt. Prospect, Ill., assignor to Zenith Electronics Corporation, Glenview, Ill.
Filed May 23, 1996, Ser. No. 653,741
Int. Cl.^{6} H01J *29/70*
U.S. Cl. 313—440 **19 Claims**



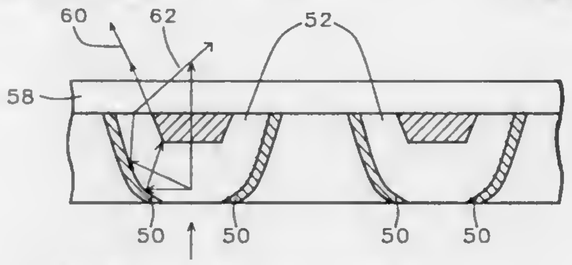
1. An improved convergence core assembly to improve beam performance in a deflection yoke assembly for a cathode ray tube comprising:
a convergence core having a core and a set of horizontal and vertical toroidal windings wound around the core;
a core carriage for holding the convergence core, the core carriage having means for positioning the convergence core to properly locate the convergence core on the core carriage; and
wherein the means for positioning includes leaf springs and positioning tabs, the leaf springs tending to force the convergence core against stops on the positioning tabs.

5,783,903

Patent Not Issued For This Number

5,783,904
HIGH LUMINESCENCE DISPLAY

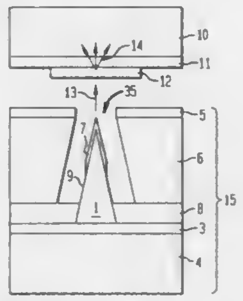
David Nan-Chou Liu, Chutung; Jammy Chin-Ming Huang, and Jin-Yuh Liu, both of Taipei, all of Taiwan, assignors to Industrial Technology Research Institute, Hsin-Chu, Taiwan
Division of Ser. No. 494,631, Jun. 23, 1995, Pat. No. 5,655,941. This application May 5, 1997, Ser. No. 851,430
Int. Cl.^{6} H01J *29/10*
U.S. Cl. 313—495 **11 Claims**



1. A faceplate for a display device, comprising:
a glass face;
phosphor elements on said glass face; and
reflective elements, on said glass face and adjacent to said phosphor elements, with surfaces forming an angle with said glass face of between about 45 and 75 degrees and wherein said phosphor elements are located within said angle,
wherein said reflective elements are discontinuous,
whereby light emitted from said phosphor elements reflects off said reflective elements and travels through said glass face, and
further comprising transparent, conductive elements between said phosphor elements and said glass face.

5,783,905
FIELD EMISSION DEVICE WITH SERIES RESISTOR TIP AND METHOD OF MANUFACTURING

Johann Greschner, Pliezhausen, Germany; Peter Pleshko, Staatsburg, N.Y., and Gerhard Schmid, Leinfelden-Echterdingen, Germany, assignors to International Business Machines Corporation, Armonk, N.Y.
Continuation of Ser. No. 459,070, Jun. 2, 1995, abandoned. This application Dec. 27, 1996, Ser. No. 774,853
Claims priority, application European Pat. Off., Aug. 31, 1994, 94 113 601
Int. Cl.^{6} H01J *1/30*
U.S. Cl. 313—497 **8 Claims**



8. A flat panel display comprising:
a glass face and a substrate hermetically sealed to enclose a vacuumed space therebetween;
an insulating layer;
first and second sets of conductive stripes deposited on opposite sides of the insulating layer with stripes of the two sets orthogonally oriented with respect to each other to form pixel locations at the intersections of the conductive stripes;
a plurality of emissive elements set in said insulating layer at pixel locations, the tips of said elements each facing the glass face through a hole in a stripe in the second set, said elements each having a tapered resistive base portion attached at its base end to one of the stripes in the first set and an emissive coating on its tip of the same material as the stripes in the second set said emissive elements being set in cavities having means including a floor of insulating material into which the resistive base portions of the emissive elements are set for preventing short circuitry of the emissive coatings to the first set of stripes in a simultaneous deposition of the emissive coating and the second set of stripes; and
a conductive face containing phosphorous elements on the interior surface of the glass face so that the emissive tips form light emitting element in combination with the phosphorous elements.

5,783,906
SPUTTER-RESISTANT, LOW-WORK-FUNCTION, CONDUCTIVE COATINGS FOR CATHODE ELECTRODES IN DC PLASMA ADDRESSING STRUCTURE

John S. Moore; William W. Stein, both of Beaverton, and Donald E. Kephart, Portland, all of Oreg., assignors to Tektronix, Inc., Wilsonville, Oreg.
Continuation of Ser. No. 520,996, Aug. 30, 1995, abandoned. This application Jun. 6, 1997, Ser. No. 870,763
Int. Cl.^{6} H01J *17/49*
U.S. Cl. 313—586 **16 Claims**

1. In an addressing structure for addressing a data element, the addressing structure including an ionizable gaseous medium, a data

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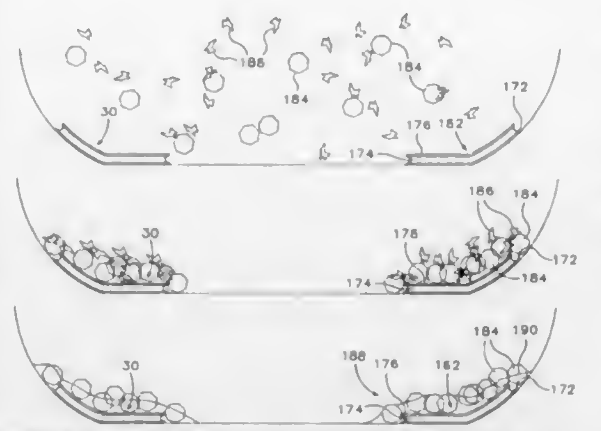


element that stores a data signal, and cathode and anode electrodes, the addressing structure operating in response to a sufficiently large potential difference applied between the cathode and the anode electrodes to cause the ionizable gaseous medium to transition to a conductive plasma state from a nonionized state and thereby provide an interruptible electrical connection between the data element and an electrical reference to selectively address the data element, a method of forming a cathode electrode structure that during its fabrication is not susceptible to oxidation and that during operation of the addressing structure is resistant to sputter damage and exhibits a high probability of secondary electron emission, comprising:

providing an electrically nonconductive substrate having major surfaces on opposite sides of the substrate and including multiple spaced-apart channels inscribed in one of the major surfaces;

forming lengthwise along each of the multiple channels at least one electrode coated by a protective layer of oxidation resistant material;

depositing on the protective layer of oxidation resistant material a mixture of refractory substance and frit particles as a discontinuous, porous layer having high oxidation resistance, sputter resistance, and secondary electron emission properties that enables the protective layer of oxidation resistant material to function during deposition of the mixture; and

fusing the frit particles to form a glass layer that cements the refractory particles together and thereby form a unitary cathode electrode structure having high sputter resistance and high secondary electron emission properties.

10. In an addressing structure for addressing a data element, the addressing structure including an ionizable gaseous medium, a data element that stores a data signal, and cathode and anode electrodes, the addressing structure operating in response to a sufficiently large potential difference applied between the cathode and anode electrodes to cause the ionizable gaseous medium to transition to a conductive plasma state from a nonionized state and thereby provide an interruptible electrical connection between the data element and an electrical reference to selectively address the data element, a sputter resistant cathode electrode structure with high secondary electron emission properties, comprising:

an electrically nonconductive substrate including multiple nonintersecting channels extending in a common direction, each of the multiple channels including a base portion along which an electrode extends lengthwise and has first and second major surfaces, the first major surface being farther from and the second major surface being nearer to the base portion of the channel; and

a coating including a fused mixture of particles of a refractory substance and frit covering the electrode in each of the multiple channels to form a unitary cathode electrode structure, the refractory substance providing the electrode with high sputter resistance and high secondary electron emission properties, and the frit cementing the particles of refractory substance together and to the first major surface of the electrode.

5,783,907

HIGH PRESSURE DISCHARGE LAMPS WITH SEALING MEMBERS

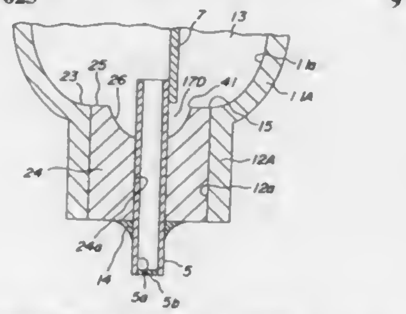
Go Suzuki, Nagoya, and Norikazu Niimi, Komaki, both of Japan, assignors to NGK Insulators, Ltd., Japan

Filed Jan. 11, 1996, Ser. No. 583,838

Claims priority, application Japan, Jan. 13, 1995, 7-003914; Mar. 28, 1995, 7-069323

Int. Cl.^{6} H01J *17/18;61/36*

U.S. Cl. 313—625 **9 Claims**



1. A high pressure discharge lamp comprising:

a ceramic discharge tube having an interior space filled with an ionizable light-emitting material and a starting gas, said ceramic discharge tube comprising a main body and at least one end portion connected to an end of said main body, a corner being formed between an inner surface of the main body and an inner surface of the at least one end portion;

a sealing member at least partially fixed inside said at least one end portion, said sealing member having an axial bore formed therethrough from an inner axial surface to an outer axial surface thereof, wherein at least a radially central portion of said sealing member has a variable axial thickness that decreases from a point radially distal from said axial bore to a point radially adjacent said axial bore thereby defining a recess for storing substantially all of said ionizable light-emitting material as a liquid phase; and

a current conductor inserted through said axial bore of said sealing member.

5,783,908

LIGHTING CIRCUIT WHEREIN THE ABNORMALITY DETECTION CIRCUIT GETS ITS POWER DIRECTLY FROM THE AUXILIARY POWER SUPPLY SECTION

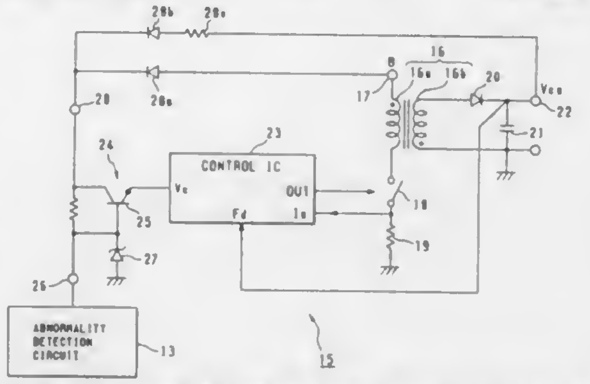
Atsushi Toda; Masayasu Yamashita, and Goichi Oda, all of Shimizu, Japan, assignors to Koito Manufacturing Co., Ltd., Tokyo, Japan

Filed May 30, 1996, Ser. No. 655,483

Claims priority, application Japan, Jun. 14, 1995, 7-170473; Oct. 30, 1995, 7-305125

Int. Cl.^{6} H05B *37/02*

U.S. Cl. 315—82 **14 Claims**



1. A lighting circuit for a discharge lamp, designed to supply an input voltage from a DC power supply to a discharge lamp via a DC power supply section, said lighting circuit comprising:

an auxiliary power supply section for producing a predetermined voltage based on said input voltage from said DC power supply and supplying said predetermined voltage to individual sections of said lighting circuit;

an abnormality detection circuit for detecting an abnormality in said discharge lamp or said lighting circuit; and

switch means for permitting or stopping power supply to said individual sections of said lighting circuit from said auxiliary power supply section in accordance with a detection signal from said abnormality detection circuit, thereby permitting or inhibiting power supply to said discharge lamp, wherein

a supply voltage stabilized by said auxiliary power supply section is supplied from a first terminal at an output stage thereof to said abnormality detection circuit, and a predetermined supply voltage is supplied to individual sections of said lighting circuit excluding said abnormality detection circuit from a second terminal connected to an output terminal of said switch means provided at a subsequent stage of said first terminal or the other power supply terminal of said auxiliary power supply section.

5,783,909

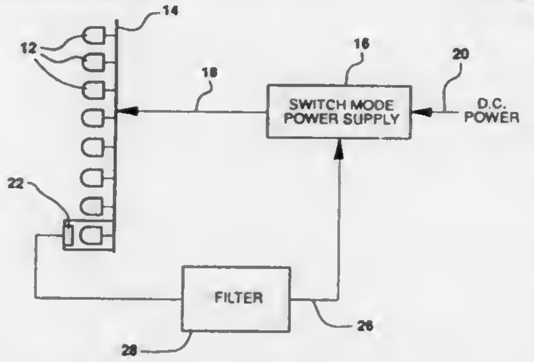
MAINTAINING LED LUMINOUS INTENSITY

Peter A. Hochstein, Troy, Mich., assignor to Relume Corporation, Troy, Mich.

Filed Jan. 10, 1997, Ser. No. 781,688

Int. Cl.^{6} H05B *37/02*

U.S. Cl. 315—159 **18 Claims**



1. A circuit for maintaining the luminous output of a light emitting diode, said circuit comprising:

at least one light emitting diode (LED) (**12**) for producing a luminous output;

a sensor (**22**,**24**) for sensing a condition proportional to said luminous output of said LED (**12**) and for producing a luminous output signal;

a power supply (**16**) electrically connected to said LED (**12**) for supplying ON/OFF pulses of electrical energy to produce the luminous output of said LED (**12**); and

said power supply (**16**) including a switching device responsive to said luminous output signal for adjusting the electrical energy supplied by said pulses per unit of time to adjust the average of said current passing through said LED (**12**) to maintain the luminous output of said LED (**12**) at a predetermined level.

5,783,910

FLAT PANEL DISPLAY IN WHICH LOW-VOLTAGE ROW AND COLUMN ADDRESS SIGNALS CONTROL A MUCH HIGHER PIXEL ACTIVATION VOLTAGE

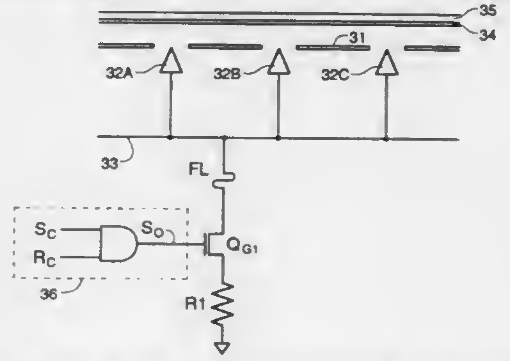
Stephen L. Casper; Glen E. Hush, and Thomas W. Voshell, all of Boise, Id., assignors to Micron Technology, Inc., Boise, Id.

Continuation of Ser. No. 530,562, Sep. 19, 1995, Pat. No. 5,616,991, and a continuation-in-part of Ser. No. 311,971, Sep. 26, 1994, Ser. No. 453,853, Jun. 2, 1995, Pat. No. 5,638,086, and Ser. No. 582,381, Jan. 9, 1996, which is a continuation of Ser. No. 305,107, Sep. 13, 1994, abandoned, which is a continuation of Ser. No. 102,598, Aug. 5, 1993, abandoned, which is a continuation-in-part of Ser. No. 60,111, May 11, 1993, abandoned, said Ser. No. 453,853 is a continuation of Ser. No. 138,535, Oct. 15, 1993, abandoned, and a continuation-in-part of Ser. No. 77,181, Jun. 15, 1993, Pat. No. 5,410,218, said Ser. No. 311,971 is a continuation of Ser. No. 60,111, said Ser. No. 530,562 is a continuation of Ser. No. 209,579, Mar. 11, 1994, abandoned, which is a continuation-in-part of Ser. No. 11,927, Feb. 1, 1993, Pat. No. 5,357,172, which is a continuation-in-part of Ser. No. 864,702, Apr. 7, 1992, Pat. No. 5,210,472.

This application Feb. 5, 1997, Ser. No. 790,205

Int. Cl.^{6} H05B *33/12;41/36;41/392*

U.S. Cl. 315—167 **36 Claims**



31. A method of controlling a field emission display, comprising the steps of:

providing a voltage between a positive terminal and a negative terminal;

providing a grid having a number of apertures;

connecting the grid to the positive terminal;

providing a plurality of row address signal lines, wherein each respective row address line carries a respective row address electrical signal;

providing a plurality of column address signal lines, wherein each respective column address line carries a respective column address electrical signal, and wherein the column address lines intersect the row address lines;

providing a plurality of pixel circuits, each pixel circuit being associated with one of the row address lines and one of the column address lines;

providing in each pixel circuit a number of field emitters;

positioning each field emitter adjacent an aperture of the grid;

providing in each pixel circuit a first transistor having a source, drain, and gate;

connecting the drain of the first transistor of each pixel circuit to the field emitters of that pixel circuit;

providing in each pixel circuit an electrical resistance;

connecting the resistance of each pixel circuit between the source of the first transistor of that pixel circuit and the negative terminal; and

applying to the gate of the first transistor of each pixel circuit a voltage responsive to the signal on one of the address lines associated with that pixel circuit.

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CIRCUIT ARRANGEMENT FOR OPERATING ELECTRIC LAMPS, AND OPERATING METHOD FOR ELECTRIC LAMPS

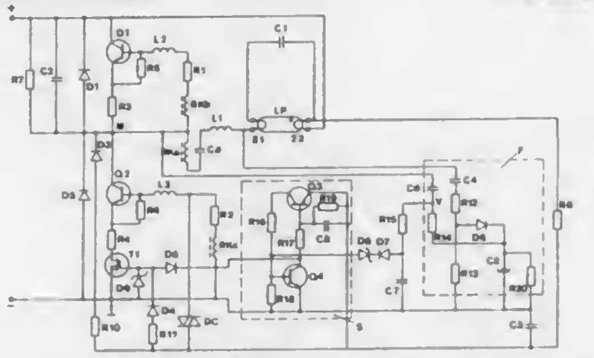
Bernd Rudolph, München, Germany, assignor to Patent-Treuhand-Gesellschaft fuer elektrische Gluehlampen mbH, Munich, Germany

Filed Jul. 1, 1996, Ser. No. 674,072

Claims priority, application Germany, Jul. 12, 1995, 195 25 123.7; Jul. 17, 1995, 195 26 039.2

Int. Cl.⁶ H05B *41/00;41/14*

U.S. Cl. 315—225 **17 Claims**



1. A circuit arrangement for operating electric lamps, the circuit arrangement having the following features:

- an inverter with at least two alternating switching transistors (Q1, Q2).
- a drive device for the switching transistors (Q1, Q2) of the inverter,
- a switch-off device which has a switch-off transistor (T1, T1') by means of which the inverter (Q1, Q2) is switched off after the occurrence of an anomalous operating state, characterized in that a switching junction of the switch-off transistor (T1, T1') is arranged in the control circuit of a switching transistor (Q2) of the inverter, the switching junction of the switch-off transistor (T1, T1') being of low resistance in normal operation of the inverter and of high resistance after the occurrence of an anomalous operating state of the inverter,
- the switch-off device having an error signal monitoring element (F) connected dynamically in parallel to the electric lamps for monitoring the voltage drop across the lamps.

5,783,912

ELECTRODELESS FLUORESCENT LAMP HAVING FEEDTHROUGH FOR DIRECT CONNECTION TO INTERNAL EMI SHIELD AND FOR SUPPORTING AN AMALGAM

John Paul Cocoma, Clifton Park; William Newell Schultz, Niskayuna; Michael Patrick Dennin, Watervliet, and William Joseph Jones, Altamont, all of N.Y., assignors to General Electric Company, Schenectady, N.Y.

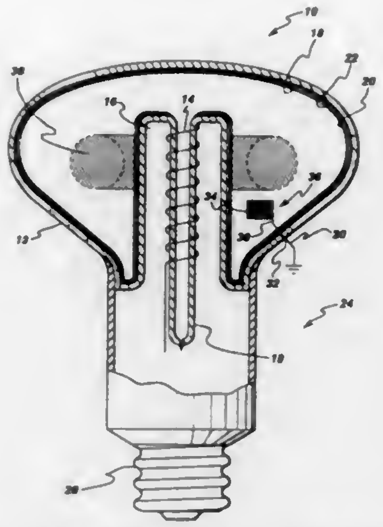
Filed Jun. 26, 1996, Ser. No. 672,490

Int. Cl.⁶ H01J *61/36;65/00;61/24*

U.S. Cl. 315—248 **10 Claims**

1. An electrodeless discharge lamp, comprising:

- a light-transmissive envelope containing an ionizable, gaseous fill for sustaining an arc discharge when subjected to an alternating magnetic field and for emitting radiation having a wavelength in a range from approximately 100 nm to approximately 1000 nm as a result thereof, said envelope having an EMI shield on the interior thereof, said EMI shield comprising an optically transparent, electrically conductive coating;
- an excitation coil situated proximate said envelope for providing said alternating magnetic field when excited by an alternating current energy source;
- a feedthrough member for directly connecting said EMI shield to a ground potential external to said envelope, said feedthrough member comprising a wire inserted through said envelope and sealed thereto, said wire comprising a material selected from a group consisting of platinum and a combination of platinum and rhodium.



5,783,913

RASTER DISTORTION CORRECTION ARRANGEMENT

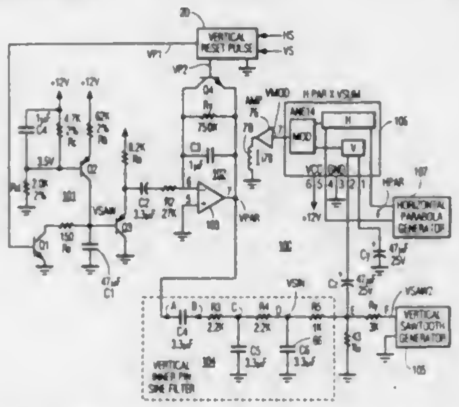
John Barrett George, Carmel, Ind., assignor to Thomson Consumer Electronics, Inc., Indianapolis, Ind.

PCT No. PCT/US93/11911, § 371 Date May 23, 1996, § 102(e) Date May 23, 1996, PCT Pub. No. WO95/16272, PCT Pub. Date Jun. 15, 1995

PCT Filed Dec. 8, 1993, Ser. No. 648,146

Int. Cl.⁶ H01J *29/56*

U.S. Cl. 315—371 **11 Claims**



1. A video display apparatus for generating a current in a winding that is mounted on a neck of a cathode ray tube for producing a deflection field that provides for beam landing error correction, comprising:

- a source of a synchronizing signal at a frequency that is related to a deflection frequency;
- a sawtooth signal generator responsive to said synchronizing signal for generating a sawtooth signal that is synchronized to said synchronizing signal such that when said synchronizing signal is outside a normal operation range (channel change), a frequency of said sawtooth signal changes in a manner that tends to cause an increase in an amplitude of said sawtooth signal relative to the amplitude when said synchronizing signal is within the normal operation range;
- means coupled to said sawtooth generator for clamping a peak of said amplitude of said sawtooth signal to prevent said amplitude of said sawtooth signal from increasing when said synchronizing signal is outside the normal operation range; and
- means responsive to said sawtooth signal for generating a correction signal at a frequency that is related to the deflection frequency and that is coupled to said winding for reducing beam landing error.

5,783,914

PARTICLE BEAM ACCELERATOR, AND A METHOD OF OPERATION

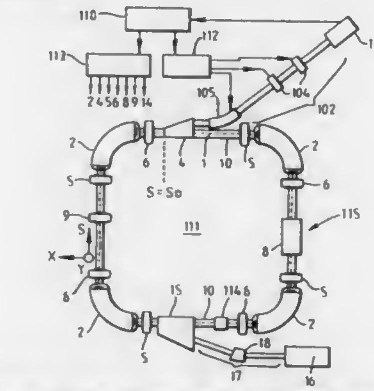
Kazuo Hiramoto, Hitachioota; Junichi Hirota, Hitachi; Masahiro Tadokoro, Hitachioota, and Hiroaki Sakurabata, Hitachi, all of Japan, assignors to Hitachi, Ltd., Tokyo, Japan

Continuation of Ser. No. 392,266, Feb. 22, 1995, abandoned. This application Sep. 17, 1997, Ser. No. 931,840

Claims priority, application Japan, Mar. 17, 1994, 6-046760

Int. Cl.⁶ H05H *11/00*

U.S. Cl. 315—504 **24 Claims**



1. Apparatus for acceleration of a charged particle beam, the apparatus having:

- a circulation chamber, for circulation of a charged particle beam,
- bending magnets for generating bending magnetic fields for bending a circulating beam circulating in said circulation chamber,
- a multipole magnet for generating a multipole magnetic field for specifying a stability limit of resonance of said circulating beam,
- energy means for altering the energy of said circulating beam,
- extraction means for extracting output beams from the apparatus, and
- control means arranged for altering the energy of said circulating beam using said energy means in the extraction of said output beams so as to alter the energy of the output beam and for maintaining substantially constant a stability limit of a resonance of the betatron oscillation of said circulating beam by using bending and multipole magnets while the output beams are being extracted.

5,783,915

LINEAR ACTUATING APPARATUS

Satoshi Shida, Katano; Akira Kabeshita, Hirakata; Shinji Kanayama, Kashihara; Kenji Takahashi, Katano; Makoto Imanishi, Hirakata, and Osamu Nakao, Osaka, all of Japan, assignors to Matsushita Electric Industrial Co., Ltd., Kadoma, Japan

Filed Jan. 19, 1996, Ser. No. 589,005

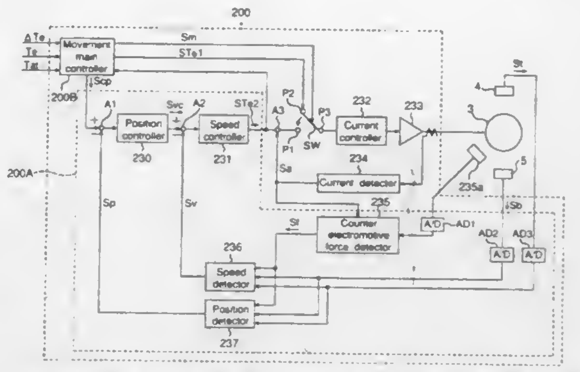
Claims priority, application Japan, Jan. 20, 1995, 7-007524; Jan. 31, 1995, 7-014102

Int. Cl.⁶ H02K *41/00;41/02*

U.S. Cl. 318—135 **10 Claims**

1. A linear actuating apparatus comprising:

- a shaft;
- a linear actuator for moving said shaft along a linear axis;
- a position detection means for detecting a position of said shaft and producing position signals, said position detection means comprising a first position detector for detecting a first position at which said shaft starts to move and producing a first position signal,
- a second position detector for detecting a second position at which said shaft stops and producing a second position signal, and
- a voltage sensor for detecting a position of said shaft between said first and second positions by detecting a counter electromotive force acting in said linear actuator, said voltage sensor producing a third position signal;
- an actuation controller for controlling said linear actuator based on a signal from said position detection means, said actuation controller comprising a load controller for changing an actuation force to move said shaft based on said third signal, wherein said load controller increases said actuation force by a predetermined amount to a first predetermined force and said load controller stops increasing said actuation force when the difference of said third position signal between increases of said predetermined amount is greater than a predetermined value.



5,783,916

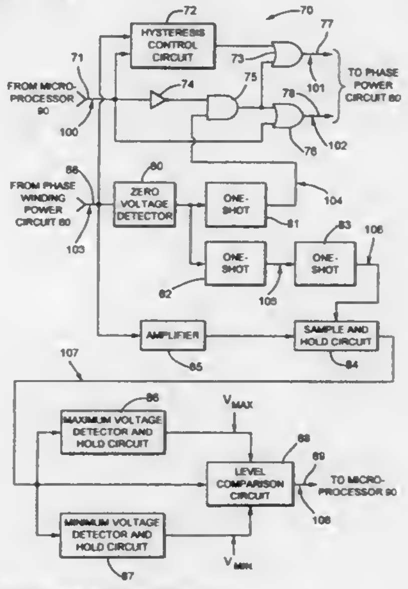
APPARATUS AND METHOD FOR GENERATING ROTOR POSITION SIGNALS AND CONTROLLING COMMUTATION IN A VARIABLE RELUCTANCE ELECTRIC MOTOR

Scott E. Blackburn, Temperance, Mich., assignor to Dana Corporation, Toledo, Ohio

Filed Jul. 2, 1996, Ser. No. 674,426

Int. Cl.⁶ H02P *7/00*

U.S. Cl. 318—254 **17 Claims**



1. An electric motor comprising:

- a stator having first and second stator poles;

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a rotor supported within said stator for relative rotational movement and having first and second rotor poles;
first and second stator windings of an electrical conductor disposed respectively about said first and second stator poles;
means for connecting said first stator winding with a source of electrical energy so as to cause a relatively large amount of electrical current to flow therethrough and thereby urge said rotor to rotate relative to said stator;
means for connecting said second stator winding with a source of electrical energy so as to cause a relatively small amount of electrical current to flow therethrough;
a logic circuit responsive to said relatively small amount of electrical current flowing through said second stator winding for generating a signal when said relatively small amount of electrical current exceeds a predetermined value; and
a control circuit responsive to said logic circuit signal for discontinuing the supply of electrical current to said first stator winding.

5,783,917
METHOD AND DEVICE FOR DRIVING DC BRUSHLESS MOTOR

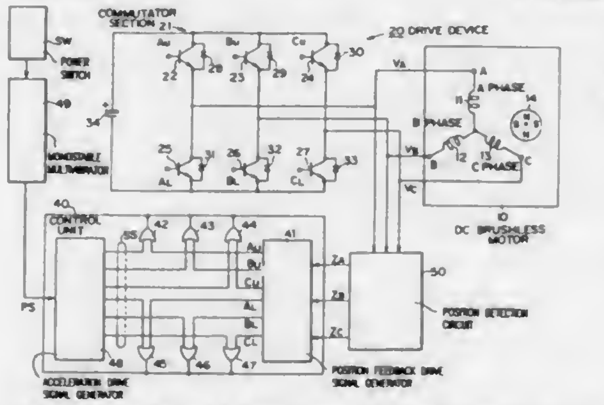
Yoriyuki Takekawa, Ohsato-gun, Japan, assignor to Zexel Corporation, Tokyo, Japan

Filed Oct. 7, 1996, Ser. No. 726,488

Claims priority, application Japan, Oct. 13, 1995, 7-290544

Int. Cl.^{6} H02P ***6/18***

U.S. Cl. 318—439 **5 Claims**



1. A device for driving a direct current brushless motor having a magnetic rotor and drive windings, the device comprising:
a power switch,
a commutator circuit having switching elements and adapted to supply drive voltages to the drive windings,
an acceleration control signal supply unit responsive to ON operation of the power switch for supplying the commutator circuit with acceleration control signals to ON/OFF control the switching elements of the commutator circuit for causing the drive windings to generate a rotating magnetic field for rotating the magnetic rotor, and continuing the supply of the acceleration control signals only for a fixed period of time sufficient for the magnetic rotor to reach a prescribed rotational speed,
a position detection circuit responsive to voltage signals induced in the drive windings by rotation of the magnetic rotor for detecting rotational position of the magnetic rotor,
a position feedback drive signal generating unit responsive to a detection result of the position detection circuit for generating commutation control signals for ON/OFF controlling the switching elements of the commutator circuit, thereby commutating drive current to the drive windings, and
supply circuit means for supplying the acceleration control signals to the commutator circuit;
wherein the supply circuit means is constituted of OR circuits and supplies the acceleration control signals from the acceleration control signal supply unit and the commutation control signals from the position feedback drive signal generating unit independently of each other as ON/OFF control signals to required switching elements of the commutator circuit.

5,783,918
METHOD OF CONTROLLING AUTOMATIC DOOR OPENING/CLOSING APPARATUS FOR A WASHING MACHINE

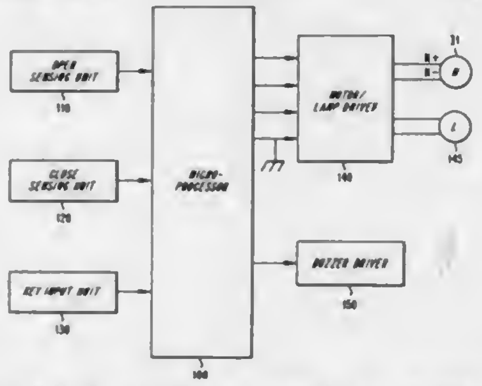
Ssi Chol Choi, Suwon, Rep. of Korea, assignor to Samsung Electronics Co., Ltd., Suwon, Rep. of Korea

Filed Nov. 6, 1996, Ser. No. 746,140

Claims priority, application Rep. of Korea, Nov. 9, 1995, 95-40475

Int. Cl.^{6} G05B ***5/00***

U.S. Cl. 318—447 **9 Claims**



1. A method of controlling an automatic door opening/closing apparatus for a washing machine door, the method comprising the steps of:
determining whether or not there is an error in an automatic door opening or closing operation which operation is carried out in response to a command to open or close the washing machine door;
determining if the erroneous operation is repeated more than a predetermined number of times according to consecutive incoming commands to open or close the washing machine door; and
in the event that the erroneous operation is repeated more than the predetermined number of times, ignoring a subsequent command to open or close the washing machine door.

5,783,919
DISPLAY APPARATUS WITH AC GEAR MOTOR DRIVE CONTROL

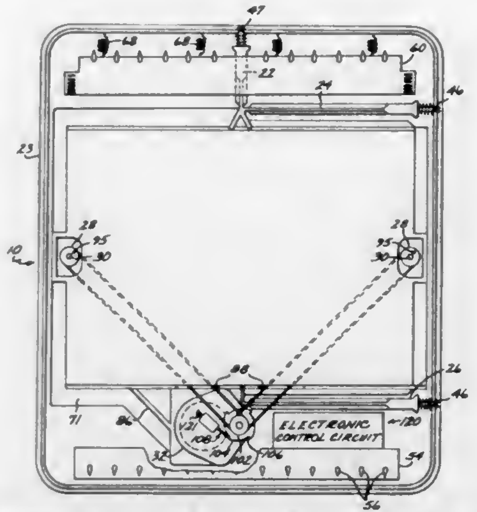
Hans J. Dehli, Dana Point, and Bradford D. Peeters, Costa Mesa, both of Calif., assignors to Admotion Corporation, Irvine, Calif.

Filed Feb. 16, 1996, Ser. No. 602,980

Int. Cl.^{6} G05B ***5/00***

U.S. Cl. 318—466 **14 Claims**

1. Display apparatus for sequentially displaying for a predetermined time interval sets of image pixels corresponding with discrete images interlaced on a transparent mosaic sheet through an aperture pattern corresponding with the location of apertures formed in a substantially opaque mask sheet, said apparatus being powered by a predetermined power supply, said apparatus comprising:
a housing including a mounting assembly for mounting said sheets on said housing;
a drive assembly mounted on said housing, engageable with at least one of said sheets and operative to move said at least one of said sheets through a predetermined path to sequentially register said apertures with said pixels of said sets;
a synchronous AC motor mounted in said housing and electrically connected to said predetermined power supply and including a rotatable drive shaft;



a coupling device coupling said drive shaft with said drive assembly to translate rotation of said drive shaft into rotation of said drive assembly; and
a control system connected to said drive shaft, and electrically connected to said motor and to said predetermined power supply, and operative to detect the angular position of said drive shaft and, upon reaching a predetermined angular position, interrupt the transmission of power from said power supply to said motor, and, after passing of said predetermined time interval, reactuate said motor.

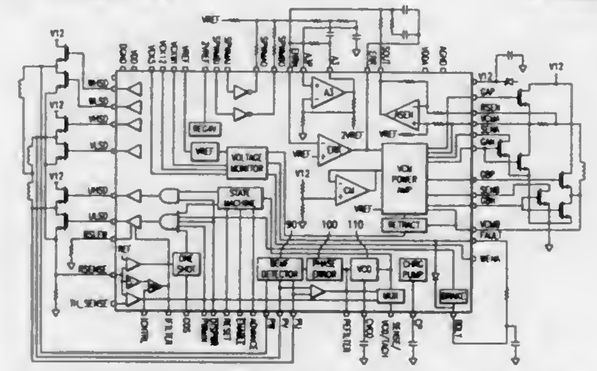
5,783,920
ERROR SIGNAL CONTROL CIRCUIT FOR A PHASE-LOCK-LOOP SENSORLESS MOTOR CONTROLLER

Dennis V. Hahn, Plano, Tex., assignor to Texas Instruments Incorporated, Dallas, Tex.

Filed Sep. 25, 1996, Ser. No. 721,776

Int. Cl.^{6} H02P ***6/00***

U.S. Cl. 318—500 **8 Claims**



1. A circuit for detecting a back EMF signal for a motor, comprising:
a detecting circuit for detecting when the back EMF signal from the motor is either a positive EMF signal or a negative EMF signal;
a positive source circuit to supply a positive source current;
a negative source circuit to supply a negative source current;
a switch circuit to connect said positive source circuit to an output circuit of the detecting circuit and to connect the negative source circuit to the output circuit;
said output circuit outputting said positive source current while said positive EMF signal is detected and outputting said negative source current while said negative EMF signal is detected.

5,783,921
WELDING ROBOT WITH BASE STAND HAVING SELF CONTAINED WELDING POWER SOURCE

Hiroyuki Handa; Yukio Misumi; Shinji Okumura, and Michiharu Tanaka, all of Kitakyushu, Japan, assignors to Kabushiki Kaisha Yaskawa Denki, Fukuoka, Japan

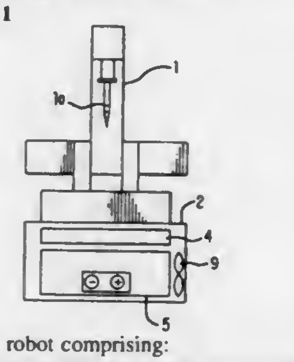
PCT No. PCT/JP96/00321, § 371 Date Oct. 9, 1996, § 102(e) Date Oct. 9, 1996, PCT Pub. No. WO96/25275, PCT Pub. Date Aug. 22, 1996

PCT Filed Feb. 13, 1996, Ser. No. 722,042

Claims priority, application Japan, Feb. 15, 1995, 7-051834

Int. Cl.^{6} B25J ***9/18***

U.S. Cl. 318—568.11 **3 Claims**



1. An arc welding robot comprising:
a robot base stand having a robot body supported thereon;
said robot body including an articulated manipulator arm:
said articulated manipulator arm having one of a welding torch and a welding gun mounted thereon;
said robot base stand having electric circuits provided interiorly for driving and controlling operation of said one of said welding torch and said welding gun;
said electric circuits including a power source for said one of said welding torch and said welding gun; and
said robot base stand serving to effect an electromagnetic shield about said electric circuits.

5,783,922
ROBOT CONTROLLER PERMITTING LEAD-THROUGH TEACHING

Yoshiki Hashimoto, Hadano, and Yoshikiyo Tanabe, Fujiyoshida, both of Japan, assignors to Fanuc Ltd., Yamanashi, Japan

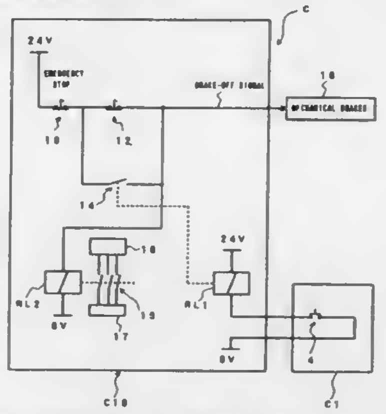
PCT No. PCT/JP96/02379, § 371 Date Apr. 24, 1997, § 102(e) Date Apr. 24, 1997, PCT Pub. No. WO97/07941, PCT Pub. Date Mar. 6, 1997

PCT Filed Aug. 26, 1996, Ser. No. 817,717

Claims priority, application Japan, Aug. 25, 1995, 7-239044

Int. Cl.^{6} G05B ***19/00;*** **B25J** ***9/22***

U.S. Cl. 318—568.14 **3 Claims**



1. A robot controller for permitting an operator to perform lead-through teaching for a robot having a mechanical brake provided in respective robot axis and a hand portion, using a teaching handle mounted on the hand portion, said apparatus comprising:

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a main body having a servo control unit for controlling said respective robot axis, and a power source for supplying electric power to said servo control unit; and a lead-through-teach control circuit,

said lead-through teach control circuit including servo on/off switching means for switching on and off the power supply from said power source to said servo control unit, brake switching signal output means for outputting a signal for switching said mechanical brake to be effective/ineffective, a deadman switch provided on said teaching handle, and a lead-through-teach enabling switch provided on said main body,

wherein said brake switching signal output means outputs a signal for setting said mechanical brake ineffective and said servo on/off switching means turns on the power supply to said servo control unit when said lead-through-teach enabling switch is turned effective, and said deadman switch is operated by the operator, and

said brake switching signal output means does not output the signal for setting said mechanical brake ineffective and said servo on/off switching means turns off the power supply to said servo control unit when said lead-through-teach enabling switch is turned effective and said deadman switch is not operated by the operator.

5,783,923

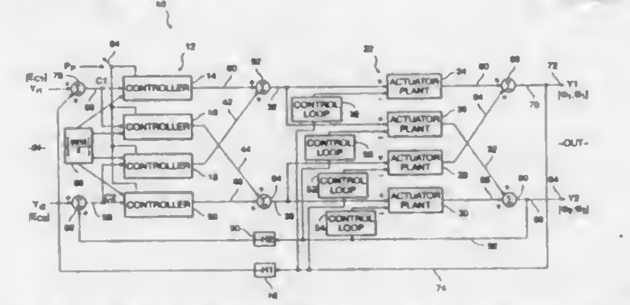
METHOD AND APPARATUS FOR MULTIPLE-INPUT, MULTIPLE OUTPUT FEEDBACK CONTROL OF VARIABLE LOAD SYSTEMS

William L. Wise, P.O. Box 1382, Mountain View, Calif. 94042, assignor to William L. Wise, Mountain View, Calif.

Filed Dec. 6, 1995, Ser. No. 568,207

Int. Cl.^{6} G05B *19/29*

U.S. Cl. 318—601 **5 Claims**



1. In a feedback control system, a method for controlling multiple outputs signals in response to multiple input signals, the method comprising the steps of:

summing outputs of selected constant-load controllers to develop inputs for selected actuator plants, each one of said actuator plants being controlled by self-adaptive feedback control loops with pole-tracking zeroes, said actuator plants serving as output load for said controllers;

summing outputs of selected ones of said actuator plants to produce a plurality of actuator signals;

driving loads with said actuator signals;

providing feedback of said actuator signals to said actuator plants to allow pole tracking of zeroes; and

providing feedback of said actuator signals to said controllers for conventional steady-state feedback, such that each of said controllers sees a constant load and has a constant gain-bandwidth characteristic.

5,783,924

DRIVE SYSTEM COMPRISING A MOTOR, CONTROL MEANS FOR CONTROLLING THE MOTOR, APPARATUS COMPRISING THE DRIVE SYSTEM, AND METHOD OF CONTROLLING THE MOTOR

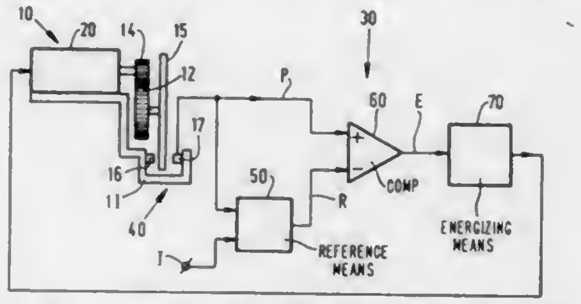
Josephus A. H. M. Kahlman, Eindhoven, Netherlands, assignor to U.S. Philips Corporation, New York, N.Y.

Filed Dec. 6, 1996, Ser. No. 759,663

Claims priority, application European Pat. Off., Dec. 21, 1995, 95203586

Int. Cl.^{6} G05B *19/29*

U.S. Cl. 318—601 **12 Claims**



1. A drive system comprising a motor, a first part, a second part driven relative to the first part by means of the motor, and control means comprising

measurement system for generating a position signal which is dependant on a position of the first part relative to the second part, the position signal as a function of said position being a waveform having exclusively monotonically increasing or exclusively monotonically decreasing waveform portions with a transient between every two adjacent waveform portions, the transient having a magnitude and a sign,

reference means for generating a reference value, the control means being adapted to generate a switching signal upon the occurrence of each transient in the position signal, the reference means being responsive to the switching signal to subject the reference value to a correction of a magnitude and sign the same as the magnitude and sign of the transient,

a comparator for generating an error signal which is a measure of a difference between a parameter of the position signal and the reference value, the parameter being an actual value of the position signal, and

energizing means for energizing the motor in dependence upon the error signal.

5,783,925

METHOD OF INTERPOLATING OUTPUT FROM SENSOR

Chiaki Umemura, Toyohashi, and Masanori Sugiyama, Nishio, both of Japan, assignors to Aisin Seiki Kabushiki Kaisha, Kariya, Japan

Filed Feb. 5, 1997, Ser. No. 796,891

Claims priority, application Japan, Feb. 5, 1996, 8-018779; Jan. 29, 1997, 9-015697

Int. Cl.^{6} H02B *7/00*

U.S. Cl. 318—661 **3 Claims**

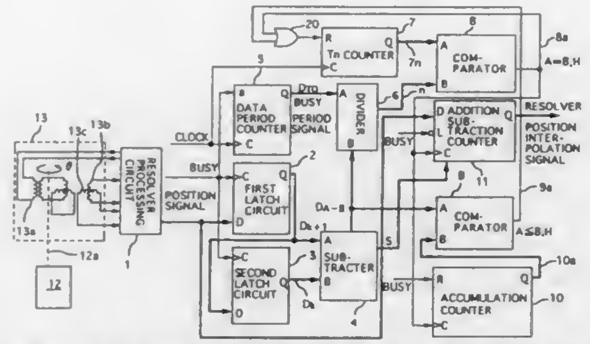
1. A method of interpolating output from a sensor comprising steps of:

calculating a present signal difference between a present value and a last value of a digital signal output periodically from a sensor device;

calculating a present period between outputting points of said present value and said last value by counting clock pulses;

calculating an interpolation value based on said present signal difference and said present period;

outputting said interpolation value at a predetermined point in a next period between outputting points of said present value and a next value of said digital signal;



calculating an interpolation interval defined as a value obtained by dividing said present period by one of an absolute value of said present signal difference and an approximate value thereof;

calculating successively a plurality of interpolation values by either of adding and subtracting a value N (N is positive integers beginning with 1 and increasing successively) times as large as a counting unit of predetermined level of said present signal difference to or from said present value in a direction of addition or subtraction, which depends on a sign of said present signal difference; and

outputting an Nth interpolation value when a period from said outputting point of said present value agrees with a value N times as large as said interpolation interval in said next period.

5,783,926

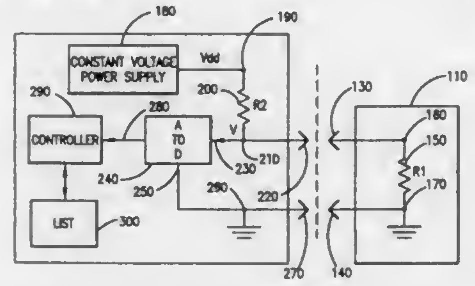
APPARATUS FOR IDENTIFYING ACCESSORIES CONNECTED TO RADIOTELEPHONE EQUIPMENT

Billy Gayle Moon, Apex, and William C. Agnor, Raleigh, both of N.C., assignors to Ericsson, Inc., Research Triangle Park, N.C.

Filed Nov. 5, 1996, Ser. No. 744,102

Int. Cl.^{6} H01M *10/46*

U.S. Cl. 320—106 **3 Claims**



1. An apparatus for identifying an accessory device connected to an electronic device from among a plurality of accessory devices, the apparatus comprising:

a constant current source for supplying a constant current;

a resistor of resistance distinct to each particular accessory in the plurality of accessory devices, the resistor having a first lead electrically connected to the constant current source, and the resistor further having a second lead electrically connected to electrical ground;

an analog to digital converter having an analog input electrically connected to the first lead of the resistor, the analog to digital converter for measuring the voltage level across the resistor, and the analog to digital converter further for creating a digital representation of the measured voltage level and communicating the digital representation of the measured voltage level to the electronic device; and

a database accessible by the electronic device for associating the digital representation of the measured voltage level with the identity of the accessory device connected to the electronic device.

5,783,927

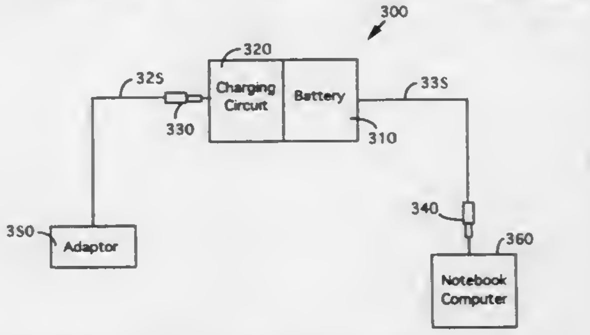
PORTABLE POWER SUPPLY UNIT PROVIDING BACKUP BATTERY, BATTERY CHARGER, AND UNIVERSAL ADAPTER

James Chin-Ming Chen, Tao-Yuan, Taiwan, assignor to Delta Green Energy, Inc., Hsinchu, Taiwan

Filed Sep. 28, 1995, Ser. No. 535,646

Int. Cl.^{6} H01M *10/46*

U.S. Cl. 320—110 **20 Claims**



11. A backup power source apparatus for compatibly providing DC input to a plurality of different portable electronic devices operable with a rechargeable battery and an AC/DC adapter, said power source apparatus comprising:

an universal adapter-interface includes a set of DC jacks of plurality of sizes for compatibly connecting said power source apparatus to a plurality of AC/DC adapters to receive a DC input voltage therefrom wherein each jack of said set of DC jacks including a first end for plugging into said backup power source apparatus and a second ending having an outer A diameter and an inner diameter B where A and B are specially provided with a set of standard DC-jack outer and inner diameters provided for plugging into each of different types of AC/DC adapter cables:

an universal device-interface includes a set of output jacks of plurality of sizes for compatibly connecting said power source apparatus to a plurality of portable electronic devices wherein each of said set of output jacks including a first end for plugging into said backup power source apparatus and a second end for plugging into said portable electronic devices having a external cylinder and an internal pin with diameters specifically provided with a set of standard output-jack external cylinder and internal pin dimensions for plugging into each of said different types of portable electronic devices;

a backup battery pack for providing input voltage through said universal device interface to said portable electronic device;

a charging circuit for charging said rechargeable battery in said electronic device and said backup battery pack of said power source apparatus;

a backup battery monitoring and display means for continuously monitoring a charge capacity of said backup battery pack and for displaying said charge capacity;

a charging current control circuit for receiving a voltage signal from said backup battery monitoring and display means for controlling an amount of a charging current from said charging circuit for charging said backup battery; and

an output current regulating circuit for controlling an output DC current generating from said power source apparatus for output to said portable electronic device.

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5,783,928

STORAGE CAPACITOR POWER SUPPLY

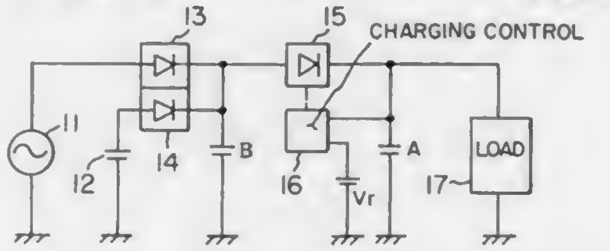
Michio Okamura, Kanagawa, Japan, assignor to JEOL Ltd., Tokyo, Japan

Filed Apr. 2, 1993, Ser. No. 41,543

Claims priority, application Japan, Apr. 3, 1992, 4-082173; Apr. 3, 1992, 4-082174; Mar. 4, 1993, 5-043467

Int. Cl.^{6} H01M *10/46*

U.S. Cl. 320—122 **4 Claims**



1. A storage capacitor power supply adapted to store electricity in a capacitor block consisting of a plurality of capacitors connected to supply electric power to a load, said power supply comprising:

a charge-limiting circuit connected in parallel with each capacitor and causing the charging current to bypass the capacitor by sensing that the voltage across any capacitor has reached a given value;

a full charge-detecting circuit which detects operation of the charge-limiting circuit and makes a decision to see if a fully charged condition has occurred, wherein said full charge-detecting circuit performs a logical operation on the output signals from the charge-limiting circuits; and

a means for superimposing an AC waveform to the charging currents, wherein said full charge-detecting circuit monitors the amplitude of the AC waveform.

5,783,929

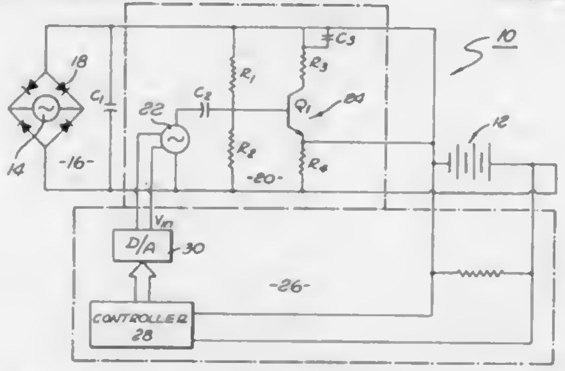
APPARATUS AND METHOD FOR RECHARGING A BATTERY

Todd Taricco, P.O. Box 1547, Zephyr Cove, Nev. 89448

Filed Mar. 27, 1997, Ser. No. 835,034

Int. Cl.^{6} H02J *7/00*

U.S. Cl. 320—139 **15 Claims**



1. An apparatus that recharges a battery which has a natural resonant frequency, comprising:

a recharger circuit that provides a rail voltage to the battery that is modulated with a modulation signal which oscillates at a frequency that is approximately the natural resonant frequency of the battery.

5,783,930

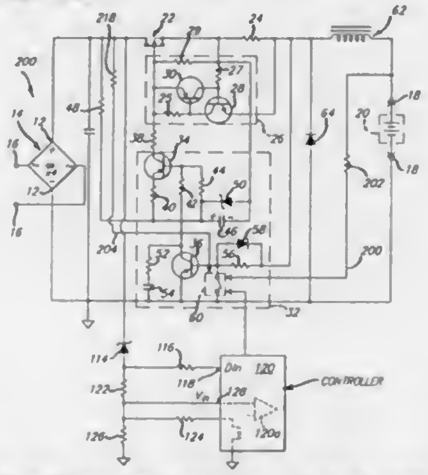
SELF-OSCILLATING BUCK MODE BATTERY CHARGER

Larry T. Albert, Abingdon, and Frank Faez Athari, Baltimore, both of Md., assignors to Black & Decker Inc., Newark, Del.

Continuation of Ser. No. 602,242, Feb. 16, 1996, abandoned. This application Jan. 15, 1997, Ser. No. 782,432

Int. Cl.^{6} H02J *7/04;7/16*

U.S. Cl. 320—140 **9 Claims**



1. A self-oscillating buck mode battery charger apparatus incorporating an inductor for charging a rechargeable battery, said apparatus comprising:

an input for receiving a rectified DC input voltage;

a switching element in communication with the input for controlling the application of a charging current to an output of said apparatus, wherein said output is adapted to be electrically coupled to at least one battery;

a first capacitor for applying a drive signal to said switching element;

a first control transistor responsive to said battery voltage for controlling conduction of said switching element;

a second control transistor for turning on and off said first control transistor in response to the discharge of said inductor;

a current sensing element for sensing current flow through said switching element;

a latching circuit responsive to said current sensing element for turning off said switching element when said current flow through said switching element reaches a predetermined maximum value; and

wherein said first and second control transistors are configured such that neither experiences said rectified DC input voltage when one said switching element is turned off by said latching circuit.

5,783,931

Patent Not Issued For This Number

5,783,932

POWER GENERATION PLANT AND CONTROL APPARATUS THEREFOR

Shigeaki Namba, and Kengo Uda, both of Hitachi, Japan, assignors to Hitachi, Ltd., Tokyo, Japan

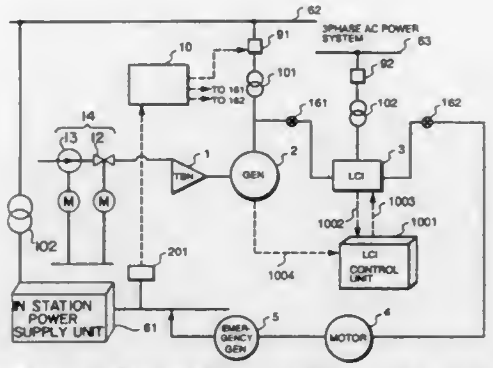
Filed Mar. 21, 1996, Ser. No. 619,185

Claims priority, application Japan, Mar. 23, 1995, 7-063701

Int. Cl.^{6} H02P *9/04*

U.S. Cl. 322—16 **11 Claims**

1. In a power generation plant having a turbine, a first generator coupled to a rotor shaft of said turbine, a starter device connected to said first generator via a disconnecting switch for outputting a power by converting the frequency of an input electric power, auxiliary equipment for assisting operation of said turbine, and an in-station power supply unit for supplying power to said auxiliary equipment utilizing power produced by said first generator, the power generation plant further comprising:



a motor electrically connected to said starter device;

an emergency generator connected to said motor; and

a control unit which executes switching control of said disconnecting switch in response to an output voltage of said in-station power supply unit, whereby

power is obtained from said first generator utilizing inertial rotational energy of said turbine, said power obtained from said first generator is supplied to said motor via said starter device for driving said motor, and said emergency generator is started.

5,783,933

SWITCHING SUPPLY DEVICE

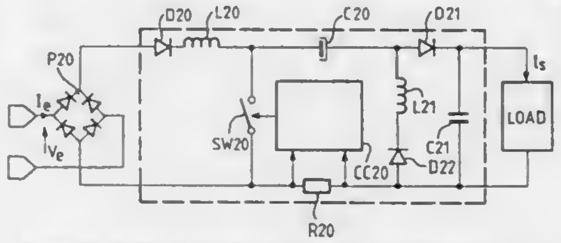
Alain Bailly, Simiane Collongue, France, assignor to SGS-Thomson Microelectronics S.A., Saint Genis, France

Filed Dec. 3, 1996, Ser. No. 759,157

Claims priority, application France, Dec. 7, 1995, 95 15587

Int. Cl.^{6} G05F *1/40;1/42;1/10;* **H02M** *7/155*

U.S. Cl. 323—282 **55 Claims**



1. A supply device to receive a rectified AC input voltage from a rectifier circuit between a first input terminal and a second input terminal, the rectified AC input voltage having a peak input voltage, said supply device comprising:

a first diode having an anode, coupled to the first input terminal, and a cathode;

a first induction coil having a first terminal coupled to the cathode of the first diode, and a second terminal;

a power switch coupled between the second terminal of the first induction coil and the second input terminal of the supply device, and having an input to receive a control voltage that activates the power switch;

a control circuit that generates the control voltage;

a first capacitor having a positive electrode, coupled to the second terminal of the first induction coil, and a negative electrode, the first capacitor to provide a substantially constant voltage across the positive and negative electrodes;

a second diode having an anode and a cathode;

a second induction coil coupled to the negative electrode of the first capacitor and to the cathode of the second diode;

a measurement resistor coupled between the anode of the second diode and the second input terminal;

a second capacitor having a negative electrode, coupled to the anode of the second diode, and a positive electrode; and

a third diode having an anode coupled to the negative electrode of the first capacitor, and a cathode coupled to the positive electrode of the second capacitor.

5,783,934

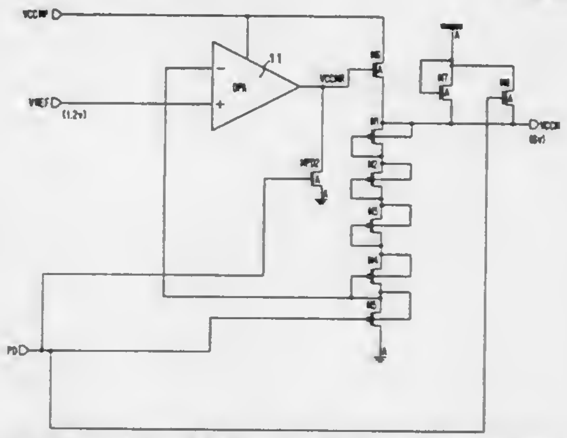
CMOS VOLTAGE REGULATOR WITH DIODE-CONNECTED TRANSISTOR DIVIDER CIRCUIT

Hieu Van Tran, San Jose, Calif., assignor to Information Storage Devices, Inc., San Jose, Calif.

Continuation of Ser. No. 726,562, Oct. 7, 1996, abandoned, which is a division of Ser. No. 509,982, Aug. 1, 1995, Pat. No. 5,631,606. This application Nov. 5, 1997, Ser. No. 968,850

Int. Cl.^{6} G05F *3/16;3/04*

U.S. Cl. 323—312 **9 Claims**



1. A voltage regulator for receiving a voltage input and providing a regulated voltage output comprising:

a differential amplifier having an amplifier output, a first input coupled to a feedback voltage from said regulated voltage output, and a second input coupled to a reference voltage;

a plurality of transistors connected in series, a first of the series of transistors being diode coupled when active, said first transistor providing said feedback voltage that is substantially equal to a predetermined portion of said regulated voltage output when the first transistor is active, the rest of the series of transistors being diode coupled, the series of transistors having a first end thereof coupled to a circuit ground and a second end thereof coupled to the regulated voltage output; and

a regulating transistor coupled between the voltage input and the first end of the series of diode connected transistors and controlled by the amplifier output to provide a current through the series of diode connected transistors to maintain the voltage between the inputs of the differential amplifier substantially zero, said regulating transistor keeping said regulated voltage output at approximately a predetermined multiple of said reference voltage.

5,783,935

REFERENCE VOLTAGE GENERATOR AND METHOD UTILIZING CLAMPING

Kye-hyun Kyung, Anyang, Rep. of Korea, assignor to Samsung Electronics Co., Ltd., Suwon, Rep. of Korea

Filed Apr. 22, 1996, Ser. No. 636,116

Claims priority, application Rep. of Korea, Apr. 24, 1995, 1995-9640

Int. Cl.^{6} G05F *3/16*

U.S. Cl. 323—313 **36 Claims**

1. A circuit for generating a reference voltage, comprising:

a power-supply voltage divider for decreasing a received external power-supply voltage, and generating said decreased voltage as a reference voltage on a reference voltage output terminal;

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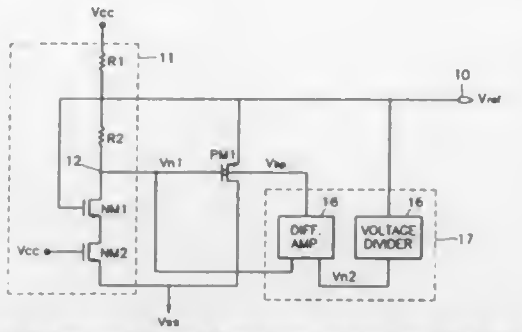


- a PMOS transistor having a substrate voltage, said PMOS transistor for clamping said reference voltage at a predetermined voltage level, one end thereof being coupled to said reference voltage output terminal and the other end being coupled to a ground wherein said reference voltage is capable of voltage level variations;
- a compensation circuit for adjusting said substrate voltage of said PMOS transistor in response to said voltage level variations;

wherein said compensation circuit comprises:

- a reference voltage divider for dividing said reference voltage and generating a predetermined divided voltage; and
- a differential amplifier for differentially amplifying said predetermined divided voltage and a gate voltage of said PMOS transistor, and providing the result as said substrate voltage of said PMOS transistor.

5,783,936
TEMPERATURE COMPENSATED REFERENCE CURRENT GENERATOR

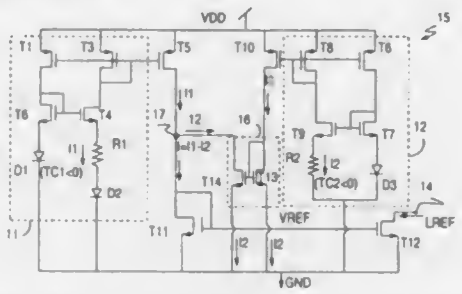
Phillipe Girard, Corbiel Essones, and Patrick Mone, Ponthierry, both of France, assignors to International Business Machines Corporation, Armonk, N.Y.

Filed Dec. 3, 1996, Ser. No. 758,325

Claims priority, application European Pat. Off., Jun. 12, 1995, 95480170

Int. Cl.^{6} G05F *3/20*

U.S. Cl. 323—315 **6 Claims**



1. A temperature compensated reference current generator comprising:

- a first current source having a negative temperature coefficient for generating a first current;
- a second current source having a negative temperature coefficient for generating a second current, the second current source being disposed in parallel with the first current source between power and ground terminals;
- a subtraction circuit connected to the first and second current sources for generating a primary current having a temperature coefficient, the primary current being generated by subtracting one of the first and second currents from the other; and,
- a proportionality circuit disposed between the subtraction circuit and the ground terminal, the proportionality circuit providing a reference current which is equal to the primary current multiplied by a proportionality constant.

5,783,937
REFERENCE VOLTAGE GENERATOR CONTROLLED AS A FUNCTION OF TEMPERATURE

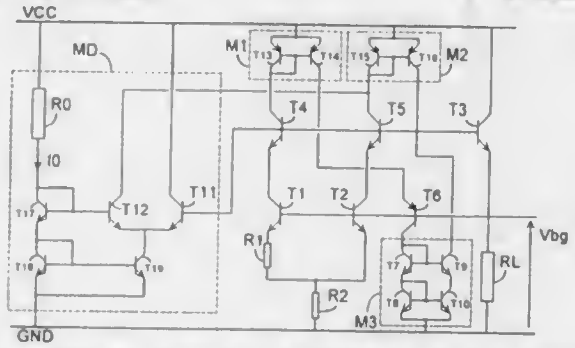
Jean-Claude Perraud, Saint-Aubin/Mer, France, assignor to U.S. Philips Corporation, New York, N.Y.

Filed Jun. 24, 1997, Ser. No. 881,349

Claims priority, application France, Jun. 26, 1996, 96 07941

Int. Cl.^{6} G05F *3/20*

U.S. Cl. 323—315 **8 Claims**



1. A reference voltage generator which supplies a controlled output voltage at an output terminal, which the generator comprises:

- a first and a second transistor whose bases are interconnected and form the output terminal of the generator, the emitter of the first transistor being connected via a first resistor to the emitter of the second transistor, which latter emitter is also connected via a second resistor to a first supply terminal, while the collectors of the first and the second transistor are connected to two current sources of equal nominal values,
- a third transistor whose base is connected to one of the current sources, whose collector is connected to a second supply terminal, and whose emitter is connected to the bases of the first and the second transistor as well as to the first supply terminal via a charge resistor,

which generator is characterized in that it comprises, inserted between the first and second transistors and the current sources, a fourth and a fifth transistor whose bases are jointly connected to the base of the third transistor, whose emitters are connected to the respective collectors of the first and the second transistor, and whose collectors are each connected to one of the current sources.

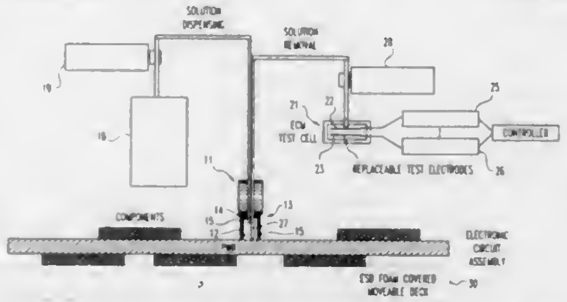
5,783,938
METHOD AND APPARATUS FOR THE QUANTITATIVE MEASUREMENT OF THE CORROSIVITY EFFECT OF RESIDUES PRESENT ON THE SURFACE OF ELECTRONIC CIRCUIT ASSEMBLIES

Terry L. Munson, Kokomo, and Douglas O. Pauls, Sheridan, both of Ind., assignors to Contamination Studies Laboratories, Inc., Kokomo, Ind.

Filed Feb. 24, 1997, Ser. No. 804,795

Int. Cl.^{6} G01N *1/04;* **G01R** *27/10*

U.S. Cl. 324—71.2 **12 Claims**



1. A method for quantitatively measuring the corrosivity effect of residues present on the surface of an electronic circuit assembly, the method comprising:

- a. positioning an extraction cell over an electronic circuit assembly ("ECA") area to be measured;
- b. dispensing an extraction fluid into said extraction cell;
- c. contacting the ECA area to be measured with said extraction fluid for a time sufficient to extract residue from the ECA area and create a residue-containing fluid;
- d. providing said residue-containing fluid to a test cell comprising two or more electrodes, wherein the residue-containing fluid is provided at least to the space between the electrodes;
- e. applying a voltage to at least one of the electrodes;
- f. measuring the time between the application of the voltage and an electrical short between the electrodes.

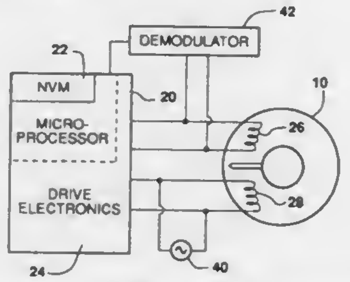
5,783,939
STEPPER MOTOR GAUGE CALIBRATION BY AC FEEDBACK

Raymond Lippmann, Ann Arbor; Gail Monica Sylvester, Frankenmuth; Michael John Schnars, Clarkston; Jeffrey Lynn Shepard, Lapeer; Ronald Kenneth Selby, Burton, and James Edward Nelson, North Banch, all of Mich., assignors to Delco Electronics Corporation, Kokomo, Ind.

Filed Jul. 26, 1996, Ser. No. 686,889

Int. Cl.^{6} G01R *1/00*

U.S. Cl. 324—154 R **7 Claims**



1. In a gauge driven by a stepper motor gauge having a rotating field controlled by a motor driver, first and second driving coils carrying DC current controlled to establish the field for rotation of the rotor, and a mechanical stop for limiting rotor movement, a method of correlating the stop position with field position comprising the steps of:

- inducing an AC signal in the second coil as a function of rotor position by applying an AC current to the first coil, whereby coupling between the coils varies according to rotor position;
- sensing rotor movement by detecting change in the AC signal in the second coil wherein an absence of change in the AC signal indicates a stationary rotor;
- controlling the DC current to drive the rotor;
- detecting an AC signal transition between a continuously changing mode and a non-changing mode, which transition occurs when the rotor changes between moving and stationary states due to interacting with the stop; and
- recording the field position when the transition is detected, whereby the recorded position corresponds to the mechanical stop position.

5,783,940
ENCODER CIRCUIT FOR DETERMINING THE POSITION OF A ROTOR OF A MULTIPHASE MOTOR

Sergei Kolomeitsev, Saline, Mich., assignor to Dana Corporation, Toledo, Ohio

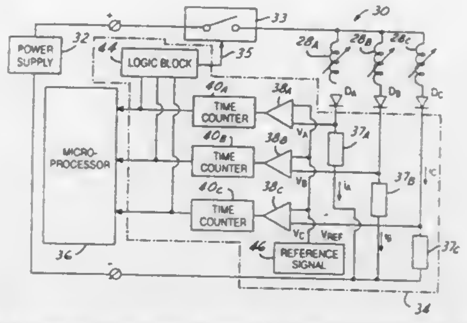
Filed Dec. 23, 1996, Ser. No. 774,292

Int. Cl.^{6} G01B *7/30;* **H02K** *11/00;* **H02P** *7/05*

U.S. Cl. 324—207.25 **16 Claims**

1. An encoder circuit for encoding an angular position of a motor rotor wherein said motor further includes a stator having a plurality of poles, said circuit comprising:

- a plurality of encoder windings disposed proximate said stator poles;



- a switch coupled between a source of electrical power and each one of said plurality of encoder windings for connecting said encoder windings to said source to initiate a respective current therethrough; and
- a sensing and control circuit responsive to said currents through said encoder windings for sensing a respective level of said currents through said encoder windings and generating in response thereto a plurality of current level signals corresponding to said angular position, said sensing and control circuit generating a deenergization signal when all of said current levels reach a reference current level,

wherein said switch is responsive to said deenergization signal for disconnecting said plurality of encoder windings from said source to simultaneously interrupt said currents in each one of said plurality of encoder windings.

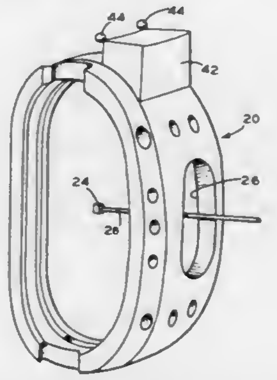
5,783,941
TECHNIQUE FOR MAGNETIC ALIGNMENT OF AN OCTANT FOR FUSION TOROIDAL MAGNET

Christopher Mark Rey, Lynchburg, and Minfeng Xu, Forest, both of Va., assignors to The Babcock & Wilcox Company, New Orleans, La.

Filed Feb. 1, 1995, Ser. No. 382,360

Int. Cl.^{6} G01R *33/02*

U.S. Cl. 324—242 **5 Claims**



1. A method for aligning two adjacent segments of a toroidal field magnet with respect to each other, the segments forming a toroidal magnet octant, the method comprising the steps of:

- (a) electrically powering each of the two segments with equal and opposite current flow before the segments are spliced to each other, said powered segments generating superimposed magnetic fields in the absence of plasma and at a temperature between cryogenic and room temperature, inclusive, the toroidal field magnets forming a toroid with a plane; and,
- (b) using a magnetic null locating means to locate a magnetic null for the said superimposed magnetic fields in said plane.

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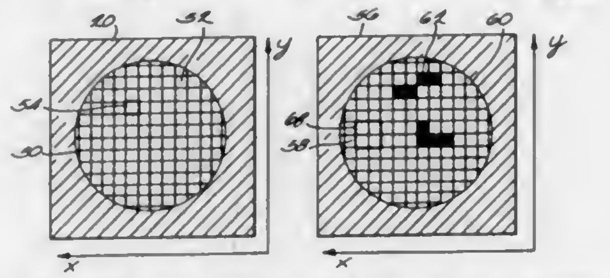
5,783,942
UNWRAP CORRECTION FOR MR PHASE DATA ENCODING FLOW-RELATED PARAMETER

Matthew A. Bernstein, 413 Rawlins Dr., Waukesha, Wis. 53188, and Gary H. Glover, 769 Mayfield Ave., Stanford, Calif. 94305

Filed Dec. 30, 1996, Ser. No. 782,027
Int. Cl.^{6} G01R *33/20*
U.S. Cl. 324—306 19 Claims



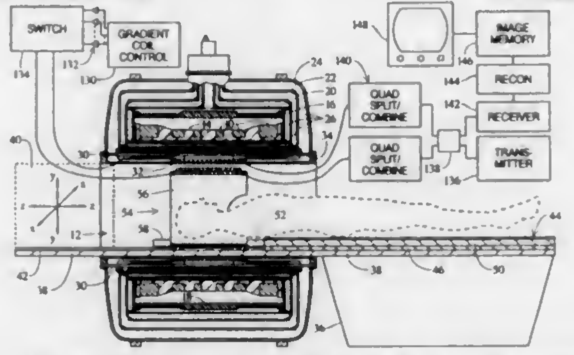
1. In an MR system employed to acquire an array of phase related data elements representing velocity, wherein each data element has a specified position in the array, an unwrap correction method comprising the steps of:

- defining a region of interest, a portion of said data elements corresponding to said region of interest;
- subtracting each corresponding data element from first and second data elements adjacent thereto to generate respective first and second gradient values;
- assigning a gradient value to a gradient array if it has a specified relationship with a selected threshold value, assigned first and second gradient values comprising respective first and second gradient arrays;
- generating a fitted phase function from said first and second gradient arrays, said fitted phase function having a value for each of said specified positions;
- determining the difference between a given one of said corresponding data elements and the value of said fitted phase function at the specified position of said given data element; and
- selectively correcting said given data element if said difference is greater than a first specified level, or less than a second specified level.

5,783,943
METHOD AND APPARATUS FOR POSITIONING AN INSERT GRADIENT COIL WITHIN AN EXAMINATION REGION OF A MAGNETIC RESONANCE IMAGING APPARATUS

Nicholas J. Mastandrea, Jr., 730 E. 254th St., Euclid, Ohio 44117, and Mark A. Richard, 3743 Bridgeview, S. Euclid, Ohio 44121

Filed Nov. 27, 1996, Ser. No. 758,226
Int. Cl.^{6} G01V *3/00*
U.S. Cl. 324—318 20 Claims



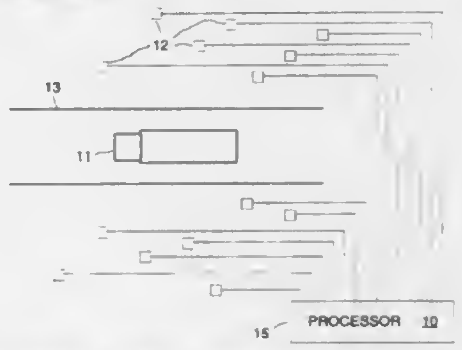
1. A magnetic resonance imaging apparatus including a main field magnet which generates a magnetic field through an examination region, a patient couch guide beam extending through the examination region, an insert gradient and radio coil assembly mounted in a trolley cage for selective placement in the examination region, the trolley cage comprising:

- a cage assembly secured to an exterior surface portion of the insert gradient and radio coil assembly;
- a plurality of wheels mounted to said cage assembly, said wheels rollingly contacting the patient couch guide beam such that the trolley cage rolls along the patient couch guide beam;
- a latching mechanism for selectively locking said cage assembly to the patient couch guide beam when the trolley cage is positioned within the examination region; and
- an interlock device which enables the magnetic resonance imaging apparatus to commence an imaging procedure when said cage assembly is locked to the patient couch guide beam.

5,783,944
PROCESSING METHOD FOR ESTIMATION OF MAGNETIZABLE OBJECT OR SOURCE

Michael Rakijas, Yorba Linda, Calif., assignor to Hughes Electronics, Los Angeles, Calif.

Filed May 28, 1996, Ser. No. 653,877
Int. Cl.^{6} G01R *33/02;* G01B *7/00;* G01V *3/00*
U.S. Cl. 324—244 1 Claim



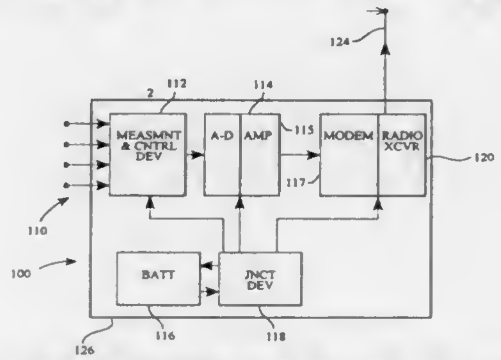
1. A method of spatially characterizing a magnetic structure using magnetometer data to estimate its overall dimensions, said method comprising the steps of:

- providing an array of magnetic sensors that generates a plurality of magnetic readings derived from a magnetic source;
- processing readings from the array of magnetic sensors by selecting a plurality of candidate locations for the source and maximizing the correlation $B^T\hat{B}$ for each candidate location, where B=Rm, and B is a vector of composite measurements from the array of magnetic sensors, R is a projection matrix from the position of the magnetic source to the array of magnetic sensors, $\hat{B}$ is an estimated vector of composite measurements representative of what the true magnetic readings should be for a source at an assumed position, and m is a dipole strength vector;
- selecting a maximum correlation from the correlations, which maximum correlation is indicative of the location and magnitude of the single dipole representation;
- selecting candidate arrangements of sets of dipoles symmetrically arranged about the selected location of the source;
- processing the readings from the sets of magnetic dipoles to maximize the correlation $B^T\hat{B}$ over sets of positions corresponding to the locations of the sets of symmetrically arranged dipoles; and
- selecting a maximum correlation corresponding to the sets of locations, which maximum correlation is indicative of the arrangement of dipoles that most closely resembles the magnetic structure of the source and thus spatially characterizes the magnetic structure of the source.

5,783,945
EARTHQUAKE FORECAST METHOD AND APPARATUS WITH MEASUREMENT OF ELECTRICAL, TEMPERATURE AND HUMIDITY PARAMETERS OF SOIL

Michail Balbachan, 5 Sherbakovskaya Street., Apt. 10, Moscow, Russian Federation, 105318

Filed Oct. 24, 1996, Ser. No. 736,136
Int. Cl.^{6} G01V *3/08;3/38;1/00;* G08C *17/00*
U.S. Cl. 324—348 16 Claims



1. An apparatus for predicting an earthquake, said apparatus comprising:

- a sensing circuit for measuring the electrical, temperature, and humidity parameters of soil and for generating a sensing signal, wherein said sensing signal is related to the measured electrical, temperature, and humidity parameters of the soil;
- a processing circuit conductively connected to said sensing circuit for receiving said sensing signal, for processing said sensing signal, and for generating a prediction signal;
- a receiving circuit conductively connected to said processing circuit for receiving a command signal from a remotely located central station to initiate the transmission of said prediction signal; and
- a transmitting circuit conductively connected to said processing circuit for transmitting said prediction signal to a customer;
- whereby said prediction signal informs the customer about the forthcoming earthquake.

5,783,946
FAULT TYPE CLASSIFICATION ALGORITHM

Lifeng Yang, Coral Springs, Fla., assignor to ABB Power T&D Company Inc., Raleigh, N.C.

Filed Mar. 5, 1997, Ser. No. 811,871
Iot. Cl.^{6} G01R *31/08*
U.S. Cl. 324—522 12 Claims

1. A process for identifying the type of fault detected by a protective relay associated with a three-phase transmission line including phase-A, phase-B and phase-C conductors, the process comprising the steps of:

(a) measuring pre-fault and post-fault samples of current waveforms on the phase-A, phase-B and phase-C conductors, said current waveforms being analyzable into real and imaginary parts;

(b) calculating increment currents (DELIA1, DELIB1, DELIC1) as,

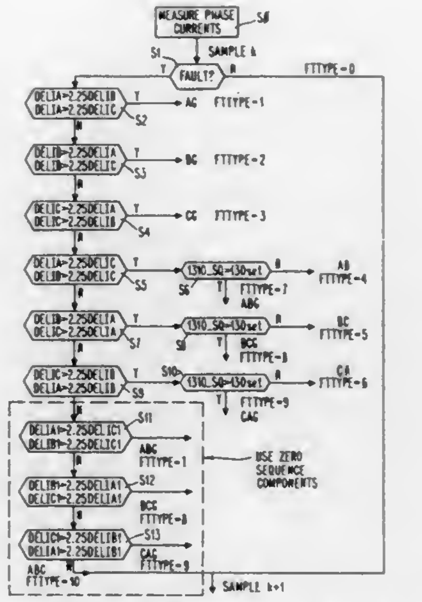
$$DELIA1=(I_{ar}-I_{apr})^2+(I_{ai}-I_{api})^2$$

$$DELIB1=(I_{br}-I_{bpr})^2+(I_{bi}-I_{bpi})^2$$

$$DELIC1=(I_{cr}-I_{cpr})^2+(I_{ci}-I_{cpi})^2; \text{ and}$$

(c) employing said increment currents to identify a two-phase to ground fault;

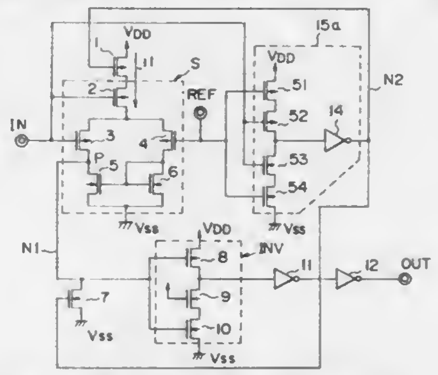
wherein I_{ar} represents a post-fault value of a real part of the phase-A current, I_{apr} represents a pre-fault value of the real part of the phase-A current, I_{ai} represents a post-fault value of an imaginary part of the phase-A current, I_{api} represents a pre-fault value of the real part of the phase-A current, I_{br} represents a post-fault value of a real part of the phase-B current, I_{bpr} represents a pre-fault value of the real part of the phase-B current, I_{bi} represents a post-fault value of an imaginary part of the phase-B current, I_{bpi} represents a pre-fault value of the real part of the phase-B current, I_{cr} represents a post-fault value of a real part of the phase-C current, I_{cpr} represents a pre-fault value of the real part of the phase-C current, I_{ci} represents a post-fault value of an imaginary part of the phase-C current, and I_{cpi} represents a pre-fault value of the real part of the phase-C current.



5,783,947
SEMICONDUCTOR INTEGRATED CIRCUIT

Harumi Kawano, Miyazaki, Japan, assignor to Oki Electric Industry Co., Ltd., Tokyo, Japan

Division of Ser. No. 515,581, Aug. 16, 1995, Pat. No. 5,672,982. This application Apr. 23, 1997, Ser. No. 838,988
Claims priority, application Japan, Aug. 30, 1994, 6-204728
Int. Cl.^{6} G01R *31/26*
U.S. Cl. 324—765 5 Claims



1. A semiconductor integrated circuit comprising:

- an input node supplied with an input voltage;
- a reference node supplied with a reference voltage;
- a first source potential node supplied with a first source potential level;
- a second source potential node supplied with a second source potential level;
- a sense circuit connected between said first source potential node and said second source potential node and brought into an operating state during a period in which the first source potential level is supplied, said sense circuit comparing the

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input voltage and the reference voltage and outputting the result of comparison to a first node;

a buffer circuit connected between the first node and an output node, said buffer circuit including first and second stages;

said first stage outputting a voltage corresponding to the voltage supplied to the first node to said second stage when the voltage supplied to said reference node is equal to a level between the first source potential level and the second source potential level and outputting a floating level to said second stage irrespective of the voltage supplied to the first node when the voltage supplied to said reference node is equal to the first source potential level or the second source potential level;

said second stage outputting a voltage outputted from said first stage to the output node when the voltage supplied to said reference node is equal to a level between the first source potential level and the second source potential level and outputting a voltage corresponding to the voltage supplied to said input node to the output node when the voltage supplied to said reference node is equal to the first source potential level or the second source potential level; and

a first switching circuit connected between said first source potential node and said sense circuit and adapted to selectively connect between said sense circuit and said first source potential node in response to the voltage supplied to said reference node.

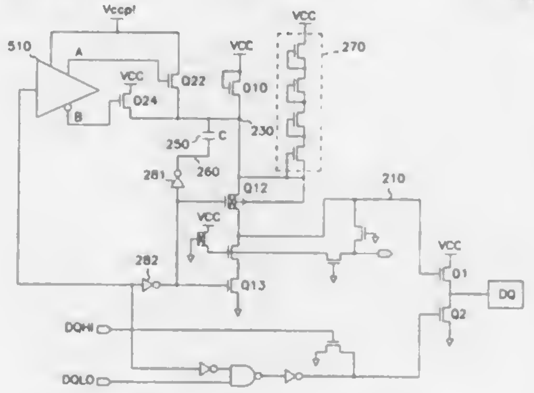
5,783,948
METHOD AND APPARATUS FOR ENHANCED BOOTING AND DC CONDITIONS

Mark R. Thomann, and Paul M. Fuller, both of Boise, Id., assignors to Micron Technology, Inc., Boise, Id.

Continuation-in-part of Ser. No. 493,912, Jun. 23, 1995, Pat. No. 5,574,390. This application Oct. 7, 1996, Ser. No. 729,729

Int. Cl.^{6} H03K *19/01;19/094*

U.S. Cl. 326—88 **27 Claims**



1. A voltage elevation system, comprising:

a first power supply having a first output voltage;

a second power supply having a second output voltage which exceeds the first output voltage;

a capacitor having a first node and a second node, the first node connected to the first power supply through a first current path;

a boot device, connected between a common ground and the second node, the boot device supplying about zero voltage in a first state and an elevated voltage for the second node of the capacitor when in a second state; and

a second current path connecting the second power supply to the first node the of the capacitor,

wherein the boot device is switched to provide an elevated voltage on the first node of the capacitor.

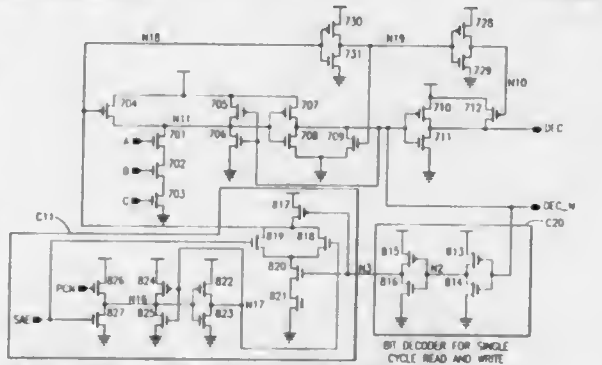
5,783,949
PRECHARGED BIT DECODER AND SENSE AMPLIFIER WITH INTEGRATED LATCH USABLE IN PIPELINED MEMORIES

William Robert Reohr, Pleasantville; Yuen Hung Chan, Poughkeepsie, and Pong-Fei Lu, Yorktown Heights, all of N.Y., assignors to International Business Machines Corporation, Armonk, N.Y.

Division of Ser. No. 372,523, Jan. 13, 1995, which is a division of Ser. No. 279,366, Jul. 22, 1994. This application Aug. 24, 1995, Ser. No. 518,414

Int. Cl.^{6} H03R *19/0944*

U.S. Cl. 326—106 **7 Claims**



1. A sense amplifier support circuit including

a decoder,

means for gating a reset of said decoder,

means for precharging said decoder in response to a logic state of an output of said decoder subsequent to a reset of said decoder, and

means for simultaneously disabling all outputs of said decoder.

5,783,950
PHASE COMPARATOR

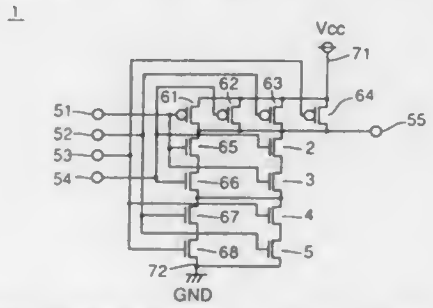
Atsuhiko Ishibashi, Hyogo, Japan, assignor to Mitsubishi Denki Kabushiki Kaisha, Tokyo, Japan

Continuation of Ser. No. 677,754, Jul. 10, 1996, abandoned, which is a continuation of Ser. No. 463,416, Jun. 5, 1995, abandoned. This application Sep. 26, 1997, Ser. No. 939,124

Claims priority, application Japan, Oct. 14, 1994, 6-249310

Int. Cl.^{6} H03K *19/003*

U.S. Cl. 327—12 **2 Claims**



1. A phase comparator for comparing a first clock signal and a second clock signal and outputting a first control signal in response to lead of the phase of the first clock signal and outputting a second control signal in response to lead of the phase of the second clock signal, comprising:

a first signal generator for outputting said first control signal in response to change of said first clock signal from a first potential to a second potential;

a second signal generator for outputting said second control signal in response to change of said second clock signal from the first potential to the second potential; and

a reset signal generator for outputting a reset signal to said first and second signal generators, said reset signal changing from inactivation potential to activation potential in response to change of the both of said first and second clock signals from the first potential to the second potential, wherein

said first signal generator stops outputting said first control signal and said second signal generator stops outputting said second control signal in response to change of said reset signal from said inactivation potential to said activation potential;

said reset signal generator includes

an output node connected to said first and second signal generators,

first and second transistors connected in a first series between said output node and an activation potential line to which said activation potential is applied, said first and second transistors each including first and second electrodes with the first electrode of the first transistor directly connected to the output node and the second electrode of the first transistor directly connected to the first electrode of the second transistor, and

third and fourth transistors connected in a second series, parallel to the first series, between said output node and said activation potential line, said third and fourth transistors each including first and second electrodes with the first electrode of the third transistor directly connected to the output node and the second electrode of the third transistor directly connected to the first electrode of the fourth transistor, said first and fourth transistors being rendered conductive in response to change of said first clock signal from the first potential to the second potential and said second and third transistors being rendered conductive in response to change of said second clock signal from the first potential to the second potential, so that time for said output node to change from said inactivation potential to said activation potential when said first and fourth transistors are rendered conductive first and then said second and third transistors are rendered conductive is equal to the time for said output node to change from said inactivation potential to said activation potential when said second and third transistors are rendered conductive first and then said first and fourth transistors are rendered conductive;

said first signal generator includes

a first flip-flop which is set by said first clock signal and reset by said reset signal, and

a second flip-flop which is set by output of said first flip-flop and reset by said reset signal;

said second signal generator includes

a third flip-flop which is set by said second clock signal and reset by said reset signal, and

a fourth flip-flop which is set by output of said third flip-flop and reset by said reset signal, said first and fourth transistors of said reset signal generator being rendered conductive in response to said first flip-flop being set and said second and third transistors being rendered conductive in response to said third flip-flop being set;

said reset signal generator further includes

a first connecting means directly connected between the second electrode of said second transistor and said activation potential line,

a second connecting means directly connected between the second electrode of said fourth transistor and said activation potential line, the second electrode of the second transistor being directly connected also to the second electrode of the fourth transistor, said first and second connecting means each being rendered conductive in response to the both of said second and fourth flip-flops being set, and

fifth to eighth transistors each directly connected between an inactivation potential line to which said inactivation potential is applied and said output node, said first to fourth transistors are of a first conductivity type and the fifth to eighth transistors are of a second conductivity type, different from the first conductivity type, said fifth transistor being rendered non-conductive in response to the first flip-flop being set, said sixth transistor being rendered non-conductive in response to the third flip-flop being set, said seventh transistor being rendered non-conductive in response to the second flip-flop being set, and said eight transistor being rendered non-conductive in response to the fourth flip-flop being set.

5,783,951
SMALL CURRENT DETECTOR CIRCUIT AND LOCATOR DEVICE USING THE SAME

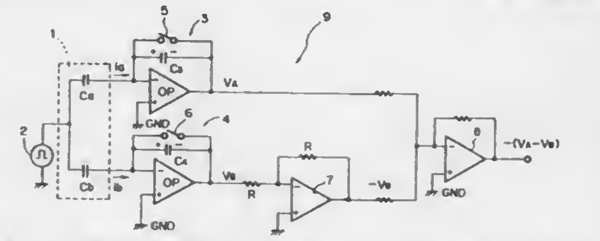
Kinya Inoue, Tokyo; Akitoshi Watanabe; Mitsuharu Iwasaki, both of Ukyo, and Mikio Matsumoto, deceased, late of Iwaki, all of Japan, by Taeko Matsumoto, heir, assignors to Rohm Co., Ltd., Kyoto, and Alps Electric Co., Ltd., Tokyo, both of Japan

Filed Oct. 9, 1996, Ser. No. 728,382

Claims priority, application Japan, Oct. 12, 1995, 7-289218

Int. Cl.^{6} G01R *19/00*

U.S. Cl. 327—52 **10 Claims**



1. A small current detector circuit comprising a first and a second element in both of which a small current output occurs, a first and a second constant current generator circuit each generating a specified constant current, a first current mirror circuit which is supplied at the input with said output current occurring in said first element and said specified constant current generated from said first constant current generator circuit, and a second current mirror circuit which is supplied at the input with said output current occurring in said second element and said specified constant current generated from said second constant current generator circuit, and wherein either one of said first and second elements is disposed in a detecting portion and a current equal to the current from the output of either one of said first and second current mirror circuits is flowed to the output of the other current mirror circuit such that a detection output corresponding to the difference between said output currents from said first and second elements is drawn from said other current mirror circuit.

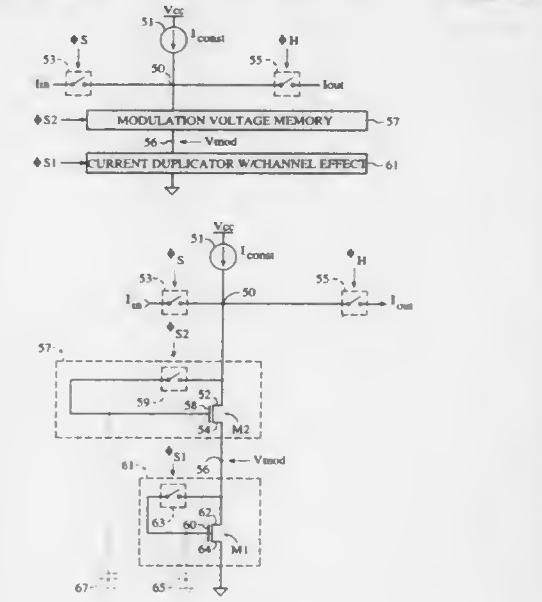
5,783,952
CLOCK FEEDTHROUGH REDUCTION SYSTEM FOR SWITCHED CURRENT MEMORY CELLS

Jean-Jacques Kazazian, Trets, France, assignor to Atmel Corporation, San Jose, Calif.

Filed Sep. 16, 1996, Ser. No. 714,376

Int. Cl.^{6} G11C *27/02;* **G05F** *3/16*

U.S. Cl. 327—94 **31 Claims**



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1. A current cell comprising:

a constant current source feeding current into a summation node;

an input switching means for selectively coupling an input current to said summation node, said input switching means being effective for developing a summation current at said summation node substantially equal to a sum of said constant current source current and said input current;

an output switching means for selectively coupling said summation node to an output lead;

a current duplicator having an input electrode, an output electrode and a control electrode, said current duplicator being effective for establishing a current path between said input electrode and said output electrode in response to said control electrode, said control electrode being further effective for modulating said current path, said input electrode being coupled to receive said summation current, said output electrode being coupled to a reference ground;

a control switch for selectively coupling said control electrode to said input electrode, said switch being effective for inducing a control voltage at said control electrode when said control switch is closed, said control voltage being dependent on said summation current, said control switch further being effective for introducing an error voltage to said control voltage when said control switch is opened;

a first voltage storage means coupled between said control electrode and said reference ground, said first voltage storage means being effective for storing and maintaining said control voltage at said control electrode when said control switch is opened;

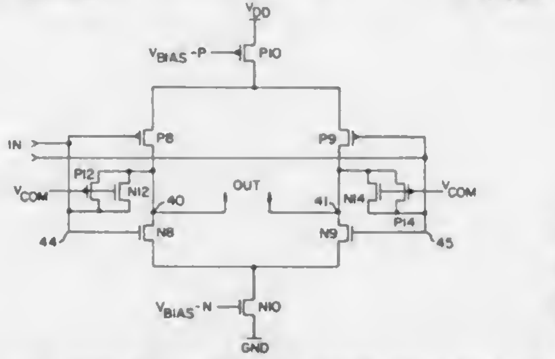
means for generating a modulation voltage at said input electrode in response to said control switch being opened, said modulation voltage being effective for compensating for said error voltage and maintaining said summation current at said input electrode substantially unchanged; and

a second voltage storage means coupled between said input electrode and said reference ground, said second voltage storage means being effective for storing and maintaining said modulation voltage at said first input electrode, said input switching means decoupling said input current from said summation node in response to a respective sample-and-hold phase.

5,783,953
CMOS CURRENT CONTROLLED DELAY ELEMENT USING CASCODED COMPLEMENTARY DIFFERENTIAL AMPLIFIERS WITH REPLICATED BIAS CLAMP

Robert J. Bosnyak, San Jose, and Robert J. Drost, Palo Alto, both of Calif., assignors to Sun Microsystems, Inc., Mountain View, Calif.

Filed Jul. 1, 1996, Ser. No. 671,301
Int. Cl.⁶ H03B *5/02;* H03K *5/13*
U.S. Cl. 327—101 11 Claims



1. A circuit connected between a high potential source and a low potential source, the circuit comprising:

a first differential amplifier connected to first and second input nodes to receive first and second input signals, and connected to first and second output nodes for supplying first and second output signals;

a second differential amplifier connected to the first and second input nodes to also receive the first and second input signals, and connected to first and second output nodes for also supplying the first and second output signals;

a first transistor having a control electrode coupled to receive a first bias signal, the first transistor coupled between the first differential amplifier and the high potential source;

a second transistor having a control electrode coupled to receive a second bias signal, the second transistor coupled between the second differential amplifier and the low potential source;

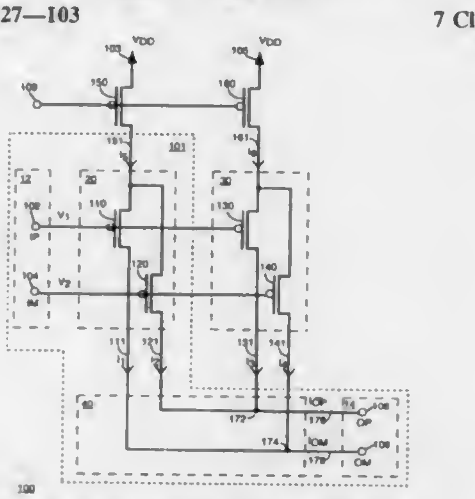
a first clamp circuit coupled between the first input node and the first output node; and

a second clamp circuit coupled between the second input node and the second output node.

5,783,954
LINEAR VOLTAGE-TO-CURRENT CONVERTER

Vladimir Koifman, Rishon-Lezion, and Yachin Afek, Kfar Saba, both of Israel, assignors to Motorola, Inc., Schaumburg, Ill.

Filed Aug. 12, 1996, Ser. No. 695,929
Int. Cl.⁶ G05F *1/10*
U.S. Cl. 327—103 7 Claims



1. A voltage-to-current converter (VIC) comprising:

a first transistor, a second transistor, a third transistor, and a fourth transistor, each having a first main electrode a second main electrode, and a control electrode, said first transistor and said second transistor each having the first main electrode coupled to a first supply terminal, said third transistor and said fourth transistor each having the first main electrode coupled to a second supply terminal, said first transistor and said fourth transistor having the second main electrode coupled to a first node, said second transistor and said third transistor having the second main electrode coupled to a second node, wherein each of said transistors has a current-voltage characteristic substantially described by the equation,

$$I_i=K_{1i}*V_{SGi}+k_{2i}*V_{SGi}^{2}+k_{3i}*V_{SCi}^{3}$$

where V_{SGi} is an input voltage of the i^{th} transistor and I_i is an output current through the i^{th} transistor, and wherein subscript i takes on values i=1, 2, 3, 4 for the first, second, third and fourth transistors, respectively, and wherein coefficient k_{2i} is substantially equal to zero and wherein coefficients k_{1i} and k_{3i} have values such that $|I_2-I_1|$ is greater than zero and I_3-I_4 is substantially zero;

a first input terminal coupled to the control electrodes of said first transistor and said third transistor;

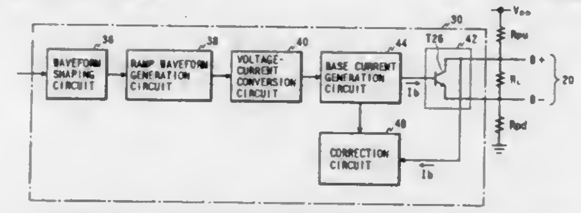
a second input terminal coupled to the control electrode of said second transistor and said fourth transistor; and

a first output terminal coupled to said first node and a second output terminal coupled to said second node.

5,783,955
DRIVER CIRCUIT ARRANGEMENT USED IN A LOCAL AREA NETWORK

Tadashi Shibata, Toyokawa, and Satoshi Suzuki, Nagoya, both of Japan, assignors to Nippondenso Co., Ltd., Kariya, Japan

Filed Jun. 4, 1996, Ser. No. 657,537
Claims priority, application Japan, Jun. 9, 1995, 7-143281
Int. Cl.⁶ H03K *17/16;19/003*
U.S. Cl. 327—108 11 Claims


WAVEFORM SHAPING CIRCUIT
36
RAMP WAVEFORM GENERATION CIRCUIT
38
VOLTAGE-CURRENT CONVERSION CIRCUIT
40
BASE CURRENT GENERATION CIRCUIT
44
T26
42
30
Vcc
Rpu
RL
Rpd
20
CORRECTION CIRCUIT
48
Ib

1. A driver circuit arrangement for actuating a pair of communication lines transmitting differential signals, comprising:

an output circuit comprising a semiconductor element having an input terminal and an output terminal for inputting and outputting current signals and a control terminal for controlling said current signals flowing through said input and output terminals, said input and output terminals of said semiconductor element being connected to said pair of communication lines respectively, wherein said semiconductor element is a bipolar transistor which includes a collector and an emitter being connected to said input and output terminals respectively;

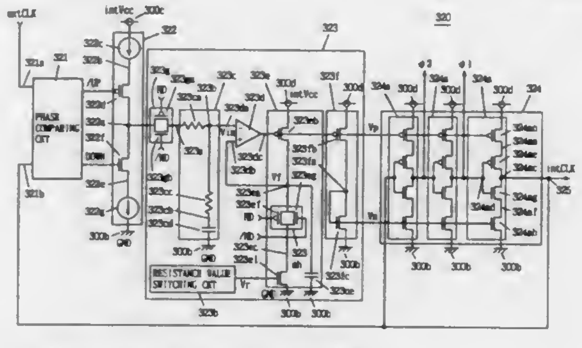
a drive circuit generating a drive signal to be supplied to said control terminal of said semiconductor element in accordance with a signal waveform of a transmission signal entered from an outside, wherein said drive circuit generates a base current of said bipolar transistor as said drive signal; and

a correction circuit being provided for equalizing current signals flowing through said pair of communication lines, said correction circuit adding or subtracting an electric current amount equivalent to said base current to or from current signals entering in or flowing out of said bipolar transistor through said pair of communication lines.

5,783,956
SEMICONDUCTOR DEVICE REALIZING INTERNAL OPERATION FACTOR CORRESPONDING TO AN EXTERNAL OPERATIONAL FACTOR STABLY REGARDLESS OF FLUCTUATION OF THE EXTERNAL OPERATIONAL FACTOR

Tsukasa Ooishi, Hyogo, Japan, assignor to Mitsubishi Denki Kabushiki Kaisha, Tokyo, Japan

Filed Jan. 31, 1996, Ser. No. 594,207
Claims priority, application Japan, Feb. 6, 1995, 7-018086; May 22, 1995, 7-122621
Int. Cl.⁶ A03L *7/14;* G05F *1/56*
U.S. Cl. 327—157 31 Claims



1. A semiconductor device, comprising:

a difference adjusting circuit for detecting a difference in at least one of phase and frequency between an incoming first signal and a second signal, and for generating a control signal for making the difference smaller;

a differential amplifying circuit for differentially amplifying said control signal from said difference adjusting circuit and a feedback potential;

an internal clock signal generating circuit for generating said second signal responsive to an operational current;

adjusting means for adjusting the operational current in accordance with an output signal from said differential amplifying circuit;

a current supplying element for generating a current in accordance with the output signal from said differential amplifying circuit;

a variable resistance element for converting the current generated by said current supplying element to a voltage signal to generate said feedback potential; and

a resistance value switching circuit for switching a resistance value of said variable resistance element, wherein

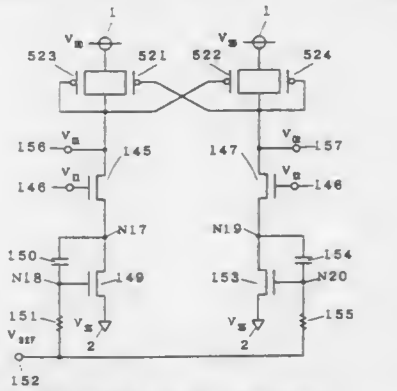
said variable resistance element is an insulated gate type field effect transistor, and

said resistance value switching circuit includes means for reducing the resistance value of said variable resistance element when a power is applied to said semiconductor device.

5,783,957
DIFFERENTIAL AMPLIFIER CIRCUIT, CMOS INVERTER, DEMODULATOR CIRCUIT FOR PULSE-WIDTH MODULATION, AND SAMPLING CIRCUIT

Tadaaki Yamauchi, Hyogo, Japan, assignor to Mitsubishi Denki Kabushiki Kaisha, Tokyo, Japan

Division of Ser. No. 527,209, Sep. 12, 1995, Pat. No. 5,621,343. This application Dec. 3, 1996, Ser. No. 753,917
Claims priority, application Japan, Dec. 26, 1994, 6-322874
Int. Cl.⁶ H03K *5/02*
U.S. Cl. 327—53 25 Claims



16. A differential amplifier circuit comprising:

first and second load each having a first end connected to a first power supply providing a first voltage, and a second end;

a first transistor having a first current electrode connected to said second end of said first load, a control electrode receiving a first input signal, and a second current electrode;

a second transistor having a first current electrode connected to said second end of said second load, a control electrode receiving a second input signal, and a second current electrode;

a third transistor having a first current electrode connected to said second current electrode of said first transistor, a control electrode, and a second current electrode connected to a second power supply providing a second voltage;

a fourth transistor having a first current electrode connected to said second current electrode of said second transistor, a control electrode, and a second current electrode connected to said second power supply;

a first capacitor having a first end connected to said first current electrode of said third transistor, and a second end connected to said control electrode of said third transistor;

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a second capacitor having a first end connected to said first current electrode of said fourth transistor, and a second end connected to said control electrode of said fourth transistor;

first voltage drop means having a first end connected to said control electrode of said third transistor, and a second end connected to a third power supply providing a third voltage at a level intermediate said first and second voltages; and

second voltage drop means having a first end connected to said control electrode of said fourth transistor, and a second end connected to said third power supply,

wherein a potential difference between said first and second signals is amplified and outputted from said first current electrodes of said first and second transistors.

5,783,958

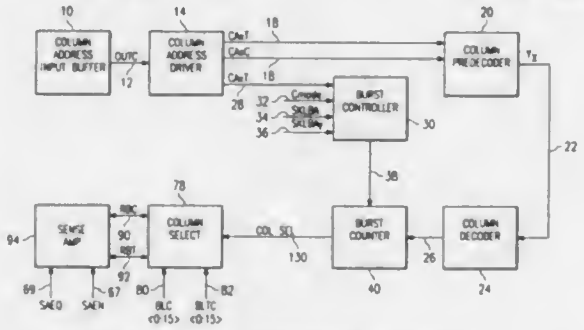
SWITCHING MASTER SLAVE CIRCUIT

Mark A. Lysinger, Carrollton, Tex., assignor to SGS-Thomson Microelectronics, Inc., Carrollton, Tex.

Filed Jan. 19, 1996, Ser. No. 588,648

Int. Cl.^{6} H03K *3/289*

U.S. Cl. 327—202 **18 Claims**



1. A master slave circuit combination, comprising:

an input terminal for receiving input data;

a first master latch circuit coupled to the input terminal for storing data received from said input terminal;

a first clock terminal within the master latch for receiving a first clock signal to transfer data from the input terminal to the master latch;

a first slave latch circuit coupled to an output of the master latch, the first slave latch storing slave data and having an output terminal that provides slave data output;

a second clock terminal within the slave latch for receiving a second clock signal to transfer data from the master latch to the first slave latch;

a logic circuit coupled to the output terminal of the slave latch for logic operation based on the state of the data;

a second master latch coupled to the output terminal of the slave latch for receiving the slave data, the second master latch having an output terminal;

an electrical connection from the second master latch output terminal to a second slave latch; and

a third clock terminal within the second slave latch for receiving a third clock signal to transfer data from the second master latch output to the second slave latch.

5,783,959

HIGH PRECISION CLOCK SIGNAL GENERATOR

Yoshio Yokoyama, Kumagaya, Japan, assignor to Advantest Corp., Tokyo, Japan

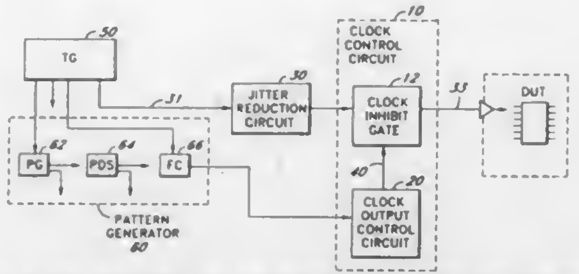
Filed Jun. 21, 1996, Ser. No. 667,412

Claims priority, application Japan, Jun. 22, 1995, 7-179460

Int. Cl.^{6} H04L *7/06;* **H03K** *5/13*

U.S. Cl. 327—292 **7 Claims**

1. A clock signal generator to be used in an IC tester for providing a clock signal to an IC device to be tested, comprising:



a timing generator for generating clock signals and timing signals based on a test program which is a set of instructions stored in said IC tester for performing test operations;

a pattern generator connected to said timing generator to receive said timing signals for producing test pattern signals to be supplied to said IC device based on said test program;

a jitter reduction circuit for receiving said clock signal from said timing generator and reducing a jitter of said clock signal, said jitter reduction circuit being formed with a phase lock loop having a voltage controlled oscillator, a phase comparator and a filter to phase lock an oscillation frequency of said voltage controlled oscillator with a frequency of said clock signal; and

a clock control circuit for inhibiting said clock signal from said jitter reduction circuit from being supplied to said IC device for a inhibit period determined by said test program when a frequency of said clock signal has been changed, said inhibit period being determined on the basis of a time length required for said phase lock loop to lock-in for said clock signal that has been changed.

5,783,960

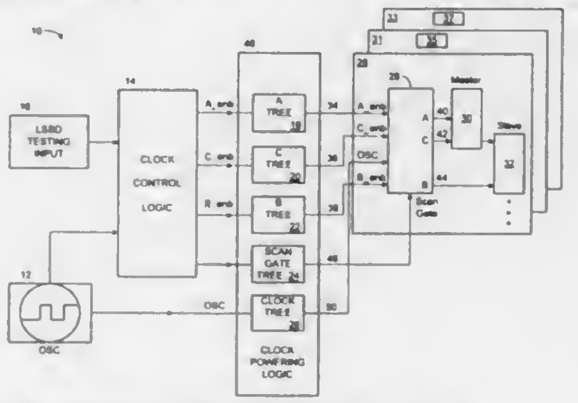
INTEGRATED CIRCUIT DEVICE WITH IMPROVED CLOCK SIGNAL CONTROL

David E. Lackey, Underhill, Vt., assignor to International Business Machines Corporation, Armonk, N.Y.

Continuation of Ser. No. 563,843, Nov. 28, 1995, abandoned. This application Jul. 15, 1997, Ser. No. 893,307

Int. Cl.^{6} H03K *5/13*

U.S. Cl. 327—295 **16 Claims**



1. A semiconductor integrated circuit comprising:

a) an enabling signal generator;

b) signal distribution means for remotely distributing a plurality of enabling signals generated by said enabling signal generator and for remotely distributing a single externally applied oscillator clock signal; and

c) a plurality of remote pulse signal generators, wherein each said remote pulse signal generator includes means for receiving said plurality of enabling signals and said single externally applied oscillator clock signal from said signal distribution means and selectively outputting either a first pulse signal substantially identical in time and duration to a high level of said externally applied oscillator clock signal over a first output line, or a second pulse signal substantially identical in time and duration to a low level of said externally applied oscillator clock signal over a second output line, or both said first and second pulse signals.

5,783,961

INVERTED AMPLIFYING CIRCUIT

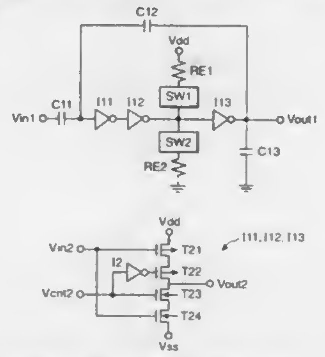
Changming Zhou; Guoliang Shou; Makoto Yamamoto, and Sunao Takatori, all of Tokyo, Japan, assignors to Sharp Kabushiki Kaisha, Osaka, and Yozan, Inc., Tokyo, both of Japan

Filed Dec. 11, 1996, Ser. No. 764,637

Claims priority, application Japan, Dec. 12, 1995, 7-346523

Int. Cl.^{6} H03K *5/153;* **H03H** *11/26*

U.S. Cl. 327—85 **4 Claims**



1. An inverted amplifying circuit comprising:

i) odd number of stages of CMOS inverters serially connected from the first to the last CMOS inverters;

ii) an input capacitance connected to said first CMOS inverter for connecting an input voltage to an input of said first CMOS;

iii) a feedback capacitance for connecting an output of said last CMOS to said input of said first CMOS;

iv) a grounded capacitance for connecting said output of said last CMOS to the ground;

v) a pair of balancing resistances for connecting an output of said CMOS between said first and last CMOS to a supply voltage and the ground; and

vi) MOS switches connected between pMOS and nMOS of all said CMOS and connected between said balancing resistances.

5,783,962

BOOTSTRAP CIRCUIT AND INTEGRATED MEMORY CIRCUIT HAVING THE BOOTSTRAP CIRCUIT

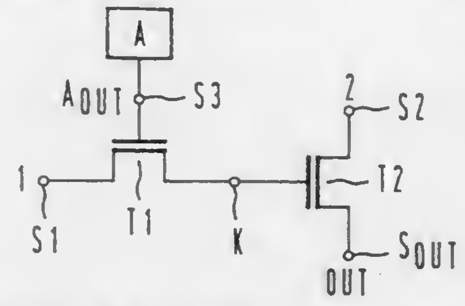
Johann Rieger, Zell, Germany, assignor to Siemens Aktiengesellschaft, Munich, Germany

Filed Jul. 8, 1996, Ser. No. 679,372

Claims priority, application Germany, Jul. 6, 1995, 195 24 658.6

Int. Cl.^{6} H03K *17/16*

U.S. Cl. 327—390 **5 Claims**



1. A bootstrap circuit, comprising:

a transfer transistor and a driver transistor of the same channel type each having two channel terminals and a gate;

a first signal terminal for receiving a first signal and a second signal terminal for receiving a second signal;

one of the channel terminals of said transfer transistor being connected to the gate of said driver transistor;

the other of the channel terminals of said transfer transistor being connected to said first signal terminal;

one of the channel terminals of said driver transistor being connected to said second signal terminal;

the other of the channel terminals of said driver transistor forming an output of the bootstrap circuit; and

a configuration generating a pulsed third signal and having an output connected to the gate of said transfer transistor, said configuration including:

- a pulse generator having an input for receiving a control signal and an output;
- a capacitor having a first electrode to be precharged to a first level of the third signal, the first electrode being connected to the output of said configuration, and said capacitor having a second electrode connected to the output of said pulse generator;
- said pulse generator receiving an edge of the control signal and generating a potential change at the output of said pulse generator from a first potential value to a second potential value and back to the first potential value, causing a potential shift to occur at the first electrode of said capacitor from the first level of the third signal to a second level of the third signal and back to the first level of the third signal;
- a supply potential terminal, and a diode connected between said supply potential terminal and the first electrode of said capacitor, for precharging to the first level of the third signal; and
- another diode being connected between the first electrode of said capacitor and said supply potential terminal and being connected antiparallel to said first-mentioned diode, for limiting the second level of the third signal;

the second signal having an edge extending from a first level to a second level and beginning at a bootstrap time;

the first signal having a precharging level between the first level and the second level of the second signal occurring no later than another time being at the latest equal to the bootstrap time;

after the other time, the third signal having the first level being equal to or located on the other side of the level of the first signal as seen from the second level of the second signal; and

before the other time, the third signal having the second level being on the same side of the precharging level of the first signal as seen from the second level of the second signal.

5,783,963

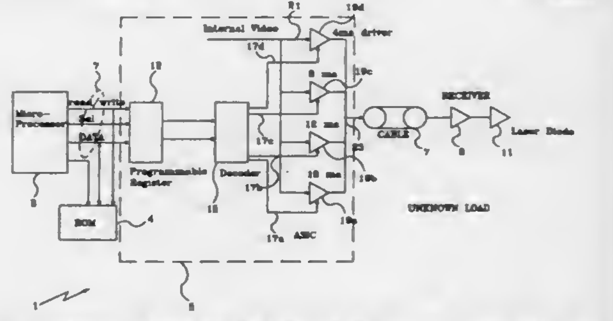
ASIC WITH SELECTABLE OUTPUT DRIVERS

Sean Foster Garnett, Lexington; Terry Lee Parker, Versailles; John Parker Richey; Warren John Spina, both of Lexington, and Larry Wayne True, Georgetown, all of Ky., assignors to Lexmark International, Inc., Lexington, Ky.

Filed Feb. 29, 1996, Ser. No. 608,902

Int. Cl.^{6} H03H *11/28;* **H03K** *3/01*

U.S. Cl. 327—306 **4 Claims**



1. A method of making an Application Specific Integrated Circuit (ASIC) for control of an apparatus with the reduction of

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electromagnetic noise from signals from an output of said ASIC comprising the steps of:

estimating a lowest power required by a load of said output of said ASIC when said ASIC is functioning in said apparatus, and

obtaining for use in said apparatus identical ASIC's comprising special purpose logic circuitry to implement a predetermined function by processing signals input to said ASIC and providing output signals,

each of said ASIC's having a plurality of drivers, each driver of said plurality of drivers receiving a signal input to each of said drivers and providing an output signal,

said output signal of each of said drivers being of a different power than the output signal each of of the additional ones of said plurality of drivers a the range of said powers including a correct power for said estimated load to reduce electromagnetic noise when driving said estimated load,

said output signals of said special purpose logic being connected to provide output signals input to said drivers,

said drivers being selectable for operation or not operation by a predetermined signal to a control input for each driver, and

a register to store code signals in said register and to provide output signals unique to the code signals stored in said register, said output signals of said register being connected to said control inputs of said drivers to select for operation one of said drivers.

5,783,964

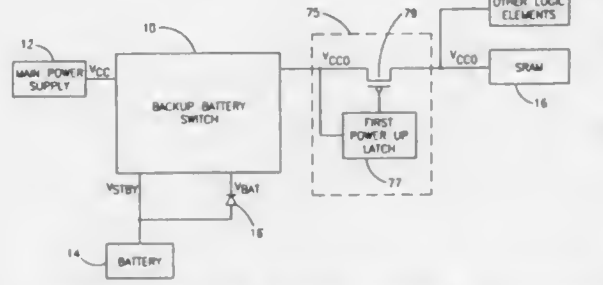
BACKUP BATTERY SWITCH WITH FIRST POWER UP CONTROL

Boaz Eltan, Ra'anana, Israel, assignor to Waferscale Integration, Inc., Fremont, Calif.

Filed Nov. 18, 1996, Ser. No. 749,616

Int. Cl.⁶ H03K *17/62*

U.S. Cl. 327—408 **3 Claims**



1. A switching circuit for switching between a main power supply and a battery power supply only after first power up, the switching circuit comprising:

a switch connected on input to said main and battery power supplies for switching therebetween and for providing one of said main and battery power supplies to a switched power supply node;

a first power-up transfer transistor connected on input to said switched power supply node and having a gate; and

a first power up latch, powered by a switched power supply from said switched power supply node and connected on output to said gate of said first power-up transfer transistor, said first power up latch producing an activation signal to said gate upon and after first power up of said main power supply.

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BIAS CIRCUIT

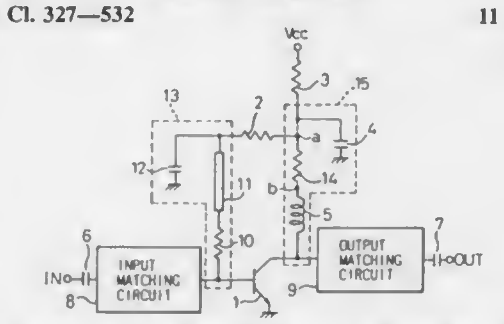
Hajime Iwatsuki, and Hideo Sugawara, both of Kawasaki, Japan, assignors to Fujitsu Limited, Kanagawa, Japan

Filed Jun. 14, 1996, Ser. No. 663,904

Claims priority, application Japan, Sep. 20, 1995, 7-241903

Int. Cl.⁶ H01J *19/82*

U.S. Cl. 327—532 **11 Claims**



3. A bias circuit which establishes an operating point of a transistor, said bias circuit comprising:

an input biasing means which is connected with a signal input terminal of the transistor, and which applies a bias current to said signal input terminal from a power supply, said input biasing means including an input frequency selection means which passes an AC input signal input to said signal input terminal within a prescribed frequency band, and which attenuates an AC input signal input to said signal input terminal outside said prescribed frequency band; and

an output biasing means which is connected with a signal output terminal of the transistor, and which applies a bias current to said signal output terminal from a power supply, said output biasing means including an output frequency selection means which passes an AC output signal output from said signal output terminal outside said prescribed frequency band.

5,783,966

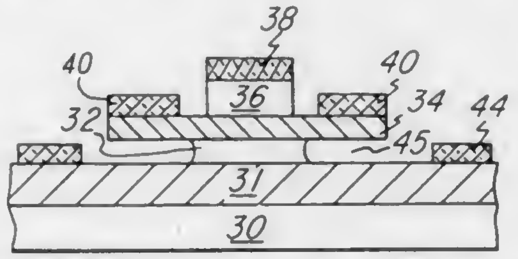
REDUCING JUNCTION CAPACITANCE AND INCREASING CURRENT GAIN IN COLLECTOR-UP BIPOLAR TRANSISTORS

Darrell Hill, Plano, Tex.; Shou-Kong Fan, Taipei, Taiwan, and Ali Khatibzadeh, Plano, Tex., assignors to Texas Instruments Incorporated, Dallas, Tex.

Division of Ser. No. 472,081, Jun. 7, 1995, which is a continuation-in-part of Ser. No. 969,605, Oct. 30, 1992, abandoned. This application Jan. 16, 1997, Ser. No. 783,736

Int. Cl.⁶ H01L *27/082;27/102;29/70;31/11*

U.S. Cl. 257—571 **5 Claims**



1. A bipolar transistor device comprising:
a. a substrate of GaAs;
b. a doped emitter contact layer on said substrate;
c. a doped emitter layer on top of said emitter contact layer, said emitter layer of AlGaAs with portions of GaAs, said emitter layer having same conductivity type as said emitter contact layer;
d. a doped base epilayer of GaAs on top of said emitter layer, said base epilayer doped opposite conductivity type of said emitter layer;

e. a doped collector epilayer of AlGaAs on top of said base layer, said collector epilayer doped same conductivity type as said emitter layer to provide said bipolar device;
f. a collector contact on said collector layer;
g. a base contact on said base layer;
h. an emitter contact on said emitter contact layer; and
i. said emitter layer being undercut beneath portions of said base layer only in regions of AlGaAs.

5,783,967

FREQUENCY SHIFT KEYING DEMODULATION CIRCUIT USING LOGIC CIRCUITRY

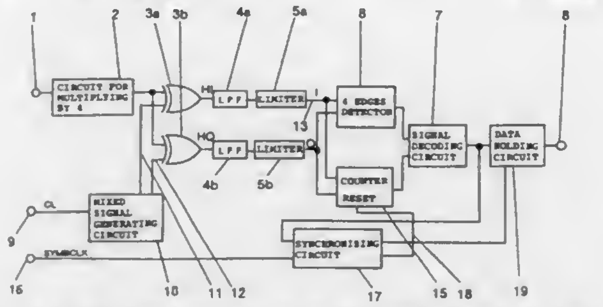
Kazuhiko Takaya, Chiba, Japan, assignor to Seiko Instruments Inc., Japan

Filed Sep. 20, 1996, Ser. No. 717,493

Claims priority, application Japan, Sep. 21, 1995, 7-243474; Sep. 21, 1995, 7-243476; Sep. 12, 1996, 8-241675

Int. Cl.⁶ H03D *3/00;* **H04L** *27/14*

U.S. Cl. 329—303 **18 Claims**



1. An FSK demodulation circuit for demodulating an FSK signal, comprising: a frequency multiplier circuit for multiplying the frequency of the FSK signal; a mixed signal generation circuit for outputting a first signal and a second signal, the frequency and phase of the first signal being the same as those of the frequency multiplied FSK signal, and the second signal being out of phase from the first signal by 90 degrees; a first exclusive OR circuit responsive to the frequency multiplied FSK signal and the first signal and which operates as a mixer circuit; a second exclusive OR circuit responsive to the frequency multiplied FSK signal and the second signal and which operates as a mixer circuit; a first low pass filter responsive to an output signal of the first exclusive OR circuit for obtaining a baseband frequency component thereof; a first limiter responsive to the output signal of the first exclusive OR circuit for digitizing the output signal of the first exclusive OR circuit to produce a first digital signal; a second low pass filter responsive to an output signal of the second exclusive OR circuit for obtaining a baseband frequency component thereof; a second limiter responsive to the output signal of the second exclusive OR circuit for digitizing the output signal of the second exclusive OR circuit to produce a second digital signal and a phase detector responsive to the first digital signal and the second digital signal for carrying out a phase detection operation on the basis of the difference in phase between the first and second digital signals.

5,783,968

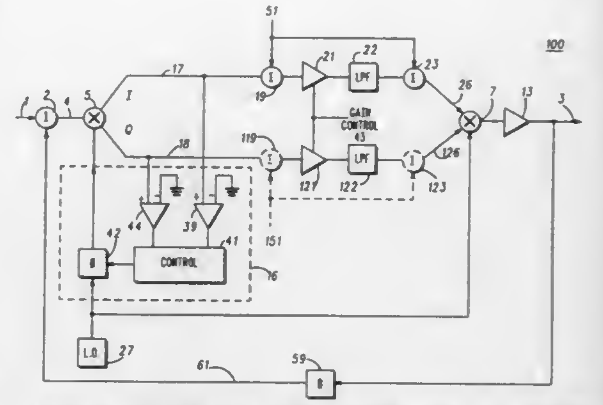
RF AMPLIFIER METHOD AND APPARATUS

John Russel Melton, Bolingbrook, Ill., assignor to Motorola, Inc., Schaumburg, Ill.

Filed Nov. 14, 1996, Ser. No. 749,134

Int. Cl.⁶ H03F *1/34;* **H03G** *3/20;* **H04B** *1/04*

U.S. Cl. 330—107 **32 Claims**



1. In an RF amplifier including a baseband reference signal input terminal and an RF signal input terminal and including a feedback loop with a loop phase, a method of amplifying an RF signal, comprising the steps of:

(a) stabilizing the RF amplifier during a stabilizing mode by applying a baseband reference signal to the feedback loop and adjusting the loop phase to an optimum value, the baseband reference signal being applied by means of the baseband reference signal input terminal; and,

(b) subsequent to the stabilizing mode, applying the RF signal and amplifying the RF signal during an amplifying mode, the RF signal being applied by means of the RF signal input terminal.

5,783,969

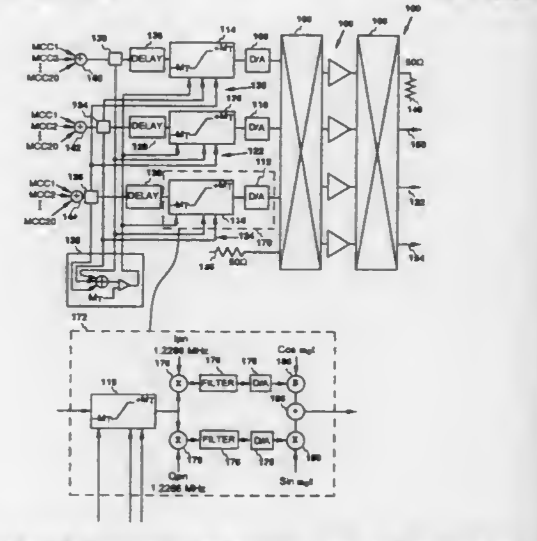
METHOD AND SYSTEM FOR PREVENTING AN AMPLIFIER OVERLOAD CONDITION IN A HYBRID MATRIX AMPLIFIER ARRAY

Yuda Yehuda Luz, Euless, Tex., assignor to Motorola, Inc., Schaumburg, Ill.

Filed Sep. 4, 1996, Ser. No. 708,864

Int. Cl.⁶ H03F *3/68*

U.S. Cl. 330—124 R **19 Claims**



1. A method for preventing an amplifier overload condition in a hybrid matrix amplifier array comprising the steps of:

measuring signal amplitude of each of a plurality of input signals;

in response to said signal amplitude measurements, estimating an overload condition that will result in an amplifier overload in said hybrid matrix amplifier array; and

in response to estimating said overload condition, modifying said signal amplitude of at least one of said plurality of input signals to prevent said overload condition in said hybrid matrix amplifier array.

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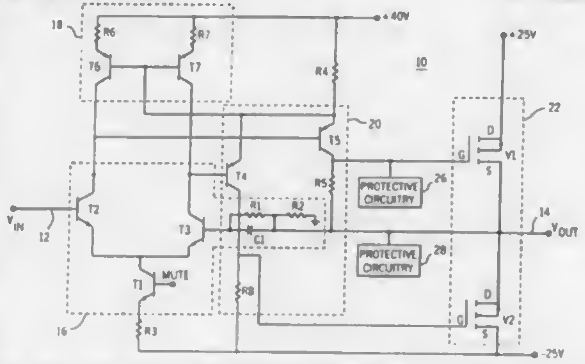
5,783,970
DRIVER FOR N-CHANNEL VFET OUTPUT STAGE OF POWER AMPLIFIER

Joseph J. Pleitz, Tempe, Ariz., assignor to Mitek Corporation, Phoenix, Ariz.

Continuation-in-part of Ser. No. 506,412, Jul. 24, 1995, Pat. No. 5,631,608. This application Oct. 25, 1996, Ser. No. 738,412

Int. Cl.^{6} H03F *3/26*

U.S. Cl. 330—269 **16 Claims**



1. The input stage of an audio amplifier for use with an output stage having first and second N-channel VFETS, each VFET having a gate terminal and a source terminal, VFET gate-to-source biasing voltages dropping as VFET temperature increases, the amplifier providing positive and negative DC voltage sources, the input stage comprising:

a feedback means including at least one transistor that is linked to the VFETs such that the VFET gate-to-source biasing voltages are dependent upon a potential drop associated with the transistor, the transistor potential drop decreasing as transistor temperature increases, the transistor located proximate the VFETs so that the transistor temperature is effected by a VFET temperature;

wherein, as the VFET temperature changes, the transistor voltage drop changes so as to substantially maintain the VFET gate-to-source biasing voltages within a desired region.

5,783,971
LOOP FILTER OF A PHASE-LOCKED LOOP

André Dekker, Oulu, Finland, assignor to Nokia Telecommunications Oy, Espoo, Finland

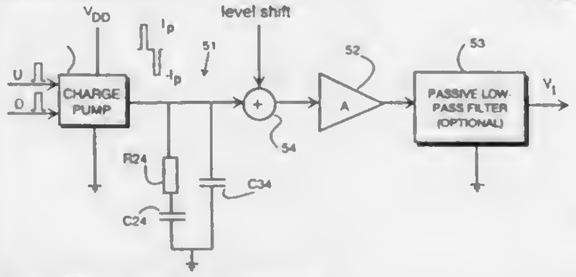
PCT No. PCT/FR96/00150, § 371 Date Dec. 4, 1996, § 102(e) Date Dec. 4, 1996, PCT Pub. No. WO96/31951, PCT Pub. Date Oct. 10, 1996

PCT Filed Mar. 12, 1996, Ser. No. 750,059

Claims priority, application Finland, Apr. 4, 1995, 951604

Int. Cl.^{6} H03L *7/089;8/093*

U.S. Cl. 331—17 **4 Claims**



1. A phase-locked loop containing

an oscillator controlled by a voltage (V_t),

a phase detector with a first input for receiving a reference signal and a second input for receiving a oscillator signal (f_{vco}) obtained from a voltage-controlled oscillator output, possibly divided in a frequency divider and which in response to the difference of the input signals generates U (up) and D (down) pulses,

a charge pump which converts the U and D pulses conducted thereto into bipolar current pulses of the output, the current of which is essentially independent of the output voltage,

integration means for converting the pulses provided by the charge pump into the tuning voltage (V_t) of the voltage-controlled oscillator,

characterized in that the integration means comprise a passive integrator (**51**) to which the pulses provided by the charge pump are conducted for forming an integrated voltage, and an operational amplifier (**52**), to the non-inverting input of which said integrated voltage is conducted and the output voltage of which is the tuning voltage (V_t) of the voltage-controlled oscillator, whereby the passive integrator (**51**) protects the operational amplifier (**52**) against current pulses.

5,783,972
POWER SAVING PLL CIRCUIT

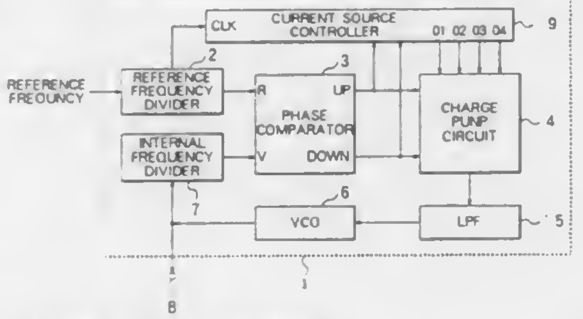
Masato Nishikawa, Tokyo, Japan, assignor to NEC Corporation, Tokyo, Japan

Filed Nov. 27, 1996, Ser. No. 757,806

Claims priority, application Japan, Nov. 29, 1995, 7-311247

Int. Cl.^{6} H03L *7/089;7/18*

U.S. Cl. 331—17 **9 Claims**



1. A phase lock loop comprising:

a voltage controlled oscillator section for receiving a first signal representing a control voltage to output a second signal having a first frequency based on the control voltage;

a phase comparator for comparing a first phase of the second signal against a second phase of a reference signal having a reference frequency to output a first or second phase error signal representing a magnitude of a phase lead or phase lag of the first phase with respect to the second phase;

a current controller for receiving the first and second phase error signals to output a current control signal representing a magnitude of the phase lead or phase lag, the current control signal being represented by n bits wherein n is not lower than two; and

a control voltage generating section for receiving the first and second phase error signals and current control signal to generate the first signal based on the current control signal.

5,783,973
TEMPERATURE INSENSITIVE SILICON OSCILLATOR AND PRECISION VOLTAGE REFERENCE FORMED THEREFROM

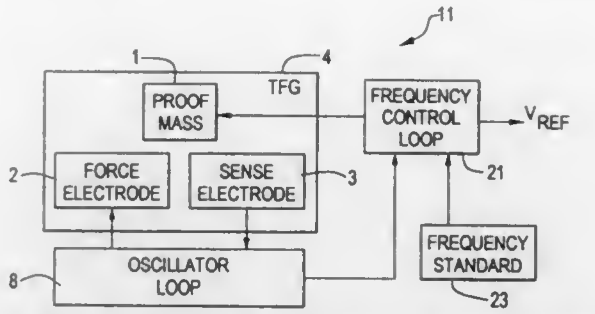
Marc S. Weinberg, Needham; Paul A. Ward, Roslindale, and Anthony S. Kourepenis, Acton, all of Mass., assignors to The Charles Stark Draper Laboratory, Inc., Cambridge, Mass.

Filed Feb. 24, 1997, Ser. No. 804,796

Int. Cl.^{6} H03L *7/00*

U.S. Cl. 331—35 **16 Claims**

1. A reference oscillator having an inherent stability against temperature change, employing a micromechanical, silicon tuning fork gyroscope disposed on a glass substrate and having a proof mass translated by a force electrode and sensed by a sense electrode, said oscillator comprising:



a voltage source proximate said gyroscope providing a voltage signal to said force electrode; and

sense electronics proximate said gyroscope and in communication with said sense electrode for receiving a proof mass motion signal and for providing a reference frequency extracted therefrom.

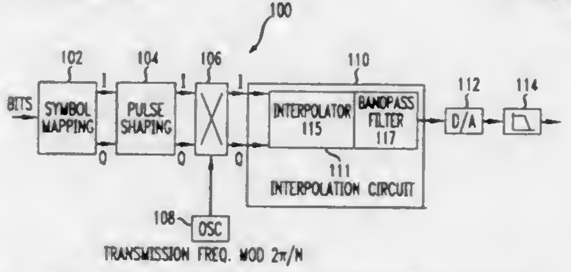
5,783,974
DIGITAL INTERPOLATION UP SAMPLING CIRCUIT AND DIGITAL MODULATOR USING SAME

Joshua L. Koslov, Hopewell; Frank A. Lane, Medford Lakes, and Carl G. Scarpa, Plainsboro, all of N.J., assignors to Hitachi America, Ltd., Tarrytown, N.Y.

Filed Jan. 27, 1997, Ser. No. 789,439

Int. Cl.^{6} H04L *27/20;27/36*

U.S. Cl. 332—103 **23 Claims**



1. An apparatus for processing digital data representing an information signal having a first sampling frequency, to produce a signal having a sampling frequency which is higher than the first sampling frequency, the apparatus comprising:

an interpolation circuit including:

a first interpolation stage, the first interpolation stage including:

i. a first signal padding circuit which generates a first padded signal from the information signal, the padded signal having a second sampling frequency that is a multiple of the first sampling frequency and including a representation of the information signal and an information signal image; and

ii. a first filter for generating a first filtered signal by passing the representation of the information signal image and removing the representation of the information signal.

5,783,975
CIRCUIT SELECTION DEVICE

Taisuke Nakamura, Tokyo, Japan, assignor to NEC Corporation, Tokyo, Japan

Filed Jan. 16, 1997, Ser. No. 783,870

Claims priority, application Japan, Jan. 18, 1996, 8-006538

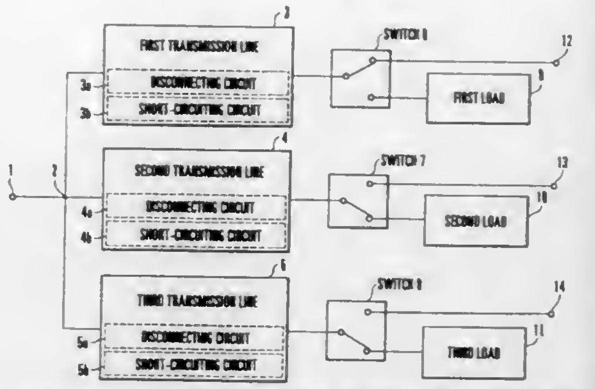
Int. Cl.^{6} H01P *1/10*

U.S. Cl. 333—101 **7 Claims**

1. A circuit selection device comprising:

a first terminal to/from which an RF signal is input/output;

a plurality of transmission lines each having one end connected to said first terminal;



a plurality of second terminals each arranged in correspondence with the other end of each of said transmission lines to selectively input/output an RF signal input/output to/from said first terminal;

a plurality of loads for impedance matching, each of said loads being arranged in correspondence with the other end of each of said transmission lines; and

a plurality of switches each connected to the other end of each of said transmission lines and being switched/connected to one of said second terminal and said load which correspond to the other end of each of said transmission lines,

wherein when one of said switches is switched to a second terminal side, all of said remaining switches are switched to a load side, and the combined impedance of the transmission lines and the loads at the signal frequency presents an open-circuit impedance when viewed from the first terminal.

5,783,976
COMPOSITE HIGH FREQUENCY APPARATUS AND METHOD OF FORMING SAME

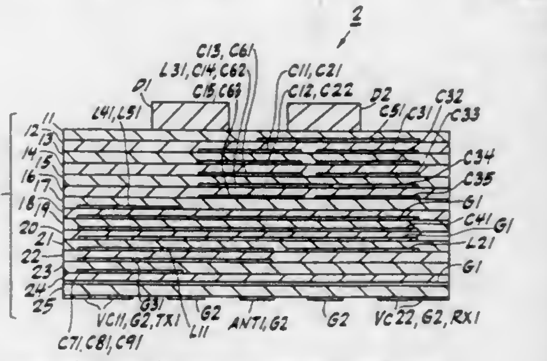
Koji Furutani, Shiga-ken; Norio Nakajima, Takatsuki; Ken Tonegawa, Kyoto; Mitsuhide Kato; Koji Tanaka, both of Shiga-ken, and Tatsuya Ueda, Kyoto, all of Japan, assignors to Murata Manufacturing Co., Ltd., Japan

Filed Aug. 24, 1995, Ser. No. 518,667

Claims priority, application Japan, Sep. 28, 1994, 6-233204

Int. Cl.^{6} H05K *1/00;* **H01P** *1/20*

U.S. Cl. 333—134 **9 Claims**



1. A composite high frequency apparatus comprising:

a single ceramic chip including a plurality of laminated ceramic layers and a plurality of co-fired electrodes formed between the laminated ceramic layers,

wherein a first part of the ceramic layers and a first part of the co-fired electrodes constitute a high frequency switch comprising capacitors and strip lines, and

a second part of the ceramic layers and a second part of the co-fired electrodes constitute a high frequency filter comprising capacitors and strip lines, and

the high frequency switch is electrically connected to the high frequency filter within the single ceramic chip.

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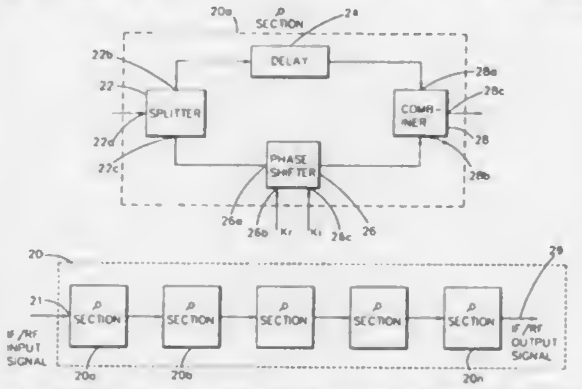
5,783,977
TUNABLE AND BANDWIDTH PROGRAMMABLE MULTI-ELEMENT FILTER SYSTEM

Frank Chethik, Palo Alto, Calif., assignor to Loral Aerospace Corporation, New York, N.Y.

Filed Feb. 7, 1996, Ser. No. 597,844

Int. Cl.⁶ H03H *7/01*

U.S. Cl. 333—174 **25 Claims**



20. An RF bandpass filter having a tunable bandwidth and center frequency, said bandpass filter comprising a cascade of individual filter elements, each filter element comprising a signal splitter which simultaneously feeds a signal to a delay line and to an adjustable phase shifter in parallel with said delay line, and means for summing the delayed and phase shifted signals; each filter element exhibiting periodic passbands and alternating transmission zeroes, and each successive filter element of said cascade of filter elements having a decreased delay in said delay line from a preceding filter element and exhibiting an increase in the frequency intervals between stopband zeroes.

5,783,978
BAND REJECTION FILTER HAVING A PLURALITY OF DIELECTRIC RESONATOR WITH CUTOUT PORTIONS HAVING ELECTRODES THEREIN

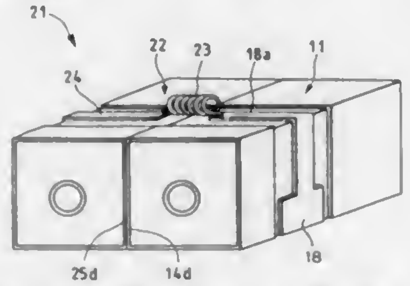
Toshiharu Noguchi, and Hiroshi Ono, both of Miyazaki-ken, Japan, assignors to Matsushita Electric Industrial Co., Ltd., Osaka, Japan

Filed Jun. 18, 1996, Ser. No. 665,712

Claims priority, application Japan, Jun. 21, 1995, 7-154335

Int. Cl.⁶ H01P *1/205*

U.S. Cl. 333—202 **8 Claims**



1. A band rejecting filter comprising a plurality of dielectric resonators, including at least one pair of adjacent dielectric resonators adjacent to each other, said plurality of dielectric resonators arranged in parallel to each other, and including at least one inductor element connecting said pair of adjacent dielectric resonators, each of the dielectric resonators comprising:

- a dielectric base having a penetrating hole, the dielectric base having an outer side surface, an inner side surface, a first end surface and a second end surface;
- an outer conductive layer arranged on the outer side surface of the dielectric base, the outer conductive layers of each pair of adjacent dielectric resonators being electrically connected with each other;
- an inner conductive layer arranged on the inner side surface of the dielectric base to surround the penetrating hole;
- a connecting conductive layer arranged on the first end surface of the dielectric base for connecting the outer conductive layer and the inner conductive layer, the second end surface of the dielectric base being exposed to form an open end;
- an outer conductor layer cut-out groove arranged on the outer side surface of the dielectric base to expose a part of the outer side surface of the dielectric base on which the outer conductive layer is not arranged, the outer conductor layer cut-out groove being surrounded by the outer conductive layer, and a region adjacent the open end of the dielectric base being totally surrounded by an end portion of the outer conductive layer; and
- an independent coupling electrode arranged on the outer side surface of the dielectric base to be surrounded by the outer conductor layer cut-out groove so that the independent coupling electrode is not connected with the outer conductive layer, the independent coupling electrodes of each pair of adjacent dielectric resonators being connected with each other through a respective inductor element.

5,783,979
DIELECTRIC RESONATOR DEVICE HAVING A SINGLE WINDOW FOR COUPLING TWO PAIRS OF RESONATOR COLUMNS

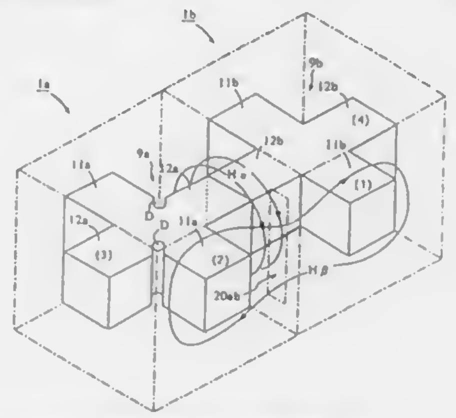
Masamichi Andoh; Tomiya Sonoda, both of Nagaokakyo, and Taiyo Nishiyama, Takatusuki, all of Japan, assignors to Murata Manufacturing Co., Ltd., Japan

Filed Dec. 12, 1995, Ser. No. 570,974

Claims priority, application Japan, Dec. 15, 1994, 6-311957

Int. Cl.⁶ H01P *1/20;7/10*

U.S. Cl. 333—202 **33 Claims**



1. A dielectric resonator device comprising:

- a pair of adjacent TM multiplex mode dielectric resonators each of which is composed of at least two dielectric columns crossing each other in a respective cavity surrounded by a corresponding conductor;
- further comprising a magnetic-field-coupling window consisting essentially of a single substantially linear opening defined in said conductors which allows, between the dielectric columns of said two adjacent dielectric resonators, transmission of both a magnetic field of a first pair of dielectric columns which extend in a first direction and having axes which are substantially the same, and a magnetic field of a second pair of dielectric columns which extend in a second direction and having axes which are substantially parallel to each other.

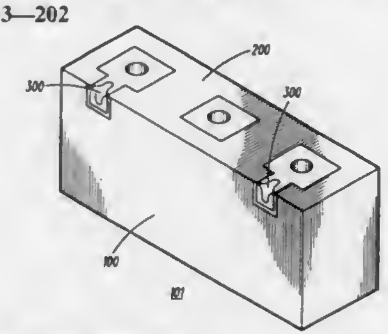
5,783,980
CERAMIC FILTER WITH NOTCH CONFIGURATION

Raymond G. Blair, and Patrick E. Lopez, both of Albuquerque, N. Mex., assignors to Motorola Inc., Schaumburg, Ill.

Filed Jun. 20, 1996, Ser. No. 667,903

Int. Cl.⁶ H01P *1/202*

U.S. Cl. 333—202 **12 Claims**



1. A ceramic filter, comprising:

- a filter body comprising a block of dielectric material and having top, bottom, and side surfaces, and having a plurality of metallized through-holes extending from the top surface to the bottom surface defining respective resonators, the top, bottom, and side surfaces being substantially covered with a conductive material defining a metallized layer with the exception that a portion of the top surface is unmetallized;
- conductive wrap-around input-output pads on at least one of the side surfaces and at least immediately surrounded by an unmetallized area of dielectric material which electrically isolate the conductive wrap-around input-output pads from the metallized layer; and
- the conductive wrap-around input-output pads having an inclined notch with a curved apex defining a metallized radius of curvature which maintains conductive continuity substantially throughout the conductive wrap-around input-output pads.

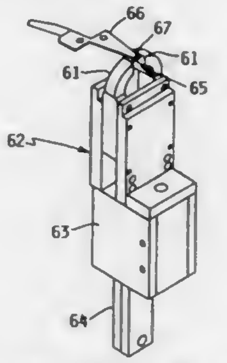
5,783,981
MAGNETIC REINITIALIZATION OF THIN FILM MAGNETORESISTIVE REPRODUCING HEADS AT THE SUSPENSION LEVEL OF MEDIA DRIVE MANUFACTURING

Samir Elias Abboud, Hayward, Calif.; Nickolas Christopher Apuzzo, Rochester, Minn.; Jeffrey Bernard Brown, Rochester, Calif.; Earl Albert Cunningham, Rochester, Minn.; David Malcolm Hannon, Palo Alto, Calif.; Raymond Patrick Mallette, Shelburne, Vt.; Paul Sheldon Tyler; Steven Harry Voss, both of Rochester, Minn., and Albert John Wallash, Morgan Hill, Calif., assignors to International Business Machines Corporation, Armonk, N.Y.

Division of Ser. No. 129,293, Sep. 29, 1993. This application Jun. 5, 1995, Ser. No. 462,348

Int. Cl.⁶ H01F *7/20*

U.S. Cl. 335—284 **18 Claims**



1. An apparatus for magnetically setting a magnetic state of a hard-biased magnetoresistive device, comprising:

- opposing unmagnetized pole members forming a magnetizing air gap, the pole members being composed of a soft magnetic material;
- magnetized member with a magnetic field having a field strength in the range of 450 to 4500 gauss, the magnetized member being slideably disposed with respect to the pole members;
- means connected to the magnetized member for moving the magnetized member between the pole members:
  - toward the air gap to a first position at which the pole members conduct a magnetic field from the magnetized member to the air gap; and
  - away from the air gap to a second position at which the pole members do not conduct the magnetic field from the magnetized member to the air gap;
- means at the second position including a magnetic shield composed of soft magnetic material for receiving the magnetized member and confining the magnetic field of the magnetized member to the magnetic shield; and
- a disk drive head suspension assembly for moving a hard-biased magnetoresistive device into and out of the air gap in timed relationship with movement of the magnetized member.

5,783,982
TRANSFORMER WITH CAP OVER WINDINGS

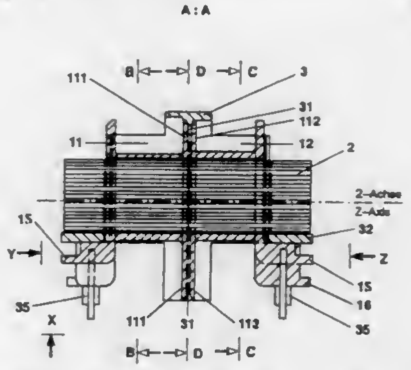
Reinhard Lecheler, Neuburg an der Donau, Germany, assignor to Patent-Treuhand-Gesellschaft fur elektrische Gluelampen mbH, Munich, Germany

Filed Feb. 21, 1997, Ser. No. 804,704

Claims priority, application Germany, Feb. 29, 1996, 196 07 714.1

Int. Cl.⁶ H01F *27/02;27/30*

U.S. Cl. 336—9 **18 Claims**



1. A transformer with at least one primary winding and at least one secondary winding, with a winding unit (**1**) on which the primary winding is arranged in a first chamber (**11**) and on which the secondary winding is arranged in a second chamber (**12**), in which a core (**2**) is introduced, and which has an uptake element (**13**) for a cap (**3**), is hereby characterized by the fact that the cap (**3**) extends in opposite directions parallel to an axis defined by the first and second chambers so as to cover only a partial region of the primary winding and the secondary winding, and the primary winding and secondary winding in the partial region are adjacent to each other, and that the cap (**3**) is configured with an annular plate (**32**) arranged parallel to the cap (**3**), a first separating wall (**31**) essentially arranged perpendicularly to the cap (**3**), and the wall is arranged between the first chamber (**11**) and the second chamber (**12**) in an assembled state.

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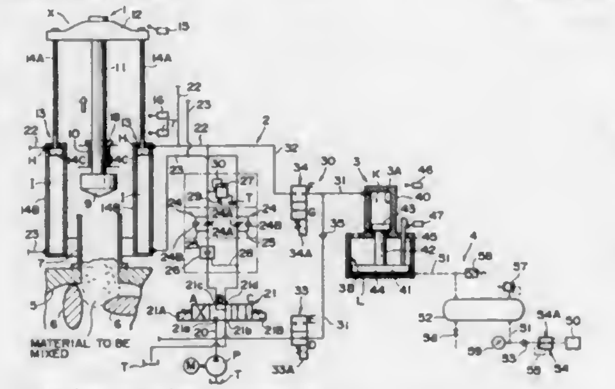
5,783,983
INTERNAL MIXER

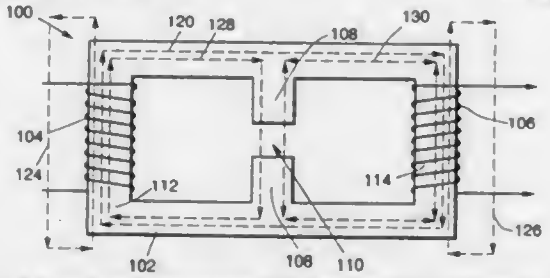
Kashiro Ureshino; Norifumi Yamada; Ko Takakura, and Yoshinori Kurokawa, all of Takasago, Japan, assignors to Kabushiki Kaisha Kobe Seiko Sho, Kobe, Japan
Filed Jan. 31, 1997, Ser. No. 791,620
Claims priority, application Japan, Jan. 31, 1996, 8-038874
Int. Cl.^{6} B01F *7/02*
U.S. Cl. 336—76.7 **4 Claims**



1. An internal mixer, comprising:
- a floating weight disposed contiguously with an internal mixer main body, whereby said floating weight is elevatable in a hopper to which a material to be mixed is charged;
- at least one hydraulic cylinder mechanically interfaced with said floating weight, said cylinder disposed contiguously with the internal mixer main body and, said cylinder including a hydraulic side for lowering said floating weight;
- a pneumatic/hydraulic pressure conversion means for pressure conversion, said conversion means including a hydraulic side and a pneumatic side, said conversion means providing pressure conversion between said hydraulic and pneumatic sides, said conversion means disposed separately from the internal mixer main body, said hydraulic side of said hydraulic cylinder for lowering said floating weight being fluidically connected with the hydraulic side of said pneumatic/hydraulic pressure conversion means.

5,783,984
METHOD AND MEANS FOR COMBINING A TRANSFORMER AND INDUCTOR ON A SINGLE CORE STRUCTURE

Carl Edward Keuneke, South Whitley, Ind., assignor to Hughes Electronics, Los Angeles, Calif.
Filed Jun. 16, 1995, Ser. No. 491,554
Int. Cl.^{6} H01F *21/08;17/06*
U.S. Cl. 336—155 **6 Claims**



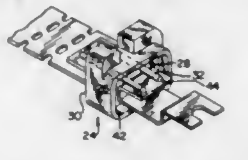
1. An integrated transformer and inductor on a monolithic core structure to provide an impedance matching function and an inductor in series with a secondary of said transformer which comprises:
- (a) a transformer core structure having a primary leg, a secondary leg, and a center leg containing an air gap, whereby said air gap provides control of an inductor value;
- (b) a primary winding on said primary leg; and
- (c) a secondary winding on said secondary leg wherein a secondary-to-primary turns ratio of said primary windings is determined by

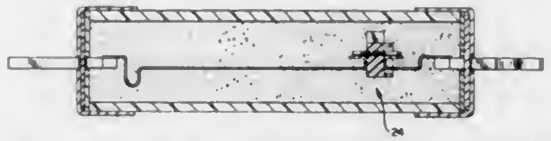
$$N_s/N_p=V_{Rl}/V_{in}$$

where N_s= a number of turns of said secondary winding,
N_p= a number of turns of said primary winding,
V_{Rl}= a desired RMS voltage across a load resistance at a resonant frequency, and
V_{in}= an RMS voltage of a signal applied to said primary winding at said resonant frequency.

5,783,985
COMPRESSIBLE BODY FOR FUSE

Joseph W. Kowalik, Skokie; Heraclio R. Gomez, Northbrook, and G. Todd Dietsch, Park Ridge, all of Ill., assignors to Littelfuse, Inc., Des Plaines, Ill.
Filed Apr. 25, 1997, Ser. No. 842,966
Int. Cl.^{6} H01H *85/08;85/38*
U.S. Cl. 337—278 **7 Claims**

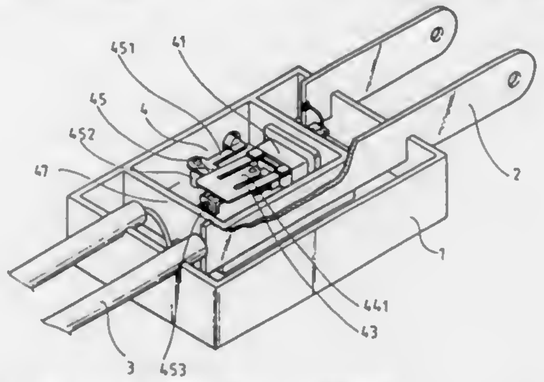




1. A component for an electrical or electronic fuse, said component comprising:
- a. a body of resilient, compressible material having a front face and a rear face;
- b. a fusible element;
- c. a passageway within said body through which said fusible element extends; and
- d. at least one of said faces including a flange section extending outwardly from said face.

5,783,986
PLUG WITH SECURITY DEVICE HAVING BIMETAL AND RESTORING BUTTON

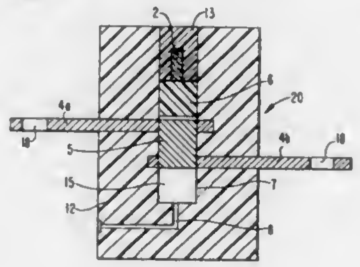
Tse Chuan Huang, 1Fl., 16, Sublane 39, Lane 30, Wan Li St., Taipei, Taiwan
Filed Dec. 12, 1995, Ser. No. 570,934
Int. Cl.^{6} H01H *37/70*
U.S. Cl. 337—348 **7 Claims**

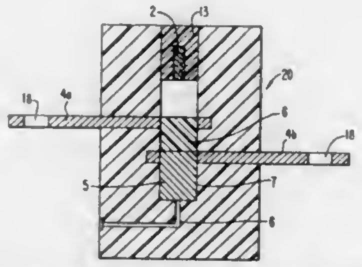


1. A plug with a security device, comprising:
- a housing;
- a plurality of electrically conductive insertion plates adapted to be inserted into a power socket extending from the housing;
- conductive wires extending from the housing and connected to the insertion plates;
- and a security device connected between at least one insertion plate and one conductive wire the security device including a disconnector seat disposed in the housing, a thermal bimetal blade connected to the disconnector seat and electrically connected to the at least one insertion plate, the bimetal blade having two lateral portions and a middle portion integrally associated with each other at first ends and a resilient plate extending from the middle portion, a movable contact located on an end of the resilient plate, a fixed contact located on the disconnector seat and electrically connected with said one conductive wire, whereby the movable contact normally is in a first position in electrical contact with the fixed contact, the middle position comprising a bent portion, whereby, when a current above a predetermined value passes through the plug, the bimetal plate bends to a second position wherein the movable contact is out of contact with the fixed contact the bent portion keeping the bimetal blade in the second position until acted upon by a restoring force.

5,783,987
PYROTECHNIC HIGH-CURRENT SAFETY FUSE ELEMENT

Heinz Kern, Furth, and Gerhard Kordel, Nuremberg, both of Germany, assignors to Dynamit Nobel Aktiengesellschaft, Troisdorf, Germany
Filed Jun. 22, 1995, Ser. No. 494,571
Claims priority, application Germany, Jun. 28, 1994, 44 22 177.0
Int. Cl.^{6} H01H *37/76;85/00*
U.S. Cl. 337—401 **10 Claims**

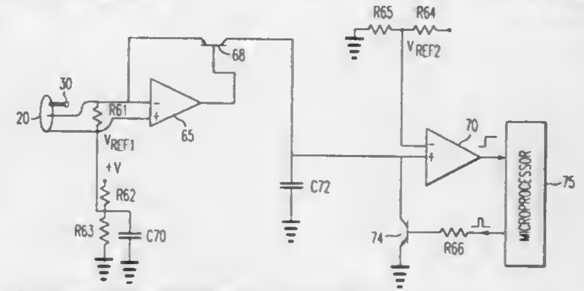




1. A pyrotechnic high-current fuse element for interrupting a flow of current in a current conductor located in a circuit to be protected by ignition of a pyrotechnic charge when the current strength in the circuit exceeds a threshold value, said high-current fuse element being a separate component that can be installed in the circuit to be protected, and comprising two buses overlapping one another at first ends with a gap therebetween; a conducting contact pin connecting said buses in an electrically conducting manner with one another by bridging the gap, said contact pin being moved into an open position by the ignition of pyrotechnic charge from a contact or closed position, second ends of said buses being adapted to be connected to the ends of the current conductor; and an insulating punch provided in a housing hole of a housing and abutting the contact pin, a force of the pressure from ignited pyrotechnic charge being transmitted to the contact pin through the insulating punch, wherein the insulating punch nearly adopts the contact position of the contact pin after pyrotechnic charge has been ignited.

5,783,988
VEHICLE SECURITY SYSTEM

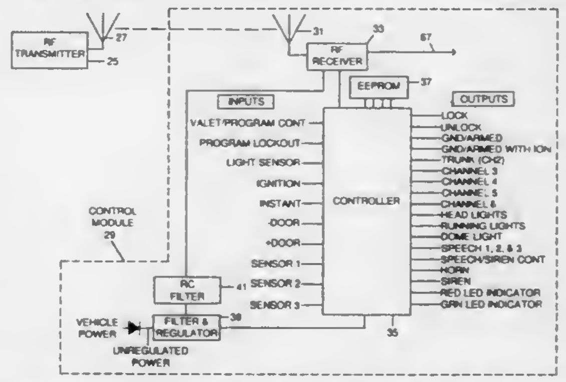
Harry Powell, Shipman, Va., and Ken DeWitt, Phoenix, Md., assignors to Designtech International Inc., Springfield, Va.
Filed Nov. 8, 1995, Ser. No. 555,285
Int. Cl.^{6} B60R *25/10*
U.S. Cl. 340—426 **19 Claims**



13. A vehicle alarm system comprising:
- an input for receiving an input from a pin switch of the vehicle;
- circuit means for detecting either a positive trigger or a negative trigger on the input from the pin switch of the vehicle;
- a sensor for sensing a shock and outputting a shock signal comprising:
  - a substrate;
  - a piezoelectric disk rigidly mounted to the substrate at a first mounting area;
  - a weight mounted to the piezoelectric disk, wherein the weight is mounted on a diameter of the piezoelectric disk which parallels the substrate, at an outer portion of the piezoelectric disk;
- circuit means for receiving the shock signal from the sensor;
- storing means for storing a value of the received shock signal;
- a microprocessor connected to the storing means for releasing the stored value, wherein the microprocessor determines an alarm condition if the microprocessor releases the stored value a first predetermined number of times within a first predetermined time period.

5,783,989
ALARM SENSOR MULTIPLEXING

Darrell E. Issa, 1598 Parkview Dr., and Jerry W. Birchfiled, 743 Imperial Dr., both of Vista, Calif. 92083
Continuation-in-part of Ser. No. 945,667, Sep. 16, 1992, Pat. No. 5,534,845, and a continuation-in-part of Ser. No. 112,940, Aug. 30, 1993, Pat. No. 5,532,670, and a continuation-in-part of Ser. No. 886,871, May 22, 1992, abandoned. This application Feb. 28, 1995, Ser. No. 396,115
Int. Cl.^{6} B60R *25/10*
U.S. Cl. 340—426 **24 Claims**



1. A security system for monitoring a protected area and sounding an alarm comprising:
- at least one sensor arranged about a protected area for sensing incoming threat;
- at least one pulse generator for generating at least one pulse for said sensor activated by said incoming threat to said area;

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an alarm controller for receipt of said pulses and sounding of an alert;

a single wire connecting output of said pulse generator to said controller for transmission of said pulses to said controller;

a counter for measuring said pulsewidth of each said pulse;

said pulse generator generating a first pulse in response to a low level of threat and a second pulse in response to a high level of threat, each said pulse having a different assigned pulsewidth, wherein only said first pulse is generated for communication of said low level of threat received by said sensor, and said first and second pulses are generated for communication of said high level of threat received by said sensor.

5,783,990

METHOD OF DETECTING AND DOCUMENTING EXHAUST-GAS RELEVANT MALFUNCTIONS OF A VEHICLE HAVING AN INTERNAL COMBUSTION ENGINE UTILIZING ONBOARD MEANS

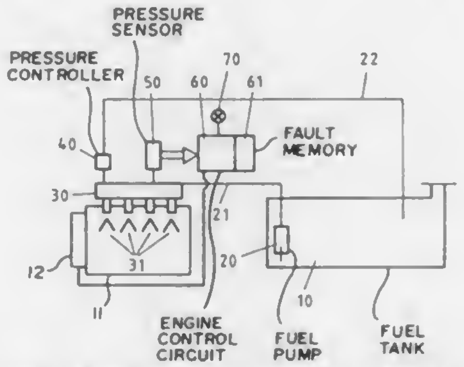
Dieter-Andreas Dambach, Korntal-Münchingen, Germany, assignor to Robert Bosch GmbH, Stuttgart, Germany

Filed Feb. 26, 1997, Ser. No. 806,412

Claims priority, application Germany, Feb. 28, 1996, 196 07 461.4

Int. Cl.^{6} B60Q *1/00*

U.S. Cl. 340—438 **8 Claims**



1. A method of detecting and documenting exhaust-gas relevant malfunctions of a vehicle having an internal combustion engine and onboard means which includes a control circuit, the method being carried out with the aid of said onboard means and comprising the steps of:

detecting said malfunctions utilizing detecting means and evaluating said malfunctions in said control circuit;

switching on a warning lamp to display said malfunctions as a fault announcement;

measuring the pressure in the fuel loop with a pressure sensor and supplying a signal representing said pressure to said control circuit; and

storing said fault announcement in a fault memory in dependence upon the measured pressure.

5,783,991

METHOD OF DETECTING A DEFLATED TIRE ON A VEHICLE

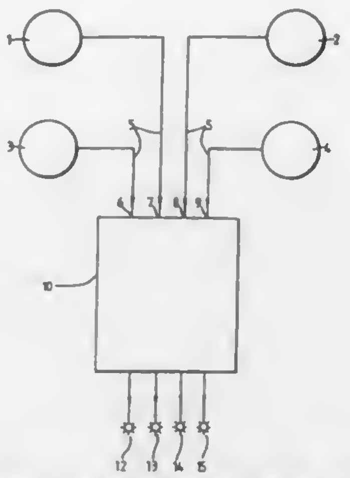
David Jones, Lichfield, England, assignor to Sumitomo Rubber Industries, Ltd., Hyogo-ken, Japan

Filed Feb. 6, 1997, Ser. No. 796,540

Claims priority, application United Kingdom, Feb. 7, 1996, 9602442

Int. Cl.^{6} B60C *23/00*

U.S. Cl. 340—444 **12 Claims**



1. A method of detecting a deflated tire on a vehicle by comparing the rolling radii of the tires by means of comparing angular velocity speed signal values C1, C2, C3 and C4 from wheel speed sensors on wheels 1–4 at the left-hand front, right-hand front, left-hand rear and right-hand rear wheel positions respectively, comprising the step of:

calculating an error value DEL– in normal driving by processing the four angular velocity speed signal values C1–C4 in a central processing unit which subtracts the sum of the signal values from one pair of diagonally opposite wheels from the sum of the signal values from the other pair of diagonally opposite wheels and expressing the result as a percentage of the means of the sums

$$DI'=(C1+C4-C2-C3)\times 50/((C1+C2+C3+C4)/),$$

sensing when the magnitude of the error value DEL' is between a DEL'MIN value of 0.05 and a DEL'MAX value of 0.5 and when it is carrying out the step of deciding which tire is apparently deflated by comparison of the angular velocity speed signal values C1–C4 with each other, and

operating a tire warning indicator in the vehicle to warn the driver that the particular tire is deflated, wherein a semi-automatic standardization procedure initiated by the driver comprising firstly recording a data-set DS of four values Ct1–Ct4 comprising the total wheel speed signal values C1–C4 for each wheel 1–4 in a predetermined time period t, secondly deciding if the data-set DS is acceptable or unacceptable, repeating the said recording and deciding until a predetermined number N of acceptable data-sets DS have been accumulated, driving wheel speed factors FAW(1)–FAW(4) for each of the four wheels 1–4 respectively by dividing the accumulated overall total number of wheel speed signal values Ct1–Ct4 of each wheel 1–4 by the accumulated overall total wheel speed signal values of any one of the wheels 1–4, and subsequently in normal driving correcting the four wheel speed signal values C1–C4 by dividing each value by its respective wheel speed factor FAW(1)–FAW(4) and using these corrected wheel speed values to calculate the error value DEL'.

5,783,992

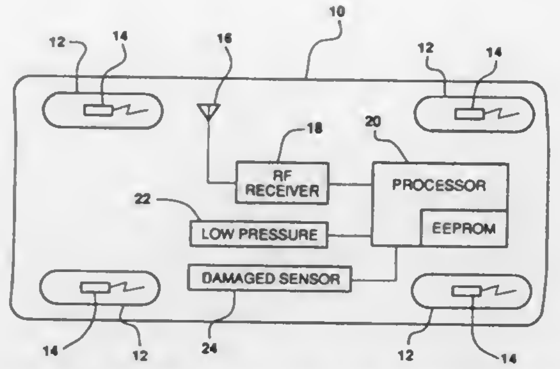
TIME BASED LOW TIRE PRESSURE WARNING SENSOR

Todd D. Eberwine; Victor Mendez, both of Kokomo, and Nguyen Phu Nguyen, Brownsburg, all of Ind., assignors to Delco Electronics Corp., Kokomo, Ind.

Filed Jul. 22, 1996, Ser. No. 684,776

Int. Cl.^{6} B60C *23/00*

U.S. Cl. 340—445 **7 Claims**



1. In a low tire pressure warning system having a transmitter and a pressure sensor wherein the transmitter has a sleep mode of low energy consumption, a wake mode of normal energy consumption and a transmission timer, a method of using the transmission timer for intermittently transmitting a pressure message comprising the steps of:

periodically entering the wake mode and determining whether the transmission timer indicates that it is time to transmit a pressure message;

when the transmission timer indicates that it is time to transmit a pressure message,

transmitting a status report,

selecting a random time within a prescribed time range,

initializing the transmission timer with the selected random time, and

returning to the sleep mode.

5,783,993

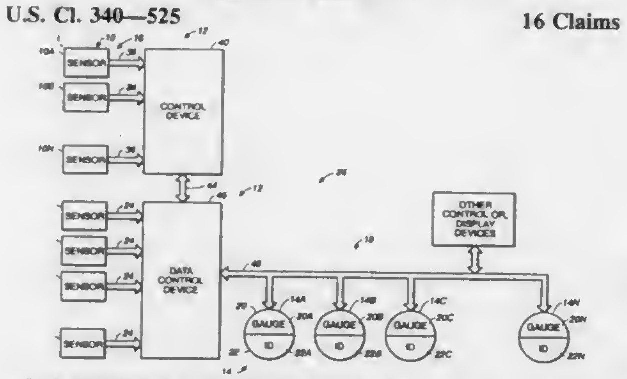
ELECTRONICALLY PROGRAMMABLE GAUGE

Tony Briski, Pleasanton, Calif., and Dennis C. Coleman, Grand Junction, Colo., assignors to PACCAR Inc, Bellevue, Wash.

Continuation of Ser. No. 94,618, Jul. 20, 1993, Pat. No. 5,432,497. This application Jul. 10, 1995, Ser. No. 606,018

Int. Cl.^{6} G08B *25/00*

U.S. Cl. 340—525 **16 Claims**



1. A monitoring system for monitoring a plurality of functions and conditions, said monitoring system comprising:

a plurality of sensors each producing a sensor signal in response to sensing of one of a function and condition;

a control device coupled to said plurality of sensors and producing a control signal responsive to each of said sensor signals, said control signal including sensor data information and sensor identity information identifying each of said plurality of sensors;

a plurality of display modules each being programmable and each being coupled to said control device; and

a plurality of module overlays with one of said plurality of module overlays being coupled to each of said plurality of display modules, each of said plurality of module overlays having module identification means communicating with the display module on which said overlay is coupled to program said display module to be responsive to said control signal when said sensor identity information in said control signal corresponds to said module identification means to cause said display module to display said sensor data information in said control signal.

5,783,994

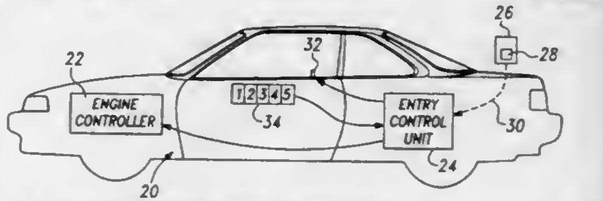
VEHICLE SECURITY SYSTEM WITH COMBINED KEY FOB AND KEYPAD ANTI-DRIVEAWAY PROTECTION

Philip J. Koopman, Jr., Pittsburgh, Pa.; Roger D. Carroll, Burnsville, Minn.; Richard Grzybowski, Plantsville, and Paul Marshall, Avon, both of Conn., assignors to United Technologies Automotive, Inc., Dearborn, Mich.

Filed Apr. 7, 1997, Ser. No. 835,383

Int. Cl.^{6} G08B *1/08*

U.S. Cl. 340—539 **17 Claims**



1. A vehicle security system, comprising:

a controller that controls an operation condition of an engine associated with the vehicle and a lock condition of a door lock associated with the vehicle, said controller including a receiver portion;

an ignition key slot for receiving a key and being useable to start the engine;

a remote signalling device that selectively generates a remote signal that is received by said controller receiver portion; and

an input device supported on the vehicle and having a signal generating portion that selectively generates an access signal that is received by said controller receiver portion;

wherein said controller

changes said lock condition of said door lock from a lock condition into an unlocked condition and said operation condition of said engine from an unusable condition into a useable condition upon receiving either of said remote signal or said access signal,

determines whether a key has been inserted into said ignition slot, and

changes said engine operation condition back to the unusable condition when said key is not inserted into said ignition slot within a preselected time after said controller changed said engine operation condition to the useable condition.

5,783,995

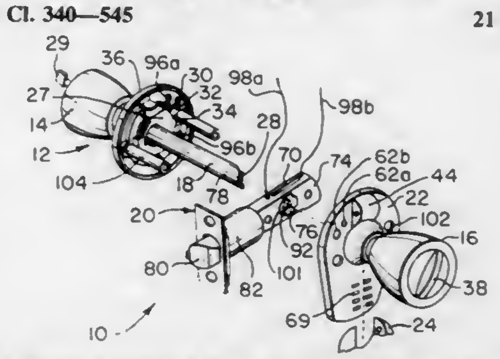
DOORKNOB ASSEMBLY WITH INTRUSION ALARM

Coley B. Jackson, 307 Branchwood Ct., Jacksonville, N.C. 28546-5803

Filed Nov. 15, 1996, Ser. No. 749,407

Int. Cl.^{6} G08B *13/08*

U.S. Cl. 340—545 **21 Claims**



1. A doorknob system with an intrusion alarm comprising:

a knob and locking assembly including exterior and interior knobs for being positioned on opposite sides of a door and a shaft assembly for extending between said exterior and interior knobs for being rotated by said exterior and interior knobs and including a door locking mechanism for locking said knobs against rotation;

a door latch assembly for being mounted in the door intermediate said exterior and interior knobs while engaging said shaft

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assembly, said door latch assembly including a latch housing for being fixedly mounted in said door and a retractable latch for being linked to said shaft assembly and for being movable in said latch housing in response to rotation of said shaft assembly;

an interior cover plate having a shaft opening therein for being mounted on a door surface between said interior doorknob and said door surface, with said shaft assembly passing through said shaft opening;

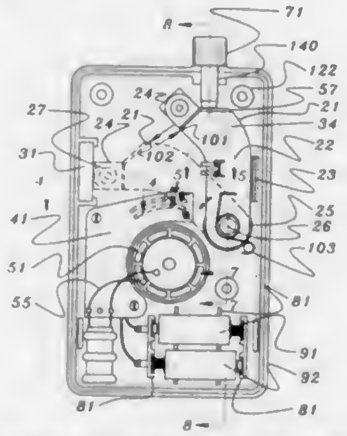
an electrical alarm mounted in said cover plate between an inner surface of said cover plate and said door for emitting a signal in response to manipulation of one of said exterior and interior knobs, said electrical alarm including an electrical signal emitter and an electrical signal-actuation switch which is switched in response to said manipulation of said exterior and interior knobs, thereby causing said electrical signal emitter to emit a signal;

wherein is further included a separate battery pack including a battery-pack mounting means for mounting said battery pack on an exterior surface of said cover plate, said cover plate and said battery pack respectively including interengaging cover-plate terminals and battery-pack terminals for automatically making electrical contact with one another upon said battery pack being mounted on the exterior surface of said cover plate for transmitting electrical energy from batteries in said battery pack to said electrical alarm.

5,783,996
PORTABLE GRAVITY ACTIVATED ALARM DEVICE FOR GOLF BAGS AND OTHER SIMILAR ITEMS

Francis E. Muszynski, 8500 N. Golfview Dr., Citrus Springs, Fla. 34434

Filed Jul. 15, 1996, Ser. No. 680,388
Int. Cl.^{6} G08B *13/14*
U.S. Cl. 340—571 **17 Claims**



1. An alarm apparatus for a golf bag, the alarm apparatus further comprising;

an alarm case which may be housed within a compartment of or concealed upon a surface of a small portable container similar to a golf bag in a stable orientation, said alarm case further comprising within:

a power supply, said power supply further comprising one or more batteries;

a gravity activated alarm triggering means, said triggering means adapted to, from an active, or armed, alarm position, remain in an "alarm-off" position if said portable container is undisturbed or, alternatively, move and be locked into an alarm-on position if said portable container is jerked, lifted, or otherwise disturbed from its desired rest position and said gravity activated triggering means further being adapted to be moved and locked into an inactive, or disarmed, position;

said gravity activated triggering means further comprising an adjustable coiled spring apparatus fastened to the interior of said alarm case, said coiled spring apparatus further comprising an adjusting axle at its center from which said coiled spring apparatus spirals out, said adjusting axle further being adapted to pass through said alarm case to a knob on the exterior of said alarm case by which said axle is turned in order to adjust or reposition said coiled spring apparatus;

said coiled spring apparatus further being adapted with an alarm triggering member, said alarm triggering member further comprising a rigid member mounted upon said coiled spring apparatus in such a manner as to, in an active alarm, or armed position, move back and forth through a range of motion against the tension of said coiled spring apparatus, said range of motion including an alarm-off position at equilibrium and, when said alarm apparatus is moved, lifted or jerked while said alarm is in its active, or armed position, said range of motion includes an alarm-on position;

said alarm triggering member further comprising an alarm-on locking apparatus, said alarm-on locking apparatus further comprising a permanent magnet mounted within said alarm case in a position to attract and hold a ferrous member mounted upon said alarm triggering member when said alarm triggering member is moved to a position within said alarm-on position;

said alarm triggering member further comprising a switching apparatus, said switching apparatus adapted to connect and close an electrical circuit between said power supply and an audio) alarm which, when electrically energized, emits an audio alarm sound;

an alarm switching means, said alarm switching means adapted to, when said gravity activated triggering means is moved to said alarm-on position, close a switch adapted to electrically energize said audio alarm;

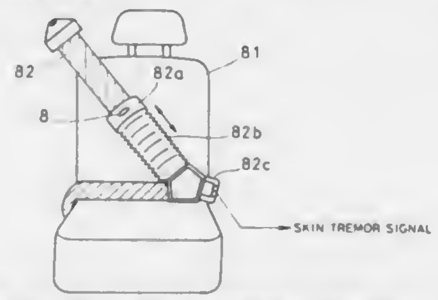
said switch being in electrical communication between said power supply and said audio alarm by means of an electrical circuit path housed within said alarm case; and

said audio alarm further comprising an electrically activated audio signal of sufficient volume and intensity to be heard from a distance of 50 feet or more across open spaces by a person of normal hearing.

5,783,997
CARDIAC RATE MEASURING APPARATUS

Satoshi Saitoh, and Mitsuo Yasushi, both of Kawagoe, Japan, assignors to Pioneer Electronic Corporation, Tokyo, Japan

Filed Nov. 14, 1995, Ser. No. 557,860
Claims priority, application Japan, Nov. 16, 1994, 6-282220
Int. Cl.^{6} G08B *23/00*
U.S. Cl. 340—576 **1 Claim**



1. A cardiac rate measuring apparatus comprising:

skin tremor detecting means for detecting skin tremors corresponding to heartbeats of a body to generate a skin tremor signal; and

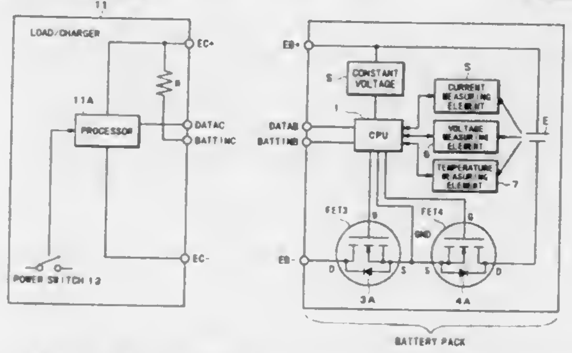
cardiac rate detecting means for holding level peak values of said skin tremor signal to generate an envelope waveform signal and for detecting said envelope waveform signal as a cardiac rate signal,

wherein said skin tremor detecting means are mounted at a first position on a seat belt of a car at which the body of a driver contacts with said tremor detecting means and at a second position on the seat belt of the car at which the body of the driver does not contact with said tremor detecting means, and said cardiac rate detecting means subtracts a skin tremor signal generated from said skin tremor detecting means mounted at said second position from a skin tremor signal generated from said skin tremor detecting means mounted at said first position to generate a difference signal, and holds level peak values of said difference signal to generate an envelope waveform signal as said cardiac rate signal.

5,783,998
BATTERY PACK, METHOD AND ELECTRONIC DEVICE FOR CONTROLLING ITS OPERATION DEVICE

Hideki Nakajou, Tokyo; Takeshi Miura, and Minoru Doura, both of Kanagawa, all of Japan, assignors to Sony Corporation, Tokyo, Japan

Filed May 2, 1996, Ser. No. 643,092
Claims priority, application Japan, May 12, 1995, 7-113484
Int. Cl.^{6} G08B *21/00*
U.S. Cl. 340—636 **5 Claims**



1. A battery pack coupled to an electronic device and including a secondary battery behaving as a power source of the electronic device, comprising:

a plus terminal and a minus terminal for supplying a current to said electronic device;

a communication terminal for executing communication with said electronic device;

a connection terminal connected to said electronic device when said plus terminal and said minus terminal are properly connected to said electronic device;

battery status measuring means for measuring the temperature and the voltage of said secondary battery; and

mode determining means for establishing one of operation modes in response to the voltages at said communication terminal and said connection terminal; wherein said modes include:

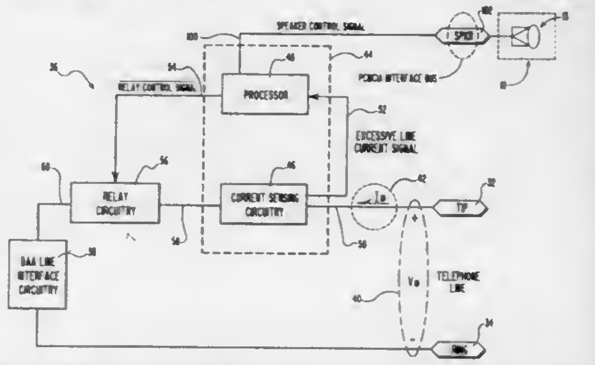
a normal mode selected when the voltage at said connection terminal exhibits a predetermined level and the voltage at said communication terminal changes, so that the entirety of said battery pack including said battery status measuring means is made operative; and

a low-power consumption mode selected when the voltage at said connection terminal exhibits said predetermined level and the voltage at said communication terminal does not change for a predetermined time, or when the voltage at said connection terminal exhibits a level other than said predetermined level, so that an additional functional portion of said battery including said battery status measuring means is made inoperative.

5,783,999
AUDIO WARNING DEVICE FOR USE WITH A LINE CURRENT PROTECTION CIRCUIT IN A PCMCIA-ARCHITECTURE MODEM CARD

Tim Urry Price, Salt Lake City; Mark Lyle Gray, West Jordan, and Paul Nagel, Sandy, all of Utah, assignors to U.S. Robotics Mobile Communications Corp., Salt Lake City, Utah

Continuation-in-part of Ser. No. 221,940, Apr. 1, 1994, Pat. No. 5,532,898. This application May 29, 1996, Ser. No. 654,631
Int. Cl.^{6} H02H *3/26*
U.S. Cl. 340—664 **25 Claims**



1. A protection circuit intended for use with a line interface circuit that is electrically connectable to a telephone line, the protection circuit comprising:

relay means, connected between the interface circuit and the telephone line, for selectively providing an open or a closed connection between the line interface circuit and the telephone line;

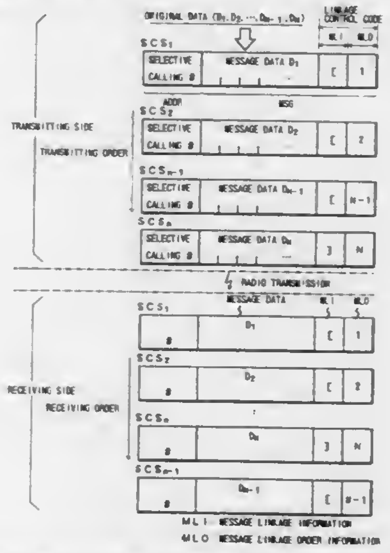
detection means for detecting the magnitude of a line-current presented to the interface circuit via the telephone line and for causing the relay means to be opened or closed depending on the magnitude of the line-current; and

alarm means for selectively causing an audible signal to be emitted when the magnitude of the line-current exceeds a predetermined magnitude.

5,784,000
RADIO SELECTIVE CALLING SYSTEM

Yukio Sato, Shizuoka, Japan, assignor to NEC Corporation, Tokyo, Japan

Filed Aug. 20, 1996, Ser. No. 699,992
Claims priority, application Japan, Aug. 21, 1995, 7-211601
Int. Cl.^{6} H04Q *9/00;* G08B *5/22*
U.S. Cl. 340—825.44 **20 Claims**



1. A method for receiving a plurality of selective calling signals

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including messages from a transmitting side, comprising the steps of:

a) sequentially receiving said plurality of selective calling signals including messages and linkage orders of the messages, respectively, to store the messages and the linkage orders into a first memory until a selective calling signal including a terminal linkage order is received;

b) checking whether the linkage orders stored in the first memory are numbered consecutively from a predetermined beginning linkage order to the terminal linkage order;

c) sorting the messages according to the linkage orders stored in the first memory to produce a second message when the linkage orders stored in the first memory are numbered consecutively; and

d) storing the second message as the first message received from the transmitting side into a second memory.

5,784,001

METHOD AND APPARATUS FOR PRESENTING GRAPHIC MESSAGES IN A DATA COMMUNICATION RECEIVER

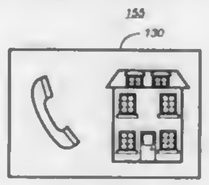
Joan Deluca, Boca Raton; Douglas Kraul, Parkland, and Charles Edward Batey, Jr., Lake Worth, all of Fla., assignors to Motorola, Inc., Schaumburg, Ill.

Continuation of Ser. No. 560,604, Nov. 20, 1995, abandoned. This application Jul. 21, 1997, Ser. No. 898,640

Int. Cl.^{6} G08B *5/22*

U.S. Cl. 340—825.44 **6 Claims**

CODE	IMAGE
#01	TELEPHONE
#02	HOUSE
#03	OFFICE
#04	FAMILY
#05	TRAIN
#06	PERSON RUNNING
#07	COFFFE MUG
#08	CLOCK FOLLOWED BY TIME
#09	FOOD PLATTER



1. A method for displaying messages in a data communication receiver, the method comprising the steps of:

receiving an alphanumeric message;

receiving a programming message that includes a key word and image data;

storing the key word and the image data in the database;

referencing a database to determine whether at least one word included in the alphanumeric message matches at least one key word included in the database, wherein the at least one key word is associated with image data that is representative of at least one image;

presenting, when the alphanumeric message includes at least one word that matches at least one key word located in the database, the at least one image as a graphic message that is accompanied by the alphanumeric message on a display; and

presenting, when the alphanumeric message does not include at least one word that matches at least one key word located in the database, the alphanumeric message without an accompanying graphic message on the display.

5,784,002

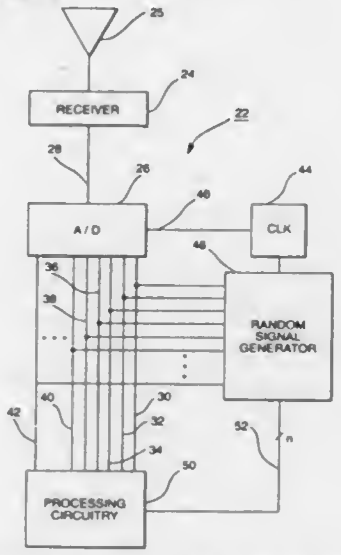
LOW-POWER RANDOM DIGIT GENERATOR

Walter Roehr, Reston, Va., assignor to Mobile Telecommunication Technologies, Jackson, Miss.

Filed May 2, 1995, Ser. No. 434,349

Int. Cl.^{6} H04Q *7/00*

U.S. Cl. 340—825.5 **24 Claims**



12. A communications device for receiving and decoding an analog electromagnetic signal from a communications media, comprising:

a receiver;

an A/D converter having an analog input and a digital output and converting the analog signal to a digital sample at a conversion rate, the analog input being coupled to the receiver, a magnitude of the received analog signal changing at a received rate; and

a random signal generator coupled to the digital output of the A/D converter, the random signal generator selecting at least one bit from the digital sample at a selection rate and generating a random digital signal having a magnitude corresponding to the at least one bit.

5,784,003

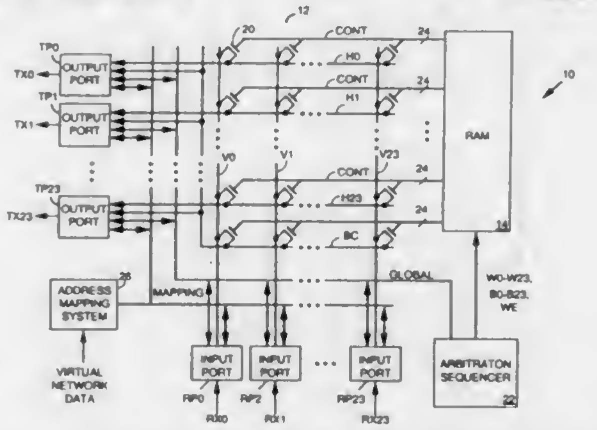
NETWORK SWITCH WITH BROADCAST SUPPORT

Kent Blair Dahlgren, San Jose, Calif., assignor to I-Cube, Inc., Campbell, Calif.

Filed Mar. 25, 1996, Ser. No. 624,686

Int. Cl.^{6} H04Q *19/00;* **G05B** *23/02;* **G06F** *13/00*

U.S. Cl. 340—825.79 **19 Claims**



1. A network switch for routing unicast and broadcast data transmissions between network stations, wherein each unicast data transmission is directed to a selected one of said network stations and wherein a broadcast data transmission is directed to a plurality of said network stations, the network switch comprising:

routing means including a plurality of input lines for receiving unicast and broadcast data transmissions, a plurality of output lines, and a broadcast line, for selectively routing a unicast data transmission arriving on any one of said input lines to any one of said output lines and for routing a broadcast data transmission arriving on any one of said input lines to said broadcast line;

a plurality of input ports each connected to a corresponding one of said input lines and to a corresponding one of said network stations for receiving unicast and broadcast data transmissions from the corresponding network station and for forwarding the received data transmissions to said routing means via the corresponding input line; and

a plurality of output ports, each connected to a corresponding one of said output lines for receiving unicast data transmissions routed thereto by said routing means, each connected to said broadcast line for receiving broadcast data transmissions routed thereto by said routing means, and each forwarding received unicast and broadcast data transmissions to a corresponding one of said network stations wherein each of said output ports comprises means connected to the broadcast line and to the output port's corresponding output line for concurrently receiving and storing broadcast and unicast data transmissions routed thereto.

5,784,004

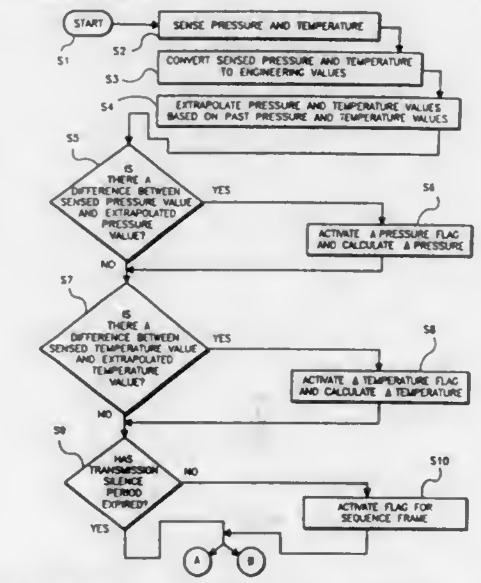
APPARATUSES AND SYSTEMS FOR REDUCING POWER CONSUMPTION IN REMOTE SENSING APPLICATIONS

Farbad Esfahani, Dallas, Tex.; James Lloyd Davis, Marlow, and Robert L. Toellner, Duncan, both of Okla., assignors to Gas Research Institute, Chicago, Ill.

Continuation of Ser. No. 358,061, Dec. 13, 1994, abandoned. This application Jun. 20, 1995, Ser. No. 492,814

Int. Cl.^{6} G01V *3/00*

U.S. Cl. 340—854.6 **6 Claims**


START
S1
SENSE PRESSURE AND TEMPERATURE
S2
CONVERT SENSED PRESSURE AND TEMPERATURE TO ENGINEERING VALUES
S3
S4
EXTRAPOLATE PRESSURE AND TEMPERATURE VALUES BASED ON PAST PRESSURE AND TEMPERATURE VALUES
S5
IS THERE A DIFFERENCE BETWEEN SENSED PRESSURE VALUE AND EXTRAPOLATED PRESSURE VALUE?
YES
S6
ACTIVATE A PRESSURE FLAG AND CALCULATE Δ PRESSURE
NO
S7
IS THERE A DIFFERENCE BETWEEN SENSED TEMPERATURE VALUE AND EXTRAPOLATED TEMPERATURE VALUE?
YES
S8
ACTIVATE A TEMPERATURE FLAG AND CALCULATE Δ TEMPERATURE
NO
S9
HAS TRANSMISSION SILENCE PERIOD EXPIRED?
NO
S10
ACTIVATE FLAG FOR SEQUENCE FRAME
YES
A
B

1. An apparatus comprising:

a temperature sensor generating a sensed temperature signal;

a pressure sensor generating a sensed pressure signal;

a controller coupled to receive the sensed temperature signal from said temperature sensor and the sensed pressure signal from said pressure sensor, storing previous pressure and temperature data, determining change-in-pressure data based on the sensed pressure signal and the previous pressure data, determining change-in-temperature data based on the sensed temperature signal and the previous temperature data, generating extrapolated pressure data based on the previous pressure data, generating extrapolated temperature data based on the previous temperature data, determining the change-in-pressure data based on the sensed pressure signal and the extrapolated pressure data, determining the change-in-temperature data based on the sensed temperature signal and the extrapolated temperature data, generating frame data including at least one of the change-in-pressure data and the change-in-temperature data, generating a transmitter activation signal after the frame data is generated, and generating a control signal to modulate a carrier signal based on the frame data;

a wake-up delay counter coupled to said controller, generating a count checked by said controller to determine an expiration of a sleep state, said controller controlling said apparatus to enter an operation state if the count is greater than or equal to a predetermined value;

a wave generator generating the carrier signal;

a modulator coupled to said wave generator, to modulate the carrier signal based on the frame data;

a transmitter coupled to said modulator and said controller, said transmitter being activated based on the transmitter activation signal if said apparatus is in the operation state, to amplify the modulated carrier signal; and

an antenna coupled to said transmitter, to generate an electromagnetic transmission signal based on the amplified, modulated carrier signal from said transmitter.

5,784,005

COMMUNICATIONS INFRASTURCTURE SYSTEM FOR VEHICLES

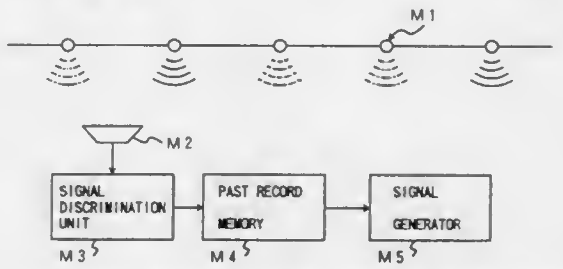
Eisaku Akutsu, Susono; Kenji Sasaki, Gotenba, and Keiji Aoki, Susono, all of Japan, assignors to Toyota Jidosha Kabushiki Kaisha, Toyota, Japan

Filed Aug. 8, 1995, Ser. No. 512,320

Claims priority, application Japan, Aug. 31, 1994, 6-207221

Int. Cl.^{6} G08G *1/09*

U.S. Cl. 340—905 **22 Claims**



1. A communications infrastructure system for vehicles comprising:

a plurality of beacons positioned along a road wherein said plurality of beacons includes first beacons, each first beacon transmitting a first signal, second beacons, each second beacon transmitting a second signal and third beacons, each third beacon transmitting a third signal, wherein the beacons are arranged so that a vehicle traveling down the road receives a predetermined sequence of first, second and third signals;

a receiver provided on a vehicle which receives the first, second and third signals;

a signal discrimination unit which discriminates between said first, second and third signals received by said receiver;

a past record memory which records a past record of discrimination results of said signal discrimination unit; and

a signal generator for generating a signal corresponding to the past record recorded in said past record memory.

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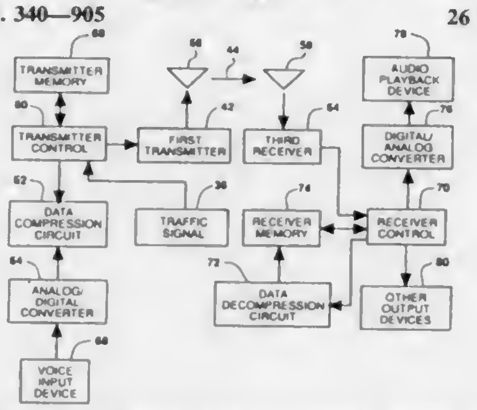
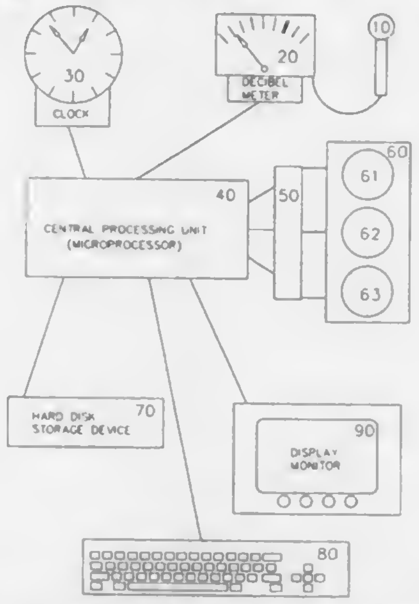
5,784,006
ANNUNCIATOR SYSTEM WITH MOBILE RECEIVERS
Peter A. Hochstein, 2966 River Valley Dr., Troy, Mich. 48098
Filed Jul. 5, 1996, Ser. No. 676,055
Int. Cl.^{6} G08G *1/09*
U.S. Cl. 340—905 **26 Claims**



1. An apparatus for annunciating information to mobile receivers comprising:

A control means (**60**) for generating a plurality of data packet signals (**16**,**20**,**22**) containing compressed data voice messages and a code for each data packet signal (**16**,**20 22**);
a transmitter means (**42***a*) for transmitting said coded data packet signals (**16**,**20**, **22**) in a burst data stream (**10**);
a receiver (**54**) for receiving and decompressing the burst data stream (**10**); and
a control means (**70**) for reading and separating the coded data packet signals (**16**,**20**,**22**) according to code and selectively annunciating messages of a predetermined code.

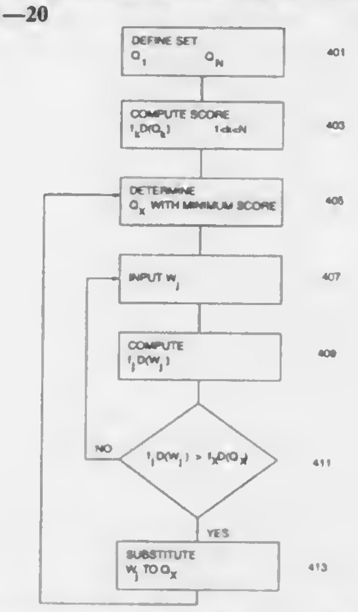
5,784,007
TRAFFIC SIGNAL SOUND MONITOR
Jeffrey W. Pepper, P.O. Box 68, Tallahassee, Fla. 32302
Filed Sep. 27, 1994, Ser. No. 313,337
Int. Cl.^{6} G08G *1/00*
U.S. Cl. 340—933 **3 Claims**



1. A device to help determine fault in a vehicle collision comprising: a microphone to detect the sounds of a vehicle collision; a sound measuring device to determine the wavelength and/or intensity of the detected sounds; a filter to eliminate all sounds except those associated with a vehicle collision, in order to distinguish those sound events which are associated with a vehicle collision; a microprocessor to record the sound events which pass through the filter while simultaneously monitoring the status of a traffic signal while simultaneously monitoring the status of a clock, so that said microprocessor may record the beginning time of a change in the status of said traffic signal and the time of occurrence of each sound event associated with a vehicle collision, so that said microprocessor may record the beginning time of the change in status of said traffic signal and the time of said vehicle collision, and may calculate the duration of the status of said traffic signal; and a display device to output the recorded sound event, the time of said sound event, and the duration of the status of said traffic signal at the time of said sound event; whereby an investigating officer may determine the time of a vehicle collision, the status of the traffic signal at the time of the collision, and the duration of said status at the time of the collision.

3. The invention of claim 1 wherein a disk storage device is used to record and store data output from said microprocessor.

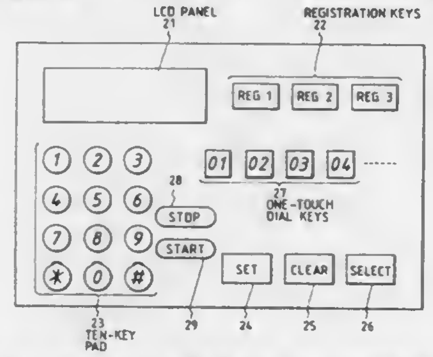
5,784,008
WORD PROCESSING
Domenico Raguseo, Pomezia, Italy, assignor to International Business Machines Corp., Armonk, N.Y.
Filed May 9, 1997, Ser. No. 853,844
Claims priority, application United Kingdom, Jun. 3, 1996, 9611510
Int. Cl.^{6} H03K *17/94;* **H03M** *11/00*
U.S. Cl. 341—20 **10 Claims**



1. A method of dynamically creating a most frequently used word set for outputting text in an electronic word processing system comprising input means having a plurality of keys k_i for inputting the text, the text being in the form of a sequence of words $w_j=(c_1, c_2, \ldots, c_n)$, the method comprising the steps of:

inputting text:
dynamically defining according to at least one variable parameter a limited set of words found in said text as said text is being inputted;
associating each word of the limited set of words to a specific key; and
dynamically changing said associating as said limited set of words changes in accordance with said at least one variable parameter, whereas one of the specfic keys is used to output the word associated therewith.

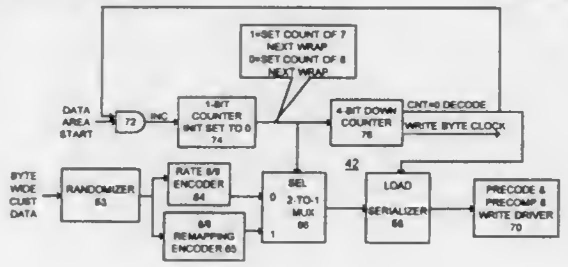
5,784,009
COMMUNICATION APPARATUS WITH PROGRAMMABLE FUNCTION KEYS
Satoshi Wada, Kawasaki; Takehiro Yoshida, Tokyo; Takeshi Ono; Tomoyuki Takeda, both of Yokohama; Masaya Kondo, Tokyo; Makoto Kobayashi, Tama, and Takahiro Kato, Yokohama, all of Japan, assignors to Canon Kabushiki Kaisha, Tokyo, Japan
Continuation of Ser. No. 987,243, Dec. 7, 1992, abandoned, which is a continuation of Ser. No. 656,589, Feb. 19, 1991, abandoned. This application Aug. 26, 1994, Ser. No. 296,974
Claims priority, application Japan, Feb. 20, 1990, 2-37292
Int. Cl.^{6} H04Q *1/00*
U.S. Cl. 341—23 **18 Claims**



1. In data communication apparatus, the combination comprising:

a plurality of function registration keys;
a key function memory for storing a plurality of key functions, each identified by a corresponding key function number with at least one of the key functions specifying a type of data communication;
a display means for displaying the plurality of key functions;
a manual selector for selecting a different key function from the displayed plurality of key functions to be associated with each of said plurality of keys;
a registration memory having a memory location assigned to each of said plurality of keys for registering the key function number identifying the key function selected for a key by said manual selector; and
a processor responsive to the operation of a given key for performing a process in accordance with the key function stored in said key function memory as identified by the key function number stored in the memory location assigned to the given key in the registration memory.

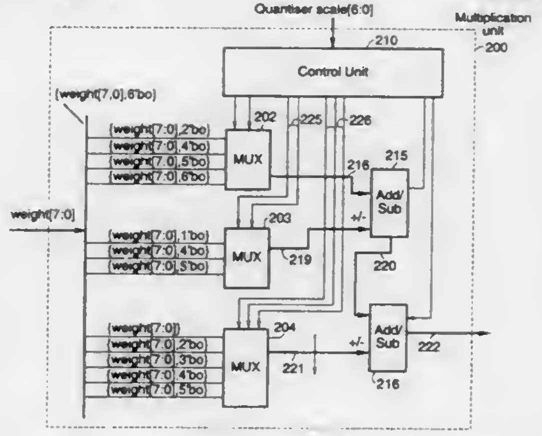
5,784,010
METHOD AND APPARATUS FOR IMPLEMENTING A SET RATE CODE FOR DATA CHANNELS WITH ALTERNATE 9-BIT CODE WORDS AND 8-BIT CODE WORDS
Jonathan Darrel Coker; David Timothy Flynn; Richard Leo Galbraith, all of Rochester, and Todd Carter Truax, Zumbrota, all of Minn., assignors to International Business Machines Corporation, Armonk, N.Y.
Filed Feb. 3, 1997, Ser. No. 794,718
Int. Cl.^{6} H03M *7/00*
U.S. Cl. 341—61 **10 Claims**



1. A data encoding method for implementing a set rate code for a data detection channel in a direct access storage device, said data encoding method comprising the steps of:

receiving a binary data stream;
identifying sequential symbols of said received binary data stream;
utilizing a rate 8/9 encoder, encoding alternate symbols of said binary data stream into first 9-bit codewords;
utilizing an 8/8 remapping encoder, encoding alternate other symbols of said binary data stream into second 8-bit codewords; and
sequentially combining alternate ones of said first 9-bit codewords and said second 8-bit codewords.

5,784,011
MULTIPLIER CIRCUIT FOR PERFORMING INVERSE QUANTIZATION ARITHMETIC
Srinivasa R. Malladi, Santa Clara, and Venkat Mattela, Sunnyvale, both of Calif., assignors to LSI Logic Corporation, Milpitas, Calif.
Filed Jun. 14, 1996, Ser. No. 664,134
Int. Cl.^{6} H03M *7/00*
U.S. Cl. 341—67 **20 Claims**



1. A circuit for multiplying a weight value with a quantizer scale value comprising:

a plurality of multiplexer circuits wherein each of said multiplexer circuits is coupled to receive bit-shifted versions of said weight value;
a first adder/subtracter circuit having a first input coupled to receive an output of a first of said plurality of multiplexer circuits and a second input coupled to receive an output of a second of said plurality of multiplexer circuits;
a second adder/subtracter circuit coupled to receive an output of said first adder/subtracter circuit and an output of a third of said plurality of multiplexer circuits, wherein an output of said second adder/subtracter circuit represents said multiplication between said weight value and said quantizer scale value; and
a control unit coupled to said plurality of multiplexer circuits and to said first and second adder/subtracter circuits.

5,784,012
VARIABLE-LENGTH CODE DECODER
Kenichi Kawauchi; Taro Yokose; Yutaka Koshi, and Eiri Hashimoto, all of Nakai-machi, Japan, assignors to Fuji Xerox Co., Ltd., Tokyo, Japan
Filed Sep. 23, 1996, Ser. No. 717,945
Claims priority, application Japan, Apr. 9, 1996, 8-086728
Int. Cl.^{6} H03M *7/40*
U.S. Cl. 341—67 **7 Claims**

3. A variable-length code decoder which decodes variable-length code data consisting of variable-length codewords, comprising:

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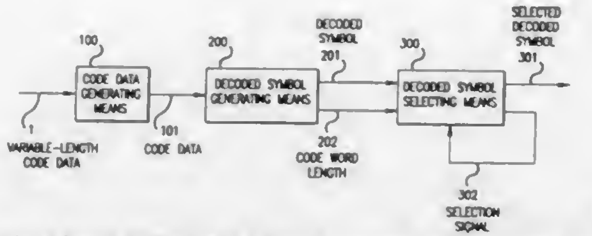

100
CODE DATA GENERATING MEANS
200
DECODED SYMBOL GENERATING MEANS
DECODED SYMBOL 201
300
DECODED SYMBOL SELECTING MEANS
SELECTED DECODED SYMBOL 301
1 VARIABLE-LENGTH CODE DATA
101 CODE DATA
202 CODE WORD LENGTH
302 SELECTION SIGNAL

plural barrel shifters each of which executes shift processing on inputted variable-length code data a predetermined number of times and outputs code data consisting of the bit number of a maximum length codeword, said barrel shifters being in number less than said bit number of said maximum length codeword;

plural storing means being in number equal to that of said barrel shifters, each of which stores a pair of a decoded symbol and codeword length thereof corresponding to code data;

fetching means being in number equal to that of said barrel shifters, each of which fetches said pair of said decoded symbol and said codeword length thereof stored in corresponding one of said storing means in accordance with said code data outputted from each of said barrel shifters;

a buffer for storing said plural pairs of said decoded symbol and said codeword length thereof fetched by said plural fetching means; and

selecting means for selecting a predetermined pair from plural pairs of said decoded symbol and said codeword length thereof stored in said buffer in an initial decoding process, and selecting any one pair from said plural pairs of said decoded symbol and said codeword length thereof stored in said buffer utilizing said codeword length selected in said initial decoding process in decoding processes subsequent thereto.

5,784,013

CIRCUIT FOR REMOVING ENERGY DISPERSAL IN A DATA TRANSMISSION

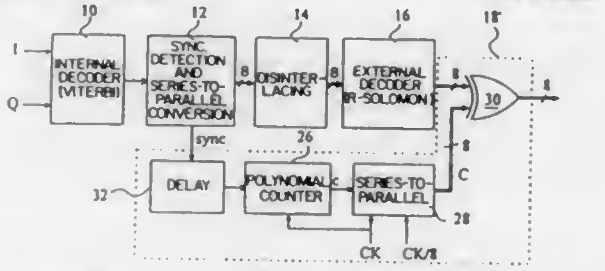
Francine Burgard, Grenoble, France, assignor to SGS-Thomson Microelectronics S.A., Saint Genis, France

Filed Nov. 25, 1996, Ser. No. 755,197

Claims priority, application France, Nov. 30, 1995, 95 14383

Int. Cl.^{6} H03M *9/00*

U.S. Cl. 341—100 **18 Claims**


10
12
14
16
18
I
Q
INTERNAL DECODER (VITERBI)
SYNC. DETECTION AND SERIES-TO-PARALLEL CONVERSION
8
DISINTER-LACING
8
EXTERNAL DECODER (R-SOLOMON)
8
30
8
sync
26
8
C
32
DELAY
POLYNOMIAL COUNTER
c
SERIES-TO-PARALLEL
28
CK
CK/8

1. A circuit for removing energy dispersal in the transmission of a data packet, the circuit including a polynomial counter for supplying, at a transmission rate of bits of the packet, correction bits to be respectively X-ORed with the bits of the packet, wherein the correction bits are all supplied through a single output line to a series-to-parallel converter having an output combined with successive parallel transmitted bits of the packet.

5,784,014

Patent Not Issued For This Number

5,784,015

SIGNAL PROCESSING APPARATUS AND METHOD WITH A CLOCK SIGNAL GENERATOR FOR GENERATING FIRST AND SECOND CLOCK SIGNALS HAVING RESPECTIVE FREQUENCIES HARMONICALLY RELATED TO A SAMPLING FREQUENCY

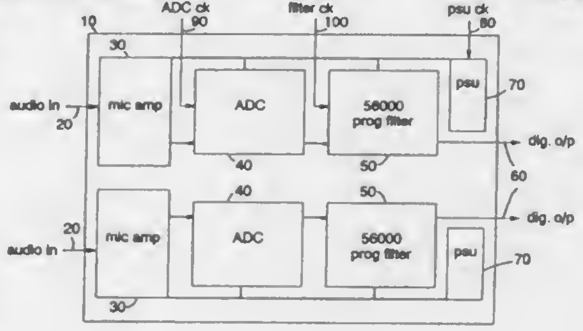
Paul Anthony Frindle, Witney, United Kingdom, assignor to Sony Corporation, Tokyo, Japan, and Sony United Kingdom Limited, Weybridge, England

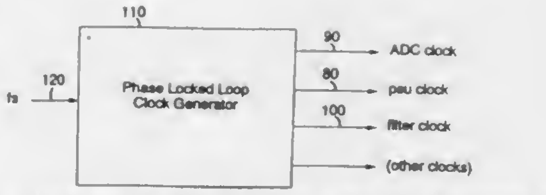
Continuation of Ser. No. 528,039, Sep. 14, 1993, abandoned. This application Sep. 11, 1997, Ser. No. 928,076

Claims priority, application United Kingdom, Sep. 29, 1994, 9419639; Jul. 31, 1995, 9515644

Int. Cl.^{6} H03M *1/06*

U.S. Cl. 341—118 **7 Claims**





1. Apparatus including a circuit board for performing signal processing at a sampling frequency, comprising:

a clock signal generator for generating, as a function of said sampling frequency, at least first and second clock signals having respective frequencies harmonically related to said sampling frequency;

at least one digital signal processing device mounted on said circuit board for performing sample-based signal processing at said sampling frequency, said digital signal processing device operating under control of said first clock signal; and

a switched mode power supply mounted on said circuit board for supplying power to said digital signal processing device, said switched mode power supply operating at a switching frequency under control of said second clock signal.

5,784,016

SELF-CALIBRATION TECHNIQUE FOR PIPE LINE A/D CONVERTERS

K. Nagaraj, Summerville, N.J., assignor to Texas Instruments Incorporated, Dallas, Tex.

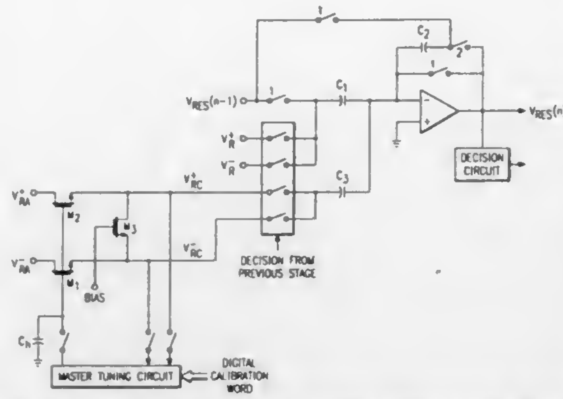
Continuation of Ser. No. 433,297, May 2, 1995, abandoned. This application Nov. 1, 1996, Ser. No. 742,963

Int. Cl.^{6} H03M *1/10*

U.S. Cl. 341—120 **7 Claims**

1. A method of calibrating a pipe line A/D converter which comprises the steps of:

correcting a reference voltage to each stage of the pipe line A/D converter by means of a tunable MOSFET attenuator;



deriving tuning voltages for the different stages of the pipe line A/D converter in a master tuning circuit, wherein a single master tuning circuit sequentially serves all stages of the pipe line A/D converter, and wherein said single master tuning circuit consists of a capacitive multiplying DAC that is driven by a digital calibration word for the particular stage being refreshed;

comparing the output of the multiplying DAC with the calibrated reference from the stage; and

adjusting the tuning voltage to the particular stage until they are equal.

5,784,017

ANALOGUE AND DIGITAL CONVERTORS USING PULSE EDGE MODULATORS WITH NON-LINEARITY ERROR CORRECTION

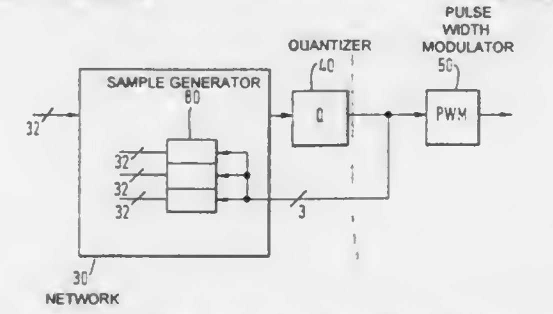
Peter Graham Craven, Oxon, England, assignor to B & W Loudspeakers Ltd., West Sussex, United Kingdom

Division of Ser. No. 107,842, Aug. 25, 1993, Pat. No. 5,548,286. This application Jun. 26, 1996, Ser. No. 670,696

Claims priority, application United Kingdom, Feb. 22, 1991, 9103777

Int. Cl.^{6} H03M *1/00*

U.S. Cl. 341—126 **18 Claims**



1. A signal converter apparatus comprising a sampled signal system and a continuous time signal system, further comprising means for correcting within said sampled system the effects of errors within said continuous time system, said error correcting means comprising means for generating, for each error sample, a plurality of different, differentially delayed, correction impulses at sampling instants, and means for generating a corrected signal from said correction impulses.

5,784,018

SEMICONDUCTOR CIRCUIT

Tadahiro Ohmi, 1-17-301, Komegabukuro 2-chome, Aobu-ku, Sendai-Shi Miyagi-ken, 980; Takeo Yamashita, Miyagi-ken, and Tadashi Shibata, 5-2 Nihondaira, Taihaku-ku, Sendai-shi, Miyagi-ken, 982-02, all of Japan, assignors to Tadahiro Ohmi, and Tadashi Shibata, both of Miyagi-ken, Japan

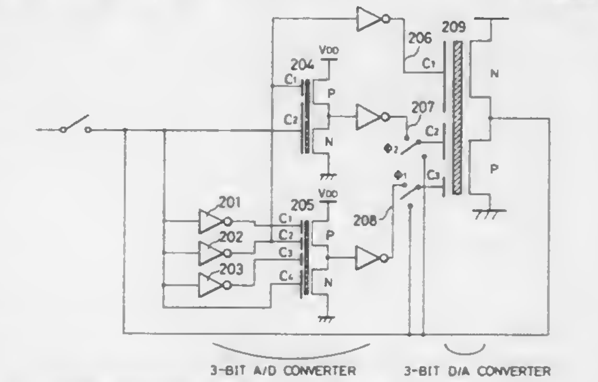
PCT No. PCT/JP95/00204, § 371 Date Aug. 12, 1996, § 102(e) Date Aug. 12, 1996, PCT Pub. No. WO95/22146, PCT Pub. Date Aug. 17, 1995

PCT Filed Feb. 14, 1995, Ser. No. 702,689

Claims priority, application Japan, Feb. 14, 1994, 6-017669

Int. Cl.^{6} H03M *1/12*

U.S. Cl. 341—136 **8 Claims**



1. A semiconductor circuit, comprising:

a first circuit which converts a first signal into a signal group comprising a plurality of quantized signals;

a second circuit which converts said signal group into a second signal of a plurality of multivalued signals;

means for feeding back said second signal to said first circuit as said first signal;

means for electrically separating at least one quantized signal of said signal group from the input of said second circuit; and

a means for feeding back said second signal to said input of said second circuit instead of said at least one quantized signal of said signal group.

5,784,019

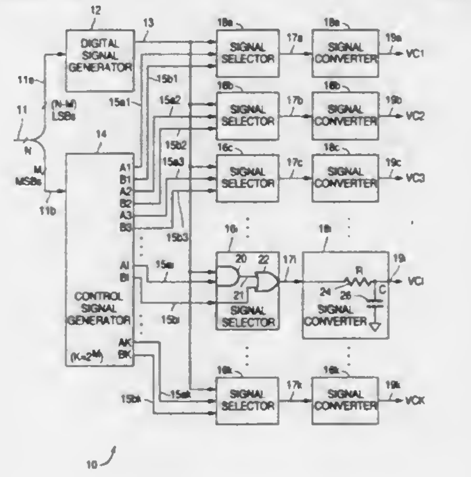
DIGITAL TO ANALOG CONVERTER FOR GENERATING DISTRIBUTIVE ANALOG CONTROL SIGNALS UTILIZING DIGITAL SIGNAL GENERATOR AND CONTROL SIGNAL GENERATOR

Hee Wong, San Jose, and Abhijit Phanse, Santa Clara, both of Calif., assignors to National Semiconductor Corporation, Santa Clara, Calif.

Filed Jan. 30, 1997, Ser. No. 791,367

Int. Cl.^{6} H03M *1/00*

U.S. Cl. 341—141 **23 Claims**



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1. An apparatus including a digital-to-digital converter for converting a plurality of input digital signal bits into a plurality of representative digital output signals, comprising:

a digital signal generator configured to receive a first portion of a plurality of input digital signal bits and in accordance therewith provide one or more intermediate digital signals with one or more corresponding digital pulse densities which vary in relation to and correspond to a digital count of said first portion of said plurality of input digital signal bits;

a control signal generator configured to receive a second portion of said plurality of input digital signal bits and in accordance therewith provide a plurality of digital control signal sets; and

a plurality of signal selectors, coupled to said digital signal generator and said control signal generator, wherein each one of said plurality of signal selectors is configured to receive said one or more intermediate digital signals and a corresponding one of said plurality of digital control signal sets and in accordance therewith provide a corresponding one of a plurality of digital output signals, and wherein each one of said plurality of digital control signal sets determines whether said one or more intermediate digital signals or an individual signal of said each one of said plurality of digital control signal sets is provided as said corresponding one of said plurality of digital output signals.

5,784,020

ANALOG-TO-DIGITAL CONVERTING DEVICE FOR INCREASING THE NUMBER OF ANALOG INPUT CHANNELS

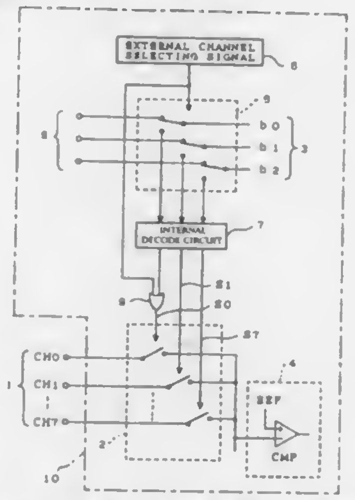
Hideo Inoue, Hyogo, Japan, assignor to Mitsubishi Denki Kabushiki Kaisha, Tokyo, and Mitsubishi Electric Semiconductor Sofware Co., Ltd., Hyogo, both of Japan

Continuation of Ser. No. 532,316, Sep. 21, 1995, abandoned. This application Aug. 21, 1997, Ser. No. 915,587

Claims priority, application Japan, May 12, 1995, 7-114431

Int. Cl.^{6} H03M *1/12*

U.S. Cl. 341—141 **19 Claims**



1. An analog-to-digital converting device comprising:

a decode circuit which decodes a channel control word to select one input channel from among a plurality of input channels to produce a corresponding channel selecting signal;

a multiplexer which selects one analog input terminal from among a plurality of analog input terminals according to the channel selecting signal output by said decode circuit to transmit an analog signal applied to the selected analog input terminal for analog-to-digital conversion; and

external channel control means, responsive to an external channel selecting signal applied thereto, for changing the destination of the channel control word from said decode circuit to an external decode circuit located outside said analog-to-digital converting device via a channel control output terminal and for controlling said multiplexer so as to select one predetermined analog input terminal from among the plurality of analog input terminals for analog-to-digital conversion, at least one of the plurality of analog input terminals coupled to one analog output terminal of said external decode circuit.

5,784,021

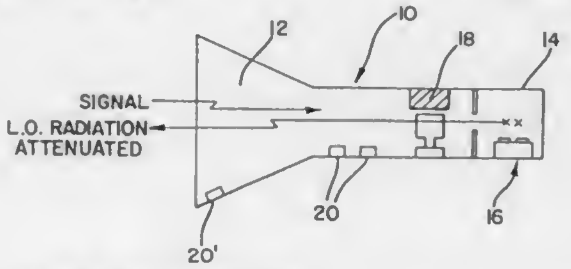
NOISELESS RADAR DETECTOR

David C. Oliva, Chicago, Ill., assignor to Cobra Electronics Corporation, Chicago, Ill.

Filed Jan. 25, 1996, Ser. No. 591,706

Int. Cl.^{6} G01S *7/40*

U.S. Cl. 342—20 **12 Claims**



1. A radar detector, comprising:

receiving means for receiving a modulated microwave signal;

demodulating means for demodulating a desired mixing carrier wave from the microwave signal, wherein said demodulating means comprises:

a local oscillator oscillating at a frequency corresponding to the carrier wave; and

a mixing diode to subtract or add the carrier wave from or to the microwave signal; and

a dielectric resonator detached from said demodulating means having a resonant frequency corresponding to the carrier wave to suppress the carrier wave after the carrier wave is demodulated from the microwave signal.

5,784,022

PROCESS AND AMPLITUDE OR PHASE MONOPULSE RADAR DEVICE FOR LOCATING FLYING OBJECTS

Hanspeter Küpfer, Birmensdorf, Switzerland, assignor to Siemens Switzerland AG, Zurich, Switzerland

PCT No. PCT/CH96/00124, § 371 Date May 2, 1997, § 102(e) Date May 2, 1997, PCT Pub. No. WO97/22890, PCT Pub. Date Jun. 26, 1997

PCT Filed Apr. 9, 1996, Ser. No. 817,703

Claims priority, application Switzerland, Dec. 19, 1995, 03590/95

Int. Cl.^{6} G01S *13/44;13/72*

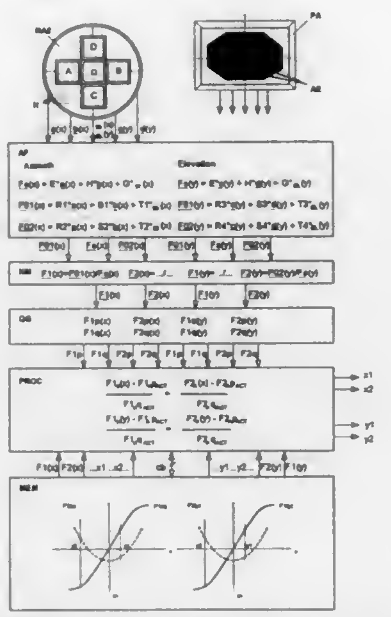
U.S. Cl. 342—80 **31 Claims**

1. A process for an amplitude or phase monopulse radar device for position measurement of a first target (TT1) and if need be, a second target (TT2) detected by the radar beam from the directions x1, y1; x2, y2, whose echo signals overlap, having a horn or array antenna (HA; PA), which, for one measurement axis x, has at least three subantennas (A, B, Ω) that are embodied and disposed in such a way that with their output signals, two linear combinations FO1(x) and FO2(x) can be formed, by means of which, after normalization with a third linear combination Fs(x) of output signals, two antenna functions

$$F1(x)=FO1(x)/Fs(x)=F1p(x)+jF1q(x), \text{ with } F1p(x) \text{ or } F1q(x)=0$$

$$F2(x)=FO2(x)/Fs(x)=F2p(x)+jF2q(x), \text{ with } F2p(x) \text{ or } F2q(x)=0$$

are formed, which are linearly independent of each other, purely real or purely imaginary, and independent of target offset positions perpendicular to the measurement axis, that these antenna functions F1(x) and F2(x) are measured for the single-target case and the function values that are dependent upon the target offset position x are stored, that measurement values



$F1_{ACT}=F1p_{ACT}+F1q_{ACT}$, in the two-target case with $F1p_{ACT}$ and $F1q_{ACT}\neq 0$,

$F2_{ACT}=F2p_{ACT}+F2q_{ACT}$, in the two-target case with $F2p_{ACT}$ and $F2q_{ACT}\neq 0$

are determined according to the antenna functions F1(x) and F2(x) for the targets (TT1, TT2) detected by the radar beam, and the equation given below for the amplitude monopulse process (index A) or the phase monopulse process (index ϕ) is solved for the target directions x1 and x2 by using the stored function values:

$$\frac{F1_A(x)-F1_A p_{ACT}}{F1_A q_{ACT}}=\frac{F2_A(x)-F2_A p_{ACT}}{F2_A q_{ACT}}$$

$$\frac{-j^{*}\,F1_\phi(x)-F1_\phi q_{ACT}}{-F1_\phi p_{ACT}}=\frac{F2_\phi(x)-F2_\phi p_{ACT}}{F2_\phi q_{ACT}}.$$

5,784,023

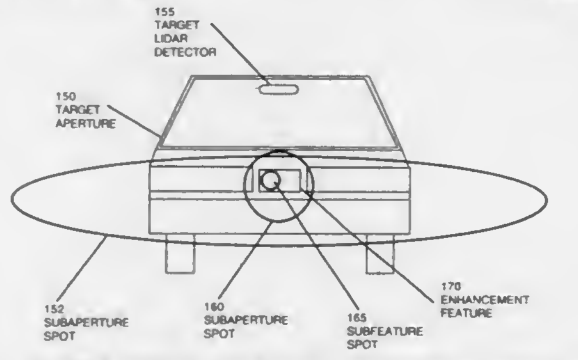
SPEED DETECTION METHOD

John Bluege, 450 Hawthorne Dr., Lake Park, Fla. 33403

Filed Jun. 26, 1995, Ser. No. 494,755

Int. Cl.^{6} G01S *13/58*

U.S. Cl. 342—104 **31 Claims**



1. A spatio-temporal characteristic determination method of improved reliability comprising:

the radiation of energy,

the configuration of a portion of said radiation as at least one energy beam which is directed into an at least one dimensional array comprising at least two subapertures within an interrogation region, said interrogation region comprising the full extent in angular range, sometimes called a full field of view, within which said determination method operates,

the placement of a substantial fraction of said radiation from at least one subaperture beam within the target aperture, which substantially intercepts a portion of a remote target in at least one axis throughout the majority of its operating range, wherein said axis is nominally perpendicular to the propagation direction of said beam,

the maintainance of a portion of said radiation within the angular subtense of said target in a manner sufficient for spatio-temporal characteristic determination, and

the collection and analysis of the radiation returned from said target.

5,784,024

ARRANGEMENT FOR POSITION-SELECTIVE SPEED MEASUREMENT USING THE DOPPLER PRINCIPLE

Patric Heide; Richard Schubert, both of München; Rudolf Schwarte, Netphen, and Valentin Mágori, München, all of Germany, assignors to Siemens Aktiengesellschaft, Munich, Germany

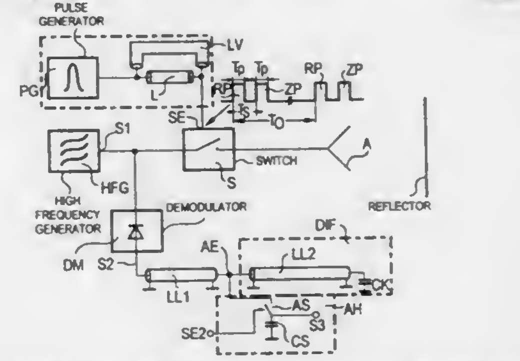
PCT No. PCT/DE95/00746, § 371 Date Dec. 10, 1996, § 102(e) Date Dec. 10, 1996, PCT Pub. No. WO95/34829, PCT Pub. Date Dec. 21, 1995

PCT Filed Jun. 7, 1995, Ser. No. 750,480

Claims priority, application Germany, Jun. 10, 1994, 44 20 432.9

Int. Cl.^{6} G01S *13/08*

U.S. Cl. 342—104 **7 Claims**



1. An arrangement for position-selective speed measurement using the Doppler principle, comprising:

a means for producing a pulse sequence which has a reference pulse and a target pulse,

a radio-frequency generator,

a means for switching said periodic signal as a function of the pulse sequence,

a demodulator which is connected to the radio-frequency generator and to the means for switching,

a means for signal sampling

a means for subtraction for forming a difference between the demodulated signals which are demodulated during occurrence of the reference pulse and of the target pulse, and

the target pulse after a time interval to the control input of the means for switching, after which the periodic signal which is emitted during occurrence of the reference pulse can be received again.

5,784,025

Patent Not Issued For This Number

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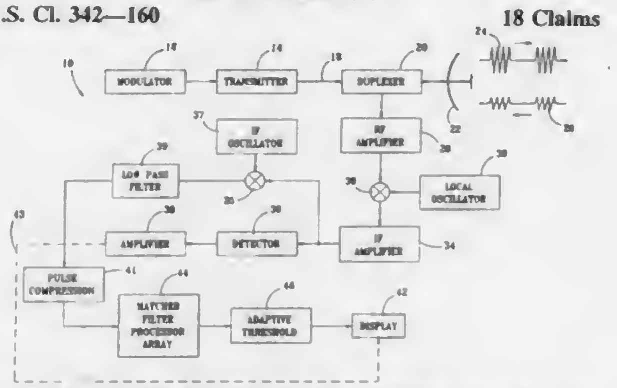
5,784,026
RADAR DETECTION OF ACCELERATING AIRBORNE TARGETS

Winthrop Whitman Smith, and George Marvin Eargle, both of Greenville, Tex., assignors to Raytheon E-Systems, Inc., Dallas, Tex.

Filed Sep. 23, 1996, Ser. No. 710,892

Int. Cl.^{6} G01S *13/53*

U.S. Cl. 342—160 **18 Claims**



1. A radar system for detecting an accelerating airborne target against a cluttered background comprising:

- a transmitter for generating a pulse signal;
- an antenna coupled to the transmitter for transmitting the pulse signal and receiving an echo wave from the accelerating airborne target and the cluttered background, said echo wave comprising a target echo wave and a clutter echo wave;
- a receiver coupled to the antenna for processing the echo wave;
- a plurality of matched filters coupled to the receiver for filtering the processed echo wave, each of the plurality of filters having coefficients to pass a specific target acceleration rate of the target echo wave and to substantially attenuate the clutter echo wave; and
- a plurality of sliding window integrators connected in a one-on-one arrangement to the plurality of matched filters for processing the output of the associated filter to detect the accelerating airborne target.

5,784,027
SNAP POSITION BENCHMARK DATABASE AND METHOD FOR RAPID COLD START INITIALIZATION OF BASE STATION RECEIVERS

Ronald G. D. Davis, Fremont, Calif., assignor to Trimble Navigation Limited, Sunnyvale, Calif.

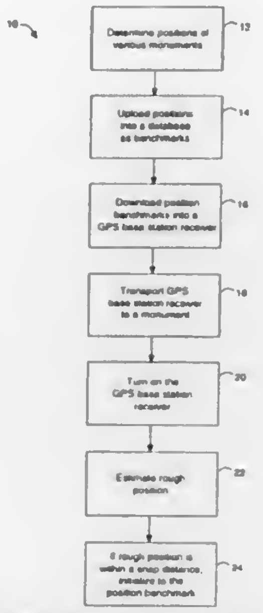
Filed Mar. 18, 1996, Ser. No. 619,260

Int. Cl.^{6} H04B *7/185;* **G01S** *5/02*

U.S. Cl. 342—357 **6 Claims**

1. A method comprising the steps of:

- determining a survey position of at least one monument in a field of survey;
- uploading said monument survey positions to a computer storage database as a survey-position benchmark;
- downloading at least one survey-position benchmark to a satellite base station receiver while at a first position;
- wherein, a collection of monument position benchmarks is assembled into said computer storage database to provide for a rapid cold start initialization of said receiver according to one or more of the position benchmarks to sub-centimeter level accuracy;
- transporting said satellite base station receiver from said first position to one of said monuments;
- cold starting said satellite base station receiver at a location proximate to a survey position determined in the step of determining;
- estimating the rough position of said satellite base station receiver; and
- replacing said rough position estimate with said corresponding position benchmark in said satellite base station receiver if said rough position estimate is not greater than a predetermined distance "D" from a corresponding survey position determined in the step of determining.


10
Determine positions of various monuments
12
Upload positions into a database as benchmarks
14
Download position benchmarks into a GPS base station receiver
16
Transport GPS base station receiver to a monument
18
Turn on the GPS base station receiver
20
Estimate rough position
22
If rough position is within a snap distance, initialize to the position benchmark
24

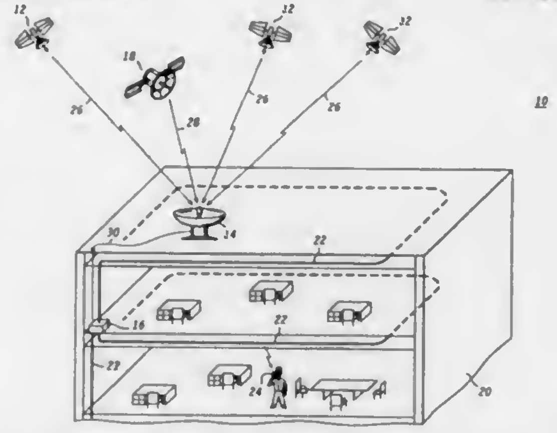
5,784,028
METHOD AND APPARATUS FOR SIMPLEX DELIVERY OF SIGNALS TO OBSTRUCTED GEOGRAPHICAL AREAS

David W. Corman, Gilbert; Bary R. Bertiger, Scottsdale; Dean L. Cook, Mesa; Norbert Kleiner, Scottsdale, and Kristine P. Maine, Phoenix, all of Ariz., assignors to Motorola, Inc., Schamburg, Ill.

Filed Jun. 27, 1996, Ser. No. 670,309

Int. Cl.^{6} G01S *5/02*

U.S. Cl. 342—357 **26 Claims**



5. A method for providing a signal to a communication unit located within an area where an obstruction exists between a transmitter of the signal and the communication unit, the method comprising the steps of:

- a) receiving the signal from the transmitter by a device located in a proximity to but outside the area where the obstruction exists; and
- b) retransmitting the signal within the area, by the device, by applying the signal to a signal distribution means which is dispersed throughout the area wherein the retransmitting step enables the obstruction to be bypassed so that the communication unit can receive the signal.

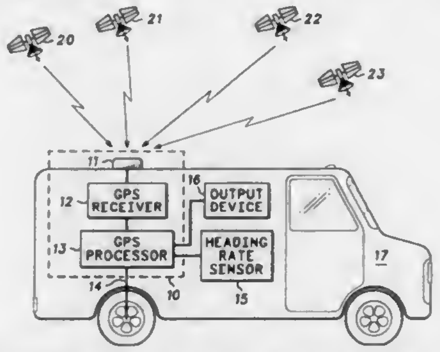
5,784,029
RECOGNITION OF AND METHOD AND APPARATUS FOR GPS ANTENNA LEVER ARM COMPENSATION IN INTEGRATED GPS/DEAD RECKONING NAVIGATION SYSTEMS

George Jeffrey Geier, Scottsdale, Ariz., assignor to Motorola, Inc., Schaumburg, Ill.

Filed Oct. 28, 1996, Ser. No. 739,010

Int. Cl.^{6} H04B *7/185;* **G01S** *5/02*

U.S. Cl. 342—357 **22 Claims**



1. A method for improving the heading of a global positioning satellite (GPS) receiver installed on a movable vehicle, the GPS receiver including a GPS antenna for receiving GPS signals, the method comprising the steps of:

- recognizing that when the movable vehicle is turning the GPS antenna has a velocity component not aligned with a velocity of the movable vehicle when the GPS antenna is offset relative to a center of rotation of the vehicle;
- recognizing that said velocity component of the GPS antenna causes error in heading of the GPS receiver; and
- compensating the heading of the GPS receiver based upon the recognition of said velocity component of the GPS antenna using an external source of heading.

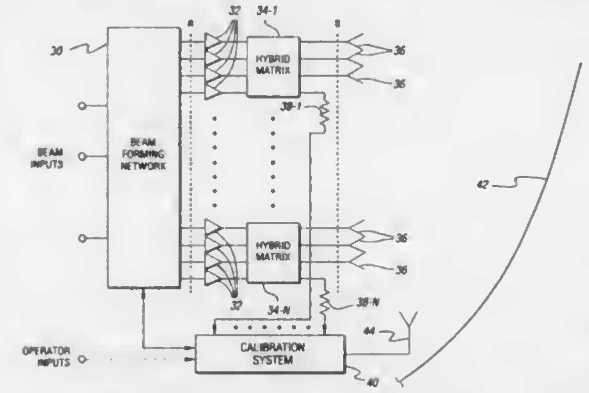
5,784,030
CALIBRATION METHOD FOR SATELLITE COMMUNICATIONS PAYLOADS USING HYBRID MATRICES

Steven O. Lane; Douglas T. Bell, both of Torrance, and Kary L. O'Connor, Long Beach, all of Calif., assignors to Hughes Electronics Corporation, El Segundo, Calif.

Filed Jun. 6, 1996, Ser. No. 656,974

Int. Cl.^{6} H01Q *3/22;* **G01S** *7/40*

U.S. Cl. 342—373 **13 Claims**



1. A communication payload system comprising:

- a beam forming network having at least one input port and a plurality of output ports, said at least one input port being mapped to selected output ports, said beam forming network providing an appropriate amplification and phase shift between said at least one input port and said output ports;
- a plurality of amplifiers, each amplifier of said plurality of amplifiers having an input connected to a respective one of said output ports of said beam forming network and an output;
- at least one hybrid matrix having a predetermined number of inputs and a corresponding number of outputs, said predetermined number of inputs of said at least one hybrid matrix being connected to said output of a respective one of said plurality of amplifiers;
- a calibration sample output port connected to one of said outputs of each of said at least one hybrid matrix, said calibration sample output port producing a first calibration sample having a value corresponding to the power output from said hybrid matrix; and
- a calibration system responsive to at least said first calibration sample to generate corrections applied to said beam forming network to maintain the calibration of said payload system.

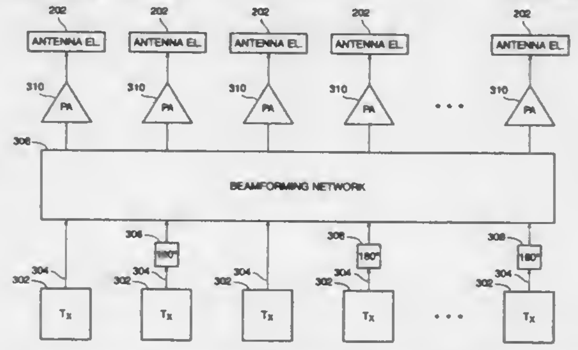
5,784,031
VERSATILE ANTTENNA ARRAY FOR MULTIPLE PENCIL BEAMS AND EFFICIENT BEAM COMBINATIONS

Anthony J. Weiss, Tel Aviv; David Lipman, Mivseret Zion; Yair Karmi, Rishon Lezion, all of Israel; Ilan Zorman, and Haim Harel, both of Palo Alto, Calif., assignors to Wireless Online, Inc., Los Altos, Calif.

Filed Feb. 28, 1997, Ser. No. 808,347

Int. Cl.^{6} H01Q *3/22*

U.S. Cl. 342—373 **15 Claims**



1. Apparatus for generating a desired radiation pattern using a multiple element antenna array, said desired radiation pattern including a plurality of spatially overlapping beams, said apparatus comprising:

- a plurality of exciter inputs, each exciter input accepting an excitation signal for a corresponding beam of said desired radiation pattern;
- a beamforming network that receives each said excitation signal and generates an output signal for each element of said array so that said array outputs said desired radiation pattern; and
- an exciter input for every other beam of said desired radiation pattern including a substantially 180 degree phase shifter to apply a substantially 180 degree phase shift prior to input to said beamforming network to minimize interference between adjacent beams of said desired radiation pattern.

5,784,032
COMPACT DIVERSITY ANTENNA WITH WEAK BACK NEAR FIELDS

Ronald H. Johnston, Calgary, and Laurent Joseph Levesque, Winnipeg, both of Canada, assignors to Telecommunications Research Laboratories, Edmonton, Canada

Filed Nov. 1, 1995, Ser. No. 551,547

Int. Cl.^{6} H01Q *1/24*

U.S. Cl. 343—702 **65 Claims**

1. An antenna for use in a radio system, wherein the radio system operates at an operating frequency, the antenna comprising:

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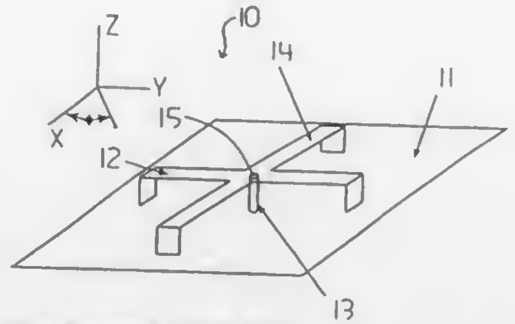


means forming a ground plane;

a first antenna element extending in a loop from a first part of the ground plane to a second part of the ground plane;

a second antenna element extending in a loop from a third part of the ground plane to a fourth part of the ground plane, the second antenna element intersecting the first antenna element at an intersection;

a third antenna element forming a conducting reactively top loaded monopole intersecting the first and second antenna elements at the intersection of the first and second antenna elements;

feed means to feed electric signals to the first and second antenna elements; and

the feed means being configured to supply the first and second antenna elements with currents that are essentially 180° out of phase, and thereby to produce a virtual ground at the intersection of the first and second antenna elements, whereby the first, second and third antenna elements are electrically isolated from each other at the operating frequency.

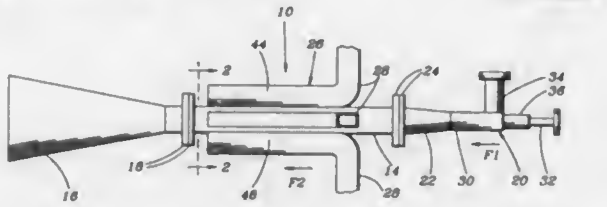
5,784,033
PLURAL FREQUENCY ANTENNA FEED

Frank Boldissar, Jr., Redondo Beach, Calif., assignor to Hughes Electronics Corporation, El Segundo, Calif.

Filed Jun. 7, 1996, Ser. No. 660,314

Int. Cl.^{6} H01Q *13/00*

U.S. Cl. 343—786 **21 Claims**



1. A method of communicating two different electromagnetic wave signals having frequencies falling within two different frequency bands via a single antenna, the method comprising the steps of:

providing a first waveguide for concurrently carrying first and second electromagnetic signals without interference therebetween, the first signals having a frequency in a first band and the second signals having a frequency in a second band different than the first band;

locating a second waveguide adjacent and parallel to said first waveguide;

aligning a series of coupling holes defined in said second waveguide with a series of holes defines in said first waveguide; and

dielectrically loading said second waveguide with dielectric material extending along said second waveguide opposite said holes to inhibit the first signals from passing between the first and second waveguides and for facilitating communication of the second signals between said first and second waveguides.

5,784,034
ANTENNA APPARATUS

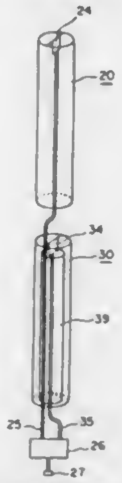
Yoshihiko Konishi, Kanagawa; Masataka Ohtsuka, Hyogo; Yoshiyuki Chatani, Kanagawa; Makoto Matsunaga, Kanagawa; Shuji Urasaki, Kanagawa, and Takashi Katagi, Kanagawa, all of Japan, assignors to Mitsubishi Denki Kabushiki Kaisha, Tokyo, Japan

Continuation of Ser. No. 340,274, Nov. 15, 1994, abandoned. This application Jan. 27, 1997, Ser. No. 789,685

Claims priority, application Japan, Nov. 18, 1993, 5-289525; Feb. 23, 1994, 6-025602

Int. Cl.^{6} H01Q *1/36*

U.S. Cl. 343—895 **5 Claims**



1. An antenna apparatus, comprising:

a plurality of non-overlapping helical antennas, each including at least one conductive wire disposed directly on a dielectric cylinder, said at least one conductive wire is spirally wound at equal intervals with a predetermined pitch, said plurality of the helical antennas being axially aligned so that the axes of said helical antennas substantially coincide end-to-end with each other; and

feeding means for feeding a signal to said at least one conductive wire of said helical antennas; and

wherein at least one cylindrical conductive pipe is disposed inside said dielectric cylinder and substantially coaxial with at least one of said helical antennas and said feeding means for said at least one conductive wire of said helical antennas are disposed through the inside of said at least one conductive pipe; and wherein said at least one conductive pipe is electrically insulated from said helical antennas and said feeding means.

5,784,035
LARGE SCREEN DISPLAY APPARATUS USING A PLURALITY OF DISPLAY SCREENS

Toshiyuki Hagiwara; Atsushi Tanaka; Manami Ozono, and Masatoshi Kameyama, all of Tokyo, Japan, assignors to Mitsubishi Denki Kabushiki Kaisha, Tokyo, Japan

Filed Oct. 16, 1996, Ser. No. 734,405

Claims priority, application Japan, Jan. 29, 1996, 8-013068

Int. Cl.^{6} G09G *5/00*

U.S. Cl. 345—3 **19 Claims**

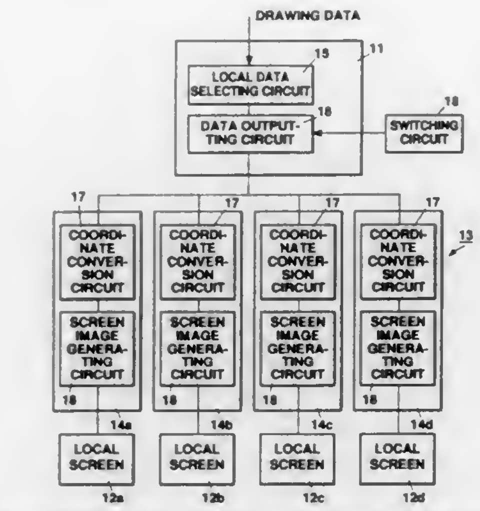
1. A large screen display apparatus, comprising:

a plurality of displays which together act as a single screen for displaying an object;

a screen data generating section for generating screen data for forming the object; and

a plurality of local data generating sections connected to respective displays for converting coordinates of the screen data from the screen data generating section into a local coordinate system corresponding to the respective displays, wherein

said screen data generating section includes a local data selecting circuit for selecting from the screen data, local screen data for local screens corresponding to the respective displays, and



a data outputting circuit for sending selected local screen data in a predetermined order to a corresponding local data generating section, and

a switching circuit is connected to said data outputting circuit for switching said predetermined order in accordance with content of the object.

5,784,036
HEAD-UP DISPLAY DEVICE HAVING SELECTIVE DISPLAY FUNCTION FOR ENHANCED DRIVER RECOGNITION

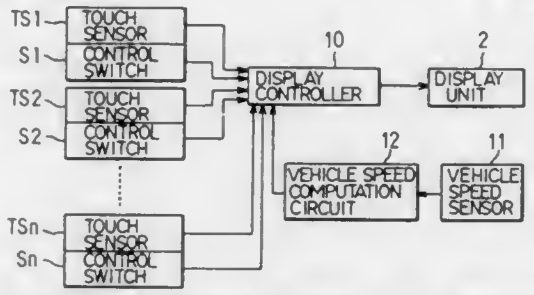
Masahiro Higuchi, Chiryu, and Naohito Kanamori, Yokkaichi, both of Japan, assignors to Nippondenso Co., Ltd., Kariya, Japan

Filed May 6, 1996, Ser. No. 642,762

Claims priority, application Japan, May 26, 1995, 7-128346

Int. Cl.^{6} G09G *5/00*

U.S. Cl. 345—7 **14 Claims**



1. A head-up display device for creating a display image in front of a vehicle's windshield by reflecting an image at an inner side of the windshield, said head-up display device comprising:

a display unit for emitting display light corresponding to images representing control switches installed in a vehicle;

an optical reflector for reflecting said display light emitted by said display unit;

a touch detection sensor for detecting user touch on said control switches; and

display control means for controlling said display unit to: (1) emit only display light corresponding to images representing a specified one of said control switches and related control switches associated with said specified control switch when said touch detection sensor detects user touch on said specified control switch, (2) highlight the image representing said specified control switch in contrast to the images representing said related control switches using a highlight pattern when said touch detection sensor detects the user touch on said specified control switch, and (3) further highlight the image representing said specified control switch in contrast to the images representing said related control switches using a second highlight pattern when said specified control switch is actuated by the user after the user touch.

5,784,037
DISPLAY SYSTEM

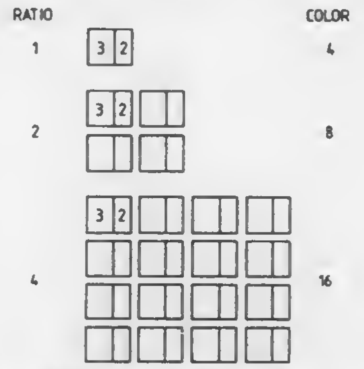
Hiroshi Inoue, Yokohama, Japan, assignor to Canon Kabushiki Kaisha, Tokyo, Japan

Continuation of Ser. No. 959,461, Oct. 9, 1992, abandoned, which is a continuation of Ser. No. 480,570, Feb. 15, 1990, abandoned. This application Sep. 13, 1994, Ser. No. 304,816

Claims priority, application Japan, Sep. 1, 1989, 1-226632

Int. Cl.^{6} G09G *3/36*

U.S. Cl. 345—87 **44 Claims**



1. A display system using a display panel in which signal electrodes and information signal electrodes are arranged in a matrix and a liquid crystal is sandwiched between both of the signal and information signal electrodes, wherein signals and information signals are respectively applied to the signal electrodes and the information signal electrodes to thereby drive said signal and information signal electrodes, said display system comprising:

memory means for storing image data to be displayed by the display panel;

display mode memory means for storing a display mode as a driving condition of the display panel with respect to the image data to be displayed by the display panel;

determining means for determining numbers of vertical and horizontal pixels to display the image data on the display panel, based on the display mode;

read out means for reading out the image data from said memory means; and

display control means for displaying data of one pixel of the read out image data to plural pixels of the display panel, based on said numbers of vertical and horizontal pixels and numbers of vertical and horizontal pixels of the display panel, and

wherein said image data and a scan line address of the image data are provided in accordance with the display mode, the scan line address identifying a specific scan line of the display panel where the image data is to be displayed, and the display being performed by the signal electrodes driven on the basis of the image data.

5,784,038
COLOR PROJECTION SYSTEM EMPLOYING DUAL MONOCHROME LIQUID CRYSTAL DISPLAYS WITH MISALIGNMENT CORRECTION

Dean Irwin, Novato, Calif., assignor to WAH-III Technology, Inc., Novato, Calif.

Filed Oct. 24, 1995, Ser. No. 547,150

Int. Cl.^{6} G09G *3/36*

U.S. Cl. 345—88 **8 Claims**

1. A color projection system comprising:

means for projecting optically received images;

means including a first LCD having a first plurality of monochrome pixels, for optically transmitting over a first optical

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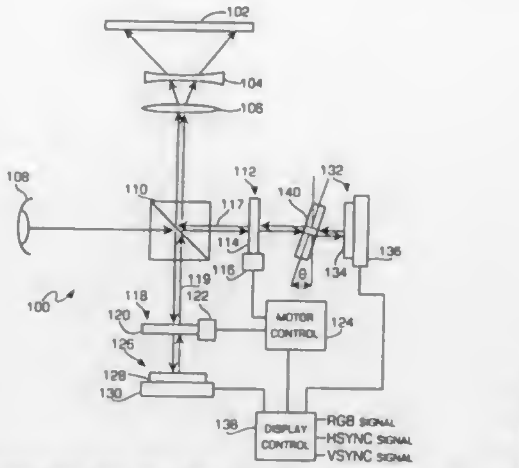


path extending from said first LCD to said projecting means, monochrome images displayed on said first plurality of monochrome pixels of said first LCD;

means including a second LCD having a second plurality of pixels, for optically transmitting over a second optical path extending from said second LCD to said projecting means, monochrome images displayed on said second plurality of monochrome pixels of said second LCD;

means for interposing a first repetitive sequence of red, green and blue colored windows into said first optical path such that said optically transmitted monochrome images displayed on said first plurality of monochrome pixels of said first LCD are converted into corresponding color images to be received by said projecting means,

means for interposing a second repetitive sequence of red, green and blue windows, 180 degrees out of phase with said first repetitive sequence, into said second optical path such that said optically transmitted monochrome images displayed on said second plurality of monochrome pixels of said second LCD are converted into corresponding color images to be received by said projecting means;

means responsive to an RGB signal, for activating selected ones of said first plurality of pixels of said first LCD corresponding to the color of the window being interposed into said first optical path by said first repetitive sequence interposing means, and selected ones of said second plurality of pixels of said second LCD corresponding to the color of the window being interposed into said second optical path by said second repetitive sequence interposing means; and

means for aligning the optically transmitted monochrome images displayed on said first plurality of pixels of said first LCD and the optically transmitted monochrome images displayed on said second plurality of pixels of said second LCD, wherein said aligning means includes an angled sheet of transparent material interposed into said first optical path.

5,784,039
LIQUID CRYSTAL DISPLAY AC-DRIVE METHOD AND LIQUID CRYSTAL DISPLAY USING THE SAME

Masaru Yasui; Takeo Kamiya, both of Kobe, and Masanori Hosomichi, Akashi, all of Japan, assignors to Hosiden Corporation, Osaka, Japan

PCT No. PCT/JP94/00987, § 371 Date Feb. 22, 1995, § 102(e) Date Feb. 22, 1995, PCT Pub. No. WO95/00944, PCT Pub. Date Jan. 5, 1995

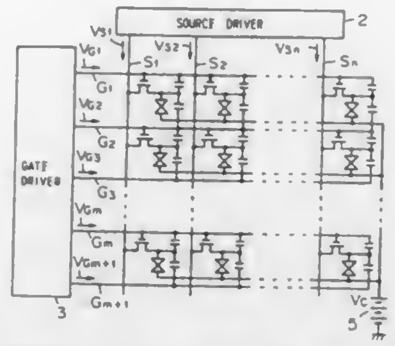
PCT Filed Jun. 21, 1994, Ser. No. 387,915

Claims priority, application Japan, Jun. 25, 1993, 5-155587; Sep. 22, 1993, 5-236282; May 23, 1994, 6-108108

Int. Cl.^{6} G09G *3/36*

U.S. Cl. 345—89 **13 Claims**

1. A method for driving an active matrix liquid crystal display wherein pixels L_{ij} defined by liquid crystal cells each formed by a display electrode and a common electrode separated by liquid crystal held therebetween are arranged in a matrix form; source buses S_j arranged in columns, where j=1 to n, and gate buses G_i arranged in rows, where i=1 to m+1, are provided corresponding to said matrix array of pixels; thin film transistors Q_{ij} are formed, each having a source connected to one of said source buses near the intersection of said one source bus and one of said gate buses, a gate connected to said one gate bus and a drain connected to a corresponding one of said display electrodes; a signal storage capacitor is formed in each of said pixels L_{ij}, said signal storage capacitor having its one electrode connected to said corresponding display electrode and having the other electrode connected to said gate bus G_{i+1}; a DC voltage is applied as a common voltage V_c to said common electrode; a gray-scale level signal V_a is applied from a source driver to all of said source buses every horizontal scanning period H; and gate pulses P_G of a high level V_{GH} are each applied from a gate driver to said gate buses one after another every horizontal scanning period H to turn ON the thin film transistors connected to the gate buses during the period of the gate pulses P_G;



wherein:

(a) said gray-scale level signal V_a, which is applied to pixels on a selected one of said gate buses, is added, with its polarity inverted every predetermined alternating period, to first and second source bias voltages V_{S+} and V_{S-} which are generated alternately with said alternating period, whereby source voltages are obtained, said source voltages being outputted to said source buses;

(b) a gate voltage V_G includes a period of said high-level gate pulse which holds said each thin film transistor in the ON state substantially during said horizontal scanning period H in each frame period, a gate bias period which immediately precedes the rise of each of said gate pulses and during which either one of first and second gate bias voltages V_{x1} and V_{x2} is assumed and a period of a predetermined low-level voltage V_{GL} which holds said each thin film transistor in the OFF state during said frame period except said gate pulse period and said gate bias period, said gate voltage V_G being applied to said gate buses so that said gate pulses are sequentially displaced said horizontal scanning period H apart, and said gate bias period of an i-th row has a wide span from the time of rise of said gate pulse on said i-th row to the time prior to the fall of said gate pulse on the immediately preceding (i-1)th row, whereby said first and second gate bias voltages V_{x1} and V_{x2}, which are applied to said i-th row, are alternately added to said gate voltage V_G in positive and negative write periods in AC-wise driving of the pixels on the (i-1)th row, respectively; and

said gate pulse P_G is not added to a gate voltage V_{Gm+1} of the last gate bus and this gate voltage is added with the first and second bias voltages V_{x1} and V_{x2} alternately and then goes to said low-level voltage V_{GL}.

5,784,040
IMAGE INFORMATION PROCESSOR

Mitsugu Kobayashi, Nagoya; Makoto Fujioka, Ogaki; Atsuyoshi Tanioka; Kazuhiko Moriwaki, both of Gifu; Makoto Shimizu, and Hisao Uehara, both of Ogaki, all of Japan, assignors to Sanyo Electric Co., Ltd., Osaka, Japan

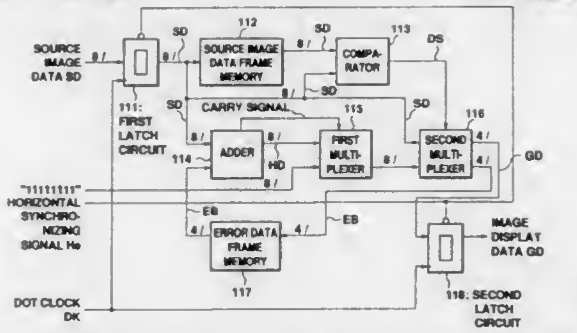
Division of Ser. No. 128,476, Sep. 28, 1993, Pat. No. 5,596,349.

This application Feb. 6, 1996, Ser. No. 597,119

Claims priority, application Japan, Sep. 30, 1992, HEI 5-262174; Sep. 30, 1992, HEI 4-262175; Oct. 2, 1992, HEI 4-264873; Oct. 23, 1992, HEI 4-286054; Oct. 23, 1992, HEI 4-286055; Nov. 17, 1992, HEI 4-307210; Nov. 17, 1992, HEI 4-307211; Nov. 18, 1992, HEI 4-308856; Nov. 26, 1992, HEI 4-316751; Feb. 17, 1993, HEI 5-28155

Int. Cl.^{6} G09G *5/10*

U.S. Cl. 345—89 **10 Claims**



1. An image information processor for generating display data which is applied to a display to produce an image composed of a succession of frames, each frame containing an array of picture elements, or pixels, the display data for each pixel being composed of L image display bits, where L is a natural number equal to or greater than 2, and for causing the image to present pseudo representations of gradations represented by P image data bits, where P is a natural number greater than L, said image information processor comprising:

(a) processing means for generating (L+1)-bit image display data from the P-bit source image data;

(b) means for generating a control signal in response to predetermined information; and

(c) information generation means being responsive to said control signal for executing or suppressing addition of the least significant bit of said (L+1)-bit image display data and at least high-order bits of said (L+1)-bit image display data and generating L-bit image display data.

5,784,041
DRIVING CIRCUIT FOR DISPLAY DEVICE

Hisao Okada, Ikoma-gun; Sunao Eto, Tenri, and Mikio Hashimoto, Nara, all of Japan, assignors to Sharp Kabushiki Kaisha, Osaka, Japan

Filed Mar. 20, 1997, Ser. No. 825,673

Claims priority, application Japan, Mar. 21, 1996, 8-065032

Int. Cl.^{6} G09G *3/36*

U.S. Cl. 345—89 **7 Claims**

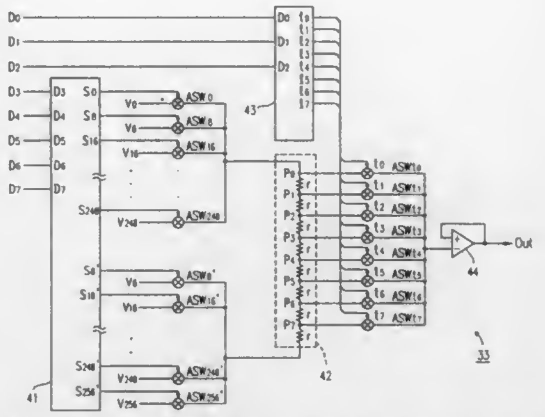
1. A driving circuit for a display device for displaying a plurality of gray levels in accordance with digital data including a first bit portion and a second bit portion, the driving circuit comprising:

a first voltage dividing circuit for dividing a plurality of gray level voltages so as to generate a plurality of first interpolation voltages between the plurality of gray level voltages;

a first selection circuit for selecting a first voltage and a second voltage different from the first voltage among the plurality of gray level voltages and the plurality of first interpolation voltages in accordance with the first bit portion of the digital data;

a second voltage dividing circuit for dividing the first voltage and the second voltage so as to generate a plurality of second interpolation voltages between the first voltage and the second voltage; and

a second selection circuit for selecting one voltage among at least one of the first voltage and the second voltage and the plurality of second interpolation voltages.



5,784,042
LIQUID CRYSTAL DISPLAY DEVICE AND METHOD FOR DRIVING THE SAME

Kikuo Ono, Naka-machi, and Nobutake Konishi, Hitachiota, both of Japan, assignors to Hitachi, Ltd., Tokyo, Japan

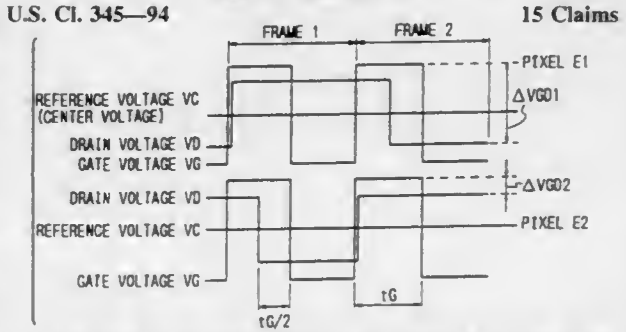
Continuation of Ser. No. 852,664, Mar. 17, 1992, abandoned.

This application Jan. 5, 1995, Ser. No. 369,266

Claims priority, application Japan, Mar. 19, 1991, 3-054344

Int. Cl.^{6} G09G *3/36*

U.S. Cl. 345—94 **15 Claims**



1. A method for driving a liquid crystal display device, the liquid crystal display device including

a liquid crystal pixel, and

a thin film transistor having a source, a drain, and a gate, the source of the thin film transistor being coupled to the liquid crystal pixel,

the method comprising the steps of:

applying a drain voltage indicative of a video signal to the drain of the thin film transistor, the drain voltage having a first drain voltage value at a first time;

applying a gate voltage pulse to the gate of the thin film transistor, the gate voltage pulse being a gate voltage which changes from a first gate voltage value to a second gate voltage value at a second time after the first time, and changes from the second gate voltage value to the first gate voltage value at a third time after the second time, the first gate voltage value being effective for turning the thin film transistor off, the second gate voltage value being effective for turning the thin film transistor on; and

changing the drain voltage from the first drain voltage value to a second drain voltage value at one of a fourth time and a fifth time, the fifth time being after the fourth time, the fourth time and the fifth time each being not before the second time and not after than the third time, the first drain voltage value and the second drain voltage value each being between the first gate voltage value and the second gate voltage value;

wherein the drain voltage is changed from the first drain voltage value to the second drain voltage value at the fourth time if a difference between the second gate voltage value and the second drain voltage value is less than a difference between

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the second gate voltage value and the first drain voltage value, and is changed from the first drain voltage value to the second drain voltage value at the fifth time if the difference between the second gate voltage value and the second drain voltage value is greater than the difference between the second gate voltage value and the first drain voltage value.

5,784,043

DATA PROCESSING SYSTEM AND APPARATUS WITH PRIORITIZED PROCESSING OF FIRST GRAPHIC EVENT DATA AND SECOND GRAPHIC EVENT DATA

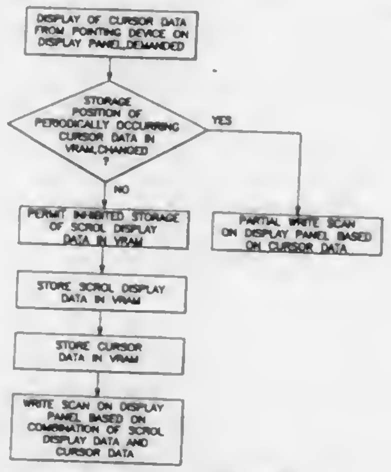
Hiroshi Inoue, Yokohama; Atsushi Mizutome, Fujisawa, and Aiko Enomoto, Zama, all of Japan, assignors to Canon Kabushiki Kaisha, Tokyo, Japan

Division of Ser. No. 267,366, Jun. 29, 1994, Pat. No. 5,543,817, which is a division of Ser. No. 11,241, Jan. 29, 1993, Pat. No. 5,359,344, which is a division of Ser. No. 410,731, Sep. 21, 1989, abandoned. This application Mar. 9, 1995, Ser. No. 401,454

Claims priority, application Japan, Sep. 29, 1988, 63-246089; Sep. 30, 1988, 63-246307; Sep. 30, 1988, 63-246308; Oct. 6, 1988, 63-252992; Oct. 11, 1988, 63-256324; Oct. 12, 1988, 63-258185

Int. Cl.^{6} G09G ***3/36***

U.S. Cl. 345—100 **30 Claims**


DISPLAY OF CURSOR DATA FROM POINTING DEVICE ON DISPLAY PANEL DEMANDED
STORAGE POSITION OF PERIODICALLY OCCURRING CURSOR DATA IN VRAM CHANGED ?
YES
NO
PERMIT INHIBITED STORAGE OF SCROL DISPLAY DATA IN VRAM
PARTIAL WRITE SCAN ON DISPLAY PANEL BASED ON CURSOR DATA
STORE SCROL DISPLAY DATA IN VRAM
STORE CURSOR DATA IN VRAM
WRITE SCAN ON DISPLAY PANEL BASED ON COMBINATION OF SCROL DISPLAY DATA AND CURSOR DATA

1. A data processing apparatus, comprising:

an image data storage memory for storing image data including periodically supplied image data having a first graphic event and image data having a second graphic event; and

control means for controlling said image data storage memory to store image data having the first graphic event preferentially while inhibiting the storage of image data having the second graphic event based on prescribed display priority levels allocating a higher display priority to the first graphic event than to the second graphic event and that the inhibition of the storage of image data having the second graphic event is released when the first graphic event data causes no chance in storage position in said image data storage memory.

5,784,044

IMAGE DISPLAY METHOD AND CIRCUIT

Takuji Matsushiba, Ebina, Japan, assignor to International Business Machines Corporation, Armonk, N.Y.

Filed Sep. 25, 1995, Ser. No. 533,470

Claims priority, application Japan, Sep. 26, 1994, 6-229380

Int. Cl.^{6} G09G ***5/00***

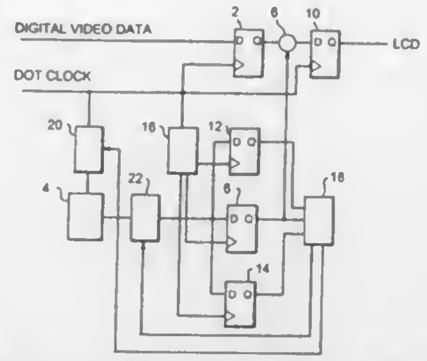
U.S. Cl. 345—113 **9 Claims**

1. An image display method in which digital video data is latched based on a reference clock, external digital video data is generated based on said reference clock, said external digital video data is latched based on said reference clock, and said latched digital video data is superimposed on said external digital video data to output the thus superimposed data, said image display method comprising the steps of:

generating a first comparison shift clock whose phase is led from said reference clock and latching said external digital data thereby;

generating a second comparison shift clock whose phase is delayed from said reference clock and latching said external digital video data thereby; and

comparing respective values latched by said reference clock, the first and second comparison shift clocks, generating a shift clock in which the phase of said reference clock is shifted if the respective values do not coincide with one another, and generating said external digital video data in which the positions of change points of data are shifted based on said shift clock.



5,784,045

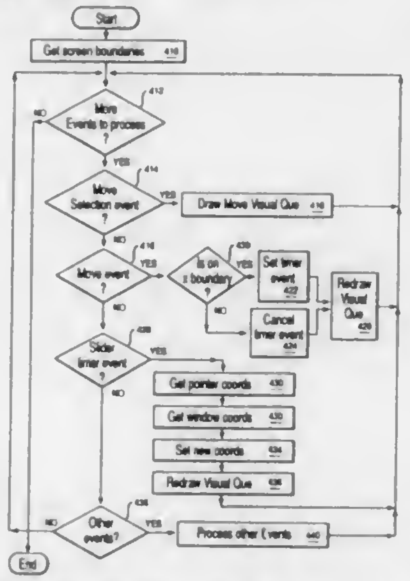
PERIMETER SLIDING WINDOWS

Troy Lee Cline, Cedar Park; Scott Harlan Isensee, Georgetown; Ricky Lee Poston, Austin, all of Tex., and Jon Harald Werner, Oceanside, Calif., assignors to International Business Machines Corporation, Armonk, N.Y.

Filed Aug. 31, 1995, Ser. No. 521,857

Int. Cl.^{6} G09G ***5/34***

U.S. Cl. 345—121 **3 Claims**



1. A computer implemented method for automatically shifting a window substantially off a display screen, the display screen having at least one edge, comprising the steps of:

in response to a pointer means being positioned and activated over the window using user controls, moving the window on the display screen in a direction consistent with movement of the pointer means; and

in response to the pointer means being activated over the window and located at one of the edges of the display screen for a predetermined amount of time, automatically sliding the window substantially off the display screen such that only a portion of the window remains visible at the edge of the display screen.

5,784,046

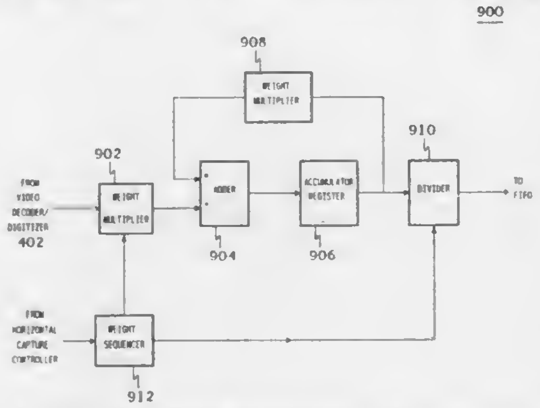
HORIZONTALLY SCALING IMAGE SIGNALS USING DIGITAL DIFFERENTIAL ACCUMULATOR PROCESSING

Benjamin M. Cahill, III, Ringoes, N.J., assignor to Intel Corporation, Santa Clara, Calif.

Continuation of Ser. No. 86,636, Jul. 1, 1993, abandoned. This application Jun. 3, 1994, Ser. No. 254,364

Int. Cl.^{6} G09G ***5/00;*** **G06K** ***9/36***

U.S. Cl. 345—127 **43 Claims**



1. A horizontal filter for horizontally scaling image signals, comprising:

(a) a weight sequencer;
(b) a first weight multiplier and a second weight multiplier;
(c) an adder;
(d) an accumulator register; and
(e) a divider, wherein:

the weight sequencer selects a first sequence of weight factors for the first weight multiplier and a divisor for the divider;

the first weight multiplier sequentially receives a plurality of image signals, generates a current weighted image signal for a current image signal of the plurality of image signals by multiplying the current image signal by a current weight factor of the first sequence of weight factors, and transmits the current weighted image signal to the adder;

the adder receives the current weighted image signal from the first weight multiplier and a weighted sum signal, generates an updated weighted sum signal by adding the current weighted image signal and the weighted sum signal, and transmits the updated weighted sum signal to the accumulator register;

the accumulator register transmits the updated weighted sum signal to the adder;

after the adder transmits to the accumulator register a final weighted sum signal corresponding to all of the image signals in the plurality of image signals, the accumulator register transmits the final weighted sum signal to divider;

the divider generates a horizontally scaled image signal corresponding to the plurality of image signals from the final weighted sum signal;

the weight sequencer selects a second sequence of weight factors for the second weight multiplier; and

the second weight multiplier receives the updated weighted sum signal from the accumulator register, multiplies the updated weighted sum signal by one of the second sequence of weight factors, and transmits the resulting weighted sum signal to the adder.

5,784,047

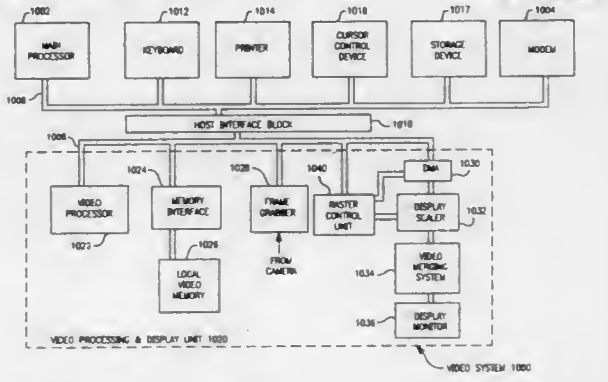
METHOD AND APPARATUS FOR A DISPLAY SCALER

Benjamin M. Cahill, III, Ringoes, N.J.; Anthony Paul Bertapelli, Phoenix, Ariz., and Tim N. Hanna, Ann Arbor, Mich., assignors to Intel Corporation, Santa Clara, Calif.

Filed Apr. 28, 1995, Ser. No. 431,408

Int. Cl.^{6} G09G ***5/00***

U.S. Cl. 345—127 **26 Claims**



1. A display scaler comprising:

a memory for sending data;

a first variable length buffer coupled to said memory for receiving said data from said memory;

a first scaler coupled to said first buffer for scaling said data;

a buffer controller coupled to said first buffer for controlling said first buffer;

a memory controller coupled to said memory for controlling sending of said data from said memory to said first variable length buffer; and

a main display controller coupled to said first scaler, said buffer controller, and said memory controller for sending control signals to said first scaler, said buffer controller, and said memory controller.

5,784,048

Patent Not Issued For This Number

5,784,049

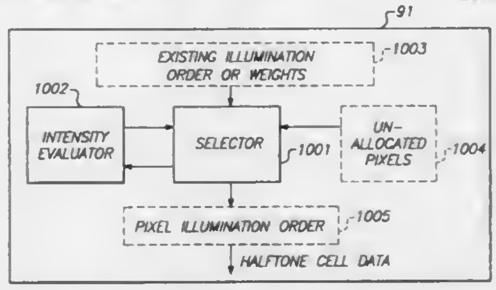
IMAGE DISPLAY USING EVENLY DISTRIBUTED INTENSITY CLUSTERS

Daniel Hall, Cambridge, England, assignor to The Harlequin Group Ltd., Cambridge, United Kingdom

Continuation of Ser. No. 282,607, Jul. 29, 1994, abandoned. This application Dec. 18, 1996, Ser. No. 768,849

Int. Cl.^{6} G09G ***5/10***

U.S. Cl. 345—149 **20 Claims**



1. A system for displaying images defined by illuminating pixels in an arrangement of halftone cells, comprising:

a processor, including a clustering intensity evaluator for producing an analysis of a distribution of intensity of previously selected pixels over one of the halftone cells, and a pixel selector for selecting pixels to be added to an order of illumi-

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nation of pixels of said one halftone cell in response to the results of the analysis by the clustering intensity evaluator; and

a display device operatively connected to the processor and adapted to display images responsive to the order of illumination.

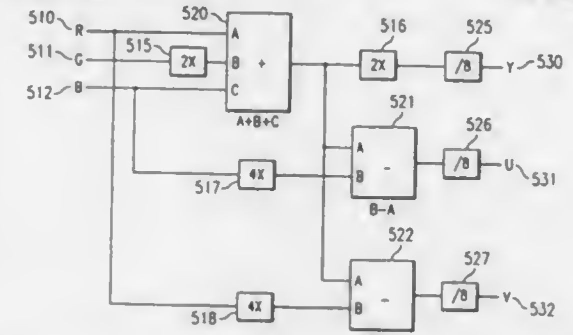
5,784,050
SYSTEM AND METHOD FOR CONVERTING VIDEO DATA BETWEEN THE RGB AND YUV COLOR SPACES

Michael Kenneth Corry, Plano, Tex., assignor to Cirrus Logic, Inc., Fremont, Calif.

Filed Nov. 28, 1995, Ser. No. 563,507

Int. Cl.^{6} G09G *1/28*

U.S. Cl. 345—154 **22 Claims**



1. Conversion circuitry for converting data having red, green, and blue components into data having Y, U, and V components, comprising:

adding circuitry for adding the red component, two times the green component, and the blue component to produce a first sum and dividing the first sum by four to produce the Y component;

first subtracting circuitry for subtracting the first sum from four times the blue component to produce a second sum and dividing the second sum by eight to produce the U component; and

second subtracting circuitry for subtracting the first sum from four times the red component to produce a third sum and dividing the third sum by eight to produce the V component.

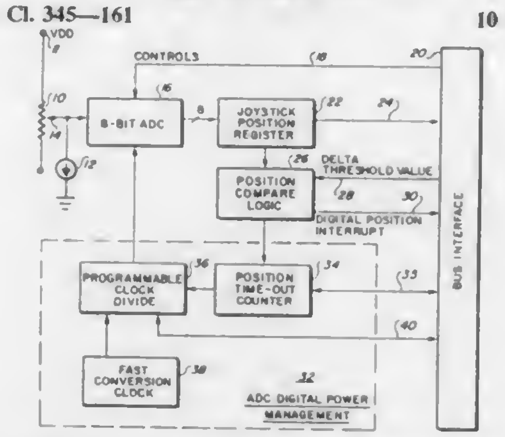
5,784,051
DIGITAL POWER MANAGEMENT SYSTEM

Scott E. Harrow, Scottsdale, and Rishi Nalubola, Phoenix, both of Ariz., assignors to VLSI Technology, Inc., San Jose, Calif.

Filed Jan. 27, 1997, Ser. No. 788,847

Int. Cl.^{6} G09G *5/08*

U.S. Cl. 345—161 **10 Claims**



1. A digital power management system including in combination:

a source of analog signals;

an analog-to-digital converter (ADC) coupled to receive signals from said source of analog signals, operated by clock pulses applied thereto, and providing a digital output signal;

a source of clock signals coupled with said analog-to-digital converter for operating said analog-to-digital converter to sample said analog signals at the frequency of said clock signals;

a register coupled with said analog-to-digital converter for receiving and storing said digital output signals;

comparison logic coupled with said register for detecting a change in said digital signals stored in said register;

a timeout counter coupled with said comparison logic and reset thereby each time a change in said digital signals stored in said register is detected by said comparison logic; said timeout counter producing an output signal a predetermined time interval after reset; and

a clock control circuit coupled with said source of clock signals and with said timeout counter to reduce-the frequency of said clock signals in response to an output signal from said timeout counter indicative of no change in said digital signals stored in said register over said predetermined time interval to reduce the power consumed by said system.

5,784,052
VERTICAL TRANSLATION OF MOUSE OR TRACKBALL ENABLES TRULY 3D INPUT

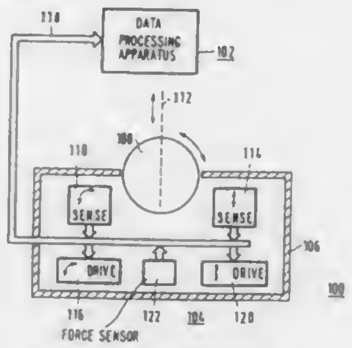
David V. Keyson, Eindhoven, Netherlands, assignor to U.S. Philips Corporation, New York, N.Y.

Filed Mar. 12, 1996, Ser. No. 615,559

Claims priority, application European Pat. Off., Mar. 13, 1995, 95200599

Int. Cl.^{6} G09G *5/08*

U.S. Cl. 345—167 **7 Claims**



1. A data processing system comprising:

an apparatus for processing data;

an input device coupled to the apparatus and operative to enable a user to enter the data into the apparatus, the device comprising:

a support structure;

a member that is capable of undergoing a rotation around an axis with respect to the support structure in order to enter the data, the member and the support structure being capable of undergoing a translation relative to one another;

wherein:

the device comprises a data generator operative to generate respective further ones of the data in response to the translation;

the system is capable of running a multiple-window software application; and

the system enables a user to interact tactilely with the system by enabling the user to experience a resistive force exerted by the input device in a direction of the translation and to be overcome by the user when making a transition between successively overlapping windows.

5,784,053
TWO-DIMENSIONAL PATTERN DIGITIZER

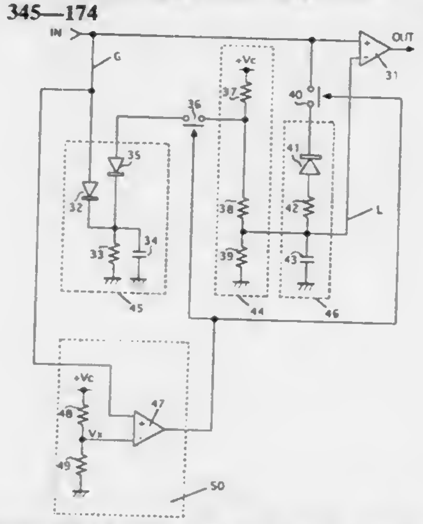
Mamoru Ishikawa, Fuji; Masashi Suzuki, and Yasuhiro Seki, both of Mishima, all of Japan, assignors to Kabushiki Kaisha TEC, Shizuoka, Japan

Filed Jun. 20, 1995, Ser. No. 493,120

Claims priority, application Japan, Jun. 22, 1994, 6-140116; May 15, 1995, 7-115863

Int. Cl.^{6} G09G *3/02;* G08C *21/00*

U.S. Cl. 345—174 **14 Claims**



1. A digitizer for digitizing an analog input, comprising:

a generator for generating a reference level;

a comparator, coupled to said generator, for comparing a signal level of the analog input with the reference level to provide a digitized output;

a first detector, coupled to said generator, for detecting a moderate rate of change in the signal level of the analog input, and for changing the reference level in accordance with the detected moderate rate of change in the signal level of the analog input;

a second detector, coupled to said generator, for detecting a rapid rate of change in the signal level of the analog input, and for changing the reference level in accordance with the detected rapid rate of change in the signal level of the analog input; and

an isolator, coupled to said generator and said first detector, for isolating said generator from said first detector only when the signal level of the analog input exceeds a predetermined value.

5,784,054
SURFACE ACOUSTIC WAVE TOUCHSCREEN WITH HOUSING SEAL

Donald B. Armstrong, Belmont; Jeffrey W. Asher, Oakland; Susan P. Benitez, Union City, all of Calif.; Richard A. Jones, Oak Ridge, Tenn.; Joel C. Kent, Fremont; Michael L. Lewis, Oakland, both of Calif., and Robert C. Phares, Knoxville, Tenn., assignors to Elo ToughSystems, Inc., Fremont, Calif.

Filed Mar. 22, 1996, Ser. No. 621,127

Int. Cl.^{6} B65D *53/00;* G09G *5/00;* G06F *3/03*

U.S. Cl. 345—177 **36 Claims**

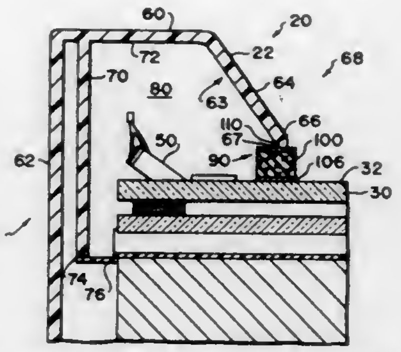
1. A seal system for a surface acoustic wave touchscreen including a screen having a touch surface disposed to be selectively touched and a housing mounting the screen, the housing including at least one open window disposed proximate and surrounding the touch surface of the screen and including a housing end surface having two sides thereto and an inner surface, disposed proximate to and surrounding the open window and spaced from the touchscreen touch surface by a seal space, and a seal disposed in the seal space between the housing end surface and the touchscreen surface proximate thereto for filling the seal space, said seal comprising:

(a) sealing body having a predetermined thickness and width, said predetermined thickness being at least sufficient to fill said seal space between the housing end surface and the touchscreen surface disposed proximate thereto, said sealing body having a liquid impervious barrier and allowing transmission of at least a portion of a surface acoustic wave adjacent thereto;

(b) said liquid impervious barrier covering at least said width of said sealing body so as to provide an outer covering surface;

(c) said outer covering surface being disposed adjacent the touchscreen surface when said sealing body is disposed in said seal space;

(d) an adhesive, for adhering said sealing body to said housing inner surface, having a width smaller than said width of said sealing body, so that said adhesive may be sandwiched between said sealing body and said housing inner surface.



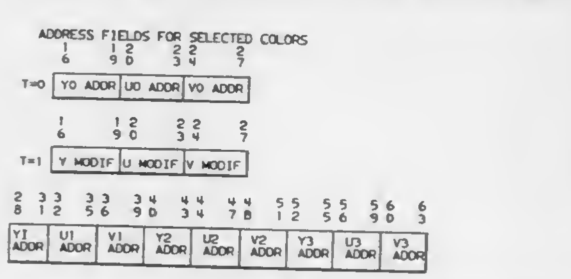
5,784,055
COLOR CONTROL FOR ON-SCREEN DISPLAY IN DIGITAL VIDEO

Chuck Hong Ngai, Endwell, N.Y., assignor to International Business Machines Corporation, Armonk, N.Y.

Filed May 6, 1996, Ser. No. 643,651

Int. Cl.^{6} G09G *5/06*

U.S. Cl. 345—199 **10 Claims**



10. A method of storing a decoded multi-color digital image bit map in a RAM for display, comprising the steps of:

storing said bit map in lines corresponding to horizontal lines of pixels, wherein each line has a line-based color look up table and individual pixels or pixel sets, and wherein said color look up table has a dual usage address field representing either a color field or a modifier field for three other color fields, said dual usage address field controlled by one bit of a control field of said color look up table; and

storing color components Y, U, and V, in three separate color component tables, each of said tables having sixteen 8 bit entries, wherein said color component tables have entries which are addressed by said color look up tables.

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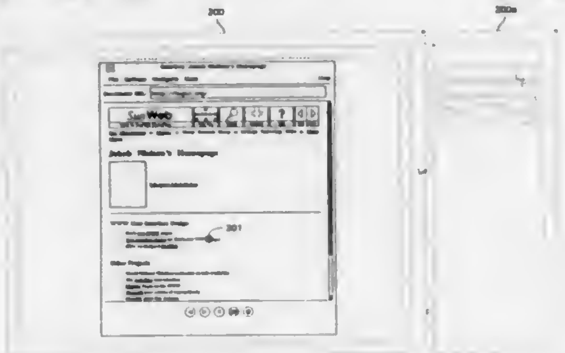
5,784,056
SYSTEM AND METHOD FOR TEMPORALLY VARYING POINTER ICONS

Jakob Nielsen, Atherton, Calif., assignor to Sun Microsystems, Inc., Palo Alto, Calif.

Filed Dec. 29, 1995, Ser. No. 580,729

Int. Cl.^{6} G06F *3/00*

U.S. Cl. 345—332 **19 Claims**



1. A method of operating a computer comprising the steps of:
displaying a graphical display on a computer screen;
moving a pointer icon from one object to another object on said computer screen with a user input device;
receiving a first user's input for pointing to one of said objects on said computer screen; and thereafter
temporally varying an appearance of said pointer icon in response to said step of receiving said first user's input for pointing to one of said objects.

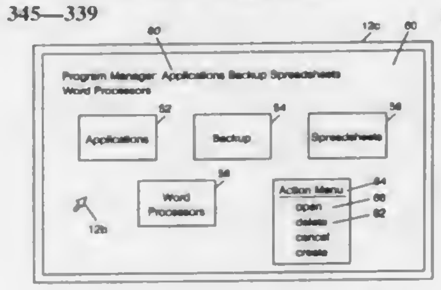
5,784,057
DYNAMICALLY MODIFYING A GRAPHICAL USER INTERFACE WINDOW TITLE

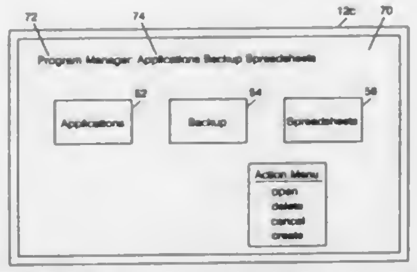
Claudia C. Alimpich, Boulder; Gerald D. Boldt; Calvin Larry Doescher, both of Longmont; Joan Stagaman Goddard, and James Philip Wittig, both of Boulder, all of Colo., assignors to International Business Machines Corporation, Armonk, N.Y.

Filed Aug. 14, 1996, Ser. No. 696,746

Int. Cl.^{6} G06F *15/00*

U.S. Cl. 345—339 **22 Claims**





1. An application for revision of a title of a window containing parent objects as controlled by a computer system having at least a visual operator interface, an operating system for controlling the operation of program applications within the computer system, and memory for storing a program application, the application comprising:
means for generating a title of the window comprising a list of all of the parent objects in the window;
means for designating objects in the window to be altered, modified, added or deleted (collectively "modified");
means for modifying the designated objects; and
means for dynamically revising the title of the window while the window continues to be displayed to correspond to the modifications of the designated objects.

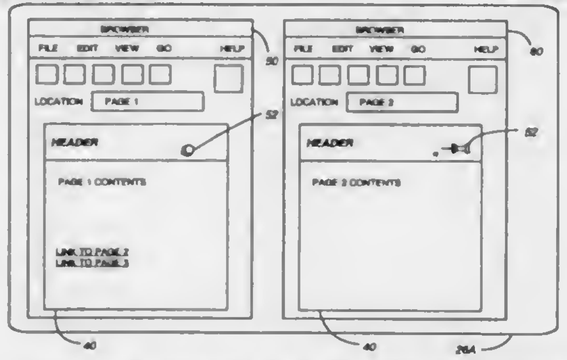
5,784,058
USER-CONTROLLABLE PERSISTENT BROWSER DISPLAY PAGES

Thomas E. LaStrange, Colorado Springs, and Monty L. Hammontree, Monument, both of Colo., assignors to Sun Microsystems, Inc., Palo Alto, Calif.

Filed May 28, 1996, Ser. No. 654,138

Int. Cl.^{6} G06F *3/00*

U.S. Cl. 345—340 **9 Claims**



1. A method for displaying two or more pages of information on a display of a computer, the method comprising the steps of:
displaying a first page within a first browser window, said first page containing a link to a second page of information;
determining if said first page should be retained within said first browser window, wherein said determining step further comprises providing a user-controllable symbol within said first browser window permitting a user to select if said first page should be retained within said first browser window;
obtaining the second page of information over a network, said second page of information located at an address specified by said link; and
if said determining step determined that said first page should be retained within said first browser window, opening a second browser window.

5,784,059
VEHICLE NAVIGATION SYSTEM WITH DESTINATION SELECTION USING HIERARCHICAL MENU ARRANGEMENT WITH SELECTIVE LEVEL SKIPPING

Kyomi Morimoto, Nishio; Kazuteru Maekawa, Aichi-ken; Yukiyoshi Suzuki, Okazaki; Hitoshi Asano, Nagoya; Hiroyuki Kanemitsu, Susono, and Syuzo Moroto, Anjo, all of Japan, assignors to Aisin AW Co., Ltd., Japan

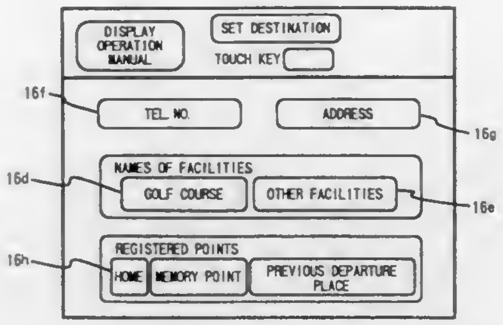
Filed Jun. 30, 1995, Ser. No. 497,251

Claims priority, application Japan, Sep. 16, 1994, 6-248726; Sep. 22, 1994, 6-254440

Int. Cl.^{6} G06F *3/14;17/00*

U.S. Cl. 345—353 **9 Claims**

1. A vehicle navigation system for guiding a user to a destination selected by using a hierarchical menu arrangement, comprising
a display unit for displaying information including selectable items of a menu;
a storage unit for storing data including a hierarchical arrangement of a plurality of menus in at least three levels wherein (a) a first level of the hierarchical arrangement includes a first level menu having a plurality of selectable items of general



categories, (b) a second level of the hierarchical arrangement includes a plurality of second level menus each having a plurality of selectable items of more specific categories, each second level menu relating to a corresponding general category of the first level menu, and (c) a third level of the hierarchical arrangement includes a plurality of third level menus each having a plurality of selectable items of instructions, each third level menu relating to a corresponding specific category of a menu of the second level menus;
said first, second and third levels of the hierarchical arrangement defining progressively lower levels;
input means for selecting an item from a menu displayed by the display unit;
first control means responsive to selection of an item of instruction of the third level by the input means for executing a corresponding instruction;
second control means for operating the display unit to display selectable items including a menu of selectable items of the hierarchical arrangement;
third control means for controlling the second control means to display successive menus of selectable items based upon the data stored in the storage unit and in accordance with the hierarchical arrangement beginning with the first level and progressing sequentially to the second and third levels in response to corresponding items input by the input means; and
fourth control means responsive to the display of a higher level menu for controlling the second control means to display a selectable item of a lower level menu within the higher level menu based upon predetermined information to enable selection of said selectable lower level menu item by said input means to bypass one or more lower levels of menus.

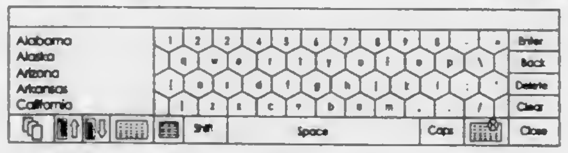
5,784,060
MOBILE CLIENT COMPUTER PROGRAMMED TO DISPLAY LISTS AND HEXAGONAL KEYBOARD

Randal Lee Bertram, Raleigh, and David Frederick Champion, Durham, both of N.C., assignors to International Business Machines Corp., Armonk, N.Y.

Filed Aug. 22, 1996, Ser. No. 706,991

Int. Cl.^{6} G06F *3/14;3/023*

U.S. Cl. 345—354 **45 Claims**



1. A mobile client computer comprising:
a housing sized to be held in and manipulated by the hand of a user;
a processor mounted within said housing and processing digital data;
memory mounted within said housing for storing digital data and coupled to said processor;
a display mounted in said housing and coupled to said processor and said memory to display information derived from digital data processed by said processor;
an input digitizer mounted in said housing and overlaying said display, said digitizer being coupled to said processor and enabling input of digital data by a user; and
a control program stored in said memory and accessible by said processor to direct the processing of digital data by said processor;
said control program and said processor cooperating, when said control program is executing on said processor, in
- a) defining on said display a data entry area having a central zone and a plurality of peripheral zones extending around said central zone;
- b) selectively displaying in said central zone of said data entry area a keyboard formed by a plurality of adjoining cells, each defining a selectable input;
- c) displaying in first and second peripheral zones around said central zone a plurality of rectangular functional input keys, each defining a selectable command; and
- d) selectively displaying in a third peripheral zone around said central zone a list of data entries from which a user may determine data to be entered.

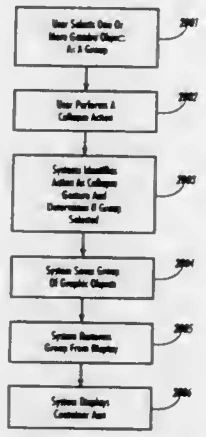
5,784,061
METHOD AND APPARATUS FOR COLLAPSING AND EXPANDING SELECTED REGIONS ON A WORK SPACE OF A COMPUTER CONTROLLED DISPLAY SYSTEM

Thomas P. Moran, Palo Alto; Patrick Chiu, Menlo Park, and William J. van Melle, Los Altos, all of Calif., assignors to Xerox Corporation, Stamford, Conn.

Filed Jun. 26, 1996, Ser. No. 670,967

Int. Cl.^{6} G06F *3/00*

U.S. Cl. 345—358 **20 Claims**



1. On a graphics based computer system wherein graphic objects can be drawn on a work surface, a method for representing a group of graphic objects with a container icon, said container icon acting as a reference to said group of graphic objects, said method comprising the steps of:
- a) a user causing said group of graphic objects to be selected;
- b) said user performing a collapse action on said selected group of graphic objects;
- c) said system collapsing said selected group of graphic objects so that they are represented by said container icon by performing the substeps of:
- c1) storing a copy of said group of graphic objects to be represented by a container icon;
- c2) removing said group of graphic objects to be represented by a container icon from said display; and
- c3) displaying a container icon representing said selected group of graphic objects.

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5,784,062

IMAGE OUTPUT DEVICE AND PROCESSING METHOD CONVERTING AN IMAGE FORMATION COMMAND INTO RASTER FORMAT

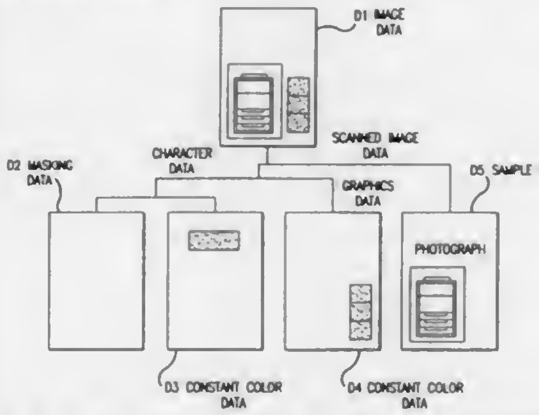
Koji Adachi; Hiroshi Ishikawa; Kenji Ogi; Koushi Kawamoto, and Yoshinori Wada, all of Nakai-machi, Japan, assignors to Fuji Xerox Co., Ltd., Tokyo, Japan

Filed Oct. 19, 1995, Ser. No. 545,155

Claims priority, application Japan, Apr. 7, 1995, 7-082430

Int. Cl.^{6} G06T *1/00*

U.S. Cl. 345—418 **11 Claims**



1. An image output device for use with a host computer connected to a network, comprising:

input means for getting an image formation command for an image edit processing transmitted from said host computer through said network and inputting said image formation command into said device;

raster image data conversion means for sequentially converting said image formation command input by said input means to raster image data;

image data coding means for coding said raster image data converted by said raster image data conversion means;

storing means for storing said image formation command and said raster image data coded by said image data coding means;

decoding means for decoding said raster image data stored in said storing means in accordance with said image formation command; and

output means for outputting said raster image data coded by said decoding means, wherein said image formation command is stored in said storing means with storing component address information indicating a position for storing decoding information used in decoding said coded raster image data.

5,784,063

GEOMETRIC CONSTRAINT CONDITION DISPLAYING APPARATUS

Masahiro Nagakura; Hideaki Kondo, and Shigeyuki Kuroyanagi, all of Shizuoka, Japan, assignors to Fujitsu Limited, Kawasaki, Japan

Filed Jun. 13, 1995, Ser. No. 490,012

Claims priority, application Japan, Aug. 24, 1994, 6-199978

Int. Cl.^{6} G06T *7/60*

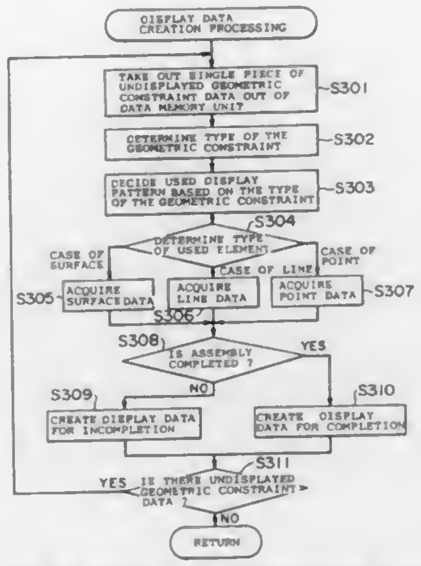
U.S. Cl. 345—420 **13 Claims**

1. A geometric constraint condition displaying apparatus for displaying a plurality of multidimensional graphics and geometric constraint conditions for regulating positional relationships between an element of one multidimensional graphic and an element of another multidimensional graphic arranged within a multidimensional space, said apparatus comprising:

first storage means for storing items of graphic display data for displaying the plurality of multidimensional graphics;

second storage means for storing the geometric constraint conditions; and

displaying means for


DISPLAY DATA CREATION PROCESSING
TAKE OUT SINGLE PIECE OF UNDISPLAYED GEOMETRIC CONSTRAINT DATA OUT OF DATA MEMORY UNIT
S301
DETERMINE TYPE OF THE GEOMETRIC CONSTRAINT
S302
DECIDE USED DISPLAY PATTERN BASED ON THE TYPE OF THE GEOMETRIC CONSTRAINT
S303
S304
DETERMINE TYPE OF USED ELEMENT
CASE OF SURFACE
CASE OF LINE
CASE OF POINT
S305
ACQUIRE SURFACE DATA
ACQUIRE LINE DATA
ACQUIRE POINT DATA
S307
S306
S308
IS ASSEMBLY COMPLETED ?
YES
NO
S309
CREATE DISPLAY DATA FOR INCOMPLETION
S310
CREATE DISPLAY DATA FOR COMPLETION
S311
YES
IS THERE UNDISPLAYED GEOMETRIC CONSTRAINT DATA ?
NO
RETURN

displaying the plurality of multidimensional graphics based on the items of graphic display data stored in said first storage means within the multidimensional space in positional relationships in conformity with the geometric constraint conditions stored in said second storage means,

specifying elements of the multidimensional graphics regulated by the geometric constraint conditions and types of the constraints with respect to the geometric constraint conditions,

specifying a color for the elements regulated based on the geometric constraint conditions and the types of the constraints before and after establishing the positional relationships of the plurality of multidimensional graphics, and

displaying symbols or numerals corresponding to geometric constraint definitions on a pair of elements located based on the geometric constraint conditions before establishing the positional relationships between the plurality of multidimensional graphics and erasing the symbol or the numeral displayed on one element in the pair of elements after establishing the positional relationships between the plurality of multidimensional graphics.

5,784,064

IMAGE PROCESSING

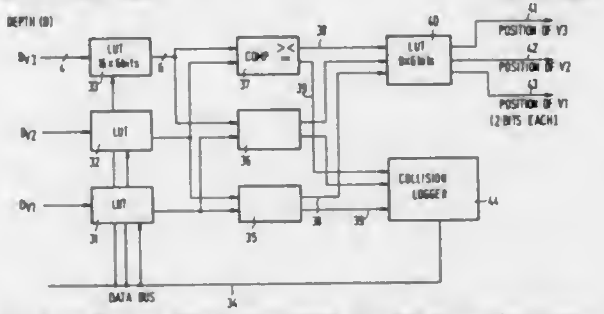
David E. Penna, Redhill; Norman D. Richards, Horsham, and Paul A. Winser, Redhill, all of England, assignors to U.S. Philips Corporation, New York, N.Y.

Continuation of Ser. No. 275,903, Jul. 15, 1994, abandoned. This application Feb. 4, 1997, Ser. No. 795,295

Claims priority, application United Kingdom, Jul. 15, 1993, 9314717

Int. Cl.^{6} G00T *15/00*

U.S. Cl. 345—422 **18 Claims**



1. A method of image processing, in which moving output images are presented as a two-dimensional display in the form of time-separated two-dimensional frames of pixels in a display plane, wherein, over a plurality of frames, components of a first planar image appear to move relative to components of a second planar image, said method comprising the steps of constructing said output images form said first planar image and from said second planar image, each of said first and second planar images comprising pixels, and substantially all of the pixels of the first and second planar images having a respective absolute depth value defined therefor;

comparing absolute depth values of the pixels of said first planar image with absolute depth values of the pixels of said second planar image to determine, on a pixel-by-pixel basis, whether pixels of the first planar image have a greater or lesser absolute depth than corresponding pixels of said second planar image; and

obtaining preferential contributions from the pixels having the lesser absolute depth of any of the first planar image and the second planar image in order to generate a planar output image in which components of said first planar image move relative to components of said second planar image in said display plane coincident with said first and second image planes, so as to appear to be in front of or behind elements of said second planar image, based on their relative depth values;

wherein at least one of the comparing and obtaining steps includes converting said absolute depth values from a lower resolution, at which they are stored, to a higher resolution by means of a look-up table, and processing those absolute depth values at that higher resolution.

5,784,065

IMAGE PROCESSING APPARATUS FOR COLOR-COMPENSATING ACCORDING TO COLOR REPRODUCTION PROPERTIES OF AN IMAGE APPARATUS

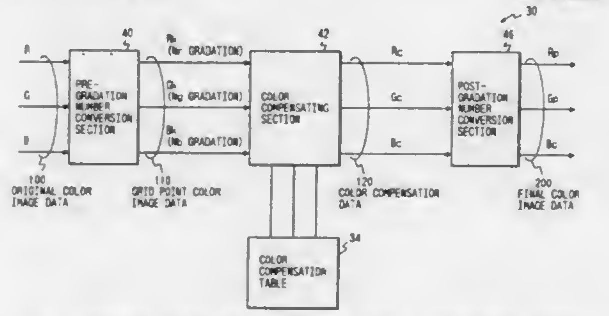
Toshiaki Kakutani, Nagano, Japan, assignor to Seiko Epson Corporation, Tokyo, Japan

Continuation of Ser. No. 205,103, Mar. 3, 1994, Pat. No. 5,600,764. This application Oct. 22, 1996, Ser. No. 735,343

Claims priority, application Japan, Mar. 3, 1993, 5-042973; Apr. 14, 1993, 5-087529; Dec. 28, 1993, 5-352899

Int. Cl.^{6} G06F *15/00*

U.S. Cl. 345—431 **6 Claims**


30
R
G
B
40
PRE-GRADATION NUMBER CONVERSION SECTION
Rk (Nr GRADATION)
Gk (Ng GRADATION)
Bk (Nb GRADATION)
42
COLOR COMPENSATING SECTION
Rc
Gc
Bc
46
POST-GRADATION NUMBER CONVERSION SECTION
Rp
Gp
Bc
100 ORIGINAL COLOR IMAGE DATA
110 GRID POINT COLOR IMAGE DATA
120 COLOR COMPENSATION DATA
200 FINAL COLOR IMAGE DATA
34
COLOR COMPENSATION TABLE

1. A computer program embodied on a computer-readable medium for color compensating input color image data in accordance with the color reproduction properties of an image output apparatus and outputting the color-compensated image data, the input color image data having a plurality of color components represented by gradation numbers, the computer program being implemented using a computer and comprising:

computer-readable program code for storing gradation compensating data of each of the plurality of color components at respective grid points in a color space divided into a grid, wherein said color space has coordinate axes corresponding to each of the plurality of color components of the color image data, and wherein said gradation compensating data relates to the color reproduction properties of the image output apparatus;

computer-readable program code for converting the gradation numbers of the input color image data into values corresponding to the most appropriate grid points in said color space by using a pre-determined gradation number conversion method based on a pre-determined condition; and

computer-readable program code for compensating the gradation numbers of the plurality of color components of the input color image data based on the gradation compensating data of the grid points corresponding to the converted gradation numbers.

5,784,066

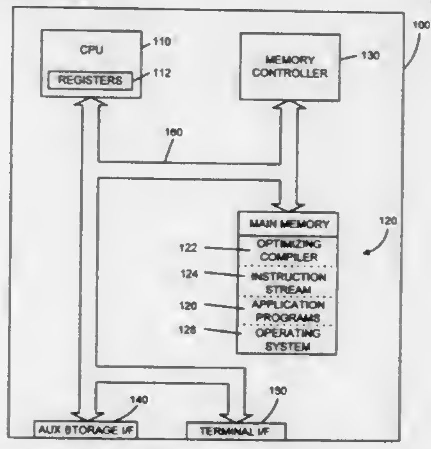
METHOD AND APPARATUS FOR USING PARTNER INFORMATION TO COLOR NODES IN AN INTERFERENCE GRAPH WITHIN A COMPUTER SYSTEM

Nava Arela Aizikowitz, Haifa, Israel; Edward Curtis Prosser, and Robert Ralph Roediger, both of Rochester, Minn., assignors to International Business Machines Corporation, Armonk, N.Y.

Filed Nov. 22, 1995, Ser. No. 562,139

Int. Cl.^{6} G06F *15/00*

U.S. Cl. 345—440 **59 Claims**



1. A computer apparatus comprising:

a central processing unit having a plurality of registers, the central processing unit executing a first instruction stream and in response to the first instruction stream, the central processing operating on information stored in the plurality of registers;

a compiler for generating the first instruction stream from a second instruction stream, the second instruction stream having a plurality of variables, the compiler including:

a live range calculator for determining a plurality of live ranges for the plurality of variables;

a register allocator, the register allocator being adapted to assign the plurality of registers within the central processing unit to the plurality of live ranges by building and coloring an interference graph with a plurality of nodes and a plurality of edges, each node of the interference graph representing one of the plurality of live ranges, two of the plurality of nodes being neighbors if the two nodes are connected with an edge, two of the plurality of nodes being direct partners if an instruction within the second instruction stream copies the variable corresponding to one of the two nodes to the variable corresponding to the other of the two nodes, the register allocator being adapted to select a color for each node in the interference graph according to the colors, if any, assigned to one of the plurality of nodes that are direct partners of the node to be colored, the colors of the direct partners being weighted according to at least one predetermined criterion.

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5,784,067

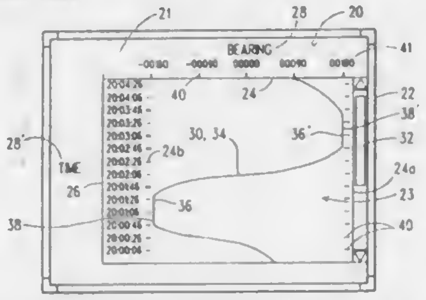
SOFTWARE OBJECT FOR PROVIDING A DISPLAY OF A SCROLLING REAL-TIME GRAPH AND WHICH PROVIDES FOR INSERTION AND UP-DATING OF PLOTS OF REAL TIME DATA INTO THE DISPLAY

Patrick B. Ryll, Portsmouth; Neil A. Jackson, North Kingstown; John T. Williamson, Riverside, and Francis J. Frantz, Newport, all of R.I., assignors to The United States of America as represented by the Secretary of the Navy, Washington, D.C.

Filed Jul. 22, 1996, Ser. No. 693,816

Int. Cl.^{6} G06T *3/00*

U.S. Cl. 345—440 **7 Claims**



1. A software object for providing a display of a scrolling real-time graph, the object comprising:

a window;

an automatically generated axis graphic comprising tic marks and numeric labels within said window;

an automatically generated and automatically updated scrolling axis graphic comprising tic marks and numeric labels within said window;

a plot within said window;

means in said window for viewing obscured regions of the graph along said scrolling axis, wherein said means for viewing obscured regions of the graph comprise events provided by a selected one of a parent application, a managing widget, and an operator; and

a scrollgraph widget;

wherein said patent application is operative to call an interface function which is operative to format new data and to provide the new data from said parent application to said scrollgraph widget, said scrollgraph widget being adapted to plot the new data and automatically update said plot.

5,784,068

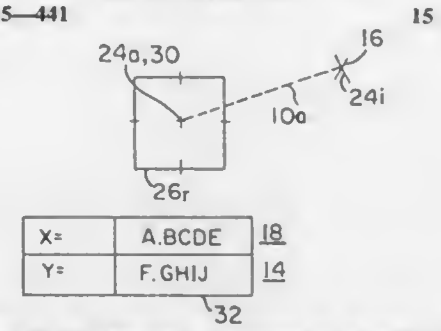
METHOD FOR DRAWING AN ELEMENT OF AN OBJECT DURING COMPUTER-AIDED DRAFTING OF THE OBJECT

Robert J. Brown, Exton, Pa., assignor to Bentley Systems, Incorporated, Exton, Pa.

Filed Oct. 3, 1996, Ser. No. 725,391

Int. Cl.^{6} G06F *15/00*

U.S. Cl. 345—441 **15 Claims**



1. A method for drawing an element of an object during computer-aided drafting of the object with a computer having a view screen displaying a cursor and at least a portion of a drawing field, the computer also having a cursor manipulator, the method comprising the steps of:

positioning the cursor using the cursor manipulator at a first location on the drawing field;

recording a first data point at the first location and displaying the first data point on the view screen;

associating with the first data point a drawing plane having a first axis, a second axis substantially perpendicular to the first axis, and an origin at the intersection of the first and second axes, the origin coinciding with the first data point;

positioning the cursor using the cursor manipulator at a second location on the drawing field relative to the origin of the drawing plane;

recording a second data point at the second location and displaying the second data point on the view screen; and

displaying on the view screen at least a portion of the element, the element being at least partially defined by the first data point and the second data point.

5,784,069

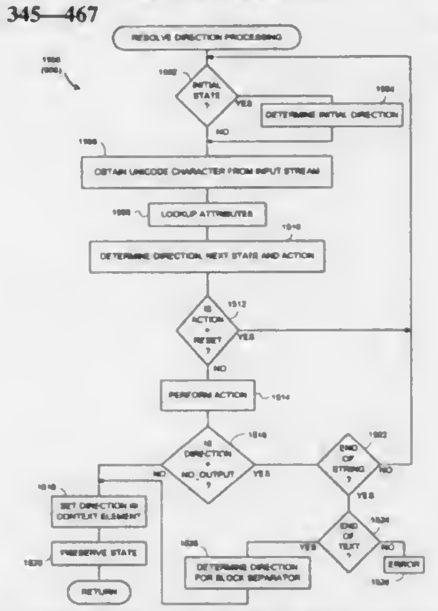
BIDIRECTIONAL CODE CONVERTER

Andrew M. Daniels, Menlo Park; Yung-Fong Frank Tang, Sunnyvale, both of Calif.; Peter K. Edberg, Eugene, Oreg., and John I. McConnell, Menlo Park, Calif., assignors to Apple Computer, Inc., Cupertino, Calif.

Filed Sep. 13, 1995, Ser. No. 527,827

Int. Cl.^{6} G06F *7/00*

U.S. Cl. 345—467 **26 Claims**


RESOLVE DIRECTION PROCESSING
INITIAL STATE ?
YES
DETERMINE INITIAL DIRECTION
NO
OBTAIN UNICODE CHARACTER FROM INPUT STREAM
LOOKUP ATTRIBUTES
DETERMINE DIRECTION, NEXT STATE AND ACTION
1512
IS ACTION = RESET ?
YES
NO
PERFORM ACTION
1514
IS DIRECTION = NO_OUTPUT ?
NO
YES
END OF STRING ?
NO
YES
SET DIRECTION IN CONTEXT ELEMENT
PRESERVE STATE
RETURN
END OF TEXT ?
YES
NO
DETERMINE DIRECTION FOR BLOCK SEPARATOR
ERROR

1. A computer implemented method for converting a source string into a target string, said method comprising:

(a) receiving a source string having a first character encoding, the source string including a plurality of source characters;

(b) determining a direction for the source characters of the source string, the direction determined for each of the source characters takes into consideration one or more previously determined directions for preceding source characters in the source string, the one or more previously determined directions for preceding source characters in the source string being stored in a direction stack, the direction stack being used to assist in determining the direction for each of the source characters;

(c) looking up in a mapping table a conversion code associated with a second character encoding for each of the source characters based on the first character encoding and the direction determined; and

(d) combining the conversion codes for the source characters so as to form a target string of the second character encoding.

5,784,070

METHOD AND APPARATUS FOR PRODUCING A POLYGONAL IMAGE REPRESENTATION THROUGH OPERATION OF PLOTTING COMMANDS ON IMAGE DATA

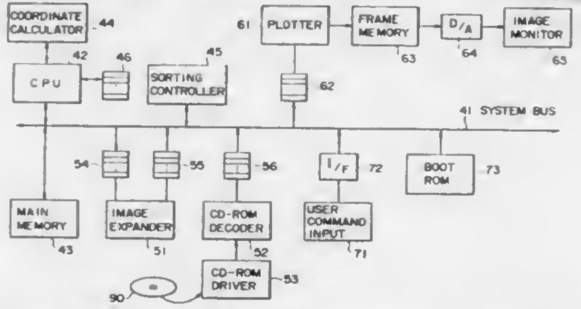
Makoto Furuhashi, Kanagawa; Masakazu Suzuoki, Tokyo; Akio Ohba, Kanagawa; Masaaki Oka, Kanagawa; Teiji Yutaka, Kanagawa, and Masayoshi Tanaka, Kanagawa, all of Japan, assignors to Sony Corporation, Tokyo, Japan

Continuation of Ser. No. 267,678, Jun. 29, 1994. This application Jun. 3, 1997, Ser. No. 868,124

Claims priority, application Japan, Jul. 2, 1993, 5-190764; Jul. 2, 1993, 5-190765; Mar. 23, 1994, 6-076526

Int. Cl.^{6} G06F *15/16*

U.S. Cl. 345—419 **11 Claims**



1. An image processing apparatus for producing a polygonal image representation of an object from three-dimensional image data, comprising:

command generation means for generating one or more plotting commands based upon said three-dimensional data, each said plotting command corresponding to a polygonal surface of said object and including a tag indicative of the depth of said polygonal surface within an image being produced;

storage means for storing said plotting commands;

synthesizing means for receiving said plotting commands and producing said polygonal image representation of said object from said plotting commands; and

transfer means for transferring said plotting commands from said storage means to said synthesizing means, said plotting commands being transferred one by one and in an order corresponding to the depth of said polygonal surfaces within said image being produced.

5,784,071

CONTEXT-BASED CODE CONVERTOR

Yung-Fong Frank Tang, Sunnyvale; Andrew M. Daniels, Menlo Park, both of Calif.; Peter K. Edberg, Eugene, Oreg., and John I. McConnell, Menlo Park, Calif., assignors to Apple Computer, Inc., Cupertino, Calif.

Filed Sep. 13, 1995, Ser. No. 527,837

Int. Cl.^{6} G06F *7/00*

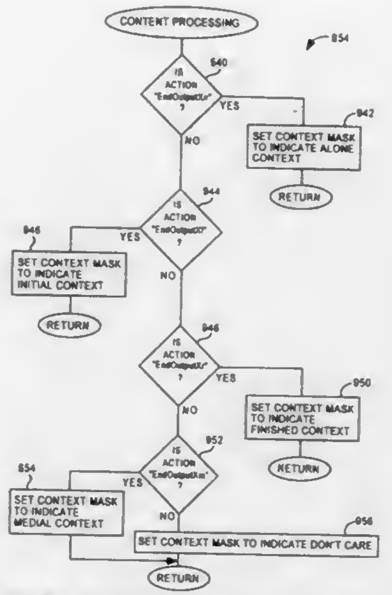
U.S. Cl. 345—467 **25 Claims**

1. A computer implemented method for converting a source string into a target string, said method comprising:

(a) receiving a source string having a first character encoding, the source string including a plurality of source characters;

(b) determining a context for each of the source characters in the source string, the context determined can be at least one of initial, medial, final or alone;

(c) looking up in a mapping table a conversion code associated with a second character encoding for each of the source characters based on the first character encoding and the context determined for the source character; and


CONTENT PROCESSING
854
940
IS ACTION "EndOutputXr" ?
YES
942
SET CONTEXT MASK TO INDICATE ALONE CONTEXT
RETURN
NO
944
IS ACTION "EndOutputXl" ?
946
YES
SET CONTEXT MASK TO INDICATE INITIAL CONTEXT
RETURN
NO
948
IS ACTION "EndOutputXr" ?
YES
950
SET CONTEXT MASK TO INDICATE FINISHED CONTEXT
RETURN
NO
952
IS ACTION "EndOutputXm" ?
854
YES
SET CONTEXT MASK TO INDICATE MEDIAL CONTEXT
NO
956
SET CONTEXT MASK TO INDICATE DON'T CARE
RETURN

(d) combining the conversion codes for the source characters so as to form a target string of the second character encoding.

5,784,072

OSCILLATION DEVICE, DISPLAY DATA PROCESSING DEVICE, MATRIX-TYPE DISPLAY DEVICE, OSCILLATION SIGNAL GENERATION METHOD, AND DISPLAY DATA PROCESSING METHOD

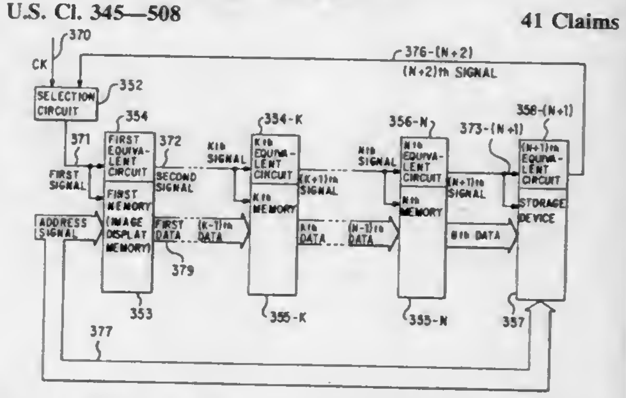
Yoichi Imamura; Shigeki Aoki, and Norio Koizumi, all of Suwa, Japan, assignors to Seiko Epson Corporation, Tokyo, Japan

Filed Jun. 5, 1995, Ser. No. 462,274

Claims priority, application Japan, Jun. 6, 1994, 6-123964

Int. Cl.^{6} G09G *5/00*

U.S. Cl. 345—508 **41 Claims**



1. A display data processing device including N memories, where N is an integer, for processing display data, comprising:

a first of said N memories for reading out data when a first signal has reached an enabled level;

a first equivalent circuit that outputs a second signal based on said first signal, and sets said second signal to an enabled level at least when data read from said first memory has been confirmed or thereafter said first equivalent circuit comprising first circuit elements which are equivalent to circuit elements of said first memory, and a delay in said first circuit elements determining when said second signal is set to the enabled level;

second to Kth memories of said N memories, where K is an integer such that $1<K<N$, that read out data based on an output of the first to $(K-1)$th memories when second to Kth signals have reached an enabled level, respectively;

second to Kth equivalent circuits that output third to $(K+1)$th signals based on said second to Kth signals, and set said third to $(K+1)$th signals to enabled levels at least when data

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read from said second to Kth memories have been confirmed, said second to Kth equivalent circuits comprising second to Kth circuit elements which are equivalent to circuit elements of said second to Kth memories, and a delay in said second to Kth circuit elements determining when said third to (K+1)th signals are set to the enabled level; and

a storage device into which data read from the Nth memory is written when an (N+1)th signal output from the Nth equivalent circuit has reached an enabled level.

5,784,073

ELECTRO-OPTICAL DEVICE AND METHOD OF DRIVING THE SAME

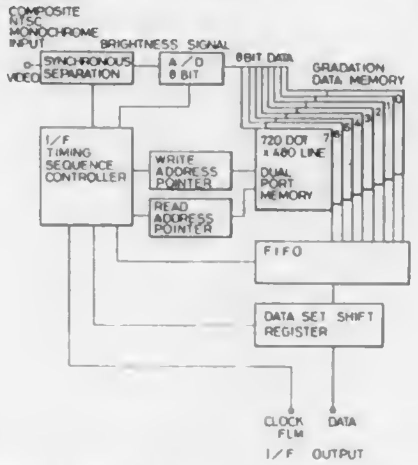
Shunpei Yamazaki, Tokyo; Akira Mase, Aichi; Masaaki Hiroki, Kanagawa, and Yasuhiko Takemura, Kanagawa, all of Japan, assignors to Semiconductor Energy Laboratory Co., Ltd., Japan

Division of Ser. No. 897,669, Jun. 12, 1992, Pat. No. 5,414,442. This application Feb. 13, 1995, Ser. No. 387,234

Claims priority, application Japan, Jun. 14, 1991, 3-169306; Jul. 27, 1991, 3-209869

Int. Cl.^{6} G09G *5/00*

U.S. Cl. 345—511 **8 Claims**



1. A method of driving an electro-optical device comprising the steps of:

converting an analog image signal into digital binary signals of k digits;

storing the digital binary signal of each of said k digits into corresponding one of memory areas;

transferring said digital binary signal from said memory areas to a first in first out memory; and

sending the digital binary signal from said first in first out memory to a shift register operatively connected with an active matrix electro-optical device,

wherein said digital binary signal is transferred from said memory areas to said first in first out memory in such a manner that each two digits of data is paired and simultaneously transferred to said first in first out memory.

5,784,074

IMAGE OUTPUT SYSTEM AND METHOD

Tetsuya Okawa, Tokyo, Japan, assignor to Sega Enterprises, Ltd., Tokyo, Japan

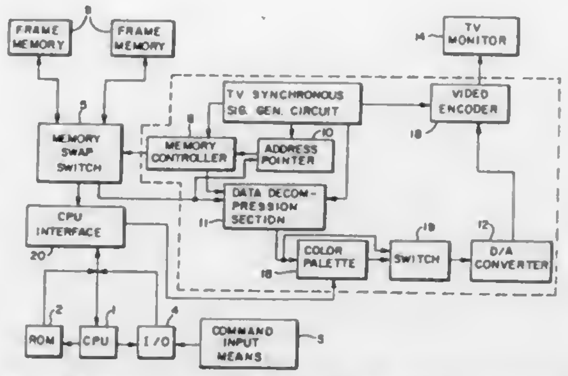
Filed May 15, 1995, Ser. No. 440,826

Claims priority, application Japan, May 17, 1994, 6-102980; May 17, 1994, 6-103070

Int. Cl.^{6} G09G *5/36*

U.S. Cl. 345—515 **8 Claims**

1. An image output system comprising:



an image display system in a raster scan mode controlled by horizontal/vertical synchronous signals;

a frame memory into which image data composed of length values each indicating the number of consecutive pixels of the same color to be displayed on the image display system in a scan direction and color data are stored;

a horizontal/vertical signal generation section which controls said image display system;

a memory controller which controls the reading operation of image data in said frame memory in synchronization with horizontal/vertical signals;

data de-compression means for outputting color data, based on a length value and color data contained in image data read from said frame memory for the number of pixels specified by the length value; and

video signal generation means for outputting image display signals, based on this data de-compression means, to said image display system;

wherein said data de-compression means comprises:

a length counter connected to said frame memory for counting the length value of image data sent from frame memory; and

a data latch circuit for receiving color data of image data from said frame memory and outputting color data of image data to said video signal generation means during the counter operation of said length counter.

5,784,075

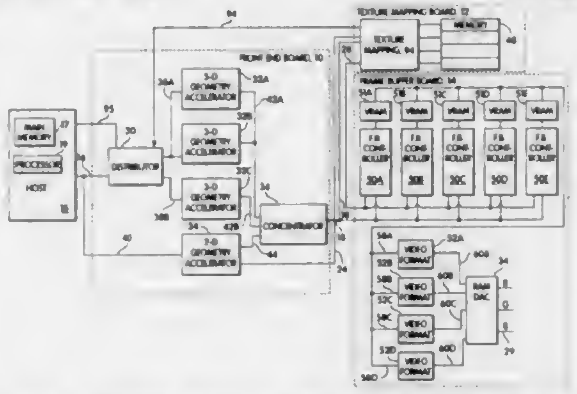
MEMORY MAPPING TECHNIQUES FOR ENHANCING PERFORMANCE OF COMPUTER GRAPHICS SYSTEM

Alan S. Krech, Jr., Fort Collins, Colo., assignor to Hewlett-Packard Company, Palo Alto, Calif.

Filed Aug. 8, 1995, Ser. No. 512,430

Int. Cl.^{6} G06F *12/06*

U.S. Cl. 345—516 **17 Claims**



1. In a computer graphics system, apparatus for transfer of vertex information representative of graphics primitives between a host computer and processing circuitry, comprising:

a storage device for receiving said vertex information from the host computer, said vertex information including vertex data and a vertex address corresponding to said vertex data,

wherein said vertex address specifies a characteristic of said corresponding vertex data;

a vertex RAM for storage of said vertex data for access by said processing circuitry;

address mapping logic for mapping said vertex address to a write address in said vertex RAM in accordance with the characteristic specified by said vertex address; and

means for transferring said vertex data from said storage device to a location in said vertex RAM specified by said write address.

5,784,076

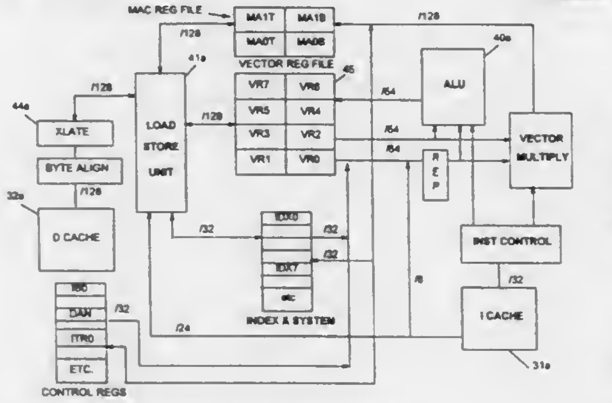
VIDEO PROCESSOR IMPLEMENTING VARIOUS DATA TRANSLATIONS USING CONTROL REGISTERS

Dwayne T. Crump, Apex, and Steve T. Pancoast, Raleigh, both of N.C., assignors to International Business Machines Corporation, Armonk, N.Y.

Continuation of Ser. No. 472,578, Jun. 7, 1995, abandoned. This application Aug. 14, 1997, Ser. No. 911,404

Int. Cl.^{6} G06F *3/14*

U.S. Cl. 345—519 **13 Claims**



1. An integrated circuit device comprising:

a substrate,

a plurality of identical processors formed on said substrate,

each of said processors having an instruction cache, a data cache, a bus interface unit, an arithmetic logic unit, a load/store unit, and a translation unit associated with said load/store unit, said load/store unit and said translation unit cooperating for passing all flow of data bit streams from said data cache and for translating flowing data bit streams from a first data format to a second data format;

each of said plurality of processors operatively associated with a plurality of index registers formed on said substrate, each of said index registers for receiving and retaining instruction data accessible to the one of said processors with which said index register is associated for directing data flow into and out of the associated data cache;

a plurality of index control registers each formed on said substrate and operatively associated with a corresponding one of said index registers and a corresponding translation unit for receiving and retaining control data having at least first and second control fields of first and second fixed sizes respectively, and wherein said first field contains translation method data specifying one of at least two different translation methods for controlling the translation unit to translate said flowing data bit streams in accordance with a translation method specified by said translation method data and said second field contains control data for controlling at least one of a plurality of functions of said index registers;

a line bus formed on said substrate and interconnecting all of said plurality of processors for transferring data bit streams thereamong;

a video input interface unit formed on said substrate and connected to said line bus for receiving an input signal stream;

a video output interface unit formed on said substrate and connected to said line bus for delivering from the integrated circuit device an output video signal stream determined from processing by said plurality of processors;

a host interface unit formed on said substrate and connected to said line bus for exchanging with a host processor control signals effective for governing the function of said plurality of processors;

a control bus formed on said substrate and interconnecting said host interface unit and said plurality of processors for exchange of control signals therewith apart from data bit streams transferred over said line bus; and

a memory interface unit formed on said substrate and connected to said line bus for exchanging with memory elements data bit streams processed and to be processed by said plurality of processors.

5,784,077

DIGITAL PRINTING USING PLURAL COOPERATIVE MODULAR PRINTING DEVICES

Kia Silverbrook, Leichhardt, Australia, assignor to Eastman Kodak Company, Rochester, N.Y.

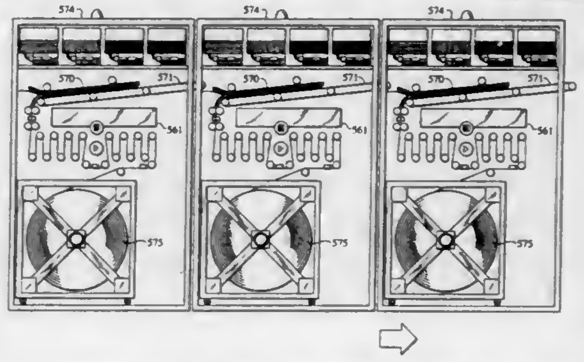
PCT No. PCT/US96/04818, § 371 Date Dec. 3, 1996, § 102(e) Date Dec. 3, 1996, PCT Pub. No. WO96/32290, PCT Pub. Date Oct. 17, 1996

PCT Filed Apr. 10, 1996, Ser. No. 750,437

Claims priority, application Australia, Apr. 12, 1995, PN 2331; Apr. 12, 1995, PN 2332

Int. Cl.^{6} B41J *2/21;* **G01F** *15/24*

U.S. Cl. 347—2 **16 Claims**



1. A digital printing system comprising a plurality of digital printer modules, each including:

(a) means for supporting and feeding a print medium from a supply station through a print path and from a print path outlet;

(b) means for printing upon said medium during its movement through said print path; and

(c) sheet conveyor means for transporting sheets from said print path outlet along a module transport segment to a module egress, said modules being interconnected in a serial array wherein the module egress of upstream modules are coupled to the print sheet outlet region of the adjacent downstream modules so that a stack of print sheets builds up upon the coupled conveyor means as the stack passes along the transport segments, from the first module to the last module.

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5,784,078

RECORDER AND PRINT CONTROL METHOD USING VARIOUS PRINT PATTERNS TO PRINT PRESCRIBED AREAS BY A PLURALITY OF SCANS

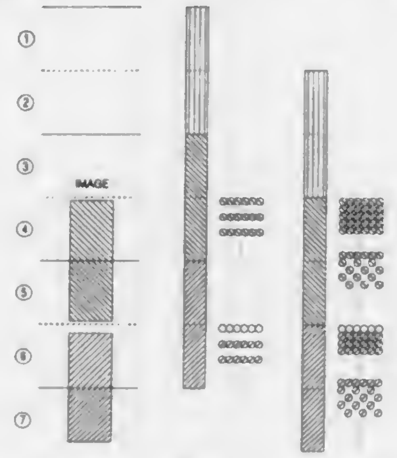
Masami Furuya, Ebina, Japan, assignor to Fuji Xerox Co., Ltd., Tokyo, Japan

Filed Jun. 13, 1996, Ser. No. 663,363

Claims priority, application Japan, Jun. 21, 1995, 7-154617

Int. Cl.⁶ B41J *29/38;2/145*

U.S. Cl. 347—14 **16 Claims**



1. A recorder to print prescribed printing areas by a plurality of scans, comprising:

a recording head where a plurality of printing elements are arrayed, and

a print control means which determines if said printing area is half or less of the printing width of the recording head and controls printing so that, if said printing area is a half or less of the printing width of the recording head, a horizontally or vertically striped pattern is used to print a portion of the print area at a top of an image to be printed while a checkered pattern is used to print a portion of the printing area that follows the printing area at the top of the image and thus each portion of the said printing area is printed using said pattern so as to fill in each portion of the printing area in a plurality of scans.

5,784,079

INK JET HEAD AND INK JET APPARATUS ON WHICH THE INK JET HEAD IS MOUNTED

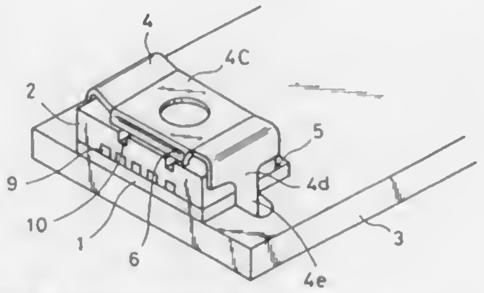
Kazuaki Masuda, Kawasaki; Masami Kasamoto, Ayase; Minoru Nozawa, Yokohama; Eiichiro Shimizu, Urawa; Jun Kawai, Tokyo; Teruo Arashima, Kawasaki, and Yuji Kamiyama, Fujisawa, all of Japan, assignors to Canon Kabushiki Kaisha, Tokyo, Japan

Filed Jun. 28, 1995, Ser. No. 496,156

Claims priority, application Japan, Jun. 30, 1994, 6-148860; Sep. 20, 1994, 6-224577

Int. Cl.⁶ B41J *2/15*

U.S. Cl. 347—20 **18 Claims**



1. An ink jet head comprising:

a plurality of ink ejection ports for ejecting an ink;

a plurality of ink passages respectively communicating with said plurality of ink ejection ports;

a plurality of ejection energy generating elements utilized to eject the ink;

a first base member having said plurality of ejection energy generating elements;

a second base member having a bottom surface having a plurality of grooves for forming respectively said plurality of ink passages and a top surface having a plurality of contact portions; and

a pressing member for pressing said second base member against said first base member to maintain said first and said second base members in a joined state, said first base member and said second base member being joined to form said ink passages, and said pressing member presses against said plurality of contact portions of said top surface of said second base member.

5,784,080

SERIAL PRINTER WHICH PERFORMS AN INITIALIZING OPERATION AFTER A WAITING TIME HAS ELASPSED

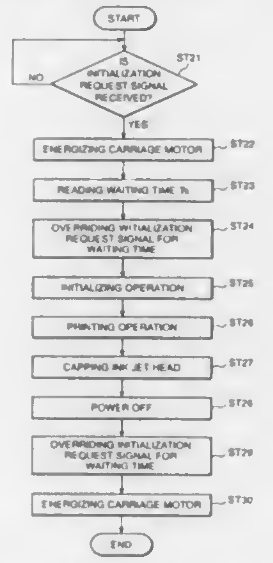
Noboru Nitta, and Akira Oda, both of Shizuoka, Japan, assignors to Kabushiki Kaisha Tec, Tokyo, Japan

Filed Nov. 16, 1995, Ser. No. 559,249

Claims priority, application Japan, Nov. 17, 1994, 6-283093

Int. Cl.⁶ B41J *2/165;29/38*

U.S. Cl. 347—23 **18 Claims**


START
IS INITIALIZATION REQUEST SIGNAL RECEIVED?
ST21
NO
YES
ENERGIZING CARRIAGE MOTOR
ST22
READING WAITING TIME Tt
ST23
OVERRIDING INITIALIZATION REQUEST SIGNAL FOR WAITING TIME
ST24
INITIALIZING OPERATION
ST25
PRINTING OPERATION
ST26
CAPPING INK JET HEAD
ST27
POWER OFF
ST28
OVERRIDING INITIALIZATION REQUEST SIGNAL FOR WAITING TIME
ST29
ENERGIZING CARRIAGE MOTOR
ST30
END

1. A serial printer which performs an initializing operation in response to an initialization request signal fed from an external host apparatus, the printer comprising;

printing means, having a carriage motor, for carrying a print head disposed on a carriage, to perform a printing operation;

a DC power unit for providing a DC drive voltage to the carriage motor, the DC power unit having an attenuating period of the DC drive voltage when the DC power unit is deactivated; and

control means for performing the initializing operation in which the carriage is moved in reciprocal directions after a waiting time corresponding to the attenuating period has elapsed when the initialization request signal from the host apparatus is received by the printer.

5,784,081

METHOD OF AND APPARATUS FOR CLEANING INK JET HEAD

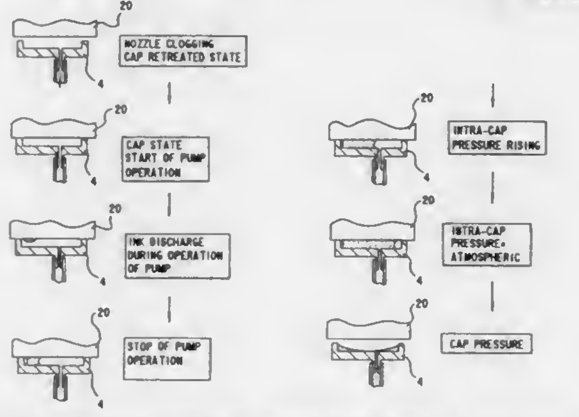
Mitsuo Ozaki; Shigeharu Suzuki; Shino Sakai; Keita Akeno; Shigeyoshi Umemiya, and Yasuo Yamagishi, all of Kawasaki, Japan, assignors to Fujitsu Limited, Kanagawa, Japan

Filed Mar. 23, 1995, Ser. No. 409,094

Claims priority, application Japan, Apr. 21, 1994, 6-106104

Int. Cl.⁶ B41J *2/165*

U.S. Cl. 347—30 **23 Claims**


20
4
NOZZLE CLOGGING CAP RETREATED STATE
CAP STATE START OF PUMP OPERATION
INK DISCHARGE DURING OPERATION OF PUMP
STOP OF PUMP OPERATION
INTRA-CAP PRESSURE RISING
INTRA-CAP PRESSURE= ATMOSPHERIC
CAP PRESSURE

1. A method of cleaning an ink jet head having a plurality of nozzles for effecting a record by jetting ink from openings in the ends of said nozzles onto a recording medium, said method comprising the steps of:

covering a nozzle surface containing the ends of said plurality of nozzles of said ink jet head with a cap to form an air space between said nozzle surface and said cap and closed to the exterior thereof;

depressurizing said air space by use of depressurizing means to suck ink from said nozzles into said air space;

stopping the depressurization by said depressurizing means upon achieving a predetermined negative pressure condition in said air space;

keeping the nozzle surface covered by said cap closed to the exterior thereof while maintaining a depressurized state in said air space for a period of time so that the [inks jetted] ink extracted from said nozzles due to the depressurization wet-spreads over the entire nozzle surface by a capillary force to immerse said openings of said nozzles and dissolve deposited or solidified solutes therein; and

thereafter, retracting said cap from the nozzle surface.

5,784,082

INFORMATION PROCESSING APPARATUS, AND HEAD MEMBER MOUNTABLE ON SUCH INFORMATION PROCESSING APPARATUS

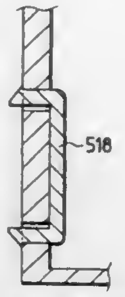
Masaya Shinmachi, Kawasaki; Tetsuo Suzuki, Yokohama; Masahiro Taniguro, Ushiku; Hiroyuki Saito, Yokohama; Koichi Tanno, Kawasaki; Haruyuki Yanagi, Machida; Makoto Kawarama, Kawasaki; Hiroyuki Kinoshita, Kawasaki, and Tan At Ming, Kawasaki, all of Japan, assignors to Canon Kabushiki Kaisha, Tokyo, Japan

Filed Aug. 1, 1995, Ser. No. 509,945

Claims priority, application Japan, Aug. 4, 1994, 6-183678; Aug. 4, 1994, 6-183680; Jul. 26, 1995, 7-190302

Int. Cl.⁶ B41J *2/14*

U.S. Cl. 347—49 **26 Claims**



1. An information processing apparatus for executing information processing on a sheet material using a head member arranged for information processing area, including the following:

a head mounting member for mounting a head member thereon, said head mounting member having a position for attaching and detaching said head member to and from said head mounting member, and a mounting position to mount said head member on said head mounting member by positioning said head member with respect to said head mounting member;

a pressing member movably arranged on said head mounting member, said pressing member abutting upon said head member mounted on said head mounting member to cause said head member to shift from the attaching and detaching position to the mounting position by pressing said head member; and

a contact area for said pressing member and said head member to abut upon each other, said contact area being arranged to reduce slide resistance to occur in the direction different from the direction in which said head member shifts from the attaching and detaching position to the mounting position.

5,784,083

INK JET PRINTER

Matthew Alexander Schumann; Anne Tregoning Miller, and John William Teape, all of Cambridge, United Kingdom, assignors to Domino Printing Sciences, Plc, United Kingdom

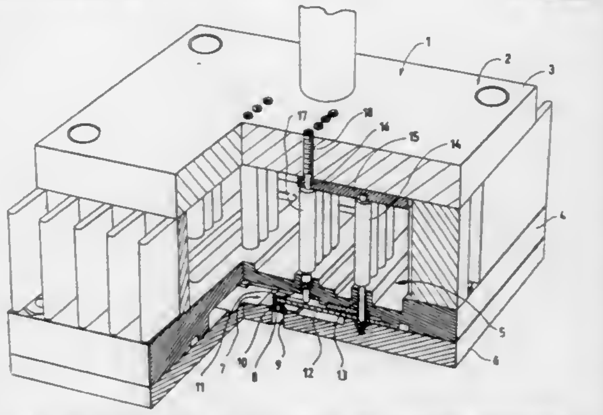
PCT No. PCT/GB94/00155, § 371 Date Jul. 7, 1995, § 102(e) Date Jul. 7, 1995, PCT Pub. No. WO94/18010, PCT Pub. Date Aug. 18, 1994

PCT Filed Jan. 7, 1994, Ser. No. 481,531

Claims priority, application United Kingdom, Feb. 4, 1993, 9302170

Int. Cl.⁶ G01D *15/18*

U.S. Cl. 347—54 **8 Claims**



1. A printhead for an ink jet printer, the printhead including a chamber for containing marking fluid fed to the head in use; a plurality of orifices opening from the chamber and through which a marking fluid can be emitted in use; and a corresponding plurality of actuators each having means for selectively opening and closing a respective orifice, a magnetic circuit, and one or more coils for inducing a magnetic flux, said magnetic flux to open the respective orifice, wherein

each actuator comprises an arm having at one end the means for selectively opening and closing a respective orifice, the arm forming a side of the magnetic circuit and being mounted in cantilever fashion, flexing under the influence of the applied magnetic flux, and wherein

the arm varies in width, having a relatively narrow portion in order to provide suitable flexing characteristics, and a relatively wider portion in order to provide a low reluctance path

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in order to produce a desired degree of flux linking to a part of the magnetic circuit not including the arm.

5,784,084

Patent Not Issued For This Number

5,784,085
INK JET PRINT HEAD WITH FLEXIBLE WALL MEMBER HAVING LOW AND HIGH ELASTICITY PORTIONS

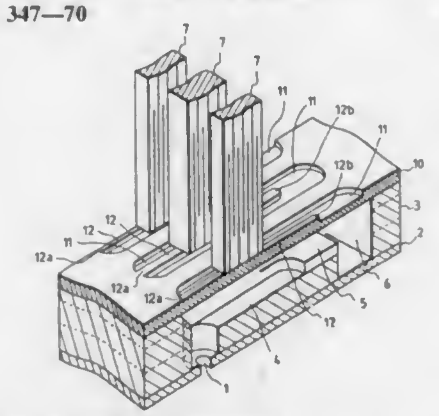
Satoru Hosono; Toshihisa Saruta, and Kazuo Koshino, all of Nagano, Japan, assignors to Seiko Epson Corporation, Tokyo, Japan

Filed Sep. 26, 1995, Ser. No. 533,934

Claims priority, application Japan, Sep. 26, 1994, 6-229747; Sep. 26, 1994, 6-229748; Sep. 14, 1995, 7-262237

Int. Cl.^{6} B41J *2/45*

U.S. Cl. 347—70 **10 Claims**



1. An ink jet print head comprising:

a flow path forming member having pressure generating chambers, ink supply paths and reservoirs,

a nozzle plate for covering one side of said flow path forming member, said nozzle plate having nozzle openings communicating with said pressure generating chambers,

a flexible wall member for varying the volumes of said pressure generating chambers, said flexible wall member covering hermetically the other side of said flow path forming member, said flexible wall member comprising low elasticity portions and high elasticity portions, one end of each high elasticity portion extending to a region of said ink supply path, and

piezoelectric vibrating elements for elastically deforming said flexible wall member, said piezoelectric vibrating elements being in contact with said flexible wall member, expanding—and contracting-motions of said piezoelectric vibrating elements being transmitted to said pressure generating chambers by said low elasticity portions and said high elasticity portions of said flexible wall member.

5,784,086
INK CARTRIDGE HOLDING BOX FOR REFILLING

Sakae Hayao, Chatsworth, Calif., assignor to Mitsubishi Pencil Corporation of America, Chatsworth, Calif.

Filed Mar. 22, 1995, Ser. No. 408,916

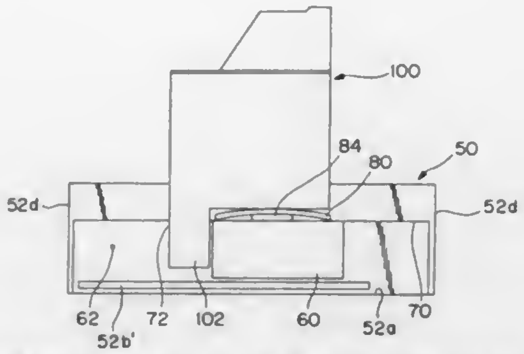
Int. Cl.^{6} B41J *2/175*

U.S. Cl. 347—85 **5 Claims**

1. An ink cartridge holding box used while refilling ink into a used empty ink cartridge having a projected portion, said ink cartridge holding box comprising:

a main box section;

a supporting block provided on an inside upper surface of a bottom of said main box section;



a platform element provided on top of said supporting block so as to be spaced apart from said upper surface of said bottom of said main box, said platform element being formed with an opening into which said projected portion of said ink cartridge is inserted; and

an adhesive layer for holding said ink cartridge, said adhesive layer being provided on an upper surface of said platform element so as to be located next to said opening.

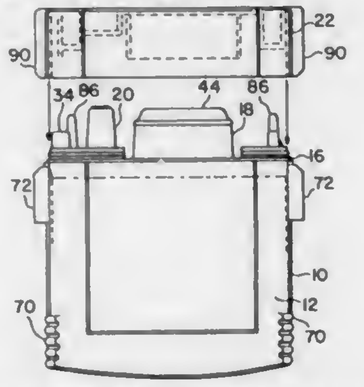
5,784,087
LIQUID CONTAINMENT AND DISPENSING DEVICE

James Kenneth Wallace, Toledo; David C. Kamp, Grand Rapids, and William E. Fillmore, Toledo, all of Ohio, assignors to Owens-Illinois Closure Inc., Toledo, Ohio

Filed Apr. 27, 1995, Ser. No. 429,987

Int. Cl.^{6} B41J *2/175*

U.S. Cl. 347—85 **6 Claims**



1. An improved pumping mechanism for use in a liquid containment and dispensing device having a rigid, generally cup-shaped outer shell with an open end, a chassis secured to the open end of the shell, the a pumping mechanism being a part of the chassis and having a liquid outlet therefrom, a flexible pouch having an open end and a closed end, the closed end being positioned within the shell and the open end being in liquid communication with the pumping mechanism through an inlet port into the pumping mechanism, and check valve means separating the flexible pouch from the pumping mechanism for permitting liquid flow from the flexible pouch into the pumping mechanism while preventing liquid flow from the pumping mechanism into the flexible pouch to dispense liquid therefrom through the liquid outlet, said improved pumping mechanism comprising:

a rigid, perimetrical wall extending outwardly from the chassis and defining with said chasis a pumping chamber, said perimetrical wall being separate from the outer shell of the liquid containment and dispensing device;

a pumping member in communication with the pumping chamber and reciprocable therein, said pumping member being actuatable from a location external to the chassis and being returnable to a start position after being moved from the start position during a pumping cycle; and

a flexible film overlying said pumping member, said flexible film being sealingly joined to the perimetrical wall.

5,784,088
INK JET RECORDING APPARATUS USING RECORDING UNIT WITH INK CARTRIDGE HAVING INK INDUCING ELEMENT

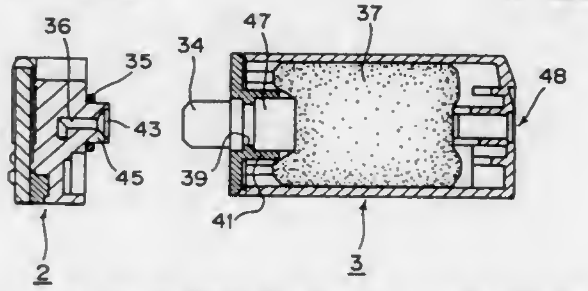
Toshihiko Ujita, Yamoto; Masanori Takenouchi, Yokohama, and Keiichiro Tsukuda, Kawasaki, all of Japan, assignors to Canon Kabushiki Kaisha, Tokyo, Japan

Continuation of Ser. No. 165,843, Dec. 14, 1993, abandoned. This application Jun. 24, 1996, Ser. No. 669,644

Claims priority, application Japan, Jul. 20, 1993, 5-179195; Nov. 29, 1993, 5-298370; Nov. 29, 1993, 5-298500; Nov. 29, 1993, 5-298501

Int. Cl.^{6} B41J *2/175*

U.S. Cl. 347—86 **44 Claims**



1. An ink cartridge attached to a recording head and detachable therefrom, the recording head having an ink receiving portion, the ink cartridge comprising:

an ink-reserving portion having a space for storing ink;

an ink absorbing member housed in said ink-reserving portion to hold the ink:

an ink-supply opening portion having an opening for supplying ink from said ink-reserving portion to the ink receiving portion of the recording head;

an ink-inducing element arranged between said ink absorbing member and said ink-supply opening portion to contact said ink absorbing member so that the ink held by said ink absorbing member is induced toward the recording head;

a holding portion for holding said ink-inducing element slidably; and

a restriction member for restricting movement of said ink-inducing element toward an outside of said ink cartridge to prevent said ink-inducing element from sliding to project out of said ink-supply opening portion, wherein said ink-inducing element press-contacts with the ink receiving portion of the recording head to slide said ink-inducing element toward said ink absorbing member, when said ink cartridge is attached to the recording head.

5,784,089
MELT PLATE DESIGN FOR A SOLID INK PRINTER

Clark W. Crawford, Wilsonville, Oreg., assignor to Tektronix, Inc., Wilsonville, Oreg.

Filed Mar. 7, 1996, Ser. No. 612,148

Int. Cl.^{6} B41J *2/175*

U.S. Cl. 347—88 **3 Claims**

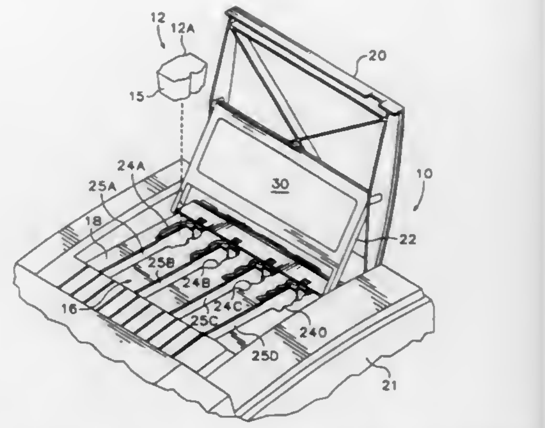
1. A solid ink stick feed system selectively permitting ink sticks of a predetermined shape to be fed into a printer and not permitting improperly shaped or improperly oriented ink sticks to be fed, the system comprising in combination:

a. an ink stick feed bin having areas for receipt of a plurality of ink sticks, the ink sticks having a plurality of distinctive shapes, the areas accepting ink sticks that are only oriented correctly;

b. a cover for the ink bin, the cover having a plurality of receptacles corresponding to the plurality of distinctive ink stick shapes and each receptacle matched to a predetermined ink stick shape;

c. spring loaded push means to guide the plurality of ink sticks through the areas of the ink stick feed bin; and

d. heater means adjacent the ink stick feed bin areas positioned to receive individual ink sticks guided thereto by the push means to melt the ink sticks on demand and guide the molten ink to collection means separated according to a distinctive color quality of the ink, the heater means further employing a positive temperature coefficient resistor.



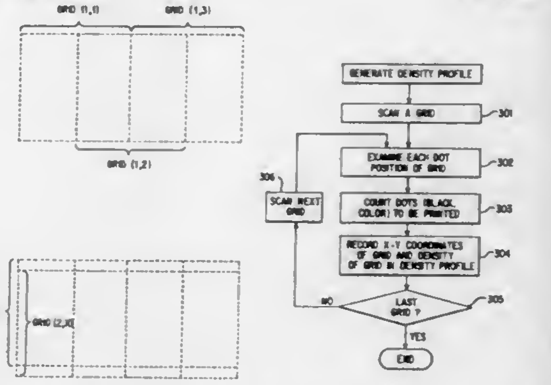
5,784,090
USE OF DENSITOMETER FOR ADAPTIVE CONTROL OF PRINTER HEATER OUTPUT TO OPTIMIZE DRYING TIME FOR DIFFERENT PRINT MEDIA

Ronald J. Selensky, Poway, and Brent W. Richtsmeier, San Diego, both of Calif., assignors to Hewlett-Packard Company, Palo Alto, Calif.

Continuation-in-part of Ser. No. 511,321, Aug. 4, 1995, Ser. No. 56,287, Apr. 30, 1993, Pat. No. 5,479,199, Ser. No. 137,388, Oct. 14, 1993, Pat. No. 5,467,119, and Ser. No. 238,091, May 3, 1994. This application Oct. 30, 1995, Ser. No. 549,900

Int. Cl.^{6} B41J *2/01*

U.S. Cl. 347—102 **5 Claims**


GRID (1,1)
GRID (1,3)
GRID (1,2)
GENERATE DENSITY PROFILE
SCAN A GRID
301
EXAMINE EACH DOT POSITION OF GRID
302
306
SCAN NEXT GRID
COUNT DOTS (BLACK, COLOR) TO BE PRINTED
303
RECORD X-Y COORDINATES OF GRID AND DENSITY OF GRID IN DENSITY PROFILE
304
NO
LAST GRID ?
305
YES
END
GRID (1,X)
GRID (2,X)

1. An inkjet printer for printing an image on a sheet of print media, comprising:

a carriage mounted inkjet printing mechanism for applying liquid ink to said sheet as successive columns of dots contained within a first horizontal swath of a plot file divided into a plurality of grids to thereby form a portion of said image,

a drive mechanism to move said sheet relative to said carriage to thereby position said print head at a beginning of a second horizontal swath, of said plot file

selection means for specifying a selected print mode and a selected print medium,

a heater driver circuit for controlling a variable output of a heater in said printer,

densitometer means, responsive to the receipt of the plot file, to be printed, for counting the dots in a plurality of overlapping grid portions of said plot file to thereby locate a grid portion having a respective maximum density value,

calculating means responsive to the receipt of each said maximum density value from said densitometer means for determining a respective optimal heater output value based upon

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the said maximum density value, upon said selected print mode, and upon said selected print medium, and

a controller operatively coupled to said heater driver circuit, said controller comprising:

a preheating means responsive to the receipt of an initial print command, for ramping the heater up to an operating temperature dependent only on the selected medium,

a drying means responsive to an output from said calculating means, for controlling an amount of heating to which the sheet is exposed to said optimal heater output value, and

an idle mode responsive to the completion of printing of said sheet, for maintaining the heater in a warm idle state independent of both the selected medium and the selected print mode.

5,784,091
IMAGE FORMING SYSTEM USING DIGITAL ASIC AND ANALOG ASIC FOR PROCESSING IMAGE DATA AND CONTROLLING SEMICONDUCTOR LASER, AND HALF-TONE PIXEL REPRESENTING METHOD

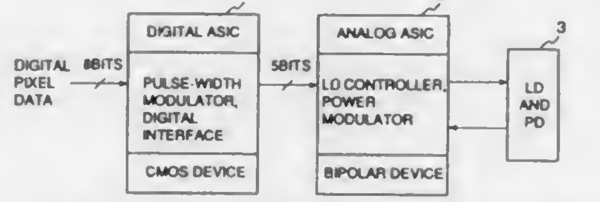
Hidetoshi Ema, Yokohama, and Masaaki Ishida, Sagamihara, both of Japan, assignors to Ricoh Company, Ltd., Tokyo, Japan

Continuation of Ser. No. 253,322, Jun. 3, 1994, abandoned. This application May 23, 1997, Ser. No. 862,326

Claims priority, application Japan, Jun. 4, 1993, 5-160159

Int. Cl.^{6} B41J *2/385;* **G03G** *13/04;* **H04N** *1/21*

U.S. Cl. 347—131 **26 Claims**



1. An image forming system for forming an image comprising respective pixels, comprising:

a semiconductor laser for emitting light as a light output;

a digital ASIC responsive to pixel data representing said respective pixels and comprising a pulse width modulator which modulates a pulse width and generates a pulse width modulation output signal in accordance with said pixel data; and

an analog ASIC responsive to said pulse width modulation output signal of said digital ASIC and comprising a power modulator which modulates a pulse amplitude so as to generate a modulated laser control signal for said semiconductor laser;

wherein the pulse width modulation output signal of said digital ASIC and the laser control signal of said analog ASIC control said semiconductor laser so as to pulse-width-modulate and amplitude-modulate the light emitted by said semiconductor laser that may be pulse-width-modulated and amplitude-modulated.

5,784,092
THERMAL PRINTER IN WHICH HEAD ENERGIZATION PERIOD IS CONTROLLED BASED ON NUMBER OF HEADS TO BE ENERGIZED

Hiroaki Fukuoka, Ise, Japan, assignor to Shinko Electric Co., Ltd., Tokyo, Japan

Filed Dec. 23, 1994, Ser. No. 362,863

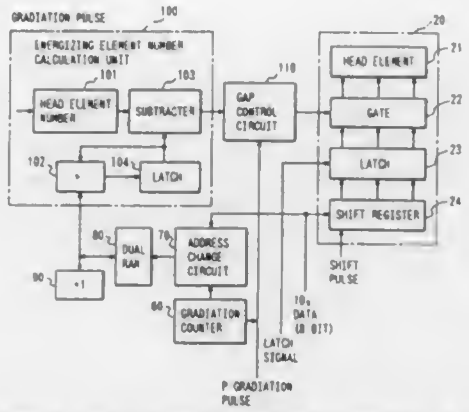
Claims priority, application Japan, Dec. 24, 1993, 5-326755

Int. Cl.^{6} B41J *2/36*

U.S. Cl. 347—190 **1 Claim**

1. A thermal printer comprising:

a thermal head having a plurality of head elements;



energization period control means for controlling a common energization period of each of the plurality of head elements;

counter means for counting a number of said plurality of head elements which are to be energized for each gradation; and

adjusting means for adjusting said common energizing period for each gradation on the basis of a number of said plurality of head elements counted by said counter means in order to prevent density unevenness which would otherwise occur because of differences in the number of head elements to be energized for each gradation,

wherein the counter means comprises:

data number counter means for counting density data bits indicative of energization of each head element for each gradation to obtain a count value (D_j) representative of the total number of said density data bits;

memory means for storing a total number (N) of the head elements;

sum means for summing and latching the count values obtained by the data number counting means for each gradation which is lower than the gradation for which said energizing period to be adjusted by said adjusting means to obtain a sum

$$\left(\sum_{j=0}^{K-1} D_j\right);$$

and

head element counter means for counting each gradation by subtracting the summing data of said sum means from the stored data of said memory means to obtain said number

$$\left(N-\sum_{j=0}^{K-1} D_j\right)$$

of said plurality of head elements which are to energized for each gradation.

5,784,093

Patent Not Issued For This Number

5,784,094
LASER BEAM PRINTER WITH A PLURALITY OF PHOTORECEPTORS AND A COMMON SCANNING OPTICAL SYSTEM

Takeshi Ota, and Masao Ito, both of Kanagawa, Japan, assignors to Fuji Xerox Co., Ltd., Tokyo, Japan

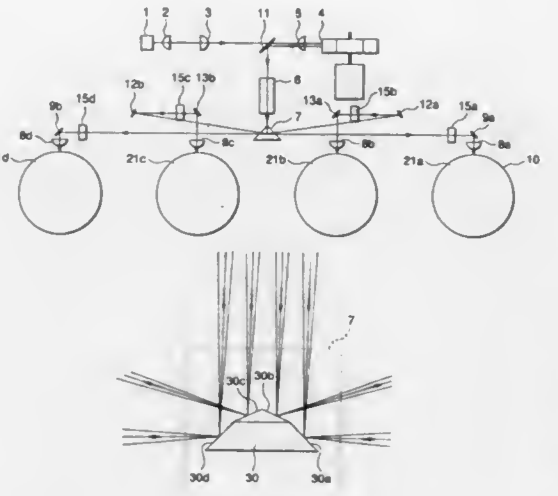
Filed Apr. 4, 1994, Ser. No. 222,642

Claims priority, application Japan, Apr. 5, 1993, 5-078363

Int. Cl.^{6} B41J *2/47*

U.S. Cl. 347—243 **2 Claims**

1. A laser beam printer in which an image is formed by laser beam exposure on each of a plurality of photoreceptors arranged along a sheet transport path, comprising:



a laser array for emitting a plurality of laser beams;

means for deflecting the plurality of laser beams together;

means for separating the deflected laser beams to different directions that are generally along an arrangement direction of the plurality of photoreceptors; and

means for directing the separated laser beams to respective photoreceptors;

wherein said separating means comprises a reflector having differently angled reflecting faces of a number corresponding to the number of the laser beams.

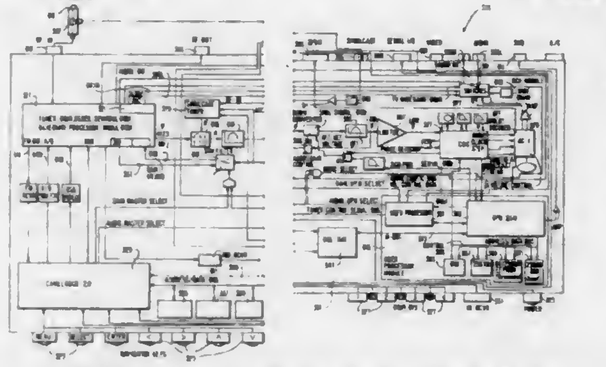
5,784,095
DIGITAL AUDIO SYSTEM WITH VIDEO OUTPUT PROGRAM GUIDE

Clyde Robbins, Maple Glen; John F. Maraska, Abington; John Kamieniecki, Lafayette Hill; Douglas W. Palmer, W. Norriton; Tony Nasuti, Norristown, and Robert C. Stein, Coopersburg, all of Pa., assignors to General Instrument Corporation, Hatboro, Pa.

Continuation-in-part of Ser. No. 502,517, Jul. 14, 1995. This application Mar. 21, 1996, Ser. No. 620,019

Int. Cl.^{6} H04N *7/16*

U.S. Cl. 348—6 **28 Claims**



1. In a CATV network, a method for providing an audio programming guide displaying both in-band and out-of-band information comprising:

transmitting out-of-band information over a control data channel, said out-of-band information related to programming being carried on a plurality of broadcast channels;

transmitting in-band information over a plurality of broadcast channels on which at least an audio broadcast is being transmitted, with respect to each channel said in-band information transmitted including information related to the audio broadcast carried on the channel;

receiving said out-of-band information utilizing a data receiver;

receiving said in-band information of a specific broadcast channel utilizing a frequency agile tuner by tuning to said specific broadcast channel;

integrating said in-band and out-of-band information into an audio programming guide; and

using said audio programming guide to simultaneously display out-of-band programming information with the specific audio broadcast information related to the transmitted broadcast.

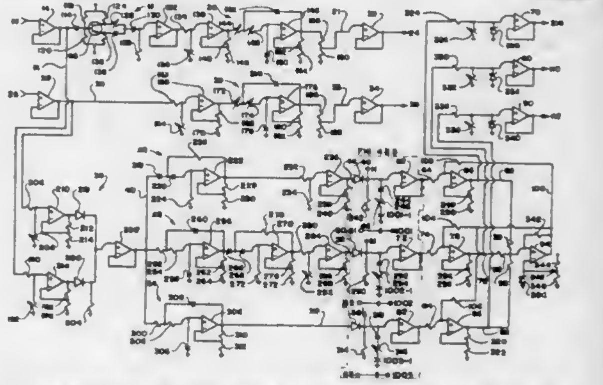
5,784,096
DUAL AUDIO SIGNAL DERIVED COLOR DISPLAY

Roger M. Paist, 11401 9th St. N., Apt. 2308, St. Petersburg, Fla. 33716

Continuation of Ser. No. 377,507, Jan. 24, 1995, abandoned, which is a continuation of Ser. No. 219,244, Mar. 29, 1994, abandoned, which is a continuation of Ser. No. 118,681, Sep. 9, 1993, abandoned, which is a continuation of Ser. No. 2,226, Jan. 8, 1993, abandoned, which is a continuation of Ser. No. 908,923, Jul. 2, 1992, abandoned, which is a continuation of Ser. No. 800,741, Nov. 27, 1991, abandoned, which is a continuation of Ser. No. 664,375, Mar. 4, 1991, abandoned, which is a continuation of Ser. No. 509,584, Apr. 16, 1990, abandoned, which is a continuation of Ser. No. 236,196, Aug. 25, 1988, abandoned, which is a continuation-in-part of Ser. No. 51,925, May 19, 1987, Pat. No. 4,768,086, which is a continuation of Ser. No. 714,026, Mar. 20, 1985, abandoned. This application Jun. 25, 1996, Ser. No. 669,767

Int. Cl.^{6} H04N *9/00;* **A63J** *17/00;* **G09G** *1/28*

U.S. Cl. 348—32 **3 Claims**



1. An apparatus for use with a display means for displaying a multi-color visual pattern on a viewing screen, the display means positioning an apparatus spot having a first, second and third color component on the viewing screen and with the pattern being derived from a first and a second audio input signal comprising:

a first input terminal for receiving the first audio input signal;

a second input terminal for receiving the second audio input signal;

first filtering means connected to said first input terminal for filtering the first audio signal to produce a first filtered audio signal;

second filtering means connected to said second input terminal for filtering the second audio signal to produce a second filtered audio signal;

positioning means for controlling the position of the spot in a first and a second direction on the viewing screen;

means connecting said first filtered audio signal of said first filtering means to said positioning means for positioning the spot on the viewing screen in said first direction;

means connecting said second filtered audio signal of said second filtering means to said positioning means for positioning the spot on the viewing screen in said second direction;

first, second and third color driver means for producing a first, second and third color driver signal to control the intensity of the first, second and third color component of the spot on the viewing screen, respectively;

means connecting at least one of said first and second terminals to said first, second and third color driver means for control-

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ling the intensity of the first, second and third color component of the spot on the viewing screen in accordance with at least one of said first and said second audio signals;

color intensity control means comprising:

means for modulating at least two of said first, second and third color driver means in accordance with instantaneous signal values derived from at least one of said first and second audio signals; and

said modulating means being connected to a damping means wherein a time constant of said damping means is sufficiently large for allowing presentation of a simultaneous plurality of colors on said viewing screen.

5,784,097

THREE-DIMENSIONAL IMAGE DISPLAY DEVICE

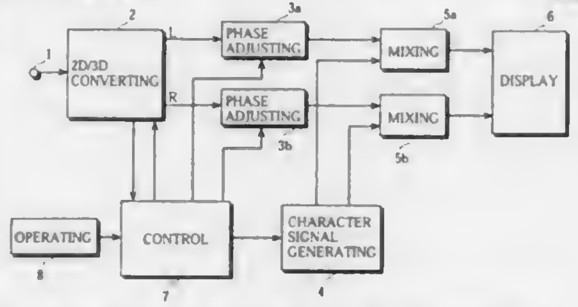
Toshiya Iinuma, Moriguchi; Haruhiko Murata, Takatsuki; Seiji Okada, Moriguchi, and Akihiro Maenaka, Kadoma, all of Japan, assignors to Sanyo Electric Co., Ltd., Osaka, Japan

Filed Mar. 25, 1996, Ser. No. 622,298

Claims priority, application Japan, Mar. 29, 1995, 7-071980

Int. Cl.^{6} H04N *13/02*

U.S. Cl. 348—43 **1 Claim**



1. A three-dimensional image display device comprising:

signal converting means for producing from a two-dimensional image signal a left eye image signal and a right eye image signal which constitute a three-dimensional image, wherein said signal converting means takes the two-dimensional image and an image delayed from the two-dimensional image along a time base as the right eye image and left eye image, respectively, if the two-dimensional image is a moving image, and takes the two-dimensional image and an image in which a horizontal phase of the two-dimensional is shifted as the right eye image and the left eye image, respectively, if the two-dimensional image is a still image;

first phase adjusting means for controlling the horizontal phase of the left eye image signal produced by said signal converting means;

second phase adjusting means for controlling the horizontal phase of the right eye image signal produced by said signal converting means;

first mixing means for mixing a two-dimensional character signal with the left eye image signal outputted from said first phase adjusting means;

second mixing means for mixing a two-dimensional character signal with the right eye image signal outputted from said second phase adjusting means; and

displaying means for displaying a composite image comprising said three-dimensional image and said character signal on the basis of outputs of said first mixing means and said second mixing means, wherein said two-dimensional character signal mixed with the left eye image signal by said first mixing means and said two-dimensional character signal mixed with the right eye image signal by said second mixing means are the same signals between which there is no binocular parallax.

5,784,098

APPARATUS FOR MEASURING THREE-DIMENSIONAL CONFIGURATIONS

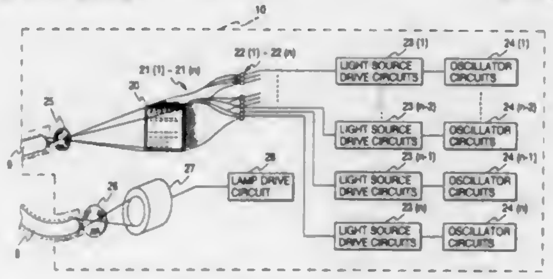
Hideyuki Shoji, Sagamihara; Shinichiro Hattori, Akishima; Masahide Kanno, Hachioji; Yasushi Namii, Hachioji; Masaru Shiraiwa, Hachioji; Kimihiko Nishioka, Hachioji; Nobuyuki Matsuura, Hino, and Akira Kusumoto, Hachioji, all of Japan, assignors to Olympus Optical Co., Ltd., Tokyo, Japan

Filed May 30, 1996, Ser. No. 655,761

Claims priority, application Japan, Aug. 28, 1995, 7-219319

Int. Cl.^{6} H04N *7/18*

U.S. Cl. 348—45 **87 Claims**



44. A system for measuring three-dimensional configurations comprising;

measuring light generating means (**23**, **24**, and **22**) for generating simultaneously a plurality of measuring lights at different modulation frequencies;

measuring light projecting means **20**, **25**, **9**, and **14** for spatially separating a plurality of measuring lights such that it is projected simultaneously onto the whole surface of an object to be measured;

light receiving means (**11**) for receiving the measuring lights reflected from the object;

signal processing means (**35** and **326**) that preliminarily stores specific distance position information which is supplied with an output signal from said light receiving means to derive the distance to the object, wherein said signal processing means (**35** and **326**) has a plurality of separator circuits (**42** or **53**) for separating frequency components from the output signal from said light receiving means (**11**);

a plurality of peak position detector circuits (**43**) coupled to output terminals of said separator circuits and which are supplied with outputs of the separator circuits operating at a same center frequency,

a distance calculating circuit (**44**) coupled to said peak position detector circuits, and

a three-dimensional configuration memory (**45**) coupled to said distance calculating circuit, said distance calculating circuit storing specific distance position information; and

transmission means (**6**) that transmits the measuring lights from said measuring light generating means to the object and which transmits the reflected light from the object to said light receiving means.

5,784,099

VIDEO CAMERA AND METHOD FOR GENERATING TIME VARYING VIDEO IMAGES IN RESPONSE TO A CAPTURE SIGNAL

Louis A. Lippincott, Roebling, N.J., assignor to Intel Corporation, Santa Clara, Calif.

Filed Sep. 13, 1994, Ser. No. 305,153

Int. Cl.^{6} H04N *5/228*

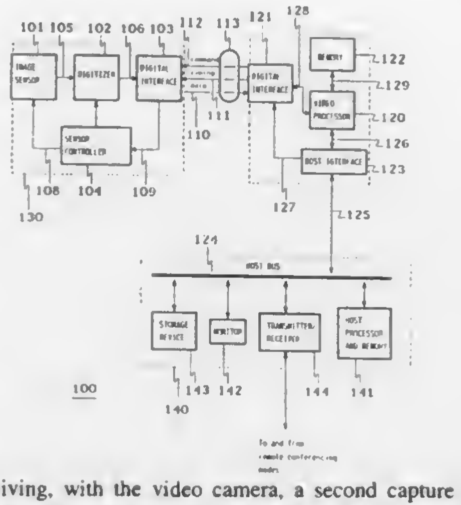
U.S. Cl. 348—222 **18 Claims**

1. A method for generating time varying video images, comprising the steps of:

(a) receiving, with a video camera, a first capture signal from a video processing system;

(b) capturing a first video frame with the video camera in response to the first capture signal;

(c) transmitting, with the video camera, the first video frame to the video processing system, wherein the video processing system processes the first video frame; and



(d) receiving, with the video camera, a second capture signal from the video processing system at a time during the processing of the first video frame.

5,784,100

APPARATUS AND METHOD FOR PERFORMING SHADING CORRECTION BY MULTIPLYING A DIFFERENTIAL SHADING CORRECTION FACTOR AND INPUT IMAGE DATA

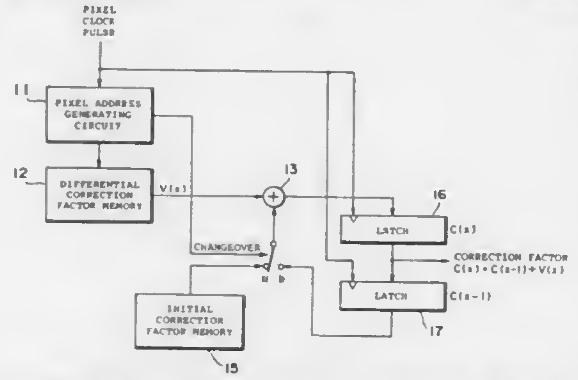
Masahiro Konishi, Asaka, Japan, assignor to Fuji Photo Film Co. Ltd., Kanagawa, Japan

Filed Aug. 15, 1995, Ser. No. 515,229

Claims priority, application Japan, Aug. 18, 1994, 6-215272

Int. Cl.^{6} H04N *3/14*

U.S. Cl. 348—251 **3 Claims**


PIXEL CLOCK PULSE
11
PIXEL ADDRESS GENERATING CIRCUIT
12
DIFFERENTIAL CORRECTION FACTOR MEMORY
V(x)
13
16
LATCH
C(x)
CHANGEOVER
a b
CORRECTION FACTOR C(x) = C(x-1) + V(x)
LATCH
C(x-1)
17
INITIAL CORRECTION FACTOR MEMORY
15

1. A shading correction apparatus, for performing shading correction on input image data using a correction factor representing a ratio of ideal image data to image data obtained by imaging a reference object, comprising:

a first storing device for storing an initial correction factor;

a second storing device for storing a differential correction factor for each pixel of an input image, representing a difference between a shading correction factor for the pixel and a shading correction factor for an adjacent pixel;

a temporary holding device for temporarily holding a calculated correction factor;

an adding device for calculating, for each pixel, a sum of the differential correction factor stored in said second storing device and one of the initial correction factor stored in said first storing device and the calculated correction factor held in said temporary holding device, for outputting a result of the calculation as a correction factor, and for causing said temporary holding device to hold the result of the calculation; and

a multiplying device for multiplying data, representing the calculation result outputted by the adding device, and the input image data for each pixel together to produce shading corrected image data.

5,784,101

IMAGE READING APPARATUS HAVING CHARGE TRANSFER MEANS BETWEEN THE PLURALITY OF LINES OF PHOTOELECTRIC CONVERSION MEANS

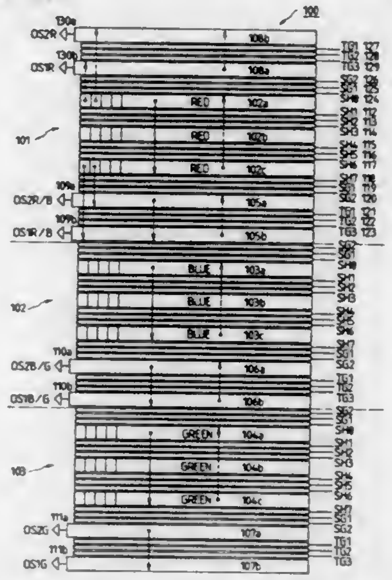
Shizuo Hasegawa, Urayasu, Japan, assignor to Canon Kabushiki Kaisha, Tokyo, Japan

Filed Jan. 31, 1995, Ser. No. 381,407

Claims priority, application Japan, Feb. 4, 1994, 6-012764

Int. Cl.^{6} H04N *3/14*

U.S. Cl. 348—282 **16 Claims**



1. An image sensor constituted by forming a plurality of linear image sensors on a single wafer, each linear image sensor comprising a plurality of lines of photoelectric conversion means for converting light from an object into an electrical signal, and a plurality of shift register means for outputting the electrical signal converted by the plurality of photoelectric conversion means to an output unit, said image sensor comprising:

(a) a plurality of first charge transfer means, arranged between the lines of photoelectric conversion means, for synthesizing output signals from the plurality of lines of photoelectric conversion means and transferring the output signals from one of the lines of photoelectric conversion means to a next line of photoelectric conversion means;

(b) a plurality of second charge transfer means, arranged between the plurality of shift register means, for transferring charges between the shift register means; and

(c) a signal terminal for changing a drive timing of said first and second charge transfer means to switch a transfer direction of said first and second charge transfer means between a forward direction and a backward direction.

5,784,102

OPTICAL READER HAVING IMPROVED INTERACTIVE IMAGE SENSING AND CONTROL CIRCUITRY

Rob Hussey, Liverpool; William H. Havens, Skaneateles, and Robert J. Wood, Sr., Syracuse, all of N.Y., assignors to Welch Allyn, Inc., Skaneateles Falls, N.Y.

Continuation of Ser. No. 441,447, May 15, 1995, abandoned. This application Feb. 27, 1997, Ser. No. 807,066

Int. Cl.^{6} H04N *3/14;5/335*

U.S. Cl. 348—296 **16 Claims**

1. An optical reader for reading data from an indicia of the two dimensional type including, in combination:

an illumination system for directing light against said indicia;

an optical system for receiving light scattered from said indicia and forming said light into an image;

an image sensor circuit for receiving said image, for converting said image into a set of electrical signals and for processing said electrical signals in accordance with a plurality of sensor operating parameters to generate an image data signal that

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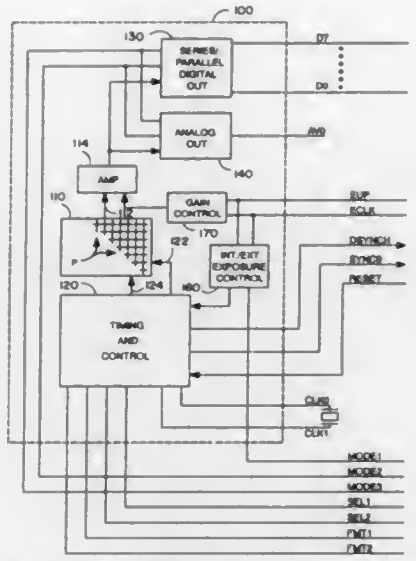


contains said data, said image sensor circuit comprising an integrated circuit including at least an on-chip two-dimensional array of picture elements, an on-chip timing control circuit, and an on-chip exposure control circuit and having a plurality of control inputs for receiving control signals for controlling said control circuits and an output for outputting said image data signal;

an image sensor control circuit including a data input for receiving said image data signal; a plurality of control outputs through which said control signals may be supplied to the control inputs of said image sensor circuit to interactively control said control circuits; and a stored program for determining the magnitudes of said sensor operating parameters, and for controlling the generation of said control signals in accordance with information derived from said image data signal to assure that said image data signal meets predetermined image quality standards.

5,784,103

CHARGE COUPLED IMAGING DEVICE HAVING AN ADJUSTABLE ASPECT RATIO AND CAMERA PROVIDED WITH SUCH A CHARGE COUPLED IMAGING DEVICE

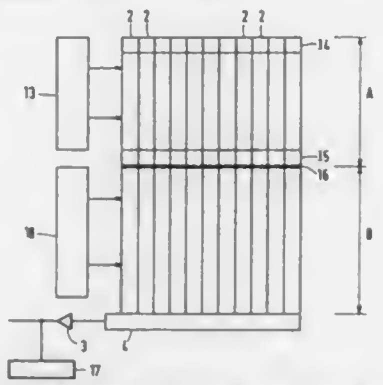
Gregory E. Pine, Simi Valley, Calif.; Pieter P. Brouwer, Dordrecht, Netherlands; Petrus G. M. Centen, Rijen, Netherlands; Holger Stoldt, Eindhoven, Netherlands, and Albert J. P. Theuwissen, Bree, Belgium, assignors to U.S. Philips Corporation, New York, N.Y.

Filed Feb. 16, 1995, Ser. No. 389,377

Claims priority, application Belgium, Feb. 17, 1994, 09400187

Int. Cl.^{6} H04N *3/12*

U.S. Cl. 348—312 **12 Claims**



1. A charge coupled imaging device comprising a semiconductor body which is provided at a surface with a sensor matrix of image sensor elements, with a system of charge transport channels situated next to one another and extending in the semiconductor body parallel to one another and parallel to the surface, in which channels electric charge generated in the image sensor elements through absorption of radiation can be stored in the form of charge packages and transported to a read-out member under the influence of clock voltages applied to a system of clock electrodes formed above the charge transport channels, characterized in that means are provided for selectable operating said device as an M-phase charge coupled device, in which a charge package corresponds to M clock electrodes, or as an N-phase charge coupled device, in which a charge package corresponds to N clock electrodes, N being smaller than M, for adjusting a width/height ratio of the imaging device.

5,784,104

AUTOMATIC FOCUSING DEVICE USING A VIDEO APERTURE SIGNAL IN LOW CONTRAST SITUATIONS

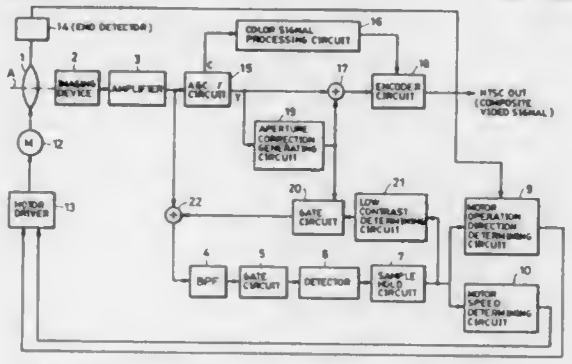
Hideyuki Arai, Kawasaki, Japan, assignor to Canon Kabushiki Kaisha, Tokyo, Japan

Continuation of Ser. No. 155,633, Nov. 22, 1993, abandoned, which is a continuation of Ser. No. 845,961, Mar. 4, 1992, abandoned. This application Jun. 7, 1995, Ser. No. 473,955

Claims priority, application Japan, Mar. 19, 1991, 3-052929

Int. Cl.^{6} H04N *5/232*

U.S. Cl. 348—353 **18 Claims**


14 (END DETECTOR)
16
COLOR SIGNAL PROCESSING CIRCUIT
1
2
3
A
IMAGING DEVICE
AMPLIFIER
ABC / CIRCUIT
15
17
18
ENCODER CIRCUIT
NTSC OUT (COMPOSITE VIDEO SIGNAL)
19
APERTURE CORRECTION GENERATING CIRCUIT
M
12
22
20
GATE CIRCUIT
21
LOW CONTRAST DETERMINING CIRCUIT
9
MOTOR OPERATION DIRECTION DETERMINING CIRCUIT
MOTOR DRIVER
13
4
5
6
7
BPF
GATE CIRCUIT
DETECTOR
SAMPLE HOLD CIRCUIT
10
MOTOR SPEED DETERMINING CIRCUIT

11. A video camera focusing apparatus, comprising:

imaging means for photoelectrically converting an object image into an image signal, and for outputting the image signal;

an aperture correcting circuit for extracting and emphasizing a predetermined component of the image signal corresponding to edge portions of an image aperture; and

focusing means for, in a low contrast situation, performing focusing using the emphazized predetermined component of said aperture correcting circuit image signal.

5,784,105

VIDEO CAMERA WITH BUILT-IN SECONDARY BATTERY

Masaharu Kawamura, Kanagawa-ken, Japan, assignor to Canon Kabushiki Kaisha, Tokyo, Japan

Continuation of Ser. No. 387,016, Feb. 10, 1995, abandoned, which is a continuation of Ser. No. 76,543, Jun. 14, 1993, abandoned. This application Mar. 4, 1997, Ser. No. 811,298

Claims priority, application Japan, Jun. 19, 1992, 4-184772

Int. Cl.^{6} H04N *5/225;5/222*

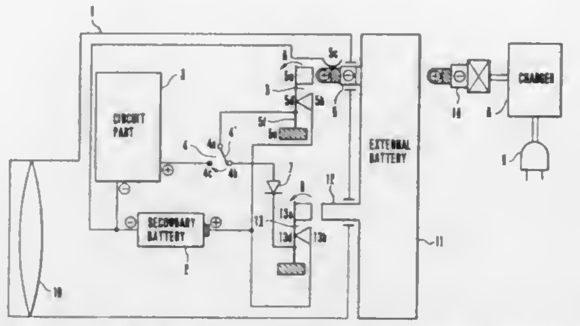
U.S. Cl. 348—372 **22 Claims**

1. A video camera, comprising:

a) a case;

b) an internal power source including a rechargeable battery disposed within said case;

c) connection means arranged on said case to permit connection with an external power source which is arranged to convert electric power from a commercial power line into direct power;



d) processing means arranged within said case to perform at least one process for said video camera; and

e) a power switch including three terminals, a first terminal arranged to connect said processing means, a second terminal arranged to connect said internal power sources, a third terminal arranged to connect said connection means and said internal power source, said power switch arranged to move between a first position and a second position, wherein said power switch arranged to connect said first terminal to said third terminal when said power switch is in the first position and arranged to connect said second terminal to said third terminal when said power switch is in the second position, wherein the connection of said third terminal with said internal power source being inhibited when said external power source is connected to said connection means.

5,784,106

BRIGHTNESS UNIFORMITY ON A DISPLAY SCREEN

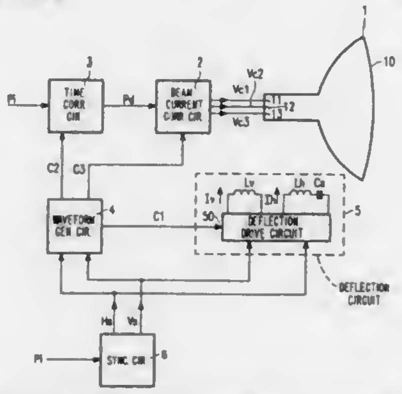
Albertus A. S. Sluyterman, Eindhoven, Netherlands, assignor to U.S. Philips Corporation, New York, N.Y.

Filed Apr. 30, 1996, Ser. No. 643,113

Claims priority, application European Pat. Off., May 9, 1995, 95201187

Int. Cl.^{6} H04N *5/59*

U.S. Cl. 348—380 **10 Claims**



1. A method of improving brightness uniformity on a display screen of a display tube, said display tube being further provided with a control electrode, the method comprising the steps:

driving the control electrode for generating an intensity modulated electron beam in the display tube in response to a picture signal; and

deflecting the intensity modulated electron beam for displaying the picture signal by controlling a number of electrons in said electron beam on the display screen, the picture signal having an aspect ratio which corresponds to an aspect ratio of the display screen, characterized in that the method comprises the further step:

influencing the deflecting of the intensity modulated electron beam to cause a deflection rate of the intensity modulated electron beam to decrease gradually from the center towards the edges of the display screen.

5,784,107

METHOD AND APPARATUS FOR PICTURE CODING AND METHOD AND APPARATUS FOR PICTURE DECODING

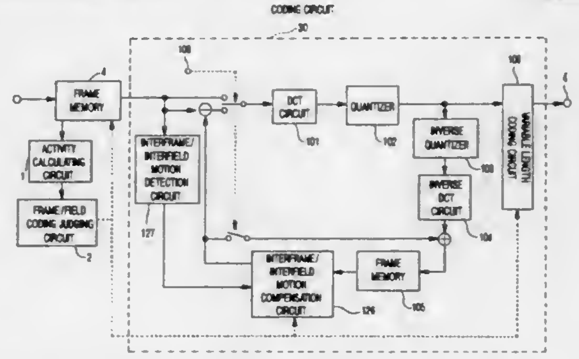
Toshiya Takahashi, Takatsuki, Japan, assignor to Matsushita Electric Industrial Co., Ltd., Osaka, Japan

Continuation of Ser. No. 157,627, Nov. 24, 1993, abandoned, which is a continuation-in-part of Ser. No. 871,697, Apr. 21, 1992, Pat. No. 5,347,309. This application Jan. 23, 1996, Ser. No. 590,212

Claims priority, application Japan, Jun. 17, 1991, 3-144445; Nov. 25, 1992, 4-314815

Int. Cl.^{6} H04N *7/32*

U.S. Cl. 348—412 **12 Claims**


CODING CIRCUIT
30
108
109
FRAME MEMORY
4
DCT CIRCUIT
101
QUANTIZER
102
INVERSE QUANTIZER
103
INVERSE DCT CIRCUIT
VARIABLE LENGTH CODING CIRCUIT
ACTIVITY CALCULATING CIRCUIT
1
FRAME/FIELD CODING JUDGING CIRCUIT
2
INTERFRAME/ INTERFIELD MOTION DETECTION CIRCUIT
127
104
INTERFRAME/ INTERFIELD MOTION COMPENSATION CIRCUIT
126
FRAME MEMORY
105

1. A method for picture coding comprising the steps of:

receiving an input picture data composed of frames, each frame including two fields, an odd-numbered field and an even-numbered field;

storing said input picture data;

calculating a single activity value of said input picture data for each complete frame;

comparing said activity value for the complete frame with a predetermined value;

issuing a change over signal indicating the performance of a frame unit coding which divides each complete frame into a plurality of frame small blocks each being composed of pixels of both of said two fields included in said each complete frame and encoding each of the frame small blocks using a two-dimensional interframe motion compensation, when said activity value is equal to or greater than said predetermined value;

issuing said change over signal indicating the performance of a field unit coding which divides said each complete frame into a plurality of first field small blocks each being composed of pixels of only one of said two fields included in said each complete frame and a plurality of second field small blocks each being composed of pixels of only the other of said two fields included in said each complete frame and encoding each of the first and second field small blocks using a two-dimensional interfield motion compensation, when said activity value is below said predetermined value; and

performing said frame unit coding or said field unit coding on the picture data of the complete frame in accordance with said change over signal.

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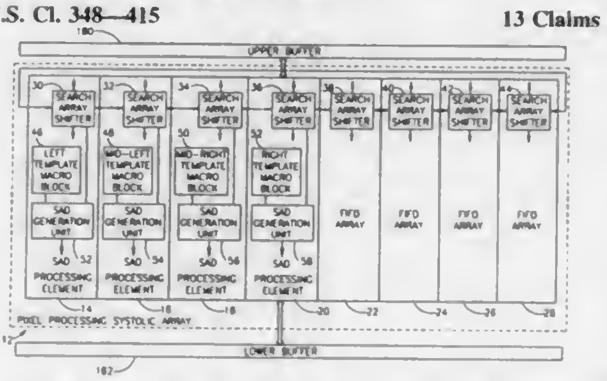
5,784,108
APPARATUS FOR AND METHOD OF REDUCING THE MEMORY BANDWIDTH REQUIREMENTS OF A SYSTOLIC ARRAY

Gil Skaletzky, Karkur; Amir Freizeit, Ra'anana; Erez Sperling, Amikam; Michal Harlap, Tel Aviv, and Moshe Steiner, Haifa, all of Israel, assignors to Zapex Technologies (Israel) Ltd., Netanya, Israel

Filed Dec. 3, 1996, Ser. No. 754,059

Int. Cl.^{6} H04N *7/32*

U.S. Cl. 348—415 **13 Claims**



1. An apparatus for reducing memory bandwidth required to process data within a search window against predefined template data, comprising:

a plurality of processing elements, each processing element comprising:

a first search array shifter, said first search array shifter holding a block of data from said search window, said first search array shifter able to rotate its contents left and right and shift its contents up;

a template block for holding a block of said predefined template data;

function means coupled to said first search array shifter and to said template block, said function means for calculating a predetermined function based on the contents of said first search array shifter and said template block;

a plurality of first in first out arrays (FIFOs), each FIFO comprising a second search array shifter, said second search array shifter holding a block of data from said search window, said second search array shifter able to rotate its contents left and right and shift its contents up;

wherein said plurality of processing elements and said plurality of FIFOs are arranged adjacent one another in a linear array such that each first and second search array shifter is coupled to its left and right neighbor, search array shifters on either end of said linear array coupled to each other;

wherein said search window data is shifted through said first and second search array shifters, on each successive shift said function means calculating said predetermined function; and

wherein said search window is searched bidirectionally on a row by row basis whereby data within each row in said search window is rotated horizontally through said first and second search array shifters, at the end of each row, data in said first and second search array shifters is shifted vertically.

5,784,109

Patent Not Issued For This Number

5,784,110
DATA PROCESSOR FOR ASSEMBLING TRANSPORT DATA PACKETS

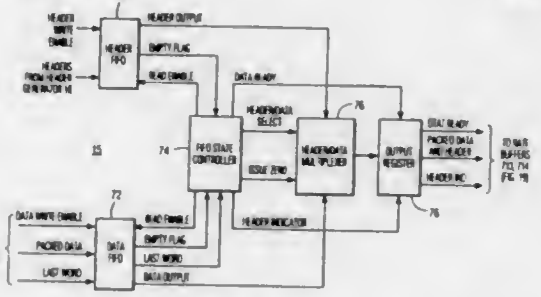
Alfonse Anthony Acampora, Staten Island, N.Y., and Richard Michael Bunting, Hamilton Square, N.J., assignors to General Electric Company, Schenectady, N.Y.

PCT No. PCT/US93/11583, § 371 Date May 23, 1996, § 102(e) Date May 23, 1996, PCT Pub. No. WO95/15650, PCT Pub. Date Jun. 8, 1995

PCT Filed Nov. 30, 1993, Ser. No. 648,151

Int. Cl.^{6} H04N *7/24*

U.S. Cl. 348—423 **7 Claims**



1. Apparatus for processing an image representative variable length codeword datastream comprising:

means (12) responsive to said variable length codeword datastream for producing data packets including short data packets containing less than a prescribed number of words;

data processing means (15) for conveying said data packets to an output; and

means (76, FIG. 17), included in said data processing means, for filling said short data packets with no-operation null words as needed to produce fixed length data packets having said prescribed number of words, and to define an inter-packet boundary at which a prescribed codeword may appear.

5,784,111

Patent Not Issued For This Number

5,784,112
ENCODING APPARATUS

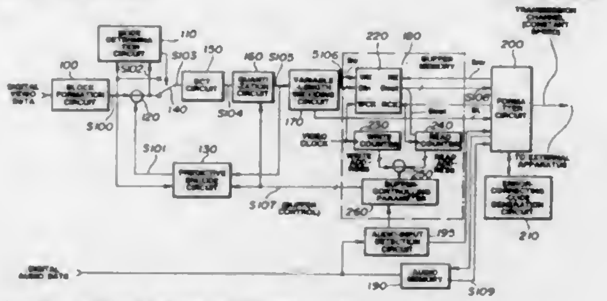
Yoshimi Ogasawara, Yokohama, and Katsumi Karasawa, Kawasaki, both of Japan, assignors to Canon Kabushiki Kaisha, Tokyo, Japan

Continuation of Ser. No. 264,347, Jun. 23, 1994, abandoned. This application Apr. 7, 1997, Ser. No. 826,879

Claims priority, application Japan, Jul. 2, 1993, 5-164666; Sep. 10, 1993, 5-249787

Int. Cl.^{6} H04N *7/04; 7/14*

U.S. Cl. 348—423 **12 Claims**



1. An encoding apparatus comprising:

a) first input means for inputting first information data;

b) second input means for inputting second information data;

c) encoding means for encoding the first information data;

d) memory means for storing the first information data encoded by said encoding means; and

e) control means for controlling said encoding means so that a storage amount of data of said memory means falls within a predetermined range; and

f) changing means for adaptively changing the amount of data within the predetermined range in accordance with an input state of the second information data.

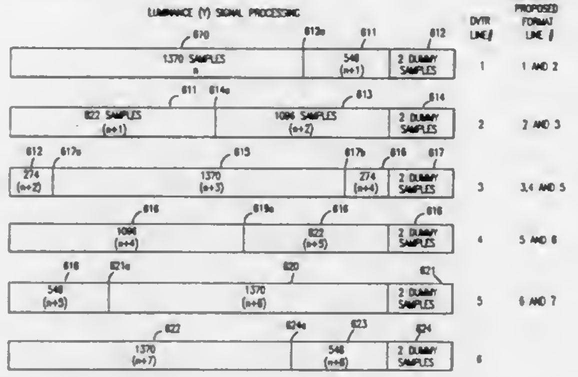
5,784,113
UNIDIRECTIONAL FORMAT CONVERTER

Charles W. Rhodes, Edgewater, Md., assignor to Advanced Television Test Center, Alexandria, Va.

Continuation of Ser. No. 156,833, Nov. 24, 1993, Pat. No. 5,442,460, which is a division of Ser. No. 404,190, Sep. 7, 1989, Pat. No. 5,280,397. This application Jun. 7, 1995, Ser. No. 480,925

Int. Cl.^{6} H04N *7/01*

U.S. Cl. 348—441 **37 Claims**



1. A high definition television signal format converter comprising:

an interface for adapting a high definition television signal format for digital storage;

a memory means for storing the adapted data via said interface;

a write circuit for addressing said memory means according to control signals;

a read circuit for addressing said memory means according to said control signals; and

a control circuit for providing said control signals in accordance with a predetermined format conversion, said control circuit configurable to convert a first high definition television signal format to a second high definition television signal format compatible with a digital video recording apparatus,

wherein said conversion from the first high definition television signal format to the second high definition television signal format is performed without interpolation or loss of picture information.

5,784,114
MOTION COMPENSATED VIDEO PROCESSING

Timothy John Borer, 86 Allingham Road, Reigate, Surrey GU9 OLA; Philip David Martin, 19A Fyfield Road, Enfield, Middlesex EN1 3TT, and David Lyon, 20 Alma Lane, Heath End, Farnham, Surrey GU9 OLA, all of England

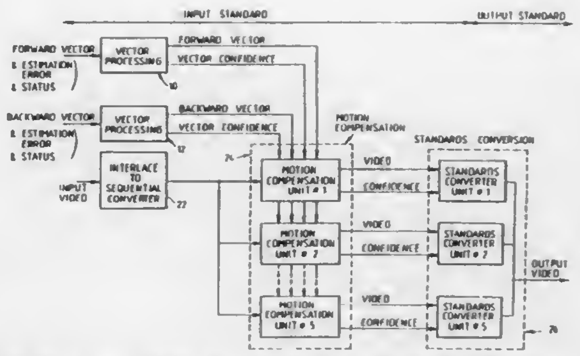
PCT No. PCT/GB93/01404, § 371 Date Jun. 28, 1995, § 102(e) Date Jun. 28, 1995, PCT Pub. No. WO94/01970, PCT Pub. Date Jan. 20, 1994

PCT Filed Jul. 5, 1993, Ser. No. 362,563

Claims priority, application United Kingdom, Jul. 3, 1992, 9214218

Int. Cl.^{6} H04N *7/01*

U.S. Cl. 348—452 **13 Claims**


INPUT STANDARD
OUTPUT STANDARD
FORWARD VECTOR & ESTIMATION ERROR & STATUS
VECTOR PROCESSING
FORWARD VECTOR
VECTOR CONFIDENCE
BACKWARD VECTOR & ESTIMATION ERROR & STATUS
VECTOR PROCESSING
BACKWARD VECTOR
VECTOR CONFIDENCE
MOTION COMPENSATION
STANDARDS CONVERSION
INPUT VIDEO
INTERLACE TO SEQUENTIAL CONVERTER
MOTION COMPENSATION UNIT # 1
MOTION COMPENSATION UNIT # 2
MOTION COMPENSATION UNIT # 5
VIDEO
CONFIDENCE
STANDARDS CONVERTER UNIT # 1
STANDARDS CONVERTER UNIT # 2
STANDARDS CONVERTER UNIT # 5
OUTPUT VIDEO

5. A method of motion-compensated video processing, comprising the steps of identifying motion vectors, assigning said motion vectors substantially on a pixel-by-pixel basis, and writing pixels of an input video signal to locations in a video store determined by the motion vector assigned to that pixel, wherein an output pixel to which no data is written is flagged as a hole and is subsequently filled by interpolation.

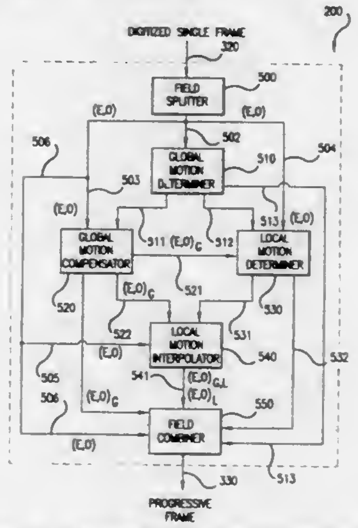
5,784,115
SYSTEM AND METHOD FOR MOTION COMPENSATED DE-INTERLACING OF VIDEO FRAMES

Gozde Bozdagi, Rochester, N.Y., assignor to Xerox Corporation, Stamford, Conn.

Filed Dec. 31, 1996, Ser. No. 775,215

Int. Cl.^{6} H04N *7/01*

U.S. Cl. 348—452 **20 Claims**



1. A system for generating motion-compensated progressive video frame from an interlaced initial video frame, comprising:

a field splitter that splits the initial video frame into an even field and an odd field;

a global motion determiner that determines if global motion is present in the initial video frame;

a global motion compensator, responsive to the global motion determiner, that generates a globally-compensated video frame from the initial video frame when global motion is present in the initial video frame;

a local motion determiner that determines if local motion is present in the initial video frame when no global motion is present in the initial video frame, and that determines if local motion is present in the globally-compensated video frame when global motion is present in the initial video frame;

a local motion interpolator, responsive to the local motion determiner, that generates a locally-interpolated video frame from the initial video frame when only local motion is present in the initial video frame, and from the globally-compensated video frame when local motion is present in the globally-compensated video frame; and

a field combiner, responsive to the global and local motion determiners, that combines the even and odd fields of the initial video frame into a single progressive video frame when

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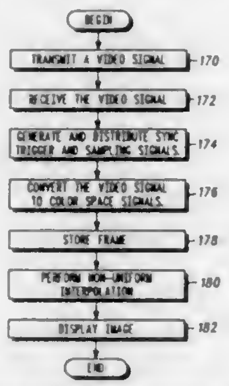
substantially no local motion and substantially no global motion is present in the initial video frame, and that combines the even and odd fields of the compensated and/or interpolated video frame into a single progressive video frame when global motion, local motion or both global and local motion are present in the initial video frame.

5,784,116
METHOD OF GENERATING HIGH-RESOLUTION VIDEO

ShaoWei Pan, Schaumburg, and Shay-Ping T. Wang, Long Grove, both of Ill., assignors to Motorola Inc., Schaumburg, Ill.

Filed Jun. 29, 1995, Ser. No. 496,793
Int. Cl.^{6} H04N *11/20*

U.S. Cl. 348—453 **29 Claims**


BEGIN
TRANSMIT A VIDEO SIGNAL
170
RECEIVE THE VIDEO SIGNAL
172
GENERATE AND DISTRIBUTE SYNC TRIGGER AND SAMPLING SIGNALS
174
CONVERT THE VIDEO SIGNAL TO COLOR SPACE SIGNALS
176
STORE FRAME
178
PERFORM NON-UNIFORM INTERPOLATION
180
DISPLAY IMAGE
182
END

1. A method of generating a high-resolution video signal, comprising the following steps:

(a) receiving an interlaced video signal having two consecutive fields, one of the two consecutive fields having even scan lines and the other of the two consecutive fields having odd scan lines;

(b) digitizing the interlaced video signal to produce a digital video signal having a plurality of digitized fields corresponding to the two consecutive fields;

(c) merging the digitized fields to produce a frame which includes the even scan lines and the odd scan lines; and

(d) performing non-uniform interpolation between adjacent scan lines in the frame to generate the high-resolution video signal having a greater number of horizontal scan lines than the interlaced video signal, wherein the non-uniform interpolation is based on a function

$$y_i=c_{1ik}*d_k+c_{2ik}*d_{k+1}$$

wherein y_i represents an interpolated pixel signal included in the high-resolution video signal, d_k represents a first pixel signal from a kth scan line of the interlaced video signal, d_{k+1} represents a second pixel signal from a k+1 scan line of the interlaced video signal, c_{1ik} represents a first coefficient, c_{2ik} represents a second coefficient, and i and k are integer indices.

5,784,117
AUTOMATIC MODE DETECTOR FOR TV BROADCASTING SYSTEM

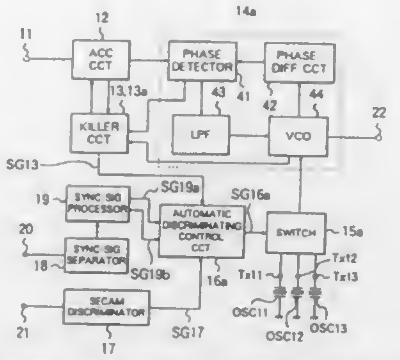
Shozu Mitarai, and Akira Arimizu, both of Kagoshima, Japan, assignors to Sony Corporation, Japan

Filed Aug. 22, 1996, Ser. No. 701,392
Claims priority, application Japan, Aug. 25, 1995, 7-217930
Int. Cl.^{6} H04N *5/46*

U.S. Cl. 348—558 **12 Claims**

1. An automatic mode detector for a TV broadcasting system, comprising:

at least two oscillators having different oscillation frequencies;



a switch circuit which selectively connects one of said oscillators to a phase control circuit in accordance with a control signal;

wherein said phase control circuit compares a phase of a color restoration signal and a phase of an oscillated signal of the selected oscillator, enters into either of a locking state or an unlocking state in response to the comparison, and outputs a status signal indicating whether said locking or said unlocking state has been entered; and

an automatic discrimination control circuit which receives said status signal a predetermined number of times during a scanning period and which outputs said control signal to said switch circuit in response to said status signal,

wherein said automatic discrimination control circuit maintains the switch circuit in its connection state if each time the status signal is received during a scanning period the status signal indicates the locking state and

wherein said automatic discrimination control circuit outputs a control signal causing said switch circuit to connect to a different oscillator if a number of times said status signal indicates the unlocking state during a scanning period equals or exceeds a predetermined value.

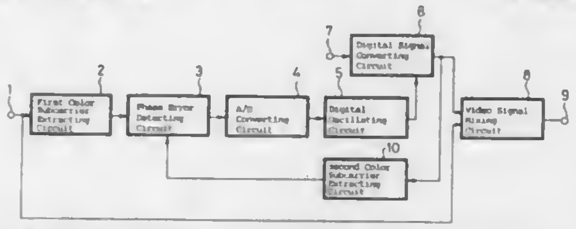
5,784,118
VIDEO SIGNAL PHASE SYNCHRONIZING METHOD, CIRCUIT AND SYNTHESIZING APPARATUS

Etsuro Yamauchi, Tokyo; Yasuhide Mogi, Kanagawa, and Tokuya Fukuda, Tokyo, all of Japan, assignors to Sony Corporation, Tokyo, Japan

PCT No. PCT/JP96/01071, § 371 Date Dec. 19, 1996, § 102(e) Date Dec. 19, 1996, PCT Pub. No. WO96/33577, PCT Pub. Date Oct. 24, 1996

PCT Filed Apr. 19, 1996, Ser. No. 750,902
Claims priority, application Japan, Apr. 21, 1995, 7-096731
Int. Cl.^{6} H04N *9/45*

U.S. Cl. 348—505 **6 Claims**


1
2
First Color Subcarrier Extracting Circuit
3
Phase Error Detecting Circuit
4
A/D Converting Circuit
5
Digital Oscillating Circuit
7
8
Digital Signal Converting Circuit
8
Video Signal Mixing Circuit
9
10
Second Color Subcarrier Extracting Circuit

1. A video signal phase synchronizing circuit, comprising:

signal generating means supplied with an analog video signal containing a first color subcarrier signal and generating a continuous wave signal synchronized with said first color subcarrier signal, said signal generating means comprising:

a first color subcarrier extracting circuit adapted to extract said first color subcarrier signal from said analog video signal;

a second color subcarrier extracting circuit for extracting a second color subcarrier signal from a composite video signal;

a phase error detecting circuit for detecting a phase difference between said first color subcarrier signal obtained from said first color subcarrier extracting circuit and said second color subcarrier signal obtained from said second color subcarrier extracting circuit; and

an oscillating circuit for generating a digital continuous wave signal based on an output of said phase error detecting circuit; and

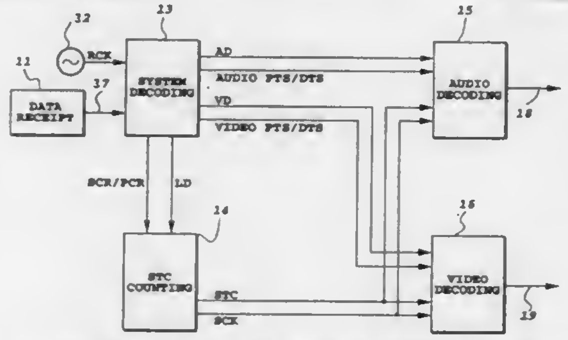
signal converting means for converting a digital video signal containing a color signal component into said composite video signal containing said second color subcarrier signal, wherein when said signal converting means converts said color signal component into a carrier chrominance signal of said composite video signal, said signal converting means uses said digital continuous wave signal and synchronizes said chase of said first color subcarrier signal and that of said second color subcarrier signal.

5,784,119
VIDEO DECODING DEVICE FOR DECODING VIDEO DATA IN SYNCHRONISM WITH A SYSTEM CLOCK

Yasumasa Noda; Eiitsu Goto, and Hiroshi Nakajima, all of Tokyo, Japan, assignors to Oki Electric Industry Co., Ltd., Tokyo, Japan

Filed Feb. 26, 1996, Ser. No. 613,759
Claims priority, application Japan, Mar. 6, 1995, 7-0045532
Int. Cl.^{6} H04N *9/475;7/01*

U.S. Cl. 348—512 **11 Claims**



1. A video decoding device for receiving multiplex data including coded video data and time reference data representative of a time reference of a clock for coding and time division multiplexed with the coded video data, and decoding the video data, said video decoding device comprising:

first clock generating means for generating, based on the time reference data, a first clock for decoding and synchronous to the clock for coding;

video decoding means for decoding, in response to said first clock, the video data included in the multiplex data;

second clock generating means for generating a second clock for video display and synchronous to said first clock; and

video data outputting means for outputting, in response to said second clock, the video data decoded by said decoding means.

5,784,120
VIDEO DECODER ADAPTED TO COMPENSATE FOR TIME VARIATIONS BETWEEN SUCCESSIVE HORIZONTAL/VERTICAL SYNCHRONIZATION PULSES

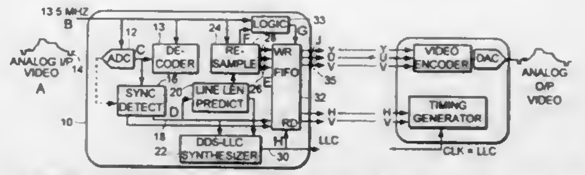
Timothy Cummins, Craloe; Brian P. Murray, Dublin, both of Ireland, and Christian Böhm, Neutraubling, Germany, assignors to Analog Devices, Inc., Norwood, Mass.

Filed May 31, 1996, Ser. No. 656,056
Int. Cl.^{6} H03L *7/00*

U.S. Cl. 348—537 **8 Claims**

1. A system for converting an analog video signal into a corresponding digital signal, such analog video signal having time varying timing sync pulses, comprising:

a sync pulse detector for detecting the timing sync pulses;



an analog to digital converter, operating at a fixed sampling rate, for digitizing a portion of the video signal subsequent to each one of the timing sync pulses;

a line length predictor fed by the sync pulse detector for producing a signal representative of a time duration between the timing sync pulses;

a re-sampler, for producing, from the digitized portion of the video signal and the signal produced by the line length predictor, a predetermined, fixed number of digitized samples for the digitized portion of the video signal;

a read out clock pulse generator, fed by the sync pulse detector, for producing a series of read out clock pulses in response to each detected sync pulse;

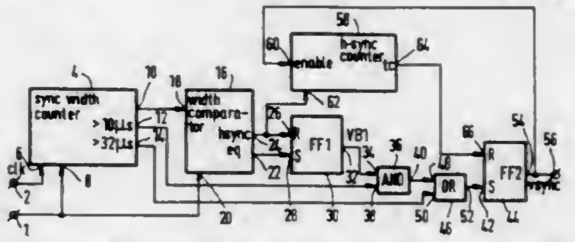
a buffer memory for storing the fixed number of digitized samples produced by the re-sampler, such stored digitized samples being read from the buffer in response to the read out clock pulses.

5,784,121
VERTICAL SYNCHRONISATION SIGNAL DETECTOR

Jurgen H. T. Geerlings, Tadley, Great Britain, assignor to U.S. Philips Corporation, New York, N.Y.

Filed Jan. 29, 1997, Ser. No. 789,907
Claims priority, application European Pat. Off., Feb. 1, 1996, 96200220
Int. Cl.^{6} H04N *5/08*

U.S. Cl. 348—547 **10 Claims**



1. A vertical synchronization signal detector for detecting a vertical synchronization signal in a composite video signal, the detector comprises

input means for receiving the composite video signal,

first detector means for detecting equalization pulses occurring in the composite video signal and for generating a first detection signal upon detection of an equalization pulse,

second detector means for detecting horizontal sync pulses occurring in the composite video signal and for generating a second detection signal upon detection of a horizontal sync pulse,

third detector means for detecting pulses occurring in the composite video signal that have a longer duration than the horizontal sync pulses and for generating a third detection signal upon detection of such a pulse,

first signal combination means for generating a fourth detection signal (VBI) in response to at least one first and at least one second detection signal generated by the first and second detector means respectively,

first counter means for counting, when being enabled, the number of occurrences of second detection signals generated by the second detector means and for generating a first control signal upon the detection of n occurrences of such second detection signals, where n is a constant integer equal to or larger than 1,

second signal combination means for combining the third and fourth detection signals so as to obtain a second control signal,

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third signal combination means for receiving the first control signal generated by the first counter means and the second control signal from the second signal combination means and for generating in response thereto an output signal which is indicative of the occurrence of the vertical synchronization signal,

the first counter means being in an enabled state upon the presence of the output signal of the third signal combination means.

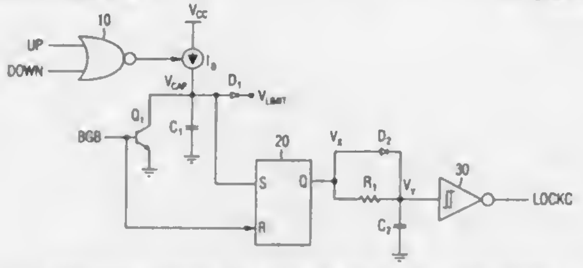
5,784,122
CHROMA LOCK DETECTOR

Mehrdad Nayebi, Palo Alto, and Duc Ngo, San Jose, both of Calif., assignors to Sony Corporation, Tokyo, Japan, and Sony Electronics, Inc., Park Ridge, N.J.

Filed Jan. 11, 1996, Ser. No. 585,442

Int. Cl.^{6} H04N *5/08;* **H03L** *7/06;7/00*

U.S. Cl. 348—549 **13 Claims**



1. A phase lock detector for detecting when two input signals are locked together in phase comprising:
- a. a monitoring circuit for monitoring one or more control signals used to control a phase of one of the two input signals, wherein the one or more control signals are inactive when the two input signals are locked together in phase;
- b. a first storage element for strong a first level of charge;
- c. a charge delivery device coupled to the monitoring circuit and to the first storage element for increasing the first level of charge when the one or more control signals are active;
- d. a detecting circuit for detecting when the first level of charge increases past a first threshold value,
- e. a second storage element coupled to the detecting circuit for strong a second level of charge wherein the second level of charge is increased when the first level of charge is above the first threshold value; and
- f. an output circuit coupled to the second storage element for generating an output signal in response to the second level of charge, representative of whether the two input signals are locked together in phase.

5,784,123
TELEVISION SIGNAL DISPLAY APPARATUS WITH PICTURE QUALITY COMPENSATION

Osamu Yoshimi, Osaka, Japan, assignor to Matsushita Electric Industrial Co., Ltd., Osaka, Japan

Filed May 8, 1996, Ser. No. 646,717

Claims priority, application Japan, May 8, 1995, 7-109263

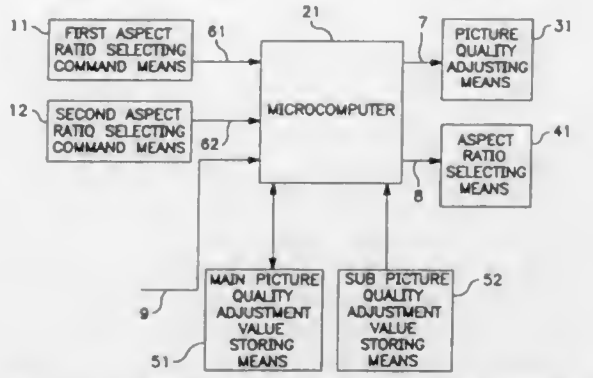
Int. Cl.^{6} H04N *5/46*

U.S. Cl. 348—556 **5 Claims**

1. A television signal display apparatus comprising:

first aspect ratio selecting command means for outputting an aspect ratio selecting command signal to select an aspect ratio of a displayed picture by an aspect ratio selecting command from a viewer;

second aspect ratio selecting command means for outputting a command signal to select the aspect ratio of the displayed picture by an aspect ratio discriminating signal included in an input signal;


11
FIRST ASPECT RATIO SELECTING COMMAND MEANS
61
21
7
PICTURE QUALITY ADJUSTING MEANS
31
12
SECOND ASPECT RATIO SELECTING COMMAND MEANS
62
MICROCOMPUTER
ASPECT RATIO SELECTING MEANS
41
8
9
MAIN PICTURE QUALITY ADJUSTMENT VALUE STORING MEANS
51
SUB PICTURE QUALITY ADJUSTMENT VALUE STORING MEANS
52

picture quality adjustment value storing means for storing a picture quality adjustment value preliminarily set to get a picture quality corresponding to various kinds of aspect ratios of a picture;

aspect ratio selecting process means for outputting an aspect ratio selecting signal which varies the aspect ratio of the displayed picture to an aspect ratio selecting means by said aspect ratio selecting command signal and said command signal output from said first and second aspect ratio selecting command means, reading out a picture quality adjustment value corresponding to an aspect ratio to be selected from said picture quality adjustment value storing means and outputting a picture quality selecting signal to select a picture quality adjustment value of the displayed picture to a picture quality adjusting means;

said picture quality adjusting means for selecting the picture quality adjustment value by the picture quality selecting signal output from said aspect ratio selecting process means; and

said aspect ratio selecting means for selecting an aspect ratio of the picture by the aspect ratio selecting signal output from said aspect ratio selecting process means.

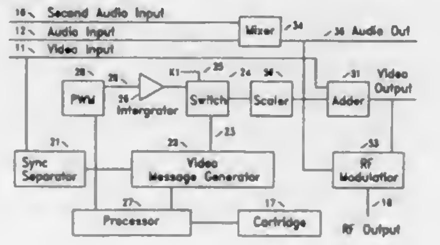
5,784,124
SUPRALIMINAL METHOD OF EDUCATION WITH PARTICULAR APPLICATION BEHAVIOR MODIFICATION

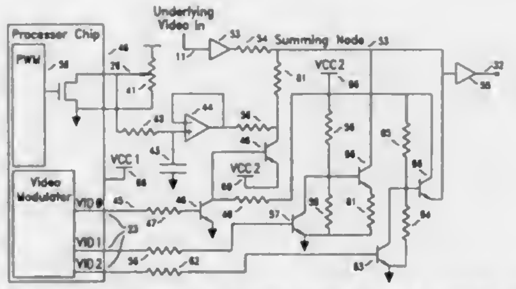
Joseph Anthony D'Alitalia, and Talbert Mead, both of El Paso County, Colo., assignors to Advanced Learning Corp., Colorado Springs, Colo.

Continuation-in-part of Ser. No. 410,275, Mar. 24, 1995, Pat. No. 5,644,363. This application Jun. 11, 1996, Ser. No. 661,943

Int. Cl.^{6} H04N *5/445*

U.S. Cl. 348—564 **14 Claims**





1. A method of modifying human behavior in a human patient comprising the steps of:

- (a) devising a plurality of messages wherein at least some of the messages link a desired modified behavior to positive feelings of the patient;
- (b) having the patient view a video display device portraying an underlying video presentation;
- (c) selecting a message for display from the sequence of messages, and placing the selected message in a buffer memory of a video generation device;
- (d) providing circuitry for superimposing a message generated from the buffer memory of the video generation device onto said underlying video presentation;
- (e) automatically fading the selected message from an invisible level through an intermediate level to a first visible level on the video display device;
- (f) automatically fading the selected message from the first visible level through an intermediate level back to the invisible level on the video display device;
- (g) repeating steps (c), (d), (e) and (f) for other messages from the plurality of messages.

5,784,125
PORTABLE LIQUID CRYSTAL DISPLAY DEVICE AND METHOD OF CHANGING THE RECEIVED CHANNEL STATUS OF A PORTABLE LIQUID CRYSTAL DISPLAY DEVICE

Hideaki Shibuya, Urayasu, and Terutaka Okano, Tokorozawa, both of Japan, assignors to Citizen Watch Co., Ltd., Japan

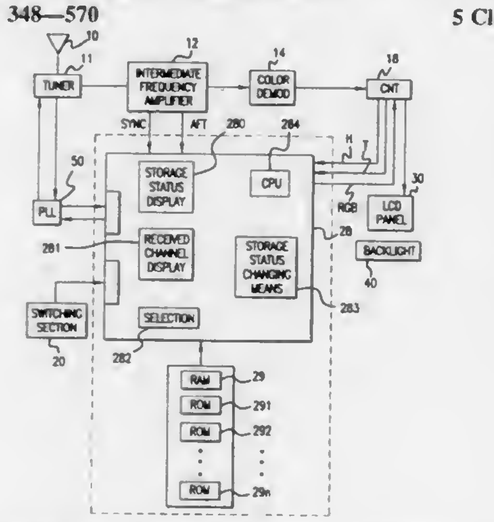
PCT No. PCT/JP94/01864, § 371 Date Jun. 12, 1995, § 102(e) Date Jun. 12, 1995, PCT Pub. No. WO95/12878, PCT Pub. Date May 11, 1995

Continuation of Ser. No. 454,213, Jun. 12, 1995, abandoned. This PCT application Nov. 4, 1994, Ser. No. 912,005

Claims priority, application Japan, Nov. 4, 1993, 5-059337

Int. Cl.^{6} H04N *5/44;5/50*

U.S. Cl. 348—570 **5 Claims**



1. A portable liquid crystal display device, comprising:

a receiving circuit section;

a liquid crystal display section;

a memory;

switching means;

storage means in the memory having a memory location for each of a plurality of channels received by the receiving circuit section;

display control means including

means for displaying at one time in said liquid crystal display section either a stored or unstored storage status of each of the plurality of received channels in the receive channel storage means,

means for changing the storage status of at least one of the plurality of channels of the receive channel storage means of said plurality of channels displayed on said liquid crystal display section after selecting said at least one of the plurality of channels by said switching means; and means for selecting arbitrarily at least one of the plurality of displayed channels from the receive channel storage means.

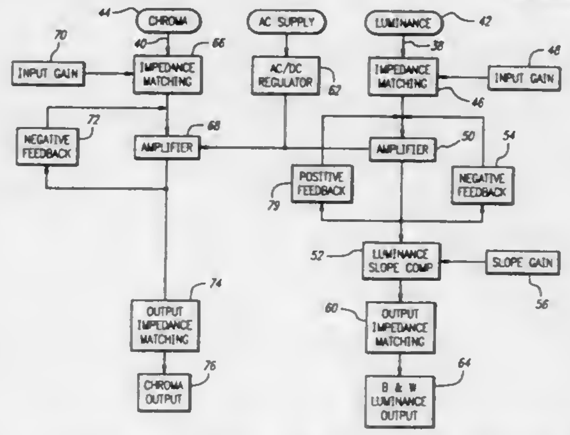
5,784,126
S-VIDEO SIGNAL LOSS COMPENSATION PROCESSING APPARATUS AND METHOD

Jeffrey Alan Boccaccio, Isle of Palms, S.C., assignor to Gordon J. Gow Technologies, Inc., Orlando, Fla.

Filed Aug. 27, 1996, Ser. No. 709,200

Int. Cl.^{6} H04N *9/64*

U.S. Cl. 348—708 **38 Claims**



1. A signal loss compensation method useful in transmitting an S-video signal through a transmission line from a video source to a video monitor, the S-video signal having luminance and chrominance signal components characterized by a frequency bandwidth, the method comprising the steps of:

receiving a luminance signal and a chrominance signal, each having a frequency response defined within a video signal bandwidth, the luminance and chrominance signals providing the S-video signal representative of a video source picture signal;

amplifying the luminance signal within a luminance signal channel;

providing a positive feedback signal within the luminance signal channel for adjustment of the amplified luminance signal, the feedback signal having a frequency response within a frequency range lying within the video signal bandwidth, the feedback signal frequency response covering the frequency range including upper video band width frequencies;

modifying a preselected band of frequencies within the video signal bandwidth for transmission of the luminance signal, wherein the preselected band of frequencies includes frequencies within a lower video band width frequency range;

amplifying the chrominance signal within a chrominance signal channel electrically separated from the luminance signal channel;

transmitting the amplified luminance and chrominance signals over the transmission line to the monitor, the transmission line having separate luminance and chrominance signal conductors.

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5,784,127
CIRCUIT FOR THE POWER SUPPLY OF A PLURALITY OF POWER AMPLIFIERS

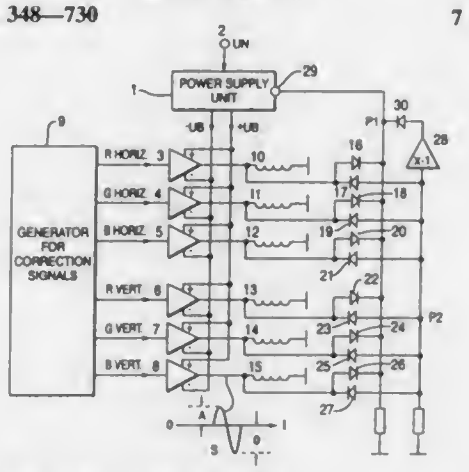
Günter Gleim, Villingen-Schwenningen; Jacques Chauvin, Mönchweiler, and Jean-Paul Louvel, Villingen-Schwenningen, all of Germany, assignors to Deutsche Thomson Brandt GmbH, Villingen-Schwenningen, Germany

Filed Jul. 25, 1996, Ser. No. 686,754

Claims priority, application Germany, Sep. 27, 1995, 195 35 868.6

Int. Cl.^{6} H04N *5/63*

U.S. Cl. 348—730 **7 Claims**



1. A power supply circuit comprising:

a power supply having a common output coupled to power supply input connections of a plurality of amplifiers,

output signals of said respective amplifiers being coupled to a circuit which responds to the output signal having a largest amplitude,

a regulating voltage derived from said circuit is applied to a regulating input of the power supply, and

an output voltage of the power supply being regulated responsive to the regulating voltage so that at any instant said output voltage is high enough for the one of said amplifiers which at that instant has the output signal having the largest amplitude.

5,784,128

Patent Not Issued For This Number

5,784,129
ELECTRO-OPTICAL APPARATUS UTILIZING ELECTRO-OPTICAL MODULATING DEVICES TO PROVIDE A SYNTHESIZED COLOR IMAGE

Toshimitsu Konuma, Kanagawa, and Akira Mase, Aichi, both of Japan, assignors to Semiconductor Energy Laboratory Company, Ltd., Kanagawa-gen, Japan

Division of Ser. No. 912,335, Jul. 13, 1992, Pat. No. 5,481,320. This application Dec. 14, 1995, Ser. No. 572,105

Claims priority, application Japan, Jul. 12, 1991, 3-198941; Jul. 12, 1991, 3-198942

Int. Cl.^{6} H04N *9/12*

U.S. Cl. 348—739 **16 Claims**

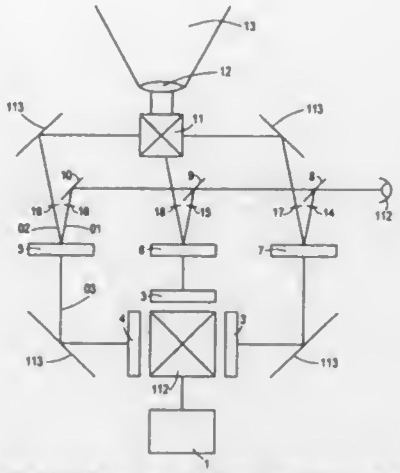
1. An electro-optical device comprising:

a light source for emitting light;

a light shutter means comprising a plurality of liquid crystal devices;

means for dividing said light emitted from said light source into a plurality of color lights and directing said color lights onto said plurality of liquid crystal devices, respectively;

a light amplifying liquid crystal device comprising at least a photoconductive layer, a liquid crystal layer adjacent to said photoconductive layer and a light reflective layer therebetween, said liquid crystal layer comprising an antiferroelectric liquid crystal;



an image light outputting means comprising an active matrix liquid crystal device using thin film transistors, for directing an image light onto said light amplifying liquid crystal device from the photoconductive layer side; and

means for directing said plurality of color lights transmitted through said plurality of liquid crystal devices onto said light amplifying liquid crystal device from the liquid crystal layer side.

5,784,130

Patent Not Issued For This Number

5,784,131
METHOD FOR FABRICATING LIQUID CRYSTAL DISPLAY IN WHICH THE PIXEL ELECTRODE HAS A PARTICULAR CONNECTION TO THE DRAIN ELECTRODE AND IS FORMED OVER A STORAGE CAPACITOR

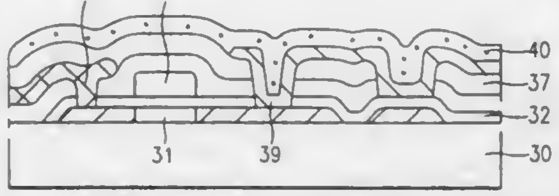
Hong-Gyu Kim, Kyungki-do; Kyung-Seob Han, and Ho-Young Lee, both of Seoul, all of Rep. of Korea, assignors to LG Semicon Co., Ltd., Chungcheongbuk-Do, Rep. of Korea

Filed Oct. 16, 1996, Ser. No. 733,095

Claims priority, application Rep. of Korea, Oct. 20, 1985, 1995-36363

Int. Cl.^{6} G02F *1/1343;1/136;1/13*

U.S. Cl. 349—39 **3 Claims**



1. A method for fabricating a liquid crystal display, the liquid crystal display including a thin film transistor and a storage capacitor, the method comprising the steps of:

forming a first semiconductor layer in a thin transistor region on a substrate and forming a second semiconductor layer in a storage capacitor region on the substrate;

forming a gate insulating film on the first and second semiconductor layers and forming a gate electrode over said first semiconductor layer in the thin film transistor region;

injecting impurity ions into an entire surface of the substrate using the gate electrode over the first semiconductor layer in the thin film transistor region;

forming a first interlayer insulating film on said entire surface of the substrate including the gate electrode and forming a first contact hole such that the first contact hole exposes the source region;

forming a data line on a part of the first interlayer insulating film such that the data line is connected to the source region through the first contact hole;

forming a second interlayer insulating film on said entire surface of the substrate including the data line and forming second and third contact holes such that the second and third contact holes expose the gate insulating film on the second semiconductor layer and the drain region respectively; and

forming a pixel electrode on the second interlayer insulating film such that the pixel electrode is connected to the gate insulating film on the second semiconductor layer and the drain region through the second and third contact holes respectively and forming a protection film on said entire surface including the pixel electrode.

5,784,132
DISPLAY DEVICE

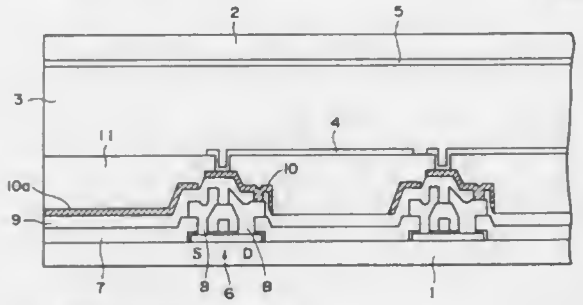
Yoshihiro Hashimoto, Kanagawa, Japan, assignor to Sony Corporation, Tokyo, Japan

Continuation of Ser. No. 544,565, Oct. 18, 1995, abandoned. This application Jun. 16, 1997, Ser. No. 877,484

Claims priority, application Japan, Oct. 19, 1994, 06-280095

Int. Cl.^{6} G02F *1/136;1/1337;1/1338*

U.S. Cl. 349—44 **15 Claims**



1. A display device comprising:

a first substrate having a plurality of thin film transistors formed thereon, a first interlayer insulating film for covering said thin film transistors;

interconnect electrodes formed on said first interlayer insulating film and connected to said thin film transistors;

a second interlayer insulating film for covering said interconnect electrodes, and

a first light-shielding layer formed on said second interlayer insulating film and used for shielding said film transistors beneath said second interlayer insulating film;

a plurality of pixel electrodes formed above the first light-shielding layer;

a second substrate joined to said first substrate through a predetermined gap and provided with facing electrodes; and

an electro-optical material held in said gap wherein a planerization layer for covering said first light shielding layer is provided and said pixel electrodes are formed on said planarization layer.

5,784,133
STRUCTURE OF LIQUID CRYSTAL DISPLAY AND MANUFACTURING METHOD THEREOF

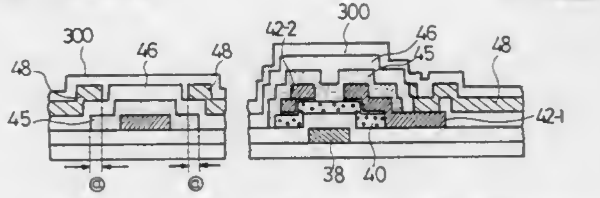
Jeong Hyun Kim, and Chan Hee Hong, both of Kyungki-do, Rep. of Korea, assignors to LG Electronics Inc., Seoul, Rep. of Korea

Continuation of Ser. No. 588,965, Jan. 19, 1996, abandoned. This application Oct. 3, 1997, Ser. No. 943,126

Claims priority, application Rep. of Korea, Aug. 29, 1995, 1995-26998

Int. Cl.^{6} G02F *1/136;1/1333*

U.S. Cl. 349—44 **11 Claims**



1. A method for manufacturing a liquid crystal display device comprising the steps of:

forming a matrix of gate bus lines and data bus lines on a primary surface of a substrate;

forming a plurality of thin film transistors at respective intersections of said gate and data bus lines, each of said plurality of thin film transistors having a source electrode, a drain electrode, and a gate electrode;

forming a substantially opaque layer overlying said plurality of gate bus lines and said data bus lines;

forming a protective layer on an upper side of said substantially opaque layer;

forming contact holes in said protective layer overlying portions of said drain electrode of each of said plurality of thin film transistors;

forming a plurality of pixel electrodes on said primary surface of said substrate; and

electrically connecting each of said plurality of pixel electrodes to respective ones of said drain electrodes through said contact holes.

5,784,134
LIQUID CRYSTAL DISPLAY DEVICE AND A METHOD OF FABRICATING THE DEVICE USING TRANSPARENT-ELECTRODES AS A PHOTOMASK

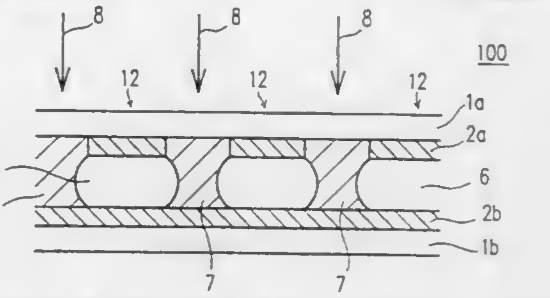
Koichi Fujimori, Nabari, and Tokihiko Shinomiya, Nara, both of Japan, assignors to Sharp Kabushiki Kaisha, Osaka, Japan

Filed Feb. 15, 1995, Ser. No. 388,812

Claims priority, application Japan, Feb. 23, 1994, 6-25485; Jan. 23, 1995, 7-8468

Int. Cl.^{6} G02F *1/13;1/1343;1/1335*

U.S. Cl. 349—84 **15 Claims**



1. A method for fabricating a liquid crystal display device comprising the steps of:

forming strip-shaped transparent-electrodes on two substrates at least one of which is transparent so that the light transmittance of the transparent-electrodes is less than that of the at least one transparent substrate;

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attaching the two substrates to face each other such that the transparent-electrodes on the two substrates intersect each other;

injecting a mixture of at least liquid crystal material and photocurable resin into a space between the attached two substrates; and

irradiating the mixture with light from at least one side of the attached two substrates using the strip-shaped transparent-electrodes as a photomask so as to form a liquid crystal region surrounded by polymer walls corresponding to the strip-shaped transparent electrodes.

5,784,135

DISPLAY DEVICE IN WHICH DISPLAY REGIONS HAVE NON-LINEAR BOUNDARIES AND TRANSMIT LIGHT DIFFERENTLY FOR THE SAME APPLIED VOLTAGE

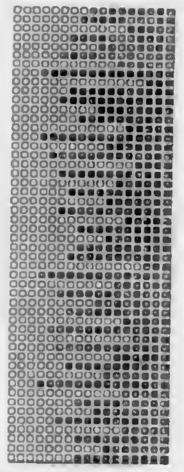
Katsuhiko Inada, Himeji; Osamu Shimada, Hyogo-ken; Masahiro Seiki, Himeji; Ryuji Tada, Hyogo-ken, and Atsushi Sugahara, Yokohama, all of Japan, assignors to Kabushiki Kaisha Toshiba, Kanagawa-ken, Japan

Division of Ser. No. 495,630, Nov. 7, 1995, Pat. No. 5,656,526. This application Oct. 3, 1996, Ser. No. 724,884

Claims priority, application Japan, Dec. 7, 1993, 5-306186

Int. Cl.^{6} G02F *1/1333;* **G09G** *3/36*

U.S. Cl. 349—85 **3 Claims**



1. A display device comprising:

a first display area including a plurality of first pixels, each of the first pixels producing a first light transmittance level when a given voltage is applied;

a second display area adjacent to the first display area and including a plurality second pixels, each of the second pixels producing a second light transmittance level, different from the first light transmission level, when the same given voltage is applied; and

a non-linear boundary separating the first display area from the second display area.

5,784,136

PDLC DEVICE AND METHOD OF MAKING, WITH LIQUID CRYSTAL MICROCAPSULES HAVING A UNIFORM DIAMETER

Masahiko Ando, Hitachinaka; Shinichi Komura, Hitachi; Makoto Tsumura, Hitachi, and Yoshiharu Nagae, Hitachi, all of Japan, assignors to Hitachi, Ltd., Tokyo, Japan

Filed Sep. 9, 1996, Ser. No. 709,738

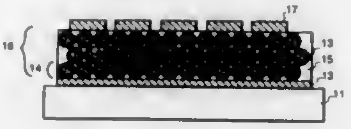
Claims priority, application Japan, Sep. 20, 1995, 7-241231

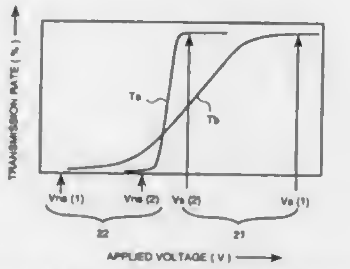
Int. Cl.^{6} G02F *1/1333;* **C09K** *19/60*

U.S. Cl. 349—86 **23 Claims**

1. A liquid crystal display apparatus comprising at least one transparent substrate, a pair of upper and lower electrodes disposed on the substrate, and a liquid crystal layer interposed between said pair of upper and lower electrodes, wherein

said liquid crystal layer is formed of a plurality of laminated single particle layers of liquid crystal micro-capsules having a uniform size and being arranged in a two-dimensional crystal array, said liquid crystal (micro-capsule) micro-capsules being formed by cladding a liquid crystal droplet with a medium having a constant thickness.





14. A liquid crystal display apparatus according to claim 1, wherein said liquid crystal display apparatus is manufactured in accordance with steps which include:

suspending liquid crystal micro-capsules having a uniform particle diameter in pure water to form a suspending solution,

immersing said substrate in said suspending solution;

forming a first single particle layer of said liquid crystal micro-capsules in a two-dimensional array on said substrate by withdrawing said substrate from said suspending solution at a constant speed,

applying a filling medium onto said first single particle layer to make a surface of said first single particle layer flat and to fill a gap between the liquid crystal micro-capsules in said first single particle layer and said substrate and to fill gaps between adjacent ones of said liquid crystal micro-capsules in said first single particle layer, and

laminating said first single particle layer and at least a second single particle layer, formed in accordance with the aforementioned steps, to form said liquid crystal layer, said first and second single particle layers having said filling medium disposed therebetween.

5,784,137

LIQUID CRYSTAL DISPLAY DEVICE AND METHOD FOR PRODUCING THE SAME

Makoto Shiomi, Tenri; Shinji Yamagishi, Osaka; Tokihiko Shinomiya; Shuichi Kozaki, both of Nara, and Kohichi Fujimori, Nabari, all of Japan, assignors to Sharp Kabushiki Kaisha, Osaka, Japan

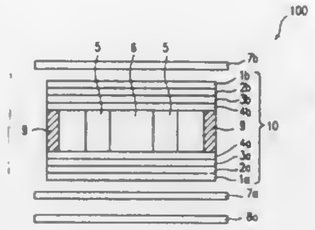
Filed Feb. 16, 1996, Ser. No. 602,940

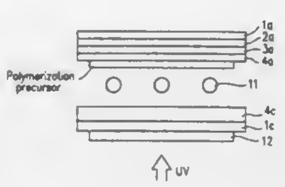
Claims priority, application Japan, Feb. 17, 1995, 7-029910; Aug. 7, 1995, 7-201216; Nov. 16, 1995, 7-298751

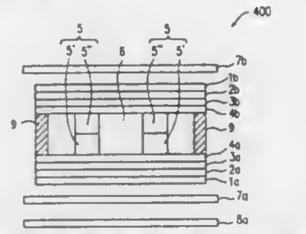
Int. Cl.^{6} G02F *1/1333;1/1339;* **C09K** *19/02*

U.S. Cl. 349—88 **15 Claims**

3. A liquid crystal display device including substrates opposed to each other, a polymeric layer patterned into a predetermined pattern, and a liquid crystal layer at least partially surrounded by the polymeric layer, the polymeric layer and the liquid crystal layer being interposed between the substrates,







wherein the polymeric layer is at least partially formed by polymerizing a polymerization precursor in a state where the molecules of the polymerization precursor are aligned in a predetermined direction by an alignment regulating force of at least one of the substrates, and

where the polymeric layer is patterned by a surface treatment which is formed on the substrates.

5,784,138

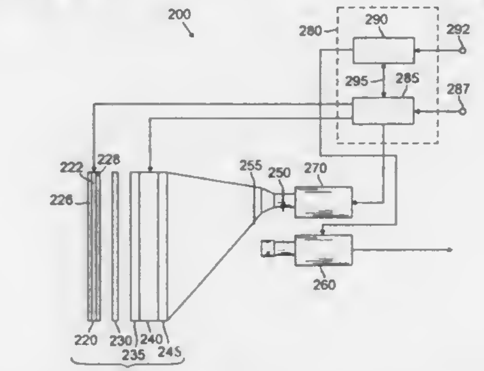
FAST TRANSITION POLYMER DISPERSED LIQUID CRYSTAL SHUTTER FOR DISPLAY SCREEN AND METHOD OF MANUFACTURE THEREFOR

Richard V. Kollarits, Colts Neck; Jane D. LeGrange, Princeton, and Timothy M. Miller, East Brunswick, all of N.J., assignors to Lucent Technologies Inc., Murray Hill, N.J.

Filed Aug. 22, 1996, Ser. No. 700,916

Int. Cl.^{6} G02F *1/1335;1/1333;1/13*

U.S. Cl. 349—93 **38 Claims**



1. A method of manufacturing a shutter, said shutter capable of assuming alternative transparent and scattering states, said method comprising the steps of:

initiating a phase separation of a polymer and liquid crystal to form a polymer dispersed liquid crystal (PDLC) film wherein said liquid crystal material ranges from about 60% to about 90% by weight of said PDLC film; and

curing said film at a temperature from about 30° C. to about 40° C., said film having a response time of equal to or less than 8 ms.

5,784,139

IMAGE DISPLAY DEVICE

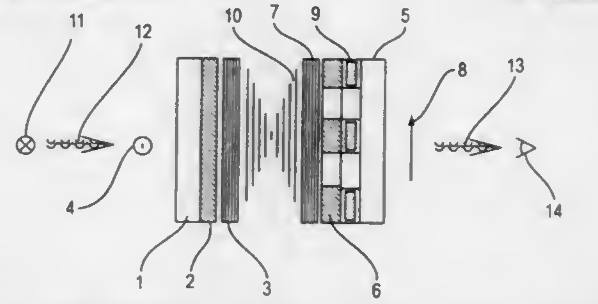
Vladimir Grigorievich Chigrinov, Moscow; Vladimir Marcovich Kozenkov; Nicolic Vasilievich Novoseletsky, both of Dolgoprudniv, all of Russian Federation; Victor Yurievich Reshetnyak; Yuriy Alexandrovich Reznikov, both of Kiev, Ukraine; Martin Schadt, Seltisberg, Switzerland, and Klaus Schmitt, Lörrach, Germany, assignors to Rolic AG, Zug, Switzerland

Continuation of Ser. No. 373,722, Jan. 17, 1995, abandoned, which is a continuation of Ser. No. 121,093, Sep. 14, 1993, abandoned, which is a continuation of Ser. No. 910,067, Jul. 8, 1992, abandoned. This application Feb. 16, 1996, Ser. No. 602,942

Claims priority, application Switzerland, Jul. 26, 1991, 2245/91

Int. Cl.^{6} G02F *1/1337*

U.S. Cl. 349—117 **18 Claims**



1. An image display device comprising a liquid crystal cell having a liquid crystal disposed between two plates provided with drive electrodes, wall orientation layers, and an optically anisotropic layer containing a linearly polarized light modified polymer.

5,784,140

ANTI-FERROELECTRIC LIQUID CRYSTAL DISPLAY WITH TWISTED DIRECTOR AND PERPENDICULAR SMECTIC LAYERS

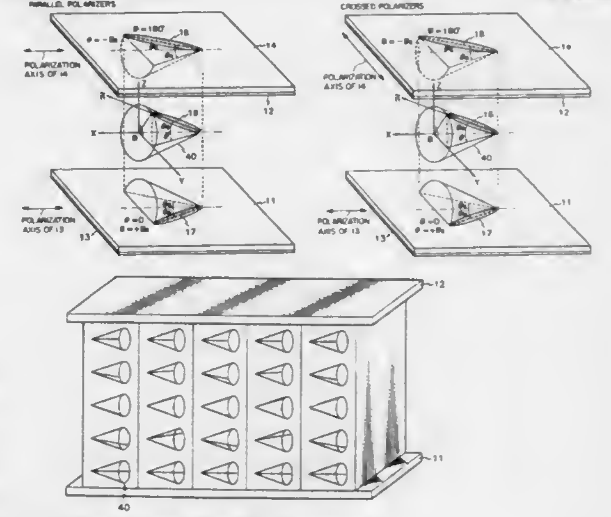
Sin-Doo Lee, Seoul, Rep. of Korea, assignor to Samsung Display Devices Co., Ltd., Kyungki-do, Rep. of Korea

Filed Dec. 24, 1996, Ser. No. 772,795

Claims priority, application Rep. of Korea, Dec. 26, 1995, 95-55949

Int. Cl.^{6} G02F *1/141;1/1335;1/1337*

U.S. Cl. 349—174 **13 Claims**



1. A liquid crystal display comprising:

a first transparent electrode;

a second transparent electrode; and

an anti-ferroelectric C liquid crystal disposed between the first and the second electrodes, the liquid crystal having a plurality of smectic layers perpendicular to the first and the second

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electrodes, a molecular director which twists on going from the first electrode to the second electrode, and molecules in two adjacent smectic layers which rotate in bulk in opposite directions with respect to a layer normal to the smectic layers.

5,784,141

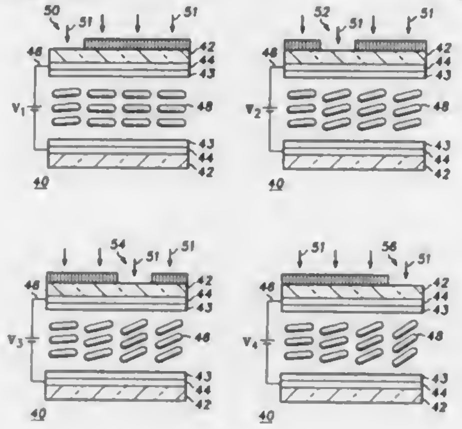
BI-STABLE NON-PIXELLATED PHASE SPATIAL LIGHT MODULATOR FOR ENHANCED DISPLAY RESOLUTION AND METHOD OF FABRICATION

Diana Chen, Gilbert; Phil Wright, Scottsdale, and Cheng-Ping Wei, Gilbert, all of Ariz., assignors to Motorola, Inc., Schaumburg, Ill.

Filed Oct. 4, 1996, Ser. No. 726,005

Int. Cl.^{6} G02F *1/139*

U.S. Cl. 349—191 **5 Claims**



1. A method of fabricating a liquid crystal phase spatial light modulator comprising the steps of:

- providing a liquid crystal cell composed of two substrate elements each having formed thereon a layer of conductive material, thereby providing for a first and second electrical contact and having positioned therebetween the first and second electrical contact a continuous layer of liquid crystal material;
- providing a drive circuit capable of exerting a plurality of voltages across the liquid crystal cell;
- exposing the liquid crystal cell to a first voltage and light, thereby providing for uniform background alignment of the liquid crystal material;
- masking a first area of the liquid crystal cell, exposing the liquid crystal cell to a second voltage and exposing the first area to light, thereby providing for recorded molecular orientation within the liquid crystal material contained in the first area; and
- repeating the steps of masking, exposing to a second voltage and exposing to light an additional plurality of areas of the liquid crystal cell, thereby providing for recorded molecular orientation within each of the plurality of areas of the liquid crystal cell dependent upon a desired number of phase modulations.

5,784,142

HAIR CLIP IN COMBINATION WITH SUN GLASSES STRUCTURE

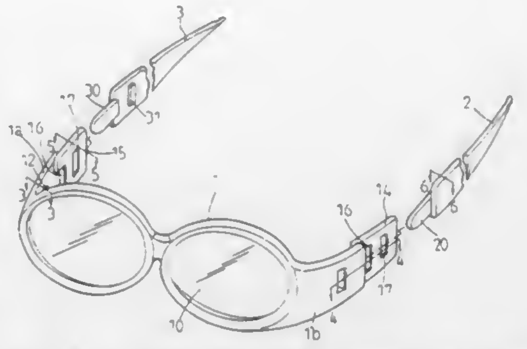
Chun-Pi Mao, No. 14, Lane 342, Kai Yuan Rd., Tainan City, Taiwan

Filed Sep. 8, 1997, Ser. No. 924,981

Int. Cl.^{6} G02C *5/14; 1/00*

U.S. Cl. 351—119 **1 Claim**

1. A hair clip in combination with sun glasses structure, comprising:



- a goggle frame comprising two side members, each said side member including a retainer means formed on an inner side thereof, each said side member further including an engaging member extending rearwardly from a distal end thereof, an opening being defined between said side member and the engaging member, and
- a clip member releasably attached to each said side member, each said clip member including a latch formed on a first end thereof, each said latch being extended through said opening and said retainer means, each said clip member further including a protrusion formed on a side of thereof, and each said engaging member includes an engaging slot defined therein for releasably receiving the protrusion of said clip member.

5,784,143

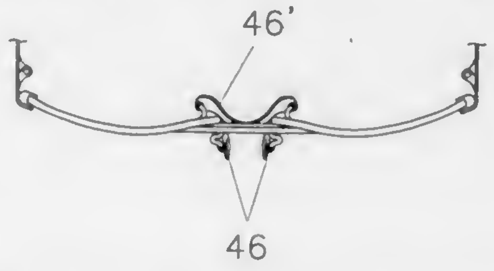
SPECTACLE FRAME HAVING REVERSE NOSE PAD

Byung Jin Chang, Ann Arbor, Mich., assignnr to General Scientific Corporation, Ann Arbor, Mich.

Continuation of Ser. No. 467,721, Jun. 6, 1995, abandoned, which is a continuation-in-part of Ser. No. 160,970, Dec. 3, 1993, Pat. No. 5,446,507. This application Feb. 26, 1997, Ser. No. 821,563

Int. Cl.^{6} G02C *5/12*

U.S. Cl. 351—138 **10 Claims**



1. A spectacle frame having a pair of lenses mounted therein, said frame comprising:

- a pair of temple pieces for supporting said frame on the ears of a wearer; and
- first and second nose pad members for supporting said frame on opposite sides of the bridge of the nose of said wearer wherein the entirety of said first nose pad member is disposed substantially forwardly of said rims, and the entirety of said second nose pad member is disposed substantially rearwardly of said rims.

5,784,144

MULTIFOCAL SPECTACLE LENS

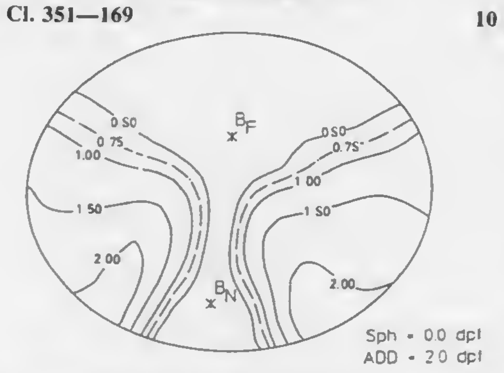
Gerhard Kelch, Aalen; Hans Lahres, Aalen-Wasseralfingen; Konrad Saur, Aalen-Waldhausen, and Helmut Wietschorke, Aalen-Wasseralfingen, all of Germany, assignors to Carl-Zeiss-Stiftung, Heidenheim, Germany

Filed Mar. 14, 1997, Ser. No. 818,778

Claims priority, application Germany, Mar. 28, 1996, 196 12 284.8

Int. Cl.^{6} G02C *7/06*

U.S. Cl. 351—169 **10 Claims**



1. A multifocal spectacle lens comprising:

- a lens body having two optically effective surfaces;
- said lens body further having a center cross and a measurement point disposed 4 mm vertically below said center point;
- said lens body having a far-reference point and a dioptric power at said far-reference point from −4 dpt to +4 dpt in the absolute strongest principal section (stH);
- a cylinder of 0.0 to 4.0 dpt and an addition (ADD) of 1.00 to 3.00 dpt;
- at least one aspheric nonaxialsymmetric multifocal surface which can be differentiated continuously at least twice;
- said multifocal surface having a far-vision zone, a near-vision zone and a progression zone disposed between said far-vision and said near-vision zones;
- said lens body having an edge facing toward the nose of a person wearing said spectacle lens;
- said lens body being configured to incorporate a plurality of features within an elliptical region on the surface of said lens body extending 50 mm measured horizontally and 40 mm measured vertically from said measurement point;
- said features all being satisfied together within said elliptical region and including:
  - (a) said near-reference point being at most 21 mm perpendicularly below said far-reference point and displaced by about 2.5 mm toward said edge;
  - (b) a principal viewing line interconnecting said far-vision zone and said near-vision zone; and, said principal viewing line defining a curve swung toward said edge more or less in dependence upon the dioptric power of said far-vision zone and said addition;
  - (c) a predetermined region formed in said progression zone on both sides of said principal viewing line wherein astigmatic deviation is less than 0.75 dpt;
  - (d) said predetermined region having a minimum width (in millimeters) measured horizontally as shown in the following table:

stH/ ADD	1.0	1.25	1.50	1.75	2.00	2.25	2.50	2.75	3.0
−4.00	15.1	10.8	7.9	5.9	4.7	4.1	3.8	3.5	3.0
−3.00	14.9	10.7	7.8	5.9	4.7	4.1	3.8	3.5	3.0
−2.00	14.3	10.4	7.6	5.8	4.7	4.1	3.8	3.5	3.0
−1.00	13.3	9.8	7.4	5.7	4.7	4.1	3.8	3.5	3.0
.00	12.2	9.2	7.1	5.6	4.7	4.1	3.8	3.4	3.0
+1.00	11.0	8.5	6.7	5.5	4.6	4.1	3.7	3.3	2.9
+2.00	9.8	7.8	6.4	5.3	4.5	4.0	3.6	3.2	2.7
+3.00	8.9	7.3	6.0	5.1	4.4	3.9	3.4	3.0	2.6
+4.00	8.3	6.8	5.7	4.8	4.2	3.7	3.3	2.9	2.5

and said minimum width being dependent upon said strongest principal section (stH) in said far-reference point and said addition (ADD); and,

  - (e) a horizontal line intersecting said principal viewing line to define an intersect point; half of said addition (ADD) being achieved below said horizontal line at said intersect point; and, the mean dioptric power being greater than the mean dioptric power at said far-reference point by values dW given in the following second table:

Add in dpt	1.00	1.25	1.50	1.75	2.00	2.25	2.50	2.75	3.00
dW in dpt	0.20	0.30	0.35	0.50	0.60	0.60	0.65	0.70	0.70

5,784,145

APPARATUS FOR DETERMINING PUPIL DIMENSIONS

Abdol Hamid Ghodse; Daniel Robert Stafford Taylor; Alan John Britten, all of London, and George Henry Gibson, Sussex, all of Great Britain, assignors to St. George's Enterprises Ltd.

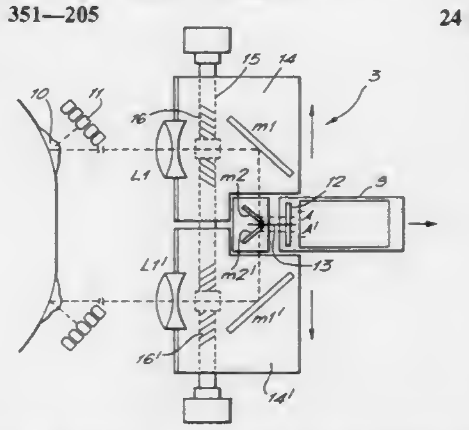
PCT No. PCT/GB93/02016, § 371 Date Jul. 24, 1995, § 102(e) Date Jul. 24, 1995, PCT Pub. No. WO94/07406, PCT Pub. Date Apr. 14, 1994

PCT Filed Sep. 28, 1993, Ser. No. 407,003

Claims priority, application United Kingdom, Sep. 28, 1992, 9220433

Int. Cl.^{6} A61B *3/10*

U.S. Cl. 351—205 **24 Claims**



1. Binocular apparatus for determining pupil dimensions for the eyes of a subject, said apparatus comprising optical imaging means whereby in use images defining each respective pupil are simultaneously transmitted along separate optical paths onto separate areas of a common optical sensing means, said apparatus further comprising a divider positioned between said separate optical paths and closely adjacent to said optical sensing means so as to enhance optical separation of said areas and the optical paths leading thereto.

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5,784,146

OPHTHALMIC MEASUREMENT APPARATUS

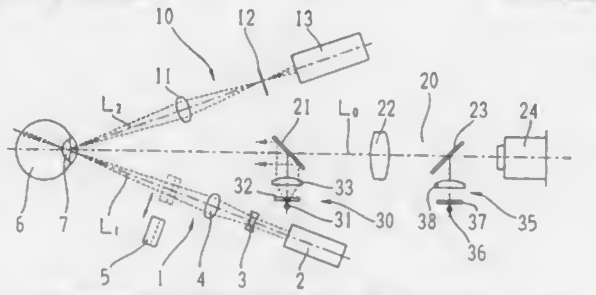
Tsuguo Nanjo, Toyohashi; Yasumi Hikosaka, Gamagori, and Masunori Kawamura, Nagoya, all of Japan, assignors to Nidek Co., Ltd, Aichi, Japan

Filed Dec. 12, 1996, Ser. No. 764,561

Claims priority, application Japan, Dec. 28, 1995, 7-352686; Dec. 28, 1995, 7-352687

Int. Cl.^{6} A61B *3/10;3/14*

U.S. Cl. 351—214 **23 Claims**



1. An ophthalmic measurement apparatus comprising:

laser beam projecting optical system for focusing-and-projecting a laser beam for use in measuring onto an anterior portion of an eye to be examined;

scattered light receiving optical system for receiving a scattered light by guiding the scattered light that is caused by a laser beam emitted from said laser beam projecting optical system scattered by the internal tissues of the anterior portion of the eye to a photoelectric transducing element;

measuring means for measuring tissues and components in the internal parts of the anterior portion of the eye based on an output signal transmitted from the photoelectric transducing element in said scattered light receiving optical system;

slit-cutting means for cutting the anterior portion of the eye to be a slit shape by using the laser beam emitted from said laser beam projecting optical system; and

observation optical system for observing an image of a section of the anterior portion of the eye which is light-sectioned by means of said slit-cutting means, whereby the image of the section of the anterior portion of the eye is observed by using said observation optical system so that an alignment corresponding to a measuring part may be performed.

5,784,147

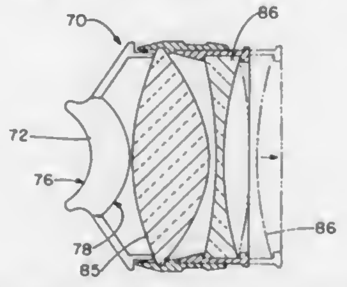
INDIRECT OPHTHALMOSCOPY LENS SYSTEM

Donald A. Volk, 7893 Enterprise Dr., Mentor, Ohio 44060

Continuation of Ser. No. 152,189, Nov. 15, 1993, Pat. No. 5,479,222. This application Dec. 22, 1995, Ser. No. 580,872

Int. Cl.^{6} A61B *3/00*

U.S. Cl. 351—219 **31 Claims**



23. A set of adapter lens systems for use with an ophthalmic lens system in the examination or treatment of a patient's eye, comprising:

at least two adapter lens systems, each having at least one adapter lens element positioned within an adapter lens housing, said adapter lens housing being selectively attachable to a housing associated with said ophthalmic lens system,

wherein said at least two adapter lens systems are different from one another and modify the optical characteristics of said ophthalmic lens system in a selective and predetermined manner.

5,784,148

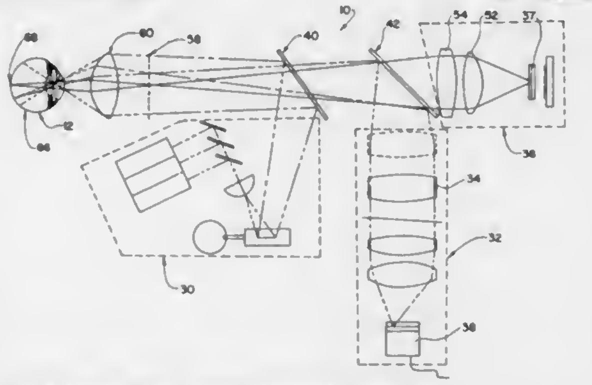
WIDE FIELD OF VIEW SCANNING LASER OPHTHALMOSCOPE

Gregory Lee Heacock, 505 Timber Valley Rd., Atlanta, Ga. 30342

Filed Apr. 9, 1996, Ser. No. 629,584

Int. Cl.^{6} A61B *3/10;3/14*

U.S. Cl. 351—221 **61 Claims**



1. A scanning laser ophthalmoscope comprising:

a source of laser light;

a scanning system for generating a two dimensional area of illumination from said laser light;

a first beam splitter for reflecting said illumination from said scanning system towards a patient's eye and for passing therethrough light reflected from said patient's eye;

an image capturing system for detecting light reflected from said patient's eye and for generating an image of an interior portion of said eye from the detected light;

a second beam splitter coaxial with said first beam splitter for receiving light reflected from said patient's eye and passed through said first beam splitter and for reflecting said light to said image capturing system; and

a video display for generating a target image, said video display being positioned with respect to said first and second beam splitters such that light from said video display passes through said first and second beam splitter to said patient's eye so that said target image is perceivable by the patient.

5,784,149

FILM IMAGE PROCESSING METHOD AND APPARATUS

Yoshiki Kawaoka, Asaka, Japan, assignor to Fuji Photo Film Co., Ltd., Kanagawa, Japan

Filed Sep. 20, 1996, Ser. No. 718,261

Claims priority, application Japan, Sep. 21, 1995, 7-242755

Int. Cl.^{6} G03B *27/72*

U.S. Cl. 355—35 **15 Claims**

1. A film image processing method comprising the steps of:

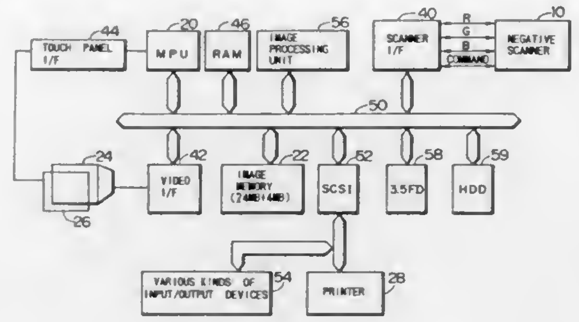
scanning a developed still photographic film to capture a plurality of frame images at a first resolution, and storing first image data representing said plurality of frame images;

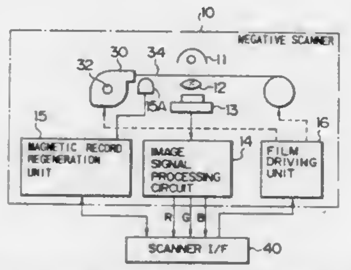
displaying an index image composed of at least two frame images according to said first image data;

entering print information to print one of said plurality of frames or to print said index image;

scanning said film to capture a frame image according to said print information at a second resolution higher than said first resolution, and storing second image data representing said captured frame image;

printing said frame image or said index image according to said second image data; and





displaying, during said printing step, an image according to at least one frame image of said first image data and third image data, representing a previously-stored image.

5,784,150

ELECTRON-BEAM CELL PROJECTION LITHOGRAPHY SYSTEM

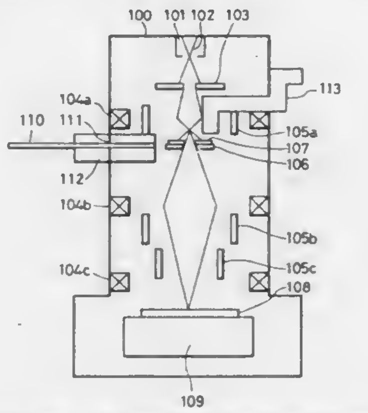
Katsuyuki Itoh, Tokyo, Japan, assignor to NEC Corporation, Tokyo, Japan

Filed Nov. 14, 1996, Ser. No. 749,956

Claims priority, application Japan, Nov. 15, 1995, 7-296548

Int. Cl.^{6} G03B *27/42*

U.S. Cl. 355—53 **11 Claims**



1. An electron-beam cell projection lithography apparatus comprising:

an electron-beam source;

a first aperture through which an electron-beam transmitted from said electron-beam source passes and becomes shaped;

a second aperture formed with an opening in a desired transfer pattern, said electron beam being adapted to pass through said second aperture and irradiate an object;

a stage movable in X and Y axes directions, said second aperture being placed on said stage;

a planar registration mark positioned on at least one of said second aperture and said stage;

a chamber for containing at least said second aperture and said stage; and

a microscope for observing said registration mark to position said second aperture in place, said microscope including an objective lens disposed in said chamber and facing an upper surface of said stage, and an eye-Piece lens disposed outside said chamber.

5,784,151

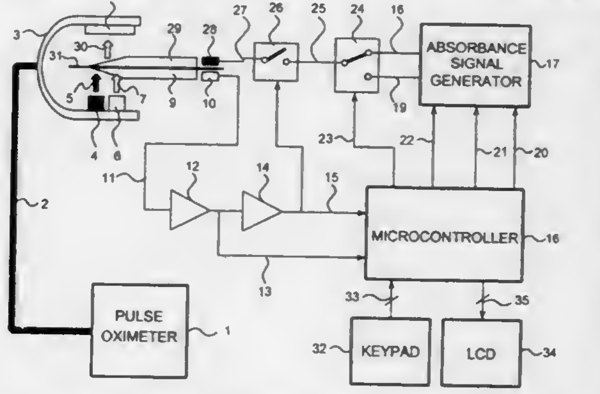
APPARATUS FOR TESTING A PULSED LIGHT OXIMETER

Mark Edward Miller, Vancouver, and Ronald William Evans, Delta, both of Canada, assignors to Datrend Systems Inc., British Columbia, Canada

Filed Dec. 3, 1996, Ser. No. 754,042

Int. Cl.^{6} A61B *5/00*

U.S. Cl. 356—41 **33 Claims**



1. Apparatus for testing a pulsed light oximeter, comprising:

(a) light sensing means for producing an electrical pulse signal representative of light flashes emitted by the oximeter, each light flash emitted having one of a plurality of predefined wavelengths;

(b) signal generating means for producing a plurality of absorbance signals, each absorbance signal representing the optical absorbance of an anatomical part at the wavelength of each light flash;

(c) selecting means for analyzing one or more features of the electrical pulse signal and for selecting the absorbance signal corresponding to each light flash emitted to produce a selected absorbance signal; and

(d) light radiating means responsive to the selected absorbance signal for radiating light to the oximeter to simulate the effect of the anatomical part on the light flashes emitted by the oximeter.

5,784,152

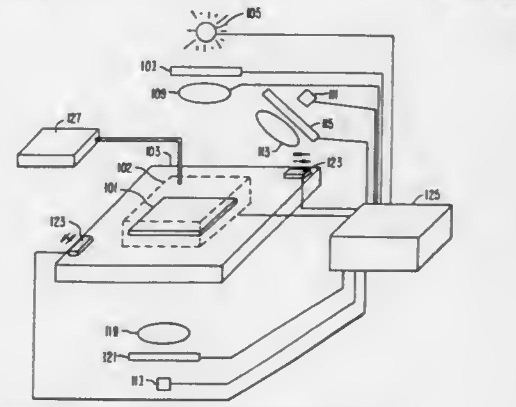
TUNABLE EXCITATION AND/OR TUNABLE DETECTION MICROPLATE READER

David M. Heffelfinger, San Pablo; Franklin R. Witney, Novato, and Chris Cunanan, Bay Point, all of Calif., assignors to Bio-Rad Laboratories, Hercules, Calif.

Continuation-in-part of Ser. No. 405,468, Mar. 16, 1995, Pat. No. 5,591,981. This application Oct. 11, 1996, Ser. No. 729,111

Int. Cl.^{6} G01N *21/27;21/64*

U.S. Cl. 356—73 **61 Claims**



1. A multilabel counting apparatus, comprising:

a sample holding stage;

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a source for illuminating a sample within said sample holding stage with radiation within a first band of wavelengths, wherein said first band of wavelengths is a subset of the emittance of said source, said first band of wavelengths selected by a first wavelength band selection system, wherein said sample comprises a plurality of individual sample wells;

at least one projection optic for focussing said radiation from said source onto a selected location of a selected individual sample well wherein said focussed radiation irradiates only a discrete portion of said selected individual sample well;

a detector for detecting emissions from said discrete portion of said selected individual sample well, wherein a second wavelength band selection system determines the wavelength band of emissions detected by said detector, and wherein said detector generates a plurality of output signals dependent upon the intensity of said emissions within said selected sample emission wavelength band; and

a moving mechanism for moving the relative positions of said sample holding stage, said source, and said detector, wherein said moving mechanism determines which of said plurality of individual sample wells receives focussed radiation from said source and wherein said moving mechanism determines said discrete portion of said selected individual sample well irradiated by said focussed radiation and from which said emissions are detected.

5,784,153

METHOD FOR DETECTING CAUSE OF ABNORMAL PORTION PRESENT ON SURFACE OF STEEL PRODUCT

Tadashi Mochizuki; Shigeomi Sato; Takanori Akiyoshi; Akiko Sakashita, and Yohichi Ishibashi, all of Tokyo, Japan, assignors to NKK Corporation, Japan

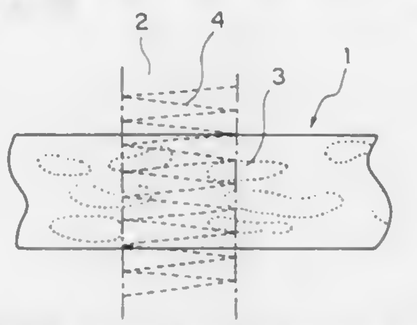
PCT No. PCT/JP96/01585, § 371 Date Oct. 9, 1996, § 102(e) Date Oct. 9, 1996, PCT Pub. No. WO96/42005, PCT Pub. Date Dec. 27, 1996

PCT Filed Jun. 12, 1996, Ser. No. 722,276

Claims priority, application Japan, Jun. 12, 1995, 7-170239

Int. Cl.^{6} G01N *1/00;21/63;21/72;21/73*

U.S. Cl. 356—315 **4 Claims**



1. A method for detecting a cause of an abnormal portion present on a surface of a steel product, which comprises the steps of:

condensing a pulsed laser beam, irradiating said pulsed laser beam thus condensed onto an abnormal portion present on a surface of a steel product and a vicinity thereof to a specific depth, limiting pulse energy density of said pulsed laser beam at an irradiation point of said pulsed laser beam on the surface of said steel product within a range of from 10 kW/mm^2 to 100 MW/mm^2;

controlling said specific depth of said pulsed laser beam by a following formula:

(irradiating depth)∝(average output×irradiation time)/(line width×line length)= (average output)/(line width×line speed);

causing said irradiation point of said pulsed laser beam to zigzag-move throughout the entire region containing said abnormal portion and the vicinity thereof, to vaporize a surface portion of said steel product in said zigzag-moving region of said irradiation point, and converting the resultant vapor into fine particles, so as to collect samples of said abnormal portion and the vicinity thereof on the surface of said steel product in the form of fine particles; and

continuously analyzing chemical compositions of the thus collected samples in the form of fine particles to detect a cause of an abnormal portion present on the surface of said steel product.

5,784,154

ELECTROPHORESIS SEPARATION IN A CAPILLARY PASSAGE

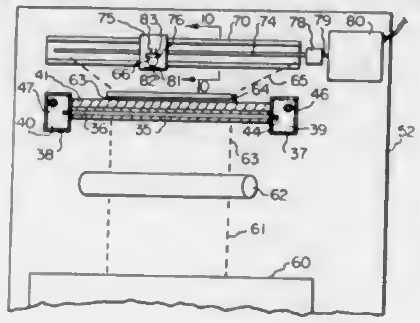
Janusz B. Pawliszyn, Waterloo, Canada, assignor to Anthony R. Torres, Centerville, Utah

Continuation of Ser. No. 256,496, Feb. 13, 1995, abandoned, which is a continuation-in-part of Ser. No. 819,325, Jan. 13, 1992, abandoned. This application Nov. 13, 1996, Ser. No. 746,677

Claims priority, application WIPO, Jan. 13, 1993, PCT/US93/00234

Int. Cl.^{6} G01N *21/41;27/26*

U.S. Cl. 356—128 **20 Claims**



1. A capillary electrophoresis system, comprising:

a light transmitting capillary tube having a capillary passage therethrough in which separation of components of a sample take place, said capillary passage having a diameter;

means for introducing a sample to be separated into the capillary passage;

means for creating a separation of the sample by electrophoresis within the capillary passage along a predetermined length of the capillary passage, said predetermined length of the capillary passage being substantially greater than the diameter of the capillary passage;

a light source for generating a light beam;

means for forming the light beam into a sheet of light having a width at least equal to the predetermined length of the capillary passage and a height no greater than the diameter of the capillary passage and for directing the sheet of light through the capillary passage so that the light passes through the predetermined length of the capillary passage, said predetermined length being such as to include separations of interest present in the capillary passage;

and detectors means located in the path of the sheet of light after passing through the capillary passage for detecting the intensity of light at various positions along the predetermined length of the capillary passage and to provide an output representative of the light intensity at the various positions along the predetermined length of the capillary passage, the intensity of the light at various positions along the predetermined length of the capillary passage being indicative of sample separation along the predetermined length of the capillary passage.

5,784,155

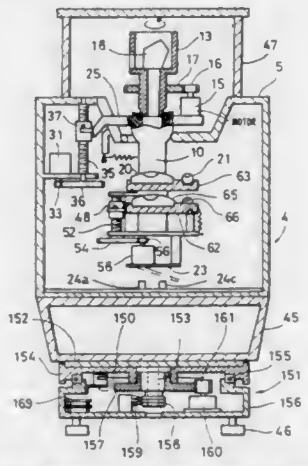
LASER SURVEY INSTRUMENT

Fumio Ohtomo; Satoshi Hirano, both of Tokyo, Japan, and Richard W. Davidson, Livermore, Calif., assignors to Kabushiki Kaisha Topcon, Tokyo, Japan

Filed Feb. 8, 1996, Ser. No. 598,322

Int. Cl.^{6} G01B *11/26;* **G01C** *3/08;1/00*

U.S. Cl. 356—141.1 **14 Claims**



1. A laser survey instrument, comprising at least a main unit for emitting a laser beam and an object reflector for reflecting the laser beam from the main unit toward the main unit, wherein said main unit comprises an emitter for emitting the laser beam, a rotating unit for rotating and scanning the laser beam in a rotating and scanning direction to form a plane, a rotating angle detector interlocked with the rotating unit for detecting an irradiating direction of the laser beam, a reflection light detector for detecting reflection light from the object reflector, a position discriminator for detecting the deviation of the direction of the main unit with respect to the object reflector based on signals from said reflection light detector and said rotating angle detector, and an alignment display unit for displaying information on said deviation of direction of said main unit based on the detection of said position discriminator.

5,784,156

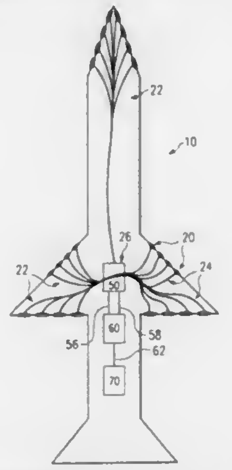
FIBER OPTIC GUIDANCE SYSTEM FOR LASER GUIDED MISSILES

James E. Nicholson, Pineville, La., assignor to Tracor Aerospace, Inc., Austin, Tex.

Filed Nov. 19, 1996, Ser. No. 752,326

Int. Cl.^{6} G01B *11/26;* **F41G** *7/00*

U.S. Cl. 356—141.5 **47 Claims**



1. A system for determining the direction to a radiating source relative to a moving vehicle deploying the system and for providing information to a guidance system for the vehicle, by reference to an optical source signal received from the radiating source at a subarray of apertures, the system comprising:

an array of apertures arrayed at selected positions on the vehicle;

a plurality of start optical fibers, each start optical fiber having substantially the same length, each start fiber having a first, radiation receiving end and a second end coupled to a start detector;

a plurality of stop optical fibers, each stop fiber having a selected length equal to or greater than the length of the start fibers, each stop fiber having a first, radiation receiving end and a second end coupled to a stop detector,

one start fiber and at least one stop fiber being coupled together to form a set of fibers, one set of fibers being disposed at each aperture, all the fibers in each set of fibers having the same selected numerical aperture and being directed in the same selected direction relative to the vehicle, and the apertures having a selected degree of overlap with adjacent apertures;

the first radiation receiving end of each set of fibers adapted to receive the optical source signal for transmission as an optical signal to the detector coupled thereto;

each detector being adapted to detect and measure the optical signal strength of the optical signal arriving on the fibers coupled thereto, adapted to produce a strength output signal related to the optical signal strength of each optical signal, and adapted to provide the strength output signal to a microprocessor;

the start detector being adapted to measure a property and produce a start output signal related to the length of the start fiber through which the optical signal has been transmitted;

the stop detector being adapted to measure the property and produce a stop output signal related to the length of the stop fiber through which the optical signal has been transmitted;

wherein the start output signal and the stop output signal provide input to a device which measures a difference in the apparent phase between the start output signal and the stop output signal, and provides information on this difference to the microprocessor, the microprocessor being programmed to calculate the direction to the radiating source from the strength output signal and the difference in the apparent phase of the start and stop signals.

5,784,157

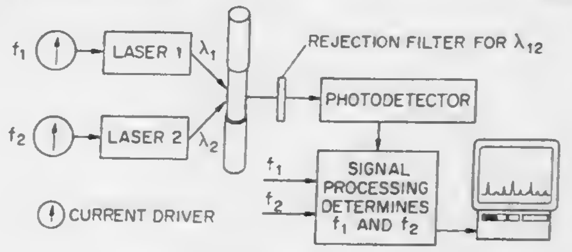
METHOD AND APPARATUS FOR IDENTIFYING FLUOROPHORES

Vera Gorfinkel, Kassel, Germany, and Serge Luryi, Stony Brook, N.Y., assignors to The Research Foundation of State University of New York, Albany, N.Y.

Filed Nov. 21, 1995, Ser. No. 561,368

Int. Cl.^{6} G01J *3/30*

U.S. Cl. 356—318 **24 Claims**



1. A method of identifying a plurality of fluorophores having a different excitation spectra in a fluorophore containing substance comprising:

a. stimulating at least one of the plurality of fluorophores with an incident optical signal fixed in relationship to a fluorophore substance holder, the incident optical signal having an optical spectrum comprising in spectral components wherein m is an integer greater than 1;

b. modulating each of said spectral components in intensity according to a respective one of a set of linearly independent time-domain functions;

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c. exciting at least one of the plurality of fluorophores with at least one of said spectral components modulated in intensity according to said respective one of a set of linearly independent time-domain functions to produce fluorescence emission over a range of wavelengths;

d. providing excitation efficiencies and fluorescence quantum yields for each of the plurality of fluorophores for each of the m spectral components;

e. detecting substantially all of the entire fluorescence emission excited by the incident optical signal to produce a response signal which corresponds to the intensity of substantially all of said fluorescence emission over said range of wavelengths in the time-domain of the linearly independent time-domain functions; and

f. analyzing the response signal utilizing the excitation efficiencies and quantum yields to identify at least one fluorophore of the plurality of fluorophores.

5,784,158

BROAD SPECTRUM SPECTROMETER APPARATUS

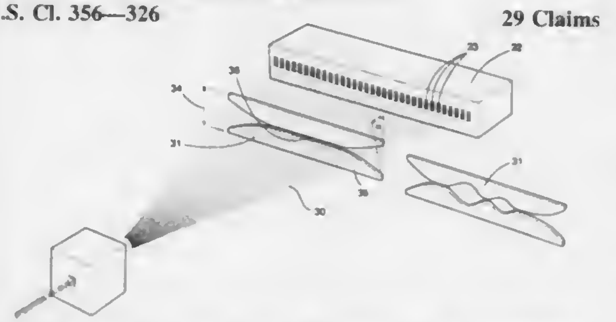
Alexei Stanco, Adelaide, and Mark Aizfagendler, Grange, both of Australia, assignors to Lastek Laboratories Pty. Ltd., Australia

Filed Nov. 22, 1996, Ser. No. 755,486

Claims priority, application Australia, Nov. 22, 1995, PN6741; Dec. 14, 1995, PN7152

Int. Cl.^{6} G01J *3/02;3/12*

U.S. Cl. 356—326 **29 Claims**



1. An apparatus for analysing the intensity of electromagnetic radiation from a sample comprising;

a dispersing spectrometer in combination with a light source;

said light source being adapted to illuminate the sample whose spectral properties are to be measured, the light from said sample being adapted to be directed into the dispersing spectrometer including a detector array comprising a number of detectors adapted to measure the intensity of the dispersed light; and

wherein the apparatus further comprises an element adapted to cause the dispersed light reaching the detectors in the detector array to be modified in intensity non-uniformly across the spectrum to give a response over all the detectors of the detector array within their dynamic range.

5,784,159

OPTICAL SPECTRUM MEASURING APPARATUS

Takashi Iwasaki, Tokyo, Japan, assignor to Ando Electric Co., Ltd., Tokyo, Japan

Continuation of Ser. No. 530,476, Sep. 19, 1995, abandoned. This application Dec. 18, 1996, Ser. No. 768,991

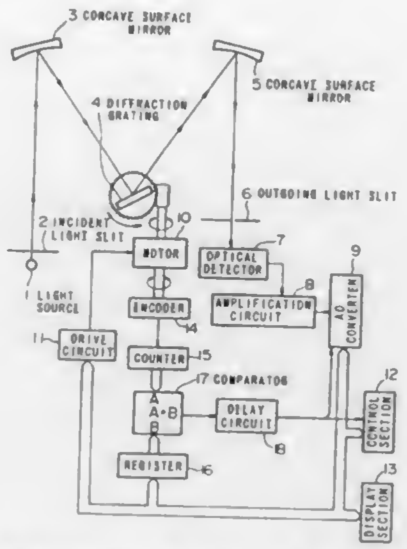
Claims priority, application Japan, Sep. 30, 1994, 6-261737

Int. Cl.^{6} G01J *3/28*

U.S. Cl. 356—328 **3 Claims**

1. An optical spectrum measuring apparatus comprising:

a diffraction grating for receiving light from a predetermined optical source and for outputting a diffraction beam containing only specific wavelength components determined by a rotational angle of said diffraction grating:



optical detecting means for outputting an electrical signal in response to said diffraction beam from said diffraction grating;

rotation means for rotating said diffraction grating;

encoding means for outputting pulses, the number of said pulses depending on the rotational angle of said diffraction grating rotated by said rotation means;

counting means for counting the number of pulses outputted by said encoding means;

register means for registering a predetermined value;

comparing means for comparing whether or not a count value of said counting means and said predetermined value of said register means are equal;

A/D conversion means for A/D converting said electrical signal output by said optical detecting means when said comparing means determines that said count value and said predetermined value are equal;

output means for outputting an optical spectrum from said predetermined optical source based on an electrical signal A/D converted by said A/D conversion means;

assigning means for assigning said a new predetermined value to said register means; and

repetition means for causing said assigning means to assign said new predetermined value each time said comparing means determines that said count value and said stored value are equal.

5,784,160

NON-CONTACT INTERFEROMETRIC SIZING OF STOCHASTIC PARTICLES

Amir A. Naqwi, Shoreview, Minn., assignor to TSI Corporation, St. Paul, Minn.

Filed Oct. 10, 1995, Ser. No. 541,577

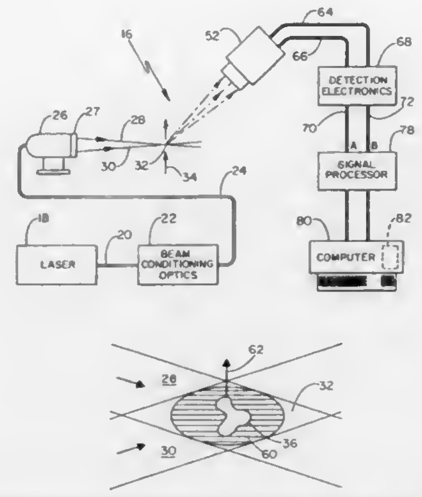
Int. Cl.^{6} G01B *9/02*

U.S. Cl. 356—345 **29 Claims**

1. An apparatus for non-contact measuring of stochastic light scattering elements including:

an illumination apparatus for selectively directing coherent energy onto a medium, to define a measuring region traversed individually by light scattering elements contained in the medium as the medium moves relative to the measuring region;

an energy detecting apparatus for sensing the coherent energy scattered by each of the light scattering elements as it traverses the measuring region, by sensing the scattered coherent energy at least at first and second different locations spaced apart from the measuring region and generating first and second signals based on the coherent energy sensed at the first and second locations, respectively;



a signal processor, operatively coupled to the energy detecting means to receive the first and second signals, for generating a phase value corresponding to each light scattering element, each said phase value representing a temporal shift between the first and second signals; and

an information processing system including (i) a memory for receiving and accumulating multiple phase values corresponding to multiple scattering element traverses through the measuring region; (ii) sorting logic for organizing the accumulated phase values by increments of phase, to generate phase information describing a phase histogram of the accumulated phase values; and (iii) conversion logic for applying conversion information to the phase information, to generate element characterizing information describing a scattering element histogram of multiple scattering element characterizing values corresponding to the multiple scattering element traverses.

5,784,161

HETERODYNE INTERFEROMETER ARRANGEMENT WITH TUNABLE LASERS, A HETERODYNE INTERFEROMETER, A COMPARISON INTERFEROMETER AND A REFERENCE INTERFEROMETER

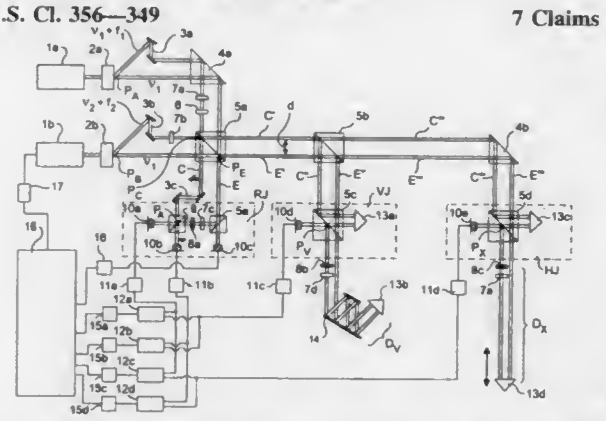
Karl-Heinz Bechstein; Beate Moeller, both of Jena; Klaus Dieter Salewski, Greifswald, and Andreas Wolfram, Karlsburg, all of Germany, assignors to Carl Zeiss Jena GmbH, Jena, Germany

Filed Jun. 20, 1996, Ser. No. 668,263

Claims priority, application Germany, Jun. 20, 1995, 195 22 262.8

Int. Cl.^{6} G01B *9/02*

U.S. Cl. 356—349 **7 Claims**



1. A heterodyne interferometer arrangement for absolute distance measurement, comprising:

a laser source producing two original laser beams of different frequency;

acousto-optical modulators disposed in beam paths downstream of said laser source for producing two frequency-shifted laser beams from said original laser beams, respectively;

a first beam splitter disposed in beam paths downstream of said laser source and said acousto-optical modulators for combining said original laser beams at one location on a splitter surface and for combining said frequency-shifted laser beams at another location on said splitter surface;

a comparison interferometer having a constant comparison path, said comparison interferometer being disposed downstream of said first beam splitter;

a heterodyne interferometer with a fixed reference reflector and a measurement reflector displaceable within a measurement path, said heterodyne interferometer being disposed downstream of said first beam splitter;

optical elements including an optical deflecting element disposed between said first beam splitter on an upstream side and said comparison interferometer and said heterodyne interferometer on a downstream side for guiding the combined frequency-shifted laser beams and the combined original laser beams along collinear, spatially separate paths from said first beam splitter to said comparison interferometer and said heterodyne interferometer;

optical polarizing elements and half-wave plates disposed in beam paths of said comparison interferometer and said heterodyne interferometer;

photodetectors optically linked to said comparison interferometer and said heterodyne interterometer for generating electrical interferometer signals;

a computer operatively connected to said photodetectors for processing said interferometer signals and obtaining path information;

a reference interferometer disposed downstream of said first beam splitter, said reference interferometer including a second beam splitter, a polarizing beam splitter, an optical polarizing component, and two photodetectors, said second beam splitter and said optical polarizing component being disposed upstream of said polarizing beam splitter, said two photodetectors being optically coupled on an upstream side to said polarizing beam splitter and electrically coupled on a downstream side to said computer, said reference interferometer including an additional photodetector with low-pass characteristics optically coupled to said second beam splitter; and

electrical components including multipliers, filters, mixing and filtering stages and analog-to-digital converters connected between said two photodetectors and said computer, said electrical components further including a trigger signal generator connected between said additional photodetector and said computer.

5,784,162

SPECTRAL BIO-IMAGING METHODS FOR BIOLOGICAL RESEARCH, MEDICAL DIAGNOSTICS AND THERAPY

Dario Cabib, Timrat; Robert A. Buckwald, Ramat Yishai; Zvi Malik, Kfar Haroe; Yuval Garini, Mizpe Koianit; Nir Katzir, Givat Elah, all of Israel, and Dirk G. Soeknsen, Carlsbad, Calif., assignors to Applied Spectral Imaging Ltd., Migdal Haemek, Israel

Continuation-in-part of Ser. No. 392,019, Feb. 21, 1995, Pat. No. 5,539,517, which is a continuation of Ser. No. 107,673, Aug. 18, 1993, abandoned. This application Dec. 12, 1995, Ser. No. 571,047

Int. Cl.^{6} G01B *9/02*

U.S. Cl. 356—346 **69 Claims**

1. A spectral bio-imaging method characterized by high spatial and high spectral resolutions, the method comprising the steps of:

(a) preparing a sample to be spectrally imaged;

(b) viewing said sample through an optical device, said optical device being optically connected to an imaging spectrometer, said optical device and said imaging spectrometer being for obtaining a spectrum of each pixel of said sample by:

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(i) collecting incident light simultaneously from all pixels of said sample using collimating optics;

(ii) passing said incident collimated light through an interferometer system having a number of elements, so that said light is first split into two coherent beams which travel in different directions inside said interferometer and then said two coherent beams recombine to interfere with each other to form an exiting light beam;

(iii) passing said exiting light beam through a focusing optical system which focuses said exiting light beam on a detector having a two-dimensional an-ay of detector elements, so that at each instant each of said detector elements is the image of one and always the same pixel of said sample for the entire duration of the measurement, so that the real image of the sample is stationary on the plane of the detector array and at any time during the measurement the image is still visible and recognizable, and so that each of said detector elements produces a signal which is a particular linear combination of light intensity emitted by said pixel at different wavelengths, wherein said linear combination is a function of the instantaneous optical path difference;

(iv) rotating one or more of said elements of said interferometer system, so that said optical path difference between said two coherent beams generated by said interferometer system is scanned simultaneously for all said pixels of said sample; and

(v) recording signals of each of said detector elements as function of time using a recording device to form a first spectral cube of data; and

(c) interpreting said first spectral cube of data using a mathematical algorithm.

5,784,163

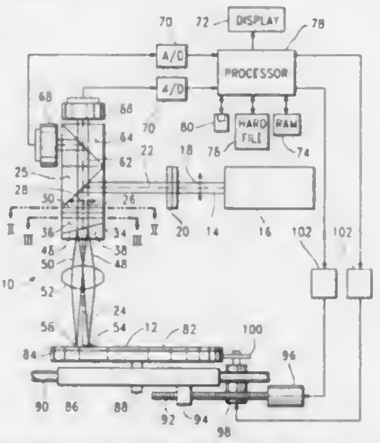
OPTICAL DIFFERENTIAL PROFILE MEASUREMENT APPARATUS AND PROCESS

Huizong Lu, Coconut Creek, and Ali Reza Taheri, Boca Raton, both of Fla., assignors to International Business Machines Corporation, Armonk, N.Y.

Filed Sep. 23, 1996, Ser. No. 710,807

Int. Cl.^{6} G01B *9/02*

U.S. Cl. 356—351 **13 Claims**



1. Surface inspection apparatus for determining a profile of a surface under test, wherein said surface inspection apparatus comprises:

a laser producing a coherent, linearly polarized beam;

optical apparatus, wherein said coherent, linearly polarized beam is decomposed into first and second projected subbeams, with said first projected sub-beam being linearly polarized in a first direction, with said second projected sub-beam being linearly polarized in a second direction, perpendicular to said first direction, wherein said first projected sub-beam is projected to a first test spot on said surface under test, wherein said second projected sub-beam is projected to a second test spot on said surface under test, with said first and second test spots extending along said surface under test in a spaced-apart relationship, wherein said first and second projected sub-beams, after reflection from said first and second test spots, are recombined into a single, elliptically polarized return beam having a first principle axis at a direction midway between said first and second directions and a second principle axis perpendicular to said first principle axis;

a polarizing beamsplitter in which said elliptically polarized return beam is split, with a portion of said return beam polarized along said first principle axis forming a first return sub-beam and with a portion of said return beam polarized along said second principle axis forming a second return sub-beam;

a first photodetector measuring intensity of said first return sub-beam; and

a second photodetector measuring intensity of said second return sub-beam, a computer processor in which a first routine is running, wherein said computer processor operates in response to a first intensity input from said first photodetector and a second intensity input from said second photodetector, and wherein said first routine calculates an output value representing a difference in height between first and second test spots solely as a function of said first and second intensity inputs and of a wavelength and polarization angle of said coherent, linearly polarized beam.

5,784,164

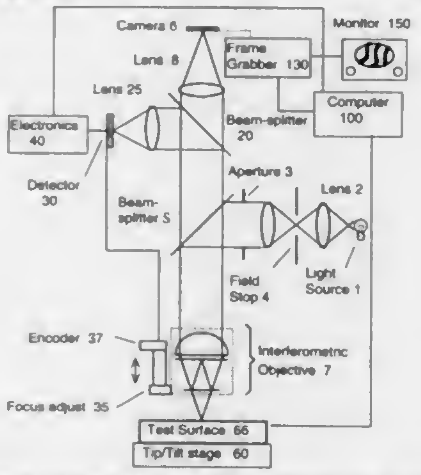
METHOD AND APPARATUS FOR AUTOMATICALLY AND SIMULTANEOUSLY DETERMINING BEST FOCUS AND ORIENTATION OF OBJECTS TO BE MEASURED BY BROAD-BAND INTERFEROMETRIC MEANS

Leslie L. Deck, Middletown, and Stephen H. Chakmakjian, Portland, both of Conn., assignors to Zygo Corporation, Middlefield, Conn.

Filed Mar. 20, 1997, Ser. No. 822,362

Int. Cl.^{6} G01B *9/02*

U.S. Cl. 356—359 **22 Claims**



1. A method for automatically and substantially simultaneously focusing and orienting an interferometric optical system with regard to a surface under test, said optical system comprising a short coherence light source for illuminating said optical system, a pixel array onto which an interferogram may be imaged, and means for scanning said interferometer through a zero optical path difference condition, said method comprising the steps of:

detecting a peak fringe contrast for said pixels in said array;

saving a scan position at said detected peak fringe contrast for said pixels in said array;

fitting at least a portion of said saved scan positions to a surface shape for providing a plane of best focus for said surface under test; and

positioning said surface under test relative to said optical system for focusing said object under test across said plane of best focus.

5,784,165

Patent Not Issued For This Number

5,784,166

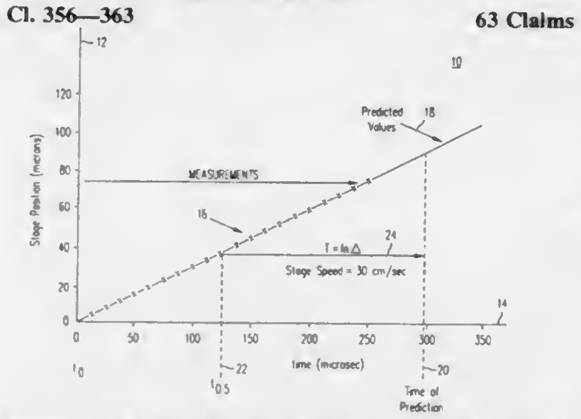
POSITION RESOLUTION OF AN INTERFEROMETRIALLY CONTROLLED MOVING STAGE BY REGRESSION ANALYSIS

Michael R. Sogard, Menlo Park, Calif., assignor to Nikon Corporation, Tokyo, Japan

Filed Apr. 3, 1996, Ser. No. 626,863

Int. Cl.^{6} G01B *9/02*

U.S. Cl. 356—363 **63 Claims**



1. A method of achieving high position resolution in a precision motion system having at least one moving stage, comprising the steps of:

measuring a series of positions of said at least one moving stage; and

estimating a present position of said at least one moving stage using a selected number of the series of measured positions of said at least one moving stage.

5,784,167

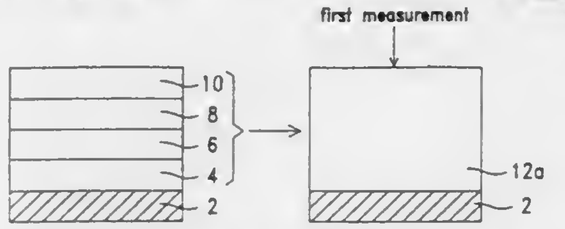
METHOD OF MEASURING THICKNESS OF A MULTI-LAYERS FILM

Chao-Huang Ho, Hsinchu, Taiwan, assignor to United Microelectronics Corp., Hsinchu, Taiwan

Filed Dec. 3, 1996, Ser. No. 753,916

Int. Cl.^{6} G01N *21/41;21/21*

U.S. Cl. 356—369 **4 Claims**



1. A method of measuring an actual thickness of a top layer of some material on the top of a multi-layers having at least three sublayers formed on a substrate, the other sublayers are not made of said material of said top layer, said method comprising the steps of:

assuming all of the layers in said multi-layer being made of said material of said top layer;

performing a first measurement to said multi-layers by using an ellipsometry to obtain a first fictional pseudo-thickness of said multi-layers;

stripping said top layer to form a reduced layer consisting of said other sublayers;

assuming said reduced layer being made of said material of said top layer;

performing a second measurement to said reduced layer by using said ellipsometry to obtain a second fictional pseudo-thickness of said reduced layer; and

obtaining said actual thickness of said top layer, said actual thickness being the difference of said first fictional pseudo-thickness and said second fictional pseudo-thickness.

5,784,168

POSITION DETECTION SYSTEM FOR AN OBJECT WITH AT LEAST FIVE DEGREES OF FREEDOM

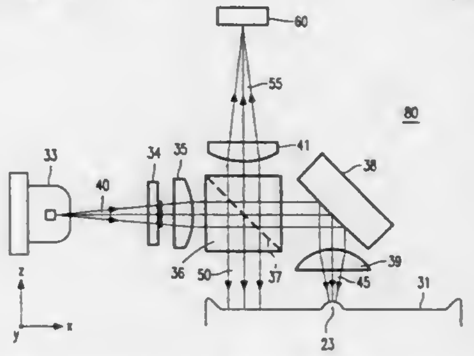
Willem G. Ophey, and Gerard E. Van Rosmalen, both of Eindhoven, Netherlands, assignors to U.S. Philips Corporation, New York, N.Y.

Filed Feb. 6, 1997, Ser. No. 795,824

Claims priority, application European Pat. Off., Jul. 3, 1995, 96201817

Int. Cl.^{6} G01B *11/14*

U.S. Cl. 356—375 **23 Claims**



1. A position detection system for detecting displacements, with respect to said system, of an object along the three axes of an orthogonal system of coordinates, and rotations of this object about two of these three axes, said object having a reflecting reference face on which a spherical element is provided, said system comprising a radiation source for supplying a measuring beam, an optical system for forming a first measuring sub-beam, focused in the center of curvature of the spherical element, for measuring said displacements, and a second measuring sub-beam, incident substantially outside the spherical element on the reference face, for measuring said rotations, and a radiation-sensitive detection system arranged in the path of the measuring sub-beams reflected by the reference face and passing through the optical system, which radiation-sensitive detection system comprises a first detector for the first measuring sub-beam and a second detector for the second measuring sub-beam, and in which the optical system is provided with a beam splitter, characterized in that the optical system is further provided with a reflector which reflects the part of the measuring beam passed by the beam splitter as one of the measuring sub-beams towards the reference face, and in that the beam splitter reflects the other part of the measuring beam as the other measuring sub-beam towards the reference face.

5,784,169

Patent Not Issued For This Number

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5,784,170

APPARATUS FOR GENERATING QUASI EQUALLY SPACED FREQUENCIES USING AN OPTICAL FREQUENCY SHIFTER IN A MULTI-CHANNEL TRANSMISSION SYSTEM

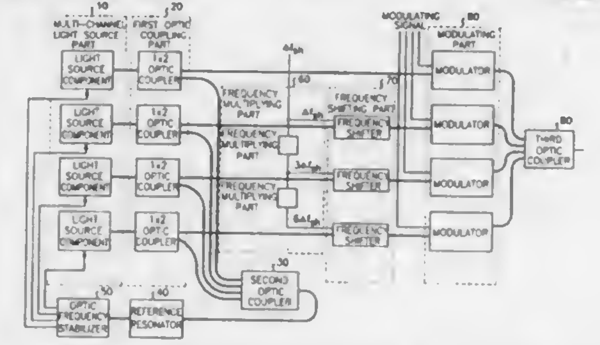
Chang Soo Park, and Dong Ho Lee, both of Daejeon, Rep. of Korea, assignors to Electronics and Telecommunications Research Institute, Daejeon, and Korea Telecommunication Authority, Seoul, both of Rep. of Korea

Filed May 7, 1996, Ser. No. 646,121

Claims priority, application Rep. of Korea, Oct. 30, 1995, 1995-38259

Int. Cl.^{6} H04J *14/02*

U.S. Cl. 359—133 **7 Claims**



1. Apparatus for generating quasi equally spaced multi-channel frequencies, comprising:

a multi-channel light source means for generating a plurality of equally spaced optical frequencies;

a first optical coupling means for splitting the optical frequency signals transmitted from the multi-channel light source means and for transmitting the splitted signals;

a second optical coupling means for combining a plurality of outputs of the first optical coupling means and for transmitting the multiplexed signal;

a reference resonating means for outputting the error signals resulting from the variation of the optical frequencies transmitted from the second optical coupling means and for transmitting the signals;

an optical frequency stabilizing means for controlling the temperature of the multi-channel light source means and the input current which will be sent to the multi-channel light source means after detecting the variation of the optical frequency applied from the reference resonating means;

a frequency multiplying means for multiplying a certain external frequency Δf_{sh} by a predetermined integer and for transmitting the multiplied frequency signal;

a frequency shifting means for transmitting a plurality of optical frequency signals having respective frequency shifts Δf_{sh} after receiving the output of the first optical coupling means and the frequency multipling means;

a modulating means for modulating an optical frequency signal transmitted from the first optical coupling means and a plurality of optical frequency signals transmitted from the frequency shifting means by an external modulating signal; and

a third optical coupling means for multiplexing a plurality of optical frequency signals modulated by the modulating means and for externally transmitting the modulated signals.

5,784,171

PRINTING METHOD, PRINTING DEVICE, PRINTING HEAD, CONTAINER VESSEL FOR CONTAINING PRINTING OBJECT AND PRINTING METHOD FOR CASSETTES

Kenichi Kano, Miyagi, Japan, assignor to Sony Corporation, Japan

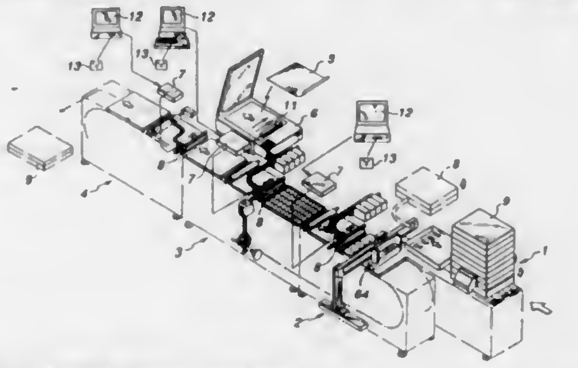
PCT No. PCT/JP93/00860, § 371 Date Feb. 22, 1994, § 102(e) Date Feb. 22, 1994, PCT Pub. No. WO94/00300, PCT Pub. Date Jan. 6, 1994

PCT Filed Jun. 24, 1993, Ser. No. 196,184

Claims priority, application Japan, Jun. 24, 1992, 4-188914; Feb. 26, 1993, 5-094823

Int. Cl.^{6} H04N *1/23;1/46;* **B41J** *3/00;25/308*

U.S. Cl. 358—296 **24 Claims**



1. A printing system comprising:

picture information outputting means for outputting picture information for printing on an irregular non-planar surface of a cassette;

picture processing means for processing output signals of said picture information outputting means in a pre-set manner for printing;

ink jet printing means having a non-contact ink jet printing head, said ink jet printing means being supplied with an output signal from said picture processing means for ejecting ink vertically downward and for effecting ink jet printing on the cassette;

transporting means for transporting the cassette along a predetermined path;

detection means for detecting irregularities in said irregular nonplanar surface of the cassettes; and

means for adjusting a position of said non-contact ink jet printing head of said printing means with respect to said irregular non-planar surface of the cassette in accordance with the detection of irregularities by said detection means, as the cassette is transported along said predetermined path.

5,784,172

AUTOMATIC ALGORITHMIC DETERMINATION OF PROCESS BLACK OVER A COLOR FIELD

Robert M. Coleman, Altadena, Calif., assignor to Xerox Corporation, Stamford, Conn.

Filed May 24, 1996, Ser. No. 653,182

Int. Cl.^{6} H04N *1/40;1/46;* **G03F** *3/08;* **G06F** *15/00*

U.S. Cl. 358—298 **26 Claims**

1. A method for forming from electronic signals and printing a process black object over two or more background areas of different colors, said method comprising the steps of:

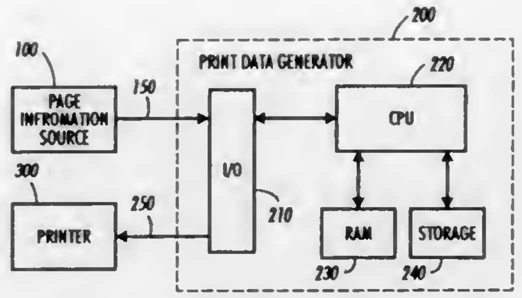
receiving data defining a page representation for said process black object and background areas,

splitting the process black object into a plurality of partial process black objects, each partial process black object having a different background color from the other partial objects,

for each partial object,

a) reading said signals to determine a first amount of colorants to be used to print the background area,

b) reading said signals to determine a second amount of colorants to be used to print said process black area



c) computing a difference between the first and second amounts, and

d) if the difference exceeds a predetermined limit, changing the amount of colorants to be used in said process black area to reduce the difference, and

merging all partial objects in the page representation into an output data.

5,784,173

IMAGE PROCESSING APPARATUS HAVING IMAGE FILING FUNCTION

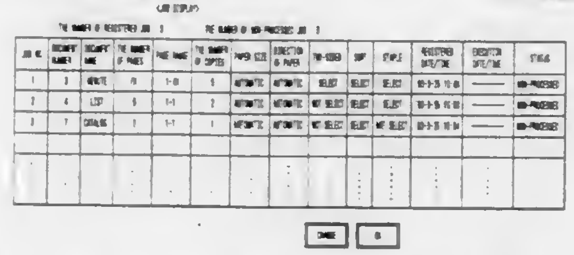
Shigeru Jinnai, Kawasaki, Japan, assignor to Canon Kabushiki Kaisha, Tokyo, Japan

Filed Mar. 12, 1996, Ser. No. 615,046

Claims priority, application Japan, Mar. 17, 1995, 7-059127

Int. Cl.^{6} H04N *1/387*

U.S. Cl. 358—403 **32 Claims**



1. A control method of an image processing apparatus, comprising the steps of:

storing a job, as a job file, in a removable memory medium, said job file being constructed by image file data to specify desired image information stored in said memory medium in which image information has previously been stored and a processing mode for said image information specified by the image file data by an apparatus different from said image processing apparatus;

detecting whether said memory medium has been inserted into said image processing apparatus;

reading said job file from said memory medium when said memory medium has been inserted into said image processing apparatus;

discriminating whether or not a job including a processing mode which cannot be executed by said image processing apparatus exists in the job file which is read out;

when there is a job including a processing mode which cannot be executed, informing that said job cannot be executed and skipping an execution of said job; and

when there is a job excluding a processing mode which can not be executed, executing said job.

5,784,174

METHOD FOR MANAGING MEMORY DATA AT POWER-UP

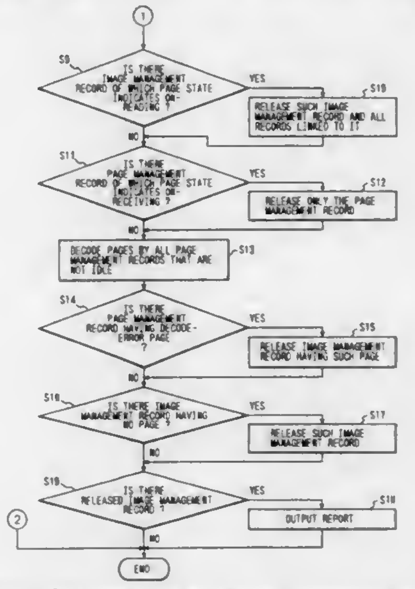
Toru Fujino, Urawa; Seishi Ejiri, Kawasaki; Akemi Sato, Yokohama, and Kazuhiro Sugawara, Tokyo, all of Japan, assignors to Canon Kabushiki Kaisha, Tokyo, Japan

Filed Jun. 1, 1995, Ser. No. 456,724

Claims priority, application Japan, Jun. 3, 1994, 6-145711

Int. Cl.^{6} B41B *15/00;* **B41J** *15/00;* **G06F** *15/00;* **H04N** *1/00*

U.S. Cl. 358—404 **22 Claims**


1
S9
IS THERE IMAGE MANAGEMENT RECORD OF WHICH PAGE STATE INDICATES ON-READING ?
YES
S10
RELEASE SUCH IMAGE MANAGEMENT RECORD AND ALL RECORDS LINKED TO IT
NO
S11
IS THERE PAGE MANAGEMENT RECORD OF WHICH PAGE STATE INDICATES ON-RECEIVING ?
S12
RELEASE ONLY THE PAGE MANAGEMENT RECORD
DECODE PAGES BY ALL PAGE MANAGEMENT RECORDS THAT ARE NOT IDLE
S13
S14
IS THERE PAGE MANAGEMENT RECORD HAVING DECODE-ERROR PAGE ?
S15
RELEASE IMAGE MANAGEMENT RECORD HAVING SUCH PAGE
S16
IS THERE IMAGE MANAGEMENT RECORD HAVING NO PAGE
S17
RELEASE SUCH IMAGE MANAGEMENT RECORD
S18
IS THERE RELEASED IMAGE MANAGEMENT RECORD ?
OUTPUT REPORT
2
END

1. A memory data management method comprising the steps of:

generating management information for managing data in a data memory when the data is stored into the data memory, and storing the generated management information into a management information memory, the management information including first information for identifying the data, and at least the first information being stored into the management information memory irrespective of a physical construction of the data memory;

determining, in response to the application of power to a data processing apparatus, whether or not there is an error in management information stored in the management information memory; and

clearing data corresponding to the management information including an error in accordance with the determination in said determination step.

5,784,175

PIXEL BLOCK CORRELATION PROCESS

Ming-Chieh Lee, Bellevue, Wash., assignor to Microsoft Corporation, Redmond, Wash.

Filed Jun. 4, 1996, Ser. No. 658,093

Int. Cl.^{6} H04N *1/415*

U.S. Cl. 358—433 **31 Claims**

1. A block matching motion estimation method for estimating motion of corresponding pixels between first and second video image frames, comprising:

defining first and second reference pixel blocks of multiple pixels relative to respective first and second reference pixels in the first video image frame and a sample pixel block of multiple sample pixels in the second video image frame, the first reference, second reference, and sample pixel blocks including plural respective first reference, second reference, and sample subsets of multiple pixels;

determining and storing first correlations between the sample subsets and the first reference subsets;

determining and storing second correlations between the sample subsets and the second reference subsets, wherein at least one of the second correlations matches one of the first correlations

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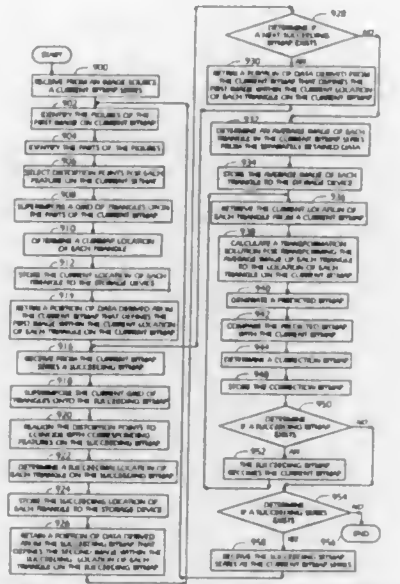


and determining the at least one of the second correlations includes retrieving the matching one of the first correlations; and

identifying from the first and second correlations first and second sample pixels corresponding to the first and second reference pixels, respectively.

5,784,176
METHOD OF IMAGE NOISE REDUCTION PROCESSING

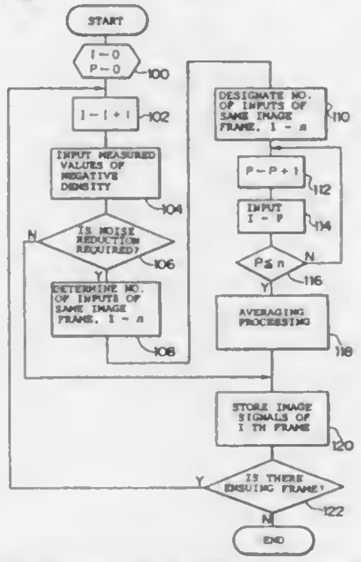
Toshihiko Narita, Kanagawa, Japan, assignor to Fuji Photo Film Co., Ltd., Kanagawa, Japan

Filed Jan. 4, 1996, Ser. No. 582,918

Claims priority, application Japan, Jan. 17, 1995, 7-004842

Int. Cl.^{6} H04N *1/38*

U.S. Cl. 358—463 **21 Claims**


START
I←0
P←0
100
I←I+1
102
INPUT MEASURED VALUES OF NEGATIVE DENSITY
104
IS NOISE REDUCTION REQUIRED?
106
N
Y
DETERMINE NO. OF INPUTS OF SAME IMAGE FRAME. I→n
108
DESIGNATE NO. OF INPUTS OF SAME IMAGE FRAME. I→n
110
P←P+1
112
INPUT I→P
114
P≦n
116
N
Y
AVERAGING PROCESSING
118
STORE IMAGE SIGNALS OF I TH FRAME
120
IS THERE ENSUING FRAME?
122
Y
N
END

1. A method of noise reduction processing for reducing noise generated when an image of a photographic film is converted to digital image signals, comprising the steps of:

measuring a large area transmission density of each of a plurality of image frames recorded on the photographic film;

using measured values of the large area transmission density to classify each of the image frames into one of a plurality of groups;

reading the digital image signals of the same image frame n times, n being determined by the group into which said same image frame is classified; and

when n exceeds one, subjecting the digital image signals of the same image frame which have been read to averaging processing.

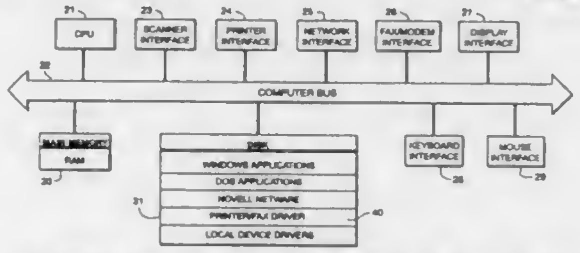
5,784,177
PRINTER/FACSIMILE DRIVER

George A. Sanchez, Fremont; Rakesh Mahajan, Laguna Hills, and Loren A. Wood, Lakewood, all of Calif., assignors to Canon Kabushiki Kaisha, Tokyo, Japan

Filed May 30, 1995, Ser. No. 453,282

Int. Cl.^{6} H04N *1/32;1/00;* **B41B** *15/00;* **B41J** *15/00*

U.S. Cl. 358—468 **38 Claims**



1. A method for calling a printer/facsimile driver to automatically generate and output facsimile cover sheet information and a facsimile document, the method comprising the steps of:

preparing a facsimile document to be faxed;

invoking a facsimile dynamic link library which operates to create, by using facsimile dynamic link libraries, facsimile cover sheet data, and to call a printer driver to render a body of the facsimile document;

rendering the facsimile document;

spooling the rendered facsimile document from the printer driver to a memory and returning the number of rendered document pages to the printer/facsimile driver;

recalling the printer driver to render the facsimile cover sheet data and transmitting to the printer driver the created cover sheet data including the number of rendered document pages together with a fax flag indicator;

rendering the facsimile cover sheet information in accordance with transmitted cover sheet data;

spooling the rendered facsimile cover sheet information to the memory in accordance with the fax flag indicator; and

retrieving the facsimile cover sheet information and facsimile document from the memory and outputting both the facsimile cover sheet information and facsimile document in Proper order, respectively.

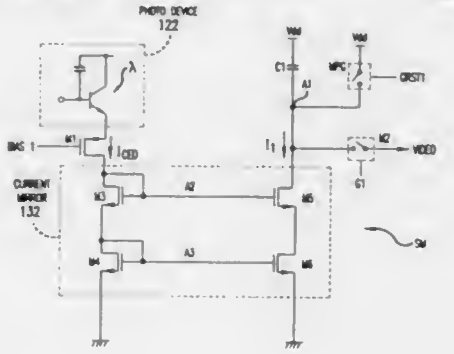
5,784,178
HIGH PERFORMANCE CONTACT IMAGE SENSOR

Yong-Song Tsai; Sheng-Ti Lee; Chien-Chou Huang, and Chien-I Fu, all of Taipei, Taiwan, assignors to Dyna Image Corporation, Hsin Tien, Taiwan

Filed Mar. 6, 1996, Ser. No. 611,472

Int. Cl.^{6} H04N *1/04*

U.S. Cl. 358—482 **26 Claims**



1. A contact image sensor having a video line for transmitting video signals and a photodevice module adapted to transmit an electrical charge representing a video signal to the video line upon receipt of light having a level of intensity, the photodevice module comprising:

a photodevice for producing an electrical charge representative of the intensity of received light;

a voltage terminal;

a voltage source providing a bias voltage;

a capacitor having a first end coupled to the voltage source and a second end forming the voltage terminal;

a current mirror circuit coupled to the photodevice and the voltage terminal, the current mirror circuit isolating the capacitor from the photodevice; and

a switch coupled to the voltage terminal for switching on the photodevice module to transmit the electrical voltage at the voltage terminal as the video signal.

5,784,179
IMAGE FORMING APPARATUS FOR SELECTING STACKING MEANS FOR STACKING SHEET FORMED WITH INPUT IMAGE IN ACCORDANCE WITH ATTRIBUTE OF INPUT IMAGE

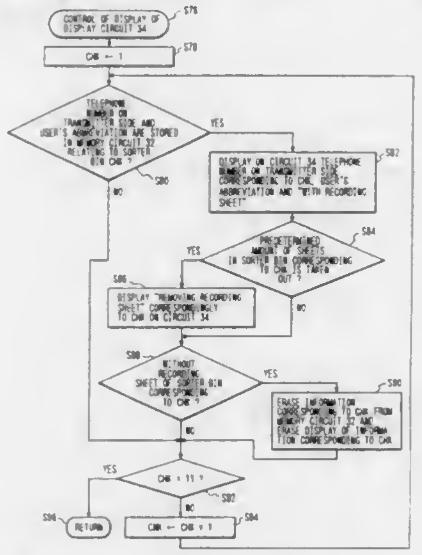
Takehiro Yoshida, Tokyo, Japan, assignor to Canon Kabushiki Kaisha, Tokyo, Japan

Filed May 15, 1996, Ser. No. 647,728

Claims priority, application Japan, May 16, 1995, 7-141195

Int. Cl.^{6} H04N *1/04;* **B65H** *5/22*

U.S. Cl. 358—498 **14 Claims**



1. An image forming apparatus comprising:

image forming means for forming an input image onto a sheet;

a plurality of stacking means for receiving one or more sheets, including the sheet on which the input image was formed by said image forming means;

a sheet detector arrangement which detects if any sheet is pulled out a predetermined amount from any of said plurality of stacking means, wherein the predetermined amount is less than complete removal of the sheet from said stacking means; and

display means for displaying an attribute of the sheet pulled out the predetermined amount in response to a detection result provided by said sheet detector arrangement.

5,784,180
IMAGE MEMORY APPARATUS

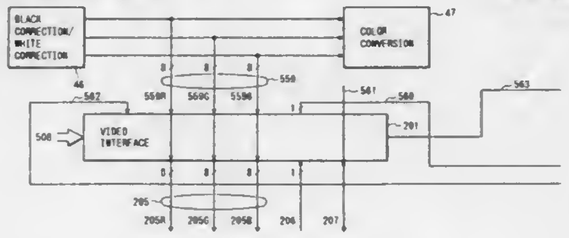
Masanori Sakai, Yokohama; Toshihiro Kadowaki; Naoto Arakawa, both of Kawasaki, and Tetsuya Ohnishi, Yokohama, all of Japan, assignors to Canon Kabushiki Kaisha, Tokyo, Japan

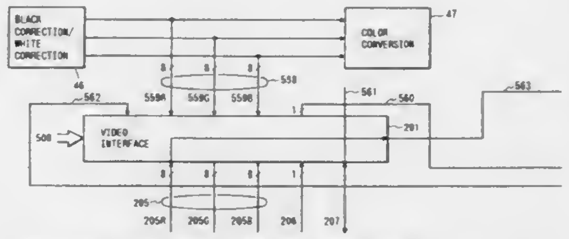
Division of Ser. No. 288,429, Aug. 10, 1994, Pat. No. 5,703,696, which is a continuation of Ser. No. 976,665, Nov. 16, 1992, abandoned, which is a continuation of Ser. No. 521,674, May 10, 1990, abandoned. This application Jun. 7, 1995, Ser. No. 478,394

Claims priority, application Japan, May 10, 1989, 1-116467

Int. Cl.^{6} H04N *1/46*

U.S. Cl. 358—501 **18 Claims**





1. An image processing apparatus comprising:

a) input means for inputting first color component signals for parallel plural colors in parallel from outside the apparatus through parallel lines;

b) converting means for converting the first color component signals for plural colors input by said input means to second color component signals for plural colors;

c) output means for serially outputting the second color component signals for plural colors converted by said converting means to outside of the apparatus through one of the parallel lines; and

d) control means for controlling said output means and said input means in order not to operate simultaneously.

5,784,181
ILLUMINATION DEVICE FOR ILLUMINATING A DISPLAY DEVICE

Brigitte Loiseaux, Villebon sur Yvette; Jean-Pierre Huignard; Christophe Nicolas, both of Paris, and Claude Puech, Ballainvilliers, all of France, assignors to Thomson-CSF, Puteaux, France

PCT No. PCT/FR91/00904, § 371 Date Jun. 23, 1992, § 102(e) Date Jun. 23, 1992, PCT Pub. No. WO92/09915, PCT Pub. Date Jun. 11, 1992

PCT Filed Nov. 15, 1991, Ser. No. 862,537

Claims priority, application France, Nov. 23, 1990, 90 14620

Int. Cl.^{6} G02B *5/32;27/28*

U.S. Cl. 359—1 **45 Claims**

1. An illumination device for illuminating a display device, said illumination device comprising: a non-polarized light source for emitting non-polarized light;

holographic polarization beam splitting means for receiving non-polarized light emitted from said non-polarized light source and for outputting first polarized light beams having a first polarization and second polarized light beams having a second polarization, said second polarization being orthogonal to said first polarization; and

holographic focusing means for receiving one of said first polarized light beams and said second polarized light beams output

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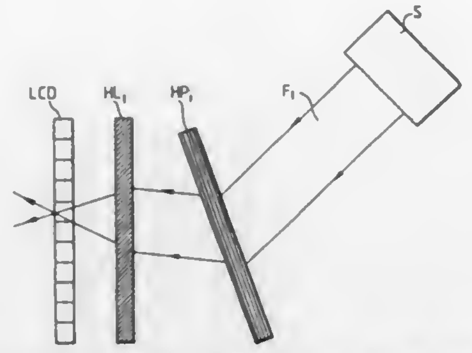


from said holographic polarization beam splitting means and for focusing said one of said first polarized light beams and said second polarized light beams onto detector cells of a display device which is oriented in a plane parallel to a plane containing said holographic focusing means, wherein said holographic polarization beam splitting means is formed on a first face of a prism and said holographic focusing means is formed on a second face of said prism, said first face and said second face of said prism being orthogonal to one another.

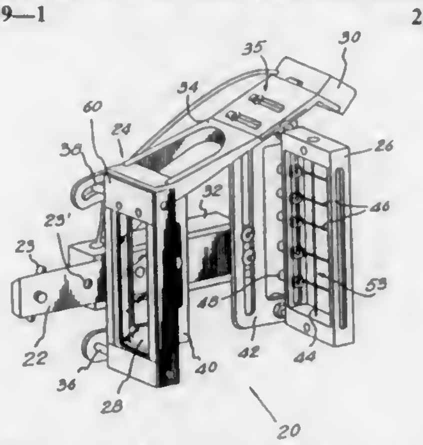
5,784,182
DIRECTIONAL SIGHT FOR INSTRUMENTS

Louis-Gilles Francoeur, Montréal, and Pierre Langlois, Ste-Catherine-J.C., both of Canada, assignors to Louis-Gilles Francoeur et al., Quebec, Canada

Continuation of Ser. No. 564,031, Dec. 14, 1995, abandoned, which is a continuation-in-part of Ser. No. 77,626, Jun. 17, 1993, abandoned. This application Jan. 8, 1997, Ser. No. 780,419

Int. Cl.⁶ G02B *5/32;* **G01C** *1/06;* **G01B** *11/00;* **F41G** *1/467*

U.S. Cl. 359—1 **22 Claims**



1. An optical bow sight for aiming a bow at a target, the sight comprising:

optical means through which the target can be sighted for creating a first sighting mark appearing in space at a first finite distance remote from the optical means and near a viewpoint, said viewpoint being at a position of an archer's eye when said bow is drawn and ready for shooting;

means for providing a second sighting mark at a second finite distance towards the target with respect to said first sighting mark, said bow being aimed at said target by adjusting a vertical and horizontal position of said bow as well as an altitude and azimuth orientation of said bow to align said viewpoint with said first and said second sighting marks and said target;

mounting means for mounting said optical means and said second sighting mark providing means to said bow near a handle thereof; and

means for adjusting a position of said first and said second sighting marks relative to said bow.

5,784,183
SEMICONDUCTOR OPTICAL DEVICE AND METHOD FOR FABRICATING THE SAME

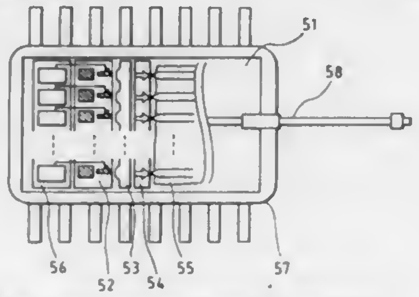
Masahiro Aoki, Kokubunji; Tsuyoshi Taniwatari, Hachioji; Makoto Suzuki, Kokubunji, and Takayuki Tsutsui, Komoro, all of Japan, assignors to Hitachi, Ltd., Tokyo, Japan

Continuation of Ser. No. 388,507, Feb. 14, 1995, Pat. No. 5,561,632. This application Sep. 4, 1996, Ser. No. 708,302

Claims priority, application Japan, Feb. 14, 1994, 6-017066

Int. Cl.⁶ H04B *10/00;* **H04J** *14/02*

U.S. Cl. 359—124 **19 Claims**



1. An optical communication system, comprising:

a plurality of light sources, the wavelengths of light signals emitted by said light sources being different from each other, wherein oscillation wavelengths of said plurality of light sources are arranged in the same order in magnitude as emission peak wavelengths of said plurality of light sources.

a plurality of optical modulators for modulating said light signals by driving voltages applied thereto, each of said optical modulation being optically connected to a respective one of said light sources; and

a multiplexer for multiplexing all of said light signals modulated by said optical modulators into an optical transmission line.

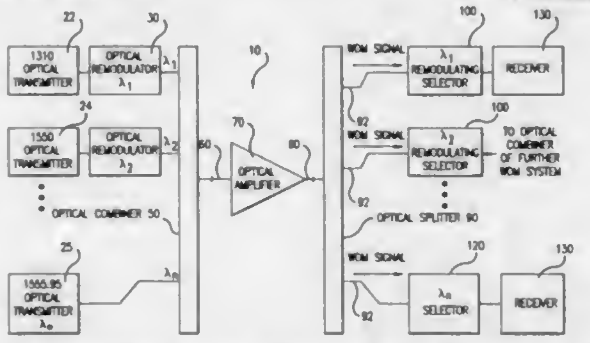
5,784,184
WDM OPTICAL COMMUNICATION SYSTEMS WITH REMODULATORS AND REMODULATING CHANNEL SELECTORS

Stephen B. Alexander, Millersville; Steve W. Chaddick, Annapolis; Roy Litz, Freeland, and Cecil D. Smith, Severna Park, all of Md., assignors to CIENA Corporation, Linthicum, Md.

Continuation-in-part of Ser. No. 624,269, Mar. 29, 1996, which is a continuation-in-part of Ser. No. 438,844, May 11, 1995, Pat. No. 5,504,609. This application Jun. 24, 1996, Ser. No. 668,746

Int. Cl.⁶ H04J *14/02*

U.S. Cl. 359—125 **6 Claims**



1. A wavelength division multiplexed optical communication system for transmitting a plurality of optical communication channels on an optical waveguide, each optical communication channel having a distinct channel wavelength, the optical communication system comprising:

a plurality of optical transmitters, each optical transmitter transmitting an information-bearing optical signal having a transmission wavelength;

a plurality of remodulators optically communicating with the plurality of optical transmitters for converting the transmitted information-bearing optical signal to an electrical signal and placing the information from each of the information-bearing optical signals onto separate optical channels in the wavelength division multiplexed optical communication system;

an optical combining element optically communicating with said plurality of remodulators for combining said separate optical channels, each having a unique wavelength, to form a wavelength division multiplexed optical communication signal;

an optical waveguide optically communicating with each of the remodulators through said optical combining element, said optical waveguide receiving the wavelength division multiplexed optical signal from said combining element;

a plurality of remodulating channel selectors optically communicating with the optical waveguide, each remodulating channel selector comprising:

- an optical input port for receiving the wavelength division multiplexed optical communication signal from the optical waveguide;
- a channel selecting element optically communicating with the optical input port for selecting a particular optical channel from the wavelength division multiplexed optical communication signal;
- an optical signal generator;
- means for placing the information from the selected optical channel onto an optical signal generated by the optical signal generator; and
- an output port for outputting the optical signal generated by the optical signal generator; and

a plurality of optical receivers optically communicating with the output ports of the remodulating channel selectors such that each optical receiver receives an optical signal from a remodulating channel selector.

5,784,185
OPTICAL NETWORK

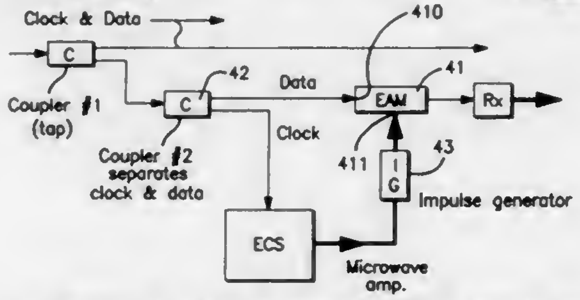
Kevin Smith; Julian K. Lucek; Danny R. Pitcher; Terence Widdowson, and David G. Moodie, all of Ipswich, England, assignors to British Telecommunications public limited company, London, England

Filed Aug. 19, 1996, Ser. No. 699,657

Claims priority, application United Kingdom, Feb. 26, 1996, 9604020

Int. Cl.⁶ H04J *14/08*

U.S. Cl. 359—136 **19 Claims**



1. A receiver for a node in an optical TDMA network said receiver comprising:

an input for an optical clock signal,

a detector for converting the clock signal to an electrical domain signal,

a variable delay stage for applying a selected delay to the clock signal in electrical domain, and

a non-linear electro-optic modulator having an optical input arranged to receive a TDMA datastream and an electrical control input connected to the output of the variable delay stage,

in use the electro-optic modulator outputting a TDMA channel selected by setting the delay of the variable delay stage.

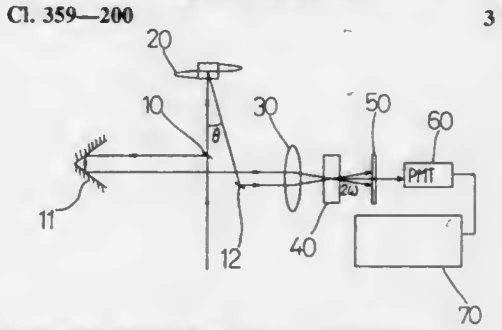
5,784,186
SCANNING OPTICAL DELAY DEVICE HAVING A HELICOID REFLECTING MIRROR

Chi-Luen Wang, and Ci-Ling Pan, both of Hsinchu, Taiwan, assignors to National Science Council, Taipei, Taiwan

Filed Dec. 4, 1996, Ser. No. 760,036

Int. Cl.⁶ G02B *26/08*

U.S. Cl. 359—200 **3 Claims**



1. A scanning optical delay device comprising:

a beam splitter, said beam splitter adapted to separate an incident light beam into divergent first and second light beams;

a helicoid reflecting mirror having a rotating shaft and a reflecting spiral strap wound on said rotating shaft along the direction of an axis of said rotating shaft, said reflecting spiral strap capable of reflecting said second light beam;

a rotating mechanism for driving said helicoid reflecting mirror to rotate around said axis of said rotating shaft, wherein said reflecting spiral strap is capable of bringing about a reflected second light beam having a variable optical path length at the time when said second light beam strikes said reflecting spiral strap, provided that said second light beam is parallel to said axis of said rotating shaft, said variable optical path length of said reflected second light beam being subject to a continuous change at such time when said helicoid reflecting mirror is driven by said rotating mechanism;

a first reflector capable of reflecting said first light beam along a predetermined path;

a second reflector capable of redirecting said reflected second light beam along a path substantially parallel to said predetermined path; and

a lens designed to receive and converge said first light beam and said reflected second light beam to produce a resultant light beam having a delay associated therewith that is a function of said variable optical path length of said reflected second light beam.

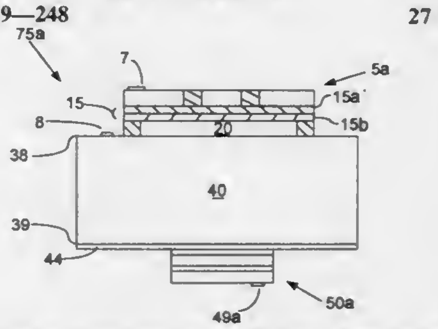
5,784,187
WAFER LEVEL INTEGRATION OF AN OPTICAL MODULATOR AND III-V PHOTODETECTOR

John E. Cunningham, Lincroft; Joseph E. Ford, Oakhurst; Keith Wayne Goossen, Aberdeen, and James A. Walker, Howell, all of N.J., assignors to Lucent Technologies Inc., Murray Hill, N.J.

Filed Jul. 23, 1996, Ser. No. 685,174

Int. Cl.⁶ G02F *1/03*

U.S. Cl. 359—248 **27 Claims**



1. A device for converting an optical signal into an electrical signal and for modulating the optical signal, comprising;

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an off-axis nonpolar substrate having a first and a second surface;

an optical modulation region formed on the first surface of the substrate, wherein the optical modulation region, in conjunction with the substrate and an applied voltage, is operable to modulate the optical signal based upon movement of a movable member; and

a photodetection region formed on the second surface of the substrate, the photodetection region comprising a plurality of III–V semiconductor layers, which layers, in conjunction with the substrate, are operable to convert the optical signal into an electrical signal.

5,784,188
ELECTRO-ABSORPTION OPTICAL MODULATOR AND METHOD FOR FABRICATING THE SAME

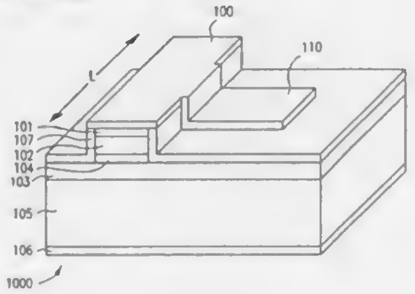
Shinji Nakamura, Ikoma; Satoshi Kamiyama, Sanda; Kenichi Matsuda, Moriguchi, and Yasushi Matsui, Neyagawa, all of Japan, assignors to Matsushita Electric Industrial Co., Inc., Kadoma, Japan

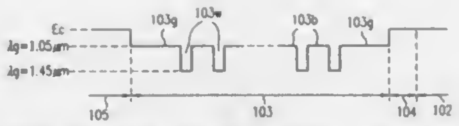
Filed Feb. 7, 1997, Ser. No. 796,934

Claims priority, application Japan, Feb. 13, 1996, 8-024952

Int. Cl.^{6} G02F *1/03*

U.S. Cl. 359—248 7 Claims





1. An electro-absorption optical modulator comprising:

a semiconductor multi-layer structure including at least an absorption layer and a pair of cladding layers interposing the absorption layer on both sides thereof; and

a pair of electrode layers,

wherein a predetermined voltage is applied to the semiconductor multi-layer structure via the electrode layers, and

wherein, when a waveguide length of the absorption layer is denoted by L, a light confinement coefficient thereof is denoted by Γ, and a performance factor of the absorption layer at an applied voltage V to the absorption layer is denoted by K(V), a relationship $|K(V)- \Gamma \cdot L| \leqq 0.005$ cm is satisfied in a continuous operation range Y of a quenching ratio T_{Att}, the operation range Y corresponding to about 40% or more of a range X of the quenching ratio T_{Att}, the range X providing the quenching ratio T_{Att} representing a ratio of an output light intensity P_{out} to an input light intensity P_{in} ($T_{Att}-P_{out}/P_{in}$) being equal to or larger than 0.01 where a value of the quenching ratio T_{Att} is normalized to be 1 when the applied voltage to the absorption layer is zero.

5,784,189
SPATIAL LIGHT MODULATOR

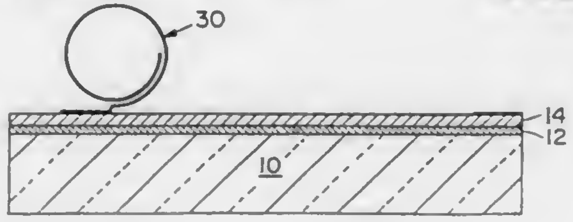
Carl O. Bozler, Waltham, and Steven Rabe, West Roxbury, both of Mass., assignors to Massachusetts Institute of Technology, Cambridge, Mass.

PCT No. PCT/US93/06342, § 371 Date Dec. 21, 1995, § 102(e) Date Dec. 21, 1995, PCT Pub. No. WO95/01624, PCT Pub. Date Jan. 12, 1995

Continuation-in-part of Ser. No. 655,345, Mar. 6, 1991, Pat. No. 5,233,459. This PCT application Jul. 2, 1993, Ser. No. 569,158

Int. Cl.^{6} G02F *1/03*

U.S. Cl. 359—254 38 Claims



1. A device comprising:

a) a fixed electrode;

b) a first high resistance layer on said fixed electrode; and

c) a moveable electrode formed with a stress and affixed at one end and rotationally moveable about a single axis toward said fixed electrode by application of a suitable voltage to the device and rotatable in an opposite direction upon removal of said voltage, said stress biasing said moveable electrode toward movement in said opposite direction, said moveable electrode having a second high resistance layer formed between said moveable electrode and said first high resistance layer.

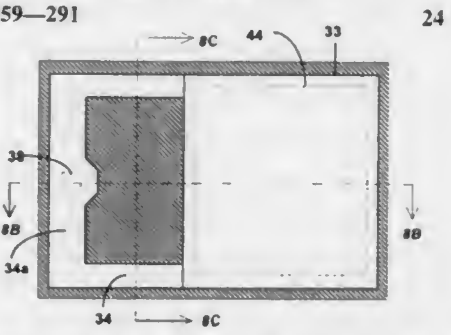
5,784,190
ELECTRO-MICRO-MECHANICAL SHUTTERS ON TRANSPARENT SUBSTRATES

Eugene R. Worley, Irvine, Calif., assignor to John M. Baker, Corona, Calif., a part interest

Filed Apr. 27, 1995, Ser. No. 429,674

Int. Cl.^{6} G02B *26/00*

U.S. Cl. 359—291 24 Claims



1. In a micro-mechanical shutter of the type wherein an electrically conductive micro-mechanical shutter plate is maintained over a transparent substrate by a conductive spring means and is deflected by an attracting counter electrode to modulate the angle of deflection of the shutter plate to modulate the amount of light passing through the shutter, the improvement wherein said spring means includes a combined torsion spring and a leaf spring means.

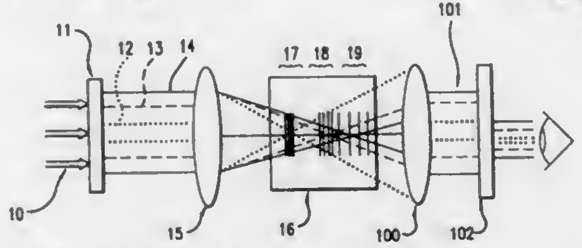
5,784,191
FREQUENCY AGILE FILTER AND TECHNIQUE

Gary L. Wood, Centerville, Va., assignor to The United States of America as represented by the Secretary of the Army, Washington, D.C.

Filed Jun. 26, 1995, Ser. No. 494,751

Int. Cl.^{6} G02F *1/33;1/11;* G02B *8/18*

U.S. Cl. 359—308 2 Claims



1. An optical limiter filter device providing output protection against a frequency agile laser threat without substantial color distortion, comprising:

a tristimulus filter which passes incident light only of the primary colors as output radiation, a first lens for focusing the output radiation as focused output radiation;

a bragg cell which accepts the focused output radiation and bragg reflect the primary colors into separated primary colors;

a second lens which recollimates the separated primary colors of the bragg cell output by anomalous dispersion;

an eyepiece which focuses the second lens output so that there is achieved a device output of incident light that is protected against a frequency agile laser threat without substantial color distortion.

5,784,192
OPTICAL AMPLIFYING REPEATER

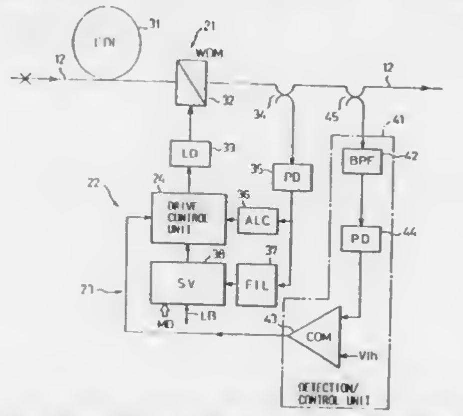
Akira Sugiyama, Sapporo, and Shinichirou Harasawa, Kawasaki, both of Japan, assignors to Fujitsu Limited, Kanagawa, Japan

Filed Jan. 4, 1996, Ser. No. 582,706

Claims priority, application Japan, Mar. 20, 1995, 7-061010

Int. Cl.^{6} H04B *10/08;* H01S *3/00*

U.S. Cl. 359—341 4 Claims



1. An optical amplifying repeater comprising an optical amplifier which is inserted into an optical transmission line and amplifies a received optical input, an ALC (automatic level control) loop including a drive control unit which produces an ALC signal to control said optical amplifier, an optical output from said optical amplifier being maintained at a constant level, and a supervising unit which produces a response signal RS, in response to a command signal CM from an end office disposed at one end of said optical transmission line, and applies said response signal to said drive control unit, said optical amplifier being controlled, via said drive control unit, by both said ALC signal and said response signal RS, further comprising a detection/control unit, loss of said received optical input from said optical transmission line is detected by said detection/control unit, said detection/control unit controls said drive control unit to increase the amplitude of said response signal RS.

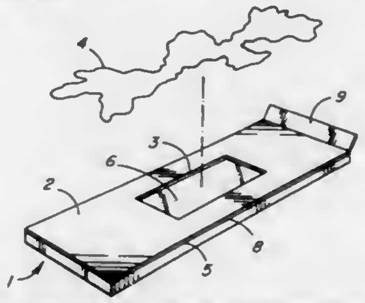
5,784,193
MICROSCOPE SLIDE WITH REMOVABLE LAYER AND METHOD

Gary W. Ferguson, 4806 Fernglen Drive, Burnaby, B.C., Canada, V5G 3V7

Filed Jun. 28, 1996, Ser. No. 673,326

Int. Cl.^{6} G01N *21/01;* G01B *21/34*

U.S. Cl. 359—398 10 Claims



1. A slide for depositing material for observation under a microscope comprising:

a mounting surface to receive material for observation;

a removable layer on the mounting surface formed with at least one opening in the removable layer, the removable layer and the at least one opening being adapted to receive material for observation such that detachment of the layer from the mounting surface removes material deposited on the layer and the mounting surface retains material to be observed only in the at least one exposed region on the mounting surface defined by the at least one opening in the removable layer.

5,784,194

Patent Not Issued For This Number

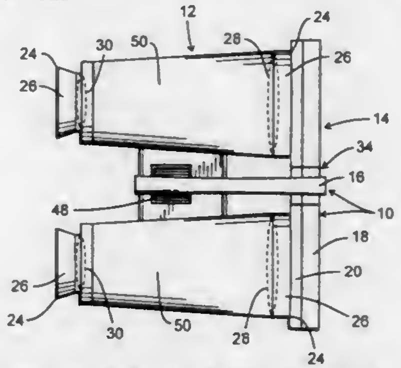
5,784,195
BINOCULAR LENS PROTECTOR

M. S. Mac Collum, 126 E. Desert Park La., Phoenix, Ariz. 85020

Filed Aug. 19, 1996, Ser. No. 699,554

Int. Cl.^{6} G02B *11/04;* F41G *1/02*

U.S. Cl. 359—511 10 Claims



1. A binocular lens protector for binoculars having two bodies, lenses at ends of both of said bodies, and a line of sight associated therewith, said protector comprising:

a binocular lens cover; and

an elastic coupler for movably attaching said binocular lens cover to said binoculars so that said binocular lens cover is

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movable from a first position perpendicular to said line of sight and against an end of the binoculars to a second position parallel to said line of sight and held against both of said bodies of said binoculars.

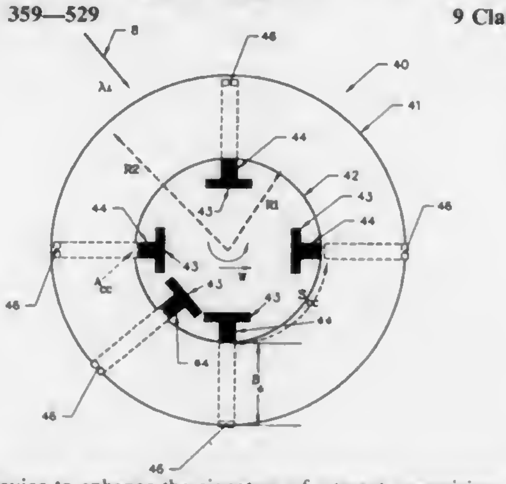
5,784,196
ACTIVE/PASSIVE SIGNATURE ENHANCER (APSE)

Marcos C. Sola, Ft. Washington, Md., assignor to The United States of America as represented by the Secretary of the Army, Washington, D.C.

Filed Oct. 28, 1996, Ser. No. 749,755

Int. Cl.^{6} G02B *5/122*

U.S. Cl. 359—529 **9 Claims**



1. A device to enhance the signature of a target comprising:
a first spherical housing;
a second spherical housing surrounding said first spherical housing and coaxial with said first spherical housing;
at least one retroreflective surface attached to said first spherical housing such that said retroreflective surface is visible through said second spherical housing.

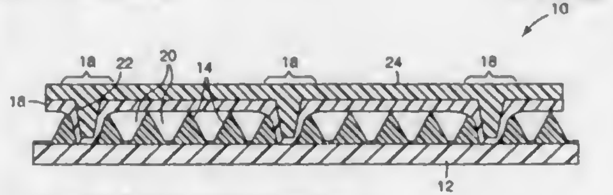
5,784,197
ULTRA-FLEXIBLE RETROREFLECTIVE SHEETING WITH COATED BACK SURFACE

Cheryl M. Frey, White Bear Lake, and Bruce B. Wilson, Woodbury, both of Minn., assignors to Minnesota Mining and Manufacturing Company, St. Paul, Minn.

Filed Apr. 1, 1996, Ser. No. 626,707

Int. Cl.^{6} G02B *5/124*

U.S. Cl. 359—530 **32 Claims**



1. A retroreflective article comprising:
a) an ultra-flexible structured retroreflective sheeting having a front surface and a back surface, the sheeting retroreflecting light entering through the front surface, wherein the sheeting comprises an overlay film, a two-dimensional array of substantially independent structured elements bonded to the overlay film, and a sealing film forming the back surface of the sheeting and bonded to the overlay film between the structured elements;
b) a plurality of indentations in the sealing film; and
c) a seal coat located on the sealing film, wherein the seal coat at least partially fills the indentations in the sealing film.

5,784,198
ENCAPSULATED LENS RETROREFLECTIVE SHEETING HAVING THERMOPLASTIC POLYURETHANE BONDING LAYER

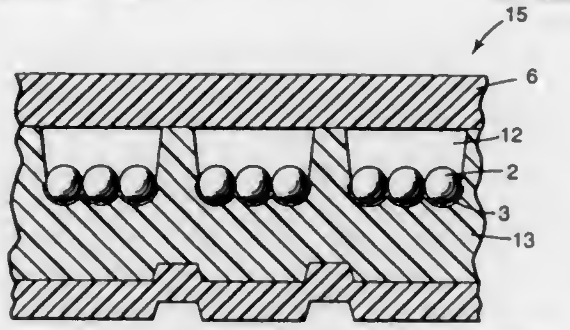
Yoshiyuki Nagaoka, Yamagata, Japan, assignor to Minnesota Mining and Manufacturing Company, St. Paul, Minn.

Filed Apr. 19, 1996, Ser. No. 635,126

Claims priority, application Japan, May 11, 1995, 7-113032

Int. Cl.^{6} G02B *5/128*

U.S. Cl. 359—534 **11 Claims**



1. An encapsulated lens retroreflective sheeting that comprises:
(a) a light transmissible surface protective layer;
(b) a bonding layer sealed to the surface protective layer by a plurality of bonds that form spaces between the protective layer and the bonding layer; and
(c) retroreflective elements partially embedded in the bonding layer and interfacing with air in the spaces;
wherein the bonding layer consists essentially of a layer of a thermoplastic polyurethane resin that has a softening point of 70° C. to 200° C. and has a glass transition temperature of −10° C. or lower.

5,784,199

Patent Not Issued For This Number

5,784,200
DIFRACTION GRATING RECORDING MEDIUM, AND METHOD AND APPARATUS FOR PREPARING THE SAME

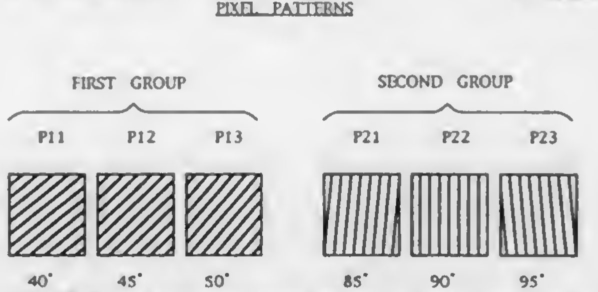
Toshio Modegi, Tokyo, Japan, assignor to Dai Nippon Printing Co., Ltd., Tokyo, Japan

Continuation of Ser. No. 248,339, May 24, 1994, abandoned. This application Jan. 16, 1997, Ser. No. 784,724

Claims priority, application Japan, May 27, 1993, 5-148680; May 27, 1993, 5-148681; Nov. 24, 1993, 5-317274

Int. Cl.^{6} G02B *5/18;* G03H *1/00*

U.S. Cl. 359—567 **8 Claims**



1. A diffraction grating recording medium in which plural motifs are represented by diffraction gratings, comprising:
a plurality of pixel patterns arranged on a planar surface of a medium, each of said pixel patterns having grating lines of a predetermined width arranged within a predetermined closed area at a predetermined pitch and a predetermined angle with respect to a reference axis defined on said planar surface,

at least one of three parameters of line width, pitch and angle of said pixel patterns being different from the others,
each of said pixel patterns belonging to one of a plurality of groups, respectively, and pixel patterns belonging to the same group having grating lines with different angles within a given angle range relative to each other, such that at least one motif is represented with tones by the pixel patterns belonging to the same group thereof, and
wherein given angle ranges for the respective groups are set so that a difference between boundary angle values of adjacent ranges is greater than a predetermined minimum value, and
wherein pixel patterns belonging to different groups represent different motifs respectively thereby to represent plural motifs on the same planar surface in an overlapping manner.

5,784,201
REFLECTION-PREVENTING LAYER FOR A DISPLAY DEVICE

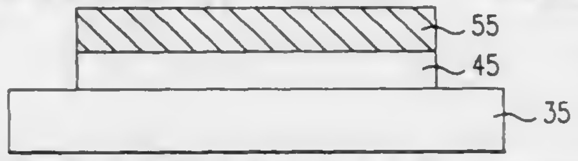
Kyeong Won Lee, Kyungki-do, and Kyung Chan Park, Seoul, both of Rep. of Korea, assignors to LG Electronics Inc., Seoul, Rep. of Korea

Filed Sep. 13, 1995, Ser. No. 527,657

Claims priority, application Rep. of Korea, Mar. 17, 1995, 5623/1995

Int. Cl.^{6} G02B *1/10;* H01J *31/00*

U.S. Cl. 359—582 **13 Claims**



9. A reflection-preventing layer for a display device comprising:
a transparent substrate;
a dielectric layer formed on the transparent substrate having a thickness of 45–90 Å; and
a diamond-like carbon film formed on the dielectric layer.

5,784,202
APPARATUS FOR ISOMETRICALLY SPLITTING BEAMS

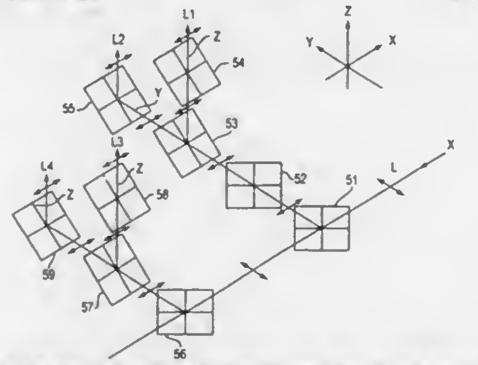
Masato Noguchi, Tokyo, Japan, assignor to Asahi Kogaku Kogyo Kabushika Kaisha, Tokyo, Japan

Continuation of Ser. No. 267,907, Jul. 6, 1994, abandoned. This application Aug. 21, 1996, Ser. No. 701,067

Claims priority, application Japan, Jul. 8, 1993, 5-168809

Int. Cl.^{6} G01B *9/02*

U.S. Cl. 359—618 **9 Claims**



1. An apparatus for splitting a light beam into a plurality of split beams, comprising:
a plurality of beam splitters having identical reflectance characteristics and identical transmittance characteristics, said beam splitters being arranged so that said plurality of split beams are transmitted through an equal number of beam splitters and reflected by an equal number of beam splitters; and
at least one of said plurality of beam splitters having a splitting surface positioned with an incident plane normal to an incident plane of another of said plurality of beam splitters, each of said incident planes being defined by a normal to a splitting surface of the beam splitter at a point at which a beam of light strikes the splitting surface, and a direction of said beam of light incident on the splitting surface;
wherein at least one of said plurality of split beams which interacts with said at least one of said plurality of beam splitters emerges from said apparatus with in-phase polarization components.

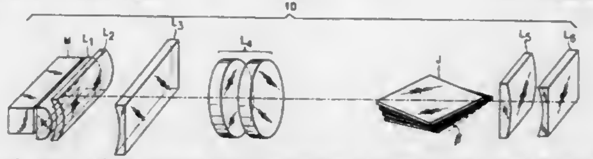
5,784,203
METHOD AND APPARATUS FOR COMBINING THE RADIATION OUTPUT FROM A LINEAR ARRAY OF RADIATION SOURCES

Leo H. J. F. Beckmann, Willem de Merodestraat 9, Delft, Netherlands

Filed Nov. 26, 1996, Ser. No. 759,366

Int. Cl.^{6} G02B *27/10*

U.S. Cl. 359—618 **25 Claims**



1. An optical system for combining a linear array of radiation beams to form one common beam of radiation, each of said radiation beams of said array having a wavefront and an axis, said optical system comprising:
a) optical transformation means for providing each radiation beam of said array with a substantially spherical wavefront;
b) optical imaging means for focussing said radiation beams with substantially spherical wavefronts into non-overlapping images; and
c) an optical concatenation element having a plurality of optical plates, each of said optical plates having an optically substantially smooth front surface, a rear surface, a top surface and a bottom surface, said plurality of plates arranged in a stack and having an angular offset from each other,
wherein each radiation beam associated with said non-overlapping images is projected onto said front surface of only one of said plurality of plates, and wherein said angular offset is chosen such that the axes of the beams exiting said rear surfaces of said plurality of plates are substantially aligned in a single plane perpendicular to said stack, thereby substantially forming one beam of radiation.

5,784,204
VARIABLE MAGNIFICATION VIEWFINDER

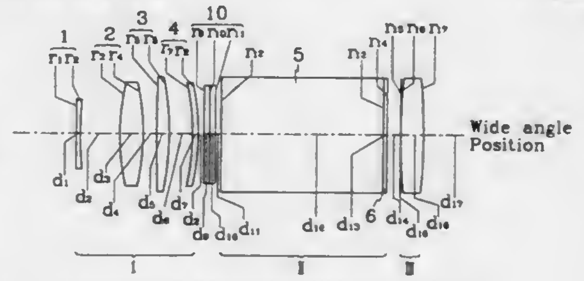
Hyung-Won Kang, Kyeongsangnam-do, Rep. of Korea, assignor to Samsung Aerospace Industries, Ltd., Kyungsangnam-do, Rep. of Korea

Filed Sep. 30, 1996, Ser. No. 723,836

Claims priority, application Rep. of Korea, Oct. 11, 1995, 95-34882

Int. Cl.^{6} G02B *15/14;23/00*

U.S. Cl. 359—686 **5 Claims**



1. A variable magnification viewfinder comprising:

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an objective lens group having an overall positive power, including, from an object side, a fixed first lens unit of a negative refractive power, a second lens unit of a positive refractive power, a third lens unit of a positive refractive power and a fixed fourth lens unit of a negative refractive power, wherein the objective lens group forms an actual image of an object;

a reverse group for reversing the image formed by the objective lens group; and

an eyepiece lens group for observing the image reversed by the reverse group;

wherein magnification is changed by moving the second lens unit and the third lens unit along an optical axis of the viewfinder, and

wherein the variable magnification viewfinder fulfills the following condition:

$$2.4<L/fw<3.7$$

where,

fw represents a focal length of the objective lens group at a wide angle position,

L represents the distance between a closest surface of the objective lens group to the object and the image of the object formed by the objective lens group.

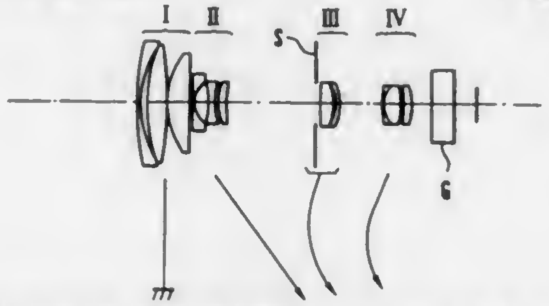
5,784,205
ZOOM LENS
Hiroki Nakayama; Akihisa Horiuchi; Hitoshi Mukaiya, all of Kanagawa-ken; Yasunori Murata, Tokyo, and Fumihito Wachi, Kanagawa-ken, all of Japan, assignors to Canon Kabushiki Kaisha, Tokyo, Japan

Division of Ser. No. 149,364, Nov. 9, 1993, abandoned. This application Jun. 7, 1995, Ser. No. 483,850

Claims priority, application Japan, Nov. 13, 1992, 4-303929; Nov. 13, 1992, 4-303938; Nov. 13, 1992, 4-303939; Apr. 30, 1993, 5-128205; Apr. 30, 1993, 5-128206; Apr. 30, 1993, 5-128207; Apr. 30, 1993, 5-128208; Apr. 30, 1993, 5-128213

Int. Cl.^{6} G02B *15/14*

U.S. Cl. 359—687 **5 Claims**



1. A zoom lens of the rear focus type comprising, from an object side to an image side, a first lens unit of positive refractive power, a second lens unit of negative refractive power, a third lens unit of positive refractive power having a stop, and a fourth lens unit of positive refractive power, wherein during zooming from a wide-angle end to a telephoto end, said first lens unit is stationary, and said second lens unit is moved toward an image side, said third lens unit and said stop are moved in unison in a locus convex toward an object side and said fourth lens unit is moved in a locus convex toward the object side, wherein during focusing, said fourth lens unit is moved, and wherein when the outer diameter of the most object side lens of said zoom lens is denoted by $\o_1$ and the focal length of the entire system in the wide-angle end is denoted by Fw, the following condition is satisfied:

$$0.10<Fw/\o_1<0.23.$$

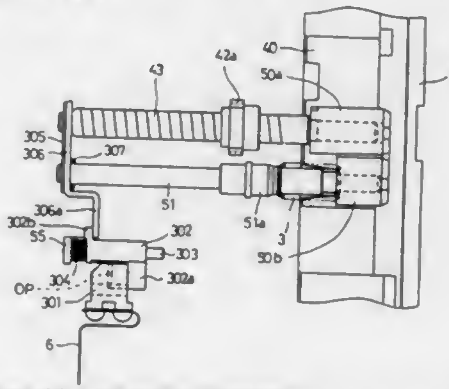
5,784,206
MOVING LENS POSITION DETECTING DEVICE
Hiroshi Nomura; Kazuyoshi Azegami, and Takamitsu Sasaki, all of Tokyo, Japan, assignors to Asahi Kogaku Kogyo Kabushiki Kaisha, Tokyo, Japan

Filed Jan. 9, 1997, Ser. No. 781,587

Claims priority, application Japan, Jan. 26, 1996, 8-012317; Feb. 20, 1996, 8-032521; Feb. 21, 1996, 8-034133

Int. Cl.^{6} G02B *15/14*

U.S. Cl. 359—698 **34 Claims**



1. A lens drive mechanism comprising:

first and second members positioned adjacent to each other, said second member supporting a lens group, said second member being movable relative to said first member along an optical axis of said lens group;

a first guide shaft extending in a direction of said optical axis, said first guide shaft being supported by said first member to be guided in said direction of said optical axis, one end of said first guide shaft being secured to said second member;

a screw shaft extending in said direction of said optical axis, said screw shaft having a first thread, one end of said screw shaft being secured to said second member, said screw shaft being positioned adjacent to said first guide shaft; and

a device for detecting whether said lens group is located at an extremity of a predetermined movable range of said lens group relative to said first member along said optical axis, said detecting device comprising a connecting member secured to the other end of each of said screw shaft and said first guide shaft.

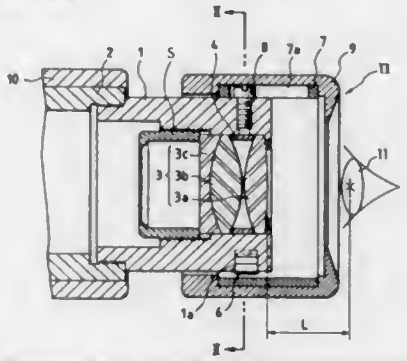
5,784,207
MECHANISM FOR EYE CONTACT ELEMENT OF OPTICAL DEVICE
Akira Satoh, Tokyo, Japan, assignor to Nikon Corporation, Tokyo, Japan

Filed Nov. 26, 1996, Ser. No. 756,431

Claims priority, application Japan, Feb. 15, 1996, 8-027994

Int. Cl.^{6} G02B *15/14*

U.S. Cl. 359—700 **19 Claims**



1. A mechanism for a cylindrical eye contact element of an optical device in which said eye contact element is slidably engaged with an eyepiece holding barrel containing an eyepiece therein, comprising:

a guide mechanism to shift the eye contact element in a direction of an optical axis of said eyepiece with the rotation of said eye contact element about said optical axis when said eye contact element is rotatively operated; and

a holding mechanism to hold said eye contact element at any shifted position.

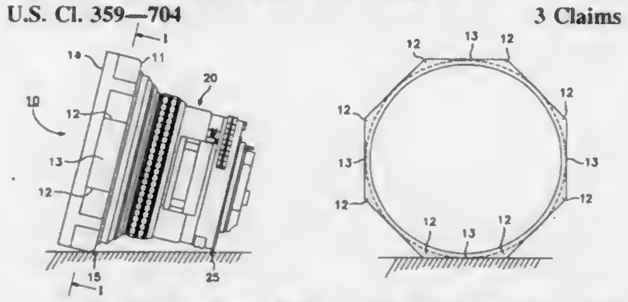
5,784,208
LENS HOOD FOR A LENS BARREL OF AN OPTICAL APPARATUS
Hideo Kanno, Chiba, Japan, assignor to Nikon Corporation, Tokyo, Japan

Filed Apr. 5, 1996, Ser. No. 627,508

Claims priority, application Japan, Apr. 5, 1995, 7-080327

Int. Cl.^{6} G02B *15/14;* **G03B** *11/04*

U.S. Cl. 359—704 **3 Claims**



1. A lens hood mountable on a lens barrel, the lens hood comprising:

a cylindrical body having a front side opposite from the lens barrel and a rear side adjacent to the lens barrel, when the lens hood is mounted on the lens barrel; and

projecting portions formed in radial directions from an optical axis of the lens barrel and at the rear side of said cylindrical body;

wherein the front side of said cylindrical body includes flange portions and notch portions between the flange portions, and ones of said projecting portions are arranged in vicinities of respective bottoms of said notch portions.

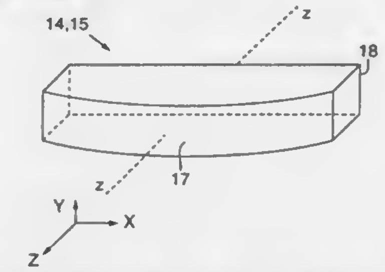
5,784,209
MULTI-AXIS OPTICAL LENS
Yuji Manabe, Kamakura, Japan, assignor to Nikon Corporation, Tokyo, Japan

Filed May 17, 1996, Ser. No. 650,889

Claims priority, application Japan, May 25, 1995, 7-152651

Int. Cl.^{6} G02B *3/02;3/10*

U.S. Cl. 359—720 **8 Claims**



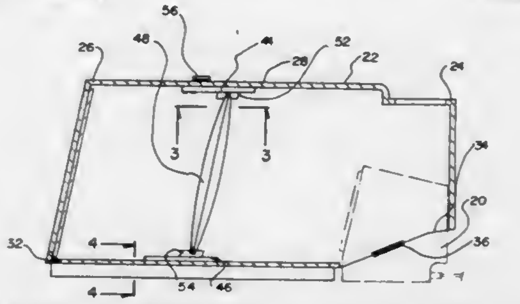
1. An optical lens having multiple optical axes individually corresponding with a respective refractive combination comprising a first and an opposing second refractive surface, the lens being movable relative to an extraneous optical axis so as to permit selection of a desired refractive combination by aligning the optical axis of the refractive combination with the extraneous optical axis, the multiple optical axes intersecting at a location within the lens.

5,784,210
MONITOR MAGNIFICATION DEVICE
Panagotis John Malaspinas, 80 Charles Ave., Massapequa Pk, N.Y. 11762

Filed Jun. 30, 1997, Ser. No. 885,519

Int. Cl.^{6} G02B *27/02*

U.S. Cl. 359—802 **5 Claims**



1. A monitor magnification device comprising in combination:

a monitor for displaying information in an inverted orientation;

a monitor cover having a rearward extent, a forward extent, an upper portion and a lower portion, the lower portion of the rearward extent having an opening defined to receive the monitor, the opening being formed at an angle relative to the lower portion, a first clamp secured to the lower portion of the rearward extent at a first side of the monitor cover, and a second clamp secured to the lower portion of the rearward extent at a second side of the monitor cover, the two clamps adapted to be secured to mating surfaces upon the monitor to thereby secure the monitor cover to the monitor, a series of vents formed within the upper portion of the rearward extent, the vents functioning to vent heat generated by the monitor, the monitor cover adapted to be suspended from the monitor in a cantilevered fashion;

a screen formed within the forward extent of the monitor cover;

an upper U-shaped track formed upon the upper portion at an internal surface thereof, and a lower U-shaped track formed upon the lower portion at an internal surface;

a lens adapted to magnify and invert an image generated by the monitor, the lens having an upper extent, a lower extent, a rearward surface and a forward surface, an upper rack secured to the upper extent of the lens, the upper rack positioned within the upper U-shaped track, a lower slide secured to the lower extent of the lens, the lower slide positioned within the lower U-shaped track, the lens thus adapted for linear movement within the upper and lower U-shaped tracks;

a fine adjustment knob positioned within the upper portion of the monitor cover, the knob having a lower geared extent, the lower geared extent engaging the upper rack such that rotation of the fine adjustment knob results in the linear movement of both the upper rack and the lower track and thus the lens.

5,784,211
AUXILIARY REARVIEW MIRROR ASSEMBLY FOR ATTACHMENT TO A SIDE-MOUNTED VEHICLE REARVIEW MIRROR
Neil H. Mingledorff, P. O. Box 14145, Savannah, Ga. 31416-1145

Filed Sep. 24, 1993, Ser. No. 125,750

Int. Cl.^{6} G02B *7/182;5/10*

U.S. Cl. 359—871 **17 Claims**

1. A rearview mirror assembly for attachment to a side-mounted vehicle rearview mirror, said assembly comprising:

a housing defining a substantially flat rear surface;

first means in operative relationship with said rear surface for attaching said assembly to said rearview mirror;

a first substantially flat mirror positioned within said bousing in first predetermined relationship with said rear surface; and

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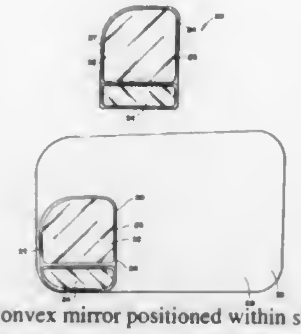


a second convex mirror positioned within said housing in second predetermined relationship with said rear surface.

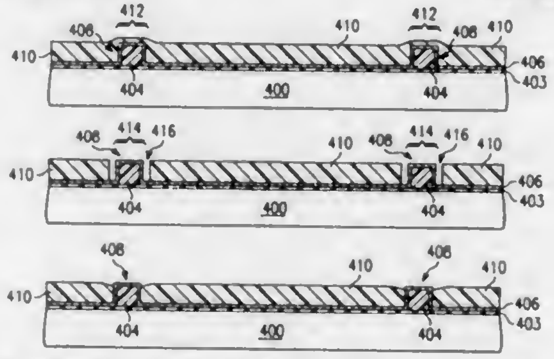
5,784,212
METHOD OF MAKING A SUPPORT POST FOR A MICROMECHANICAL DEVICE

Larry J. Hornbeck, Van Alstyne, Tex., assignor to Texas Instruments Incorporated, Dallas, Tex.

Division of Ser. No. 333,186, Nov. 2, 1994, Pat. No. 5,650,881. This application Jul. 25, 1996, Ser. No. 686,222

Int. Cl.^{6} G02B *7/182;26/00;26/08;* **H01L** *41/04*

U.S. Cl. 359—871 **24 Claims**



11. A method of fabricating a micromirror device comprising steps of:

depositing a pillar material on a substrate;

patterning said pillar material to define at least one first support pillar;

depositing a first metal layer on said first support pillar to a form a first metalized support pillar;

depositing a first spacer layer on said substrate;

depositing a second metal layer over said first spacer layer and said first support pillar, said second metal layer forming at least one hinge;

depositing a second pillar material on said second metal layer;

patterning said second pillar material to define at least one second support pillar attached to said hinge;

depositing a third metal layer over said second support pillar to form a second metalized support pillar;

depositing a second spacer layer over said first spacer layer;

removing a portion of said second spacer layer from around and on top of said second metalized support pillar;

said removing step forming holes between said second spacer layer and said second metalized support pillar;

reflowing remaining position of said second spacer layer to fill said holes between said second spacer layer and said second metalized support pillar;

depositing a fourth metal layer over said second spacer layer, said fourth metal layer forming as least one mirror attached to said second support pillar; and

removing said first spacer and said second spacer layer to form an air gap beneath said hinge and said mirror.

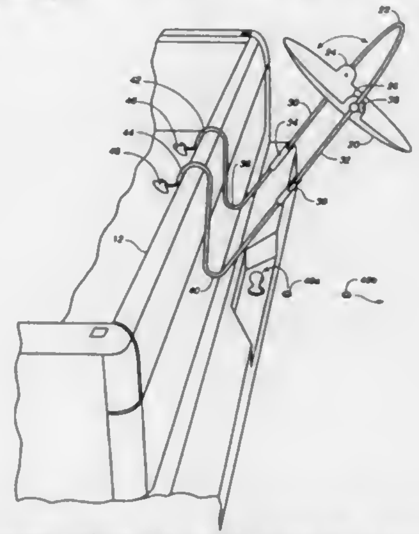
5,784,213
BACKUP MIRROR FOR TOW VEHICLE

Gary Howard, 259 Dutton Ave., Sebastopol, Calif. 95472

Filed Apr. 21, 1997, Ser. No. 837,607

Int. Cl.^{6} G02B *7/182;* **B60R** *1/06*

U.S. Cl. 359—872 **3 Claims**



1. An accessory mirror apparatus for mounting on a tow vehicle, and oriented to enable the driver of the tow vehicle to see a reflection of the trailer tongue in the mirror while backing up, said apparatus comprising:

a generally convex mirror portion rotatably mounted in a bracket member at first and second tab elements, said bracket extending downwardly from said mirror portion in a pair of elongate leg portions, each of said leg portions includes a lockable hinge member enabling each of said leg portions to be folded at a point along its length, each of said leg portions extending further downwardly to a first U-shaped bend, then upwardly to a second U-shaped bend, such that the combination of said first and second U-shaped bends on each of said leg portions provides a hook member adapted for hanging on a vehicle tailgate.

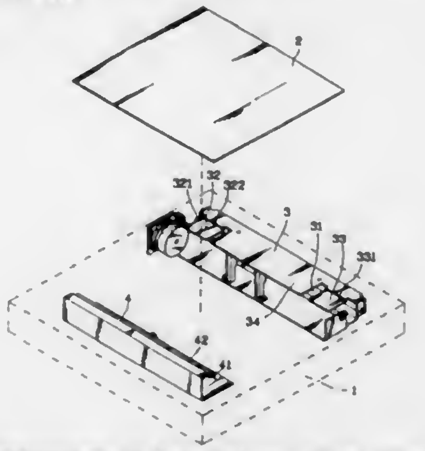
5,784,214
TRANSPARENT WINDOW GLASS HOLDING STRUCTURE FOR OPTICAL SCANNER

Henry Peng, Hsinchu, Taiwan, assignor to Umax Data Systems, Inc., Hsinchu, Taiwan

Filed Dec. 16, 1996, Ser. No. 773,725

Int. Cl.^{6} G02B *7/02*

U.S. Cl. 359—808 **7 Claims**



1. An improvement of a transparent window glass holding structure for an optical scanner, comprising:

a first rack located at one side of a scanner case for holding one edge of a transparent window glass including a plurality of clamps formed on the top surface of the first rack, wherein the clamps are disposed alternately at two different vertical levels, further wherein the distance of the two different vertical levels is the same as the thickness of the transparent window glass so as to allow one edge of the transparent window glass to be firmly but removably inserted thereinto; and

a second rack for holding another edge of the transparent window glass.

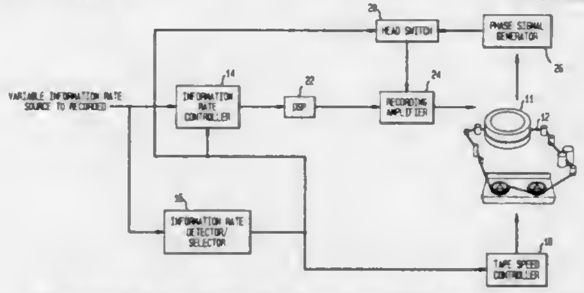
5,784,215
METHOD AND APPARATUS FOR RECORDING AND READING VARIABLE SPEED DATA USING A ROTATING DRUM DEVICE

Tzong-Sheau Wu, Hsinchu; Tian-Rein Chen, Taipei, and Rong-Dzung Tsai, Pingtung, all of Taiwan, assignors to Industrial Technology Research Institute, Hsinchu, Taiwan

Continuation of Ser. No. 319,553, Oct. 6, 1994, abandoned. This application Aug. 12, 1996, Ser. No. 695,518

Int. Cl.^{6} G11B *5/00*

U.S. Cl. 360—8 **13 Claims**


VARIABLE INFORMATION RATE SOURCE TO RECORDED
INFORMATION RATE CONTROLLER
14
DSP
22
RECORDING AMPLIFIER
24
HEAD SWITCH
20
PHASE SIGNAL GENERATOR
26
11
12
INFORMATION RATE DETECTOR/ SELECTOR
16
TAPE SPEED CONTROLLER
18

1. An apparatus for transferring information between a rotating drum device, the device having a rotation speed and an even number of magnetic heads, and a magnetic medium, comprising:

i) an input;

ii) an information transfer rate detector connected to the input;

iii) a medium travel speed controller connected to the information transfer rate detector, the speed controller configured to control a speed of the magnetic medium in relation to an amount from which a detected information transfer rate is less than a standard transfer rate; and

iv) a magnetic head switch connected to the information rate detector and configured to activate the magnetic heads so that every Xth head is activated, where X is an odd integer and relates to the amount from which the source information transfer rate is less than the standard transfer rate without changing the drum rotation speed.

5,784,216
METHOD AND APPARATUS FOR RECORDING DEFECTIVE TRACK IDENTIFICATION INFORMATION IN A DISK DRIVE

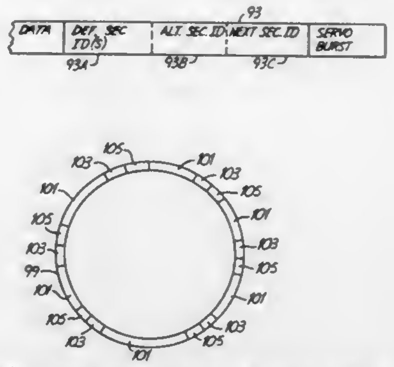
Dan Zaharris, Longmont, Colo., assignor to Seagate Technology, Inc., Scotts Valley, Calif.

Filed Nov. 16, 1995, Ser. No. 559,328

Int. Cl.^{6} G11B *5/09*

U.S. Cl. 360—48 **48 Claims**

1. In a disk drive including at least one disk having a plurality of concentric tracks on a surface of the disk, each of the concentric tracks having a plurality of data sectors such that data may be written to and read from each of the plurality of data sectors in a data format, each of the concentric tracks having a plurality of gap fields arranged so that there is at least one gap field between successive data sectors on the concentric track, a method of storing and retrieving defect information from the first concentric track comprising:



writing defect information, with a read/write head, in the at least one gap field in the first concentric track; and

thereafter, reading the defect information with a read/write head.

5,784,217
MAGNETIC RECORDING AND REPRODUCTION APPARATUS WITH SELECTIVELY-ENABLED ROTARY HEADS

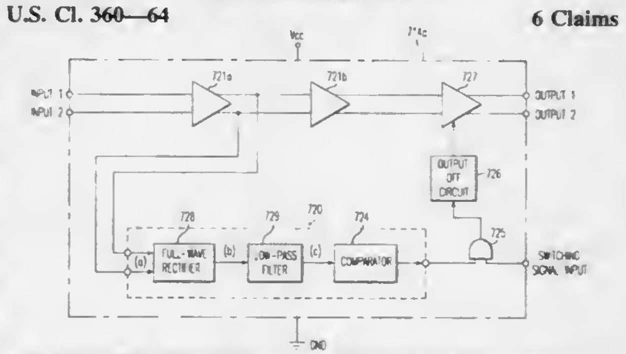
Yasushi Higashiyama, Yokohama, and Takanori Furusawa, Tokyo, both of Japan, assignors to Kabushiki Kaisha Toshiba, Kawasaki, Japan

Continuation of Ser. No. 29,303, Mar. 8, 1993, Pat. No. 5,532,887, which is a continuation-in-part of Ser. No. 617,081, Nov. 21, 1990, abandoned, which is a continuation-in-part of Ser. No. 525,831, May 18, 1990, Pat. No. 5,276,565. This application Jun. 7, 1995, Ser. No. 482,817

Claims priority, application Japan, May 23, 1989, 1-127906; May 23, 1989, 1-127911; Nov. 8, 1989, 1-288754

Int. Cl.^{6} G11B *15/14*

U.S. Cl. 360—64 **6 Claims**



1. A magnetic recording and reproduction apparatus comprising:

a rotary drum having a circumferential surface;

a plurality of recording and reproduction heads mounted on said rotary drum which record and reproduce information signals, making contact with a magnetic tape running so as to wrap around the circumferential surface of the rotary drum;

a plurality of reproduction circuits mounted on said rotary drum and connected directly to said reproduction heads, respectively;

at least one rotary transformer connected to said reproduction circuits, said rotary transformer having at least one core with a slot, and a plurality of coils inserted in said slot, and connected directly to said reproduction circuits, respectively, said coils being wound around an axis of rotation of said rotary drum;

each of said plurality of reproduction circuits comprising first control means for sensing the information signal reproduced by a respective one of said reproduction heads, comprising

at least one stage of a full-wave rectifier circuit for full-wave rectifying the information signal,

a low-pass filter for removing the high-frequency components from the output signal of the full-wave rectifier circuit, and

binarizing means for converting the output signal of the low-pass filter into a binary signal indicating whether or not an information signal has been sensed; and

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each reproduction circuit further comprising an output stage and second control means for controlling said output stage to be in an enable state only during the time when an information signal is sensed by said first control means.

5,784,218

TAPE LOADING APPARATUS

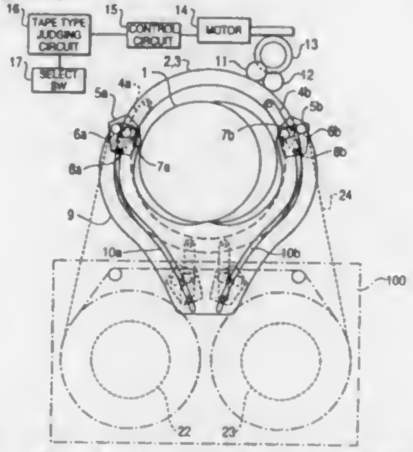
Hitoshi Fujii; Takayuki Hayashi, both of Hirakata, and Yusuke Nagae, Takatuki, all of Japan, assignors to Matsushita Electric Indstrial Co., Ltd., Osaka, Japan

Division of Ser. No. 703,680, Aug. 28, 1996, Pat. No. 5,699,205, which is a division of Ser. No. 265,121, Jun. 24, 1994, abandoned. This application Jun. 25, 1997, Ser. No. 882,077

Claims priority, application Japan, Jun. 25, 1993, 5-754769; Jul. 26, 1993, 5-183713

Int. Cl.⁶ G11B *15/665*

U.S. Cl. 360—71 **2 Claims**



1. A tape loading apparatus operable in a loading mode for loading a tape from a tape cassette to a predetermined position and in an unloading mode for unloading the tape into the tape cassette, comprising:

a cylinder having mounted thereon a head;

a tape guide for drawing out the tape from the tape cassette and winding the tape on the cylinder;

a tape drawing member for supporting the tape guide and movable reciprocally;

driving means for driving the tape drawing member;

speed control means for controlling the driving means to control a moving speed of the tape drawing member; and

judging means for judging a type of the tape,

wherein the speed control means controls the driving means to change the moving speed of the tape drawing member depending on the type of the tape judged by the judging means.

5,784,219

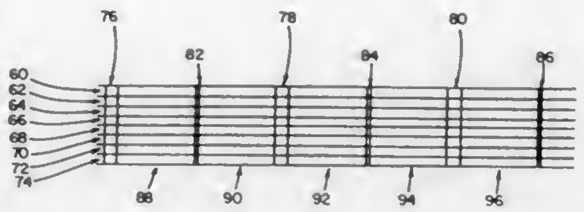
DUAL SERVO FORMAT FOR OPTIMUM FORMAT EFFICIENCY AND OFF-TRACK DETECTION

Stephen R. Genheimer, Mustang, Okla., assignor to Seagate Technology, Inc., Scotts Valley, Calif.

Filed Jun. 24, 1996, Ser. No. 669,223

Int. Cl.⁶ G11B *5/596*

U.S. Cl. 360—77.08 **16 Claims**



1. A dual servo format for determining a position of a transducer over a medium having a plurality of tracks containing data fields, and a plurality of servo fields distributed across the medium and among the data fields, the format comprising:

a plurality of large servo fields, each large servo field having a first length and containing at least a track identification field for reading by the transducer to identify a set of tracks and a plurality of radially offset servo fine positioning bursts arranged in a first pattern for reading by the transducer to identify a radial position of the transducer within the set of tracks; and

plurality of small servo fields, each small servo field having a second length smaller than the first length and containing a plurality of radially offset servo fine positioning bursts arranged in a second pattern for reading by the transducer to identify a radial position of the transducer within the set of tracks, each small servo field not containing a track identification field, the second pattern being different from the first pattern.

5,784,220

MAGNETIC DISK APPARATUS, RECORDING AND ACCESSING METHOD FOR PERFORMING DENSITY RECORDING

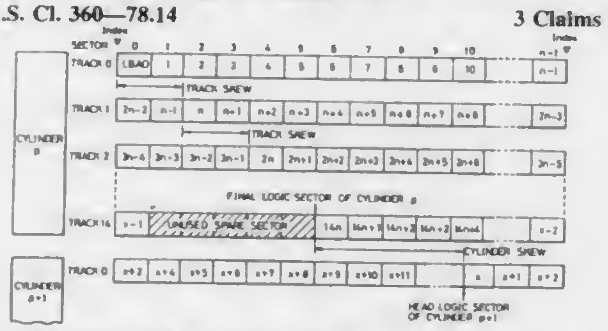
Kazuo Nishimura; Tatsuro Sasamoto; Hideaki Tanaka, and Hiroaki Etoh, all of Kawasaki, Japan, assignors to Fujitsu Limited, Kawasaki, Japan

Division of Ser. No. 329,305, Oct. 26, 1994, Pat. No. 5,636,075. This application Mar. 4, 1997, Ser. No. 810,726

Claims priority, application Japan, Jan. 20, 1994, 6-004426

Int. Cl.⁶ G11B *5/596*

U.S. Cl. 360—78.14 **3 Claims**



1. A magnetic disk apparatus comprising:

a combination head constructed with a write head having a core width, and a read head integrally provided with said write head having a magneto-resistive element of a core width that is relatively narrower than the core width of said write head;

a disk medium in which a plurality of tracks which can be magnetically read and written are formed in the circumferential direction, said tracks being divided into a plurality of zones in the radial direction and information is read and written with a constant linear density by using a clock signal of a different frequency every said zone, said disk medium further having a plurality of zone boundary spaces disposed between each said zone, each said zone boundary space corresponding to at least one said track, and wherein a dead space of at least one track width is provided between tracks in said zone boundary space;

a rotary actuator for positioning said combination head over said disk medium; and

a drive unit for reading and writing the information, said drive unit including:

a track skew allocating section for allocating a head logical sector of the next track to the position alter a final logical sector of the preceding track among the plurality of tracks belonging to the same cylinder while deviating by only a track skew value which is defined by the number of sectors corresponding to a switching time and for allowing the reading or writing operation to be executed;

a cylinder skew allocating section for allocating a head logical sector of a head track in the next cylinder to the position after a final logical sector of a final track in the preceding cylinder between the neighboring cylinders while deviating by only a cylinder skew value which is defined by the number of sectors corresponding to the switching time and for allowing the reading or writing operation to be executed;

a track skew value deciding section for deciding said track skew value on the basis of a one-sector time which is determined by a clock frequency cf the zone to which each cylinder belongs at the time of the start of the use of the apparatus; and

a cylinder skew value deciding section for deciding said cylinder skew value on the basis of a one-sector time and a one-track seeking time which are determined by the clock frequency of said zone with respect to the switching between the cylinders belonging to the same zone at the time of the start of the use of the apparatus and for deciding said cylinder skew value on the basis of a seeking time of a plurality of tracks including said dead space provided at the zone boundary and the one-sector time which is determined by the clock frequency of the next cylinder with respect to the switching between the neighboring cylinders which sandwich the zone boundary.

5,784,221

HUB LOCK RELEASING DEVICE OF TAPE RECORDER

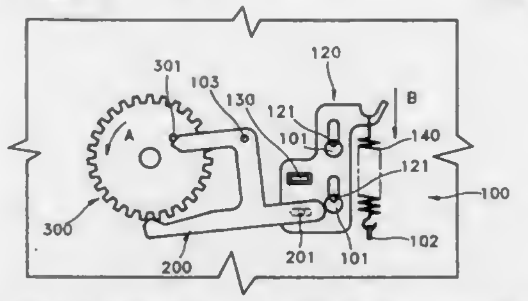
Jung-rak Lee, Suwon, Rep. of Korea, assignor to Samsung Electronics Co., Ltd., Kyungki-Do, Rep. of Korea

Filed May 14, 1997, Ser. No. 856,148

Claims priority, application Rep. of Korea, Aug. 21, 1996, 1996-34744

Int. Cl.⁶ G11B *23/02*

U.S. Cl. 360—93 **5 Claims**



1. A hub lock releasing device of a tape recorder, which includes a deck, for moving a hub locking member of a tape cassette having a hub so as to release the hub from a locked state, said hub lock releasing device comprising:

a slide member slidingly installed on the deck and having a releasing pin for moving said hub locking member;

a spring for elastically biasing said slide member in a direction opposite the pushing direction of said hub locking member;

an interlocking member rotatably connected with said deck and interlocked with said slide member; and

a cam gear installed on said deck and rotated by a driving motor, and having an interlocking pin being selectively in contact with said interlocking member to rotate said interlocking member,

wherein when said cam gear rotates and said interlocking pin is detached from said interlocking member, said interlocking member rotates and said slide member is moved by the elastic force of said spring and said releasing pin pushes said hub locking member to release the locking of said hub.

5,784,222

MAGNETIC RECORDING/REPRODUCING APPARATUS HAVING A PLASTIC CHASSIS IN WHICH A BOTTOM PLATE AND SIDE WALLS ARE INTEGRALLY FORMED

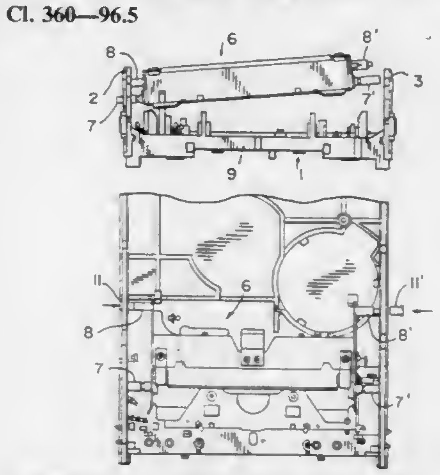
Ikuichiro Nawa; Koichi Shimoyama; Masafumi Ishizuki, and Keiichi Setsumasa, all of Atsugi, Japan, assignors to Mitsumi Electric Co., Ltd., Tokyo, Japan

Continuation of Ser. No. 384,764, Feb. 7, 1995, abandoned. This application Nov. 21, 1996, Ser. No. 753,258

Claims priority, application Japan, Feb. 8, 1994, 6-014524

Int. Cl.⁶ G11B *33/02*

U.S. Cl. 360—96.5 **6 Claims**



1. A magnetic recording/reproducing apparatus in which a recording medium accommodated in a cassette case is moved between a loaded position and an ejected position, the magnetic recording/reproducing apparatus comprising:

a cassette holder holding the cassette case and moving between the loaded position and the ejected position;

at least one pair of pins protrudingly provided on side surfaces of said cassette holder, one pin of said pair of pins being provided on a left side surface, the other pin of said pair of pins being provided on a right side surface;

a chassis, made of a plastic composition, having a bottom plate and left and right side walls, said chassis being formed as a single unitary structure with said left and right side walls extending upright from said bottom plate to form a left upper edge and a right upper edge respectively; and

having at least one pair of slots enclosed entirely in said left and right side walls with one slot of said pair of slots being formed on said left side wall and with the other slot of said pair of slots being formed on said right side wall, each of said at least one pair of slots having a portion extending in a horizontal direction and a portion extending downwardly in a vertical direction, wherein each slot of said at least one pair of slots being spaced apart from said left and right upper edges such that said left and right upper edges of said left and right side walls are inaccessible from said pair of slots for insertion of said pins;

means for securing said pins after insertion into the respective slots of said left side wall and said right side wall from the outside thereof into said left and right side walls respectively so as to restrict movement of said cassette holder between said left and right side walls whereby movement of said cassette holder is guided by said at least one pair of slots along said slot portions in said horizontal and vertical direction.

5,784,223

Patent Not Issued For This Number

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5,784,224

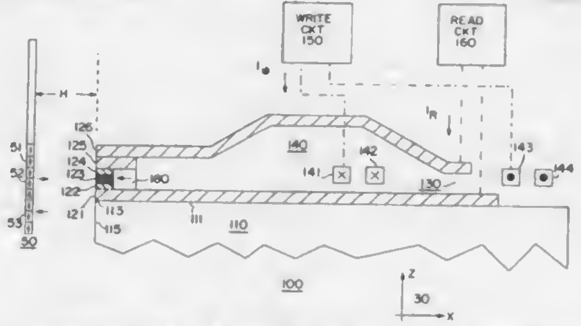
COMPACT READ/WRITE HEAD HAVING BIASED GMR ELEMENT

Robert E. Rottmayer, Fremont, Calif., and Jian-Gang Zhu, St. Paul, Minn., assignors to Read-Rite Corporation, Milpitas, Calif.

Division of Ser. No. 337,878, Nov. 14, 1994, Pat. No. 5,576,914. This application Jul. 17, 1996, Ser. No. 682,270

Int. Cl.^{6} G11B *5/127;5/33*

U.S. Cl. 360—113 **7 Claims**



1. A magnetic head for detecting transitions in a magnetically recorded magnetic medium having magnetically oriented regions comprising:

spaced first and second magnetic pole/shield layers for providing a magnetic path and for providing magnetic shielding;

a giant magnetoresistive structure formed with a top planar major surface and a bottom planar major surface disposed between said magnetic pole/shield layers for coupling magnetically with an oriented region of said medium to sense said transitions recorded on said magnetic medium, said surfaces being parallel to said magnetic pole/shield layers, said giant magnetoresistive structure having main domain regions therein;

a first conductive contact element disposed between said first pole/shield layer and said giant magnetoresistive structure and a second conductive contact element disposed between said second pole/shield layer and said giant magnetoresistive structure;

permanent magnet biasing means adjacent to and in contact with said giant magnetoresistive structure for magnetically biasing the orientation of said main domain regions;

wherein said giant magnetoresistive structure operates in a current perpendicular-to-plane mode so that sense current moves substantially perpendicularly relative to said planar major surfaces of said giant magnetoresistive structure.

5,784,225

MANUFACTURING METHOD FOR MAGNETORESISTIVE HEAD HAVING AN ANTIFERROMAGNETIC LAYER OF PTMN

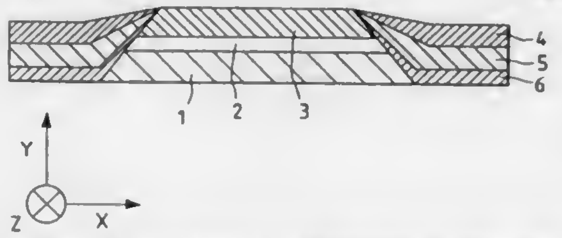
Masamichi Saito; Toshinori Watanabe, and Toshihiro Kuriyama, all of Niigata-ken, Japan, assignors to ALPS Electric Co., Ltd., Japan

Division of Ser. No. 718,152, Sep. 18, 1996, Pat. No. 5,768,067. This application Feb. 10, 1997, Ser. No. 799,061

Claims priority, application Japan, Sep. 19, 1995, 7-240075; Sep. 19, 1995, 7-240076

Int. Cl.^{6} G11B *5/39;5/127;* **B05D** *5/12*

U.S. Cl. 360—113 **8 Claims**



1. A method of manufacturing a magnetoresistive head, comprising:

forming an antiferromagnetic layer comprising a PtMn alloy in direct contact with a ferromagnetic layer exhibiting a magnetoresistive effect;

heating said antiferromagnetic layer and said ferromagnetic layer to a temperature in the range of 200° to 350° C.; and

maintaining said temperature of said antiferromagnetic layer and said ferromagnetic layer within the temperature range for a period of time in the range 4 to 20 hours;

wherein said steps of heating and maintaining said temperature creates an interdiffusion layer on a boundary surface between said ferromagnetic layer and said antiferromagnetic layer.

5,784,226

MAGNETORESISTIVE HEAD WITH OPTIMIZED SOFT MAGNETIC BIAS LAYER

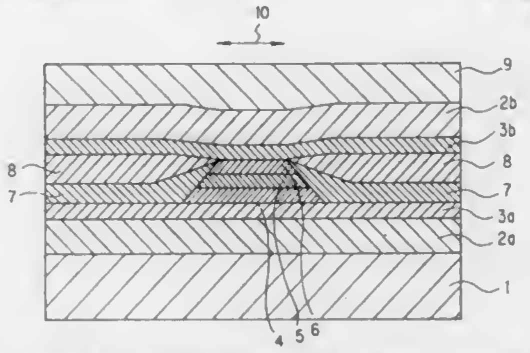
Tsutomu Ishi, Tokyo, Japan, assignor to NEC Corporation, Tokyo, Japan

Filed Feb. 26, 1997, Ser. No. 806,692

Claims priority, application Japan, Feb. 27, 1996, 8-039326

Int. Cl.^{6} G11B *5/39*

U.S. Cl. 360—113 **8 Claims**



1. A magnetoresistive head comprising a magnetoresistive layer for detecting a magnetic field signal from a magnetic recording medium on the basis of resistance changes, a soft magnetic bias layer for applying a transverse bias magnetic field to the magnetoresistive layer, a longitudinal bias layer for applying a longitudinal bias magnetic field to the magnetoresistive layer, and a lead layer for supplying a sense current to the magnetoresistive layer,

the soft magnetic bias layer being made of a material having a transverse uni-axial anisotropy field, the magnitude of the anisotropy field being below 10 [Oe].

5,784,227

TAPE CASSETTE MOUNTED WITH IC MEMORY PACKAGE AND IC CONNECTING SYSTEM FOR THE TAPE CASSETTE

Hiroyuki Kitamura; Masato Mihara, both of Hiratsuka, and Kouji Suzuki, Yokohama, all of Japan, assignors to Victor Company of Japan, Ltd., Yokohama, Japan

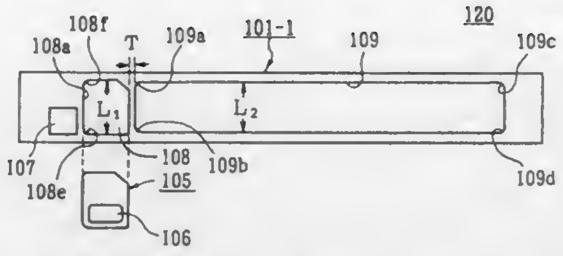
Continuation of Ser. No. 635,238, Apr. 12, 1996, abandoned, which is a continuation of Ser. No. 227,027, Apr. 13, 1994, abandoned. This application Aug. 15, 1997, Ser. No. 912,014

Claims priority, application Japan, Apr. 14, 1993, 5-024669; Apr. 23, 1993, 5-120910; Apr. 28, 1993, 5-125156; Apr. 28, 1993, 5-125157; Jun. 28, 1993, 5-182043; Jun. 30, 1993, 5-187602

Int. Cl.^{6} G11B *15/04;23/40*

U.S. Cl. 360—132 **4 Claims**

1. A tape cassette for use with a magnetic recording and reproduction apparatus having outer terminal connector means, said tape cassette having a housing with an external surface, a pair of reels rotatably provided in the housing for winding a magnetic tape on said pair of reels, a preventing means provided at a rear side of the housing for preventing the magnetic tape from being erroneously erased, the tape cassette further comprising:



a recess adapted to receive a label indicative of recording contents, said recess being formed on said external surface at a position adjacent to said preventing means, said recess defining a substantially rectangular shape with at least one round corner at a distal end thereof;

and

an IC memory package having an IC memory built therein capable of indicating a recorded content of the tape cassette in cooperation with the apparatus, the IC memory package comprising a case having a substantially rectangular shape with round corners and indicia means for representing an installed state of the IC memory package when the IC memory package is mounted in the recess, a terminal connector portion electrically connecting said IC memory package to said outer terminal connector means in said apparatus and an adhesive portion provided on a bottom surface of the case affixing said IC memory package entirely upon said external surface of said housing within said recess and in an orientation such that the round corners of the case correspond with the round corners of the recess so as to enable the IC memory package terminal connector portion to make reliable electrical connection to said outer terminal connector means of the apparatus.

5,784,228

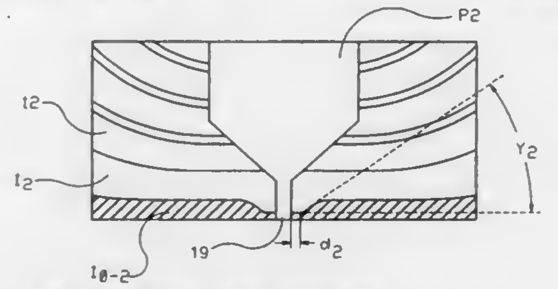
THIN FILM MAGNETIC HEAD WITH COMPOUND ANGLED INSULATION LAYER

Mark D. Thomas, Hollister; Son Tran, Milpitas, and Chen Lee, Sunnyvale, all of Calif., assignors to Read-Rite Corporation, Milpitas, Calif.

Continuation of Ser. No. 523,615, Sep. 5, 1995, abandoned. This application Jul. 9, 1997, Ser. No. 890,392

Int. Cl.^{6} G11B *5/147*

U.S. Cl. 360—126 **6 Claims**



1. A thin film magnetic head comprising:

a nonmagnetic substrate defining an air bearing surface;

a thin film transducer disposed on said substrate, said transducer including first and second magnetic layers that form a continuous magnetic path, said magnetic layers having first and second pole tip sections respectively;

an electrical coil means disposed between said magnetic layers and electrically insulated from said magnetic layers;

an insulation gap layer disposed between said coil means and said first magnetic layer, said insulation gap layer defining a transducing gap between said first and second pole tip sections;

a protective insulating layer formed over said transducer, said insulation gap layer and said protective insulating layer being in contact to form a contact area therebetween;

said contact area configured with a compound angled section having a short flat portion extending a distance d2 from said pole tip sections of between two to four microns, followed by a first arcuate portion curving away from said air bearing surface to form an angle with an extended plane of said short flat portion of at least approximately 40°, followed by a second arcuate portion curving in a direction opposite to said curving of said first arcuate portion, and followed by an extended flat portion beginning at a distance d3 plus the distance d2 from said pole tip sections, wherein the distance d3 is greater than the distance d2, so that said contact area between said protective insulating layer and said insulation gap layer is maximized, whereby cracking along said air bearing surface is minimized.

5,784,229

DRIVING APPARATUS IN WHICH A DISTANCE BETWEEN A FIRST FLANGE AND A SECOND FLANGE OF A TAPE GUIDE IS LARGER THAN A DISTANCE BETWEEN A FIRST FLANGE AND A SECOND FLANGE OF A TAKE-UP REEL

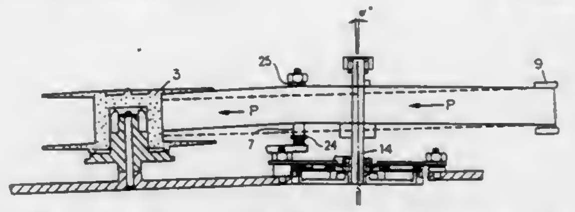
Hideyuki Hashi, Kadoma; Hideaki Yoshio, Moriguchi; Kenji Matsuura, and Shigeki Murata, both of Nara, all of Japan, assignors to Matsushita Electric Industrial Co., Ltd., Kadoma, Japan

Filed Jun. 11, 1996, Ser. No. 661,605

Claims priority, application Japan, Jun. 20, 1995, 7-152873

Int. Cl.^{6} G11B *15/60*

U.S. Cl. 360—130.21 **4 Claims**



1. A tape driving apparatus for receiving a cassette tape to be mounted therein, the cassette tape including a magnetic tape and a take-up reel hub for winding the magnetic tape, the take-up reel hub having a first flange and a second flange for limiting movement of the magnetic tape along a direction of the width of the magnetic tape, the tape driving apparatus comprising:

a capstan for driving the magnetic tape; and

a tape guide disposed in a tape travel path extending from the capstan to the take-up reel hub, the tape guide including a first flange and a second flange for limiting a travelling height of the magnetic tape,

wherein a distance between the first flange and the second flange of the tape guide is larger than a distance between the first flange and the second flange of the take-up reel hub.

5,784,230

AUTOMATIC REVERSIBLE TAPE RECORDER

Hyun Seo Park, and Jin Gwan Kim, both of Suwon-si, Rep. of Korea, assignors to Samsung Electro-Mechanics Co., Ltd., Kyongki-do, Rep. of Korea

Filed Dec. 3, 1996, Ser. No. 754,058

Claims priority, application Rep. of Korea, Aug. 27, 1996, 1996-35703

Int. Cl.^{6} G11B *15/02;15/48*

U.S. Cl. 360—137 **6 Claims**

1. An automatic reversible tape recorder comprising: a base plate; a magnetic head (**104**) operatively connected to the base plate; a capstan motor; pinch rollers (**106**); a head coupling piece (**103**) installed on the base plate to make the magnetic head advance and withdraw; a pair of capstan shafts installed at both sides of said magnetic head and connected to the capstan motor for contacting with the pinch rollers, said pinch rollers being capable of advancing and withdrawing together with said magnetic head; a reel shaft installed at a center of the tape recorder for driving a tape; first and second manipulation levers (**110**) and (**120**) movable

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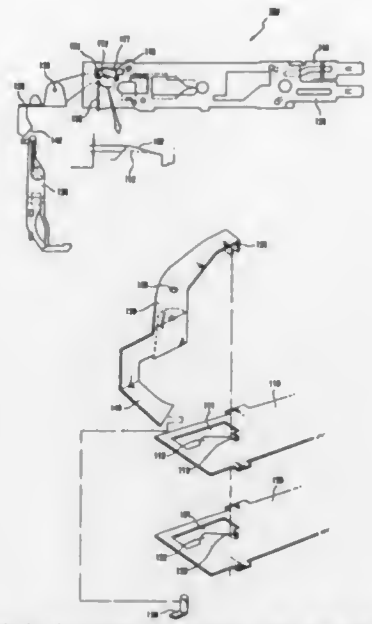


back and forth horizontally in parallel with said head coupling piece; said first and second manipulation levers being respectively provided with guide slots (**114**) and (**124**) at rear portions thereof; a carrying member (**109**) having a roller (**108**) on an upper tip thereof coupled to said guide slots of said first and second manipulation levers; said head coupling piece moving said magnetic head and said pinch rollers up or down during pivoting of said roller (**108**) of said carrying member along said guide slots,

said tape recorder further comprising:

said first and second manipulation levers being capable of moving back and forth horizontally to make said magnetic head ascend or descend upon completion of displacement by a predetermined distance; and

a tape running direction reversing member (**130**), movably coupled at a distal end to guide slots (**111**) and (**121**) of said first and second manipulation levers, for reversing the running direction of the tape by fixing said first and second manipulation levers upon completion of ascending or descending of the magnetic head due to advancements of said first and second manipulation levers, by being turned through a predetermined angle upon advancement of said second manipulation lever through said predetermined distance, and by pushing a program lever (**150**) which actuates a cam gear, wherein said first and second manipulation levers are forward (FF) and reverse (REW) levers wherein the second reverse (REW) manipulation lever is adapted to effect the unlocking of the first forward (FF) manipulation lever from the tape running direction reversing member via a guide protuberance (**122**) provided within said guide slot (**121**) of said second reverse manipulation lever.

5,784,231

OVERVOLTAGE PROTECTION FOR SMPS BASED ON DEMAGNETIZATION SIGNAL

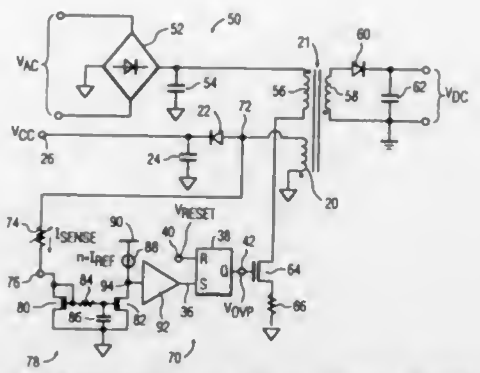
Naveed Majid, Mohegan Lake, N.Y.; Bram Melse, Arnhem, and Erwin Seinen, Malden, both of Netherlands, assignors to Philips Electronics North America Corp., New York, N.Y.

Filed Apr. 25, 1997, Ser. No. 845,745

Int. Cl.^{6} H02H *7/00*

U.S. Cl. 361—18 **7 Claims**

1. An overvoltage protection circuit, for a switched-mode power supply of the type having a transformer with a primary winding, an auxiliary winding, and a secondary winding, and a switching transistor coupled in series with the primary winding, characterized in that the overvoltage protection circuit comprises a sensing resistor having a first terminal directly connected to said auxiliary winding for generating a current in said sensing resistor proportional to the voltage across said auxiliary winding and a second terminal, a current mirror, said second resistor terminal being coupled to an input of said current mirror, an overvoltage reference current source coupled to an output of said current mirror, a current comparator for comparing a reflected current from said current mirror proportional to said sensing current in said resistor to an overvoltage reference current generated by said overvoltage reference current source, and circuit means for generating a signal to turn off said switching transistor when said reflected current exceeds said overvoltage reference current.



5,784,232

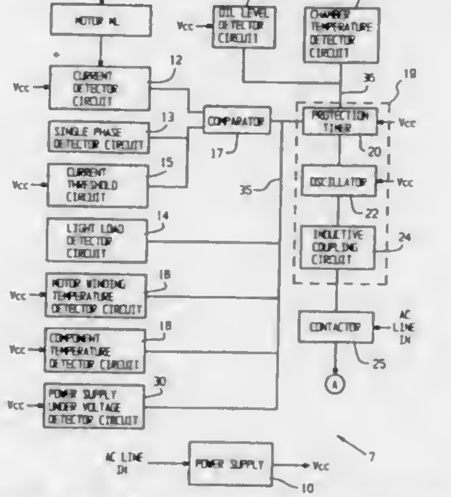
MULTIPLE WINDING SENSING CONTROL AND PROTECTION CIRCUIT FOR ELECTRIC MOTORS

James B. Farr, Ann Arbor, Mich., assignor to Tecumseh Products Company, Tecumseh, Mich.

Filed Jun. 3, 1997, Ser. No. 868,199

Int. Cl.^{6} H02H *7/00;5/04*

U.S. Cl. 361—22 **22 Claims**


A
MOTOR ML
OIL LEVEL DETECTOR CIRCUIT
CHAMBER TEMPERATURE DETECTOR CIRCUIT
CURRENT DETECTOR CIRCUIT
SINGLE PHASE DETECTOR CIRCUIT
COMPARATOR
PROTECTION TIMER
CURRENT THRESHOLD CIRCUIT
OSCILLATOR
LIGHT LOAD DETECTOR CIRCUIT
INDUCTIVE COUPLING CIRCUIT
MOTOR WINDING TEMPERATURE DETECTOR CIRCUIT
CONTACTOR
COMPONENT TEMPERATURE DETECTOR CIRCUIT
POWER SUPPLY UNDER VOLTAGE DETECTOR CIRCUIT
AC LINE IN
POWER SUPPLY
Vcc
7
10
12
13
14
15
17
18
19
20
22
24
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1. A control and protection circuit for a compressor motor having a plurality of motor windings, comprising;

a current detector circuit having a plurality of current detectors, each said current detector associated with a winding of the compressor motor and having an output, each said current detector output providing a current level signal corresponding to the current in the respective winding, said current detector circuit having means connected to said current detector outputs for combining said current level signal in a predetermined manner to provide a combined current level signal;

a switch circuit disposed between the compressor motor and an AC power source, said switch circuit changeable between a first state which allows current to the compressor motor and a second state which interrupts current to the compressor motor; and

a current control circuit disposed between said current detector circuit and said switch circuit, said current control circuit including an oscillator having a logic gate with an input operatively connected to said current detector circuit and an output connected to control a first solid state switch adapted to provide an oscillating output and an inductive coupling circuit having an inductive coupling element with an input connected to said first solid state switch output and an output connected to a second solid state switch, said second solid state switch adapted to place said switch circuit in said first state in response to the presence of said oscillating output and in said second state in response to the absence of said oscillating output, said current control circuit activated to provide said oscillating output from said oscillator and enable said inductive coupling circuit and place said switch circuit in said first state when said combined current level signal is below a predetermined current threshold level, said current control circuit deactivated to interrupt said oscillating output from said oscillator and disable said inductive coupling circuit and place said switch circuit in said second state when said combined current level signal exceeds said predetermined current threshold level.

5,784,233

DIFFERENTIAL PROTECTION DEVICE OF A POWER TRANSFORMER

Patrick Bastard, and Hugues Regal, both of Gif-sur-Yvette, France, assignors to Schneider Electric SA, and Ecole Superieure d'Electricite Supelec, both of France

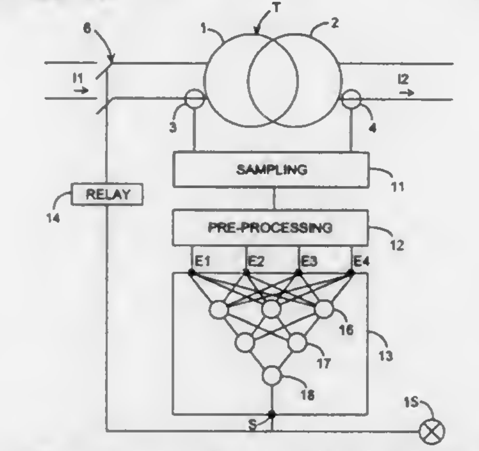
PCT No. PCT/FR94/01531, § 371 Date Jun. 28, 1996, § 102(e) Date Jun. 28, 1996, PCT Pub. No. WO95/19059, PCT Pub. Date Jul. 13, 1995

PCT Filed Dec. 26, 1994, Ser. No. 663,104

Claims priority, application France, Jan. 6, 1994, 94 00143

Int. Cl.^{6} H02H *5/00*

U.S. Cl. 361—36 **5 Claims**



1. A differential protection device of a power transformer comprising first measuring means for measuring the current flowing in a primary winding of the transformer, second measuring means for measuring the current flowing in a secondary winding of the transformer, interrupting means connected to the primary winding of the transformer to interrupt the electrical power supply of the transformer and a processing circuit connected to the first and second measuring means, supplying a tripping signal to the interrupting means and/or information signals to annunciation or monitoring means, the processing circuit comprising sampling means connected to the first and second measuring means to sample signals representative of the currents measured in the primary and secondary windings, the processing circuit further comprising pre-processing means connected to the sampling means and a neuron network comprising inputs connected to the pre-processing means and at least one output to supply the tripping and/or information signals, the pre-processing means supplying to the neuron network signals representative of the fundamental component, of the second harmonic and of the fifth harmonic of a differential current and a signal representative of a through-current.

5,784,234

Patent Not Issued For This Number

5,784,235

SEMICONDUCTOR IC DEVICE INCLUDING ESD PROTECTION CIRCUIT

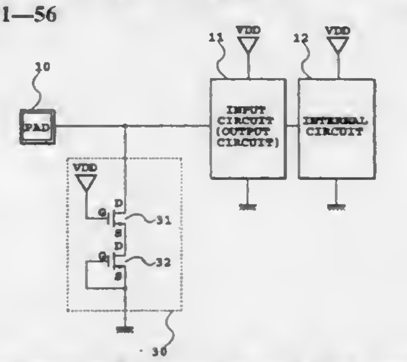
Yusuke Otomo, Kawasaki; Takeshi Mizusawa, Isehara, and Tetsuro Komatsu, Tokorozawa, all of Japan, assignors to Nippon Telegraph and Telephone Corporation, Japan

Filed May 31, 1996, Ser. No. 658,827

Claims priority, application Japan, Jun. 2, 1995, 7-160033; Nov. 16, 1995, 7-298737; May 1, 1996, 8-134246

Int. Cl.^{6} H02H *9/00*

U.S. Cl. 361—56 **17 Claims**



1. A semiconductor IC device having a first semiconductor circuit, a second semiconductor circuit, a signal input terminal, a signal output terminal, power supply terminals V_{11} and V_{21} of the first semiconductor circuit, and power supply terminals V_{12} and V_{22} of the second semiconductor circuit, said semiconductor IC device comprising:

a first surge protection circuit connected between said signal input terminal and said power supply terminal V_{11};

a second surge protection circuit connected between said signal input terminal and said power supply terminal V_{21};

a third surge protection circuit connected between said signal output terminal and said power supply terminal V_{12};

a fourth surge protection circuit connected between said signal output terminal and said power supply terminal V_{22};

wherein said first surge protection circuit comprises:

a first MOSFET whose drain is connected to said signal input terminal, and whose gate is connected to said power supply terminal V_{21}; and

a second MOSFET whose drain is connected to a source of said first MOSFET, and whose source and gate are connected to said power supply terminal V_{11};

wherein said second surge protection circuit comprises:

a third MOSFET whose source is connected to said power supply terminal V_{21}, and whose gate is connected to said power supply terminal V_{22}; and

a fourth MOSFET whose source is connected to a drain of said third MOSFET, whose drain is connected to said signal input terminal, and whose gate is connected to said power supply terminal V_{21};

wherein said third surge protection circuit comprises:

a fifth MOSFET whose drain is connected to said signal output terminal, and whose gate is connected to said power supply terminal V_{21}; and

a sixth MOSFET whose drain is connected to a source of said fifth MOSFET, and whose source and gate are connected to said power supply terminal V_{12};

and wherein said fourth surge protection circuit comprises:

a seventh MOSFET whose source and gate are connected to said power supply terminal V_{22}; and

an eighth MOSFET whose source is connected to a drain of said seventh MOSFET, whose drain is connected to said signal output terminal, and whose gate is connected to said power supply terminal V_{21}.

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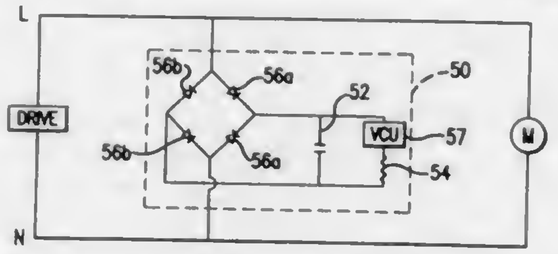
5,784,236
VARIABLE FREQUENCY DRIVE REFLECTED WAVE SUPPRESSORS

Dale Tardiff, and James Funke, both of Calgary, Canada, assignors to Tycor International Corp., Canada
Filed May 22, 1997, Ser. No. 861,712
Int. Cl.^{6} H02H *9/00*
U.S. Cl. 361—56 **6 Claims**

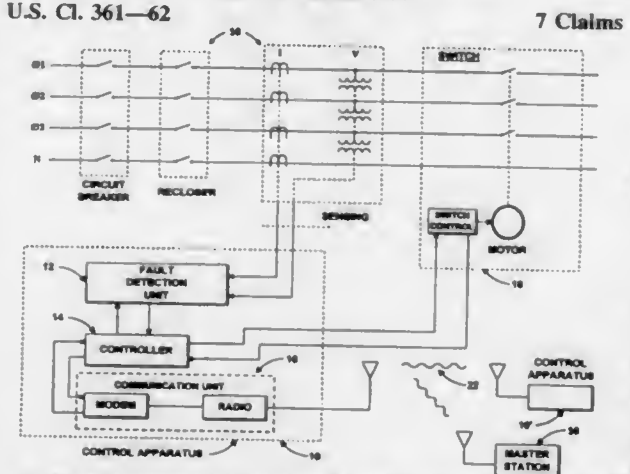


1. A circuit to protect an AC motor from overvoltages caused by reflected waves, the AC motor powered through an electrical power cable by a Variable Frequency Drive having a DC bus voltage, the circuit comprising:

(a) a capacitor having a positive pole and a negative pole;
(b) first uni-directional diodes connected to at least one line and neutral and/or between lines of the electrical power cable and providing positive voltage to the positive pole of the capacitor;
(c) second uni-directional diodes connected to said at least one line and neutral and/or between said lines of the electrical power cable and providing negative voltage to the negative pole of the capacitor;
(d) a discharge resistor for discharging voltage across the capacitor;
(e) overvoltage sensing means for sensing when voltage across the capacitor exceeds a preset overvoltage level equal to or in excess of the DC bus voltage,
(f) discharge resistor switching means in series with the discharge resistor and controlled by the overvoltage sensing means for discharging voltage through the discharge resistor when voltage across the capacitor exceeds the preset level, the discharge resistor switching means and discharge resistor being wired in parallel with the capacitor.

5,784,237
CONTROL METHOD AND APPARATUS FOR POWER DISTRIBUTION NETWORK

Andrew M. Velez, Gurnee, Ill., assignor to S&C Electric Company, Chicago, Ill.
Filed Nov. 29, 1996, Ser. No. 758,406
Int. Cl.^{6} H02H *3/00*
U.S. Cl. 361—62 **7 Claims**

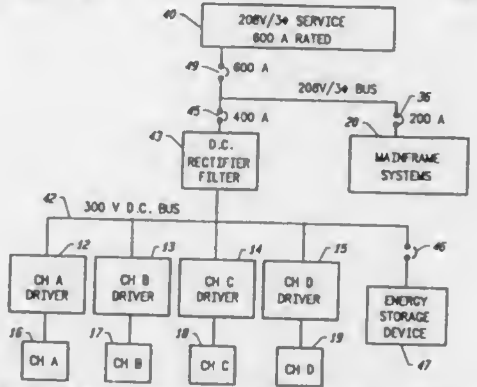


1. An arrangement for isolating a faulted section of a power distribution network comprising:

a plurality of control apparatus located at particular points in the distribution network, each of said plurality of control apparatus comprising detecting means for detecting fault conditions, first means responsive to said detecting means for communicating with predetermined source-side and load-side control apparatus in the power distribution network, and second means responsive to said detecting means and communications received from other of said plurality of control apparatus for providing a sectionalizing switch-opening signal to an associated sectionalizing switch and adjacent load-side control apparatus, said second means further comprising third means for providing an inhibit signal to predetermined source-side control apparatus so as to prevent the source-side control apparatus from providing a sectionalizing switch-opening signal.

5,784,238
COORDINATED CLUSTER TOOL ENERGY DELIVERY SYSTEM

Eric A. Nering, Modesto, and Dan R. Fleming, Sunnyvale, both of Calif., assignors to Applied Materials, Inc., Santa Clara, Calif.
Filed Aug. 1, 1996, Ser. No. 690,925
Int. Cl.^{6} H02H *3/00*
U.S. Cl. 361—65 **44 Claims**



1. A high diversity electrical energy delivery system, comprising:

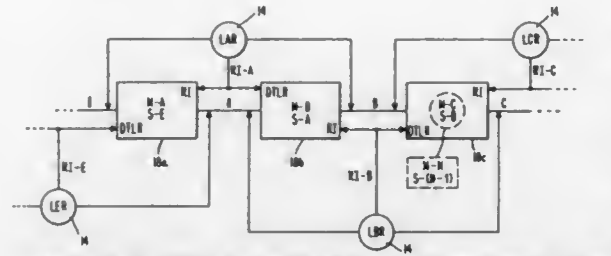
an AC-to-DC converter that converts AC electrical energy supplied by an AC source into DC electrical energy; and
a DC bus for routing said DC electrical energy to a plurality of final power elements;
wherein at any given time, at least one of said plurality of final power elements is not energized with said DC electrical energy, and wherein said electrical energy delivery system has a capacity that is less than a cumulative peak power requirement of said plurality of final power elements.

5,784,239
DRIVE TO LAST RECLOSURE OPERATION IN A PROTECTIVE RELAYING SYSTEM

Redjem Bouhenguel, N. Lauderdale, and Walter A. Elmore, Coral Springs, both of Fla., assignors to ABB Power T&D Company, Inc., Raleigh, N.C.
Filed Oct. 5, 1995, Ser. No. 539,776
Int. Cl.^{6} H02H *3/00*
U.S. Cl. 361—71 **4 Claims**

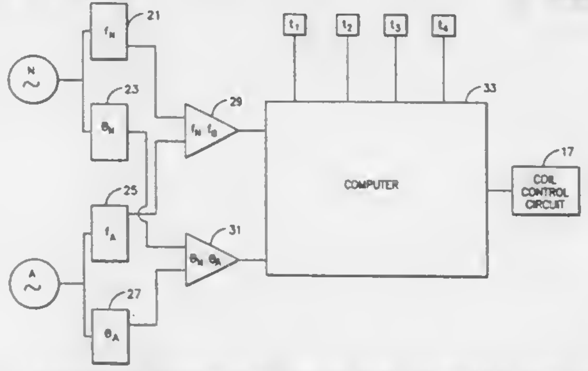
1. A reclosing relay for use in a protective relaying system for reclosing plural transmission line segments, wherein each one of said plural transmission line segments is adapted to carry a voltage waveform and has first and second ends each of which is coupled to a circuit breaker, said reclosing relay being operatively associated with a particular one of said circuit breakers and comprising:

a reclose initiate (RI) input and a drive to last reclosure (DTLR) input, and an output at which a close signal (CLOSE) is provided to effect the reclosure of the particular circuit breaker associated with said reclosing relay;
wherein said reclosing relay is operative when it receives a first RI signal at its RI input to provide said close signal to the associated circuit breaker substantially immediately, and wherein said reclosing relay is operative when it receives a second RI signal at its DTLR input to provide said close signal to said particular circuit breaker only after a predetermined sufficient degree of synchronism exists between the voltage waveforms on the lines on either side of the particular circuit breaker.



5,784,240
METHOD AND APPARATUS FOR LIMITING CURRENT SURGE UPON TRANSFER OF A LOAD BETWEEN A.C. POWER SOURCES

Walter Przywozny, Whippany, N.J., assignor to Automatic Switch Company, Florham Park, N.J.
Filed Dec. 20, 1996, Ser. No. 772,089
Int. Cl.^{6} H02H *3/18*
U.S. Cl. 361—85 **12 Claims**

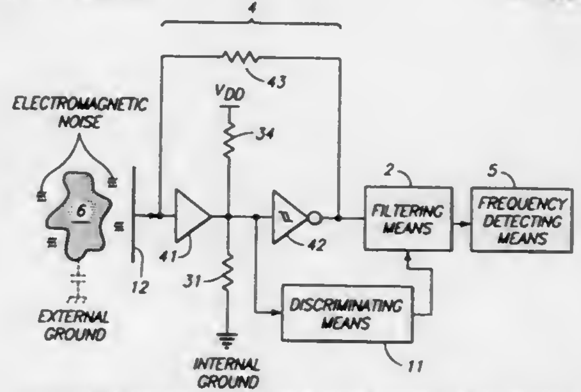


1. A method of limiting surge current from a transferee source of A.C. power to a load upon transfer thereto from a transferor source of A.C. power by a transfer switch comprising,

monitoring the frequency of the transferor source of power,
monitoring the phase of the transferor source of power,
monitoring the frequency of the transferee source of power,
monitoring the phase of the transferor source of power,
comparing the frequency of the transferor source of power with the frequency of the transferee source of power,
determining the phase difference between the transferor source of power and the transferee source of power,
energizing the transfer switch to effect transfer of the load from the transferor source of power to the transferee source of power when the phase difference between the transferor source of power and the transferee source of power is of a value in a first range of values, if the frequency of the transferee source of power is greater than the frequency of the transferor source of power, and
energizing the transfer switch to effect transfer of the load from the transferor source of power to the transferee source of power when the phase difference between the transferor source of power and the transferee source of power is of a value in a second range of values, if the frequency of the transferee source of power is less than the frequency of the transferor source of power.

5,784,241
ELECTROMAGNETIC-NOISE PROTECTION CIRCUIT

Gaute Munch, Granslev, and Jimmi Hansen, Hadsten, both of Denmark, assignors to Carlos Gavazzi AG, Steinhausen, Switzerland
Filed Aug. 30, 1996, Ser. No. 705,242
Claims priority, application European Pat. Off., Feb. 23, 1996, 96102755
Int. Cl.^{6} H02H *3/22*
U.S. Cl. 361—111 **29 Claims**

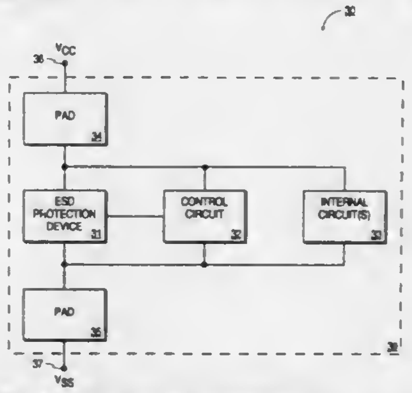


1. An electromagnetic-noise protection circuit for protecting an electrical device, which processes wanted signals, the electromagnetic-noise protection circuit comprising:

a sensor which senses the presence of ambient electromagnetic noise from which the electrical device is to be protected, the sensor including a high impedance point capacitively coupled to a ground external of the electrical device;
a discriminator which monitors the sensor and discriminates time periods when the sensor senses ambient electromagnetic noise from time periods when the sensor does not sense ambient electromagnetic noise; and
a filter coupled to the sensor and removing the influence of ambient electromagnetic noise in time periods during which the sensor senses the presence of the ambient electromagnetic noise.

5,784,242
APPARATUS FOR SMART POWER SUPPLY ESD PROTECTION STRUCTURE

Jeffrey T. Watt, Mountain View, Calif., assignor to Cypress Semiconductor Corp., San Jose, Calif.
Continuation of Ser. No. 297,629, Aug. 29, 1994, Pat. No. 5,625,522. This application Dec. 3, 1996, Ser. No. 758,336
Int. Cl.^{6} H02H *3/00*
U.S. Cl. 361—111 **15 Claims**



1. An ESD protective circuit, comprising:

an ESD protection device having first, second and third terminals; and
a control circuit coupled in parallel with said ESD protection device, said control circuit including a capacitive device coupled to a diode device and a pull-down device, and further including a first terminal coupled to said first terminal of said

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ESD protection device, a second terminal coupled to said second terminal of said ESD protection device and a third terminal coupled to said third terminal of said ESD protection device,

wherein said capacitive device is coupled between said first terminal of said control circuit and said second terminal of said control circuit, said pull-down device is coupled between said second terminal of said control circuit and said third terminal of said control circuit, and said diode device is coupled between said first terminal of said control circuit and said pull-down device.

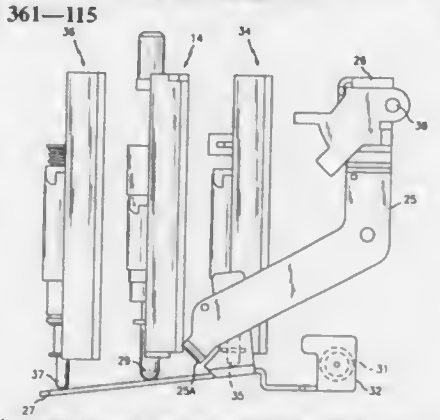
5,784,243
MODULAR ACCESSORY MECHANICAL LOOK-OUT MECHANISM

John A. Pollman, Seymour, and Raymond K. Seymour, Plainville, both of Conn., assignors to General Electric Company, New York, N.Y.

Filed Feb. 7, 1997, Ser. No. 796,329

Int. Cl.^{6} H01H *73/00*

U.S. Cl. 361—115 **12 Claims**



1. An industrial-rated circuit breaker for high level overcurrent protection comprising:

- an insulative base and an insulative cover;
- an operating mechanism in said base controlled by an electronic trip unit arranged within said cover to open and close a pair of contacts;
- a pair of opening and closing buttons interacting with said operating mechanism to open and close said contacts independent from said electronic trip unit;
- a shunt trip accessory connecting with said electronic trip unit for actuating said electronic trip unit to separate said contacts upon receipt of a shunt trip voltage signal;
- an accessory lever within said cover interacting with said closing button to prevent said closing button from closing said contacts; and
- a shunt trip lock-out solenoid electrically connecting with said shunt trip accessory and interacting with said accessory lever to prevent said closing button from closing said contacts until said shunt trip voltage signal is turned off.

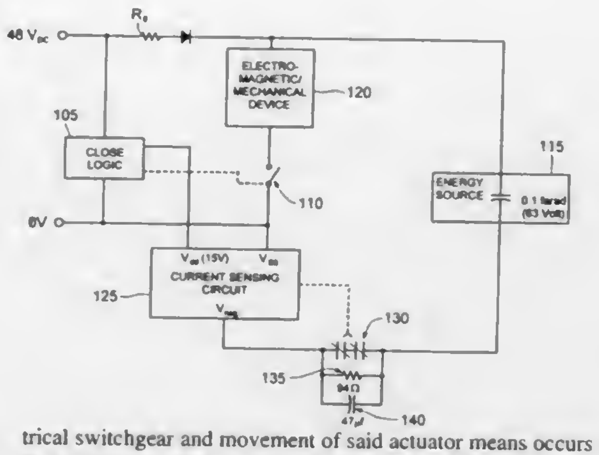
5,784,244
CURRENT LIMITING CIRCUIT

Richard Jerome Moran, Milwaukee; Daniel James Schreiber, New Berlin, and Ronald Arvid Wainio, South Milwaukee, all of Wis., assignors to Cooper Industries, Inc., Houston, Tex.

Filed Sep. 13, 1996, Ser. No. 713,648

Int. Cl.^{6} H01H *47/10*

U.S. Cl. 361—154 **19 Claims**



1. A device for limiting an electrical switchgear closing velocity comprising:

- an energy source;
- an actuator means connected in series with said energy source, wherein said actuator means mechanically operates the electrical switchgear and movement of said actuator means occurs at a velocity which is related to a current flowing there through;
- current sensing means connected to said actuator means for detecting whether said current has reached a predetermined amount;
- current optimizing impedance means; and
- means for inserting said current optimizing impedance means in series with said energy source and said actuator means in response to said current sensing means detecting the predetermined amount of current flowing through said actuator means to limit said velocity of said electrical switchgear closing.

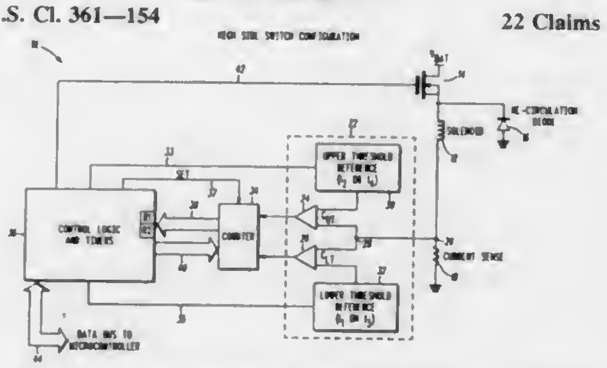
5,784,245
SOLENOID DRIVER AND METHOD FOR DETERMINING SOLENOID OPERATIONAL STATUS

Paul Moraghan, Chicago, and Roy E. Hunninghaus, Des Plaines, both of Ill., assignors to Motorola Inc., Schaumburg, Ill.

Filed Nov. 27, 1996, Ser. No. 757,185

Int. Cl.^{6} H01H *47/32*

U.S. Cl. 361—154 **22 Claims**


HIGH SIDE SWITCH CONFIGURATION
SOLENOID
RE-CIRCULATION DIODE
UPPER THRESHOLD REFERENCE
CONTROL LOGIC AND TIMERS
COUNTER
CURRENT SENSE
LOWER THRESHOLD REFERENCE
DATA BUS TO MICROCONTROLLER

1. A method for detecting the position of an armature within a solenoid coil comprising the steps of:

- providing a first solenoid current, wherein the first solenoid current is insufficient to pull the armature into the solenoid coil;
- turning the first solenoid current off and measuring a first current decay time, wherein the step of measuring the first current decay time is independent of a supply voltage;
- providing a second solenoid current, wherein the second solenoid current sufficient to pull the armature into the solenoid coil;
- turning the second solenoid current off, while maintaining the armature in the solenoid coil, and measuring a second current decay time, wherein the step of measuring the second current decay time is independent of a supply voltage;
- providing armature status reference values; and
- comparing the first and second decay times with the armature status reference values to determine the position of the armature.

5,784,246
SAFETY SYSTEM COMPRISING MAGNETIC LOGIC CIRCUITS

Hendrik Christiaan Steinz, Hattem, and Jan Nichlaas De Breet, Apeldoorn, both of Netherlands, assignors to GTI Industrial Automation, Inc., Netherlands

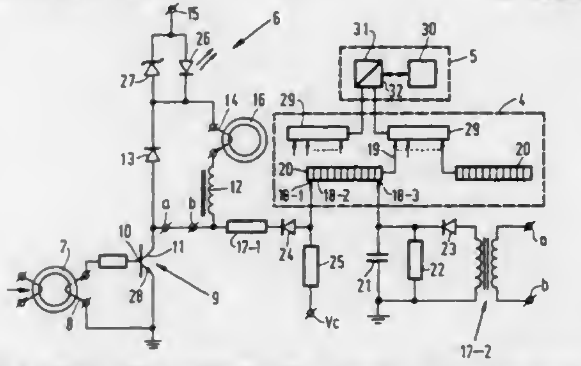
PCT No. PCT/NL95/00155, § 371 Date Dec. 27, 1995, § 102(e) Date Dec. 27, 1995, PCT Pub. No. WO95/30127, PCT Pub. Date Nov. 9, 1995

PCT Filed Apr. 28, 1995, Ser. No. 571,849

Claims priority, application Netherlands, May 3, 1994, 9400727

Int. Cl.^{6} G01D *3/08*

U.S. Cl. 361—170 **10 Claims**



1. A safety system provided with a plurality of separate safety circuits each coupled to the other and each comprising a semiconductor provided with a control electrode in whose main path of current a circuit consisting of a coil, a diode, and at least one magnetic core winding is incorporated, whereby the current flows in the main path each time a control pulse is supplied to the control electrode, which main current is interrupted upon termination of said control pulse as a consequence of which said coil produces a circuit current comprising:

- a reaction-free element in each safety circuit connected in a current path between the main path of current of the semiconductor and the input of a data acquisition circuit to electrically isolate said safety circuit from said data acquisition circuit if and when a system malfunction causes excess current to flow in said circuit path between the semiconductor and the data acquisition circuit thereby preventing interference with proper operation of the safety circuit by the data acquisition circuit.

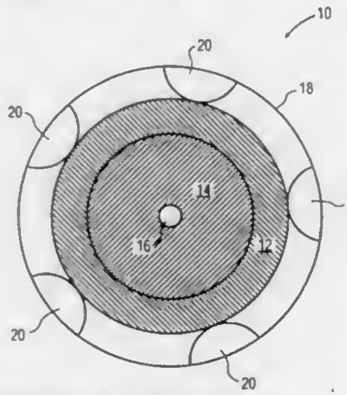
5,784,247
CAPACITOR HAVING AN INACTIVE CORE ELEMENT ELECTROLYTIC

James L. Stevens, Irmo, and Monroe E. Fulmer, Prosperity, both of S.C., assignors to Philips Electronics North America Corporation, New York, N.Y.

Filed Oct. 3, 1996, Ser. No. 725,627

Int. Cl.^{6} H01G *9/00*

U.S. Cl. 361—523 **9 Claims**



1. An electrolytic capacitor comprising:

- a) an inactive core element, at least the outer surface of which is solid;
- b) an active element wound around the inactive core element; and
- c) a thermally conductive package enclosing both the active element and the inactive core element and in direct thermal contact with an outer radial surface of the active element.

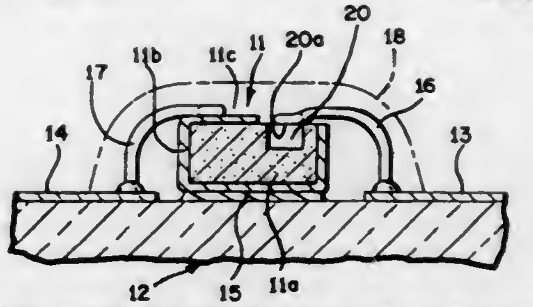
5,784,248
METHOD OF MOUNTING SOLID ELECTROLYTIC CAPACITOR ONTO PRINTED CIRCUIT BOARD, AND ASSEMBLY OF THE CAPACITOR AND THE BOARD

Tomohiro Tomiyasu, Chikugo, and Yasuo Kanetake, Kyoto, both of Japan, assignors to Rohm Co., Ltd., Kyoto, Japan

Filed Apr. 4, 1997, Ser. No. 832,910

Int. Cl.^{6} H01G *9/00*

U.S. Cl. 361—523 **16 Claims**



10. An assembly of a solid electrolytic capacitor and a printed circuit board; the printed circuit board comprising an anode pad and a cathode pad; the capacitor comprising a capacitor element which has an anode and a cathode electrically separated by a dielectric substance, the cathode including an outer cathode terminal layer formed over the element, the element being attached to the printed circuit board for bringing the cathode terminal layer into electrical connection with the cathode pad, the element being enclosed in a resin member for protection,

wherein a part of the cathode terminal layer is removed to expose a flat anode terminal surface which is electrically connected to the anode pad via a metal wire.

5,784,249
ELECTRICAL DISTRIBUTION PANEL WITH QUICK CHANGE ELECTRICAL OUTLETS

Gary J. Pouliot, 3140 Achilles Dr., Reno, Nev. 89512

Filed Feb. 25, 1992, Ser. No. 840,912

Int. Cl.^{6} H02B *1/26*

U.S. Cl. 361—622 **14 Claims**

1. A circuit breaker panel comprising:

- a plurality of circuit breakers including output means,
- means to mount said circuit breakers,
- at least one electrical power receptacle, and
- an enclosure with a dead front on a first side thereof, said first side is defined as a front of said panel, and said dead front includes at least one opening therein,
- said enclosure includes on a second side thereof at least one access opening of sufficient size to allow manual access by a user to an interior of said enclosure so that the user can make required electrical connections, said second side of said enclosure being adjacent to said first side of said enclosure, said enclosure further includes means to mount said electrical power receptacle so that outlets of said electrical power receptacle are exposed on said second side, a third side, or a fourth side of said enclosure,
- said panel further comprises at least one power bus assembly; such that
- the user gains access to connection elements of said electrical power receptacle and to said output means of said circuit breakers through said access opening, thereby minimizing a

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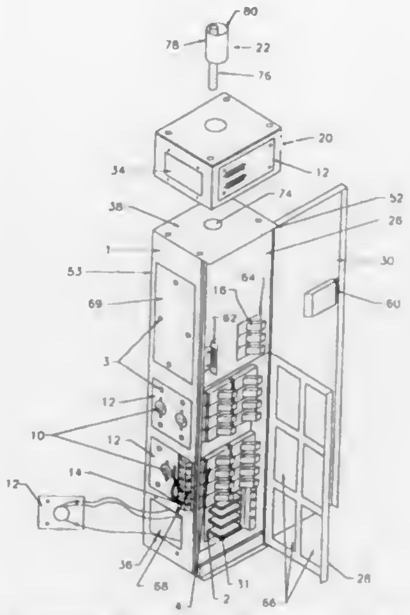


distance between said connection elements of said electrical power receptacle and said output means of said circuit breakers, while allowing the user working space to establish a connection between said electrical power receptacle and said output means of said circuit breakers, said working space being independent of enclosure size in that said working space is largely in an exterior of said enclosure.

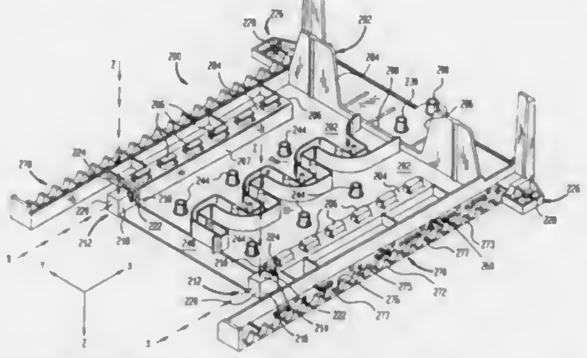
5,784,250
NEUTRAL BAR WIRE GUIDE

William E. Rose, Grayson, Ga., assignor to Siemens Energy & Automation, Inc., Alpharetta, Ga.

Filed Mar. 27, 1996, Ser. No. 622,223

Int. Cl.^{6} H02B *1/01;1/26*

U.S. Cl. 361—627 **5 Claims**



2. A load center comprising an enclosure, a basepan comprising a unitary member having a surface member and mounted within the enclosure, a neutral bar having a plurality of connector apertures for accepting wires therein, the surface member further including a neutral bar wire guide having a wall upwardly extending from the surface of the basepan, the basepan having a channel for receiving the neutral bar therein mounting the neutral bar to the basepan, the neutral bar wire guide having a plurality of slots extending through the wall at a top surface between an outerface and an innerface, each one of the plurality of slots separated from one another by a tooth, `at least one of the plurality of slots positioned to receive a neutral return ware and aligned with a corresponding electrical connector aperture in the neutral bar for guiding the neutral return fire therethrough into the corresponding electrical connector aperture.

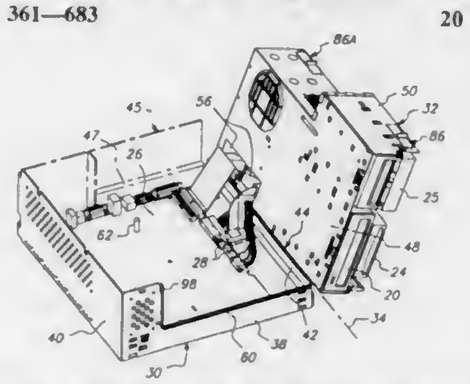
5,784,251
APPLIANCE CHASSIS HAVING HINGEDLY MOUNTED SECTION

Wayne H. Miller, West Linn, Oreg.; Jimmy A. Melton, San Jose; Wayman Lee, Santa Clara, both of Calif.; Bradley C. Helm, Tualatin, Oreg., and David H. Titzler, Newbury Park, Calif., assignors to Apple Computer, Inc., Cupertino, Calif.

Filed May 1, 1995, Ser. No. 431,417

Int. Cl.^{6} G06F *1/16;* **H05K** *7/16*

U.S. Cl. 361—683 **20 Claims**



1. An electrical appliance comprising a chassis which includes a main chassis section supporting at least a removable first electric operational component of the appliance, and a subchassis supporting at least a second electric operational component of the appliance, said subchassis being hingedly mounted for swinging movement relative to said main chassis section and relative to said first operational component about a substantially horizontal axis of rotation between a folded-in position arranged above said first operational component and blocking access thereto, and a folded-out position offset from said first operational component to provide access thereto, said appliance further including a removable cover arranged to prevent removal of said second operational component when said subchassis is in said folded-in position, said cover being removable when said subchassis is in said folded-in position, said second operational component being removably mounted on said subchassis so as to be accessible for removal when said subchassis is in said folded-in position and said cover is removed, said subchassis covering said first operational component when in said folded-in position and exposing said first operational component for removal when in said foldedout position.

5,784,252
ELECTRONIC PROCESSOR UNIT HAVING COMPONENTS MOUNTED ON A PIVOTAL FRAME WITH LOCK MECHANISM

Egidio Villa, Romano Canavese, and Giuseppe Chiantaretto, Ozegna, both of Italy, assignors to Olivetti & C., S.p.A., Italy

PCT No. PCT/EP95/00237, § 371 Date Jul. 31, 1996, § 102(e) Date Jul. 31, 1996, PCT Pub. No. WO95/20785, PCT Pub. Date Aug. 3, 1995

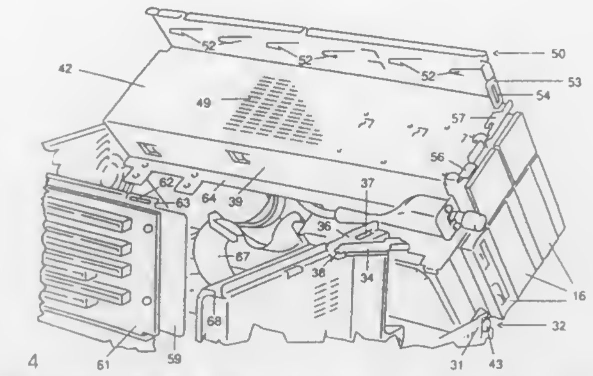
PCT Filed Jan. 23, 1995, Ser. No. 682,784

Claims priority, application Italy, Jan. 31, 1994, TO94A0046

Int. Cl.^{6} G06F *1/16;* **H05K** *7/16*

U.S. Cl. 361—683 **9 Claims**

1. An electronic processor unit comprising a base (**13**) having a front wall (**19**), said base (**13**) adapted to support first mechanical and/or electronic components (**24**,**61**); an auxiliary frame (**14**) adapted to support second mechanical and/or electronic components (**16**,**17**); interlocking means (**32**) for the base and the auxiliary frame so that the auxiliary frame can be moved between a rest position and an access position, the auxiliary frame permitting access to the first and second mechanical and/or electronic components (**16**,**17**,**24**,**61**) in the said access position; and a fixing mechanism which can be selectively actuated in order to lock the auxiliary frame to the base in the rest position, the fixing mechanism comprising first locking means (**34**,**37**) in the base (**13**) and second locking means (**54**) in the auxiliary frame (**14**), one of the locking means being selectively actuatable in order to cooperate with the other locking means in the rest position of the auxiliary frame; characterised in that the first locking means are disposed on the front wall (**19**) of the base and comprise a hook (**34**) free to rotate about a fulcrum (**38**), and a shoulder (**36**) having a small hole (**37**); the second locking means comprise a tongue (**53**) with an associated eyelet (**54**); and the shoulder (**36**) and the tongue (**53**) are adapted to cooperate with the hook, and the small hole (**37**) and the eyelet (**54**) are adapted to house the hook (**34**) in order to lock the auxiliary frame (**14**) in the rest position.



5,784,253
DOCKING STATION INCLUDING EJECTION LEVER LOCATED UNDER COMPUTER MOUNTED ON DOCKING STATION AND COVER HELD CLOSED BY PORTION EXTENDING UNDER COMPUTER

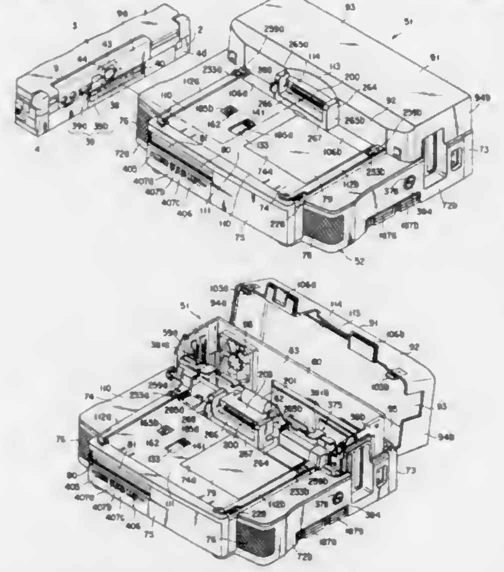
Satoshi Ooka; Kazuyuki Matsuda, and Kazuaki Kawabata, all of Tokyo, Japan, assignors to Kabushiki Kaisha Toshiba, Kawasaki, Japan

Continuation of Ser. No. 713,256, Sep. 12, 1996, abandoned. This application Jul. 15, 1997, Ser. No. 893,016

Claims priority, application Japan, Oct. 20, 1995, 7-272349

Int. Cl.^{6} G06F *1/16;1/20;* **H01R** *13/62;* **H05K** *7/10*

U.S. Cl. 361—686 **34 Claims**



1. An electronic apparatus system comprising:

an electronic apparatus body; and

an extension station having a mount portion on which said electronic apparatus body is detachably mounted, and a device storage section in which an extension device for extending functions of said electronic apparatus body is removably stored,

wherein said extension station has an ejector for discharging said extension device from said device storage section, said ejector having an eject lever manually operable at the time of discharging the extension device, said eject lever having an operation section exposed to the mount portion.

14. An electronic apparatus system comprising:

an electronic apparatus body; and

an extension station having a mount portion on which said electronic apparatus body is detachably mounted, said extension station extending functions of the electronic apparatus body,

wherein said extension station comprises:

- a first device storage section for removably storing a first extension device for extending the functions of the electronic apparatus body;
- a second device storage section for removably storing a second extension device for extending the functions of the electronic apparatus body;
- a cover supported on the extension station, said cover being rotatable between a closed position where the first device storage section is closed and an open position where the first device storage section is opened, said cover having an extension portion extending toward the mount portion when the cover is rotated to the closed position, said extension portion being located below the electronic apparatus body placed on the mount portion; and

an ejector for discharging said second extension device from said second device storage section, said ejector having an eject lever including an operation section exposed to the mount portion.

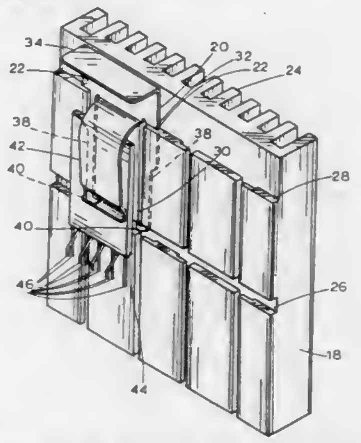
5,784,254
SLIDE MOUNT SPRING CLAMP ARRANGEMENT FOR ATTACHING AN ELECTRICAL COMPONENT TO A CONVECTOR

Frank Martin Stephan, Galveston, and Thurman Russell Reed, Indianapolis, both of Ind., assignors to Delco Electronics Corporation, Kokomo, Ind.

Filed Jan. 13, 1997, Ser. No. 783,841

Int. Cl.^{6} H05K *7/20;9/00*

U.S. Cl. 361—690 **6 Claims**



1. A package for an electrical assembly including a heat-generating component, comprising:

- a closed housing defined by a sheet metal chassis and a convector for dissipating heat generated by said heat-generating component, said convector having a heat dissipative surface exterior to said housing and a component clamping surface interior to said housing, and said sheet metal chassis having an opening adjacent said convector to facilitate clamping of said heat dissipative component to said component clamping surface; and
- a metal spring clamp that, when inserted through the opening in said chassis, clamps the component to the component clamping surface of said convector, said clamp including an integral metal flange which covers said opening to prevent electromagnetic interference effects that would otherwise be caused by said opening.

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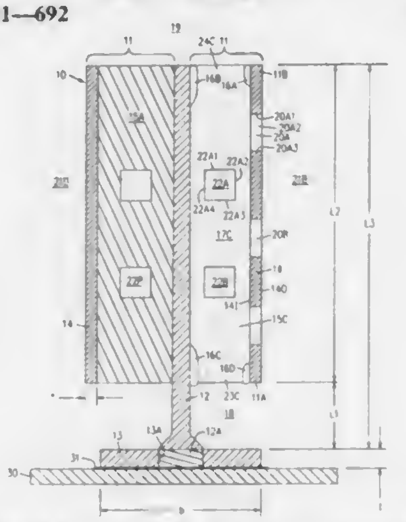
5,784,255
DEVICE AND METHOD FOR CONVECTIVE COOLING OF AN ELECTRONIC COMPONENT

Christopher P. Wyland, Santa Clara, Calif., assignor to Integrated Device Technology, Inc., Santa Clara, Calif.

Filed Dec. 4, 1995, Ser. No. 566,757

Int. Cl.^{6} H05K *7/20*

U.S. Cl. 361—692 **18 Claims**



1. A heat sink for cooling an electronic component, said heat sink comprising:
- a base;
- a support member connected to said base; and
- a heat exchanger supported substantially on said support member and surrounding at least a substantial portion of said support member, wherein:
  - said heat exchanger defines at least one entry hole adjacent said base and at least one exit hole at a distance from said entry hole, said exit hole being in flow communication with ambient air adjacent to said heat sink, said distance being sufficient for a thermal gradient in said heat exchanger between said entry hole and said exit hole to cause movement of ambient air from said entry hole to said exit hole by natural convection;
  - said heat exchanger defines at least one channel adjacent said support member and in flow communication with said entry hole and said exit hole;
  - said heat exchanger comprises a tube and at least one radial member extending radially from said support member to said tube, said tube surrounding said support member and located approximately concentric with said support member; and
  - said heat exchanger is devoid of a fan for moving said air.

5,784,256
PORTABLE COMPUTER HAVING A CIRCUIT BOARD INCLUDING A HEAT-GENERATING IC CHIP AND A METAL FRAME SUPPORTING THE CIRCUIT BOARD

Hiroshi Nakamura, and Yuji Nakajima, both of Tokyo, Japan, assignors to Kabushiki Kaisha Toshiba, Kawaski, Japan

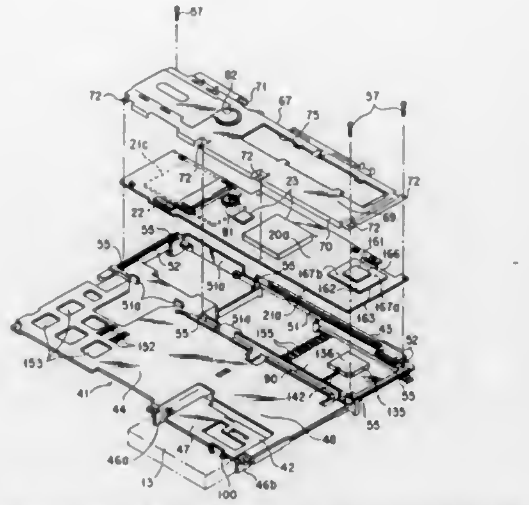
Continuation-in-part of Ser. No. 523,392, Sep. 5, 1995, Pat. No. 5,581,443. This application Dec. 3, 1996, Ser. No. 758,766

Claims priority, application Japan, Sep. 14, 1994, 6-220640; Dec. 14, 1994, 6-310848; May 25, 1995, 7-126461

Int. Cl.^{6} H05K *7/20*

U.S. Cl. 361—699 **15 Claims**

10. A portable computer comprising:
- a body containing a metal frame, data-inputting means and means for processing data received by said data-inputting means;
- a circuit board supported by said metal frame and having a first surface and a second surface facing away from the first surface; and



- an IC chip mounted on the first surface of said circuit board and generating heat while operating,
- wherein said metal frame has a heat-receiving part contacting the second surface of said circuit board, for receiving heat from said IC chip through said circuit board, and a heat pipe supported by said metal frame, and said heat pipe is designed to dissipate heat transmitted from said IC chip to said heat receiving part.

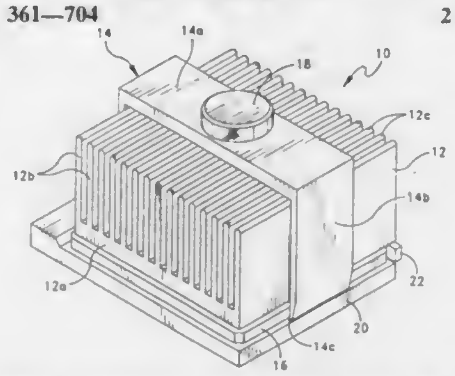
5,784,257
HEATSINK ASSEMBLY WITH ADJUSTABLE RETAINING CLIP

Peter D. Tata, Johnston, R.I., assignor to Chip Coolers, Inc., Warwick, R.I.

Filed Feb. 21, 1997, Ser. No. 803,628

Int. Cl.^{6} H05K *7/20*

U.S. Cl. 361—704 **21 Claims**



1. A heat sink assembly for removing heat from an electronic device package having a top surface, comprising:
- a heat sink member, having a base member defining a flat bottom surface and a plurality of upstanding fins, the top portion thereof defining an upper surface, disposed on an electronic device package; said flat bottom surface of said heat sink member being in flush communication with said top surface of said electronic device package;
- a retaining clip, having a central member and a pair of legs depending downwardly from respective opposing ends of said central member with ends of said pair of legs not connected to said central member being free ends, an aperture disposed through said central member defining a bore; female threading formed in said bore; means for securing said free ends of said pair of legs to said electronic device package; said retaining clip being positionable over and embracing said heat sink member with said bore being proximal with said upper surface of said heat sink member; and
- a cylindrical adjustment member, having male threading thereon, threadably received through said bore into communication with said upper surface of said heat sink member thus maintaining said heat sink member in pressure and tension controlled flush communication with said electronic device package.

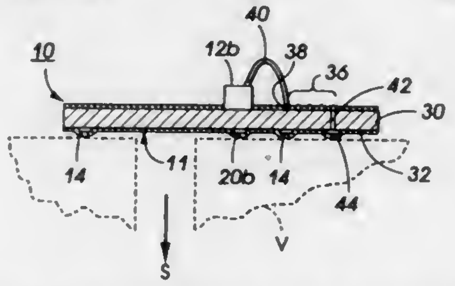
5,784,258
WIRING BOARD FOR SUPPORTING AN ARRAY OF IMAGING CHIPS

Kraig A. Quinn, Webster, N.Y., assignor to Xerox Corporation, Stamford, Conn.

Filed Apr. 11, 1997, Ser. No. 840,210

Int. Cl.^{6} H05K *3/30*

U.S. Cl. 361—748 **14 Claims**



1. A broad, defining a first main side, a second main side, and a thickness therebetween, for supporting at least one semiconductor chip on the first main side thereof, comprising:
- a ridge protruding from the second main side, the ridge defining an enclosed surface area on the second main side, the ridge having a thickness of not less than 1 mil relative to the second main side.

5,784,259
CARD-TYPE ELECTRONIC DEVICE WITH PLASTIC FRAME SANDWICHED BETWEEN PRINTED CIRCUIT BOARDING METAL PANEL

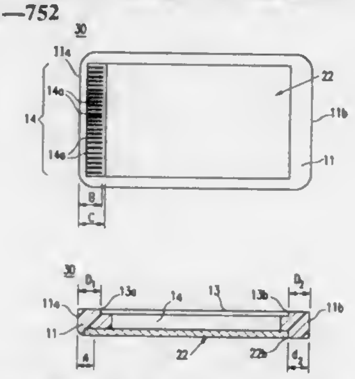
Tohru Asakura, Suwa, Japan, assignor to Seiko Epson Corporation, Tokyo, Japan

Division of Ser. No. 601,459, Feb. 14, 1996, which is a continuation of Ser. No. 401,568, Mar. 9, 1995, abandoned. This application Jul. 9, 1997, Ser. No. 890,183

Claims priority, application Japan, Mar. 9, 1994, 6-038316; Feb. 3, 1995, 7-16640

Int. Cl.^{6} H05K *1/14;* **H01R** *9/09*

U.S. Cl. 361—752 **13 Claims**



1. A card-type electronic device comprising:
- a plastic frame enclosing an in-frame opening, said frame having a front end surface and a rear end surface, said rear end surface being remote from said front end surface;
- a printed circuit board having an insertion end provided with a card contact edge section forming an independent input/output interface for connection to external contacts, said card contact edge section having a connector contact region for contacting the external contacts, said printed circuit board carrying semiconductor devices and said insertion end facing toward said front end surface of said frame;
- and a metal panel, said plastic frame being sandwiched between said printed circuit board and said metal panel, and said metal panel having a front edge facing toward said front end surface of said frame,
- wherein said front end surface of said frame is spaced at a distance D_1 from said front edge of said metal panel and at a distance A from said connector contact region of said printed circuit board, and $A<D_1$,
- wherein said metal panel has a rear edge facing toward said rear end surface of said frame, said rear end surface of said frame is spaced at a distance D_2 from said rear edge of said metal panel, and $A<D_2$, and
- wherein said printed circuit board has a rear end remote from said insertion end and facing toward rear end surface of said frame, and said rear end surface of said frame is spaced at a distance d_2 from said rear end of said printed circuit board, and $A<d_2$.

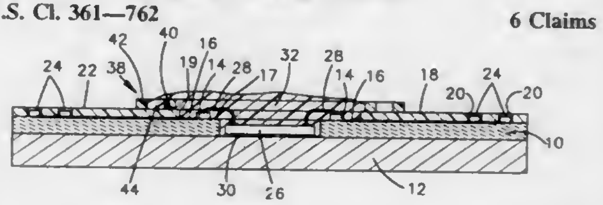
5,784,260
STRUCTURE FOR CONSTRAINING THE FLOW OF ENCAPSULANT APPLIED TO AN I/C CHIP ON A SUBSTRATE

James W. Fuller, Jr., Endicott; Mary Beth Fletcher, Vestal; Joseph Alphonse Kotylo, Binghamton; Jeffrey Alan Knight, Endwell; David Michael Passante, Endicott, and Allen F. Moring, Vestal, all of N.Y., assignors to International Business Machines Corporation, Armonk, N.Y.

Filed May 29, 1996, Ser. No. 657,469

Int. Cl.^{6} H05K *1/18;7/02*

U.S. Cl. 361—762 **6 Claims**



1. A substrate structure for the reception of wire bonded I/C chips thereon, comprising:
- a dielectric substrate having at least one surface with wire bond pads formed thereon,
- a barrier material surrounding said wire bond pads and projecting from said one surface of said substrate,
- said barrier material having formed therein a well bounded on both sides by walls extending from said one surface of said substrate; and
- a plurality of electrical contacts surrounding said barrier material.

5,784,261
MICROCHIP MODULE ASSEMBLIES

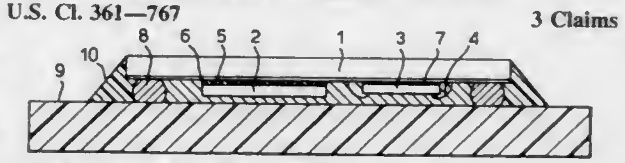
David Pedder, Long Compton, United Kingdom, assignor to Plessey Semiconductors Limited, Wiltshire, United Kingdom

Filed Jan. 31, 1996, Ser. No. 594,766

Claims priority, application United Kingdom, Feb. 3, 1995, 9502178

Int. Cl.^{6} H05K *7/02;* **H01L** *23/29;23/31*

U.S. Cl. 361—767 **3 Claims**



1. A module on board structure, comprising:
- a) a microchip module assembly mounted on, and connected directly to, electrical conductors formed on a surface of a fine-line printed circuit board, the microchip module assembly including

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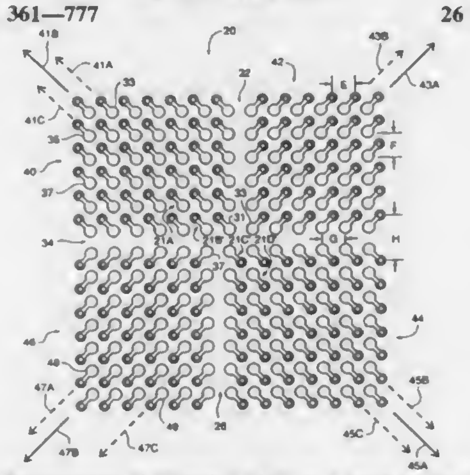
- i) a substrate of electrically insulating material having formed on one major surface thereof a multilayer metallization and dielectric structure;
- ii) at least one active semiconductor device mounted on said one major surface of said substrate;
- iii) means electrically connecting said at least one active semiconductor device to at least one metallization layer on said one major surface of said substrate; and
- iv) a first filler layer of a heat conducting electrically insulating encapsulant material between said at least one active semiconductor device and said one major surface of said substrate;

b) a plurality of solder bumps directly connecting conductors on said one major surface of said substrate to conductors on said surface of said printed circuit board, said solder bumps having a coefficient of thermal expansion; and

c) a second filler layer of a heat conducting electrically insulating encapsulant material between said one major surface of said substrate and said printed circuit board, said encapsulant material of said second filler layer having a coefficient of thermal expansion substantially matched to said coefficient of said solder bumps.

5,784,262
ARRANGEMENT OF PADS AND THROUGH-HOLES FOR SEMICONDUCTOR PACKAGES
John V. Sherman, Derby, Kans., assignor to Symbios, Inc.
Filed Nov. 6, 1995, Ser. No. 554,111
Int. Cl.^{6} H05K *7/06*
U.S. Cl. 361—777 **26 Claims**

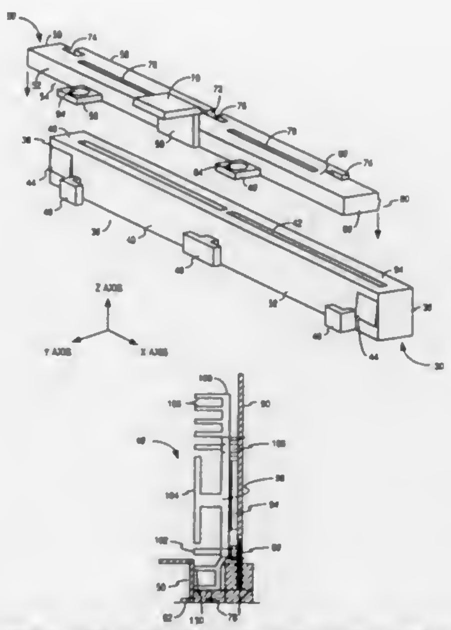


1. An arrangement of mounting pads on a substrate for connection with electrical contacts, comprising:

a plurality of segments, a first segment of said plurality having a plurality of the mounting pads in a first row; and

each of said first row mounting pads in connection with an offset through-hole oriented outwardly in a first direction that is substantially parallel to a first bisector for said first segment.

5,784,263
CONNECTOR WITH ATTACHABLE DAUGHTER CARD RETENTION SYSTEM
Daryl James Nelson, Beaverton, Oreg., assignor to Intel Corporation, Santa Clara, Calif.
Filed Jan. 8, 1996, Ser. No. 584,330
Int. Cl.^{6} H01R *23/68; 13/62*
U.S. Cl. 361—785 **13 Claims**



1. An apparatus comprising:

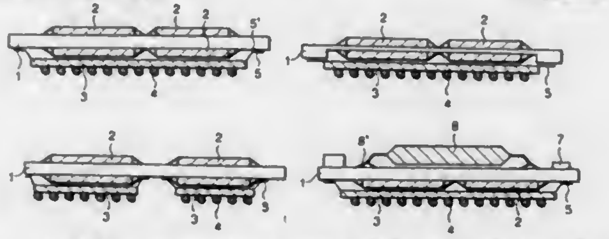
a first pc board;

a first connector portion mounted to said first pc board, said first connector portion including a housing having a first attachment point,

a second pc board having a top, bottom and side edges and having a second connector mounted along said bottom edge for mating with said first connector portion such that said second pc board is positioned substantially at right angles to said first pc board;

a base support member independent of said first connector portion having a dimension thereof adjacent to said first pc board having a second attachment point adapted to mechanically mate with said first attachment point to affix said base support to said first pc board, said base member having fasteners thereon for mechanically holding said second Pc board at substantially right angles to said first pc board.

5,784,264
MCM (MULTI CHIP MODULE) CARRIER WITH EXTERNAL CONNECTION TEMINALS BGA (BALL GRID ARRAY) TYPE MATRIX ARRAY FORM
Michinobu Tanioka, Tokyo, Japan, assignor to NEC Corporation, Tokyo, Japan
Filed Nov. 27, 1995, Ser. No. 562,848
Claims priority, application Japan, Nov. 28, 1994, 6-292844
Int. Cl.^{6} H05K *1/11; 1/14*
U.S. Cl. 361—803 **11 Claims**



1. An MCM carrier having wiring layers on front and back surfaces and internally thereof, said MCM carrier comprising:

an MCM board having a plurality of carrier board connection pads at a peripheral portion on the back surface thereof;

at least one first IC chip mounted on the front surface of said MCM board and connected to said wiring layers;

at least one second IC chip mounted on the back surface of said MCM board and connected to said wiring layers; and

a carrier board having MCM board connection terminals and external connection terminals in a matrix form, said MCM board connection terminals being connected to said carrier board connection pads of said MCM board so as to extend outward from said MCM board,

wherein said external connection terminals are attached to the back surface of said carrier board.

6. An MCM carrier having wiring layers on front and back surfaces and internally thereof, said MCM carrier comprising:

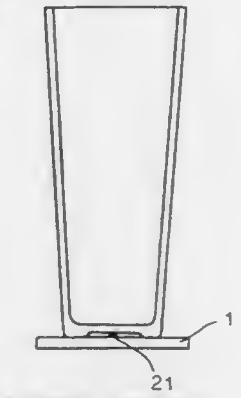
an MCM board having a plurality of carrier board connection pads at a peripheral portion on the back surface thereof;

at least one first IC chip mounted on the front surface of said MCM board and connected to said wiring layers;

at least one second IC chip mounted on the back surface of said MCM board and connected to said wiring layers; and

a carrier board having MCM board connection terminals and external connection terminals in a matrix form, said MCM board connection terminals being connected to said carrier board connection pads of said MCM board, in which said carrier board is divided for each of said IC chips.

5,784,265
ILLUMINATING COASTER
Ken-Wang Chen, P.O. Box 82-144, Taipei, Taiwan
Filed May 19, 1997, Ser. No. 858,396
Int. Cl.^{6} F21V *33/00*
U.S. Cl. 362—101 **2 Claims**



1. An illuminating coaster comprising:

an upper member;

an intermediate member;

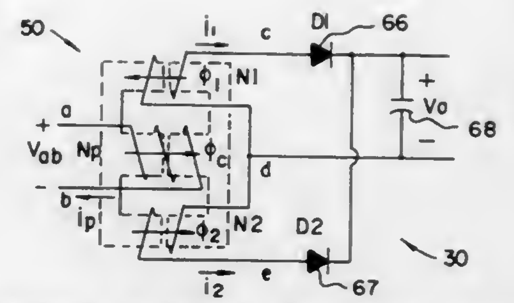
a lower member;

an illuminating assembly arranged between said upper member and said intermediate member and including a first conducting member, a second conducting member, and batteries, said first conducting member being fixedly mounted on an inner side of said upper member, said first conducting member being fixedly mounted on an inner side of said upper member, said second conducting member being provided with a light-emitting diode, said batteries being disposed between said first and second conducting members;

said upper member formed with a hole for receiving said light-emitting diode;

said intermediate member fitted between said upper and lower members and formed with an opening adapted to receive and keep said illuminating assembly in a fixed position, said intermediate member being thicker than said upper and lower members and resilient in property, said opening of said intermediate member having a depth which is slightly higher than total thickness of said second conducting member and said batteries thereby forming a small distance between said first conducting member and said batteries.

5,784,266
SINGLE MAGNETIC LOW LOSS HIGH FREQUENCY CONVERTER
Wei Chen, Blacksburg, Va., assignor to Virginia Power Technologies, Inc, Blacksburg, Va.
Filed Jun. 14, 1996, Ser. No. 662,238
Int. Cl.^{6} H02M *3/335*
U.S. Cl. 363—16 **15 Claims**

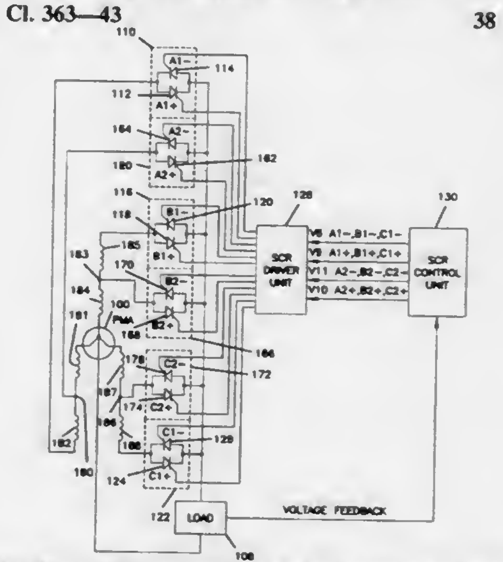


1. A forward derived high density dc/dc power converter with a simple layout design and giving overall superior performance at lower cost than similar converters, said converter comprising single magnetic core means with three posts, one post having a primary-side winding thereon and said two other posts each having secondary-side windings thereon, said secondary side windings having a different number of winding turns thereon,

semiconductor and capacitance circuit means connected to said secondary-side windings and adapted to act both as inductor windings and transformer secondary windings to produce an output of said converter, and

input circuit means connected to said primary-side winding in a forward type arrangement and causing it to perform as a forward derived converter.

5,784,267
QUASI-SINE WAVE AND STEPPED SQUARE WAVE AC TO AC CONVERTER
David J. Koenig, Wyoming, and Sergey Kunin, Minnetonka, both of Minn., assignors to Onan Corporation, Minneapolis, Minn.
Filed Oct. 17, 1996, Ser. No. 733,627
Int. Cl.^{6} H02M *1/12;* **H02J** *3/00*
U.S. Cl. 363—43 **38 Claims**



1. An AC to AC converter circuit for generating a quasi-sine wave electrical signal, comprising:

a rectifying circuit which generates a rectified output signal from multi-phase alternating voltage input energy source; and

switching means, operatively coupled to the rectifying circuit and including at least one switching device associated with each voltage phase arranged to switch each voltage phase individually, for controllably switching polarity of the rectified output signal to form a quasi-sine wave electrical signal having a selected alternating period and a selected voltage level, the selected voltage level of the quasi-sine wave electrical signal being approximately zero for approximately one third of the particular alternating period and approximately a peak voltage level for approximately two thirds of the particular alternating period under stable load conditions.

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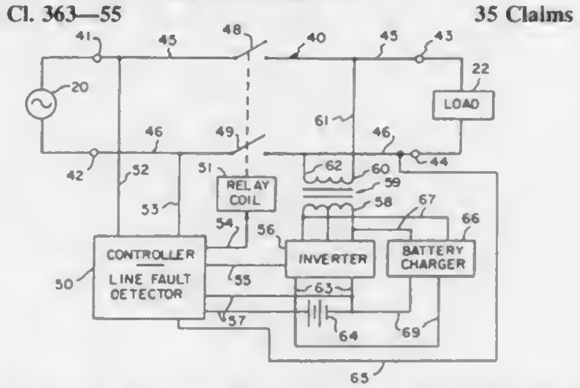
5,784,268
INVERTER CONTROL FOR SUPPORT OF POWER FACTOR CORRECTED LOADS

Laura M. Steffek, Wisconsin Rapids; Chris Egstad, Tomah, and Kevin R. Mengelt, Sun Prairie, all of Wis., assignors to General Signal Corporation, Stamford, Conn.

Filed Sep. 20, 1996, Ser. No. 710,656

Int. Cl.^{6} H02H *7/122*

U.S. Cl. 363—55 **35 Claims**



1. A method for controlling an inverter to provide an output voltage waveform on an output of the inverter for providing power to a power factor corrected load, comprising the steps of:

(a) controlling the inverter to provide a regulated output voltage waveform at a desired steady state RMS voltage level;
(b) determining the occurrence of a transient load change condition that causes the RMS voltage level of the output voltage waveform to drop suddenly;
(c) responding to the determination of the occurrence of the transient condition by controlling the inverter to rapidly increase the RMS voltage level of the output voltage waveform to a high RMS voltage level; and
(d) controlling the inverter to gradually decrease the RMS voltage level of the output voltage waveform from the high RMS voltage level down to the desired steady state RMS voltage level.

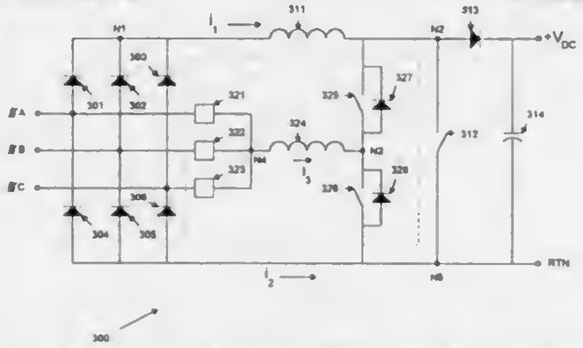
5,784,269
THREE PHASE HIGH POWER FACTOR CONVERTER USING PHASE SELECTION CIRCUIT

Mark E. Jacobs, Dallas, and Yimin Jiang, Plano, both of Tex., assignors to Lucent Technologies, Inc., Murray Hill, N.J.

Filed Feb. 21, 1997, Ser. No. 804,313

Int. Cl.^{6} H02H *7/122*

U.S. Cl. 363—89 **20 Claims**



1. An active circuit for delivering three phase AC input power received from a three phase rectifier to a DC/DC converter, comprising:

a phase selection switching circuit, coupled to said rectifier, that selects an inner phase of said three phase AC input power; and

a switching network, coupled to said phase selection switching circuit and said rectifier, that controls a waveshape of said inner phase and a waveshape of at least one other phase, thereby to reduce harmonics associated with said three phase AC input power.

5,784,270
METHOD OF CONTROLLING AN H-BRIDGE

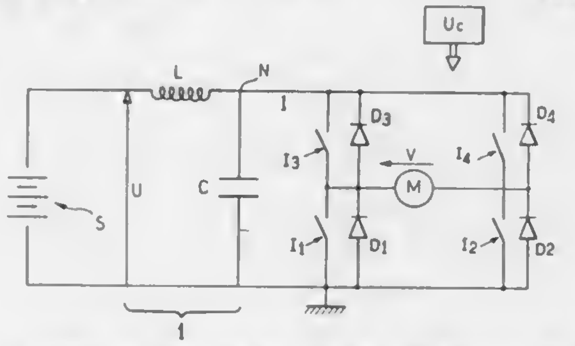
Alfred Permuy, Reuil Malmaison, France, assignor to Valeo Electronique, Rueil Malmaison, France

Filed Dec. 30, 1996, Ser. No. 777,233

Claims priority, application France, Dec. 29, 1995, 95 15728

Int. Cl.^{6} H02M *7/5387*

U.S. Cl. 363—132 **3 Claims**



1. A method of controlling an H-bridge of switches (I1 to I4) for regulating a load by pulse width modulation, said bridge being powered by a DC voltage source (S), smoothing capacitive means (C) being connected between the ends of said bridge, and the sequences whereby the switches (I1 to I4) of said bridge are actuated being selected to minimize the rms voltage flowing through said capacitive means (C), the method being characterized in that during a cycle, the current takes a peak value during a continuous portion corresponding to a cycle fraction equal to |<V>/U|, where <V> is the mean voltage applied to the load and U is the voltage of the DC voltage source, said portion being preceded by a cycle portion corresponding to a cycle fraction equal to ½(1−|<V>/U|) during which the two switches (I1, I2) of the H-bridge which are connected to ground are closed (or open as the case may be), and followed by a cycle portion likewise corresponding to a cycle fraction equal to ½(1−|<V>/U|) during which the two switches (I1, I2) of the H-bridge which are connected to ground are open (or closed as the case may be).

5,784,271
DATA PROCESSOR FOR INTERRUPTION CONTROL BETWEEN THE CPU AND THE INTERRUPTION CONTROLLER

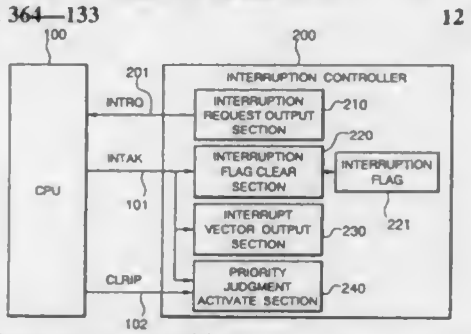
Kazunori Nagasaki, Tokyo, Japan, assignor to NEC Corporation, Tokyo, Japan

Filed Sep. 29, 1995, Ser. No. 536,844

Claims priority, application Japan, Sep. 30, 1994, 6-236548

Int. Cl.^{6} G05B *15/00*

U.S. Cl. 364—133 **12 Claims**


100
200
201
INTERRUPTION CONTROLLER
INTRQ
INTERRUPTION REQUEST OUTPUT SECTION
210
220
INTAK
INTERRUPTION FLAG CLEAR SECTION
INTERRUPTION FLAG
CPU
101
INTERRUPT VECTOR OUTPUT SECTION
230
221
CLRIP
PRIORITY JUDGMENT ACTIVATE SECTION
240
102

1. A data processor comprising:

an interruption control means for setting an interruption flag in response to an interruption request, and for outputting an interruption request signal via an interruption request line; and

a central processing unit (CPU) for outputting an interruption acknowledge signal via an interruption acknowledge line in response to said interruption request signal, said interruption acknowledge line being independent of said interruption request line and connected with said interruption request line;

wherein when said interruption acknowledge signal is at an active level, said interruption control means resets said interruption flag and outputs an interruption vector in response to said interruption acknowledge signal, and

when said interruption acknowledge signal is at an inactive level, said interruption control means generates an interruption scanning signal to determine interruption priority in response to said interruption acknowledge signal.

5,784,272
CONTROL SYSTEM FOR A PROCESS THAT EXHIBITS PERIODIC DISTURBANCES

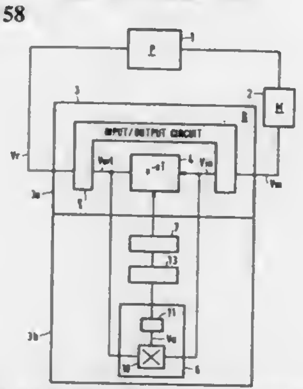
Gerrit Schootstra, and Maarten Steinbuch, both of Eindhoven, Netherlands, assignors to U.S. Philips Corporation, New York, N.Y.

Filed Oct. 20, 1995, Ser. No. 546,434

Claims priority, application European Pat. Off., Oct. 28, 1929, 94203147

Int. Cl.^{6} H04B *5/00*

U.S. Cl. 364—158 **13 Claims**



1. A system for a process with a control quantity that exhibits a periodic disturbance, comprising:

processing apparatus for operating the process;

measuring means for generating a measuring signal that represents the control quantity that exhibits the periodic disturbance;

means for receiving the measuring signal and providing a measuring-signal-related input signal;

input delay means for delaying the measuring-signal-related input signal for a delay time approximately equal to the length of a period of the periodic disturbance;

means for maintaining a relationship between the delay time and the period of the periodic disturbances, including:
  analysis means for deriving an analysis signal indicating a deviation between the period of the periodic disturbance and the delay time; and
  means for adjusting the delay time of the delay means in response to the analysis signal; and

output means for providing a control signal to the processing apparatus depending on the delayed measuring-signal-related input signal, to control the quantity so as to reduce the periodic disturbances.

5,784,273
METHOD AND SYSTEM FOR PREDICTING LIMIT CYCLE OSCILLATIONS AND CONTROL METHOD AND SYSTEM UTILIZING SAME

Poovanpilli G. Madhavan, 3347 Landings Dr., Ann Arbor, Mich. 48103

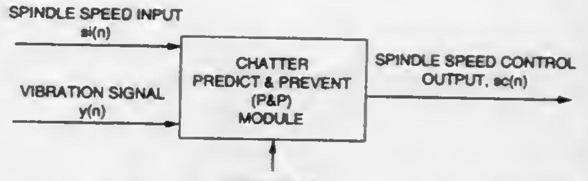
Filed Nov. 7, 1996, Ser. No. 745,014

Int. Cl.^{6} G05B *13/02*

U.S. Cl. 364—176 **26 Claims**

1. A method for predicting limit cycle oscillations in a natural system, the method comprising the steps of:

measuring oscillatory behavior in the natural system to obtain a first signal based on the oscillatory behavior;


SPINDLE SPEED INPUT si(n)
VIBRATION SIGNAL y(n)
CHATTER PREDICT & PREVENT (P&P) MODULE
SPINDLE SPEED CONTROL OUTPUT, sc(n)
MODE (A,B)

statistically processing the first signal to obtain a corresponding envelope signal;

monitoring instantaneous changes in a function which is based on the envelope signal; and

generating a classifier signal when the instantaneous changes are less than a predetermined threshold value for a predetermined time period whereby the classifier signal is a prediction of the limit cycle oscillations.

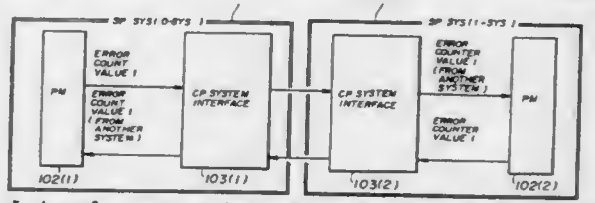
5,784,274
SYSTEM AND METHOD FOR MONITORING ERRORS OCCURRING IN DATA PROCESSED BY A DUPLEXED COMMUNICATION APPARATUS

Masami Murayama, and Naoyuki Izawa, both of Kawasaki, Japan, assignors to Fujitsu Limited, Kanagawa, Japan

Filed Feb. 29, 1996, Ser. No. 609,918

Int. Cl.^{6} G05B *15/00*

U.S. Cl. 364—184 **4 Claims**



1. A performance monitor system for monitoring a number of errors occurring in data processed in a communication apparatus having a duplex configuration formed of two systems which are able to be in an operable state and in an inoperable state, each of said two systems operating as one of a main-system and a subsystem in the operable state, said performance monitor system comprising:

a first unit for monitoring a number of errors occurring in data processed in one of said two systems;

a second unit for monitoring a number of errors occurring in data processed in another one of said two systems; and

control means for controlling operations of said first and second units, wherein each of said first and second units comprises:

a first counter counting the number of errors and outputting a first error count value; and

a second counter counting the number of errors and outputting a second error count value,

wherein said control means comprises;

first control means for controlling said first counter and said second counter so that only said first counter is activated and starts to count the number of errors at a start of an error collection cycle;

second control means for controlling said second counter in each of said two systems so that said second counter is activated and starts to count the number of error when a state of one of said two systems is changed from the inoperable state to the operable state under a condition in which another one of said systems is operating as the main-system in the operable state;

third control means for controlling said first counter in one system which operates as the main-system so as to maintain the first error count value which is obtained when a state of another system is changed from the inoperable state to the operable state; and

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fourth control means for controlling said first counter in one system in which a state thereof is changed from the inoperable state to the operable state so that the first count value is equal to the value which has been maintained in said first counter in another system is set after the state of said one system is changed to the operable state, and wherein a sum of the first error count value and the second error count value in said first and second counter in each of said first and second units is used as a monitoring result.

5,784,275

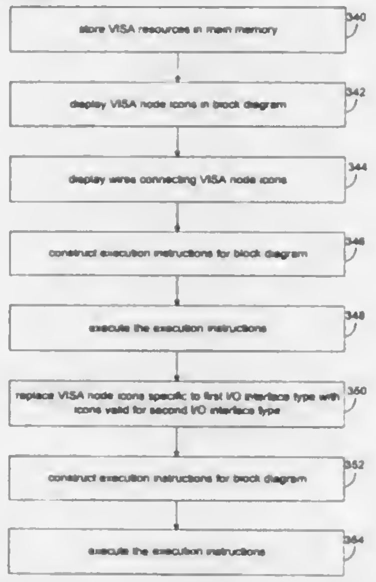
SYSTEM AND METHOD FOR PERFORMING INTERFACE INDEPENDENT VIRTUAL INSTRUMENTATION FUNCTIONS IN A GRAPHICAL DATA FLOW PROGRAM

Omid Sojoodi, and Scott A. Rust, both of Austin, Tex., assignors to National Instruments Corporation, Austin, Tex.

Filed Sep. 23, 1996, Ser. No. 716,725

Int. Cl.^{6} G05B *19/42*

U.S. Cl. 364—191 54 Claims


store VISA resources in main memory
340
display VISA node icons in block diagram
342
display wires connecting VISA node icons
344
construct execution instructions for block diagram
346
execute the execution instructions
348
replace VISA node icons specific to first I/O interface type with icons valid for second I/O interface type
350
construct execution instructions for block diagram
352
execute the execution instructions
364

1. A method for creating a program for controlling at least one instrument coupled to a computer system, wherein the computer system includes memory, a data processor, user input means, and a video screen, wherein the instrument couples to the computer system through one or more of a plurality of possible input/output (I/O) interface types, the method comprising:

storing in the memory a plurality of VISA resources, wherein said VISA resources are operable to control capabilities of the instrument which are independent of one or more of said plurality of possible I/O interface types for coupling said instrument to said computer system;

displaying on the screen a palette comprising VISA node icons, wherein the VISA node icons correspond to respective ones of the plurality of VISA resources;

displaying on the screen a graphical program, the graphical program including a plurality of VISA node icons from said palette comprising VISA node icons, wherein said displaying said graphical program is in response to user input, wherein said graphical program is operable to control the instrument independent of two or more of said plurality of possible input/output (I/O) interface types for coupling said instrument to said computer system.

5,784,276

PROGRAMMING DEVICE

Volker Hallwirth, St. Georgen, Germany, assignor to Siemens Aktiengesellschaft, Munich, Germany

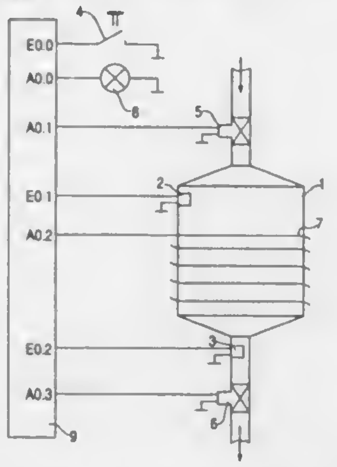
PCT No. PCT/DE95/00938, § 371 Date Jun. 4, 1997, § 102(e) Date Jun. 4, 1997, PCT Pub. No. WO96/04594, PCT Pub. Date Feb. 15, 1996

PCT Filed Jul. 14, 1995, Ser. No. 793,020

Claims priority, application Germany, Aug. 1, 1994, 44 27 183.2

Int. Cl.^{6} G06F *19/00*

U.S. Cl. 364—191 7 Claims



1. A programming device of a programmable status control system, comprising:

a controller for executing a software tool to generate a control task; and

a memory apparatus for storing the control task as a status graph which is displayable by a display device and which includes symbols corresponding to statuses, input transitions and output transitions,

wherein the controller executing the software tool generates from the status graph a structured text having a plurality of substructures, and

wherein the controller executing the software tool generates:

a first key word and a first character string from a status symbol of the symbols corresponding to the statuses and from a corresponding character string assigned to the status symbol,

a second key word following the first character string and a second character string following the second key word from at least one transition symbol of the input transition and from a fifth character string assigned to the at least one transition symbol, so that the second character string corresponds to an input vector,

a third key word following the second character string and a third character string following the third key word from the status symbol of subsequent statuses and from a sixth character string assigned to the at least one transition symbol, so that the third character string corresponds to the status symbol of the subsequent statuses, and

a fourth key word following the third character string and a fourth character string following the fourth key word from an action symbol of an output transition and from a seventh character string assigned to the action symbol, so that the fourth character string corresponds to an output vector.

5,784,277

REAL-TIME AUDIO PACKET LAYER ENCODER

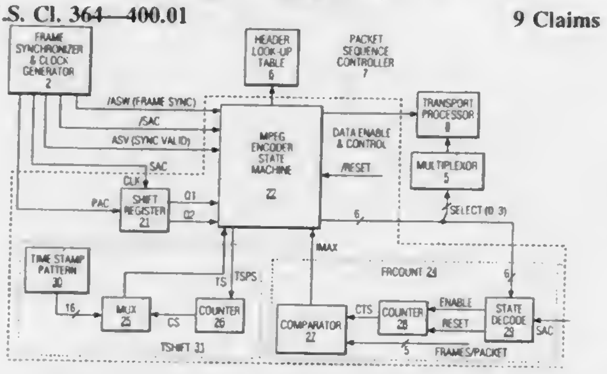
Thomas John Meyer, Mercerville, N.J., assignor to RCA Thomson Licensing Corporation, Princeton, N.J.

PCT No. PCT/US93/08620, § 371 Date Feb. 15, 1996, § 102(e) Date Feb. 15, 1996, PCT Pub. No. WO95/07579, PCT Pub. Date Mar. 16, 1995

PCT Filed Sep. 10, 1993, Ser. No. 596,182

Int. Cl.^{6} H04N *7/00*

U.S. Cl. 364—400.01 9 Claims



1. Apparatus for formatting compressed audio data into packets of data according to a predetermined protocol, said audio data occurring in audio frames each with a frame start code, said apparatus comprising:

a source of said compressed audio data (**2**) and associated timing signals:

sources of respective packet header data including service type data and timing data (**4** and **6**);

a multiplexer (**5**) having respective signal input ports coupled to respective said sources of header data (**4** and **6**) and said source of compressed audio data (**2**), an N-bit control input port for applying multiplexer control signals, and an output port;

a state machine (**22**) having an input port, and having an output port providing an S-bit output signal defining possible system output states where S is greater than N and S and N are positive integers, and wherein said S-bits from said state machine output port are combined with said associated timing signals and coupled to said state machine input port, and N bits of said S-bit output signal are coupled to said control signal input port of said multiplexer for controlling said multiplexer (**5**) to pass header data and audio data according to said protocol;

means (**52**) responsive to ones of S-N remaining bits of said S-bit output signal for producing an enable/disable signal; and

utilization means (**8**) coupled to said output port of said multiplexer (**5**), and controlled by said enable/disable signal.

5,784,278

PROCESSING SYSTEM WITH AN INTEGRATED IDENTIFICATION STRUCTURE

Carl C. Mäder, Hinwil, Switzerland, assignor to Ferag AG, Hinwil, Switzerland

Filed Sep. 29, 1995, Ser. No. 536,114

Claims priority, application Switzerland, Oct. 10, 1994, 03 042/94

Int. Cl.^{6} G06F *19/00*

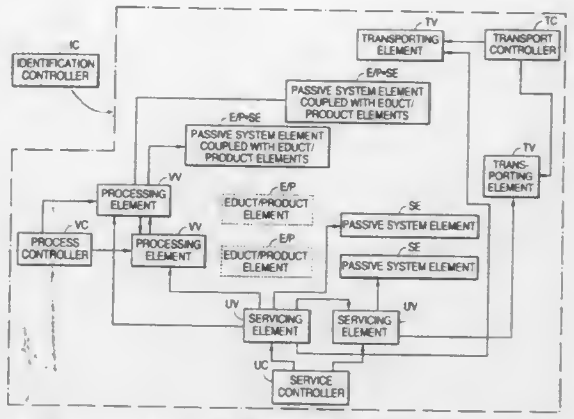
U.S. Cl. 364—468.01 11 Claims

1. A processing system for processing products in a plurality of processing steps in which the products are modified, rearranged combined or relocated, the processing system comprising

a plurality of different process paths for products passing through the processing system;

a plurality of active system elements each having a predetermined system function and authorization to act on predetermined other system elements in a predetermined way;

a plurality of passive system elements each capable of being acted on by one or more predetermined active system elements in said predetermined way;



sets of identification data carried by selected ones of said active and passive system elements, each set of identification data associated with a system element having a plurality of identification parts corresponding to said predetermined way said system element can be acted on;

means for modifying identification data, said means for modifying being associated with one specific active system element and having authorization to modify identification parts of system elements corresponding to a predetermined function of said element; and

a plurality of means for reading and verifying identification data and for controlling system elements in accordance with information carried in said identification data.

5,784,279

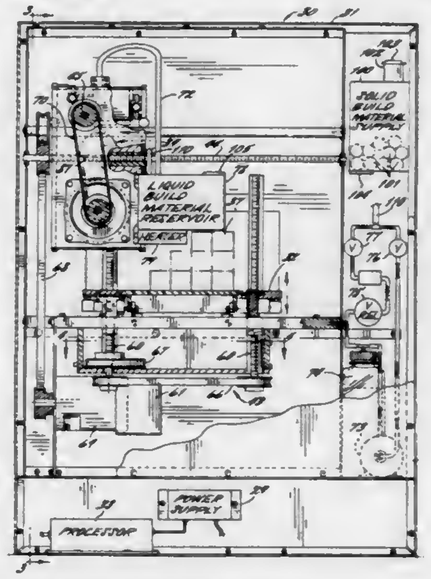
APPARATUS FOR MAKING THREE-DIMENSIONAL ARTICLES INCLUDING MOVING BUILD MATERIAL RESERVOIR AND ASSOCIATED METHOD

William Berdell Barlage, III, Easley, and Manuel Michael Ferreira, Simpsonville, both of S.C., assignors to BPM Technology, Inc., Greenville, S.C.

Filed Sep. 29, 1995, Ser. No. 536,670

Int. Cl.^{6} G06F *19/00*

U.S. Cl. 364—468.26 41 Claims



1. An apparatus for making a three-dimensional article based upon article defining data, said apparatus comprising:

a build material jetting head for dispensing build material in a plurality of droplets;

a first positioner for positioning said jetting head along a first direction;

a second positioner for positioning said first positioner along a second direction transverse to the first direction so that said

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jetting head is thereby positionable along the second direction for dispensing build material to facilitate construction of a three-dimensional article based upon article defining data;
a build material reservoir for containing liquid build material;
a flexible tube connecting said build material reservoir in fluid communication with said jetting head for delivering liquid build material from said build material reservoir to said jetting head;
said build material reservoir being mounted on said first positioner and movable therewith along the second direction to cause mixing of the liquid build material and so that said flexible tube need only flex to accommodate positioning of said jetting head along the first direction, but not along the second direction; and
docking means, cooperating with said first and second positioners, for selectively positioning said build material reservoir adjacent solid build material supply means which stores build material in solid form and for replenishing build material within said build material reservoir from said solid build material supply means.

5,784,280

Patent Not Issued For This Number

5,784,281

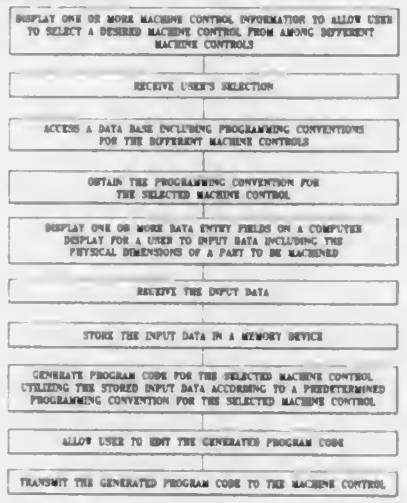
NON-GRAPHICAL AUTOMATION OF MACHINE CONTROLS

Jeffrey L. Rowlette, Pomona, Calif., assignor to QCAM, Upland, Calif.

Filed Aug. 23, 1996, Ser. No. 701,829

Int. Cl.^{6} G05B *19/409*

U.S. Cl. 364—474.23 **24 Claims**


DISPLAY ONE OR MORE MACHINE CONTROL INFORMATION TO ALLOW USER TO SELECT A DESIRED MACHINE CONTROL FROM AMONG DIFFERENT MACHINE CONTROLS
RECEIVE USER'S SELECTION
ACCESS A DATA BASE INCLUDING PROGRAMMING CONVENTIONS FOR THE DIFFERENT MACHINE CONTROLS
OBTAIN THE PROGRAMMING CONVENTION FOR THE SELECTED MACHINE CONTROL
DISPLAY ONE OR MORE DATA ENTRY FIELDS ON A COMPUTER DISPLAY FOR A USER TO INPUT DATA INCLUDING THE PHYSICAL DIMENSIONS OF A PART TO BE MACHINED
RECEIVE THE INPUT DATA
STORE THE INPUT DATA IN A MEMORY DEVICE
GENERATE PROGRAM CODE FOR THE SELECTED MACHINE CONTROL UTILIZING THE STORED INPUT DATA ACCORDING TO A PREDETERMINED PROGRAMMING CONVENTION FOR THE SELECTED MACHINE CONTROL
ALLOW USER TO EDIT THE GENERATED PROGRAM CODE
TRANSMIT THE GENERATED PROGRAM CODE TO THE MACHINE CONTROL

1. A method of non-graphical programming of a machine control to control the operations of a machine, the method comprising the steps of:
(a) displaying one or more data entry fields on a display for a user to input data including the physical dimensions of a part to be machined, without selecting G codes;
(b) receiving the input data;
(c) storing the input data in a memory device; and
(d) generating program code for said machine control utilizing the stored input data according to a predetermined programming convention, the program code including program instructions for the machine control to control operations of the machine in machining the part;
wherein the user can program machining of the part without a graphical representation of the part.

5,784,282

METHOD AND APPARATUS FOR IDENTIFYING THE POSITION IN THREE DIMENSIONS OF A MOVABLE OBJECT SUCH AS A SENSOR OR A TOOL CARRIED BY A ROBOT

Marc Abitbol, Jerusalem, Israel, and Jean-Luc Maillart, Bouc-Bel-Air, France, assignors to Bertin & Cie, Plaisir Cedex, and Sollac, Puteaux, both of France

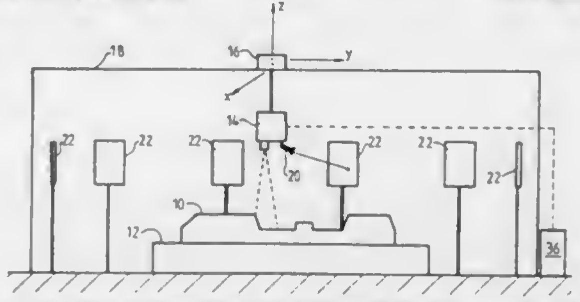
PCT No. PCT/FR94/00687, § 371 Date Jun. 8, 1995, § 102(e) Date Jun. 8, 1995, PCT Pub. No. WO94/29774, PCT Pub. Date Dec. 22, 1994

PCT Filed Jun. 10, 1994, Ser. No. 381,999

Claims priority, application France, Jun. 11, 1993, 93 07032

Int. Cl.^{6} G05B *19/18;* **G06F** *19/00;* **G06G** *7/64;7/66*

U.S. Cl. 364—474.28 **14 Claims**



1. A method of identifying the position in three dimensions of a movable object carried by a robot, the method comprising the steps of:
swivel-mounting a photosensitive detector on the movable object so as to be capable of being swivelled about at least one axis on said object, the detector having an optical axis;
sighting with the detector targets disposed at predetermined known locations relative to a displacement zone of the movable object, the targets being sighted by swivelling the detector about said axis on the movable object without displacing the movable object from its position and the detector generating signals corresponding to images of the sighted targets;
detecting for each sighted target an angular position of the detector relative to the axis of the movable object;
determining from said signals and from said angular position the position of the optical axis of the detector for each sighted target;
and calculating the position and orientation of the movable object by triangulation from the positions of the optical axis of the detector.

5,784,283

SYSTEM FOR OPTIMIZING CURE ASSURING QUALITY OF REVERSION SUSCEPTIBLE RUBBER ARTICLES

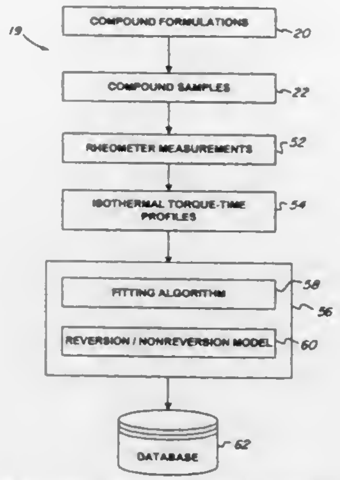
Giovanni Rimondi, Guilford, Conn., and William James Toth, Clinton, Ohio, assignors to Pirelli Coordinamento Pneumatici S.p.A., Milan, Italy

Continuation of Ser. No. 408,148, Mar. 20, 1995, Pat. No. 5,680,315. This application Aug. 1, 1997, Ser. No. 904,944

Int. Cl.^{6} G06F *19/00;* **B29C** *45/76*

U.S. Cl. 364—475.03 **17 Claims**

1. A method for creating a database of cure constants, which account for reversion, for later use to optimize cure of a rubber compound, comprising the steps of:
providing a plurality of rubber samples, each sample having a particular rubber formulation;
for at least two different temperatures, measuring a physical property which can be related to cure state of a sample of each different formulation as a function of time;
calculating a set of cure constants for the rubber formulation which account for reversion from the physical property versus time profiles; and
storing the set of cure constants on the database together with the corresponding rubber formulation.



5,784,284

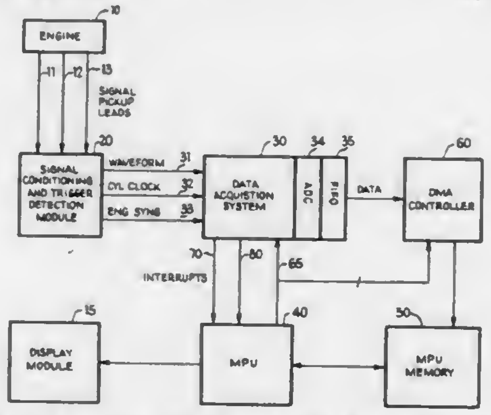
TECHNIQUE FOR PLOTTING A VARIABLE-WIDTH SIGNAL IN A FIXED-WIDTH PLOT AREA

Yosuf M. Taraki, Evanston, Ill., assignor to Snap-on Tools Company, Kenosha, Wis.

Filed Dec. 29, 1995, Ser. No. 566,376

Int. Cl.^{6} G06T *3/40;* **G06F** *19/00*

U.S. Cl. 364—487 **20 Claims**



1. A data acquisition device for plotting at least one cycle of a repetitive analog input signal of varying frequency on a fixed-plot area of a display device having a horizontal plot axis defined by a fixed number of pixels, comprising:
means for continuously sampling, at a constant sample rate, each cycle of the repetitive input signal to generate and collect, during each cycle, consecutive sets of sample points from that cycle;
means for discarding, during the course of each cycle, some of the collected sample points for that cycle; and
means for generating, at the completion of each cycle, a final set of sample points from that cycle, equal in number to said fixed number of pixels, and containing sample points from a plurality of said consecutive sets.

5,784,285

WAVEFORM ANALYZER

Naoya Tamaki; Norio Masuda, and Hirokazu Tohya, all of Tokyo, Japan, assignors to NEC Corporation, Tokyo, Japan

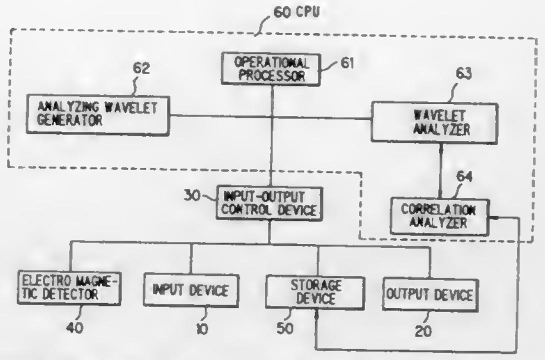
Filed Jan. 31, 1997, Ser. No. 792,732

Claims priority, application Japan, Jan. 31, 1996, 8-015107

Int. Cl.^{6} G06J *1/02*

U.S. Cl. 364—487 **6 Claims**

1. A waveform analyzer, comprising:



means for inputting measured data of an electronic device to be analyzed;
means for generating an orthogonal analyzing wavelet;
means for producing wavelet-analyzed components in which said measured data is wavelet-transformed into a plurality of wavelet spectra by using said orthogonal analyzing wavelet, thereafter said plurality of wavelet spectra are inverse-wavelet-transformed to produce said wavelet-analyzed components; and
means for adding up a component with an order corresponding to a desired filter characteristic of said wavelet-analyzed components to get a filtered waveform.

5,784,286

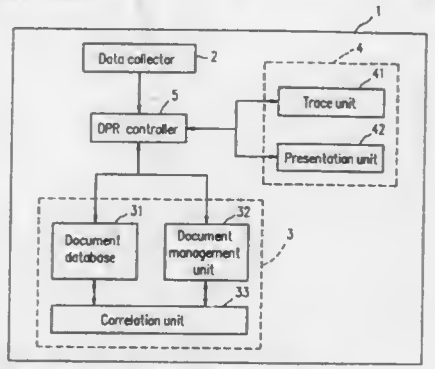
DESIGN PROCESS RECORDING METHOD AND A DESIGN PROCESS RECORDER

Atsushi Hirose, Sanda, Japan; David M. Cannon, and Larry J. Leifer, both of Stanford, Calif., assignors to Matsushita Electric Industrial Co., Ltd., Kadoma, Japan

Continuation of Ser. No. 393,497, Mar. 2, 1995, abandoned. This application Nov. 14, 1996, Ser. No. 749,068

Int. Cl.^{6} G06F *15/00*

U.S. Cl. 364—488 **8 Claims**



1. A design process recorder comprising:
first storage means for storing information generated or acquired during a progress of design, wherein said information extends beyond the design itself and involves the evolution of the design;
second storage means for storing management information including a plurality of nodes and a plurality of arcs each connecting a pair of said nodes;
correlation means for correlating one of said plurality of nodes stored in said second storage means to at least a portion of said information stored in said first storage means;
input means for allowing a user to indicate a node where a design process playback will be started;
trace means for tracing back and forth said nodes and said arcs from said node indicated by said user; and
presentation means for presenting said information correlated to nodes traced by said trace means in the order traced.

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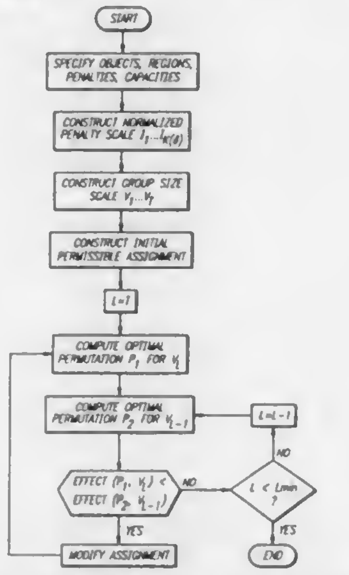
5,784,287
PHYSICAL DESIGN AUTOMATION SYSTEM AND PROCESS FOR DESIGNING INTEGRATED CIRCUIT CHIPS USING GENERALIZED ASSIGNMENT

Ranko Scepanovic; James S. Koford, both of San Jose; Edwin R. Jones, Sunnyvale, all of Calif.; Valeriy B. Kudryavtsev, Moscow, Russian Federation; Alexander E. Andreev, Moskovskaja Oblast, Russian Federation; Stanislav V. Aleshin, and Alexander S. Podkolzin, both of Moscow, Russian Federation, assignors to LSI Logic Corporation, Milpitas, Calif.

Filed Sep. 29, 1995, Ser. No. 536,004

Int. Cl.^{6} G06F *17/50*

U.S. Cl. 364—490 **32 Claims**


START
SPECIFY OBJECTS, REGIONS, PENALTIES, CAPACITIES
CONSTRUCT NORMALIZED PENALTY SCALE $l_1 \ldots l_{K(\theta)}$
CONSTRUCT GROUP SIZE SCALE $V_1 \ldots V_T$
CONSTRUCT INITIAL PERMISSIBLE ASSIGNMENT
$L=1$
COMPUTE OPTIMAL PERMUTATION P_1 FOR V_L
COMPUTE OPTIMAL PERMUTATION P_2 FOR V_{L-1}
$L=L-1$
EFFECT (P_1, V_L) < EFFECT (P_2, V_{L-1})
NO
$L < L_{min}$?
NO
YES
YES
MODIFY ASSIGNMENT
END

1. A process for designing an integrated circuit chip, comprising the steps of:

(a) specifying a plurality of regions on the chip in which a plurality of objects are to be placed, such that there are more of the objects than the regions;
(b) specifying penalties for the objects to be placed in the regions respectively;
(c) constructing an assignment of the objects to the regions;
(d) selecting a number of objects for movement between the regions;
(e) computing an optimal permutation of movement of the selected number of objects between the regions such that a cost corresponding to the total penalties for the assignment is maximally reduced; and
(f) modifying the assignment by moving the selected number of objects through the optimal permutation.

5,784,288

Patent Not Issued For This Number

5,784,289
METHOD FOR ESTIMATING ROUTABILITY AND CONGESTION IN A CELL PLACEMENT FO INTEGRATED CIRCUIT CHIP

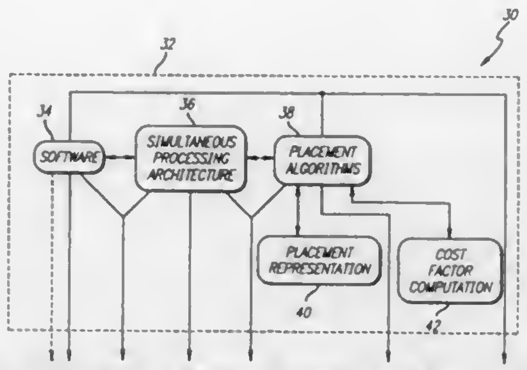
Deborah Chao Wang, San Jose, Calif., assignor to LSI Logic Corporation, Milpitas, Calif.

Continuation of Ser. No. 301,687, Sep. 7, 1994, Pat. No. 5,587,923. This application Dec. 20, 1996, Ser. No. 774,281

Int. Cl.^{6} G06F *17/10*

U.S. Cl. 364—490 **24 Claims**

1. A method for producing a cell placement for a microelectronic integrated circuit, said placement including a plurality of cells interconnected by nets of wiring, comprising estimating routing density in said placement by performing the steps of:



(a) superimposing a first set of spaced apart lines over said placement, wherein each of said lines is formed of a plurality of segments;
(b) constructing bounding boxes around said nets;
(c) calculating wiring densities required by each net for each segment respectively in accordance with a predetermined function; and
(d) summing said wiring densities to produce total wiring densities required by all of said nets for each segment respectively.

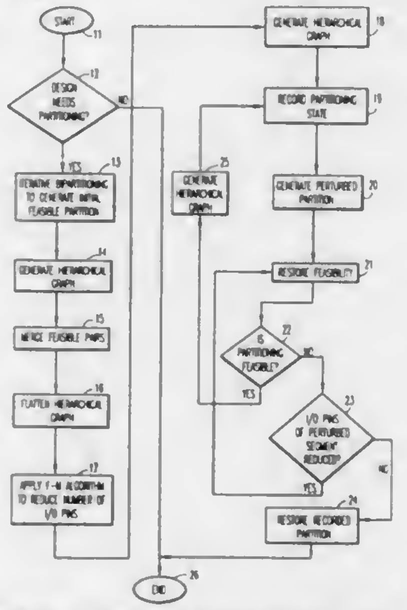
5,784,290
MULTI-CHIP DEVICE PARTITIONING PROCESS

David Shing-Ki Kung, Chappagua, and Lakshmi Narasimha Reddy, Poughkeepsie, both of N.Y., assignors to International Business Machines Corporation, Armonk, N.Y.

Continuation of Ser. No. 634,996, Apr. 19, 1996, abandoned, which is a continuation of Ser. No. 324,847, Oct. 18, 1994, Pat. No. 5,675,500. This application Jun. 24, 1997, Ser. No. 881,297

Int. Cl.^{6} G06F *17/50*

U.S. Cl. 364—490 **12 Claims**


START
11
DESIGN NEEDS PARTITIONING?
12
NO
YES
ITERATIVE BIPARTITIONING TO GENERATE INITIAL FEASIBLE PARTITION
13
GENERATE HIERARCHICAL GRAPH
14
MERGE FEASIBLE PAIRS
15
FLATTEN HIERARCHICAL GRAPH
16
APPLY F-M ALGORITHM TO REDUCE NUMBER OF I/O PINS
17
GENERATE HIERARCHICAL GRAPH
18
RECORD PARTITIONING STATE
19
GENERATE HIERARCHICAL GRAPH
25
GENERATE PERTURBED PARTITION
20
RESTORE FEASIBILITY
21
IS PARTITIONING FEASIBLE?
22
NO
YES
I/O PINS OF PERTURBED SEGMENT REDUCED?
23
YES
NO
RESTORE RECORDED PARTITION
24
END
26

1. A method for constructing an integrated circuit with a near optimum number of devices, the circuit comprising a plurality of cells, the method comprising the computer implemented steps of:

(a) iteratively bi-partitioning the circuit to generate an initial feasible partition of the cells of the circuit;
(b) generating a hierarchical graph of the initial partition;
(c) pair-wise merging feasible segments of the hierarchical graph;
(d) flattening the hierarchical graph after the merging;
(e) generating a new partition with a reduced number of I/O pins;

(f) creating a new hierarchical grapb based upon the partition in (e);
(g) recording the partitioning state of the hierarchical graph;
(h) forming a perturbed partition by merging a perturbed segment of the hierarchical graph with one or more other segments of the hierarchical graph;
(I) relaxing the perturbed partition to make it feasible;
(j) repeating steps (g)–(l) until optimized by reducing the number of segments and a cost of the circuit;
(k) constructing the circuit with devices partitioned in accordance with the foregoing steps.

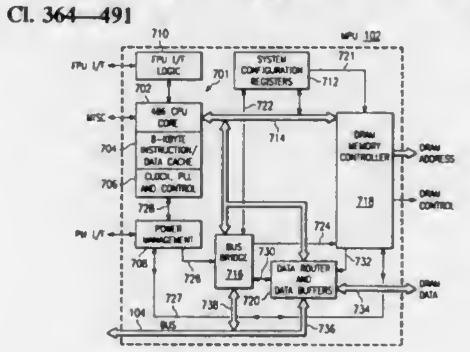
5,784,291
CPU, MEMORY CONTROLLER, BUS BRIDGE INTEGRATED CIRCUITS, LAYOUT STRUCTURES, SYSTEM AND METHODS

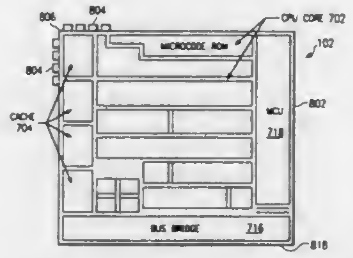
Ian Chen, Houston, and Uming Ko, Plano, both of Tex., assignors to Texas Instruments, Incorporated, Dallas, Tex.

Continuation of Ser. No. 362,351, Dec. 22, 1994, abandoned. This application Aug. 29, 1996, Ser. No. 705,034

Int. Cl.^{6} G06F *1/00;9/00*

U.S. Cl. 364—491 **17 Claims**





1. A single chip integrated circuit device comprising:

a substrate with bond pads,

a microprocessor occupying a substantially rectangular region lying on or near a first side of said substrate;

a memory controller unit occupying a first strip along one side of and substantially perpendicular to the length of said microprocessor, said first strip lying on or near a second side of said substrate; and

an internal bus connecting said microprocessor and said memory controller unit; and

an external bus to internal bus interface circuit, occupying a second strip substantially perpendicular to said first strip and disposed along microprocessor, said second strip lying on or near a third side of said substrate and having a length providing physical width accessibility to more than one terminals for connection to a bus.

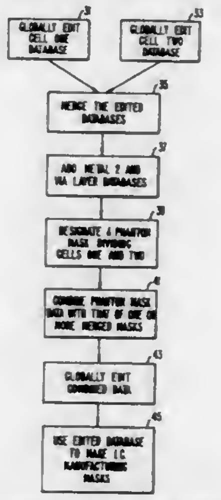
5,784,292
MERGING INTEGRATED CIRCUIT MASK DATABASES FORMED BY DIFFERENT DESIGN RULES THROUGH GLOBAL MASK DATABASE EDITS

Niraj Kumar, Fremont, Calif., assignor to Zilog, Inc., Campbell, Calif.

Continuation of Ser. No. 431,924, Nov. 6, 1989, abandoned. This application Apr. 14, 1993, Ser. No. 47,162

Int. Cl.^{6} G06F *17/50*

U.S. Cl. 364—491 **22 Claims**


31
GLOBALLY EDIT CELL ONE DATABASE
33
GLOBALLY EDIT CELL TWO DATABASE
35
MERGE THE EDITED DATABASES
37
ADD METAL 2 AND VIA LAYER DATABASES
39
DESIGNATE A PHANTOM MASK DIVIDING CELLS ONE AND TWO
41
COMBINE PHANTOM MASK DATA WITH THAT OF ONE OR MORE MERGED MASKS
43
GLOBALLY EDIT COMBINED DATA
45
USE EDITED DATABASE TO MAKE I.C. MANUFACTURING MASKS

1. A method of combining polygon databases defining mask sets of at least first and second integrated circuit cells to produce a polygon database defining a mask set for a single integrated circuit that combines the functions of the first and second integrated circuit cells, wherein said databases define the respective first and second cells with at least one design rule specified differently, comprising the steps of:

editing the polygon databases for at least one of the first and second integrated circuit cells by making at least one global change to its polygon data in a manner to cause said at least one design rule to be specified the same in the databases of at said at least first and second cells, and

combining the polygon databases in a manner that the data of the first and second cells occupy non-overlapping first and second respective mask area regions of the combined integrated circuit mask set.

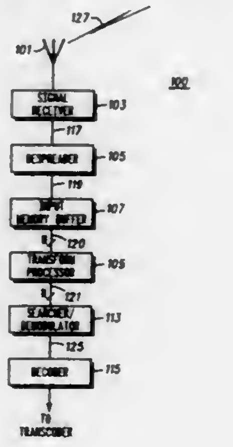
5,784,293
APPARATUS AND METHOD FOR DETERMINING TRANSMITTED MODULATION SYMBOLS

Robert A. Lipa, Aurora, Ill., assignor to Motorola, Inc., Schaumburg, Ill.

Filed Nov. 3, 1994, Ser. No. 334,162

Int. Cl.^{6} G06F *17/14*

U.S. Cl. 364—514 R **11 Claims**



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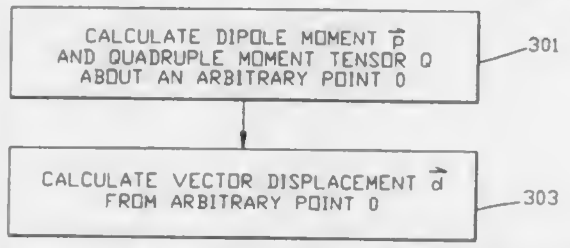
1. In a receiver of a communication system a method of transforming signals comprising the steps of:
- a) during a first portion of a transform process, performing a first vector mapping, the first vector mapping comprising forming a first group of selectable connections between a memory and a digital computation unit; and
- b) during a second portion of the transform process performing a second vector mapping, the second vector mapping comprising forming a second group of selectable connections between the memory and the digital computation unit, the second vector mapping differing from the first vector mapping.

5,784,294
SYSTEM AND METHOD FOR COMPARATIVE MOLECULAR MOMENT ANALYSIS (COMMA)

Daniel Enoch Platt, Bedford Hills, and Benjamin David Silverman, Millwood, both of N.Y., assignors to International Business Machines Corporation, Armonk, N.Y.

Filed Jun. 9, 1995, Ser. No. 489,271
Int. Cl.^{6} G06F *15/46*
U.S. Cl. 364—496 **37 Claims**


CALCULATE DIPOLE MOMENT $\vec{p}$ AND QUADRUPLE MOMENT TENSOR Q ABOUT AN ARBITRARY POINT 0
301
CALCULATE VECTOR DISPLACEMENT $\vec{d}$ FROM ARBITRARY POINT 0
303

1. A program storage device readably by a machine, tangibly embodying a program of instructions executable by the machine to perform method steps for generating and storing data describing physical characteristics of a series of molecules, said method steps comprising the steps of:

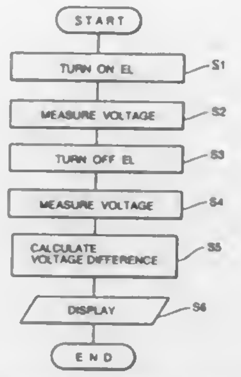
for each molecule within said series of molecules,
- determining one or more principal components of a moment of inertia tensor of said molecule according to data representing atomic structure of said molecule stored in a memory;
- determining orientation of one or more principal axes of said moment of inertia tensor;
- assigning said one or more principal components of said moment of inertia tensor to a first descriptor that represents shape of said molecule;
- assigning said orientation of said one or more principal axes of said moment of inertia tensor to a second descriptor that represents shape of said molecule; and

storing said first and second descriptors of each molecule in said series of molecules in a database for subsequent processing to thereby identify correspondence between molecules in said series of molecules.

5,784,295
METHOD AND APPARATUS FOR DETERMINING RESIDUAL BATTERY VOLTAGE

Makoto Iinohara, Tokyo, Japan, assignor to Canon Kabushiki Kaisha, Tokyo, Japan

Continuation of Ser. No. 72,094, Jun. 7, 1993, abandoned.
This application May 9, 1995, Ser. No. 437,524
Claims priority, application Japan, Jun. 12, 1992, 4-153522
Int. Cl.^{6} G06F *17/00*
U.S. Cl. 364—550 **24 Claims**

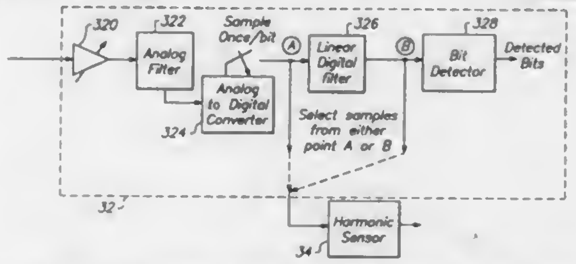


1. An electronic apparatus having a unit operated by a battery, said unit comprising an information processing portion and a display portion for displaying information processed by said information processing portion and said unit having at least first and second operating states, said first operating state being one in which said battery outputs a first amount of power to operate said information processing portion and said second operating state being one in which said battery outputs a second amount of power to operate both said information processing portion and said display portion, said first and second amounts of power each varying over time as said battery ages, said apparatus comprising:
- voltage detection means for detecting a voltage of said battery with said unit in said first operating state and again with said unit in said second operating state;
- means for determining a residual amount of the battery voltage on the basis of the battery voltage detected by said voltage detection means; and
- a CPU arranged to control, at selected times, said voltage detection means to operate during each of said operating states.

5,784,296
METHOD AND APPARATUS FOR SPECTRAL ANALYSIS IN A DISK RECORDING SYSTEM

Bill R. Baker, Redwood City, and James Fitzpatrick, Mountain View, both of Calif., assignors to Quantum Corporation, Milpitas, Calif.

Filed Apr. 30, 1996, Ser. No. 640,416
Int. Cl.^{6} G01B *17/00*
U.S. Cl. 364—551.01 **11 Claims**



1. A method of spectral analysis using a channel chip of a disk storage system for optimizing and monitoring operating parameters of the disk storage system, the disk storage system including at least one rotatable storage disk having a recording surface on which a periodic analog signal having a plurality of harmonic components is written, the method comprising steps of:
- (a) reading the periodic analog signal written on the rotatable storage disk;
- (b) converting the periodic analog signal into a discrete time periodic signal having a period N;
- (c) sampling the discrete time periodic signal at predetermined intervals to obtain a plurality of discrete samples, the predetermined intervals being related to the period N;
- (d) selectively accumulating the discrete samples, based on a starting sample, in a register of the channel chip of the disk storage system to obtain a predetermined number of accumulated results;
- (e) scaling the accumulated results to obtain coefficients of a given harmonic component of the periodic signal; and

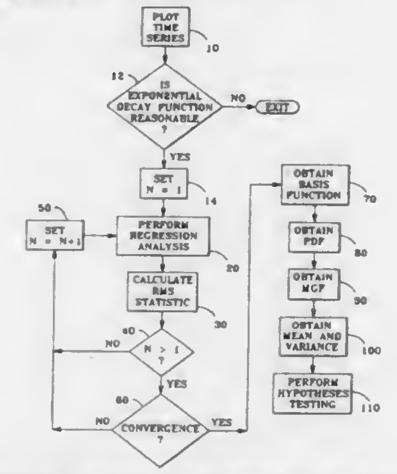
- (f) using the coefficients of the given harmonic component to determine an amplitude and a phase for the given harmonic component;

wherein the amplitude and phase for the given harmonic component can be used to optimize the operating parameters for improved reliability and performance of the disk storage system.

5,784,297
MODEL IDENTIFICATION AND CHARACTERIZATION OF ERROR STRUCTURES IN SIGNAL PROCESSING

Francis J. O'Brien, Jr., Newport; Chung T. Nguyen, Bristol, and Bruce J. Bates, Portsmouth, all of R.I., assignors to The United States of America as represented by the Secretary of the Navy, Washington, D.C.

Filed Jan. 13, 1997, Ser. No. 782,362
Int. Cl.^{6} G01S *15/00*
U.S. Cl. 364—554 **13 Claims**

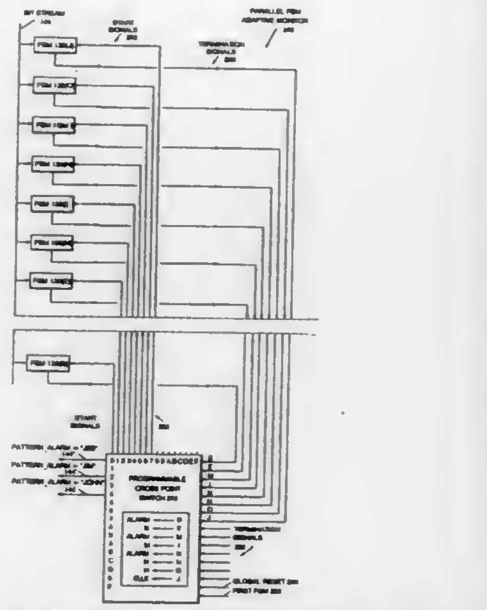


1. A method for identifying and characterizing an error structure model in processing a signal from a sensor comprising the steps of:
- obtaining and storing the signal as the model within a computer;
- obtaining a basis function for the model;
- determining a probability density function of the basis function;
- determining a statistical moment of the basis function;
- obtaining a mean and a variance for the model from the statistical moment;
- using the mean and the variance to perform hypotheses testing of the model; and
- using results of the testing to direct further sensing by the sensor.

5,784,298
APPARATUS AND METHOD FOR USING FINITE STATE MACHINES (FSMS) TO MONITOR A SERIAL DATA STREAM FOR CHARACTERISTIC PATTERNS

Paul C. Hershey, Manassas, Va., and John G. Waclawsky, Frederick, Md., assignors to International Business Machines Corporation, Armonk, N.Y.

Division of Ser. No. 138,045, Oct. 15, 1993, Pat. No. 5,586,266.
This application Jul. 11, 1996, Ser. No. 678,253
Int. Cl.^{6} G06F *11/30*
U.S. Cl. 364—557 **36 Claims**



1. A system for adaptive, active monitoring of a serial stream of data having a characteristic pattern including a first occurring and a second occurring pattern portions, comprising:
- a first n-bit address register having a first portion with n-x bits and an second portion with a plurality of x bits and an input to said second portion coupled to said serial stream, for receiving x-bit words from said serial data stream;
- first addressable memory having a plurality of data storage locations, each having a first portion with n-x bits, said first memory having an n-bit address input coupled an output of said first address register, said first memory configured with data stored in first and second ones of said data storage locations to represent a first digital filter for said first occurring pattern;
- a feedback path from an output of said first memory to an input of said first register, for transferring said data from said first one of said data storage locations in said first memory to said first portion of said first address register, for concatenation with said x-bit words from said serial data stream to form an address for said second one of said data storage locations of said first memory;
- said second one of said data storage locations of said first memory having a start signal value stored therein, which is output when said first occurring portion of said characteristic pattern is detected by said digital filter;
- a second p-bit address register having a first portion with p-x bits and a second portion with a plurality of x bits and an input to said second portion coupled to said serial stream, for receiving x-bit words from said serial data stream;
- said second address register coupled to said first memory, for receiving said start signal value from said first memory;
- second addressable memory having a plurality of data storage locations, each having a first portion with p-x bits, said second memory having a p-bit address input coupled an output of said second address register, said second memory configured with data stored in first and second ones of said data storage locations to represent a second digital filter for said second occurring pattern;
- a feedback path from an output of said second memory to an input of said second register, for transferring said data from said first one of said data storage locations in said second memory to said first portion of said second address register in response to said start signal value, for concatenation with said bit from said serial data stream to form an address for said second one of said data storage locations of said second memory;
- said second one of said data storage locations of said second memory having a pattern alarm value stored therein, which is output when said second portion of said characteristic pattern is detected by said second digital filter.

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5,784,299
METHOD FOR MEASURING ELECTRONIC DEVICES UNDER TEST WITH A NETWORK ANALYZER

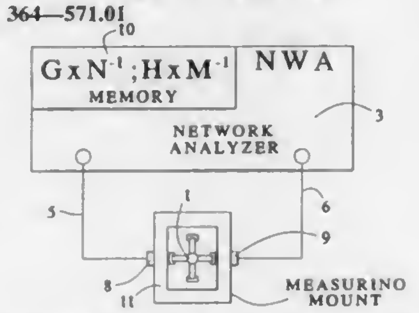
Christian Evers, Kirchheim; Detlef Behrendt, Grafing; Jochen Simon, Munich, all of Germany, and Ulrich L. Rohde, Upper Saddle River, N.J., assignors to Rohde & Schwarz GmbH & Co. KG, Munich, Germany, and Compact Software, Inc., Paterson, N.J.

Filed Jan. 28, 1997, Ser. No. 787,330

Claims priority, application Germany, Feb. 24, 1996, 196 06 986.6

Int. Cl.^{6} G01K *27/42*

U.S. Cl. 364—571.01 **12 Claims**



1. A method for measuring electronic devices under test with a network analyzer, said electronic devices being embedded in a linear auxiliary network during operation and during measurement, comprising the steps of:

determining system error correction data for the network analyzer according to a known calibration method by connecting calibration standards;

determining characteristic data for the auxiliary network and linking the characteristic data with the system error correction data to form new error correction simulation data; and

using in subsequent measurement of devices under test connected to the network analyzer, said new error correction simulation data with an algorithm for system error correction that is present in the network analyzer, so that an auxiliary network virtually connected to the device under test is simulated.

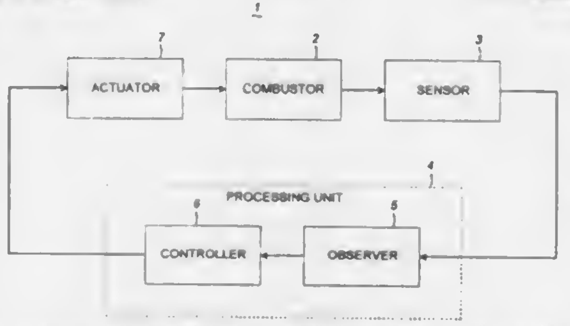
5,784,300
METHODS, APPARATUS AND SYSTEMS FOR REAL TIME IDENTIFICATION AND CONTROL MODES OF OSCILLATION

Yedidia Neumeier, and Ben T. Zinn, both of Atlanta, Ga., assignors to Georgia Tech Research Corporation, Atlanta, Ga.

Continuation of Ser. No. 405,909, Mar. 17, 1995, Pat. No. 5,719,791. This application May 12, 1997, Ser. No. 854,444

Int. Cl.^{6} G06F *17/10*

U.S. Cl. 364—574 **11 Claims**



1. A method for real time identification of mode of oscillation of a system, the method comprising the steps of:

a) sensing the system to generate a signal f(t);

b) determining values of modal functions a(t) and b(t), based on a pair of integrals $\int\Psi_a f(t)dt$ and $\int\Psi_b f(t)dt$, respectively, Ψ_a and Ψ_b being predetermined wavelet functions that are orthogonal and localized at an estimated frequency ω of the mode of oscillation and a(t) and b(t) describing the amplitude of oscillations of signal f(t), the pair of integrals having limits of integration based on a time t and an estimated period $T=2\pi/\omega$ of the mode of oscillation, the estimated frequency ω being predetermined initially;

c) determining an updated value of the estimated frequency ω, ω being the frequency of the mode of oscillation based on the modal functions a(t) and b(t); and

d) updating the wavelet functions Ψ_a and Ψ_b, based on the updated value of the estimated frequency ω; evaluating the wavelet functions to identify the modes of oscillation.

5,784,301
METHOD AND APPARATUS FOR PRODUCING PAPER FIBER STRUCTURE DATA, AND METHOD AND APPARATUS FOR DRAWING BLED FIGURE

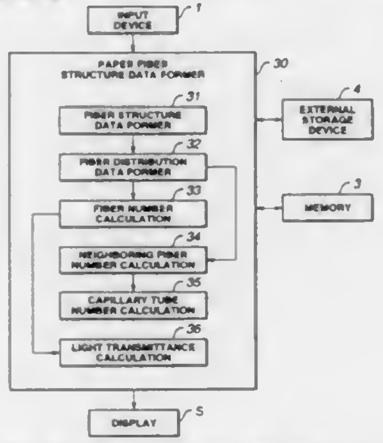
Qinglian Guo, Miyagi, and Toshiyasu Kunii, Tokyo, both of Japan, assignors to Sony Corporation, Tokyo, Japan

Filed Jan. 26, 1996, Ser. No. 592,190

Claims priority, application Japan, Jan. 26, 1995, 7-011050

Int. Cl.^{6} G06T *1/00*

U.S. Cl. 364—578 **53 Claims**


INPUT DEVICE
1
PAPER FIBER STRUCTURE DATA FORMER
30
FIBER STRUCTURE DATA FORMER
31
FIBER DISTRIBUTION DATA FORMER
32
FIBER NUMBER CALCULATION
33
NEIGHBORING FIBER NUMBER CALCULATION
34
CAPILLARY TUBE NUMBER CALCULATION
35
LIGHT TRANSMITTANCE CALCULATION
36
EXTERNAL STORAGE DEVICE
4
MEMORY
3
DISPLAY
5

1. A method for generating data that models a paper fiber structure, comprising the steps of:

generating fiber data that describes one of the fibers making up a paper sheet;

arraying a plurality of said fiber data in an area formed by a plurality of pixels to generate fiber distribution data that represents the distribution of said plurality of fibers among said plurality of pixels;

determining, for each pixel the number of fibers passing through the pixel based upon said fiber distribution data, wherein for each pixel the number of fibers passing through the pixel are denoted by the letter "M"; and

forming paper fiber structure data based upon the number of fibers passing through each pixel.

5,784,302
HIGH SPEED POINT DEFECT DIFFUSION SIMULATING METHOD

Shigetaka Kumashiro, Tokyo, Japan, assignor to NEC Corporation, Tokyo, Japan

Filed Mar. 12, 1996, Ser. No. 614,404

Claims priority, application Japan, Mar. 13, 1995, 7-052382

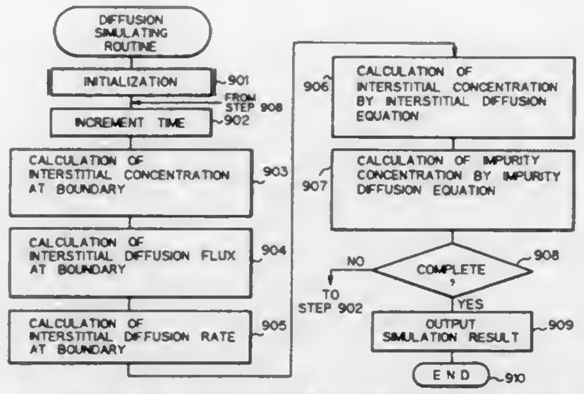
Int. Cl.^{6} G06F *9/455;* **H01L** *21/70;21/74*

U.S. Cl. 364—578 **10 Claims**

1. A method for simulating an interstitial concentration of a continuous semiconductor device, comprising the steps of:

setting a mesh having a plurality of elements in a simulation region within said continuous device;

calculating a first interstitial concentration at a boundary of said simulation region under a condition that an area outside of said simulation region is infinite;


DIFFUSION SIMULATING ROUTINE
INITIALIZATION
901
FROM STEP 908
INCREMENT TIME
902
CALCULATION OF INTERSTITIAL CONCENTRATION AT BOUNDARY
903
CALCULATION OF INTERSTITIAL DIFFUSION FLUX AT BOUNDARY
904
CALCULATION OF INTERSTITIAL DIFFUSION RATE AT BOUNDARY
905
906
CALCULATION OF INTERSTITIAL CONCENTRATION BY INTERSTITIAL DIFFUSION EQUATION
907
CALCULATION OF IMPURITY CONCENTRATION BY IMPURITY DIFFUSION EQUATION
NO
COMPLETE ?
908
TO STEP 902
YES
OUTPUT SIMULATION RESULT
909
END
910

calculating a first interstitial diffusion flux at the boundary of said simulation region under the condition that the area outside of said simulation region is infinite;

calculating an interstitial diffusion rate at the boundary of said simulation region by a ratio of said first interstitial diffusion flux to said first interstitial concentration; and

solving an interstitial diffusion equation for each of said elements using said interstitial diffusion rate at the boundary of said simulation region to obtain said interstitial concentration.

5,784,303
METHOD OF SHAPING A CELL STREAM INCLUDING BOTH USER CELLS AND OPERATION AND MAINTENANCE CELLS

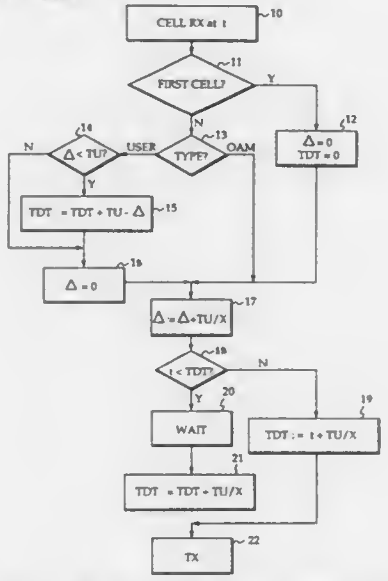
Guido Henri Marguerite Petit, Antwerpen, Belgium, assignor to Alcatel N.V., BH Rijswijk, Netherlands

Filed Feb. 22, 1995, Ser. No. 392,467

Claims priority, application European Pat. Off., Feb. 22, 1994, 94200445

Int. Cl.^{6} G06F *1/02*

U.S. Cl. 364—718.01 **7 Claims**



1. A method of shaping a cell stream (CS1) comprising first (U1–U7) and second (**01**–**06**) types of cells and including the step of mutually delaying adjacent cells (U1–U2) of said cell stream over a shaping delay if the cells are received within said shaping delay, characterized in that

said method uses variable time intervals between consecutive cells by including a step of deriving said shaping delay as a function of an inverse (TU) of a predetermined peak cell rate of said first cells (U1–U7) when said adjacent cells are both of said first type and as a function of fractions (TU/X) of said inverse otherwise.

5,784,304
ADAPTIVELY CONTROLLED FILTER

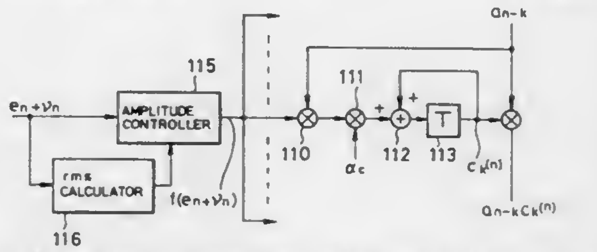
Shin'Ichi Koike, Tokyo, Japan, assignor to NEC Corporation, Tokyo, Japan

Filed Jan. 31, 1996, Ser. No. 594,172

Claims priority, application Japan, Feb. 1, 1995, 7-014842

Int. Cl.^{6} G06F *17/10*

U.S. Cl. 364—724.19 **8 Claims**



1. An adaptively controlled filter for inputting a known signal and outputting a replica signal of an unknown signal, comprising:

input terminal supplied with a sum signal of said unknown signal and a noise signal;

error signal generating means for generating an error signal of said unknown signal and said replica signal;

tap weight generator means for generating a tap weight to be multiplied by a value of the known signal depending upon said sum signal, said tap weight generating means comprising:

threshold value generating means for calculating an average power of said sum signal and deriving a threshold value A depending upon the level of said average power;

amplitude control means for outputting said sum signal when an absolute value of the amplitude of an amplitude of said sum signal is smaller than said threshold value A, and outputting a product calculated by multiplying a value sgn(x) indicative of polarity of said sum signal x with a predetermined value within a range of said threshold value A and 0 when said absolute value of the amplitude of said sum signal is greater than said threshold value A;

multiplying means for multiplying a predetermined adjustment coefficient with the product of an output of said amplitude and values at respective taps of said known signal; and

adding means for adding the product calculated by said multiplying means to said tap weight for deriving a sum which serves as a new tap weight.

5,784,305
MULTIPLY-ADDER UNIT

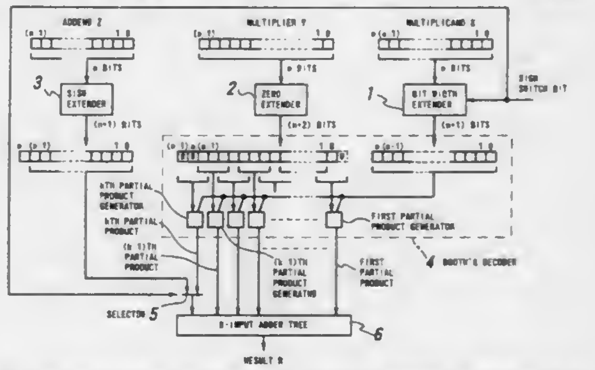
Kouhei Nadehara, Tokyo, Japan, assignor to NEC Corporation, Tokyo, Japan

Filed May 1, 1996, Ser. No. 640,701

Claims priority, application Japan, May 1, 1995, 7-131048; May 29, 1995, 7-153915

Int. Cl.^{6} G06F *7/38*

U.S. Cl. 364—736.02 **8 Claims**



1. A multiply-adder unit having a signed multiplication function, an unsigned multiplication function and a signed fixed point mul-

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tiply addition function for binary numbers of n-bit length, n being an integer equal to or greater than 1, comprising:
- a bit width extender for performing, upon unsigned operation, zero extension of one bit but performing, upon signed operation, sign extension of one bit for a multiplicand of n-bit length;
- a zero extender for performing zero extension of 2 bits for a multiplier of n-bit length;
- a sign extender for performing sign extension of one bit for an addend of n-bit length;
- a Booth's decoder for cutting out an output of said zero extender in units of 3 bits successively shifting its cut-out start position by 2 bits toward the lower bits beginning with the uppermost bit and supplying the cut out values and an output of said bit width extender to first to (k−1)th partial product generators and a kth partial product generator so that first to (k−1)th partial products and a kth partial product are generated by said first to (k−1)th and kth partial product generators, respectively, k being an integer equal to or greater than 2;
- a selector for selecting, upon unsigned operation, the kth partial product generated by said Booth's decoder but selecting, upon signed operation, the output of said sign extender; and
- a k-input adder tree for adding the first to (k−1)th products generated by said Booth's decoder and an output of said selector.

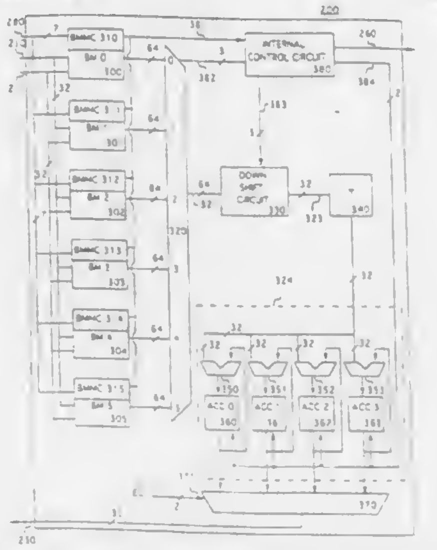
5,784,306
PARALLEL MULTIPLY ACCUMULATE ARRAY CIRCUIT

Thomas M. Ogletree, Austin, Tex., assignor to Cirrus Logic, Inc., Fremont, Calif.

Filed Jun. 28, 1996, Ser. No. 672,613

Int. Cl.^{6} G06F *7/48;7/52*

U.S. Cl. 364—750.5 **18 Claims**



1. A parallel multiply accumulate array circuit, comprising:
- a plurality of n multipliers each coupled to receive a first x-bit operand and a second x-bit operand and generating a 2x-bit product;
- a first multiplexer having n inputs coupled to receive n 2x-bit products from said plurality of n multipliers and providing one 2x-bit product output;
- a downshift circuit coupled to receive said one 2x-bit product output, said downshift circuit for downshifting y bits of said one 2x-bit product output;
- a plurality of m accumulators each having an input coupled to receive a downshifted output from said downshift circuit, each of said accumulators for accumulating a separate summed value; and
- a second multiplexer including m inputs each coupled to receive summed values from one of said plurality of m accumulators and also having an output for supplying one of said summed values.

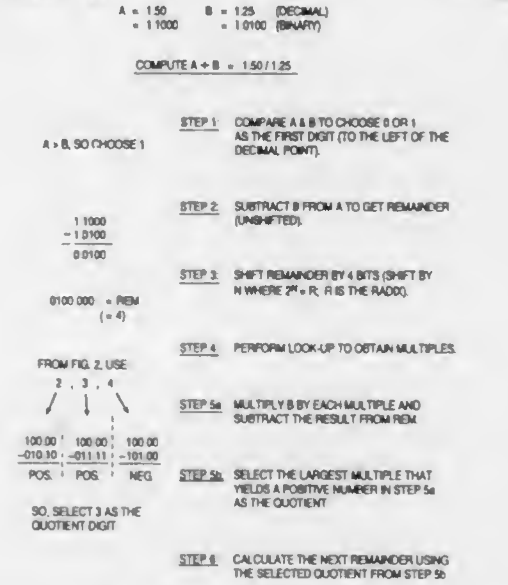
5,784,307
DIVISION ALGORITHM FOR FLOATING POINT OR INTEGER NUMBERS

Gad S. Sheaffer, Haifa, Israel, assignor to Intel Corporation, Santa Clara, Calif.

Filed May 31, 1996, Ser. No. 657,779

Int. Cl.^{6} G06F *7/52*

U.S. Cl. 364—766 **37 Claims**


A = 1.50 B = 1.25 (DECIMAL)
= 1.1000 = 1.0100 (BINARY)
COMPUTE A ÷ B = 1.50/1.25
STEP 1: COMPARE A & B TO CHOOSE 0 OR 1 AS THE FIRST DIGIT (TO THE LEFT OF THE DECIMAL POINT).
A > B, SO CHOOSE 1
STEP 2: SUBTRACT B FROM A TO GET REMAINDER (UNSHIFTED).
1.1000
− 1.0100
0.0100
STEP 3: SHIFT REMAINDER BY 4 BITS (SHIFT BY N WHERE 2N = R; R IS THE RADIX).
0100.000 = REM
(= 4)
STEP 4 PERFORM LOOK-UP TO OBTAIN MULTIPLES.
FROM FIG. 2, USE
2 , 3 , 4
STEP 5a MULTIPLY B BY EACH MULTIPLE AND SUBTRACT THE RESULT FROM REM.
100.00 100.00 100.00
−010.10 −011.11 −101.00
POS. POS. NEG.
STEP 5b SELECT THE LARGEST MULTIPLE THAT YIELDS A POSITIVE NUMBER IN STEP 5a AS THE QUOTIENT
SO, SELECT 3 AS THE QUOTIENT DIGIT
STEP 6 CALCULATE THE NEXT REMAINDER USING THE SELECTED QUOTIENT FROM STEP 5b

1. A computer-implemented method of dividing numbers according to a radix comprising the steps of:
- (a) subtracting a divisor from a dividend to generate a first intermediate result in a storage location having a plurality of bits;
- (b) shifting the first intermediate result by N-bits, where N is an integer and 2^N is equal to the radix, to obtain a remainder;
- (c) referencing a memory unit containing a table of multipliers that is indexed by a portion of the remainder and a portion of the divisor, the table providing one or more multipliers;
- (d) multiplying the divisor by each of the one or more multipliers to generate one or more second intermediate results;
- (e) subtracting from the remainder each of the one or more second intermediate results to generate one or more corresponding third intermediate results;
- (f) selecting as a quotient digit a largest multiplier from the one or more multipliers which corresponds to a third intermediate result having a smallest positive value as among the one or more third intermediate results.

5,784,308
BINARY SUBTRACTION DEVICE

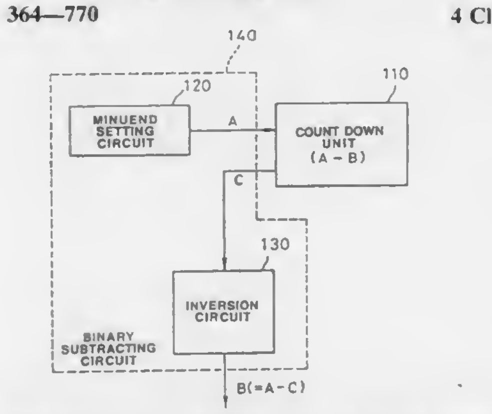
Makoto Takebe, and Masao Hagiwara, both of Hiratsuka, Japan, assignors to Kabushiki Kaisha Komatsu Seisakusho, Japan

Continuation of Ser. No. 436,981, May 8, 1995, abandoned, which is a division of Ser. No. 861,862, Jun. 17, 1992, Pat. No. 5,461,617. This application Nov. 18, 1996, Ser. No. 751,796

Claims priority, application Japan, Dec. 26, 1989, 1-336888; Dec. 27, 1989, 1-343482; Jan. 30, 1990, 2-19933; Oct. 30, 1990, 2-113743; WIPO, Dec. 26, 1990, PCT/JP90/01707

Int. Cl.^{6} G06F *7/50*

U.S. Cl. 364—770 **4 Claims**



1. A calculating device including first calculating means for receiving a value A, counting down the value A by an unknown B (B<A) and outputting a count-down result C (=A−B) and, second calculating means for outputting the value A to the first calculating means, receiving the count-down result C from the first calculating means and obtaining the unknown B with the use of the value A and the count-down result C,

wherein the second calculating means comprises:
- setting means for setting bits of the value A to be all "1" in logical value and outputting the set value A to the first calculating means; and
- complement calculating means for finding 1's complement on the count-down result C received from the first calculating means and outputting an obtained element value as the unknown B.

5,784,309
OPTICAL VECTOR MULTIPLIER FOR NEURAL NETWORKS

Matthias Budil, Kobenzlgasse 106, A-1190, Vienna, Austria

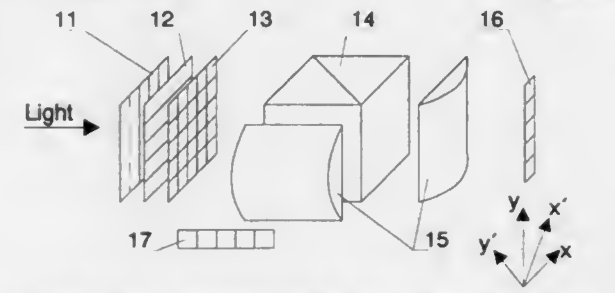
PCT No. PCT/AT95/00039, § 371 Date Sep. 25, 1996, § 102(e) Date Sep. 25, 1996, PCT Pub. No. WO95/24006, PCT Pub. Date Sep. 8, 1995

PCT Filed Mar. 1, 1995, Ser. No. 702,599

Claims priority, application Austria, Mar. 2, 1994, 443/94; Feb. 17, 1995, 296/95

Int. Cl.^{6} G06G *7/16*

U.S. Cl. 364—841 **7 Claims**



1. An optical vector multiplier for calculations of linear algebra, comprising:
- two light modulators with strip shaped modulator cells representing a vector and rotated by 90° relative to one another
- a light modulator matrix following said light modulators along said path, said matrix comprising a matrix array of light detectors in a plurality of light detector fields and connected with electronic circuitry for processing signals from the detectors, the multiplier being traversed by parallel light and including optical devices causing the light to impinge upon at least one of said light detector fields, said modulator array including modulators for deflecting beams of the light so that resultant vectors of vector matrix multiplications are formed.

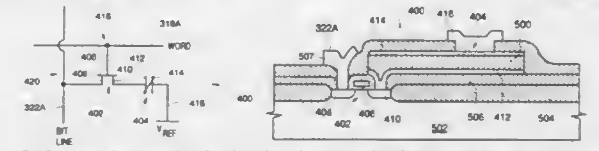
5,784,310
LOW IMPRINT FERROELECTRIC MATERIAL FOR LONG RETENTION MEMORY AND METHOD OF MAKING THE SAME

Joseph D. Cuchiaro; Narayan Solayappan; Carlos A. Paz de Araujo, and Larry D. McMillan, all of Colorado Springs, Colo., assignors to Symetrix Corporation, Colorado Springs, Colo.

Filed Mar. 3, 1997, Ser. No. 810,190

Int. Cl.^{6} G11C *11/22*

U.S. Cl. 365—145 **8 Claims**



1. In an electronic device having a thin film ferroelectric material, the improvement wherein said thin film ferroelectric material comprises:
- strontium bismuth niobium tantalate having an empirical formula

$$SrBi_{2+E}(Nb_XTa_{2-X})O_{9+3E/2},$$

wherein E is a number representing an excess amount of bismuth ranging from zero to 2; and X is number representing an amount of niobium ranging from 0.01 to 0.9,
- said thin film ferroelectric material having a thickness of less than about 6000 Å.

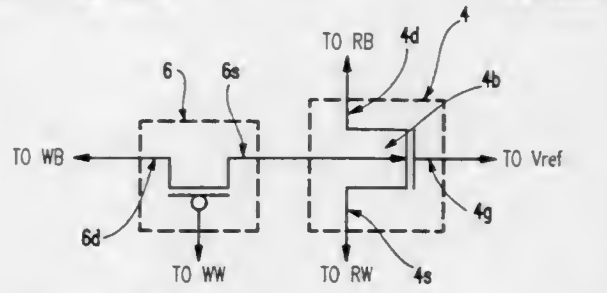
5,784,311
TWO-DEVICE MEMORY CELL ON SOI FOR MERGED LOGIC AND MEMORY APPLICATIONS

Fariborz Assaderaghi; Bijan Davari, both of Mahopac; Louis L. Hsu, Fishkill; Jack A. Mandelman, Stormville, and Ghavam G. Shahidi, Yorktown Heights, all of N.Y., assignors to International Business Machines Corporation, Armonk, N.Y.

Filed Jun. 13, 1997, Ser. No. 876,177

Int. Cl.^{6} G11C *11/24*

U.S. Cl. 365—150 **10 Claims**



1. A memory cell comprising:
- a first field-effect transistor having a source, a drain, a gate, and a body;
- a second field-effect transistor having a source connected to the body of the first field effect transistor, a gate for receiving an external write control signal, and a drain for receiving an external bit signal, for selectively charging the body of the

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first transistor between a depleted and non-depleted condition, in response to a voltage level of said external write control signal, based on said external bit signal.

5,784,312

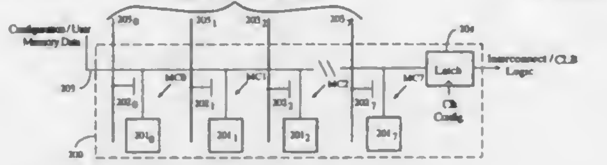
Patent Not Issued For This Number

5,784,313
PROGRAMMABLE LOGIC DEVICE INCLUDING CONFIGURATION DATA OR USER DATA MEMORY SLICES

Stephen M. Trimberger, San Jose; Richard A. Carberry, Los Gatos; Robert Anders Johnson, San Jose, and Jennifer Wong, Fremont, all of Calif., assignors to Xilinx, Inc., San Jose, Calif.

Filed Aug. 18, 1995, Ser. No. 516,808
Int. Cl.^{6} G11C *13/00*

U.S. Cl. 365—182 9 Claims


Configuration / Read Select (CRS)
Configuration / User Memory Data
Latch
Interconnect / CLB Logic
Clk Config
MC0
MC1
MC2
MC7

1. A programmable logic device comprising:

at least one configurable element;

a plurality of programmable logic elements for configuring said at least one configurable element, wherein at least one of said programmable logic elements includes N memory cells, wherein a predetermined one of said N memory cells for said plurality of programmable logic elements forms part of a memory slice, wherein one memory slice provides one configuration of said programmable logic device, and wherein at least a portion of each slice of said programmable logic device is allocated to either configuration data or user data memory; and

means for loading new configuration data into other memory slices during said one configuration.

5,784,314
METHOD FOR SETTING THE THRESHOLD VOLTAGE OF A REFERENCE MEMORY CELL

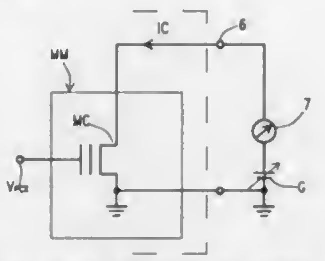
Mauro Sali, S. Angelo Lodigiano; Marco Dallabora, Carpiano, and Marcello Carrera, Trescore Balneario, all of Italy, assignors to SGS-Thomson Microelectronics S.r.l., Agrate Brianza, Italy

Filed Jul. 12, 1996, Ser. No. 679,656

Claims priority, application European Pat. Off., Jul. 14, 1995, 95830302

Int. Cl.^{6} G11C *11/34*

U.S. Cl. 365—185.2 11 Claims



1. A method for setting the threshold voltage of a reference memory cell that is internal to a memory device, the method comprising:

adjusting said threshold voltage to a predetermined voltage;

generating a test current with said reference memory cell;

generating a reference current with a matrix memory cell that is internal to said memory device;

comparing said test current with said reference current using a sensing circuit that is internal to said memory device;

changing said threshold voltage of said reference cell by a predetermined amount; and

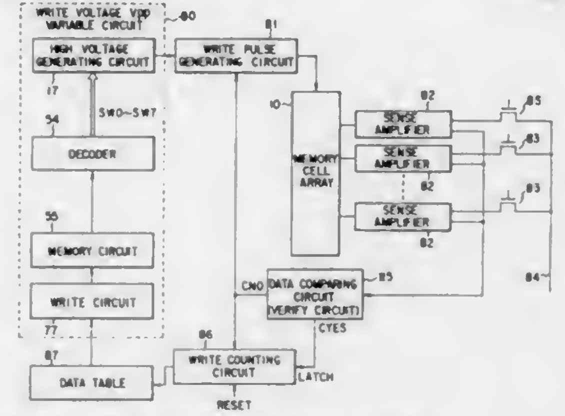
repeating said generating a test current, said generating a reference current, said comparing, and said changing until said threshold voltage of said reference memory cell approximately equals a predetermined value.

5,784,315
SEMICONDUCTOR MEMORY DEVICE

Yasuo Itoh, Kawasaki, Japan, assignor to Kabushiki Kaisha Toshiba, Kawasaki, Japan

Filed Mar. 10, 1995, Ser. No. 402,055
Claims priority, application Japan, Mar. 11, 1994, 6-040935
Int. Cl.^{6} G11C *16/00*

U.S. Cl. 365—185.22 54 Claims



23. A semiconductor memory device comprising:

a memory cell;

driving circuitry for applying a writing voltage to said memory cell during a write operation, the write operation being repeated until the writing is completed; and

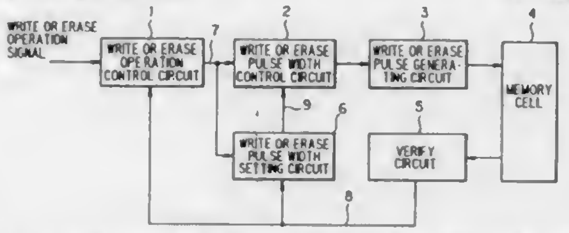
adjusting circuitry for adjusting a voltage level of the writing voltage when a number of write operations required to complete the writing is different than one or more predetermined numbers of write operations, each of the one or more predetermined numbers of write operations determining a particular write performance of said semiconductor memory device.

5,784,316
NON-VOLATILE STORAGE DEVICE

Masayoshi Hirata, Tokyo, Japan, assignor to NEC Corporation, Tokyo, Japan

Filed Nov. 25, 1996, Ser. No. 753,373
Claims priority, application Japan, Nov. 24, 1995, 7-329960
Int. Cl.^{6} G11C *11/34*

U.S. Cl. 365—185.22 8 Claims


WRITE OR ERASE OPERATION SIGNAL
1
WRITE OR ERASE OPERATION CONTROL CIRCUIT
7
2
WRITE OR ERASE PULSE WIDTH CONTROL CIRCUIT
3
WRITE OR ERASE PULSE GENERATING CIRCUIT
4
MEMORY CELL
9
6
WRITE OR ERASE PULSE WIDTH SETTING CIRCUIT
5
VERIFY CIRCUIT
8

1. An electrically erasable and programmable non-volatile storage device, comprising:

an erase operation control means for outputting a first signal to write or erase data to or from a memory cell when receiving a write or erase operation signal;

a write or erase pulse width control means which decides a write or erase pulse width according to said first signal and outputs a pulse;

a write or erase pulse generating means which generates a write or erase pulse to be applied to said memory cell according to said pulse output from said write or erase pulse width control means;

a verifying means which decides whether or not said memory cell to which said write or erase pulse is applied reaches a threshold voltage and which outputs the decision as a second signal to said write or erase operation control means; and

a write or erase pulse width setting means which outputs a third signal to change said write or erase pulse width on the basis of said first signal and said second signal to said write or erase pulse width control means.

5,784,317
FLASH MEMORY DEVICE USING AN OPERATIONAL CIRCUIT FOR BIT-BY-BIT VERIFYING OF PROGRAMMED DATA IN MEMORY CELLS AND METHOD OF PROGRAMMING THE SAME

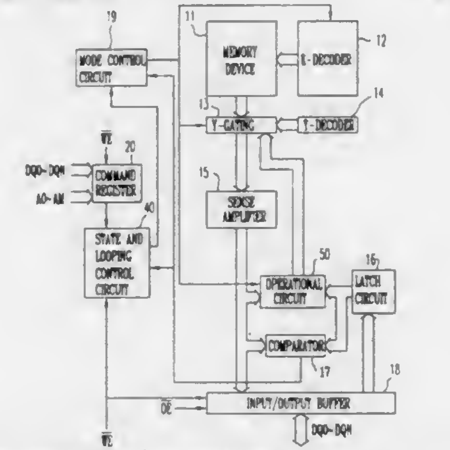
Chang Wan Ha, Kyungki-Do, Rep. of Korea, assignor to Hyundai Electronics Industries Co., Ltd., Kyungki-Do, Rep. of Korea

Filed Dec. 27, 1996, Ser. No. 773,604

Claims priority, application Rep. of Korea, Dec. 27, 1995, 95-58452

Int. Cl.^{6} G11C *16/06*

U.S. Cl. 365—185.22 6 Claims



1. A flash memory device comprising:

a command register to which data and addresses are input, said command register being operated in response to a write enable signal;

a state and looping control circuit coupled to said command resister to which an output signal of said command register and said write enable signal are input;

a mode control circuit coupled to said state and looping control circuit for controlling programming, erasure, read-out and verification operations in response to an output signal of said state and looping control circuit;

an input and output buffer to input data from outside or output data to outside in response to said write enable signal and an output enable signal;

a latch circuit coupled to said input and output buffer for latching data which are input from said input and output buffer;

a memory device having a plurality of memory cells which are connected between word lines and bit lines in a matrix;

a X-decoder coupled to said memory device, where said X-decoder selectively outputs signals to said word lines of said memory device in response to an output signal of said mode control circuit;

a Y-decoder to selectively output signals to said bit lines of said memory device;

a sense amplifier;

a Y-gating connected between said Y-decoder and said memory device, said Y-gating for outputting data programmed into said memory device to said input and output buffer through said sense amplifier in response to said output signal of said mode control circuit;

an operational circuit coupled to said mode control circuit, said input and output buffer, said sense amplifier and said latch circuit, where said operational circuit is for generating a reciprocal data of data output through said sense amplifier in response to said output signal of said mode control circuit, for adding said reciprocal data and data latched at said latch circuit on a bit unit to generate added data, and for programming said added data into said memory device through said Y-gating; and

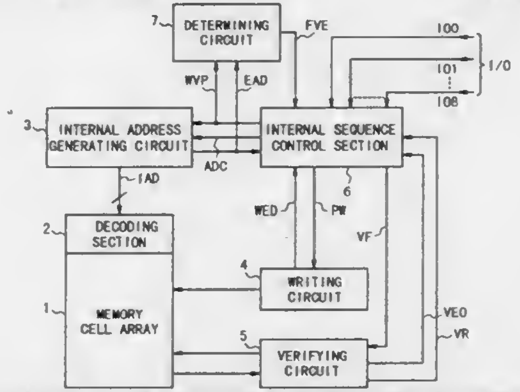
a comparator coupled between said sense amplifier and said latch circuit for comparing data output through said sense amplifier with data latched at said latch circuit according to the output signal of said mode control circuit, said comparator for outputting an output signal to said state and looping control circuit and said mode control circuit.

5,784,318
METHOD OF PREPROGRAMMING BEFORE VERIFYING IN NON-VOLATILE MEMORY DEVICE AND APPARATUS FOR THE SAME

Hiroaki Anami, Kanagawa, Japan, assignor to NEC Corporation, Tokyo, Japan

Filed Aug. 11, 1997, Ser. No. 908,058
Claims priority, application Japan, Aug. 23, 1996, 8-222242
Int. Cl.^{6} G11C *16/06*

U.S. Cl. 365—185.22 19 Claims



13. A non-volatile semiconductor memory device comprising:

a memory cell array composed of a plurality of memory cells;

an address generating section for generating an initial address as an address in response to an address generation signal, for updating the address in response to an address update signal and said address generation signal, and for generating an address end signal when the updated address is equal to a final address, wherein each of the generated addresses designate the memory cells of said memory cell array;

a writing section for performing a preprogramming operation to said designated memory cells in response to a preprogramming operation execution signal;

a verifying section for performing a verifying operation to said designated address in response to a verifying operation execution signal, to generate a verifying operation result signal indicating the verifying operation result;

a period detecting section for detecting a preprogramming operation period in response to said address generation start signal and said address end signal; and

a control section for issuing said address generation signal to said address generating section and said period detecting section, and for repeatedly issuing said preprogramming operation execution signal to said writing section, while

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repeatedly issuing said address update signal to said address generating section, in a state in which issuance of said verifying operation execution signal to said verifying section is inhibited during said preprogramming operation period.

5,784,319

METHOD FOR ERASING AN ELECTRICALLY PROGRAMMABLE AND ERASABLE NON-VOLATILE MEMORY CELL

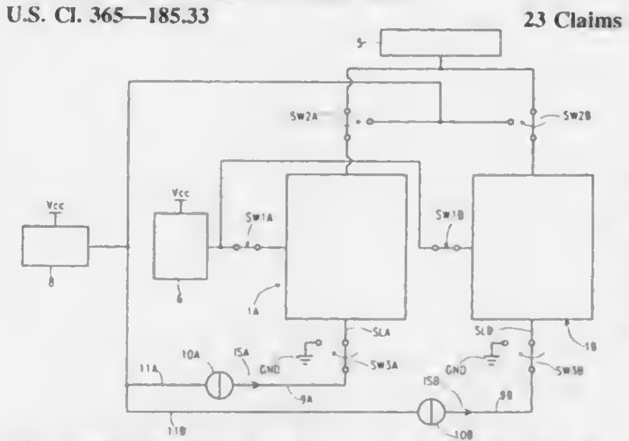
Corrado Villa, Sovico; Roberto Bez, Milano; Daniele Cantarelli, Villasanta, and Marco Dallabora, Carpiano, all of Italy, assignors to SGS-Thomson Microelectronics S.r.l., Agrate-Brianza, Italy

Filed Jan. 24, 1997, Ser. No. 788,530

Claims priority, application European Pat. Off., Jan. 24, 1996, 96830024

Int. Cl.^{6} G11C *16/06*

U.S. Cl. 365—185.33 **23 Claims**



1. A method for erasing an electrically programmable and erasable non-volatile memory cell having a control electrode, an electrically-insulated electrode and a first electrode, comprising the steps of:

coupling the control electrode to a first voltage supply;

coupling the first electrode to a second voltage supply, the first voltage supply and the second voltage supply being suitable to cause tunneling of electric charges between the electrically-insulated electrode and the first electrode; and

providing for a constant current to flow between the second voltage supply and the first electrode of the memory cell for at least part of an erasing time of the memory cell, said constant current having a prescribed value determined on the basis of a maximum allowed value of an electric field in an insulation layer interposed between the electrically-insulated electrode and the first electrode.

5,784,320

METHOD AND APPARATUS FOR REDUCING POWER CONSUMPTION IN A MEMORY BY EMPLOYING A CONDITIONAL WRITE CONTROLLER

Luke A. Johnson, Tempe, Ariz., assignor to Intel Corporation, Santa Clara, Calif.

Filed Sep. 27, 1996, Ser. No. 721,674

Int. Cl.^{6} G11C *16/04;7/00*

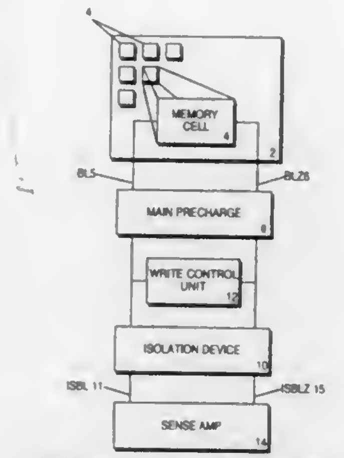
U.S. Cl. 365—189.01 **12 Claims**

1. A write qualification unit, coupled to a memory cell, said write qualification unit comprising:

a) a first input for receiving a first data signal, said first data signal indicating a current data value in said memory cell;

b) a second input for receiving a second data signal, said second data signal indicating a data value to be written to said memory cell;

c) said write qualification unit for performing a bit-wise conditional write operation of said second data signal to said memory cell if said first data signal and said second data signal are in a predetermined logical relationship.



5,784,321

SEMICONDUCTOR MEMORY DEVICE WITH REDUNDANT CIRCUIT

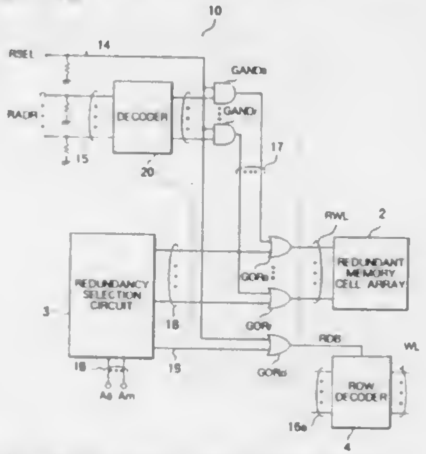
Yasushi Yamamura, Nagasaki, Japan, assignor to Sony Corporation, Japan

Filed Dec. 23, 1996, Ser. No. 773,254

Claims priority, application Japan, Dec. 26, 1995, 7-338947

Int. Cl.^{6} G11C *7/00*

U.S. Cl. 365—200 **5 Claims**



1. A semiconductor memory device comprising:

normal word lines;

normal bit lines;

a normal memory cell array in which a plurality of memory cells are arranged in the form of a matrix at intersecting points of said word lines and bit lines;

a normal row selection decoder for selectively driving said normal word lines in response to an address signal;

a normal column selection decoder which selectively connects said normal bit lines to an input and output circuit in response to said address signal;

a redundant memory cell array including at least one redundant memory cell;

a redundancy selection circuit for detecting a defective memory cell in said normal memory cell array and associating an address of said defective memory cell with an address of a replacement cell in said redundant memory cell array; and

a redundant memory cell compulsory selection circuit connected between said redundancy selection circuit and said redundant memory array;

wherein said compulsory selection circuit accesses said redundant memory cell array in response to a redundant memory selection signal and a redundant memory address signal to test said cells of said redundant memory cell array.

5,784,322

STANDBY CURRENT DETECTING CIRCUIT FOR USE IN A SEMICONDUCTOR MEMORY DEVICE AND METHOD THEREOF

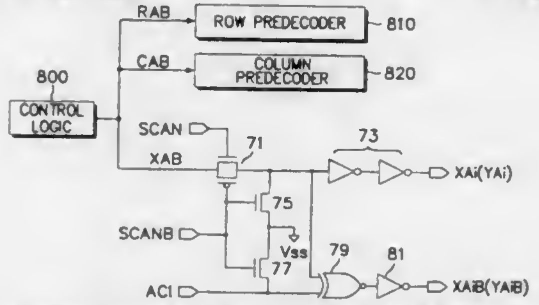
Jin-Man Han, Seoul, and Jei-Hwan Yoo, Suwon, both of Rep. of Korea, assignors to Samsung Electronics, Co., Ltd., Suwon, Rep. of Korea

Filed Dec. 23, 1996, Ser. No. 772,356

Claims priority, application Rep. of Korea, Dec. 21, 1995, 53539/1995

Int. Cl.^{6} G11C *7/00*

U.S. Cl. 365—201 **22 Claims**



5. A standby current detecting circuit for use in a semiconductor memory device, the memory device comprising a plurality of memory cells arranged at crossing points of a plurality of word lines and a plurality of bit lines, comprising:

a plurality of switches associated with each memory cell:

a current path supplying current to each memory cell through the switch associated with each memory cell:

a plurality of decoders, each decoder for detecting a standby current supplied on one such current path for the memory cell, each decoder including means for selectively opening and isolating the switch associated with the memory cell in a standby current detection mode; and

a plurality of address buffers, each address buffer interconnected with one of said plurality of decoders, the decoder receiving a memory address from the address buffer identifying the memory cell in the standby current detection mode, wherein each address buffer further comprises logic means for supplying a memory address signal, means for splitting the memory address signal into separate signals, and means for controlling a logic state of each split memory address signal.

5,784,323

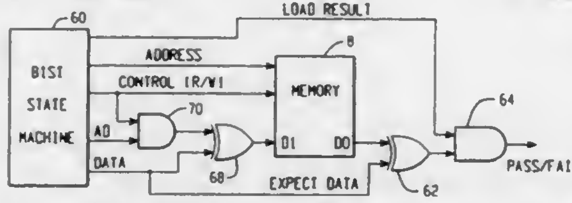
TEST CONVERAGE OF EMBEDDED MEMORIES ON SEMICONDUCTOR SUBSTRATES

Robert Dean Adams, Essex Junction; John Connor, Burlington; Garrett Stephen Koch, Cambridge, and Luigi Ternullo, Jr., Golchester, all of Vt., assignors to International Business Machines Corporation, Armonk, N.Y.

Continuation of Ser. No. 450,431, May 25, 1995, abandoned. This application Feb. 4, 1997, Ser. No. 795,367

Int. Cl.^{6} G11C *29/00*

U.S. Cl. 365—201 **17 Claims**



1. A device for testing memory having separate write cycles and read cycles at a given port, comprising:

first logic circuitry to generate and input first write data of a known value to memory during a write cycle,

second logic circuitry to generate and apply second write data to said memory during a read cycle which second write data is different from said first write data written to memory during said write cycle, and

third logic circuitry to read data from memory during said read cycle.

5,784,324

SINGLE-CHIP MEMORY SYSTEM HAVING A MULTIPLE BIT LINE STRUCTURE FOR OUTPUTTING A PLURALITY OF DATA SIMULTANEOUSLY

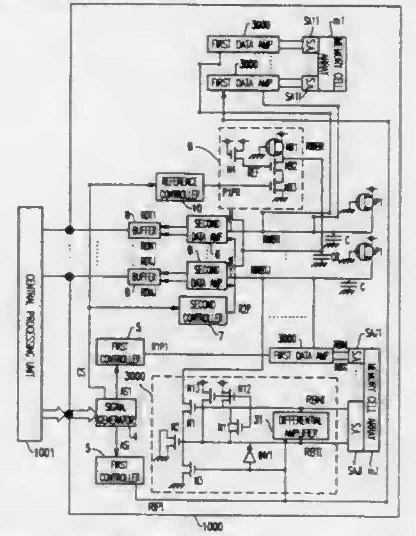
Yoshifumi Okamura, Tokyo, Japan, assignor to NEC Corporation, Tokyo, Japan

Filed Feb. 26, 1997, Ser. No. 806,667

Claims priority, application Japan, Feb. 28, 1996, 8-041393

Int. Cl.^{6} G11C *7/00*

U.S. Cl. 365—207 **27 Claims**



1. A memory system comprising:

a plurality of memory cell arrays including a plurality of pairs of bit lines;

a plurality of first bus lines corresponding to said plurality of memory cell arrays;

a plurality of first data amplifiers for respectively amplifying data of said corresponding pairs of bit lines, and for outputting an amplified data to corresponding ones of said first bus lines;

a plurality of second data amplifiers respectively connected to corresponding ones of said first bus lines; and

a reference voltage circuit for outputting a reference voltage level to a reference bus line, said reference bus line being coupled to said plurality of second data amplifiers,

said second data amplifiers for receiving an output of a corresponding first data amplifier and the reference voltage level, for judging which voltage level is higher between the output of said corresponding first data amplifier and the reference voltage level, and for amplifying the voltage level being higher.

5,784,325

SEMICONDUCTOR NONVOLATILE MEMORY DEVICE

Kenshiro Arase, and Masaru Miyashita, both of Kanagawa, Japan, assignors to Sony Corporation, Japan

Continuation of Ser. No. 499,516, Jul. 7, 1995. This application Jan. 6, 1997, Ser. No. 779,115

Claims priority, application Japan, Jul. 25, 1994, 6-172956

Int. Cl.^{6} G11C *11/34*

U.S. Cl. 365—185.18 **10 Claims**

1. A non-volatile flash memory unit comprising:

a plurality of memory cells, each comprising a charge storage device, arranged in an array having rows and columns; and

a plurality of bit lines and a plurality of word lines connected to said memory cells;

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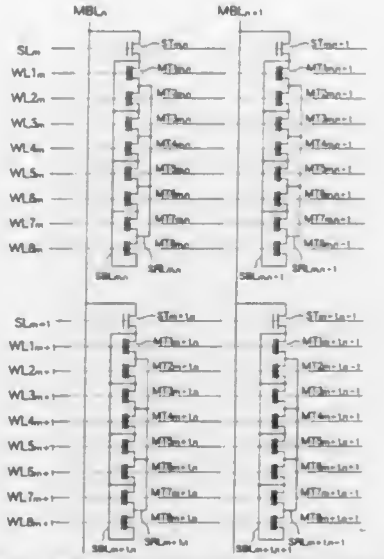


wherein data is written to said memory unit by storing charges in said storage devices, said charges entering and leaving said charge storage devices by Fowler-Nordheim tunneling as said data is written and erased, respectively; and

wherein, when data is erased from said memory unit, a negative voltage pulse is applied to a selected word line while all other word lines of said plurality of word lines are maintained at a reference voltage; and

wherein, when data is erased from said memory unit, a positive voltage is applied to all of said plurality of bit lines.

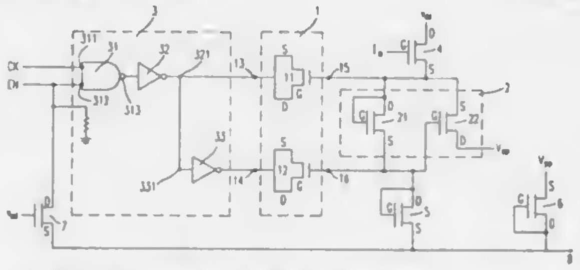
5,784,326
VOLTAGE RAISING DEVICE

Shao-Yi Wu, and Fu-Chung Wang, both of Hsinchu, Taiwan, assignors to Holtek Microelectronics Inc., Hsinchu, Taiwan

Filed Jun. 4, 1997, Ser. No. 868,731

Int. Cl.^{6} G11C *16/02*

U.S. Cl. 365—185.19 **33 Claims**



1. A device for raising voltage, comprising:

a first element for providing a first output pin thereof with a voltage raise in response to a first voltage change at a first input pin thereof, and for providing a second output pin thereof with a voltage raise in response to a second voltage change at a second input pin thereof;

a second element for driving, when the voltage at said first output pin becomes higher than the voltage at said second output pin due to said first voltage change, said second output pin to maintain a voltage keeping pace with the voltage at said first output pin, and for driving, when the voltage at said second output pin becomes higher than the voltage at said first output pin due to said second voltage change, said first output pin to maintain a voltage keeping pace with the voltage at said second output pin.

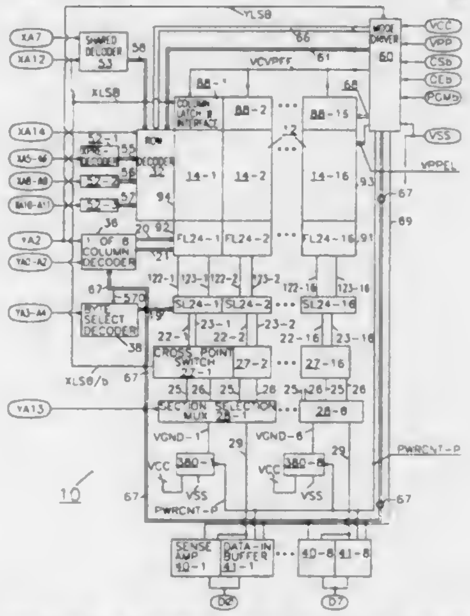
5,784,327
MEMORY CELL ARRAY SELECTION CIRCUITS

Emanuel Hazani, 1210 Sesame Dr., Sunnyvale, Calif. 94087

Continuation-in-part of Ser. No. 497,608, Jun. 30, 1995, Pat. No. 5,677,867, , which is a division of Ser. No. 436,168, Jan. 10, 1994, Pat. No. 5,440,518, which is a division of Ser. No. 179,587, Jun. 12, 1991, Pat. No. 5,278,785, which is a division of Ser. No. 713,995, Jun. 30, 1995, Pat. No. 5,677,867. This application Jul. 30, 1997, Ser. No. 903,047

Int. Cl.^{6} G11C *13/00*

U.S. Cl. 365—218 **20 Claims**



1. An electrically programmable and electrically readable semiconductor memory device comprising:

a memory array including plurality of data storing memory cells arranged in plurality of rows and plurality of columns, and each of said columns having at least one elongated first bit-line, and wherein each first bit-line has a first end and a second end that is spaced apart from said first end and separated therefrom by said rows;

row address circuitry having at least one input and at least one output, said row address circuitry is responsive to at least one row address bit;

column address circuitry having at least one input and at least one output said column address circuitry is responsive to at least one column address bit;

a first column selection circuitry including at least one first field-effect-transistor (FET), said first FET is directly connected to said first end of said first bit-line and said first FET is controlled by one of said address circuitry to be responsive to at least one of said address bits, and said first column selection circuitry is located adjacent said first end of said first bit-line, whereby said memory cells are selectively accessible through said first column selection circuitry for reading said stored data; and

a second column selection circuitry including at least one second field-effect-transistor (FET), said second FET is directly connected to said second end of said first bit-line and said second FET is controlled by one of said address circuitry to be responsive to at least one of the same said address bits to which address bits said first column selection circuitry is responsive, and said second column selection circuitry is spaced apart from said first column selection circuitry and separated therefrom by said rows so that said second column selection circuitry is located adjacent said second end of said first bit-line, whereby said memory cells are electively accessible through said second column selection circuitry for programming said stored data into said memory cells, thereby said memory array is operable to have data written into said memory cells and to have data read from said memory cells.

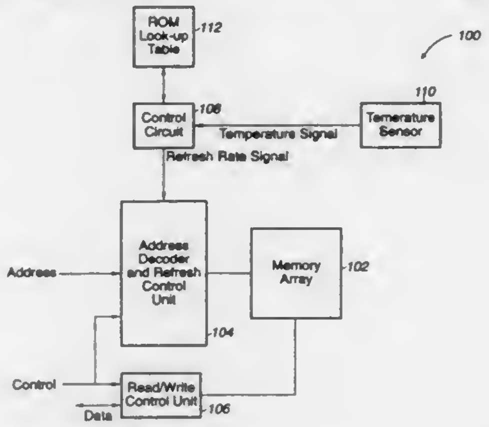
5,784,328
MEMORY SYSTEM INCLUDING AN ON-CHIP TEMPERATURE SENSOR FOR REGULATING THE REFRESH RATE OF A DRAM ARRAY

V. Swamy Irrinki, Milpitas; Ashok Kapoor; Raymond Leung, both of Palo Alto; Alex Owens, Los Gatos, and Thomas R. Wik, Livermore, all of Calif., assignors to LSI Logic Corporation, Milpitas, Calif.

Filed Dec. 23, 1996, Ser. No. 779,999

Int. Cl.^{6} G11C *7/00*

U.S. Cl. 365—222 **18 Claims**



1. A memory circuit comprising:

a memory array including a plurality of memory cells;

a refresh circuit coupled to said memory array and configured to refresh said plurality of memory cells;

a temperature sensor for generating a temperature signal indicative of a temperature; and

a control circuit coupled to said temperature sensor and to said refresh circuit, wherein said control circuit is configured to generate a refresh rate signal dependent upon said temperature signal generated by said temperature sensor;

wherein said refresh circuit is configured to vary a rate of said refresh of said of said plurality of memory cells depending upon said refresh rate signal;

a look-up table unit coupled to said control circuit, wherein said look-up table unit is configured to store a plurality of entries, wherein each of said plurality entries indicates a desired refresh rate for a particular corresponding temperature.

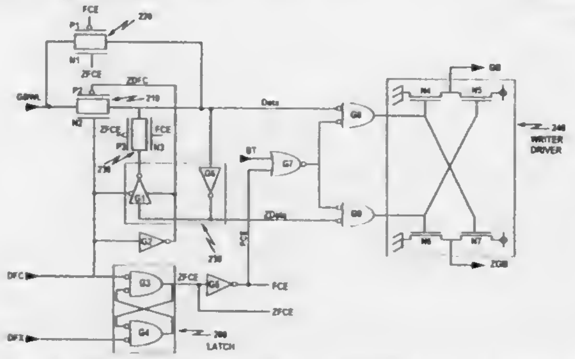
5,784,329
LATCHED DRAM WRITE BUS FOR QUICKLY CLEARING DRAM ARRAY WITH MINIMUM POWER USAGE

Dennis Blankenship; Tim Lao, both of Durham, and Rhonda Cassada, Hillsborough, all of N.C., assignors to Mitsubishi Semiconductor America, Inc., Durham, N.C.

Filed Jan. 13, 1997, Ser. No. 781,388

Int. Cl.^{6} G11C *7/00*

U.S. Cl. 365—227 **7 Claims**



1. Apparatus for reducing power consumption during sequential writes to a DRAM array, comprising:

a. a write driver for writing data to said array; and

b. a data bus write driver control circuit, having a first latch for latching the data state of an incoming line to a value without precharging, and a second latch activated by a control input for entering a fast data write state.

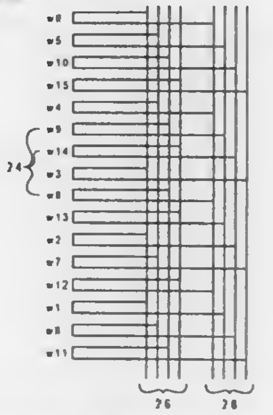
5,784,330
EVENLY DISTRIBUTED RC DELAY WORD LINE DECODING AND MAPPING

John Andrew Beck, Austin; Terry Lee Leasure, Georgetown, and Gus Wai-Yan Yeung, Austin, all of Tex., assignors to International Business Machines Corporation, Armonk, N.Y.

Filed Dec. 2, 1996, Ser. No. 752,981

Int. Cl.^{6} G11C *8/00*

U.S. Cl. 365—230.06 **20 Claims**



1. A device for electronically selecting one of a plurality of locations in an array, comprising:

a first group of conductors;

a second group of conductors;

a plurality of gates each having a first input connected to one of said first group of conductors, a second input connected to one of said second group of conductors, an output connected to one of the locations in the array, and means for presenting an active logic level to said output based on said first and second inputs such that a location having said active logic level is selected; and

means for connecting said first and second groups of said conductors to said first and second inputs of said gates such that an RC delay associated with each conductor is distributed along a portion of the length of the conductor.

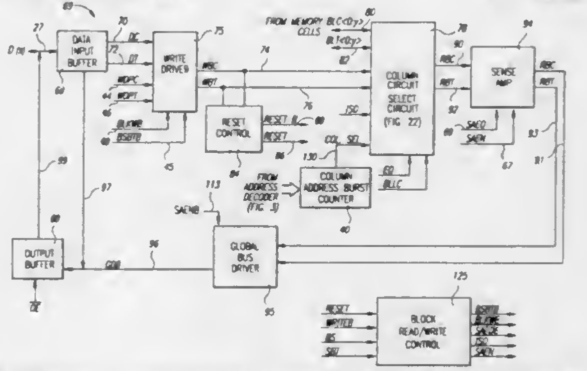
5,784,331
MULTIPLE ACCESS MEMORY DEVICE

Mark A. Lysinger, Carrollton, Tex., assignor to SGS-Thomson Microelectronics, Inc., Carrollton, Tex.

Filed Dec. 31, 1996, Ser. No. 775,664

Int. Cl.^{6} G11C *8/00*

U.S. Cl. 365—230.06 **13 Claims**



1. A memory circuit having a plurality of data storage locations and an address associated with each data storage location, comprising:

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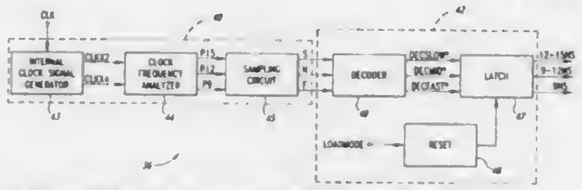
- a first decoded address storage circuit for storing a first decoded memory address and outputting the stored first decoded memory address;
- a second decoded address storage circuit for storing a second decoded memory address and outputting the stored second decoded memory address;
- an address access circuit coupled to the output of the first decoded address storage circuit for accessing the data storage location associated with the first decoded memory address in response to the first decoded memory address being output from the first decoded address storage circuit; and
- a control circuit coupled to the first decoded address storage circuit for transferring decoded memory address information from the second decoded address storage circuit to the first decoded address storage circuit.

5,784,332
CLOCK FREQUENCY DETECTOR FOR A SYNCHRONOUS MEMORY DEVICE

Hua Zheng, and Jeffrey P. Wright, both of Boise, Id., assignors to Micron Technology Corporation, Boise, Id.

Filed Dec. 12, 1996, Ser. No. 764,488
Int. Cl.^{6} G11C *8/00*

U.S. Cl. 365—233 **10 Claims**



1. A semiconductor memory device comprising:

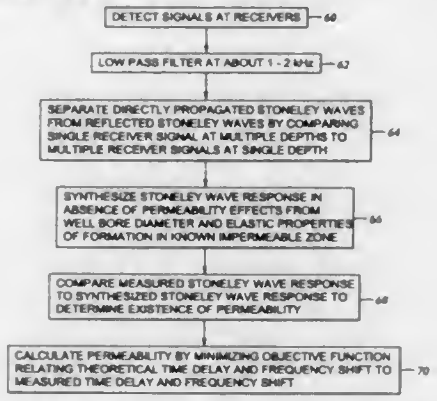
- an array of memory cells;
- a control circuit coupled to the array of memory cells and receiving a clock signal having a predetermined frequency the control circuit being operable to transfer data to and from the array of memory cells based on the predetermined frequency of the clock signal, the control circuit operating in at least first and second modes of operation responsive to a respective first and second selection signal; and
- a clock frequency detector having a frequency detector and a selector circuit, the frequency detector receiving the clock signal and detecting the predetermined frequency of the clock signal, and the selector circuit being coupled to the frequency detector and the control circuit and outputting either the first or the second selection signal to the control circuit in response to the predetermined frequency determined by the frequency detector, wherein the predetermined frequency of the clock signal is either a fast or slow frequency, and wherein the frequency detector includes:
- at least one flip-flop that receives the clock signal and outputs in response thereto an internal clock signal having a frequency of at least one half of the predetermined frequency;
- at least first and second delay elements coupled to receive the internal clock signal and output first and second delayed clock signals, respectively;
- at least first and second gates coupled to the flip-flop to receive the internal clock signal and to the first and second delay elements to receive the first and second delayed clock signals, respectively, the first pass gate outputting a first detect signal and the second pass gate outputting a second detect signal;
- a one-shot circuit coupled to receive the internal clock signal and output a sample clock signal in response thereto;
- at least first and second output gates having inputs coupled to the first and second gates, respectively, and to the one-shot circuit, and having outputs coupled to the selector circuit, the first output gate providing a fast sample signal of a predetermined state to the selector circuit in response to the sample clock signal and if the clock signal has the fast frequency, and the second output gate providing a slow sample signal of a predetermined state to the selector circuit in response to the sample clock signal and if the clock signal has the slow frequency; and
- wherein the selector circuit outputs the first selection signal to the control circuit in response to the predetermined state of the fast sample signal and outputs the second selection signal to the control circuit in response to the predetermined state of the slow sample signal.

5,784,333
METHOD FOR ESTIMATING PERMEABILITY OF EARTH FORMATIONS BY PROCESSING STONELEY WAVES FROM AN ACOUSTIC WELLBORE LOGGING INSTRUMENT

Xiaoming Tang, Sugar Land; Stephan Gelinsky, Houston; Raghu K. Chunduru, Webster, and Arthur C. H. Cheng, Houston, all of Tex., assignors to Western Atlas International, Inc., Houston, Tex.

Filed May 21, 1997, Ser. No. 861,263
Int. Cl.^{6} G01V *1/40;* **E21B** *49/00*

U.S. Cl. 367—30 **21 Claims**


DETECT SIGNALS AT RECEIVERS
60
LOW PASS FILTER AT ABOUT 1 - 2 kHz
62
SEPARATE DIRECTLY PROPAGATED STONELEY WAVES FROM REFLECTED STONELEY WAVES BY COMPARING SINGLE RECEIVER SIGNAL AT MULTIPLE DEPTHS TO MULTIPLE RECEIVER SIGNALS AT SINGLE DEPTH
64
SYNTHESIZE STONELEY WAVE RESPONSE IN ABSENCE OF PERMEABILITY EFFECTS FROM WELL BORE DIAMETER AND ELASTIC PROPERTIES OF FORMATION IN KNOWN IMPERMEABLE ZONE
66
COMPARE MEASURED STONELEY WAVE RESPONSE TO SYNTHESIZED STONELEY WAVE RESPONSE TO DETERMINE EXISTENCE OF PERMEABILITY
68
CALCULATE PERMEABILITY BY MINIMIZING OBJECTIVE FUNCTION RELATING THEORETICAL TIME DELAY AND FREQUENCY SHIFT TO MEASURED TIME DELAY AND FREQUENCY SHIFT
70

1. A method for determining permeability of earth formations penetrated by a wellbore from acoustic signals measured by an acoustic wellbore logging instrument, comprising:

- separating components from said acoustic signals representing Stoneley waves propagating through said earth formations;
- synthesizing signals representing the entire Stoneley waves propagating through said earth formations in the absence of permeability related effects by use of a propagating matrix;
- comparing said separated acoustic signal components and said synthesized Stoneley wave signals; and
- calculating said permeability from differences between said synthesized Stoneley wave signals and said separated acoustic signal components.

5,784,334
METHOD AND SYSTEM FOR DETECTING HYDROCARBON RESERVOIRS USING AMPLITUDE VERSUS OFFSET ANALYSIS OF SEISMIC SIGNALS

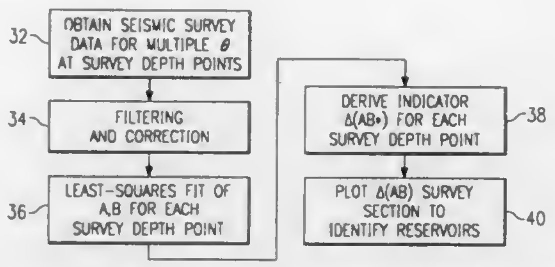
Arcangelo G. Sena, Plano, and Herbert W. Swan, Richardson, both of Tex., assignors to Atlantic Richfield Company, Los Angeles, Calif.

Filed Mar. 13, 1996, Ser. No. 614,744
Int. Cl.^{6} G01V *1/30;1/28*

U.S. Cl. 367—47 **19 Claims**

1. A method of operating a computer to analyze seismic survey signals to distinguish the presence of hydrocarbon-bearing formations in a region of the earth corresponding to the seismic survey signals, wherein the seismic survey signals comprise a plurality of series of time-based signals obtained at a plurality of detectors at the earth responsive to seismic energy imparted to the earth, the signals being gathered into gathers of seismic survey signals, each gather representative of energy reflected from depth points below a corresponding one of a plurality of surface locations at a plurality of angles of incidence, the method comprising the steps of:

- retrieving, from a memory, digital data corresponding to a plurality of gathers;
- determining, for each depth point represented by each of the gathers, an AVO intercept value and an AVO gradient value;
- for each of a plurality of analysis depth points, operating the computer to perform the steps of:
  - selecting a plurality of surrounding depth points that surround, in space and in time, the analysis depth point;
  - deriving a background trend of the AVO intercept values and AVO gradient values for the plurality of surrounding depth points;
  - determining an indicator corresponding to the rate of change of the product of the AVO intercept value and the AVO gradient value for the analysis depth point, along the direction of a deviation vector of the AVO intercept value and the AVO gradient value from the background trend; and
  - storing the indicator in memory; and
- displaying the values of the indicators for the plurality of analysis depth points on an output device.

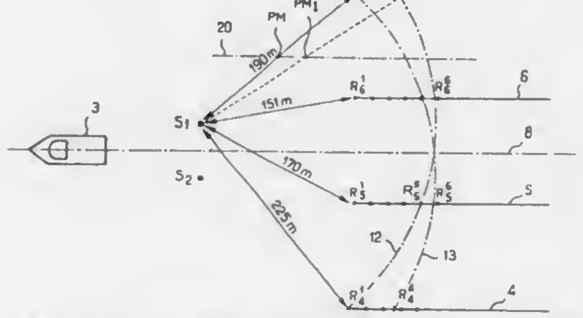

32
OBTAIN SEISMIC SURVEY DATA FOR MULTIPLE θ AT SURVEY DEPTH POINTS
34
FILTERING AND CORRECTION
36
LEAST-SQUARES FIT OF A,B FOR EACH SURVEY DEPTH POINT
38
DERIVE INDICATOR Δ(AB•) FOR EACH SURVEY DEPTH POINT
40
PLOT Δ(AB) SURVEY SECTION TO IDENTIFY RESERVOIRS

5,784,335
METHOD FOR MAKING A 3-D CUBE OF NEAR TRACES FROM DATA ACQUIRED IN A MARINE REFLECTION SEISMIC SURVEY

Christian Deplante, Pau, and Michel Revoy, Lescar, both of France, assignors to Elf Aquitaine Production, Courbevoie, France

Filed Feb. 15, 1996, Ser. No. 601,945
Claims priority, application France, Feb. 16, 1995, 95 01776
Int. Cl.^{6} G01V *1/38;1/34*

U.S. Cl. 367—72 **6 Claims**



1. A method for making a 3-D cube of near traces from data acquired in a marine reflection seismic survey, comprising the steps of:

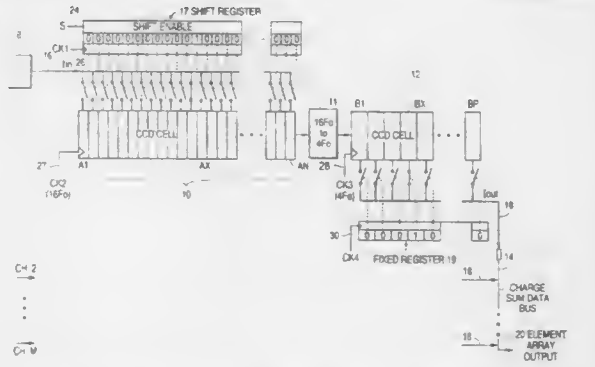
- a) displacing along a navigated line extending along a reference direction,
  - i) at least one emission source, and
  - ii) a plurality of streamers spaced from said emission source, the streamers being laterally spaced from each other and each streamer carrying receivers/recorders uniformly spaced along a length dimension of each said streamer, and
  - iii) means for locating the spatial location of each source and each receiver/recorder, said means delivering space locating data related to positions of each source and of each receiver/recorder,
- b) generating seismic signals from said at least one emission source,
- c) detecting and recording in said receivers/recorders said seismic signals as traces along a number of acquisition lines which extend substantially parallel to the reference direction, the number of acquisition lines being equal to the product of the number of streamers and the number of sources used; using said seismic signals to determine an acquisition plane; each said trace being associated with a pair comprising a source and a receiver/recorder which are separated by an offset and has a source to receiver/recorder midpoint associated therewith,
- d) determining from said space locating data the offset and midpoint corresponding to each trace,
- e) forming a regular grid in an X, Y plane in a system of X, Y, T axes, said regular grid forming a group of bins, and said X, Y plane being representative of said acquisition plane,
- f) producing for each bin a central trace from at least a first recorded trace of which the associated midpoint is located in said bin and of which the offset substantially corresponds to a given constant offset that is equal to the smallest offset common to at least the traces of the acquisition lines along said at least one navigated line, and
- g) assigning said central trace to the center of said bin along the time axis (T), thereby forming a 3-D cube.

5,784,336
DELAY SCHEME AND APPARATUS FOR FOCUSSING THE TRANSMISSION AND RECEPTION OF A SUMMED ULTRASONIC BEAM

Gopal Gopinathan, Cary, N.C., and William Wong, Milton, Mass., assignors to Furuno Diagnostics America, Inc., Cary, N.C.

Filed Nov. 18, 1996, Ser. No. 751,618
Int. Cl.^{6} G01S *3/80;3/82*

U.S. Cl. 367—123 **41 Claims**



1. A beamformer for forming a beam at a wavelength λ comprising:

- an array of antenna elements; and
- a charge transfer delay device associated with each of said antenna elements and providing a desired delay to its respective antenna element, each said antenna element being each associated with a desired delay so that said array of antenna elements collectively produces a desired beam profile, the desired delay being composed of a desired focus delay for focussing said array of antenna elements at a desired focal length and a desired beam steering delay for steering the beam along a desired azimuth, each said charge transfer delay device including,
  - a first delay device portion formed of a plurality N of first delay cells of a first delay resolution factor r_1,

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- a second delay device portion formed of a plurality P of second delay cells of a second delay resolution factor r_2 substantially different from said first delay resolution factor r_1, said second delay device portion being connected to said first delay device portion at a delay resolution interface,
- an input port for inputting a signal into a selected one of said plurality N of first delay cells, n cells from said delay resolution interface, to produce a total first delay in said first delay device portion of $n^*(\lambda/r_1)$, and
- an output port for outputting the signal from a selected one of said plurality P of second delay cells, p cells from the delay resolution interface, to produce a total second delay in said second delay portion of $p^*(\lambda/r_2)$;

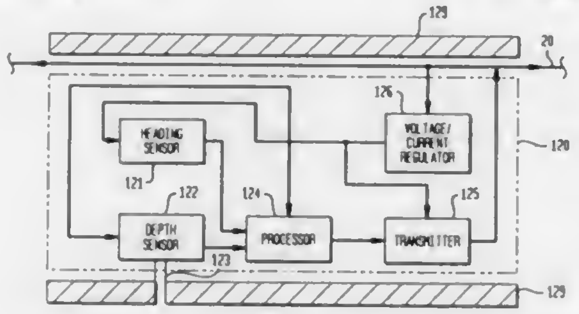
one of said first and second delay device portions providing said desired focus delay and the other of said first and second delay device portions providing said desired beam steering delay to collectively form the desired delay for each antenna element associated with each charge transfer delay device.

5,784,337
TOWED ARRAY WITH NON-ACOUSTIC SENSOR MODULE

Kenneth P. Rainey, Oakdale; Joseph J. Podurgiel, Quaker Hill, and Joseph P. Liguore, Ledyard, all of Conn., assignors to The United States of America as represented by the Secretary of the Navy, Washington, D.C.

Filed Jan. 21, 1997, Ser. No. 812,065
Int. Cl.^{6} G01S *3/80*

U.S. Cl. 367—131 **11 Claims**



1. A dedicated non-acoustic sensor module for placement in a towed sonar array having N hydrophone groups defining N acoustic apertures, each of said N acoustic apertures occupying a specified length of said towed sonar array, said non-acoustic sensor module comprising:

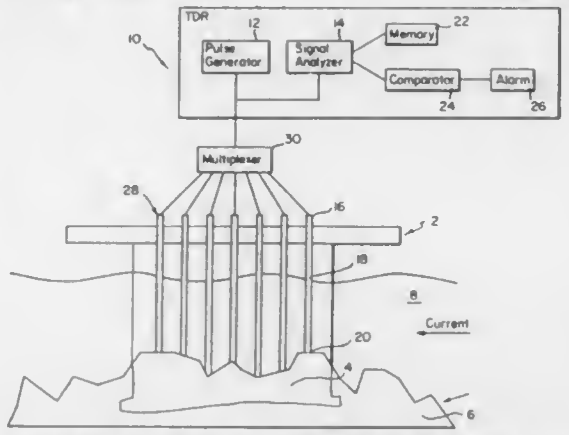
- a flexible reinforced hose;
- at least one non-acoustic sensor mounted in said flexible reinforced hose for generating an output signal in response to a sensed condition;
- processing means mounted in said flexible reinforced hose for formatting said output signal for passage by said towed sonar array;
- transmitting means mounted in said flexible reinforced hose for sending said formatted output signal along said towed sonar array; and
- said non-acoustic sensor module having a length that is n times said specified length where n is a whole number satisfying the relationship $1 \leqq n \leqq N$.

5,784,338
TIME DOMAIN REFLECTOMETRY SYSTEM FOR REAL-TIME BRIDGE SCOUR DETECTION AND MONITORING

Norbert E. Yankielun, Lebanon, N.H., and Leonard J. Zabilansky, Perkinsville, Vt., assignors to The United States of America as represented by the Secretary of the Army, Washington, D.C.

Filed Sep. 15, 1997, Ser. No. 929,801
Int. Cl.^{6} H04B *17/00*

U.S. Cl. 367—131 **11 Claims**



1. Apparatus for monitoring scouring around a structural member having a lower portion buried in the floor of a body of water, a submerged portion, and an upper portion arranged above the water surface, comprising:

- (a) pulse generator means arranged above the water surface for generating a plurality of electromagnetic pulses;
- (b) sensor means connected with said pulse generator means and arranged adjacent the lower portion of the structural member, said sensor means comprising at least one pair of parallel transmission lines which receive and reflect said pulses, said reflected pulses being a time-domain function of the properties of the surrounding media through which said sensor means passes;
- (c) signal analyzer means connected with said sensor means for receiving and analyzing said reflected pulses, whereby changes between the generated and reflected pulses and in the elapsed propagation times thereof can be determined as a measure of the scouring at the structural member resulting from shifting of sediment and other materials in the floor of the body of water.

5,784,339
UNDERWATER LOCATION AND COMMUNICATION SYSTEM

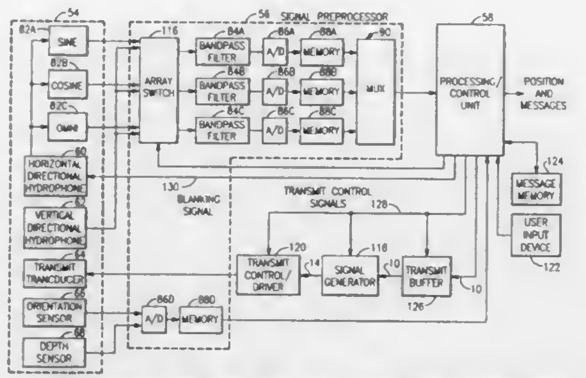
Harvey C. Woodsum, Bedford, and William Hogan, Mont Vernon, both of N.H., assignors to Ocean Vision Technology, Inc., Naples, Fla.

Filed Apr. 16, 1997, Ser. No. 842,602
Int. Cl.^{6} H04B *11/00*

U.S. Cl. 367—134 **27 Claims**

1. A communication and position determining device for use in an underwater location and communication system, comprising:

- a control unit for selecting a sequence of one or more data words containing information to be communicated to a second communication and position determining device wherein each data word includes a plurality of data bits,
- a signal generator responsive to each data word for generating a plurality of concurrent signals wherein
  - each signal represents a data bit of a data word and occupies a different frequency band,
- a directional receiving hydrophone assembly for receiving each data word transmitted by another communication and position determining device and generating omni, sine and cosine channel signals respectively representing the data word signals and the sine and cosine directional components of the data word signals received by the hydrophone assembly, and



- a signal processing unit connected from the directional receiving hydrophone and responsive to a first response signal of a first response data word transmitted by another communication and position determining device in response to the interrogation data word for
  - detecting the time of reception the first response signal, and
  - determining the bearing of reception of the first response signal wherein the bearing of reception of the first response signal represents the bearing of the other communication and position determining device with respect to the communication and position determining device, and
  - determining the range between the communication and position determining device and the other communication and position determining device as represented by the round trip propagation interval between the communication and position determining units as represented by the interval between the transmission of the interrogation signal of the interrogation data word and the reception of the first response signal of the first response data word,
- wherein each signal is selected from one of a pair of upswept and downswept frequency modulated signals that can be discriminated from one another and wherein one waveform of the pair represents a logic 1 and the other waveform represents a logic 0, and wherein
- the frequency bands are separated from one another by guard bands having widths sufficient to prevent intersymbol interference between the signals representing the data bits of a data word, and
- successive data words are separated sequentially in time by intervals having a duration sufficient to prevent intersymbol interference between the signals of successive data words, and
- an acoustic transducer connected from the signal generator for concurrently transmitting the plurality of signals representing a data word.

5,784,340
PIEZOELECTRIC ACOUSTIC DEVICE

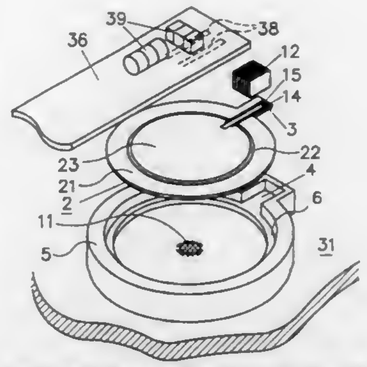
Yasubiro Kanai, Tokyo, Japan, assignor to Taiyo Yuden Co., Ltd., Tokyo, Japan

Filed Jun. 14, 1996, Ser. No. 664,384
Claims priority, application Japan, Jul. 31, 1995, 7-215316
Int. Cl.^{6} H04R *17/00*

U.S. Cl. 367—140 **14 Claims**

1. A piezoelectric acoustic device comprising:

- a piezoelectric element having a metallic planar diaphragm having a main surface, said piezoelectric element further having a projection coplanar with and projecting radially outward from said diaphragm and having a first surface thereon;
- a planar piezoelectric body having second and third surfaces;



- electrodes provided on each of said second and third surfaces of said piezoelectric body, one electrode thereof being fixed and electrically connected to said main surface of said diaphragm;
- a hollow housing for accommodating said piezoelectric element thereon and forming a resonant chamber together with said piezoelectric body;
- an insulating layer for covering said first surface of said projection;
- an extension electrode overlaying said first surface of said projection and said insulating layer so that said extension electrode is insulated from said projection by said insulating layer; and
- a separate elastic connection block, said extension electrode being electrically connected to another circuit solely through said separate elastic connection block sandwiched therebetween.

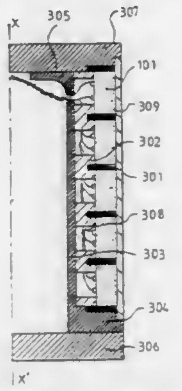
5,784,341
UNDERWATER ACOUSTIC TRANSMITTER FOR LARGE SUBMERSION

Eric Sernit, Mouans-Sartoux; Bernard Fromont, Plateau de Roquebilléne Bendejun; Pascal Bocquillon, Vallauris, and Josette Adda, Valbonne, all of France, assignors to Thomson-CSF, Paris, France

PCT No. PCT/FR95/01350, § 371 Date Apr. 14, 1997, § 102(e) Date Apr. 14, 1997, PCT Pub. No. WO96/11752, PCT Pub. Date Apr. 25, 1996

PCT Filed Oct. 13, 1995, Ser. No. 817,092
Claims priority, application France, Oct. 14, 1994, 94 12285
Int. Cl.^{6} H04R *17/00*

U.S. Cl. 367—155 **4 Claims**



1. An underwater acoustic transmitter for large submersion, of the type comprising a set of piezoelectric annuli stacked to form a transmitter cylinder, which is threaded onto a tube supporting at its too ends plugs characterized in that the tube can resist the axial component of the hydrostatic pressure applied to the plug so as to protect the stack of annuli from the action of this axial component, and in that it furthermore comprises of set of decoupling annuli inserted respective between the piezoelectric annuli and the effectiveness of which stems from the axial stress reduction due to the resistant tube, wherein the decoupling annuli have a three-layer structure comprising a hard and rigid internal layer and too flexible and elastic external layers.

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5,784,342

TIMEPIECE AND, IN PARTICULAR, A WRIST WATCH

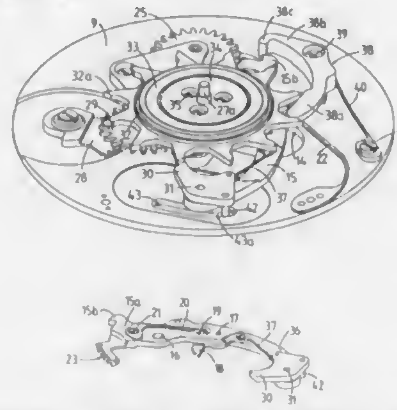
Gerald Genta, Monaco, Monaco, assignor to Gerald Genta S.A., Geneva, Switzerland

Filed Feb. 3, 1997, Ser. No. 794,757

Claims priority, application Switzerland, Feb. 1, 1996, 264/96

Int. Cl.^{6} G04B *27/08*

U.S. Cl. 368—76 **8 Claims**



1. A timepiece comprising a window for displaying the hours, in minute display of a "resetting" type, and a control mechanism which comprises a main tilting member subjected to the action of a rotatory control member, operating a full rotation each hour, said control member moving the main tilting member progressively against the bias of a return spring, then releasing it, once at each full rotation, so that the main tilting member returns to an original position by falling back instantly, said main tilting member being operatively connected to an element carrying an indicator which indicates a time from 0 to 60 minutes during the progressive movement of the main tilting member, said indicator returning instantly to the zero position by the instantaneous falling back motion, the main tilting member further cooperating, at each of its return movements, with a star wheel integrated with an hour member indicating hours so that once.each hour, at each one of the instantaneous falling back motions, said hour member is driven by one step amounting to one hour increment.

5,784,343

MAGNETO-OPTICAL RECORDING AND/OR REPRODUCING APPARATUS HAVING A PLURALITY OF OPTICAL SYSTEMS

Tetsu Watanabe, Tokyo, and Tamotsu Yamagami, Kanagwa, both of Japan, assignors to Sony Corporation, Tokyo, Japan

PCT No. PCT/JP91/00112, § 371 Date Sep. 16, 1991, § 102(e) Date Sep. 16, 1991, PCT Pub. No. WO91/11806, PCT Pub. Date Aug. 8, 1991

PCT Filed Jan. 30, 1991, Ser. No. 761,755

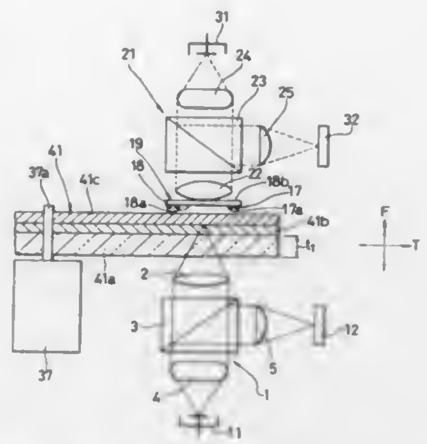
Claims priority, application Japan, Jan. 31, 1990, 2-21211

Int. Cl.^{6} G11B *11/14;13/04*

U.S. Cl. 369—13 **13 Claims**

1. A magneto-optical recording and/or reproducing apparatus for recording information signals on and/or reproducing recorded information signals from first and second magneto-optical recording media, said apparatus comprising:

first and second optical systems having first and second objective lenses, respectively, said first optical system for recording on and/or reproducing from the first magneto-optical medium and said second optical system for recording on and/or reproducing from the second magneto-optical medium, said second objective lens being arranged to face said first objective lens and having a numerical aperture which differs from that of said first objective lens, said first and second optical systems being arranged such that the respective one of said first and second magneto-optical media currently being subject to recording or reproducing is positioned between said first and second optical systems; and



a magnetic head arranged near said second objective lens of the second optical system.

5,784,344

DISC CHANGING DEVICE WITH LOCKING MOVABLE MEMBER FOR COMPACT DISC PLAYER

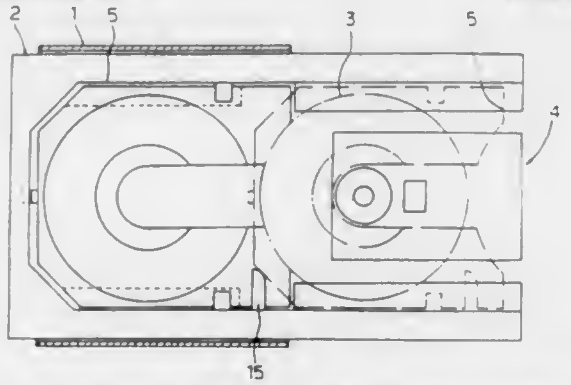
Chul Woong Ahn, Seoul, Rep. of Korea, assignor to Samsung Electronics Co., Ltd., Kyungki-do, Rep. of Korea

Filed Nov. 9, 1995, Ser. No. 555,408

Claims priority, application Rep. of Korea, Nov. 11, 1994, 94-29850

Int. Cl.^{6} G11B *17/22*

U.S. Cl. 369—36 **6 Claims**



1. A disc changing device for a compact disc player comprising a tray box containing a plurality of stacked trays, the tray box being mounted in a body of the compact disc player such that it is vertically movable, and a door member mounted to the player body such that it can be ejected in a forward direction out of the player body and inserted in a reverse direction into the interior of the player body by a drive power from a motor along with a selected one of the trays to carry out a disc change, wherein the improvement comprises:

the tray box being disposed at a position corresponding to a front portion of the door member when the door member is completely inserted into the player body;

a movable member disposed on the door member such that it is slidable with respect to the door member, the movable member being operative to move a selected one of the trays between the front portion of the door member and a deck of the compact disc player disposed in the reverse direction with respect to the door member;

an ejecting mechanism which ejects a first selected tray out of the player body while a second selected tray is disposed within the deck and the compact disc player is being operated; and

means for preventing the tray selected for a disc change operation from moving with respect to the door member when the door member is ejected out of the player body in the forward direction;

wherein the ejecting mechanism which ejects the first selected tray out of the player body while the second selected tray is disposed within the deck and the compact disc player is being operated comprises:

sliding grooves provided on the door member at its inner side surface and lower surface respectively, and having a pair of facing guides provided respectively at a pair of inner side surfaces of the door member, wherein said pair of facing guides extend longitudinally from the front portion of the door member in order to guide the selected one of the trays to the deck;

a pair of side edges provided on the movable member and coupled to the door member such that the side edges are received in the sliding grooves provided at the inner side surfaces of the door member, such that the movable member can slide along the sliding grooves to horizontally move the selected one of the trays;

a first rack provided at the lower surface of the door member for receiving power from the motor to eject a compact disc contained in the tray box forwardly of an opening in a front panel of the tray box, said first rack extending from a nearly central portion of the door member to a rear end of the door member;

a second rack provided at the lower surface of the movable member and extending in parallel to said first rack of the door member, for receiving power from the motor to move the selected one of the trays in a reverse direction from the front panel of the tray box and toward the deck of the compact disc player;

a driven gear coupled to the motor by a gear train;

wherein the driven gear is disengaged from the first rack and engaged with the second rack to move the movable member along the sliding grooves in a reverse direction toward the deck when loading another compact disc;

wherein the driven gear engages with both a trailing end of the second rack provided at the movable member and with a leading end of the first rack provided at the door member, to move the movable member along the sliding grooves toward a front portion of the door member during playback of a selected compact disc; and

wherein the driven gear engages with the first rack while disengaging from the second rack, causing the door member to move forwardly of the front panel of the tray box upon election of the compact disc.

5,784,345

OPTICAL PICKUP DEVICE FOR ELIMINATING UNWANTED DATA

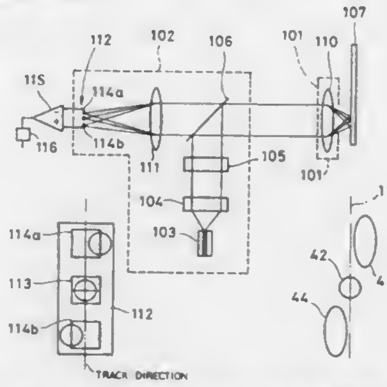
Takanori Maeda, and Hajime Koyanagi, both of Tsurugashima, Japan, assignors to Pioneer Electronic Corporation, Tokyo, Japan

Division of Ser. No. 364,185, Dec. 27, 1994, Pat. No. 5,633,844. This application Jan. 28, 1997, Ser. No. 791,042

Claims priority, application Japan, Dec. 27, 1993, P5-330652

Int. Cl.^{6} G11B *7/095*

U.S. Cl. 369—44.23 **7 Claims**



1. An optical pickup device for writing or reading data from an optical information recording medium, having a recording layer which changes from an original state to another state in response to a density of intensity of an irradiated light beam and a track being used for a tracking servo control system, comprising:

a movable unit carrying an objective lens and arranged for moving in relation to said recording medium; and

a stationary unit comprising:

an irregular interval diffraction grating having slits at irregular interval pitches for splitting a laser light emitted from a light source into one zeroth order diffracted beam for writing or reading data and plus and minus first order diffracted light beams for said tracking servo control system,

a light transmitting means for transmitting the diffracted light beams along a light path up to said objective lens of the movable unit so as to make said zeroth order diffracted beam form a writing or reading spot having a first luminous flux density on the recording layer and to make said plus and minus first order diffracted light beams form controlling spots which are radially displaced from each other on the recording layer by fractional track pitches,

each of said controlling spots having a major axis extending along the track and a minor axis, shorter than said major axis, extending perpendicular to the major axis,

each of said controlling spots having a second luminous flux density within a level which does not affect said original state of said recording layer,

a light converging means for collecting reflected light from the recording medium, and

an optical detecting means, comprising two independent photosensitive surface elements, for receiving said reflected light from said controlling spots.

5,784,346

OPTICAL DISK REPRODUCING DEVICE PROVIDED WITH IMPROVED SPINDLE MOTOR CONTROL

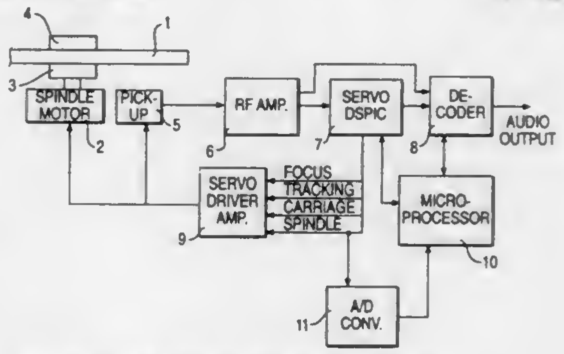
Kazunori Matsuo; Yoshiya Nonaka, and Kiyoshi Furukawa, all of Kawagoe, Japan, assignors to Pioneer Electronic Corporation, Tokyo, Japan

Filed Feb. 28, 1997, Ser. No. 808,152

Claims priority, application Japan, Feb. 28, 1996, 8-067201

Int. Cl.^{6} G11B *7/00*

U.S. Cl. 369—50 **10 Claims**



1. An optical disk reproducing device comprising:

a turntable mounting an optical disk having data to be read;

a clamper clamping the optical disk on the turntable;

a spindle motor rotating the turntable and having a constant linear velocity;

reading means for optically reading the data from the optical disk;

focusing error generating means for generating a focusing signal from the data read by the reading means;

spindle motor controlling means for controlling the rotational speed of the spindle motor by applying a spindle control voltage to the spindle motor;

first error signal detecting means for detecting a level of the focusing signal generated from the focusing error generating means and outputting a first error detection signal;

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spindle control voltage detecting means for detecting the spindle control voltage applied to the spindle motor; and

control voltage storage means for storing the spindle control voltage signal detected by spindle control voltage detecting means,

wherein the spindle control voltage signal is retrieved from the control voltage storage means and applied to the spindle motor controlling means in response to the first error detection signal generated from the first error signal detecting means so that the rotational speed of the spindle motor is controlled based on the spindle control voltage.

5,784,347

OPTICAL DISK DEVICE HAVING OPTICAL PHASE COMPENSATOR

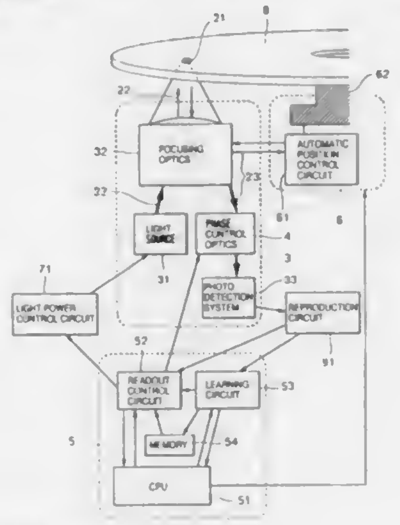
Harukazu Miyamoto, Kodaira; Takeshi Shimano, Tokorozawa; Hisataka Sugiyama, Kodaira, and Mariko Umeda, Tokyo, all of Japan, assignors to Hitachi, Ltd., Tokyo, Japan

Filed Feb. 8, 1996, Ser. No. 597,406

Claims priority, application Japan, Feb. 13, 1995, 7-023728; Feb. 13, 1995, 7-023729

Int. Cl.^{6} G11B *7/00*

U.S. Cl. 369—54 **17 Claims**



1. An optical disk device comprising:

a light source for emitting light;

focusing optics for radiating and focusing said light onto at least one region of an optical recording medium;

a photo-detection system for photoelectrically transforming reflected light from said optical recording medium;

a reproduction circuit for reproducing information recorded on said optical recording medium by using an electric signal from said photo-detection system;

phase control optics for changing an optical phase of said reflected light;

a readout control circuit for controlling a quantity of an optical phase change of said phase control optics;

a learning control circuit for detecting a noise component from an output signal of said reproduction circuit while said readout control circuit varies the quantity of said optical phase change; and

a memory for storing a value of the quantity of said optical phase change as an optimum value when said learning control circuit detects a minimum of the noise component.

5,784,348

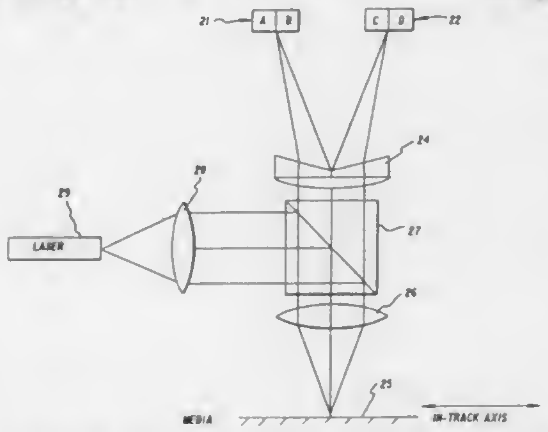
PHASE DETECTED DIRECT READ DURING WRITE

Clarke K. Eastman, Rochester; Roger A. Hajjar; Edward C. Gage, both of Fairport, and Steven C. Dohmeier, Rochester, all of N.Y., assignors to Eastman Kodak Company, Rochester, N.Y.

Filed Jun. 19, 1996, Ser. No. 666,172

Int. Cl.^{6} G11B *7/00*

U.S. Cl. 369—54 **19 Claims**



1. An optical recording system for recording data on an optical medium comprising:

an optical source capable of providing at least one write pulse incident upon the optical medium;

a direct read during write verification system within the optical source including a plurality of detectors, the detectors being configured to receive light that has been reflected from the optical medium into a return aperture, such that light from at least a front and a back of the aperture is detected by the detectors wherein there is at least one separate detector for each the front and the back;

means for comparing the light incident on the separate detectors from the front and the back of the aperture.

5,784,349

MUSICAL INFORMATION RECORDING AND REPRODUCING TECHNIQUE FOR USE WITH A RECORDING MEDIUM

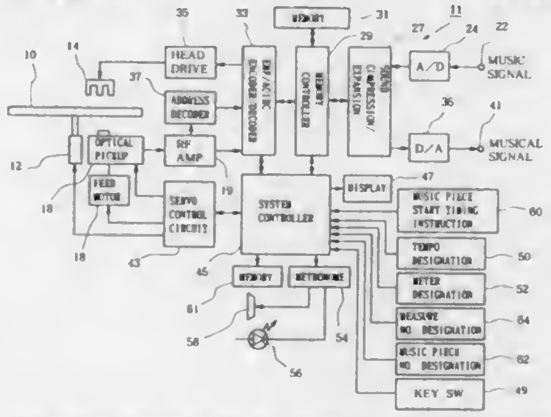
Mikio Ogusu; Kazunobu Fujiwara, and Kei Tanaka, all of Hamamatsu, Japan, assignors to Yamaha Corporation, Hamamatsu, Japan

Division of Ser. No. 510,377, Aug. 2, 1995. This application Aug. 28, 1996, Ser. No. 704,826

Claims priority, application Japan, Aug. 11, 1994, 6-210658; Sep. 8, 1994, 6-240519

Int. Cl.^{6} G11B *7/00*

U.S. Cl. 369—58 **6 Claims**



1. A multichannel recorder for recording musical information onto a recording medium, the multichannel recorder comprising:

mixing means for supplying externally input musical signals to recording channel inputs of optionally designated channels from among a plurality of channels of the recording medium;

part information input operation means for inputting part information pertaining to a musical instrument indicating performance parts of the externally input musical signals;

recording and reproduction control means for recording, onto a table-of-contents information recording area of the recording medium, the part information pertaining to the musical instrument provided as the externally input musical signals input by said part information input operation means as part information for the optionally designated channels, and reproducing said part information from said table-of-contents information recording area; and

display means for displaying the part information for each of the plurality of channels reproduced from said table-of-contents information recording area of the recording medium.

5,784,350

DISK DRIVE APPARATUS WHICH ELIMINATES THE DISK EJECT BUTTON

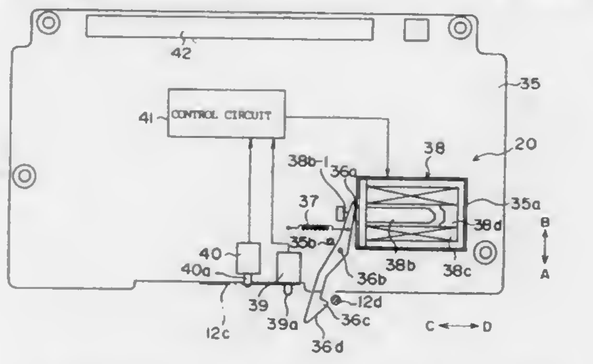
Takao Akiba, Ohmiya, and Katsuya Enami, Higashikurume, both of Japan, assignors to TEAC Corporation, Japan

Filed Mar. 26, 1996, Ser. No. 624,718

Claims priority, application Japan, Feb. 16, 1996, 8-029498

Int. Cl.^{6} G11B *17/04*

U.S. Cl. 369—77.1 **6 Claims**



6. A method of operating a disk tray in a disk drive without a disk eject button, comprising the steps of pressing the disk tray in a disk loading direction in which the disk tray is moved into the disk drive; determining whether a tray detecting micro switch is turned on; waiting for passage of a predetermined time period to see whether the tray detecting micro switch is still on; if the tray detecting micro switch is still on, determining whether an ejecting micro switch is turned on; if the ejecting micro switch is not turned on, detecting presence of a disk in the disk tray and then operating the disk; if the disk ejecting micro switch is turned on, actuating an ejection mechanism to release engagement of the tray; and if both of the tray detecting micro switch and ejecting micro switch are determined being turned off, deactuating the ejection mechanism thereby returning the engagement of the tray.

5,784,351

LOADING APPARATUS FOR DISK CARTRIDGE

Koji Takagi, Kanagawa, Japan, assignor to Sony Corporation, Japan

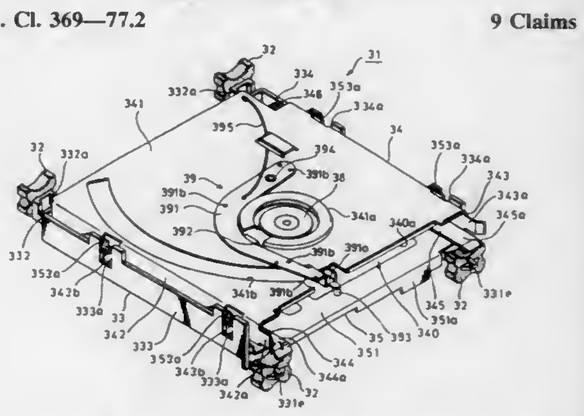
PCT No. PCT/JP96/01070, § 371 Date Oct. 29, 1996, § 102(e) Date Oct. 29, 1996, PCT Pub. No. WO96/33489, PCT Pub. Date Oct. 24, 1996

PCT Filed Apr. 19, 1996, Ser. No. 732,277

Claims priority, application Japan, Apr. 19, 1995, 7-119327

Int. Cl.^{6} G11B *33/02*

U.S. Cl. 369—77.2 **9 Claims**



1. A loading apparatus for a disk cartridge having an opening portion and a shutter provided freely movable so as to open and closed said opening portion, the loading apparatus comprising:

a cartridge holder with said disk cartridge inserted thereto and supporting said inserted disk cartridge;

a rotation drive means for supporting a disk housed in said disk cartridge in at least one direction of directions perpendicular to a surface of said disk cartridge, and for rotating said disk;

a shutter releasing means for opening the shutter of said disk cartridge inserted into said cartridge holder, wherein said shutter releasing means releases said shutter of said disk cartridge, so that said shutter fully opens said opening portion before said disk cartridge inserted into said cartridge holder reaches said rotation drive means under the condition that said shutter of said disk cartridge is supported by a supporting means; and

the supporting means for supporting said shutter opened by said shutter releasing means at a position in which said shutter opens said opening portion of said disk cartridge.

5,784,352

APPARATUS AND METHOD FOR ACCESSING DATA ON MULTILAYERED OPTICAL MEDIA

Eric A. Swanson, Acton, and Stephen R. Chinn, Westford, both of Mass., assignors to Massachusetts Institute of Technology, Cambridge, Mass.

Continuation of Ser. No. 492,738, Jul. 21, 1995, abandoned. This application Aug. 19, 1997, Ser. No. 916,759

Int. Cl.^{6} G11B *7/00*

U.S. Cl. 369—94 **54 Claims**

1. A system for reading data comprising:

a medium containing said data, said data disposed on at least one layer;

a source of illumination, said illumination incident upon said medium; and

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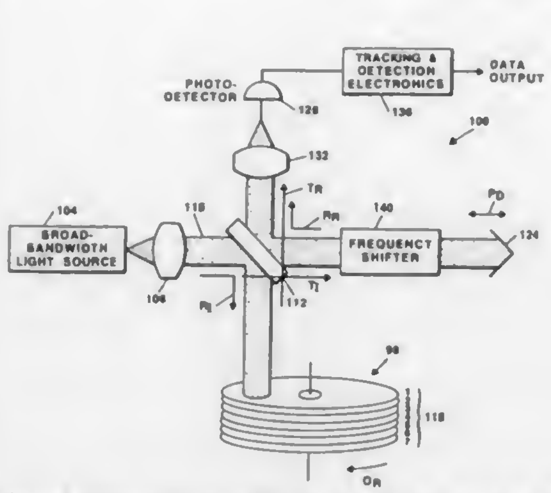


a time-of-flight device for selecting said at least one layer and measuring alteration of said incident illumination caused by data on at least one layer.

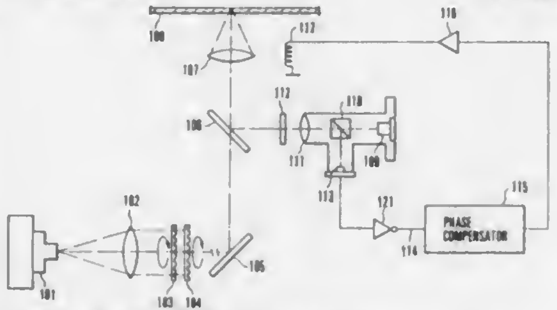
5,784,353
OPTICAL DISK INITIALIZING APPARATUS
Tsutomu Matsui, Tokyo, Japan, assignor to NEC Corporation, Tokyo, Japan

Filed Mar. 10, 1997, Ser. No. 813,294

Claims priority, application Japan, Mar. 15, 1996, 8-087628

Int. Cl.^{6} G11B *7/00*

U.S. Cl. 369—102 **20 Claims**



1. An optical disk initializing apparatus comprising:
a first optical system having a gain waveguide laser for outputting a first beam for initialization;
a second optical system for outputting a second beam having a wavelength different from that of the first beam;
a multiplexor for multiplexing the first beam emerging from said first optical system and the second beam emerging from said second optical system;
an objective lens for focusing an output beam emerging from said multiplexor on an optical disk, said optical disk comprising one of a phase change recording optical disk and a magneto-optical recording optical disk;
a detector for detecting a focusing error signal from a return beam of the second beam reflected by said optical disk; and
a focusing control unit for focusing said objective lens in accordance with the focusing error signal output from said detector.

5,784,354
OPTICAL PICKUP DEVICE
Keun-Jong Lee, Seoul, Rep. of Korea, assignor to Daewoo Electronics Co., Ltd., Seoul, Rep. of Korea

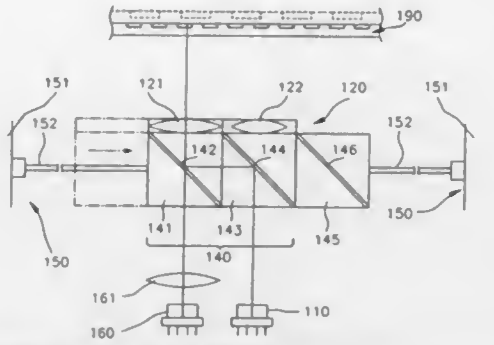
Filed Jun. 6, 1997, Ser. No. 867,427

Claims priority, application Rep. of Korea, Dec. 30, 1996, 96-77259

Int. Cl.^{6} G11B *7/00*

U.S. Cl. 369—112 **20 Claims**

1. An optical pickup device for reproducing optical discs of two kinds having different densities comprising:



a laser light source for irradiating a laser beam;
objective lens means for focusing the laser beam on optical discs of two kinds having different densities, the objective lens means being positioned on an optical path of the laser beam irradiated from the laser light source and having first and second objective lenses integrally disposed from side to side of each other and parallel with the optical disc;
beam splitter means having first and second beam splitter respectively arranged under the first and second objective lenses, the beam splitter means being integrally actuated with the objective lens means, the beam splitter means having first and second coating faces for respectively reflecting upwardly toward the first and second objective lens, the first and second coating faces being parallel with each other, the first and second coating faces being partially reflecting and partially transmitting faces so that one part of the incident beam onto the second coating face is reflected toward the second objective lens and the other part is transmitted toward the first coating face;
a third beam splitter formed integrally with the second beam splitter to integrally operate with the beam splitter means, the third beam splitter having a third coating face to reflect the beam from the laser light source toward the second coating face of the second beam splitter;
a wire type-actuator for integrally moving freely in any direction the objective lens means, the beam splitter means, and the third beam splitter by means of a wire in order to record information and control focusing and tracking; and
photodetecting means for receiving a beam transmitted through the first or second beam splitter via the first or second objective lens after the beam is reflected by the optical disc, the photodetecting means being installed at a predetermined position below the beam splitter means.

5,784,355
INFORMATION RECORDING METHOD AND DEVICE
Michiharu Abe, Yokohama, Japan, assignor to Ricoh Company, Ltd., Tokyo, Japan

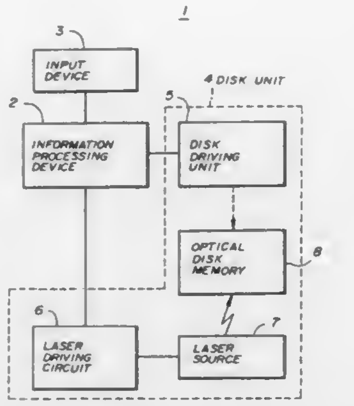
Continuation of Ser. No. 528,081, Sep. 14, 1995, abandoned. This application Sep. 30, 1997, Ser. No. 940,726

Claims priority, application Japan, Sep. 22, 1994, 6-227517; Nov. 15, 1994, 6-280132; Dec. 16, 1994, 6-312839

Int. Cl.^{6} G11B *7/00*

U.S. Cl. 369—116 **44 Claims**

1. A method of recording a bit stream on a Phase Change media using a PWM method by illuminating a laser beam on said Phase Change media to overwrite previous records directly with said bit stream, said method comprising the steps of:
a) assigning a predetermined number of channel bits to each bit of said bit stream; and
b) assigning one of a highest power level, an intermediate power level, and a lowest power level of said laser beam to each of said channel bits so as to modulate said laser beam,
wherein an arrangement of said highest power level, said intermediate power level, and said lowest power level for one bit of said bit stream depends on values of said one bit and an immediately preceding bit, said arrangement controlling at least a falling speed of temperature of said Phase Change media so that said Phase Change media is made into one of a crystalline state or an amorphous state to form a mark having a desired length and width.



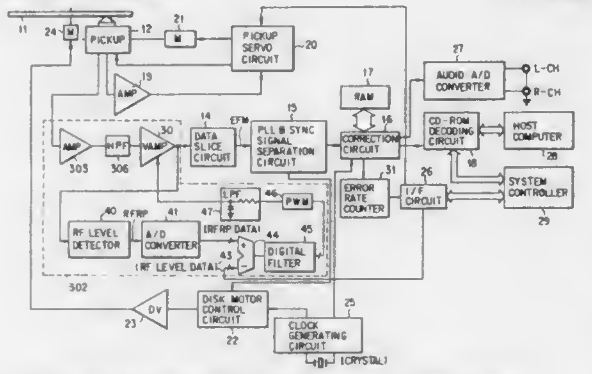
5,784,356
OPTICAL DISK REPRODUCING APPARATUS EQUIPPED WITH VARIABLE GAIN AMPLIFIER CAPABLE OF ADJUSTING AMPLITUDE OF REPRODUCTION SIGNAL
Yasuhiro Hayashi, Yokohama, and Hiroshi Shimada, Tokyo, both of Japan, assignors to Kabushiki Kaisha Toshiba, Kawasaki, Japan

Filed Oct. 24, 1996, Ser. No. 736,407

Claims priority, application Japan, Oct. 27, 1995, 7-280767

Int. Cl.^{6} G11B *7/00*

U.S. Cl. 369—124 **14 Claims**



13. An optical disk reproducing apparatus comprising:
pickup means for obtaining a reproduction signal from a medium on which digital data is recorded;
a variable gain amplifier for amplifying an amplitude of the reproduction signal from said pickup means in accordance with a control signal;
correction processing means for generating a data signal by binarizing an output signal from said variable gain amplifier, extracting a clock synchronous with the data signal, and performing demodulation and error correction processing of the data signal to generate a correction result flag;
correction result flag measuring means for cumulatively measuring correction result flags generated by said correction processing means for a predetermined period of time;
signal setting means for generating a reference signal level for adjusting a gain of said variable gain amplifier in accordance with the measurement result obtained by said correction result flag measuring means; and
a feedback type AGC circuit for controlling said variable gain amplifier by generating the control signal to match an output signal level of said variable gain amplifier with the reference signal level generated by said signal setting means.

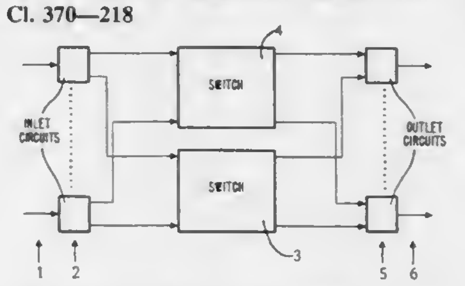
5,784,357
PACKET SWITCHING SYSTEM
Roland Wölker, Espoo, Finland, and Peter Nagel, Erlangen, Germany, assignors to U.S. Philips Corporation, New York, N.Y.

Filed Sep. 8, 1995, Ser. No. 526,019

Claims priority, application Germany, Sep. 9, 1994, 44 32 061.2

Int. Cl.^{6} H04L *1/22;* H04J *12/56*

U.S. Cl. 370—218 **9 Claims**



1. A packet switching system comprising:
a plurality of inlet circuits, each inlet circuit adapted for multiplying a cell coming in by an inlet line and for producing a time stamp to be supplied with each cell;
first and second switches, said switches each having inputs connected to outputs of said plurality of inlet circuits; and
a plurality of outlet circuits each having inputs connected to outputs of said first and second switches for selecting a cell to be conveyed by an outlet line from a plurality of received cells that have a same time stamp, wherein each inlet circuit further comprises means for further generating an inlet number to be co-transmitted and featuring the respective inlet circuit and a particular cell, and wherein each outlet circuit further comprises means for establishing a correct order of successive cells arriving at different instants based upon the time stamp and the inlet number.

5,784,358
BROADBAND SWITCHING NETWORK WITH AUTOMATIC BANDWIDTH ALLOCATION IN RESPONSE TO DATA CELL DETECTION
Avail Joy Smith, Oxfordshire, and John Leonard Adams, Suffolk, both of United Kingdom, assignors to Oxford Brookes University, Oxford, and British Telecommunications public limited company, London, both of United Kingdom

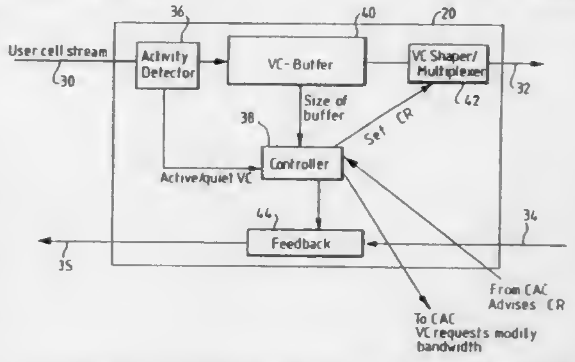
PCT No. PCT/GB95/00502, § 371 Date Mar. 22, 1996, § 102(e) Date Mar. 22, 1996, PCT Pub. No. WO95/24812, PCT Pub. Date Sep. 14, 1995

Continuation-in-part of Ser. No. 255,311, Jun. 3, 1994, Pat. No. 5,504,744. This PCT application Mar. 8, 1995, Ser. No. 619,653

Claims priority, application European Pat. Off., Mar. 9, 1994, 94301673

Int. Cl.^{6} H04Q *11/04*

U.S. Cl. 370—230 **41 Claims**



1. A broadband switching system having at least one ingress for connection to a respective signal source and at least one egress for connection to a selected signal receiving system, the switching system comprising:

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at least one switch for transmitting information-carrying asynchronously transferred data cells from the ingress to the egress,

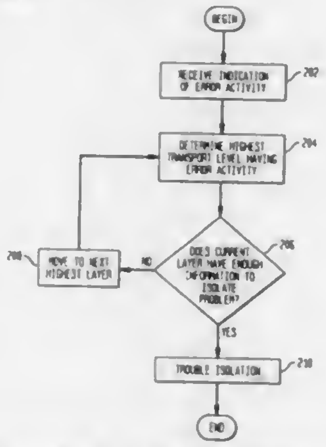
system control means for accepting and establishing a connection between the ingress and the egress via the said switch, and

bandwidth control means arranged to detect the said information-carrying data cells received at the ingress and, automatically in response to such data cell detection, to cause the system control means to allocate bandwidth for the transmission of the data cells to the egress.

5,784,359
SYSTEM AND METHOD FOR UNREPORTED TROUBLE ISOLATION

Michael Beneheck, Garland; Robert Branton, Farmers Branch; Curtis Brownmiller, Richardson; Mark DeMoss, The Colony; Steve Landon, Richardson, and Minh T. Tran, Plano, all of Tex., assignors to MCI Communications Corporation, Washington, D.C.

Filed Jun. 28, 1996, Ser. No. 672,513
Int. Cl.⁶ H04J *3/14*
U.S. Cl. 370—244 14 Claims


BEGIN
RECEIVE INDICATION OF ERROR ACTIVITY
202
DETERMINE HIGHEST TRANSPORT LEVEL HAVING ERROR ACTIVITY
204
DOES CURRENT LAYER HAVE ENOUGH INFORMATION TO ISOLATE PROBLEM?
206
NO
MOVE TO NEXT HIGHEST LAYER
208
YES
TROUBLE ISOLATION
210
END

1. A method in a layer of a network management system for isolating a problem in a circuit path contained in a network, the circuit path including a plurality of network elements interconnected by a plurality of links having various transport levels, the method comprising the steps of:

(1) receiving performance monitoring data for a first signal transport level from a first monitoring point associated with a first network element in the circuit path;

(2) determining whether said performance monitoring data at said first signal transport level indicates a potential network problem;

(3) identifying error activity at a second signal transport level, said error activity being reported by a second monitoring point associated with a second network element in the circuit path wherein said first signal transport level is mapped into said second signal transport level;

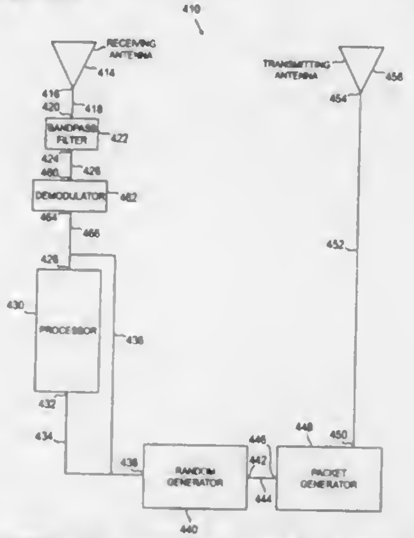
(4) determining whether the layer has access to enough information to isolate the problem; and

(5) identifying a third monitoring point upstream of said second monitoring point that reports corresponding error activity at said second signal transport level.

5,784,360
CONTROLLING POWER AND ACCESS OF WIRELESS DEVICE TO BASE STATIONS WHICH USE CODE DIVISION MULTIPLE ACCESS

Chih-Lin I, Manalapan, and Krishan Kumar Sabnani, Berkeley Heights, both of N.J., assignors to Lucent Technologies Inc., Murray Hill, N.J.

Division of Ser. No. 234,757, Apr. 28, 1994, Pat. No. 5,671,218. This application Mar. 3, 1997, Ser. No. 811,092
Int. Cl.⁶ H04B *7/216*
U.S. Cl. 370—252 15 Claims



1. A base station for controlling access by wireless devices of mixed types to an uplink frequency channel comprising:

a transmitting antenna;

a receiving antenna;

a despreader which receives a composite spread signal from the receiving antenna and uses unique codes to partially despread the composite spread signal, each unique code corresponding to a particular wireless device;

a first processor for determining the type of each particular wireless device; and

a second processor for updating a current load value and a population value for each type of wireless device, the second processor

storing the current load values and population values for each type of wireless device;

determining a current load share for each type of wireless device;

determining a population share for each type of wireless device; and

determining an equivalent current load value and an equivalent population value for all types of wireless devices admitted by the base station, wherein the equivalent current load value is proportional to the sum of the current load shares and the equivalent population value is proportional to the sum of the population shares, and

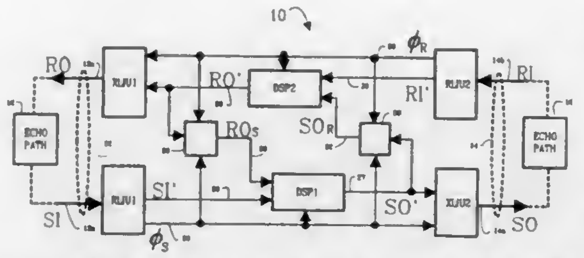
wherein indicia of the equivalent current load value and the equivalent population value are sent to the transmitting antenna for transmission to wireless devices.

5,784,361
BI-DIRECTIONAL ASYNCHRONOUS TELECOMMUNICATION AUDIO SIGNAL PROCESSING

Barry H. Bielsker, Vienna, Va., assignor to Coherent Communications Systems Corp., Leesburg, Va.

Filed Jan. 31, 1997, Ser. No. 792,293
Int. Cl.⁶ H04B *3/20*
U.S. Cl. 370—286 17 Claims

1. A method of processing telecommunication signals between a near end station and a far end station, comprising the steps of:



receiving, from the near end station, a send path signal having a send path information component and a send path timing component;

separating the send path signal into (i) a send path information data signal representing the send path information component, and (ii) a send path timing signal representing the send path timing component;

receiving, from the far end station, a receive path signal having a receive path information component and a receive path timing component;

separating the receive path signal into (i) a receive path information data signal representing the receive path information component, and (ii) a receive path timing signal representing the receive path timing component;

resynchronizing the send path information data signal with the receive path timing signal to provide a resynchronized send path information data signal;

altering a characteristic of the send path information data signal with a signal processor operated at a rate controlled by the send path timing signal, to provide a processed send path information data signal;

altering a characteristic of the receive path information data signal with reference to the resynchronized send path information data signal, with a signal processor operated at a rate determined by the receive path timing signal, to provide a processed receive path audio information signal;

combining the processed send path information data signal with the send path timing signal, to provide a processed send path signal;

combining the processed receive path information data signal with the receive path timing signal, to provide a processed receive path signal;

transmitting the processed send path signal to the far end station; and

transmitting the processed receive path signal to the near end station.

5,784,362
TEMPORARY FRAME IDENTIFICATION FOR ARQ IN A RESERVATION-SLOTTED-ALOHA TYPE OF PROTOCOL

Dalibor Turina, Täby, Sweden, assignor to Telefonaktiebolaget LM Ericsson, Stockholm, Sweden

Filed Apr. 17, 1995, Ser. No. 422,790
Int. Cl.⁶ H04J *3/16*
U.S. Cl. 370—321 18 Claims

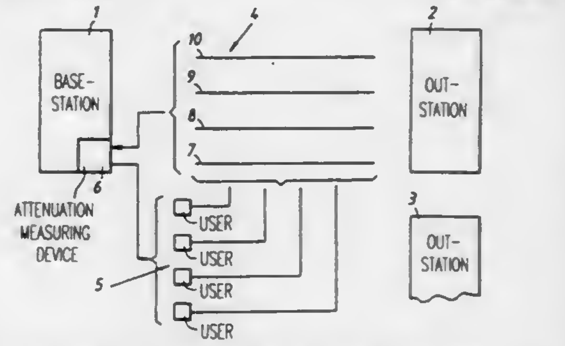
1	2	3	4	5	6	7	8	OCTET
TFI								1
BLOCK SEQ NUM					TYPE		P/F	2
NUM OF TRIES				FOR FURTHER USE				3

1. In a mobile packet communications system using a reservation slotted-ALOHA protocol in which data frames are exchanged between a base station and mobile stations, a method of implementing automatic repeat request (ARQ), comprising the steps of assigning, to each data frame transmitted to a mobile station, a temporary frame identity (TFI); wherein the TFI assigned is unique among other TFIs assigned to data frames concurrently transmitted to other mobile stations; including the assigned TFI in every data block in the data frame to which the TFI is assigned; and resuming transmission of an uncompleted data frame, wherein transmission was interrupted, by the base station's transmitting a predetermined message that includes the TFI assigned to the uncompleted data frame.

5,784,363
ARRANGEMENT IN A MULTI-USER SYSTEM

Bo Engström, and Roger Larsson, both of Luleå, Sweden, assignors to Telia AB, Farsta, Sweden

PCT No. PCT/SE94/00841, § 371 Date Apr. 1, 1996, § 102(e) Date Apr. 1, 1996, PCT Pub. No. WO95/10144, PCT Pub. Date Apr. 13, 1995
PCT Filed Sep. 12, 1994, Ser. No. 615,172
Claims priority, application Sweden, Oct. 1, 1993, 9303213
Int. Cl.⁶ H04J *1/16*
U.S. Cl. 370—332 20 Claims



1. A multi-user radio communication system comprising:

an outstation configured to transmit uplink signals over carrier waves at separate frequencies, separate subsets of said carrier waves being assigned as radio channels to users of said system, said radio channels being independent and uncorrelated with one another; and

a base station configured to transmit information to said users via said radio channels, said base station comprising,

an attenuation measuring device that receives said uplink signals from the outstation and measures an amount of attenuation on the received uplink signals and determines which of said frequencies experience more than a predetermined amount of attenuation due to multipath propagation effects, said attenuation measuring device being configured to reassign specific ones of said frequencies that experience more than said predetermined amount of attenuation with other frequencies that experience a lesser amount of attenuation, wherein

said base station is configured to inform said users if said attenuation measuring device reassigns said respective frequencies.

5,784,364
MULTIPLE PATH DELAY TIME SEARCHER IN REVERSE LINK COMMUNICATION CHANNEL OF A COMMUNICATION SYSTEM EMPLOYING A CODE DIVISION MULTIPLE ACCESS METHOD

Jae-Min Ahn; Young-Ky Kim, and Chun-Young Seo, all of Seoul, Rep. of Korea, assignors to Samsung Electronics Co., Ltd., Suwon, Rep. of Korea

Filed Jun. 21, 1996, Ser. No. 668,237
Claims priority, application Rep. of Korea, Jun. 23, 1995, 1995-17098
Int. Cl.⁶ H04B *7/216*
U.S. Cl. 370—335 4 Claims

1. A multiple path delay time searcher at a signal demodulation mode of a reverse link communication channel of a mobile communication system employing code division multiple access, comprising:

a sample buffer for storing a sample signal received from an antenna of a base station;

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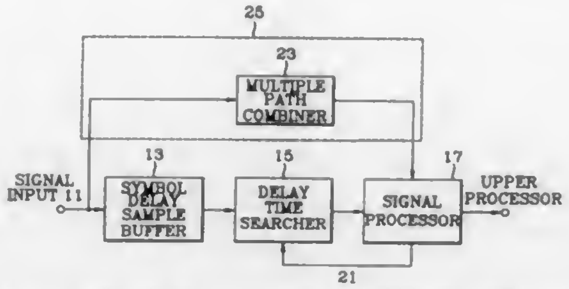


a delay time searcher for obtaining a correlation value between the sample signal at a specific search location on a delay time axis designated by said sample buffer and a reference signal corresponding to a designated symbol;

a signal processor for deciding whether there is a signal component in said specific search location using an accumulative average of obtained correlation values received from said delay time searcher; and

a multiple path combiner for deciding the symbol designated in said delay time searcher.

5,784,365
TIME DIVISION MULTIPLEX COMMUNICATION CONTROL SYSTEM

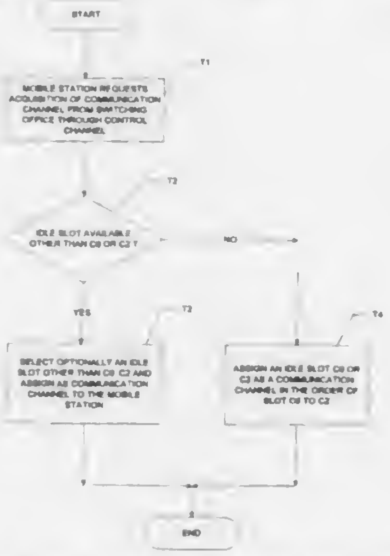
Tadashi Ikeda, Tokyo, Japan, assignor to Mitsubishi Denki Kabushiki Kaisha, Tokyo, Japan

Filed Feb. 26, 1996, Ser. No. 607,024

Claims priority, application Japan, May 25, 1995, 7-126272

Int. Cl.^{6} H04J *3/10;* **H04B** *7/212*

U.S. Cl. 370—337 **20 Claims**


START
T1
MOBILE STATION REQUESTS ACQUISITION OF COMMUNICATION CHANNEL FROM SWITCHING OFFICE THROUGH CONTROL CHANNEL
T2
IDLE SLOT AVAILABLE OTHER THAN C0 OR C2 ?
NO
YES
T3
T4
SELECT OPTIONALLY AN IDLE SLOT OTHER THAN C0 C2 AND ASSIGN AS COMMUNICATION CHANNEL TO THE MOBILE STATION
ASSIGN AN IDLE SLOT C0 OR C2 AS A COMMUNICATION CHANNEL IN THE ORDER OF SLOT C0 TO C2
END

1. A time division multiplex communication control system comprising a switching office and a plurality of mobile stations, wherein communication signals are sent over at least one carrier having a plurality of time division multiplexed communication channels and a control channel, in which said switching office assigns a communication channel to a mobile station requesting acquisition of a communication channel through said control channel, characterized in that when said mobile station requests the acquisition of a communication channel from said switching office through said control channel, said switching office assigns to said mobile station a communication channel which is not adjacent to said control channel with priority over a communication channel which is adjacent to said control channel.

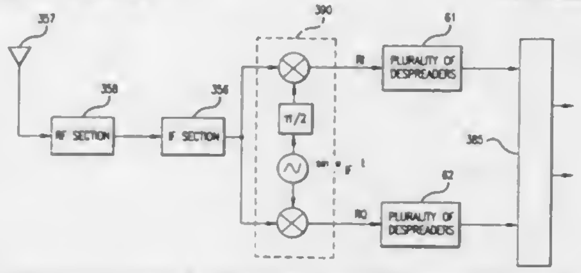
5,784,366
WIDEBAND CODE-DIVISION-MULTIPLE ACCESS SYSTEM AND METHOD

Tuvia Apelewicz, Ra'Anana, Israel, assignor to TransSKY Corp., Wilmington, Del.

Filed Aug. 27, 1996, Ser. No. 703,826

Int. Cl.^{6} H04J *13/04;* **H04L** *27/92*

U.S. Cl. 370—342 **16 Claims**



1. An improvement to a wideband code-division-multiple-access (W-CDMA) system, comprising:

a W-CDMA transmitter, said W-CDMA transmitter including,

an in-phase-data-product device for multiplying an in-phase-data (IDATA) signal with a data-chip-sequence signal, thereby generating an IDATA-spread-spectrum signal;

a quadrature-phase-data-product device for multiplying a quadrature-phase-data (QDATA) signal with the data-chip-sequence signal, thereby generating a QDATA-spread-spectrum signal;

equalization-chip means for outputting an equalization-chip-sequence signal;

an in-phase combiner, coupled to said in-phase-data-product device and to said equalization-chip means, for linearly combining the IDATA-spread-spectrum signal and the equalization-chip-sequence signal, to generate an in-phase-combined-spread-spectrum signal;

a quadrature-phase combiner, coupled to said quadrature-phase-data-product device and to said equalization-chip means, for linearly combining the QDATA-spread-spectrum signal, and the equalization-chip-sequence signal, to generate the quadrature-phase-combined-spread-spectrum signal;

a quadrature-phase-shift-keyed (QPSK) modulator, coupled to said in-phase combiner and to said quadrature-phase combiner, for QPSK modulating the in-phase-combined-spread-spectrum signal with the quadrature-phase-combined-spread-spectrum signal, thereby generating a QPSK-spread-spectrum signal;

a power amplifier, coupled to said QPSK modulator, for amplifying the QPSK-spread-spectrum signal;

a transmitter antenna, coupled to said power amplifier, for radiating the amplified QPSK-spread-spectrum signal over a communications channel;

a W-CDMA receiver, said W-CDMA receiver including,

a receiver antenna for coupling the W-CDMA receiver to the communications channel;

in-phase-punctual-equalization (IPE) means, coupied to said receiver antenna, for despreading an in-phase component of the equalization-chip-sequence signal embedded in the QPSK-spread-spectrum signal, as a received-in-phase-punctual-equalization signal ($RIEQ_P$);

first in-phase-late-equalization (ILE) means, coupled to said receiver antenna, for despreading, a first portion of a chip late, the in-phase component of the equalization-chip-sequence signal embedded in the QPSK-spread-spectrum signal, as a first received-in-phase-late-equalization signal ($RIEQ_{L1}$);

quadrature-phase-punctual-equalization (QPE) means, coupled to said receiver antenna, for despreading a quadrature-phase component of the equalization-chip-sequence signal embedded in the QPSK-spread-spectrum signal, as a received-quadrature-phase-punctual-equalization signal ($RQEQ_P$);

first quadrature-phase-late-equalization (QLE) means, coupled to said receiver antenna, for despreading, the first portion of the chip late, the quadrature-phase component of the equalization-chip-sequence signal embedded in the QPSK-spread-spectrum signal, as a first received-quadrature-phase-late-equalization signal ($RQEQ_{L1}$);

in-phase-punctual-data (IPD) means, coupled to said receiver antenna, for despreading the IDATA-spread-spectrum signal embedded in the QPSK-spread-spectrum signal as a received-in-phase-punctual-data signal ($RIDATA_P$);

first in-phase-late-data (ILD) means, coupled to said receiver antenna, for despreading, the first portion of the chip late, the IDATA-spread-spectrum signal embedded in the QPSK-spread-spectrum signal, as a first received-in-phase-late-data signal ($RIDATA_{L1}$);

quadrature-phase-punctual-data (QPD) means, coupled to said receiver antenna, for despreading the QDATA-spread-spectrum signal embedded in the QPSK-spread-spectrum signal as a received-quadrature-phase-punctual-data signal ($RQDATA_P$);

first quadrature-phase-late-data (QLD) means, coupled to said receiver antenna, for despreading, the first portion of the chip late, the QDATA-spread-spectrum signal embedded in the QPSK-spread-spectrum signal, as a first received-quadrature-phase-late-data signal ($RQDATA_{L1}$); and

a processor for determining a first punctual-equalization signal ($EQ1_P$) from the received-in-phase-punctual-equalization signal ($RIEQ_P$) plus the received-quadrature-phase-punctual-equalization signal ($RQEQ_P$), for determining a second punctual-equalization signal ($EQ2_P$) from the received-quadrature-phase-punctual-equalization signal ($RQEQ_P$) minus the received-in-phase-punctual-equalization signal ($RIEQ_P$), for determining a first late-equalization signal ($EQ1_L$) from the first received-in-phase-late-equalization signal ($RIEQ_{L1}$) plus the first received-quadrature-phase-late-equalization signal ($RQEQ_{L1}$), for determining a second late-equalization signal ($EQ2_L$) from the first received-quadrature-phase-late-equalization signal ($RQEQ_{L1}$) minus the first received-in-phase-late-equalization signal ($RIEQ_{L1}$), for determining an in-phase-punctual-data signal ($IDATA_P$) from the received-in-phase-punctual-data signal ($RIDATA_P$) times the first punctual-equalization signal ($EQ1_P$), plus the received-quadrature-phase-punctual-data signal ($RQDATA_P$) times the second punctual-equalization signal ($EQ2_P$), for determining a quadrature-phase-punctual-data signal ($QDATA_P$) from the received-quadrature-phase-punctual-data signal ($RQDATA_P$) times the first punctual-equalization signal ($EQ1_P$), minus the received-in-phase-punctual-data signal ($RIDATA_P$) times the second punctual-equalization signal ($EQ2_P$), for determining a first in-phase-late-data signal ($IDATA_{L1}$) from the first received-in-phase-late-data signal ($RIDATA_{L1}$) times the first late-equalization signal ($EQ1_L$), plus the first received-quadrature-phase-late-data signal ($RQDATA_{L1}$) times the second late-equalization signal ($EQ2_L$), for determining a first quadrature-phase-late-data signal ($QDATA_{L1}$) from the first received-quadrature-phase-late-data signal ($RQDATA_{L1}$) times the first late-equalization signal ($EQ\ 1_L$), minus the first received-in-phase-late-data signal ($RIDATA_{L1}$) times the second late-equalization signal ($EQ2_L$), for determining an output-in-phase-data signal ($IDATA_O$) from $IDATA_O=IDATA_{L1}+IDATA_P$ and for, determining an output-quadrature-phase-data signal ($QDATA_O$) from $QDATA_O=QDATA_{L1}+QDATA_P$.

5,784,367
METHOD AND DEVICE FOR COMMUNICATIONS BETWEEN PLURAL TERMINALS, COMPATIBLE WITH THE ARINC 629 STANDARD

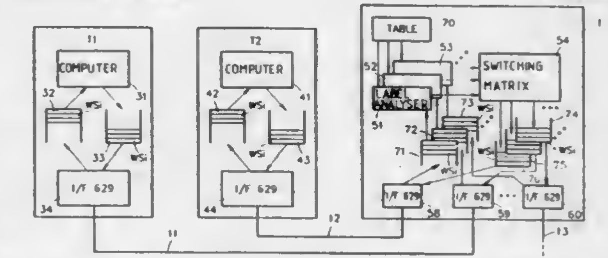
Christian Sannino, Vielle Eglise en Yvelines, France, assignor to Sextant Avionique, Velizy Villacoublay, France

Filed Apr. 4, 1996, Ser. No. 627,476

Claims priority, application France, Apr. 7, 1995, 95 04301

Int. Cl.^{6} H04L *12/56*

U.S. Cl. 370—360 **5 Claims**



1. A device for transmitting digital data between a plurality of terminals, comprising a switching device and a plurality of buses of the multitransmitter, multireceiver, multiplexed type respectively connecting said terminals to said switching device, said digital data being transmitted onto said buses in messages of predefined fixed length, each message including a header comprising a code identifying the message, said switching device comprising:

coupling circuits respectively connected to said buses, each coupling circuit being designed to transfer the messages received by said switching device from said terminals between the respective bus and said switching device,

at least one reception exchange memory into which the coupling circuits transfer all the messages transmitted on said buses by said terminals,

at least one label analyzing device designed to successively read the identification code of each message stored in the reception exchange memory and to attach thereto routing information as a function of the identification code read in the message,

as many transmission exchange memories as there are buses, in which are stored the messages to be transferred on said buses by said coupling circuits,

a switching matrix designed to transfer each message from said reception exchange memory into at least one transmission exchange memory as a function of the routing information associated with said message.

5,784,368
METHOD AND APPARATUS FOR PROVIDING A SYNCHRONOUS COMMUNICATION ENVIRONMENT

David L. Weigand, Buffalo Grove, and Charles John Malek, Crystal Lake, both of Ill., assignors to Motorola, Inc., Schaumburg, Ill.

Filed Sep. 23, 1994, Ser. No. 311,467

Int. Cl.^{6} H04J *3/06*

U.S. Cl. 370—310 **5 Claims**

1. A method for providing synchronous communication in a communication system having a plurality of base stations adapted to operate within range of one another, said method comprising the steps of:

detecting a beacon signal from a first base station and a second base station at a third-base station;

synchronizing said third base station to said first base station;

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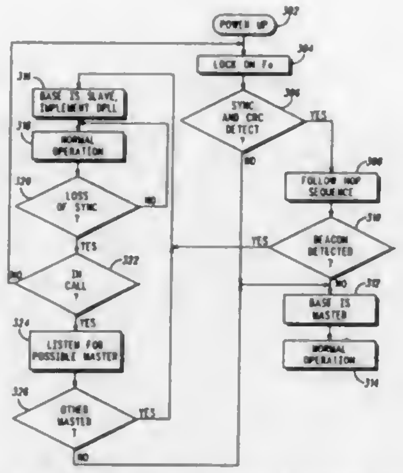


detecting, at said second base station, a beacon signal from a third base station; and

synchronizing said second base station to said third base station.

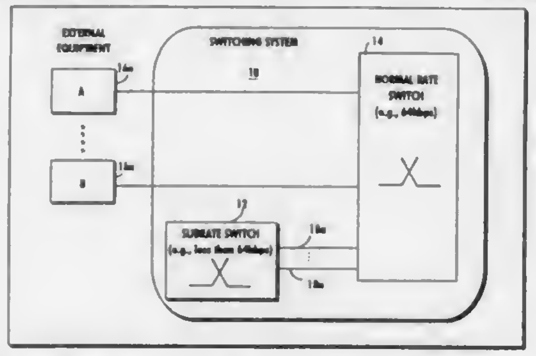
5,784,369
METHODS AND SYSTEM FOR SWITCHING TIME-DIVISION-MULTIPLEXED DIGITAL SIGNALS OF DIFFERENT RATES

Stefano Romiti, Rome, Italy, and Karl Ake Kristoffersson, Stockholm, Sweden, assignors to Telefonaktiebolaget LM Ericsson, Stockholm, Sweden

Filed Jan. 26, 1996, Ser. No. 592,707

Int. Cl.⁶ H04Q *11/04;* **H04J** *3/22*

U.S. Cl. 370—358 **27 Claims**


EXTERNAL EQUIPMENT
SWITCHING SYSTEM
10
14
A
B
NORMAL RATE SWITCH (e.g., 64kbps)
12
SUBRATE SWITCH (e.g., less than 64kbps)

1. A digital telecommunications switching system comprising:

a main data transmission rate switch, connected by multiple bidirectional switch ports to multiple incoming and outgoing time-slotted digital lines, with each timeslot including a predetermined number of bits of data, for switching timeslots received from any one of the switch ports to another one of the switch ports at a first data transmission rate; and

a subrate switch, connected to the main switch, for selectively switching one or more bits less than the predetermined number in a timeslot at a data transmission rate different than the first data transmission rate, wherein the subrate switch includes:

plural columns and rows of data memories for storing input timeslots, each column corresponding to a single bit in an output timeslot, and

a selection mechanism for selecting a timeslot in one of the row memories and selecting one or more of the column memories to permit selective switching of one or more individual bits contained in the selected timeslot through the subrate switch.

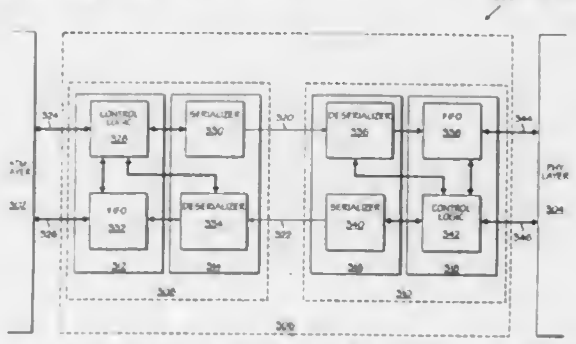
5,784,370
METHOD AND APPARATUS FOR REGENERATING A CONTROL SIGNAL AT AN ASYNCHRONOUS TRANSFER MODE (ATM) LAYER OR A PHYSICAL (PHY) LAYER

Craig S. Rich, Monte Sereno, Calif., assignor to Cypress Semiconductor Corp., San Jose, Calif.

Filed Dec. 29, 1995, Ser. No. 581,267

Int. Cl.⁶ H04L *29/10*

U.S. Cl. 370—395 **54 Claims**



1. In a communication system having an extender circuit providing a serial communication interface between an asynchronous transfer mode (ATM) layer and a physical (PHY) layer, a method for regenerating a control signal comprising the steps of:

generating the control signal at the ATM layer;

detecting the occurrence of a first sequence of signals; and

reproducing the control signal at the PHY layer when the first sequence of signals is not detected.

5,784,371
ATM ELECTRONIC EXCHANGE NETWORK SYSTEM AND ELECTRODE EXCHANGE EQUIPMENT FOR USE IN THE SAME

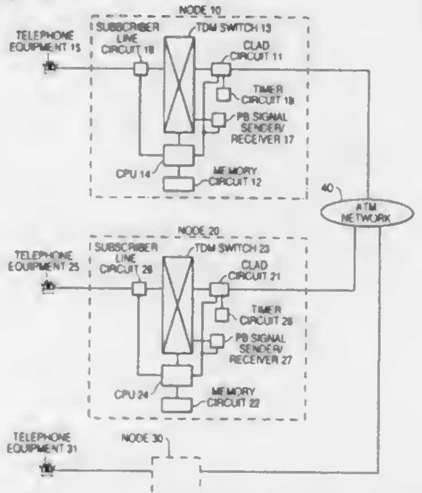
Kazuhiro Iwai, Tokyo, Japan, assignor to NEC Corporation, Tokyo, Japan

Filed Jan. 11, 1996, Ser. No. 584,224

Claims priority, application Japan, Jan. 13, 1995, 7-003922

Int. Cl.⁶ H04L *12/56*

U.S. Cl. 370—397 **8 Claims**



1. An ATM electronic exchange network system comprising:

a plurality of electronic exchange equipment, each having an ATM cell assembly/disassembly means for assembling and disassembling ATM cells each having a virtual path identifier and a virtual channel identifier; and

an ATM network interconnecting said plurality of electronic exchange equipment, said ATM network being adapted to provide a permanent virtual circuit service in which a destination node is specified in advance by a virtual path identifier and a virtual channel identifier; wherein

said electronic exchange equipment providing the functions of recognizing a destination node based on a called number transmitted from terminal equipment connected to said electronic exchange equipment, and indicating to said cell assembly/disassembly means a virtual oath identifier and a virtual channel identifier corresponding to said destination node which are determined according to a procedure established between said electronic exchange equipment and said ATM network, and

said cell assembly/disassembly means providing the functions of assembling a TDM signal arriving from said terminal equipment into a cell signal based on said virtual path identifier and virtual channel identifier, sending said cell signal to said ATM network, disassembling said cell signal arriving from said ATM network into a TDM signal, and sending said TDM signal to said terminal equipment.

5,784,372
SCHEDULING CONNECTIONS ACROSS A SWITCHING MATRIX

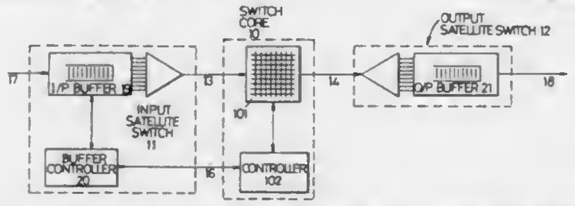
Gordon John Faulds, Reading, United Kingdom, assignor to Northern Telecom Limited, Montreal, Canada

Filed Apr. 18, 1996, Ser. No. 634,424

Claims priority, application United Kingdom, Apr. 18, 1995, 9507871

Int. Cl.⁶ H04L *12/56*

U.S. Cl. 370—398 **11 Claims**



1. A method of scheduling connections in a switching matrix having a plurality of inputs and outputs which may be connected to each other, the method comprising:

monitoring time for which each possible connection across the matrix between an input of the matrix and an output of the matrix is available;

sequentially evaluating the inputs and outputs to determine whether connections can be made across the matrix;

and scheduling connections across the matrix between evaluated inputs and outputs for a particular time, accounting for at least some of the monitored time for which those connections have been available thereby minimising time that an input is idle because a connection has not been made across the matrix.

5,784,373
SWITCHING DEVICE FOR LAN

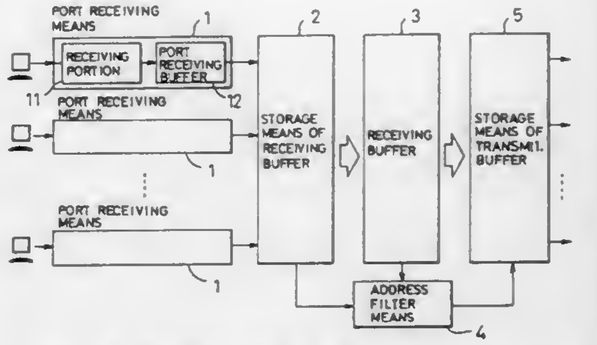
Tadashi Satake; Seiichi Miyazaki, and Mario Cardona, all of Kadoma, Japan, assignors to Matsushita Electric Works, Ltd., Osaka, Japan

Filed Feb. 20, 1996, Ser. No. 604,015

Claims priority, application Japan, Feb. 23, 1995, 7-035741; Dec. 20, 1995, 7-332130

Int. Cl.⁶ H04J *3/26;* **H04L** *12/46*

U.S. Cl. 370—402 **10 Claims**



1. A switching device for LAN comprising:

a plurality of port receiving means connected to respective ETHERNET segments for receiving and buffering a packet,

a storage means of a receiving buffer for receiving the packet from the respective port receiving means,

a receiving buffer for storing the packet from the storage means of the receiving buffer,

the storage means of the receiving buffer providing a storage address upon storing the packet at the receiving buffer,

an address filter means connected to the storage means of the receiving buffer for discriminating a transmitting destination port of the received packet in view of a transmitting source address and a transmitting destination address read out of the receiving buffer on the basis of the storage address transmitted from the storage means of the receiving buffer,

a storage means of a transmitting buffer connected to the receiving buffer and the address filter means for receiving the packet from the receiving buffer and receiving the storage address and transmitting a destination port of the packet, and

a plurality of port transmitting means each including a port transmitting buffer and connected to the storage means of the transmitting buffer and to respective ETHERNET segments,

the port transmitting storage means transmitting the packet from the receiving buffer to the port transmitting buffer in one of the port transmitting means which is of the transmitting destination port to which the packet is transmitted from the receiving buffer as determined on the basis of the packet storage address and the transmitting destination port.

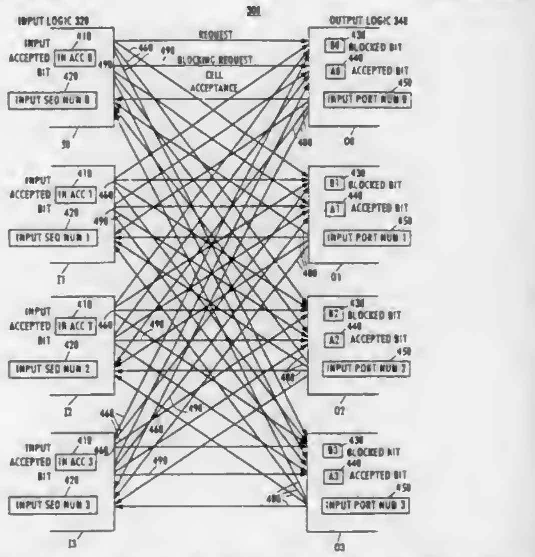
5,784,374
CONTENTION RESOLUTION SYSTEM IN ATM SWITCH

Thomas Jefferson Runaldue, San Jose, Calif., assignor to Advanced Micro Devices, Inc., Sunnyvale, Calif.

Filed Feb. 6, 1996, Ser. No. 597,309

Int. Cl.⁶ H04J *3/02*

U.S. Cl. 370—414 **17 Claims**



1. A cell switching network for delivering cells from input ports to output ports in accordance with destination addresses of the cells, comprising:

a first switching stage including a plurality of first non-blocking switches having inputs coupled to said input ports,

a second switching stage including a plurality of second non-blocking switches having inputs coupled to outputs of the first non-blocking switches, and outputs coupled to said output ports, and

a contention arbitration circuit provided between the inputs and the outputs of each of the second non-blocking switches, and

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responsive to requests for access to the output ports sent by each of the first non-blocking switches, for selecting the requests in accordance with priorities of the input ports initiating the requests,

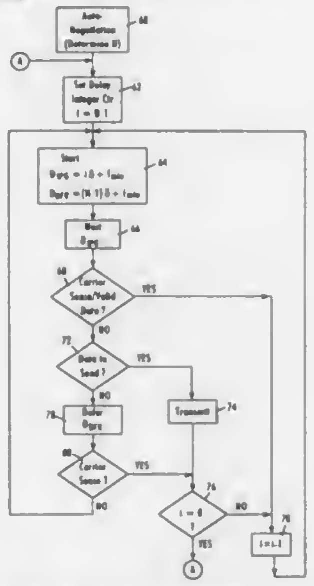
said contention arbitration circuit including:
- an input logic circuit arranged for each input of said second switching stage,
- an output logic circuit arranged for each output of said second switching stage,
- a request line for supplying from said input logic circuit to said output logic circuit a request for access from an input of said second switching stage to an output of said second switching stage,
  - a cell acceptance line for supplying from said output logic circuit to said input logic circuit an acceptance signal indicating that said request is granted, an input acceptance bit being transmitted to said first switching stage when said acceptance signal is received to enable said first switching circuit to determine which of the cells are acceptable for the corresponding input of said second switching circuit, and
- a blocking request line for supplying from said input logic circuit to said output logic circuit a signal for blocking said request signal when a previous request from said input was acknowledged, to prevent out-of-order delivery of the cells due to blocking paths between said first and second switching stages.

5,784,375
ROTATING PRIORITY ARRANGEMENT IN AN ETHERNET NETWORK

Mohan Kalkunte, Sunnyvale; Jayant Kadambi, Milpitas; Jim Mangin, San Ramon, and Gopal Krishna, San Jose, all of Calif., assignors to Advanced Micro Devices, Inc., Sunnyvale, Calif.

Filed Jun. 12, 1996, Ser. No. 662,333
Int. Cl.^{6} H04L *12/413*

U.S. Cl. 370—448 **26 Claims**



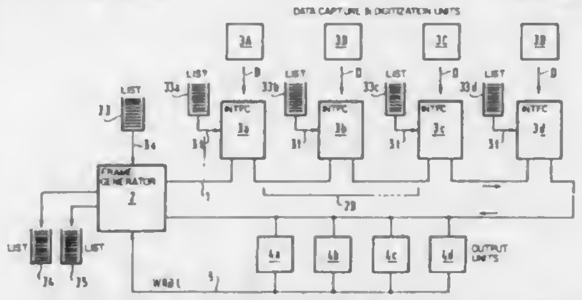
1. In a network station coupled to media of a network, a method of accessing the media, comprising:
- determining a number of stations (N) on the network;
- first transmitting a first data packet on the media;
- waiting, in response to completion of the first transmitting step, a delay time including a predetermined interpacket gap interval and an integer multiple of a predetermined delay interval, the integer being related to said number of stations (N), the predetermined delay interval being related to a predetermined slot time;
- determining existence of activity on the media during said waiting step; and
- resetting said delay time in response to detection of said activity by decrementing said integer.

5,784,376
ADAPTIVE BURST MULTIPLEXING SYSTEM USING DYNAMIC DEADLINE COMPUTATION

Jean-Yves Le Gall, Lafitte-Vigordane, France, assignor to Alcatel N.V., Rijswijk, Netherlands

Filed Dec. 12, 1995, Ser. No. 570,856
Claims priority, application France, Dec. 13, 1994, 94 15001
Int. Cl.^{6} H04J *3/16*

U.S. Cl. 370—460 **4 Claims**



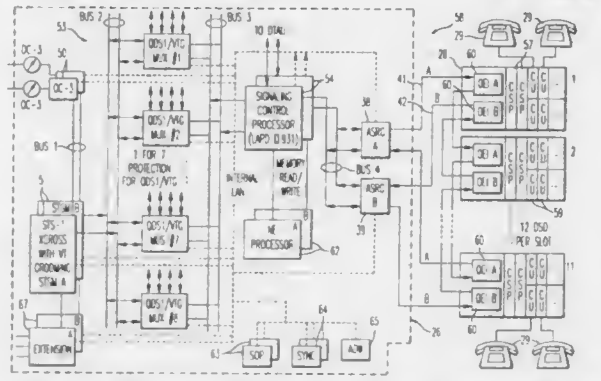
1. Multiplexing system for serializing data bursts from different source units, said multiplexing system comprising respective interface circuits associated with said source units, each of said interface circuits having a buffer memory adapted to accumulate temporarily a particular quantity of data from a source unit; an empty frame generator adapted to transmit a series of empty frames around a ring, said interface circuits being connected to said ring, wherein each of said empty frames passing in succession through said interface circuits can be filled with a data burst taken from said buffer memory of one of said interface circuits, each of said interface circuits being assigned at least one of said empty frames on said ring in advance and wherein any of said empty frames filled with data at the output of a last one of said interface circuits connected to said ring is returned to said empty frame generator; wherein said empty frame generator is adapted to generate and to transmit over said ring a first one of said empty frames containing a first header area containing a predetermined reference deadline; each of said interface circuits is adapted to compute a local deadline beyond which its buffer memory is likely to become saturated from a time at which its buffer memory has already reached a particular fill level, recover the reference deadline contained in said first header area of said first one of said empty frames, replace said reference deadline in said first header area of said first one of said empty frames with said local deadline if said local deadline is the earliest and enter an identification code specific to said interface circuit into a second header area of said first one of said empty frames before forwarding said first one of said empty frames over said ring; wherein in response to receiving said first one of said empty frames including an interface circuit identification code in said second header area, said empty frame generator transmits over said ring an second one of said empty frames containing in said first header area said reference deadline and in a third header area said identification code recovered from said second header area of said first one of said empty frames received by said empty frame generator, and each interface circuit is adapted to fill said second one of said empty frames with a burst of data accumulated in its buffer memory if said second one of said empty frames contains in said third header area a code corresponding to said identification code of said interface circuit.

5,784,377
INTEGRATED DIGITAL LOOP CARRIER SYSTEM WITH VIRTUAL TRIBUTARY MAPPER CIRCUIT

Ertugrul Baydar, Grapevine, Tex.; J. Bradley Boudreaux, Stephens City, Va.; Nicholas Carter, Chantilly, Va.; Chung Chen, Herndon, Va.; Steven Klonsky, Arlington, Va.; Michael Moran, Darien, Ill.; Peter Renucci, Grapevine, Tex.; Jeffrey Timbs, Keller, Tex.; Thomas Tucker, Washington, D.C., and Waleed Wardak, Grapevine, Tex., assignors to Hubbell Incorporated, Orange, Conn.

Continuation-in-part of Ser. No. 31,395, Mar. 9, 1993, abandoned, and a continuation-in-part of Ser. No. 251,848, May 31, 1994, abandoned. This application Jun. 6, 1995, Ser. No. 471,224
Int. Cl.^{6} H04J *3/08*

U.S. Cl. 370—463 **30 Claims**



1. A digital terminal for a telephone system comprising the combination of:
- a plurality of digital line feeders for carrying digital signals;
- signal processor means connected to at least one of said digital line feeders for receiving said digital signals therefrom and for translating said digital signals into optical signals;
- at least one channel unit shelf, said shelf comprising a plurality of channel units and first and second optical-electrical interface units for converting said optical signals into electrical signals;
- first and second optical transmission signal conducting means connected to said signal processor means for receiving therefrom and carrying said optical signals, said first optical signal conducting means being connected in a serial loop to said first optical-electrical interface unit and said signal processor means and said second optical signal conducting means being connected in a serial loop to said second optical-electrical interface unit and said signal processor means for delivering to said optical-electrical interface units said optical signals; and
- a channel shelf processor in said channel unit shelf which is coupled to said first and second optical-electrical interface units for selectively delivering to individual ones of said channel units electrical signals converted to electrical signals from at least one of said optical signals delivered by one of said first and second optical transmission signal conducting means.

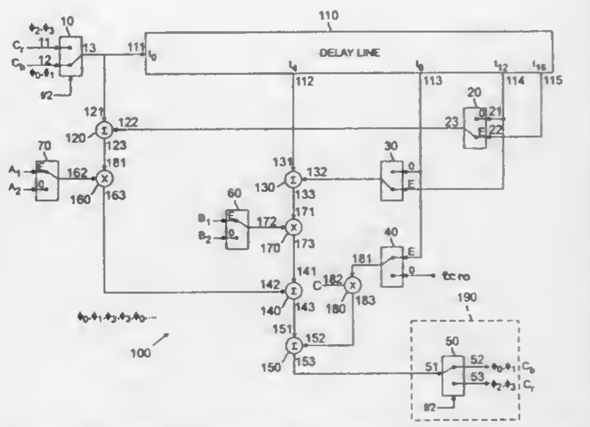
5,784,378
METHOD AND APPARATUS FOR TIME SHAPED FINITE IMPULSE RESPONSE FILTER WITH MULTIPLE SIGNAL STREAM CAPABILITY

Brian P. Murray; Philip A. Curran, both of Dublin, Ireland; Colm J. Prendergast, Cambridge, Mass., and Timothy J. Cummins, County Clare, Ireland, assignors to Analog Devices, Inc., Norwood, Mass.

Filed May 30, 1996, Ser. No. 655,769
Int. Cl.^{6} H04J *1/10*

U.S. Cl. 370—498 **20 Claims**

1. A filter comprising:



- a delay line, having an input for receiving a time multiplexed data stream and having at least one tap output;
- a multiplier, having an input connected to said tap, for multiplying said input by a coefficient and forming weighted samples as a multiplier output;
- a summer having at least two inputs, at least one of said two inputs being connected to said multiplier output, said summer adding said inputs forming a sum as an adder output;
- said time multiplexed data stream comprising a first input stream and a second input stream, each said input stream comprising a series of input samples, said input samples of said first input stream and said samples of said second input stream being interlaced; and
- said filter alternatingly operating on said input samples of said first input stream and said input samples of said second input stream and forming a filtered time multiplexed output having alternating output samples.

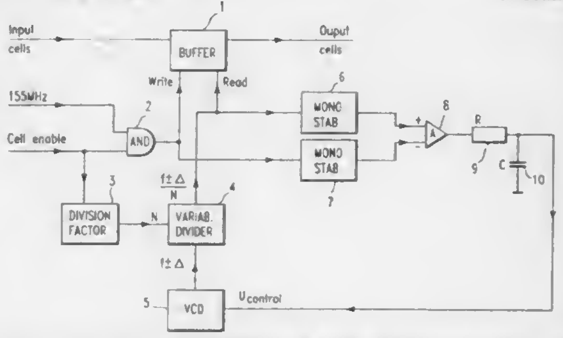
5,784,379
CLOCK RECOVERY FOR ATM RECEIVER

Han Hiong Tan, Berkel en Rodenrijs, Netherlands, assignor to Koninklijke PTT Nederland N.V., Netherlands

Filed Sep. 7, 1995, Ser. No. 525,302
Claims priority, application Netherlands, Sep. 21, 1994, 9401525

Int. Cl.^{6} H04L *12/56*

U.S. Cl. 370—503 **5 Claims**



1. A clock recovery circuit for an asynchronous transfer mode (ATM) receiver for automatically deriving, from a cell rate of received ATM cells, a clock frequency of a source signal so as to form a recovered clock signal, which is transmitted by the ATM cells, the circuit comprising:
- first means for determining, in response to the cell rate of the received cells, a nominal bit rate of the source signal and for generating a recovered clock signal having a frequency selected, in response to the nominal bit rate, from a plurality of predefined frequencies; and
- second means, connected to the first means, for correcting, in proportion to a difference between the nominal bit rate and a mean actual bit rate of the received cells, the frequency of the recovered clock signal.

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5,784,380
COMMUNICATION CONTROL DEVICE, COMMUNICATION CONTROL METHOD AND COMMUNICATION CONTROL SYSTEM

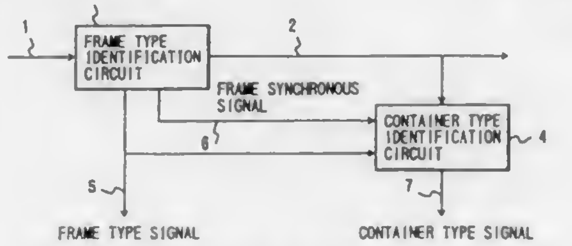
Masanori Kuwahara, Yokohama, Japan, assignor to Kabushiki Kaisha Toshiba, Tokyo, Japan

Filed Feb. 23, 1996, Ser. No. 606,192

Claims priority, application Japan, Feb. 24, 1995, 7-036937

Int. Cl.^{6} H04L *13/00*

U.S. Cl. 370—509 **20 Claims**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FRAME TYPE IDENTIFICATION CIRCUIT
FRAME SYNCHRONOUS SIGNAL
6
CONTAINER TYPE IDENTIFICATION CIRCUIT
4
5
7
FRAME TYPE SIGNAL
CONTAINER TYPE SIGNAL

1. A communication control device comprising:

first detector means for detecting first specific information in transmission data transmitted in a frame form;

first identification means responsive to a result of the detection by said first detector means to identify a frame type of said transmission data;

second detector means for detecting second specific information in transmission data transmitted in a frame form; and

second identification means responsive to a result of the detection by said second detector means to identify a container type of said transmission data.

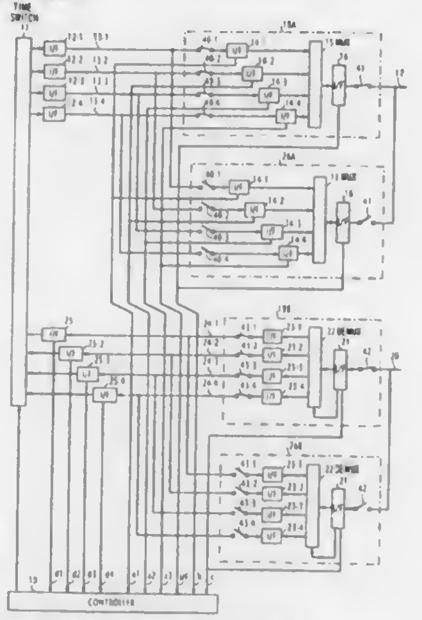
5,784,381
STORED PROGRAM CONTROLLED PBX ACCOMMODATING SECONDARY RATE TIE TRUNKS USING PRIMARY RATE INTERFACES

Yoshihiro Hori, Tokyo, Japan, assignor to NEC Corporation, Tokyo, Japan

Filed Jun. 14, 1996, Ser. No. 665,093

Int. Cl.^{6} H04Q *11/04;* **H04J** *3/04*

U.S. Cl. 370—509 **7 Claims**



1. A private branch exchange comprising:

a time-division switch having a plurality of output ports and a plurality of input ports;

a controller for controlling the switch to establish time-divided outgoing connections to said output ports and time-divided incoming connections from said input ports according to a stored program;

a first group of outgoing primary rate interfaces connected to said output ports for respectively receiving a plurality of time-slot sequences in which time slots occur at a primary rate and inserting a frame bit at periodic intervals to each of the received time-slot sequences to form a plurality of outgoing primary rate frames;

a second group of outgoing primary rate interfaces for respectively receiving the outgoing primary rate frames and removing the frame bit from each of the outgoing primary rate frames to form a plurality of time-slot sequences;

a time-division multiplexer for multiplexing the time-slot sequences from the second group outgoing primary rate interfaces into a time-slot sequence in which time slots occur at a secondary rate higher than the primary rate;

an outgoing secondary rate interface for inserting framing bits to the time-slot sequence from the multiplexer to form an outgoing secondary rate frame and transmitting the outgoing secondary rate frame via an outgoing tie trunk to a distant private branch exchange;

an incoming secondary rate interface for receiving an incoming secondary rate frame from the distant private branch exchange via an incoming tie trunk and removing framing bits from the received secondary rate frame to produce a time-slot sequence;

a time-division demultiplexer for demultiplexing the time-slot sequence from the incoming secondary rate interface into a plurality of time-slot sequences in which time slots occur at the primary rate;

a first group of incoming primary rate interfaces for respectively receiving the time-slot sequences from the demultiplexer and inserting a frame bit at periodic intervals to each of the received time-slot sequences to form a plurality of incoming primary rate frames; and

a second group of incoming primary rate interfaces for respectively receiving the incoming primary rate frames and removing the frame bit from each of the incoming primary rate frames to form a plurality of time-slot sequences and supplying the time-slot sequences to the input ports of said time-division switch.

5,784,382
METHOD AND APPARATUS FOR DYNAMICALLY TESTING A MEMORY WITHIN A COMPUTER SYSTEM

Larry L. Byers, Apple Valley; Gary R. Robeck, Albertville; Terry J. Brunmeier, Shoreview; Randy L. DeGarmo, Oakdale, and Paul A. LaBerge, Coon Rapids, all of Minn., assignors to Unisys Corporation, Blue Bell, Pa.

Filed Mar. 1, 1995, Ser. No. 396,679

Int. Cl.^{6} G01R *31/28;* **G06F** *12/00*

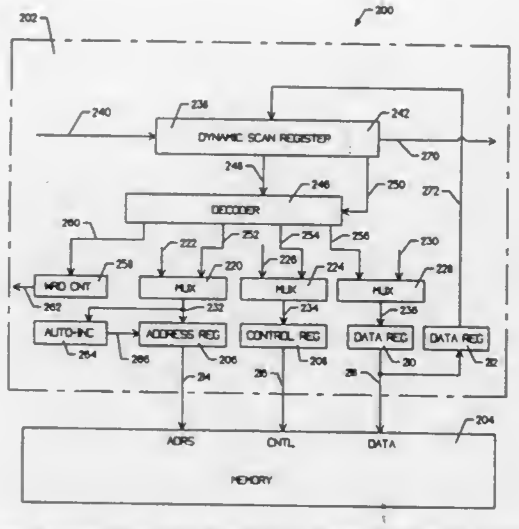
U.S. Cl. 371—22.3 **75 Claims**

11. In a data processing system having a memory and a number of registers, the memory having an address port and a data port, at least one of the number of registers being coupled to the address port and at least one of the number of registers being coupled to the data port, the improvement comprising:

a. dynamic scan register means coupled to the at least one of the number of registers that is coupled to the address port and the at least one of the number of registers that is coupled to the data port of the memory;

b. support controller means coupled to said dynamic scan register means for shifting an address and data into said dynamic scan register means, the at least one of the number of registers that is coupled to the address port of the memory receiving said address from said dynamic scan register means and the at least one of the number of registers that is coupled to the data port of the memory receiving said data from said dynamic scan register means, said support controller means capable of performing a number of read and write operations on the memory via the dynamic scan register means; and

c. auto-increment means coupled to the at least one of the number of registers that is coupled to the address port of the memory for automatically manipulating said address.



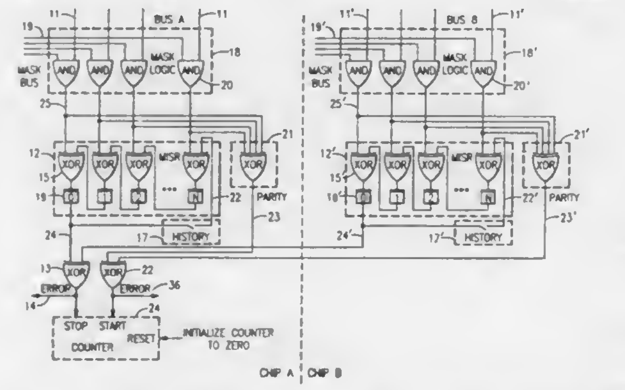
5,784,383
APPARATUS FOR IDENTIFYING SMP BUS TRANSFER ERRORS

Patrick James Meaney, Poughkeepsie, N.Y., assignor to International Business Machines Corporation, Armonk, N.Y.

Filed Oct. 2, 1997, Ser. No. 942,816

Int. Cl.^{6} G06F *11/00*

U.S. Cl. 371—22.4 **12 Claims**



1. In an SMP computer system with two or more identical, synchronous control buses, an apparatus for detecting errors comprising,

a multiple-input shift-register (MISR) on each bus for collecting as an input to said MISR a dynamic signature representing past and present states of the signals in the bus, and

compare logic for comparing one or more bits of output from each MISR to detect a mismatch in the bus control signals.

5,784,384
FLIP-FLOP CIRCUIT, SCAN PATH AND STORAGE CIRCUIT

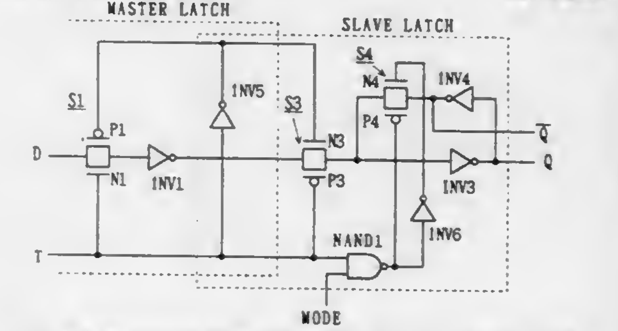
Hideshi Maeno, Tokyo, Japan, assignor to Mitsubishi Denki Kabushiki Kaisha, Tokyo, Japan

Filed Sep. 5, 1996, Ser. No. 708,734

Claims priority, application Japan, Sep. 5, 1995, 7-227741; Nov. 24, 1995, 7-306060; Jan. 29, 1996, 8-013275; May 14, 1996, 8-119004

Int. Cl.^{6} G06F *11/06*

U.S. Cl. 371—22.31 **86 Claims**



1. A flip-flop circuit being formed by series connection of first and second half latches and comprising input and output terminals, wherein

(a) said first half latch is of a dynamic type, and

(b) said second half latch is provided with:

(b-1) a first switch including an input end being operationally coupled with said input terminal and an output end, so that opening/closing thereof is controlled by a clock signal,

(b-2) a first invertor including an input end being connected with said output end of said first switch and an output end being operationally coupled with said output terminal,

(b-3) a second invertor,

(b-4) a second switch whose opening/closing is complementary to that of said first switch, and

(b-5) a third switch whose opening/closing is controlled by a mode signal,

said second invertor and said second and third switches are connected in series with each other between said output and input ends of said invertor, and

said second invertor is connected in antiparallel with said first invertor upon conduction of both of said second and third switches.

5,784,385

Patent Not Issued For This Number

5,784,386
FAULT TOLERANT SYNCHRONOUS CLOCK DISTRIBUTION

Joseph P. Norris, Mt. Laurel, N.J., assignor to General Signal Corporation, Stamford, Conn.

Filed Jul. 3, 1996, Ser. No. 674,839

Int. Cl.^{6} G06F *11/08*

U.S. Cl. 371—36 **2 Claims**

1. A fault tolerant clock system for a synchronous design comprising:

at least four clock circuits for generating respective clock signals;

a voting circuit, connected to the four clock circuits, for producing an output signal having a first level when there is agreement among a majority of the clock signals, said voting circuit including a logic means having a first group of four inverting logic circuits each having three inputs which are connected to respective outputs of three different combinations of the four clock circuits and a second group of four

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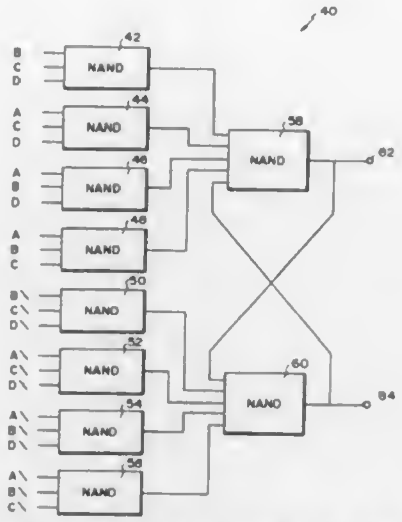


inverting logic circuits each having three inputs which are connected to respective inverted outputs of the same three different combinations of the four clock circuits; and

two additional inverting logic circuits, each having five inputs, four inputs thereof being connected to the outputs, respectively, of the first and second group of four inverting logic circuits, and each of the two additional inverting logic circuits having its output cross-coupled to the fifth input of the other inverting logic circuit.

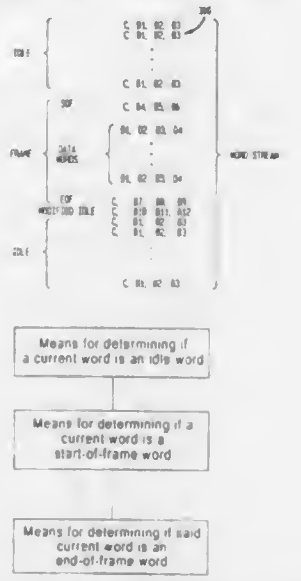
5,784,387
METHOD FOR DETECTING START-OF-FRAME, END OF FRAME AND IDLE WORDS IN A DATA STREAM

Albert X. Widmer, Katonah, N.Y., assignor to International Business Machines Corporation, Armonk, N.Y.

Filed Oct. 31, 1994, Ser. No. 332,327

Int. Cl.^{6} H03M *13/00*

U.S. Cl. 371—37.1 1 Claim


306
IDLE
SOF
FRAME
DATA WORDS
EOF
MODIFIED IDLE
IDLE
WORD STREAM
Means for determining if a current word is an idle word
Means for determining if a current word is a start-of-frame word
Means for determining if said current word is an end-of-frame word

1. A method for determining whether a current word in a stream of a plurality of frames of words is an idle word, an end-of-frame word, or a start-of-frame word of one of said plurality of frames of words wherein an error can occur in said stream of words, said current word contains four bytes, each of said plurality of frames of words starts with a start-of-frame word and ends with an end-of-frame word, each followed by a modified idle word; between each of said plurality of frames of words there is at least one idle word; each of said end-of-frame word, said start-of-frame word, said modified-idle word and said idle word comprises four bytes, there being a defined start-of-frame word, a defined end-of-frame word, a defined idle word and a defined modified idle word, each of which has four bytes one of said four bytes of each of said defined end-of-frame word, said defined start-of-frame word, said defined idle word, and said defined modified-idle word is a comma character, three of said four bytes of said defined end-of-frame word are a preset end-of-frame subset, three of said four bytes of said defined start of frame word are a preset start-of-frame subset, three of said four bytes of said defined idle word are a preset idle subset; one of said four bytes of said defined modified-idle-word is a preset modified idle subset; said method comprising:

determining if said current word is an idle word, said current word is assumed to be an idle word if three of said four bytes of said current word match three of said four bytes of said defined idle word and if it is followed by a word determined to be a start-of-frame word;

if said current word is not an idle word, determining if said current word is a start-of-frame word, said current word is assumed to be a start-of-frame word if three of said four bytes of said current word match three of said four bytes of said defined start-of-frame word and if a word preceding said current word is an idle word.

if said current word is not a start-of-frame word, determining if said current word is an end-of-frame word, said current word is assumed to be an end-of-frame word if either all of said four bytes of said current word match said four bytes of said defined end-of-frame word and at least one byte of a next word following said current word matches said four bytes of said defined modified-idle word, or if at least three of said four bytes of said current word match said four bytes of said defined end-of-frame word and at least two bytes of said next word match two bytes of said defined modified idle word.

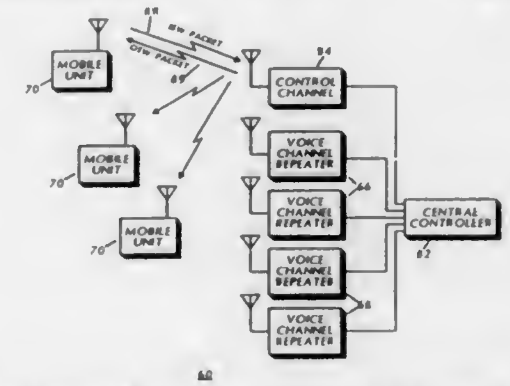
5,784,388
METHODS AND APPARATUS FOR DECODING CONTROL SIGNALS IN DISPATCH TRUNKED RADIO SYSTEM

Gregory D. Knox, 1417 Red Fox Run, Lilburn, Ga. 30247

Filed Jan. 4, 1996, Ser. No. 582,654

Int. Cl.^{6} H03M *13/00*

U.S. Cl. 371—37.5 21 Claims



8. In a system for receiving transmissions of a dispatch trunked radio system employing both a control channel to transmit information in the form of outbound signal words and a subaudible handshake signal transmitted on an assigned voice channel, a decoder for detecting the presence of said subaudible handshake signal on said assigned voice channel, comprising:

comparator means for converting a continuous analog waveform applied to said comparator means to a binary valued digital signal;

sampling means for producing a plurality of sample values of said digital signal, said sampling means generating said sample values at a predetermined rate;

pattern matching means for finding instances of sequences of like valued binary bits of predetermined length in said plurality of sample values and producing a count of the number of said instances of sequences of like valued binary bits; and

discriminator means for indicating that said subaudible handshake signal is present on said assigned voice channel when said count exceeds a predetermined value.

5,784,389

Patent Not Issued For This Number

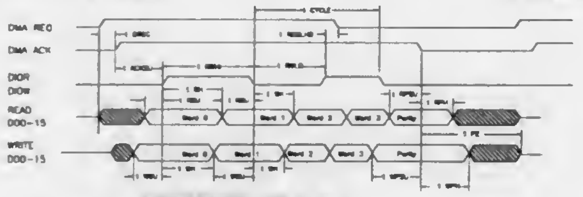
5,784,390
FAST ATA-COMPATIBLE DRIVE INTERFACE WITH ERROR DETECTION AND/OR ERROR CORRECTION

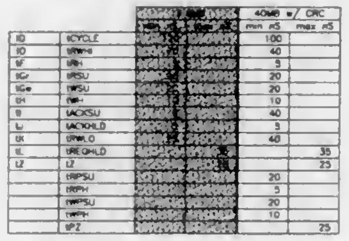
John C. Maslewicz, San Jose; Sean R. Atsatt, Santa Cruz, both of Calif., and Jeffrey Alan Miller, Northborough, Mass., assignors to Seagate Technology, Inc., Scotts Valley, Calif.

Filed Jun. 19, 1995, Ser. No. 491,513

Int. Cl.^{6} G06F *11/10;13/42*

U.S. Cl. 371—40.11 15 Claims





		[illegible]	[illegible]	40MB w/ CRC	
		[illegible]	[illegible]	min nS	max nS
[illegible]	tCYCLE	[illegible]	[illegible]	100	
[illegible]	[illegible]	[illegible]	[illegible]	40	
[illegible]	[illegible]	[illegible]	[illegible]	5	
[illegible]	tRSU	[illegible]	[illegible]	20	
[illegible]	tWSU	[illegible]	[illegible]	20	
[illegible]	tWH	[illegible]	[illegible]	10	
[illegible]	tACKSU	[illegible]	[illegible]	40	
[illegible]	tACKHLD	[illegible]	[illegible]	5	
[illegible]	[illegible]	[illegible]	[illegible]	40	
[illegible]	tREQHLD	[illegible]	[illegible]		35
[illegible]	tZ	[illegible]	[illegible]		25
	tRPSU	[illegible]	[illegible]	20	
	tRPH	[illegible]	[illegible]	5	
	tWPSU	[illegible]	[illegible]	20	
	tWPH	[illegible]	[illegible]	10	
	tPZ	[illegible]	[illegible]		25

1. An error detection/correction method compatible with ATA data transfers, wherein a device initiates the ATA data transfer by asserting a DMA request signal to which a host responds by asserting a DMA acknowledge signal then initiating a data strobe that remains active as long as said DMA request and said DMA acknowledge signals are asserted, said ATA data transfer involving a sender, being one of said host or said device, placing a data word on data lines and a receiver, being the other of said host or said device, reading said data word from said data lines, said placing and said reading occurring on predetermined edges of said data strobe, said method comprising the steps of:

(a) said sender accumulating said data word placed on said data lines into a send parity word;

(b) said receiver accumulating said data word input from said data lines into a receive parity word;

(c) said device terminating said data transfer by deasserting said DMA request, in response to which said host deactivates said data strobe following the last transition of said data strobe;

(d) after sending the last data word of said data transfer, said sender placing said send parity word on said data lines after said last transition of said data strobe and before said host deasserts said DMA acknowledge;

(e) said host deasserting said DMA acknowledge no earlier than a predetermined parity set up time interval (tPSU) after said last transition of said data strobe, said tPSU being long enough for said parity word to stabilize on said data bus before said DMA acknowledge is deasserted;

(f) upon said host deasserting said DMA acknowledge, said receiver reading said parity word and comparing said send parity word to said receive parity word, any difference between said parity words indicating a data transfer error; and

(g) said sender removing said parity word from said data bus not before a parity hold time interval (tPH) after said host deasserts said DMA acknowledge, said tPH being necessary for said send parity word to be read by said receiver.

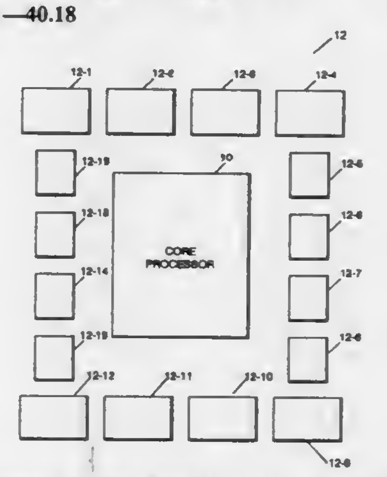
5,784,391
DISTRIBUTED MEMORY SYSTEM WITH ECC AND METHOD OF OPERATION

Brian R. Konigsburg, Austin, Tex., assignor to International Business Machines Corporation, Armonk, N.Y.

Filed Oct. 8, 1996, Ser. No. 727,332

Int. Cl.^{6} G06F *11/10*

U.S. Cl. 371—40.18 6 Claims



1. A distributed memory with ECC for a microprocessor chip comprising:

a) a plurality of memory subarrays embedded in the chip and forming the distributed memory on a perimeter surrounding a core processor;

b) ECC logic included in each subarray for generating ECC bits for each word contained in the subarray;

c) a plurality of ECC checkers arranged in ECC groups for single error correction and/or double error detection, the groups being disposed on the perimeter of the core processor and within the distributed memory; and

d) means for connecting the subarrays to the nearest ECC subgroup for single error correction or double error detection whereby each ECC bit does not travel more than a limited portion of the core processor perimeter.

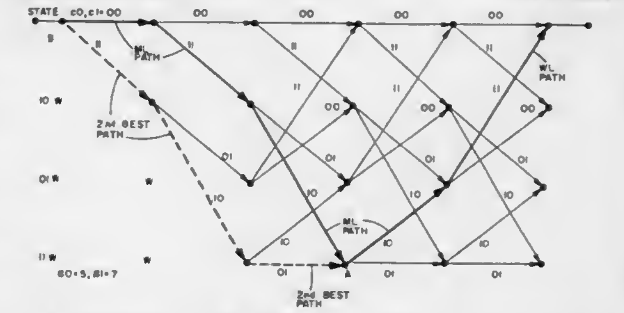
5,784,392
VITERBI DECODER WITH L=2 BEST DECODING PATHS

Stash Czaja, Cardiff; Ilkka J. Niva, and Jim Robertson, both of San Diego, all of Calif., assignors to Nokia Mobile Phones Ltd., Salo, Finland

Filed Jun. 26, 1995, Ser. No. 494,917

Int. Cl.^{6} G06F *11/10*

U.S. Cl. 371—43.1 14 Claims



1. A method for decoding data received from a communications channel, comprising the steps of:

receiving a modulated communications signal that conveys encoded data having at least a data field and a syndrome data field;

determining transition metrics and path metrics for the encoded data, the step of determining path metrics including a step of retaining path metrics only for a Maximum-Likelihood (ML) path and a second best ML path;

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decoding the encoded data by performing a traceback operation for both the ML path metrics and also for the second best ML path metrics to obtain from the ML path a first plurality of detected bits representing the data field, a second plurality of detected bits from the ML path representing the syndrome data field, a third plurality of detected bits from the second best ML path representing the data field, and a fourth plurality of detected bits from the second best ML path representing the syndrome data field;

determining a syndrome from the first plurality of detected bits;

comparing the determined syndrome to the second plurality of detected bits and, upon a match,

outputting the first plurality of detected bits as a received frame of data;

else, if the step of comparing the determined syndrome to the second plurality of detected bits does not indicate a match;

determining a syndrome from the third plurality of detected bits;

comparing the determined syndrome to the fourth plurality of detected bits and, upon a match,

outputting the third plurality of detected bits as a received frame of data.

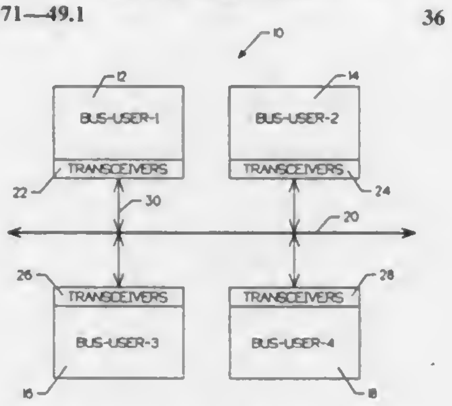
5,784,393
METHOD AND APPARATUS FOR PROVIDING FAULT DETECTION TO A BUS WITHIN A COMPUTER SYSTEM

Larry L. Byers, Apple Valley; Gary R. Robeck, Albertville, and Ronald W. Splett, Apple Valley, all of Minn., assignors to Unisys Corporation, Blue Bell, Pa.

Filed Mar. 1, 1995, Ser. No. 396,680

Int. Cl.^{6} G06F *11/10*

U.S. Cl. 371—49.1 **36 Claims**



1. In a data processing system having a plurality of users coupled to a bus, predetermined ones of the plurality of users being capable of providing a data word, the improvement comprising:

a. first providing means coupled to a first one of the plurality of users for providing the data word to the bus thereby resulting in a bus word, said first providing means providing the bus word during a first bus cycle;

b. second providing means coupled to the bus and further coupled to said first one of the plurality of users for providing said bus word back into said first one of the plurality of users thereby resulting in a check word, said second providing means providing said bus word back into said first one of the plurality of users during said first bus cycle; and

c. error detection means coupled to said second providing means for performing error detection on said check word.

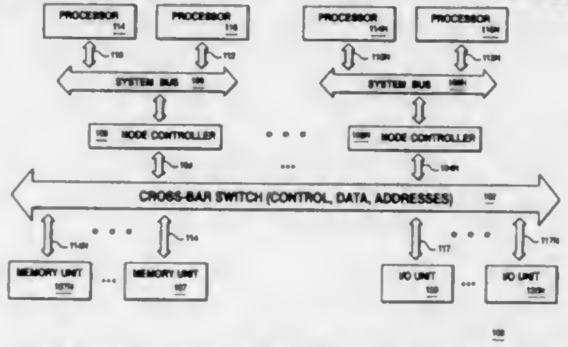
5,784,394
METHOD AND SYSTEM FOR IMPLEMENTING PARITY ERROR RECOVERY SCHEMES IN A DATA PROCESSING SYSTEM

Manuel Joseph Alvarez, II, Austin; Gary Dale Carpenter, Pflugerville, both of Tex.; Kai Cheng, Beaverton, Oreg.; Jeffrey Holland Gruger, Austin, Tex., and Jin Chin Wang, Sunnyvalle, Calif., assignors to International Business Machines Corporation, Armonk, N.Y.

Filed Nov. 15, 1996, Ser. No. 749,250

Int. Cl.^{6} G06F *11/10;* **H03M** *13/00*

U.S. Cl. 371—49.1 **14 Claims**



1. In a data processing system having a plurality of node controllers and a memory unit for each one of the node controllers, each one of the node controllers having at least one processor having a cache, each memory unit including a plurality of entries each having an exclusive bit, an address tag, an inclusion field, a first parity error bit, and a second parity error bit, each bit of the inclusion field representing one of the node controllers, a method of detecting errors in each of the entries, the method comprising the steps of:

selecting the exclusive bit and a portion of the address tag for error detection using the first parity bit;

selecting the remaining portion of the address tag and inclusion field for error detection using the second parity bit;

detecting an error in one of the entries with the first and/or second parity bit; and

flushing the cache lines of the processors having data represented by the entry in error.

5,784,395
DARK PULSE GENERATION

Kevin Smith, Ipswich; Daniel Moutinho Pataca, and Monica De Lacerda Rocha, both of Woodbridge, all of Great Britain, assignors to British Telecommunications public limited company, London, England

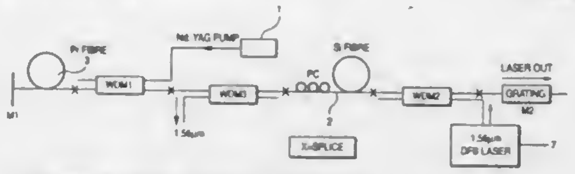
PCT No. PCT/GB95/01996, § 371 Date Feb. 11, 1997, § 102(e) Date Feb. 11, 1997, PCT Pub. No. WO96/06471, PCT Pub. Date Feb. 29, 1996

PCT Filed Aug. 22, 1995, Ser. No. 776,790

Claims priority, application European Pat. Off., Aug. 23, 1994, 94306208.3

Int. Cl.^{6} H01S *3/10*

U.S. Cl. 372—26 **17 Claims**



1. An optical pulse generator comprising:

a resonant source of optical radiation (1, WDM1, 3, M1, M2);

a modulator (2);

a source of modulating signals (7);

said modulator being operative to mode lock said resonant source and phase modulate said optical radiation in accordance with the modulating signals in such a manner as to produce dark pulses in said optical radiation.

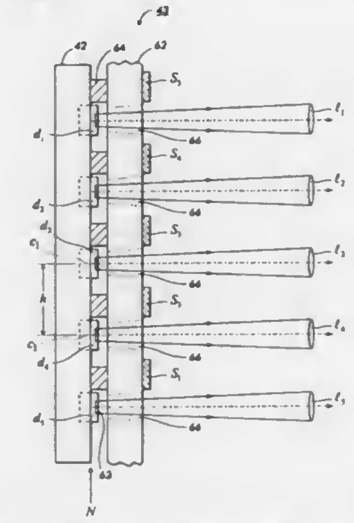
5,784,396
VCSEL INTEGRAL FEEDBACK ASSEMBLY TWO-ETCH STRUCTURE

Jean-Michel Guerin, Glendale, Calif., assignor to Xerox Corporation, Stamford, Conn.

Filed Sep. 17, 1996, Ser. No. 715,150

Int. Cl.^{6} H01S *3/13;3/00;3/10;3/04*

U.S. Cl. 372—29 **5 Claims**



1. A vertical cavity surface emitting laser diode integral feedback assembly comprising:

a plate having a first surface, a second surface and a thickness located between said first and said second surfaces;

said plate having a plurality of light detecting means on said first surface and a plurality of openings extending entirely through said thickness;

a laser light source having a plurality of vertical cavity surface emitting laser diodes for emitting a plurality of light beams;

said plate being spaced apart from and being operably connected to said light source in such a manner that each one of said plurality of openings of said plate aligns with a corresponding one of said plurality of vertical cavity surface emitting laser diodes in order to allow the light beam from each one of said plurality of vertical cavity surface emitting laser diodes to pass through a corresponding one of said plurality of openings;

each one of said plurality of light detecting means being electrically connected to a corresponding one of said plurality of vertical cavity surface emitting laser diodes to provide a feedback to each individual vertical cavity surface emitting laser diode.

5,784,397
BULK SEMICONDUCTOR LASERS AT SUBMILLIMETER/FAR INFARED WAVELENGTHS USING A REGULAR PERMANENT MAGNET

Jin J. Kim, Winter Springs; Robert E. Peale, Oviedo, and Kijun Park, Orlando, all of Fla., assignors to University of Central Florida, Orlando, Fla.

Filed Nov. 16, 1995, Ser. No. 558,440

Int. Cl.^{6} H01S *3/18;3/30;3/00;3/083*

U.S. Cl. 372—43 **18 Claims**

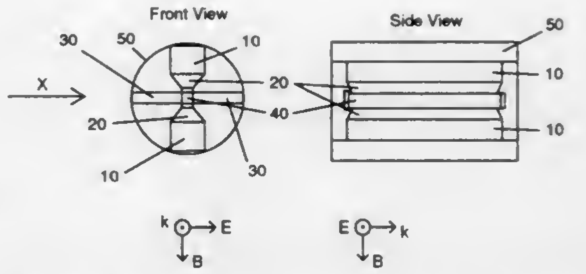
1. A semiconductor laser system, based on intervalence band or Landau level transitions, for operating in the submillimeter and Far Infrared wavelength range without utilizing a superconductor magnet, and without utilizing a Faraday configuration, the laser system comprising:

a p-type semiconductor crystal;

a first permanent magnet adjacent to one side of the semiconductor crystal;

a second permanent magnet adjacent to a second side of the semiconductor crystal opposite the first permanent magnet, the first and the second permanent magnet in a non Faraday configuration forming a magnetic field about the semiconductor crystal; and

cooling means for conducting thermal energy away from the magnetic field, wherein applying a voltage perpendicular to the magnetic field causes the semiconductor crystal to emit in the submillimeter and far-infared wavelength region which includes a wavelength range of approximately 30 through approximately 400 microns.



5,784,398
OPTOELECTRONIC COMPONENT HAVING CODIRECTIONAL MODE COUPLING

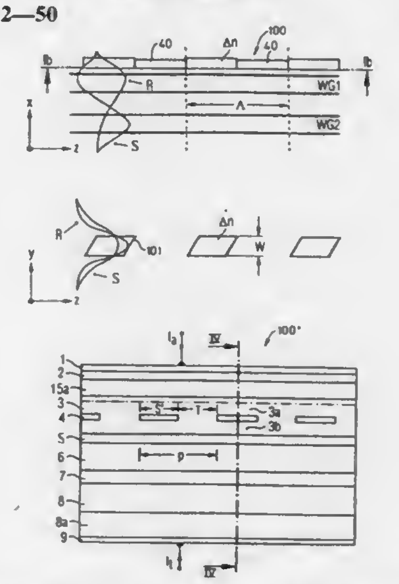
Markus-Christian Amann, Baunatal, and Stefan Illek, Feldkirchen-Westerham, both of Germany, assignors to Siemens Aktiengesellschaft, Munich, Germany

Filed Oct. 15, 1996, Ser. No. 731,451

Claims priority, application Germany, Oct. 13, 1995, 195 38 232.3

Int. Cl.^{6} H01S *3/19*

U.S. Cl. 372—50 **11 Claims**



1. In an optoelectric component having two waveguide layers and a layer of periodic structure, with portions of one refractive index separated by portions of a second refractive index along a direction of propagation of the modes in the waveguide layers, which layers, are arranged parallel to one another and are dimensioned so that codirectional coupling is produced between modes guided in the waveguide layers, the improvement comprising means for gradually changing the effective refractive index in the direction of propagation of the modes at each boundary surface between portions of the periodic structure so that discontinuities, which are not required for the coupling and are therefore undesirable, in real parts of the refractive index, which parts are decisively effective for wave guidance of the modes, are avoided.

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5,784,399

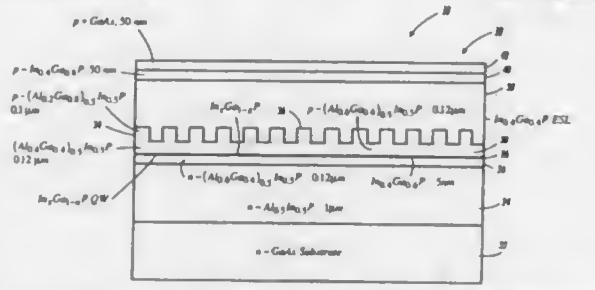
POLARIZATION MODE SELECTION BY DISTRIBUTED BRAGG REFLECTOR IN A QUANTUM WELL LASER

Decal Sun, Sunnyvale, Calif., assignor to Xerox Corporation, Stamford, Conn.

Filed Dec. 19, 1996, Ser. No. 774,937

Int. Cl.⁶ H01S *3/19;* **H01L** *29/06*

U.S. Cl. 372—50 **24 Claims**



1. A dual polarization semiconductor quantum well laser comprising

a semiconductor structure having side-by-side first and second active regions, said first and second active regions capable of emitting light in either the TE-polarization mode or the TM-polarization mode,

electrodes for individually introducing current to said first and second active regions causing said regions to emit light,

a first distributed Bragg reflector grating adjacent and overlaying to said first active region for causing said first active region to emit light in the TE-polarization mode, and

a second distributed Bragg reflector grating adjacent and overlaying to said second active region for causing said second active region to emit light in the TM-polarization mode.

5,784,400

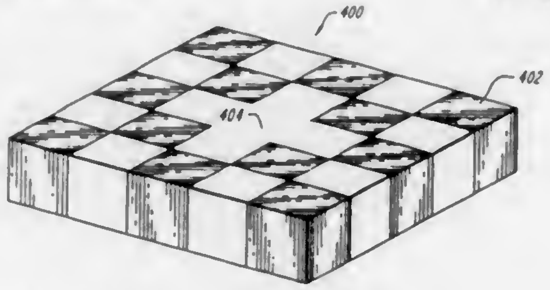
RESONANT CAVITIES EMPLOYING TWO DIMENSIONALLY PERIODIC DIELECTRIC MATERIALS

John D. Joannopoulos, Belmont, Mass., and Robert D. Meade, Westfield, N.J., assignors to Massachusetts Institute of Technology, Cambridge, Mass.

Filed Feb. 28, 1995, Ser. No. 395,441

Int. Cl.⁶ H01S *3/08*

U.S. Cl. 372—96 **20 Claims**



1. A resonant cavity comprising:

a planar two-dimensionally periodic dielectric structure which exhibits a two-dimensional photonic bandgap for propagation of radiation having a spectrum of electromagnetic modes in any direction in the plane of said structure; and

a defect in said two-dimensionally periodic dielectric structure which results in an electromagnetic mode localized in the vicinity of said defect within said photonic bandgap, wherein

said photonic bandgap effects an in-plane spacial confinement of electromagnetic radiation for any direction of propagation of said electromagnetic radiation in the plane of said structure, said electromagnetic radiation being vertically confined by total internal reflection.

5,784,401

TEMPERATURE DISTRIBUTION MEASUREMENT METHODS AND APPARATUS

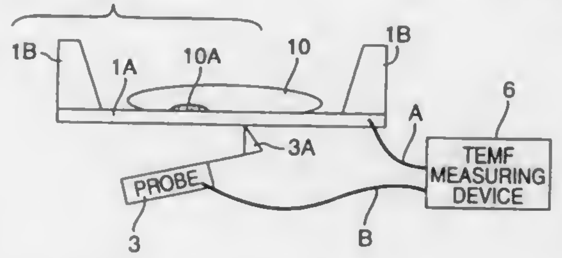
Yoshihiko Suzuki, Funabashi, and Katsushi Nakano, Kawasaki, both of Japan, assignors to Nikon Corporation, Tokyo, Japan

Filed Nov. 14, 1996, Ser. No. 747,784

Claims priority, application Japan, Dec. 5, 1995, 7-316188

Int. Cl.⁶ G01K *1/16;3/06;7/04*

U.S. Cl. 374—137 **16 Claims**



1. A method for obtaining a temperature profile of a specimen, the method comprising:

(a) placing a specimen on a first major surface of a thin-film membrane made of a first thermo-electrically conductive material;

(b) contact-scanning a second major surface, opposite the first major surface, of the thin-film membrane using a probe, the probe including a tip radius contacting the second major surface, the tip radius comprising a second thermo-electrically conductive material that is different from the first thermo-electrically conductive material so as to generate, by the Seebeck effect, a thermo-electromotive force between the tip radius and the thin-film membrane; and

(c) measuring the thermo-electromotive force at plural locations on the second major surface corresponding to locations on the first major surface contacted by the specimen so as to obtain a temperature profile of the specimen.

4. An apparatus for obtaining a temperature profile of a specimen, the apparatus comprising:

(a) a thin-film membrane formed of a first thermo-electrically conductive material, the thin-film membrane having a first major surface and a second major surface opposite the first major surface, the first major surface holding a specimen in contact with the first major surface;

(b) a probe comprising a tip radius operable to contact the second major surface, the tip radius comprising a second thermo-electrically conductive material that is different from the first thermo-electrically conductive material so as to generate, by the Seebeck effect, a thermo-electromotive force between the tip radius and the thin-film membrane;

(c) a probe actuator operable to move the probe in a manner by which the tip radius scans across the second major surface; and

(d) a TEMF measurement device connected to the thin-film membrane and to the tip radius, and wherein the TEMF measurement device measures the thermo-electromotive force, generated between the tip radius and the thin-film membrane, at multiple loci on the second major surface as the tip radius is scanned across the second major surface, the loci corresponding to locations on the first major surface contacted by the specimen so as to obtain a temperature profile of the specimen.

5,784,402

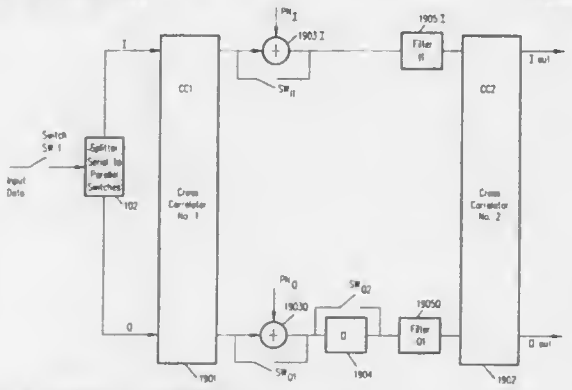
IMOD TRANSCEIVERS INCLUDING CONTINUOUS AND BURST OPERATED TDMA, FDMA, SPREAD SPECTRUM CDMA, WCDMA AND CSMA

Kamilo Feher, 44685 Country Club Dr., El Macero, Calif. 95618, assignor to Kamilo Feher, El Macero, Calif.

Continuation-in-part of Ser. No. 370,117, Jan. 9, 1995, Pat. No. 5,491,457. This application Feb. 12, 1996, Ser. No. 601,429

Int. Cl.⁶ H04K *1/00*

U.S. Cl. 375—200 **11 Claims**



1. A structure comprising:

an input port for receiving input data;

a splitter having an input coupled to said input port, and serving to process said input data by splitting said input data into split baseband signals;

a baseband signal processing network for receiving said split baseband signals streams and providing cross-correlated processed in-phase and quadrature-phase baseband signals; and

a spreading circuit for spreading the split cross-correlated processed baseband signals.

5,784,403

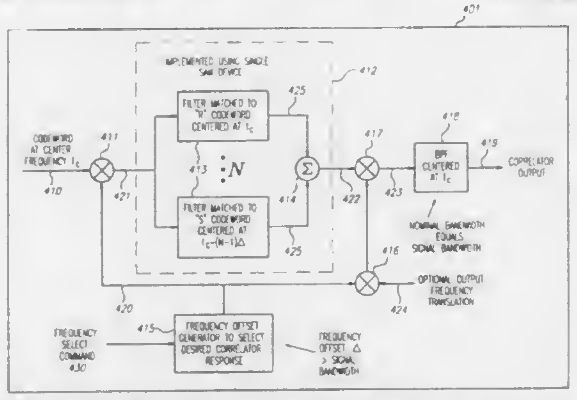
SPREAD SPECTRUM CORRELATION USING SAW DEVICE

Logan Scott, Breckenridge, Colo., assignor to Omnipoint Corporation, Colorado Springs, Colo.

Filed Feb. 3, 1995, Ser. No. 383,518

Int. Cl.⁶ H04L *27/28*

U.S. Cl. 375—207 **62 Claims**


401
IMPLEMENTED USING SINGLE SAW DEVICE
412
425
FILTER MATCHED TO "R" CODEWORD CENTERED AT fc
CODEWORD AT CENTER FREQUENCY
411
417
418
419
BPF
CORRELATOR OUTPUT
N
420
424
OPTIONAL OUTPUT FREQUENCY TRANSLATION
415
FREQUENCY OFFSET GENERATOR TO SELECT DESIRED CORRELATOR RESPONSE
FREQUENCY SELECT COMMAND 430
FREQUENCY OFFSET Δ > SIGNAL BANDWIDTH

20. A method of correlation comprising the steps of:

receiving an input signal centered at a first center frequency and translating said input signal to a second center frequency,

filtering said translated input signal simultaneously at a plurality of different frequencies using a surface-acoustical-wave device, whereby a correlation signal is generated at said second center frequency,

translating said correlation signal to said first center frequency, and

bandpass filtering said translated correlation signal at said first center frequency.

5,784,404

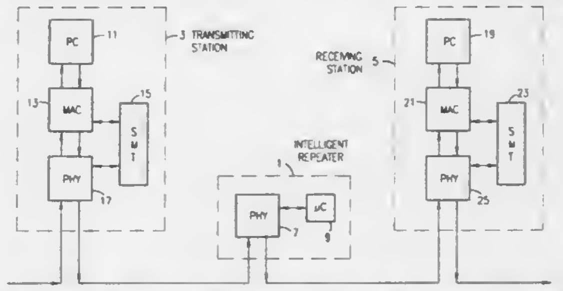
INTELLIGENT REPEATER FUNCTIONALITY

David C. Brief, Palo Alto; Gregory L. DeJager, Campbell, both of Calif., and James R. Hamstra, Shorewood, Minn., assignors to National Semiconductor Corporation, Santa Clara, Calif.

Continuation of Ser. No. 83,963, Jun. 24, 1993, Pat. No. 5,566,203. This application Jan. 19, 1996, Ser. No. 588,971

Int. Cl.⁶ H04B *3/36;* **G01R** *31/08*

U.S. Cl. 375—211 **39 Claims**



1. A network physical layer transmitter for receiving signals and transmitting signals to the network, such that:

if the transmitter receives valid data, the transmitter transmits the valid data;

if the transmitter receives a violation which is any one of one or more violations, the transmitter does not transmit the received violation; and

if the transmitter receives a signal identifying any valid line state, including any valid line state used by a network station management (SMT) entity to establish an operational link, the transmitter transmits a signal identifying the valid line state without a command from an SMT entity.

5,784,405

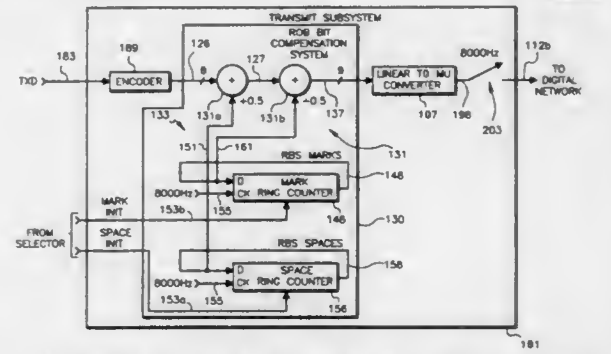
NONCOOPERATIVE FEEDBACK SYSTEM AND METHOD FOR A COMPENSATION SYSTEM ASSOCIATED WITH A TRANSMITTER OR CODEC

William Lewis Betts, St. Petersburg, and Keith Alan Souders, Tampa, both of Fla., assignors to Paradyne Corporation, Largo, Fla.

Filed Aug. 23, 1996, Ser. No. 702,023

Int. Cl.⁶ H04B *1/38*

U.S. Cl. 375—222 **5 Claims**



1. A modem comprising a transmit subsystem configured to combine different compensations with segments of digital data to produce modified digital data segments, said transmit subsystem configured to transmit said modified digital data segments into a digital network, said transmit subsystem configured to receive retransmission requests from a remote modem and to select and implement which of said compensations yields a lowest error based upon said retransmission requests, wherein said transmit subsystem comprises:

a selector configured to produce mark and space initialization signals based upon said retransmission requests;

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- a mark ring counter configured to receive said mark initialization signal, said mark ring counter configured to generate a mark ring counter signal during each clocked shift of said mark ring counter;
- a space ring counter configured to receive said space initialization signal, said space ring counter configured to generate a space ring counter signal during each clocked shift of said space ring counter;
- a mark adder configured to mathematically combine a quantity with said digital data based upon said mark ring counter signal; and
- a space adder configured to mathematically combine a quantity with said digital data based upon said space ring counter signal.

5,784,406

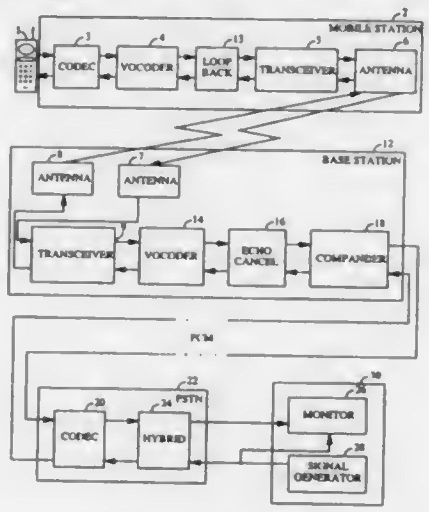
METHOD AND APPARATUS FOR OBJECTIVELY CHARACTERIZING COMMUNICATIONS LINK QUALITY

Andrew P. DeJaco, San Diego, Calif.; Serge D. Willenegger, Yverdon-les-bains, Switzerland, and Paul E. Jacobs, La Jola, Calif., assignors to Qualcom Incorporated, San Diego, Calif.

Filed Jun. 29, 1995, Ser. No. 496,817

Int. Cl.^{6} H04B *17/00*; H04Q *1/20*

U.S. Cl. 375—224 **23 Claims**



1. An apparatus for characterizing a communication system, comprising:

- signal generator means for generating a selected input signal of a predetermined plurality of test signals for transmission in a forward direction over a communication link of said communication system, said input signal for determining a particular quantitative characterization of the quality of the communication link;
- a mobile station including a transceiver for receiving the input signal, the transceiver being connected to a loopback element, the loopback element sending the input signal back through the transceiver prior to decoding the signal to thereby produce a return signal; and
- monitor means for receiving the return signal having propagated in a reverse direction over said communication link and for analyzing said return signal to derive said particular quantitative characterization of the quality of said communication link.

5,784,407

METHOD AND DEVICE FOR MONITORING AN ABNORMALITY IN DIGITALLY TRANSMITTED AUDIO SIGNALS

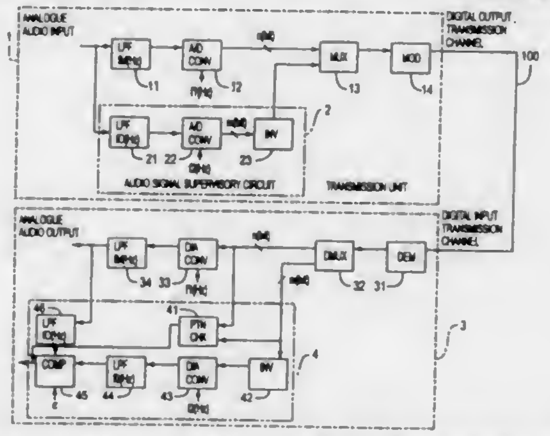
Bunri Osaki, and Hiroshi Wakabayashi, both of Tokyo, Japan, assignors to NEC Corporation, Tokyo, Japan

Filed Mar. 15, 1996, Ser. No. 616,587

Claims priority, application Japan, Mar. 15, 1995, 7-054840

Int. Cl.^{6} H04B *3/46*; H04J *3/14*

U.S. Cl. 375—224 **13 Claims**



1. A digital transmission system for digitally transmitting an analogue base band audio signal, said digital transmission system comprising:

- a transmission unit having:
  - a first and second low-pass filter for band limiting a first analogue audio signal into predetermined frequency bands; and
  - a first and second analogue/digital conversion means for respectively converting the outputs of said first and second low-pass filters to n-bit digital data and m-bit digital data respectively, where m is less than n; and
- a reception unit having:
  - a digital/analogue conversion means for converting said m-bit digital data to an analogue data signal;
  - a third low-pass filter for band limiting said analogue data signal into a predetermined frequency band;
  - a fourth low-pass filter for band limiting a second analogue audio signal obtained by analogue converting said n-bit digital data transmitted from said transmission unit; and
  - a comparison means for comparing the output level of said third low-pass filter with the output level of said fourth low-pass filter.

5,784,408

APPARATUS FOR TRANSMITTING AND/OR RECEIVING DATA AT DIFFERENT DATA TRANSFER RATES ESPECIALLY IN APPLICATIONS SUCH AS DUAL-RATE ETHERNET LOCAL-AREA NETWORKS

Hung-Wah Anthony Lau, Los Altos, Calif., assignor to National Semiconductor Corporation, Santa Clara, Calif.

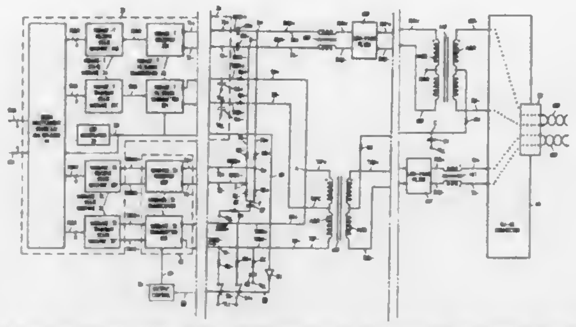
Continuation of Ser. No. 260,150, Jun. 15, 1994, Pat. No. 5,541,957. This application Apr. 22, 1996, Ser. No. 636,095

Int. Cl.^{6} H04B *3/00*

U.S. Cl. 375—258 **42 Claims**

1. Electronic apparatus comprising:

- an isolation transformer having a primary winding and a secondary winding;
- a connecting unit electronically coupled to the secondary winding and connectable to a pair of lines of a twisted-pair cable so as to electronically couple the twisted-pair cable to the secondary winding;
- a first transmitter that low-pass filters digital data to produce outgoing data which the first transmitter differentially transmits to the primary winding largely at a first data transfer rate; and



- a second transmitter that differentially transmits outgoing data to the primary winding largely at a second data transfer rate different from the first data rate.

5,784,409

ENCODING DATA

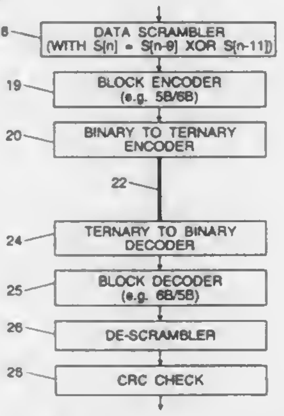
Alistair Neil Coles, Bath, England, assignor to Hewlett-Packard Company, Palo Alto, Calif.

Filed Feb. 23, 1996, Ser. No. 606,262

Claims priority, application European Pat. Off., Mar. 6, 1995, 95301419

Int. Cl.^{6} H04L *25/49*

U.S. Cl. 375—286 **11 Claims**


18
DATA SCRAMBLER (WITH S[n] = S[n-9] XOR S[n-11])
19
BLOCK ENCODER (e.g. 5B/6B)
20
BINARY TO TERNARY ENCODER
22
24
TERNARY TO BINARY DECODER
25
BLOCK DECODER (e.g. 6B/5B)
26
DE-SCRAMBLER
28
CRC CHECK

1. A method of encoding binary data for communication wherein successive binary digits having first or second binary values are encoded as one of three signal levels, said method further controlling said encoding to assure that a running digital sum of said signal levels remains within predetermined thresholds to restrict any d.c. imbalance on a communication channel, said method comprising the steps of:

- selecting a first predetermined signal level to represent a binary digit if that digit has a first binary value;
- selecting one of second and third predetermined signal levels to represent a binary digit if that digit has a second binary value, said first signal level being intermediate in value between said second and third signal levels, said second and third signal levels being of opposite polarity to one another, and selection between said second and third signal levels being determined by:
  - maintaining a cumulative sum of signal levels already selected;
  - selecting said second signal level if said cumulative sum has attained a first predetermined threshold;
  - selecting said third signal level if said cumulative sum has attained a second predetermined threshold different from said first predetermined threshold;
  - selecting whichever of said second and third signal levels is not the one of those signals most recently selected, if said cumulative sum does not satisfy a predetermined criterion and said first predetermined signal level has been selected at least once since selection of either said second or said third signal level;
  - selecting whichever of said second and third signals will change said cumulative sum towards a predetermined value, if said cumulative sum does satisfy said predetermined criterion and said first predetermined signal level has been selected at least once since selection of either said second or said third signal level; and
  - otherwise selecting whichever of said second and third signal levels is the same as the one of those signals most recently selected.

5,784,410

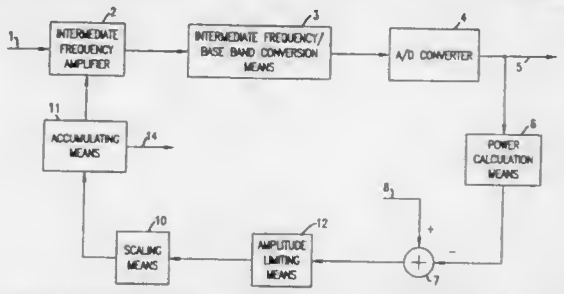
RECEPTION AUTOMATIC GAIN CONTROL SYSTEM AND METHOD

Takayuki Nakano, Eatontown, N.J., assignor to Matsushita Electric Industrial Co., Ltd., Osaka, Japan

Filed Jun. 3, 1996, Ser. No. 657,090

Int. Cl.^{6} H04L *27/08*

U.S. Cl. 375—345 **19 Claims**



1. An automatic gain control system responsive to gain renewal values generated therein, comprising:

- control error detecting means for providing control error signals; and
- amplitude limiting means coupled directly to said control error detecting means for amplitude limiting said control error signals;
- scaling means coupled to said amplitude limiting means to scale the output therefrom and generate said gain renewal values,
- said amplitude limiting means and said scaling means acting to reduce asymmetric control loop response of said automatic gain control system.

5,784,411

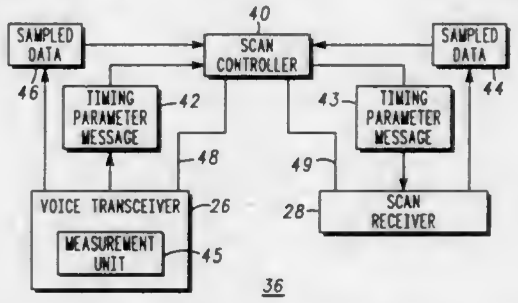
METHOD AND SYSTEM FOR PROCESSING SIGNALS FOR USE IN A WIRELESS COMMUNICATION SYSTEM

William Daniel Willey, Arlington Heights, Ill., assignor to Motorola, Inc., Schaumburg, Ill.

Filed May 22, 1996, Ser. No. 651,364

Int. Cl.^{6} H04L *7/00*

U.S. Cl. 375—368 **17 Claims**



1. A method of processing a received signal in a wireless communication system, the method comprising the steps of:

- detecting a first digital signal at a first receiver;
- measuring timing parameters of the first digital signal;
- sending data associated with the timing parameters to a second receiver;

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detecting a second digital signal at the second receiver while continuing to detect the first digital signal at the first receiver; and

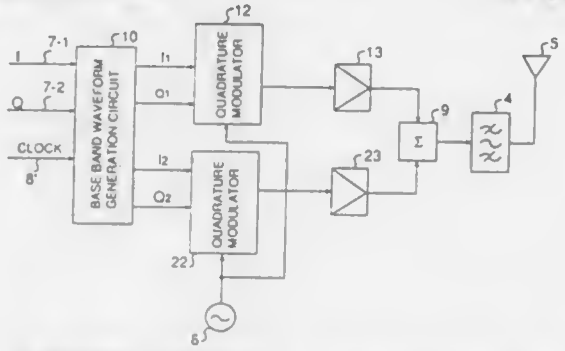
comparing the second digital signal to at least a portion of the first digital signal.

5,784,412
TRANSMITTER AND METHOD FOR TRANSMITTING A MODULATED WAVE WITH VARIABLE ENVELOPE

Masaki Ichihara, Tokyo, Japan, assignor to NEC Corporation, Japan

Filed Dec. 6, 1995, Ser. No. 568,142
Claims priority, application Japan, Dec. 6, 1994, 6-301946
Int. Cl.^{6} H03C *3/00*

U.S. Cl. 375—302 **14 Claims**



1. A transmitter comprising:

means for converting a signal of said modulating signal with envelope variation of which in-phase component signal is I and quadrature component signal is Q to a signal of which in-phase component signal is I_1, and quadrature component signal is Q_1 and a signal of which in-phase component signal is I_2, and quadrature component signal is Q_2 that meet the following conditions (1) to (3):

$$(I_1)^2+(Q_1)^2=\text{constant} \tag{1}$$

$$(I_2)^2+(Q_2)^2=\text{constant} \tag{2}$$

$$\text{Vector } (I,Q)=\text{Vector } (I_1,Q_1)+\text{Vector } (I_2,Q_2) \tag{3}$$

a first modulation means for modulating a carrier with said signal (I_1,Q_1) and generating a first modulated wave;

a second modulation means for modulating a carrier with said signal (I_2,Q_2) and generating a second modulated wave;

a first amplification means for power amplifying said first modulated wave;

a second amplification means for power amplifying said second modulated wave; and

means for composing output signals of said first amplification means and said second amplification means.

5,784,413
DIRECT DIGITAL SYNTHESIS FREQUENCY-AGILE QPSK MODULATOR

Keming Joseph Chen, San Diego, Calif., assignor to General Instrument Corporation, Horsham, Pa.

Filed Sep. 6, 1996, Ser. No. 709,010
Int. Cl.^{6} H04L *27/20*

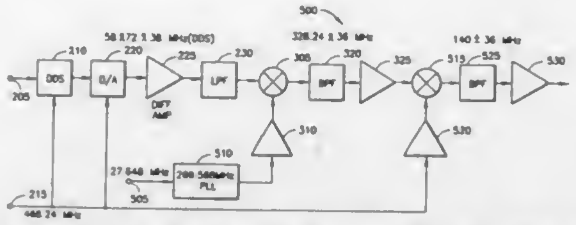
U.S. Cl. 375—308 **16 Claims**

1. A direct digital synthesis modulator, comprising:

a direct digital synthesizer for generating a data signal in response to a clock signal operating at a clock frequency;

a first local oscillator for providing a first mixing signal at a first mixing frequency;

a first mixer for mixing said data signal and said first mixing signal to provide an intermediate signal;



a second local oscillator responsive to said clock signal for providing a second mixing signal at said clock frequency; and

a second mixer for mixing said intermediate signal and said second mixing signal to provide an output signal; wherein:

said first mixer up-converts said data signal from said direct digital synthesizer; and

said second mixer down-converts said intermediate signal to provide said output signal.

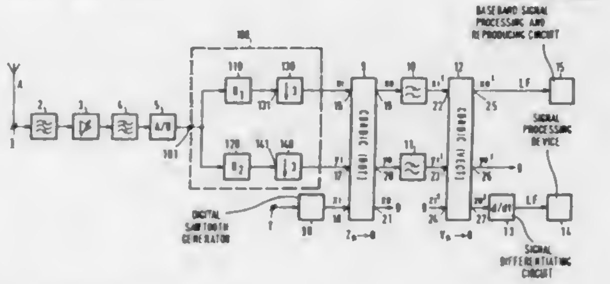
5,784,414
RECEIVER WITH QUADRATURE DECIMATION STAGE, METHOD OF PROCESSING DIGITAL SIGNALS

Alphons A. M. L. Bruekers, and Gerardus C. M. Gielis, both of Eindhoven, Netherlands, assignors to U.S. Philips Corporation, New York, N.Y.

Filed Sep. 5, 1995, Ser. No. 523,704
Claims priority, application European Pat. Off., Sep. 2, 1994, 94202518

Int. Cl.^{6} H04L *27/14*

U.S. Cl. 375—324 **10 Claims**


BASEBAND SIGNAL PROCESSING AND REPRODUCING CIRCUIT
SIGNAL PROCESSING DEVICE
SIGNAL DIFFERENTIATING CIRCUIT
DIGITAL SAWTOOTH GENERATOR
CORDIC (ROT)
CORDIC (VECT)
LF
LF
100
110
130
120
140
101
9
10
11
12
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1. A receiver comprising:

an input for receiving a digitized reception signal having a first sampling frequency Fs1;

a splitter for transforming the digitized reception signal in accordance with a first and a second transform function, respectively, to obtain a first split signal and a second split signal, respectively; and

a digital quadrature processor for processing a signal within a band Q, said processor having an input for receiving said first and second split signals as in-phase and quadrature signal components, respectively,

characterized in that said splitter comprises sampling frequency reduction means such that said first and second split signals have a second sampling frequency Fs2 which is R times lower (R=decimation factor) than that of the first sampling frequency, and in that for at least one aliasing band X which is a frequency shift of band Q over k•Fs2, k being an integer, the phase characteristic of said first transform function is substantially 90 degrees phase lagging with respect to that of said second transform function, while the magnitude characteristics are substantially equal.

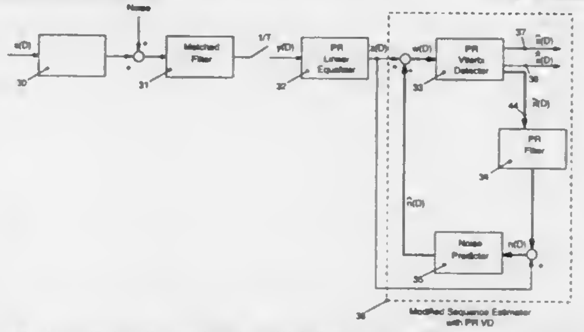
5,784,415
ADAPTIVE NOISE-PREDICTIVE PARTIAL-RESPONSE EQUALIZATION FOR CHANNELS WITH SPECTRAL NULLS

Pierre Chevillat, Kilchberg; Evangelos Eleftheriou, Zurich, and Dietrich Maiwald, Waedenswil, all of Switzerland, assignors to International Business Machines Corporation, Armonk, N.Y.

PCT No. PCT/EP93/01500, § 371 Date Jul. 20, 1995, § 102(e) Date Jul. 20, 1995, PCT Pub. No. WO94/29989, PCT Pub. Date Dec. 22, 1994

PCT Filed Jun. 14, 1993, Ser. No. 491,977
Int. Cl.^{6} H03D *1/00;* **H03M** *13/12*

U.S. Cl. 375—341 **10 Claims**



10. A method for detecting a digital information sequence x(D) transmitted via a channel exhibiting spectral nulls and/or near nulls, said apparatus comprising:

shaping said channel to a desired partial-response transfer function using a partial-response linear equalizer (**32**; **72**) having a transfer function d(D) such that the discrete time output sequence z(D), at an output of said partial-response linear equalizer (**32**; **72**), has spectral nulls approximately where the channel response has spectral nulls and/or near nulls;

estimating said transmitted digital information sequence x(D) and providing zero-delay tentative decisions $\hat{x}(D)$ at an output line (**38**; **78**) using a partial response Viterbi detector (**33**; **73**);

isolating noise components of said discrete time output sequence z(D) using a partial-response filter (**34**;**74**) followed by a noise predictor (**35**; **75**) being connected to said partial-response Viterbi detector (**33**; **73**);

isolating residual interference components of said discrete time output sequence z(D) using said partial-response filter (**34**;**74**) followed by said noise predictor (**35**; **75**) being connected to said partial-response Viterbi detector (**33**; **73**);

predicting future noise components and residual interference components using said partial-response filter (**34**; **74**) followed by said noise predictor (**35**; **75**) being connected to said partial-response Viterbi detector (**33**; **73**); and

adapting said method by using a second partial-response filter (**39**; **79**) and a predictor-coefficient estimator (**50**; **80**) having coefficients associated therewith, said second partial-response filter operating on said zero-delay tentative decisions $\hat{x}(D)$ to provide a shaped output sequence $\{r_k\}$ which is subtracted from said discrete time output sequence z(D) to obtain an error sequence $\{e'_k\}$ used for updating coefficients $\{d_i\}$ of said partial-response linear equalizer (**32**; **72**).

5,784,416
METHOD AND APPARATUS FOR DETECTION OF A COMMUNICATION SIGNAL

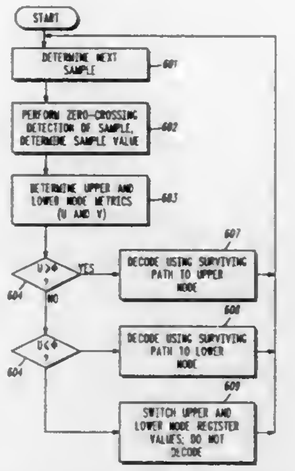
Gordon Guowen Yang, Richmond, and William Chee-Foon Chong, Surrey, both of Canada, assignors to Motorola, Inc., Schaumburg, Ill.

Filed Sep. 29, 1995, Ser. No. 537,201
Int. Cl.^{6} H04L *27/06;27/14*

U.S. Cl. 375—341 **8 Claims**

4. A method of receiving a signal by a receiver comprising:

demodulating a received signal by a demodulator: and


START
DETERMINE NEXT SAMPLE
601
PERFORM ZERO-CROSSING DETECTION OF SAMPLE, DETERMINE SAMPLE VALUE
602
DETERMINE UPPER AND LOWER NODE METRICS (U AND V)
603
U>Φ ?
YES
NO
604
DECODE USING SURVIVING PATH TO UPPER NODE
607
U<Φ ?
604
DECODE USING SURVIVING PATH TO LOWER NODE
608
SWITCH UPPER AND LOWER NODE REGISTER VALUES; DO NOT DECODE
609

sampling the signal by a sampler and timing recovery detector and outputting a current sample amplitude value for a current sample: and

estimating a bit value of a prior sample to the current sample based on a sequence estimation of the first sample value by determining path distance metrics based on the first sample value and preceding sample values, determining path difference metrics based on the path distance metrics for each node, and decoding the prior sample based on the node difference metrics, wherein the step of estimating is performed in a two-state MLSE (maximum likelihood sequence estimation) detector, and further comprises determining the path distance metrics by determining:

(a) an upper node path distance metric P_n based on measured amplitudes x_o through x_n for a number n (where n is an integer representing a number of samples from a most recently decoded sample to the current sample) most recent samples preceding the current sample and estimated bit values d_o through d_n for the previous n samples, such that

$$P_n = \text{Max}_{d_n=A}\left\{\sum_{i=0}^{n}\left[\frac{x_i(d_{i-1}+d_i)}{2}-\frac{(d_{i-1}+d_i)^2}{4}\right]\right\}; \text{ and}$$

(b) a lower node path distance metric N_n based on measured amplitudes x_o through x_n for a number n (where n is an integer representing a number of samples from a most recently decoded sample preceding the current sample) most recent samples preceding the current sample and estimated bit values d_o through d_n for the previous n samples, such that

$$N_n = \text{Max}_{d_n=-A}\left\{\sum_{i=0}^{n}\left[\frac{x_i(d_{i-1}+d_i)}{2}-\frac{(d_{i-1}+d_i)^2}{4}\right]\right\}.$$

5,784,417
CYCLIC TRELLES CODED MODULATION

Siavash M. Alamouti, Vancouver, Canada, assignor to AT&T Wireless Services, Inc., Kirkland, Wash.

Division of Ser. No. 344,111, Nov. 23, 1994, Pat. No. 5,675,590.
This application Dec. 11, 1995, Ser. No. 570,289
Int. Cl.^{6} H03M *13/00*

U.S. Cl. 375—341 **6 Claims**

1. A receiver for a trellis-coded multi-level modulation communication system comprising:

a trellis decoder which receives a baseband signal, said trellis decoder comprising:

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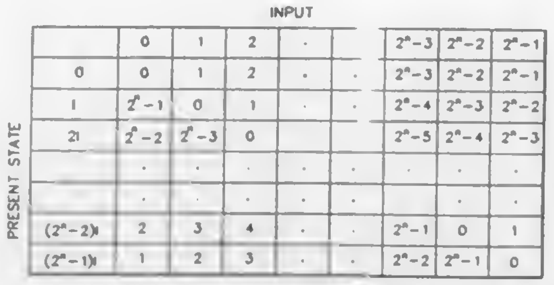

INPUT
PRESENT STATE

	0	1	2	·		2^n-3	2^n-2	2^n-1
0	0	1	2	·	·	2^n-3	2^n-2	2^n-1
1	2^n-1	0	1	·	·	2^n-4	2^n-3	2^n-2
21	2^n-2	2^n-3	0			2^n-5	2^n-4	2^n-3
	·	·	·	·	·	·	·	·
	·	·	·	·	·		·	·
(2^n-2)	2	3	4	·	·	2^n-1	0	1
(2^n-1)	1	2	3	·	·	2^n-2	2^n-1	0

means for reconstructing a trellis structure defined by a state transition look-up table wherein a set of present states is partitioned into subsets having successive members, and next state values assigned to each of said present state subsets are shifted cyclicly for successive members of said present state subset;

means for determining input and output symbols associated with branches of said trellis structure as defined by an encoder output look-up table wherein said present states are partitioned into two subsets and the outputs are partitioned into two subsets so that said output look-up table outputs a symbol which belongs to a first output subset when in one of said present state subsets and outputs a symbol which belongs to a second output subset when in the other of said present state subsets;

a calculation circuit which determines the Euclidean distances between points on a phase/amplitude coordinate system corresponding to the received signals and points of a phase/amplitude signal constellation corresponding to signals associated with branches on said trellis structure; and

comparator and selector circuits for selecting the most likely path of the received signal on said trellis structure on the basis of said determined Euclidean distances.

2. A receiver for a trellis-coded multi-level modulation communication system comprising:

a trellis decoder which receives a baseband signal, said trellis decoder comprising:

first signal processing circuitry for reconstructing a trellis structure defined by a state transition input/output table wherein a set of present states is partitioned into subsets having successive members, and next state values assigned to each of said present state subsets are shifted cyclicly for successive members of said present state subset; .

second signal processing circuitry for determining input and output symbols associated with branches of said trellis structure as defined by an encoder output input/output table wherein said present states are partitioned into two subsets and the outputs are partitioned into two subsets so that said encoder output input/output table outputs a symbol which belongs to a first output subset when in one of said present state subsets and outputs a symbol which belongs to a second output subset when in the other of said present state subsets;

a calculation circuit which determines distances between points on a phase/amplitude coordinate system corresponding to the received signals and points of a phase/amplitude signal constellation corresponding to signals associated with branches on said trellis structure; and

comparator and selector circuits for selecting the most likely path of the received signal on said trellis structure on the basis of said determined distances.

5,784,418
DUAL BAND DIGITAL BROADCAST RECEIVER

John Prallsford Sykes; Simon Parnall, both of Tadworth, and Philip Andrew Laven, Horley, all of United Kingdom, assignors to British Broadcasting Corporation, London, United Kingdom

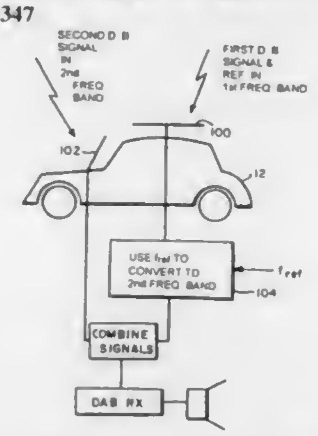
PCT No. PCT/GB93/01954, § 371 Date Apr. 10, 1995, § 102(e) Date Apr. 10, 1995, PCT Pub. No. WO94/07314, PCT Pub. Date Mar. 31, 1994

PCT Filed Sep. 15, 1993, Ser. No. 403,686

Claims priority, application United Kingdom, Sep. 15, 1992, 9219486

Int. Cl.⁶ H04B *7/10;* **H04L** *1/02*

U.S. Cl. 375—347 **14 Claims**


SECOND D B SIGNAL IN 2nd FREQ BAND
FIRST D B SIGNAL & REF IN 1st FREQ BAND
100
102
12
USE f_{ref} TO CONVERT TO 2nd FREQ BAND
f_{ref}
104
COMBINE SIGNALS
DAB RX

1. A dual band digital broadcast receiver comprising

means for receiving a first digital broadcast signal and reference information in a first frequency band,

means for receiving a second digital broadcast signal in a second frequency band, said second frequency band being selected independently of said first frequency band,

means for converting the first digital broadcast signal to the second frequency band, in dependence upon the received reference information, and

a combiner for combining the converted first digital broadcast signal with the second digital broadcast signal, the combiner operating in said second frequency band.

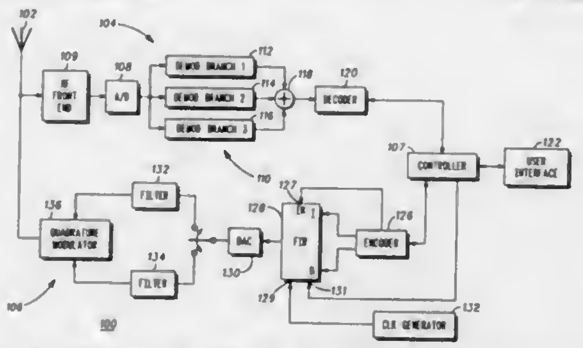
5,784,419
EFFICIENT DIGITAL FILTER AND METHOD USING COEFFICIENT PRECOMBINING

Christopher P. LaRosa, Lake Zurich, and Tracie A. Schirtzinger, Libertyville, both of Ill., assignors to Motorola, Inc., Schaumburg, Ill.

Filed Oct. 4, 1996, Ser. No. 726,018

Int. Cl.⁶ H04B *1/10*

U.S. Cl. 378—350 **19 Claims**



1. A digital filter for filtering an input signal and producing a filtered signal, the digital filter comprising:

an input for receiving the input signal;

a coefficient storage circuit for storing a plurality of precombined coefficients;

a selection circuit coupled to the input and the coefficient storage circuit for selecting appropriate precombined coefficients from the plurality of precombined coefficients in response to the input signal; and

a combining circuit coupled to the selection circuit for combining the appropriate precombined coefficients to produce the filtered signal.

5,784,420
METHOD FOR RESYNCHRONIZATION OF A DATA RECEPTION DEVICE

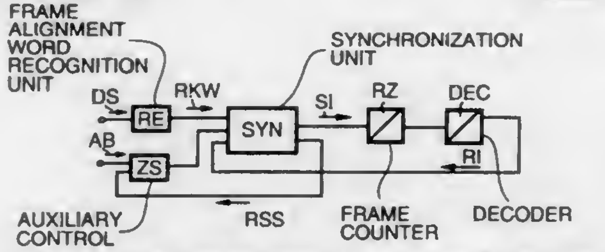
Wilkin Rohr, Leipzig, Germany, assignor to Siemens Aktiengesellschaft, Munich, Germany

Filed Aug. 29, 1995, Ser. No. 520,414

Claims priority, application Germany, Aug. 31, 1994, 44 31 023.4

Int. Cl.⁶ H04L *7/00*

U.S. Cl. 375—354 **5 Claims**



1. A method for resynchronizing a data reception device in response to an asynchronous desynchronization command, the data reception device having a frame counter that periodically outputs a window pulse at a beginning of a pulse frame, comprising the steps of:

intermediately storing the desynchronization command until appearance of the window pulse; and

initiating resynchronization of the data reception device only after the appearance of the window pulse.

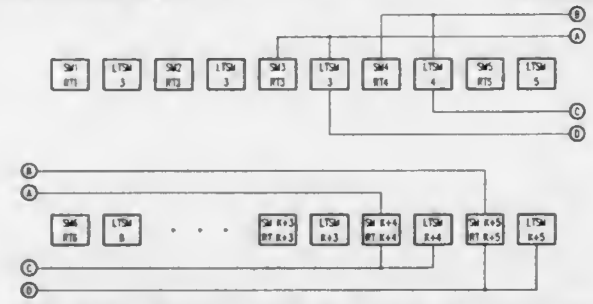
5,784,421
COMPUTER PROGRAM PRODUCT FOR USE WITH A NETWORK NODE FOR PERFORMING ANONYMOUS TIME SYNCHRONIZATION IN A NETWORK

Danny Dolev, Jerusalem, Israel; Rüdiger Karl Reischuk, Münster-Altheim, Germany, and Hovey Raymond Strong, San Jose, Calif., assignors to International Business Machines Corporation, Armonk, N.Y.

Division of Ser. No. 382,479, Feb. 1, 1995, Pat. No. 5,550,873, which is a division of Ser. No. 970,666, Nov. 3, 1992, Pat. No. 5,428,645. This application Jan. 24, 1996, Ser. No. 590,540

Int. Cl.⁶ H04L *7/00*

U.S. Cl. 375—354 **14 Claims**



1. A computer program product, for use with a processor serving as a node of a network, comprising:

a recording medium;

means, recorded on the recording medium, for directing the processor to receive and buffer synchronization messages containing reference time stamps denoting times of respective events according to a reference time scale, and for marking the synchronization messages with local time stamp marks denoting respective events of receipt of the synchronization messages according to a local time scale of the node, the synchronization messages having been broadcast from a reference time source according to a predetermined protocol, the means for marking operating to mark the synchronization messages in accordance with the protocol, such that temporal relationships are defined between certain ones of the buffered synchronization messages and certain ones of the local time stamp marks;

means, recorded on the recording medium, for directing the processor to identify a first time, which is one of a local time stamp mark and a reference time stamp contained within one of the buffered synchronization messages, and second and third times, which are the other of local time stamp marks and reference time stamps contained within two of the buffered synchronization messages, the first, second, and third times being defined in accordance with the defined temporal relationships between the events denoted by the times, such that the first time falls between the second and third times;

means, recorded on the recording medium, for directing the processor to determine a difference between the first time and a time related to the second and third times; and

means, recorded on the recording medium, for directing the processor to update the local time scale to compensate for the difference.

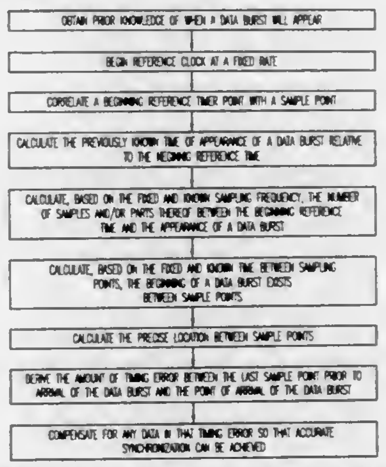
5,784,422
APPARATUS AND METHOD FOR ACCURATE SYNCHRONIZATION WITH INBOUND DATA PACKETS AT RELATIVELY LOW SAMPLING RATES

Douglas A. Heermann, Raymond, Nebr., assignor to Transcrypt International, Inc., Lincoln, Nebr.

Filed Aug. 5, 1996, Ser. No. 692,539

Int. Cl.⁶ H04L *7/08*

U.S. Cl. 375—355 **3 Claims**


OBTAIN PRIOR KNOWLEDGE OF WHEN A DATA BURST WILL APPEAR
BEGIN REFERENCE CLOCK AT A FIXED RATE
CORRELATE A BEGINNING REFERENCE TIMER POINT WITH A SAMPLE POINT
CALCULATE THE PREVIOUSLY KNOWN TIME OF APPEARANCE OF A DATA BURST RELATIVE TO THE BEGINNING REFERENCE TIME
CALCULATE, BASED ON THE FIXED AND KNOWN SAMPLING FREQUENCY, THE NUMBER OF SAMPLES AND/OR PARTS THEREOF BETWEEN THE BEGINNING REFERENCE TIME AND THE APPEARANCE OF A DATA BURST
CALCULATE, BASED ON THE FIXED AND KNOWN TIME BETWEEN SAMPLING POINTS, THE BEGINNING OF A DATA BURST EXISTS BETWEEN SAMPLE POINTS
CALCULATE THE PRECISE LOCATION BETWEEN SAMPLE POINTS
DERIVE THE AMOUNT OF TIMING ERROR BETWEEN THE LAST SAMPLE POINT PRIOR TO ARRIVAL OF THE DATA BURST AND THE POINT OF ARRIVAL OF THE DATA BURST
COMPENSATE FOR ANY DATA IN THAT TIMING ERROR SO THAT ACCURATE SYNCHRONIZATION CAN BE ACHIEVED

2. An apparatus for accurate synchronization of an analog signal comprising an audio signal with periodic synchronization data bursts modulated into a carrier frequency, using relatively low sampling rates and having prior knowledge of when a data burst will appear comprising:

a transceiver including a receiving circuit for receiving the analog signal;

a digital signal processor in the receiving circuit;

a phase locked loop implemented in the digital signal processor to demodulate synchronization data in the data bursts in the analog signal;

a numerically controlled oscillator implemented in the digital signal processor and having a phase accumulator;

a fixed rate reference clock implemented in the digital signal processor;

the reference clock starting at a time to which is correlated to a sample point;

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the digital signal processor sampling the analog signal at a relatively low sample rate related to the rate of the fixed rate clock;

the prior knowledge of when a data burst will appear being compared with t_0, and the comparison used to alter the phase accumulator to provide synchronization timing compensation for any difference found in the comparison.

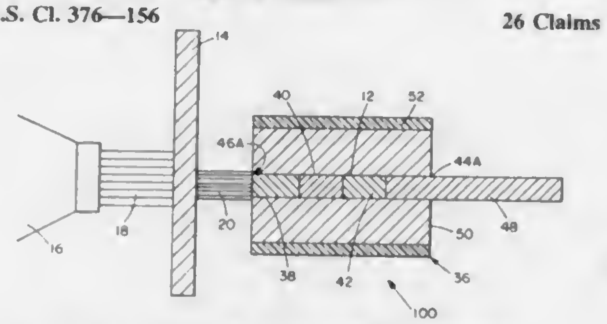
5,784,423
METHOD OF PRODUCING MOLYBDENUM-99

Lawrence M. Lidsky, Newton, and Richard Lanza, Brookline, both of Mass., assignors to Massachusetts Institute of Technology, Cambridge, Mass.

Filed Sep. 8, 1995, Ser. No. 525,854

Int. Cl.^{6} G21G *1/12*

U.S. Cl. 376—156 **26 Claims**



1. A method of producing molybdenum-99 comprising:

providing a target comprising molybdenum-100; and

directing a photon beam onto the target to isotopically convert at least a portion of the molybdenum-100 of the target to molybdenum-99 having specific activity of at least 1.0 curies/gram, the photon beam having intensity of at least 50 microamps/cm^2 and photons of energy of at least 8 MeV.

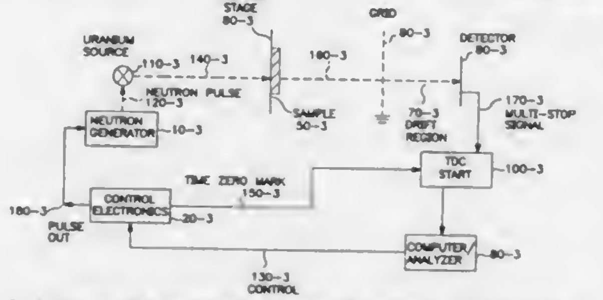
5,784,424
SYSTEM FOR STUDYING A SAMPLE OF MATERIAL USING A HEAVY ION INDUCED MASS SPECTROMETER SOURCE

David P. Fries, St. Petersburg, and James F. Browning, Palm Harbour, both of Fla., assignors to The United States of America as represented by the United States Department of Energy, Washington, D.C.

Continuation of Ser. No. 312,907, Sep. 30, 1994, abandoned. This application Jul. 3, 1996, Ser. No. 674,970

Int. Cl.^{6} G21G *1/08;* B01D *59/44*

U.S. Cl. 376—189 **19 Claims**



1. A system for studying a sample of material, comprising:

a fission fragment generator comprising a pulsed neutron generator and a fissionable material having an n,f reaction cross-section greater than a predetermined value, said pulsed neutron generator being positioned at a first predetermined distance and at a first axial direction with respect to said fissionable material, so as to bombard said fissionable material with neutrons of a sufficient energy to cause heavy ions to be emitted from said fissionable material as fission fragments,

wherein at least some of said fission fragments propagate toward and fall incident upon said sample of material positioned at a second predetermined distance and at a second axial direction with respect to said fissionable material, said first axial direction being different from said second axial direction, and

wherein said at least some of said fission fragments induce desorption of said sample of material to produce secondary ions off of said sample of material; and

a detector positioned at a third predetermined distance with respect to said fissionable material which is greater than said second predetermined distance, said detector configured to detect said secondary ions.

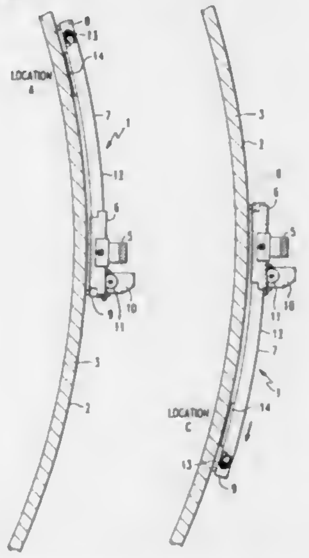
5,784,425
APPARATUS FOR INSPECTING A BOILING WATER REACTOR CORE SHROUD

David Eric Morlan, Marietta, Ga., assignor to Westinghouse Electric Corporation, Pittsburgh, Pa.

Filed Mar. 27, 1997, Ser. No. 824,944

Int. Cl.^{6} G21C *17/007*

U.S. Cl. 376—249 **5 Claims**



1. An apparatus suspended from a positioning arm and operable to inspect the surface of a boiling water reactor core shroud, comprising:

a. attachment means fixed to said positioning arm;

b. a guide connected with said attachment means;

c. an arcuate rail received by said guide and having a first end portion and an opposite second end portion;

d. first means for moving said rail relative to said guide in an arcuate path adjacent to said surface of said core shroud between a first position relative to said guide and a second position relative to said guide;

e. a transducer received by and moveable along said rail; and

f. second means for moving said transducer along said rail between said rail first end portion and said rail second end portion as said first means moves said rail between said first position and said second position.

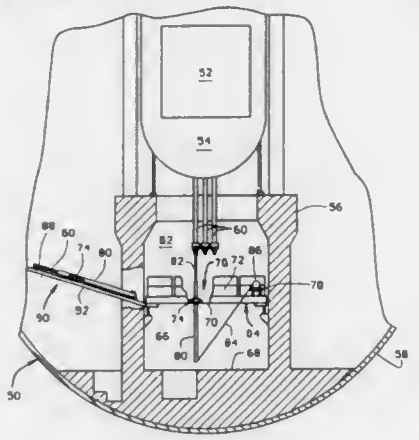
5,784,426
BOTTOM OPEN SLED SYSTEM

James Edgar Burner, Downingtown, and Benedict Kazirskis, Barto, both of Pa., assignors to General Electric Company, Schenectady, N.Y.

Continuation of Ser. No. 561,481, Nov. 20, 1995, abandoned. This application Feb. 14, 1997, Ser. No. 801,710

Int. Cl.^{6} G21C *19/20*

U.S. Cl. 376—260 **28 Claims**



26. A method for moving a control rod drive relative to a reactor pressure vessel using a bottom open sled system, the bottom open sled system including a tower forming a control rod drive receiving area, a drive assembly including at least one acme screw extending substantially the length of the tower and mounted within the receiving area and wherein said acme screw is rotated with a hand held angle wrench, an elevator coupled to the acme screw and movable relative to the acme screw, the elevator configured to engage a portion of the control rod drive and to substantially support the control rod drive, the drive assembly secured to and removable from the reactor with the tower, the system further including a trunnion cart engaged to the tower so that the tower is rotatable relative thereto, an upender winch wherein said upender winch is mounted separate and apart from said tower, an extension tube, said method comprising the steps of:

aligning the tower in a vertical position with the control rod drive;

positioning the extension tube on the elevator;

raising one end of the extension tube into contact with the end of the control rod drive;

disengaging the control rod drive so that the elevator substantially supports both the extension tube and the control rod drive;

lowering the elevator so that the at least a portion of the control rod drive extends along the length of the tower;

rotating the tower from the vertical position to a substantially horizontal position using the upender wench cart; and

removing the bottom open sled system and the control rod drive from within the reactor wherein said separately mounted upender winch remains within the reactor.

5,784,427
FEEDBACK AND SHIFT UNIT

Irwin Bennett; Andrew Page; Barry King, and Paul Golding, all of Swindon, United Kingdom, assignors to Motorola, Inc., Schaumburg, Ill.

Filed Jun. 24, 1996, Ser. No. 672,010

Int. Cl.^{6} G11C *19/00*

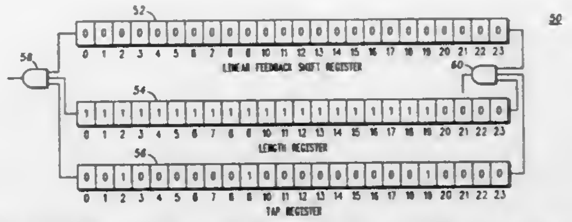
U.S. Cl. 377—72 **9 Claims**

1. A first feedback and shift unit comprising:

first linear feedback shift register means for storing a value of the first feedback and shift unit;

first tap register means for storing a first tap position indicator indicative of tap positions for the first feedback and shift unit;

a first input for providing data to the first feedback and shift unit;



first feedback matrix means, coupled to receive the data from the first input, for providing data bits, generated in response to the data and the first tap position indicator, that are shifted into the first linear feedback shift register means to form the value stored therein; and

length register means for storing a length indicator, the length register means being logically coupled to the first linear feedback shift register means whereby the length indicator sets a length of the first linear feedback shift register means corresponding to a length of the first feedback and shift unit.

5,784,428
X-RAY COMPUTED TOMOGRAPHY APPARATUS HAVING A GANTRY FRAME WITH ROLLERS FOR AXIALLY AND RADIALLY GUIDING THE GANTRY

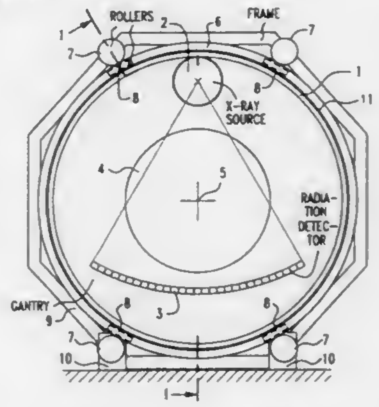
Martin Schmidt, Emskirchen, Germany, assignor to Siemens Aktiengesellschaft, Munich, Germany

Filed May 30, 1997, Ser. No. 865,973

Claims priority, application Germany, Jul. 24, 1996, 196 29 931.4

Int. Cl.^{6} G01N *23/00*

U.S. Cl. 378—4 **6 Claims**



1. An X-ray computed tomography apparatus comprising:

a frame;

an X-ray source and an X-ray detector;

an annular gantry on which at least said X-ray source is mounted, said annular gantry having a central opening for receiving an examination subject and being rotatably mounted in said frame for rotating said X-ray source around an examination subject in said opening, said gantry having an outer circumference with rails projecting from said outer circumference;

a first set of rollers in said frame engaging said rails for radially guiding said gantry; and

a second set of rollers in said frame engaging said rails for axially guiding said gantry.

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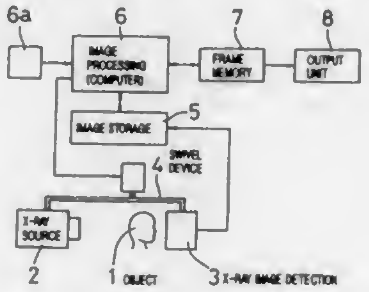
5,784,429

DENTAL PANORAMIC X-RAY IMAGING APPARATUS

Yoshinori Arai, Tokyo, Japan, assignor to J. Morita Manufacturing Corporation, Kyoto, Japan

Continuation of Ser. No. 752,592, Nov. 21, 1996, abandoned.
This application Jul. 2, 1997, Ser. No. 886,956
Claims priority, application Japan, Nov. 22, 1995, 7-304697
Int. Cl.^{6} H05G *1/64*

U.S. Cl. 378—38 **2 Claims**



1. A dental panoramic X-ray imaging apparatus comprising:
an X-ray source for irradiating an object with X-rays;
X-ray image detecting means for detecting an image of X-rays which have passed through the object;
swivel means for integrally swiveling the X-ray source and the X-ray detecting means around the object;
image storing means for storing image information output from the X-ray detecting means during a period when the swivel means operates; and
image processing means for on the basis of image information stored in the image storing means, forming a tomographic image along a desired tomographic plane and conducting a calculation process on the tomographic image,
wherein plural tomographic images corresponding to plural tomographic planes which are arranged at predetermined intervals along a direction of the X-ray irradiation are calculated, a convolution process or a frequency process is conducted on a specific tomographic image by using image information of at least one of the tomographic images, and thereby blur from the specific tomographic image is removed.

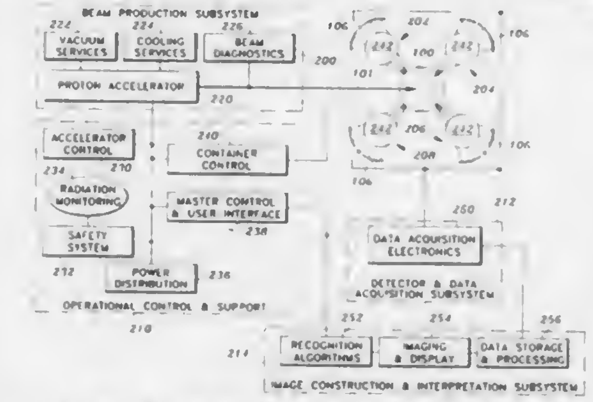
5,784,430

MULTIPLE STATION GAMMA RAY ABSORPTION CONTRABAND DETECTION SYSTEM

Joseph J. Sredniawski, Northport, N.Y., assignor to Northrop Grumman Corporation, Los Angeles, Calif.

Filed Apr. 16, 1996, Ser. No. 632,954
Int. Cl.^{6} G01N *23/04*

U.S. Cl. 378—57 **15 Claims**



1. A target for a gamma ray absorption contraband detection system, said target comprising:
a) a disk formed of beryllium having a gamma ray producing material formed thereon; and
b) wherein said disk provides a 360 degrees resonant gamma ray cone when a proton beam is incident thereon so as to facilitate operation of plural detection stations simultaneously therewith.

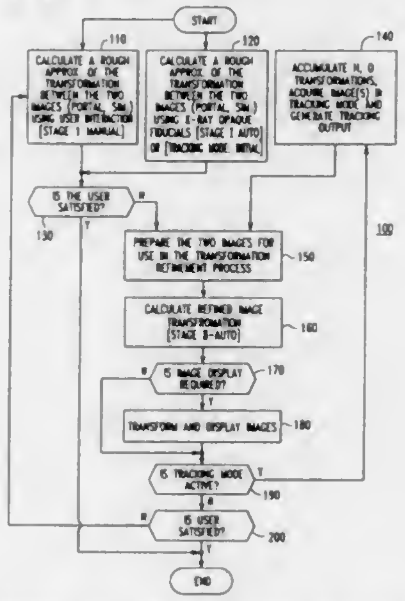
5,784,431

APPARATUS FOR MATCHING X-RAY IMAGES WITH REFERENCE IMAGES

Andre M. Kalend, Monroeville; Joel Greenberger, Sewickley; Karun B. Shimoga, Pittsburgh, all of Pa.; Charalambos N. Athanassiou, Athens, Greece, and Takeo Kanade, Pittsburgh, Pa., assignors to University of Pittsburgh of the Commonwealth System of Higher Education, Pittsburgh, Pa.

Filed Oct. 29, 1996, Ser. No. 739,622
Int. Cl.^{6} A61N *5/10*

U.S. Cl. 378—65 **28 Claims**


START
110
CALCULATE A ROUGH APPROX. OF THE TRANSFORMATION BETWEEN THE TWO IMAGES (PORTAL, SIM) USING USER INTERACTION [STAGE 1 MANUAL]
120
CALCULATE A ROUGH APPROX. OF THE TRANSFORMATION BETWEEN THE TWO IMAGES (PORTAL, SIM) USING X-RAY OPAQUE FIDUCIALS [STAGE 1 AUTO] OF [TRACKING MODE, INITIAL]
140
ACCUMULATE N, 0 TRANSFORMATIONS, ACQUIRE IMAGE(S) IN TRACKING MODE AND GENERATE TRACKING OUTPUT
IS THE USER SATISFIED?
130
N
Y
PREPARE THE TWO IMAGES FOR USE IN THE TRANSFORMATION REFINEMENT PROCESS
150
100
CALCULATE REFINED IMAGE TRANSFORMATION [STAGE II-AUTO]
160
IS IMAGE DISPLAY REQUIRED?
170
TRANSFORM AND DISPLAY IMAGES
180
IS TRACKING MODE ACTIVE?
190
IS USER SATISFIED?
200
END

21. Apparatus for matching portal images to control radiotherapy/diagnosis equipment, said apparatus comprising:
means digitizing successive portal images to generate successive sets of digital portal image signals (DPIS); and
tracking means tracking movement between successive sets of DPIS.

5,784,432

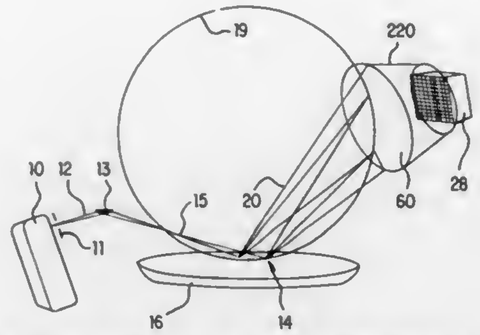
LARGE ANGLE SOLID STATE POSITION SENSITIVE X-RAY DETECTOR SYSTEM

David S. Kurtz, and Clay O. Ruud, both of State College, Pa., assignors to The Penn State Research Foundation, University Park, Pa., and Advanced Technology Materials, Inc., Danbury, Conn.

Division of Ser. No. 590,956, Jan. 24, 1996, Pat. No. 5,724,401.
This application Aug. 22, 1997, Ser. No. 916,378
Int. Cl.^{6} G01N *23/20*

U.S. Cl. 378—70 **4 Claims**

1. A fiber-optic reorganizer for use in x-ray diffraction and/or scattering measurements, said reorganizer including a plurality of rectangular coherent optic fiber bundles, each bundle having a an input face and output face, each said face bordered by two sides and two ends, said faces of each bundle having a length greater than its ends, said input faces being serially aligned endwise and positioned tangentially along an arc with their respective ends contiguous to each other to thereby define an essentially one dimensional reorganizer input face formed from said bundle input faces, said output ends of said bundles being serially arranged side by side with their sides contiguous to each other to thereby define a two dimensional reorganizer output face, each of said bundle input ends being coated with a scintillation material to convert x-radiation into radiation of a longer wavelength, whereby x-radiation impinging upon said reorganizer input face exits from said reorganizer output face as radiation of a longer wavelength.



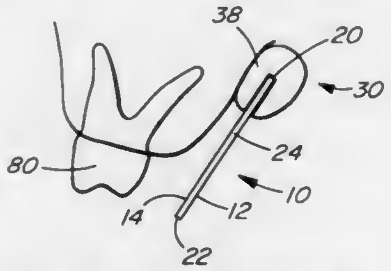
5,784,433

DENTAL X-RAY FILM PACKET STRUCTURE AND METHOD FOR CUSHIONING DENTAL X-RAY FILM PACKETS

Jack Higa, 974 Esquimalt Avenue, West Vancouver, British Columbia, Canada, V7T 1J8

Filed Jan. 31, 1997, Ser. No. 797,651
Int. Cl.^{6} A61B *6/14*

U.S. Cl. 378—168 **5 Claims**



1. A dental X-ray film structure, comprising:
(a) a dental X-ray film packet having:
  (i) opposed first and second side surfaces; and
  (ii) thin side edges extending transversely between said side surfaces and defining the perimeter of said packet; and,
(b) a moisture resistant strip of soft, flexible cushion material partially overlapping said first side surface along a selected one only of said edges, said strip including:
  (i) a first portion adhered in overlapping engagement with a corresponding portion of said first side surface along substantially the full length of said selected edge;
  (ii) a second portion contiguous with said first portion and extending laterally outside said perimeter for cushioning said selected edge when said packet is positioned within the mouth of a dental patient for taking a dental X-ray.

5,784,434

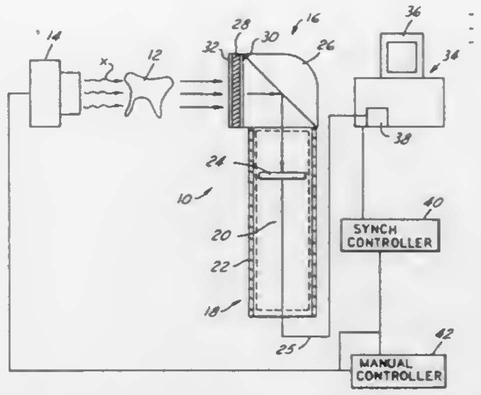
DIGITAL INTRA-ORAL IMAGING SYSTEM FOR DENTAL RADIOGRAPHY

Yuh-Ren Shieh, Hsinchu, Taiwan, assignor to Industrial Technology Research Institute, Hsinchu, Taiwan

Filed Jan. 16, 1997, Ser. No. 784,425
Int. Cl.^{6} A61B *6/14*

U.S. Cl. 378—191 **20 Claims**

1. An x-ray imaging system for dental radiography, comprising:
an intra-oral imaging device including a body and a head connected to said body, said head being adapted to be disposed in an intra-oral region behind a tooth,
said head including a layer of material for converting x-rays passing through said tooth along a first axis into a visible image, and an optical element for redirecting said visible image along a second axis,
said device further including a camera having a solid state image pickup for recording said visible image redirected by said optical element without an optical system placed thereinbetween,
means for displaying the visible image recorded by said pickup;
a source of x-rays, and,
a controller operably connected with said display means,. said imaging device and said x-ray source for controlling the operation of said x-ray source.



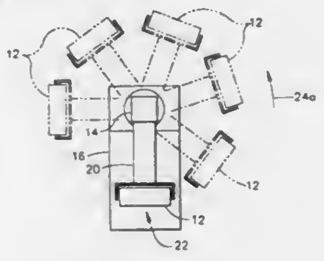
5,784,435

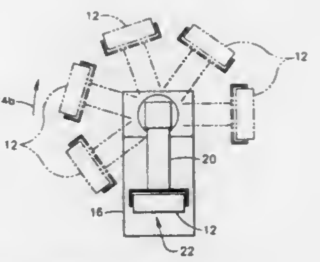
X-RAY TUBE SUPPORT COLUMN ON A MOBILE X-RAY PRODUCT WITH IMPROVED ROTATIONAL FLEXIBILITY

Mark A. Figurski, Hartland, Wis., assignor to General Electric Company, Milwaukee, Wis.

Filed Apr. 23, 1997, Ser. No. 839,085
Int. Cl.^{6} H05G *1/02*

U.S. Cl. 378—197 **9 Claims**





1. An x-ray unit comprising:
an x-ray device for producing x-rays;
a base for holding the x-ray device;
an x-ray source for positioning over an area of concern;
a rotatable x-ray source support column for allowing movement of the x-ray source, wherein the total rotational motion of the support column is greater than 360° relative to the base; and
mechanical end of rotation stop means for mechanically defining total rotational motion of the support column.

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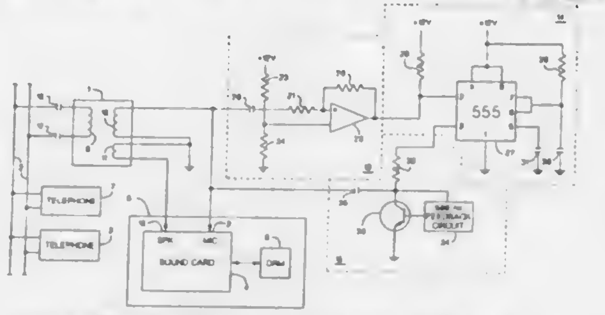
5,784,436

AUTOMATIC TELEPHONE RECORDER SYSTEM INCORPORATING A PERSONAL COMPUTER HAVING A SOUND HANDLING FEATURE

Howard B. Rosen, 1 Lyncroft Rd., Montreal PQ, Canada, H3X 3E3, and Daniel S. Leitman, 11 Devoe Rd., Chappaqua, N.Y. 10414

Filed Jun. 19, 1996, Ser. No. 668,023
Int. Cl.^{6} H04M *1/64*

U.S. Cl. 379—88 **26 Claims**



7. An automatic telephone recorder system comprising:

A) a computer including a sound signal handling means and a digital recording medium, said sound signal handling means including an audio input and means for selectively effecting digital recording on said digital recording medium of an audio signal applied to said sound signal handling means input;

B) a pulse stretcher and oscillator circuit adapted to respond to the transient presence of a voltage pulse by issuing an audio tone at a predetermined frequency for a first predetermined period;

C) alternating current transfer means connected between a telephone line pair and said sound signal handling means audio input and coupled between said telephone line pair and an input to said pulse stretcher circuit;

D) means coupling said audio tone from said oscillator to said sound signal handling means audio input;

E) said sound signal handling means being programmed to:

  1) periodically test the sound signal handling means audio input to determine if a predetermined transient signal is present as indicated by the presence of said audio tone from said oscillator; and

  2) if said predetermined transient signal is present, instituting recording of any audio signal present at said sound signal handling means audio input for as long as such audio signal is not interrupted for in excess of a second predetermined period.

5,784,437

ELECTRONIC SWITCH CONNECTED TO INTELLIGENT PERIPHERAL WHILE PERMITTING CALL PROCESSING OF DIALED DIGITS

Edgar Martinez, White Plains, N.Y., and Mark A. Glemboski, Newton, N.J., assignors to NYNEX Science & Technology, Inc., White Plains, N.Y.

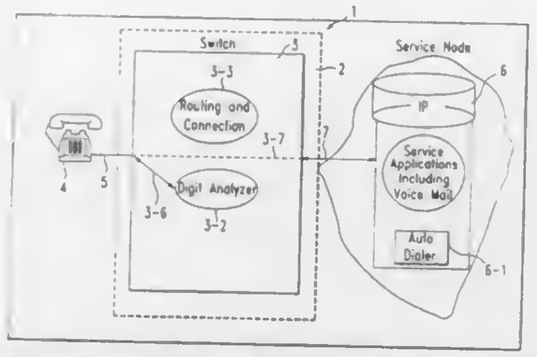
Continuation of Ser. No. 267,792, Jun. 28, 1994, abandoned, which is a continuation of Ser. No. 93,450, Jul. 19, 1993, abandoned, which is a continuation of Ser. No. 995,521, Dec. 21, 1992, abandoned, which is a continuation of Ser. No. 676,863, Mar. 28, 1991, abandoned. This application Dec. 11, 1996, Ser. No. 763,518
Int. Cl.^{6} H04M *3/50*

U.S. Cl. 379—89 **22 Claims**

1. A method of operating a telephone system including a switch comprising the steps of:

operating the switch to detect an off-hook status of a subscriber coupled to the switch;

in response to detecting the off-hook status of a subscriber, operating the switch to establish a connection between the subscriber and a peripheral device located outside the switch;



performing within the switch a monitoring function to detect a DTMF signal from the subscriber; and

upon the monitoring function detecting the DTMF signal from the subscriber terminating the connection established by the switch between the subscriber and the peripheral device.

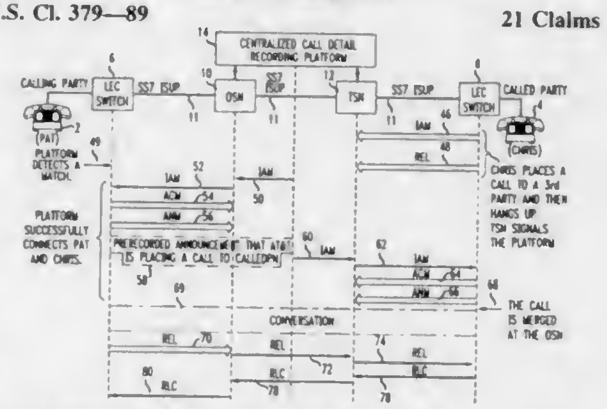
5,784,438

AUTOMATIC CALLBACK SYSTEM AND METHOD

John C. Martinez, Freehold, N.J., assignor to AT&T Corp, Middletown, N.J.

Continuation of Ser. No. 577,891, Dec. 22, 1995, abandoned. This application Apr. 9, 1997, Ser. No. 831,656
Int. Cl.^{6} H04M *1/64*

U.S. Cl. 379—89 **21 Claims**


14
CENTRALIZED CALL DETAIL RECORDING PLATFORM
6
8
10
12
CALLING PARTY
LEC SWITCH
SS7 ISUP
OSM
SS7 ISUP
TSM
SS7 ISUP
LEC SWITCH
CALLED PARTY
11
2
4
(PAT)
(CHRIS)
IAM
46
REL
48
49
PLATFORM DETECTS A MATCH
CHRIS PLACES A CALL TO A 3rd PARTY AND THEN HANGS UP TSM SIGNALS THE PLATFORM
52
IAM
ACM
54
ANM
56
50
PLATFORM SUCCESSFULLY CONNECTS PAT AND CHRIS
PRERECORDED ANNOUNCEMENT THAT AT&T IS PLACING A CALL TO CALLEDPN
58
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62
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66
68
THE CALL IS MERGED AT THE OSM
69
CONVERSATION
REL
70
72
74
RLC
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78
80

14. A method for providing an automatic call-back to a calling party who encountered a ring-no-answer condition upon calling a called party number to initiate a telephone call, comprising the steps of:

determining that a ring-no-answer condition exists based on a telephone call placed by a calling party to said called party number;

detecting a signal indicating a subsequent telephone call involving said called party number; and

providing an automatic call-back to said calling party number in response to detection of said signal.

5,784,439

METHOD AND SYSTEM FOR REMOTE DIAL-UP ATM

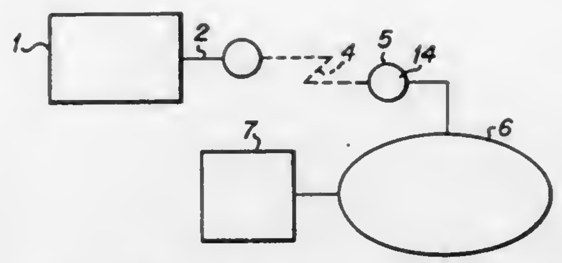
Frank Nagelmann, Alamo, and Wayne Averill, Moraga, both of Calif., assignors to Cash on Demand, Inc., Walnut Creek, Calif.

Continuation of Ser. No. 334,875, Nov. 4, 1994, abandoned. This application Jun. 24, 1997, Ser. No. 881,556
Int. Cl.^{6} H04M *11/00*

U.S. Cl. 379—91.01 **22 Claims**

1. A system for conducting banking transactions using a remote self-service ATM with on-demand access for the ATM's host computer for ever transaction, said system comprising,

(a) an automatic teller machine having the capability of directly dispensing monetary funds,



(b) a host computer for the automatic teller machine, and

(c) a non-continuous communications link between the automatic teller machine and the host computer, said non-continuous communications link being the primary communications link between said ATM and said host computer.

5,784,440

Patent Not Issued For This Number

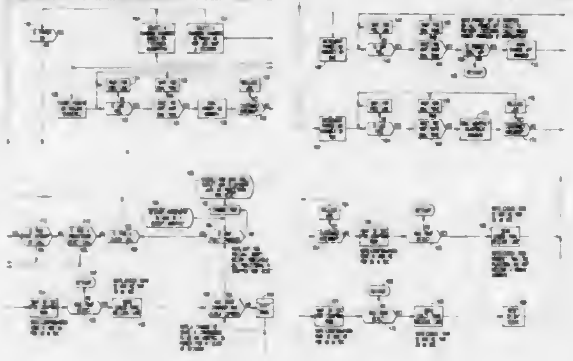
5,784,441

SYSTEMS FOR POWER INTERRUPTION DETECTION

Glenn Albert Davis, Lilburn; Mark Wayne Patton, Alpharetta, and Douglas Wallace Todd, Lawrenceville, all of Ga., assignors to Scientific-Atlanta, Inc., Norcross, Ga.

Filed Nov. 3, 1993, Ser. No. 148,198
Int. Cl.^{6} H04M *11/00*

U.S. Cl. 379—106.01 **36 Claims**



1. A method of monitoring a condition at a remote location and for delivering via a communications network to a central control location notification of a change in the state of a condition at the remote location, the method comprising the steps of:

sensing at the remote changes in the state of the condition from a first state to a second state;

responding during the second state to the sensed change in the condition to the second state, by delivering via the communications network to the central control location a signal representative of an identifying address (IA) assigned to the remote location;

sensing for a return to the first state the condition at the remote location;

responding to the condition returning to the first state by testing the communication network and generating an indication of line availability when the communications network is available for transmission of signals thereon;

responding to an indication of line availability, selectively seizing a line on the communications network;

generating communications network signals representative of a second IA;

delivering to the central control location the second IA; and

indicating the establishment of a completed call between the remote location and the central location by generating onto the communications network a preselected check signal.

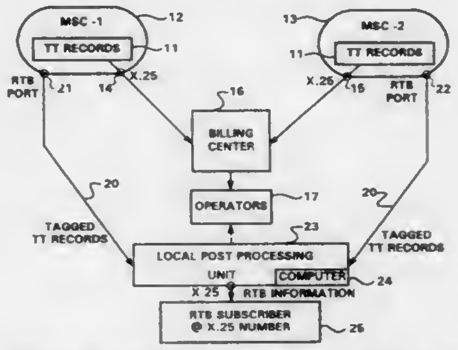
5,784,442

SYSTEM AND METHOD FOR REAL-TIME BILLING IN A RADIO TELECOMMUNICATIONS NETWORK

George Foti, Quebec, Canada, assignor to Telefonaktiebologet LM Ericsson (publ), Stockholm, Sweden

Filed Feb. 2, 1996, Ser. No. 596,005
Int. Cl.^{6} H04M *15/00*

U.S. Cl. 379—114 **11 Claims**



11. Within a radio telecommunications network, a method of automatically providing real-time billing (RTB) information to a RTB mobile subscriber operating a mobile station, said RTB mobile subscriber being involved in a RTB call which is handled by a plurality of mobile switching centers (MSCs), and said method providing said RTB information to said RTB subscriber without modifying said mobile station, said method comprising the steps of:

collecting, within each of said plurality of MSCs, toll ticketing (TT) records associated with said RTB call;

sending said TT records associated with said RTB call to a local post processing unit for immediate processing at the end of said RTB call;

immediately processing said TT records upon receipt at said local post processing unit and computing real-time billing information; and

electronically and automatically sending said computed real-time billing information to said RTB subscriber, without modifying said mobile station, immediately after the completion of said RTB call.

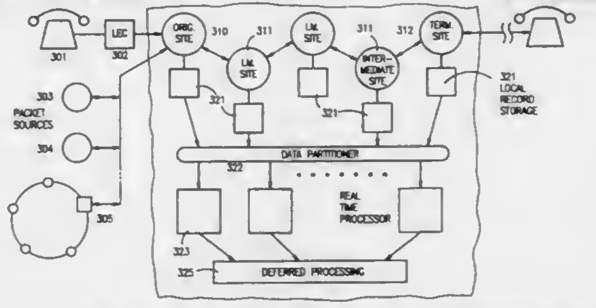
5,784,443

INTEGRATED REVENUE DOMAIN FOR TELECOMMUNICATION NETWORKS

Jeffrey M. Chapman, Cascade, Colo.; John Reynolds, Medway, Mass.; Steve Brandenburg, Marion, Iowa, and Samuel Howlette, Great Falls, Va., assignors to MCI Corporation, Washington, D.C.

Filed Feb. 1, 1996, Ser. No. 650,151
Int. Cl.^{6} H04M *15/00;15/06*

U.S. Cl. 379—119 **10 Claims**



1. In a telecommunications network, a system for automatically, in real-time, creating and maintaining records of customer use of the network for diverse types of service and costs, comprising:

a) means for initiating diverse types of service at different costs for customer use on the network;

b) means for labeling each customer unit an event and assigning a tag to each event;

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c) means for transmitting the event through at least one switching device in the network;

d) means for creating at each switching device a record of each event;

e) means for distributing the stored records to at least one processor; and

f) means for generating a record of events for each customer use within a determined time period of the termination of the event.

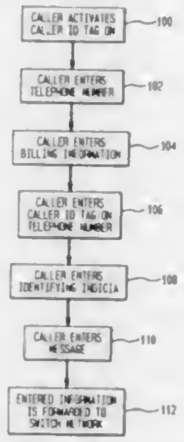
5,784,444
METHOD AND APPARATUS FOR PROVIDING PERSONAL CALLING IDENTIFICATION AT REMOTE LOCATIONS

John J. Snyder, Basking Ridge, and John Mark Mocenigo, Milford, both of N.J., assignors to Lucent Technologies Inc., Murray Hill, N.J.

Filed Dec. 1, 1994, Ser. No. 347,737

Int. Cl.^{6} H04M *1/56;15/00*

U.S. Cl. 379—142 **25 Claims**


CALLER ACTIVATES CALLER ID TAG ON
100
CALLER ENTERS TELEPHONE NUMBER
102
CALLER ENTERS BILLING INFORMATION
104
CALLER ENTERS CALLER ID TAG ON TELEPHONE NUMBER
106
CALLER ENTERS IDENTIFYING INDICIA
108
CALLER ENTERS MESSAGE
110
ENTERED INFORMATION IS FORWARDED TO SWITCH NETWORK
112

22. A telephone operable in a telecommunications system, said telephone comprising:

means for receiving both incoming calling line identification (ICLID) signals and incoming signals corresponding to a visually displayable message supplied by a user of a calling party telephone, and for extracting from said ICLID signals at least one number indicated by the user of the calling party telephone; and

display means for displaying said at least one number along with said visually displayable message.

5,784,445

Patent Not Issued For This Number

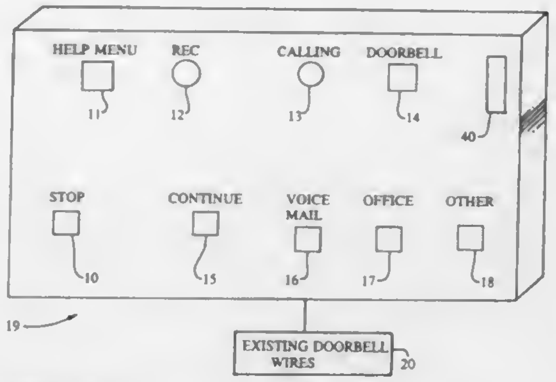
5,784,446
METHOD AND APPARATUS FOR INSTALLING TELEPHONE INTERCOM-VOICE MESSAGING APPARATUS AT DOORBELL FOR DWELLING

John C. Stuart, Peoria, Ariz., assignor to CMS Investors, Phoenix, Ariz.

Filed Nov. 1, 1996, Ser. No. 742,498

Int. Cl.^{6} H04M *1/60;9/00;1/64;1/00*

U.S. Cl. 379—167 **2 Claims**



1. A method for installing a doorbell response system in a dwelling, said dwelling including

a doorbell system including a doorbell button, a pair of wires connected to the doorbell button, and a doorbell connected to the wires, the wires carrying a selected current of less than about two amps and providing a voltage in the range of about eight to twenty-four volts, telephone lines,

a telephone jack connected to the telephone lines,

a telephone connected to the telephone lines and having an assigned telephone number utilized to call the telephone,

a voice mail system operatively associated with the telephone to take messages when the telephone is unanswered, and

a conventional 120 volt AC wall outlet,

said method including the steps of:

(a) providing a first auxiliary unit including

(i) an auxiliary doorbell button,

(ii) a speaker,

(iii) a microphone,

(iv) dialing means activated by a user for initiating the dialing of a telephone number, and

(v) first transmitter means for transmitting and receiving signals,

said auxiliary unit being powered by a current of less than about two amps and a voltage in the range of eight to twenty-four volts;

(b) providing a second auxiliary unit including

(i) plug means for connecting said second unit to the 120 volt AC wall outlet to receive electrical power,

(ii) a connector for connecting said second unit to the telephone outlet to enable a person to communicate via said microphone and speaker with another person speaking over said telephone lines,

(iii) means for eliminating for a selected period of time after the auxiliary door button is depressed the dial tone in the telephone lines so that a person may utilize said microphone and speaker to converse over the telephone lines with another person using the telephone in the dwelling,

(iv) means for dialing a number when said dialing means is activated by a user to initiate the dialing of the assigned telephone number, and

(v) second transmitter means for sending and receiving signals to and from said first transmitter;

(c) providing means mounted in at least one of said first auxiliary unit and said second auxiliary unit to

(i) eliminate for a selected period of time after the auxiliary door button is depressed the dial tone in the telephone lines so that a person may utilize said microphone and speaker to converse over the telephone lines with another person using the telephone in the dwelling, and

(ii) dialing a number when said dialing means is activated by a user to initiate the dialing of the assigned telephone number;

(d) disconnecting the wires from the doorbell button;

(e) removing the doorbell button;

(f) connecting the wires to said first auxiliary unit to power said first auxiliary unit and connecting said second auxiliary unit to the telephone jack and the 120 volt AC wall outlet such that

(i) depressing said auxiliary doorbell button actuates said doorbell and eliminates the dial tone when a person in the dwelling uses the telephone to speak via said second transmitter means and said first transmitter means over the microphone and to hear voice communication directed into the speaker by a user, and

(ii) said dialing means can be activated by a user to initiate via said first transmitter means and said second transmitter means the dialing of the assigned telephone number.

5,784,447
METHOD AND CIRCUIT ARRANGEMENT FOR ALLOWING TELEPHONE CONVERSATIONS AMONG SEVERAL USERS

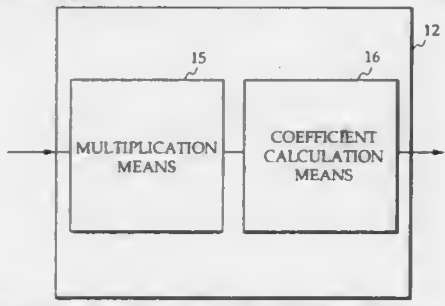
Antonio Rotunno, Salerno, Italy, assignor to Alcatel N.V., Rijswijk, Netherlands

Filed Dec. 18, 1995, Ser. No. 574,376

Claims priority, application Italy, Dec. 20, 1994, MI94 A 002564

Int. Cl.^{6} H04M *3/56;* **H04Q** *11/04*

U.S. Cl. 379—202 **5 Claims**



1. A method for allowing telephone conversations among several users in a digital switched telephone system, said method comprising the steps of:

a) receiving samples of a speech signal of each one of said users, said samples being non-linearly encoded;

b) converting said non-linearly encoded samples into linearly encoded samples;

c) processing said linearly encoded samples to thereby generate processed linearly encoded samples;

d) summing said processed linearly encoded samples over said several users to obtain a sum of processed linearly encoded samples; and

e) converting said sum of processed linearly encoded samples into a non-linearly encoded sum of processed samples, characterized in that, to perform said processing, said linearly encoded samples are varied in level through multiplication thereof with a coefficient which is calculated for each user and which is inversely proportional to the level of said speech signal received from said user.

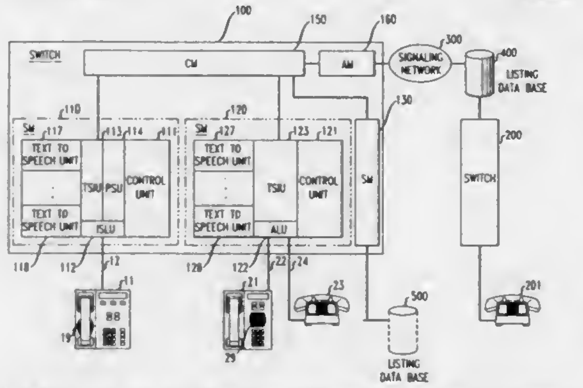
5,784,448
ADVANCED CALL WAITING PROCESSING

Rhoda Yaker, Annandale, N.J., assignor to Lucent Technologies Inc., Murray Hill, N.J.

Filed Sep. 30, 1996, Ser. No. 722,706

Int. Cl.^{6} H04M *3/42;3/56;1/57;15/06*

U.S. Cl. 379—215 **13 Claims**



1. A method for use in connection with call waiting service when a called subscriber is already connected on a first telephone call, the method comprising the steps of:

receiving from a calling party a second telephone call destined for said called subscriber;

determining that said called subscriber is already connected on a first telephone call,

supplying an indication to said called subscriber that said second telephone call is being received;

receiving an indication from said called subscriber, while said called subscriber is still on said first telephone call, that said called subscriber wishes to establish a conference telephone connection with said calling party and another party with whom said called subscriber is connected to on said first telephone call; and

establishing a voice telephone conference connection between said called subscriber, said calling party and said other party;

wherein said voice conference connection is established without placing said other party on hold and further wherein said calling party is automatically notified that said conference is being established prior to its establishment, said notification including an indication of the identity of said other party.

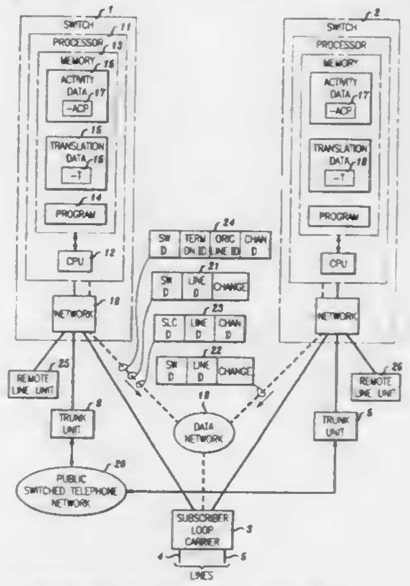
5,784,449
TELECOMMUNICATIONS NETWORK FOR SERVING USERS FROM TWO SWITCHES

Menachem Tsur Ardon, Naperville, Ill., assignor to Lucent Technologies Inc., Murray Hill, N.J.

Filed Dec. 5, 1995, Ser. No. 567,760

Int. Cl.^{6} H04M *7/00;3/22*

U.S. Cl. 379—230 **5 Claims**



2. A telecommunications network comprising:

two switching systems;

at least one SLC (Subscriber Loop Carrier) system connected to both switching systems for serving a plurality of terminals; and

a data network for transmitting control messages between the two switching systems;

wherein all calls incoming to or originating in either of the two switching systems can be completed to any of said plurality of terminals served by said SLC system;

wherein all calls originated by any of a plurality of terminals served by said SLC system can be served by either of the two switching systems;

wherein identical translation data for terminals served by said SLC system is maintained in each of said switching systems; and

wherein changes in the supervisory state of lines by said SLC system and either of said switching systems are transmitted to the other of said switching systems.

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5,784,450

METHOD OF ESTABLISHING A CONNECTION TO A SUBSCRIBER THROUGH A FIRST NETWORK, AS WELL AS SERVICE COMPUTER, SWITCHING FACILITY, AND TERMINAL

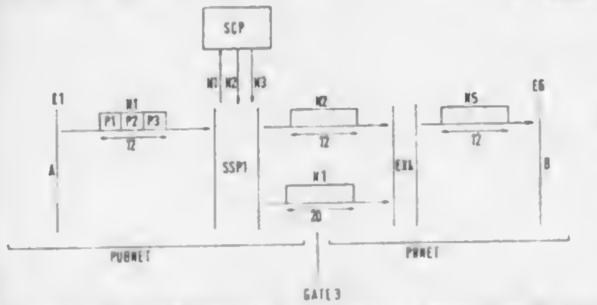
Uwe Stabl, Leonberg, Germany, assignor to Alcatel SEL Aktiengesellschaft, Stuttgart, Germany

Filed Apr. 6, 1995, Ser. No. 418,067

Claims priority, application Germany, Apr. 8, 1994, 44 12 104.0

Int. Cl.^{6} H04M *7/00*

U.S. Cl. 379—233 **20 Claims**



1. A method of establishing a connection to a subscriber (B; B'), characterized in that the method comprises the steps of:
- during the establishment of the connection, transmitting a first part (N2, N2') of the call number (N4) assigned to the subscriber (B; B') from a first network (PUBNET) to a second network (PRNET) by a method used to signal address information, and
- transmitting a second part (N3, N3') of the call number (N4) to the second network (PRNET) by a different method.

5,784,451

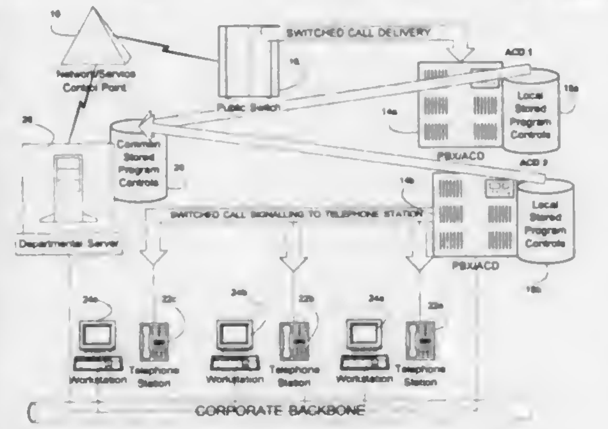
VIRTUAL TELEPHONY DATA MESSAGE SYSTEM AND PROCESS

Ulysses Grant Smith, Jr., Hillside, N.J., assignor to Cogito Economic Systems, Inc., Hillside, N.J.

Filed Apr. 3, 1996, Ser. No. 626,986

Int. Cl.^{6} H04M *3/00;3/42;7/00*

U.S. Cl. 379—265 **20 Claims**



1. A system for facilitating the transmission of telephony communications data between a message source and a plurality of communication stations, comprising:

a. at least one switching system having a plurality of connection switches coupled with said message source, and containing a local stored program control module for monitoring the status of said connection switches therein;
   - each of said communication stations being coupled with at least one of said connection switches;
   - said connection switches being able to connect selected ones of said communication stations with said message source; and

b. a common stored program control module coupled with said local stored program module in said at least one switching system;
   - said common stored program control module residing within a server for receiving information regarding said connection switches from said local stored program module and providing instructions to a network/service control point for selectively connecting said message source to at least one of said communication stations.

5,784,452

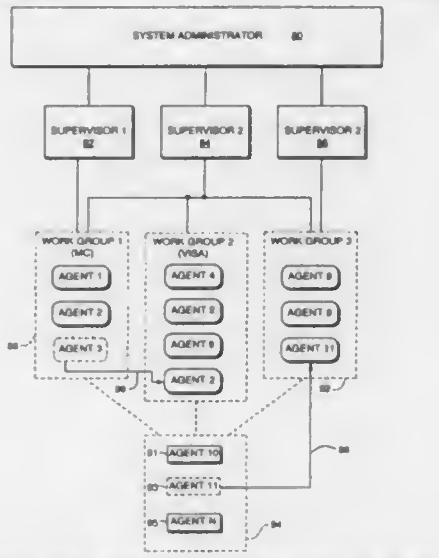
TELEPHONY CALL CENTER WITH AGENT WORK GROUPS

Michael S. Carney, Lowell, Mass., assignor to Davox Corporation, Del.

Continuation-in-part of Ser. No. 619,164, Mar. 21, 1996, Pat. No. 5,592,543, which is a continuation of Ser. No. 252,121, Jun. 1, 1994, abandoned. This application Apr. 18, 1996, Ser. No. 634,472

Int. Cl.^{6} H04M *3/00*

U.S. Cl. 379—265 **15 Claims**



1. A telephony call center management system including:
- a plurality of agent workstations, each of said plurality of agent work stations for use by an agent;
- at least one agent work group assignor, for assigning an agent from at least one of said plurality of agent workstations to at least one predetermined agent work group;
- at least one agent supervisor workstation, for use by at least one agent supervisor;
- at least one agent supervisor work group assignor, for assigning an agent supervisor at said at least one agent supervisor workstation to supervise said at least one predetermined agent work group;
- a telephony resource server, coupled to said plurality of agent workstations, for handling at least one telephone call over at least one telephone trunk line; and
- a telephony resource server controller, responsive to said assignment of said at least one agent to said predetermined agent work group by said at least one work group assignor and to said assignment of said supervisor to said at least one predetermined agent work group by said at least one agent supervisor work group assignor, for allowing said at least one supervisor to at least view telephony call center statistics on said at least one agent assigned to said at least one predetermined agent work group, and for allowing said agent supervisor at said agent supervisor workstation to assign at least one unassigned agent to said at least one predetermined agent work group to which said agent supervisor is assigned.

5,784,453

MULTIPLE OWNER RESOURCE MANAGEMENT

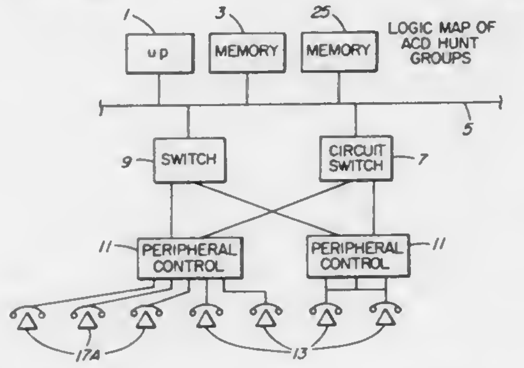
Paul Erb, Ottawa, and Danny Normand Prairie, Kanata, both of Canada, assignors to Mitel Corporation, Kanata, Canada

Filed Nov. 4, 1996, Ser. No. 743,346

Claims priority, application Canada, Jul. 11, 1996, 2181009

Int. Cl.^{6} H04M *3/00;3/42;* **H04Q** *3/64*

U.S. Cl. 379—265 **7 Claims**



1. A method of management of resources in a multiple process system comprising:
- (a) providing an owner list of resource identities (resources),
- (b) storing in said owner list the identity of at least one process (process) with a resource which the at least one process has a right to operate, and
- (c) allowing only a process listed with a resource to use the resource.

5,784,454

ARRANGEMENT FOR COMMUNICATION WITH A SUBSCRIBER

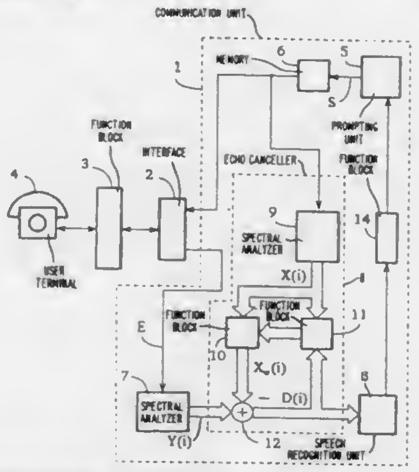
Peter Patrick, Nürnberg; Hans-Wilhelm Rühl, Röthenbach/Pegnitz, and Stefan Dobler, Neukirchen am Brand, all of Germany, assignors to U.S. Philips Corporation, New York, N.Y.

Filed Jul. 27, 1995, Ser. No. 508,285

Claims priority, application Germany, Jul. 30, 1994, 42 27 124.7

Int. Cl.^{6} H04M *9/00*

U.S. Cl. 379—406 **9 Claims**



1. An arrangement, comprising:
- signal transmission means for sending transmission signals to a subscriber;
- spectral analysis means for receiving signals including subscriber speech signals generated by the subscriber and having superimposed thereon echoes of the transmission signals, and for producing short-time spectral values of the subscriber speech signals having superimposed thereon the echoes of the transmission signals;
- echo cancelling means for estimating short-time spectral values of the echoes and for producing difference values between the short-time spectral values of the received signals and the estimated short-time spectral values of the echoes; and
- speech recognition means for evaluating the difference values.

5,784,455

METHOD AND APPARATUS FOR ECHO COMPENSATOR CONNECTION FOR TELEPHONE CONNECTIONS

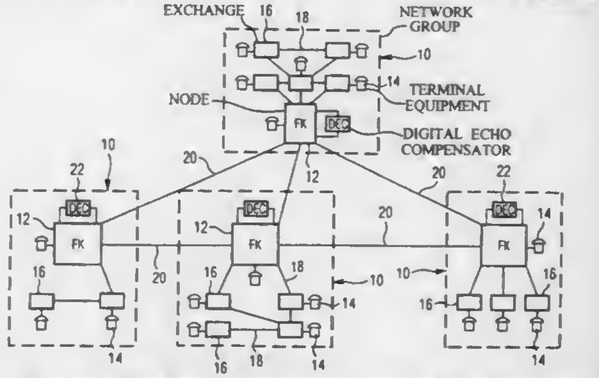
Helmut Edlinger, Neuried, and Hans-Peter Mueller, Munich, both of Germany, assignors to Siemens Aktiengesellschaft, Munich, Germany

Filed May 2, 1996, Ser. No. 641,727

Claims priority, application Germany, May 12, 1995, 195 0170 574.3

Int. Cl.^{6} H04M *9/00*

U.S. Cl. 379—410 **8 Claims**



1. A method for echo compensator connection for telephone connections in a telecommunication network having a plurality of network groups, each of said network groups having at least one remote node and having a plurality of subscriber stations that are connected to the remote node via network group lines, comprising the steps of:
- configuring each network group of the plurality of network groups such that maximum signal running times occurring within a respective network group require no echo compensation, remote nodes of various network groups of the plurality of network groups being connected to one another by long-distance trunks; and
- looping echo compensators between remote nodes of an originating network group of the plurality of network groups and remote nodes of a destination network group of the plurality of network groups given a call setup of a telephone connection between originating and destination network groups.

5,784,456

SINGLE-LINE MULTI-HANDSET TELEPHONE

Kevin J. Carey, Evanston, Ill., and Mark Myers, Tucson, Ariz., assignors to CyraCom International, Inc., Tucson, Ariz.

Filed Jun. 29, 1995, Ser. No. 496,536

Int. Cl.^{6} H04M *1/00*

U.S. Cl. 379—419 **15 Claims**

1. A multi-handset telephone for permitting at least two users who speak different languages to converse face-to-face using the telephone to contact a selected interpreter comprising:
- a base which includes circuitry means for communicating with an external telephone line, ringing means for signaling when an incoming call is received, a plurality of cradle means for holding a plurality of handsets and a plurality of handset ports corresponding to said plurality of cradle means;
- a plurality of handsets positionable upon said plurality of cradle means and being connected to said base by a corresponding plurality of handset cords that permit a plurality of users in

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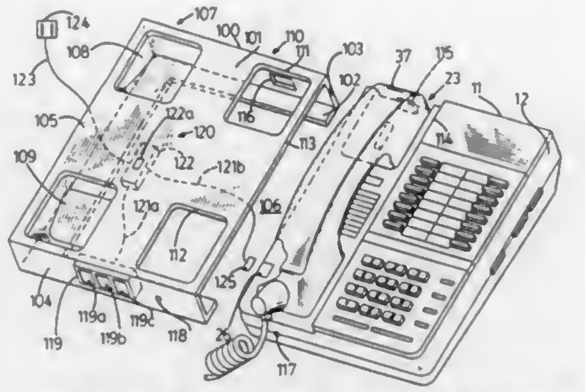


close proximity to speak over the plurality of handsets in a face-to-face situation;

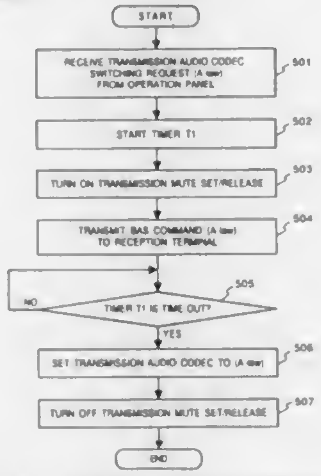
means for selecting and contacting one of a number of off-sight interpreters for providing interpretation services to said plurality of users using said plurality of handsets from said telephone so that said plurality of persons can personally communicate through use of said interpreter.

5,784,457
MULTIMEDIA COMMUNICATION APPARATUS AND METHOD WITH AUDIO CODEC SELECTION AND AUDIO MATING WHEN SETTING CODES

Yoshito Haba, Tokyo, Japan, assignor to Canon Kabushiki Kaisha, Tokyo, Japan

Filed May 18, 1993, Ser. No. 64,861
Claims priority, application Japan, May 25, 1992, 4-157582
Int. Cl.^{6} H04N *7/14*

U.S. Cl. 379—421 **18 Claims**


START
RECEIVE TRANSMISSION AUDIO CODEC SWITCHING REQUEST (A ...) FROM OPERATION PANEL
501
START TIMER T1
502
TURN ON TRANSMISSION MUTE SET/RELEASE
503
TRANSMIT BAS COMMAND (A ...) TO RECEPTION TERMINAL
504
NO
TIMER T1 IS TIME OUT?
505
YES
SET TRANSMISSION AUDIO CODEC TO (A ...)
506
TURN OFF TRANSMISSION MUTE SET/RELEASE
507
END

7. A communication apparatus which communicates audio information with an external device, comprising:

a plurality of coding means for coding transmitting audio information by a different coding mode in each of said plurality of coding means;

determining means for determining which one of the plurality of coding means to be used in order to code the transmitting audio information;

generating means for generating data representing a type of the coding means determined by said determining means;

sending means for sending the data representing the type of the coding means to the external device;

timer means for timing a predetermined time period after sending the data representing the type of the coding means by said sending means;

first setting means for setting the coding means determined by said determining means after a lapse of the predetermined time period, to code the transmitting audio information, in accordance with a determination by said determining means;

first muting means for muting outputs of the plurality of coding means at least while sending the data representing the type of the coding means by said sending means and while setting the coding means by said setting means;

a plurality of decoding means for decoding received audio information by using a different decoding mode in each of said plurality of decoding means;

second setting means for setting the decoding means so as to determine which one of the plurality of decoding means to be used in accordance with the data representing the type of the coding means sent by said sending means; and

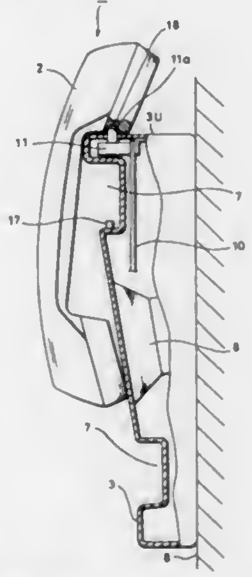
second muting means for muting the received coded audio information while setting said decoding means by said second setting means.

5,784,458
TELEPHONE HAVING A HOLD FUNCTION

Shizuo Adachi, Kanagawa; Junko Hirata, and Hiroshi Miyamoto, both of Chiba, all of Japan, assignors to Sony Corporation, Tokyo, Japan

Continuation of Ser. No. 347,015, Nov. 30, 1994, abandoned.
This application Mar. 14, 1997, Ser. No. 818,085
Claims priority, application Japan, Nov. 30, 1993, 5-300431
Int. Cl.^{6} H04M *1/00*

U.S. Cl. 379—435 **13 Claims**



1. A telephone comprising:

a telephone body including a front surface and a rear surface said rear surface, attached to a wall surface;

a handset;

a telephone network line hold means activated in response to a detected signal and for placing said telephone in a hold state or for releasing said telephone from said hold state, said telephone network line hold means including a detection means for detecting whether or not said handset is disposed on said telephone body at a position in which said telephone network line hold means is to be activated and for providing said detected signal; and

engagement means for preventing said handset from being dropped from said telephone body when said handset is disposed in the position in which said telephone network line hold means is activated, said engagement means including

a first engagement surface portion formed in said front surface and disposed substantially perpendicular to said wall surface and being contactable with a first portion of said handset, and

a second engagement surface portion formed in said front surface and inclined towards said wall surface and being contactable with a second portion of said handset,

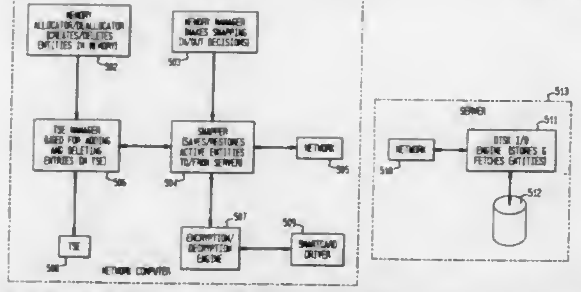
whereby when said first portion of said handset is in contact with said first engagement surface portion and said second portion of said handset is in contact with said second engagement surface portion, said handset is inclined toward said wall surface and is prevented from being dropped from said telephone body.

5,784,459
METHOD AND APPARATUS FOR SECURE, REMOTE SWAPPING OF MEMORY RESIDENT ACTIVE ENTITIES

Murthy Devarakonda, Briarcliff Manor; William H. Tetzlaff, Mount Kisco, and Deborra Jean Zukowski, Yorktown, all of N.Y., assignors to International Business Machines Corporation, Armonk, N.Y.

Filed Aug. 15, 1996, Ser. No. 698,540
Int. Cl.^{6} H04L *9/00;* **G06F** *12/12*

U.S. Cl. 380—4 **20 Claims**


501
MEMORY ALLOCATOR/DEALLOCATOR (CREATES/DELETES ENTITIES IN MEMORY)
502
MEMORY MANAGER (MAKES SWAPPING IN/OUT DECISIONS)
503
TSE MANAGER (USED FOR ADDING AND DELETING ENTRIES IN TSE)
506
SWAPPER (SAVES/RESTORES ACTIVE ENTITIES TO/FROM SERVER)
504
NETWORK
505
TSE
508
ENCRYPTION/DECRYPTION ENGINE
507
SMARTCARD DRIVER
509
NETWORK COMPUTER
SERVER
513
NETWORK
510
DISK I/O ENGINE (STORES & FETCHES ENTITIES)
511
512

1. A method for swapping memory resident entities in a virtual memory of a computing system wherein a virtual memory management system performs the steps of:

detecting when a memory resident entity needs to be swapped out of the virtual memory of the computing system;

in response to the detecting, determining whether the memory resident entity requires secure swapping;

when it is determined that the memory resident entity requires secure swapping, encrypting the memory resident entity to form an encrypted entity;

requesting transfer of the encrypted entity to a remote node by way of a communication interface; and,

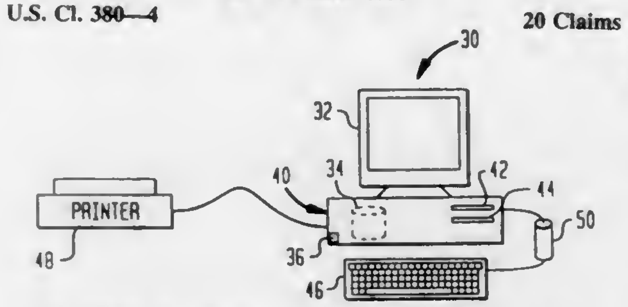
freeing memory locations previously occupied by the memory resident entity.

5,784,460
SECURED ELECTRONIC INFORMATION DELIVERY SYSTEM HAVING A THREE-TIER STRUCTURE

Michael S. Blumenthal, Hauppauge, N.Y.; Daniel J. Barthel, Seattle, Wash.; Bruce Newman, St. James, and Brenda S. Newman, Lake Grove, both of N.Y., assignors to ProtoCall Technolgies, Inc., Commack, N.Y.

Filed Oct. 10, 1996, Ser. No. 720,968
Int. Cl.^{6} H04L *9/00*

U.S. Cl. 380—4 **20 Claims**



1. A system for retrieving a selected one of a plurality of encrypted software products stored in at least one storage device, each of said software products being decryptable by a unique decryption key, comprising:

a end-user station, coupled to said at least one storage device, having unique serial number and a processor responsive to an application program stored therein, wherein a user can select one of said software products to decrypt, each of said software products being decryptable only upon receipt of the corresponding unique decryption key;

a remote vender station, coupled to said end-user station via a network to receive a request for the decryption key corresponding to the selected software product and said serial number from said end-user station, said vender station having a unique password; and

a remote server, coupled to said vender station via a network when said password transmitted from said vender station is validated, which receives a request for said decryption key corresponding to the transmitted selected software product and said serial number, said server providing said decryption key to said vender station based on said selected software product and said serial number,

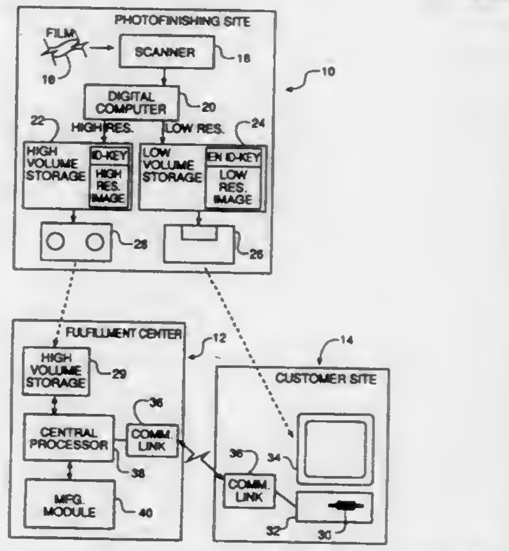
wherein said server transmits the provided decryption key to said vender station via said network and subsequently, said vender station transmits said provided decryption key to said end-user station via said network, so that said application program can decrypt said selected software product based on said decryption key.

5,784,461
SECURITY SYSTEM FOR CONTROLLING ACCESS TO IMAGES AND IMAGE RELATED SERVICES

Stephen L. Shaffer, Penfield, and Kevin Arnold Townsend, Brockport, both of N.Y., assignors to Eastman Kodak Company, Rochester, N.Y.

Filed May 23, 1996, Ser. No. 653,737
Int. Cl.^{6} H04L *9/00*

U.S. Cl. 380—21 **7 Claims**



1. A secure method for granting customer access to images and image related services at an image fulfillment center, comprising the steps of:

a) scanning a customer film image to generate high and low resolution digital versions of the image;

b) appending a unique ID and associated security key to the high resolution version of the image and storing the appended image at the fulfillment center;

c) encrypting the ID with a shared encryption key and appending the encrypted ID and the security key to the low resolution version of the image and sending the appended low resolution image to the customer;

d) using the security key to encrypt a request for services relating to the high resolution version of the image and sending the encrypted ID with the encrypted request to the fulfillment center;

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- e) decrypting the ID using the shared encryption key at the fulfillment center and using the decrypted ID to retrieve the appended high resolution version of the image; and
- f) retrieving the security key from the appended high resolution version of the image and employing the retrieved security key to decrypt the request for services.

5,784,462
DIGITAL SIGNAL RECEIVER CAPABLE OF RECEIVING DATA ENCRYPTED AND TRANSMITTED IN ONLINE PROCESSING

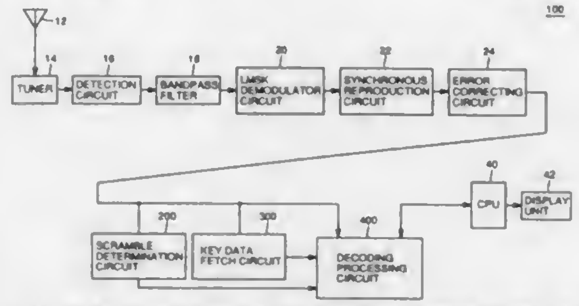
Yoshikazu Tomida; Tatsuo Hiramatsu, both of Osaka; Kazuhiro Kimura, Saitama; Shigeaki Hayashibe, and Toshiyuki Ozawa, both of Gunma, all of Japan, assignors to Sanyo Electric Co., Ltd., Osaka, Japan

Filed Aug. 22, 1996, Ser. No. 700,773

Claims priority, application Japan, Aug. 28, 1995, 7-218884; Aug. 28, 1995, 7-218920; Aug. 29, 1995, 7-220451; Aug. 29, 1995, 7-220452

Int. Cl.^{6} H04L *9/08;9/00*

U.S. Cl. 380—21 **20 Claims**



1. A digital signal receiver for receiving transmit data, in a communication system for transmitting said transmit data comprising a plurality of packets each having a second prescribed bit length, each packet including encoded information data of a first prescribed bit length being divided into a plurality of blocks, each said packet including a plurality of specific data indicating the attributes of said packet and said encoded information data in first and second areas respectively, said digital signal receiver comprising:

demodulation means for receiving transmitted said transmit data and demodulating the same to a corresponding digital signal;

key data fetch means for receiving an output of said demodulation means and extracting master key data from a prescribed said packet among said plurality of packets including said encoded information data;

decoding processing means for performing decoding processing on said encoded information data for every corresponding said packet on the basis of at least one specific data being included in every said packet and said master key data; and

data operation means for receiving an output of said decoding processing means and extracting said divided information data from said plurality of packets for structuring and outputting the same as said information data.

5,784,463
TOKEN DISTRIBUTION, REGISTRATION, AND DYNAMIC CONFIGURATION OF USER ENTITLEMENT FOR AN APPLICATION LEVEL SECURITY SYSTEM AND METHOD

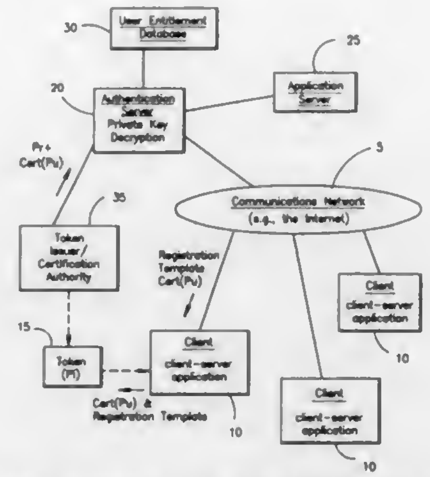
James F. Chen, and Jieh-Shan Wang, both of Potomac, Md., assignors to V-ONE Corporation, Germantown, Md.

Filed Dec. 4, 1996, Ser. No. 760,414

Int. Cl.^{6} H04L *9/08;9/30;9/32;9/00*

U.S. Cl. 380—21 **26 Claims**

21. A system of distributing a shared secret key for use in a token authentication system, comprising:


30
User Entitlement Database
25
Application Server
20
Authentication Server
Private Key Decryption
Pr + Cert(Pu)
5
Communications Network
(e.g., the Internet)
35
Token Issuer/ Certification Authority
Registration Template Cert(Pu)
Client
client–server application
10
15
Token (PI)
Cert(Pu) & Registration Template

- a. means for distributing to a user an authentication token;
- b. means for distributing to the user a server public key;
- c. means for causing a client computer to retrieve the server public key, generate a first portion of the shared secret key and store the first portion of the shared secret key;
- d. means for causing the client computer to encrypt the first portion of the shared secret key together with user identification information and transmit the encrypted first portion of the shared secret key and user identification information to a server;
- e. means for causing the server to recover the first portion of the shared secret key and user identification information;
- f. means for causing the server to generate a second portion of the shared secret key;
- g. means for causing the server to generate a user identification code based on the user identification information;
- h. means for causing the server to form the shared secret key by combining the first and second portions of the shared secret key;
- i. means for causing the server to encrypt the user identification code and the second portion of the shared secret key using the first portion of the shared secret key as an encryption key, and transmitting the encrypted user identification code and second portion of the shared secret key to the client computer;
- j. means for causing the client computer to recover identification code and the second portion of the shared secret key using the stored first portion of the shared secret key;
- k. means for causing the client computer to form the shared secret key by combining the first and second portions of the shared secret key.

5,784,464
SYSTEM FOR AND METHOD OF AUTHENTICATING A CLIENT

Ryota Akiyama; Akio Munakata; Yuzuru Koga, and Masayuki Ishizaki, all of Kawasaki, Japan, assignors to Fujitsu Limited, Kawasaki, Japan

Filed Jan. 31, 1996, Ser. No. 594,895

Claims priority, application Japan, May 2, 1995, 7-108408

Int. Cl.^{6} H04L *9/00;* **H04K** *1/00*

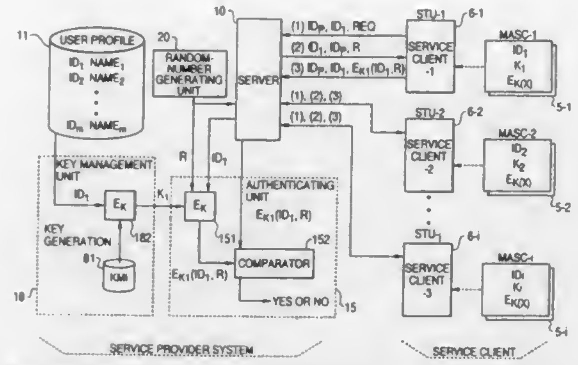
U.S. Cl. 380—25 **8 Claims**

1. A system for authenticating a client in a data distributing system having a data supplying apparatus for holding data and a client receiving the data distributed via a communication interface from said data supplying apparatus, said data supplying apparatus comprising:

a key outputting unit for outputting a first key generated by processing identification data intrinsic to each said client;

random-number generating means for generating a random number in response to an access request from said client;

first encrypting means for encrypting the random number and the identification data with said first key and thereby outputting a first authenticator;



first transmitting means for transmitting the random number to said client;

first receiving means for receiving a second authenticator from said client; and

comparing means for comparing the first and second authenticators with each other and, if the two authenticators are coincident with each other, authenticating the access request from said client;

said client comprising:

identification data holding means for holding an identification data intrinsic to said client;

access requesting means for making an access request to said data supplying apparatus with said identification data;

second receiving means for receiving the random number transmitted from said data supplying apparatus;

key holding means for bolding a second key identical with said first key;

second encrypting means for encrypting the random number and said identification data with the second key and thereby outputting the second authenticator; and

second transmitting means for transmitting the second authenticator to said data supplying apparatus.

5,784,465
STEREO RECEIVER

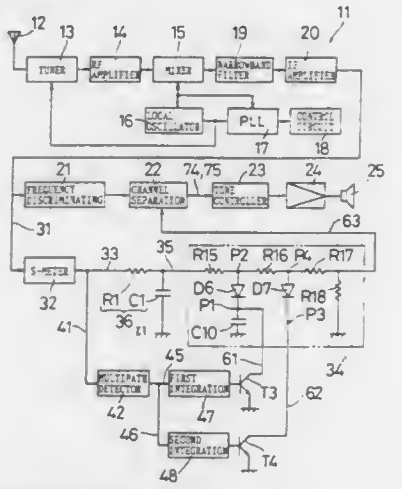
Akihiro Fujiwara, c/o Fujitsu Ten Limited, 2-28, Gosho-dori 1-chome, Hyogo-ku, Kobe-shi, Hyogo 652, Japan

Filed Aug. 30, 1996, Ser. No. 706,348

Claims priority, application Japan, Aug. 31, 1995, 7-224168

Int. Cl.^{6} H04H *5/00*

U.S. Cl. 381—10 **7 Claims**



1. A stereo receiver comprising:

receiving means for receiving a signal;

demodulating means for demodulating a received signal in response to an output of the receiving means;

channel separating means for calculating an output of the demodulating means on the basis of a channel separation control signal, separating the demodulated received signal into sound signals for right and left channels at a channel separation which corresponds to a level of the channel separation control signal, and outputting the sound signals;

electric field strength detecting means for detecting an electric field strength of the received signal in response to the output of the receiving means and outputting the channel separation control signal which controls the channel separating means so that, as the electric field strength is lower, the channel separation is lower;

noise extracting means for extracting a noise signal from the received signal in response to the output of the receiving means;

noise density measuring means for measuring a noise density in response to the noise signal of the noise extracting means;

channel separation controlling means for outputting the channel separation control signal which controls the channel separating means in response to an output of the noise density measuring means so that, when the noise density is higher, the channel separation is lowered in a plurality of steps or continuously;

change-over means for supplying the channel separation control signal output from the electric field strength detecting means to the channel separating means when a noise is not extracted by the noise extracting means and supplying the channel separation control signal output from the channel separation controlling means to the channel separating means when the noise is extracted;

wherein the channel separating means sets the channel separation to a value which is less than a predetermined value when the noise signal is extracted and the noise density is not lower than a predetermined density, and

sets the channel separation to about 10 dB when the noise signal is extracted and the noise density is lower than a predetermined density;

the predetermined value being set to be a value at which a noise can be sufficiently reduced; and wherein

when a noise signal is not extracted from the received signal after the channel separating means is controlled so as to lower the channel separation, the channel separation controlling means performs a control so that the channel separation is made higher in order to be returned to an original value with a lapse of time; and

the time-change rate of the channel separation which is made higher with a lapse of time is set to be lower as the noise density is lower.

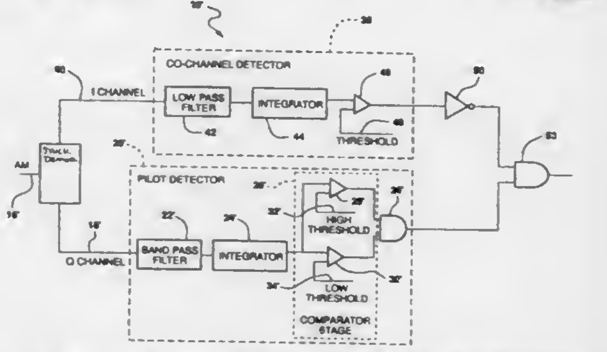
5,784,466
CO-CHANNEL INTERFERENCE DETECTOR

John Elliott Whitecar, and Richard Bruce Harris, both of Plymouth, Mich., assignors to Ford Motor Company, Dearborn, Mich.

Filed Jan. 16, 1997, Ser. No. 783,722

Int. Cl.^{6} H04H *5/00*

U.S. Cl. 381—15 **18 Claims**



1. An interference detection assembly for detecting interference generated from a plurality of signals received by a receiver having a single output signal, said interference detection assembly comprising:

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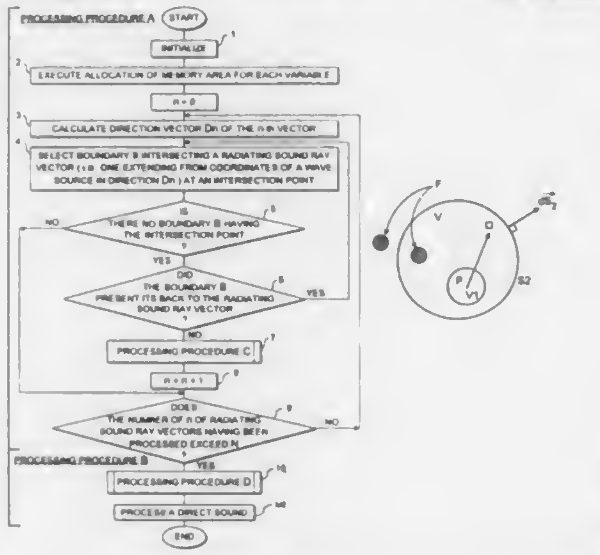
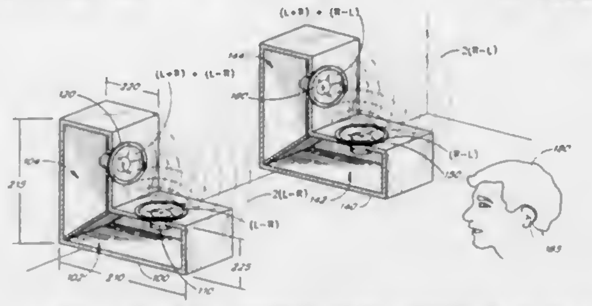
a synchronous demodulator having an input line electrically connected to the receiver to receive the single output signal therefrom, said synchronous demodulator modulating the single output signal to generate an intermediate frequency signal, said synchronous demodulator having a Q-channel output for transmitting a phase of the single output signal therefrom;
a pilot detector electrically connected to said Q-channel output to receive the phase of the output signal to detect interference;
said synchronous demodulator including an I-channel output; and
a co-channel detector electrically connected to said I-channel output to produce a co-channel interference output signal.

5,784,467
METHOD AND APPARATUS FOR REPRODUCING THREE-DIMENSIONAL VIRTUAL SPACE SOUND
Hiroshi Asayama, Tokyo, Japan, assignor to Kabushiki Kaisha Timeware, Tokyo, Japan
Filed Apr. 1, 1996, Ser. No. 626,632
Claims priority, application Japan, Mar. 30, 1995, 7-073658
Int. Cl.^{6} H04R *5/00*
U.S. Cl. 381—17 **18 Claims**


PROCESSING PROCEDURE A
START
INITIALIZE
EXECUTE ALLOCATION OF MEMORY AREA FOR EACH VARIABLE
n = 0
CALCULATE DIRECTION VECTOR Dn OF THE n-th VECTOR
SELECT BOUNDARY B INTERSECTING A RADIATING SOUND RAY VECTOR (i.e. ONE EXTENDING FROM COORDINATES OF A WAVE SOURCE IN DIRECTION Dn) AT AN INTERSECTION POINT
IS THERE NO BOUNDARY B HAVING THE INTERSECTION POINT ?
NO
YES
DID THE BOUNDARY B PRESENT ITS BACK TO THE RADIATING SOUND RAY VECTOR ?
YES
NO
PROCESSING PROCEDURE C
n = n + 1
DOES THE NUMBER OF n OF RADIATING SOUND RAY VECTORS HAVING BEEN PROCESSED EXCEED N ?
NO
PROCESSING PROCEDURE B
YES
PROCESSING PROCEDURE D
PROCESS A DIRECT SOUND
END
V
P
S2

1. A method for reproducing three-dimensional virtual space sound, wherein the wave of a sound, which is generated by a sound source at an arbitrary location in a three-dimensional virtual space that is defined by a plurality of arbitrarily set boundaries, is radiated to reproduce acoustics that affect a predetermined observation point, said method comprising the steps of:
representing a transient signal of said sound generated by said sound source by using a plurality of sound ray vectors that extend into said virtual space;
calculating a position on said boundaries at which each of said sound ray vectors that have advanced into said virtual space is reflected; and
calculating a velocity potential at which said transient signal at the reflection position reaches said observation point.

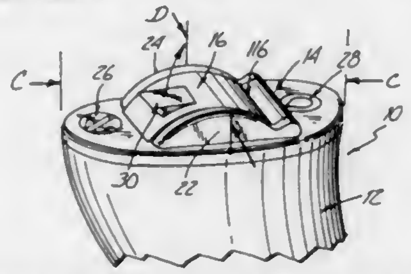
5,784,468
SPATIAL ENHANCEMENT SPEAKER SYSTEMS AND METHODS FOR SPATIALLY ENHANCED SOUND REPRODUCTION
Arnold I. Klayman, Huntington Beach, Calif., assignor to SRS Labs, Inc., Santa Ana, Calif.
Filed Oct. 7, 1996, Ser. No. 726,555
Int. Cl.^{6} H04R *5/00*
U.S. Cl. 381—24 **15 Claims**



1. A method for spatially enhanced sound reproduction in which audio speakers are located substantially at two locations whereas the sound experienced by a listener is perceived to emanate over a wide field and not from discrete locations, said method comprising the steps of:
radiating first sound waves having a sum component and a difference component so that said first sound waves are emanated from a generally vertical axis at a left-hand location;
radiating left difference sound waves so that said left difference sound waves are emanated from a generally horizontal axis at said left-hand location to acoustically combine with said first sound waves emanated from said vertical axis;
radiating second sound waves having a sum component and a difference component so that said second sound waves are emanated from a generally vertical axis at a right-hand location;
radiating right difference sound waves so that said right difference sound waves are emanated from a generally horizontal axis at said right-hand location to acoustically combine with said second sound waves emanated from said vertical axis.

5,784,469
Patent Not Issued For This Number

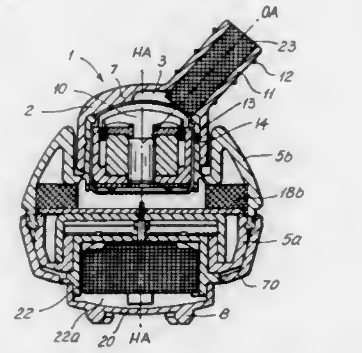
5,784,470
BATTERY DOOR AND FACEPLATE ARRANGEMENT FOR A COMPLETELY IN THE CANAL HEARING AID DEVICE
Ricky L. Fackler, White Bear, Minn.; Lester R. Iburg, Hudson, Wis., and Randolph R. Giller, Sebring, Fla., assignors to Resistance Technology, Inc., Arden Hills, Minn.
Filed Jun. 7, 1995, Ser. No. 476,857
Int. Cl.^{6} H04R *25/00*
U.S. Cl. 381—68.6 **17 Claims**



1. A hearing aid faceplate for use in assembly of a hearing aid, the hearing aid faceplate comprising:

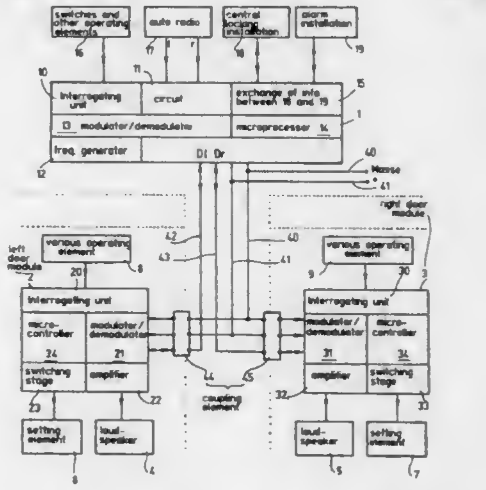
a plate including an elongated battery opening having opposed side walls and opposed end walls, wherein the plate includes a hole positioned adjacent to the battery opening where the battery opening is essentially tangential to the hole; and
a hinge pin extending between opposed side walls of the battery opening adjacent to and slightly spaced from one of said ends, said hinge pin having opposed ends formed integrally with said side walls of said battery opening, the ends of the hinge pin being flush with the battery opening side walls.

5,784,471
HEARING AID WITH AN ELECTRODYNAMIC ACOUSTIC TRANSDUCER
Wolf-Dietrich Bebenroth, Gross Hehlen, Germany, assignor to Sennheiser electronic GmbH & Co. KG, Wedemark, Germany
Filed Jul. 11, 1996, Ser. No. 678,333
Claims priority, application Germany, Jul. 15, 1995, 195 25 865.7
Int. Cl.^{6} H04R *25/00*
U.S. Cl. 381—69 **3 Claims**



1. In a hearing aid having an electrodynamic transducer, the improvement comprising:
a housing,
an ear tube, said ear tube having an interior portion for allowing sound waves generated by the electrodynamic acoustic transducer to be transmitted therethrough and being movably supported relative to said housing,
said ear tube having a distal opening adapted for communicating with an auditory canal the distal opening having a first axis substantially perpendicular to a plane defined by the distal opening and said electrodynamic transducer having an axis of rotation relative to said housing, said ear tube being positioned so that said first axis intersects said axis of rotation at a predetermined angle and at a location proximal to the distal opening: and
a loudness regulator, said loudness regulator comprising a base and a flap, said base providing a recess adapted to receive a battery for electrical connection and said flap being moveable relative to said base between open and locked states.

5,784,472
PROCESS AND CIRCUITRY FOR THE SUPPLYING OF LOUDSPEAKERS AND OTHER ELECTRICAL CONSUMERS IN VEHICLE DOORS WITH SIGNALS
Joachim Ney, Niefern; Norbert Normann, Niefern-Öschelbronn; Gunter Lothar Schulze, Ispringen, and Günther Uhl, Sinsheim, all of Germany, assignors to Doduco GmbH + Co. Dr. Dugene Durrwachter, Pforzheim, Germany
PCT No. PCT/EP93/01757, § 371 Date Mar. 23, 1995, § 102(e) Date Mar. 23, 1995, PCT Pub. No. WO94/01304, PCT Pub. Date Jan. 20, 1994
PCT Filed Jul. 7, 1993, Ser. No. 367,257
Claims priority, application Germany, Jul. 8, 1992, 42 22 321.0
Int. Cl.^{6} H04B *1/00*
U.S. Cl. 381—86 **21 Claims**



1. A process for supplying loudspeakers within vehicle doors with electric low frequency audio signals, and for supplying other electrical consumers within the vehicle doors with control signals and with electric power, which said control signals are generated within the vehicle but not within the doors thereof, comprising the steps of:
providing a common carrier signal;
modulating the audio and control signals onto said carrier signal, the modulation being performed within the vehicle but not within the doors;
transmitting the said modulated carrier signal over a data line into the doors;
separating in frequency, the audio signal from the control signals;
rectifying the carrier signal received within the door into a current source used for supplying the other electrical consumers provided in the door with electric power;
conducting the audio signals to the loudspeakers;
and conducting the control signals to the other consumers provided inside said door so that they are operated by the electric power in accordance with the received control signals.

5,784,473
SOUND SYSTEM
Bran Ferren, East Hampton, N.Y., assignor to Disney Enterprises, Inc., Burbank, Calif.
Filed Feb. 23, 1996, Ser. No. 609,769
Int. Cl.^{6} H04B *1/00*
U.S. Cl. 381—86 **24 Claims**

13. A sound system, comprising:
a left channel speaker representing a left channel of stereo sound and a right channel speaker representing a right channel of the stereo sound;
a speaker enclosure that is common to both speakers; and
a back rest that supports a human listener and that also forms a structural member of the speaker enclosure, the back rest having a central section that supports the listener, the speakers

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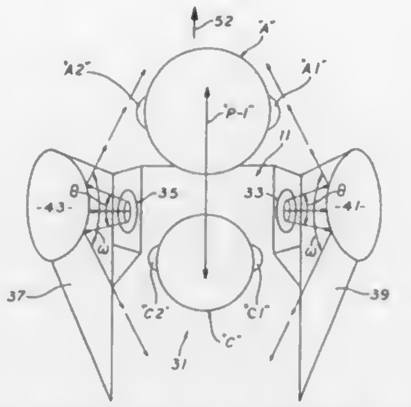


being mounted on either side of the central section to face generally away from each other, in a wing-back relationship; wherein the speakers are arranged within a distance relative to one another such that they mutually reinforce production of bass.

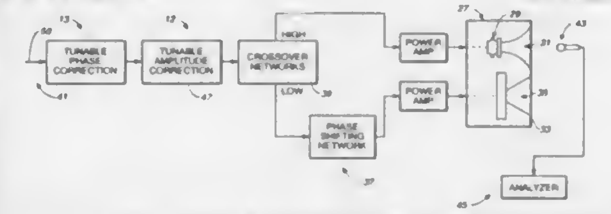
5,784,474
METHOD AND CIRCUIT FOR IMPROVING THE POLAR RESPONSE OF A TWO-WAY HORN-LOADED LOUDSPEAKER SYSTEM

Paul Kohut, Pacheco; Peter C. Soper, Albany, and John D. Meyer, Berkeley, all of Calif., assignors to Meyer Sound Laboratories Incorporated, Berkeley, Calif.

Filed Nov. 10, 1994, Ser. No. 337,637

Int. Cl.⁶ H03G *5/00*

U.S. Cl. 381—97 **11 Claims**



1. A correction circuit for improving the polar response of a loudspeaker system having at least two adjacent, forward-facing drivers designated a high frequency driver and a low frequency driver, and wherein said high frequency driver is horn-loaded, said correction circuit comprising

a high frequency channel and a low frequency channel connectable, respectively, to the horn loaded high frequency driver and the low frequency driver of said loudspeaker system,

a cross-over circuit operable over a cross-over frequency range and having an audio signal input, a high frequency channel output connected to said high frequency channel, and a low frequency channel output connected to said low frequency channel, said cross-over circuit acting to divide the frequency components of an audio input signal between said high frequency channel and low frequency channel for, respectively, driving said high frequency driver and low frequency driver,

an amplitude correction circuit connected in series with the audio signal input of said cross-over circuit for correcting the measured amplitude characteristics of the composite acoustical output of the horn loaded high frequency driver and the low frequency driver, and

a phase shifting network in said low frequency channel tuned to introduce phase shift in said low frequency channel in respect to said high frequency channel in the cross-over frequency range.

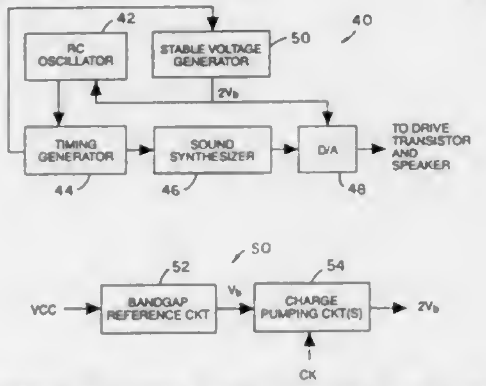
5,784,475
STABLE SOUND SYNTHESIZING CIRCUIT

Chi-Mao Huang, Dou-Liu; Yu-chih Lin, Taipei, and Tsung-min Chen, Hsin-Chu, all of Taiwan, assignors to United Microelectronics Corporation, Hsin-Chu, Taiwan

Filed Nov. 21, 1994, Ser. No. 342,552

Int. Cl.⁶ H03G *3/00*

U.S. Cl. 381—104 **4 Claims**



1. A battery-fed digital sound synthesizing circuit capable of producing a volume of sound, said sound synthesizing circuit comprising:

an RC oscillator for supplying a timing generator basic oscillating frequency,

the timing generator to transform said basic oscillating frequency into clock signals,

a sound synthesizer fed by said clock signals to synthesize sound by outputting sound numerical code data,

a digital/analog converter for converting said sound numerical code data into analog signals in order to drive a speaker outputting said sound volume, and

means for maintaining said basic oscillating frequency substantially constant and speed of playing back said sound volume substantially independent upon changes of voltage of said battery beyond a predetermined voltage range wherein said maintaining means includes a stabilized voltage generator for producing a stabilized reference voltage source to control said RC oscillator and said digital/analog converter, said stabilized voltage generator comprising a band-gap reference circuit connected to a charge pumping circuit.

5,784,476
AUDIO SIGNAL REPRODUCTION APPARATUS

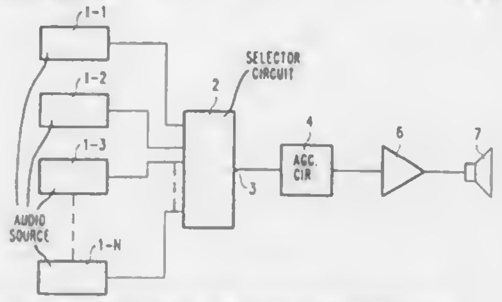
Neil C. Bird, Horley, England, assignor to U.S. Philips Corporation, New York, N.Y.

Continuation of Ser. No. 673,836, Jun. 27, 1996, abandoned. This application Sep. 19, 1997, Ser. No. 934,302

Claims priority, application United Kingdom, Jun. 30, 1995, 9513419

Int. Cl.⁶ H03G *3/00*

U.S. Cl. 381—107 **6 Claims**



1. Audio signal reproduction apparatus comprising:

input means for receiving an input audio signal;

amplifying means having an input coupled to said input means, and a control input for receiving a control signal for controlling a gain of said amplifying means;

monitoring means having an input coupled to said input means, said monitoring means monitoring an amplitude of the input audio signal;

gain control means having an input coupled to an output of said monitoring means, and an output coupled to the control input of said amplifying means, said gain control means generating said control signal for controlling the gain of the amplifying means in response to the amplitude of the input audio signal; and

output means coupled to an output of said amplifying means for supplying an output audio signal, wherein the monitoring means determines whether, at any given time, a value of the input audio signal amplitude exceeds a first reset value, whether said input signal amplitude value is below a second preset value which is less than said first preset value, or whether input signal amplitude value lies between the first and second preset values, and the gain control means is responsive to the monitoring means to cause the gain of the amplifying means to be set to a first value if the input audio signal amplitude value exceeds the first preset value for at least a given time period, to be set to a second value if the input audio signal amplitude value is between the two preset values for at least the given time period, and to be set to a third value if the audio input signal amplitude value is below the second preset value for at least the given time period.

5,784,477
SYSTEM FOR THE FRONTAL LOCALIZATION OF AUDITORY EVENTS PRODUCED BY STEREO HEADPHONES

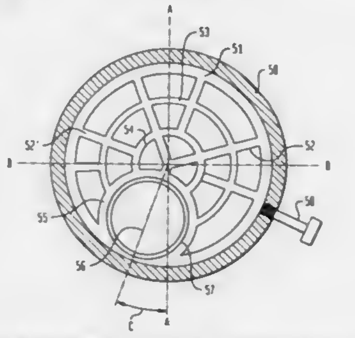
Florian Meinhard Konig, Schellenbergstrasse 7 D-82110, Germering, Germany

Continuation-in-part of Ser. No. 820,698, Mar. 20, 1992, abandoned. This application Oct. 10, 1995, Ser. No. 541,368

Claims priority, application Germany, Jul. 25, 1989, 39 42 127.9

Int. Cl.⁶ H04R *5/00*

U.S. Cl. 381—25 **11 Claims**



11. A method of frontally localizing auditory events produced by stereo headphones, the method comprising the steps of:

providing a pair of stereo headphones having a housing partly enclosing a sound conveying transducer;

positioning the housing over external ear relief of a user;

retaining the housing at a selected position over the external ear relief;

shifting said sound conveying transducer by a predetermined amount independent of the housing along a line of sight from a position at the external ear relief without affecting the position selected for the housing;

simultaneously shifting the sound conveying transducer by a second predetermined amount downwards from the line of sight by an amount greater than the distance shifted forward for transforming an above-in-the-head localization of the auditory event into a substantially horizontal frontally located auditory event.

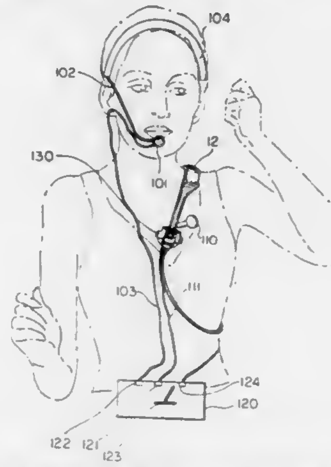
5,784,478
AUDIBLE ENVIRONMENT AWARENESS RESTORING DEVICE

Peter Untersander, Ecoteaux, Switzerland, assignor to Stanton Magnetics, Inc., Plainview, N.Y.

Continuation-in-part of Ser. No. 621,711, Mar. 28, 1996. This application Mar. 18, 1997, Ser. No. 819,739

Int. Cl.⁶ H04R *25/00*

U.S. Cl. 381—151 **13 Claims**



1. An audible environment awareness restoring device for allowing a person to feel an audible sound corresponding to a human voice, comprising:

a transducer for converting an electrical audio input signal into vibrations that vibrate in synchronism with the audio input signal;

a microphone for generating said electrical audio input signal;

a means for supporting said microphone;

a means for transmitting said electrical audio input signal generated by said microphone to said transducer; and

a mounting means for positioning said transducer against a person's sternum so that said transducer lies flat against said sternum with enough pressure and with enough dampening to allow said vibrations from said transducer to be transmitted to said person's rib cage without interference from any movements from said person and to cause said rib cage to resonate in synchronism with said vibrations from said transducer, said mounting means comprising:

a retaining ring which holds said transducer and which has two holes on opposite sides of said retaining ring; and

a clip which has a top, a back and two front arms on either side of said clip where said back extends downwardly from said top, where said two front arms extent downwardly from said top and parallel to said back, and where said two front arms have pivot rods that slip into said boles on said opposite sides of said retaining ring so that said retaining ring can rotate on said pivot rod ends and can better adjust itself to be able to lie flat against said person's sternum.

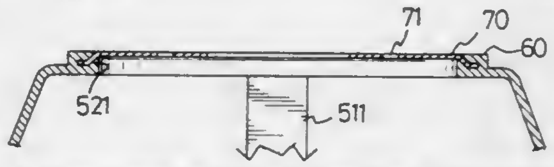
5,784,479
LOUDSPEAKER FRAME

Yu-ying Chen, 2nd Fl., No. 12 Lane 31, Shuiyuan Rd., Taipei, Taiwan

Filed Jun. 19, 1996, Ser. No. 663,874

Int. Cl.⁶ H04R *25/00*

U.S. Cl. 381—205 **1 Claim**



1. A molded loudspeaker frame comprising a body having a central bole, a flange concentric with said body, a plurality of ribs

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connected therebetween, and a metal disc securely retained on said body, the improvement comprising:

a circumferential recess defined in an inner periphery defining said central hole of said body for forming an integral peripheral shoulder for providing support for and abutting said metal disc, the periphery of said metal disc being received within said recess for securely embedding said disc within said body of said frame.

5,784,480

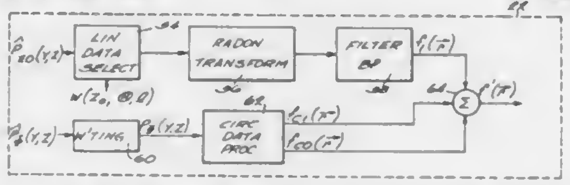
Patent Not Issued For This Number

5,784,481
CT CONE BEAM IMAGE RECONSTRUCTION WITH CIRCLE AND LINE SCAN PATH

Hui Hu, Waukesha, Wis., assignor to General Electric Company, Milwaukee, Wis.

Filed Jun. 25, 1996, Ser. No. 673,453
Int. Cl.⁶ G06K *9/00*

U.S. Cl. 382—131 **9 Claims**



1. In an imaging system wherein a source of cone beam radiation and a detector array are mounted for movement with respect to an object, a method for reconstructing an image of said object comprising the steps of:

establishing relative movement between said cone beam source and said object along a scan path comprising circular and linear components;

operating said cone beam source to irradiate said object during such movement to project cone beam data onto said detector array, said projected data comprising linear and circular data sets which respectively correspond to the linear and circular components of said scan path;

selecting a subset of data elements from said linear data set, each of said selected data elements being associated with a specified set of spatial parameters;

applying a Radon transform to each of said data elements in said selected subset to provide a first set of image reconstruction data;

selectively processing each of the data elements in the circular data set to provide a second set of image reconstruction data which collectively represents all the data elements in said circular data set; and

combining said first and second sets of image reconstruction data to provide an image of said object.

5,784,482
METHOD FOR REDUCING THE AMOUNT OF PROCESSING OF AN IRIS FILTER

Nobuyoshi Nakajima, Kanagawa-ken, Japan, assignor to Fuji Photo Film Co., Ltd., Kanagawa, Japan

Filed Jan. 23, 1996, Ser. No. 590,160
Claims priority, application Japan, Jan. 23, 1995, 7-042264; Apr. 10, 1995, 7-173594
Int. Cl.⁶ G06K *9/00*

U.S. Cl. 382—132 **28 Claims**

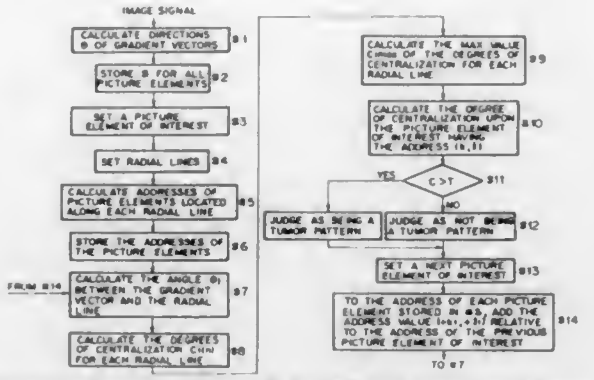


IMAGE SIGNAL
CALCULATE DIRECTIONS θ OF GRADIENT VECTORS #1
STORE θ FOR ALL PICTURE ELEMENTS #2
SET A PICTURE ELEMENT OF INTEREST #3
SET RADIAL LINES #4
CALCULATE ADDRESSES OF PICTURE ELEMENTS LOCATED ALONG EACH RADIAL LINE #5
STORE THE ADDRESSES OF THE PICTURE ELEMENTS #6
FROM #14
CALCULATE THE ANGLE θj BETWEEN THE GRADIENT VECTOR AND THE RADIAL LINE #7
CALCULATE THE DEGREES OF CENTRALIZATION Ci(n) FOR EACH RADIAL LINE #8
CALCULATE THE MAX VALUE Cimax OF THE DEGREES OF CENTRALIZATION FOR EACH RADIAL LINE #9
CALCULATE THE DEGREE OF CENTRALIZATION UPON THE PICTURE ELEMENT OF INTEREST HAVING THE ADDRESS (k,l) #10
C>T #11
YES
NO
JUDGE AS BEING A TUMOR PATTERN
JUDGE AS NOT BEING A TUMOR PATTERN #12
SET A NEXT PICTURE ELEMENT OF INTEREST #13
TO THE ADDRESS OF EACH PICTURE ELEMENT STORED IN #6, ADD THE ADDRESS VALUE (k+1, l+1) RELATIVE TO THE ADDRESS OF THE PREVIOUS PICTURE ELEMENT OF INTEREST #14
TO #7

1. An iris filter operation method, in which an image signal representing a radiation image of an object is obtained, the image signal being made up of a series of image signal components representing picture elements of the radiation image, and a tumor pattern is detected from the radiation image in accordance with the image signal, the method comprising the steps of:

1 for each picture element among all of the picture elements of the radiation image, calculating a gradient vector of the image signal,

2 setting a picture element of interest having an arbitrary address, said picture element of interest being among all of the picture elements of the radiation image,

3 setting a plurality of radial lines on the radiation image, said radial lines extending radially from said picture element of interest and being adjacent to one another at predetermined angle intervals,

4 calculating the address of each of the picture elements, which are located along each of said radial lines,

5 calculating an index value cos θj representing the degree of centralization of the gradient vector, which has been calculated for each picture element among all of the picture elements located along each of said radial lines and having the addresses calculated, upon said picture element of interest, said index value cos θj being calculated from an angle θj between said gradient vector, which has been calculated for said each picture element, and said each radial line,

6 calculating a mean value of the index values cos θj having been calculated for all of the picture elements, which are located along each of said radial lines and fall within the range from said picture element of interest, that is located on said each radial line, to a picture element, that is located at a length of distance falling within the range from a length of distance corresponding to the minimum size of the tumor pattern to be detected to a length of distance corresponding to the maximum size of the tumor pattern to be detected, a plurality of the mean values being thereby obtained for each of said radial lines,

7 finding the maximum value of said mean values, which have been obtained for each of said radial lines, calculating a total sum of the maximum values, which have been obtained for all of the plurality of said radial lines, and calculating a value of the degree of centralization of the gradient vector group with respect to said picture element of interest from said total sum,

8 comparing the value of said degree of centralization of the gradient vector group and a predetermined threshold value with each other,

9 in cases where the value of said degree of centralization of the gradient vector group is not smaller than a predetermined threshold value, judging that a range having its center at said picture element of interest and extending from said picture element of interest to the picture elements, which are associated with said maximum values of said mean values having been obtained for all of the plurality of said radial lines, is the tumor pattern, and

10 successively setting an address of a picture element of interest over all of the picture elements of the radiation image, repeating the processing of 3 to 9, the tumor pattern being thereby detected from the radiation image,

wherein the improvement comprises the steps of:

a) in an n'th processing from 3 to 9, wherein n=1, 2, . . . , storing the information representing the address of each of the picture elements, which are located along each of said radial lines, in an address storing means, the address having been calculated in the processing of 4,

b) calculating a relative address of each of the picture elements of interest, which are set for an n+1'th processing and those that follow in the processing of 10, with respect to the picture element of interest, which has been set in said n'th processing, and

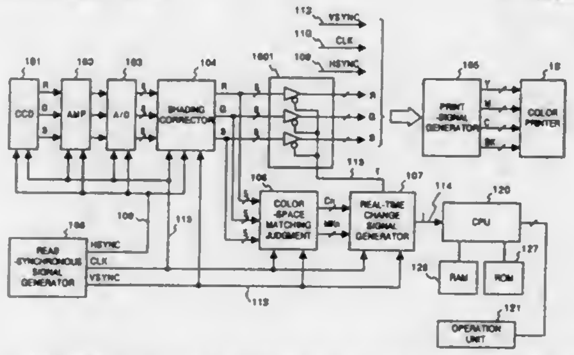
c) carrying out the address calculation of 4 in each of said n+1'th processing and those that follow by adding said calculated relative address to the address of each of the picture elements, which address has been stored in said address storing means.

5,784,483
IMAGE PROCESSING APPARATUS

Yoichi Takaragi, Yokohama, and Eiji Ohta, Fujisawa, both of Japan, assignors to Canon Kabushiki Kaisha, Tokyo, Japan

Continuation of Ser. No. 22,568, Feb. 25, 1993, abandoned. This application Dec. 13, 1994, Ser. No. 355,118
Claims priority, application Japan, Feb. 28, 1992, 4-043892
Int. Cl.⁶ G06K *9/00*

U.S. Cl. 382—135 **27 Claims**



1. An image processing apparatus having a specific image judging function, comprising:

judging means for performing the specific image judging function of judging similarity between an image represented by input image data and a specific image which is prohibited from being duplicated;

testing means for testing the specific image judging function of said judging means; and

mode setting means for setting said image processing apparatus to one of a first mode, in which said judging means performs an ordinary specific image judging operation, and a second mode, in which said judging means performs a test judging operation whereby said testing means tests the specific image judging function of said judging means, and

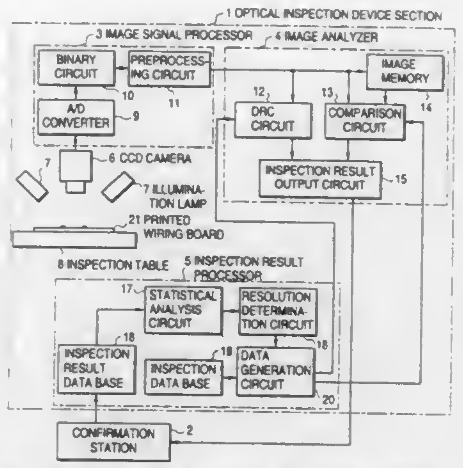
wherein said judging means, when said image processing apparatus is in said second mode, uses an original for testing which is different from the specific image, and which has color information which is similar to that of the specific image.

5,784,484
DEVICE FOR INSPECTING PRINTED WIRING BOARDS AT DIFFERENT RESOLUTIONS

Tadashi Umezawa, Tokyo, Japan, assignor to NEC Corporation, Tokyo, Japan

Filed Apr. 1, 1996, Ser. No. 625,222
Claims priority, application Japan, Mar. 30, 1995, 7-073112
Int. Cl.⁶ G06K *9/62*

U.S. Cl. 382—148 **4 Claims**



1. A pattern inspecting device for printed wiring boards, comprising:

image signal processing means for outputting a digital image signal after converting from an optical image of a printed wiring board in which a conductive wiring pattern is formed on an insulator substrate;

image analyzing means for inspecting quality by comparing said digital image signal with reference inspection data of a prescribed pixel resolution determined in advance and outputting detected defect data when defects are detected; and

a confirmation station that judges whether defects indicated by said detected defect data are actual defects or detected defects that are not actually defects but have been outputted as defects, and outputs defect data distinguishing actual defects from detected defects; and

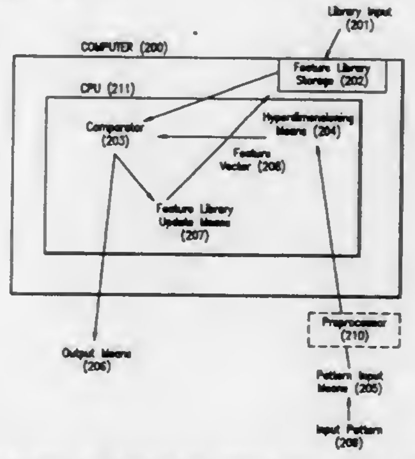
inspection result processing means for recording detected defects and actual defects outputted from said confirmation station to an inspection result data base, judging whether quality of manufacture of printed wiring boards under inspection has stabilized based on a statistical analysis of a defect occurrence ratio by referring to detected defect data and actual defect data of the inspection results data base, adjusting said pixel resolution according to the result of said judging, automatically preparing and outputting a new reference inspection data corresponding to the adjusted pixel resolution, and renewing said reference inspection data.

5,784,485
METHOD AND APPARATUS FOR AUTOMATED PATTERN RECOGNITION

Youguang Xu, 3164 W. Springs Dr., Apt. A, Ellicott City, Md. 21043, and Chein-I Chang, 3685 Gragsmoor Rd., Ellicott City, Md. 21042

Filed Aug. 25, 1994, Ser. No. 296,039
Int. Cl.⁶ G06K *9/62*

U.S. Cl. 382—156 **13 Claims**



1. A neural network system for pattern recognition, comprising:

storage means for storing a plurality of reference vectors, each of which is associated with a known pattern;

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input means for inputting a target pattern having n dimensions which is to be identified;

processing means for receiving said target pattern from said input means and processing said target pattern so as to generate a characteristic vector for said target pattern;

comparator means for comparing said characteristic vector with one or more of said reference vectors until a match has been found or until all of said reference vectors have been compared to said characteristic vector;

output means for outputting the result of a match between said characteristic vector and one or more of said reference vectors, or outputting the result that no match has been found;

digitizing means for converting the target pattern to a bitmap of cells; and

masking means for generating an additional dimension to the n-dimensional target pattern so as to create an n+1 dimensional hyperdimensioned target pattern by applying successive masking windows to said bitmap of the target pattern, assigning weights to each of the cells of the bitmap, said weights dependent on the degree of match between the cell being weighted and the successive masking windows.

5,784,486

Patent Not Issued For This Number

5,784,487

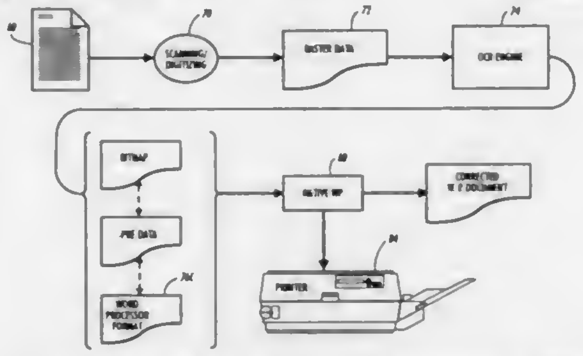
SYSTEM FOR DOCUMENT LAYOUT ANALYSIS

Robert S. Cooperman, Somerville, Mass., assignor to Xerox Corporation, Stamford, Conn.

Filed May 23, 1996, Ser. No. 652,766

Int. Cl.^{6} G06K *9/34*

U.S. Cl. 382—175 **9 Claims**



1. A document layout analysis method for determining document structure data from input data including the content and characteristics of regions of at least one page forming the document, the method including the steps of:

identifying particular types of sections within the page, wherein the step of identifying sections within the page further comprises the steps of

identifying rows and columns within a table,

Identifying headers and footers on a page, and

classifying the headers and footers based upon a horizontal location;

identifying captions, wherein the step of identifying captions further comprises identifying an association between a non-text region of the page and the caption identified; and

determining boundaries of at least one column on the page, wherein the step of determining boundaries of at least one column on the page further comprises the steps of

identification of text regions,

grouping of text regions on the page into sections,

grouping of the text regions within a section into the at least one column,

determining a column width for the at least one column on the page, and

determining, using the column width, the number of columns in each section.

5,784,488

IMAGE PROCESSING METHOD AND SYSTEM

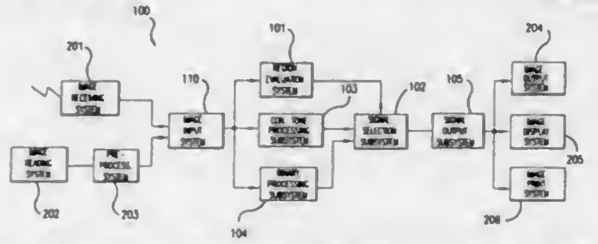
Naoki Kuwata, Nagano-ken, Japan, assignor to Seiko Epson Corporation, Tokyo, Japan

Filed Dec. 27, 1994, Ser. No. 364,830

Claims priority, application Japan, Dec. 24, 1993, 5-327647; Sep. 20, 1994, 6-225212

Int. Cl.^{6} H04N *1/40;* **G06K** *9/34;9/36;9/46*

U.S. Cl. 382—176 **19 Claims**



1. An image processing method for converting an input image having continuous tone regions and binary regions into a binary output image, comprising:

dividing the input image into a plurality of blocks;

extracting a plurality of different types of characteristic values for each block;

determining a block attribute for each block based on the extracted plurality of different types of characteristic values, the determined block attribute indicating whether the block is a continuous tone region or a binary region;

correcting, for at least one of the plurality of blocks, an erroneously determined block attribute erroneously determined by the block attribute determining step;

detecting whether a state transition occurs between the corrected block attributes of a current one of the plurality of blocks and surrounding blocks for each of the plurality of blocks;

selecting a conversion process for each block based on the determined block attribute, wherein the conversion process selecting step comprises:

selecting the conversion process based on the corrected block attribute of the current block when no state transition is detected by the state transition detecting step, and

selecting the conversion process based on the detected state transition when a state transition is detected;

converting each block to a binary image output block using the selected conversion process for each block; and

outputting the plurality of converted binary image output blocks as the binary output image.

5,784,489

APPARATUS AND METHOD FOR SYNTACTIC SIGNAL ANALYSIS

Eduardus J.W. Van Vliembergen, Venlo; Robertus P.E.H. Heemels, Roermond; Louis M.G. Cremers, Venlo; Frederik J. Hommersom, Venlo, and Jan Gerritsen, Nijmegen, all of Netherlands, assignors to Oce-Nederland, B.V., Venlo, Netherlands

Division of Ser. No. 562,787, Nov. 27, 1995, Pat. No. 5,550,934, which is a continuation of Ser. No. 196,570, Feb. 15, 1994, abandoned. This application Jul. 2, 1996, Ser. No. 674,732

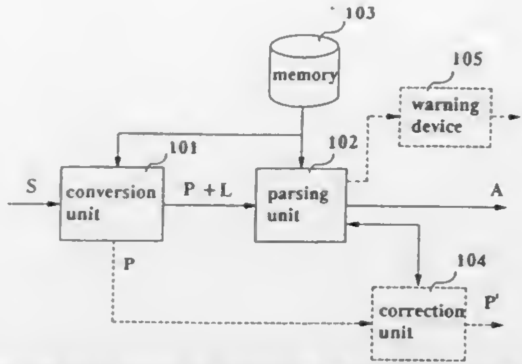
Claims priority, application Netherlands, Feb. 19, 1993, 9300310; European Pat. Off., Mar. 29, 1993, 93200893

Int. Cl.^{6} G06K *9/46*

U.S. Cl. 382—192 **16 Claims**

1. An apparatus for pattern recognition comprising:

a memory storing reference templates corresponding to all available alphanumeric characters;



identification means for identifying each group of pixels in an input stream as corresponding to one of the templates such that a recognized document is produced;

violation means, responsive to said identification means, for assigning a violation score to each identified group of pixels according to a degree of similarity between the identified group of pixels and the corresponding reference template; and

comparison means for comparing, in a situation where at least two groups of pixels have been identified as corresponding to a given template, the violation scores of the at least two groups of pixels corresponding to the given template; and

selection means for selecting, in said situation where said at least two groups of pixels have been identified as corresponding to said given template, one of the at least two groups of pixels having the lowest violation score to represent the given template in all instances in said recognized document for which a group of pixels has been identified as corresponding to said given template such that an appearance of a document generated from said recognized document is ameliorated.

5,784,490

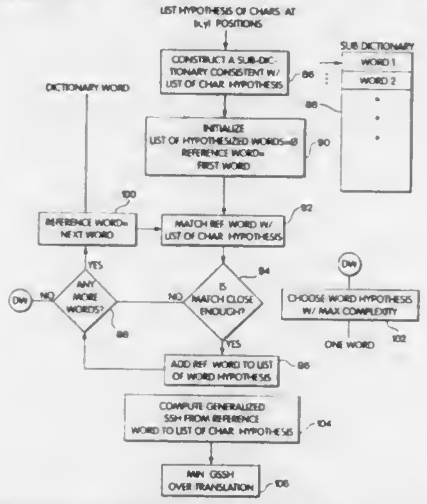
METHOD AND APPARATUS FOR AUTOMATED RECOGNITION OF TEXT EMBEDDED IN CLUTTERED OBSERVATIONS

Mohamad A. Akra, Beirut, Lebanon, and Sanjoy K. Mitter, Cambridge, Mass., assignors to Massachusetts Institute of Technology, Cambridge, Mass.

Continuation of Ser. No. 254,938, Jun. 7, 1994, Pat. No. 5,644,656. This application Dec. 12, 1996, Ser. No. 764,341

Int. Cl.^{6} G06K *9/62;9/46;9/66;9/68*

U.S. Cl. 382—215 **20 Claims**


LIST HYPOTHESIS OF CHARS AT (x,y) POSITIONS
CONSTRUCT A SUB-DICTIONARY CONSISTENT W/ LIST OF CHAR. HYPOTHESIS
86
SUB DICTIONARY
WORD 1
WORD 2
88
DICTIONARY WORD
INITIALIZE LIST OF HYPOTHESIZED WORDS=Ø REFERENCE WORD= FIRST WORD
90
100
REFERENCE WORD= NEXT WORD
MATCH REF WORD W/ LIST OF CHAR. HYPOTHESIS
92
YES
ANY MORE WORDS?
NO
DW
98
IS MATCH CLOSE ENOUGH?
94
NO
YES
DW
CHOOSE WORD HYPOTHESIS W/ MAX COMPLEXITY
ONE WORD
102
ADD REF. WORD TO LIST OF WORD HYPOTHESIS
96
COMPUTE GENERALIZED SSH FROM REFERENCE WORD TO LIST OF CHAR. HYPOTHESIS
104
MIN GSSH OVER TRANSLATION
106

1. Apparatus for recognizing alphanumeric characters within a sample, comprising:

(A) a data storage device for storing a plurality of first sets of data, each of the first sets of data is representative of a different alphanumeric character template and includes a plurality of data points which together define the shape of the template;

(B) a template applicator for:

receiving a second set of data which is representative of a sample to be recognized and which includes a plurality of data points which together define the shape of the sample,

applying each of the first sets of data to the second set of data solely in one direction according to an asymmetric function to identify each template shape which is included substantially within the sample shape, and

outputting a plurality of third sets of data, each of the third sets of data is representative of at least one of the template shapes identified as included substantially within the sample shape; and

(C) a template selector for:

receiving the third sets of data,

determining, solely in response to the third sets of data, which set of the third sets of data represents the template shape or shapes having the largest number of data points,

designating the set of the third sets of data having the largest number of data points as a fourth set of data representative of a recognized version of the sample, and

outputting the fourth set of data.

5,784,491

METHOD AND APPARATUS FOR CODING AND DECODING IMAGE DATA USING VECTOR QUANTIZATION

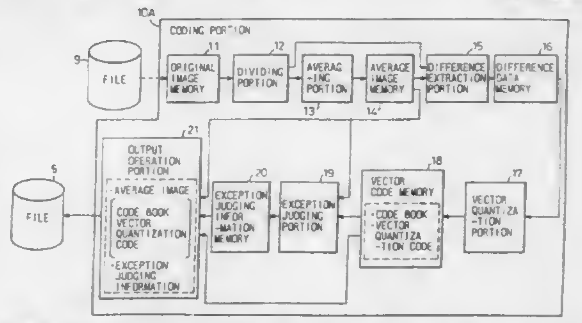
Yuzuru Koga, Kawasaki, Japan, assignor to Fujitsu Limited, Kawasaki, Japan

Filed Feb. 21, 1995, Ser. No. 391,566

Claims priority, application Japan, Feb. 18, 1994, 6-021301

Int. Cl.^{6} G06K *9/00;9/36;9/40;9/46*

U.S. Cl. 382—232 **18 Claims**



10. An apparatus for coding an original image by using vector quantization to produce a coded image and decoding the coded image at a high speed, comprising:

means for dividing the original image into blocks each containing a predetermined number of pixels;

means for extracting a difference between each block and a reference image corresponding thereto;

means for vector-quantizing the difference of each block and providing a vector quantization code for the block;

means for restoring the original image of each block according to the vector quantization code and the reference image of the block;

means for determining whether each block causes an overflow when it is restored;

means for preparing, for a first block that causes an overflow, exception judging information containing first data to indicate that an exceptional overflow process must be carried out when decoding the first block, and for a second block that causes no overflow, the exceptional overflow process is not needed when decoding the second block;

means for providing, as coded data for each block the vector quantization code, the reference image, and the exception judging information of the block;

means for decoding the vector quantization code contained in the coded data of each block, to provide the difference between the original image and the reference image of the block;

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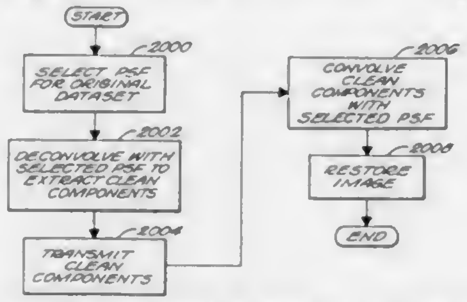
means for determining whether each block requires the exceptional overflow process according to the exception judging information contained in the coded data of the block;
means for restoring the original image of each block that requires no exceptional overflow process, by adding the difference to the reference image contained in the coded data of the block; and
means for restoring the original image of each block that requires the exceptional overflow process, by adding the difference to the reference image contained in the coded data of the block and carrying out the exceptional overflow process.

5,784,492
APPARATUS AND METHOD FOR DATA COMPRESSION WITH THE CLEAN TECHNIQUE

Nathan Cohen, Belmont, and Guido Sandri, Boston, both of Mass., assignors to Trustees of Boston University, Boston, Mass.

Filed Mar. 16, 1995, Ser. No. 404,884
Int. Cl.^{6} G06K *9/36;* G01S *13/00*
U.S. Cl. 382—232 **10 Claims**


START
SELECT PSF FOR ORIGINAL DATASET
2000
DECONVOLVE WITH SELECTED PSF TO EXTRACT CLEAN COMPONENTS
2002
TRANSMIT CLEAN COMPONENTS
2004
CONVOLVE CLEAN COMPONENTS WITH SELECTED PSF
2006
RESTORE IMAGE
2008
END

1. A method for compressing an analog data set comprising the steps of:
selecting a point spread function; and
generating a compressed data set containing non-redundant components by deconvolving said analog data set with the selected point spread function.

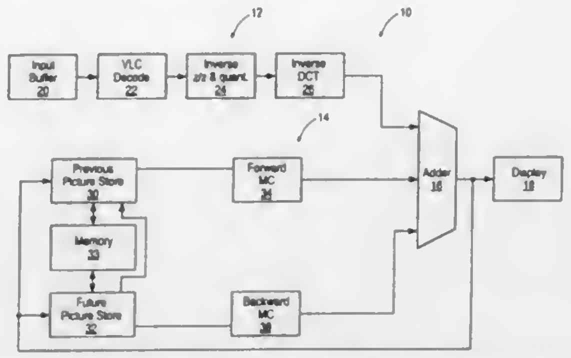
5,784,493

Patent Not Issued For This Number

5,784,494
METHOD AND APPARATUS FOR PRESTORING DEQUANTIZATION INFORMATION FOR DCT VLC DECODING

Geoffrey Strongin; Yi Liu, and Michael Tucker, all of Austin, Tex., assignors to Advanced Micro Devices, Inc., Sunnyvale, Calif.

Filed Apr. 18, 1995, Ser. No. 424,736
Int. Cl.^{6} G06K *9/36;9/46;* H04N *11/02*
U.S. Cl. 382—233 **6 Claims**

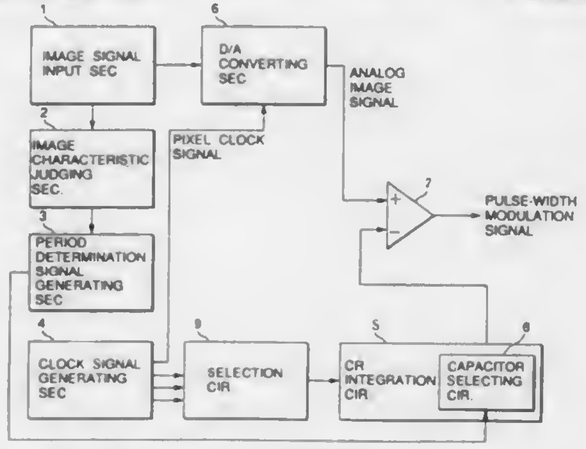


1. A method of decoding variable length code (VLC) data comprising the steps of:
receiving a bitstream sequence organized into a hierarchy of layers including in order, a sequence layer a group of pictures layer, a picture layer, a slice layer a macroblock layer, and a block layer,
defining a quantization matrix in the sequence layer:
defining a quantizer scale parameter in the macroblock layer;
multiplying the quantization matrix times the quantizer scale parameter and storing the product in a quantization multiplication factor in the macroblock layer;
parsing an encoded data bitstream to detect a VLC code in the block layer, wherein the parsing step is a hybrid parsing step wherein parsed coefficients coded by fewer than a predetermined number N bits are decoded using a bit testing step and coefficients decoded by more than N bits are decoded from a lookup table using bitstream data to address the lookup table and
dequantizing the VLC code by multiplying the VLC code times the quantization multiplication factor in the block layer.

5,784,495
IMAGE PROCESSING DEVICE FOR PRODUCING A VARIABLE PERIOD PULSE-WIDTH MODULATED BINARY IMAGE SIGNAL

Hideki Moriya, Kanagawa, Japan, assignor to Fuji Xerox Co., Ltd., Tokyo, Japan

Filed Jun. 29, 1995, Ser. No. 496,667
Claims priority, application Japan, Jun. 30, 1994, 6-150221.
Int. Cl.^{6} H04N *1/40;* G06K *9/46*
U.S. Cl. 382—237 **4 Claims**

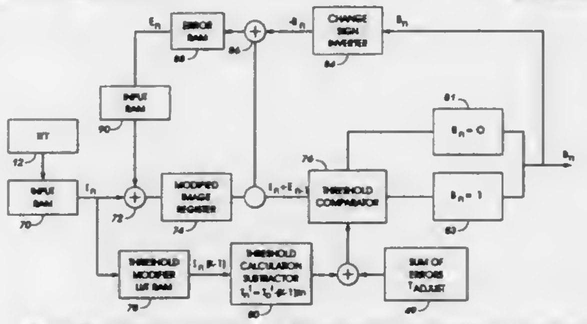


1. An image processing device comprising:
means for generating a plurality of clock signals, each signal having one of a plurality of periods;
selection circuit for selecting one of the plurality of clock signals in accordance with a period determination signal relating to an input image signal;
an integration circuit, including a resistor and a plurality of capacitors, for generating a reference signal based on the selected clock signal;
means for changing a period of the reference signal by changing a combined capacitance of the integration circuit in accordance with the period determination signal; and
means for producing a pulse-width modulated binary image signal by comparing the reference signal with the input image signal.

5,784,496
ERROR SUM METHOD AND APPARATUS FOR INTERCOLOR SEPARATION CONTROL IN A PRINTING SYSTEM

David A. Mantell, Rochester, N.Y., assignor to Xerox Corporation, Stamford, Conn.

Filed Sep. 26, 1996, Ser. No. 720,234
Int. Cl.^{6} G06T *5/00;* H04N *1/405;1/52*
U.S. Cl. 382—237 **20 Claims**

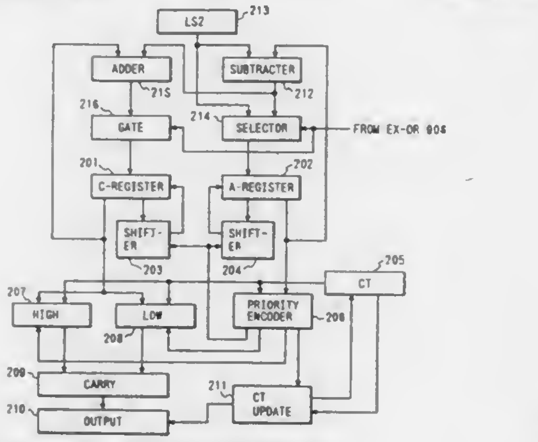


1. A method for processing an input image including a plurality of input pixels each having a first number of possible input levels of optical density to form an output image including a plurality of separations each including a plurality of output pixels each having a second number of possible output levels of optical density, comprising:
generating a first threshold reference signal as a function of a plurality of error signals, each of the plurality of error signals being derived by processing previous ones of pixels in each of the plurality of separations;
modifying a current one of the plurality of input pixels in a current one of the plurality of separations in accordance with an error signal derived by processing previous ones of pixels in the current one of the plurality of separations;
generating a second threshold reference signal for the current one of the plurality of input pixels; and
forming one of the output pixels by comparing the modified current one of the plurality of input pixels to the generated first threshold reference signal and the generated second threshold reference signal.

5,784,497
ARITHMETIC ENCODING WITH CARRY OVER PROCESSING

Keiji Ishizuka, Kawasaki, and Atsushi Furuya, Sagamihara, both of Japan, assignors to Canon Kabushiki Kaisha, Tokyo, Japan

Continuation of Ser. No. 150,804, Nov. 12, 1993, abandoned. This application Mar. 6, 1996, Ser. No. 611,497
Claims priority, application Japan, Nov. 13, 1992, 4-303932
Int. Cl.^{6} G06K *9/36;9/46*
U.S. Cl. 382—247 **16 Claims**

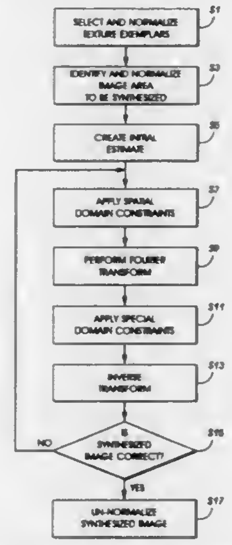


1. An image encoding device comprising:
encoding means for encoding image data based on an arithmetic code to generate code data composed of "0" and "1";
output means for outputting the code data by a predetermined number of bits in parallel and carry-over data of one bit indicating whether there is a carry-over;
determining means for determining whether or not all bits of the code data of the predetermined number of bits are "1"s and outputting determination data of one bit indicating whether all bits are "1";
a plurality of serially connected code latch means, each of which latches the code data of the predetermined number of bits, the code data of the predetermined number of bits being shifted in parallel through said plurality of code latch means;
a plurality of serially connected first data latch means, each of which latches the carry-over data of one bit corresponding to each of said plurality of code latch means, the carry-over data of one bit being shifted through said plurality of first data latch means in synchronism with the parallel shift of the code data of the predetermined number of bits through the plurality of code latch means;
a plurality of serially connected second data latch means, each of which latches the determination data of one bit corresponding to each of said plurality of code latch means, the determination data of one bit being shifted through said plurality of second data latch means in synchronism with the parallel shift of the code data of the predetermined number of bits through the plurality of code latch means;
carry-over process means for effecting a carry-over process on the code data latched in said plurality of code latch means based on the carry-over data latched in said plurality of first data latch means and the determination data latched in said plurality of second latch means; and
adding means for adding the carry-over data of one-bit shifted through said plurality of first data latch means and the code data of the predetermined number of bits shifted in parallel through said plurality of code latch means, so as to output a result of the addition as established code data of the predetermined number of bits.

5,784,498
SYSTEM AND METHOD FOR SYNTHESIZING BACKGROUND TEXTURE IN AN IMAGE

Dennis L. Venable, Marion, N.Y., assignor to Xerox Corporation, Stamford, Conn.

Filed Jan. 11, 1996, Ser. No. 585,030
Int. Cl.^{6} G06K *9/40;* H04N *1/40*
U.S. Cl. 382—254 **21 Claims**


SELECT AND NORMALIZE TEXTURE EXEMPLARS
S1
IDENTIFY AND NORMALIZE IMAGE AREA TO BE SYNTHESIZED
S3
CREATE INITIAL ESTIMATE
S5
APPLY SPATIAL DOMAIN CONSTRAINTS
S7
PERFORM FOURIER TRANSFORM
S9
APPLY SPECTRAL DOMAIN CONSTRAINTS
S11
INVERSE TRANSFORM
S13
IS SYNTHESIZED IMAGE CORRECT?
S15
NO
YES
UN-NORMALIZE SYNTHESIZED IMAGE
S17

1. A method of backfilling areas of an image with synthesized textures, comprising the steps of:
(a) selecting a texture exemplar from an image;

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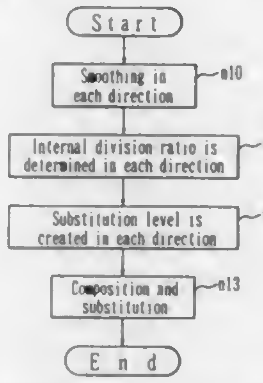
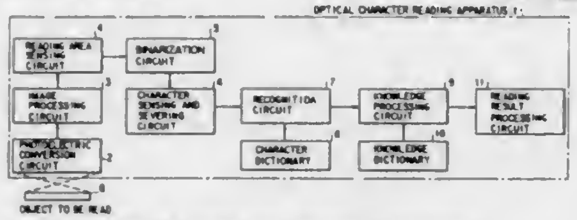
(b) identifying an area of the image to be backfilled;
(c) generating an estimated synthesized texture;
(d) applying predetermined spatial domain constraints to the estimated synthesized texture;
(e) performing a Fourier transform on the spatially constrained estimated synthesized texture;
(f) applying predetermined spectral domain constraints on the transformed estimated synthesized texture;
(g) performing an inverse Fourier transform upon the spectrally constrained estimated synthesized texture to produce a synthesized texture;
(h) determining if the synthesized texture is adequate; and
(i) inserting the synthesized texture into the area of the image to be backfilled when it is determined that the synthesized texture is adequate.

5,784,499
METHOD FOR REDUCING NOISE IN IMAGE SIGNALS AND APPARATUS THEREFOR
Yasuhiro Kuwahara, Osaka; Haruo Yamashita, Ibaraki, and Tsumoru Fukushima, Kyoto, all of Japan, assignors to Matsushita Electric Industrial Co., Ltd., Osaka, Japan
Continuation of Ser. No. 424,620, Apr. 19, 1995, abandoned. This application Jun. 18, 1997, Ser. No. 877,727
Claims priority, application Japan, Apr. 19, 1994, 6-080737
Int. Cl.^{6} G06K *9/40*
U.S. Cl. 382—264 **9 Claims**


Start
Smoothing in each direction
n10
Internal division ratio is determined in each direction
n11
Substitution level is created in each direction
n12
Composition and substitution
n13
End

1. A method for reducing noise in image signals, comprising the steps of:
smoothing in plural directions a level of an attentional picture element in an image and each of levels of adjacent picture elements located adjacent to said attentional picture element in said plural directions to create first substitution levels respectively in said plural directions;
determining internal division ratios respectively in said plural directions by referring to said level of the attentional picture element and each of said levels of the adjacent picture elements, said internal division ratio being limited to 1 when a level of difference between an attentional picture element and an adjacent picture element is larger than a predetermined level difference;
creating second substitution levels respectively in said plural directions by internally dividing between said level of the attentional picture element and each of said first substitution levels;
composing said second substitution levels together to obtain a composite substitution level; and
replacing said level of the attentional picture element by said composite substitution level.

5,784,500
IMAGE BINARIZATION APPARATUS AND METHOD OF IT
Toru Homma, Kawaguchi; Koji Yura, Yokohama, and Yoshikatu Nakamura, Yokosuka, all of Japan, assignors to Kabushiki Kaisha Toshiba, Kawasaki, Japan
Filed Jun. 21, 1996, Ser. No. 666,114
Claims priority, application Japan, Jun. 23, 1995, 7-157916
Int. Cl.^{6} H04N *1/40*
U.S. Cl. 382—270 **20 Claims**


OPTICAL CHARACTER READING APPARATUS 1
READING AREA SENSING CIRCUIT
BINARIZATION CIRCUIT
IMAGE PROCESSING CIRCUIT
CHARACTER SENSING AND SEVERING CIRCUIT
RECOGNITION CIRCUIT
KNOWLEDGE PROCESSING CIRCUIT
READING RESULT PROCESSING CIRCUIT
PHOTOELECTRIC CONVERSION CIRCUIT
CHARACTER DICTIONARY
KNOWLEDGE DICTIONARY
OBJECT TO BE READ
2
3
4
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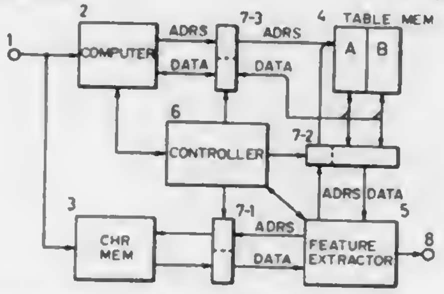
11

1. An apparatus for binarizing images, comprising:
means for computing a difference between density values of adjacent pixels of an original multi-value image and comparing the difference with a predetermined value;
means for detecting an edge area of the original image on the basis of the comparison result of the computing means, wherein the edge area is a border area of a black pixel and a white pixel;
density distribution calculating means for respectively calculating existent frequencies of each of the density values of pixels in the edge area detected by the detecting means;
means for determining a threshold value on the basis of one of the density values having a maximum existent frequency from the existent frequencies calculated by the density distribution calculating means; and
means for binarizing the original image on the basis of the threshold value.

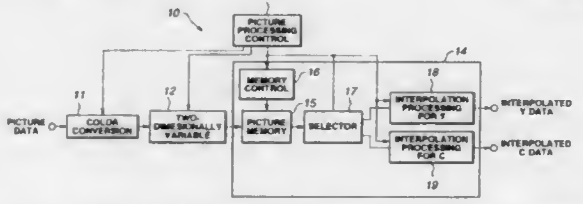
5,784,501
IMAGE PROCESSING METHOD AND APPARATUS
Tetsuomi Tanaka, Yokohama, Japan, assignor to Canon Kabushiki Kaisha, Tokyo, Japan
Continuation of Ser. No. 699,598, May 14, 1991, abandoned. This application Apr. 28, 1994, Ser. No. 235,133
Claims priority, application Japan, May 15, 1990, 2-125935
Int. Cl.^{6} G06K *9/32*
U.S. Cl. 382—286 **34 Claims**



1. An image processing apparatus comprising:
image memory means for storing input image data;
conversion value memory means comprising (1) an x-coordinate section for storing n-number of x-coordinate normalization addresses, corresponding to n-number of coordinates, provided for normalizing the input image data, and (2) a y-coordinate section for storing n-number of y-coordinate normalization addresses, corresponding to n-number of coordinates, provided for normalizing the input image data, wherein said conversion value memory means sets the x-coordinate normalization addresses and the y-coordinate normalization addresses in accordance with a size and a format of a character in the input image data stored in said image memory means; and

generating means (1) for obtaining a coordinate value of the normalized image data corresponding to the input image data by summing values stored at the x-coordinate and y-coordinate normalization addresses, and (2) for providing the obtained coordinate value to a feature extractor.

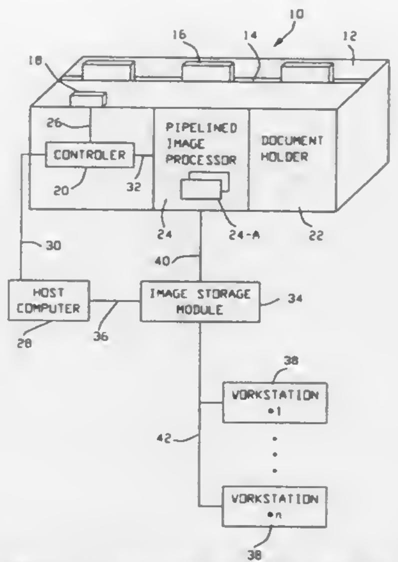
5,784,502
INTERPOLATION APPARATUS
Atsushi Inuzuka, Kanagawa, Japan, assignor to Sony Corporation, Tokyo, Japan
Filed Jan. 29, 1996, Ser. No. 593,710
Claims priority, application Japan, Jan. 31, 1995, 7-014682
Int. Cl.^{6} G06K *9/32*
U.S. Cl. 382—300 **3 Claims**



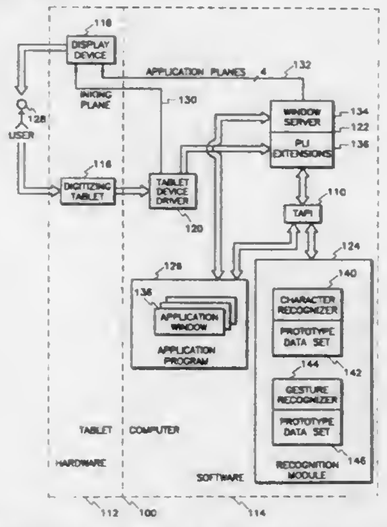
1. An interpolation apparatus for use with a single picture memory for generating pixel data at a designated interpolating point by n-point interpolation, the apparatus comprising:
memory control means for writing luminance data and chroma data at a same address of the picture memory for each of (n+1) point pixel positions and for reading out the luminance data and the chroma data of the pixel data from the picture memory;
selection means for selecting luminance data and chroma data at n point pixel positions from the luminance data and the chroma data of the pixel data at the (n+1) point pixel positions read out by the memory control means from the picture memory, wherein the n point pixel positions surround the designated interpolating point;
luminance data interpolation means for generating luminance data at the designated interpolating point by performing n-point interpolation of the luminance data of the n point pixel positions selected by the selection means; and
chroma data interpolation means for generating chroma data at the designated interpolating point by performing n-point interpolation of the chroma data of the n point pixel positions selected by the selection means.

5,784,503
CHECK READER UTILIZING SYNC-TAGS TO MATCH THE IMAGES AT THE FRONT AND REAR FACES OF A CHECK
John A. Bleecker, III, Canton; George E. Reasoner, Jr., Tecumseh; Daniel R. Edwards, Ypsilanti, and Gerald R. Smith, Farmington, all of Mich., assignors to Unisys Corp, Blue Bell, Pa.
Continuation-in-part of Ser. No. 296,578, Aug. 26, 1994, Pat. No. 5,528,705. This application Apr. 7, 1995, Ser. No. 418,317
Int. Cl.^{6} G06K *9/00*
U.S. Cl. 382—306 **21 Claims**

1. An electronic Front/Rear check-imaging arrangement for detecting a malfunction which throws the Front/Rear image bits out of sync comprising: imaging means which generates imaging-bits representing Front/Rear faces of a given check via digitizer means, with a common array of sync-tag bits embedded with the imaging bits for each said check in order to assure that the tag bits for such imaging bits of a given check are the same for both Front/Rear faces, these sets of imaging bits thereafter being transferred, on a "per-document basis", to various successive electronic compression and other processing stages wherein said compression is performed and completed in "real-time" and using N pairs of parallel compression paths and wherein a "FAULT" signal indicating said malfunction is generated when said sync-tag bits do not match and, operating in "real time", finally, to a data base storage means (DBS); this arrangement also including sync-tag means constructed to create said sync-tag bits unique for each such imaged check-face and to transfer these sync-tag bits with the imaging bits for both check faces to each such processing stage for handling the Front/Rear imaging bits, on a per document basis, and finally to DBS interface means for final matching between faces, and removal of the sync-tag bits.



5,784,504
DISAMBIGUATING INPUT STROKES OF A STYLUS-BASED INPUT DEVICES FOR GESTURE OR CHARACTER RECOGNITION
William Joseph Anderson, Raleigh, N.C.; Nicos John Anthony, Purdys; Doris Chin Chow, Mt. Kisco, both of N.Y.; Colin George Harrison, Brookfield, Conn.; Tanarug Issadisai, Ossining, N.Y., and Howard Geza Page, Tinton Falls, N.J., assignors to International Business Machines Corporation, Armonk, N.Y.
Continuation of Ser. No. 869,593, Apr. 15, 1992. This application Jan. 24, 1994, Ser. No. 188,600
Int. Cl.^{6} G06F *3/00*
U.S. Cl. 382—309 **17 Claims**



1. A computer-based method for disambiguating a stylus stroke made on a digitizing tablet, the digitizing tablet being an input device to a computer running at least one application program having one or more application windows, comprising the steps of:

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- (a) receiving an x-y data representative of the stylus stroke made on the digitizing tablet;
- (b) generating stroke events to indicate a pen-up event, a pen-down event, and a stylus position on the digitizing tablet;
- (c) converting said x-y data generated between said pen-down event and said pen-up event to relative coordinates of a display device to generate a stroke element entry;
- (d) offering said stroke events to an application window for acceptance;
- (e) writing said stroke element entry to a database if the application window accepted said stroke events offered in said step (d);
- (f) detecting the occurrence of a closure event;
- (g) forming a group of all non-gesture strokes received since a previous closure event into an unrecognized stroke group;
- (h) providing said unrecognized stroke group to a character recognizer where a recognition algorithm is performed;
- (I) receiving results of said recognition algorithm from said character recognizer;
- (j) converting said unrecognized stroke group into a recognized stroke group based on said results received from said recognizer;
- (k) determining whether there is an existing word entry in said database with which a character comprising said recognized stroke group is associated;
- (l) inserting said recognized stroke group into said database, if said recognized stroke group is associated with said existing word entry;
- (m) creating a new word entry, if said recognized stroke group is not associated with said existing word entry, without user intervention; and
- (n) inserting said recognized stroke group into said new word entry created in said step (m).

5,784,505
OPTICAL SWITCH AND OPTICAL SWITCHING MATRIX HAVING A PLURALITY OF WAVEGUIDES

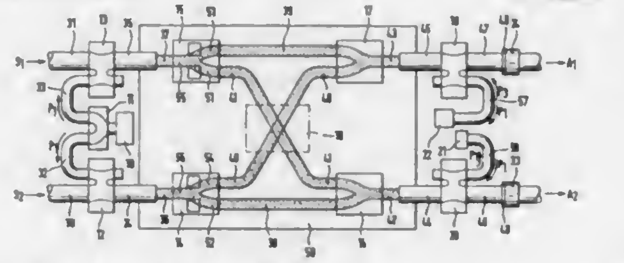
Nikolaus Schunk, Ober-Ramstadt, Germany, assignor to Robert Bosch GmbH, Stuttgart, Germany

Filed Oct. 19, 1995, Ser. No. 545,467

Claims priority, application Germany, Oct. 19, 1994, 44 37 325.2

Int. Cl.⁶ G02B *6/26;6/42*

U.S. Cl. 385—17 **19 Claims**



1. An optical switch comprising:

at least one input waveguide for receiving an optical input signal and pumping light, the optical input signal having a signal light wavelength and the pumping light having a pumping light wavelength; and

at least two output waveguides connected downstream of the input waveguide for providing respective optical output signals,

wherein the input waveguide and the output waveguides are doped with at least one dopant such that an entire optical path from the input waveguide to each of the output waveguides is doped, the dopant exhibiting absorption at the pumping light wavelength and stimulated emission at the signal light wavelength.

5,784,506
FREQUENCY-ENCODED OPTICAL CDMA TRANSMISSION SYSTEM AND OPTICAL RECEIVER THEREFOR

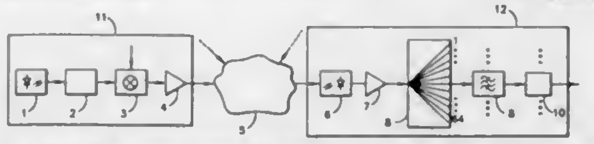
Thomas Pfeiffer, Stuttgart, Germany, assignor to Alcatel Alsthom Compagnie Generale d'Electricite, Paris, France

Filed Feb. 13, 1997, Ser. No. 800,192

Claims priority, application Germany, Feb. 15, 1996, 196 05 567.9

Int. Cl.⁶ G02B *6/28*

U.S. Cl. 385—24 **8 Claims**



1. An optical transmission system wherein at least one optical transmitter (**11**) and at least one optical receiver (**12**) are connected to a fiber-optic network (**5**), and wherein the at least one optical transmitter (**11**) feeds light into the fiber-optic network (**5**) which has a frequency-encoded spectrum characteristic of the at least one optical transmitter (**11**), characterized in that the at least one optical receiver (**12**) has a single photodetector (**6**) which converts received light into an electric signal and which is connected, directly or indirectly, to a decoding device (**9**, **10**; **13**, **14**, **15**) to recover the information contained in the characteristic frequency-encoded spectrum.

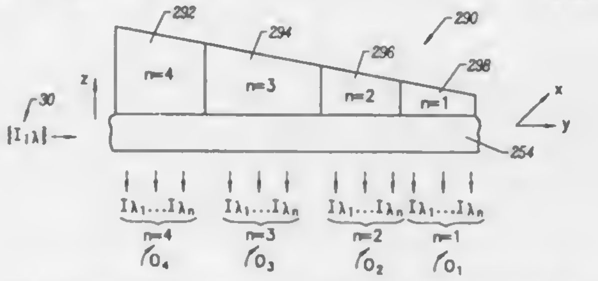
5,784,507
INTEGRATED OPTICAL WAVELENGTH DISCRIMINATION DEVICES AND METHODS FOR FABRICATING SAME

James W. Holm-Kennedy, 3215 Pacific Heights Rd., Honolulu, Hi. 95813; Koon Wing Tsang, 2352 Walnut Grove Ave., San Jose, Calif. 95128, and Datong Yang, 744 East Georgia, Vancouver, British Colombia, Canada, V6A 2A3

Continuation-in-part of Ser. No. 681,695, Apr. 5, 1991, abandoned. This application Apr. 26, 1994, Ser. No. 312,286

Int. Cl.⁶ G02B *6/293*

U.S. Cl. 385—31 **57 Claims**



1. A substantially linear optical device (i.e., an optical device with locally linear regions, such as might be fabricated on a curved or flat substrate) with a filter plane defined by an x-axis and a y-axis, a normal defined by a z-axis and a lateral defined by said y-axis, comprising:

- (a) an optical waveguide means for guiding propagating optical energy or light along an energy average propagation or vector direction parallel to said y-axis, said propagating light being character by an energy distribution and a bandwidth, and
- (b) a wavelength selective filter comprising an outcoupling device for selecting wavelengths from said energy distribution of said propagating light and delivering spatially distributed outcoupled radiation charactertized by said selected wavelengths at separate outcoupling positions longitudinally along said wavelength means.

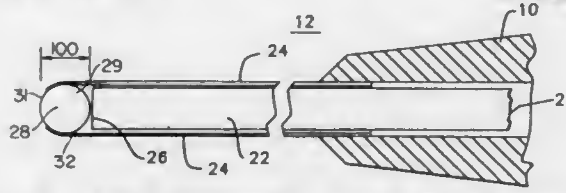
5,784,508
BALL, WIDE-ANGLE ILLUMINATOR FOR EYE SURGERY

R. Scott Turner, 620 Carpenter La., Philadelphia, Pa. 19119

Filed Feb. 9, 1996, Ser. No. 599,587

Int. Cl.⁶ G02B *6/26;* **A61B** *17/36*

U.S. Cl. 385—31 **14 Claims**



1. In a stem to illuminate the retina of an eye, apparatus comprising:

a fiber optic cable within said stem having a light output end delivering relatively coherent light;

a support tube surrounding said fiber optic cable and extending a portion beyond said light output end;

a transparent material comprising a ball within said extended portion of said support tube;

an air gap between said light output end of said fiber optic cable and said material comprising said ball;

wherein said ball is held within said extended portion of said support tube by a seal for preventing vitreous eye fluid from reaching said air gap; and

wherein said material comprising said ball is of an optical index to bend the relatively coherent light facing said ball an amount to illuminate a large portion of the retina.

14. A method of obtaining invasive illumination inside a body over a wide angle at close proximity and in a relatively transparent fluid by taking relatively coherent light exiting from a fiber optic cable and dispersing it in an even manner to illuminate the surface of a retina while immersed in vitreous eye fluid, by placing a transparent material comprising a ball of a curvature to refract said relatively coherent light exiting from said fiber optic cable to bend to a 90° divergence on the light exit side of said ball.

5,784,509
WAVEGUIDE-OPTICAL FIBER CONNECTION STRUCTURE AND WAVEGUIDE-OPTICAL FIBER CONNECTION METHOD

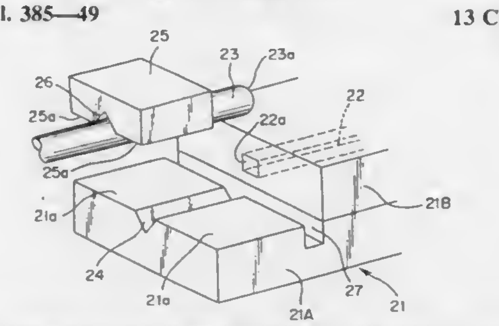
Takashi Yamane; Yasuhiko Omori, both of Kawasaki; Shinya Sawae, Sapporo; Yasutoshi Furukawa, and Hironao Hakogi, both of Kawasaki, all of Japan, assignors to Fujitsu Limited, Kanagawa, Japan

Division of Ser. No. 332,578, Oct. 31, 1994, Pat. No. 5,557,695. This application May 17, 1996, Ser. No. 649,313

Claims priority, application Japan, May 12, 1994, 6-098840; Sep. 8, 1994, 6-215075

Int. Cl.⁶ G02B *6/36*

U.S. Cl. 385—49 **13 Claims**



1. A waveguide-optical fiber connection method for connecting an end portion of an optical fiber to an end portion of a waveguide, comprising the steps of:

preparing a waveguide substrate having a waveguide integrally formed thereon and having a first guide groove formed thereon adjacent to an end portion of said waveguide for positioning said optical fiber therein and a fiber substrate for holding said optical fiber thereon;

fixing a face portion of said waveguide substrate and an opposing face portion of said fiber substrate to each other in a condition wherein said optical fiber fixed to said fiber substrate is held in close contact with said first guide groove on said waveguide substrate; and

wherein said optical fiber having a metal coating applied to an outer periphery of a clad thereof in advance is fixed by metal fixation to said second guide groove of said fiber substrate at which said fiber substrate is coated with a metal film to hold said optical fiber on said fiber substrate, and in this condition, said waveguide and said optical fiber are connected to each other using said fiber substrate with said optical fiber.

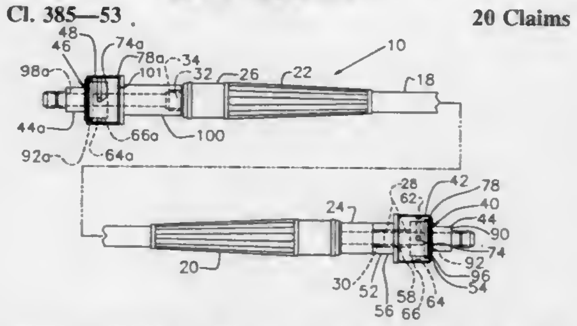
5,784,510
INTENSITY ADJUSTABLE FIBEROPTIC CABLE APPARATUS

James M. Davis, 4687 Pond Apple Dr. S., Naples, Fla. 33999

Filed Sep. 30, 1996, Ser. No. 719,839

Int. Cl.⁶ G02B *6/36*

U.S. Cl. 385—53 **20 Claims**



1. Intensity adjustable fiberoptic cable apparatus for use in combination with a standard fiberoptic illuminator having a light output port, said apparatus comprising:

an elongate, light transmitting fiberoptic cable;

means, attached to a first end of said cable for operably interengaging the output port of the fiberoptic illuminator and introducing light generated by the illuminator into said cable for transmission therethrough;

a light emitting component; and

intensity adjustment means, which are distinct from said light emitting component and which communicably interconnect said light emitting component and a distal second end of said cable, for transmitting light from said cable to said light emitting component and selectively adjusting the intensity of the light emitted from said light emitting component without being disconnected from said cable.

5,784,511
CONNECTOR WITH MAGNET BEING HELD TO AN APPARATUS FOR DATA TRANSMISSION/RECEPTION

Akihiro Kikuchi, Chiba; Takashi Masuda, Kanagawa, and Yoshio Kondo, Chiba, all of Japan, assignors to Sony Corporation, Tokyo, Japan

Filed Jan. 14, 1997, Ser. No. 783,245

Claims priority, application Japan, Jan. 19, 1996, 8-007845; Jul. 26, 1996, 8-197547

Int. Cl.⁶ G02B *6/38*

U.S. Cl. 385—57 **22 Claims**

1. A connector apparatus for interconnecting at least two pieces of electronic equipment each having an input/output unit including a transmission portion and a reception portion for enabling data transmission/reception between the pieces of electronic equipment, comprising:

a cable; and

a pair of connecting portions provided at respective ends of said cable, each connecting portion having a magnet portion for

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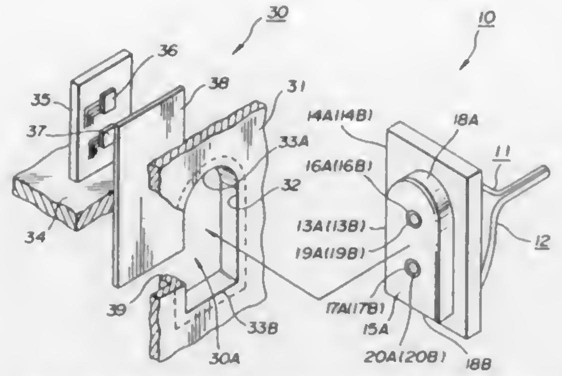


attracting the electronic equipment and a limiting portion for limiting a rotational position at a time of connection thereof to the electronic equipment; wherein, with the ends of said cable connected by said connecting portions to the electronic equipment, the ends of the cable are held in a state of enabling data transmission/reception with the input/output units of the electronic equipment.

5,784,512
LENS CONNECTOR FOR OPTICAL THROUGH-CONNECTION OF LIGHT GUIDES

Robertus Maria Hensen, Heerlen, Netherlands, assignor to Holec Projects B.V., Netherlands

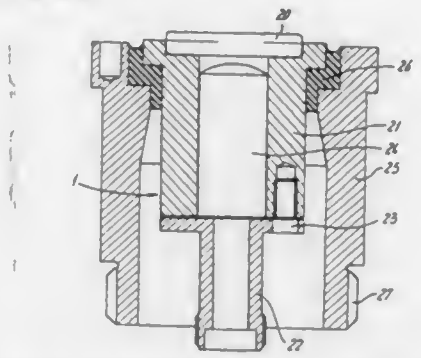
PCT No. PCT/NL95/00302, § 371 Date Mar. 7, 1997, § 102(e) Date Mar. 7, 1997, PCT Pub. No. WO96/07944, PCT Pub. Date Mar. 14, 1996

PCT Filed Sep. 6, 1995, Ser. No. 793,962

Claims priority, application Netherlands, Sep. 8, 1994, 9401466

Int. Cl.^{6} G02B *6/38*

U.S. Cl. 385—61 20 Claims



1. Lens connector for optical through-connection of light guides, comprising two lens connector halves whose frontal faces face one another and which each comprises a coupling housing provided with an internal space open at the front and rear of the coupling housing and with an optical system housed in the front portion of the internal space, the end of the light guide being fastened in the rear portion of the internal space, the abovementioned elements being arranged such that in the one lens connector half the light beam emanating from the guide fastened therein is transformed into a parallel light beam by the optical system and in the other lens connector half the received light beam is focused, by the optical system housed therein, onto the light guide associated therewith, in which a transparent front plate is fastened centrally to the front of the coupling housing, the frontal face of which is oriented perpendicular to the optical axis of the light beams through the optical system and projects outside the front of the coupling housing, wherein means are provided for forcing the frontal faces of the front plates onto each other.

5,784,513
FIBER-DETACHABLE-TYPE OPTICAL MODULE

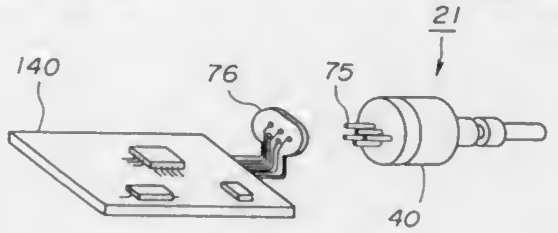
Masaki Kuribayashi; Kazuhiko Kobayashi; Shunichi Satoh, all of Sapporo, and Hironao Hakogi, Kawasaki, all of Japan, assignors to Fujitsu Limited, Kawasaki, Japan

Filed Jan. 31, 1997, Ser. No. 791,958

Claims priority, application Japan, Apr. 24, 1996, 8-102194

Int. Cl.^{6} G02B *6/36*

U.S. Cl. 385—88 10 Claims



1. An optical module comprising:

a module case in which an optical device and a circuit unit, electrically connected to said optical device, are mounted;

a supporting structure of said module case supporting said optical device while permitting movement of said optical device, along a line, relatively thereto; and

a force applying mechanism applying a force to said optical device in a direction parallel to the line along which said optical device is movable.

5,784,514
APPARATUS AND METHODS FOR OPTICAL COMMUNICATION AND FOR IDENTIFICATION OF OPTICAL FIBER

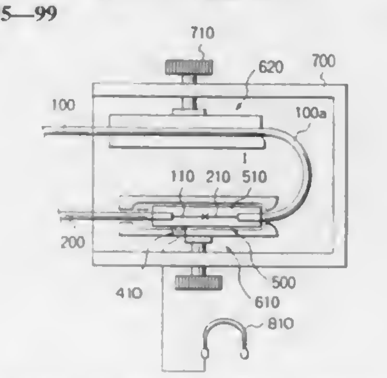
Toru Yanagi; Takeo Seike, both of Yokohama; Isamu Yamasaki, Hiroshima, and Toshiso Yoshida, Saeki-gun, all of Japan, assignors to Sumitomo Electric Industries, Ltd., Osaka, and Chudenko Corporation, Hiroshima, both of Japan

Filed Dec. 20, 1996, Ser. No. 770,113

Claims priority, application Japan, Dec. 27, 1995, 7-340555

Int. Cl.^{6} G02B *6/255*

U.S. Cl. 385—99 15 Claims



1. An apparatus for housing a splice reinforcing portion of optical fiber, comprising:

a first holding member for holding a splice reinforcing portion for reinforcing a splice between a first optical fiber and a second optical fiber optically connected to said first optical fiber and constituting an optical transmission line together with said first optical fiber; and

a first photosensor disposed on a side surface of said splice reinforcing portion, receiving leaking light from said splice reinforcing portion, and connected to said first holding member;

wherein at least one of said first and second optical fibers has a curved portion adiacent to said splice reinforcing portion.

5,784,515
OPTICAL FIBER CROSS CONNECTION APPARATUS AND METHOD

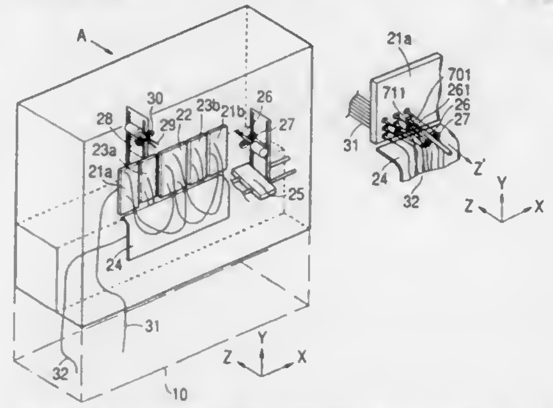
Naoyuki Tamaru, Musashino; Yasuhide Nishida, Kodaira; Tsuneo Kanai, Tokorozawa; Kazumasa Kaneko, Fuchu; Joji Yamaguchi, Tokyo, and Tetsufumi Shoji, Kadaira, all of Japan, assignors to Nippon Telegraph and Telephone Corporation, Tokyo, Japan

Filed Jan. 22, 1996, Ser. No. 589,424

Claims priority, application Japan, Jan. 23, 1995, 7-008131

Int. Cl.^{6} G02B *6/00*

U.S. Cl. 385—134 14 Claims



1. An optical fiber cross connection apparatus for connecting and disconnecting first optical fibers to desired second optical fibers, each of said first optical fibers being equipped with a plug on a tip thereof, the apparatus comprising:

an arrangement board installed approximately vertically, and which has a plurality of alignment holes for releasably holding said plugs and for passing said first optical fibers therethrough;

a connection board installed approximately vertically, and on which a plurality of connection means are positioned to which said second optical fibers are connected and to which said plugs of said first optical fibers are connectable;

a handling mechanism for drawing said first optical fibers from the arrangement board so that said first optical fibers are drawn through said alignment holes, and connecting the plugs thereof to desired connection means;

a roll-up mechanism for paying out said first optical fibers when the fibers are drawn through the alignment holes by the handling mechanism; and

traveling mechanisms for moving the handling mechanism and the roll-up mechanism to a desired position with respect to the connection board and the arrangement board.

5,784,516
OPTICAL FIBER DISTRIBUTION SHELF ASSEMBLY CONTAINING A MODULAR OPTICAL SWITCH

William Joseph Parzygnat, Morris Township, Morris County; Richard Joseph Pimpinella, Hampton, and Randy Alan Reagan, Morris Plains, all of N.J., assignors to Lucent Technologies Inc., Murray Hill, N.J.

Filed Sep. 9, 1996, Ser. No. 713,576

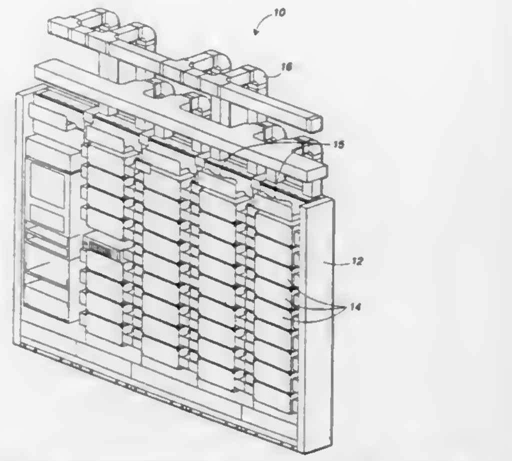
Int. Cl.^{6} G02B *6/00;6/10*

U.S. Cl. 385—134 12 Claims

1. A fiber distribution shelf assembly for use in an optical fiber administration system, comprising:

a shelf structure defining a confined space;

a plurality of connection modules supported by said shelf structure within said confined space, wherein an open area of unused space exists in between a bottom surface of said connection modules and a bottom panel of said shelf structure;



an optical switch disposed within said shelf structure within said confined space for placement within said open area between said bottom surface of said connection modules and said bottom panel of said shelf structure; and

a plurality of optical leads optically coupling said connection modules to said optical switch within said confined space.

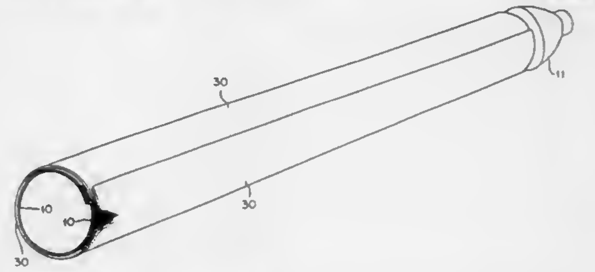
5,784,517
ILLUMINATION DEVICES AND METHODS OF FORMING SAME

Walter A. Johanson, 250 E. 5th St., #401, St. Paul, Minn. 55101

Continuation-in-part of Ser. No. 55,188, Apr. 30, 1993, Pat. No. 5,475,785, and a continuation-in-part of Ser. No. 77,415, Jun. 15, 1993, Pat. No. 5,483,119. This application Dec. 11, 1995, Ser. No. 570,405

Int. Cl.^{6} G02B *6/00*

U.S. Cl. 385—146 3 Claims



1. A light carrier comprising:

a sheet of optical light film comprising a first longitudinal edge portion and a second longitudinal edge portion, said optical light film having sufficient flexibility to allow said first longitudinal edge portion to be disposed in a position proximate said second longitudinal edge portion;

a second sheet comprising a first longitudinal edge, a second longitudinal edge, and a first contact region remote from said first longitudinal edge; and

means for maintaining said optical light film in a tube configuration comprising a first connector having at least one adhesive portion, said first connector connected to said optical light film at a first distance from said first longitudinal edge portion and to said second sheet at a second distance from said first longitudinal edge; and

wherein said first distance is less than said second distance.

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5,784,518

APPARATUS FOR REPRODUCING CONTINUOUS FRAMES OR FIELDS OF A VIDEO SIGNAL

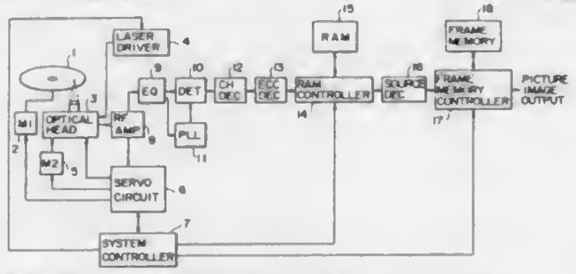
Eiji Ogura, Saitama, Japan, assignor to Sony Corporation, Tokyo, Japan

Filed Oct. 17, 1994, Ser. No. 323,885

Claims priority, application Japan, Oct. 18, 1993, 5-284034

Int. Cl.^{6} H04N *5/783*

U.S. Cl. 386—68 **7 Claims**



1. A video signal reproducing apparatus comprising:

read means for reading a video signal from a storage medium; and

means operable in a first mode for outputting to display means N continuous frames of the read video signal at intervals of M frames and operable in a second mode for outputting to said display means N continuous fields of the read video signal at intervals of M fields, where M and N are integers satisfying M>N>2, and wherein the N continuous frames and the N continuous fields represent N different frames and N different fields of the read video signal, respectively.

5,784,519

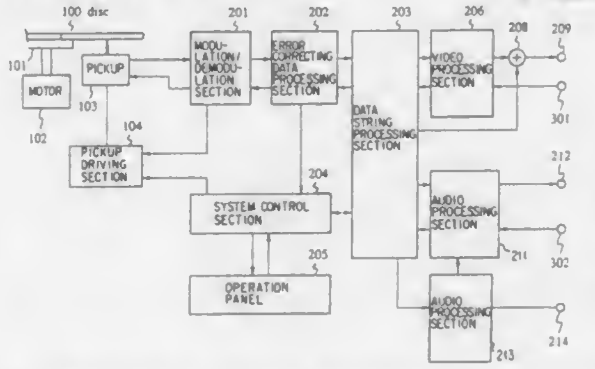
MULTI-SCENE RECORDING MEDIUM AND APPARATUS FOR REPRODUCING DATA THEREFROM

Koichi Hirayama, Yokohama; Masatoshi Nakai, Kawasaki, and Kenji Shimoda, Yokohama, all of Japan, assignors to Kabushiki Kaisha Toshiba, Kawasaki, Japan

Division of Ser. No. 454,289, Jun. 15, 1995, Pat. No. 5,630,006. This application Aug. 8, 1996, Ser. No. 689,371

Int. Cl.^{6} H04N *5/91;7/08;5/781*

U.S. Cl. 386—92 **8 Claims**



1. An apparatus for reproducing information from a multi-scene recording medium including a disk having a management area and a data area, said data area recording a first program information item, a second program information item following said first program information item, a third program information item following said second program information item, and a fourth program information item representing scenes simultaneously proceeding with scenes represented by said second program information item, for replacing said second program information item, and said management area recording multi-scene configuration information indicating that said second and fourth program information items are interchangeably linked to each other, data units of said second program information item and data units of said fourth program information item being alternatingly and continuously recorded on said recording medium, said apparatus comprising:

pickup means for generating signals based on information recorded on said disk;

demodulation means for generating multi-scene configuration data by demodulating signals generated by said pickup means, said multi-scene configuration data being based on said multi-scene configuration information recorded in said management area of said disk;

management data storage means for storing said multi-scene configuration data generated by said demodulation means;

first decoding means for reproducing said second program information item on the basis of said multi-scene configuration data when said first program information item is reproduced completely;

second decoding means for reproducing said fourth program information item on the basis of said multi-scene configuration data when said first program information item is reproduced completely; and

output means for generating reduced information items representing reduced scenes by processing an output from at least one of said first and second decoding means, and for outputting said reduced information items in the form of multi-scene video information.

5,784,520

AUDIO SIGNAL REPRODUCING APPARATUS

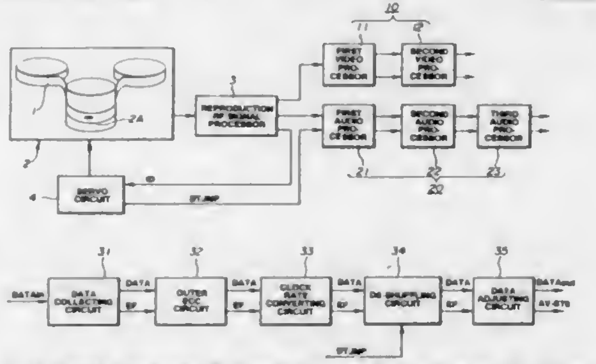
Takayuki Takeda, Kanagawa, Japan, assignor to Sony Corporation, Tokyo, Japan

Continuation of Ser. No. 331,655, Jan. 11, 1995, abandoned. This application Jun. 26, 1997, Ser. No. 882,755

Claims priority, application Japan, Mar. 10, 1993, 5-049267

Int. Cl.^{6} H04N *5/783*

U.S. Cl. 386—69 **7 Claims**



1. A digital information signal reproducing apparatus for reproducing digital signals from helical tracks on a recording medium, the digital signals comprising a plurality of fields of data wherein each field includes a respective number of data samples, the apparatus having a normal speed reproduction mode and a slow speed reproduction mode and including a dynamic tracking head, said apparatus comprising:

reproducing means for repeatedly reproducing at least one of said plurality of fields of data in said slow speed reproduction mode, said reproducing means including servo means operable to shift said dynamic tracking head in a direction vertical to said helical tracks and to output a jump signal indicating a control state;

processing means, coupled to said reproducing means, for processing each of the data samples produced from a reproduction of a field of data and for processing less than all of the data samples produced from a subsequent reproduction of one of said plurality of fields of data, said processing means including (1) de-shuffling means for de-shuffling data samples from a reproduced field of data, said de-shuffling means having memory means for storing a reproduced field of data, and address means, coupled to said memory means, for performing said de-shuffling and for outputting selected data samples, and (2) flag output means for detecting, per every N fields, the total number of data samples read out from said memory means and outputting an error flag when the total

number of data samples read out is less than M, the total number of samples read out from said memory means being controlled by said processing means in response to said jump signal; and

concealing means for adding extra samples of data when less than M samples of data are produced from a set of N reproductions of fields of data;

wherein N is an aliquant part of M, and N and M are natural numbers.

5,784,521

SIGNAL RECORDING SYSTEM

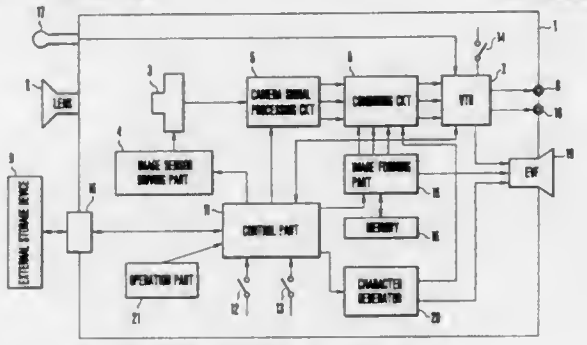
Yoshihiro Nakatani; Koji Takahashi; Teruo Hieda; Kenji Kyuma; Koichiro Suzuki; Takeshi Abe, and Yoshifumi Ishikawa, all of Kanagawa-ken, Japan, assignors to Canon Kabushiki Kaisha, Tokyo, Japan

Continuation of Ser. No. 126,809, Sep. 24, 1993, abandoned, which is a continuation of Ser. No. 664,039, Mar. 4, 1991, abandoned. This application Oct. 13, 1994, Ser. No. 322,733

Claims priority, application Japan, Mar. 9, 1990, 2-59031; Nov. 8, 1990, 2-304952

Int. Cl.^{6} H04N *5/91*

U.S. Cl. 386—46 **24 Claims**



1. A signal processing apparatus, comprising:

(a) input means for inputting a first video signal;

(b) a storing portion for storing a second video signal to be combined with the first video signal and a control signal indicating a combining start timing and a combining end timing of the second video signal for the first video signal;

(c) combining means for combining the second video signal with the first video signal in response to the control signal read out from the storing portion,

said combining means repeatedly combining the second video signal with the first video signal during a period in which said combining action is being instructed by the control signal; and

(d) recording means for recording a video signal output from said combining means,

said control signal including a signal indicating a start of a recording action by said recording means,

said recording means recording the video signal output from said combining means during a period in which a recording action is being instructed by the control signal.

5,784,522

INFORMATION SIGNAL TRANSMITTING SYSTEM

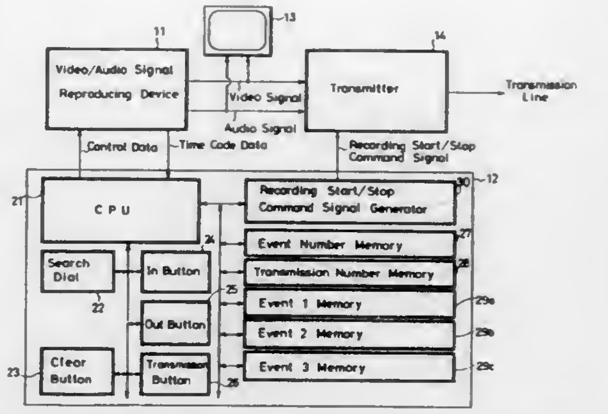
Kazumasa Yamamura, Kanagawa, Japan, assignor to Sony Corporation, Tokyo, Japan

Filed Apr. 3, 1996, Ser. No. 626,846

Claims priority, application Japan, Apr. 7, 1995, 7-082840

Int. Cl.^{6} H04N *5/76;7/08;7/087*

U.S. Cl. 386—46 **6 Claims**



1. An information signal transmitting system for transmitting information signals including video and audio signals over a transmission line, comprising:

a transmitting apparatus for transmitting information signals; and

a receiving apparatus for receiving information signals transmitted from said transmitting apparatus;

said transmitting apparatus having recording start and stop command signal generating means for generating a recording start command signal and a recording stop command signal, and transmitting means for transmitting a first information signal to be saved in said receiving apparatus with said recording start command signal inserted in said first information signal for at least a predetermined period of time, and for transmitting a second information signal not to be saved in said receiving apparatus with said recording stop command signal inserted in said second information signal for at least a predetermined period of time, said transmitting apparatus further including a signal reproducing device for reproducing the first and second information signals from a recording medium such that an information signal present between said recording stop command signal and said recording start command signal is reproduced from said recording medium using a fast playback operation;

said receiving apparatus having recording start and stop command signal separating means for separating the recording start command signal and the recording stop command signal from the received first and second information signals, and recording means for selectively recording the received first and second information signals depending on the recording start command signal and the recording stop command signal.

5,784,523

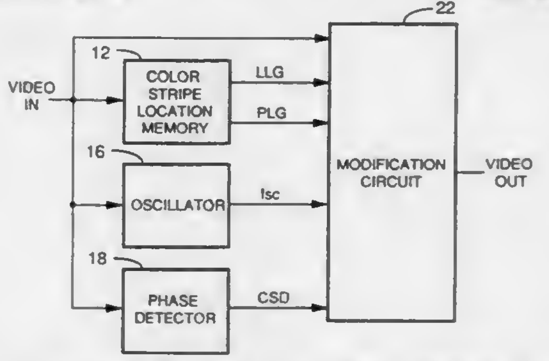
METHOD AND APPARATUS FOR DEFEATING EFFECTS OF COLOR BURST MODIFICATIONS TO A VIDEO SIGNAL

Ronald Quan, and John O. Ryan, both of Cupertino, Calif., assignors to Macrovision Corporation, Sunnyvale, Calif.

Continuation of Ser. No. 438,155, May 9, 1995, abandoned. This application Jul. 18, 1997, Ser. No. 897,132

Int. Cl.^{6} H04N *5/91*

U.S. Cl. 386—94 **62 Claims**



1. A method of modifying a video signal containing a color stripe modification, the color stripe modification being to inhibiting the making of acceptable video recordings of the video signal in a method comprising the steps of:

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determining in which lines of the video signal the color stripe modification is present; and

modifying the video signal within at least some of those lines whereby an acceptable video recording of the video signal can be made.

5,784,524

RECORDING METHOD OF STILL VIDEO APPARATUS

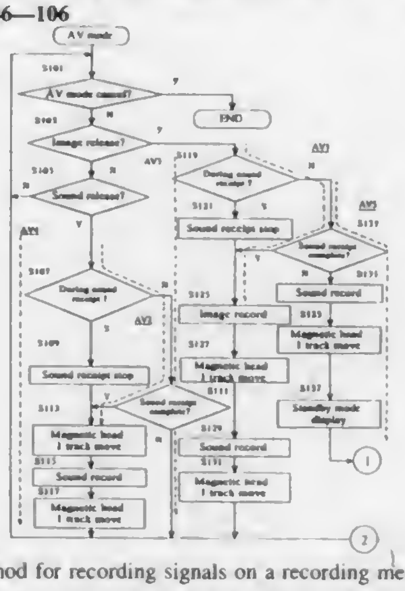
Yoshiaki Sato; Yoshio Wakui, and Kimiaki Ogawa, all of Tokyo, Japan, assignors to Asahi Kogaku Kogyo Kabushiki Kaisha, Tokyo, Japan

Division of Ser. No. 295,035, Aug. 25, 1994, which is a continuation of Ser. No. 183,901, Jan. 21, 1994, abandoned, which is a continuation of Ser. No. 791,202, Nov. 13, 1991, abandoned. This application Jul. 25, 1996, Ser. No. 687,216

Claims priority, application Japan, Nov. 14, 1990, 6-306019

Int. Cl.⁶ H04N *5/91;5/928*

U.S. Cl. 386—106 **10 Claims**



1. A method for recording signals on a recording medium of an electronic still video apparatus in an audio visual record mode, in which image signals are recorded by recording means at image data locations of the recording medium and sound signals are recorded by the recording means at sound data locations of the recording medium, the image signals and the sound signals being recorded to be associated with one another, comprising:

positioning the recording means at a location ready for recording image signals;

receiving sound signals for a predetermined period of time, prior to an operation to record image signals, in response to a manual actuation of a sound receipt operation;

automatically moving the recording means to a location for recording sound signals associated with an image data location ready for recording the image signals, and recording the received sound signals as an associated sound signal in response to a manual actuation of a sound release operation, provided that the sound signals have been received for the predetermined time; and

automatically moving the recording means to a location for recording next image signals, not associated with the recorded received sound signals, so that the image data location associated with the location for recording the received sound signals location is vacant.

5,784,525

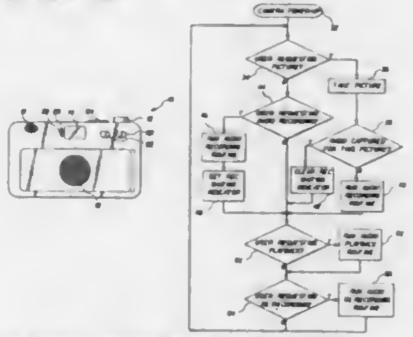
IMAGE CAPTURE APPARATUS WITH SOUND RECORDING CAPABILITY

Cynthia Sue Bell, Webster, N.Y., assignor to Eastman Kodak Company, Rochester, N.Y.

Continuation of Ser. No. 450,445, May 25, 1995, abandoned. This application Mar. 12, 1997, Ser. No. 815,776

Int. Cl.⁶ H04N *5/917*

U.S. Cl. 386—107 **15 Claims**



1. An image capture apparatus, comprising:

a first subsystem for image capture;

a first user interface element for activating said first subsystem;

a second subsystem for sound recording;

a microphone connected to said second subsystem;

a second user interface element for activating said second subsystem;

a controller connected to receive inputs from said first and second user interface elements and to control said first and second subsystems, said controller being programmed to perform:

checking said first user interface element to see if a user of said apparatus is requesting said first subsystem to capture an image;

when said first user interface element indicates that no image capture has been requested:

checking said second user interface element to see if the user is requesting to record sound;

when said second user interface element indicates that no sound recording has been requested, rechecking said first user interface element;

when said second user interface element indicates that sound recording has been requested, running said second subsystem to make a sound recording;

when said first user interface element indicates that an image capture has been requested, running said first subsystem to capture a requested image;

after running said first subsystem, automatically checking said second subsystem to see if a sound recording previously was made for said requested image; and

when said second subsystem indicates that no sound recording was previously made for said requested image, automatically making a sound recording for said requested image with said second subsystem.

5,784,526

MULTISYSTEM SIGNAL PROCESSING APPARATUS HAVING SPECIFIC HIERARCHICAL CODING

Kenji Shimoda, Yokohama; Hideo Tsurufusa, Tokyo; Shinji Yoda, and Kazuyoshi Fuse, both of Yokohama, all of Japan, assignors to Kabushiki Kaisha Toshiba, Kawasaki, Japan

Continuation of Ser. No. 89,565, Jul. 12, 1993, Pat. No. 5,394,249. This application Oct. 31, 1994, Ser. No. 332,268

Claims priority, application Japan, Nov. 18, 1992, 4-308986

Int. Cl.⁶ H04N *5/76;5/917*

U.S. Cl. 386—109 **7 Claims**

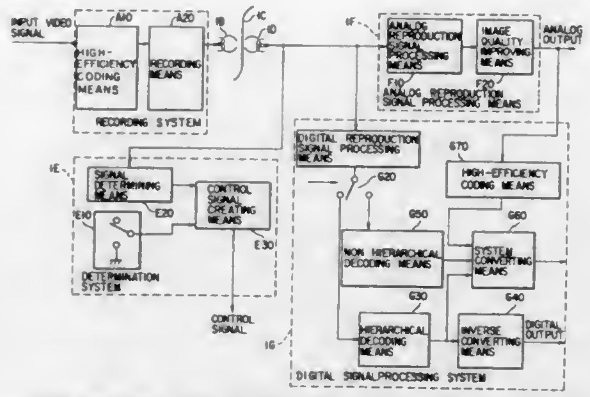
1. A multisystem adaptable type-signal processing apparatus for decoding a video signal in a hierarchical structure, comprising:

means for setting a frequency ratio and a block unit ratio for first and second video signals so as to define a relation between a high bit rate coding block unit corresponding to the pixel structure of the first video signal having a first frequency band and a low bit rate coding block unit corresponding to the pixel structure of the second video signal having a second frequency band that is narrower than the first frequency band in vertical and horizontal directions,

means for setting a processing signal of the low bit rate coding block unit in a first hierarchical level in which the second video signal can be reproduced, and

means for setting a second processing signal of the high bit rate coding block unit in a second hierarchical level in which the first video signal can be reproduced,

wherein a frequency ratio is a relationship between the sampling rates associated with the first and second video signals, and the block unit ratio is a relationship between block units on the first and second hierarchical levels.


INPUT VIDEO SIGNAL
HIGH-EFFICIENCY CODING MEANS
RECORDING MEANS
RECORDING SYSTEM
ANALOG REPRODUCTION SIGNAL PROCESSING MEANS
IMAGE QUALITY IMPROVING MEANS
ANALOG OUTPUT
ANALOG REPRODUCTION SIGNAL PROCESSING MEANS
DIGITAL REPRODUCTION SIGNAL PROCESSING MEANS
SIGNAL DETERMINING MEANS
CONTROL SIGNAL CREATING MEANS
HIGH-EFFICIENCY CODING MEANS
DETERMINATION SYSTEM
E30
CONTROL SIGNAL
NON HIERARCHICAL DECODING MEANS
SYSTEM CONVERTING MEANS
630
640
HIERARCHICAL DECODING MEANS
INVERSE CONVERTING MEANS
DIGITAL OUTPUT
16
DIGITAL SIGNAL PROCESSING SYSTEM

5,784,527

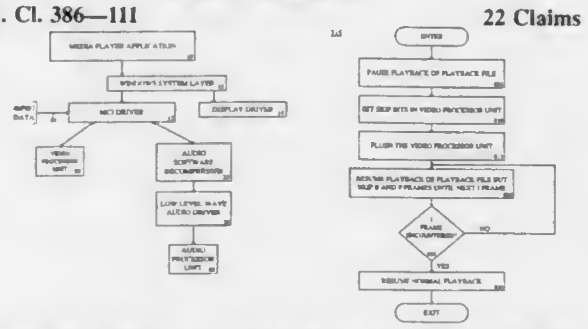
SYSTEM AND METHOD FOR ERROR HANDLING DURING PLAYBACK OF AN AUDIO/VIDEO DATA STREAM

Jeffrey Ort, Kirkland, Wash., assignor to Cirrus Logic, Inc., Fremont, Calif.

Filed Mar. 22, 1996, Ser. No. 620,654

Int. Cl.⁶ H04N *5/92*

U.S. Cl. 386—111 **22 Claims**


MEDIA PLAYER APPLICATION
WINDOWS SYSTEM LAYER
MCI DRIVER
DISPLAY DRIVER
VIDEO PROCESSOR UNIT
AUDIO SOFTWARE DECOMPRESSION
LOW LEVEL WAVE AUDIO DRIVER
AUDIO PROCESSOR UNIT
ENTER
PAUSE PLAYBACK OF PLAYBACK FILE
SET SKIP BITS IN VIDEO PROCESSOR UNIT
FLUSH THE VIDEO PROCESSOR UNIT
RESUME PLAYBACK OF PLAYBACK FILE BUT SKIP B AND P FRAMES UNTIL NEXT I FRAME
I FRAME ENCOUNTERED?
NO
YES
RESUME NORMAL PLAYBACK
EXIT

1. In a digital playback system including a video processor unit and a software driver, a computer controlled method of handling playback errors in a playback file, said method comprising the steps of:

(a) in response to a detected playback error, skipping frames of said playback file of a first frame type until a frame of said playback file of a second frame type is encountered and resuming playback of said playback file;

(b) in response to a detected playback error, seeking forward within said playback file by a predetermined amount defined by a seek parameter and resuming playback of said playback file; and

(c) in response to a detected playback error, seeking forward within said playback file to a position marked by a substantial scene change within a video portion of said playback file and resuming playback of said playback file.

5,784,528

METHOD AND AN APPARATUS FOR INTERLEAVING BITSTREAM TO RECORD THEREOF ON A RECORDING MEDIUM, AND REPRODUCING THE INTERLEAVED BITSTREAM THEREFROM

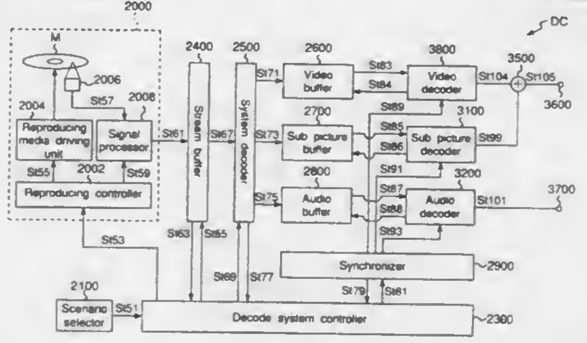
Yasuhiko Yamane, Osaka; Takumi Hasebe, Kyoto; Kazuhiro Tsuga, Hyogo; Yoshihiro Mori, Osaka; Kazuhiko Nakamura, Osaka; Yoshihisa Fukushima, Osaka; Masayuki Kozuka, Osaka; Chieko Matsuda, Osaka, and Yasushi Azumatani, Osaka, all of Japan, assignors to Matsushita Electric Industrial Co. Ltd., Osaka, Japan

Filed Sep. 27, 1996, Ser. No. 720,055

Claims priority, application Japan, Sep. 29, 1995, 7-276714; Feb. 28, 1996, 8-041587

Int. Cl.⁶ H04N *5/917;5/926*

U.S. Cl. 386—112 **12 Claims**



1. A bit stream generating method for generating a bit stream stored to a disc reproduced by a disc reproducing apparatus,

where said disc reproducing apparatus comprises a track buffer for temporarily storing data read from the disc to the track buffer at a read rate Vr before transferring said data to a decoder at a supply rate Vo, where said read rate Vr is greater than said supply rate Vo, and

said bit stream comprises a plurality of video objects (VOB) of which one is alternatively reproduced from among m video objects (VOB);

said bit stream generating method comprises steps for:

selecting m video objects (VOB) having the same presentation period,

obtaining a time t2 at which reading a bit stream from the disc will be interrupted when an optical head of the disc reproducing apparatus jumps between an interleave unit (ILVU_{ij}) and an interleave unit ($\mathrm{ILVU}_{m(j+1)}$) when each of the selected m video objects (VOB) is segmented into v interleave units (ILVU_{ij}) interleaved in a sequence

$\mathrm{ILVUI}_{11}..\mathrm{ILVU}_{21}\ ....\ \mathrm{ILVU}_{(m-1)1}..\mathrm{ILVU}_{m1}..$

$\mathrm{ILVU}_{12}..\mathrm{ILVU}_{22}\ ....\ \mathrm{ILVU}_{(m-1)2}...\mathrm{ILVU}_{m2}\ ..$

....

$\mathrm{ILVU}_{1(v-1)}..\mathrm{ILVU}_{2(v-1)}\ ....\ \mathrm{ILVU}_{(m-1)(v-1)}..\mathrm{ILVU}_{m(v-1)}\ ..$

$\mathrm{ILVU}_{1v}..\mathrm{ILVU}_{2v}\ ....\ \mathrm{ILVU}_{(m-1)v}...\mathrm{ILVU}_{mv}\ ..$

where i is a sequential value indicative of a video object (VOB) and ranges from 1 to m, and j is a sequential value indicative of an interleave unit (ILVU) and ranges from 1 to v,

obtaining a data quantity d1 stored to the track buffer at a differential rate Vr−Vo during a time t1,

said time t1 being a period during which a bit stream constituting said interleave unit (ILVU_{ij}) is read from the disc,

the segmenting m video objects into interleave units (ILVU_{ij}) whereby said data quantity d1 stored to the track buffer exceeds a data quantity d2 transferred at supply rate Vo from the track buffer to the decoder during said time t2, and

generating a bit stream in which the segmented m video objects (VOB) are interleaved in the sequence described above.

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5,784,529
METHOD AND APPARATUS FOR CORRECTING NOISE IN A FILM SCANNER

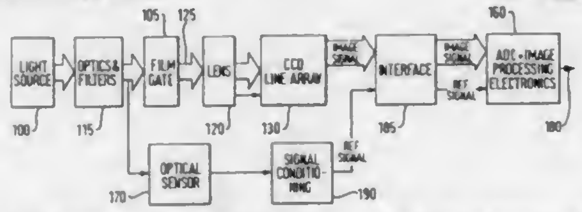
Benjamin Franklin Richmond, Baldock, United Kingdom, assignor to Rank Cintel Limited, United Kingdom

Filed Jun. 7, 1995, Ser. No. 474,704

Claims priority, application United Kingdom, Oct. 18, 1994, 9420932

Int. Cl.^{6} H04N *5/91;3/36*

U.S. Cl. 386—128 **31 Claims**



1. A noise corrector for a film scanner, said film scanner comprising;

a light source for illuminating film; and

a first detector for detecting a first sample of light from said light source modulated by said film to produce a first signal;

wherein said noise corrector comprises;

a second detector for detecting a second sample of light from said light source unmodulated by said film to detect the fluctuations in intensity to produce a second signal; and

means for compensating said first signal with reference to said second signal to produce an output signal.

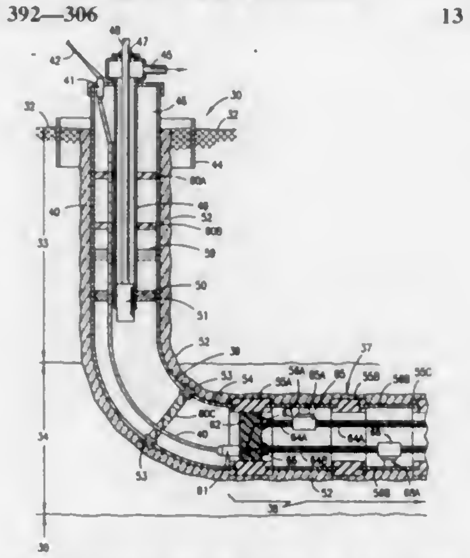
5,784,530
ITERATED ELECTRODES FOR OIL WELLS

Jack E. Bridges, Park Ridge, Ill., assignor to EOR International, Inc., Canada

Filed Feb. 13, 1996, Ser. No. 600,671

Int. Cl.^{6} E21B *7/15;36/00*

U.S. Cl. 392—306 **13 Claims**



1. An iterated electrode heating system for a horizontal oil well comprising an initial well bore extending downwardly from the surface of the earth through one or more overburden formations, and a producing well bore, deviating appreciably from the initial well bore, communicating with and extending into at least one oil producing formation, the iterated electrode system being located in the producing well bore and comprising:

an iterated electrode array including a plurality of separated conductive tubular electrodes of given diameter that are electrically isolated from one another and that extend through an oil producing well bore zone;

each electrode in each array having a given length, the sum of the lengths of the electrodes being substantially less than the length of the oil producing well bore zone;

each electrode being spaced from adjacent electrodes in the array by a non-conducting isolation section, the length of the isolation section being substantially larger than the electrode diameter; and

an electrical power delivery apparatus connected to the electrodes to energize the electrodes with A.C. power with a phase difference between electrodes of at least 90 degrees.

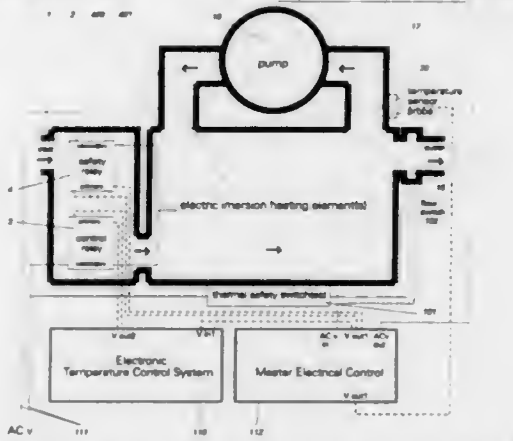
5,784,531
INSTANTANEOUS FLUID HEATING DEVICE AND PROCESS

Robert W. Mann, 4641 Westfield Rd, and Herman H. Hall, Jr., 8256 Buttercup St., both of Jacksonville, Fla. 32210

Filed Jan. 5, 1996, Ser. No. 583,872

Int. Cl.^{6} F24H *1/10*

U.S. Cl. 392—494 **44 Claims**


pump
temperature sensor probe
electric immersion heating element(s)
control relay
thermal safety switches
Electronic Temperature Control System
Master Electrical Control
AC v

1. An electrical power distribution device for use in a fluid heating device, which said fluid heating device utilizes at least one electrical heating element receiving electricity from an external source of electrical power to heat fluid flowing film an external source of fluid while said fluid is passing through the fluid heating device so that said fluid is proximate a certain set-point temperature upon exiting from said fluid heating device, comprising:

at least one electrical heating element;

a heat exchange vessel formed of heat conducting materials, said heat exchange vessel (i) serves to relay a fluid being heated by said at least one electrical heating element, (ii) does not contain said at least one electrical heating element, and (iii) has at least one flat exterior surface wherein said at least one flat exterior surface forms an outer wall of said heat exchange vessel; and

at least one engageable electrical relay which is disposed upon said at least one flat exterior surface of said heat exchange vessel in such manner as to be in thermal communication with the fluid being heated flowing through said heat exchange vessel such that said at least one engageable electrical relay (i) is actively cooled by said fluid flow, and (ii) relays electrical power to said at least one electrical heating element only while engaged.

5,784,532
APPLICATION SPECIFIC INTEGRATED CIRCUIT (ASIC) FOR PERFORMING RAPID SPEECH COMPRESSION IN A MOBILE TELEPHONE SYSTEM

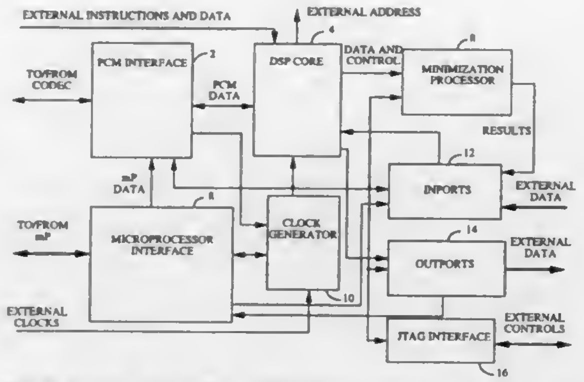
John G. McDonough; Chienchung Chang; Randeep Singh; Charles E. Sakamaki; Ming-Chang Tsai, and Prashant Kantak, all of San Diego, Calif., assignors to Qualcomm Incorporated, San Diego, Calif.

Filed Feb. 16, 1994, Ser. No. 197,417

Int. Cl.^{6} G10L *9/00*

U.S. Cl. 395—2.33 **21 Claims**

1. A vocoder comprising:



digital signal processing (DSP) core means for performing a recursive convolution computation and for providing a result of said recursive convolution; and

minimization processor means separate from said DSP core means for receiving said result of said recursive convolution and performing a minimization search in accordance with said result of said recursive convolution.

5,784,533
ARRANGEMENT FOR DETERMINING A SIGNAL SPECTRUM OF A WIDEBAND DIGITAL SIGNAL AND FOR DERIVING BIT ALLOCATION INFORMATION IN RESPONSE THERETO

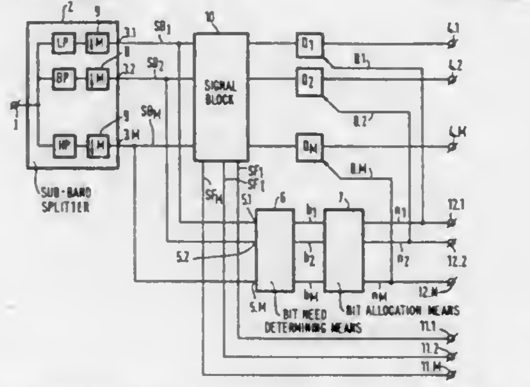
Leon M. Van de Kerkhof, and Pope Ijtsma, both of Eindhoven, Netherlands, assignors to U.S. Philips Corporation, New York, N.Y.

Filed May 17, 1995, Ser. No. 442,847

Claims priority, application European Pat. Off., May 19, 1994, 94201427

Int. Cl.^{6} G10L *9/18;7/00*

U.S. Cl. 395—2.38 **12 Claims**



1. An arrangement for determining a signal spectrum of a wideband digital audio signal and for deriving bit allocation information in response thereto, in an adaptive bitallocation system, the arrangement comprising;

an input terminal for receiving the wideband digital audio signal,

signal splitting means for splitting the wideband digital audio signal into M narrow band sub signals, each one of the M sub signals being representative of a component of the wideband digital audio signal which is present in a corresponding one of M adjacent substantially non-overlapping narrow bands in the frequency band of the wideband digital audio signal, calculating means for each time determining from the M sub signals, information which is representative of the signal spectrum of the wideband digital audio signal,

bit allocation information determining means for deriving bit allocation information in response to the information which is representative of the signal spectrum of the wide band digital audio signal, the bit allocation information being representative of the number of bits with which samples of the sub signals will be represented, and where M is an integer larger than one,

characterized in that, the calculating means comprises transformation means for carrying out separately on each of the sub signals a time-to-frequency transform based signal processing so as to obtain said information representative of the signal spectrum of the wideband digital audio signal.

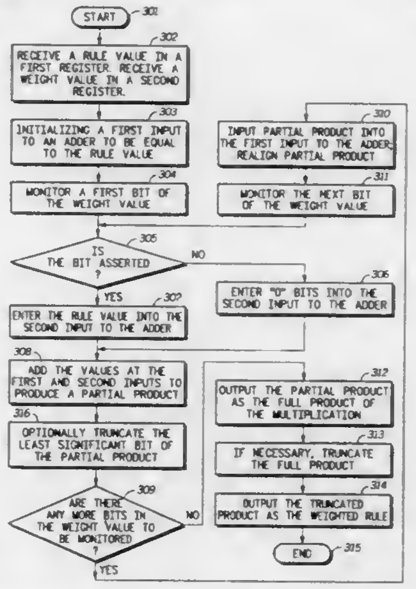
5,784,534
CIRCUIT AND METHOD FOR REPRESENTING FUZZY RULE WEIGHTS DURING A FUZZY LOGIC OPERATION

J. Greg Viot, Austin, Tex., assignor to Motorola, Inc., Schaumburg, Ill.

Filed Mar. 31, 1995, Ser. No. 414,817

Int. Cl.^{6} G06F *15/18*

U.S. Cl. 395—3 **12 Claims**


START
301
RECEIVE A RULE VALUE IN A FIRST REGISTER. RECEIVE A WEIGHT VALUE IN A SECOND REGISTER.
302
INITIALIZING A FIRST INPUT TO AN ADDER TO BE EQUAL TO THE RULE VALUE
303
MONITOR A FIRST BIT OF THE WEIGHT VALUE
304
IS THE BIT ASSERTED ?
305
NO
YES
ENTER THE RULE VALUE INTO THE SECOND INPUT TO THE ADDER
307
ENTER "0" BITS INTO THE SECOND INPUT TO THE ADDER
306
ADD THE VALUES AT THE FIRST AND SECOND INPUTS TO PRODUCE A PARTIAL PRODUCT
308
OPTIONALLY TRUNCATE THE LEAST SIGNIFICANT BIT OF THE PARTIAL PRODUCT
316
ARE THERE ANY MORE BITS IN THE WEIGHT VALUE TO BE MONITORED ?
309
NO
YES
INPUT PARTIAL PRODUCT INTO THE FIRST INPUT TO THE ADDER; REALIGN PARTIAL PRODUCT
310
MONITOR THE NEXT BIT OF THE WEIGHT VALUE
311
OUTPUT THE PARTIAL PRODUCT AS THE FULL PRODUCT OF THE MULTIPLICATION
312
IF NECESSARY, TRUNCATE THE FULL PRODUCT
313
OUTPUT THE TRUNCATED PRODUCT AS THE WEIGHTED RULE
314
END
315

1. A method implemented in a data processing system for rule weighting in a fuzzy rule evaluation operation, said method comprising the steps of:

(a) receiving and storing a first rule value in a first register;

(b) receiving and storing a first weight value in a second register, wherein said first weight value is associated with said first rule value;

(c) increasing said first weight value, wherein the increased first weight valve is a first multiplicand;

(d) multiplying said first rule value with the first multiplicand, wherein said increasing and multiplying steps are implemented within a same circuit;

(e) storing a first product of said multiplying step;

(f) truncating said first product to produce a first truncated product; and

(g) storing said first truncated product, wherein said first truncated product is a first rule strength associated with said first rule value.

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5,784,535

GRADE ARITHMETIC UNIT AND INPUT VALUE SORTER USED THEREIN

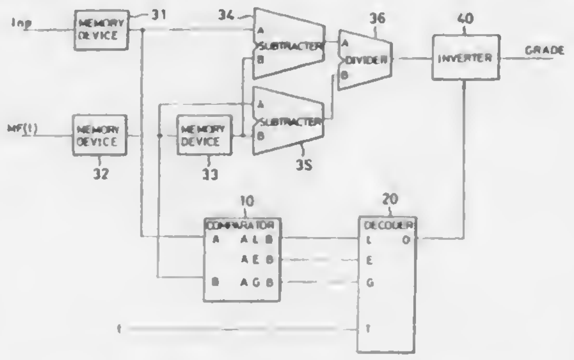
Satoshi Otsuki, Ikeda, Japan, assignor to Ricoh Company, Ltd., Tokyo, Japan

Continuation of Ser. No. 463,065, Jun. 5, 1995, Pat. No. 5,651,097, which is a continuation of Ser. No. 105,335, Aug. 10, 1993, abandoned. This application Feb. 27, 1997, Ser. No. 807,658

Claims priority, application Japan, Aug. 11, 1992, 4-236558; Oct. 23, 1992, 4-309494

Int. Cl.^{6} G06G *7/00*

U.S. Cl. 395—3 **1 Claim**



1. A grade arithmetic unit used in a fuzzy inferential device having a plurality of fuzzy rules and calculating a grade value corresponding to an inputted determined value input, the grade arithmetic unit comprising:

- a first memory that stores therein sequentially an input value of each of vertexes of a membership function defined as a trapezoid;
- a second memory that stores therein the determined value input inputted from an input terminal;
- an interval determination unit that determines which interval between the vertexes the determined value input stored in said second memory belongs to based on the input value of each of vertexes supplied from said first memory synchronized with a clock signal, and that supplies a non-inverting signal when a side of the trapezoid corresponding to the determined interval belongs to an oblique side ascending to the right and supplies an inverting signal when it belongs to an oblique side descending to the right,
- a first subtracter which subtracts an input value of the vertex having zero grade value of the interval determined by said interval determination unit from the determined value input stored in said second memory;
- a second subtracter which subtracts the input value of the vertex having zero grade value from an input value of the vertex having a maximum value of the interval determined by said interval determination unit,
- a divider for calculating a grade value which divides the output from said first subtracter by the output from said second subtracter;
- an inverter which inverts the bits of the grade result calculated by said divider when an inverting signal is supplied by said interval determination unit.

5,784,536

NEURAL PROCESSOR COMPRISING MEANS FOR NORMALIZING DATA

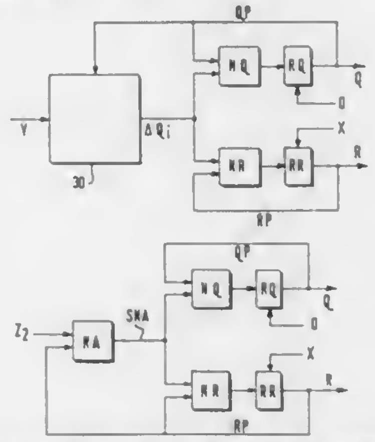
Yannick Deville, Villecresnes, France, assignor to U.S. Philips Corporation, New York, N.Y.

Division of Ser. No. 55,431, Apr. 29, 1993, Pat. No. 5,625,753. This application Jun. 5, 1995, Ser. No. 464,922

Claims priority, application France, Apr. 29, 1992, 92 05282

Int. Cl.^{6} G06F *15/18*

U.S. Cl. 395—27 **3 Claims**



1. A neural processor comprising calculating means for normalizing a first input data X with respect to a second input data Y by calculating a quotient Q of a division of X by Y, the calculating means comprising:

- preliminary neuron means (**30**) having:
  - a first input;
  - an output;
  - a second input for receiving the data Y; and
  - at least one plurality of (B-1) neurons arranged in parallel for computing terms $q_i \times B^i$ expressing a serial development of the quotient Q in an arithmetic base B, where B, q, and i are integers;
- a two input first neuron (NQ) having a first input coupled to the output of the preliminary neuron means;
- a two input second neuron (NR) having a first input coupled to the output of the preliminary neuron means;
- first delay means (RQ) having:
  - an input coupled to an output of the first neuron; and
  - an output, delivering ultimately the quotient Q, recursively connected to the second input of the first neuron; and
- second delay means (RR) having:
  - an input coupled to an output of the second neuron;
  - an output, delivering ultimately a remainder R, recursively connected to a second input of the second neuron and to the first input of the preliminary neuron means; and
  - a further input for initializing the second delay means with the first input data X.

5,784,537

ONE-CHIP MICROCOMPUTER CAPABLE OF EXECUTING CORRECTION PROGRAM AND MICROCOMPUTER CAPABLE OF CORRECTING ROM

Takashi Suzuki, Hino; Azuma Miyazawa, Mitaka, and Koji Mizobuchi, Sagamihara, all of Japan, assignors to Olympus Optical Co., Ltd., Tokyo, Japan

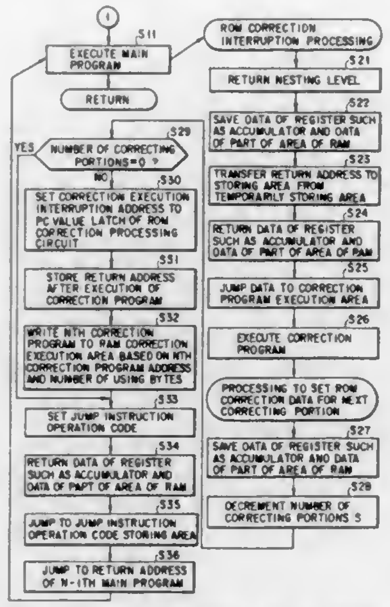
Filed Nov. 30, 1995, Ser. No. 564,861

Claims priority, application Japan, Dec. 13, 1994, 6-308743

Int. Cl.^{6} G06F *11/00*

U.S. Cl. 395—182.03 **12 Claims**

12. A one-chip microcomputer capable of correcting a ROM, comprising:


1
S11
EXECUTE MAIN PROGRAM
RETURN
ROM CORRECTION INTERRUPTION PROCESSING
S21
RETURN NESTING LEVEL
S22
SAVE DATA OF REGISTER SUCH AS ACCUMULATOR AND DATA OF PART OF AREA OF RAM
S23
TRANSFER RETURN ADDRESS TO STORING AREA FROM TEMPORARILY STORING AREA
S24
RETURN DATA OF REGISTER SUCH AS ACCUMULATOR AND DATA OF PART OF AREA OF RAM
S25
JUMP DATA TO CORRECTION PROGRAM EXECUTION AREA
S26
EXECUTE CORRECTION PROGRAM
PROCESSING TO SET ROM CORRECTION DATA FOR NEXT CORRECTING PORTION
S27
SAVE DATA OF REGISTER SUCH AS ACCUMULATOR AND DATA OF PART OF AREA OF RAM
S28
DECREMENT NUMBER OF CORRECTING PORTIONS S
S29
YES
NUMBER OF CORRECTING PORTIONS=0 ?
NO
S30
SET CORRECTION EXECUTION INTERRUPTION ADDRESS TO PC VALUE LATCH OF ROM CORRECTION PROCESSING CIRCUIT
S31
STORE RETURN ADDRESS AFTER EXECUTION OF CORRECTION PROGRAM
S32
WRITE NTH CORRECTION PROGRAM TO RAM CORRECTION EXECUTION AREA BASED ON NTH CORRECTION PROGRAM ADDRESS AND NUMBER OF USING BYTES
S33
SET JUMP INSTRUCTION OPERATION CODE
S34
RETURN DATA OF REGISTER SUCH AS ACCUMULATOR AND DATA OF PAPT OF AREA OF RAM
S35
JUMP TO JUMP INSTRUCTION OPERATION CODE STORING AREA
S36
JUMP TO RETURN ADDRESS OF N-ITH MAIN PROGRAM

- setting means for setting one correction address of a plurality of addresses to be corrected in a program stored in said ROM;
- correction program executing means for executing a correction program corresponding to said correction address when said correction address set by said setting means is coincident with a program counter;
- saving means for saving data so as not to change data which is to be temporarily used in said one-chip microcomputer, and which saved data is used in executing a normal program, at the time of operation for changing said correction address to another correction address of said plurality of correction addresses after executing said correction program by said correction program executing means; and
- returning means for returning data saved by said saving means to an original memory after executing of said correction program by said correction program executing means.

5,784,538

PROCESS AND APPARATUS FOR PREDICTING AND CONTROLLING FLOOD AND CARRYOVER CONDITIONS IN A SEPARATION COLUMN

George E. Dzyacky, 9238 Olcott Ave., St. John, Ind. 46373, assignor to George E. Dzyacky, St. John, Ind.

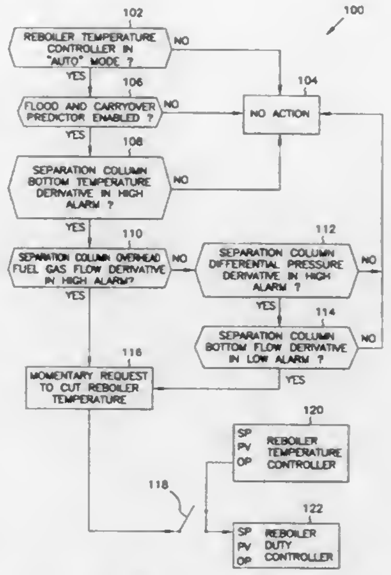
Filed Jun. 6, 1995, Ser. No. 467,228

Int. Cl.^{6} G06F *15/18*

U.S. Cl. 395—50 **30 Claims**

1. A process for identifying pre-flood conditions in a separation column operation comprising the steps of:

- (a) monitoring at least three measurable process variables selected from the group consisting of a separation column bottom temperature, a reboiler temperature, a separation column bottom flow rate, a liquid level in the bottom of the separation column, and a separation column differential pressure;
- (b) calculating a rate of change for each measurable process variable: and
- (c) identifying a synchronous rate of change which corresponds with a pre-flood condition when the rate of change in the separation column bottom temperature or the reboiler temperature increases, the rate of change of the separation column bottom flow rate or the liquid level in the bottom of the separation column increases, and the rate of change in the separation column differential pressure increases whereby a pre-flood condition is identified.


100
102
REBOILER TEMPERATURE CONTROLLER IN "AUTO" MODE ?
NO
YES
104
106
FLOOD AND CARRYOVER PREDICTOR ENABLED ?
NO
NO ACTION
YES
108
SEPARATION COLUMN BOTTOM TEMPERATURE DERIVATIVE IN HIGH ALARM ?
NO
YES
110
112
SEPARATION COLUMN OVERHEAD FUEL GAS FLOW DERIVATIVE IN HIGH ALARM?
NO
SEPARATION COLUMN DIFFERENTIAL PRESSURE DERIVATIVE IN HIGH ALARM ?
NO
YES
YES
114
SEPARATION COLUMN BOTTOM FLOW DERIVATIVE IN LOW ALARM ?
NO
116
MOMENTARY REQUEST TO CUT REBOILER TEMPERATURE
YES
120
SP
PV
OP
REBOILER TEMPERATURE CONTROLLER
118
122
SP
PV
OP
REBOILER DUTY CONTROLLER

5,784,539

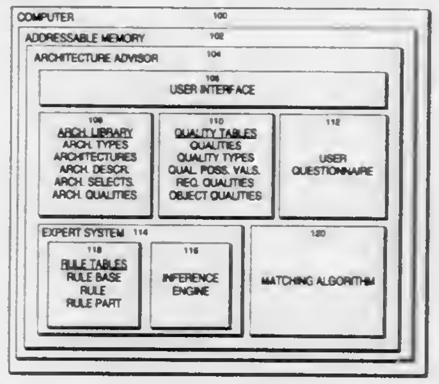
QUALITY DRIVEN EXPERT SYSTEM

Frederick P. Lenz, East Setauket, N.Y., assignor to Client-Server-Networking Solutions, Inc., White Plains, N.Y.

Filed Nov. 26, 1996, Ser. No. 753,484

Int. Cl.^{6} G06F *17/00*

U.S. Cl. 395—50 **15 Claims**



1. A quality driven expert system, executable on a computer system including a processor, the system comprising:

- a user questionnaire module that presents a plurality of questions to a user and receives a plurality of answers;
- an expert system module that maps the answers into a set of qualities to determine a set of required qualities, each required quality having a first quality value derived from at least one answer;
- a database of output entities, each output entity defined by selected ones of the qualities, each selected quality of an output entity having a second quality value; and
- a matching algorithm module that receives the required qualities from the expert system and compares the first quality values of the required qualities to the second quality values of selected ones of the qualities of the output entities to determine a ranked set of output entities that satisfy the required qualities.

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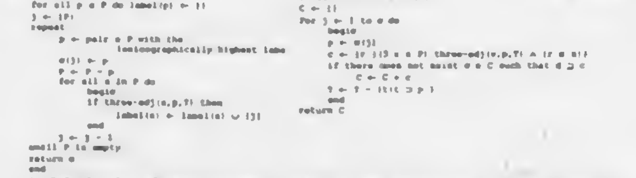
5,784,540
SYSTEMS FOR SOLVING SPATIAL REASONING PROBLEMS VIA TOPOLOGICAL INFERENCE

Bol Faltings, Lausanne, Switzerland, assignor to Ecole Polytechnique Federal de Lausanne, Lausanne, Switzerland

Filed Mar. 8, 1996, Ser. No. 614,831

Int. Cl.^{6} G06F *15/18*

U.S. Cl. 395—51 **36 Claims**



1. Methods of determining spatial manipulations and properties by applying topological inference techniques to spatial elements, the method being implemented in a programmed computer comprising a processor, a data storage system, at least one input device, and at least one output device, the method comprising the steps of:
- (a) generating input data for the programmed computer in the form of a hypergraph, the data being related to a set of physical elements, each element being multi-dimensional wherein,
  - i) said elements having properties including at least: a closed path periphery, an interior portion, and an exterior portion,
  - ii) any two or more elements having additional properties said properties including: a simply connected pairwise intersection, a triple intersection, three-adjacent edges, element intersections, and element unions,
  - iii) the set further having properties, said properties including: a closed path periphery, element intersections, element unions;
- (b) inputting the generated input data into the programmed computer through at least one input device for storage in the data storage system;
- (c) applying, to the generated input data stored in the data storage system, by means of the programmed computer,
  - i) an ordering step to sort pairwise intersections,
  - ii) a reverse elimination step which eliminates pairwise intersections in that order and finds all maximal simultaneous intersections; and
- (d) applying resultant data to at least one of the output devices.

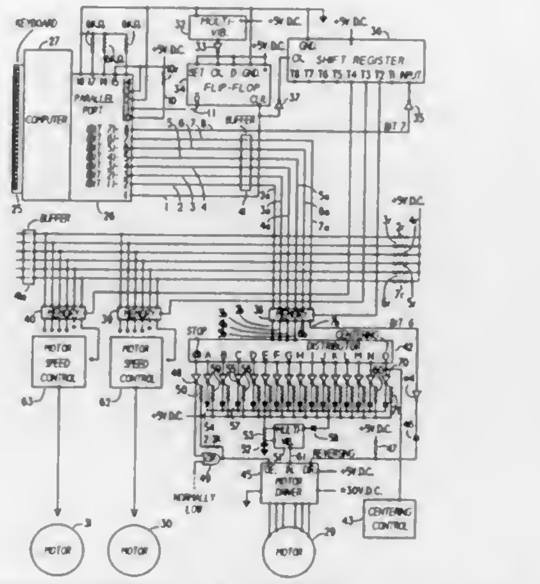
5,784,541
SYSTEM FOR CONTROLLING MULTIPLE CONTROLLABLE DEVICES ACCORDING TO A SCRIPT TRANSMITTED FROM A PERSONAL COMPUTER

John D. Ruff, 206 Birch St., Alexandria, Va. 22305

Filed Jan. 18, 1996, Ser. No. 588,473

Int. Cl.^{6} G06F *3/00;3/02;3/14*

U.S. Cl. 395—82 **4 Claims**



1. An apparatus for controlling a plurality of controllable devices wherein each of said controllable devices includes a plurality of different control settings with each of said control settings corresponding to a character of a predetermined set of characters, said apparatus comprising:
- a file for storing a plurality of said characters to control each of said controllable devices pursuant to a predetermined script;
- personal computer means for processing said file, said personal computer means including:
  - input means for entering said plurality of characters into said file;
  - manipulation means for creating and editing said file to arrange the entered characters in a predetermined sequence;
  - editing means for arranging said entered characters into lines of script wherein each line comprises a plurality of said entered characters equal in number to the number of said controllable devices, wherein each of said entered characters in said line relates to a different controllable device, and wherein the identity of each of said entered characters corresponds to one of said control settings such that the characters relating to each controllable device are in the same order in all said lines of script;
  - keyboard means included in said editing means for inserting a carriage return code at the end of each of said lines of script and thereby establish said lines of script;
  - memory means for storing said file;
  - encoding means for encoding said entered characters and carriage return codes stored in said file for transmission;
  - output port means operative in response to a plurality of command signals for transmitting separately each of said encoded entered characters and carriage return codes pursuant to said predetermined script whereby each of said plurality of command signals causes a single one of said encoded entered characters or one carriage return code to be transmitted;
  - printer port means for transmitting said encoded entered characters and carriage return codes in the sequence of said predetermined script; and
  - pulse source means for issuing said plurality of command signals at predetermined evenly spaced time intervals; and
- interface means for decoding said encoded entered characters received from said output port means and controlling each of said controllable devices in accordance with the control settings corresponding to said decoded entered characters, said interface means including:
  - a plurality of memories wherein each said memory is associated with one of said controllable devices for storing said entered characters from said file corresponding to said control settings of said one of said controllable devices;
  - a shift register for enabling said entered characters from said file transmitted from said output port means to be latched sequentially into each of said memories in sequences corresponding to said lines of script;
  - data detection means for detecting said carriage return code at the end of each of said lines of script thereby controlling said shift register to begin a new sequence corresponding to each new line of script; and
  - a plurality of distribution means, wherein each said distribution means is associated with one said controllable device and one associated memory for decoding said entered characters latched in each said associated memory, each said distribution means including a plurality of terminals with each of said terminals being associated with a respective one of the control settings for the associated controllable device such that at any time only the terminal associated with the control setting corresponding to said entered character latched in said associated memory at that time is held at a first predetermined voltage while others of said terminals are held at a second predetermined voltage.

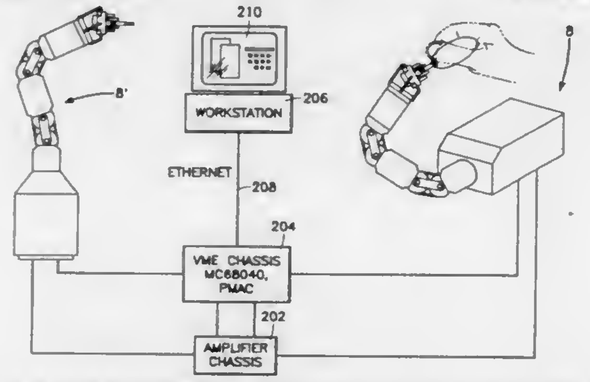
5,784,542
DECOUPLED SIX DEGREE-OF-FREEDOM TELEOPERATED ROBOT SYSTEM

Timothy Ohm, La Crescenta; Hari Das, Altadena; Rodriguez Guillermo, La Canada; Curtis Boswell, Pasadena; Eric Paljug, Bridgeville; Paul Schenker, Pasadena; Ed Barlow, San Dimas, and Charles Steve, Germantown, all of Calif., assignors to California Institute of Technology, Pasadena, Calif.

Continuation-in-part of Ser. No. 525,813, Sep. 7, 1995, Pat. No. 5,710,870. This application Oct. 23, 1996, Ser. No. 734,967

Int. Cl.^{6} G06F *15/00*

U.S. Cl. 395—95 **35 Claims**



1. A robot manipulator coupled to an external device, said robot manipulator comprising:
- an actuator base with plural actuators said actuator base having means for receiving forces generated by said external device;
- an end effector interactive with an operator;
- a force feedback sensor coupled between said end effector and said actuator base for receiving said forces from said actuator base, converting said forces into feedback forces, and providing said feedback forces to said operator;
- plural arms extending seriatim between said end effector and said actuator base;
- plural joints connected between pairs of adjacent arms;
- wherein each one of said plural joints comprises means for mechanically coupling respective ones of said actuators to respective ones of said joints through intermediate ones of said joints, and wherein said means for mechanically coupling is decoupled from said intermediate joints;
- a user interface for receiving user commands;
- a servo controller coupled to said arm and wrist joints for reading actual positions of said arm and wrist joints; and
- a real-time kinematic processor coupled to said user interface and said servo controller for receiving said user commands and said actual positions of said arm and wrist joints, for computing forward and inverse kinematic relationships and for controlling said arm and wrist joints in accordance with said user commands and said computed relationships.

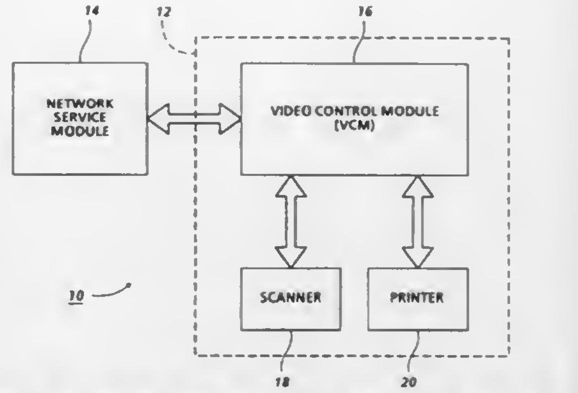
5,784,543
CLOCK MULTIPLIER

J. F. Philippe Marchand, Rochester, N.Y., assignor to Xerox Corporation, Stamford, Conn.

Filed Dec. 4, 1995, Ser. No. 567,395

Int. Cl.^{6} G06K *15/00*

U.S. Cl. 395—102 **7 Claims**



7. A method for printing an image on a substrate, the image being represented by a set of words with each word being modulated so as to produce a single bit stream, each of the words including M bits, comprising the step of:
- producing N phase signals with a tunable multi-phase clock generator, responsive to a clock signal with a first clock rate;
- receiving the N phase signals and the word set;
- processing each word of the word set, with the N phase signals, to produce the single bit stream, the single bit stream being outputted at a second clock rate with the second clock rate being greater than the first clock rate;
- tuning said tunable multi-phase clock generator so that said single bit stream being outputted with said second clock rate is outputted substantially instantaneously with reception of said clock signal;
- receiving the single bit stream; and printing the image on the substrate.

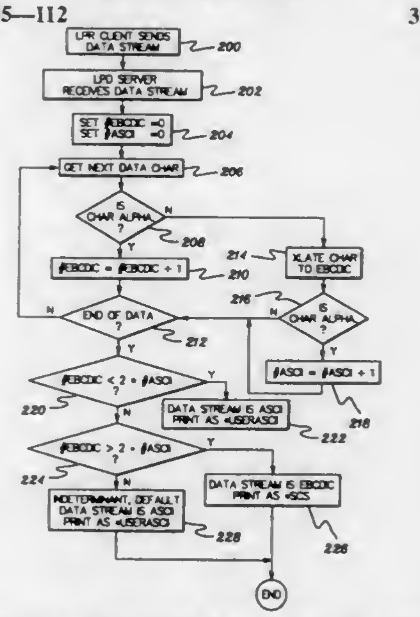
5,784,544
METHOD AND SYSTEM FOR DETERMINING THE DATA TYPE OF A STREAM OF DATA

Jeffrey Scott Stevens, Endwell, N.Y., assignor to International Business Machines Corporation, Armonk, N.Y.

Filed Aug. 30, 1996, Ser. No. 697,848

Int. Cl.^{6} G06F *15/00*

U.S. Cl. 395—112 **35 Claims**



23. A system for determining the data type of a data stream having one or more characters, said system comprising:
- means for initially determining whether a character of said data stream is of a first data type;
- means for incrementing a first value when said character is determined to be of said first data type;
- means for translating said character from a second data type to said first data type when said character is initially determined not to be of said first data type;
- means for determining whether said translated character is of said first data type;
- means for incrementing a second value when said translated character is of said first data type;
- means for repeating said initially determining, said incrementing said first value, said translating, said determining, and said incrementing said second value for each character of said data stream; and

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means for comparing said first value and said second value to determine whether said data type of said data stream is said first data type or said second data type.

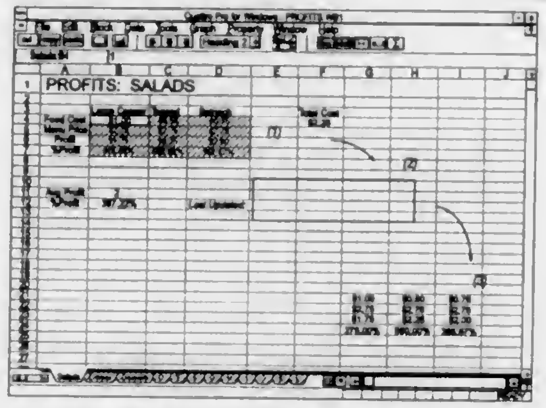
5,784,545
SYSTEM AND METHODS FOR IMPROVED SPREADSHEET INTERFACE WITH USER-FAMILIAR OBJECTS

Charles R. Anderson, Santa Cruz; Robert W. Warfield, Aptos; Istvan Cseri, Scotts Valley; Murray K. Low; Weikuo Liaw, both of Santa Cruz, and Alan M. Bush, Menlo Park, all of Calif., assignors to Borland International, Inc., Scotts Valley, Calif.

Continuation of Ser. No. 866,658, Apr. 8, 1992, Pat. No. 5,416,895. This application Apr. 10, 1995, Ser. No. 420,522

Int. Cl.⁶ G06F *17/22*

U.S. Cl. 395—148 **35 Claims**



1. In an electronic spreadsheet system for storing and manipulating information, a computer-implemented method of representing a three-dimensional spreadsheet on a screen display, the method comprising:

displaying on said screen display a first spreadsheet page from a plurality of spreadsheet pages, each of said spreadsheet pages comprising an array of information cells arranged in row and column format, at least some of said information cells storing user-supplied information and formulas operative on said user-supplied information, each of said information cells being uniquely identified by a spreadsheet page identifier, a column identifier, and a row identifier, said plurality of spreadsheet pages being stored in a single disk file;

while displaying said first spreadsheet page, displaying a row of spreadsheet page identifiers along one side of said first spreadsheet page, each said spreadsheet page identifier being displayed as an image of a notebook tab on said screen display and indicating a single respective spreadsheet page, wherein at least one spreadsheet page identifier of said displayed row of spreadsheet page identifiers comprises at least one user-settable identifying character;

receiving user input for requesting display of a second spreadsheet page in response to selection with an input device of a spreadsheet page identifier for said second spreadsheet page;

in response to said receiving user input step, displaying said second spreadsheet page on said screen display in a manner so as to obscure said first spreadsheet page from display while continuing to display at least a portion of said row of spreadsheet page identifiers; and

receiving user input for entering a formula in a cell on said second spreadsheet page, said formula including a cell reference to a particular cell on another of said spreadsheet pages having a particular spreadsheet page identifier comprising at least one user-supplied identifying character, said cell reference comprising said at least one user-supplied identifying character for said particular spreadsheet page identifier together with said column identifier and said row identifier for said particular cell.

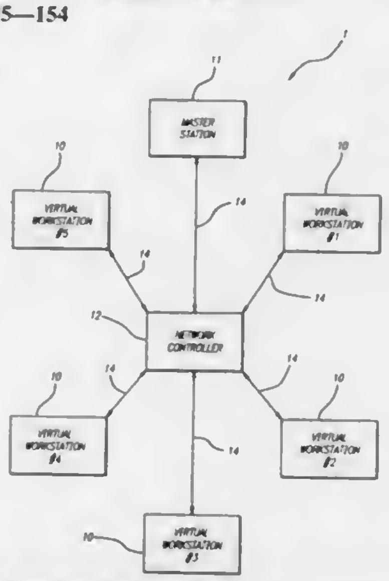
5,784,546
INTEGRATED VIRTUAL NETWORKS

William J. Benman, Jr., Los angeles, Calif., assignor to Integrated Virtual Networks, Los Angeles, Calif.

Filed May 12, 1994, Ser. No. 241,732

Int. Cl.⁶ G06T *7/20*

U.S. Cl. 395—154 **40 Claims**



1. A virtual workstation comprising:

virtual environment controller means for creating a display of a virtual representation of a work area and tools and assets therein;

virtual interfacing means for processing inputs from a user to provide environment control signals to said environment controller means by which said environment controller means adjusts the display to provide an image which appears to allow the user to move within said work area and utilize said tools and assets depicted therein; and

intuitive control means for initiating a background execution of an operation relating to a particular tool or asset based solely on the apparent movement of the user in said work area relative to the respective tool or asset.

5,784,547
METHOD FOR FAULT-TOLERANT COMMUNICATION UNDER STRICTLY REAL-TIME CONDITIONS

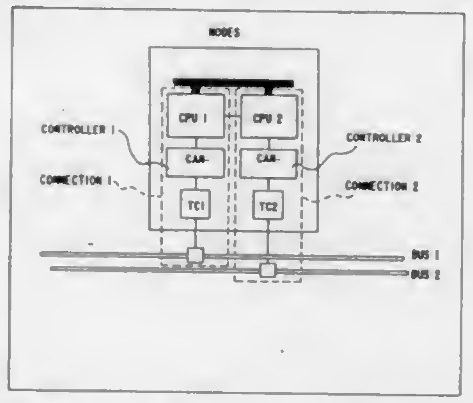
Ewald Dittmar, Ludwigshafen; Hans-Dieter Kochs, Duisburg, and Holger Hilmer, Moers, all of Germany, assignors to ABB Patent GmbH, Mannheim, Germany

Filed Mar. 18, 1996, Ser. No. 617,124

Claims priority, application Germany, Mar. 16, 1995, 195 09 558.8

Int. Cl.⁶ G06F *11/00*

U.S. Cl. 395—182.02 **4 Claims**



1. A method for a reliable and fault-tolerant transmission of information with strictly real-time requirements in a local network, using an active fault detection and notification mechanism on the basis of a double bus architecture with redundant bus systems, which comprises:

using a controller area network (CAN) transmission protocol on a double bus systems, by:
- a) transmitting all process data on a bus of one bus system as a process bus during fault-free operation, and transmitting status information of components and other information on a bus of another bus system during fault-free operation;
- b) notifying all network subscribers (network nodes) of faults with each bus serving as a watchdog bus, in the case of a fault in the other bus;
  - b1) triggering a switch-over of all of the network nodes to the other bus system and continuing the transmission of the process data on the fault-free bus, upon the notification of faults in the case of a process bus fault; and
    - b1.1) carrying out the switch-over in the case of a process bus fault, by;
      - b1.1.1) setting fault latencies between the detection of a fault and a possible switch-over in most cases of faults so short that no loss of messages occurs;
      - b1.1.2) setting a fault coverage value; and
      - b1.1.3) restoring a consistent system state in the case of possible losses, falsifications or duplications of messages with recovery mechanisms;
  - b2) triggering no switch-over upon a notification of faults in the case of a fault in the bus which is not the process bus;
- c) providing all of the network nodes with two complete bus connections including a communication CPU, a communication controller and a transceiver;
  - c1) each communication CPU function monitoring another connection of its node and monitoring its connection component as a watchdog processor; and
  - c2) a communication CPU initiating a transmission of a fault message through its bus, after a detection of a fault in another connection of its node.

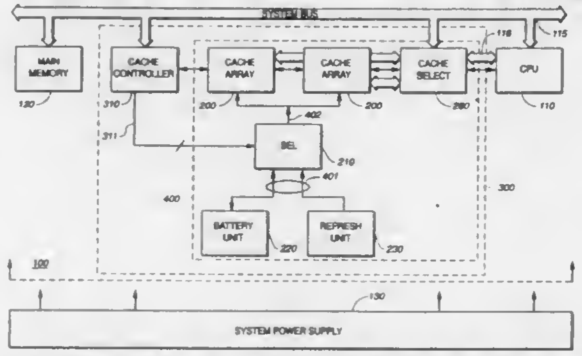
5,784,548
MODULAR MIRRORED CACHE MEMORY BATTERY BACKUP SYSTEM

Thomas Singkiat Liong, San Jose; Ashwath Nagaraj, and Krishnakumar Rao, both of Fremont, all of Calif., assignors to Mylex Corporation, Fremont, Calif.

Filed Mar. 8, 1996, Ser. No. 613,080

Int. Cl.⁶ G06F *13/00;12/00*

U.S. Cl. 395—182.04 **16 Claims**



1. A mirrored cache memory system including modular battery backup for use in a computer system, the mirrored cache memory system controlled by a computer system cache controller that normally provides refresh signals for the mirrored cache memory system and powered by a computer system power supply, the modular battery backup for providing power and refresh signals to the mirrored cache memory system if the computer system cache controller should fail, the cache memory system comprising:

- (a) a mirrored cache memory that includes a first and a second DRAM bank addressable by a common address for storing a copy of stored data in each DRAM bank, and for providing a redundant backup memory for read error correction, each DRAM bank having a refresh input for accepting a set of refresh signals, and a bank selector controlled by the computer system cache controller for selecting data access to and from the first and second DRAM bank;
- (b) a battery power source;
- (c) a refresh generator for generating a set of refresh signals for refreshing the mirrored cache memory; and
- (d) a backup system controller for sensing a computer system cache controller failure, disabling the computer system power supply from supplying power to the mirrored cache memory and, otherwise, enabling the battery source to provide power to the mirrored cache memory, the battery backup system controller also disconnecting refresh signals supplied by the cache controller to the first and second DRAM bank refresh signal input when the computer system cache controller fails, and connecting the set of refresh signals from the refresh generator to the first and second DRAM bank refresh signal input.

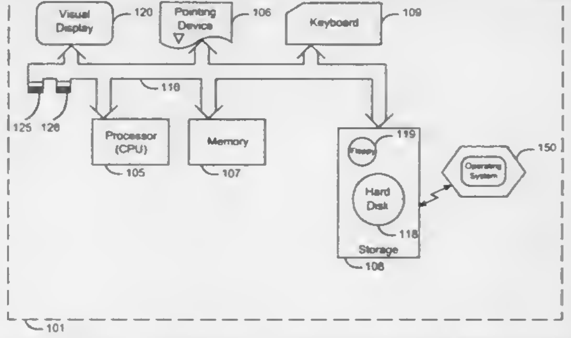
5,784,549
REDUCED OR FAIL-SAFE BOOTSTRAPPING OF A SYSTEM HAVING A GRAPHICAL USER INTERFACE

Brian Alan Reynolds, Redmond; Pierre-Yves Santerre; Darryl S. Richman, both of Bellevue; Ralph Allen Lipe, Woodinville, and Robert Matthew McKaughan, Redmond, all of Wash., assignors to Microsoft Corporation, Redmond, Wash.

Continuation of Ser. No. 355,074, Dec. 13, 1994, Pat. No. 5,627,964. This application Feb. 6, 1997, Ser. No. 796,130

Int. Cl.⁶ G06F *11/34*

U.S. Cl. 395—182.22 **12 Claims**



1. In a system comprising a processor, an input device operatively coupled to the processor, a visual display operatively coupled to the processor, an information storage mechanism operatively coupled to the processor, and software executable by the processor for governing operation of the system, a method of operating the system to emulate failure recovery, the method comprising the steps of:

receiving into the system an input from the input device;

responsively to the input received, deciding with the processor to bypass a normal mode of operation of the system, the normal mode providing the system with a first set of graphical user interface capabilities, and to establish a failure-recovery mode of operation of the system in lieu of the normal mode, the failure-recovery mode providing the system with a second set of graphical user interface capabilities, the second set including a subset of the first set of graphical user interface capabilities;

establishing the failure-recovery mode of operation of the system by loading with the processor, in conjunction with the information storage mechanism, a second configuration of the software for execution by the processor; and

executing software of the second configuration with the processor to provide the system with a graphical user interface capability of the second set.

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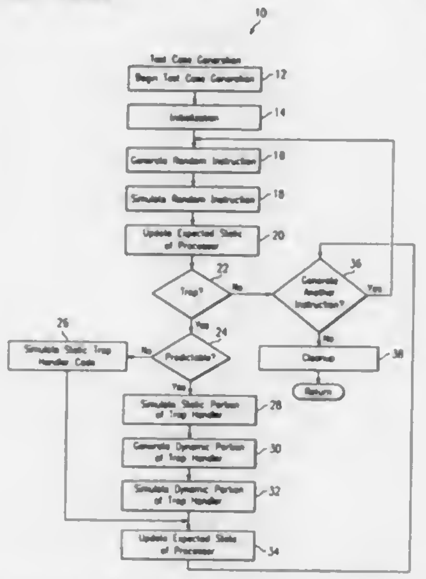
5,784,550

METHOD FOR ENHANCED FUNCTIONAL TESTING OF A PROCESSOR USING DYNAMIC TRAP HANDLERS

Russell C. Brockmann, and Karl Brummel, both of Fort Collins, Colo., assignors to Hewlett-Packard Company, Palo Alto, Calif.

Filed Oct. 29, 1996, Ser. No. 739,244
Int. Cl.^{6} G06F *11/00*
U.S. Cl. 395—183.09 **20 Claims**


10
Test Case Generation
Begin Test Case Generation
12
Initialization
14
Generate Random Instruction
16
Simulate Random Instruction
18
Update Expected State of Processor
20
Trap?
22
No
Yes
24
Predictable?
No
Yes
26
Simulate Static Trap Handler Code
36
Generate Another Instruction?
Yes
No
Cleanup
38
Return
Simulate Static Portion of Trap Handler
28
Generate Dynamic Portion of Trap Handler
30
Simulate Dynamic Portion of Trap Handler
32
Update Expected State of Processor
34

1. A method for the functional testing of a processor, comprising the steps of:

generating a test case capable of generating a dynamic trap handler in response to a predictable interrupt condition;

simulating the test case in order to obtain an expected state of the processor;

loading the test case onto an entity which will execute the test case;

executing the test case in order to obtain an actual state of the processor, wherein the test case is executed by the entity to be tested; and

comparing the actual state of the processor to the expected state of the processor.

5,784,551

DUPLICATE CONTROL AND PROCESSING UNIT FOR TELECOMMUNICATIONS EQUIPMENT

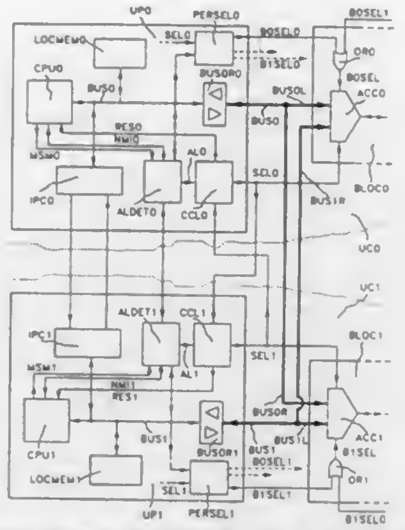
Carlo De Leva, Monza, and Maurizio Zambardi, Cassina De' Pecchi, both of Italy, assignors to Siemens Telecommunicazioni S.p.A., Milan, Italy

PCT No. PCT/EP93/02496, § 371 Date Mar. 30, 1995, § 102(e) Date Mar. 30, 1995, PCT Pub. No. WO94/08292, PCT Pub. Date Apr. 14, 1994

PCT Filed Sep. 15, 1993, Ser. No. 411,686

Claims priority, application Italy, Sep. 30, 1992, MI92 A 002261

Int. Cl.^{6} G06F *11/20*
U.S. Cl. 395—182.11 **6 Claims**



1. In a duplicate control and processing unit for telecommunications equipment having peripheral devices controlled by the duplicate control and processing unit, wherein the duplicate control and processing unit consists essentially of two identical control units connected to the peripheral devices, wherein each control and processing unit includes a processing unit with a processing unit bus and the processing unit carries out processing necessary for operating and controlling the telecommunications equipment, and wherein a plurality of peripheral circuits are connected to the processing unit bus for assisting the processing unit in carrying out its control functions, the improvement which comprises:

each processing unit including a configuration control circuit generating a respective copy selection signal directed to the peripheral circuits belonging to the control units assigned thereto, the copy selection signals having logical values selectively determining which of the processing units is an active processing unit taking control of the telecommunications equipment;

each processing unit further including a clock signal generator, two mutually microsynchronized microprocessors connected in parallel to a single bus including lines for parity control and a RAM containing control software, and the peripheral circuits comprising respective interface circuits towards said processing unit and other telecommunications equipment not belonging to the duplicate control unit

each peripheral circuit including a double gate access circuit having gates connected to said busses of said processing units, and said access circuit having a control input receiving the copy selection signal for electrically connecting the bus lines of the respectively active processing unit and electrically disconnecting the bus lines of the respective processing unit on standby;

the peripheral circuits being duplicated, and a duplicate RAM of the duplicated peripheral circuits being adapted to contain the data necessary at the active processing unit for operating the telecommunications equipment and the data processed during an operation thereof, and comprising a mass memory and circuits for interfacing with input/output terminals;

the respectively active processing unit accessing a copy of a duplicated peripheral circuit, independendly of whether it belongs to its own or to the duplicated control unit, sending to the respective peripheral which it intends to access a respective selection signal used by said access circuit for extending to the selected peripheral circuit the bus of the respectively active processing unit; and

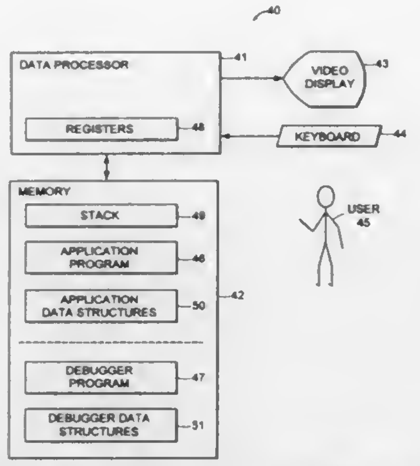
the active processing unit performing synchronous write cycles in both copies of the peripheral data RAM, to allow fast recovery of an operating synchronism by said processing unit after being switched from standby to active.

5,784,552

DEBUGGING A COMPUTER PROGRAM BY SIMULATING EXECUTION FORWARDS AND BACKWARDS IN A MAIN HISTORY LOG AND ALTERNATIVE HISTORY LOGS

John E. Bishop, Nashua, N.H., and Donald A. Carignan, Tyngsboro, Mass., assignors to Digital Equipment Corporation, Maynard, Mass.

Filed Jul. 28, 1993, Ser. No. 98,501
Int. Cl.^{6} G06F *11/00*
U.S. Cl. 395—183.14 **22 Claims**



1. A method of operating a digital computer for interactive debugging of a computer program; said digital computer having a data processor, a random-access memory, and a display for displaying information to a user; said data processor having a plurality of registers; said computer program including a sequence of instructions; said method comprising the steps of:

a) executing said sequence of instructions in a forward direction in order to create a current state of said memory and said registers for said computer program, maintaining said current state, and, for each instruction that is executed, recording in a main log pre-existing values of any registers and memory locations that are changed by said each instruction, whereby said main log does not include said current state; and

b) after said step a), simulating reverse execution of said computer program by displaying to said user contents of specified ones of said registers and memory locations that existed during forward execution of the computer program at a specified time in the past; wherein the contents of the specified ones of said registers and memory locations are reconstructed for said computer program by performing the steps comprising

i) forward searching in said main log for entries that include values of said specified ones of said registers and memory locations; wherein, for each of said specified ones of said registers and memory locations, said main log is searched beginning at a location corresponding to said specified time in the past and continuing until either a value is found for said each of said specified ones of said registers and memory locations or until an end of said main log is reached, and

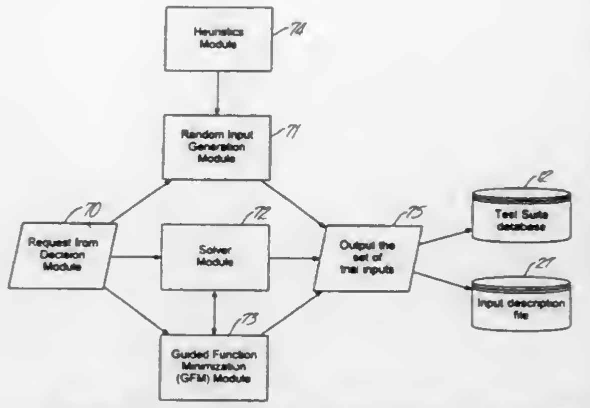
ii) when the end of said main log is reached, obtaining a value from said current state for said each of said specified ones of said registers and memory locations for which a value had not been found in said main log.

5,784,553

METHOD AND SYSTEM FOR GENERATING A COMPUTER PROGRAM TEST SUITE USING DYNAMIC SYMBOLIC EXECUTION OF JAVA PROGRAMS

Adam K. Kolawa, Bradbury, and Roman Salvador, LaJolla, both of Calif., assignors to Parasoft Corporation, Monrovia, Calif.

Continuation-in-part of Ser. No. 599,719, Feb. 12, 1996, which is a continuation-in-part of Ser. No. 587,208, Jan. 16, 1996, abandoned. This application Apr. 30, 1997, Ser. No. 846,639
Int. Cl.^{6} G06F *11/00*
U.S. Cl. 395—183.14 **26 Claims**


Heuristics Module
74
Random Input Generation Module
71
70
Request from Decision Module
Solver Module
72
Output the set of trial inputs
75
Test Suite database
12
Input description file
27
Guided Function Minimization (GFM) Module
73

1. A system for generating a test suite for use in testing a computer program written in the JAVA progamming language, the computer program having been compiled by a JAVA compiler into JAVA bytecodes, comprising:

means for symbolically executing instructions of the computer program represented by the JAVA bytecodes to determine values of program variables of the computer program at selected points of execution and for finding input values to the computer program resulting in complete test coverage of the computer program according to a predetermined criteria based on the symbolic execution; and

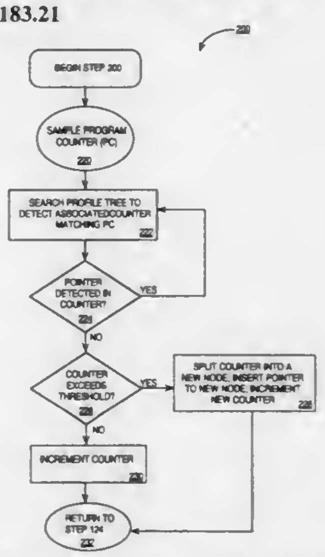
means for storing the input values as a test suite for testing the computer program.

5,784,554

DYNAMIC SAMPLING PROFILER

Marianne Hsien-Ming Hsiung, Woodside, Calif., assignor to Apple Computer, Inc., Cupertino, Calif.

Filed May 28, 1993, Ser. No. 68,898
Int. Cl.^{6} G06F *13/00*
U.S. Cl. 395—183.21 **35 Claims**


200
BEGIN STEP 200
SAMPLE PROGRAM COUNTER (PC)
220
SEARCH PROFILE TREE TO DETECT ASSOCIATEDCOUNTER MATCHING PC
222
POINTER DETECTED IN COUNTER?
224
YES
NO
COUNTER EXCEEDS THRESHOLD?
226
YES
NO
SPLIT COUNTER INTO A NEW NODE, INSERT POINTER TO NEW NODE, INCREMENT NEW COUNTER
228
INCREMENT COUNTER
230
RETURN TO STEP 124
232

1. A dynamic adaptive sampling process to provide performance analysis on a computer system, the sampling process comprising the steps of:

generating a profile tree comprising a plurality of hierarchical levels including a first hierarchical level and a second hierarchical level, each hierarchical level having at least one node, wherein each node comprises an array of counters, with each counter mapped to an associated range of memory locations in the computer memory, and wherein each counter of a node of said second hierarchical level maps to a respective second range of memory locations which is within a first range of memory locations that is mapped to a counter of a node of said first hierarchical level;

receiving a program counter value; and

searching the profile tree according to the hierarchy of nodes to locate a counter of a node at said second hierarchical level that maps to a memory range which includes a memory location identified by the program counter value.

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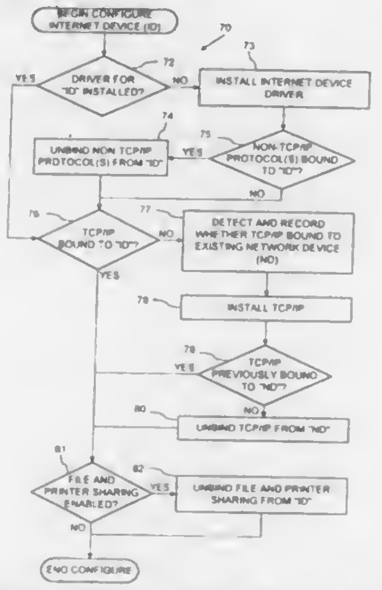
5,784,555
AUTOMATION AND DIAL-TIME CHECKING OF SYSTEM CONFIGURATION FOR INTERNET

Jeremy Daniel Stone, Bellevue, Wash., assignor to Microsoft Corporation, Redmond, Wash.

Filed Apr. 18, 1996, Ser. No. 634,389

Int. Cl.^{6} G06F *17/00*

U.S. Cl. 395—200.5 **22 Claims**


BEGIN CONFIGURE INTERNET DEVICE (ID)
70
72
73
DRIVER FOR "ID" INSTALLED?
YES
NO
INSTALL INTERNET DEVICE DRIVER
74
75
UNBIND NON TCP/IP PROTOCOL(S) FROM "ID"
NON-TCP/IP PROTOCOL(S) BOUND TO "ID"?
YES
NO
76
77
TCP/IP BOUND TO "ID"?
DETECT AND RECORD WHETHER TCP/IP BOUND TO EXISTING NETWORK DEVICE (ND)
NO
YES
78
INSTALL TCP/IP
79
TCP/IP PREVIOUSLY BOUND TO "ND"?
YES
NO
80
UNBIND TCP/IP FROM "ND"
81
82
FILE AND PRINTER SHARING ENABLED?
YES
NO
UNBIND FILE AND PRINTER SHARING FROM "ID"
END CONFIGURE

1. A method of configuring network software on a computer for securely connecting to a remote public computer network, the network software having a facility for sharing local resources of the computer, the facility having a sharing setting controlling access to said resources from the remote public computer network, the method comprising:

checking whether said setting is enabled for a connection to the remote public computer network; and

if said setting is enabled for said connection, disabling said setting for said connection, thereby preventing access from the remote public computer network to said resources.

5,784,556
ANALYZER USING CONTROL GRAPH FOR SYSTEM CALL FUNCTION AND LISTS OF LOCK APPLICATIONS FOR ALL POSSIBLE SYNCHRONIZATIONS OF PROCESSES TO ANALYZE RISKS OF BLOCKING OPERATION

Michel Sanchez, Voiron; Frédéric Brugnot, Eybens, and Michel Chervier, Grenoble, all of France, assignors to Bull S.A., Louveciennes, France

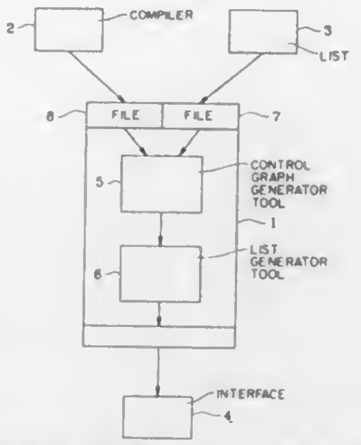
Filed Apr. 17, 1995, Ser. No. 423,631

Claims priority, application France, Apr. 18, 1994, 94 04578

Int. Cl.^{6} G06F *9/00*

U.S. Cl. 395—200.08 **13 Claims**

1. A static analyzer (1) for analyzing risks of a blocking operation in a multiprocessor system having shared memory, said analyzer being operable to receive, as an input, programming files (2) of the system containing system call functions and nomenclature (3) of primitive functions for applying and releasing locks in the system, and further wherein said analyzer produces messages (4) which enable elimination of deadlocking before the system is started up, said analyzer comprising a first tool (5) for producing a control graph for each system call function contained in the programming files (2), wherein said control graph includes only the nomenclature (3) of the primitive functions using resources of the system, and a second tool (6) which generates lists of lock applications (LM) for all possible synchronizations of different processes in the system.



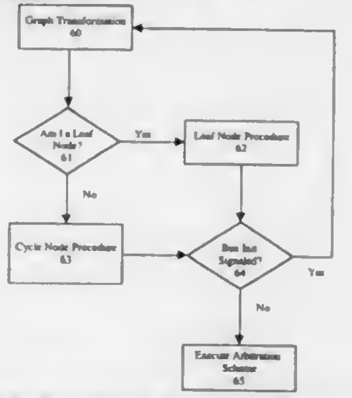
5,784,557
METHOD AND APPARATUS FOR TRANSFORMING AN ARBITRARY TOPOLOGY COLLECTION OF NODES INTO AN ACYCLIC DIRECTED GRAPH

Florin Oprescu, Sunnyvale, Calif., assignor to Apple Computer, Inc., Cupertino, Calif.

Continuation of Ser. No. 517,074, Aug. 21, 1995, abandoned, which is a continuation of Ser. No. 994,128, Dec. 21, 1992, abandoned. This application Dec. 20, 1996, Ser. No. 777,909

Int. Cl.^{6} G06F *13/00*

U.S. Cl. 395—200.5 **27 Claims**



1. A method for transforming an arbitrary topology of devices, each having at least one port for communicating with other devices, into a directed acyclic topology of devices comprising the steps of:

identifying one or more leaf nodes, wherein the leaf nodes include only one port having a connection to a first set of adjacent devices;

labeling the connected port on each of the one or more leaf nodes as parent ports;

labeling one or more ports on the first set of adjacent devices coupled to corresponding one or more parent ports on the leaf nodes as child ports;

labeling all ports not identified as child ports and not identified as parent ports as cycle parent ports;

sending a signal from the cycle parent ports to ports on a second set of adjacent devices;

resolving conflicts between cycle parent ports by eliminating multiple cycles, if any, then eliminating single cycles, if any, such that a first subset of the cycle parent ports are relabeled as parent ports and a second subset of the cycle parent ports are relabeled as child ports wherein the parent ports are connected to child ports; and

determining a root node, wherein the root node has one or more child ports and no parent ports.

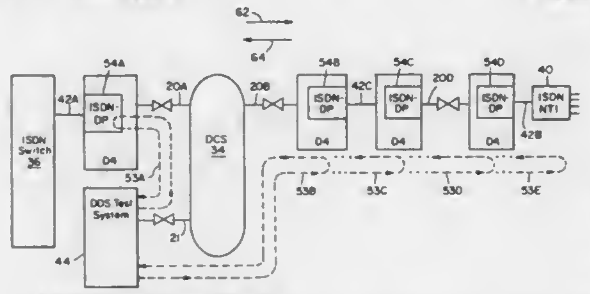
5,784,558
METHOD AND APPARATUS FOR TESTING OF EXTENDED ISDN BRI SERVICE

Earl A. Emerson, Somerset, and Henry J. Gonzalez, Piscataway, both of N.J., assignors to Integrated Network Corporation, Bridgewater, N.J.

Filed Apr. 26, 1996, Ser. No. 635,412

Int. Cl.^{6} H04L *1/14;* **H04J** *3/14*

U.S. Cl. 395—200.6 **27 Claims**



1. A test system comprising:

a digital communication channel for communicating digital data in a first and a second direction of transmission;

a DDS-protocol network test unit coupled to the communication channel which transmits digital signals in the first direction and receives digital signals in the second direction, the digital signals comprising a DDS-protocol test command and test data;

an ISDN-protocol transmission device coupled to the communication channel; the ISDN device comprising a monitoring circuit for receiving the DDS-protocol test command on a portion of the communication channel carrying D+ channel bandwidth in the first direction, and a processing circuit for processing the DDS-protocol test command.

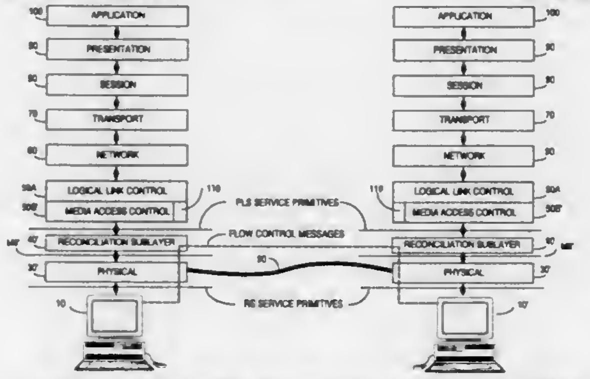
5,784,559
FULL DUPLEX FLOW CONTROL FOR ETHERNET NETWORKS

Howard M. Frazier, Newark, and Shimon Muller, Sunnyvale, both of Calif., assignors to Sun Microsystems, Inc., Palo Alto, Calif.

Filed Nov. 6, 1995, Ser. No. 554,097

Int. Cl.^{6} H04L *7/00*

U.S. Cl. 395—200.13 **19 Claims**



1. A flow control method for use with a full-duplex Ethernet network that includes at least a first station coupled by a medium to a second station for transmission of signals therebetween, each station definable as including at least a physical layer and a reconciliation sublayer and a media independent interface (MII) therebetween, and a media access control layer, the method including the following steps:

(a) when resources of said second station approach a threshold level of congestion, causing said second station to periodically transmit a first flow control (XOFF) signal over said medium to said first station, and causing said second station to periodically transmit a second flow control (XON) signal otherwise over said medium to said first station, said XOFF signal and said XON signal being distinguishable from data signals transmittable over said medium;

(b) upon receipt of a said XOFF flow control signal, causing said first station to continuously assert a carrier sense (CRS) signal until receipt by said first station of a control signal commanding de-assertion of said CRS flow control signal;

wherein assertion of said CRS continues for a time period not exceeding receipt by said first station of a said XON signal from said second station;

wherein during assertion of said CRS flow control signal, said first station is flow controlled.

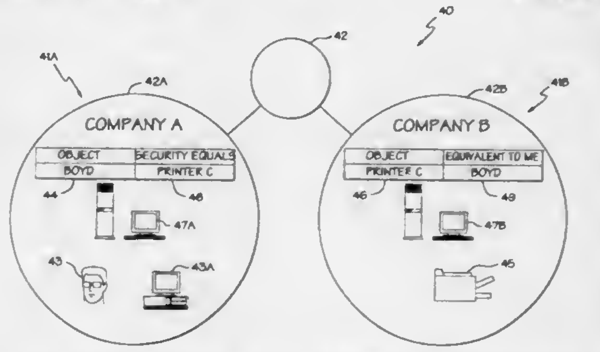
5,784,560
METHOD AND APPARATUS TO SECURE DISTRIBUTED DIGITAL DIRECTORY OBJECT CHANGES

Kevin Kingdon, Freemont, Calif.; Randal Earl Childers, Orem, Utah; DeeAnne Higley, Provo, Utah, and Dale R. Olds, Sandy, Utah, assignors to Novell, Inc., Provo, Utah

Continuation-in-part of Ser. No. 357,467, Dec. 15, 1994, Pat. No. 5,677,851. This application Dec. 15, 1995, Ser. No. 573,034

Int. Cl.^{6} H04L *12/28*

U.S. Cl. 395—200.31 **26 Claims**



1. A method of resolving object attributes in a computer system, wherein a first object and a second object each have at least one associated attribute and each object is part of a distributed directory having a schema, comprising the steps of:

a) determining an associated attribute of the first object;

b) checking that the second object is included in the associated attribute of the first object;

c) determining an associated attribute of the second object; and

d) checking that the first object is included in the associated attribute of the second object.

5,784,561
ON-DEMAND VIDEO CONFERENCE METHOD AND APPARATUS

Richard Frank Bruno, Morristown, and Robert Edward Markowitz, Glen Rock, both of N.J., assignors to AT&T Corp., Middletown, N.J.

Filed Jul. 1, 1996, Ser. No. 673,980

Int. Cl.^{6} G06F *17/00*

U.S. Cl. 395—200.34 **24 Claims**

1. An on-demand real-time video conferencing system for conducting a video conference among a plurality of users in a circuit switched communications network, comprising:

at least one video conference control system remote for users, wherein the at least one video conference control system receives an on-demand request for a video conference from a user and, in real-time, allocates video conferencing resources and connects the user with at least one other video conference participant through the circuit switched communications network based on the on-demand request received from the user

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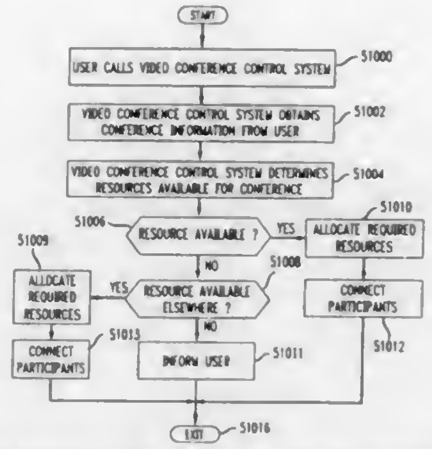

START
USER CALLS VIDEO CONFERENCE CONTROL SYSTEM
S1000
VIDEO CONFERENCE CONTROL SYSTEM OBTAINS CONFERENCE INFORMATION FROM USER
S1002
VIDEO CONFERENCE CONTROL SYSTEM DETERMINES RESOURCES AVAILABLE FOR CONFERENCE
S1004
S1006
RESOURCE AVAILABLE ?
YES
ALLOCATE REQUIRED RESOURCES
S1010
NO
S1009
ALLOCATE REQUIRED RESOURCES
YES
RESOURCE AVAILABLE ELSEWHERE ?
S1008
CONNECT PARTICIPANTS
NO
S1013
CONNECT PARTICIPANTS
INFORM USER
S1011
S1012
EXIT
S1016

and availability of the at least one video conference control system and the circuit switched communications network.

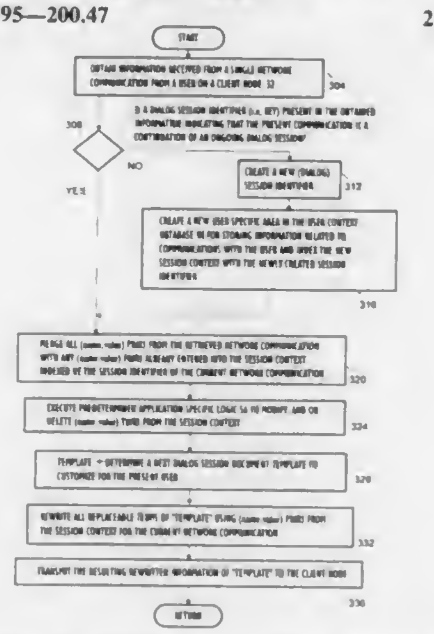
5,784,562
SYSTEM FOR USING A DIALOG SESSION CONTEXT TO PROCESS ELECTRONIC FORMS DATA ON THE WORLD WIDE WEB

Glendon Diener, Boulder, Colo., assignor to U S West Advanced Technologies, Inc., Boulder, Colo.

Filed Oct. 10, 1995, Ser. No. 541,388

Int. Cl.^{6} G06F *13/14*

U.S. Cl. 395—200.47 **22 Claims**



1. A method for communicating document related information between a server node and each of a plurality of client nodes residing on a communications network, comprising:

establishing a network communication connection between said server node and one client node of said plurality of client nodes;

communicating document related information between said server node and said one client node via said network communication connection;

automatically disconnecting said communication connection following said step of communicating;

wherein said steps of establishing, communicating and automatically disconnecting are conducted at least a first and second time, thereby providing a dialog session having a session identifier associated therewith, wherein for said first time at least steps (A1), (A3), (A4) and (A5) below are performed during said communicating step and for said second time, at least steps (A1) and (A2) below are performed during said communicating step;

(A1) transferring a set of one or more data items of said document related information from said one client node to said server node, each said data item providing access both to an identifier name and a value for said identifier name, wherein for at least said second time, said transferring step includes providing said session identifier to at least said server node;

(A2) updating, at said server node, a data collection related to said dialog session with data items obtained from said set of data items;

(A3) providing a template for transferring additional document related information from said server node to said one client node, said template having a replace portion related to a first identifier name included in a first data item of said updated data collection, said first data item providing access to said first identifier name and a first value for said first identifier name;

(A4) replacing said replace portion, in said template, with said first identifier value;

(A5) transmitting said template to said one client node.

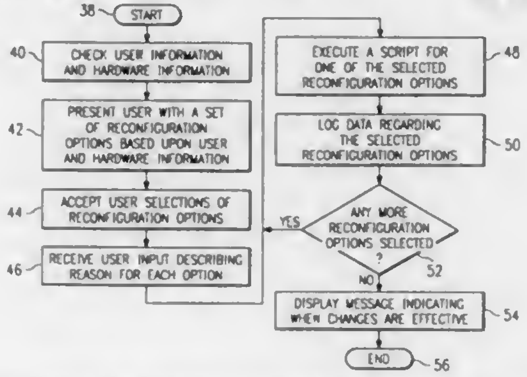
5,784,563
METHOD AND SYSTEM FOR AUTOMATED RECONFIGURATION OF A CLIENT COMPUTER OR USER PROFILE IN A COMPUTER NETWORK

Aaron W. Marshall, Nashville; Paul S. Pruett, Columbia, and Joel R. Jensen, Franklin, all of Tenn., assignors to Electronic Data Systems Corporation, Plano, Tex.

Filed May 23, 1996, Ser. No. 652,869

Int. Cl.^{6} G06F *17/00*

U.S. Cl. 395—200.51 **26 Claims**


38
START
40
CHECK USER INFORMATION AND HARDWARE INFORMATION
42
PRESENT USER WITH A SET OF RECONFIGURATION OPTIONS BASED UPON USER AND HARDWARE INFORMATION
44
ACCEPT USER SELECTIONS OF RECONFIGURATION OPTIONS
46
RECEIVE USER INPUT DESCRIBING REASON FOR EACH OPTION
EXECUTE A SCRIPT FOR ONE OF THE SELECTED RECONFIGURATION OPTIONS
48
LOG DATA REGARDING THE SELECTED RECONFIGURATION OPTIONS
50
YES
ANY MORE RECONFIGURATION OPTIONS SELECTED ?
52
NO
DISPLAY MESSAGE INDICATING WHEN CHANGES ARE EFFECTIVE
54
END
56

1. A method for automated reconfiguration of a client computer in a computer network, comprising:

presenting a user of the client computer with a plurality of reconfiguration options through a user interface;

receiving a data input from the user, the data input corresponding to a selection of at least one of the plurality of reconfiguration options through the user interface;

executing a script corresponding to the selection wherein the script causes a reconfiguration of the client computer.

5,784,564
CLOSED BROWSER FOR COMPUTER AND COMPUTER NETWORK

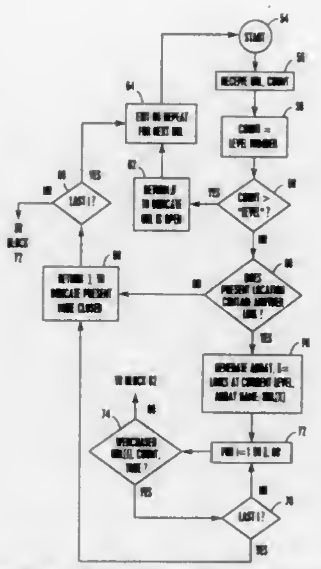
Allan J. Camaisa, La Jolla; Kevin R. Walden, Escondido, and Timothy G. Klepeis, San Diego, all of Calif., assignors to High Technology Solutions, Inc., San Diego, Calif.

Filed May 3, 1996, Ser. No. 642,303

Int. Cl.^{6} G06F *13/00*

U.S. Cl. 395—200.54 **15 Claims**

1. A computer program device comprising:



a computer program storage device readable by a digital processing system; and

a program means on the program storage device and including instructions executable by the digital processing system for performing method steps for accessing preselected nodes of a computer network having access to computer sites worldwide wherein at least some of the nodes are in communication with each other via communication links, the method steps comprising:

arranging a listing of addresses of the preselected nodes;

presenting at least a portion of the listing of the preselected nodes to a user of a predetermined computer of the network;

enabling selection of only an address on the listing of the preselected nodes for accessing the associated node from the predetermined computer, such that a node having an address not contained in the listing of the preselected nodes cannot be accessed;

arranging a listing of closed links;

enabling the user of the predetermined computer to access a link associated with one of the preselected nodes, based on whether the link appears in the listing of closed links;

defining one of the nodes to be a test node;

determining whether the test node affords access to an n^{th} level node via (n−1) communications links, wherein "n" is an integer; and

designating the test node as an open node when n bears a preselected relationship to a predetermined integer.

5,784,565
SERVER FOR EITHER ANONYMOUS OR PRE-AUTHORIZED USERS TO ORDER GOODS OR SERVICES ON THE WORLD-WIDE WEB COMPUTER NETWORK

Donald A. Lewine, 40 Maclean Dr., Sudbury, Mass. 01776

Continuation of Ser. No. 432,610, May 1, 1995. This application Feb. 5, 1997, Ser. No. 796,029

Int. Cl.^{6} G06F *15/16*

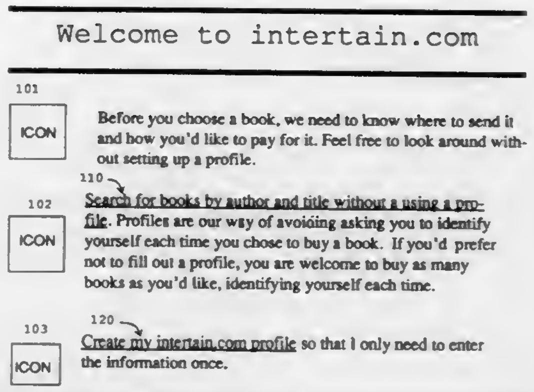
U.S. Cl. 395—200.59 **13 Claims**

1. A server computer accessed by a plurality of users for ordering goods or services from a store on the world wide web using the http protocol comprising:

(a) a plurality of user profile records each containing a unique first username and a first password;

(b) a single first set of one or more unprotected pages shared by all of said users;

(c) a single second set of one or more protected pages capable of being shared by all of said users where each page in said second set of protected pages corresponds to exactly one page in said first set of unprotected pages;


Welcome to intertain.com

101 ICON Before you choose a book, we need to know where to send it and how you'd like to pay for it. Feel free to look around without setting up a profile.

110 102 ICON Search for books by author and title without a using a profile. Profiles are our way of avoiding asking you to identify yourself each time you chose to buy a book. If you'd prefer not to fill out a profile, you are welcome to buy as many books as you'd like, identifying yourself each time.

120 103 ICON Create my intertain.com profile so that I only need to enter the information once.

(d) means for allowing at least a first one of said plurality of users to access at least one of said unprotected pages without supplying a username or password;

(e) means for allowing a second one of said plurality of users to attempt to access one of said protected pages using the http GET method;

(f) means for returning an ACCESS DENIED code in response to said attempt whereby said ACCESS DENIED code causes said second user's browser to ask said second user for a second username and a second password and to transmit said second username and said second password to said server computer in the http authorization header; and

(g) means for locating one of said user profile records such that said second username and said second password match the first username and first password associated with said stored user profile.

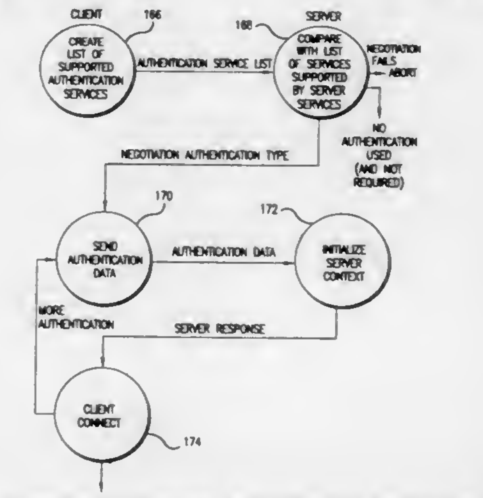
5,784,566
SYSTEM AND METHOD FOR NEGOTIATING SECURITY SERVICES AND ALGORITHMS FOR COMMUNICATION ACROSS A COMPUTER NETWORK

Steven Viavant, Piedmont; Arthur A. Gleckler, Belmont, and Richard R. Wessman, Redwood City, all of Calif., assignors to Oracle Corporation, Redwood Shores, Calif.

Filed Jan. 11, 1996, Ser. No. 583,890

Int. Cl.^{6} G06F *15/16;13/14;13/38;* **H04L** *9/28*

U.S. Cl. 395—200.59 **28 Claims**


CLIENT
166
CREATE LIST OF SUPPORTED AUTHENTICATION SERVICES
AUTHENTICATION SERVICE LIST
SERVER
168
COMPARE WITH LIST OF SERVICES SUPPORTED BY SERVER SERVICES
NEGOTIATION FAILS
ABORT
NO AUTHENTICATION USED (AND NOT REQUIRED)
NEGOTIATION AUTHENTICATION TYPE
170
SEND AUTHENTICATION DATA
AUTHENTICATION DATA
172
INITIALIZE SERVER CONTEXT
MORE AUTHENTICATION
SERVER RESPONSE
CLIENT CONNECT
174

1. In a networked computer environment, a process for determining whether a security service will be used for communication between a first node and a second node, comprising the steps of:

selecting in the first node, a first preference value for the security service;

selecting in the second node, a second preference value for the security service, at least one of the first or second preference values being selected from a set of values comprising a value representing that the security service is required, a value representing that the security service is rejected, a first inter-

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mediate value representing that the security service is preferred but is not essential, and a second intermediate value representing that the security service is not preferred but will be tolerated;

communicating between the first and second node at least one of the first or second preference values;

comparing the first preference value with the second preference value;

determining that the security service will be used when neither the first or second preference values represent that the security service is rejected and both preference values do not include the second intermediate value;

determining that the security service will not be used and that communication between the first and second nodes should proceed when both preference values include the second intermediate value, or when one preference value represents that the security service is rejected and the other preference value does not represent that the security service is required; and

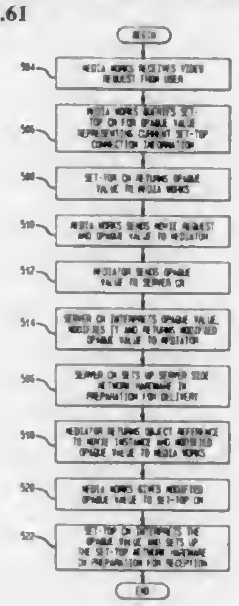
determining that communication between the first and second nodes should not proceed when one of the preference values includes the value representing that the security service is required and the other preference value includes the value representing that the security service is rejected.

5,784,567

SYSTEM AND METHOD FOR COORDINATING COMMUNICATION BETWEEN LAYERS OF A LAYERED COMMUNICATION SYSTEMS

Gary R. Sager, Los Altos, and Thomas H. Specter, San Ramon, both of Calif., assignors to Silicon Graphics, Inc., Mountain View, Calif.

Filed Dec. 13, 1995, Ser. No. 571,366
Int. Cl.^{6} G06F *13/00;* **H04J** *3/00*
U.S. Cl. 395—200.61 6 Claims



1. A method for communicating between a first communication end and a second communication end, the first and second communication ends including a plurality of vertical functional layers, each of the plurality of vertical functional layers on the first communication end communicating with a corresponding vertical functional layer on the second communication end, comprising the steps of:

(a) sending vertically, from a first layer on the first communication end to a second layer on the first communication end, a first opaque information intended for a first layer on the second communication end;

(b) sending vertically, from said second layer on the first communication end to a third layer on the first communication end said first opaque information and a second opaque information intended for a second layer on the second communication end;

(c) accumulating opaque information as in step (b) until a nth layer on the first communication end receives (n-1) pieces of opaque information from each of the (n-1) layers below said nth layer on the first communication end; and

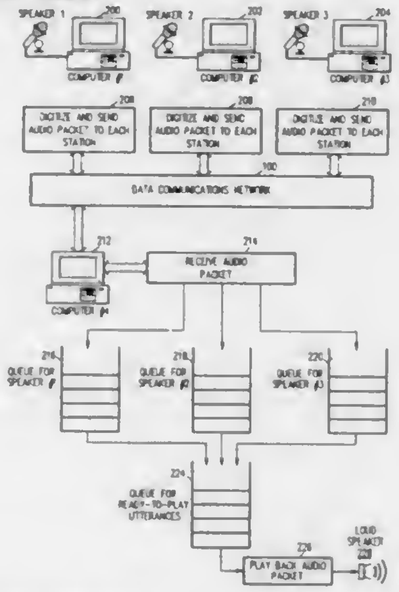
(d) sending horizontally, from said nth layer on the first communication end to a nth layer on the second communication end, a message that includes non-opaque information usable in a horizontal communication between said nth layers on the first and second communication ends and said (n-1) pieces of opaque information usable in an indirect communication between each of the (n-1) layers below said nth layer.

5,784,568

MULTI-PARTY AUDIO CHAT SYSTEM WHICH ALLOWS INDIVIDUAL USER UTTERANCES TO BE STAGED SEPARATELY TO RENDER RECEIVED UTTERANCES IN ORDER

Bradford H. Needham, Hillsboro, Oreg., assignor to Intel Corporation, Santa Clara, Calif.

Filed Aug. 31, 1995, Ser. No. 522,068
Int. Cl.^{6} G06F *13/00;13/38*
U.S. Cl. 395—200.64 20 Claims



1. Apparatus comprising:

an interface that operates to couple the apparatus to one or more other apparatuses to facilitate a user of the apparatus to engage in a multi-party audio chat with user(s) of one or more other apparatuses;

audio mechanism coupled to the interface to facilitate said user of the apparatus to utter to the other user(s) of the multi-party chat, in a manner that allows the user's utterances to be staged by the other apparatus(es), separate from other utterances received by the other apparatuses, prior to rendering the user's utterances; and

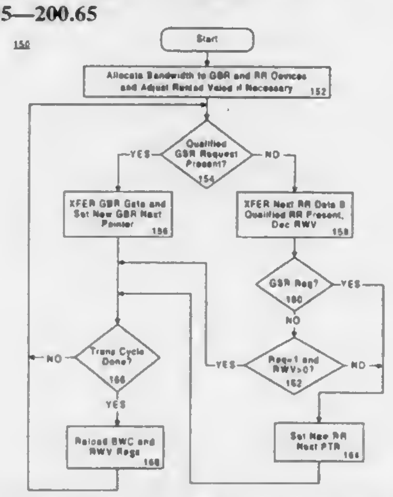
control mechanism coupled to the interface to facilitate said user of the apparatus to denote an end-of-utterance condition to the other apparatus(es) to allow the other apparatus(es) to render received utterances in order.

5,784,569

GUARANTEED BANDWIDTH ALLOCATION METHOD IN A COMPUTER SYSTEM FOR INPUT/OUTPUT DATA TRANSFERS

Steven C. Miller, Livermore; Jamie Riotto, Montara; James E. Tornes, Menlo Park, and Ross G. Werner, Woodside, all of Calif., assignors to Silicon Graphics, Inc., Mountain View, Calif.

Filed Sep. 23, 1996, Ser. No. 717,581
Int. Cl.^{6} G06F *17/00*
U.S. Cl. 395—200.65 9 Claims


150
Start
Allocate Bandwidth to GBR and RR Devices and Adjust Rented Valed if Necessary
152
Qualified GSR Request Present?
154
YES
NO
XFER GBR Data and Set New GBR Next Pointer
156
XFER Next RR Data & Qualified RR Present, Dec RWV
158
GSR Req?
160
YES
NO
Trans Cycle Done?
166
NO
YES
Req=1 and RWV>0?
162
YES
NO
Reload BWC and RWV Regs
168
Set New RR Next PTR
164

1. In a computer system having a processor and a plurality of devices coupled to communicate over a communication path, a method for providing communication between said devices in a plurality of transmission cycles, said method comprising the steps of:

a) on commencement of each transmission cycle, assigning to individual devices of said plurality of devices a respective programmable number of unused guaranteed time slots within each transmission cycle;

b) within a given transmission cycle, polling individual devices of said plurality of devices in a sequential round robin manner to allow an individual polled device to send a guaranteed bandwidth data burst over said communication media, said step b) comprising the steps of:

  b1) provided said individual polled device contains unused guaranteed bandwidth time slices within said given transmission cycle, allowing said individual polled device to send an uninterrupted guaranteed bandwidth data burst over said communication media; and

  b2) responsive to step b1) decrementing the number of unused guaranteed time slices for said individual polled device; and

c) within said given transmission cycle, provided step b) does not utilize all time slots of a given transmission cycle for guaranteed bandwidth transmissions, polling individual devices of said plurality of devices in a sequential round robin manner to allow an individual polled device to send an uninterrupted non-guaranteed data burst over said communication media.

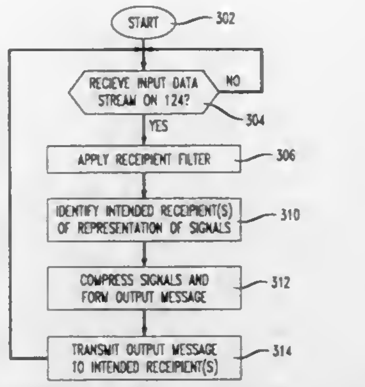
5,784,570

SERVER FOR APPLYING A RECIPIENT FILTER AND COMPRESSING THE INPUT DATA STREAM BASED UPON A SET OF AT LEAST ONE CHARACTERISTICS IN A MULTIUSER INTERACTIVE VIRTUAL ENVIRONMENT

Thomas A. Funkhouser, Berkeley Heights, N.J., assignor to AT&T Corp, Middletown, N.J.

Filed Apr. 7, 1995, Ser. No. 418,338
Int. Cl.^{6} G06F *13/00*
U.S. Cl. 395—200.77 23 Claims

1. A method of operation of a server comprising:


START
302
RECIEVE INPUT DATA STREAM ON 124?
NO
YES
304
APPLY RECEPIENT FILTER
306
IDENTIFY INTENDED RECEPIENT(S) OF REPRESENTATION OF SIGNALS
310
COMPRESS SIGNALS AND FORM OUTPUT MESSAGE
312
TRANSMIT OUTPUT MESSAGE TO INTENDED RECEIPIENT(S)
314

(a) receiving an input data stream representing a set of at least one characteristic of a first entity, said first entity inhabiting a first location within a multiuser interactive virtual environment and being associated with a first user device;

(b) applying a recipient filter to said input data stream to identify a set of at least one user device that will be sent an output message representing said input data stream, said set of at least one user device comprising a second user device, said recipient filter being based upon said set of at least one characteristic, said second user device being associated with a second user inhabiting a second location within said multiuser interactive virtual environment;

(c) compressing said input data stream based upon said set of at least one characteristic to generate said output message; and

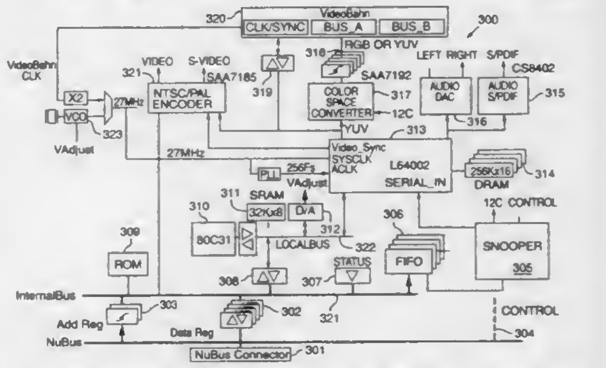
(d) transmitting said output message to said second user device.

5,784,571

METHOD FOR REDUCING THE BANDWIDTH REQUIREMENT IN A SYSTEM INCLUDING A VIDEO DECODER AND A VIDEO ENCODER

Thierry Mantopoulos, Mountain View; Fabrice Quinard, San Jose, and Kevin Grundy, Fremont, all of Calif., assignors to Minerva Systems, Inc., San Jose, Calif.

Filed Dec. 14, 1995, Ser. No. 572,432
Int. Cl.^{6} G06F *7/00*
U.S. Cl. 395—200.77 10 Claims



1. A video system including one or more decoders for decoding encoded video data, each decoder comprising:

an interface to an external bus having an address portion and a data portion;

a memory unit coupled to said external bus for receiving said encoded video data on said data portion of said external bus, said memory unit receiving said encoded video data when an asserted enable signal is received;

a snooping circuit coupled to receive an address on said address portion of said external bus, said snooping circuit providing said asserted enable signal when said address is an address within a predetermined address range; and

a video data circuit for decoding said encoded video data received in said memory unit into a decoded video data stream.

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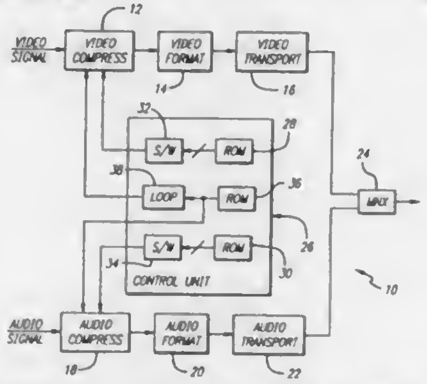
5,784,572
METHOD AND APPARATUS FOR COMPRESSING VIDEO AND VOICE SIGNALS ACCORDING TO DIFFERENT STANDARDS

Michael D. Rostoker, Boulder Creek; John Daane, Saratoga, and Sandeep Jaggi, San Jose, all of Calif., assignors to LSI Logic Corporation, Milpitas, Calif.

Filed Dec. 29, 1995, Ser. No. 580,547

Int. Cl.^{6} H04N *7/167;7/52;* **H04B** *1/66*

U.S. Cl. 395—200.77 **24 Claims**



1. Apparatus for variably compressing first and second signals in order to contemporaneously fit both said first and said second signals in compressed form into an available band width with each compressed signal utilizing a corresponding portion of said available band width, the apparatus comprising:

a first processor for processing the first signal;
a second processor for processing the second signal; and
computer memory for storing a plurality of instruction sets each corresponding to respective different compression algorithms;
the first processor being programmed by a first instruction set which is selected from the plurality of instruction sets stored in the computer memory in order to compress said first signal to utilize a corresponding first portion of said available band width;
the second processor being programmed by a second instruction set which is selected from the plurality of instruction sets stored in the computer memory in order to compress said second signal to substantially utilize a corresponding second portion of said available band width, which second portion is equal to said available band width minus said first portion.

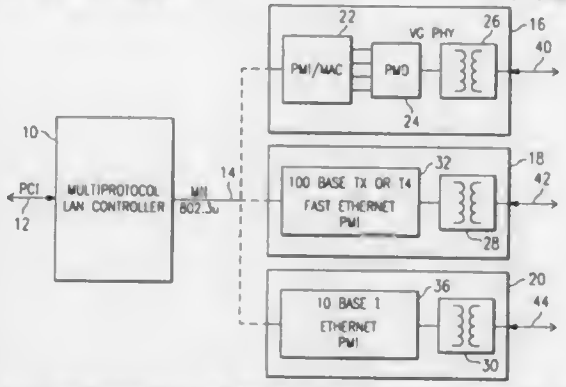
5,784,573
MULTI-PROTOCOL LOCAL AREA NETWORK CONTROLLER

Andre Szczepanek, Bedford, England, and Denis R. Beaudoin, Missouri City, Tex., assignors to Texas Instruments Incorporated, Dallas, Tex.

Filed Nov. 4, 1994, Ser. No. 334,470

Int. Cl.^{6} G06F *13/42;* **H04L** *12/28*

U.S. Cl. 395—200.8 **3 Claims**



1. A multiprotocol local area network ("LAN") controller unit for coupling a computer, the computer including a system bus, to a PITY connectable to a LAN, wherein the LAN may operate according to the IEEE 803.3u LAN standard having a media independent interface ("MuI") layer, and according to the IEEE 802.12 LAN standard having a media dependent interface ("MDI") layer and a physical medium independent ("PMI") layer, comprising:

a data transfer control unit implementing the functions of the IEEE 803.3u LAN standard between a system bus and the MuI interface;
a physical connector including a plurality of signal lines implemented in accordance with the MuI interface portion of the IEEE 803.3u LAN standard, for connecting the multiprotocol LAN controller unit to a PHY unit, including
  at least two transmit data signal lines for transferring data to be transmitted over the network from the multiprotocol LAN controller unit to the PHY,
  a transmit enable signal line by which the multiprotocol LAN controller unit indicates to the PHY valid data on the at least two transmit data signal lines,
  a collision sense line by which the PHY indicates to the multiprotocol LAN controller unit that a network collision has occurred,
  at least two receive data signal lines for transferring data received from the network from the PHY to the multiprotocol LAN controller unit, and
  a receive data valid line by which the multiprotocol LAN controller unit indicates to the PHY valid data on the at least two receive data signal lines; and
multiplexing means for transferring data to and from the multiprotocol LAN controller unit according to the IEEE 802.12 LAN standard using the signal lines, including
  means for providing a transmit request signal on a first one of the transmit data signal lines when the transmit enable signal line is not active to indicate valid data,
  means for providing a priority signal on a second one of the transmit data signal lines when the transmit enable signal line is not active to indicate valid data,
  means for receiving a transmit request acknowledgement signal on the collision sense line, and
  means for receiving a priority signal on a first one of the receive data signal lines prior to the receipt of a receive data valid signal on the receive data valid line.

5,784,574
CONTROL UNIT FOR DATA TRANSMISSION

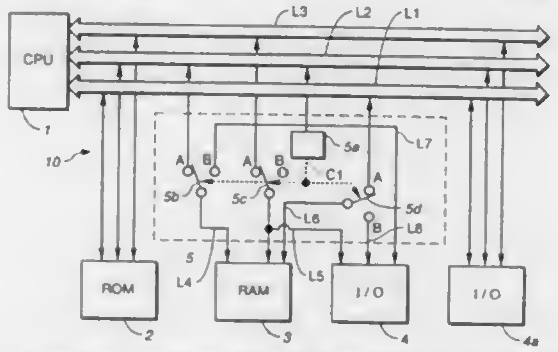
Hirokazu Tagiri, Kyoto, Japan, assignor to Rohm Co., Ltd., Kyoto, Japan

Filed Jul. 2, 1996, Ser. No. 675,392

Claims priority, application Japan, Jul. 5, 1995, 7-169935

Int. Cl.^{6} G06F *13/00*

U.S. Cl. 395—280 **5 Claims**



1. A one-chip control unit for data transmission, said control unit comprising:

a central processing unit for carrying out various processes according to a preliminarily stored program;
a memory device for temporarily storing data processed by said central processing unit and data received from an external memory device;

an input/output interface for connecting to said external memory device;
bus lines, inclusive of an address bus, a data bus and a control bus, connected to said central processing unit, said memory device and said input/output interface for transmitting signals therethrough; and
a switch circuit, including a decoder connected to said address bus and switches which are individually connected to said address bus, said data bus and said control bus and are each controlled by a switch signal outputted from said decoder, for causing signals to pass through said bus lines along different routes, depending on address signals outputted from said central processing unit to said address bus and received by said decoder, said switch circuit serving to connect said memory device with said input/output interface and to thereby enable signals to be continuously transmitted between said memory device and said input/output interface directly when said address signals outputted from said central processing unit are not specifying an area on said memory device.

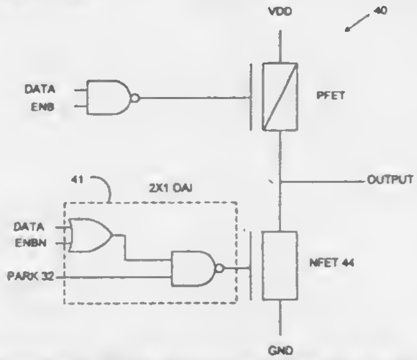
5,784,575
OUTPUT DRIVER THAT PARKS OUTPUT BEFORE GOING TRISTATE

Steven F. Oakland, Colchester, Vt.; Bijit T. Patel, Emmaus, Pa., and Patrick E. Perry, Essex Junction, Vt., assignors to International Business Machines Corporation, Armonk, N.Y.

Filed Jul. 24, 1996, Ser. No. 685,128

Int. Cl.^{6} G06F *13/00*

U.S. Cl. 395—280 **20 Claims**



1. An integrated circuit device having a driver circuit wherein said driver circuit comprises:

a data input line, said data input line for receiving a data signal;
an enable input line, said enable input line for receiving an enable signal;
an output line;
means for producing a pulse immediately following a transition of said enable signal, said pulse having a duration shorter than a clock cycle; and
output driver means for first switching said output line to a de-asserted state during said duration of said pulse and then switching said output line to a tristate before an end of said clock cycle.

5,784,576
METHOD AND APPARATUS FOR ADDING AND REMOVING COMPONENTS OF A DATA PROCESSING SYSTEM WITHOUT POWERING DOWN

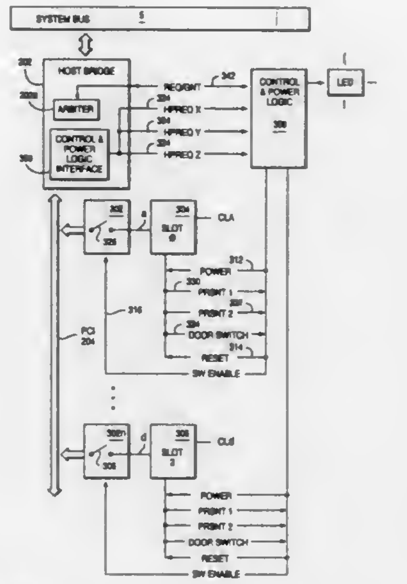
Guy Lynn Guthrie, Austin; Danny Marvin Neal, Round Rock, both of Tex., and Richard Allen Kelley, Apex, N.C., assignors to International Business Machines Corp., Armonk, N.Y.

Filed Oct. 31, 1996, Ser. No. 741,466

Int. Cl.^{6} G06F *13/00;* **H03K** *17/693;* **H04B** *1/44*

U.S. Cl. 395—283 **15 Claims**

1. An apparatus for removing components of a data processing system without discontinuing power thereto, the apparatus comprising:



a primary bus;
a plurality of secondary buses each having a slot capable of receiving an electronic device;
selective means for selectively establishing a physical connection from the primary bus to one of the secondary buses, and for removing the connection, the selective means including:
  a host bridge having an arbiter for receiving requests for control of the primary bus, and for selecting one of the requests as a master for the control;
  a plurality of switches each for establishing the physical connection from the primary bus to one of the secondary buses, and for removing the connection;
removing means for allowing each one of the devices to be removed without discontinuing power to the data processing system, the removing means including:
  means for detecting when a device resides within one of the slots; and
  means for detecting when an operator desires to remove one of the devices.

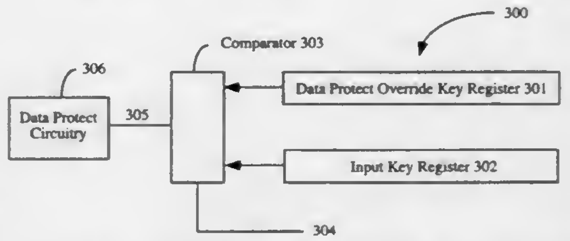
5,784,577
AUTOMATED CONTROL SYSTEM FOR PROGRAMMING PLDS

Neil G. Jacobson, 221 Lassen Ave., Mountain View, Calif. 94043, and David Chiang, 18658 Casa Blanca La., Saratoga, Calif. 95070

Filed Aug. 5, 1996, Ser. No. 699,068

Int. Cl.^{6} G06F *12/14;13/10*

U.S. Cl. 395—284 **1 Claim**



1. A method for modifying the configuration data of a programmable logic device (PLD), the method comprising the steps of:

authorizing a user to change said configuration data;
unlocking said PLD;
reading back said configuration data;

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reading back the contents of a version control register;
archiving said contents and said configuration data incrementing said contents;
inputting new configuration data;
downloading the incremented contents and the new configuration data to said PLD; and
locking said PLD.

5,784,578

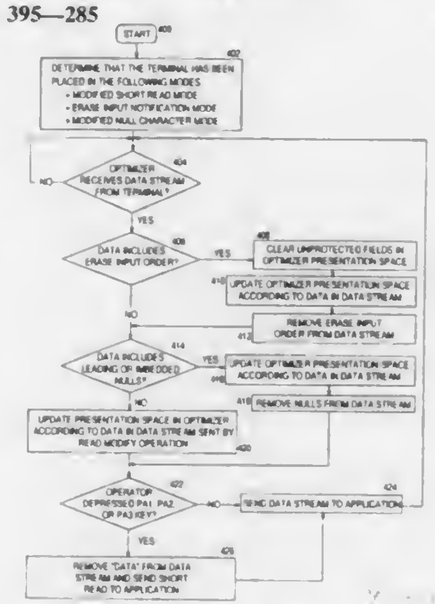
METHOD AND SYSTEM FOR ENHANCING THE EFFICIENCY OF DATA COMMUNICATION BETWEEN A TERMINAL DEVICE AND A HOST COMPUTER HAVING AN OPTIMIZER

David William Galloway, Raleigh, and James Merwin Mathewson, II, Chapel Hill, both of N.C., assignors to International Business Machines Corporation, Armonk, N.Y.

Filed Jan. 17, 1996, Ser. No. 588,664

Int. Cl.^{6} G06F *13/00;13/14*

U.S. Cl. 395—285 **44 Claims**


START
400
402
DETERMINE THAT THE TERMINAL HAS BEEN PLACED IN THE FOLLOWING MODES
• MODIFIED SHORT READ MODE
• ERASE INPUT NOTIFICATION MODE
• MODIFIED NULL CHARACTER MODE
404
OPTIMIZER RECEIVES DATA STREAM FROM TERMINAL?
NO
YES
406
DATA INCLUDES ERASE INPUT ORDER?
YES
408
CLEAR UNPROTECTED FIELDS IN OPTIMIZER PRESENTATION SPACE
410
UPDATE OPTIMIZER PRESENTATION SPACE ACCORDING TO DATA IN DATA STREAM
NO
REMOVE ERASE INPUT ORDER FROM DATA STREAM
412
414
DATA INCLUDES LEADING OR IMBEDDED NULLS?
YES
UPDATE OPTIMIZER PRESENTATION SPACE ACCORDING TO DATA IN DATA STREAM
416
418
REMOVE NULLS FROM DATA STREAM
NO
UPDATE PRESENTATION SPACE IN OPTIMIZER ACCORDING TO DATA IN DATA STREAM SENT BY READ MODIFY OPERATION
420
422
OPERATOR DEPRESSED PA1, PA2, OR PA3 KEY?
NO
424
SEND DATA STREAM TO APPLICATION
YES
426
REMOVE "DATA" FROM DATA STREAM AND SEND SHORT READ TO APPLICATION

37. An optimizer for enhancing the efficiency of data transmission in a data processing system, said data processing system including a host computer running an application, wherein said application communicates with a terminal device through said optimizer, wherein said terminal device has a terminal presentation space memory and said optimizer has an optimizer presentation space memory for maintaining a record of data stored in said terminal presentation space memory, said optimizer comprising:
means, responsive to receipt of a modified terminal data stream including both terminal status data and a selected terminal data stream indicative of data in said terminal presentation space memory, for recording data in said optimizer presentation space memory that represents data stored in said terminal presentation space memory;
means for removing said terminal status data from said modified terminal data stream to obtain said selected terminal data stream, wherein said means for removing said terminal status data from said modified terminal data stream includes means for removing data that represents changes to data in said terminal presentation space memory; and
means for sending said selected terminal data stream to said application, wherein said optimizer correctly maintains a record of data stored in said terminal presentation space memory.

5,784,579

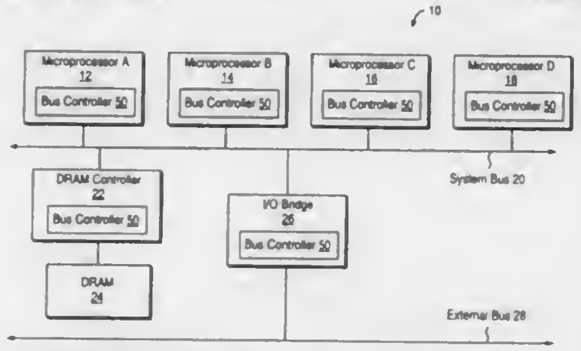
METHOD AND APPARATUS FOR DYNAMICALLY CONTROLLING BUS ACCESS FROM A BUS AGENT BASED ON BUS PIPELINE DEPTH

Stephen S. Pawlowski, Beaverton; Nitin V. Sarangdhar, Portland; Michael W. Rhodehamel; Matthew A. Fisch, both of Beaverton, and Peter D. MacWilliams, Aloha, all of Oreg., assignors to Intel Corporation, Santa Clara, Calif.

Continuation-in-part of Ser. No. 645,836, May 14, 1996, abandoned, which is a continuation of Ser. No. 206,093, Mar. 1, 1994, Pat. No. 5,548,733. This application Sep. 6, 1996, Ser. No. 709,214

Int. Cl.^{6} G06F *13/38;13/40*

U.S. Cl. 395—286 **11 Claims**



1. A method comprising:
a) tracking a current bus pipeline depth by a first bus agent of a plurality of bus agents coupled to a pipelined bus;
b) comparing the current bus pipeline depth to a current maximum pipeline depth supported by the first bus agent; and
c) asserting a signal on the pipelined bus to other bus agents of the plurality of bus agents to unilaterally and dynamically prevent the other bus agents from issuing transactions on the bus if the current bus pipeline depth is within a predetermined number of transactions of the current maximum pipeline depth supported by the first bus agent.

5,784,580

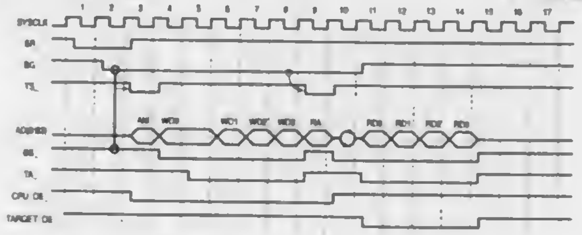
SYSTEM AND METHOD FOR COMMUNICATING BETWEEN DEVICES

Cang Tran, Austin, Tex., assignor to International Business Machines Corporation, Armonk, N.Y.

Filed Jun. 28, 1996, Ser. No. 673,394

Int. Cl.^{6} G06F *13/00*

U.S. Cl. 395—287 **27 Claims**



1. A method, comprising:
during a first cycle, outputting first data associated with a first address through a bus operating in a multiplex mode from a processor coupled to said bus;
retaining control of said bus by said processor in transition from said first cycle to a second cycle;
during said second cycle immediately after said first cycle, outputting a second address through said bus from said processor;
retaining control of said bus by said processor in transition from said second cycle to a third cycle; and
during said third cycle immediately after said second cycle, communicating second data associated with said second address through said bus between said processor and a second device.

5,784,581

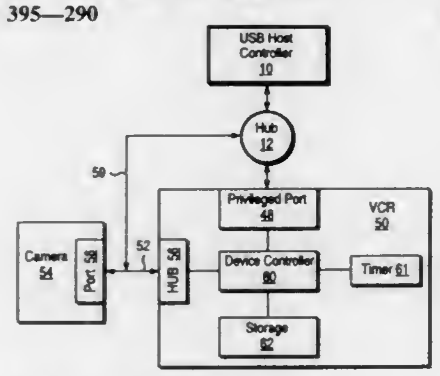
APPARATUS AND METHOD FOR OPERATING A PERIPHERAL DEVICE AS EITHER A MASTER DEVICE OR A SLAVE DEVICE

Eric C. Hannah, Pebble Beach, Calif., assignor to Intel Corporation, Santa Clara, Calif.

Filed May 3, 1996, Ser. No. 642,387

Int. Cl.^{6} G06F *3/00*

U.S. Cl. 395—290 **20 Claims**



1. An apparatus comprising:
a first communication port utilized when said apparatus is operating as a slave device;
a second communication port utilized when said apparatus is operating as a master device; and
a device controller coupled to said first communication port and said second communication port, said device controller enabling said first communication port or said second communication port in response to detection of the presence or absence of an active host controller coupled to said first communication port.

5,784,582

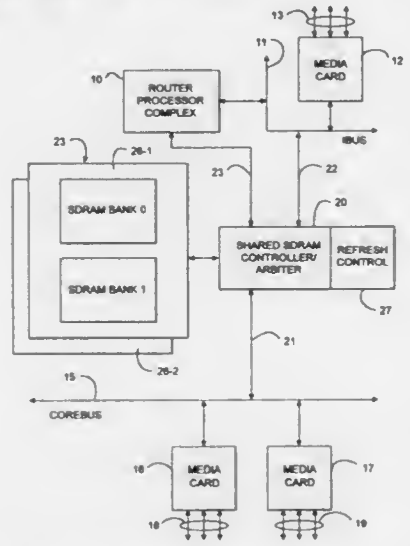
DATA PROCESSING SYSTEM HAVING MEMORY CONTROLLER FOR SUPPLYING CURRENT REQUEST AND NEXT REQUEST FOR ACCESS TO THE SHARED MEMORY PIPELINE

John H. Hughes, San Jose, Calif., assignor to 3Com Corporation, Santa Clara, Calif.

Filed Oct. 28, 1996, Ser. No. 738,929

Int. Cl.^{6} G06F *15/02*

U.S. Cl. 395—297 **16 Claims**



1. A data processing system, comprising;
a shared memory comprising synchronous dynamic random access memory SDRAM and a shared memory pipeline coupled to the SDRAM, which executes read, write and refresh requests for access in a pipeline fashion;
a plurality of data paths coupled to the shared memory which generate requests for access to the shared memory, the requests having characteristics including a starting address, a length and a type; and
a memory controller, coupled to the plurality of data paths, which stores requests from the plurality of data paths, supplies a current request for access to the shared memory pipeline, and selects from the stored requests, a next request for access for the shared memory pipeline.

5,784,583

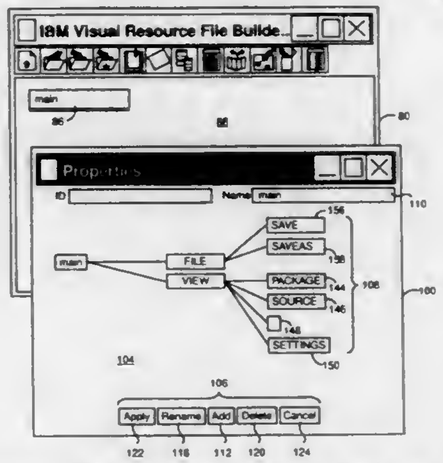
INTUITIVE TECHNIQUE FOR BUILDING GRAPHICAL MENUS

Richard J. Redpath, Cary, N.C., assignor to International Business Machine Corp., Armonk, N.Y.

Filed Sep. 9, 1996, Ser. No. 709,937

Int. Cl.^{6} G06F *3/00*

U.S. Cl. 395—353 **10 Claims**



5. A method for graphically creating a menu for use in a software application by building a menu tree representative of the menu being created, comprising the steps of:
creating a first tier for the menu by adding first tree nodes, each of the first tree nodes corresponding to a pane of the first tier of the menu;
creating submenus for one or more of the panes of the first tier, if desired, by adding submenu tree nodes and edges connecting each of the submenu tree nodes to its parent tree node among the first tree nodes, each of the submenu tree nodes corresponding to a pane of the submenu for its parent tree node; and
converting the built menu tree into a menu format utilizable by a software application.

5,784,584

HIGH PERFORMANCE MICROPROCESSOR USING INSTRUCTIONS THAT OPERATE WITHIN INSTRUCTION GROUPS

Charles H. Moore, Woodside, and Russell H. Fish, III, Mt. View, both of Calif., assignors to Patriot Scientific Corporation, San Diego, Calif.

Division of Ser. No. 389,334, Aug. 3, 1989, Pat. No. 5,440,749. This application Jun. 7, 1995, Ser. No. 484,935

Int. Cl.^{6} G06F *9/30*

U.S. Cl. 395—376 **29 Claims**

1. A microprocessor system comprising:
a central processing unit;
memory;
a bus connecting said central processing unit to said memory;
instruction fetching means that are connected to said bus to fetch instruction groups via said bus from said memory, certain of said instruction groups including at least one instruction that,

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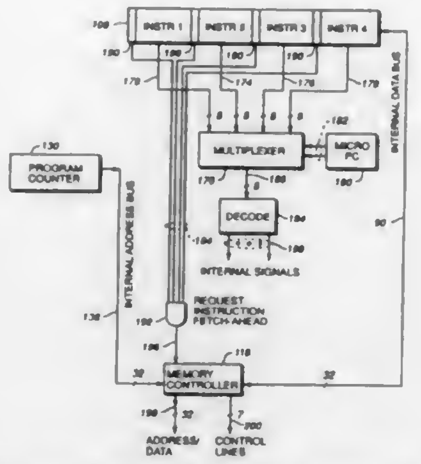


when executed, causes an access to an operand or an instruction or both, said operand or instruction being located a predetermined position from a boundary of said instruction groups;

an instruction register for receiving sequential instructions from a first of said instruction groups from said instruction fetching means, said first of said instruction groups including said at least one instruction;

instruction decoding means having means for generating a counter control signal and an operand control signal;

a counter that is connected to receive said counter control signal from said instruction decoding means;

operand selection means that is responsive to said operand control signal from said instruction decoding means;

instruction supplying means, responsive to said counter to select said predetermined position, for supplying, in succession from said instruction register, said sequential instructions to said central processing unit;

said instruction supplying means being further responsive to said counter and said operand selection means for selecting and supplying operand from said predetermined position in said instruction groups to said central processing unit:

said instruction decoding means providing said counter control signal and said operand control signal to cause said instruction supplying means to select from said instruction groups said operand or instruction or both associated with one of said instructions from said first of said instruction groups.

5,784,585
COMPUTER SYSTEM FOR EXECUTING INSTRUCTION STREAM CONTAINING MIXED COMPRESSED AND UNCOMPRESSED INSTRUCTIONS BY AUTOMATICALLY DETECTING AND EXPANDING COMPRESSED INSTRUCTIONS

Paul W. Denman, Bedfont, Great Britain, assignor to Motorola, Inc., Schaumburg, Ill.

PCT No. PCT/GB95/00787, § 371 Date Jan. 7, 1997, § 102(e) Date Jan. 7, 1997, PCT Pub. No. WO95/27244, PCT Pub. Date Oct. 12, 1995

PCT Filed Apr. 5, 1995, Ser. No. 765,675

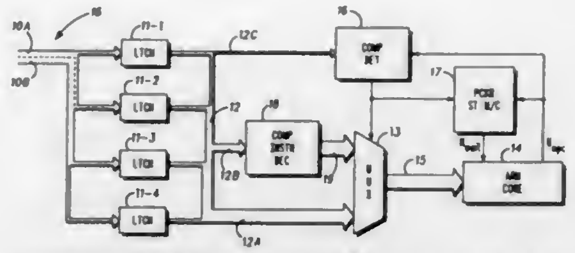
Claims priority, application United Kingdom, Apr. 5, 1994, 9406666

Int. Cl.⁶ G06F *9/318*

U.S. Cl. 395—385 **4 Claims**

1. A computer system comprising a memory (on bus **10**), a processor (**14**), means for passing instructions from the memory to the processor, and compressed instruction pre-processing means (**13**, **16**, **18**) for expanding compressed instructions, characterized in that the compressed instruction pre-processing means comprise:

a compressed instruction detector circuit (**16**) which detects a predetermined bit combination (**25**) in an instruction coming from the memory;



a compressed instruction decoder (**18**) which expands a compressed instruction to full length; and

a multiplexer (**13**) which, under the control of the compressed instruction detector circuit (**16**), passes either the original instruction or the output of the compressed instruction decoder (**18**) to the processor (**14**).

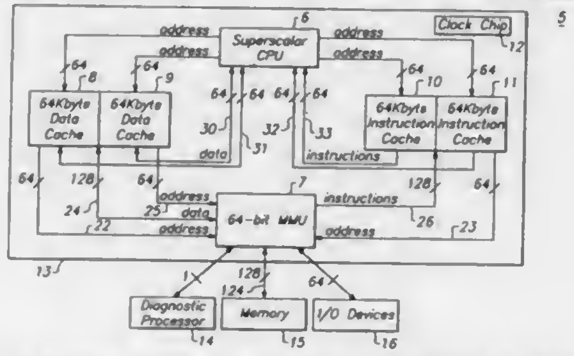
5,784,586
ADDRESSING METHOD FOR EXECUTING LOAD INSTRUCTIONS OUT OF ORDER WITH RESPECT TO STORE INSTRUCTIONS

Michael A. Simone, Sunnyvale, Calif., and Michael C. Shebanow, Plano, Tex., assignors to Fujitsu Limited, Kawasaki, Japan

Continuation of Ser. No. 388,389, Feb. 14, 1995, abandoned. This application Aug. 21, 1995, Ser. No. 517,229

Int. Cl.⁶ G06F *9/30*

U.S. Cl. 395—392 **5 Claims**



1. In a central processing system including an instruction cache, an issue unit, one or more reservation stations, and a precise state unit, a method for executing load instructions out of order with respect to store instructions, comprising:

fetching a plurality of instructions from the instruction cache;

providing the fetched plurality of instructions to the issue unit;

dispatching the fetched plurality of instructions from the issue unit to each of the one or more reservation stations;

selecting from the one or more reservation stations one or more of the fetched plurality of instructions for execution;

executing one or more of the selected one or more fetched plurality of instructions; and

broadcasting results of the fetched plurality of instructions that were executed to the precise state unit for tracking errors and completion status.

5,784,587
METHOD AND SYSTEM FOR RECOVERING FROM CACHE MISSES

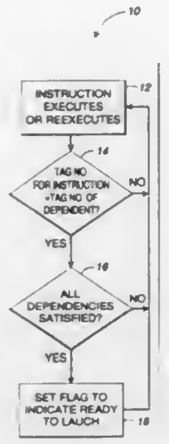
Jonathan P. Lotz; Gregg B. Lesartre, and Donald M. Kipp, all of Fort Collins, Colo., assignors to Hewlett-Packard Company, Palo Alto, Calif.

Filed Jun. 13, 1996, Ser. No. 663,337

Int. Cl.⁶ G06F *12/02*

U.S. Cl. 395—392 **8 Claims**

1. A recovery method for use in an instruction queue having slots capable of storing instructions, comprising the steps of:


10
INSTRUCTION EXECUTES OR REEXECUTES
12
14
TAG NO FOR INSTRUCTION =TAG NO OF DEPENDENT?
NO
YES
16
ALL DEPENDENCIES SATISFIED?
NO
YES
SET FLAG TO INDICATE READY TO LAUCH
18

executing a first instruction and driving a first tag number identifying the first instruction on a tag bus;

comparing, at one of said slots containing a second instruction, said first tag number with a priority tag number, said priority tag number associated with a priority instruction which provides data for said second instruction;

clearing a dependency flag if said first tag number equals said priority tag number;

determining whether all dependencies for said second instruction have cleared;

setting a launch ready flag to indicate that said second instruction is ready to launch if all dependencies have cleared; and

repeating said executing, comparing, clearing, determining, and setting steps with subsequent launched instructions after said launch ready flag is set wherein said launch ready flag is set again if said priority instruction reexecutes.

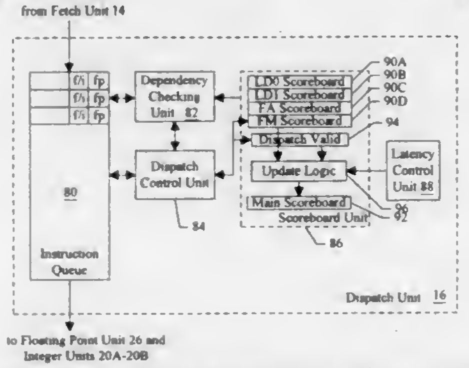
5,784,588
DEPENDENCY CHECKING APPARATUS EMPLOYING A SCOREBOARD FOR A PAIR OF REGISTER SETS HAVING DIFFERENT PRECISIONS

Arthur T. Leung, Sunnyvale, Calif., assignor to Sun Microsystems, Inc., Sunnyvale, Calif.

Filed Jun. 20, 1997, Ser. No. 879,590

Int. Cl.⁶ G06F *9/38;9/22*

U.S. Cl. 395—392 **20 Claims**



1. A dependency checking apparatus for a microprocessor comprising:

a register file including a plurality of storage locations configured to store operand values, said register file representing a first set of registers having a first precision and a second set of registers having a second precision, wherein a first storage location within said plurality of storage locations is addressable using a first register address and said first precision, and wherein said first storage location is addressable using a first plurality of register addresses and said second precision, each of said first plurality of register addresses identifying a different portion of said first storage location;

a scoreboard configured to indicate which of said plurality of storage locations are updated in response to instructions outstanding within a pipeline of said microprocessor, and wherein said scoreboard is further configured to indicate which portions of said first storage location are updated in response to instructions outstanding within said pipeline; and

a dependency checking unit coupled to said scoreboard, wherein said dependency checking unit is configured to detect a dependency corresponding to a source operand by forming a first set of indications from said scoreboard corresponding to said first set of registers, forming a second set of indications from said scoreboard corresponding to said second set of registers, and selecting a selected indication from said first and second sets of indications in response to a source register address and a source precision corresponding to said source operand.

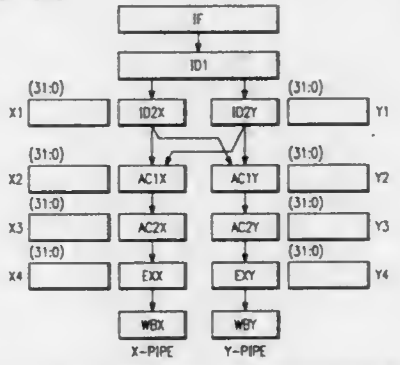
5,784,589
DISTRIBUTED FREE REGISTER TRACKING FOR REGISTER RENAMING USING AN AVAILABILITY TRACKING REGISTER ASSOCIATED WITH EACH STAGE OF AN EXECUTION PIPELINE

Mark W. Bluhm, Plano, Tex., assignor to Cyrix Corporation, Richardson, Tex.

Continuation-in-part of Ser. No. 138,789, Oct. 18, 1993, abandoned. This application Feb. 27, 1996, Ser. No. 607,567

Int. Cl.⁶ G06F *9/38*

U.S. Cl. 395—393 **20 Claims**



1. In a pipelined processor having at least one execution pipeline for executing instructions, said execution pipeline including ID (decode), AC (address calculation), and EX (execution) processing stages to process instructions for said processor, said processor including a register translation system that controls a renaming of physical registers of said processor to logical registers thereof, a tracking circuit that tracks availability of said physical registers for said renaming, comprising:

ID, AC and EX tracking registers corresponding to said ID, AC and EX processing stages, each of said ID, AC and EX tracking registers containing tracking indicators corresponding to physical registers of said processor to be tracked;

read detection circuitry that changes a particular tracking indicator of a particular tracking register from a "not-read" state to a "read" state when an instruction being processed in a particular processing stage corresponding to said particular tracking register causes said particular processing stage to read a value from a particular physical register corresponding to said particular tracking indicator; and

combinatorial circuitry that designates said particular physical register as available for said renaming only when all particular tracking indicators of said ID, AC and EX tracking registers corresponding to said particular physical register are in said "not-read" state.

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5,784,590

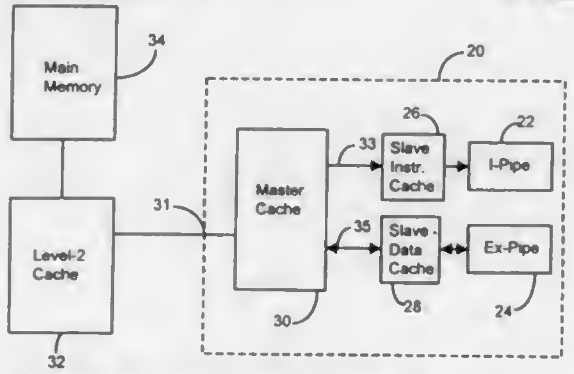
SLAVE CACHE HAVING SUB-LINE VALID BITS UPDATED BY A MASTER CACHE

Earl T. Cohen, Fremont, and Jay C. Pattin, Redwood City, both of Calif., assignors to Exponential Technology, Inc., San Jose, Calif.

Continuation-in-part of Ser. No. 267,658, Jun. 29, 1994, Pat. No. 5,551,001. This application Mar. 19, 1996, Ser. No. 618,637

Int. Cl.⁶ G06F *12/08*

U.S. Cl. 395—449 **21 Claims**



1. A master-slave cache system comprising:

a master cache for storing data from a memory, the master cache being arranged as a plurality of cache lines each containing a cache line of data, wherein a datum in the master cache is only valid when all data in an entire cache line containing the datum is present in the master cache, the master cache not allowing a subset of the cache line to be valid;

a slave cache for supplying data to a pipeline of a processor, the slave cache being arranged as a plurality of cache lines each containing a cache line of data, wherein a single datum in a first cache line in the plurality of cache lines is capable of being valid when other data in the first cache line are not valid, the slave cache allowing a subset of any cache line to be valid;

slave sub-line valid means coupled to each cache line in the slave cache, for indicating a valid portion of a cache line which contains valid data and for indicating an invalid portion of the cache line which does not contain valid data, the invalid portion of the cache line not being useable by the pipeline of the processor; and

transfer means, coupled between the master cache and the slave cache, for transferring a datum comprising a sub-line of data for a requesting cache line from the master cache to the slave cache, the transfer means including sub-line valid transfer means, coupled to the slave sub-line valid means, for transferring to the master cache a sub-line valid indication of the valid portion of the requesting cache line,

whereby the sub-line valid indication of the valid portion of the requesting cache line in the slave cache is sent from the slave cache to the master cache.

5,784,591

PARALLEL SIMULATOR FOR SEMICONDUCTOR INTEGRATED CIRCUIT

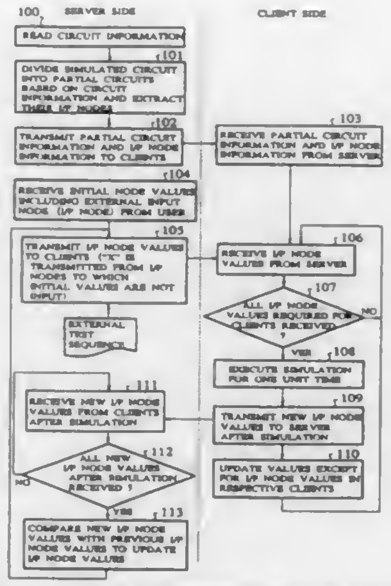
Atsushi Kageshima, Kanagawa-ken, Japan, assignor to Kabushiki Kaisha Toshiba, Kawasaki, Japan

Filed Jul. 11, 1995, Ser. No. 501,508

Claims priority, application Japan, Jul. 12, 1994, 6-160347

Int. Cl.⁶ G06F *15/16*

U.S. Cl. 395—500 **10 Claims**


100
SERVER SIDE
CLIENT SIDE
READ CIRCUIT INFORMATION
101
DIVIDE SIMULATED CIRCUIT INTO PARTIAL CIRCUITS BASED ON CIRCUIT INFORMATION AND EXTRACT THEIR I/F NODES
102
TRANSMIT PARTIAL CIRCUIT INFORMATION AND I/F NODE INFORMATION TO CLIENTS
103
RECEIVE PARTIAL CIRCUIT INFORMATION AND I/F NODE INFORMATION FROM SERVER
104
RECEIVE INITIAL NODE VALUES INCLUDING EXTERNAL INPUT NODE (I/F NODE) FROM USER
105
TRANSMIT I/F NODE VALUES TO CLIENTS ("X" IS TRANSMITTED FROM I/F NODES TO WHICH INITIAL VALUES ARE NOT INPUT)
EXTERNAL TEST SEQUENCE
106
RECEIVE I/F NODE VALUES FROM SERVER
107
ALL I/F NODE VALUES REQUIRED FOR CLIENTS RECEIVED ?
NO
YES
108
EXECUTE SIMULATION FOR ONE UNIT TIME
111
RECEIVE NEW I/F NODE VALUES FROM CLIENTS AFTER SIMULATION
109
TRANSMIT NEW I/F NODE VALUES TO SERVER AFTER SIMULATION
112
ALL NEW I/F NODE VALUES AFTER SIMULATION RECEIVED ?
NO
YES
110
UPDATE VALUES EXCEPT FOR I/F NODE VALUES IN RESPECTIVE CLIENTS
113
COMPARE NEW I/F NODE VALUES WITH PREVIOUS I/F NODE VALUES TO UPDATE I/F NODE VALUES

1. A system for simulating a semiconductor integrated circuit using a network of work stations, comprising:

a plurality of simulation sections, each simulation section comprising a work station corresponding to one of a plurality of partial circuits of a circuit to be simulated for executing parallel simulation of a corresponding partial circuit at successive time units internal node values which are completed in said corresponding to determine values at nodes internal to said partial circuit; and

a node managing section comprising a work station for synchronizing said parallel simulations and for managing values of interface (I/F) nodes of said partial circuits, transmitting I/F node volues ot said simulation sections for simulation of said partial circuits at said successive time units, and updating I/F node values provided by said simulation sections as results of partial simulations;

each of said plurality of simulation sections being further for providing a value of an I/F node of its corresponding partial circuit to said node managing section if said value has changed as a result of simulation of said corresponding partial circuit.

5,784,592

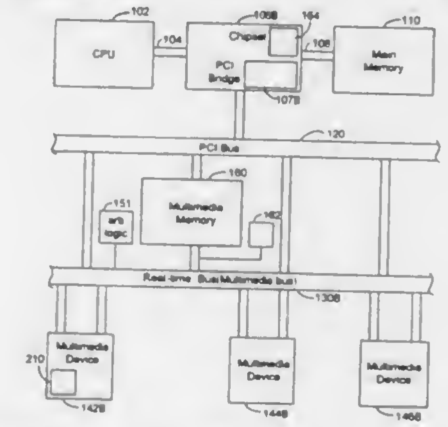
COMPUTER SYSTEM WHICH INCLUDES A LOCAL EXPANSION BUS AND A DEDICATED REAL-TIME BUS FOR INCREASED MULTIMEDIA PERFORMANCE

Dale E. Gulick; Andy Lambrecht; Mike Webb; Larry Hewitt, all of Austin, Tex., and Brian Barnes, Round Rock, Tex., assignors to Advanced Micro Devices, Inc., Sunnyvale, Calif.

Filed Sep. 11, 1995, Ser. No. 526,596

Int. Cl.⁶ G06F *13/14;13/20*

U.S. Cl. 395—500 **20 Claims**



1. A computer system, comprising:

a motherboard;

a CPU comprised on said motherboard;

main memory coupled to the CPU which stores data accessible by the CPU;

bridge logic comprised on said motherboard coupled to said CPU and said main memory, wherein said bridge logic includes expansion bus bridge logic;

an expansion bus comprised on said motherboard coupled to the expansion bus bridge logic, wherein said expansion bus includes a plurality of data lines and control lines;

a plurality of expansion bus connector slots comprised on said motherboard and coupled to said expansion bus for receiving add-in cards;

a multimedia bus comprised on said motherboard, wherein said multimedia bus includes a plurality of data lines for transmitting data;

a plurality of multimedia bus connector slots comprised on said motherboard and coupled to said multimedia bus for receiving add-in cards, wherein said plurality of multimedia bus slots correspond to at least a subset of said plurality of expansion bus slots; and

one or more add-in cards adapted for concurrent coupling to said expansion bus connector slots and said multimedia bus connector slots, wherein each of said one or more add-in cards includes a first edge connector for mechanically and electrically connecting to one of said plurality of expansion bus connector slots, and each of said one or more add-in cards further includes a second edge connector for mechanically and electrically connecting to a corresponding one of said plurality of multimedia bus connector slots.

5,784,593

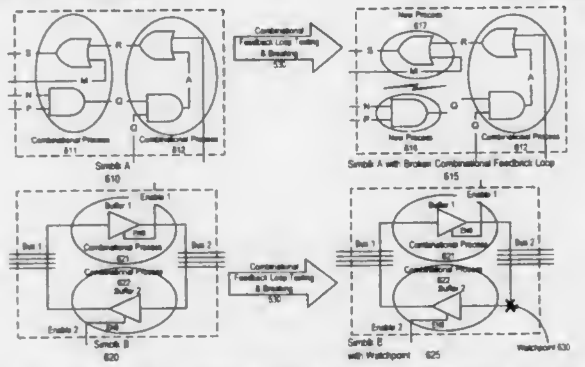
SIMULATOR INCLUDING PROCESS LEVELIZATION

Ping-sheng Tseng, Sunnyvale; Radha Vaidyanathan, Los Altos, both of Calif.; Sivaram Krishna Nayudu, Jersey City, N.J., and Mahadevan Ganapathi, Sunnyvale, Calif., assignors to Synopsys, Inc., Mountain View, Calif.

Filed Sep. 29, 1995, Ser. No. 536,031

Int. Cl.⁶ G06F *9/455*

U.S. Cl. 395—500 **16 Claims**


S
R
M
A
N
P
Q
Q
Combinational Process 611
Combinational Process 612
Simbk A 610
Combinational Feedback Loop Testing & Breaking 530
New Process 617
New Process 616
Combinational Process 612
Simbk A with Broken Combinational Feedback Loop 615
Enable 1
Buffer 1
Bus 1
Bus 2
Combinational Process 621
Combinational Process 622
Buffer 2
Enable 2
Simbk B 620
Combinational Feedback Loop Testing & Breaking 530
Simbk B with Watchpoint 625
Watchpoint 630

1. A method of preparing a specification of a system for simulation on a computer system, said specification including a hardware design language specification of said system. said method comprising the steps of:

analyzing said specification to identify a set of processes, each process including a plurality of statements;

determining an evaluation order of said set of processes;

generating a combined process including a portion of said plurality of statements, said portion of said plurality of statements included in said combined process so as to be evaluated according to said evaluation orders;

identifying a set of combinational processes from said set of processes, a combinational process of said set of combinational processes not retaining state information; and

determining whether said combinational process to determine whether said combinational process is part of a combinational feedback loop, wherein if said combinational process is part of said combinational feedback loop then determining whether said combinational process can be split to eliminate said combinational feedback loop.

5,784,594

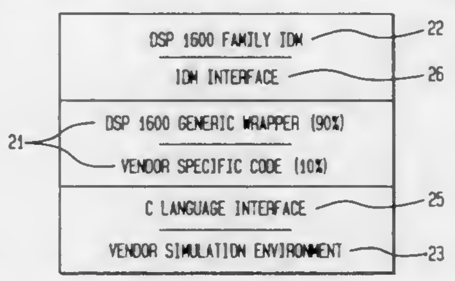
GENERIC INTERACTIVE DEVICE MODEL WRAPPER

Paul E. Beatty, Leesport, Pa., assignor to Lucent Technologies Inc., Murray Hill, N.J.

Filed Jun. 12, 1996, Ser. No. 664,020

Int. Cl.⁶ G06F *9/455*

U.S. Cl. 395—500 **43 Claims**


DSP 1600 FAMILY IDM
22
IDM INTERFACE
26
21
DSP 1600 GENERIC WRAPPER (90%)
VENDOR SPECIFIC CODE (10%)
C LANGUAGE INTERFACE
25
VENDOR SIMULATION ENVIRONMENT
23

1. A method for integrating a device model into a simulation environment, comprising the steps of:

interfacing with the device model and the simulation environment at device model initialization to obtain device model interface pin names and simulation environment interface pin names; and

matching substantially each said device model pin name to a substantially similar simulation environment pin name to substantially map said device model interface to said simulation environment interface so that simulation environment signal descriptions and device model signal descriptions are translatable therebetween and providing audit messages to notify users of unmatched pin names.

5,784,595

DMA EMULATION FOR NON-DMA CAPABLE INTERFACE CARDS

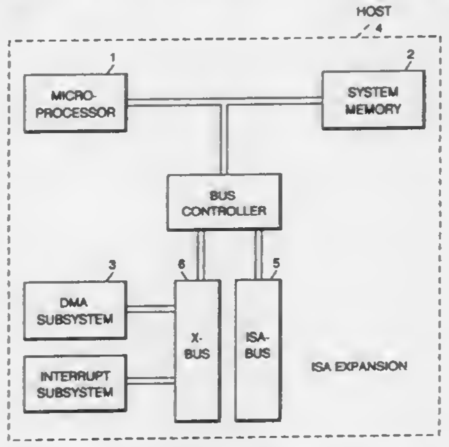
Robert J. Devins, Essex Junction, Vt.; Stephen Hon, Scarborough; Patrick Kam, Pickering, both of Canada, and Emory D. Keller, Jericho, Vt., assignors to International Business Machines Corporation, Armonk, N.Y.

Continuation of Ser. No. 475,665, Jun. 7, 1995, abandoned. This application Aug. 7, 1997, Ser. No. 908,214

Claims priority, application Canada, Nov. 9, 1994, 2135505

Int. Cl.⁶ G06F *31/00;13/32*

U.S. Cl. 395—500 **28 Claims**



1. A method of simulating a direct memory access (DMA) function without using DMA request and DMA acknowledge signals to access memory in a host computer having a DMA controller controlling access to said memory for the purpose of enabling the transfer of data between said memory and a non-DMA computer accessory data handling device that can be operably connected to said host comprising:

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- determining the location in said host memory for data to be transferred from said host memory to said accessory data handling device or from said accessory data handling device to said host memory; and
- initiating a DMA operation by storing in a memory of said accessory data handling device, control information which includes (1) an amount of data to be transferred and (2) a type of operation to be performed;
- reading from the accessory data handling device the amount of data to be transferred and the type of operation to be performed;
- for a data transfer from said host memory to said accessory data handling device, reading data from said host memory and writing it to said accessory data handling device; or for a data transfer from said accessory data handling device to said host memory, reading data from said accessory data handling device and writing it to said host memory, respectively;
- informing said host computer that a DMA operation corresponding to said data transfer has been completed.

5,784,596

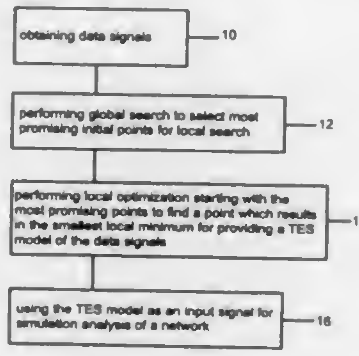
ALGORITHMIC MODELING OF TES PROCESSES FOR SIMULATION ANALYSIS

Benjamin Melamed, Warren, N.J., and Predrag Jelenkovic, New York, N.Y., assignors to NEC USA, Inc., Princeton, N.J.

Continuation of Ser. No. 554,251, Nov. 8, 1995, abandoned, and Ser. No. 311,303, Sep. 23, 1994, abandoned. This application Sep. 15, 1997, Ser. No. 931,062

Int. Cl.^{6} G05B *13/04*

U.S. Cl. 395—500 **8 Claims**


obtaining data signals
10
performing global search to select most promising initial points for local search
12
performing local optimization starting with the most promising points to find a point which results in the smallest local minimum for providing a TES model of the data signals
14
using the TES model as an input signal for simulation analysis of a network
16

1. A method of simulation analysis of a network comprising the steps of:

- receiving data signals representative of time series phenomena;
- performing a global search on said data signals to select initial points for local search, which points result in the smallest values of the objective function $g_K(P,\xi)=\Sigma_{\tau=1}^{T} \alpha_\tau|\rho_{P,\xi}(\tau)-\hat{\rho}_Y(\tau)|^2$, $(P, \xi) \in g_K$, where P are the discretized densities, ξ are stitching parameters, α_τ are weight coefficients, $\rho_{P,\xi}(\tau)$ is a TES model autocorrelation function, and $\hat{\rho}_Y(\tau)$ is an empirical autocorrelation function;
- performing local optimization using each of the selected initial points as a starting point to find the point which results in the smallest local minimum of the objective function for providing a TES (Transform-Expand-Sample) model of said data signals; and
- using said TES model of said data signals as an input signal for simulation analysis of a network.

5,784,597

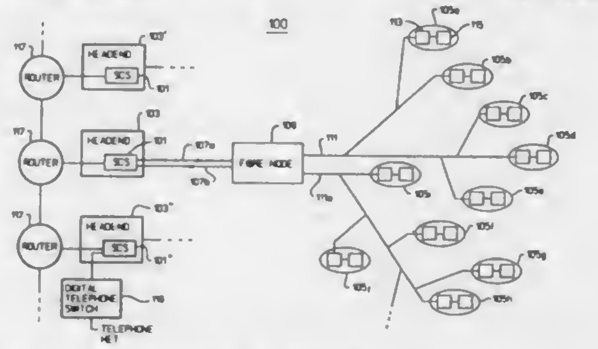
COMMUNICATIONS NETWORK SYSTEM INCLUDING ACKNOWLEDGEMENT INDICATING SUCCESSFUL RECEIPT OF REQUEST FOR RESERVED COMMUNICATION SLOTS AND START TIME FOR SAID RESERVED COMMUNICATION SLOTS

Ran-Fun Chiu, Los Altos, and Mehrban Jam, Fremont, both of Calif., assignors to Hewlett-Packard Company, Palo Alto, Calif.

Filed Sep. 22, 1995, Ser. No. 532,918

Int. Cl.^{6} H04N *7/14;* **G06F** *1/12*

U.S. Cl. 395—552 **20 Claims**



1. A computer network for high-speed data communication, comprising:

- a data transmission cable having a root and at least one leaf node;
- a signal conversion system (SCS) attached to said root;
- at least one client station, each attached to a distinct leaf node;
- said signal conversion system (SCS) having:
  - a transmitter that transmits down-stream data onto said cable on a down-stream channel in a first frequency band, and
  - a receiver that receives data from said at least one client station on an up-stream channel in a second frequency band including data packets from a particular client station transmitted in a contention slot,
- wherein said down-stream data includes an acknowledgment of successful transmission of the data packet, wherein said acknowledgment includes an indication of how long the particular client station must wait prior to transmitting remaining data; and
- each client station having:
  - a receiver that receives data on said first frequency band,
  - logic to coordinate transmission on a second frequency band according to the indication included within the acknowledgment, and
  - a transmitter that transmits data on a second frequency band.

5,784,598

METHOD AND APPARATUS FOR CHANGING PROCESSOR CLOCK RATE

Jenni L. Griffith, Belton, Tex., assignor to Texas Instruments Incorporated, Dallas, Tex.

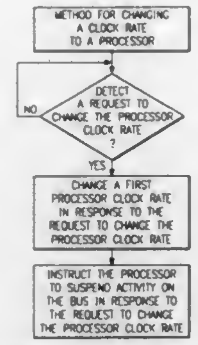
Continuation of Ser. No. 897,693, Jun. 12, 1992, abandoned. This application Jun. 7, 1995, Ser. No. 479,580

Int. Cl.^{6} G06F *1/08*

U.S. Cl. 395—556 **50 Claims**

1. A method for changing a clock rate supplied to a processor that internally multiplies said clock rate, comprising the steps of:

- detecting a request to change the processor clock rate;


METHOD FOR CHANGING A CLOCK RATE TO A PROCESSOR
DETECT A REQUEST TO CHANGE THE PROCESSOR CLOCK RATE ?
NO
YES
CHANGE A FIRST PROCESSOR CLOCK RATE IN RESPONSE TO THE REQUEST TO CHANGE THE PROCESSOR CLOCK RATE
INSTRUCT THE PROCESSOR TO SUSPEND ACTIVITY ON THE BUS IN RESPONSE TO THE REQUEST TO CHANGE THE PROCESSOR CLOCK RATE

- changing a first processor clock rate in response to the request to change the processor clock rate; and
- instructing the processor to suspend activity on a system bus in response to the request to change the processor clock rate.

5,784,599

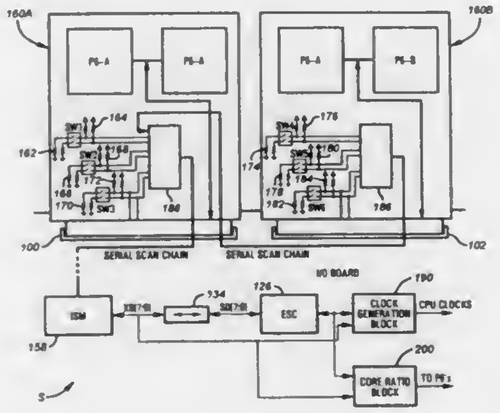
METHOD AND APPARATUS FOR ESTABLISHING HOST BUS CLOCK FREQUENCY AND PROCESSOR CORE CLOCK RATIOS IN A MULTI-PROCESSOR COMPUTER SYSTEM

Bassam N. Elkhoury, Spring, Tex., assignor to Compaq Computer Corporation, Houston, Tex.

Filed Dec. 15, 1995, Ser. No. 572,957

Int. Cl.^{6} G06F *1/04*

U.S. Cl. 395—556 **13 Claims**



1. A method for establishing the host bus clock frequency and processor core clock ratios in a multiprocessor computer system, the method comprising the steps of:

- determining original host bus frequency settings for installed microprocessors;
- configuring clock generation circuitry to produce an optimized host bus clock frequency substantially equal to the slowest of said original host bus frequency settings;
- determining original processor core clock ratio settings for installed microprocessors;
- optimizing each of said original processor core clock ratio settings to provide the maximum possible processor core frequency for said optimized host bus clock frequency; and
- configuring each of said processors to utilize said optimized core clock ratio settings.

5,784,600

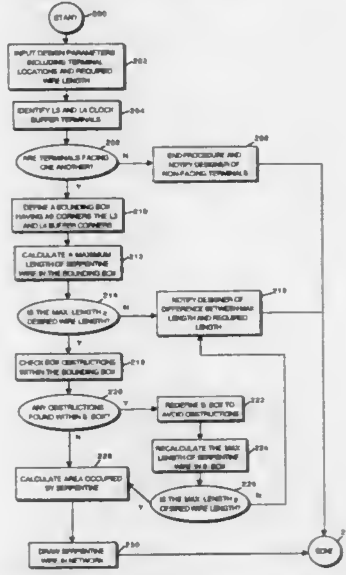
METHOD OF GENERATING EXACT-LENGTH WIRES FOR ROUTING CRITICAL SIGNALS

Manjunath Doreswamy, and Aleksandar Pance, both of Sunnyvale, Calif., assignors to Sun Microsystems, Inc., Palo Alto, Calif.

Filed Jul. 1, 1996, Ser. No. 673,115

Int. Cl.^{6} G06F *17/50*

U.S. Cl. 395—558 **39 Claims**


START
200
INPUT DESIGN PARAMETERS INCLUDING TERMINAL LOCATIONS AND REQUIRED WIRE LENGTH
202
IDENTIFY L3 AND L4 CLOCK BUFFER TERMINALS
204
ARE TERMINALS FACING ONE ANOTHER?
206
N
END PROCEDURE AND NOTIFY DESIGNER OF NON-FACING TERMINALS
208
Y
DEFINE A BOUNDING BOX HAVING AS CORNERS THE L3 AND L4 BUFFER CORNERS
210
CALCULATE A MAXIMUM LENGTH OF SERPENTINE WIRE IN THE BOUNDING BOX
212
IS THE MAX LENGTH ≥ DESIRED WIRE LENGTH?
214
NOTIFY DESIGNER OF DIFFERENCE BETWEEN MAX LENGTH AND REQUIRED LENGTH
216
CHECK BOX OBSTRUCTIONS WITHIN THE BOUNDING BOX
218
ANY OBSTRUCTIONS FOUND WITHIN B. BOX?
220
REDEFINE B. BOX TO AVOID OBSTRUCTIONS
222
RECALCULATE THE MAX LENGTH OF SERPENTINE WIRE IN B. BOX
224
IS THE MAX LENGTH ≥ DESIRED WIRE LENGTH?
226
CALCULATE AREA OCCUPIED BY SERPENTINE
228
DRAW SERPENTINE WIRE IN NETWORK
230
END
232

1. In a computer system for specifying an integrated circuit design, a method of laying out a path of a routing wire in the integrated circuit design. the method comprising the following steps:

- receiving a value specifying a wire length that must be provided between terminals of two integrated circuit elements in said design;
- defining a routing region in which the wire can be routed; and
- automatically specifying a wire route within said routing region for connecting said terminals, said wire route having at least one serpentine section with one or more legs as needed so that the wire route has the specified wire length.

5,784,601

DATA PROCESSOR CAPABLE OF CHANGING SAMPLING TIME AND CLOCK FREQUENCY

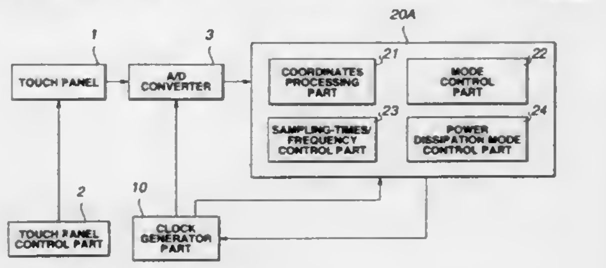
Kazuhiro Kisaichi, Tokyo, Japan, assignor to Kabushiki Kaisha Toshiba, Kawasaki, Japan

Filed Sep. 16, 1996, Ser. No. 714,543

Claims priority, application Japan, Sep. 18, 1995, 7-238338

Int. Cl.^{6} G06F *1/08*

U.S. Cl. 395—559 **5 Claims**



1. A data processor comprising:

- inputting means for inputting analog data;
- generating means for generating a clock signal having a prescribed frequency;
- converting means for converting said analog data into digitized data in accordance with said clock signal;

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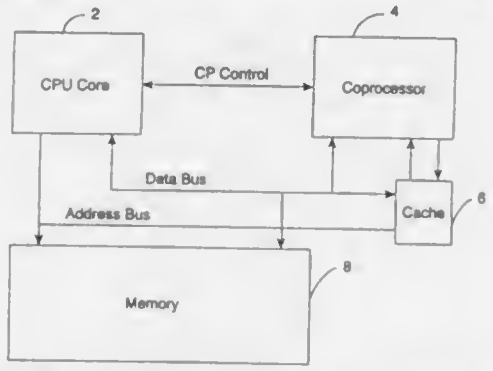
- averaging means for averaging said digitized data at a first sampling time or a second sampling time which is bigger than said first sampling time;
- first changing means for changing a selected one of said first and second sampling times;
- second changing means for changing said frequency of said clock signal;
- determining means for determining whether said averaging means averages said digitized data at said first sampling time or said second sampling time;
- detecting means for detecting a frequency of said clock signal; and
- supplying means for supplying the determined sampling time to said first changing means and for supplying the detected frequency to said second changing means.

5,784,602
METHOD AND APPARATUS FOR DIGITAL SIGNAL PROCESSING FOR INTEGRATED CIRCUIT ARCHITECTURE

Simon James Glass, and David Vivian Jaggar, both of Cherry Hinton, United Kingdom, assignors to Advanced RISC Machines Limited, Cambridge, United Kingdom

Filed Oct. 8, 1996, Ser. No. 727,785
Int. Cl.^{6} G06F *9/30*

U.S. Cl. 395—561 **34 Claims**



1. A method of performing digital signal processing, using a microprocessor unit and a digital signal processing unit, of signal data words stored in a data storage device to generate result data words, said method comprising the steps of:

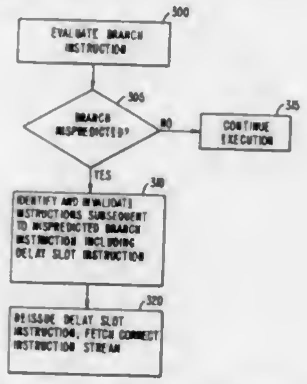
(a) in said microprocessor unit:
  (i) generating, under control of microprocessor unit program instruction words, address words for addressing storage locations storing said signal data words within said data storage device;
  (ii) reading said signal data words from said addressed storage locations storing said signal data words within said data storage device;
  (iii) supplying said signal data words to said digital signal processing unit; and
  (iv) fetching, under control of microprocessor unit program instruction words, said result data words from said digital signal processing unit, and
(b) concurrent with the above steps performed by said microprocessor unit, said digital signal processing unit performing, under control of digital signal processing unit program instruction words, arithmetic logic operations including at least one of a convolution operation, a correlation operation and a transform operation upon said signal data words to generate result data words.

5,784,603
FAST HANDLING OF BRANCH DELAY SLOTS ON MISPREDICTED BRANCHES

Arthur Leung, Sunnyvale, and Joseph Petolino, Palo Alto, both of Calif., assignors to Sun Microsystems, Inc., Palo Alto, Calif.

Filed Jun. 19, 1996, Ser. No. 665,964
Int. Cl.^{6} G06F *9/38*

U.S. Cl. 395—581 **22 Claims**


300
EVALUATE BRANCH INSTRUCTION
305
BRANCH MISPREDICTED?
NO
315
CONTINUE EXECUTION
YES
310
IDENTIFY AND INVALIDATE INSTRUCTIONS SUBSEQUENT TO MISPREDICTED BRANCH INSTRUCTION INCLUDING DELAY SLOT INSTRUCTION
320
REISSUE DELAY SLOT INSTRUCTION, FETCH CORRECT INSTRUCTION STREAM

1. A method for handling mispredicted branch instructions in a computer processor having a plurality of execution pipelines and a branch prediction unit, said method comprising the steps of:

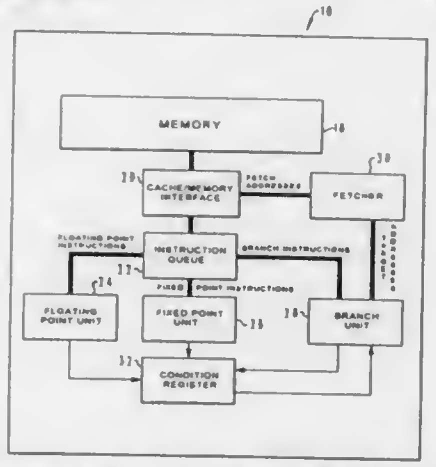
- issuing a branch instruction;
- issuing a non-annulling delay slot instruction following said branch instruction;
- if said branch instruction is mispredicted, determining which instructions in said pipelines follow said branch instruction;
- invalidating all instructions in said pipelines following said mispredicted branch instruction including said delay slot instruction; and
- thereafter, reissuing said non-annulling delay slot instruction to said instruction pipelines.

5,784,604
METHOD AND SYSTEM FOR REDUCED RUN-TIME DELAY DURING CONDITIONAL BRANCH EXECUTION IN PIPELINED PROCESSOR SYSTEMS UTILIZING SELECTIVELY DELAYED SEQUENTIAL INSTRUCTION PURGING

John Stephen Muhich; Terence Matthew Potter, and Steven Wayne White, all of Austin, Tex., assignors to International Business Machines Corporation, Armonk, N.Y.

Filed Oct. 9, 1992, Ser. No. 959,183
Int. Cl.^{6} G06F *9/00*

U.S. Cl. 395—585 **16 Claims**



1. A method in a data processing system for efficiently reducing run-time delays during pipelined processing of instructions stored within said data processing system which include a series of queued sequential instructions and conditional branch instructions wherein each of said conditional branch instructions specifies an associated conditional branch to be taken in response to a selected outcome of processing one or more of said series of sequential instructions, said method comprising the steps of:

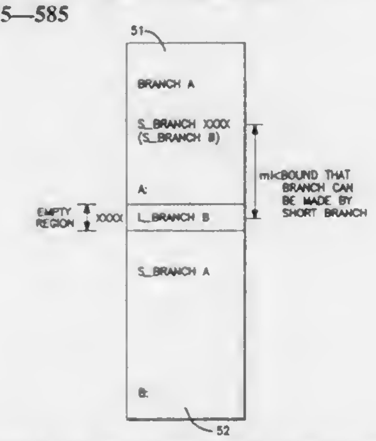
- detecting a conditional branch instruction within a series of sequential instructions in a queue within said data processing system;
- fetching a plurality of target instructions based upon a prediction that a conditional branch associated with said detected conditional branch instruction will be taken; and
- purging a selected sequence of sequential instructions following said conditional branch instruction within said series in said queue only in response to a successful retrieval of said plurality of target instructions wherein said selected sequence of sequential instructions may be processed without delay in response to a refutation of said prediction prior to retrieval of said plurality of target instructions.

5,784,605
METHOD FOR PROCESSING BRANCH INSTRUCTIONS BETWEEN COMPUTER PROGRAM MODULES

Yoshinari Ando, Tokyo, Japan, assignor to NEC Corporation, Tokyo, Japan

Filed Feb. 9, 1996, Ser. No. 599,127
Claims priority, application Japan, Feb. 21, 1995, 7-032487
Int. Cl.^{6} G06F *9/42*

U.S. Cl. 395—585 **6 Claims**


51
BRANCH A
S_BRANCH XXXX (S_BRANCH B)
A:
EMPTY REGION
XXXX
L_BRANCH B
m<BOUND THAT BRANCH CAN BE MADE BY SHORT BRANCH
S_BRANCH A
B:
52

1. A method for processing short branch instructions for branches between program modules into which a computer program is divided, said method comprising the steps of:

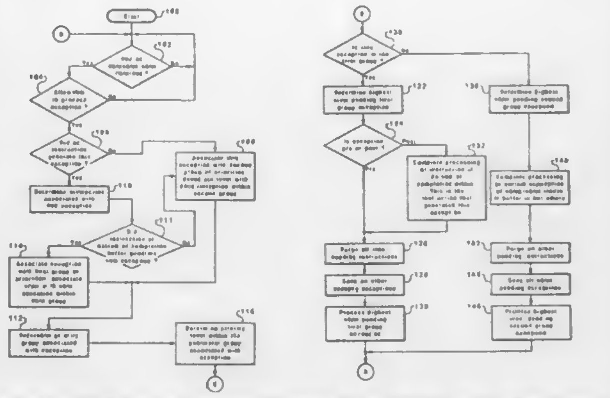
- verfying that a branching location for a short branch instruction is outside a branch-enable bound that a branch can be made in accordance with said short branch instruction, wherein said branching location is a location to which said branch is about to be made in accordance with said short branch instruction;
- searching an empty region in said branch-enable bound;
- generating a long branch instruction on said empty region; and
- amending said branching location into an address to which said branch will be made in accordance with said long branch instruction.

5,784,606
METHOD AND SYSTEM IN A SUPERSCALAR DATA PROCESSING SYSTEM FOR THE EFFICIENT HANDLING OF EXCEPTIONS

Thomas Alan Hoy; Terence Matthew Potter, and Paul Charles Rossbach, all of Austin, Tex., assignors to International Business Machines Corporation, Armonk, N.Y., and Motorola, Inc., Schaumburg, Ill.

Filed Dec. 16, 1996, Ser. No. 768,060
Int. Cl.^{6} G06F *9/46*

U.S. Cl. 395—591 **18 Claims**



1. A method in a data processing system for efficiently handling an exception, said data processing system including a register for storing indications of multiple instructions while said instructions are concurrently processed, said method comprising the steps of:

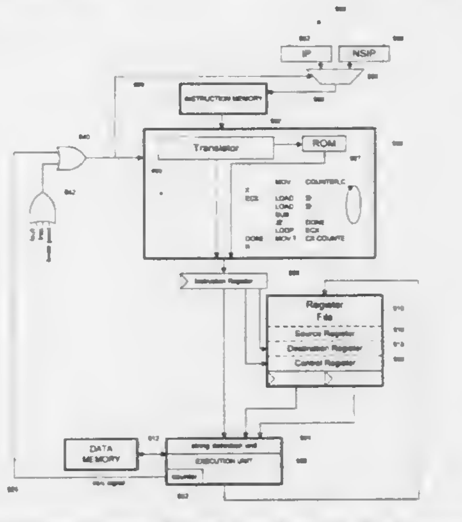
- generating said exception within said data processing system;
- determining whether said exception was generated in response to processing one of said instructions;
- in response to a determination that said exception was generated in response to processing said one instruction, determining whether an indication of said one instruction is stored in a particular position within said register;
- in response to a determination that said indication is stored in said particular position, associating said exception with a first priority group;
- in response to a determination that said indication is not stored in said particular position, associating said exception with a second priority group; and
- in response to a determination that said exception was not generated in response to processing said one instruction, associating said exception with said second priority group.

5,784,607
APPARATUS AND METHOD FOR EXCEPTION HANDLING DURING MICRO CODE STRING INSTRUCTIONS

G. Glenn Henry, and Terry Parks, both of Austin, Tex., assignors to Integrated Device Technology, Inc., Santa Clara, Calif.

Continuation-in-part of Ser. No. 623,657, Mar. 29, 1996, Pat. No. 5,752,015. This application May 12, 1997, Ser. No. 855,896
Int. Cl.^{6} G06F *9/22*

U.S. Cl. 395—595 **37 Claims**



1. A processing system, for executing macro string instructions, the processing system comprising:

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an instruction memory, for storing said macro string instructions;
a data memory, for storing data strings upon which said macro string instructions operate;
translate/decode logic, connected to said instruction memory, for decoding each of said macro string instructions into a sequence of micro instructions, and for repetitively generating said sequence of micro instructions;
an execution unit, connected to said translate/decode logic, for executing said repetitively generated sequence of micro instructions;
exception logic, connected to said translate/decode logic, for interrupting said repetitive generation of said sequence of micro instructions, and causing said microprocessor to execute an exception correction routine; and
instruction pointer logic, connected to said instruction memory, and to said exception logic, for storing a first address and a second address, and for providing a selected one of said first address or said second address to said instruction memory;
whereby when said exception logic interrupts said repetitive generation of said sequence of micro instructions, said instruction pointer logic selects said first address for use in restarting said sequence of micro instructions.

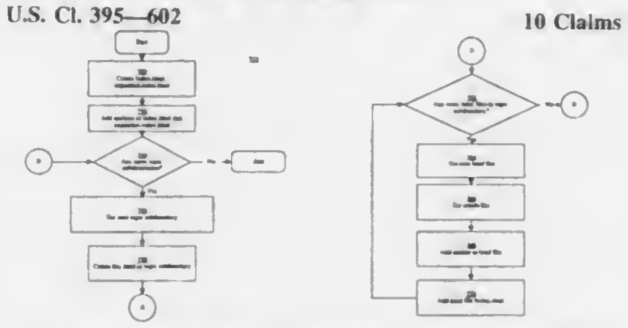
5,784,608
HYPERTEXT INFORMATION RETRIEVAL USING PROFILES AND TOPICS

Carl F. Meske, Jr., San Jose; Philip J. Hooper, Santa Clara, and Mark R. Opperman, Palo Alto, all of Calif., assignors to Sun Microsystems, Inc., Mountain View, Calif.

Continuation of Ser. No. 361,992, Dec. 20, 1994, Pat. No. 5,530,852. This application Jun. 21, 1996, Ser. No. 667,651

Int. Cl.^{6} G06F *17/30*

U.S. Cl. 395—602 **10 Claims**



1. A computer implemented method for converting information formatted in a first markup language to a second markup language to enable retrieval of the information in the second markup language comprising the steps of:
- a) receiving a first file of information in said first markup language;
- b) parsing the first file to obtain an article, if any, and a brief, if any, corresponding to said article, a profile, if any, and a topic, if any, corresponding to said profile;
- c) adding to a second file in the second markup language said profile, if any;
- d) adding to a third file in the second markup language said topic, if any;
- e) adding to a fourth file in the second markup language said article, if any;
- f) adding to a fifth file in the second markup language said brief, if any;
- g) linking the first, second, third, fourth and fifth files;
- h) updating a set of indices to allow searching of the profile, if any, stored in said second file and the topic, if any, stored in the third file.

5,784,609
SYSTEM FOR REMOTELY AUTHENTICATING ACCESS TO LOCAL SOFTWARE

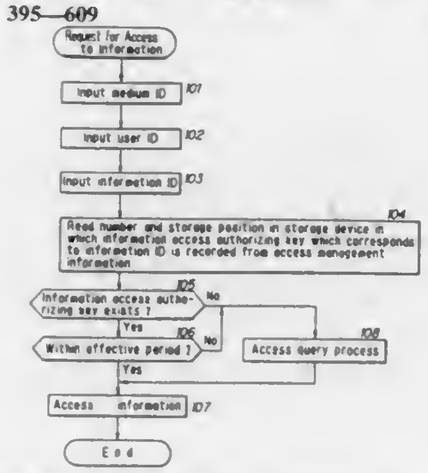
Akira Kurihara, Tokyo, Japan, assignor to Sony Corporation, Tokyo, Japan

Filed Jul. 7, 1995, Ser. No. 499,452

Claims priority, application Japan, Jul. 8, 1994, 6-156863

Int. Cl.^{6} H04L *9/32*

U.S. Cl. 395—609 **15 Claims**


Request for Access to information
Input medium ID
101
Input user ID
102
Input information ID
103
104
Read number and storage position in storage device in which information access authorizing key which corresponds to information ID is recorded from access management information
105
Information access authorizing key exists ?
No
Yes
106
Within effective period ?
No
108
Access query process
Yes
Access information
107
End

1. An information offering system, comprising:
a center for providing information; and
a user terminal which receives the provided information from said center,
said user terminal comprising:
- information storage means for storing chargeable information supplied from said center to said user terminal, said chargeable information including a plurality of various type information items;
- first transmitting means for transmitting a request signal for requesting said center to transmit access authorizing information for authorizing access to said chargeable information having been stored in said information storage means and for transmitting a user ID for identifying said user terminal, said first transmitting means transmitting to said center an information ID corresponding to one of said information items for identifying the corresponding chargeable information; and
- first control means for reading said chargeable information having been authorized to be read in response to said access authorizing information transmitted from said center,

said center comprising:
- means for receiving said request signal and said user ID transmitted from said user terminal;
- determining means for determining whether said user ID is valid; and
- second transmitting. means for transmitting said access authorizing information to said user terminal when said user ID is determined to be valid, said access authorizing information corresponding to each said information ID.

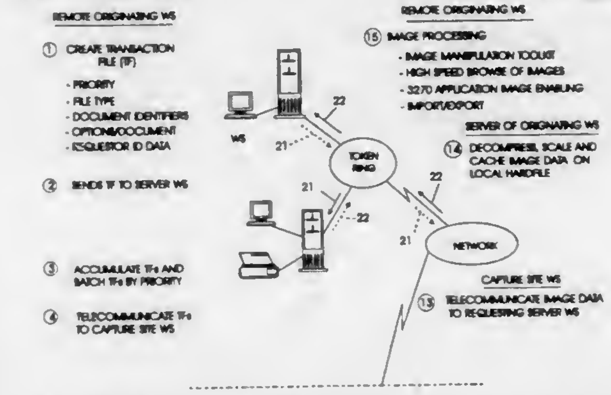
5,784,610
CHECK IMAGE DISTRIBUTION AND PROCESSING SYSTEM AND METHOD

John Ray Copeland, III, Decatur, Ala.; Leslie Marie Doby, Matthews, N.C.; Larry Page Hobbs, Jr.; Vil Patrick Johnikin, both of Charlotte, N.C.; Julie Ann Pridmore; Sterling Richardson Smith, both of Charlotte, N.C.; Thomas Chester Smith, Charlotte, N.C.; Lori London Weaver, Salisbury, N.C., and Filip Jay Yeskel, Charlotte, N.C., assignors to International Business Machines Corporation, Armon, N.Y.

Filed Nov. 21, 1994, Ser. No. 342,978

Int. Cl.^{6} G06F *15/00;17/30*

U.S. Cl. 395—615 **16 Claims**


REMOTE ORIGINATING WS
① CREATE TRANSACTION FILE (TF)
- PRIORITY
- FILE TYPE
- DOCUMENT IDENTIFIERS
- OPTIONS/DOCUMENT
- REQUESTOR ID DATA
② SENDS TF TO SERVER WS
③ ACCUMULATE TFs AND BATCH TFs BY PRIORITY
④ TELECOMMUNICATE TFs TO CAPTURE SITE WS
WS
21
22
TOKEN RING
NETWORK
REMOTE ORIGINATING WS
⑮ IMAGE PROCESSING
- IMAGE MANIPULATION TOOLKIT
- HIGH SPEED BROWSE OF IMAGES
- 3270 APPLICATION IMAGE ENABLING
- IMPORT/EXPORT
SERVER OF ORIGINATING WS
⑭ DECOMPRESS, SCALE AND CACHE IMAGE DATA ON LOCAL HARDFILE
CAPTURE SITE WS
⑬ TELECOMMUNICATE IMAGE DATA TO REQUESTING SERVER WS

4. A digital communication network constructed and arranged to distribute and manipulate digital document images that are contained in digital archival storage, comprising:
- digital archive storage means containing a plurality of captured document images, each image having a unique image identifier;
- a plurality of geographically distributed operator workstations connected to form said communication network, each of said workstations being selectively operable as a client workstation or as a server workstation, and each of said workstations including operator display means whereby digital images may be visually viewed and manipulated by an operator;
- image request means at a requesting client workstation to originate a transaction file whereby at least one digital image in said archive storage means is defined by an image identifier that is unique to said at least one digital image, said transaction file having a transaction file priority;
- first communication means including first server workstations operable to fetch said at least one digital image from said archive storage means, said first communication means operating to batch a plurality of transaction files by transaction file priority;
- second communication means including second server workstations operable to send said batched transaction files to said requesting client workstation; and
- visual display means at said requesting client workstation operable to visually display said fetched at least one digital image.

5,784,611
DEVICE AND PROCESS FOR IN-SYSTEM PROGRAMMING ELECTRICALLY ERASABLE AND PROGRAMMABLE NON-VOLATILE MEMORY

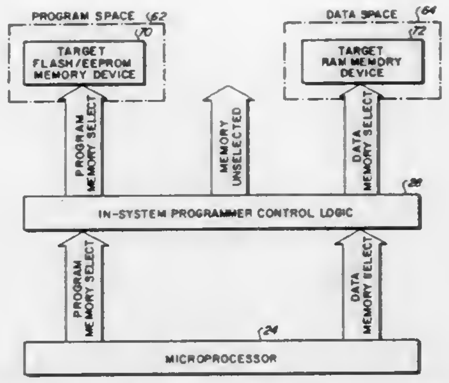
Virat Thantrakul, La Crescenta, Calif., assignor to Seagate Technology, Inc., Scotts Valley, Calif.

Continuation of Ser. No. 359,292, Dec. 19, 1994, abandoned. This application Apr. 14, 1997, Ser. No. 839,463

Int. Cl.^{6} G06F *9/06*

U.S. Cl. 395—651 **33 Claims**

1. A process for programing electrically erasable and programmable non-volatile memory in a computer system, comprising the steps of:
- attaching a memory module to a bus of a target microprocessor;
- detecting attachment of the memory module to the target microprocessor bus on power-up of the computer system;



- inhibiting on-board flash/eeprom memory selection logic of the computer system; and
- enabling in-system programmer control logic embedded within the computer system and accessible to the microprocessor, such that the microprocessor fetches instructions from the attached memory module rather than an on-board flash/eeprom memory.

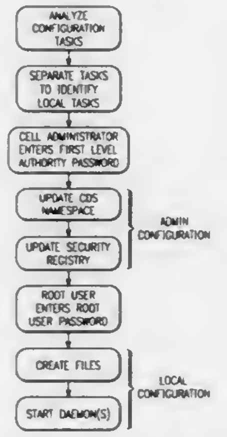
5,784,612
CONFIGURATION AND UNCONFIGURATION OF DISTRIBUTED COMPUTING ENVIRONMENT COMPONENTS

Christina Heidi Crane, Austin; Edwin Michael Philpot, Jr., Leander; Stephna Jeanne Sirkin, and Kenneth Walker, Jr., both of Austin, all of Tex., assignors to International Business Machines Corporation, Armonk, N.Y.

Filed May 3, 1995, Ser. No. 433,176

Int. Cl.^{6} G06F *9/44*

U.S. Cl. 395—653 **19 Claims**


ANALYZE CONFIGURATION TASKS
SEPARATE TASKS TO IDENTIFY LOCAL TASKS
CELL ADMINISTRATOR ENTERS FIRST LEVEL AUTHORITY PASSWORD
UPDATE CDS NAMESPACE
UPDATE SECURITY REGISTRY
ADMIN CONFIGURATION
ROOT USER ENTERS ROOT USER PASSWORD
CREATE FILES
START DAEMON(S)
LOCAL CONFIGURATION

1. A method of configuring a machine into a distributed computing environment domain having at least two levels of authority, a first level authority normally restricted from root user access to machines in the domain, comprising the steps of:
- identifying at least one of a set of configuration tasks that must be carried out by a root user on the machine being configured;
- in response to entry into the domain of a password of the first level authority, performing an administrative configuration task in the domain for the machine being configured; and
- in response to entry of a root user password on the machine being configured, performing the at least one identified configuration task.

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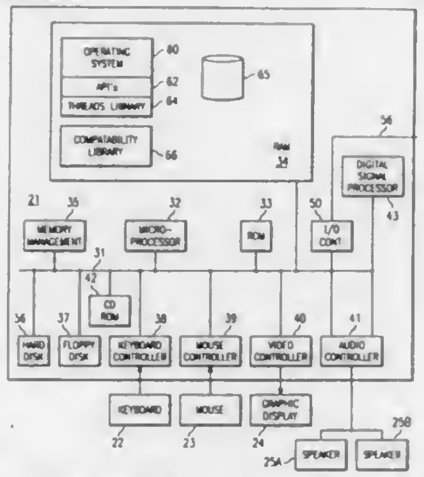
5,784,613
EXCEPTION SUPPORT MECHANISM FOR A THREADS-BASED OPERATING SYSTEM

Gopala Chary Tamirisa, Austin, Tex., assignor to International Busines Machines Corporation, Armonk, N.Y.

Filed Sep. 12, 1995, Ser. No. 527,046

Int. Cl.^{6} G06F *9/00*

U.S. Cl. 395—670 **20 Claims**



1. A method for providing exception support in a computer having an operating system, the operating system providing application programming interfaces for use by a threads library to create, execute and cancel threads in a process, the threads library maintaining a cleanup handler stack for each thread for effecting clean-up of state upon receipt of a thread cancel, and wherein the threads library does not support a mechanism for raising exceptions, comprising the steps of:

placing a pointer in the cleanup handler stack of a thread pointing to a predetermined function;

upon receipt of a thread cancel for the thread, having the threads library invoke the predetermined function as a cleanup handler while continuing operation of the thread;

generating an exception during execution of the said predetermined function;

processing the said execution using an exception handling mechanism; and

allowing the thread to continue operation unless the exception cannot be handled.

5,784,614
CACHE AFFINITY SCHEDULING METHOD FOR MULTI-PROCESSOR NODES IN A SPLIT TRANSACTION BUS ARCHITECTURE

Todd C. Davis, Blythewood, S.C., assignor to NCR Corporation, Dayton, Ohio

Continuation of Ser. No. 508,017, Jul. 27, 1995, abandoned. This application Apr. 28, 1997, Ser. No. 841,183

Int. Cl.^{6} G06F *15/16*

U.S. Cl. 395—672 **4 Claims**

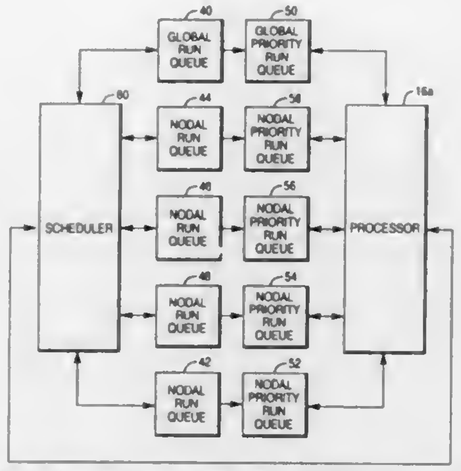
1. A method of selecting a process to execute by a processor within a multi-processor computer system having groups of processors including the one processor arranged in nodes defined by node buses, comprising the steps of:

(a) providing a global run queue for queuing unaffined processes within the computer system by a scheduler;

(b) providing a nodal run queue for each node bus of the computer system for queuing affined processes within the computer system by the scheduler;

(c) ordering the unaffined processes in the global run queue in accordance with a predetermined priority scheme by an operating system within the computer system to form a global priority run queue;

(d) ordering the affined processes in each of the nodal run queues in accordance with a predetermined priority scheme by the operating system within the computer system to form a nodal priority run queue for each node bus;



(e) determining highest priority levels in the global priority run queue by the one processor in one of the nodes;

(f) determining highest priority levels in one of the nodal priority run queues by the one processor in the one node, wherein the one nodal priority run queue is associated with the one node;

(g) determining whether the highest priority level within the one nodal priority run queue is higher than the highest priority level within the global priority run queue;

(h) if the highest priority level within the one nodal priority run queue is lower than the highest priority level within the global priority run queue, then choosing a process within the global priority run queue to be the one process to execute by the one processor;

(i) if the highest priority level within the one nodal priority run queue is higher than the highest priority level within the global priority run queue, then determining whether there is an affined process in the highest priority level of the one nodal priority run queue;

(j) if the affined process exists in the highest priority level of the one nodal priority run queue, then choosing the affined process to be the one process to execute by the one processor;

(k) if the affined process does not exist in the highest priority level of the one nodal priority run queue, determining whether there is a process affined to a different processor in the node that is eligible to be run by the one processor;

(l) if the eligible process affined to a different processor in the node exists, choosing the eligible process affined to a different processor to be the one process to execute by the one processor; and

(m) if the eligible process affined to a different processor in the node does not exist, choosing a process in a different nodal run queue to be the one process to execute by the one processor.

5,784,615
COMPUTER SYSTEM MESSAGING ARCHITECTURE

Ralph Allen Lipe, Woodinville; Raymond J. Chen, Bellevue; Michael A. Schmidt, and Sankar Ramasubramanian, both of Redmond, all of Wash., assignors to Microsoft Corporation, Redmond, Wash.

Filed Dec. 13, 1994, Ser. No. 355,044

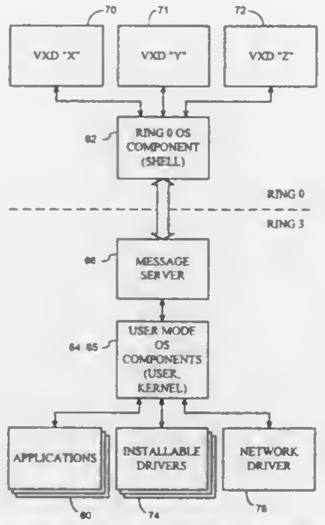
Int. Cl.^{6} G06F *9/40*

U.S. Cl. 395—681 **18 Claims**

1. A computer system, comprising:

a microprocessor providing execution of program code at a plurality of privilege rings, the privilege rings including a most privileged ring and a user mode ring;

a message server executing on the microprocessor at the user mode ring;



at least one virtual driver executing on the microprocessor at the most privileged ring; and

an operating system component executing on the microprocessor at the most privileged ring and having a plurality of application programming interfaces callable by virtual drivers including an interface for requesting application time processing of an operation, the operating system component being operative responsive to a call to the interface to post an application time request message to the message server, the operating system component having a function adapted to modify the message server's user mode execution state to perform the operation;

the message server being adapted to respond to the application time request message by calling the function in the operating system component adapted to modify the message server's user mode execution state, whereby the operation is performed for the virtual driver by a user mode component.

5,784,616
APPARATUS AND METHODS FOR OPTIMALLY USING AVAILABLE COMPUTER RESOURCES FOR TASK EXECUTION DURING IDLE-TIME FOR FUTURE TASK INSTANCES EXHIBITING INCREMENTAL VALUE WITH COMPUTATION

Eric Horvitz, Kirkland, Wash., assignor to Microsoft Corporation, Redmond, Wash.

Filed May 2, 1997, Ser. No. 850,621

Int. Cl.^{6} G06F *9/46*

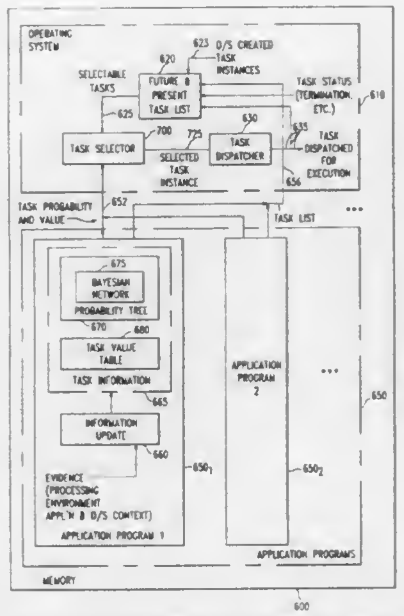
U.S. Cl. 395—672 **51 Claims**

1. In a computer system having a processor which exhibits a first period of low utilization followed by a second period of high utilization, a method for precomputing a task instance during said first period comprising the steps of:

defining a list having a plurality of future task instances, each of said instances having an incremental utility measure associated therewith resulting from allocation of computational resources to execution of said each future task instance;

at an onset of said first period, selecting, for current execution, one of said future task instances, from the list, then having a largest incremental utility measure associated therewith so as to define a selected future task instance; and

executing said selected future task instance during said first period;



whereby said selected future task instance is precomputed during the first period so as to increase throughput of the computer system.

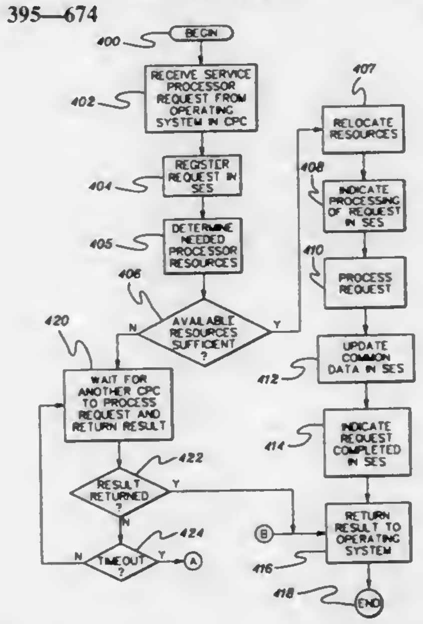
5,784,617
RESOURCE-CAPABILITY-BASED METHOD AND SYSTEM FOR HANDLING SERVICE PROCESSOR REQUESTS

Paul Gregory Greenstein, Fishkill; John Ted Rodell, Wappingers Falls, and Michael Allen Wright, Croton-on-Hudson, all of N.Y., assignors to International Business Machines Corporation, Armonk, N.Y.

Division of Ser. No. 380,932, Jan. 31, 1995, which is a continuation of Ser. No. 999,418, Dec. 31, 1992, abandoned. This application Nov. 27, 1996, Ser. No. 758,618

Int. Cl.^{6} G06F *13/14*

U.S. Cl. 395—674 **15 Claims**


400
BEGIN
402
RECEIVE SERVICE PROCESSOR REQUEST FROM OPERATING SYSTEM IN CPC
404
REGISTER REQUEST IN SES
405
DETERMINE NEEDED PROCESSOR RESOURCES
406
AVAILABLE RESOURCES SUFFICIENT ?
Y
N
407
RELOCATE RESOURCES
408
INDICATE PROCESSING OF REQUEST IN SES
410
PROCESS REQUEST
412
UPDATE COMMON DATA IN SES
414
INDICATE REQUEST COMPLETED IN SES
420
WAIT FOR ANOTHER CPC TO PROCESS REQUEST AND RETURN RESULT
422
RESULT RETURNED ?
Y
N
424
TIMEOUT ?
N
Y
A
B
RETURN RESULT TO OPERATING SYSTEM
416
418
END

1. In a data processing system, a method for handling an active service processor request ("SPR") emanating from at least one central processing complex in the system, the system having therein a plurality of SPR processing resources, the method comprising:

(a) determining a type of the active SPR, including determining a type of resources required to process the active SPR;

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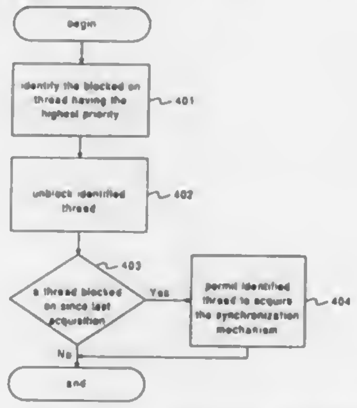
(b) determining a suitability of at least some SPR processing resources of the plurality of SPR processing resources to handle the active SPR, based on at least their respective intrinsic SPR processing capabilities and the type of resources required to process the active SPR;

(c) using result of said determine (a) and said determining (b) to determine a preferred SPR processing resource of the plurality of SPR processing resources within which to process the active SPR; and

(d) processing the active SPR in said preferred SPR processing resource.

5,784,618
METHOD AND SYSTEM FOR MANAGING OWNERSHIP OF A RELEASED SYNCHRONIZATION MECHANISM
Michael Toutonghi, Bellevue, Wash., assignor to Microsoft Corporation, Redmond, Wash.
Continuation of Ser. No. 176,132, Dec. 23, 1993, Pat. No. 5,586,318. This application Sep. 19, 1996, Ser. No. 715,937
Int. Cl.⁶ G06F *9/46*
U.S. Cl. 395—677 **25 Claims**


begin
identify the blocked on thread having the highest priority
401
unblock identified thread
402
403
a thread blocked on since last acquisition
Yes
No
permit identified thread to acquire the synchronization mechanism
404
end

7. A method in a computer system for determining whether to reassign a synchronization mechanism for synchronizing access to a resource by a plurality of entities that is initially assigned to a first entity, the method comprising the steps of:

determining that at least one entity other than the first entity has attempted to acquire the synchronization mechanism and is waiting to acquire the synchronization mechanism;

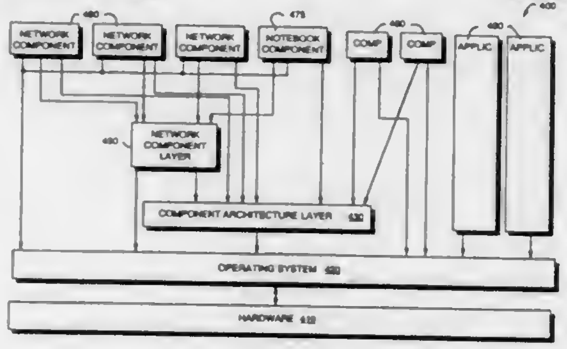
detecting the release of the synchronization mechanism by the first entity;

in response to detecting the release of the synchronization mechanism by the first entity, determining whether at least one of the entities that is waiting to acquire the synchronization mechanism attempted to acquire the synchronization mechanism while the synchronization mechanism was assigned to the first entity;

if at least one of the entities that is waiting to acquire the synchronization mechanism attempted to acquire the synchronization mechanism while the synchronization mechanism was assigned to the first entity, reassigning the synchronization mechanism to one of the entities that is waiting to acquire the synchronization mechanism; and

if each of the entities that are waiting to acquire the synchronization mechanism attempted to acquire the synchronization mechanism at a time while the synchronization mechanism was not assigned to the first entity, deferring the reassignment of the synchronization mechanism.

5,784,619
REPLACEABLE AND EXTENSIBLE NOTEBOOK COMPONENT OF A NETWORK COMPONENT
John S. Evans, Mountain View; Michael A. Cleron; Stephen Fisher, both of Menlo Park; Patrick A. Holleran, Santa Cruz, and Timo Bruck, Mountain View, all of Calif., assignors to Apple Computer, Inc., Cupertino, Calif.
Continuation of Ser. No. 435,374, May 5, 1995, abandoned. This application Oct. 9, 1997, Ser. No. 947,778
Int. Cl.⁶ G06F *15/163*
U.S. Cl. 395—682 **20 Claims**

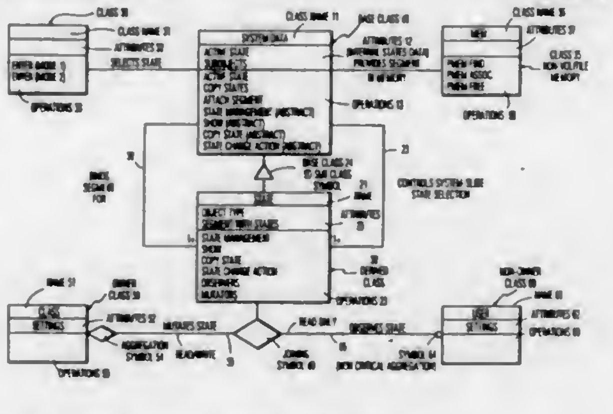


1. An extensible and replaceable network-oriented component system for recording locations of resources coupled to computer networks, the system residing on a computer including a component architecture layer interfacing with an operating system to control the operations of the computer, the system comprising:

a network component layer coupled to the component architecture layer in cooperating relation; and

a notebook component defined by the network component layer for recording a reference to a resource coupled to the computer networks, the notebook component being replaceable and extensible by other notebook-type components in response to the cooperating relationship between the network component layer and the component architecture layer, wherein said component architecture layer and said network component layer cooperate via an application programming interface to embed components within one another to form a compound document including mixed data types and formats.

5,784,620
OBJECT-ORIENTED SYSTEM HAVING SHARED-PERSISTENT CLASS PATTERN
Karl Michael Isham, Salt Lake City, Utah, assignor to Philips Electronics North America Corp., New York, N.Y.
Filed Nov. 15, 1995, Ser. No. 559,788
Int. Cl.⁶ G06F *9/44*
U.S. Cl. 395—683 **12 Claims**



1. An object-oriented system comprising:

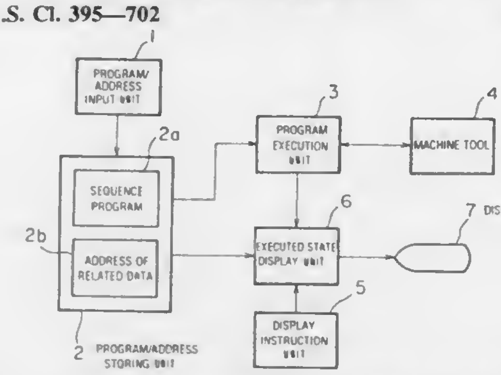
a plurality of classes each having an internal object defining a plurality of internal states and means for switching therebetween;

a base class and a state selection class related to provide a state selection command to the base class; and

a derived class related to the base class through a inheritance hierarchy in which the derived class may be controlled by the base class,

the base class operative in response to the state selection class to switch the internal states of the internal objects on a system-wide basis in accordance with a shared-persistent object-oriented class pattern.

5,784,621
SEQUENCE PROGRAM DISPLAY APPARATUS
Yasushi Onishi, and Mitsuru Mochizuki, both of Yamanashi, Japan, assignors to Fanuc Ltd., Yamanashi, Japan
Filed Sep. 15, 1995, Ser. No. 530,720
Claims priority, application Japan, Oct. 25, 1994, 6-260145
Int. Cl.⁶ G06F *15/16*
U.S. Cl. 395—702 **5 Claims**



1. A sequence program display apparatus for displaying a sequence program to be executed by a PC (programmable controller) on a screen, comprising:

program/address input means for inputting an address of related data relating to respective signals and commands together with said sequence program;

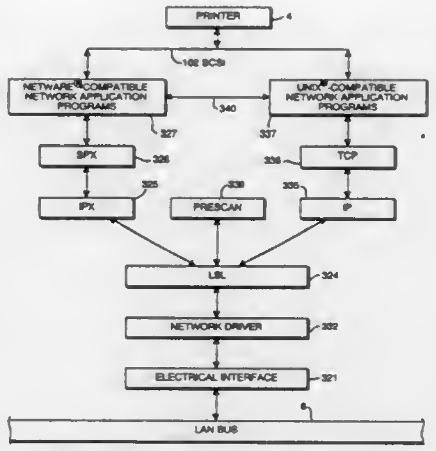
program/address storing means for storing said input sequence program and the address of said related data;

program execution means for controlling the operation of a machine tool by executing said input sequence program;

display instruction means for instructing to display how particular signals and commands of said sequence program being executed are executed; and

executed state display means for displaying how said signals and commands instructed to be displayed are executed and how the related data relating to said signals and commands is executed on the same screen in a display unit.

5,784,622
METHOD AND APPARATUS FOR MULTIPROTOCOL OPERATION OF A NETWORKED PERIPHERAL
George A. Kalwitz, Costa Mesa; William C. Russell, Laguna Hills; Lorraine F. Barrett, Yorba Linda; Robert D. Wadsworth, Costa Mesa, and Andrew J. Kraslavsky, Rancho Santa Margarita, all of Calif., assignors to Canon Kabushiki Kaisha, Tokyo, Japan
Filed Nov. 18, 1992, Ser. No. 978,380
Int. Cl.⁶ G06F *13/14*
U.S. Cl. 395—726 **16 Claims**



1. Method for multiprotocol operation of a peripheral that is interfaced to a local area network by an interactive network board which executes first and second peripheral servers for servicing jobs from respectively different operating systems, the method comprising the steps of:

a first executing step of executing the first server to check its operating system job queue and to receive job information from a first operating system according to a first operating system protocol, the job queue for the first operating system storing job information comprising data to be processed by the peripheral;

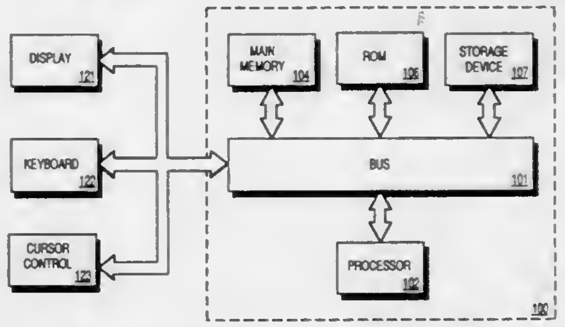
seizing exclusive control over the peripheral by the first server so as to service the received job information in the peripheral, and automatically signalling to other servers that the first server has seized exclusive control over the peripheral such that access by the second server to the peripheral is blocked;

a second executing step of executing the second server to check its operating system job queue and to receive job information from a second operating system according to a second operating system protocol which is different from the first operating system protocol, the job queue for the second operating system storing job information comprising data to be processed by the peripheral, said first and second executing steps being interleavedly performed under coordination of a multitasking operating system on the interactive network board;

completing service of the received job information by the first server; and

relinquishing exclusive control over the peripheral by the first server in response to completing service in said completing step, so as to allow the second server to seize exclusive control over the peripheral.

5,784,623
USING A PARENT LATCH THAT COVERS A PLURALITY OF CHILD LATCHES TO TRACK THE PROGRESS OF A PROCESS ATTEMPTING TO ACQUIRE RESOURCES
Kesavan P. Srinivasan, Sagamore Hills, Ohio, assignor to Oracle Corporation, Redwood Shores, Calif.
Filed May 29, 1996, Ser. No. 654,552
Int. Cl.⁶ G06F *13/14*
U.S. Cl. 395—726 **18 Claims**



1. A method for providing access to a group of resources, the method comprising the steps of:

dividing the group of resources into a plurality of subgroups of resources;

establishing a correlation between said plurality of subgroups of resources and a plurality of latches;

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associating a parent latch with said plurality of latches; if a particular process requires access to all of said plurality of subgroups of resources, then causing said particular process to acquire the parent latch; and

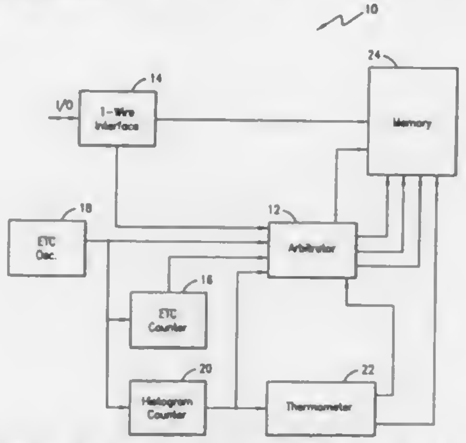
if said particular process does not require access to all of said plurality of subgroups of resources, then causing said particular process to acquire one or more of said plurality of latches without acquiring said parent latch.

5,784,624
MULTIPLE ASYNCHRONOUS EVENT ARBITRATOR

James M. Douglass, Carrollton, and Dallas L. Ledlow, Dallas, both of Tex., assignors to Dallas Semiconductor Corp, Dallas, Tex.

Filed Jan. 31, 1996, Ser. No. 594,959
Int. Cl.^{6} G06F *13/14*

U.S. Cl. 395—732 **17 Claims**



1. A device for selectively permitting access to a common resource by a priority device and at least one non-priority device, said device comprising:

a. a priority request reception device for receiving a first request to access the common resource by the priority device;

b. at least one non-priority request reception device for receiving a second request to access the common resource by the at least one non-priority device;

c. a prioritizer coupled to receive indications of times when said priority request reception device receives said first request and to receive indications of times when said at least one non-priority request reception device receives said second request, said prioritizer prioritizing access to the common resource between the priority device and the at least one non-priority device; and

d. said prioritizer permitting access to the common resource by the priority device when said priority request reception device receives said first request, and further wherein said prioritizer permitting access to the resource by the at least one non-priority device when said at least one non-priority request reception device receives said second request and subsequent to completion of access to the common resource by the priority device if the priority device had access to the common resource upon reception of the second request.

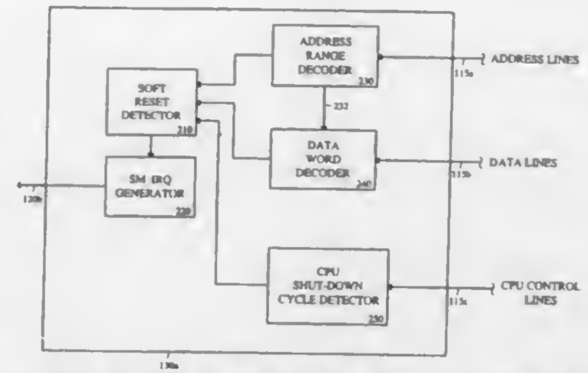
5,784,625
METHOD AND APPARATUS FOR EFFECTING A SOFT RESET IN A PROCESSOR DEVICE WITHOUT REQUIRING A DEDICATED EXTERNAL PIN

Gary Walker, Phoenix, Ariz., assignor to VLSI Technology, Inc., San Jose, Calif.

Filed Mar. 19, 1996, Ser. No. 618,190
Int. Cl.^{6} G06F *12/00*

U.S. Cl. 395—733 **21 Claims**

1. In a computer system, a method of resetting a processor, said method comprising the steps of:



(a) storing a soft reset configuration state of said processor within a location of a memory unit, said soft reset configuration state representing a state of said processor immediately following a soft reset of said processor;

(b) detecting occurrences that cause said processor to enter said soft reset, including:
  detecting one number of a first set of numbers being written to a first input/output port of said computer system;
  detecting bit zero of a second input/output port change from a first logical state to a second logical state; and
  detecting said processor attempting to execute a shut down cycle;

(c) generating an interrupt signal in response to detecting of one of said occurrences; and

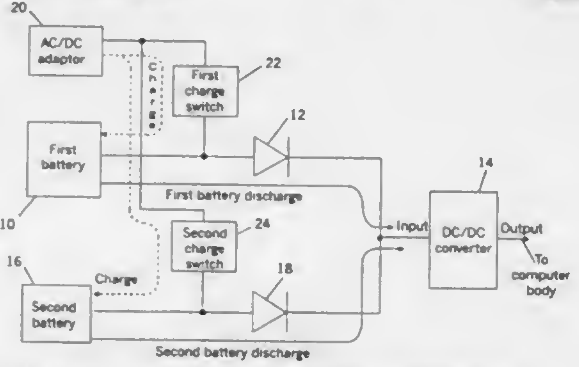
(d) placing said processor into a soft reset state without use of an external dedicated soft reset pin in response to said interrupt signal, said step (d) further comprising the steps of:
  (1) accessing said soft reset configuration state;
  (2) copying said soft reset configuration state within said memory unit into said processor; and
  (3) directing said processor to execute instructions that are located at a predetermined memory location.

5,784,626
BATTERY CONNECTING DEVICE FOR A COMPUTER SYSTEM AND A METHOD OF SWITCHING BATTERIES

Shigefumi Odaohara, Yamato, Japan, assignor to International Business Machines, Armonk, N.Y.

Filed Jul. 26, 1995, Ser. No. 507,694
Claims priority, application Japan, Jul. 26, 1994, 6-174387
Int. Cl.^{6} H02J *7/00;* **G06F** *1/26*

U.S. Cl. 395—750.01 **3 Claims**



1. A battery powered electrical appliance, comprising:

an electrical apparatus;

first and second batteries for powering said electrical apparatus;

first and second switching devices, each of said first and second switching devices having at least three terminals, a first terminal of said first switching device being coupled to said first battery, a second terminal of said first switching device being coupled to a first terminal of said second switching device, a second terminal of said second switching device being coupled to said electrical apparatus;

first and second diodes, each one of said first and second diodes being coupled between said first and second terminals of a unique one of said first and second switching devices;

third and fourth switching devices, each of said third and fourth switching devices having at least three terminals, a first terminal of said third switching device being coupled to said second battery, a second terminal of said third switching device being coupled to a first terminal of said fourth switching device, a second terminal of said fourth switching device being coupled to said electrical apparatus;

third and fourth diodes, each one of said third and fourth diodes being coupled between said first and second terminals of a unique one of said third and fourth switching devices; and

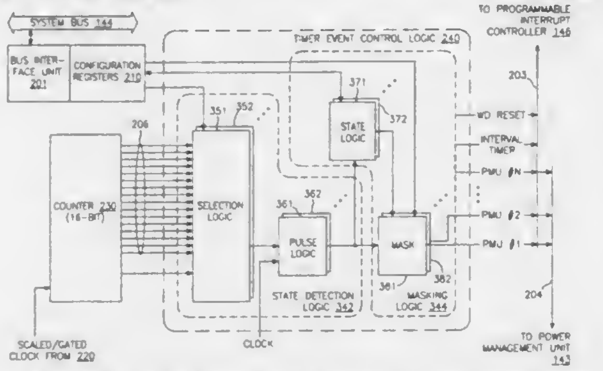
a control circuit having four outputs for individually controlling each of said switching devices, each of said outputs being coupled to a third terminal of a unique one of said switching devices, said control circuit for selectively coupling said first and second batteries to said electrical apparatus, said control circuit having a first mode of operation wherein said first battery is coupled to said electrical apparatus through said first and second switching devices, said control circuit having a second mode of operation wherein said second battery is coupled to said electrical apparatus through said third and fourth switching devices, said control circuit having an intermediate mode of operation wherein both said first and second batteries are "OR" coupled to said electrical apparatus through said first and third diodes.

5,784,627
INTEGRATED TIMER FOR POWER MANAGEMENT AND WATCHDOG FUNCTIONS

James R. MacDonald, Buda, Tex., assignor to Advanced Micro Devices, Inc., Sunnyvale, Calif.

Filed Jan. 24, 1996, Ser. No. 590,967
Int. Cl.^{6} G06F *1/32*

U.S. Cl. 395—750.01 **19 Claims**



1. A timer circuit for supplying a plurality of time-based event signals from a single sequence of states, the timer circuit comprising:

sequential logic having a clock input and a plurality of bit outputs, the sequential logic supplying a sequence of states at the bit outputs in response to a clock signal received at the clock input;

first and second configuration registers;

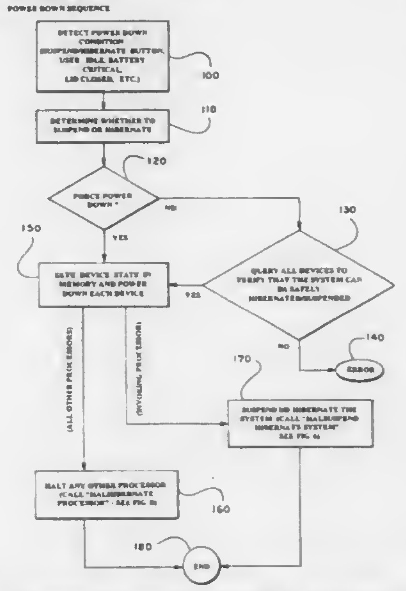
timer event control logic having a plurality of inputs respectively coupled to the bit outputs of the sequential logic and having first and second event outputs, the timer event control logic coupled to the first and second configuration registers to receive first and second event descriptors selective for corresponding first and second states in the sequence of states supplied at the bit outputs of the sequential logic, wherein a first event signal is selectively supplied at the first event output when the first event descriptor matches the state supplied at the bit outputs of the sequential logic, and wherein a second event signal is selectively supplied at the second event output when the second event descriptor matches the state supplied at the bit outputs of the sequential logic.

5,784,628
METHOD AND SYSTEM FOR CONTROLLING POWER CONSUMPTION IN A COMPUTER SYSTEM

Kenneth S. Reneris, Redmond, Wash., assignor to Microsoft Corporation, Redmond, Wash.

Filed Mar. 12, 1996, Ser. No. 614,186
Int. Cl.^{6} G06F *1/26;1/32*

U.S. Cl. 395—750.01 **19 Claims**



1. For a computer system including a processor, a memory storage area, and a device associated with a device driver, the processor having a processor state, the memory storage area having a memory state, and the device driver having a device state, an operating system maintained in the memory storage area and executing on the computer system, the operating system operative to control the power consumption of the computer system by conducting the steps of:

detecting a power down condition indicating that the computer system should be suspended or hibernated;

verifying that the computer system is capable of being suspended or hibernated;

saving the device state of the device in the memory storage area;

powering down the device;

saving the processor state in the memory storage area; and

stopping the processor.

5,784,629
SYSTEM AND METHOD FOR CONSERVING POWER WITHIN A BACKUP BATTERY DEVICE

Eric C. Anderson, San Jose, and Scott F. Fullam, Mountain View, both of Calif., assignors to Apple Computer, Inc., Cupertino, Calif.

Filed Sep. 24, 1996, Ser. No. 719,264
Int. Cl.^{6} G06F *1/32*

U.S. Cl. 395—750.08 **20 Claims**

1. A system for conserving power within a backup battery, comprising:

a main battery for generating a main operating voltage and a secondary operating voltage;

a switching device for connecting said main operating voltage to a secondary power bus which powers a memory device; and

a power manager for sensing when said main battery drops to a first threshold voltage, whereupon said power manager connects said secondary operating voltage to said secondary power bus only if said memory device contains data, and disconnects said main operating voltage from said secondary power bus;

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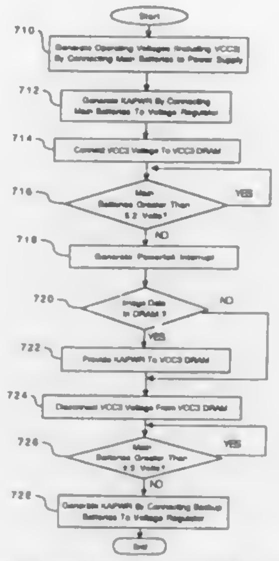


said backup battery generating said secondary operating voltage when said power manager senses that said main battery has reached a second threshold voltage.

5,784,630
METHOD AND APPARATUS FOR PROCESSING DATA IN MULTIPLE MODES IN ACCORDANCE WITH PARALLELISM OF PROGRAM BY USING CACHE MEMORY

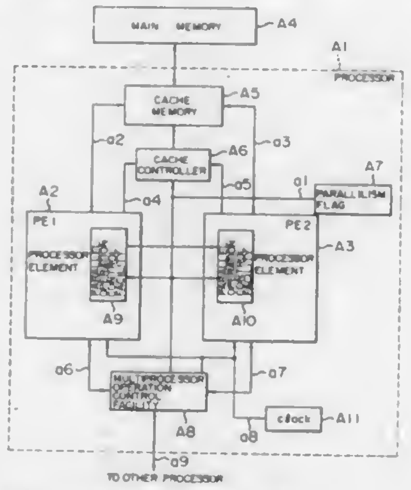
Masahiko Saito; Kenichi Kurosawa; Yoshiki Kobayashi, all of Hitachi; Tadaaki Bandoh, Ibaraki-ken; Masahiro Iwamura, Hitachi; Takashi Hotta, Hitachi; Yasuhiro Nakatsuka, Hitachi; Shigeya Tanaka, Hitachi, and Takeshi Takemoto, Sagamihara, all of Japan, assignors to Hitachi, Ltd., Tokyo, Japan

Continuation of Ser. No. 756,240, Sep. 6, 1991, abandoned. This application Jan. 3, 1995, Ser. No. 367,928

Claims priority, application Japan, Sep. 7, 1990, 2-237666; Sep. 19, 1990, 2-247557

Int. Cl.^{6} G06F *15/80*

U.S. Cl. 395—800 **17 Claims**



1. A data processing system comprising:
- a main memory;
- a plurality of processors for executing instructions, each of said plurality of processors including;
  - a program counter register for reading instructions from said main memory;
  - a plurality of arithmetic units;
  - a register file for storing an operation result obtained in said plurality of arithmetic units; and
  - a connection line for connecting said program counter, said plurality of arithmetic units and said register file to one another;
- another connection line for connecting a connection line of said plurality of processor elements to one another;
- a plurality of parallel operation control means each including instruction supply means for reading at least one instruction indicated by one program counter register of one of said plurality of processors and supplying each of said at least one instruction through said another connection line and said connection line of said one of said plurality of processors to said plurality of processors, respectively to execute operations in parallel in said plurality of arithmetic units, and writing results therefrom in said register file of said one of said plurality of processors;
- multiprocessor operation control means for reading said at least one instruction indicated by each program counter register of each of said plurality of processors and supplying each of said at least one instruction through said connection line of said one of said plurality of processors to said plurality of processors, respectively to execute operations in parallel in said plurality of processors and writing results therefrom in each register file of said plurality of processors, respectively; and
- parallelism control means including flag means, having a flag, for switching over to operate either said plurality of parallel operation control means or said multiprocessing means.

5,784,631
HUFFMAN DECODER

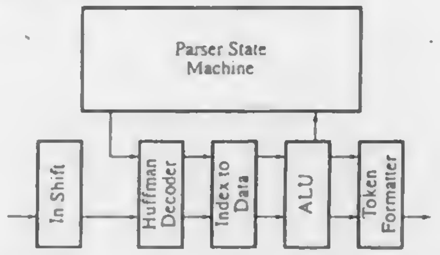
Adrian Philip Wise, Frenchay, United Kingdom, assignor to Discovision Associates, Irvine, Calif.

Division of Ser. No. 400,397, Mar. 7, 1995, which is a continuation-in-part of Ser. No. 382,958, Feb. 2, 1995, which is a continuation of Ser. No. 82,291, Jun. 24, 1993, abandoned. This application Jun. 16, 1995, Ser. No. 400,072

Claims priority, application European Pat. Off., Jun. 30, 1992, 92306038; United Kingdom, Mar. 24, 1994, 9405914

Int. Cl.^{6} H03M *7/00*

U.S. Cl. 395—800 **4 Claims**



1. A Huffman decoder for decoding data words encoded according to the Huffman coding provisions of either H.261 or MPEG standards, the data words including an identifier that identifies the Huffman code standard under which the data words were coded, comprising:
- means for receiving the Huffman coded data words, including means for reading the identifier to determine which standard governed the Huffman coding of the received data words, and means for converting the data words to JPEG Huffman coded data words, in response to reading the identifier that identifies the Huffman coded data words as H.261 or MPEG Huffman coded;
- means, operably connected to the Huffman coded data words receiving means, for generating an index number associated with each JPEG Huffman coded data word receiving an index number from the index number generating means, and including an output that is a decoded data word corresponding to the index number.

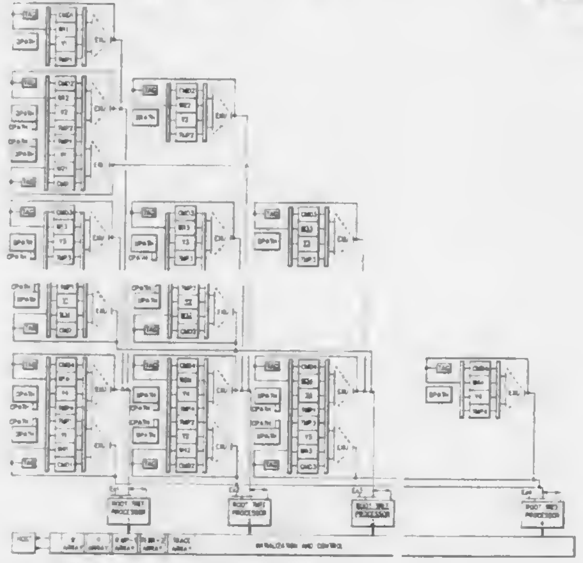
5,784,632
PARALLEL DIAGONAL-FOLD ARRAY PROCESSOR

Gerald George Pechanek, Endwell; Stamatis Vassiliadis, Vestal, and Jose Guadalupe Delgado-Frias, Endwell, all of N.Y., assignors to International Business Machines Corporation, Armonk, N.Y.

Continuation of Ser. No. 881,597, May 12, 1992, abandoned. This application Mar. 30, 1995, Ser. No. 415,775

Int. Cl.^{6} G06F *15/00*

U.S. Cl. 395—800 **9 Claims**



1. A computer system comprising:
- a plurality of processing elements (PEs) arranged in a manner logically equivalent to a two-dimensional array wherein each one of said PEs is addressable by one of a plurality of unique ordered pairs of identifiers (x,y) wherein each x designates a column corresponding to one of said each one of said PEs and wherein each y designates a row corresponding to one of said each one of said PEs;
- a plurality of root tree processors, the root tree processors each coupled to PEs designated by a same x identifier value for sending and receiving data and instructions from and to each of said PEs designated by the same x identifier value;
- said plurality of PEs interconnected whereby each PE addressed by (x_1,y_1) is coupled to one PE addressed by (y_1,x_1), wherein x_1 is not equivalent to y_1, such that coupled ones of the PEs are each connected to a separate selector circuit for selectively outputting a result of one of the coupled ones of the PEs; and
- a plurality of diagonal PEs each comprising an individual PE designated by those of the unique ordered pairs of identifiers wherein x is equivalent to y.

5,784,633
SYSTEM FOR OBTAINING STATUS DATA UNRELATED TO USER DATA PATH FROM A MODEM AND PROVIDING CONTROL DATA TO THE MODEM WITHOUT INTERRUPTING USER DATA FLOW

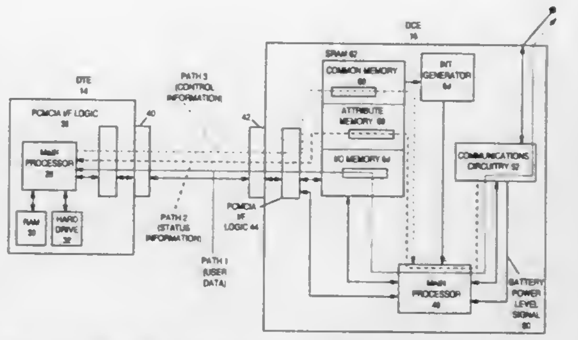
John Stewart Petty, Chapel Hill, N.C., assignor to International Business Machines Corporation, Armonk, N.Y.

Filed Mar. 12, 1996, Ser. No. 614,461

Int. Cl.^{6} G06F *13/00;13/20*

U.S. Cl. 395—880 **25 Claims**

1. A first system for transmitting user data via a network to a second system and for receiving user data via said network from said second system, said first system comprising:
- a data terminal equipment (DTE);
- a data circuit-terminating equipment (DCE) connected to said DTE;
- said DTE having a DTE processor, a DCE interface for conveying and receiving data to and from said DCE;



- said DCE having a DCE processor, a DTE interface for receiving data from and conveying data to said DTE, a first memory space, a second memory space for storing status information and DCE configuration information, a communications circuitry adapted to convey data to said network from said first memory space and adapted to receive data from said network to said first memory space;
- a user data path providing a serial communications port for conveying and receiving user data between said DTE and said DCE, said user data path including the DCE Interface, the DTE interface, the first memory space, the DCE processor and said communications circuitry; and
- a status information path providing status data to said DTE from said second memory space in said DCE, the status data including information unrelated to the user data path; said status information path including said second memory space, said DTE interface, said DCE interface, whereby said status data is obtained by the DTE without interrupting user data flow on said user data path.

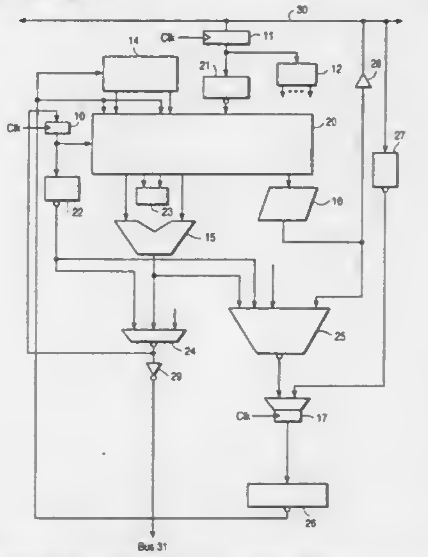
5,784,634
PIPELINED CPU WITH INSTRUCTION FETCH, EXECUTION AND WRITE BACK STAGES

Frank Worrell, San Jose, Calif., assignor to LSI Logic Corporation, Milpitas, Calif.

Continuation of Ser. No. 497,356, Jun. 30, 1995, abandoned. This application Nov. 7, 1997, Ser. No. 967,267

Int. Cl.^{6} G06F *15/76*

U.S. Cl. 395—800.01 **9 Claims**



1. In an integrated circuit a CPU comprising
- a program counter register for connection to a memory subsystem holding instructions for said CPU, said program counter register holding an address of an instruction in said memory subsystem for fetching said instruction from said memory unit;

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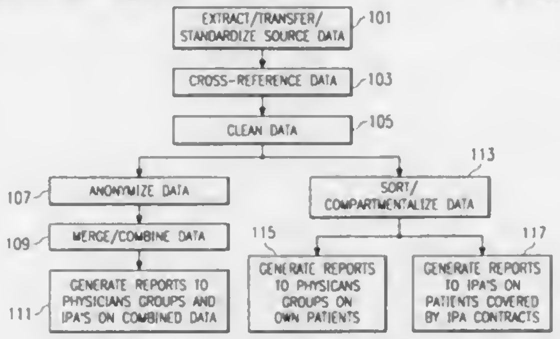
- an instruction register connected by a logic path to said memory unit for holding an instruction fetched from said memory unit;
- an instruction decoder connected by a logic path to said instruction register, said decoder generating control signals responsive to said instruction in said instruction register;
- a register file responsive to said control signals;
- an ALU having at least two sets of input terminals and one set of output terminals, said two sets of input terminals connected by a logic path to said register file by first and second busses, said set of ALU output terminals connected by a logic path to said results register by a third bus, each of said buses comprising at least 32 bit lines, said ALU executing upon contents of said register file responsive to said control signals and generating results; and
- a results register connected by a logic path to said output terminals of said ALU to hold said results from said ALU, said results register connected by a logic path to said register file by which results in said results register are written back to said register file;

whereby said CPU has only three pipeline stages.

5,784,635
SYSTEM AND METHOD FOR THE RATIONALIZATION OF PHYSICIAN DATA

William J. McCallum, Hurst, Tex., assignor to Integration Concepts, Inc., Bedford, Tex.

Filed Dec. 31, 1996, Ser. No. 777,796
Int. Cl.⁶ G06F *7/06*
U.S. Cl. 395—800.32 **16 Claims**


EXTRACT/TRANSFER/ STANDARDIZE SOURCE DATA
101
CROSS-REFERENCE DATA
103
CLEAN DATA
105
107
ANONYMIZE DATA
113
SORT/ COMPARTMENTALIZE DATA
109
MERGE/COMBINE DATA
115
117
111
GENERATE REPORTS TO PHYSICIANS GROUPS AND IPA'S ON COMBINED DATA
GENERATE REPORTS TO PHYSICANS GROUPS ON OWN PATIENTS
GENERATE REPORTS TO IPA'S ON PATIENTS COVERED BY IPA CONTRACTS

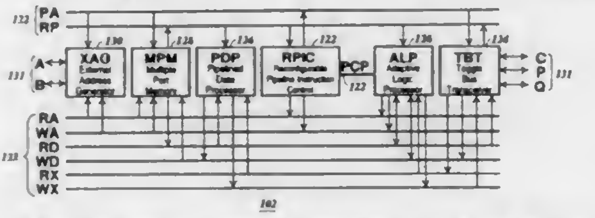
1. A system for rationalizing data extracted from a plurality of source systems, said data characterized by a plurality of combinations of data format, data syntax and data element structure, said source systems characterized by a plurality of combinations of hardware, software and operating systems, said system comprising:

- means for transferring said data from each of said source systems to a host processor;
- means for standardizing said data, said means for standardizing further comprising:
  - means for converting said data to a uniform format;
  - means for parsing said data to identify first selected data elements; and
  - means for binning said first selected data elements into a uniform data element structure;
- means for cleaning said standardized data, said means for cleaning further comprising:
  - means for linking data having second selected data elements with recognized equivalent values;
  - means for comparing said linked data against standard resources, each of said standard resources characterized by a known data structure including a predefined association of a plurality of resource elements having reliably accurate alphanumeric values;
  - means for matching, by recognized equivalence of value thereof, ones of said second selected data elements with ones of said resource elements, so as to identify matched data elements corresponding with matched resource elements; and
  - means for updating data having said matched data elements, said means for updating data operable by substituting values in third selected data elements therein with values copied from selected resource elements associated with said matched resource elements;
- means for adding said cleaned data to a single-format database of uniform data structure; and
- means for processing data within said database to create output, said output including data combined from a plurality of said source systems, said output further including data specific to individual ones of said source systems.

5,784,636
RECONFIGURABLE COMPUTER ARCHITECTURE FOR USE IN SIGNAL PROCESSING APPLICATIONS

Charlé R. Rupp, Bolton, Mass., assignor to National Semiconductor Corporation, Santa Clara, Calif.

Filed May 28, 1996, Ser. No. 654,395
Int. Cl.⁶ G06F *15/00*
U.S. Cl. 395—800.37 **15 Claims**



1. A reconfigurable computing component, comprising the elements of:

- an adaptive logic processor, the adaptive logic processor further comprising
  - a plurality of individually configurable logic cells, the logic cells arranged in an array that includes a plurality of vertical columns of configurable logic cells and a plurality of horizontal rows of configurable logic cells; and
  - a set of control lines for transmission of control signals and a set of data lines for transmission of data between a pipeline segment and a logic cell reconfiguration controller, the pipeline segment including a set of configured logic cells and positioned along the vertical extent of the array, wherein the set of control lines and the set of data lines extend across a plurality of columns of the array, thereby allowing the pipeline segment to be located at a plurality of horizontal locations of the array; and
  - a logic cell reconfiguration controller for controlling configuration of the logic cells to form the pipeline segment and execution of the set of logical functions by the configured logic cells by transmitting instructions and data by means of the control signal lines and data lines.

5,784,637
SINGLE-CHIP SEMICONDUCTOR INTEGRATED CIRCUIT DEVICE AND MICROCOMPUTER INTEGRATED ON A SEMICONDUCTOR CHIP

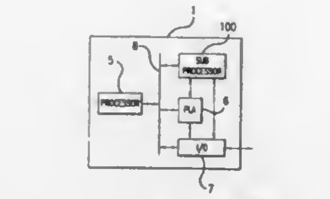
Terumi Sawase, Sayama; Kouki Noguchi, Kokubunji; Hideo Nakamura, Nishitama; Yasushi Akao, Kokubunji; Shiro Baba, Tokorozawa, and Yoshimune Hagiwara, Hachioji, all of Japan, assignors to Hitachi, Ltd., Tokyo, Japan

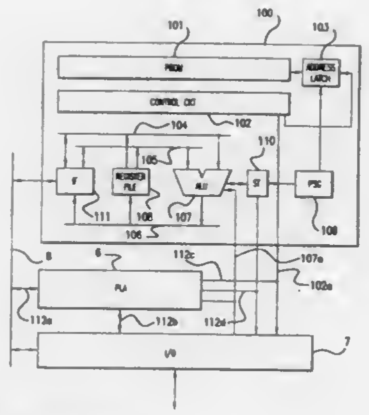
Continuation of Ser. No. 217,826, Mar. 25, 1994, Pat. No. 5,428,808, which is a continuation of Ser. No. 94,920, Jul. 22, 1993, Pat. No. 5,321,845, which is a continuation of Ser. No. 892,718, May 29, 1992, abandoned, which is a continuation of Ser. No. 238,534, Aug. 31, 1988, abandoned. This application Mar. 31, 1995, Ser. No. 414,157

Claims priority, application Japan, Sep. 9, 1987, 62-223918; Apr. 15, 1988, 63-91563

Int. Cl.⁶ G06F *9/24*
U.S. Cl. 395—800.37 **8 Claims**

1. A semiconductor integrated circuit device formed on a single chip, comprising:



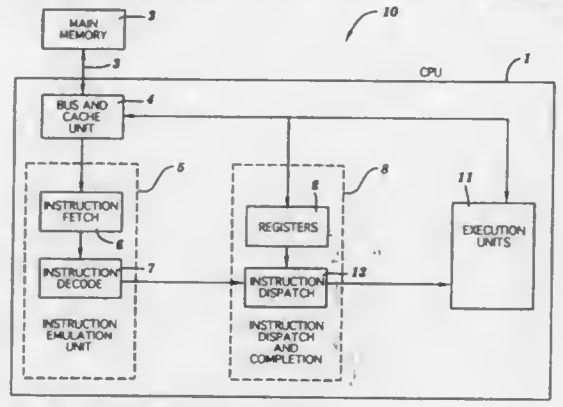


- a central processing unit;
- an interface circuit;
- an internal bus coupled to the central processing unit and coupled to the interface circuit;
- a variable logic circuit coupled to the internal bus, the variable logic circuit including:
  - a plurality of non-volatile memory elements storing instructions,
  - a control circuit which generates control signals in accordance with the instructions stored in the plurality of non-volatile memory elements, and
  - an arithmetic logic unit which is controlled by the generated control signals; and
- a control signal line coupled between the variable logic circuit and the interface circuit to provide at least one control signal from the variable logic circuit to the interface circuit without using the internal bus, wherein said interface circuit is controlled by said at least one control signal.

5,784,638
COMPUTER SYSTEM SUPPORTING CONTROL TRANSFERS BETWEEN TWO ARCHITECTURES

John Wallace Goetz, Jericho; John Michael Keaty, Shelburne, and Stephen William Mahin, Underhill, all of Vt., assignors to International Business Machines Corporation, Armonk, N.Y.

Filed Feb. 22, 1996, Ser. No. 605,409
Int. Cl.⁶ G06F *9/00*
U.S. Cl. 395—800.43 **42 Claims**



1. A microprocessor, comprising:

(a) a first microprocessor architecture;

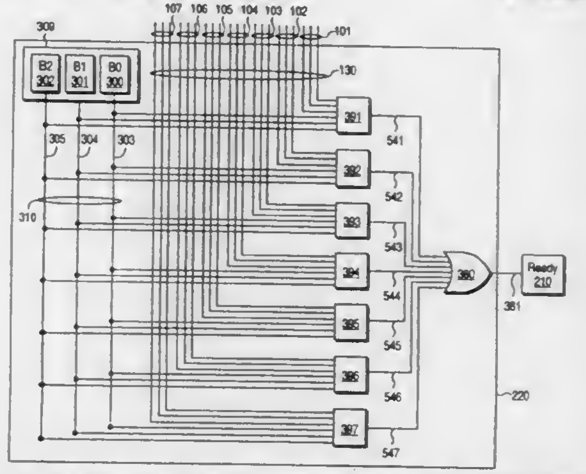
(b) a second microprocessor architecture having a different linkage convention than said first microprocessor architecture; and

(c) means for transferring program control between said first and second microprocessor architecture wherein architected information associated with said means for transferring program control is passed to the register of said first or second microprocessor architecture obtaining control.

5,784,639
LOAD BUFFER INTEGRATED DYNAMIC DECODING LOGIC

Jeffrey M. Abramson, Aloha, Oreg., assignor to Intel Corporatiion, Santa Clara, Calif.

Filed Dec. 29, 1995, Ser. No. 581,028
Int. Cl.⁶ G06F *12/08*
U.S. Cl. 395—800.23 **14 Claims**



1. A wake-up logic for determining whether a blocked load operation corresponding to a memory is ready for dispatch, said wake-up logic comprising:

- a dynamic decoder coupled to said memory having a plurality of first busses corresponding to a plurality of block-codes capable of being stored in said memory, each of said first busses indicating whether said memory contains a corresponding block code;
- a dynamic match logic coupled to said plurality of first busses and a plurality of second busses, having a plurality of third busses corresponding to sets of said plurality of first busses and said plurality of second busses, each of said second busses indicating that a corresponding blocking condition is resolved, said dynamic match logic discharging one of said plurality of third busses that corresponds to an active said first bus and an active said second bus.

5,784,640
CPU WITH DSP FUNCTION PREPROCESSOR HAVING LOOK-UP TABLE FOR TRANSLATING INSTRUCTION SEQUENCES INTENDED TO PERFORM DSP FUNCTION INTO DSP MACROS

Saf Asghar; Mark Ireton, and John G. Bartkowiak, all of Austin, Tex., assignors to Advanced Micro Devices, Inc., Sunnyvale, Calif.

Filed Mar. 18, 1996, Ser. No. 618,241
Int. Cl.⁶ G06F *9/30;15/163*
U.S. Cl. 395—800.35 **18 Claims**

1. A central processing unit which performs digital signal processing functions, comprising:

- an instruction memory for storing a plurality of instructions, wherein said instruction memory stores one or more sequences of instructions which implement a digital signal processing function;

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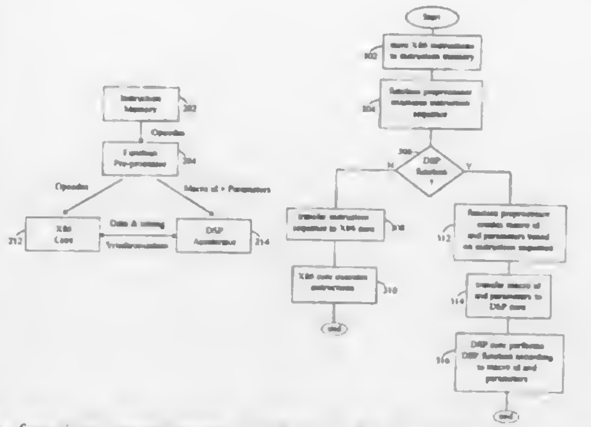


a function preprocessor coupled to the instruction memory, wherein the function preprocessor includes:
  a look-up table which stores a plurality of entries comprising instruction sequences which implement digital signal processing functions, wherein said look-up table further stores a corresponding DSP instruction for each of said one or more entries, wherein said function preprocessor compares an instruction sequence stored in said instruction memory with each of said entries in said look-up table, wherein said function preprocessor determines whether said sequence of instructions in said instruction memory matches one of said plurality of entries, wherein a match indicates that said sequence of instructions implements a digital signal processing function;
  means for converting a sequence of instructions in said instruction memory which matches one of said plurality of entries in said look-up table into a digital signal processing function identifier;
one or more general purpose execution units coupled to the function preprocessor for executing instructions in said instruction memory;
one or more digital signal processing execution units coupled to the function preprocessor for performing digital signal processing functions, wherein the one or more digital signal processing execution units receive said digital signal processing function identifier from said function preprocessor and perform a digital signal processing function in response to said received digital signal processing function identifier from said function preprocessor.

5,784,641
INPUT/OUTPUT SUBSYSTEM FOR COMPUTER

Minoru Sueyoshi, and Katsuya Ishiyama, both of Kawasaki, Japan, assignors to Fujitsu Limited, Kawasaki, Japan

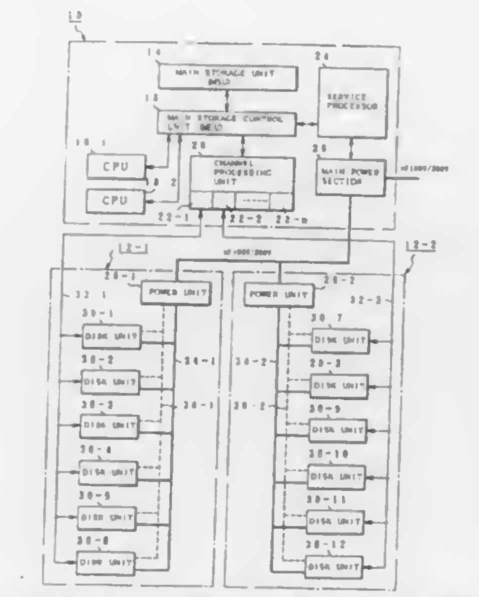
Continuation of Ser. No. 255,941, Jun. 7, 1994, abandoned. This application Nov. 8, 1996, Ser. No. 745,800

Claims priority, application Japan, Sep. 28, 1993, 5-240928

Int. Cl.⁶ G06F *1/26*

U.S. Cl. 395—822 **5 Claims**

1. An input/output subsystem of a mainframe computer, comprising:
  a basic portion including a plurality of power units each having a power control means and a number of expandable power supply means; and
  an expanded portion comprising one or more input/output units, each of said input/output units has built-in input/output modules in a prescribed number, wherein
  said number of power supply means corresponds to a number of said plurality of input/output units;
  the power control means comprises a mounting status recognizing means which recognizes the number of said plurality of input/output units and the number of said plurality of power supply means;
  the power control means upon receiving a power-on instruction from a higher-level device, said mounting status recognizing means of the power control means, issues a control signal instructing a power-on operation to said plurality of input/output units and said number of power supply means:
  said power unit is additionally provided with a number of auxiliary power means; and
  the mounting status recognizing means upon receiving a power-on instruction from a higher-level device, issues a control signal instructing a charging start operation to said number of auxiliary power means.



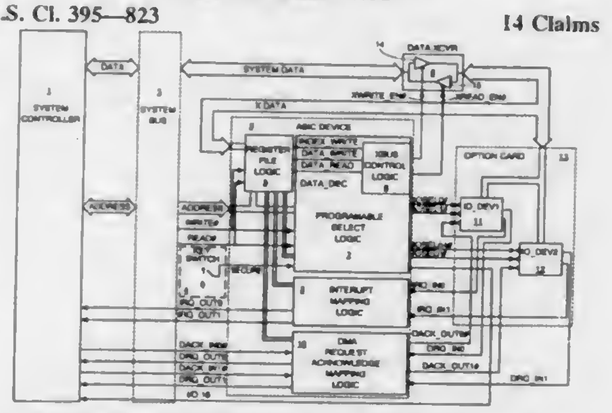
5,784,642
SYSTEM FOR ESTABLISHING A TRANSFER MODE BETWEEN SYSTEM CONTROLLER AND PERIPHERAL DEVICE

Jimmy Dean Smith; Mark D. Nicol, both of Stevensville, Mich.; Brian K.. Straup, South Bend, Ind.; Terence Paul O'Brien, and Mark Layne Herman, both of Saint Joseph, Mich., assignors to Packard Bell NEC, Sacramento, Calif.

Division of Ser. No. 43,193, Apr. 5, 1993. This application Jun. 7, 1995, Ser. No. 484,446

Int. Cl.⁶ G06F *13/32*

U.S. Cl. 395—823 **14 Claims**



1. In a computer system having a motherboard, a central processing unit (CPU), system data bus, a system address bus and a system controller for controlling data transfer between the system data bus and the system address bus, said system controller for also generating an input/output select signal having multiple states for selecting one or more input/output devices on said option card, a system having an index decode mode of operation and an address decode mode of operation, the modes being user selectable, for establishing a mode of operation for data transfer between the system controller and one or more predetermined option cards, each option card having an option data bus and a programmably

selectable address, the option card adapted to be carried by the motherboard, the system comprising:
  a predetermined bus connecting the predetermined option card to the system controller, system data bus and system address bus when said option card is carried by the motherboard;
  programmable select logic for enabling the selected mode of operation, said programmable select logic including means for automatically disabling the nonselected mode of operation; and
  a programmable decoder, said decoder responsive to the user selected index mode of operation, said decoder for decoding a predetermined indexed address to enable selection of said one or more predetermined input/output devices mounted to the predetermined option card when said index mode is selected, said indexed address comprised of a base address and offset, said input/output devices being selected by the select signal generated by said system controller in response to said predetermined index value,
  said programmable decoder also responsive to said selected address mode of operation for providing system address bus decoding of said programmably selectable address on the system address bus to enable selection of said one or more predetermined input/output devices mounted to the predetermined option card when said address mode is selected, said input/output devices being selected by the input/output select signal generated by said system controller in response to said predetermined address.

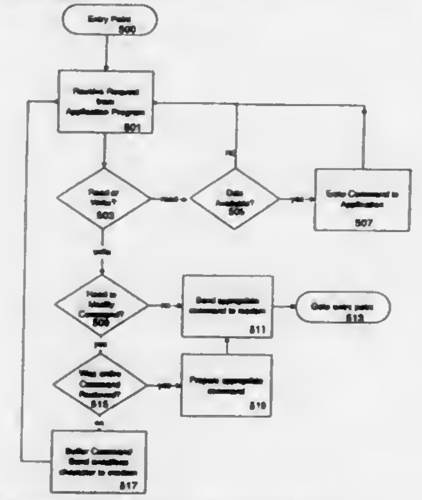
5,784,643
SYSTEM INCORPORATING PROGRAM FOR INTERCEPTING AND INTERPRETING OR ALTERING COMMANDS FOR GENERATING I/O ACTIVITY FOR ENABLING REAL-TIME USER FEEDBACK BY SENDING SUBSTITUTE CHARACTERS TO MODEM

Ian Beaumont Shields, Raleigh, N.C., assignor to International Business Machines Corporation, Armonk, N.Y.

Filed Mar. 28, 1996, Ser. No. 623,496

Int. Cl.⁶ G06F *15/00;15/16*

U.S. Cl. 395—825 **15 Claims**



1. A telecommunications system comprising:
a data processing device;
operating system running on said data processing device;
a transport mechanism;
an interface device between said operating system and said transport mechanism;
one or more applications programs running on the data processing device under the control of said operating system issuing commands to control said interface device; and,
a hook program situated between said operating system and said one or more applications programs, said hook program intercepting commands sent from said one or more applications programs to said operating system, determining from said intercepted commands what information to send to said operating system to initiate a desired result, buffering said commands so that they can be displayed at a terminal for said data processing device, issuing appropriate commands by interpreting or altering the meaning of the commands to said operating system to generate immediate feedback to the user while buffering characters, commands, or sequences of commands until enough information is received to send a complete substitute command or sequences of substitute commands for transmission across the network; and allowing appropriate responses to be transmitted from said interface device to said one or more applications programs.

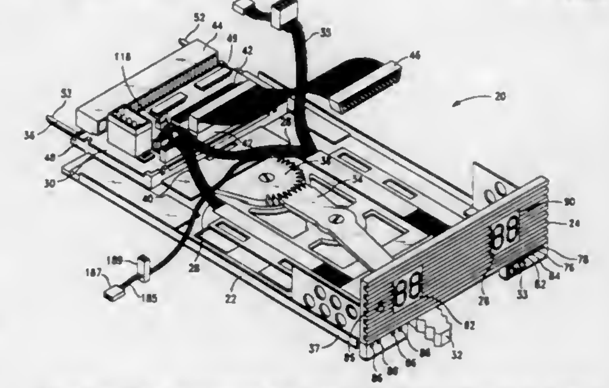
5,784,644
CARRIER FOR CONNECTING DEVICE USING ELECTRICAL DISPLAY DEVICE FOR INDICATING SCSI ID AND CONTROLLER ID OF THE ATTACHED DEVICE ON THE CARRIERS FACIAL ASSEMBLY

Henri J. Larabell, 10241 Rancho Pl. #A, Cupertino, Calif. 95104

Filed Feb. 2, 1995, Ser. No. 384,553

Int. Cl.⁶ G06F *13/00*

U.S. Cl. 395—829 **23 Claims**



1. A carrier for connecting an electrical device which is identifiable by a SCSI ID and a controller ID with an equipment frame, comprising:
  a base connectable with the equipment frame, the base being attachable to the electrical device;
  a facial assembly attached to the base;
  an electrical display device mounted on the facial assembly, the display being capable of indicating the SCSI ID and the controller ID;
  a circuit assembly attached to the base, the circuit assembly being electrically connected with the display and electrically connectable to communicate with the electrical device and the equipment frame;
  whereby, when the electrical device is attached to the base and to the circuit assembly, the circuit assembly communicates with the display, and the display indicates the SCSI ID and the controller ID for identifying the electrical device.

5,784,645
APPARATUS HAVING A FIRST MICROCOMPUTER FOR READING FIRST AND SECOND DATA FROM A NON-VOLATILE MEMORY AND PROCESSING THE SECOND DATA AND TRANSFERRING THE FIRST AND SECOND MICROCOMPUTER

Takashi Saegusa, Kawasaki, and Hisatoshi Fujiwara, Koganei, both of Japan, assignors to Nikon Corporation, Tokyo, Japan

Filed Jun. 30, 1995, Ser. No. 497,250

Claims priority, application Japan, Sep. 7, 1994, 6-213403

Int. Cl.⁶ G06F *13/00*

U.S. Cl. 395—853 **22 Claims**

1. A system, comprising:
a non-volatile memory to store first and second data;

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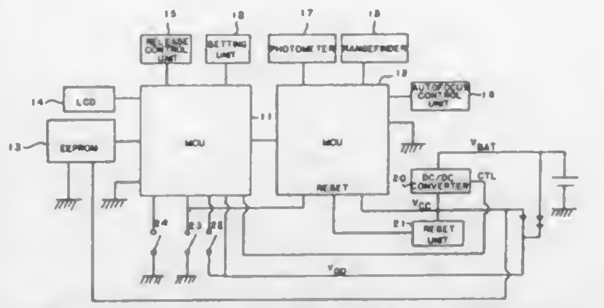


a first microcomputer connected to said non-volatile memory, to read the first and second data from said non-volatile memory, to process the second data, and to transfer the first data; and

a second microcomputer connected to said first microcomputer, to process the first data received from said first microcomputer;

wherein said first microcomputer transfers the first data to said second microcomputer immediately after power is supplied to said first and second microcomputers and said non-volatile memory, and said second microcomputer stores the first data and performs the processing of the first data, and

wherein said first microcomputer reads a first piece of a plurality of the first data from said non-volatile memory, said second microcomputer reads the first piece of the plurality of first data from said first microcomputer as said first microcomputer reads a second piece of the plurality of first data from said non-volatile memory, and said first microcomputer continuously reads a next piece of the plurality of the first data as said second microcomputer reads a current piece of the plurality of first previous to said next piece until all of the plurality of first data are read into said second microcomputer, said first microcomputer having an interrupt after each of the pieces of the plurality of first data are transferred from said non-volatile memory to said first microcomputer.

5,784,646

HIERARCHICAL DATA STORAGE PROCESSING APPARATUS FOR PARTITIONING RESOURCE ACROSS THE STORAGE HIERARCHY

Yoshiaki Sawada, Tokyo, Japan, assignor to Sony Corporation, Tokyo, Japan

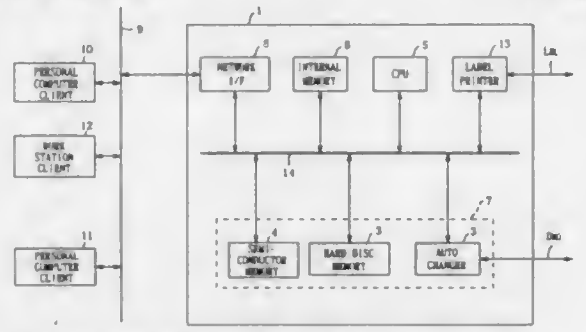
PCT No. PCT/JP95/00810, § 371 Date Dec. 7, 1995, § 102(e) Date Dec. 7, 1995, PCT Pub. No. WO95/29444, PCT Pub. Date Nov. 2, 1995

PCT Filed Apr. 25, 1995, Ser. No. 557,124

Claims priority, application Japan, Apr. 25, 1994, 6-110528

Int. Cl.^{6} G06F *12/00;12/02*

U.S. Cl. 395—858 **1 Claim**



1. A data storage processing apparatus comprising:

storing means for storing multiple path map information;

accessing means for accessing storage media;

controlling means for controlling said storing means and said accessing means based on command; and

said path map information comprising,

file system information indicating the type of file systems;

file type information stored as a plurality of entries with respect to said file system information to identify a file and a directory to be accessed under the file system shown by said file system information and a mounting point indicating switching point to other file system; and

pointer information indicating the storage position of path map information with respect to said other file systems in the case said file type information is said mount point; and wherein

said controlling means operates under first file system according to inputted command depending on first file system information and detects file to which access is requested by said command from said path map information, and reads out other path map information based on said pointer information, and controls to access a file to which access is requested under file system indicated by file system information contained in the other path map information which has been read out.

5,784,647

INTERFACE FOR FETCHING HIGHEST PRIORITY DEMAND FROM PRIORITY QUEUE, PREDICTING COMPLETION WITHIN TIME LIMITATION THEN ISSUING DEMAND, ELSE ADDING DEMAND TO PENDING QUEUE OR CANCELING

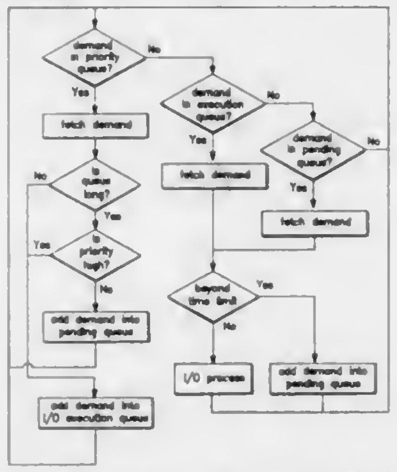
Kinichi Sugimoto, Tokyo, Japan, assignor to NEC Corporation, Tokyo, Japan

Filed Dec. 19, 1995, Ser. No. 575,119

Claims priority, application Japan, Dec. 19, 1994, 6-315242

Int. Cl.^{6} G06F *13/18*

U.S. Cl. 395—859 **14 Claims**



1. An input-output interface being connected via an input-output bus to a host computer, said input-output interface being connected via a data bus to at least a memory device, said input-output interface being connected to a reference clock generator, said input-output interface comprising:

a bus interface controller being coupled via said input-output bus to said host computer for receiving an input-output demand;

at least an input-output controller being coupled to said bus interface controller and coupled to said memory device; and

an input-output processing rate controller being coupled to said bus interface controller for receiving said input-output demand, said input-output processing rate controller being coupled to said reference clock generator for receiving reference clock informations, said input-output processing rate controller being coupled to said input-output controller, said input-output processing rate controller having a queue management section including:

an input-output demand storing queue for storing an input-output demand;

a priority queue for storing a priority of said input-output demand;

a pending queue for storing a pending input-output demand;

an input-output execution queue for receiving an input-output execution instruction which is effective to said input-output controller, said queue management section having an extending queue which is able to store a time limitation information about until when an input-output operation associated with an input-output demand should be completed and a pending flag indicating whether there is any pending input-output demand stored in said pending queue,

wherein said input-output processing rate controller confirms whether there is any demand in said priority queue, if there is any demand in said priority queue then said input-output processing rate controller fetches a demand with the highest priority and subsequently predict with reference to said reference clock information whether it is possible to complete an input-output processing associated with the demand fetched within a time limitation set by a host computer and stored in the extending queue, if it is possible to complete the input-output processing within the time limitation then said input-output processing rate controller issues an input-output processing execution instruction to said input-output controller so that said input-output controller executes the input-output processing associated with said demand with the highest priority, and if it is impossible to complete the input-output processing within the time limitation then said input-output processing rate controller add this demand to said pending queue or cancel this demand, and if there is no demand in said priority queue then said input-output processing rate controller confirms whether there is any demand in said pending queue, if there is any demand in said pending queue then said input-output processing rate controller issues an input-output processing execution instruction to said input-output controller so that said input-output controller executes the input-output processing associated with said pending demand.

5,784,648

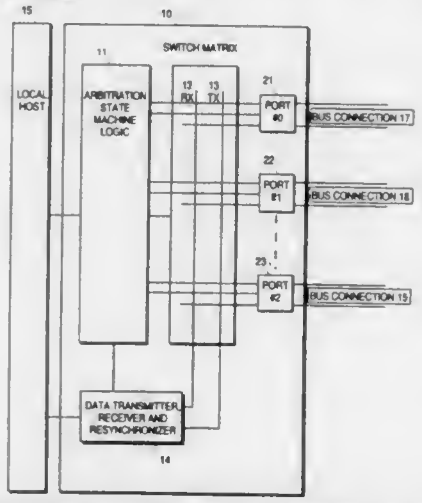
TOKEN STYLE ARBITRATION ON A SERIAL BUS BY PASSING AN UNREQUESTED BUS GRAND SIGNAL/AND RETURNING THE TOKEN BY A TOKEN REFUSAL SIGNAL

William S. Duckwall, Santa Cruz, Calif., assignor to Apple Computer, Inc., Cupertino, Calif.

Filed Dec. 1, 1995, Ser. No. 565,986

Int. Cl.^{6} G06F *13/14;13/362;13/368*

U.S. Cl. 395—860 **19 Claims**



1. In an electronic system comprising a plurality of components interconnected by a plurality of communication links, said plurality of components each having at least a first communications node wherein said communications nodes interface their associated component with a communications link through a node port, said nodes being capable of having a plurality of ports to which communications links to adjacent nodes couple, each node having a predetermined selection criteria established for selecting adjacent nodes coupled through its ports, said configuration of nodes and communications links comprising a directed acyclic graph wherein one node is designated a root node, all nodes coupled to only one adjacent node are designated leaf nodes, all other nodes in the graph being designated branch nodes, said acyclic directed graph having established hierarchical parent-child relationships between all adjacent nodes proceeding from the root node down to any leaf nodes wherein a leaf node has only one parent node and all nodes adjacent to the root node are child nodes with respect to the root node but parent nodes with respect to other adjacent nodes, the root node being defined as having no parent node, a method of token passing bus arbitration wherein a metaphorical token comprising an unrequested bus grant signal is passed from node to node in a cycle through the graph, the node having the token being the node with bus access, said method comprising the step of passing the token through the acyclic directed graph in an order determined by the predetermined selection criterion each node has established for selecting adjacent nodes, said method further comprising a step of returning the token by transmitting a token-refusal signal.

5,784,649

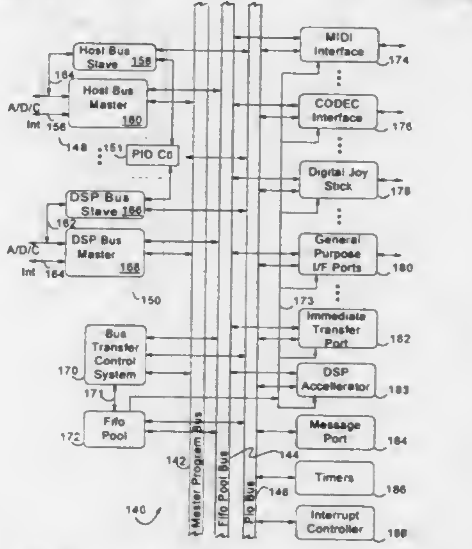
MULTI-THREADED FIFO POOL BUFFER AND BUS TRANSFER CONTROL SYSTEM

Sridhar Begur, San Jose; James K. Gifford, Danville; Adrian Lewis, Fremont; Donald J. Spencer, San Jose; Thomas E. Kilbourn, and Daniel B. Gochnauer, both of Saratoga, all of Calif., assignors to Diamond MultiMedia Systems, Inc., San Jose, Calif.

Filed Mar. 13, 1996, Ser. No. 614,659

Int. Cl.^{6} G06F *13/00*

U.S. Cl. 395—872 **12 Claims**



1. A bus transfer control system for managing the transfer of multiple continuous asynchronous data streams, said bus transfer control system comprising:

a) a buffer pool, definable as a plurality of memory buffers, capable of storing a plurality of data stream segments representing one or more data streams;

b) a plurality of data transfer devices coupled to said buffer pool and to a plurality of memory spaces, said data transfer devices supporting the iterative transfer of data stream segments between said memory buffers and said memory spaces, said data transfer devices providing requests for data stream segment transfers in response to the accessibility of said memory spaces to receive and provide data stream segments; and

c) a transfer controller, responsive to said requests and providing storage for status information as bus transfer units that define respective data streams, said transfer controller iteratively scanning said bus transfer units to select a first bus transfer unit and enable the transfer of a first predetermined data stream segment between said buffer pool and a first data transfer device specified by said first bus transfer unit in a predetermined scan iteration.

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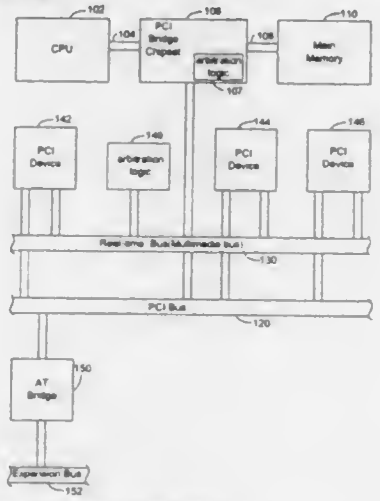
5,784,650
SYSTEM FOR INCREASING MULTIMEDIA PERFORMANCE AND OTHER REAL TIME APPLICATIONS BY INCLUDING A LOCAL EXPANSION BUS AND A MULTIMEDIA BUS ON THE COMPUTER SYSTEM MOTHERBOARD

Dale E. Gulick; Andy Lambrecht; Mike Webb; Larry Hewitt, and Brian Barnes, all of Austin, Tex., assignors to Avanced Micro Devices, Inc., Sunnyvale, Calif.

Filed Sep. 11, 1995, Ser. No. 526,769

Int. Cl.^{6} G06F *13/00*

U.S. Cl. 395—882 **17 Claims**



1. A computer system, comprising:
- a motherboard;
- a CPU comprised on said motherboard;
- main memory coupled to the CPU which stores data accessible by the CPU;
- bridge logic comprised on said motherboard coupled to said CPU and said main memory, wherein said bridge logic includes expansion bus bridge logic;
- an expansion bus comprised on said motherboard coupled to the expansion bus bridge logic, wherein said expansion bus includes a plurality of data lines and control lines;
- a multimedia bus comprised on said motherboard, wherein said multimedia bus includes a plurality of data lines for transmitting data, wherein said expansion bus and said multimedia bus are operable to transfer data independently from each other; and
- one or more multimedia devices comprised on said motherboard coupled to said expansion bus and said multimedia bus.

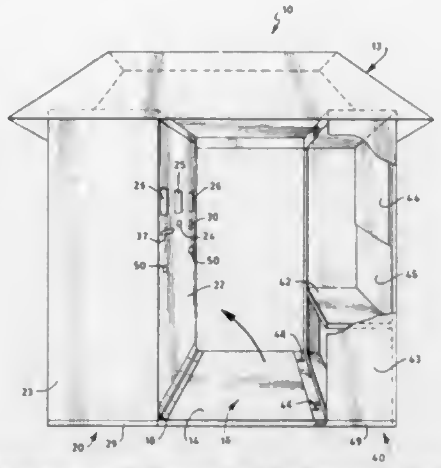
5,784,651
PHOTO BOOTH WITH MODULAR CONSTRUCTION

Donald E. Mauchan, Marlboro, Mass., assignor to Polaroid Corporation, Cambridge, Mass.

Filed Nov. 15, 1996, Ser. No. 749,497

Int. Cl.^{6} G03B *15/06*

U.S. Cl. 396—2 **7 Claims**



1. A photo booth for capturing an image of a subject, the booth comprising:
- an apparatus module comprising a plurality of wall members cooperatively connected to define an enclosed space, said space including means for receiving an image capturing device and an image reproduction device;
- a background module comprising a plurality of wall members cooperatively connected to define a subject receiving space including means for providing a background for the image;
- a floor member having two ends, the first end comprising a hinge secured to one of either the background module or the apparatus module for pivoting the floor member about a horizontal pivot axis of the hinge and the second end opposite to the first end comprising means for detachably securing the floor member to the other of the background module or the apparatus module to maintain the background module and the apparatus module in fixed spaced apart relation to each other;
- a roof module having means for detachably securing the apparatus module and the background module in the same fixed spaced apart relation as secured by the floor member.

5,784,652
MODULAR CAMER WITH CASSETTE CHAMBER ACCESSIBLE THROUGH OUTERBODY

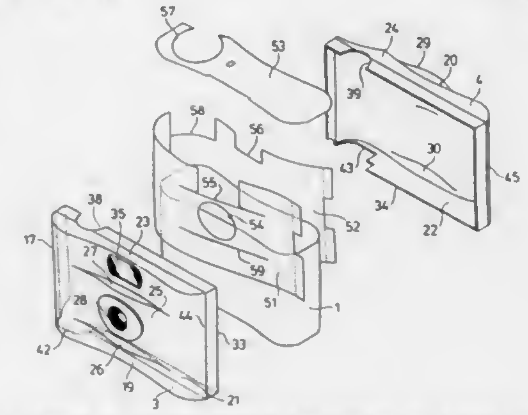
Rolf Schröder, Zorneding/Pöring; Peter Lermann, München; Dieter Engelsmann, Unterhaching; Claus Steiner, Mindelhelm; Jörg Heidrich, Dessau; Hermann Lührig, Leverkusen; Paul Kopf, Unterhaching, and Julian Schlagheck, München, all of Germany, assignors to AGFA Gevaert Aktiengesellschatt, Germany

Filed Jan. 2, 1997, Ser. No. 778,877

Claims priority, application Germany, Jan. 5, 1996, 196 00 269.9

Int. Cl.^{6} G03B *17/02*

U.S. Cl. 396—6 **13 Claims**



1. A camera for roll film suitable for winding into a film cassette comprising
- (a) a light-tight inner body formed by a central subassembly, the inner body containing a film cassette chamber for accommodating a film cassette, and film guiding means for guiding a film placed in the inner body when the film is transported in a direction toward the film cassette;
- (b) an outer body surrounding the inner body and having an opening for removal of the film cassette from the film cassette chamber of the inner body through the opening;
- (c) a cassette chamber cover movably arranged close to the opening of the outer body and placed so as to cover the cassette chamber in a light-tight manner;
- (d) the outer body having two body shells adapted to be joined to each other at selected edges on each shell; and
- (e) wherein the opening in the outer body is formed by opposite edge portions of the body shells.

5,784,653
ELECTRONICALLY CONTROLLED CAMERA

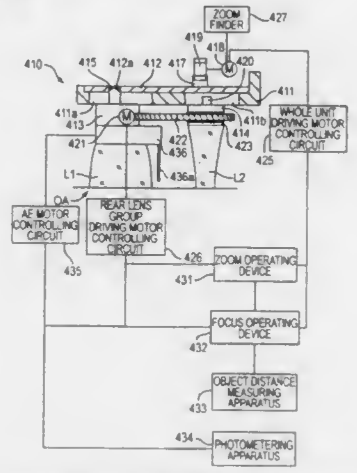
Hiroshi Nomura; Kazuyoshi Azegami; Takamitsu Sasaki; Yasushi Tabata; Norio Numako; Yoshinari Tanimura; Takuma Sato, and Masaaki Kishimoto, all of Tokyo, Japan, assignors to Asahi Kogaku Kogyo Kabushiki Kaisha, Tokyo, Japan

Filed Dec. 30, 1996, Ser. No. 775,084

Claims priority, application Japan, Jan. 26, 1996, 8-012317; Feb. 21, 1996, 8-058376

Int. Cl.^{6} G03B *5/00;13/36*

U.S. Cl. 396—87 **16 Claims**



1. An electronically controlled camera comprising:
- a lens system, said lens system being movable along an optical axis thereof;
- a lens driver, said lens driver driving said lens system to move along said optical axis;
- a timer for measuring a braking time period;;
- a brake controller, said brake controller controlling said lens driver to apply a brake to said lens system to stop moving said lens system while said braking time period elapses;
- a lens stoppage detector, said lens stoppage detector detecting whether said lens system has stopped; and
- a timer controller, said timer controller elongating said braking period if said lens stoppage detector does not detect that said lens system has stopped.

5,784,654
APPARATUS AND METHOD FOR MEASURING A DISTANCE

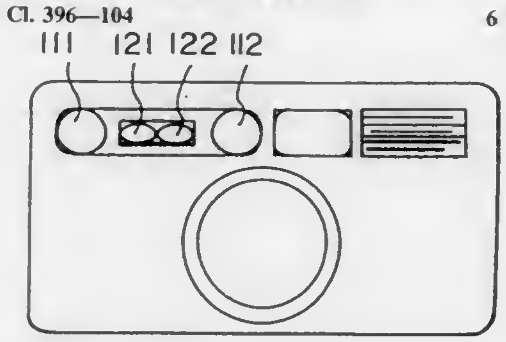
Tatsuo Saito, and Shigenori Goto, both of Oomiya, Japan, assignors to Fuji Photo Optical Co., Ltd., Japan

Continuation of Ser. No. 357,431, Dec. 14, 1994, Pat. No. 5,589,910. This application Aug. 26, 1996, Ser. No. 703,016

Claims priority, application Japan, Dec. 15, 1993, 5-315431; Dec. 15, 1993, 5-315441; Dec. 15, 1993, 5-315458; Dec. 15, 1993, 5-315461

Int. Cl.^{6} G03B *13/36*

U.S. Cl. 396—104 **6 Claims**



1. A camera comprising:
- a case;
- a main lens attached to said case, for photographing an object;
- a first pair of lenses separated by a predetermined distance, used for active distance measurement, attached to said case;
- a second pair of lenses used for passive distance measurement, attached to said case, being arranged between said first pair of lenses;
- a light-emitting device and a first light-receiving device used for active distance measurement, both being arranged behind said first pair of lenses; and
- a second light-receiving device used for passive distance measurement being arranged behind said second pair of lenses.

5,784,655
FOCUS DETECTING APPARATUS HAVING PHOTOELECTRIC AREA SENSORS

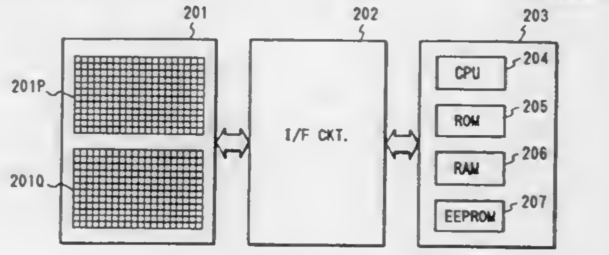
Akira Akashi, Yokohama; Mamoru Miyawaki, Tokyo; Kenji Suzuki, Kawasaki, and Toshiki Nakayama, Atsugi, all of Japan, assignors to Canon Kabushiki Kaisha, Tokyo, Japan

Division of Ser. No. 936,010, Aug. 27, 1992, Pat. No. 5,428,420. This application Mar. 27, 1995, Ser. No. 411,287

Claims priority, application Japan, Aug. 28, 1991, 3-217075; Nov. 29, 1991, 3-339367

Int. Cl.^{6} G03B *13/36*

U.S. Cl. 396—128 **3 Claims**



1. A focus detection apparatus comprising:
- a sensor circuit having a first sensor part and a second sensor part, each sensor part having a plurality of sensor elements disposed in a plurality of rows and columns;
- a read out circuit which independently reads out the signals of said sensor elements;
- a store circuit for storing electrical signals read out by said read out circuit from each sensor element;
- a processing circuit for adding the stored signals from a plurality of sensor elements of the same row of the first sensor part stored in said store circuit, and for adding the stored signals from a plurality of sensor elements of the same row of the second sensor part stored in said store circuit;
- a designating circuit for designating a sensor element area of the electrical signals to be added by said processing circuit, said processing circuit adding the signals of said sensor elements of the first sensor part corresponding to the sensor element area designated by said designating circuit and also adding the signals of sensor elements of the second sensor part located at a corresponding position to the sensor elements of the first sensor part; and
- a detecting circuit for detecting a focus state in accordance with the added extracted signals of the first sensor part and the added extracted signals of the second sensor part.

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5,784,656

CAMERA WITH LIGHT DIVIDING DEVICES

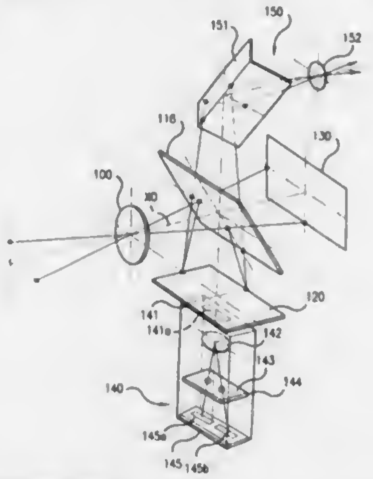
Ken Utagawa, Kanagawa-ken, Japan, assignor to Nikon Corporation, Tokyo, Japan

Continuation of Ser. No. 534,392, Sep. 27, 1995, abandoned. This application Apr. 22, 1997, Ser. No. 837,795

Claims priority, application Japan, Dec. 5, 1994, 6-300973; Dec. 5, 1994, 6-300974

Int. Cl.⁶ G03B *3/00;13/36*

U.S. Cl. 396—272 **25 Claims**



1. A camera, comprising:
- an optical image forming system that transmits light from a subject to form an image at a primary imaging position;
- a first light dividing device that receives light transmitted by said optical image forming system, transmits a first portion of said light and reflects a second portion of said light, wherein said first light dividing device directs said first portion or said second portion of said light to said primary imaging position;
- a second light dividing device that receives the portion of said light that is not directed to the primary imaging position and that simultaneously reflects a third portion and transmits a fourth portion of the portion of said light received by said second light dividing device, wherein said second light dividing device is positioned to reflect said third portion toward said first light dividing device;
- an optical focus detection system positioned to receive one of said third portion and said fourth portion; and
- a monitor device for monitoring a subject image, said monitor device positioned to receive the one of said third portion and said fourth portion that is not received by said optical focus detection system.

5,784,657

CAMERA HAVING A DISPLAY PANEL

Mitsuo Manabe, Saitama, Japan, assignor to Fuji Photo Optical Co., Ltd., Saitama, Japan

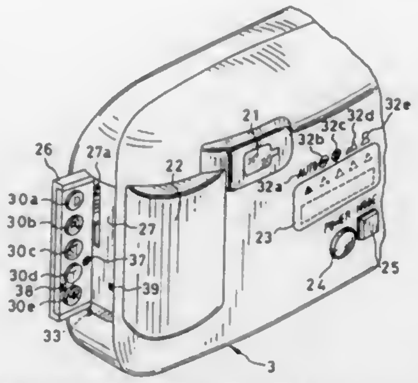
Filed Jan. 22, 1997, Ser. No. 786,304

Claims priority, application Japan, Jan. 30, 1996, 8-014637

Int. Cl.⁶ G03B *17/02*

U.S. Cl. 396—299 **11 Claims**

1. A camera having at least one operating button, a display panel for displaying photographic information set by said operating button and a camera body provided with said display panel at a first surface thereof, said camera comprising:
- a plate disposed at a side surface of said camera body which is different from said first surface, said operating button being disposed adjacent to an inside surface of said plate, a flexible circuit board being disposed between the button and the inside surface of the plate, and in contact with the button and the inside surface of the plate when the button is depressed; and



- supporting means for movably supporting said plate between a first state and a second state, in said first state, said operating button being contained within said camera body and an outer surface of said plate constituting a part of an outer surface of said camera body, and in said second state, said plate projecting out from said camera body and said operating button and said display panel being visible from a common vantage point.

5,784,658

OPTICAL DATA RECORDING DEVICE OF CAMERA AND LENS-FITTED PHOTOGRAPHIC FILM UNIT

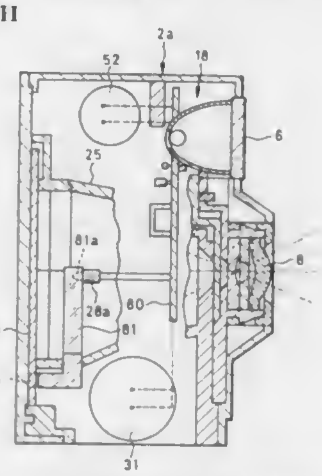
Yukitsugu Hata; Kazuo Okoyama, and Kazuo Kamata, all of Kanagawa, Japan, assignors to Fuji Photo Film Co., Ltd., Kanagawa, Japan

Filed Feb. 28, 1996, Ser. No. 607,925

Claims priority, application Japan, Mar. 9, 1995, 7-050097; Sep. 13, 1995, 7-235247; Oct. 25, 1995, 7-277582

Int. Cl.⁶ G03B *17/24;13/10;15/05*

U.S. Cl. 396—311 **27 Claims**



1. An optical data recording device of a camera, for optically recording data on photographic film in a data recording area provided per picture frame, said device comprising;
- a built-in flash device, a light source other than said built-inflash device, a flash charging and triggering circuit, and a power source, all mounted to a single circuit board; and
- at least a light guide for transmitting light from said light source toward the data recording area of the photographic film positioned for exposure of a picture frame;
- wherein said light source is driven synchronously with a sbutter release operation.

5,784,659

FILM FEEDING APPARATUS

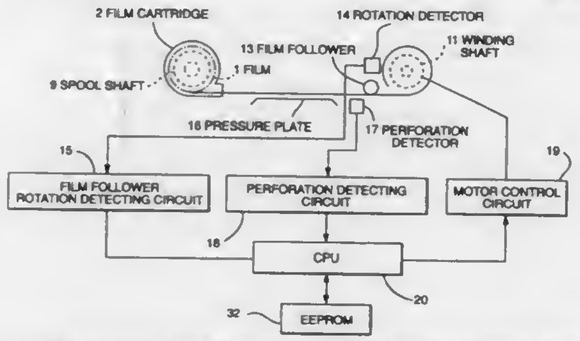
Yoichiro Okumura, Tokyo, Japan, assignor to Olympus Optical Co., Ltd., Tokyo, Japan

Filed Sep. 16, 1996, Ser. No. 724,023

Claims priority, application Japan, Oct. 6, 1995, 7-259992

Int. Cl.⁶ G03B *1/18*

U.S. Cl. 396—409 **15 Claims**



1. A film feeding apparatus of a camera capable of using a film having two perforations for each frame, each of said perforations including a front edge and a rear edge, the apparatus comprising:
- detecting means for detecting a feeding speed of the film by measuring time lapse from a passing of the front edge of a perforation to a passing of the rear edge of the perforation;
- setting means for setting a limiter time period as a limit value in accordance with the detected feeding speed of the film; and
- film end determining means for determining that the film has ended when passage of another perforation is not detected within the set limiter time period while the film is wound up;
- whereby the film feeding apparatus detects the end of the film before the film is stretched.

5,784,660

MOUNTING STRUCTURE OF A FILM PASSAGE FORMING PLATE FOR A PHOTOGRAPHIC CAMERA

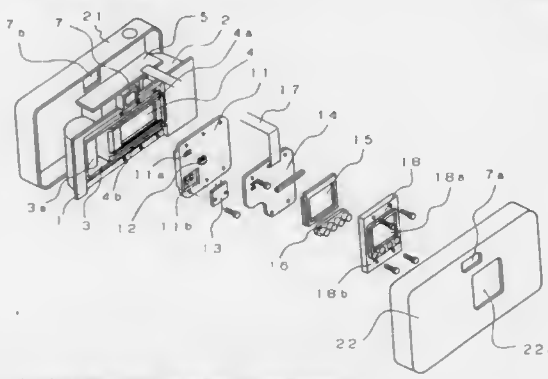
Yasuhiko Tanaka, Saitama-ken, Japan, assignor to Fuji Photo Optical Co., Ltd., Japan

Filed Oct. 18, 1995, Ser. No. 544,617

Claims priority, application Japan, Oct. 19, 1994, 6-278549

Int. Cl.⁶ G03B *17/00;17/24*

U.S. Cl. 396—440 **24 Claims**



1. A photographic camera comprising:
- a camera body having an aperture formed therein;
- a film passage forming plate adapted to be fixedly mounted to said camera body for cooperatively forming a film passage channel with said camera body across said aperture during normal operation of the camera; and
- a flexible strap connecting said film passage forming plate to said camera body such that said film passage forming plate may be selectively moved away from said aperture for initial camera adjustments and testing prior to being fixedly mounted to said camera body.

5,784,661

PHOTOGRAPHIC PROCESSING APPARATUS

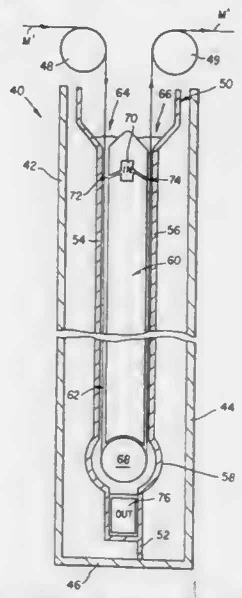
Gareth B. Evans, Hertfordshire; Anthony Earle, Harrow Weald; Nigel Wildman, North Harrow, and Andrew D. Grimsey, Luton, all of England, assignors to Eastman Kodak Company, Rochester, N.Y.

Filed Feb. 14, 1997, Ser. No. 800,305

Claims priority, application United Kingdom, Feb. 21, 1996, 9603680

Int. Cl.⁶ G03D *3/08*

U.S. Cl. 396—618 **17 Claims**



1. A photographic processing apparatus for processing at least one continuous web of photographic material, the apparatus comprising a plurality of processing stages and at least one leader belt for transporting the material through each processing stage at a transport speed greater than 5 m/min, each processing stage comprising at least one processing tank, wherein an effective tank thickness for at least one of the processing stages is less than 25 mm.

5,784,662

CARRIER FOR PHOTOGRAPHIC MATERIAL

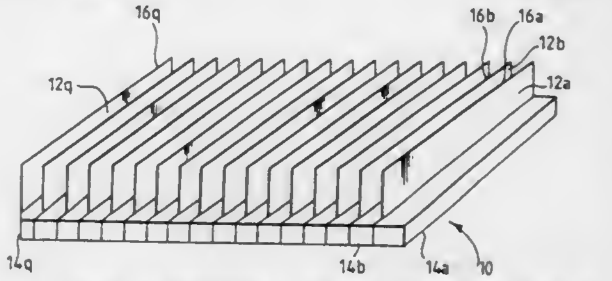
Michael Ridgway, Aldbury, England, assignor to Eastman Kodak Company, Rochester, N.Y.

Filed Jun. 21, 1996, Ser. No. 669,254

Claims priority, application United Kingdom, Jun. 30, 1995, 9513409

Int. Cl.⁶ G03D *13/08*

U.S. Cl. 396—647 **8 Claims**



1. A carrier for supporting a sheet of photographic material during processing of the same, the material having a sensitive surface requiring processing and a reverse surface, the carrier comprising a carrier surface arranged to support the sheet of photographic material, said carrier surface comprising:
- thin blades, each of said thin blades defining an upper edge, said upper edge is arranged to define said carrier surface for supporting at least a portion of the reverse surface of the sheet during processing.

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5,784,663

SYSTEM FOR SUPERVISING AND IMAGE FORMING APPARATUS FROM A REMOTE COMPUTER VIA A COMMUNICATION CONTROL UNIT

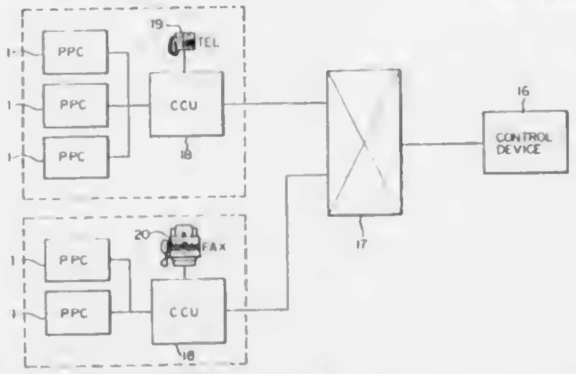
Masayuki Hayashi; Yoshihiro Mitekura; Koichi Kanaya, all of Yokohama; Masato Terao, Tokyo; Toshiya Tagawa, Ichikawa; Nobuaki Tomidokoro, Sagamihara; Masahiro Kitayama, Kawasaki; Osamu Kizaki, Asaka; Yasuo Kawada, Kawasaki; Kazuyuki Nakahara, Tokyo; Tomofumi Harada, Yokohama, and Yasunari Hashimoto, Tokyo, all of Japan, assignors to Ricoh Company, Ltd., Tokyo, Japan

Continuation of Ser. No. 575,573, Dec. 20, 1995, which is a division of Ser. No. 327,420, Oct. 21, 1994, Pat. No. 5,510,876, which is a division of Ser. No. 345,796, Nov. 22, 1994, Pat. No. 5,485,246, which is a continuation of Ser. No. 69,350, May 28, 1993, abandoned. This application Mar. 7, 1997, Ser. No. 813,592

Claims priority, application Japan, May 28, 1992, 4-137128; May 28, 1992, 4-137130; Nov. 30, 1992, 4-321045; Dec. 18, 1992, 4-339147; Mar. 15, 1993, 5-53542

Int. Cl.^{6} G03C *15/00*

U.S. Cl. 399—8 **18 Claims**



1. A control system for supervising at least one image forming apparatus, comprising:

at least one remote computer having a processor, a display and an input device; and

a communication control unit connected via a first communication line to said at least one remote computer for storing address information of each of said at least one image forming apparatus,

wherein said communication control unit is connected via a second communication line to each of said at least one image forming apparatus, said at least one remote computer provides control information to said communication control unit for controlling at least one of said at least one image forming apparatus, and said communication control unit determines an address of one of said at least one image forming apparatus after said at least one remote computer provides said control information to said communication control unit.

5,784,664

IMAGE FORMING APPARATUS HAVING AN IMAGE FORMATION SUPERVISING CONTROLLED AND METHOD FOR SUPERVISING IMAGE FORMING OPERATIONS

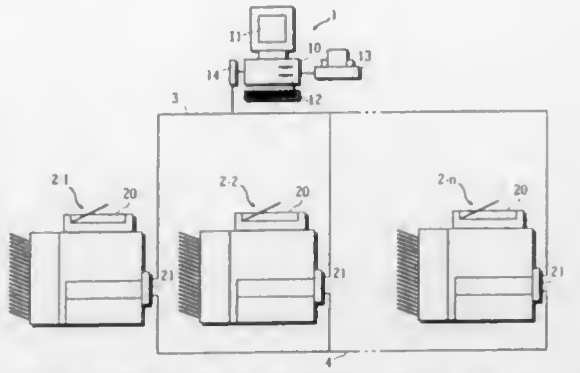
Hidenobu Nakamura; Tomokazu Kato, both of Toyokawa; Tomoyuki Atsumi, Toyohashi, and Hiroyuki Asai, Okazaki, all of Japan, assignors to Minolta Co., Ltd., Osaka, Japan

Filed Jun. 23, 1997, Ser. No. 881,026

Claims priority, application Japan, Jun. 25, 1996, 8-163980

Int. Cl.^{6} G03G *15/00*

U.S. Cl. 399—8 **16 Claims**



1. An image forming apparatus comprising:

an identifier receiving unit for receiving a first user identifier inputted by a user;

an identifier storage unit for storing a first registered identifier under which image forming operations are permitted;

a judging unit for permitting the user to use the image forming apparatus if the first user identifier inputted by the user is identical to the first registered identifier stored in the identifier storage unit, and prohibiting the user from using the image forming apparatus if the first user identifier is not identical to the first registered identifier;

a communication unit for communicating with another image forming apparatus;

an inquiry unit for making a first inquiry, via the communication unit, as to whether the first user identifier is identical to a second registered identifier of another image forming apparatus, if the first user identifier is not identical to the first registered identifier; and

a switching unit for switching the judging unit from "prohibition" to "permission" if another image forming apparatus has informed that the first user identifier is identical to the second registered identifier, or that the user is permitted to use the image forming apparatus that has made the first inquiry.

5,784,665

APPARATUS AND METHOD FOR DETECTING EXISTENCE OF DEVELOPING UNIT AND RESIDUAL AMOUNT OF TONER IN IMAGE SYSTEM

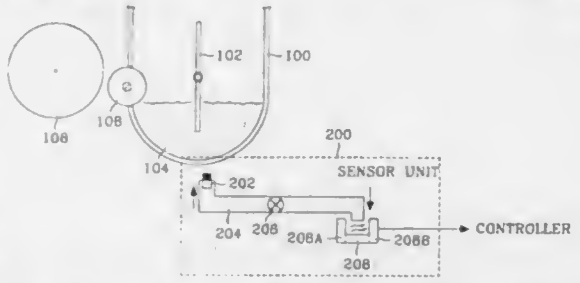
Hee-Man Bae, Kyungki-do, Rep. of Korea, assignor to Sam-Sung Electronics Co., Ltd., Suwon, Rep. of Korea

Filed Jul. 31, 1997, Ser. No. 903,835

Claims priority, application Rep. of Korea, Jul. 31, 1996, 1996-32021

Int. Cl.^{6} G03G *15/00;15/08*

U.S. Cl. 399—13 **15 Claims**



1. An apparatus for detecting an existence of a developing unit and for detecting an existence of a toner in an image forming system, comprising:

a magnet mounted under a bottom outer wall of the developing unit containing the toner, the toner being magnetizable;

a sensor for generating a sensing signal upon detecting an up and down movement of said magnet, the up and down movement of said magnet occurring in accordance with a residual amount of the toner in the developing unit, the residual amount of the toner being magnetizable, the detecting occurring in accordance with the residual amount of the toner contained in the developing unit; and

a controller for performing a control operation in accordance with the sensing signal by checking the existence of the developing unit and the existence of the residual amount of the toner.

5,784,666

COLOR IMAGE FORMING APPARATUS

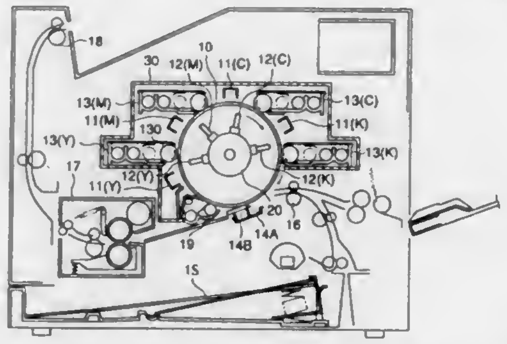
Hisayoshi Nagase; Shuta Hamada; Hiroyuki Tokimatsu; Satoshi Haneda, and Toshihide Miura, all of Tokyo, Japan, assignors to Konica Corporation, Tokyo, Japan

Filed Dec. 29, 1995, Ser. No. 580,603

Claims priority, application Japan, Jan. 6, 1995, 7-000658; Oct. 18, 1995, 7-270194

Int. Cl.^{6} G03L *15/00*

U.S. Cl. 399—44 **21 Claims**



1. In a color image forming apparatus comprising a photoreceptor, a charging device to charge the photoreceptor, a plurality of exposing means to expose the photoreceptor so as to form a latent image on the photoreceptor, a plurality of developing means to develop the latent image with toners differing in color so as to form toner images, wherein plural toner images are superimposed on the photoreceptor during a single rotation of the photoreceptor by the charging devices, the image exposing means and the developing means, the color image forming apparatus is characterized in that each of the plurality of image exposing means comprises an array-shaped plural elements aligned in the axial direction of the photoreceptor and the color image forming apparatus further comprises heating means or heat absorbing means provided for each of the plurality of image exposing means and control means for controlling a temperature of each of the plurality of image exposing means independently of others by the heating means or the heat absorbing means,

wherein in each of the plurality of array-shaped image exposing means is subjected to a forced light emission used as the heating means independently of others, and wherein a specific color image formation among the plural different colors is conducted, the charging means, the array-shaped image exposing means and the developing means used for the specific color image formation are activated, and the other array-shaped image exposing means other than the array-shaped image exposing means used for the specific color image formation are subjected to the forced light emission.

4. The apparatus of claim 1, wherein the photoreceptor is provided inside a supporting member by which the plurality of array-shaped image exposing means are mounted along the outer circumferential surface of the photoreceptor.

5,784,667

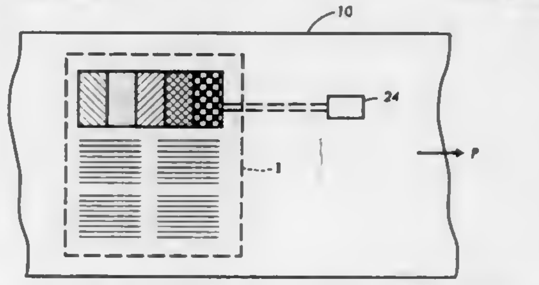
TEST PATCH RECOGNITION FOR THE MEASUREMENT OF TONE REPRODUCTION CURVE FROM ARBITRARY CUSTOMER IMAGES

Lingappa K. Mestha, Fairport, and Thomas Allen Henderson, Rochester, both of N.Y., assignors to Xerox Corporation, Stamford, Conn.

Filed Nov. 22, 1996, Ser. No. 754,907

Int. Cl.^{6} G03G *15/00;15/08*

U.S. Cl. 399—49 **23 Claims**



1. In a printing machine having a moving imaging surface, a projecting system for modulating a beam and projecting an image onto the imaging surface, a developer for application of toner to the image projected onto the imaging surface for transfer of the image to a medium, a method of development control comprising the steps of;

sensing a relatively small segment of an arbitrary image on the imaging surface,

converting the sensed segment into a halftone density value; and

responding to the halftone density value to adjust the machine operation for print quality correction.

5,784,668

IMAGE FORMING APPARATUS

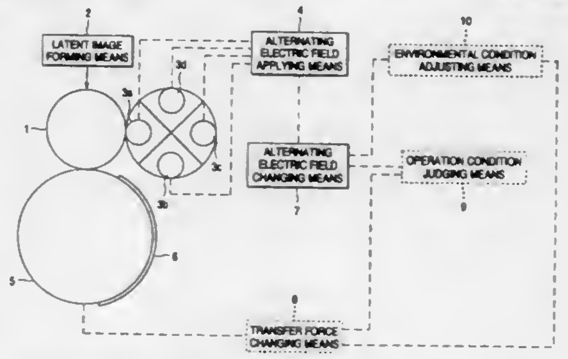
Nobuo Hyakutake; Yoshihiro Enomoto; Junichi Hama; Tetsuya Fujita, and Nobuyoshi Komatsu, all of Ebina, Japan, assignors to Fuji Xerox Co., Ltd., Tokyo, Japan

Filed Feb. 12, 1997, Ser. No. 797,987

Claims priority, application Japan, Feb. 16, 1996, 8-052545; Jan. 22, 1997, 9-023295

Int. Cl.^{6} G03G *15/06;21/00*

U.S. Cl. 399—55 **10 Claims**


LATENT IMAGE FORMING MEANS
ALTERNATING ELECTRIC FIELD APPLYING MEANS
ENVIRONMENTAL CONDITION ADJUSTING MEANS
ALTERNATING ELECTRIC FIELD CHANGING MEANS
OPERATION CONDITION JUDGING MEANS
TRANSFER FORCE CHANGING MEANS
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1. An image forming apparatus comprising:

at least one image carrier;

latent image forming means for sequentially forming electrostatic latent images of color components on said image carrier;

a plurality of developing means arranged around said image carrier, for developing the electrostatic latent images on said image carrier by toner of respective color components under action of an alternating electric field generated by alternating electric field applying means;

transferring means for sequentially transferring color-component toner images formed on said image carrier to a transfer medium;

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said alternating electric field applying means comprising alternating electric field changing means for reducing a degree of an action of the alternating electric field on at least one of said developing means which are later in development order, to a level which is lower than that in a preceding step; and

operation condition judging means for whether use conditions, other than environmental conditions, satisfy preset transfer failure conditions or not, and for, when it is judged that the use conditions satisfy the transfer failure conditions, causing said alternating electric field changing means to operate.

5,784,669
TONER REPLENISHING DEVICE FOR AN IMAGE FORMING APPARATUS

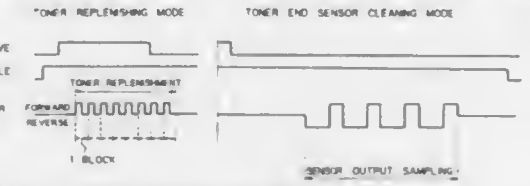
Tetsuro Miura; Satoshi Hatori, both of Tokyo, and Leo Munakata, Yokohama, all of Japan, assignors to Ricoh Company Ltd., Tokyo, Japan

Filed Oct. 3, 1996, Ser. No. 725,169

Claims priority, application Japan, Oct. 3, 1995, 7-255960; Oct. 16, 1995, 7-266651; Aug. 2, 1996, 8-204829

Int. Cl.⁶ G03G *15/10*

U.S. Cl. 399—58 5 Claims



1. A toner replenishing device comprising:

a hopper portion for storing toner therein;

remaining toner sensing means having a sensing surface disposed in said hopper portion to thereby sense the toner existing in said hopper portion;

agitating means for agitating the toner in said hopper portion;

cleaning means driven by a same drive source as said agitating means for cleaning said sensing surface of said remaining toner sensing means; and

means for causing said cleaning means driven by said same drive source to clean said sensing surface by a drive operation different from a drive operation of the toner agitating means by said same drive source during usual toner replenishment, and detecting an output of said remaining toner sensing means while said cleaning means cleans said sensing surface.

5,784,670
NOISE MASKING SYSTEM AND METHOD IN IMAGE FORMING APPARATUS

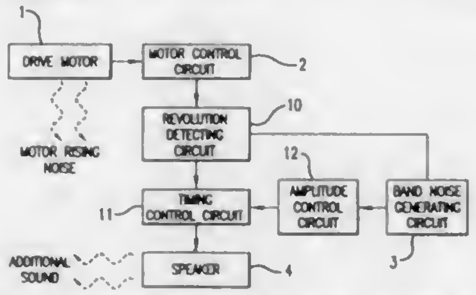
Shinji Sasahara; Daisuke Yoshino, and Yumiko Kurosawa, all of Nakai-machi, Japan, assignors to Fuji Xerox Co., Ltd., Tokyo, Japan

Filed Oct. 28, 1996, Ser. No. 738,482

Claims priority, application Japan, Jan. 22, 1996, 8-026268

Int. Cl.⁶ G03G *21/20*

U.S. Cl. 399—91 13 Claims



1. A noise masking system in an image forming apparatus having a drive motor, said noise masking system comprising:

a speaker for outputting a masking sound to mask a noise generated from said drive motor; and

masking sound control means which causes said speaker to output a masking sound of a frequency range including a main-component frequency corresponding to a sound pressure peak of the noise,

wherein said masking sound is a pure tone-type masking sound having an outstanding sound pressure peak in a specific frequency.

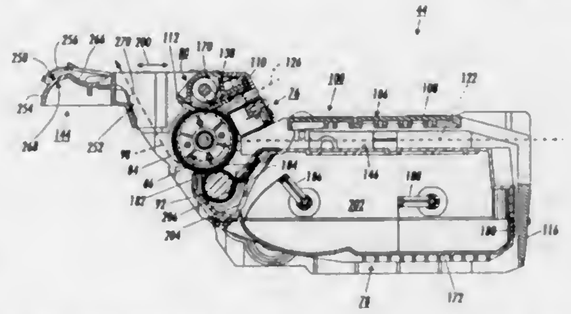
5,784,671
PROCESS CARTRIDGE INCLUDING A HANDLE DEFINING PART OF A MACHINE PAPER PATH

Dhirendra C. Damji, Webster; Ajay Kumar, Fairport, and Douglas W. Shaffer, Pittsford, all of N.Y., assignors to Xerox Corporation, Stamford, Conn.

Filed Nov. 14, 1997, Ser. No. 970,839

Int. Cl.⁶ G03G *21/16;21/18*

U.S. Cl. 399—110 5 Claims



1. An electrostatographic process cartridge detachably mountable into a cavity defined by mated modules forming parts of an electrostatographic reproduction machine, the process cartridge comprising:

(a) an elongate housing having walls defining a front end of said process cartridge, a rear end thereof, and a process chamber;

(b) a rotatable endless photoreceptive member having a closed loop path within said process chamber, and an image bearing surface for holding a formed toner image, and being mounted within said process chamber and towards said rear end thereof for contacting a toner image receiving sheet moving along a machine sheet path for toner image transfer;

(c) plural electrostatographic process components located along said closed loop path for forming a toner image on, and transferring such toner image from, said image bearing surface to the image receiving sheet;

(d) a cleaning component for removing and transporting waste toner from said image bearing surface;

(e) a waste toner sump subassembly mounted to an end of said elongate housing for receiving and containing waste toner removed and transported thereto by said cleaning component; and

(f) a module handle attached to said rear end for gripping and use by an operator for inserting and removing said process cartridge from the defined cavity and forming a part of the machine sheet path for contacting and guiding an image receiving sheet moving from said photoreceptive member.

5,784,672
COLOR IMAGE FORMING APPARATUS HAVING INTEGRALLY FORMED/REMOVABLE IMAGE FORMING BODY AND EXPOSIVE DEVICE

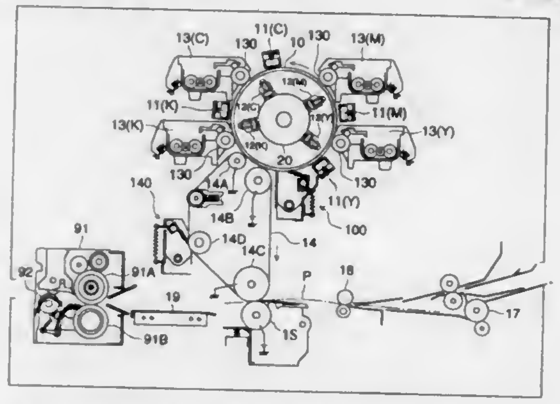
Satoshi Haneda; Hisayoshi Nagase; Hiroyuki Tokimatsu; Masahiro Onodera; Shuta Hamada, and Toshihide Miura, all of Hachioji, Japan, assignors to Konica Corporation, Tokyo, Japan

Filed Mar. 21, 1997, Ser. No. 821,865

Claims priority, application Japan, Mar. 29, 1996, 8-076560

Int. Cl.⁶ G03G *15/00*

U.S. Cl. 399—118 10 Claims



1. A color image forming apparatus comprising:

(a) an image forming body rotating around a rotary axis;

(b) a plurality of imagewise exposure devices attached to an optical system supporting body and arranged inside the image forming body for imagewise exposing the image forming body, wherein the image forming body is rotatably provided on the optical system supporting body and wherein the image forming body and the plurality of imagewise exposure devices are integrally formed into a unit through the optical system supporting body;

(c) a plurality of developing units arranged so as to surround the image forming body;

(d) a suspending member for suspending the optical system supporting body; and

(e) a guiding member for guiding the suspending member so that the suspending member is pulled out in a direction of the rotary axis of the image forming body.

5,784,673
IMAGE FORMING APPARATUS HAVING A TONER BRUSH EQUIPPED WITH A TOUGHENING MEMBER FOR MATERIALS OF THE BRUSH

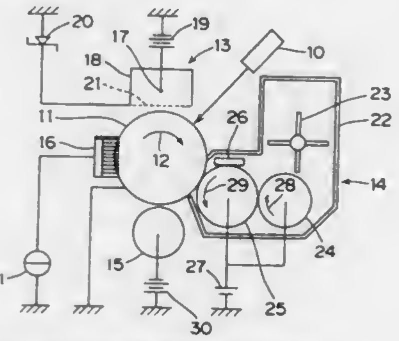
Takashi Terada; Masaru Watanabe, and Hiroyuki Hazama, all of Osaka, Japan, assignors to Mita Industrial Co., Ltd., Osaka, Japan

Filed Nov. 19, 1996, Ser. No. 751,942

Claims priority, application Japan, Nov. 29, 1995, 7-311284

Int. Cl.⁶ G03G *15/24;21/00*

U.S. Cl. 399—149 4 Claims



1. An image forming apparatus comprising:

a photosensitive drum having a photosensitive layer on its surface, and being rotated at the time of its operation;

electrostatic latent image forming means for forming an electrostatic latent image on the surface of the photosensitive drum;

developing means for developing a formed electrostatic latent image with toner;

transferring means for transferring a toner image obtained by development to a predetermined sheet member; and

a brush provided in contact with the surface of the photosensitive drum after toner image transfer for scratching toner remaining on the surface thereof and recovering paper powder adhering on the surface thereof, wherein

a portion having a length of b [mm] on the side of the tip of the brush cuts into the surface of the photosensitive drum when the length of many fine brush materials studded on the brush is taken as (a+b) [mm], and the brush materials comprise a toughening member for regulating the curvature of the brush materials, the toughening member extending to a length of c [mm] from the root of the brush materials, the relationship among a [mm], b [mm] and c [mm] satisfying the following conditions:

$0.3 \leqq (c/(a+b)) \leqq 0.95$, and

$0.1\ [\mathrm{mm}] \leqq b \leqq 1.5\ [\mathrm{mm}]$.

5,784,674
INNER FACE CLEANING MEMBER FOR AN INTERMEDIATE TRANSFER DEVICE

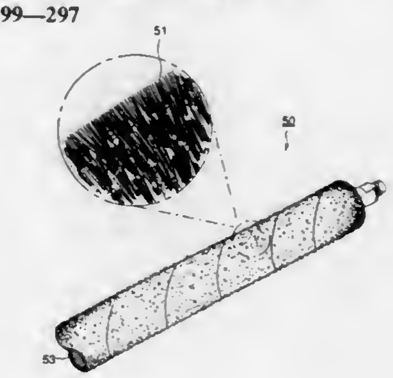
Shuji Iseki; Norio Hokari; Yukio Hayashi; Junichirou Sameshima; Mikio Kobayashi, and Ryoichi Tsuruoka, all of Ebina, Japan, assignors to Fuji Xerox Co., Ltd., Tokyo, Japan

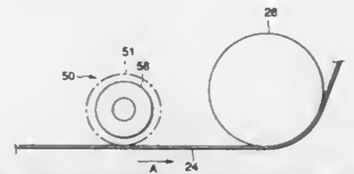
Filed Jun. 26, 1996, Ser. No. 669,725

Claims priority, application Japan, Jun. 29, 1995, 7-164303; Jun. 30, 1995, 7-166688; Jun. 30, 1995, 7-166689; Jun. 30, 1995, 7-166690

Int. Cl.⁶ G03G *21/00*

U.S. Cl. 399—297 13 Claims





1. An image formation apparatus for forming an image comprising:

an endless belt member, and

an inner face cleaning member which is provided on an inner face of said endless belt member, and has both a function of capturing deposits deposited on the inner face of said endless belt member and a function of holding the captured deposits. said inner face cleaning member including fibers densely arranged and projecting radially outward from said inner face cleaning member, said inner face cleaning member having a contact face adapted to contact said endless belt member, and

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said inner face cleaning member fixed in a contact state so that said contact face does not move while said endless belt is moving.

5,784,675

IMAGE FORMING APPARATUS WITH RECORDING MATERIAL CARRYING MEMBER HAVING RECESSES

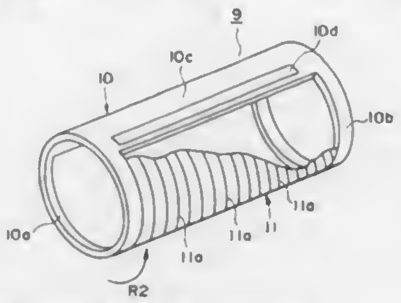
Masahiro Inoue; Yoshihiro Murasawa, both of Yokohama; Tatsuo Takeuchi, Kawasaki; Rie Saito, Yokohama; Yasuo Nami, and Rie Nakashimizu, both of Kawasaki, all of Japan, assignors to Canon Kabushiki Kaisha, Tokyo, Japan

Continuation of Ser. No. 683,916, Jul. 19, 1996, abandoned, which is a continuation of Ser. No. 136,105, Oct. 14, 1993, abandoned. This application Oct. 21, 1997, Ser. No. 954,876

Claims priority, application Japan, Oct. 16, 1992, 4-305005; Oct. 16, 1992, 4-305006; Oct. 16, 1992, 4-305007

Int. Cl.^{6} G03G *15/16*

U.S. Cl. 399—297 **56 Claims**



1. An image forming apparatus comprising:
image bearing means;
a movable recording material carrying member for carrying a recording material, wherein an image is transferred at a transfer position from said image bearing means onto a recording material carried on a carrying surface of said recording material carrying member;
a plurality of linear recesses provided on the carrying surface and extending in a direction of movement of said recording material carrying member; and
cleaning means for cleaning the carrying surface of said recording material carrying member, said cleaning means including a rotatable brush movable in a rotational direction, wherein the linear recesses extend in the direction of rotational movement of said rotatable brush.

5,784,676

ROLLER FOR BELT TRANSPORTING APPARATUS AND IMAGE FORMING APPARATUS

Shuji Iseki; Norio Hokari; Yukio Hayashi; Junichirou Sameshima; Mikio Kobayashi, and Ryoichi Tsuruoka, all of Ebina, Japan, assignors to Fuji Xerox Co., Ltd., Tokyo, Japan

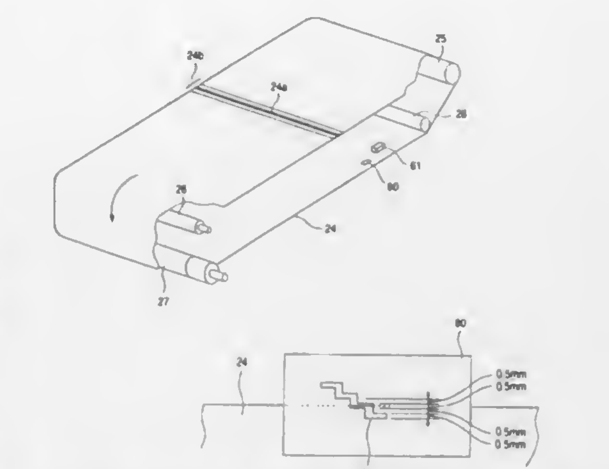
Filed Apr. 15, 1996, Ser. No. 632,071

Claims priority, application Japan, Apr. 14, 1995, 7-089038; Jun. 30, 1995, 7-166691; Jun. 30, 1995, 7-166692

Int. Cl.^{6} G03G *15/00;15/16*

U.S. Cl. 399—301 **16 Claims**

6. An image forming apparatus comprising:
an endless transfer belt;
a plurality of rollers for supporting and transporting said transfer belt; and
detecting means for detecting a predetermined position in a forwarding direction of said transfer belt, said detecting means serving as at least means for detecting a seam position of said transfer belt, and means for sensing an abnormal move of said transfer belt in a direction perpendicular to a forwarding direction thereof to prevent damage to edges of said transfer belt.



5,784,677

ELECTROPHOTOGRAPHIC PRINTER AND PRINTING METHOD USING SPECIFIC INTERMEDIATE TRANSFER DRUM AND TRANSFER ROLLER ARRANGEMENT

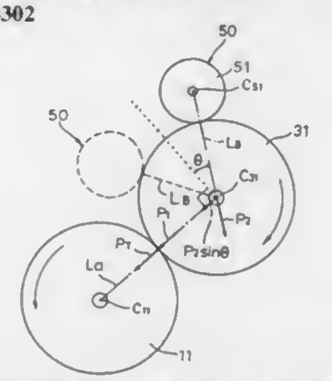
Yoshihiro Tamura, Tokyo; Hidetoshi Hara; Yuichi Nakao, both of Otsu, and Kazuo Ishiwari, Ichikawa, all of Japan, assignors to Toray Industries Inc., Tokyo, Japan

Division of Ser. No. 305,921, Sep. 16, 1994, abandoned, which is a division of Ser. No. 35,273, Mar. 22, 1993, Pat. No. 5,394,232. This application May 31, 1996, Ser. No. 656,527

Claims priority, application Japan, Mar. 25, 1992, 4-066719

Int. Cl.^{6} G03G *15/01*

U.S. Cl. 399—302 **26 Claims**



1. An electrophotographic printing apparatus for forming an image on a recording medium based on printing information, comprising;
a photosensitive drum;
latent image forming means, for forming a plurality of electrostatic latent images on said photosensitive drum based on the printing information;
developing means for developing said electrostatic latent images on said photosensitive drum using toners;
an intermediate transfer drum pressed against said photosensitive drum such that the toner images on said photosensitive drum are transferred to said intermediate transfer drum;
transport means for delivering the recording medium, to which the toner images are to be transferred, to and from said intermediate transfer drum; and
a transfer roll for transferring the toner images from said intermediate transfer drum to the recording medium, said transfer roll being urged against said intermediate transfer drum with the recording medium being disposed therebetween;
fixing means for fixing the toner images on the recording medium;
wherein a force P_1 of pressure contact between said photosensitive drum and said intermediate transfer drum, and a force P_2 of pressure between said transfer roll and said intermediate transfer drum, and an angle θ formed between a line passing through the respective centers of rotation of said intermediate transfer drum and said transfer roll and a line perpendicular to the line passing through the respective centers of rotation of said photosensitive drum and said intermediate transfer drum meet the following relation,

$$P_1 \geqq P_2 \sin\theta.$$

5,784,678

BELT-TYPE FIXING UNIT HAVING OBTUSELY ANGLED ENTRY

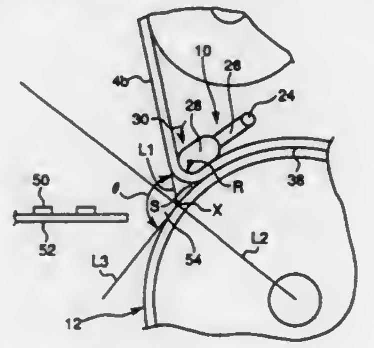
Masahiko Matsuura, Suita; Satoshi Deishi, Ibaraki, and Tomoo Izumi, Osaka, all of Japan, assignors to Minolta Co., Ltd., Osaka, Japan

Filed Feb. 13, 1997, Ser. No. 800,731

Claims priority, application Japan, Feb. 14, 1996, 8-026641

Int. Cl.^{6} G03G *15/20*

U.S. Cl. 399—329 **10 Claims**



1. A belt-type fixing unit comprising:
an endless-type belt;
first and second support members which internally rotatably support said belt;
a rotatable roller which externally comes in pressure contact with said belt;
a heat member which heats said belt;
a drive unit which rotatively drives said belt in a prescribed direction; and
a third support member which internally supports said belt and cooperates with said second support member in forming a nip section between said rotatable roller and said belt so that said belt forms a linear portion on the upstream side of said nip section in the direction in which said belt moves,
wherein the linear portion of said belt and a tangential line of said rotatable roller passing through an intersection of a line extended from said linear portion and an outer peripheral surface of said rotatable roller form an obtuse angle outside said belt.

5,784,679

APPARATUS FOR DRYING AND PRESSING AN IMAGE TO A COPY SHEET

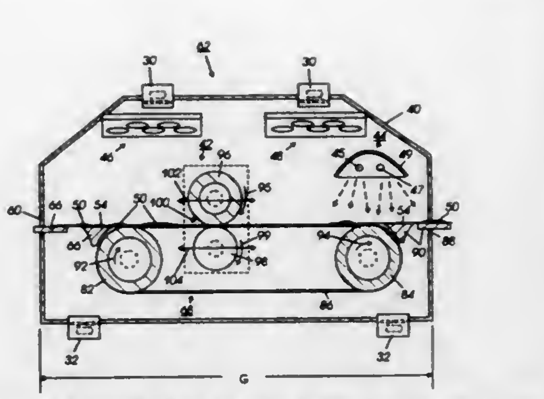
Edward L. Schlueter, Jr., Rochester; Edward F. Bowler, Jr., Fairport; Henry R. Till, East Rochester; Dexter A. Dyer, Fairport, and Christine J. Tarnawskyj, Webster, all of N.Y., assignors to Xerox Corporation, Stamford, Conn.

Filed Mar. 31, 1997, Ser. No. 829,394

Int. Cl.^{6} G03G *15/20*

U.S. Cl. 399—335 **17 Claims**

1. An image drying and fixing apparatus for affixing an image to a copy substrate, comprising a drying oven including a heated housing having a copy substrate inlet and a copy substrate outlet:
a conveyor disposed at least partially within said housing, said conveyor defining a path of travel for advancing the copy substrate through said drying oven; and
an image impacting system disposed along the path of travel of the copy substrate for pressing the image onto the copy substrate in image configuration, wherein said image impacting system is selectively positionable along the path of travel of the copy substrate for optimizing the affixing of the image to the copy substrate.



5,784,680

COMPACT AUTO-DOCUMENT FEEDER FOR AN IMAGE FORMING APPARATUS

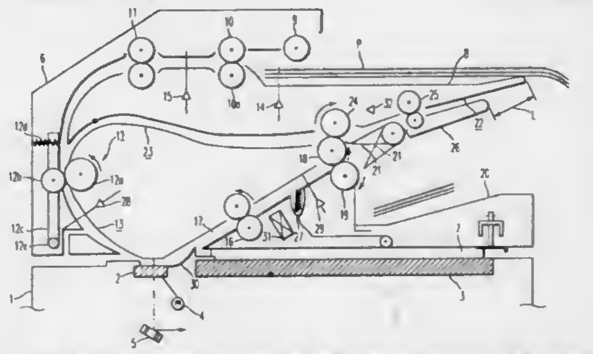
Takashi Taruki, Hiratsuka, Japan, assignor to Ricoh Company, Ltd., Tokyo, Japan

Filed Oct. 11, 1996, Ser. No. 728,988

Claims priority, application Japan, Oct. 11, 1995, 7-263388; Oct. 12, 1995, 7-263776

Int. Cl.^{6} G03G *21/00*

U.S. Cl. 399—374 **14 Claims**



1. An auto-document feeder for an image forming apparatus having at least a platen glass and document reading means for a duplex document, the auto-document feeder comprising:
a document setting table on which said duplex document is set in order of the pages thereof;
a separating and feeding means for separating documents set on said document setting table and feeding said document forward from an upmost document thereon;
a first feeding path extending from said document setting table to said platen glass for leading and turning said document;
an ejecting tray for receiving said document after both sides of the document have been read by said document reading means;
ejecting rollers for ejecting said document onto said ejecting tray;
a second feeding path extending from said platen glass to said ejecting rollers;
a switch-back path for receiving said document from said second path, the switch-back path having switch-back rollers therein;
a switching gate for switching a feeding direction of said document to either said switch-back path or said ejecting tray; and
a third feeding path for leading said document from said switch-back path to a part of said first feeding path;

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wherein said switching gate is disposed downstream of the ejecting roller and above said ejecting tray.

5,784,681
METHOD OF MAKING A SINTERED ARTICLE

Charles Grant Purnell, Coventry; Leslie John Farthing, Rugby, and David Holme, Newton, all of United Kingdom, assignors to Brico Engineering Limited, Coventry, England

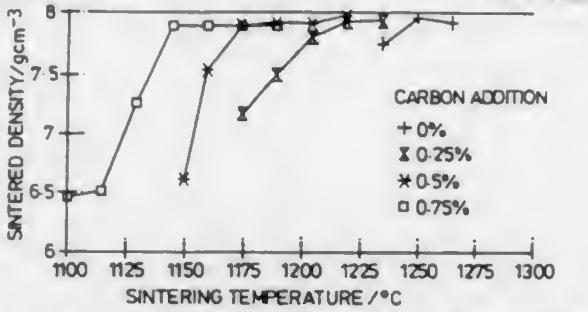
PCT No. PCT/GB95/00571, § 371 Date Sep. 13, 1996, § 102(e) Date Sep. 13, 1996, PCT Pub. No. WO95/26421, PCT Pub. Date Oct. 5, 1995

PCT Filed Mar. 16, 1995, Ser. No. 716,248

Claims priority, application United Kingdom, Mar. 25, 1994, 9405946

Int. Cl.⁶ B22F *3/10*

U.S. Cl. 419—11 **19 Claims**



1. A method of making a sintered article, the method comprising the steps of mixing a prealloyed ferrous powder having a composition in the following ranges in weight %: carbon 0.7–2.7 / chromium 3–6 / cobalt 5–10 / vanadium 0.5–3 / molybdenum 6–11 / silicon 0.3–2 / others total 2 max/balance iron and optionally up to 3 wt % of tungsten, with an addition of carbon powder of at least 0.10 wt %, compacting said powder mixture by uniaxial pressing to form a green compact, sintering said green compact in a continuous sintering furnace, having a gas atmosphere, at a temperature in the range from 1130° C. to 1250° C. such that the final density of said sintered material is greater than 95% of the theoretical density as a result of the sintering operation alone.

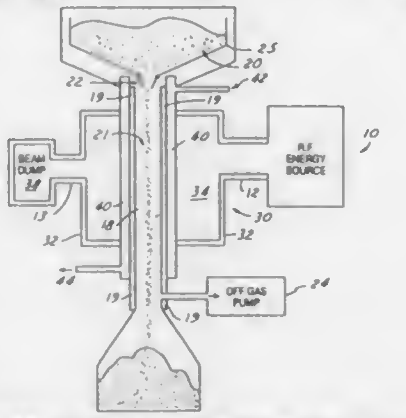
5,784,682
SYSTEM FOR SEPARATING CONSTITUENTS FROM A BASE MATERIAL

Stephen M. Birken, 23 Mohawk Trail, and Karl Birken, 38 Grant Hill Ct., both of Clifton Park, N.Y. 12065

Filed Feb. 16, 1996, Ser. No. 602,195

Int. Cl.⁶ B01J *19/12*

U.S. Cl. 422—186 **20 Claims**



1. An apparatus for separating constituents from a base material, comprising:

a source for generating electromagnetic radiation;

a resonator forming a resonating cavity;

a wave guide for coupling said electromagnetic radiation from said generating source to said resonating cavity;

a reactor defining a reaction chamber, said reactor at least partially disposed within said resonating cavity, wherein said reaction chamber is hermetically sealed from said resonating cavity and wherein said source includes a gyrotron.

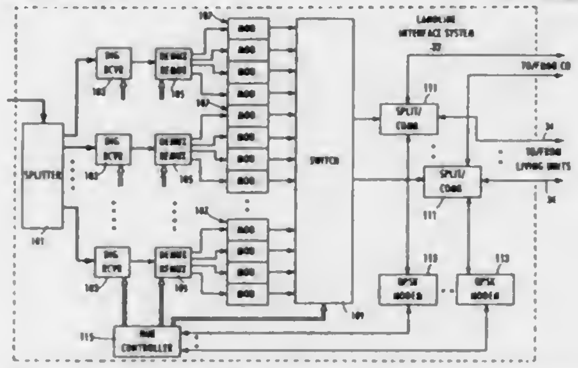
5,784,683
SHARED USE VIDEO PROCESSING SYSTEMS FOR DISTRIBUTING PROGRAM SIGNALS FROM MULTIPLEXED DIGITIZED INFORMATION SIGNALS

Kamran Sistanizadeh, Arlington; John W. Seazholtz, Great Falls, both of Va., and William F. Lawrence, Gaithersburg, Md., assignors to Bell Atlantic Network Services, Inc., Arlington, Va.

Continuation-in-part of Ser. No. 441,977, May 16, 1995. This application Oct. 20, 1995, Ser. No. 546,255

Int. Cl.⁶ H04N *1/00*

U.S. Cl. 455—5.1 **35 Claims**



1. A communication system receiving a plurality of multiplexed digitized information signals relating to a plurality of programs, said communication system comprising:

means for processing the multiplexed digitized information signals relating to the plurality of programs to derive separate program signals, each program signal containing information relating to a single one of the plurality of programs;

a plurality of lines, each line coupled to a broadband output device;

a switch, coupled between the means for processing the multiplexed digitized information signals and the plurality of lines, for routing selected ones of the program signals; and

a controller controlling the routing by the switch in response to program requests received via the plurality of lines.

5,784,684
COMMUNICATION NETWORK

Andries Van Wageningen, and Marinus Bakker, both of Wijlre, Netherlands, assignors to U.S. Philips Corporation, New York, N.Y.

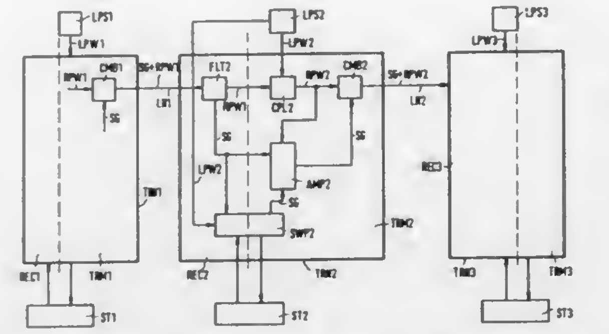
Filed Oct. 18, 1995, Ser. No. 544,797

Claims priority, application European Pat. Off., Oct. 18, 1994, 94203009

Int. Cl.⁶ H04B *1/60;17/02*

U.S. Cl. 455—9 **7 Claims**

1. A communication network comprising a transceiver arranged for passing on signals input thereto, coming in via an incoming signal path, to an outgoing signal path, said transceiver comprising an amplifier for amplifying the signals to be passed on, said transceiver further being coupled to a local power supply, wherein said, communication network is arranged for supplying a remote supply power via the incoming signal path to said transceiver and wherein said transceiver further comprises coupling means which (i) under normal circumstances, is arranged for supplying local supply power from the local power supply to said amplifier and, (ii) when the local power supply fails, is arranged for supplying the remote supply power to said amplifier.



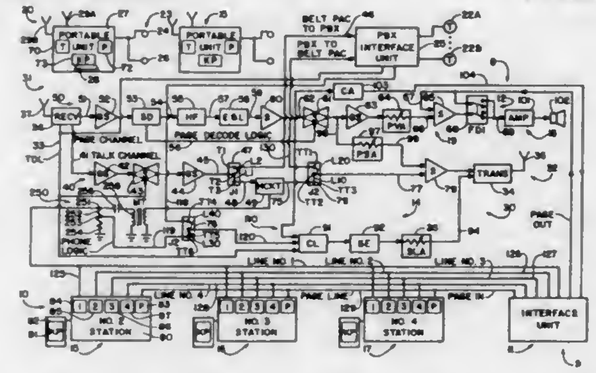
5,784,685
WIRELESS INTERCOM COMMUNICATION SYSTEM AND METHOD OF USING SAME

Thomas H. Stanford, Escondido; David W. Snyder, Santee, and Elden R. Davisson, Poway, all of Calif., assignors to H.M. Electronics, Inc., San Diego, Calif.

Filed Aug. 16, 1995, Ser. No. 515,567

Int. Cl.⁶ H04Q *7/08;7/10*

U.S. Cl. 455—31.2 **8 Claims**



1. In a wired paging system having a plurality of stationary transceiver units for facilitating full duplex communication, and a paging arrangement coupled electrically to the plurality of stationary transceiver units for helping to interconnect them selectively in full duplex communication and for enabling them to perform paging operations via paging equipment, a wireless communication system, comprising:

at least one wireless portable transceiver unit for full duplex communication with at least one of the stationary transceiver units and with the paging equipment;

communication base means coupled electrically to the paging arrangement for transmitting and receiving full duplex communication messages between individual ones of the stationary transceiver units and the portable transceiver unit;

means coupling said base means to the paging arrangement for completing a talk channel for both the stationary and portable unit; and

means coupling said base means to the paging equipment for completing a page channel for both the stationary and portable units so that the units can utilize the paging equipment.

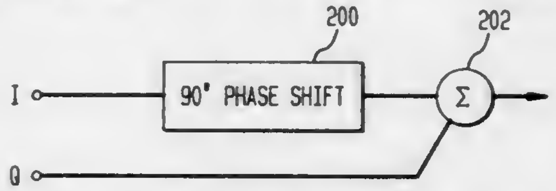
5,784,686
IQ COMBINER TECHNOLOGY IN MODULATED BACKSCATTER SYSTEM

You-Sun Wu, Princeton Junction, and R. Anthony Shober, Red Bank, both of N.J., assignors to Lucent Technologies Inc., Murray Hill, N.J.

Filed Dec. 31, 1996, Ser. No. 775,695

Int. Cl.⁶ H03C *1/52*

U.S. Cl. 455—45 **3 Claims**



1. An IQ combiner for combining constructively an I output signal and a Q output signal of a demodulator, the demodulator has an input for receiving an input signal, the input signal comprises a carrier signal of a first frequency and a modulating signal where said carrier signal is modulated by the modulating signal, the modulating signal comprises a subcarrier of a second frequency and an information signal where said subcarrier is modulated by the information signal, and the I output signal is orthogonal to the Q output signal of the demodulator with respect to the first frequency, said IQ combiner comprising:

a phase shifter having an input and an output where said phase shifter introduces a phase delay of 90° with respect to the second frequency to a signal applied to its input and

an adder having an output, a first input, and a second input where the output of the phase shifter is connected to the first input of the adder and when one of the output signals of the demodulator is applied to the second input of the adder while the other output signal of the demodulator is applied to the input of the phase shifter the output of the adder is a vectorial sum of its input signals.

5,784,687
TRANSMITTING-RECEIVING CIRCUIT FOR RADIOCOMMUNICATION APPARATUS, SEMICONDUCTOR INTEGRATED CIRCUIT DEVICE INCLUDING THE CIRCUIT, AND RADIOCOMMUNICATION APPARATUS INCLUDING THE SAME

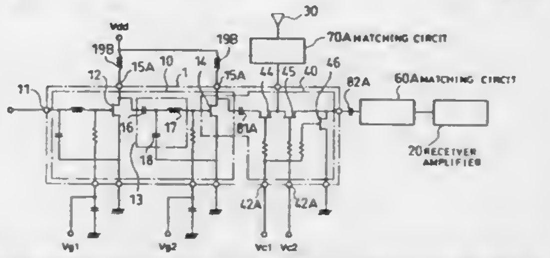
Junji Itoh, and Kazuhisa Fujimoto, both of Osaka, Japan, assignors to Matsushita Electric Industrial Co., Ltd., Osaka, Japan

Filed Aug. 29, 1995, Ser. No. 520,676

Claims priority, application Japan, Aug. 30, 1994, 6-020573; Mar. 9, 1995, 7-049474

Int. Cl.⁶ H04B *1/48*

U.S. Cl. 455—78 **8 Claims**



1. A transmitting/receiving circuit for a radiocommunication apparatus comprising:

a transmitter amplifier for amplifying an input transmission signal and outputting the amplified transmission signal;

a receiver amplifier for amplifying an input received signal and outputting the amplified received signal;

a changeover switch having an antenna side input/output terminal through which the transmission signal is output to an antenna via a wire having prescribed characteristic impedance

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and the received signal is input from the antenna via the wire, for switching a first connection state for outputting the transmission signal received from the transmitter amplifier via no matching circuit to the antenna side input/output terminal and a second connection state for outputting the received signal received through the antenna side input/output terminal to the receiver amplifier, from one to the other;

a receiver matching circuit interposed between the changeover switch and the receiver amplifier for matching input impedance of the receiver amplifier with output impedance of the transmitter amplifier; and

an antenna side matching circuit interposed between the wire and the changeover switch for matching the characteristic impedance of the wire with the output impedance of the transmitter amplifier;

wherein the changeover switch has a transmitter through FET and a transmitter shunt FET connected in series to each other and a receiver through FET and a receiver shunt FET connected in series to each other,

the transmitter amplifier has at least one amplifier FET for amplifying the input transmission signal, and

the amplifier FET at a last stage of the transmitter amplifier also works as the transmitter shunt FET of the changeover switch.

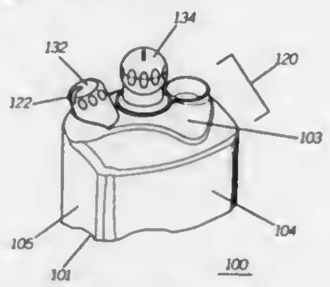
5,784,688
PORTABLE RADIO COMMUNICATION DEVICE WITH A ROTARY CONTROL KNOB ASSEMBLY

Craig F. Siddoway, Davie, Fla., assignor to Motorola, Inc., Schaumburg, Ill.

Filed Mar. 4, 1996, Ser. No. 610,297

Int. Cl.^{6} H04B *1/38*

U.S. Cl. 455—90 **8 Claims**



1. A portable radio having a control assembly, comprising:

a radio housing having control interface oriented along a particular plane; and

first and second rotary control knobs attached at the control interface, and having base portions separated by a first spacing, and having top portions separated by a second spacing;

wherein the second rotary control knob is angled to cause the second spacing to be substantially more than first spacing, and the first rotary control knob has a rotational axis substantially perpendicular to the control interface, and the second rotary control knob has a rotational axis at an acute angle with respect to the control interface.

5,784,689
OUTPUT CONTROL CIRCUIT FOR TRANSMISSION POWER AMPLIFYING CIRCUIT

Takeshi Kobayashi, Tokyo, Japan, assignor to NEC Corporation, Tokyo, Japan

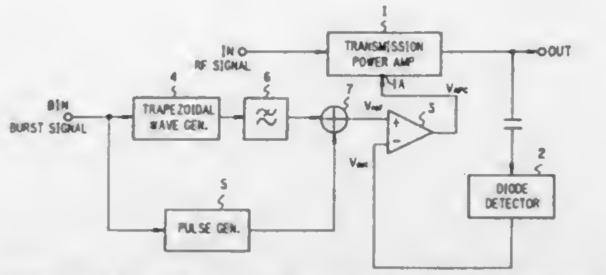
Filed Dec. 26, 1995, Ser. No. 576,966

Claims priority, application Japan, Dec. 30, 1994, 6-340430

Int. Cl.^{6} H04B *1/06;* **H03G** *3/10*

U.S. Cl. 455—126 **10 Claims**

1. An output control circuit for a transmission power amplifying circuit for amplifying the power of an input signal in response to a control signal waveform comprising:



a trapezoidal wave generating circuit for generating a trapezoidal wave signal having rising and falling edges with longer rise and fall times, respectively. than those of a burst signal;

a pulse generating circuit for generating a pulse signal having a sharp rising edge in synchronization with corresponding rising edge of the burst signal and a sharp falling edge of the burst signal;

an adder for producing a reference signal comprising either the trapezoidal wave signal or the pulse signal, whichever has a higher voltage level; and

a comparator for producing a control signal which is the difference between said reference signal and a detector signal corresponding to an output of the transmission power amplifying circuit.

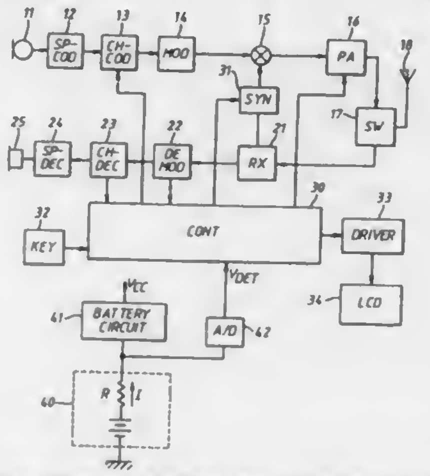
5,784,690
TRANSCEIVER MEASURING BATTERY VOLTAGE WHEN RECEIVING IN A TDMA SYSTEM

Katsuhisa Maki, Tokyo; Takaaki Ishii, Kanagawa-ken, and Masaki Satou, Tokyo, all of Japan, assignors to Kabushiki Kaisha Toshiba, Kanagawa-ken, Japan

Continuation of Ser. No. 184,139, Jan. 21, 1994. This application Aug. 13, 1996, Ser. No. 696,157

Int. Cl.^{6} H01Q *11/12;* **H04B** *1/04*

U.S. Cl. 455—127 **6 Claims**



1. A radio telecommunication apparatus receiving signals from a base station for a receive period over radio channels established by a time division multiple access (TDMA) system and sending signals to the base station for a period other than the receive period over radio channels established by the TDMA system, the apparatus operating during at least two periods including the receive period and the period other than the receive period, the apparatus having a battery whose voltage decreases in response to consumption of the battery, the apparatus comprising:

detecting means for detecting that the apparatus is currently operating in the receive period or the period other than the receive period of the at least two periods;

measuring means for measuring the voltage of the battery only when the detecting means detects that the apparatus is currently operating in the receive period of the at least two periods; and

determining means responsive to the measuring means for determining a remaining energy of the battery in response to the measured voltage.

5,784,691
RDS-TMC BROADCAST RECEIVER

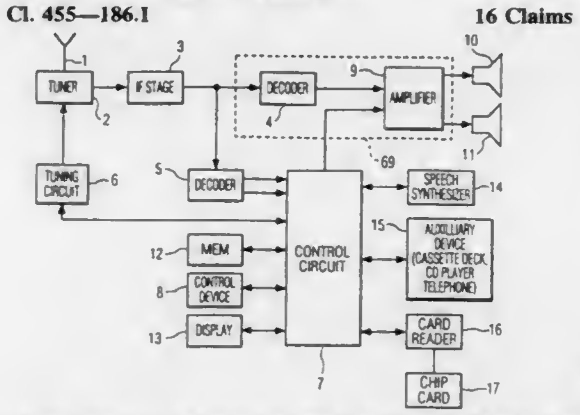
Hans-Wilhelm Rühl, Röthenbach, Germany, assignor to U.S. Philips Corporation, New York, N.Y.

Filed Jul. 15, 1996, Ser. No. 679,872

Claims priority, application Germany, Aug. 26, 1995, 195 27 187.4

Int. Cl.^{6} H04B *1/06*

U.S. Cl. 455—186.1 **16 Claims**



13. A chip card (**17**) for insertion into a card reader (**16**, **66**) for a broadcast receiver or for a module (**47**) for the processing of encoded messages derived from a transmitted signal, the card comprising a storage device (**28**) for storing control data for a respective encoded message,

characterized in that

the storage device (**28**) is arranged to store given control data under an escape code,

the control data associated with an encoded message contains at least one first main component and at least one first subsidiary component,

the control data associated with an escape code contains a second main component and at least one second subsidiary component,

when the at least one first main component contains at least one escape code, then the at least one associated first subsidiary component contains a dummy corresponding to the escape code, and

a second main component is to be associated with the escape code and/or at least one second subsidiary component is to be associated with the dummy.

5,784,692
METHOD AND APPARATUS FOR GENERATING NON-LINEAR VARIABLE IMPEDANCE

Leonard L. Kleinberg, Greenbelt, Md., assignor to Neillen Technologies, Corp., Mitchellville, Md.

Filed Jun. 19, 1996, Ser. No. 665,834

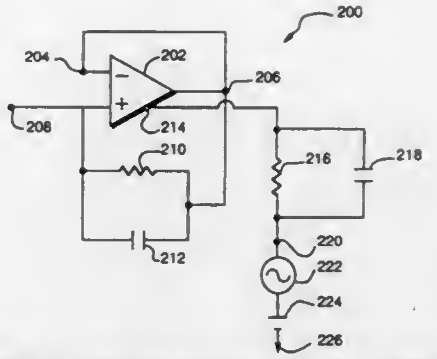
Int. Cl.^{6} H04B *1/28*

U.S. Cl. 455—333 **37 Claims**

1. A method for generating an impedance, comprising a resistance and a reactance that are a non-linear functions of a signal, the method including in combination, the steps of:

A. receiving said signal at a first terminal of an electronic component having a gain frequency characteristic with a unity gain frequency;

B. generating a component current, through said electronic component, comprised of a DC current and a small signal current that is responsive to said signal, wherein said component current determines said unity gain frequency of said electronic component;



C. operatively connecting a reactive component, having a reactance value that determines said impedance, between a second terminal of said electronic component and a reference voltage source; and

D. producing said impedance that is said non-linear function of said signal, at said first terminal of said electronic component and with respect to said reference voltage source.

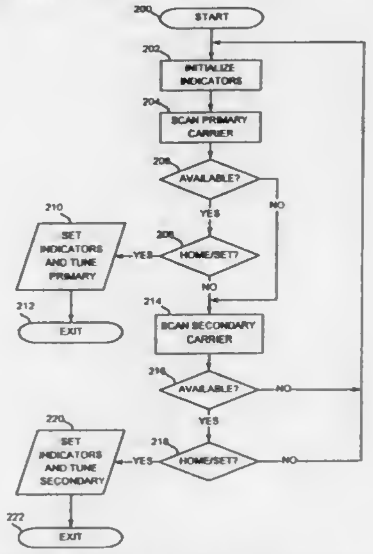
5,784,693
CELLULAR CARRIER SELECTION SYSTEM INCORPORATING A PREFERRED LIST OF SYSTEM IDENTIFICATION CODES (SIDS) CORRESPONDING TO PREFERRED CELLULAR CARRIERS

Clifton J. Barber, Forest Park, and Stephen T. Hardin, Snellville, both of Ga., assignors to Oki Telecom, Inc., Suwanee, Ga.

Continuation of Ser. No. 442,883, May 17, 1995, which is a continuation of Ser. No. 73,947, Jun. 8, 1993, Pat. No. 5,442,806. This application Jan. 31, 1997, Ser. No. 794,267

Int. Cl.^{6} H04Q *7/00*

U.S. Cl. 455—434 **38 Claims**



1. A method for selecting a cellular carrier for accessing cellular airtime services, said method comprising steps of:

defining at least one home system identification code (SID) and at least one preferred SID;

monitoring cellular carrier signals to detect SIDs corresponding to cellular carriers;

selecting a cellular carrier corresponding to a SID matching the home SID for processing calls to a plurality of telephone numbers if the SID matching the home SID is detected;

selecting a cellular carrier corresponding to a SID matching the preferred SID for processing calls to a plurality of telephone numbers if the SID matching the preferred SID is detected and no SID matching the home SID is detected; and

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selecting a cellular carrier corresponding to a SID not matching the home SID and not matching the preferred SID for processing calls to a plurality of non-emergency destination telephone numbers if
the SID not matching the home SID and not matching the preferred SID is detected and
no SID matching the home SID or the preferred SID is detected.

5,784,694

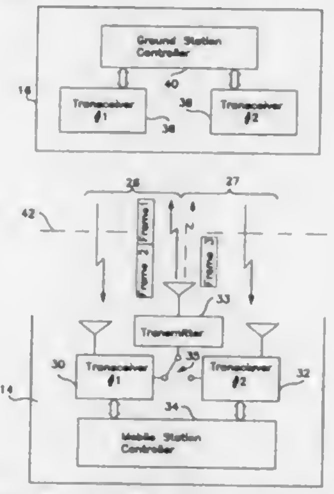
Patent Not Issued For This Number

5,784,695
METHOD AND APPARATUS FOR HANDOVER CONTROL IN A SATELLITE BASED TELECOMMUNICATIONS SYSTEM

Eric L. Upton, Redondo Beach, and Robert M. Ward, Jr., Poway, both of Calif., assignors to TRW Inc., Redondo Beach, Calif.

Filed May 14, 1996, Ser. No. 647,506
Int. Cl.^{6} H04Q *7/20*

U.S. Cl. 455—442 **25 Claims**



1. An apparatus for controlling mobile and base stations during satellite based telecommunications to perform scheduled handovers between first and second communications channels, said apparatus comprising:

a mobile station including at least one transceiver for simultaneously receiving communications data over communications links in said first and second communications channels, at least one transmitter for transmitting communications data over at least one of said first and second communications channels, and an MS controller for selectively connecting a transceiver to said transmitter to transmit communications data over a communications link in at least one of said first and second communications channels; and

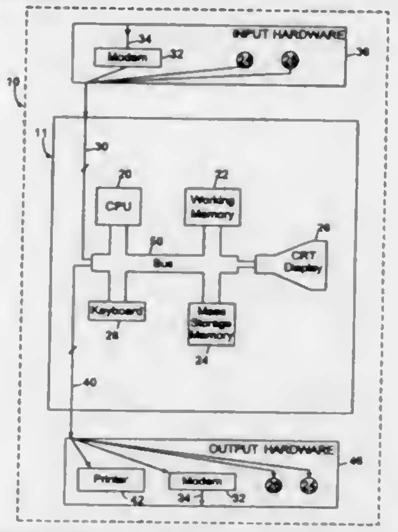
a base station including at least one transceiver for simultaneously transmitting communications data over first and second channels, and for receiving communications data over at least one of said first and second channels, and a BS controller for maintaining a communications link over at least one of said first and second channels, said MS and BS controllers maintaining a first communications link over said first channel via a satellite, said BS controller determining when a handover is necessary between said first and second channels, said BS controller transmitting over said first channel a scheduled handover time in response to said determination by said BS controller that a handover is necessary, said handover time representing a predetermined future point in time at which a handover will occur;

wherein said MS and BS controllers establish a second communications link in said second channel while simultaneously continuing to transmit communications data over said first communications link in said first channel, said MS and BS controllers switching to said second channel for transmitting communications data at said scheduled handover time.

5,784,696
METHODS AND APPARATUS FOR EVALUATING PORTFOLIOS BASED ON INVESTMENT RISK

Meyer Meinikoff, 1 Claridge Dr., Apt. 507, Verona, N.J. 07044
Continuation-in-part of Ser. No. 393,910, Feb. 24, 1995. This application Jun. 6, 1995, Ser. No. 471,605
Int. Cl.^{6} G06F *17/60*

U.S. Cl. 705—36 **19 Claims**



1. A machine-readable data storage medium encoded with a set of machine-executable instructions for using a data processing system to perform a method for determining an average relative performance of a first asset relative to a second asset, each of said assets having market value data observable on a periodic basis, said average relative performance based on first value data for said first asset and second value data for said second asset, said method comprising the steps of:

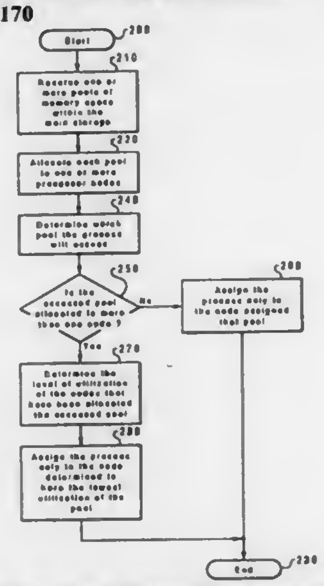
(a) providing said first value data comprising a first plurality of pairs of observations of market value of said first asset, the observations in each pair of observations being spaced apart by a time duration common to all said pairs of observations;
(b) providing said second value data comprising a corresponding second plurality of pairs of observations of market value of said second asset, the observations in each pair of observations being spaced apart by said time duration;
(c) determining, for each pair in said first plurality and a corresponding pair in said second plurality:
  (i) a performance of said first asset over said time duration;
  (ii) an extent to which said first asset underperforms said second asset over said time duration, which extent when negative is replaced by zero, to yield a nonnegative shortfall;
(d) computing a first average of said performances;
(e) computing a second average of said nonnegative shortfalls;
(f) computing said average relative performance by computing a difference between said first average and said second average; and
(g) communicating to said investor a report comprising information sufficient to identify said first asset and a recommendation whether to execute one or more trades of said first asset, with said recommendation being based on said average relative performance.

5,784,697
PROCESS ASSIGNMENT BY NODAL AFFINITY IN A MYULTIPROCESSOR SYSTEM HAVING NON-UNIFORM MEMORY ACCESS STORAGE ARCHITECTURE

Mark Robert Funk; Larry Keith McMains; Donald Arthur Morrison, all of Rochester; Robert Anthony Petrillo, Fountain; Robert Carl Seemann, Rochester; Arthur Douglas Smet, Rochester, and Timothy Joseph Torzewski, Rochester, all of Minn., assignors to International Business Machines Corporation, Armonk, N.Y.

Filed Mar. 27, 1996, Ser. No. 622,230
Int. Cl.^{6} G06F *12/02;9/44*

U.S. Cl. 711—170 **22 Claims**


Start
200
210
Reserve one or more pools of memory space within the main storage
220
Allocate each pool to one or more processor nodes
240
Determine which pool the process will access
250
Is the accessed pool allocated to more than one node ?
No
Yes
260
Assign the process only to the node assigned that pool
270
Determine the level of utilization of the nodes that have been allocated the accessed pool
280
Assign the process only to the node determined to have the lowest utilization of the pool
End
290

1. A method of process assignment in a multiprocessor system having non-uniform memory access storage architecture, the multiprocessor system having multiple interconnected multiprocessing nodes and a main storage distributed among the multiprocessing nodes, wherein each multiprocessing node contains one or more processors and a local main memory, the method comprising the steps of:

dynamically reserving a pool of memory space within the main storage during operation of said multiprocessor system;
allocating the reserved pool of memory space to one or more multiprocessing nodes among the multiple multiprocessing nodes; and
following allocation of said reserved pool of memory space to said one or more multiprocessing nodes, assigning a process associated with the pool of memory space to a multiprocessing node allocated that pool of memory space such that accesses to local main memory are increased and system performance is enhanced.

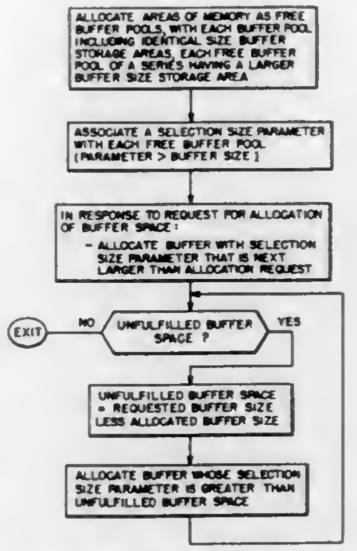
5,784,698
DYNAMIC MEMORY ALLOCATION THAT ENALBES EFFICIENT USE OF BUFFER POOL MEMORY SEGMENTS

James Thomas Brady; Damon W. Finney, both of San Jose, Calif.; Michael Howard Hartung, Tucson, Ariz.; Michael Anthony Ko, San Jose, Calif.; Noah R. Mendelsohn, Lexington, Mass.; Jaishankar Moothedath Menon, San Jose, and David R. Nowlen, Morgan Hill, both of Calif., assignors to International Business Machines Corporation, Armonk, N.Y.

Filed Dec. 5, 1995, Ser. No. 568,180
Int. Cl.^{6} G06F *12/02*

U.S. Cl. 711—171 **11 Claims**

1. A dynamic memory allocation procedure comprising the computer-implemented steps of:


ALLOCATE AREAS OF MEMORY AS FREE BUFFER POOLS, WITH EACH BUFFER POOL INCLUDING IDENTICAL SIZE BUFFER STORAGE AREAS, EACH FREE BUFFER POOL OF A SERIES HAVING A LARGER BUFFER SIZE STORAGE AREA
ASSOCIATE A SELECTION SIZE PARAMETER WITH EACH FREE BUFFER POOL (PARAMETER > BUFFER SIZE)
IN RESPONSE TO REQUEST FOR ALLOCATION OF BUFFER SPACE:
- ALLOCATE BUFFER WITH SELECTION SIZE PARAMETER THAT IS NEXT LARGER THAN ALLOCATION REQUEST
EXIT
NO
UNFULFILLED BUFFER SPACE ?
YES
UNFULFILLED BUFFER SPACE = REQUESTED BUFFER SIZE LESS ALLOCATED BUFFER SIZE
ALLOCATE BUFFER WHOSE SELECTION SIZE PARAMETER IS GREATER THAN UNFULFILLED BUFFER SPACE

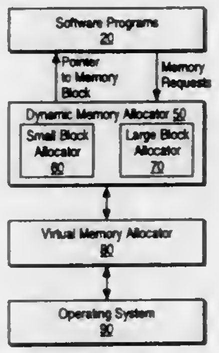
a. allocating areas of memory for use as a series of free buffer pools, each free buffer pool comprising plural identical size (hereafter called "buffer size") buffer storage areas, each succeeding free buffer pool of said series including a larger buffer size than a preceding free buffer pool of said series;
b. associating a selection size parameter with each free buffer pool, said selection size parameter for a given free buffer pool being a value larger than said buffer size comprising said given free buffer pool, but less than a next larger buffer size comprising a further one of said series of free buffer pools; and
c. responding to a request for allocation of buffer space by
  i. allocating a buffer from a free buffer pool whose selection size parameter is a larger value, among selection size parameters, than said buffer space that was requested;
  ii. determining a difference between and the allocated buffer size and the requested buffer space to find an unfulfilled amount of said requested buffer space; and
  iii. allocating a buffer from a free buffer pool whose selection size parameter is a larger value, among selection size parameters, than said unfulfilled amount; and
  iv. repeating steps ii and iii until step ii determines that no unfulfilled amount remains of said requested buffer space.

5,784,699
DYNAMIC MEMORY ALLOCATION IN A COMPUTER USING A BIT MAP INDEX

Douglas James McMahon, Belmont, and George Albert Buzsaki, Fremont, both of Calif., assignors to Oracle Corporation, Redwood Shores, Calif.

Filed May 24, 1996, Ser. No. 653,221
Int. Cl.^{6} G06F *12/02*

U.S. Cl. 711—171 **21 Claims**



1. A method for allocating memory in a computer system, said method comprising the steps of:

assigning portions of memory of equal size into one of a plurality of slots such that each slot includes zero or more memory blocks of equal size;

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generating a bit map index comprising a plurality of bit flags, wherein each bit flag corresponds to one of said slots and indicates availability of at least one memory block for a corresponding slot;

receiving a request, including a size, for a memory block;

searching for available memory in response to said request by examining one or more of said bit flags in said bit map index to identify an available memory block to accommodate said memory block request; and

assigning a memory block not in use to accommodate said memory block request.

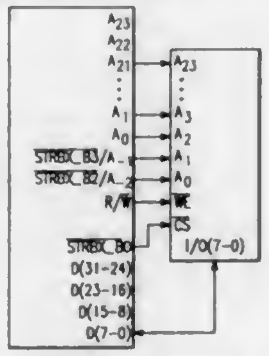
5,784,700
MEMORY INTERFACE WITH ADDRESS SHIFT FOR DIFFERENT MEMORY TYPES

Chein C. Chen, Sugar Land; John C. Cooper; David E. Francis, both of Houston; Joseph A. Coomes, Missouri City, and Jerald G. Leach, Houston, all of Tex., assignors to Texas Instruments Incorporated, Dallas, Tex.

Division of Ser. No. 354,182, Dec. 12, 1994, abandoned. This application May 2, 1996, Ser. No. 641,820

Int. Cl.⁶ G06F *12/06*

U.S. Cl. 711—172 7 Claims



1. A memory interface unit for coupling a microprocessor to memory external to said microprocessor, wherein said memory can be one of two types, a first type providing data on a first number of data provision lines, and a second type providing data on a second number of data provision lines, wherein said second number is less than said first number, comprising:

a plurality of address lines;

a first strobe line and a second strobe line,

a control unit storing an indication to indicate the type of memory to which the memory interface unit is connected;

an address provision unit connected to said address lines and to said first and second strobe lines for providing an address and for providing at least one strobe signal;

the address provision unit responding to said indication such that when said control unit indicates that said first type of memory is connected to said memory interface unit said address lines function as address lines, and said first strobe line and said second strobe line both function as strobe lines, but such that when said control unit indicates that said second type of memory is connected to said memory interface unit said address lines function as address lines, and said first strobe line functions as a strobe line, but said second strobe line functions as an address line; and

wherein, when said control unit indicates that said second type of memory is connected said address provision unit responds by providing the address on said address lines shifted by one bit position, as compared with the address as provided when said control unit indicates that said first type of memory is connected.

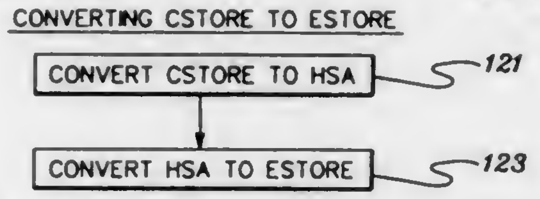
5,784,701
METHOD AND SYSTEM FOR DYNAMICALLY CHANGING THE SIZE OF A HARDWARE SYSTEM AREA

Paul Gregory Greenstein, Fishkill; Richard Roland Guyette, Lagrangeville, and John Ted Rodell, Wappingers Falls, all of N.Y., assignors to International Business Machines Corporation, Armonk, N.Y.

Filed Sep. 19, 1995, Ser. No. 530,784

Int. Cl.⁶ G06F *12/02*

U.S. Cl. 711—173 44 Claims



1. A method for increasing the size of hardware system area ("HSA") storage in a data processing system, said HSA storage being outside of the addressable memory used by, and therefore not directly accessible by, a system control program ("SCP") during operation of said data processing system, said method comprising:

(a) identifying a region of storage as free; and

(b) incorporating said region of storage into said HSA storage such that said size of said HSA storage is increased, said incorporating being performed subsequent to initialization, and during said operation, of said data processing system.

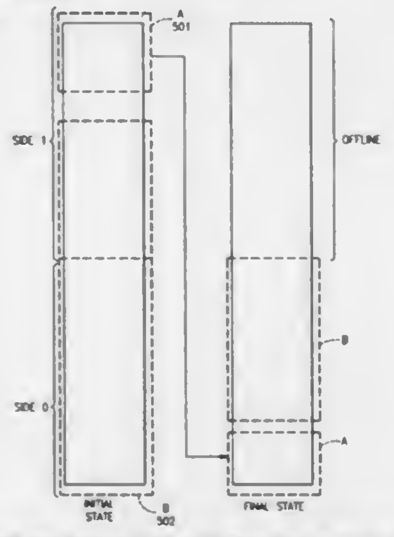
5,784,702
SYSTEM AND METHOD FOR DYNAMICALLY PERFORMING RESOURCE RECONFIGURATION IN A LOGICALLY PARTITIONED DATA PROCESSING SYSTEM

Paul Gregory Greenstein, Cronton-On-Hudson; Richard Roland Guyette, LaGrangeville, and John Ted Rodell, Wappingers Falls, all of N.Y., assignors to International Business Machines Corporation, Armonk, N.Y.

Continuation of Ser. No. 387,360, Feb. 13, 1995, Pat. No. 5,659,786, which is a continuation of Ser. No. 963,498, Oct. 19, 1992, abandoned. This application Feb. 27, 1997, Ser. No. 807,733

Int. Cl.⁶ G06F *13/00*

U.S. Cl. 711—173 17 Claims



1. A method for dynamically reconfiguring memory resources in a logically partitionable data processing system wherein each such logical partition is capable of having a unique control program running therein, said method comprising the steps of:

processing a first memory reconfiguration request for a first area of memory used by a first logical partition of said data processing system, said first logical partition continuing to function yet being incapable of processing memory reconfiguration requests, said incapability arising from the nature of the control program running in said first logical partition;

identifying a second area of memory, said second area of memory being used by a second logical partition of said data processing system, said second logical partition being capable of processing memory reconfiguration requests as a result of the nature of the control program running in said second logical partition;

passing a second memory reconfiguration request to said second logical partition such that said second memory reconfiguration request is processed by said second logical partition and said second area of memory is freed; and

substituting said second area of memory for said first area of memory in a manner transparent to said first logical partition.

5,784,703
STORAGE SYSTEM HAVING LOGICAL SUBSYSTEMS CONFIGURED IN ACCORDANCE WITH EQUALLY DIVIDED STORAGE CAPACITIES, SPECIFIED ALLOTMENT RATES, DESIGNATED BOUNDARY POSITIONS OR DESIGNATED PHYSICAL SIZE

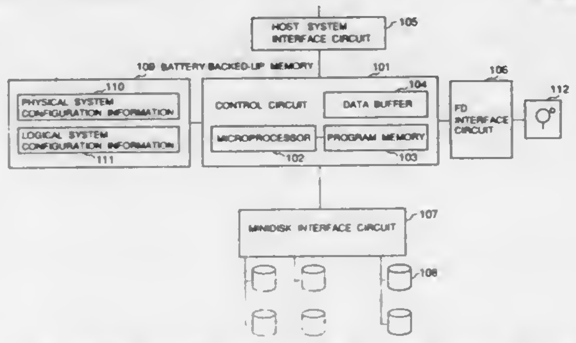
Kenji Muraoka, and Minoru Yoshida, both of Odawara, Japan, assignors to Hitachi, Ltd., Tokyo, Japan

Filed Feb. 11, 1993, Ser. No. 16,394

Claims priority, application Japan, Feb. 12, 1992, 4-025103

Int. Cl.⁶ G06F *12/06*

U.S. Cl. 711—173 21 Claims


HOST SYSTEM INTERFACE CIRCUIT
105
109 BATTERY BACKED-UP MEMORY
101
110
PHYSICAL SYSTEM CONFIGURATION INFORMATION
LOGICAL SYSTEM CONFIGURATION INFORMATION
111
CONTROL CIRCUIT
DATA BUFFER
104
MICROPROCESSOR
PROGRAM MEMORY
102
103
106
FD INTERFACE CIRCUIT
112
MINIDISK INTERFACE CIRCUIT
107
108

1. A storage system, connected to a host system, having a plurality of physical storage devices configured in a configuration and a plurality of logical subsystems configured in a configuration different from the configuration of said plurality of physical storage devices, said storage system comprising:

means for storing therein a physical configuration information table wherein information of the configuration of said plurality of physical storage devices is maintained;

division designation means for effecting at least one of a number of designations in response to a command issued by said host system, said command is issued by said host system in response to an user input requesting a specific designation without regard to the configuration of said physical storage devices,

said designations including:

a n-equal-part designation in which a total storage capacity of said physical storage devices is equally divided by n (n being an integer of at least 2) for n logical storage subsystems,

a divisional allotment rate designation in which said total storage capacity is divided in accordance with a specified number for division and specified rates of capacities to be allotted to respective logical storage subsystems formed by said division, and

a physical boundary division designation in which said total storage capacity is divided in accordance with specified boundary positions; and

means for storing therein a logical configuration information table wherein information of said configuration of said plurality of logical storage subsystems is maintained.

5,784,704
MEMORY CARD WITH TIMER CONTROLLED PROTECTION OF STORED DATA

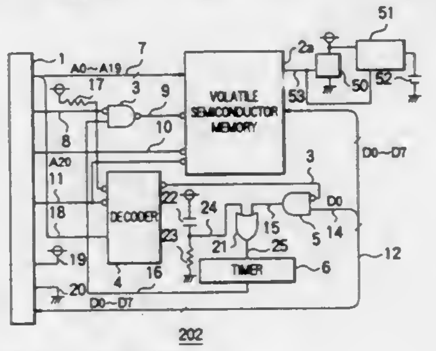
Yoshikado Sanemitsu, Itami, Japan, assignor to Mitsubishi Denki Kabushiki Kaisha, Tokyo, Japan

Continuation of Ser. No. 364,443, Dec. 27, 1994, abandoned. This application Nov. 12, 1996, Ser. No. 747,724

Claims priority, application Japan, Dec. 28, 1993, 5-336030

Int. Cl.⁶ G06F *12/00;13/00*

U.S. Cl. 711—164 6 Claims



1. A memory card comprising:

a memory;

input/output means including:

a data bus for inputting data to and outputting data from the memory,

an address bus for inputting memory addresses to the memory, and

control connections for inputting control signals for controlling the memory, each control signal having a respective active state and an inactive state, the control signals including a card enable signal, a write control signal, and a read control signal;

data protection means including:

a decoder connected to the address bus and to the control connections of the input/output means for generating a trigger signal in response to detection of a specific address on the address bus when both of the card enable signal and the write control signal are in their active states;

a first logic circuit connected to the decoder and the data bus for generating a timer enable/reset signal each time a specific data signal appears on the data bus while the trigger signal is being received by the first logic circuit from the decoder;

a timer connected to the first logic circuit and placed in an active state of generating a timer signal for an active time period in response to the generation of the trigger signal and returning to an inactive state, not generating the timer signal, when the active time period elapses and including:

a counter circuit for counting from an initial value to a timeout value;

means for enabling the counter circuit to begin counting in response to a timer enable/reset signal received from the first logic circuit;

means for resetting the counter circuit to the initial value, to prevent reaching the timeout value, in response to each timer enable/reset signal received from the first logic circuit; and

means for generating an active output signal during counting and an inactive output signal when counting reaches the timeout value;

a first gate connected to the timer and receiving the card enable signal, for generating a memory access signal in response to the active output signal received from the timer when the card enable signal is in the active state, permitting

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reading of stored data from the memory when the read control signal is in the active state and storing of data in the memory when the write control signal is in the active state wherein, in order to write data to and read data from the memory, the specific data signal is sent repeatedly to the first logic circuit to prevent the counter circuit from reaching the timeout value; and

protection concealing means connected to the timer for producing a timer enable/reset signal in response to each initial application of electrical power to the memory card, the timer initiating counting in response to a time enables/reset signal produced by the protection concealing means, and producing an active output during counting, thereby permitting reading of stored data from the memory and storing of data in the memory during an active time period immediately following each initial application of electrical power to the memory card.

5,784,705

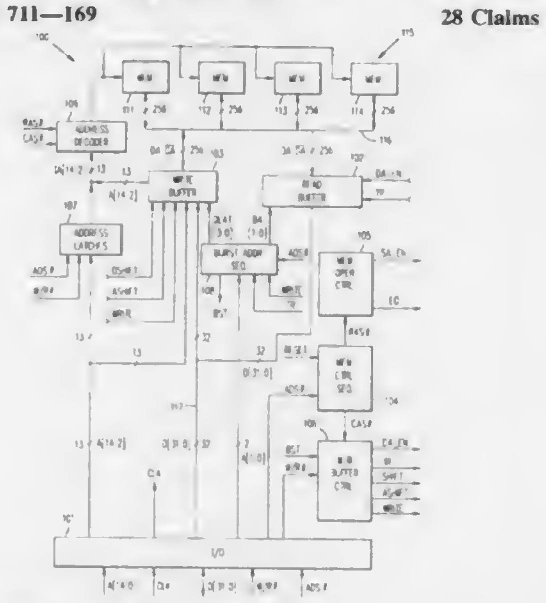
METHOD AND STRUCTURE FOR PERFORMING PIPELINE BURST ACCESSES IN A SEMICONDUCTOR MEMORY

Wingyu Leung, Cupertino, Calif., assignor to MoSys, Incorporated, Sunnyvale, Calif.

Filed Jul. 15, 1996, Ser. No. 679,873

Int. Cl.^{6} G11C *7/00*

U.S. Cl. 711—169 **28 Claims**



1. A memory system comprising:

a memory array having a memory cycle time and an input/output (I/O) cycle time, wherein the memory cycle time is longer than the I/O cycle time; and

a pipeline-burst access circuit coupled to the memory array, wherein the pipeline-burst access circuit enables pipeline-burst read operations or pipeline-burst write operations to be performed with the same access latency across the entire address range of the memory array;

wherein the pipeline-burst access circuit comprises a read buffer to the memory array, wherein the read buffer stores a set of data values for an entire burst read sequence; and

wherein the read buffer comprises;

a first data storage circuit coupled to the memory array; and

a second data storage circuit coupled to the first data storage circuit,

wherein the first and second data storage circuits are cascaded to form a double buffer circuit; and

wherein the pipeline-burst access circuit further comprises a read buffer control circuit coupled to the read buffer, the read buffer control circuit generating a first control signal which causes the set of data values to be stored in the first data storage circuit during a first clock cycle.

5,784,706

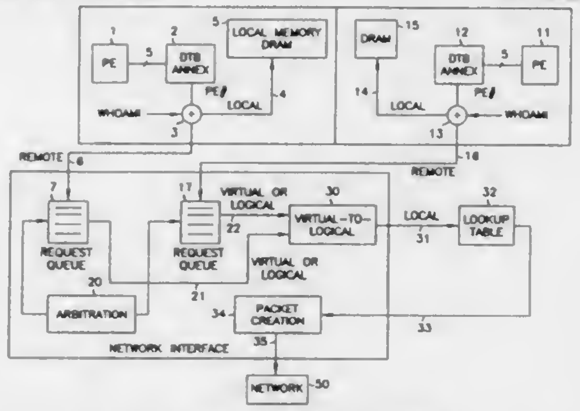
VIRTUAL TO LOGICAL TO PHYSICAL ADDRESS TRANSLATION FOR DISTRIBUTED MEMORY MASSIVELY PARALLEL PROCESSING SYSTEMS

Steven M. Oberlin, Chippewa Falls; Eric C. Fromm, Eau Claire, and Randal S. Passint, Chippewa Falls, all of Wis., assignors to Cray Research, Inc., Eagan, Minn.

Filed Dec. 13, 1993, Ser. No. 165,814

Int. Cl.^{6} G06F *12/10;12/06*

U.S. Cl. 711—202 **19 Claims**



7. A multiprocessor computer system comprising:

a plurality of processing nodes, each node including:

a processing element having a processor and a local memory, each processing element being identified by a physical number corresponding to a physical location of the processing element within the multiprocessor computer system, each processing element within a logical configuration of processing elements being identified by a logical number corresponding to a logical location of the processing element within the logical configuration, and each processing element within a user partition of processing elements for running an application being identified by a virtual number corresponding to a virtual location of the processing element within the user partition,

a look-up table storing routing tags, and

a network interface coupled to the processing element and the look-up table for generating packets of information to be provided to a destination node, wherein the network interface provides a selected logical number corresponding to the processing element of the destination node based on virtual or logical based information from a source node to index a routing tag corresponding to said selected logical number, wherein the routing tag includes physical number based information indicating a path from the source node to the destination node;

a n-dimensional interconnect network coupled to each network interface in each processing node to interconnect the plurality of processing nodes, and including virtual channels to route packets between nodes, and wherein the physical number based information in the routing tag includes information representing how many hops in the interconnect network to complete in each dimension, what direction to travel in each dimension, and which virtual channel, if any, to use in each dimension to arrive at the destination node; and

a distributed memory including globally addressable portions of the local memory of each processing element.

5,784,707

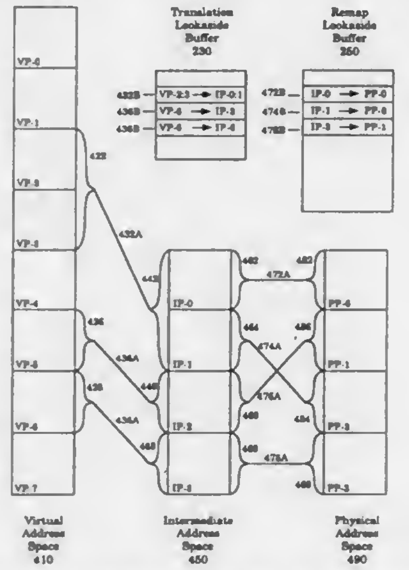
METHOD AND APPARATUS FOR MANAGING VIRTUAL COMPUTER MEMORY WITH MULTIPLE PAGE SIZES

Yousef A. Khalidi, Sunnyvale; Vikram P. Joshi, Fremont, both of Calif., and Madhusudhan Talluri, Madison, Wis., assignors to Sun Microsystems, Inc., Mountain View, Calif.

Continuation of Ser. No. 180,658, Jan. 12, 1994, abandoned. This application Apr. 19, 1996, Ser. No. 634,956

Int. Cl.^{6} G06F *12/10*

U.S. Cl. 711—206 **14 Claims**


Translation Lookaside Buffer 230
Remap Lookaside Buffer 260
VP-2.3 → IP-0.1
VP-4 → IP-3
VP-6 → IP-4
IP-0 → PP-0
IP-1 → PP-6
IP-3 → PP-1
Virtual Address Space 410
Intermediate Address Space 450
Physical Address Space 490

1. A method for managing virtual memory in a computer system comprising the steps of:

receiving a virtual memory address, comprising a high order virtual page address and a low order virtual page offset, from a central processing unit (CPU);

translating the virtual memory address to an intermediate address by using the virtual page address to look up a first intermediate page address and replacing the virtual page address with the first intermediate page address to form the intermediate address; and

translating the intermediate address to a physical memory address by using a second intermediate page address, comprising the first intermediate page address and at least one high order bit from the virtual page offset, to look up a physical memory page address and replacing the second intermediate page address with the physical memory page address to form the physical memory address.

5,784,708

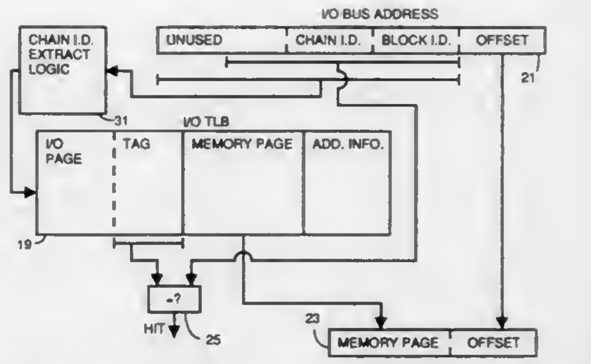
TRANSLATION MECHANISM FOR INPUT/OUTPUT ADDRESSES

K. Monroe Bridges, Fremont; Robert Brooks, Roseville; William R. Bryg, Saratoga; Stephen G. Burger, Santa Clara, all of Calif., and Michael L. Ziegler, Whitinsville, Mass., assignors to Hewlett-Packard Company, Palo Alto, Calif.

Continuation of Ser. No. 217,536, Mar. 24, 1994, abandoned. This application May 8, 1996, Ser. No. 647,074

Int. Cl.^{6} G06F *12/10*

U.S. Cl. 711—207 **11 Claims**



1. In a computing system, comprising:

a memory bus for providing information transfer;

an input/output bus for providing information transfer;

a main memory, coupled to the memory bus, the main memory storing a page directory, the page directory storing translations from addresses used for data transfers over the input/output bus to addresses used to directly access the main memory, each translation indexed by a portion of an address for data transferred over the input/output bus and each translation including a portion of an address for a memory location within the main memory; and, an input/output adapter, coupled to the memory bus and the input/output bus, the input/output adapter including:

input/output translation look-aside buffer, the input/output translation look-aside buffer including a portion of the translations stored in the page directory,

an index extraction means for extracting an index from addresses of data transferred over the input/output bus, the index being used to access translations from the input/output translation look-aside buffer, the index extraction means including,

configuration means for specifying a location of the index within the addresses, the location being variable via the configuration means, and

checking means, coupled to the input/output translation look-aside buffer, for checking whether the translations accessed from the input/output translation look-aside buffer correspond to the addresses of data transferred over the input/output bus.

5,784,709

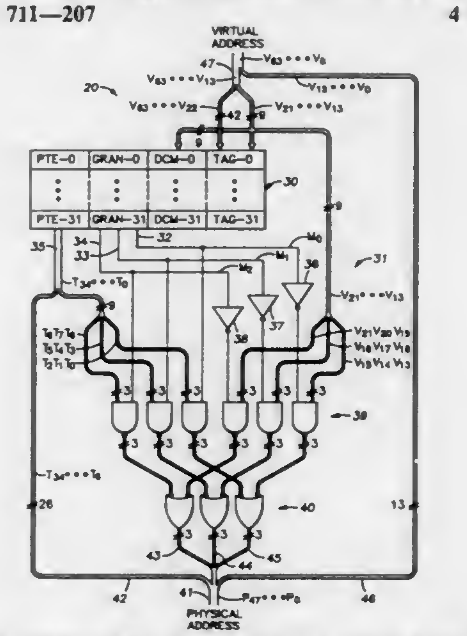
TRANSLATING BUFFER AND METHOD FOR TRANSLATING ADDRESSES UTILIZING INVALID AND DON'T CARE STATES

Edward J. McLellan, Milford, and Bruce A. Gieseke, Ashland, both of Mass., assignors to Digital Equipment Corporation, Maynard, Mass.

Division of Ser. No. 21,510, Feb. 19, 1993, Pat. No. 5,568,415. This application Jul. 2, 1996, Ser. No. 674,470

Int. Cl.^{6} G06F *12/10;* G11C *15/00;15/04*

U.S. Cl. 711—207 **4 Claims**



1. A translation buffer for translating a virtual address to a physical address, said translation buffer comprising a plurality of

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storage locations, each of said storage locations including a tag store for storing a virtual page number and a data store for storing an associated physical page number, said tag store in each of said storage locations including comparators for comparing a virtual page number specified by said virtual address to the virtual page number stored in said tag store to select the associated physical page number when a match occurs,

wherein said comparators include comparators responsive to don't care information stored in each of said storage locations, said don't care information specifies bits in the virtual page number stored in said tag store, and said comparators indicate matches between said bits in the virtual page number specified by said don't care information and corresponding bits of the virtual page number specified by the virtual address regardless of logic states of said corresponding bits of the virtual page number specified by the virtual address;

and wherein bits of said virtual page number and said don't care information are stored in pairs of single-bit storage cells of each of said storage locations; each of said pairs of single-bit storage cells encode one of an invalid state, a logic zero state, a logic one state, and a don't care state; said comparators include a comparator for each pair of single-bit storage cells; and said comparator for each pair of single-bit storage cells fails to indicate a match for the invalid state regardless of the logic state of a corresponding bit of the virtual page number specified by the virtual address, and indicates a match for the don't care state regardless of the logic state of said corresponding bit of the virtual page number specified by the virtual address and wherein one of said pairs of single-bit storage cells is connected to a flush line and is responsive to a flush signal on said flush line for setting said one of said pairs of single-bit storage cells to said invalid state.

5,784,710

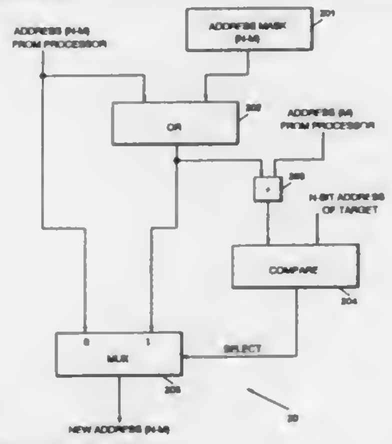
PROCESS AND APPARATUS FOR ADDRESS EXTENSION

John Michael Kaiser, and Warren Edward Maule, both of Cedar Park, Tex., assignors to International Business Machines Corporation, Armonk, N.Y.

Filed Sep. 29, 1995, Ser. No. 536,808

Int. Cl.^{6} G06F *12/00*

U.S. Cl. 711—212 **19 Claims**



1. A system comprising:

a memory system configured for N-bit address lengths;

bus means operable for coupling a processor to said memory system, wherein said processor is configured for M-bit address lengths, wherein M is less than N; and

control means operable for enabling said processor to address a memory location in said memory system that is addressable with an X-bit address, wherein X is greater than M and less than or equal to N, wherein said control means further comprises:

circuitry for receiving an M-bit address from said processor;

circuitry for extending said M-bit address into a first X-bit address with a mask of X–M bits;

circuitry for comparing said extended address with a second X-bit address representing said memory location; and

circuitry for selecting, from said extended address and another address, said extended address to access said memory location with said extended address when said extended address equals said second X-bit address representing said memory location, wherein said another address is selected when said extended address does not equal said second X-bit address.

5,784,711

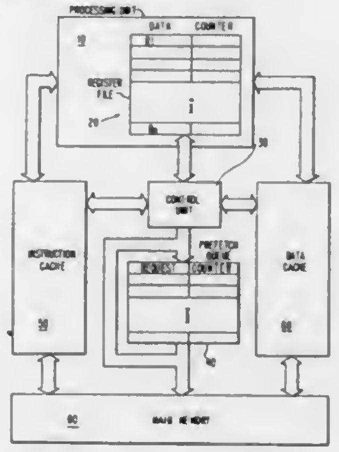
DATA CACHE PREFETCHING UNDER CONTROL OF INSTRUCTION CACHE

Chi-Hung Chi, Croton-on-Hudson, N.Y., assignor to Philips Electronics North America Corporation, New York, N.Y.

Continuation of Ser. No. 605,212, Oct. 24, 1990, abandoned, which is a continuation-in-part of Ser. No. 526,341, May 18, 1990, abandoned. This application Jun. 21, 1993, Ser. No. 80,438

Int. Cl.^{6} G06F *9/32*

U.S. Cl. 711—213 **15 Claims**



1. A method for operating a digital computer having a processing unit with first instruction decoding means, a main memory, an instruction cache and a data cache, said method comprising the steps of:

prefetching instructions from the main memory into the instruction cache;

providing a cache control means coupled to the instruction cache, data cache and main memory, the cache control means including second instruction decoding means for decoding prefetched instructions in the instruction cache;

decoding prefetched instructions in the instruction cache with the second decoding means of the cache control means to determine if any data stored in the main memory is referenced by a decoded prefetched instruction in the instruction cache;

prefetching data from the main memory into the data cache according to the decoded prefetched instructions decoded by said cache control means; and

decoding and executing the instructions in the instruction cache with said first decoding means of said processing unit subsequent to said decoding by said cache control means.

5,784,712

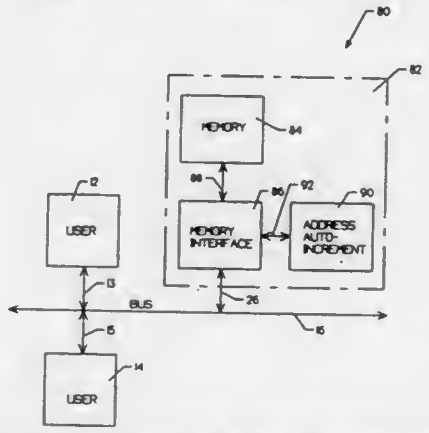
METHOD AND APPARATUS FOR LOCALLY GENERATING ADDRESSING INFORMATION FOR A MEMORY ACCESS

Larry L. Byers, Apple Valley; Gary R. Robeck, Albertville, and Terry J. Brunmeler, Shoreview, all of Minn., assignors to Unisys Corporation, Blue Bell, Pa.

Filed Mar. 1, 1995, Ser. No. 396,677

Int. Cl.^{6} G06F *9/32*

U.S. Cl. 711—219 **4 Claims**



1. In a data processing system having a user, a memory unit, and a memory interface unit, wherein the user is coupled to the memory interface unit and the memory interface unit is coupled to the memory unit, the user providing a read address to the memory interface unit via the bus, wherein the read address corresponds to a read address location within the memory unit, the memory interface providing the read address to the memory unit, wherein the memory unit performs a read operation by reading the corresponding read address location and providing a corresponding read data word, the improvement comprising:

a multiplier means coupled to the memory interface unit for multiplying said read address by a number thereby resulting in a manipulated read address, wherein the manipulated read address is directly provided to the memory unit, and the memory unit performs a read operation by reading the read address location that corresponds to the manipulated read address, the memory interface unit providing a corresponding read data word to the user.

5,784,713

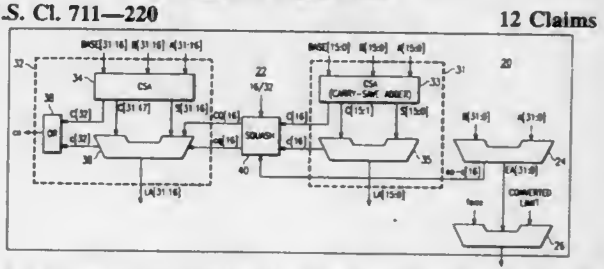
ADDRESS CALCULATION LOGIC INCLUDING LIMIT CHECKING USING CARRY OUT TO FLAG LIMIT VIOLATION

Steven C. McMahan, Richardson, Tex., assignor to Cyrix Corporation, Richardson, Tex.

Filed Mar. 5, 1993, Ser. No. 27,054

Int. Cl.^{6} G06F *12/00*

U.S. Cl. 711—220 **12 Claims**



5. A method of performing segment limit checking during address calculation operations where, for a given segment defined by a segment base and a segment limit, and for a given fetch size, a segment limit violation occurs when an offset address is deemed to be outside the segment (such offset being termed a limit-violation offset), comprising the steps:

for an address calculation, receiving an offset address and two limit-checking components, fetch size and segment limit;

for each segment, converting at least one limit checking component to a converted limit-checking component that, when added at least to a limit-violation offset, results in a carry out flag; and

for each address calculation operation, adding in a single addition operation a corresponding offset address to at least the converted limit-checking component;

such that, in those cases where the offset address is a limit-violation offset, the carry out flag from the addition operation signals a limit violation.

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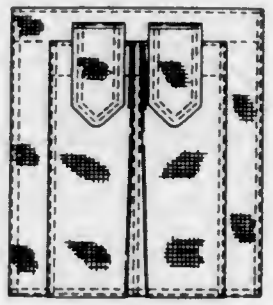
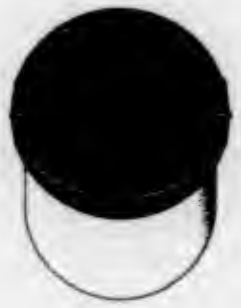
DESIGNS

JULY 21, 1998

396,135
POCKET FOR MEDICAL PANTS
Don Wardle, 1514 Canterbury Cir., Redlands, Calif. 92374
Filed Jul. 2, 1997, Ser. No. 73,084
Term of patent 14 years
LOC (6) Cl. 02 - *02*
U.S. Cl. D2—857



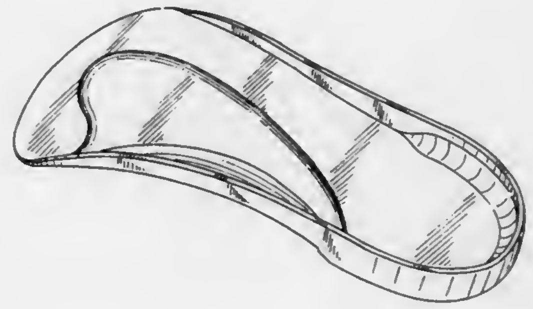
396,136
CAP
Alvin W. Stein, 3245 Lamarque Dr., Cincinnati, Ohio 45236
Filed Jun. 17, 1994, Ser. No. 24,636
Term of patent 14 years
LOC (6) Cl. 02 - *03*
U.S. Cl. D2—872



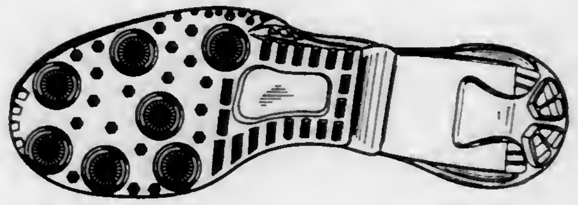
396,137

Patent Not Issued For This Number

396,138
ORTHOTIC
Michael D. Roy, R.R. 2 Box 398, Mattoon, Ill. 61938
Filed Jun. 25, 1997, Ser. No. 72,827
Term of patent 14 years
LOC (6) Cl. 02 - *04*
U.S. Cl. D2—961



396,139
SHOE SOLE
Stephan Dietrich, Bucherstr. 81, 90419 Nürnberg, Germany
Filed Jun. 3, 1996, Ser. No. 55,391
Claims priority, application Germany, Dec. 7, 1995, M 95 0
503.9
Term of patent 14 years
LOC (6) Cl. 02 - *04*
U.S. Cl. D2—962



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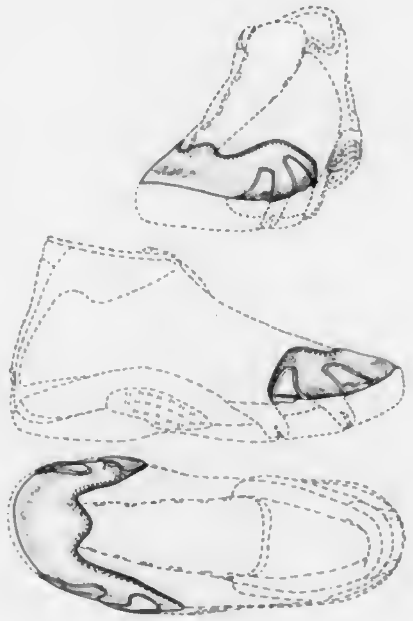
396,140

PORTION OF A SHOE UPPER

Tinker Linn Hatfield, Portland, and Mark J. Smith, Beaverton, both of Oreg., assignors to Nike, Inc., Beaverton, Oreg.

Filed Jan. 30, 1998, Ser. No. 65,758
Term of patent 14 years
LOC (6) Cl. 02 - *99*
U.S. Cl. D2—972

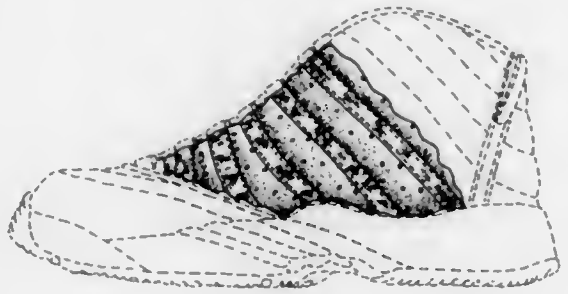


396,141

SIDE PORTION OF A SHOE UPPER

Wilson W. Smith, III, Beaverton, Oreg., assignor to Nike, Inc., Beaverton, Oreg.

Filed Oct. 3, 1997, Ser. No. 77,529
Term of patent 14 years
LOC (6) Cl. 02 - *99*
U.S. Cl. D2—972

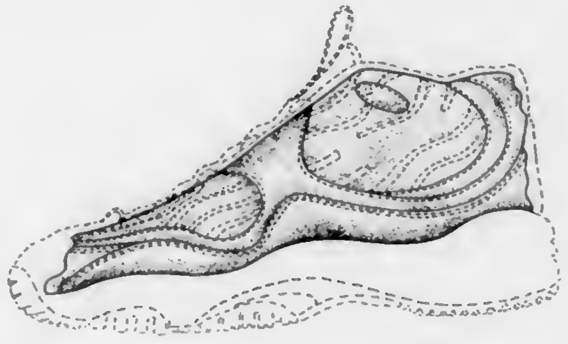


396,142

PORTION OF A SHOE UPPER

Tracy L. Teaque, Aloha, Oreg., assignor to Nike, Inc., Beaverton, Oreg.

Filed Dec. 31, 1997, Ser. No. 81,402
Term of patent 14 years
LOC (6) Cl. 02 - *99*
U.S. Cl. D2—972

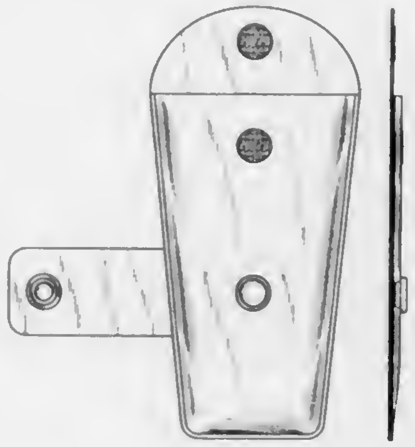


396,143

DETACHABLE SHOE POCKET

Darren C. McLaughlin, 3840 E. 117th Ave., Thornton, Colo. 80233

Filed Oct. 10, 1997, Ser. No. 78,350
Term of patent 14 years
LOC (6) Cl. 03 - *01*
U.S. Cl. D3—201

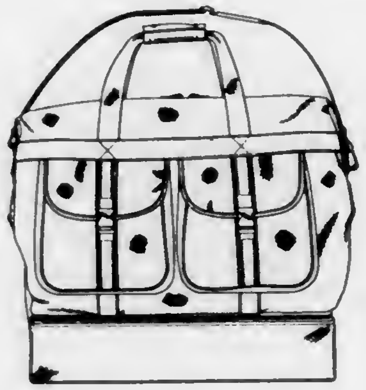


396,144

CARRYING BAG

Edmund L. Farmer, Alexandria, Va., assignor to Ajay Leisure Products, Inc., Delavan, Wis.

Filed Oct. 4, 1996, Ser. No. 60,711
Term of patent 14 years
LOC (6) Cl. 03 - *01*
U.S. Cl. D3—287

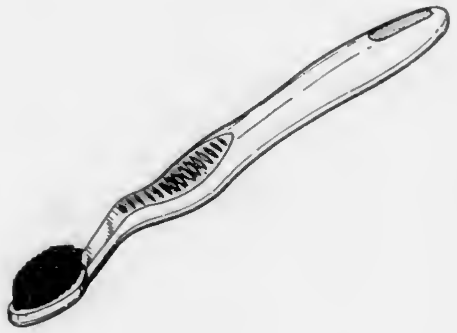


396,145

TOOTHBRUSH

David G. Grau, Danville; James P. Foley, Redwood City; Scott K. Meyer, Saratoga, and Richard W. Goldinger, Foster City, all of Calif., assignors to Gillette Canada Inc., Kirkland, Canada

Filed Dec. 23, 1996, Ser. No. 64,152
Term of patent 14 years
LOC (6) Cl. 04 - *02*
U.S. Cl. D4—104

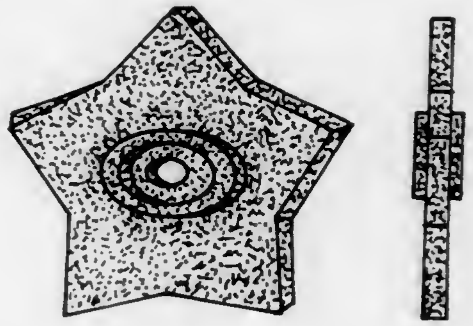


396,146

STAR SHAPED SPLASHGUARD AND SUPPORT ACCESSARY FOR A TOOTHBRUSH

John D. Blue, P.O. Box 1992, Tarpon Springs, Fla. 34688-1992

Filed Apr. 25, 1997, Ser. No. 69,917
Term of patent 14 years
LOC (6) Cl. 04 - *02*
U.S. Cl. D4—113

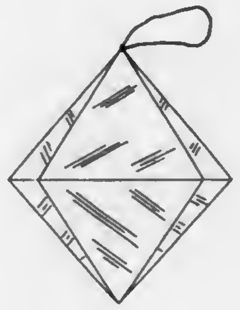


396,147

HANGING DECAHEDRON PHOTO DISPLAY DEVICE

Joan Rodgers, 1002 S. Kihei Rd., #112, Kihei, Hi. 96753, assignor to Joan Rodgers, Kihei, Hi.

Filed Mar. 13, 1995, Ser. No. 37,681
Term of patent 14 years
LOC (6) Cl. 06 - *07*
U.S. Cl. D6—301



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396,148
SUCTION CUP PICTURE FRAME

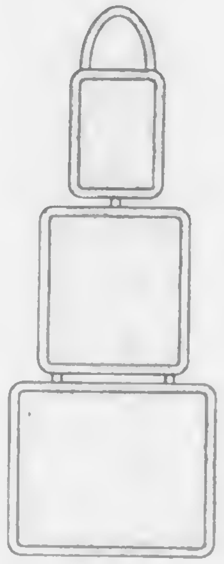
Heidi Carpenter, and James Carpenter, both of 216 Capital Dr., Spring Lake, N.C. 28390

Filed Jul. 3, 1997, Ser. No. 73,187

Term of patent 14 years

LOC (6) Cl. 06 - *07*

U.S. Cl. D6—302



396,149
VANITY UNIT

Malcolm James Thorogood, Gormoor Farm Nine Mile Ride, Crowthorne, Bracknell, Berkshire, RG12 7PB, United Kingdom

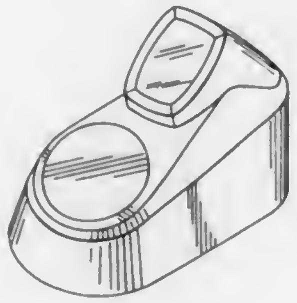
Filed Aug. 2, 1996, Ser. No. 57,885

Claims priority, application United Kingdom, Feb. 5, 1996, 2053854

Term of patent 14 years

LOC (6) Cl. 06 - *07*

U.S. Cl. D6—308



396,150
CLOTHES HANGER

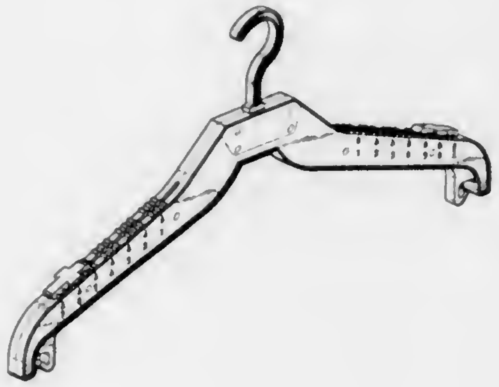
Debra B. Dooling, Oakland, Calif., assignor to Ada Rose, Inc., Oakland, Calif.

Division of Ser. No. 58,955, Aug. 29, 1996. This application Aug. 4, 1997, Ser. No. 74,735

Term of patent 14 years

LOC (6) Cl. 06 - *08*

U.S. Cl. D6—318



396,151
COMBINED CHAIR AND STEP

Jayne Heather Magee, 49 William Bradford Close, Austerfield, Doncaster, South Yorkshire, England, DN10 6RB

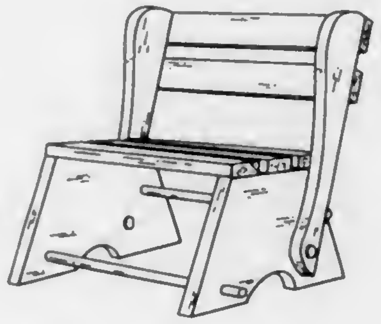
Filed Mar. 20, 1997, Ser. No. 69,248

Claims priority, application United Kingdom, Sep. 28, 1996, 2059696

Term of patent 14 years

LOC (6) Cl. 06 - *01*

U.S. Cl. D6—335



396,152
VEHICLE SEAT

Frank Beermann, Kirchheim; Bernd Rager, Bissingen, and Dieter Armbrecht, Kirchheim, all of Germany, assignors to Keiper Recaro GmbH & Co., Remscheid, Germany

Division of Ser. No. 46,341, Nov. 13, 1995, Pat. No. Des. 388,966. This application Aug. 14, 1997, Ser. No. 78,230

Claims priority, application Germany, May 13, 1995, 95 03 964.3

Term of patent 14 years

LOC (6) Cl. 06 - *01*

U.S. Cl. D6—356

396,153
CHAIR

David S. Marks, 3322 N. Flagler Dr., Palm Beach, Fla. 33407

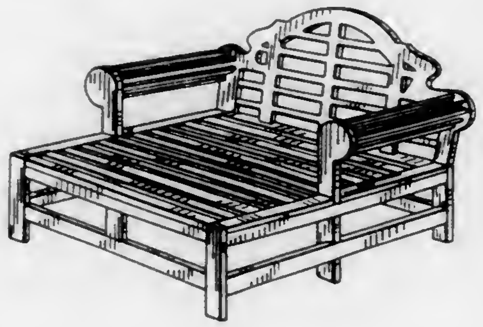
Filed Apr. 3, 1997, Ser. No. 68,412

The portion of the term of this patent subsequent to Jul. 21, 2012, has been disclaimed.

Term of patent 14 years

LOC (6) Cl. 06 - *01*

U.S. Cl. D6—370



396,154
REMOTE CONTROL ORGANIZER

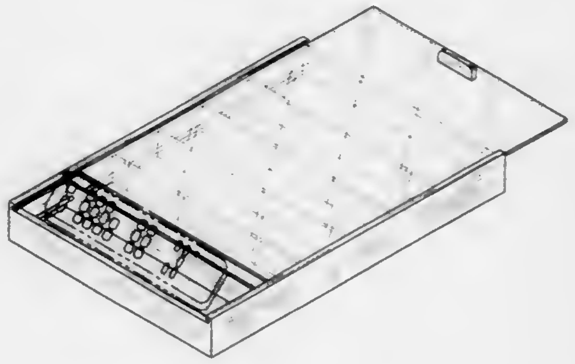
William E. Matthews, 118 Leigh St., Clinton, N.J. 08809

Filed Jun. 19, 1997, Ser. No. 72,536

Term of patent 14 years

LOC (6) Cl. 06 - *04*

U.S. Cl. D6—470



396,155
CHAIR BACK

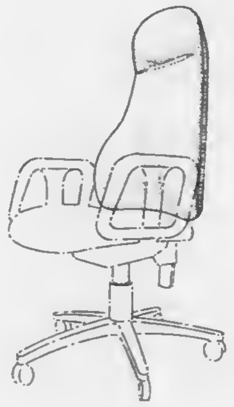
David Shamir, Thornhill, Canada, assignor to DSI Industries Inc., Concord, Canada

Filed May 8, 1997, Ser. No. 70,454

Term of patent 14 years

LOC (6) Cl. 06 - *06*

U.S. Cl. D6—502



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396,156

CHAIR BACK

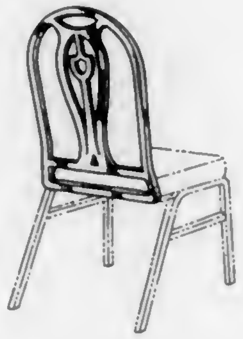
Philip P. Swy, Temperance, Mich., assignor to Michigan Tube Swagers & Fabricators, Inc., Temperance, Mich.

Filed May 13, 1997, Ser. No. 70,637

Term of patent 14 years

LOC (6) Cl. 06 - *06*

U.S. Cl. D6—502



396,157

SHOWER CADDY

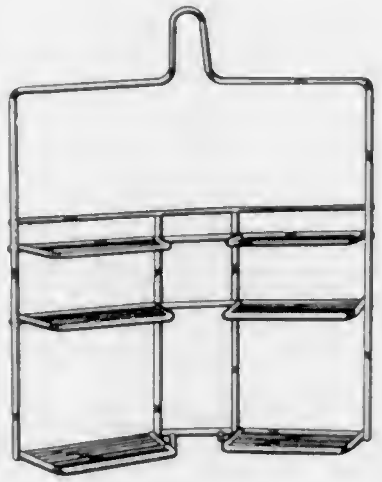
James A. Hofman, Hockessin, Del., assignor to Zenith Products Corp., New Castle, Del.

Filed Sep. 4, 1997, Ser. No. 75,800

Term of patent 14 years

LOC (6) Cl. 06 - *04*

U.S. Cl. D6—525



396,158

SOAP HOLDER

Peter Nicais Rodis, Rean 17 Sumner Road, Baxter, Victoria 3911; Donald Maxwell Bromley, 90 Wentworth Avenue, Rowville, Victoria 3178, and Andrew Paisley Somerville, 12 Zeehan Road, Boronia West, Victoria 3155, all of Australia

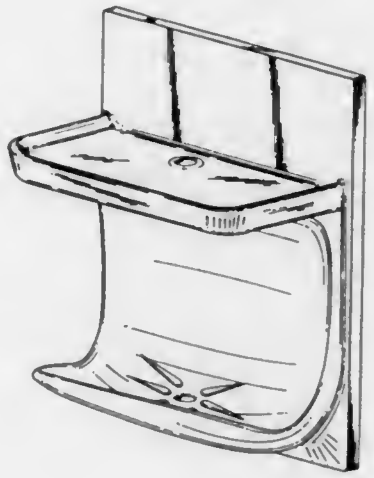
Filed Feb. 14, 1994, Ser. No. 18,733

Claims priority, application Australia, Aug. 11, 1993, 2479/93

Term of patent 14 years

LOC (6) Cl. 07 - *07*

U.S. Cl. D6—540



396,159

GARDEN TOOL ORGANIZER

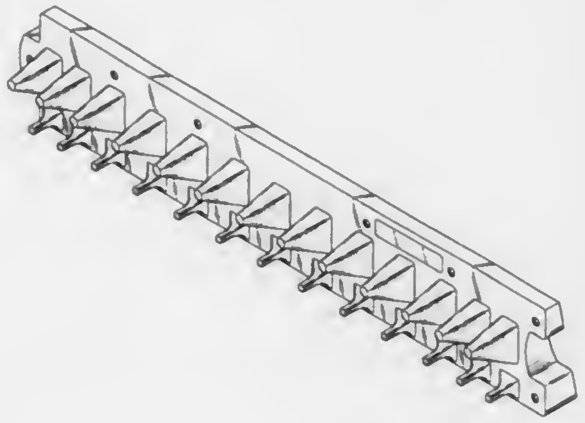
Torrence C. Anderson, and Terry A. Tyra, both of Aurora, Ill., assignors to Suncast Corporation, Batavia, Ill.

Filed Sep. 18, 1996, Ser. No. 59,927

Term of patent 14 years

LOC (6) Cl. 06 - *04*

U.S. Cl. D6—553



396,160

GAME PAD AND MOUSE HOLDER

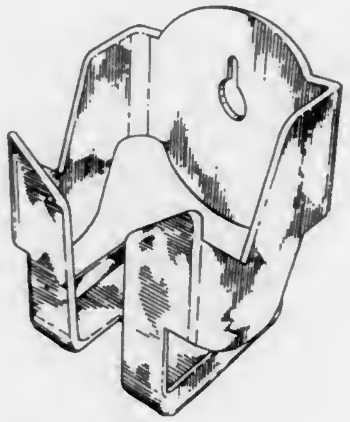
Micheal Huang, 8527 Beverly Dr., San Gabriel, Calif. 91775

Filed Jun. 13, 1997, Ser. No. 72,263

Term of patent 14 years

LOC (6) Cl. 08 - *08*

U.S. Cl. D6—567



396,161

WALL-MOUNTED STORAGE CABINET

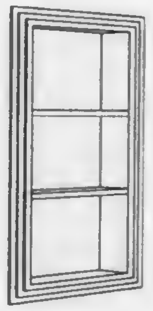
James B. Coglin, 8787 Brae Acres #816, Houston, Tex. 77074

Filed Sep. 13, 1996, Ser. No. 59,579

Term of patent 14 years

LOC (6) Cl. 06 - *04*

U.S. Cl. D6—574



396,162

IN-WALL MAGAZINE CASE

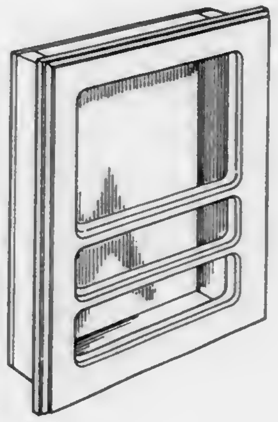
Michael A. Mutti, 1806 Prince John Dr., Grand Prairie, Tex. 75050

Filed Jul. 10, 1997, Ser. No. 73,241

Term of patent 14 years

LOC (6) Cl. 06 - *04*

U.S. Cl. D6—574



396,163

IN-WALL MAIL ORGANIZER

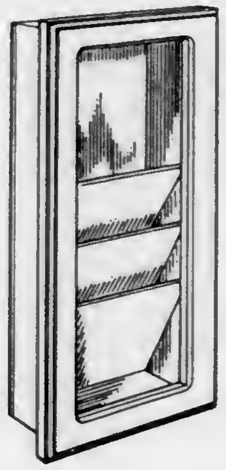
Michael A. Mutti, 1806 Prince John Dr., Grand Prairie, Tex. 75050

Filed Jul. 11, 1997, Ser. No. 73,607

Term of patent 14 years

LOC (6) Cl. 06 - *04*

U.S. Cl. D6—574



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396,164

TOASTER

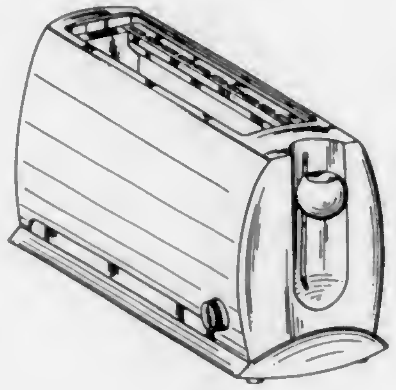
Franz Alban Stutzer, Offenbach am Main, and Bernd Figur, Schaafheim-Schlierbach, both of Germany, assignors to SEB, Selongey, France

Filed Jul. 17, 1997, Ser. No. 75,887

Term of patent 14 years

LOC (6) Cl. 07 - *02*

U.S. Cl. D7—330



396,165

TOASTER

Oscar Enrique Peña Angarita, Veldhoven, Netherlands, assignor to U.S. Philips Corporation, New York, N.Y.

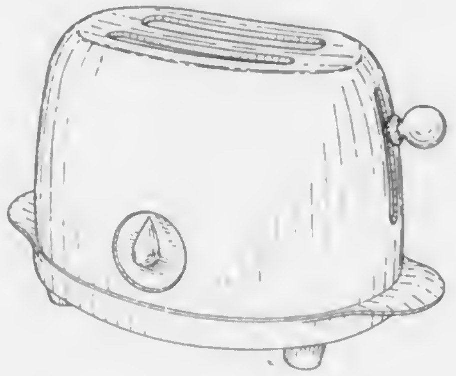
Filed Nov. 12, 1997, Ser. No. 79,303

Claims priority, application Switzerland, Jul. 1, 1997, DMA003770

Term of patent 14 years

LOC (6) Cl. 07 - *02*

U.S. Cl. D7—330



396,166

COMBINED OUTDOOR FIREPLACE AND GAS BARBECUE

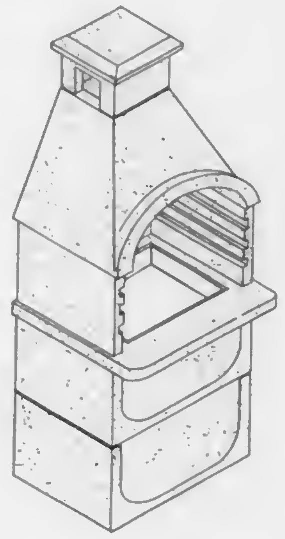
Mario Pavlich, 282 Springside Dr., Hamilton, Canada, L9B 1N1

Filed Aug. 12, 1996, Ser. No. 58,357

Term of patent 14 years

LOC (6) Cl. 09 - *02*

U.S. Cl. D7—333



396,167

BLENDER BASE

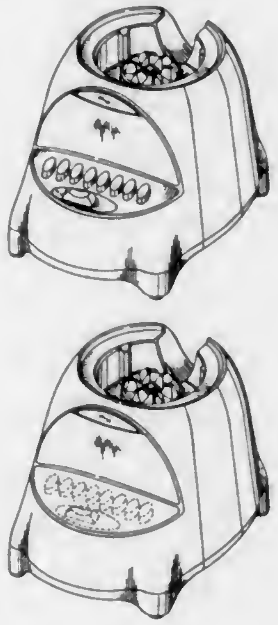
Anthony V. Cruz, Richmond, Va., assignor to Hamilton Beach/Proctor-Silex, Inc., Glen Allen, Va.

Filed Jul. 16, 1997, Ser. No. 73,691

Term of patent 14 years

LOC (6) Cl. 31 - *00*

U.S. Cl. D7—386



396,168

HANDLE FOR KITCHEN TOOLS AND GADGETS

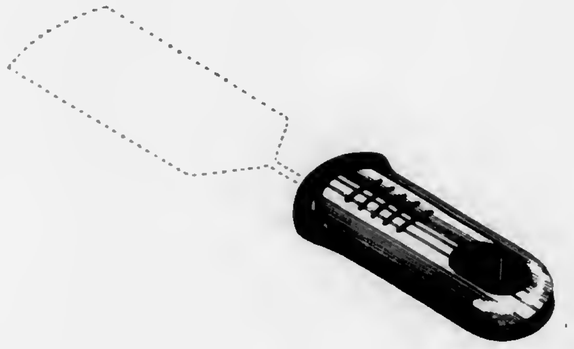
Milton L. Cohen, Hewlett Bay Park; Jeff Siegel, Great Neck, and Adam Krent, Brooklyn, all of N.Y., assignors to Lifetime Hoan Corporation, Westbury, N.Y.

Filed Mar. 10, 1997, Ser. No. 67,730

Term of patent 14 years

LOC (6) Cl. 07 - *03*

U.S. Cl. D7—395



396,169

BARBECUE GRILL LID SUPPORT DEVICE

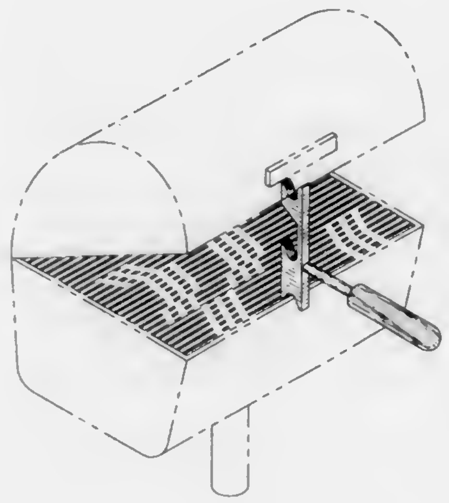
Edward Williamson, 15 Hallmark Street, Brantford, Ontario, Canada, N3P 1A6

Filed Aug. 21, 1997, Ser. No. 75,561

Term of patent 14 years

LOC (6) Cl. 07 - *02*

U.S. Cl. D7—402



396,170

COMBINED CONDIMEMT CADDY AND ADVERTISING DEVICE

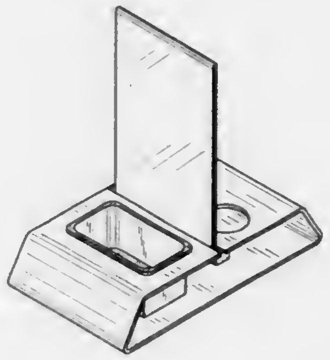
James F. Conway, St. Louis, Mo., assignor to ACI Plastics, Inc., St. Louis, Mo.

Filed Sep. 25, 1997, Ser. No. 76,896

Term of patent 14 years

LOC (6) Cl. 07 - *06*

U.S. Cl. D7—590



396,171

COMBINED CONDIMENT CADDY AND NAPKIN HOLDER

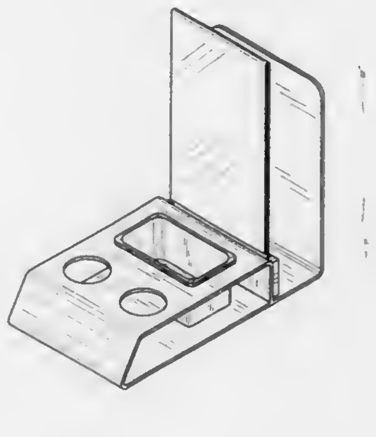
James F. Conway, St. Louis, Mo., assignor to ACI Plastics, Inc., St. Louis, Mo.

Filed Sep. 25, 1997, Ser. No. 76,897

Term of patent 14 years

LOC (6) Cl. 07 - *06*

U.S. Cl. D7—590



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396,172

CONTAINER ASSEMBLY

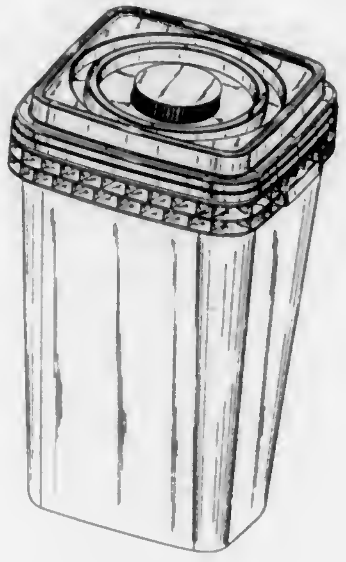
Aleene F. Nask, West Harrison, N.Y.; Timmy L. Willett, Waverly, Ky., and Richard Rhodes, Northport, N.Y., assignors to Olin Corp, Chelshire, Conn., and Berry Plastics Corp., Evansville, Ind.

Filed Sep. 4, 1997, Ser. No. 76,291

Term of patent 14 years

LOC (6) Cl. 09 - *02*

U.S. Cl. D7—615



396,173

BUTCHER'S FORK

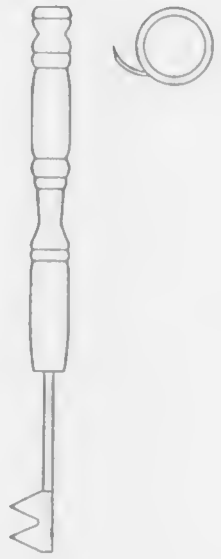
Robert J. Muir, Jr., 13531 Coachella Rd., Apple Valley, Calif. 92308

Filed Oct. 14, 1997, Ser. No. 77,930

Term of patent 14 years

LOC (6) Cl. 07 - *06*

U.S. Cl. D7—683



396,174

MULTIGROOVED ROTATORY BRUSH CUTTING TOOL TOP PLATE

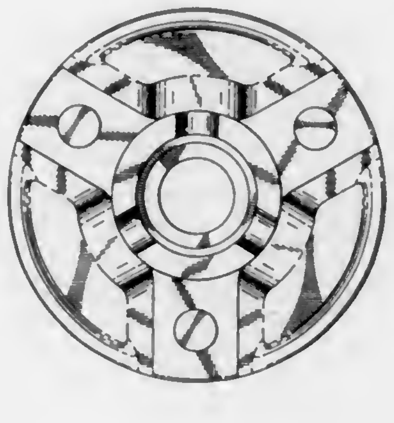
Jeffrey L. Schultz, Box 9005, Ruth Ave., Rutland, Vt. 05701, and Edward J. Grossi, 35 Warner Ave., Proctor, Vt. 05765

Filed Mar. 13, 1997, Ser. No. 67,872

Term of patent 14 years

LOC (6) Cl. 08 - *05*

U.S. Cl. D15—17



396,175

GRINDER

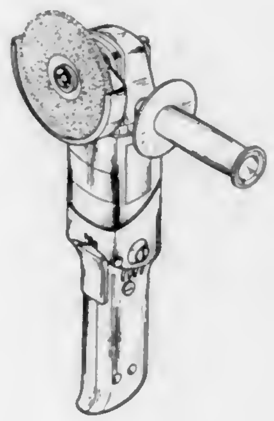
Lee Hsin-Chih Chung, No. 21-8, Shang San Cho Woo, Wuchang-Li, Chungli City, Taoyuan Hsien, Taiwan

Filed Jul. 8, 1997, Ser. No. 73,419

Term of patent 14 years

LOC (6) Cl. 08 - *01*

U.S. Cl. D8—62



396,176

Patent Not Issued For This Number

396,177

CORDLESS DRILL

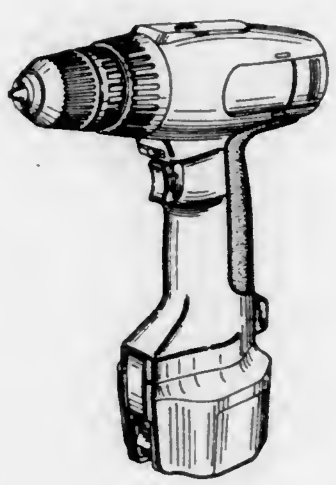
William H. Schultz, Northbook, Ill., assignor to S-B Power Tool Company, Chicago, Ill.

Filed Oct. 1, 1996, Ser. No. 60,586

Term of patent 14 years

LOC (6) Cl. 08 - *01*

U.S. Cl. D8—68



396,178

PNEUMATIC NAILING MACHINE

Takeo Hattori, Tokyo, Japan, assignor to Max Co., Ltd., Tokyo, Japan

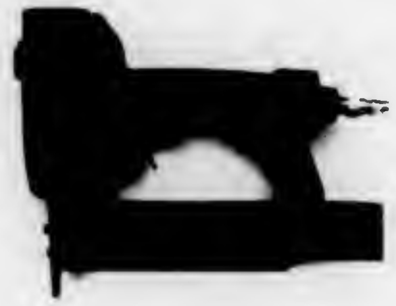
Filed Feb. 28, 1997, Ser. No. 67,020

Claims priority, application Japan, Aug. 30, 1996, 8-25984

Term of patent 14 years

LOC (6) Cl. 08 - *03*

U.S. Cl. D8—68



396,179

KNOB

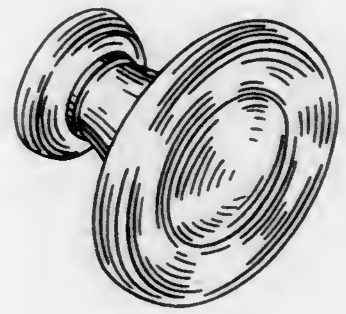
Carl L. Burns, Wheaton, Ill., and Robert Andrew Chieda, Akron, Ohio, assignors to Newell Operating Company, Freeport, Ill.

Filed Apr. 30, 1996, Ser. No. 53,758

Term of patent 14 years

LOC (6) Cl. 08 - *06*

U.S. Cl. D8—310



396,180

KNOB

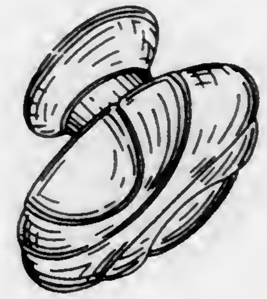
Carl L. Burns, River Forest, Ill., and Robert Andrew Chieda, Akron, Ohio, assignors to Newell Operating Company, Freeport, Ill.

Filed Apr. 30, 1996, Ser. No. 53,817

Term of patent 14 years

LOC (6) Cl. 08 - *06*

U.S. Cl. D8—310



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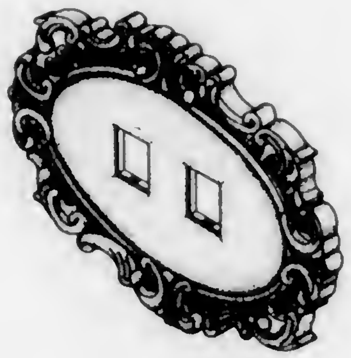
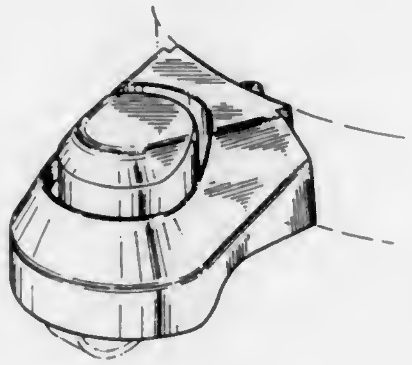
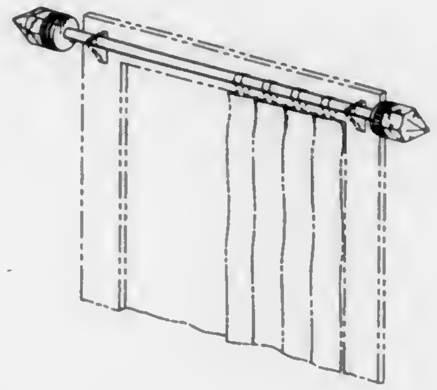
396,181
COVER FOR ELECTRICAL OUTLETS
Yuan-Feng Chang, No. 34, Chung-Cheng Rd., Chu-Chi Tsuen, Chu-Chi Hsiang, Chiayi Hsien, Taiwan
Filed Apr. 16, 1997, Ser. No. 67,970
Term of patent 14 years
LOC (6) Cl. 11 - *05*
U.S. Cl. D8—350



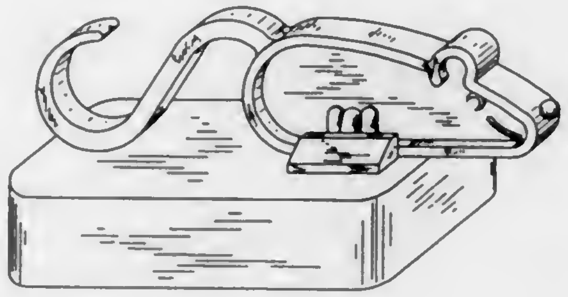
396,182
CASTER FOOT
Kiyoshi Hoshino, Chesterfield, and Stuart V. Holsten, O'Fallon, both of Mo., assignors to Emerson Special Products Division
Filed Jun. 6, 1997, Ser. No. 71,806
Term of patent 14 years
LOC (6) Cl. 08 - *05*
U.S. Cl. D8—375



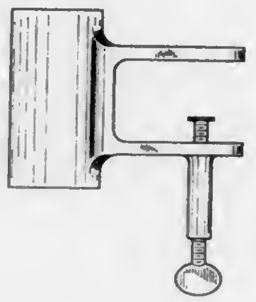
396,183
CURTAIN ROD
Robert J. Poulin, 20 Clarke Ct., Rochester, Mass. 02770
Division of Ser. No. 54,019, May 6, 1996, Pat. No. Des. 385,178. This application Apr. 1, 1997, Ser. No. 68,847
Term of patent 14 years
LOC (6) Cl. 08 - *05*
U.S. Cl. D8—376



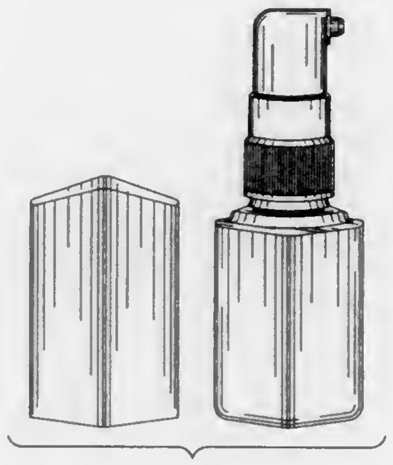
396,184
SPRING CLIP
William E. Adams, and Chinmoy Raval, both of Portersville, Pa., assignors to Adams Mfg. Corp., Portersville, Pa.
Filed Jun. 16, 1997, Ser. No. 72,391
Term of patent 14 years
LOC (6) Cl. 08 - *08*
U.S. Cl. D8—395



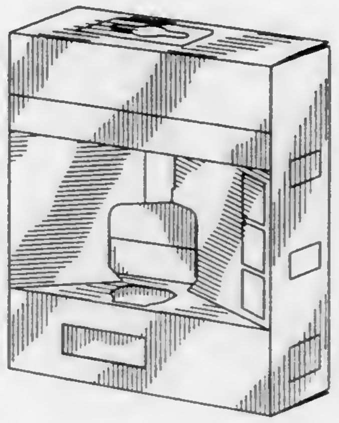
396,185
UMBRELLA CLAMP
Alan T. Fraser, RR#(Dunmore Rd.), Antigonish, Nova Scotia, Canada, B2G-2L4
Filed Mar. 11, 1996, Ser. No. 51,476
Term of patent 14 years
LOC (6) Cl. 08 - *08*
U.S. Cl. D8—396



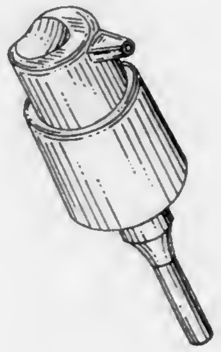
396,186
PUMP SPRAY BOTTLE
Trevor Fiore, 23286 Atlantis Way, Dana Point, Calif. 92629-3504
Filed Nov. 10, 1994, Ser. No. 30,891
The portion of the term of this patent subsequent to Apr. 2, 2010, has been disclaimed.
Term of patent 14 years
LOC (6) Cl. 09 - *01*
U.S. Cl. D9—300



396,187
PACKAGING FOR LIGHT BULBS AND LAMPS
Guy Nicholas Peter Harrison, Bentley, United Kingdom, assignor to U.S. Philips Corporation, New York, N.Y.
Filed Oct. 22, 1996, Ser. No. 62,967
Claims priority, application European Pat. Off., Apr. 22, 1996, DMA/003304
Term of patent 14 years
LOC (6) Cl. 09 - *07*
U.S. Cl. D9—418



396,188
LIQUID DISPENSER
Richard C. Sayers, Perrysburg, Ohio, assignor to Owens-Illinois Closure Inc., Toledo, Ohio
Filed Feb. 23, 1996, Ser. No. 50,710
Term of patent 14 years
LOC (6) Cl. 09 - *07*
U.S. Cl. D9—448



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396,189

COMBINED BOTTLE AND CAP

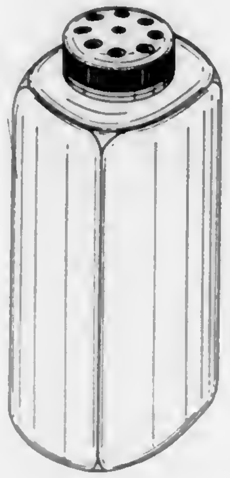
John Lonczak, Newburgh; Leonard Alain Filiz; Kin Shun Yan, both of New York, and Victor Ivenitsky, Bronx, all of N.Y., assignors to Johnson & Johnson Consumer Products, Inc., Skillman, N.J.

Continuation of Ser. No. 20,194, Mar. 21, 1994, abandoned. This application Jan. 30, 1996, Ser. No. 49,761

Term of patent 14 years

LOC (6) Cl. 09 - *01*

U.S. Cl. D9—515



396,190

BOTTLE CAP

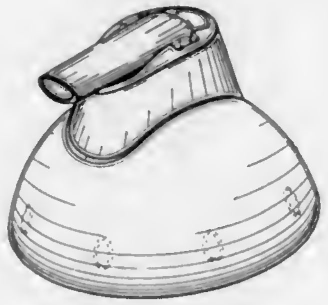
Vincent L. Haley, Orrville, Ohio, assignor to Rubbermaid Incorporated, Wooster, Ohio

Filed Mar. 31, 1997, Ser. No. 68,776

Term of patent 14 years

LOC (6) Cl. 09 - *07*

U.S. Cl. D9—449



396,191

COMBINED BOTTLE AND CAP

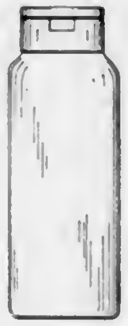
Gene J. Kuzma, and Douglas W. Weaver, both of Columbus, Ohio, assignors to G. K. Packaging, Inc., Columbus, Ohio

Filed Aug. 9, 1996, Ser. No. 58,206

Term of patent 14 years

LOC (6) Cl. 09 - *01*

U.S. Cl. D9—574



396,192

CLOCK

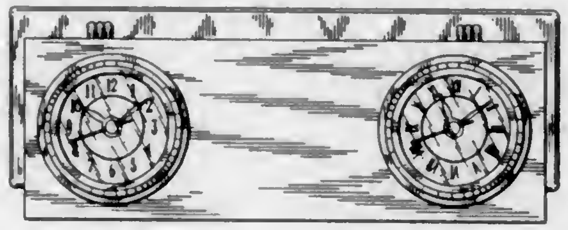
Yumi Kubota, Tokyo, Japan, assignor to Seiko Clock Inc., Japan

Filed Nov. 9, 1995, Ser. No. 47,811

Term of patent 14 years

LOC (6) Cl. 10 - *01*

U.S. Cl. D10—14



396,193

STOPWATCH

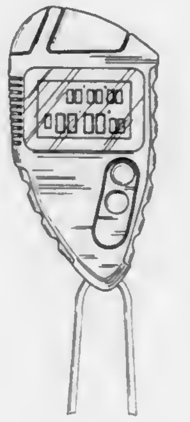
Opher Pail, 625 Main St., New York, N.Y. 10044

Filed Feb. 3, 1997, Ser. No. 66,049

Term of patent 14 years

LOC (6) Cl. 10 - *03*

U.S. Cl. D10—30



396,194

WATCH HAVING A PHOTOGRAPH DISPLAY

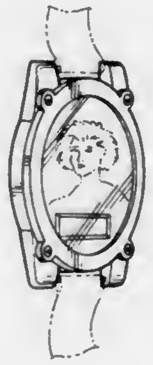
Robert E. Bruce, 3039 Montgomery, Detroit, Mich. 48206

Filed Jul. 29, 1996, Ser. No. 57,635

Term of patent 14 years

LOC (6) Cl. 10 - *02*

U.S. Cl. D10—31



396,195

ANKLE DORSIFLEXION MEASUREMENT PLATE

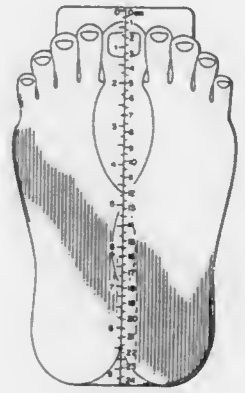
Desmond P. Morrow, 1130 E. Tenth St., Apt. 7E, Cookville, Tenn. 38501

Filed Mar. 17, 1997, Ser. No. 68,656

Term of patent 14 years

LOC (6) Cl. 10 - *04*

U.S. Cl. D10—70



396,196

SCALE

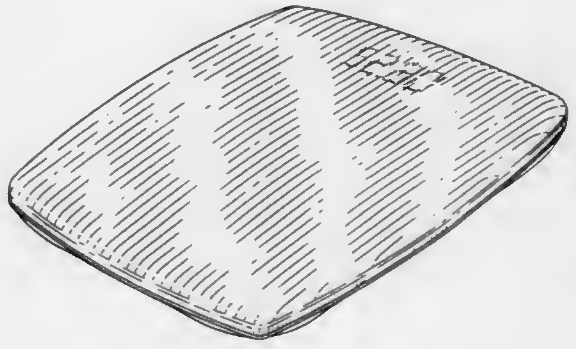
Natassia Adriana Leonarda Johanna Jacobs, Groningen, Netherlands, assignor to U.S. Philips Corporation, New York, N.Y.

Filed Jul. 24, 1997, Ser. No. 74,294

Term of patent 14 years

LOC (6) Cl. 10 - *04*

U.S. Cl. D10—92



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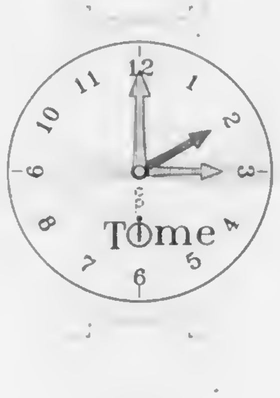
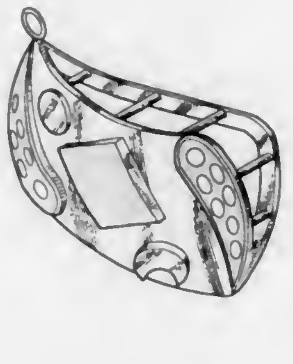
396,197
WATCH
James Johnson, and Annette Johnson, both of 923 7th St., Boonville, Mo. 65233
Filed Mar. 12, 1997, Ser. No. 67,684
Term of patent 14 years
LOC (6) Cl. 10 - *01*
U.S. Cl. D10—126



396,198

Patent Not Issued For This Number

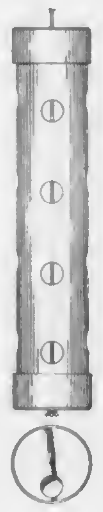
396,199
PENDANT
Fang-Jung Chang, P.O. Box 82-144, Taipei, Taiwan
Filed Jul. 25, 1997, Ser. No. 74,122
Term of patent 14 years
LOC (6) Cl. 11 - *01*
U.S. Cl. D11—79



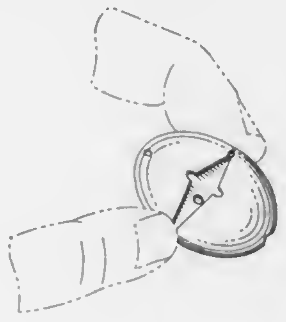
396,200

Patent Not Issued For This Number

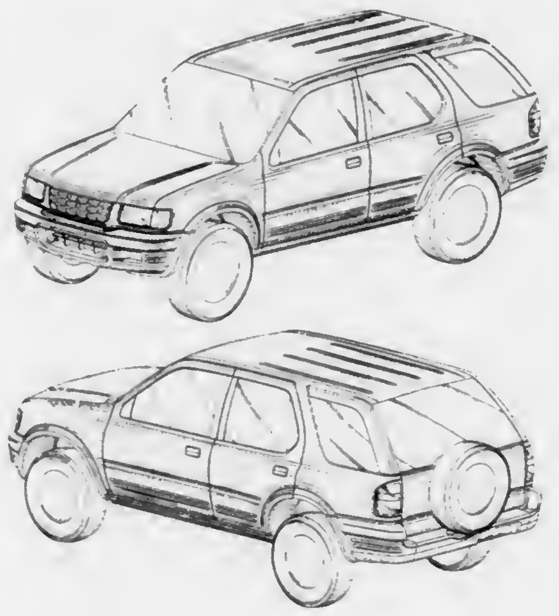
396,201
HANGING PLANT CONTAINER
Joe K. Lashlee, 1352 N. 10th St., Apt. #1, San Pedro, Calif. 90732
Filed Jul. 28, 1997, Ser. No. 74,106
Term of patent 14 years
LOC (6) Cl. 11 - *02*
U.S. Cl. D11—148



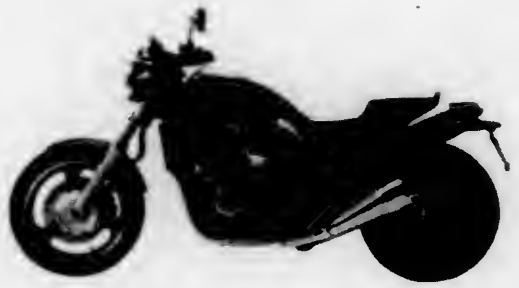
396,202
BUTTON PROTECTOR
Annie L. Lindsay, Rte. 1, Box 524 AB, Bonners Ferry, Id. 83805
Filed Jun. 12, 1997, Ser. No. 72,296
Term of patent 14 years
LOC (6) Cl. 02 - *07*
U.S. Cl. D11—228



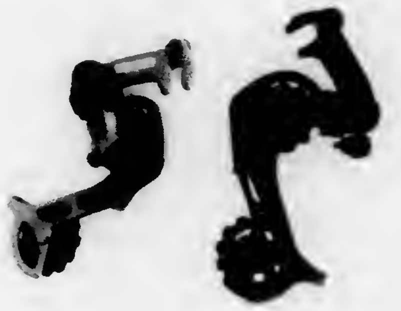
396,203
MOTOR VEHICLE
Takahiro Uematsu; Toru Takagi, and Akihiro Sugita, all of Kanagawa, Japan, assignors to Isuzu Motors Limited, Tokyo, Japan
Filed Jul. 30, 1997, Ser. No. 74,221
Term of patent 14 years
LOC (6) Cl. 12 - *08*
U.S. Cl. D12—91



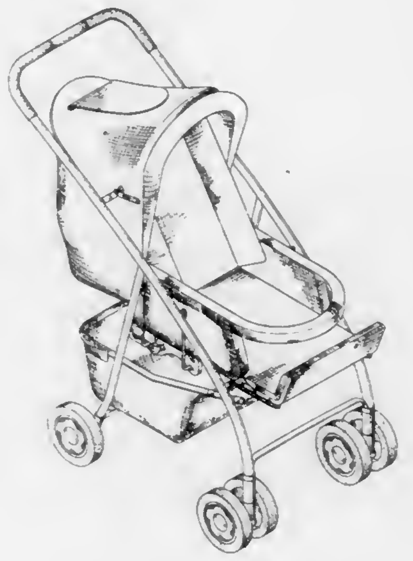
396,204
MOTORCYCLE
Toshiaki Kishi, and Yutaka Kawasaki, both of Saitama, Japan, assignors to Honda Giken Kogyo Kabushiki Kaisha, Tokyo, Japan
Filed Apr. 2, 1997, Ser. No. 69,893
Claims priority, application Japan, Oct. 7, 1996, 8-30047
Term of patent 14 years
LOC (6) Cl. 12 - *11*
U.S. Cl. D12—110



396,205
REAR DERAILLEUR
Masao Kojima, Izumi, Japan, assignor to Shimano Inc., Osaka, Japan
Filed Jul. 23, 1997, Ser. No. 74,047
Term of patent 14 years
LOC (6) Cl. 12 - *11*
U.S. Cl. D12—124



396,206
BABY STROLLER
Zhenghuan Song, Kunsan, China, assignor to Jiangsu Goodbaby Group, Inc., Jiangsu Province, China
Continuation-in-part of Ser. No. 51,627, Feb. 21, 1996. This application Sep. 20, 1996, Ser. No. 60,036
Term of patent 14 years
LOC (6) Cl. 12 - *12*
U.S. Cl. D12—129



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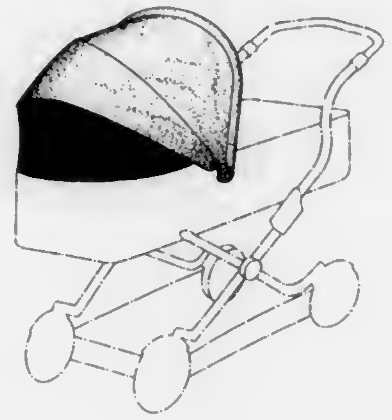
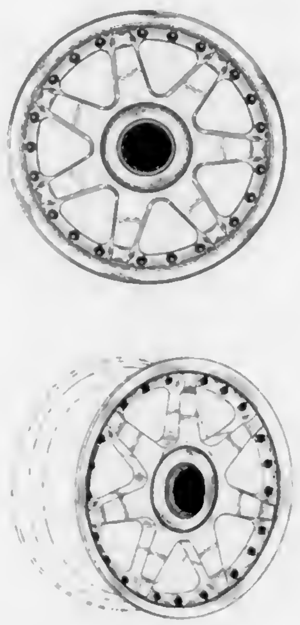
396,207
VENTILATED CANOPY WITH A MESH PANEL

Cindy Lee Berkey, Honeybrook, Pa., assignor to Graco Children's Products Inc., Elverson, Pa.
Filed Oct. 25, 1996, Ser. No. 62,971
Term of patent 14 years
LOC (6) Cl. 12 - *12*
U.S. Cl. D12—133



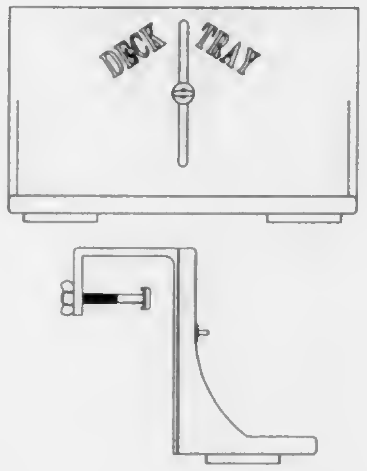
396,208
VEHICLE WHEEL FACE

Heinrich Baumgartner, Schiltach, and Ewald Frick, Alpirsbach, both of Germany, assignors to BBS Kraftfahrzeugtechnik AG, Schiltach, Germany
Filed Feb. 2, 1996, Ser. No. 49,898
Term of patent 14 years
LOC (6) Cl. 12 - *16*
U.S. Cl. D12—211



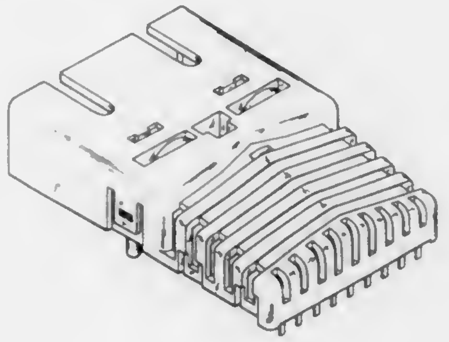
396,209
PORTABLE VEHICLE DECK TRAY

Samuel M. Patane, 324 Keller Rd., Glendora, N.J. 08029
Filed Apr. 3, 1997, Ser. No. 68,872
Term of patent 14 years
LOC (6) Cl. 12 - *16*
U.S. Cl. D12—419



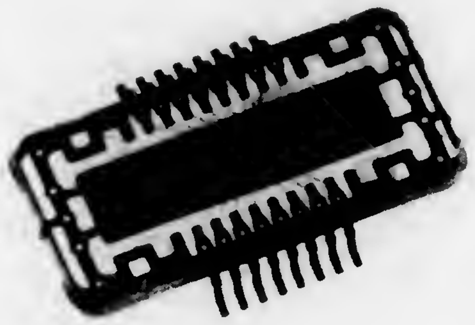
396,210
OPTICAL RECEIVER/TRANSMITTER MODULE

Nobuo Shiga; Takeshi Sekiguchi; Sosaku Sawada, and Daisuke Takagi, all of Yokohama, Japan, assignors to Sumitomo Electric Industries, Ltd., Osaka, Japan
Filed May 3, 1996, Ser. No. 55,822
Claims priority, application Japan, Nov. 10, 1995, 7-033989; Nov. 10, 1995, 7-033990; Nov. 10, 1995, 7-033991
Term of patent 14 years
LOC (6) Cl. 13 - *03*
U.S. Cl. D13—123



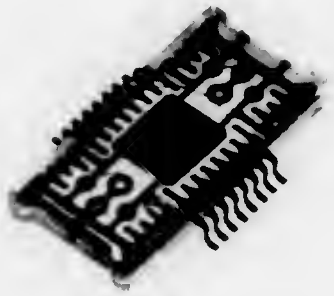
396,211
INTEGRATED CIRCUIT DEVICE

Yoshinari Enomoto, and Satomi Kajiwara, both of Kanagawa, Japan, assignors to Fuji Electric Co., Ltd., Kanagawa, Japan
Filed Mar. 3, 1997, Ser. No. 68,462
Claims priority, application Japan, Sep. 9, 1996, 8-26833
Term of patent 14 years
LOC (6) Cl. 13 - *03*
U.S. Cl. D13—182



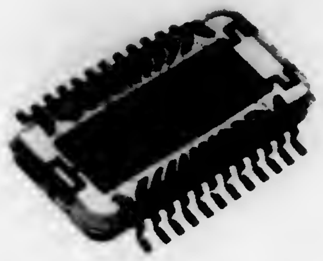
396,212
INTEGRATED CIRCUIT DEVICE

Yoshinari Enomoto, and Satomi Kajiwara, both of Kanagawa, Japan, assignors to Fuji Electric Co., Ltd., Kanagawa, Japan
Filed Mar. 3, 1997, Ser. No. 68,463
Claims priority, application Japan, Sep. 9, 1996, 8-26834
Term of patent 14 years
LOC (6) Cl. 13 - *03*
U.S. Cl. D13—182



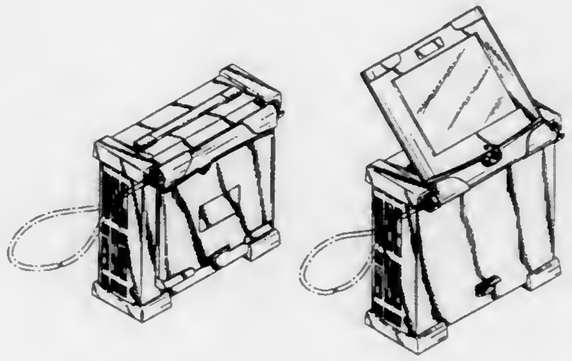
396,213
INTEGRATED CIRCUIT DEVICE

Yoshinari Enomoto, and Satomi Kajiwara, both of Kanagawa, Japan, assignors to Fuji Electric Co., Ltd., Kanagawa, Japan
Filed Mar. 3, 1997, Ser. No. 68,465
Claims priority, application Japan, Sep. 9, 1996, 8-26835
Term of patent 14 years
LOC (6) Cl. 13 - *03*
U.S. Cl. D13—182



396,214
COMPUTER SYSTEM HAVING A DETACHABLE DISPLAY

Gilbert Lemke, Los Gatos; David N. Skinner, Redwood Shores; Kenneth D. Osborne, Milpitas; John M. Santacroce, San Jose, and Daniel R. Bergmen, Manteca, all of Calif., assignors to Hewlett-Packard Company, Palo Alto, Calif.
Filed Apr. 12, 1995, Ser. No. 37,450
Term of patent 14 years
LOC (6) Cl. 14 - *02*
U.S. Cl. D14—100



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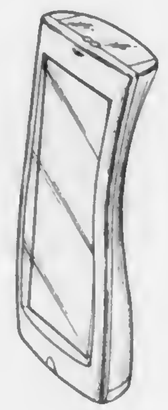
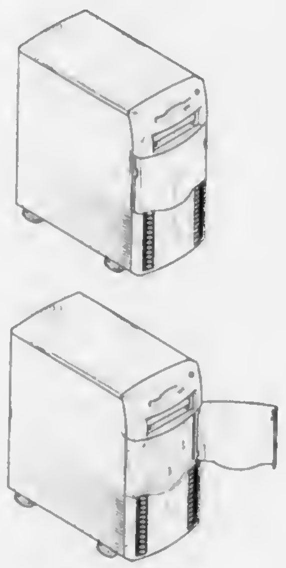
396,215
WIRELESS PORTABLE TERMINAL

Yoshinori Inukai, Kawasaki, Japan, assignor to Canon Kabushiki Kaisha, Tokyo, Japan
Filed Oct. 10, 1996, Ser. No. 60,904
Claims priority, application Japan, Apr. 19, 1996, 8-11501
Term of patent 14 years
LOC (6) Cl. 14 - *02*
U.S. Cl. D14—100



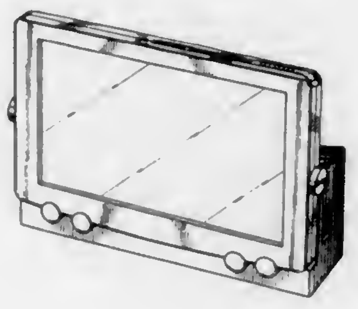
396,216
COMPUTER

Jerry Chen, Taoyuan Hsien, and Tony Chen, Taipei, both of Taiwan, assignors to UMAX Data Systems Inc., HsinChu, Taiwan
Filed Jul. 1, 1997, Ser. No. 73,123
Term of patent 14 years
LOC (6) Cl. 14 - *02*
U.S. Cl. D14—100



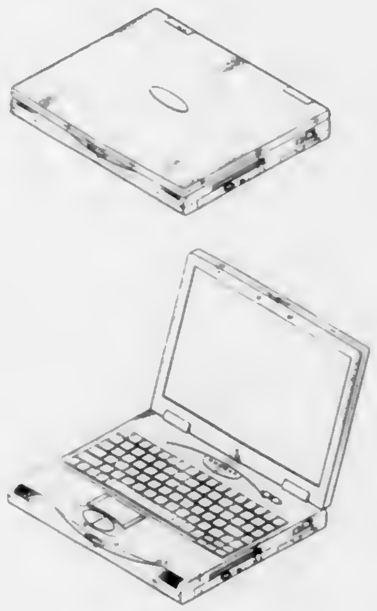
396,217
ELECTRONIC COMPUTER

Shogo Suzuki, Chiba-ken, Japan, assignor to Kabushiki Kaisha Toshiba, Kawasaki, Japan
Filed Jul. 29, 1997, Ser. No. 74,111
Claims priority, application Japan, Feb. 24, 1997, 4917/1997
Term of patent 14 years
LOC (6) Cl. 14 - *02*
U.S. Cl. D14—100



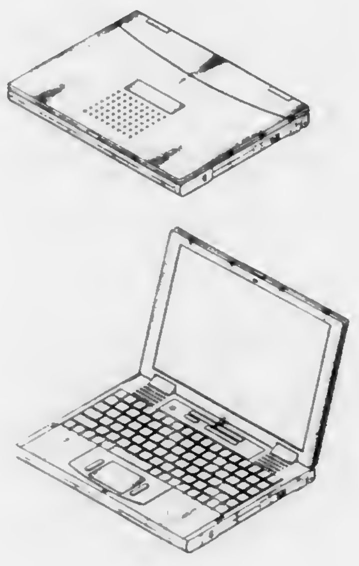
396,218
PORTABLE COMPUTER

Cheol-Ho Lee, Incheon, Rep. of Korea, assignor to Daewoo Telecom Ltd., Rep. of Korea
Filed Aug. 4, 1997, Ser. No. 74,392
Claims priority, application Rep. of Korea, Feb. 21, 1997, 1997 2818
Term of patent 14 years
LOC (6) Cl. 14 - *02*
U.S. Cl. D14—106



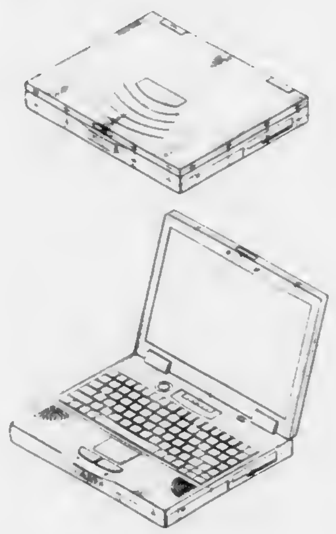
396,219
PORTABLE COMPUTER

Cheol-Ho Lee, Incheon, Rep. of Korea, assignor to Daewoo Telecom Ltd., Rep. of Korea
Filed Aug. 4, 1997, Ser. No. 74,393
Claims priority, application Rep. of Korea, Feb. 21, 1997, 1997 2819
Term of patent 14 years
LOC (6) Cl. 14 - *02*
U.S. Cl. D14—106



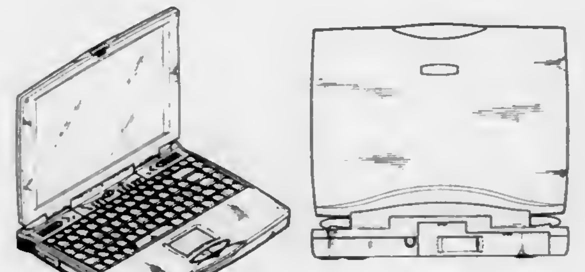
396,220
PORTABLE COMPUTER

Cheol-Ho Lee, Incheon, Rep. of Korea, assignor to Daewoo Telecom Ltd., Rep. of Korea
Filed Aug. 4, 1997, Ser. No. 74,439
Claims priority, application Rep. of Korea, Feb. 21, 1997, 97-2817
Term of patent 14 years
LOC (6) Cl. 14 - *02*
U.S. Cl. D14—106



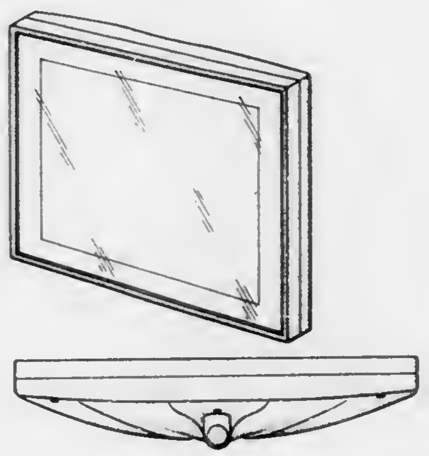
396,221
NOTEBOOK COMPUTER

Max Hsu, Taipei, Taiwan, assignor to Dual Technology Corporation, Taipei, Taiwan
Filed Sep. 3, 1997, Ser. No. 75,596
Term of patent 14 years
LOC (6) Cl. 14 - *02*
U.S. Cl. D14—106



396,222
FLAT PANEL DISPLAY HOUSING

Stuart K. Morgan, Westford; Arthur J. Flagg, III, Sudbury; Bryan R. Hotaling, Arlington, and Jon R. Rossman, Chelmsford, all of Mass., assignors to Pixelvision, Inc., Acton, Mass.
Filed Mar. 11, 1997, Ser. No. 67,863
Term of patent 14 years
LOC (6) Cl. 14 - *02*
U.S. Cl. D14—126



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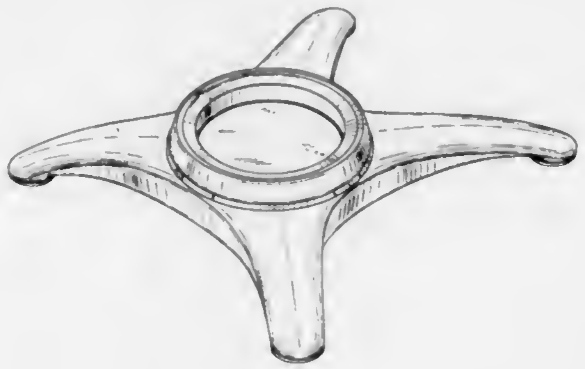
396,223
MONITOR STAND

Robert Brunner, Los Gatos, and Simon Gatrall, San Francisco, both of Calif., assignors to Toshiba America Information Systems, Inc., Irvine, Calif.

Filed Jun. 13, 1997, Ser. No. 72,352
Term of patent 14 years
LOC (6) Cl. 14 - *02*

U.S. Cl. D14—114

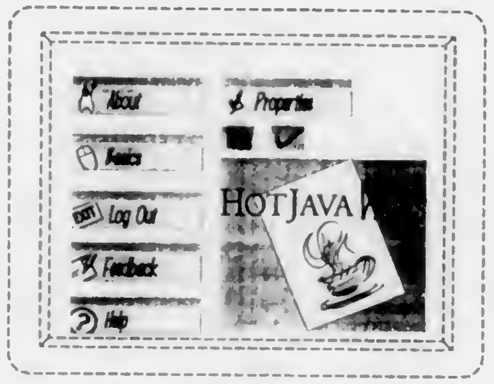


396,224
COMPUTER SCREEN WITH A SET OF ICONS

Chris Ryan, Mountain View, Calif., assignor to Sun Microsystems, Inc.

Filed Jun. 30, 1997, Ser. No. 73,100
Term of patent 14 years
LOC (6) Cl. 14 - *02*

U.S. Cl. D14—114.9

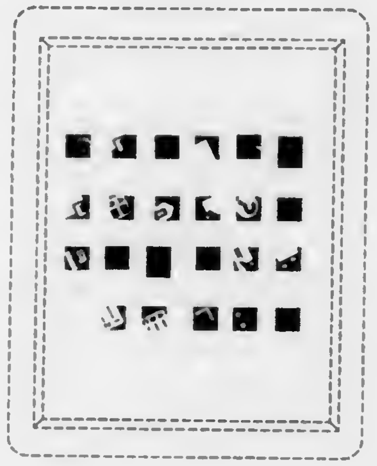


396,225
COMPUTER SCREEN WITH A SET OF ICONS

Chris Ryan, Mountain View, Calif., assignor to Sun Microsystems, Inc.

Filed Jun. 30, 1997, Ser. No. 73,104
Term of patent 14 years
LOC (6) Cl. 14 - *02*

U.S. Cl. D14—114.1

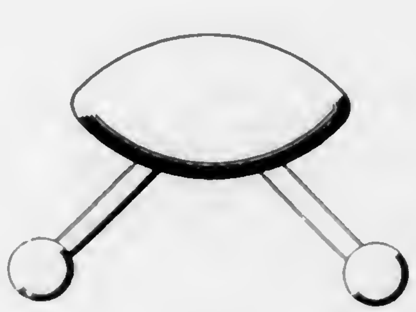


396,226
MASSAGER

Mark Edward Davis, Sr., 904 Winding Creek, Oak Leaf, Tex. 75154

Filed Nov. 27, 1996, Ser. No. 63,142
Term of patent 14 years
LOC (6) Cl. 24 - *04*

U.S. Cl. D24—211

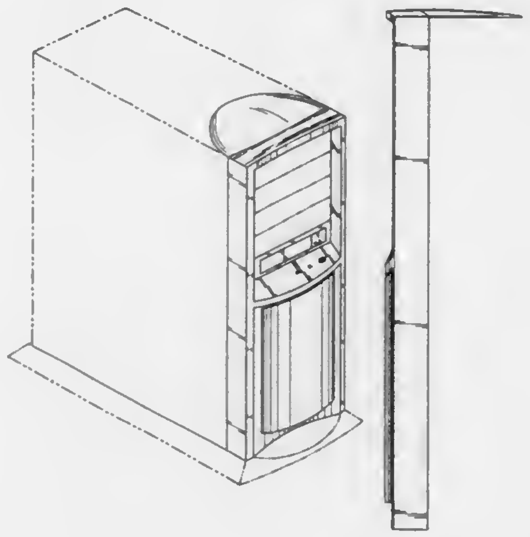


396,227
FRONT BEZEL FOR A PERSONAL COMPUTER

Anton R. Poole; Yutaka Kazamaki, both of Dakota Dunes, S. Dak., and David R. Davis, Sioux City, Iowa, assignors to Gateway 2000, Inc., North Sioux City, S. Dak.

Filed Oct. 17, 1997, Ser. No. 78,404
Term of patent 14 years
LOC (6) Cl. 14 - *02*

U.S. Cl. D14—115

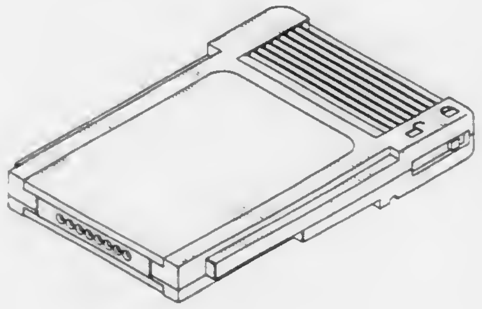


396,228
MEDIA DISK

Li-Ho Yao, 4th Fl., No. 99-4, Tungan St., Taipei, Taiwan

Filed Oct. 16, 1997, Ser. No. 78,046
Term of patent 14 years
LOC (6) Cl. 14 - *99*

U.S. Cl. D14—121

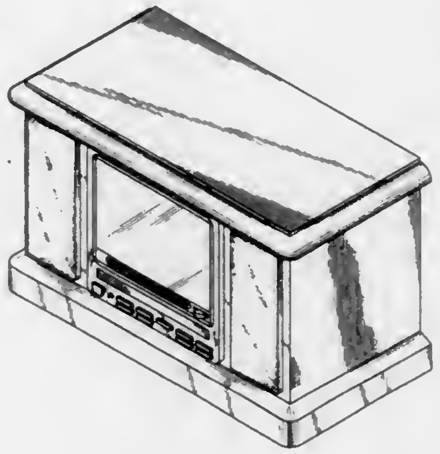


396,229
COMBINED TELEVISION, RADIO AND COMPACT DISC PLAYER CONSOLE

James J. Williams, 2824 Darien St., Shreveport, La. 71109

Filed Aug. 11, 1997, Ser. No. 74,902
Term of patent 14 years
LOC (6) Cl. 14 - *03*

U.S. Cl. D14—129

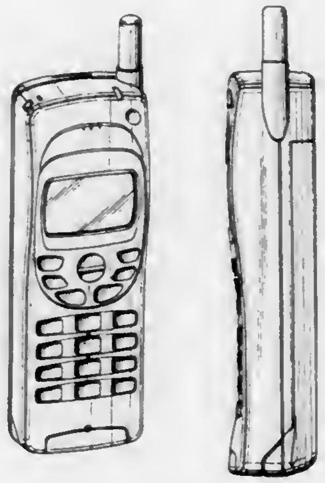


396,230
PORTABLE TELEPHONE

Sheldon Phillips, Agoura; Gregor Magnusson, Thousand Oaks, and Frank Nuovo, Los Angeles, all of Calif., assignors to Nokia Mobile Phones Limited, Espoo, Finland

Filed Sep. 20, 1996, Ser. No. 60,084
Term of patent 14 years
LOC (6) Cl. 14 - *03*

U.S. Cl. D14—138



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396,231

NUMERICAL PAGER

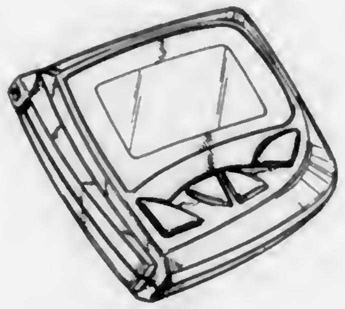
Theodoor René Maria Hin, Emmen, and Johannes de Jonge, Heerenveen, both of Netherlands, assignors to Ericsson Radio Systems B.V., Va Emmen, Netherlands

Filed Apr. 16, 1997, Ser. No. 69,442

Term of patent 14 years

LOC (6) Cl. 14 - *03*

U.S. Cl. D14—191



396,232

REMOTE CONTROL TRANSMITTER

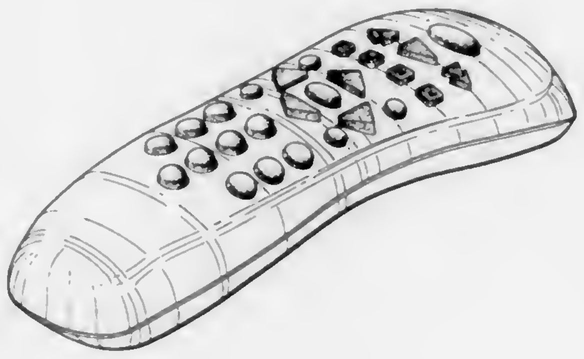
Thomas E. Renk, Jr., Indianapolis, and Mark A. Smith, New Palestine, both of Ind., assignors to Thomson Consumer Electronics, Inc., Indianapolis, Ind.

Filed Jun. 18, 1997, Ser. No. 72,480

Term of patent 14 years

LOC (6) Cl. 14 - *03*

U.S. Cl. D14—218



396,233

REMOTE CONTROL TRANSMITTER

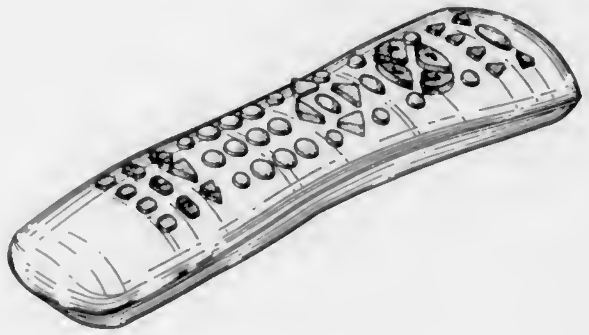
Thomas Edward Renk, Indianapolis, and Steven Barry Chesebro, Sheridan, both of Ind., assignors to Thomson Consumer Electronics, Inc., Indianapolis, Ind.

Filed Sep. 25, 1997, Ser. No. 77,038

Term of patent 14 years

LOC (6) Cl. 14 - *03*

U.S. Cl. D14—218



396,234

OPTICAL TRANSMISSION EQUIPMENT

Tadahiro Yamaguchi, Fuchu; Hiroaki Nakashima, Tokyo; Hiroshi Kuwaki, Fujisawa; Osamu Matsubara, and Yoshihiro Yano, both of Yokohama, all of Japan, assignors to Hitachi, Ltd., Tokyo, Japan

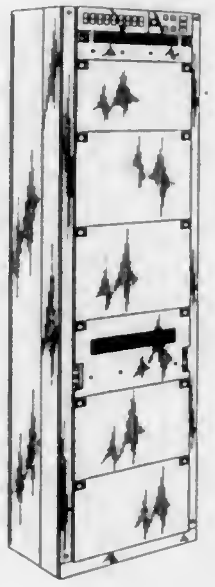
Filed Feb. 13, 1996, Ser. No. 50,276

Claims priority, application Japan, Feb. 2, 1996, 8-2374

Term of patent 14 years

LOC (6) Cl. 14 - *03*

U.S. Cl. D14—240



396,235

NOISE CONTROL APERTURE

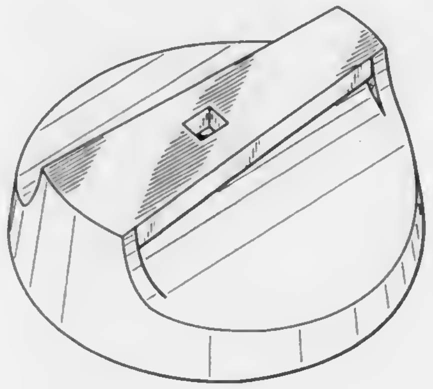
Joseph B. Tate, P.O. Box 153, Sausalito, Calif. 94966, and Steven B. Wolff, P.O. Box 1061, Woodacre, Calif. 94973

Filed Oct. 8, 1996, Ser. No. 60,838

Term of patent 14 years

LOC (6) Cl. 14 - *03*

U.S. Cl. D14—240



396,236

SNOW PLOW

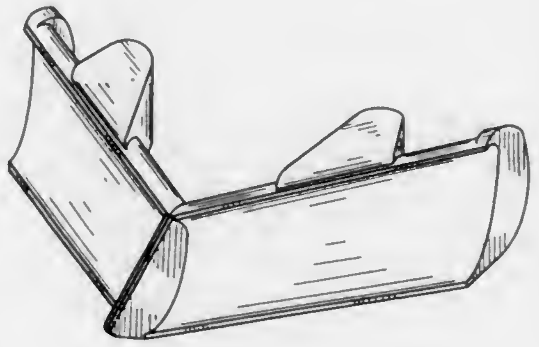
George Thomé Matisz; Ernest Matisz, both of 4921 Baptist Rd., Pittsburgh, Pa. 15227, and Joseph M. Ballay, 524 S. Murtland St., Pittsburgh, Pa. 15208

Continuation-in-part of Ser. No. 45,425, Oct. 19, 1995, Pat. No. Des. 377,653. This application Oct. 2, 1996, Ser. No. 60,632

Term of patent 14 years

LOC (6) Cl. 15 - *03*

U.S. Cl. D15—11



396,237

SUNGLASS SCREEN LENS

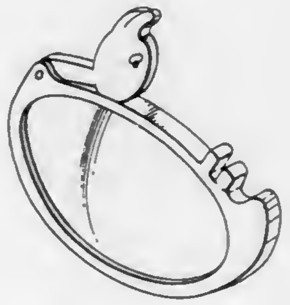
Ching-Jin Wang, 58, Ma Yuan West St., Taichung, Taiwan

Filed Jun. 1, 1997, Ser. No. 71,868

Term of patent 14 years

LOC (6) Cl. 16 - *06*

U.S. Cl. D16—101



396,238

CYLINDER HEATING CABINET

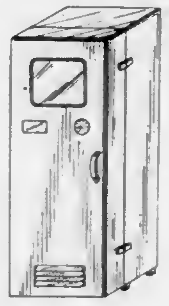
Robert D. Schmitt, 5995 S. Bannock St., Littleton, Colo. 80120

Filed Mar. 14, 1997, Ser. No. 68,183

Term of patent 14 years

LOC (6) Cl. 15 - *99*

U.S. Cl. D15—144.1



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396,239
SHELL-SHAPED LAMINATOR

Wei-Min Hsieh, No. 26 Alley12-23, Lane 108, Yong-Feng Rd, Tai-ping City, Taichung, Taiwan

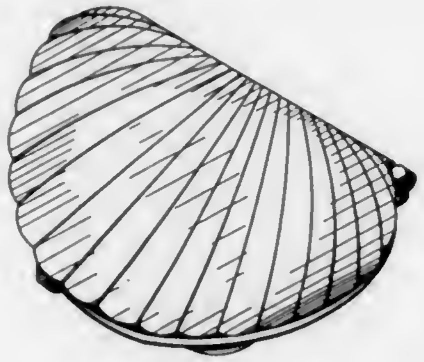
Filed Feb. 19, 1997, Ser. No. 68,075

Claims priority, application China, Oct. 5, 1996, 85308308

Term of patent 14 years

LOC (6) Cl. 15 - *99*

U.S. Cl. D15—146



396,240
TV CAMERA

Fumio Hasegawa, Nishio, Japan, assignor to Elmo Company Limited, Japan

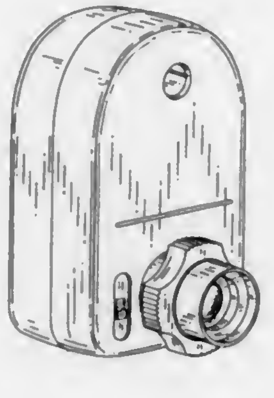
Filed Jun. 28, 1996, Ser. No. 56,405

Claims priority, application Japan, Dec. 28, 1995, 7-39441; May 8, 1996, 8-13359

Term of patent 14 years

LOC (6) Cl. 16 - *01*

U.S. Cl. D16—202



396,241
ELECTRONIC STILL CAMERA

Mitsuhiro Shigeri, Yokohama, Japan, assignor to Olympus Optical Co., Ltd., Tokyo, Japan

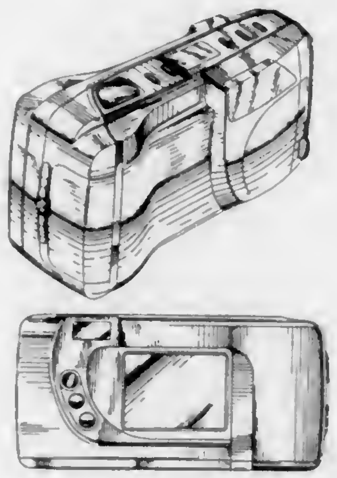
Filed Aug. 25, 1997, Ser. No. 75,676

Claims priority, application Japan, Apr. 4, 1997, 9-50326

Term of patent 14 years

LOC (6) Cl. 16 - *01*

U.S. Cl. D16—202



396,242
CAMERA

Hideki Ito, Kawasaki, Japan, assignor to Canon Kabushiki Kaisha, Tokyo, Japan

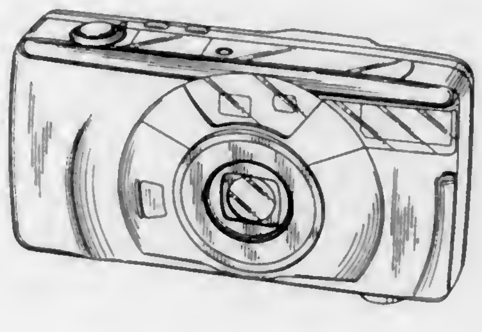
Filed Aug. 12, 1997, Ser. No. 74,802

Claims priority, application Japan, Feb. 19, 1997, 9-4719

Term of patent 14 years

LOC (6) Cl. 16 - *01*

U.S. Cl. D16—209



396,243
SHEET FED OFFSET PRESS

Gili Briks, Tel Aviv, Israel; Karsten Grossmann, Dresden, Germany, and Yoseph Guy Hefetz, Tel Aviv, Israel, assignors to KBA-Planeta AG, Germany

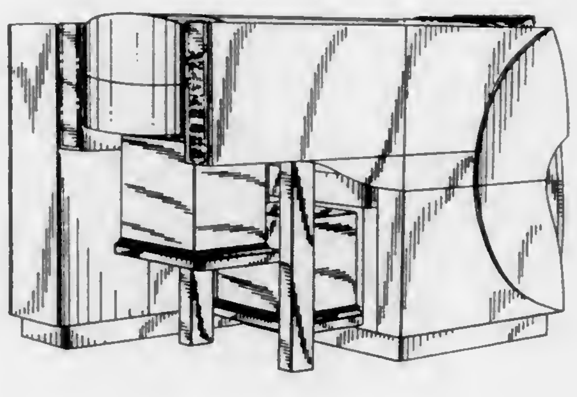
Filed Aug. 1, 1997, Ser. No. 74,409

Claims priority, application Germany, Feb. 25, 1997, 97 02 008.7

Term of patent 14 years

LOC (6) Cl. 18 - *02*

U.S. Cl. D18—53



396,244
BINGO CARD INK MARKER BOTTLE

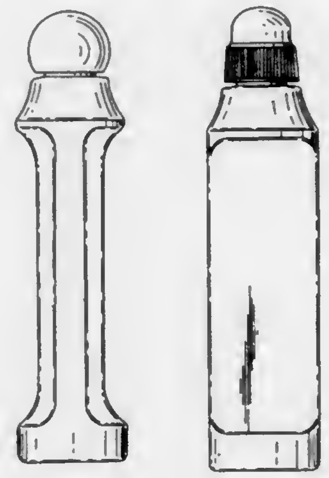
Clarence J. Venne, Langhorne, and Richard A. Venne, Sr., Bensalem, both of Pa., assignors to Clarence J. Venne, Inc., Levittown, Pa.

Division of Ser. No. 44,671, Sep. 28, 1995. This application Jun. 27, 1996, Ser. No. 59,692

Term of patent 14 years

LOC (6) Cl. 19 - *06*

U.S. Cl. D19—43



396,245
COMBINED THREE HOLE PUNCH AND RULER

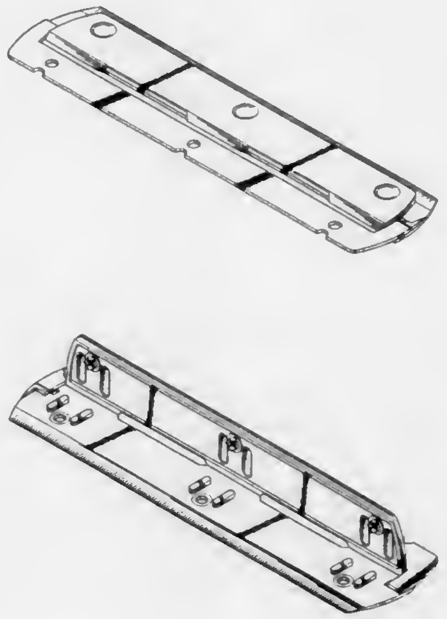
Sai Keung Ng, Flat C, 17/F., Block 1, Tai Hing Gardens, Phase 1, 11, Tsun Wen Road, Tuen Mun, New Territories, Hong Kong

Filed Sep. 26, 1997, Ser. No. 76,892

Term of patent 14 years

LOC (6) Cl. 19 - *02*

U.S. Cl. D19—72



396,246
DRAWER/LETTER TRAY ORGANIZER

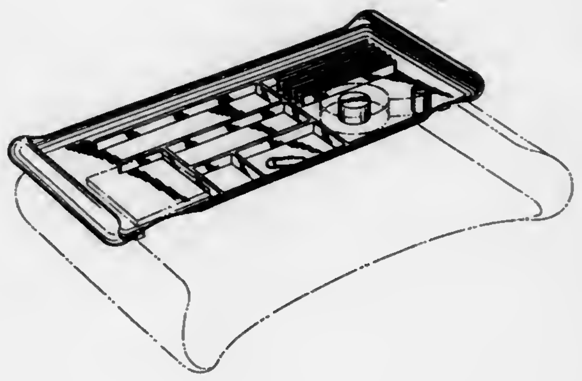
Albert B. Cheris, Highland Park, and Mark Dziersk, Chicago, both of Ill., assignors to Tenex Corporation, Elk Grove Village, Ill.

Filed Aug. 29, 1997, Ser. No. 75,929

Term of patent 14 years

LOC (6) Cl. 19 - *02*

U.S. Cl. D19—75



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SHEET DISPENSER

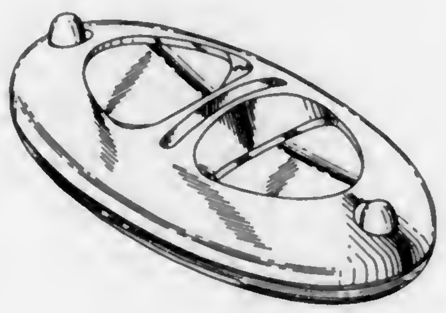
Casey L. Carlson, Edina, and Daniel E. Siltberg, White Bear Township, both of Minn., assignors to Minnesota Mining and Manufacturing Company, St. Paul, Minn.

Division of Ser. No. 55,990, Jun. 19, 1996, Pat. No. Des. 387,806. This application Aug. 22, 1997, Ser. No. 75,752

Term of patent 14 years

LOC (6) Cl. 19 - *02*

U.S. Cl. D19—86



396,248

COPY CLIP

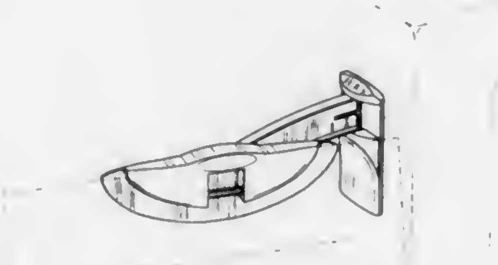
Bradley M. Nemeth, Oak Ridge, Tenn., assignor to Brauner Nemeth, Inc., Palo Alto, Calif.

Filed Aug. 25, 1997, Ser. No. 75,678

Term of patent 14 years

LOC (6) Cl. 19 - *02*

U.S. Cl. D19—88



396,249

HEAVY ROCKING BASE

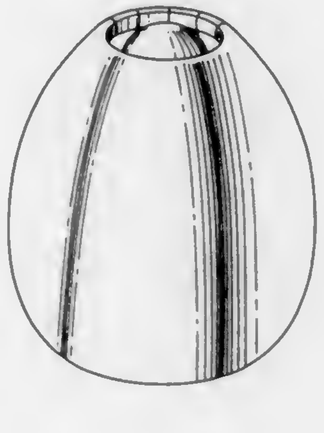
Casey L. Carlson, Edina, Minn., assignor to Minnesota Mining and Manufacturing Company, St. Paul, Minn.

Division of Ser. No. 55,970, Jun. 19, 1996, Pat. No. Des. 387,808. This application Aug. 22, 1997, Ser. No. 75,775

Term of patent 14 years

LOC (6) Cl. 19 - *02*

U.S. Cl. D19—99



396,250

INFORMATION CARRIER

Erling Mogensen, Middelfart, Denmark, assignor to R.D. Impex ApS, Middelfart, and Container Centralen A/S, Odense, both of Denmark

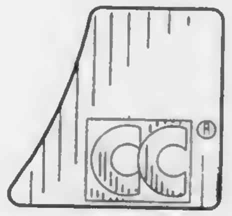
Filed Jun. 13, 1996, Ser. No. 55,838

Claims priority, application Denmark, Dec. 15, 1995, MA11591995

Term of patent 14 years

LOC (6) Cl. 19 - *08*

U.S. Cl. D20—22



396,251

SIGN

Viggo Mortensen, Tistrup, Denmark, assignor to A/S Modulex, Billund, Denmark

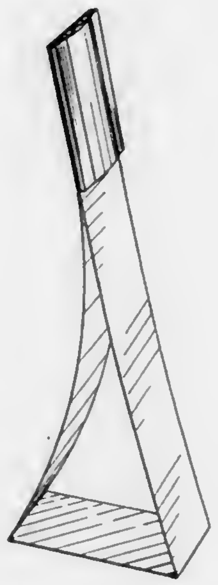
Filed Jul. 30, 1997, Ser. No. 74,209

Claims priority, application Denmark, Feb. 4, 1997, MA01091997

Term of patent 14 years

LOC (6) Cl. 20 - *02*

U.S. Cl. D20—41



396,252

GRAPHIC SIGN RAIL

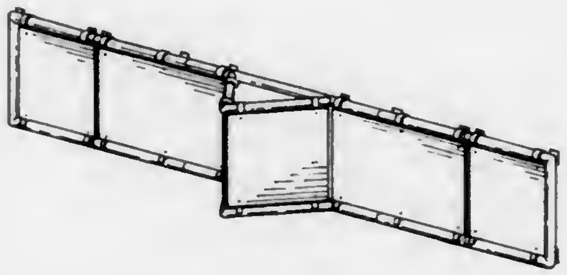
James Geier, and Jim Jobes, both of Chicago, Ill., assignors to 555 Design Fabrication Management, Inc., Chicago, Ill.

Filed Jul. 31, 1997, Ser. No. 74,479

Term of patent 14 years

LOC (6) Cl. 20 - *02*

U.S. Cl. D20—41



396,253

INFANT'S RATTLE

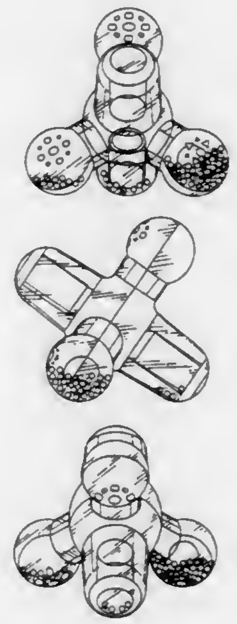
Christina M. Beecher, Norton, Mass., assignor to Hasbro, Inc., Pawtucket, R.I.

Filed Jun. 10, 1997, Ser. No. 72,239

Term of patent 14 years

LOC (6) Cl. 21 - *02*

U.S. Cl. D21—65



396,254

TOY HOUSE

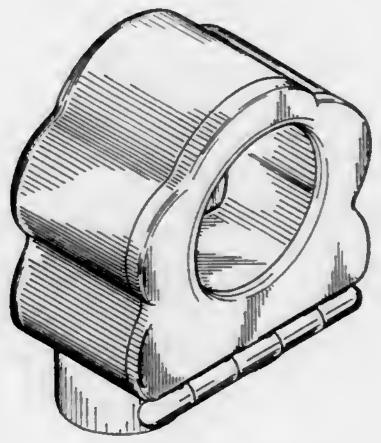
Helle Kleist Nielsen, Frederiksberg, Denmark, assignor to INTERLEGO AG, Baar, Switzerland

Filed Sep. 18, 1997, Ser. No. 76,736

Term of patent 14 years

LOC (6) Cl. 21 - *01*

U.S. Cl. D21—108



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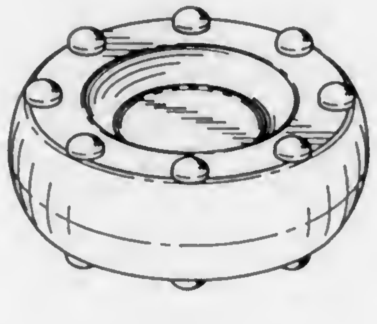
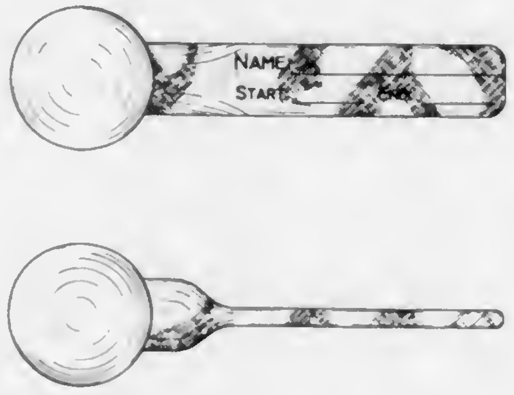
396,255
HOCKEY PUCK
Daniel Kotler, 2102 E. 330 South, Salt Lake City, Utah 84109
Filed Jul. 22, 1997, Ser. No. 73,661
Term of patent 14 years
LOC (6) Cl. 21 - *99*

U.S. Cl. D21—203



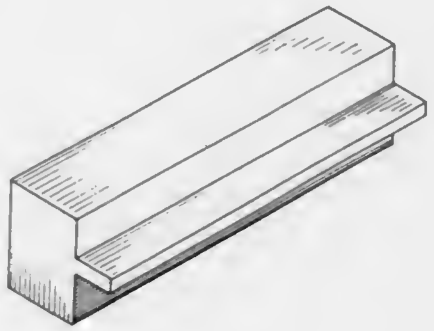
396,256
COMBINED TOSSING BALL AND STREAMER
Dianna Shaw, 8548 S. Aberdeen, Chicago, Ill. 60620
Filed Jul. 21, 1997, Ser. No. 73,292
Term of patent 14 years
LOC (6) Cl. 21 - *99*

U.S. Cl. D21—204



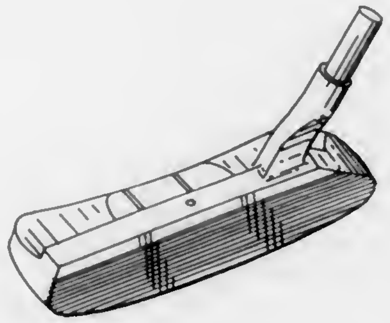
396,257
GOLF CLUB HEAD
Joseph L. Spano, 120 Fairview Dr., Madisonville, La. 70447
Filed Jun. 11, 1997, Ser. No. 72,182
Term of patent 14 years
LOC (6) Cl. 29 - *02*

U.S. Cl. D21—217



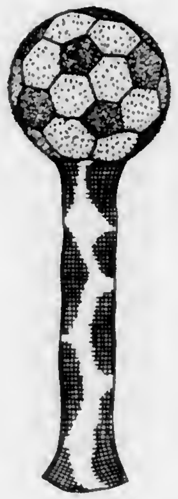
396,258
GOLF CLUB PUTTER HEAD
Jeffrey D. Sheets, 12 Southwood Dr., Wilbraham, Mass. 01095
Filed Jan. 23, 1997, Ser. No. 65,309
Term of patent 14 years
LOC (6) Cl. 21 - *02*

U.S. Cl. D21—219



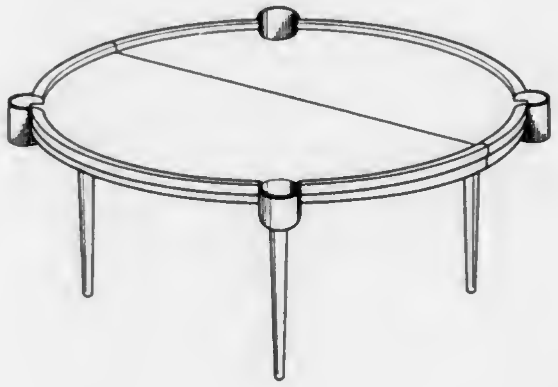
396,259
GOLF CLUB COVER CONFIGURED AS A SPORTS ITEM
Owen Craig Pollard, 2370 Brookhaven Pass, Vista, Calif. 92083
Division of Ser. No. 42,173, Aug. 2, 1995, abandoned. This application Aug. 28, 1997, Ser. No. 75,910
Term of patent 14 years
LOC (6) Cl. 21 - *01*

U.S. Cl. D21—221



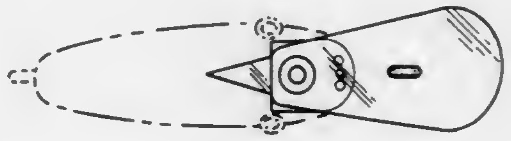
396,260
MARBLE BUSTER GAME
Howard Wilson, Sr., 1004 Johnston Rd., Norfolk, Va. 23513
Filed Dec. 9, 1996, Ser. No. 63,430
Term of patent 14 years
LOC (6) Cl. 21 - *02*

U.S. Cl. D21—232



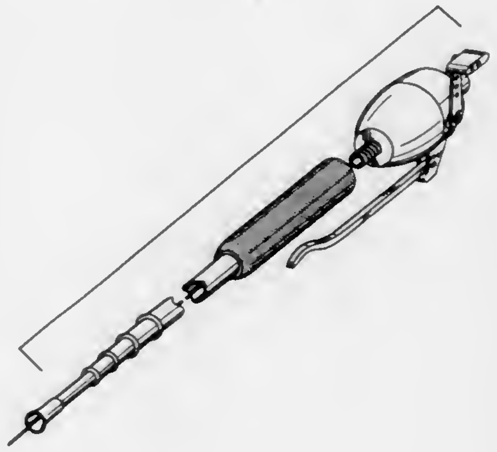
396,261
ADJUSTABLE FISHING LURE LIP
Samuel Evans Duncan, 12905 Buckley Rd., Knoxville, Tenn. 37922
Filed Feb. 27, 1997, Ser. No. 67,078
Term of patent 14 years
LOC (6) Cl. 22 - *05*

U.S. Cl. D22—126



396,262
FISHING ROD AND REEL
Robert Burdick, 8959 Jennings Rd., Eden, N.Y. 14057
Filed May 10, 1996, Ser. No. 54,249
Term of patent 14 years
LOC (6) Cl. 22 - *05*

U.S. Cl. D22—138



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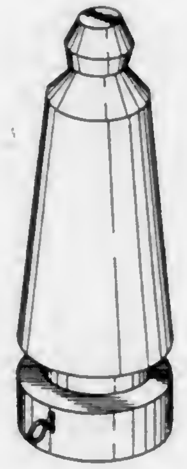
QUICK RELEASE FISHING FLOAT

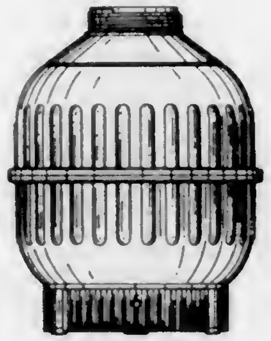
Rodney J. Miller, 488 Monterey Rd., Pacifica, Calif. 99044
Filed Nov. 27, 1995, Ser. No. 47,134
Term of patent 14 years
LOC (6) Cl. 22 - *05*
U.S. Cl. D22—146



396,264

BODY FOR SWIMMING POOL FILTERS

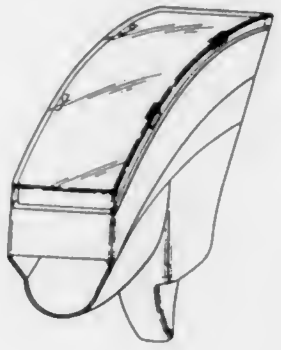
Robert Garrigos Ruiz, Girona, Spain, assignor to Aplister, S.A., Sant Jaume de Llierca, Spain
Filed Jul. 29, 1997, Ser. No. 74,163
Term of patent 14 years
LOC (6) Cl. 23 - *01*
U.S. Cl. D23—209



396,265

ADVERTISING CARRYING BODY FOR USE ON A FILLER GUN

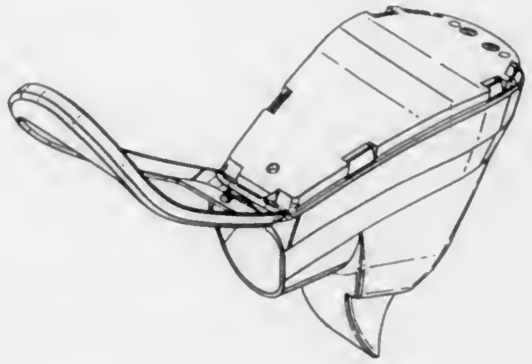
Øyvind Alvern, Hjellestad, Norway, assignor to Alvern Norway ASA, Norway
Filed May 12, 1997, Ser. No. 70,574
Claims priority, application Norway, Nov. 15, 1996, 960831
Term of patent 14 years
LOC (6) Cl. 23 - *01*
U.S. Cl. D23—227



396,266

ADVERTISING CARRYING BODY FOR USE ON A FILLER GUN

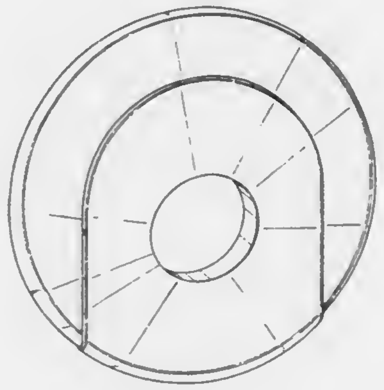
Øyvind Alvern, Hjellestad, Norway, assignor to Alvern Norway ASA, Norway
Filed May 12, 1997, Ser. No. 70,628
Claims priority, application Norway, Nov. 15, 1996, 960832
Term of patent 14 years
LOC (6) Cl. 23 - *01*
U.S. Cl. D23—227



396,267

PLUMBING FIXTURE WALL ESCUTCHEON

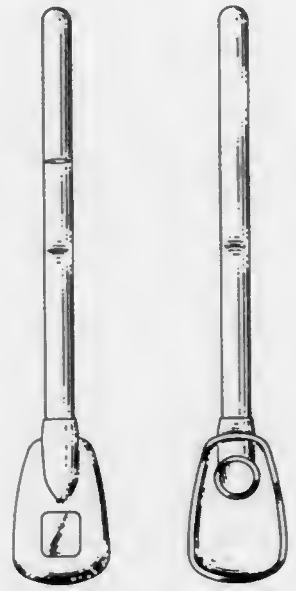
Hans Lobermeier, Menden, Germany, assignor to Friedrich Grohe AG, Hemer, Germany
Filed May 12, 1997, Ser. No. 70,585
Claims priority, application Germany, Nov. 19, 1996, M 96 09 977.1
Term of patent 14 years
LOC (6) Cl. 23 - *01*
U.S. Cl. D23—254



396,268

FAUCET SPOUT

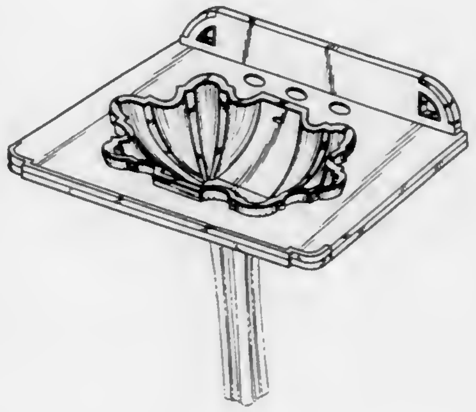
Jonathan W. Snyder, Wheaton, Ill., assignor to Sloan Valve Company, Franklin Park, Ill.
Filed Sep. 2, 1997, Ser. No. 75,897
Term of patent 14 years
LOC (6) Cl. 23 - *01*
U.S. Cl. D23—255



396,269

SINK

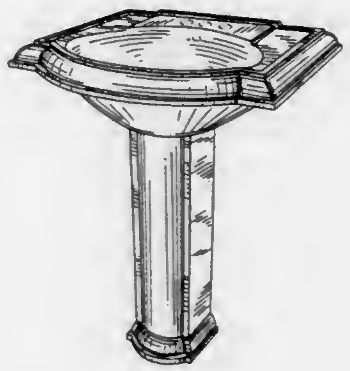
Sherie Wagner, 1050 Fifth Ave. Apt. 17D, New York, N.Y. 10128
Division of Ser. No. 52,255, Mar. 26, 1996, Pat. No. Des. 386,248. This application Mar. 19, 1997, Ser. No. 69,056
Term of patent 14 years
LOC (6) Cl. 23 - *02*
U.S. Cl. D23—285



396,270

PEDESTAL LAVATORY

Erich D. Slothower, Sheboygan, Wis., assignor to Sterling Plumbing Group, Inc., Rolling Meadows, Ill.
Filed Aug. 9, 1996, Ser. No. 58,234
Term of patent 14 years
LOC (6) Cl. 23 - *02*
U.S. Cl. D23—292



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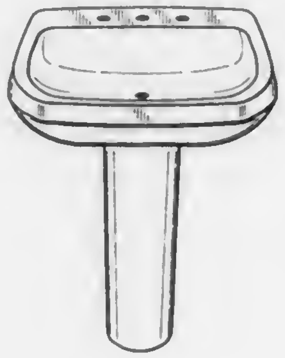
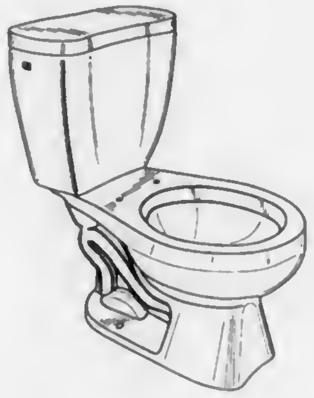
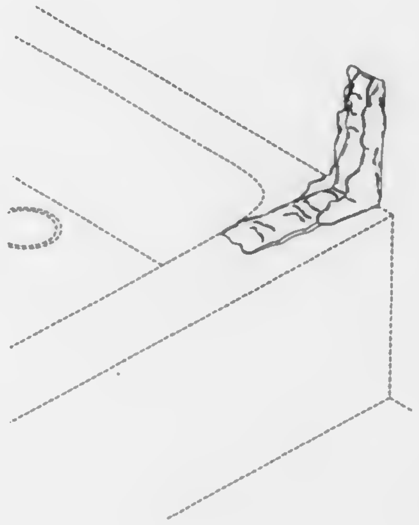
396,271
WASHSTAND
Marcelo Garza Laguera Garza, Acambaro No. 459 Col. CD. Industrial, 36541, Irapuato Guanajuata, Mexico
Filed Apr. 30, 1997, Ser. No. 70,106
Claims priority, application Mexico, Oct. 31, 1996, 961099
Term of patent 14 years
LOC (6) Cl. 23 - *02*
U.S. Cl. D23—292



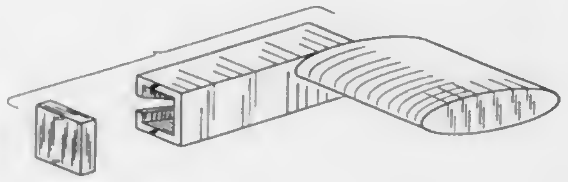
396,272
TOILET
Marcelo Garza Laguera Garza, Acambaro No. 459, Col. CD. Industrial, 36541 Irapuato, Guanajuato, Mexico
Filed Apr. 25, 1997, Ser. No. 70,007
Claims priority, application Mexico, Oct. 25, 1996, 961069
Term of patent 14 years
LOC (6) Cl. 23 - *02*
U.S. Cl. D23—301



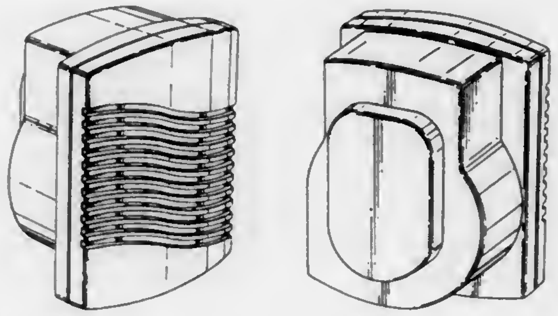
396,273
SHOWER SPLASH GUARD
Eric L. Delawder, 1721 S. Lake Storey Rd., Galesburg, Ill. 61401
Filed Sep. 19, 1997, Ser. No. 76,780
Term of patent 14 years
LOC (6) Cl. 23 - *02*
U.S. Cl. D23—307



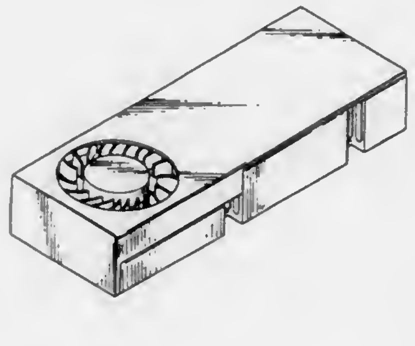
396,274
TOILET FLUSHING HANDLE
Gene William Gray, Salt Lake City, Utah, assignor to Gene W. Gray, Salt Lake City, Utah
Filed Sep. 23, 1996, Ser. No. 60,156
Term of patent 14 years
LOC (6) Cl. 23 - *02*
U.S. Cl. D23—309



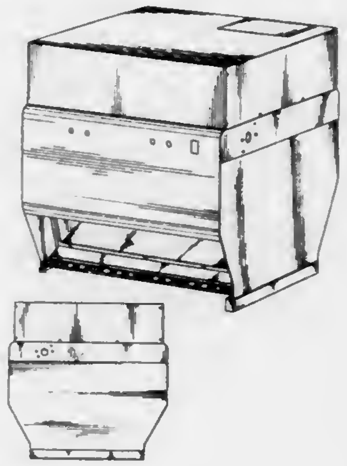
396,275
AIR TREATMENT APPARATUS
Allen Pearson, Cambridge, England, assignor to Reckitt & Colman Products Limited, London, United Kingdom
Filed Jun. 4, 1997, Ser. No. 72,024
Claims priority, application United Kingdom, Dec. 13, 1996, 2061741
Term of patent 14 years
LOC (6) Cl. 23 - *04*
U.S. Cl. D23—355



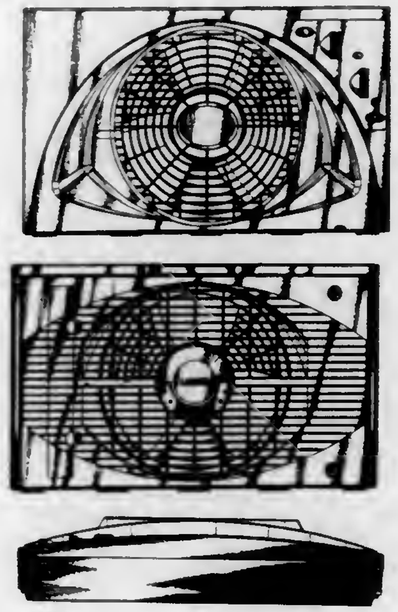
396,276
HEAT DISSIPATION FAN
Alex Horng, Kaohsiung, Taiwan, assignor to Sunonwealth Electric Machine Industry Co., Ltd., Taipei, Taiwan
Filed Oct. 7, 1997, Ser. No. 77,609
Term of patent 14 years
LOC (6) Cl. 23 - *04*
U.S. Cl. D23—370



396,277
VENTILATOR HOOD
James M. Wallace, 1555 Ridgeview Dr. #218, Reno, Nev. 89509, and Michael R. Rayburn, 945 Bates Ave., Reno, Nev. 89502
Filed Oct. 31, 1997, Ser. No. 78,795
Term of patent 14 years
LOC (6) Cl. 23 - *04*
U.S. Cl. D23—371



396,278
WINDOW FAN
Leo Gonzales, West Chester, Pa., assignor to Lasko Holdings, Inc., West Chester, Pa.
Filed May 5, 1997, Ser. No. 70,277
Term of patent 14 years
LOC (6) Cl. 23 - *04*
U.S. Cl. D23—382



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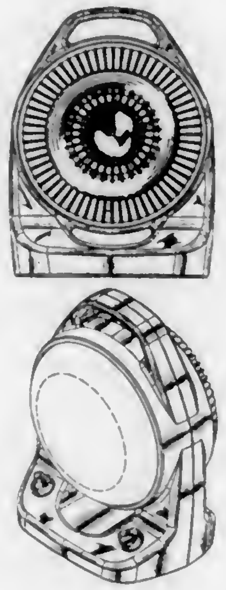
396,279

HOUSING FOR A HEATER

Glen W. Ediger, North Newton; Gary P. Israel, Andover; Kevin E. Keller, and Michael C. Coup, both of Wichita, all of Kans., assignors to Vornado Air Circulation Systems, Inc., Wichita, Kans.

Filed Feb. 20, 1997, Ser. No. 66,860
Term of patent 14 years
LOC (6) Cl. 23 - *03*

U.S. Cl. D23—386



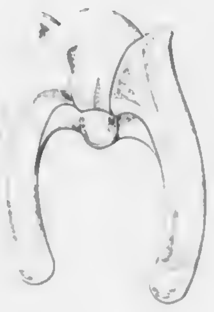
396,280

BLADE MEDALLION FOR A CEILING FAN

Masao Tsuji, Germantown, Tenn., assignor to Hunter Fan Company, Memphis, Tenn.

Division of Ser. No. 58,246, Aug. 9, 1996. This application Aug. 5, 1997, Ser. No. 74,531
Term of patent 14 years
LOC (6) Cl. 23 - *04*

U.S. Cl. D23—411



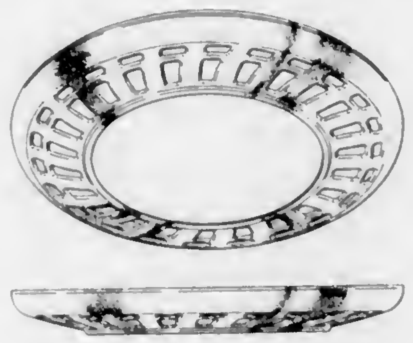
396,281

LOWER HOUSING FOR A CEILING FAN

Jack W. Gee, II, Huntsville, Ala., and Masao Tsuji, Germantown, Tenn., assignors to Hunter Fan Company, Memphis, Tenn.

Division of Ser. No. 58,276, Aug. 9, 1996. This application Aug. 5, 1997, Ser. No. 74,754
Term of patent 14 years
LOC (6) Cl. 23 - *04*

U.S. Cl. D23—411



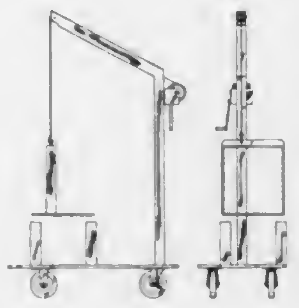
396,282

VEHICLE RESTRAINT SERVICE JOCKEY

Todd B. Schulze, 842 37th St. SE., Buffalo, Minn. 55313

Filed May 16, 1997, Ser. No. 71,048
Term of patent 14 years
LOC (6) Cl. 12 - *05*

U.S. Cl. D34—33



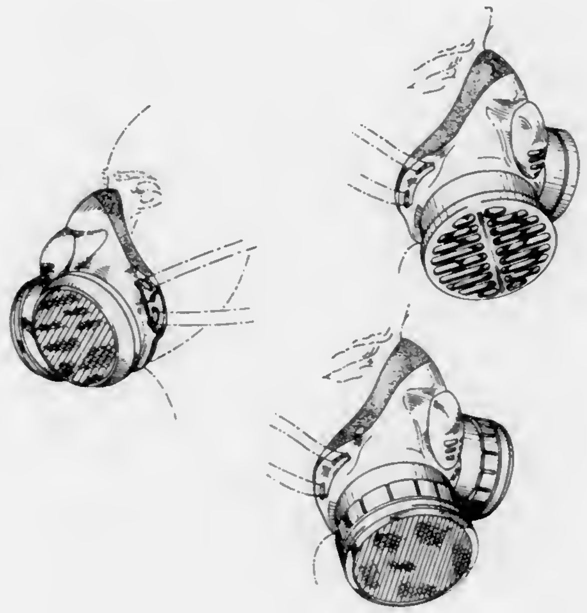
396,283

RESPIRATOR MASK

Michael F. Scholey, 12352 Stonegate Rd., Pacoima, Calif. 91331

Filed Aug. 16, 1996, Ser. No. 58,526
Term of patent 14 years
LOC (6) Cl. 29 - *02*

U.S. Cl. D24—110.5



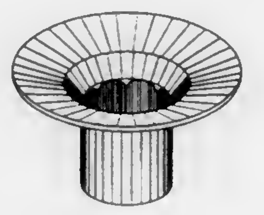
396,284

FEMALE INCONTINENCE DEVICE

Robert W. Schaefer, Bolton, Mass., assignor to Insight Medical Corporation, Bolton, Mass.

Filed May 29, 1996, Ser. No. 55,090
Term of patent 14 years
LOC (6) Cl. 24 - *04*

U.S. Cl. D24—122



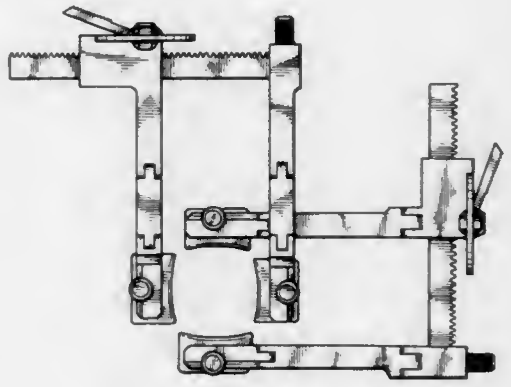
396,285

TWO PART CERVICAL RETRACTOR

Tibor Koros, and Gabriel Koros, both of 610 Flinn Ave., Moorpark, Calif. 93021

Continuation-in-part of Ser. No. 30,862, Nov. 10, 1994, Pat. No. Des. 369,860. This application Dec. 5, 1994, Ser. No. 31,744
Term of patent 14 years
LOC (6) Cl. 24 - *02*

U.S. Cl. D24—135



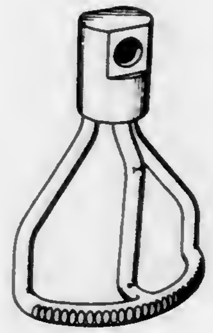
396,286

HEART VALVE RETRACTOR HEAD FOR ENDOSCOPIC ASSEMBLY AND USE

W. Michael Hipps, Roswell; William R. Mayfield, Atlanta, and Gregory R. Furnish, Lawrenceville, all of Ga., assignors to Genzyme Corporation, Tucker, Ga.

Filed Sep. 25, 1996, Ser. No. 60,272
Term of patent 14 years
LOC (6) Cl. 24 - *02*

U.S. Cl. D24—138



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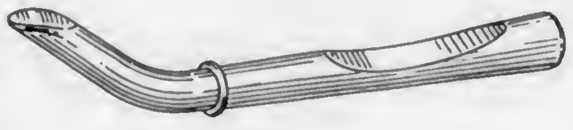
PROSTATE DEVICE

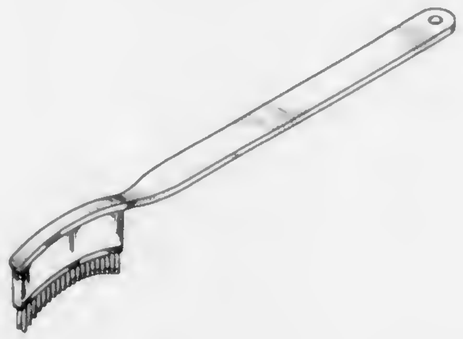
Louis Morales, 2338 W. Taylor, Chicago, Ill. 60612
Filed Nov. 29, 1996, Ser. No. 63,164
Term of patent 14 years
LOC (6) Cl. 24 - *02*
U.S. Cl. D24—141



396,288

TONGUE CLEANER

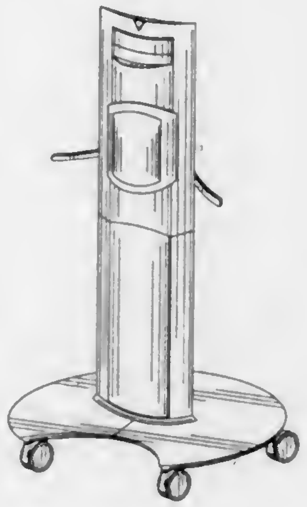
Bertil Samuel, 1268 Pint Circle Rd., Longs, S.C. 29568
Filed Aug. 19, 1997, Ser. No. 75,835
Term of patent 14 years
LOC (6) Cl. 24 - *02*
U.S. Cl. D24—147



396,289

BLOOD PROCESSOR

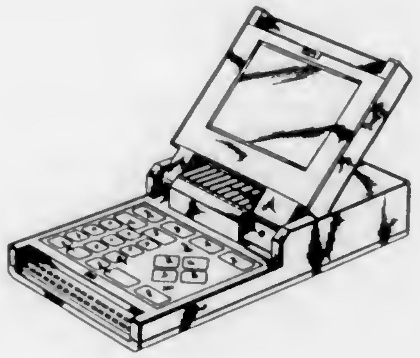
Steve McGugan, Copenhagen, Denmark, assignor to Bristol-Myers Squibb Company, New York, N.Y.
Filed Apr. 28, 1997, Ser. No. 69,559
Term of patent 14 years
LOC (6) Cl. 24 - *01*
U.S. Cl. D24—169



396,290

ELECTOMYOGRAM MUSCLE MONITORING DEVICE

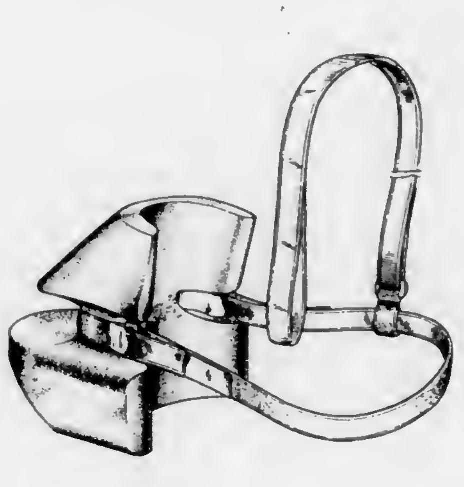
Harold Myers, 5637 McLynn Avenue, Montreal, Que., Canada, H3X 2P2, and Nigel Verity, 6 Rocky Creek Trail, Ormond Beach, Fla. 32174
Filed Mar. 12, 1997, Ser. No. 67,799
Term of patent 14 years
LOC (6) Cl. 24 - *01*
U.S. Cl. D24—186



396,291

SHOULDER ABDUCTION PILLOW

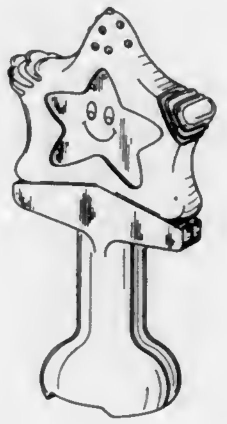
Robert Timothy Bakes, East Hawthorn, Australia, assignor to Orthotic Consultants Asia Pacific Pty. Ltd., Fitzroy, Australia
Filed Jul. 10, 1996, Ser. No. 56,868
Claims priority, application Australia, Jan. 12, 1996, 90/96
Term of patent 14 years
LOC (6) Cl. 24 - *04*
U.S. Cl. D24—190



396,292

TEETHER

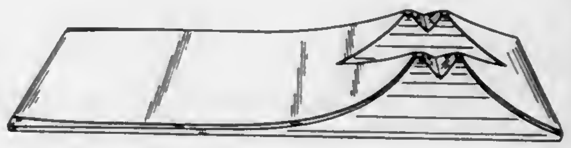
Ralph M. Nowak, Marblehead, Mass., assignor to The First Years Inc., Avon, Mass.
Filed Jun. 28, 1996, Ser. No. 56,407
Term of patent 14 years
LOC (6) Cl. 24 - *04*
U.S. Cl. D24—195



396,293

MASSAGE BOARD

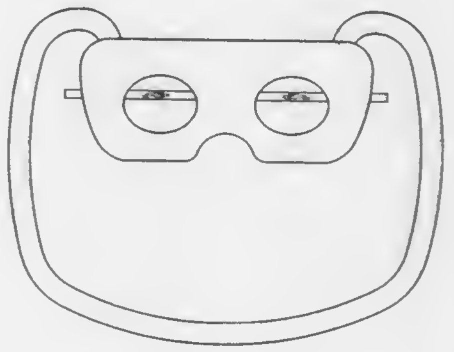
Karl Stranner, Rickenbacher Strasse 105, D-88131 Lindau, Germany
Filed May 5, 1997, Ser. No. 69,458
Term of patent 14 years
LOC (6) Cl. 24 - *04*
U.S. Cl. D24—200



396,294

SINUS MASK

Jennifer S. Lahr, 461 Market St., Millersburg, Pa. 17061
Filed Apr. 17, 1997, Ser. No. 69,805
Term of patent 14 years
LOC (6) Cl. 24 - *04*
U.S. Cl. D24—208



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MUSCLE EXERCISER

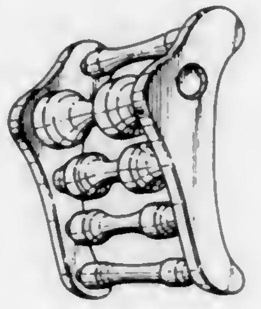
Neil Summers, Beechwood House, King George's Hill, Abinger, Bottom Dorking, Surrey, United Kingdom, RH5 6JW

Filed May 22, 1997, Ser. No. 71,186

Term of patent 14 years

LOC (6) Cl. 24 - ***04***

U.S. Cl. D24—211



396,296

MASSAGER

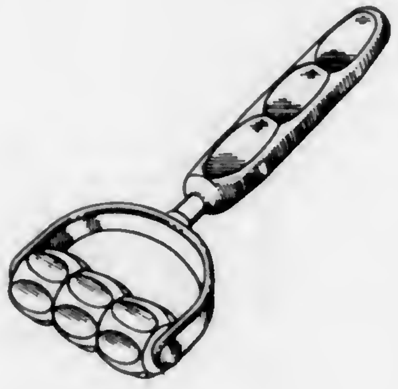
Andrej Breznik, 29, Kajakaška, 1211 Ljubljana, Slovenia

Filed May 29, 1997, Ser. No. 71,906

Term of patent 14 years

LOC (6) Cl. 24 - ***04***

U.S. Cl. D24—211



396,297

MASSAGER

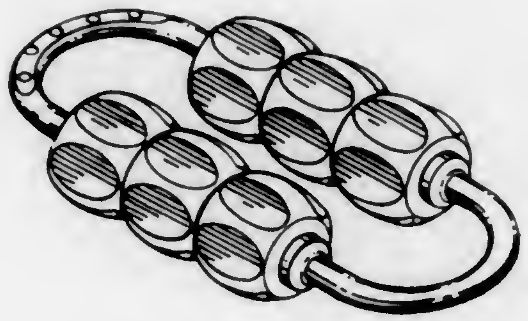
Andrej Breznik, 29, Kajakaška, 1211, Ljubljana, Slovenia

Filed May 29, 1997, Ser. No. 71,907

Term of patent 14 years

LOC (6) Cl. 24 - ***04***

U.S. Cl. D24—211



396,298

CONDOMINIUM BUILDING

Edward Allen Bacome; Philip Glenn Fankhauser, both of Dublin, and Michael Joseph Fitzpatrick, Hilliard, all of Ohio, assignors to Epmark, Inc., Dublin, Ohio

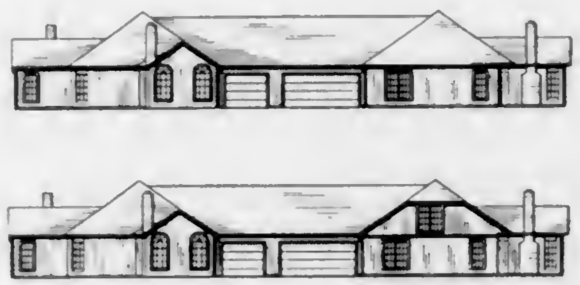
Continuation of Ser. No. 38,140, Apr. 27, 1995, abandoned.

This application Apr. 23, 1996, Ser. No. 53,519

Term of patent 14 years

LOC (6) Cl. 25 - ***03***

U.S. Cl. D25—17



396,299

STAINLESS STEEL DOOR

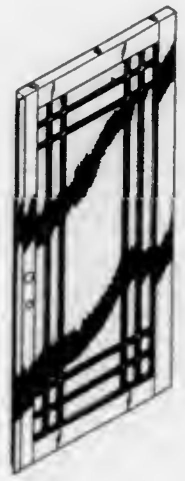
Ming-Kun Lee, 2/F., No. 13, Hsing-Nan St., Nan-Kang Dist., Taipei City, Taiwan

Filed Jun. 23, 1997, Ser. No. 72,671

Term of patent 14 years

LOC (6) Cl. 25 - ***02***

U.S. Cl. D25—48



396,300

DOOR ASSEMBLY

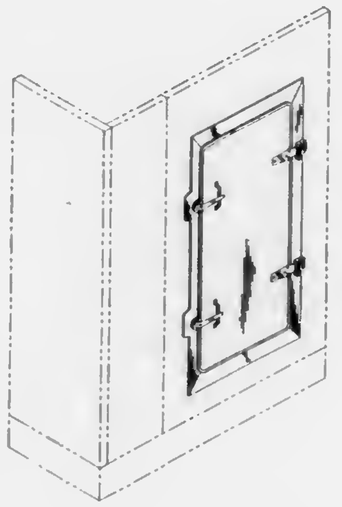
Joel A. Grimaldi, Pittsford, N.Y., assignor to Rochester Custom Metal, Inc., Honeoye, N.Y.

Filed Jul. 31, 1997, Ser. No. 74,448

Term of patent 14 years

LOC (6) Cl. 25 - ***02***

U.S. Cl. D25—48



396,301

SKYLIGHT HAVING A LIGHT COLLECTING SYSTEM

Norioki Fujimoto, Saitama-ken; Kazuo Takahashi; Wazoh Yamada, both of Gunma-ken; Masanobu Numao, Tochigi-ken, and Masashi Takazawa, Gunma-ken, all of Japan, assignors to Sanyo Electric Co., Ltd., Osaka-fu, Japan

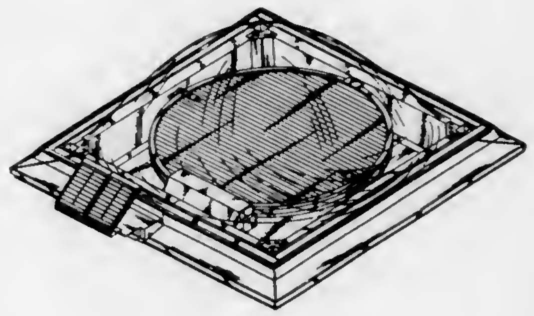
Filed Mar. 11, 1997, Ser. No. 67,733

Claims priority, application Japan, Sep. 11, 1996, 8-27280

Term of patent 14 years

LOC (6) Cl. 25 - ***02***

U.S. Cl. D25—52



396,302

WALL SYSTEM

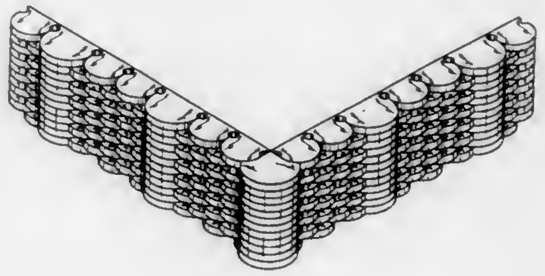
Joseph Cziczeli, 215 Blake St., Apt.3, New Haven, Conn. 06515

Filed Apr. 2, 1997, Ser. No. 68,860

Term of patent 14 years

LOC (6) Cl. 25 - ***02***

U.S. Cl. D25—58



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396,303
TREE STAND

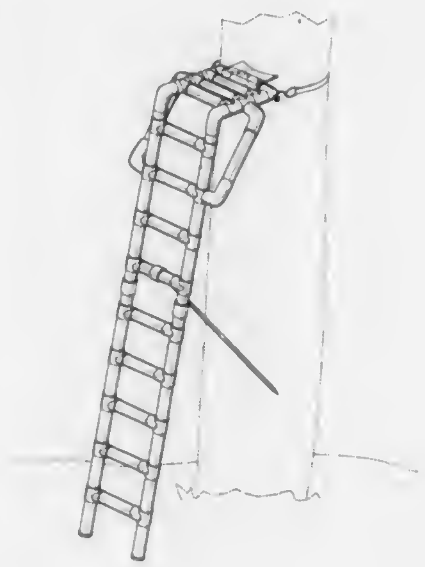
Jeffrey P. Odom, 14 Hidden Forest Dr., Candler, N.C. 28715, and David R. Odom, P.O. Box 934, Big Cove Rd. Coulder, Enka, N.C. 28727

Filed Oct. 6, 1997, Ser. No. 77,574

Term of patent 14 years

LOC (6) Cl. 25 - *04*

U.S. Cl. D25—62



396,304
TULIP TRELLIS

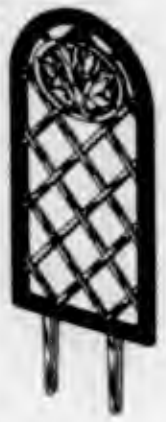
Fred Hollinger, Kings Park, N.Y., assignor to American Tack & Hardware Co., Inc., Monsey, N.Y.

Filed Oct. 8, 1997, Ser. No. 77,750

Term of patent 14 years

LOC (6) Cl. 08 - *99*

U.S. Cl. D25—100



396,305
LA FLEUR TRELLIS

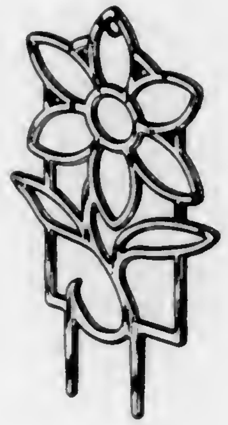
Fred Hollinger, Kings Park, N.Y., assignor to American Tack & Hardware Co., Inc., Monsey, N.Y.

Filed Oct. 8, 1997, Ser. No. 77,749

Term of patent 14 years

LOC (6) Cl. 08 - *99*

U.S. Cl. D25—101



396,306
WINDOW SILL COMPONENT

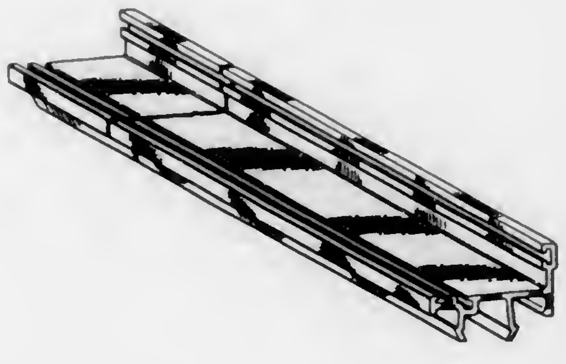
Tony DiGiorgio, Woodbridge, Canada, assignor to Dominion Plastics Inc., Woodbridge, Canada

Filed Jul. 8, 1997, Ser. No. 71,260

Term of patent 14 years

LOC (6) Cl. 25 - *01*

U.S. Cl. D25—125



396,307
BUILDING ELEMENT

Philip Toovey, Banbury Oxfordshire, United Kingdom, assignor to Fina Europe, Brussels, Belgium

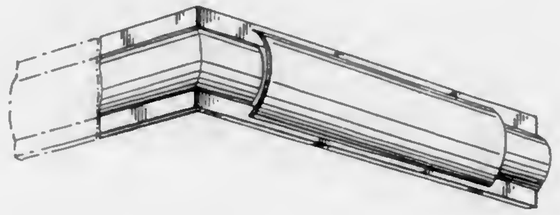
Filed Jan. 12, 1996, Ser. No. 49,056

Claims priority, application WIPO, Jul. 12, 1995, DM/033515

Term of patent 14 years

LOC (6) Cl. 25 - *01*

U.S. Cl. D25—136



396,308
RAIL COMPONENT

Ruben Hägglund, Lilla Hanåsa, S-579 92 Högsby, Sweden

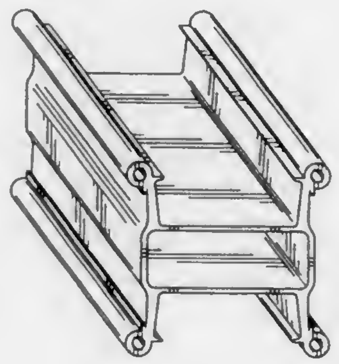
Filed May 3, 1995, Ser. No. 38,331

Claims priority, application Sweden, Nov. 10, 1994, 94-2302

Term of patent 14 years

LOC (6) Cl. 25 - *01*

U.S. Cl. D25—164



396,309
ORNAMENTAL PLATE AND CANDLE HOLDER DISPLAY

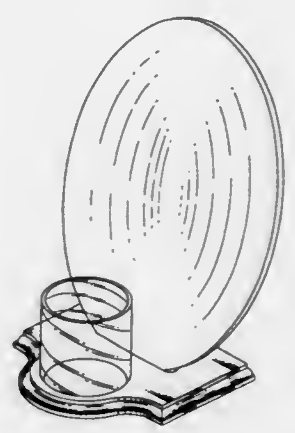
Barbara Ann Churchville, Kennett Square, and Allen Edward Darrone, West Chester, both of Pa., assignors to Franklin Mint Company

Filed Jul. 28, 1997, Ser. No. 74,086

Term of patent 14 years

LOC (6) Cl. 26 - *01*

U.S. Cl. D26—10



396,310
EXTERIOR SURFACE CONFIGURATION OF AN AUTOMOBILE REAR LIGHT ASSEMBLY

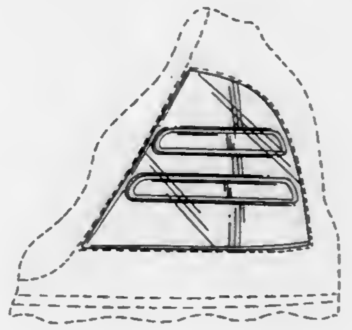
Bruno Sacco, Sindelfingen, and Peter Pfeiffer, Böblingen, both of Germany, assignors to Daimler-Benz Aktiengesellschaft, Stuttgart, Germany

Filed Jun. 5, 1997, Ser. No. 71,719

Term of patent 14 years

LOC (6) Cl. 26 - *02*

U.S. Cl. D26—28



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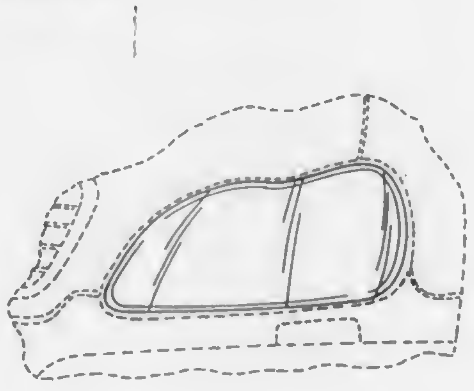
396,311
EXTERIOR SURFACE CONFIGURATION OF AN AUTOMOBILE FRONT LIGHT ASSEMBLY

Bruno Sacco, Sindelfingen, and Peter Pfeiffer, Böblingen, both of Germany, assignors to Daimler-Benz Aktiengesellschaft, Stuttgart, Germany

Filed Jun. 5, 1997, Ser. No. 71,721
Term of patent 14 years
LOC (6) Cl. 26 - *02*

U.S. Cl. D26—28

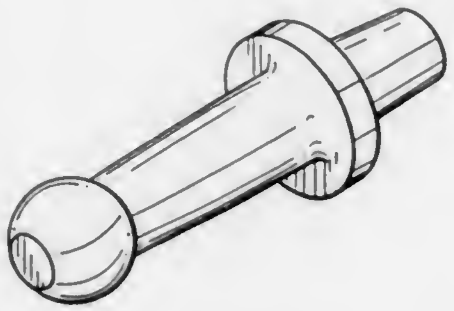


396,312
CONTROL ELEMENT FOR ADJUSTING HEADLAMP HOUSINGS

Adolph G. Galinski, Burr Ridge, Ill., and Daniel L. Holden, Harrison, Ohio, assignors to Illinois Tool Works Inc., Glenview, Ill.

Filed Oct. 2, 1997, Ser. No. 77,492
Term of patent 14 years
LOC (6) Cl. 26 - *06*

U.S. Cl. D26—28

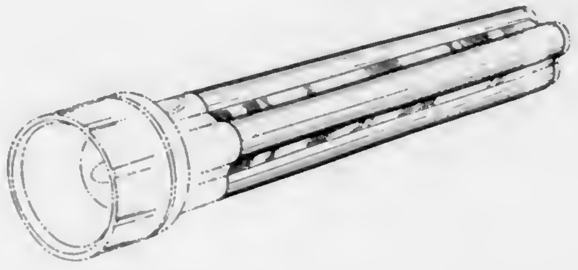


396,313
FLASHLIGHT BODY

David R. Dalton, Westlake, Ohio, and John R. Brown, New South Wales, Australia, assignors to Eveready Battery Company, Inc., St. Louis, Mo.

Filed May 6, 1997, Ser. No. 70,405
Claims priority, application Australia, Nov. 6, 1996, 3620/96
Term of patent 14 years
LOC (6) Cl. 26 - *02*

U.S. Cl. D26—46

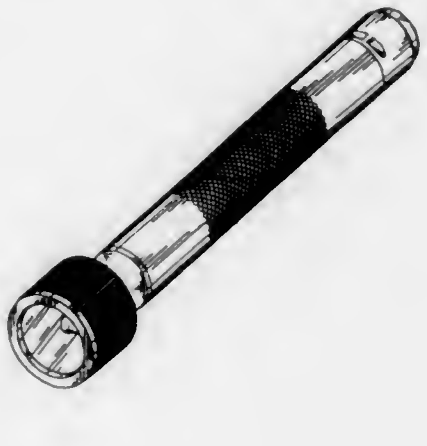


396,314
FLASHLIGHT

Si Fu Chiu, Unit 10, 19th Floor, technology Plaza, 29-35 Sha Tsui Road, Tsuen Wan, New Territories, Hong Kong

Filed Sep. 26, 1997, Ser. No. 76,886
Term of patent 14 years
LOC (6) Cl. 26 - *02*

U.S. Cl. D26—49

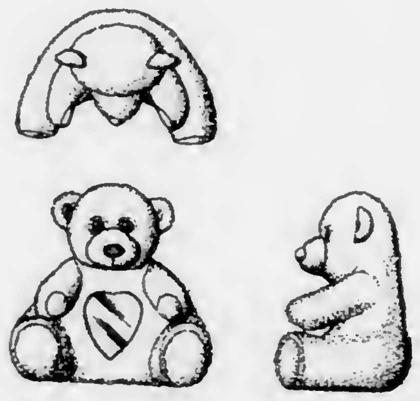


396,315
COMBINED BEDTIME TOY AND NIGHT LIGHT

Marc Hamerman, P.O. Box 411, Roslyn Heights, N.Y. 11577-0411

Filed Sep. 15, 1997, Ser. No. 76,474
Term of patent 14 years
LOC (6) Cl. 26 - *05*

U.S. Cl. D26—57

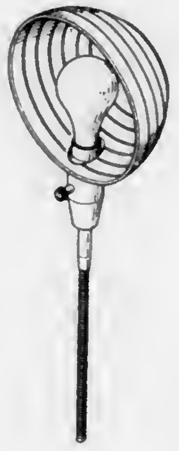


396,316
LIGHT

Steve Wang, No. 39, 1. Feen Liao Road Lin Kou Hsiang, Taipei, Taiwan

Filed Oct. 14, 1997, Ser. No. 77,966
Term of patent 14 years
LOC (6) Cl. 26 - *03*

U.S. Cl. D26—107



396,317
LIGHT HOUSING

Stephane Pagani, 100 Water St., 5th Fl.-Studio #3, Brooklyn, N.Y. 11201

Filed Mar. 14, 1997, Ser. No. 67,815
Term of patent 14 years
LOC (6) Cl. 26 - *05*

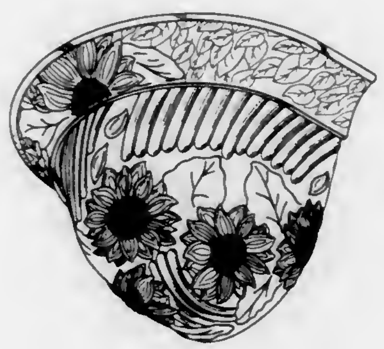
U.S. Cl. D26—110

396,318
LAMP SHADE

Keen Hsu, 58, Ma Yuan West St., Taichung, Taiwan

Filed Jul. 26, 1997, Ser. No. 74,398
Term of patent 14 years
LOC (6) Cl. 26 - *05*

U.S. Cl. D26—127



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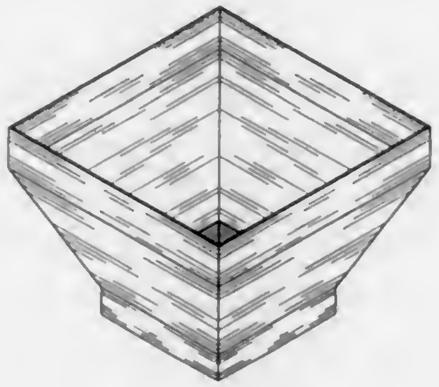
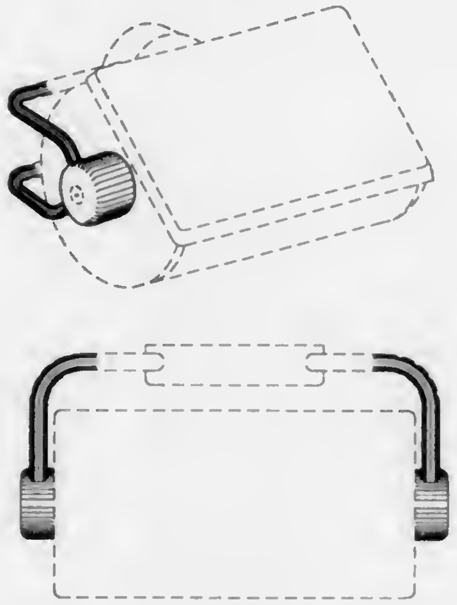
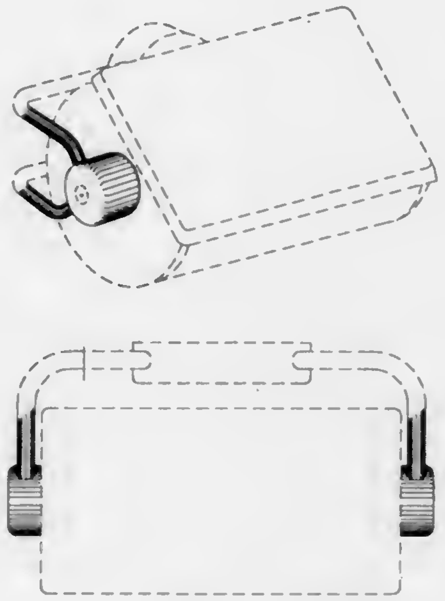
396,319
SCOREBOARD STYLE CEILING LAMP COVER
Ellis A. Sutton, 595 Paxton Ave., Calumet City, Ill. 60409
Filed Apr. 8, 1997, Ser. No. 68,372
Term of patent 14 years
LOC (6) Cl. 26 - *05*
U.S. Cl. D26—128



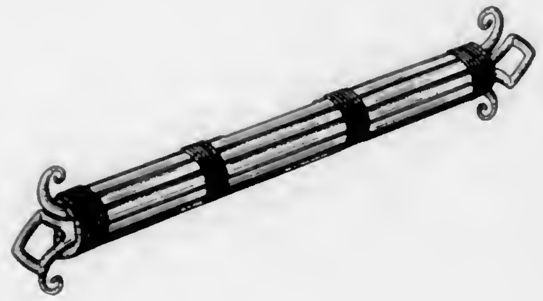
396,320
LIGHT FIXTURE HOLDING APPARATUS
David Patterson, Corrales, N. Mex., assignor to Insight Lighting, Inc., Albuquerque, N. Mex.
Filed Sep. 10, 1997, Ser. No. 76,555
Term of patent 14 years
LOC (6) Cl. 26 - *99*
U.S. Cl. D26—140



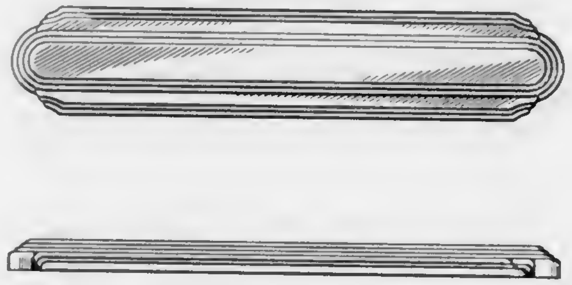
396,321
LIGHT FIXTURE HOLDING APPARATUS
David Patterson, Corrales, N. Mex., assignor to Insight Lighting, Inc., Albuquerque, N. Mex.
Filed Sep. 10, 1997, Ser. No. 76,556
Term of patent 14 years
LOC (6) Cl. 26 - *99*
U.S. Cl. D26—140



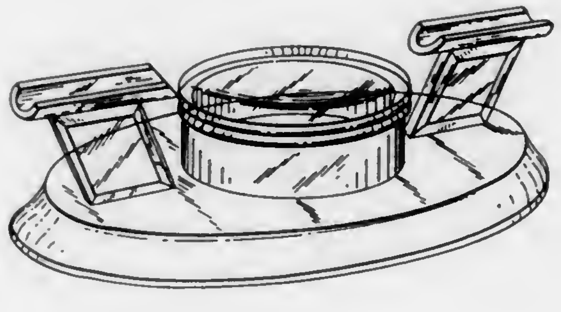
396,322
BACK PLATE FOR A LIGHTING FIXTURE
Pasquale Miranda, 154 Sleepy Hollow Rd., Briarcliff Manor, N.Y. 10510
Filed Jun. 20, 1997, Ser. No. 72,594
Term of patent 14 years
LOC (6) Cl. 26 - *99*
U.S. Cl. D26—142



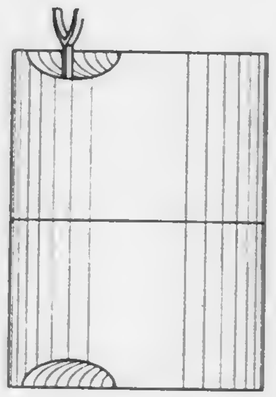
396,323
BACK PLATE
Pasquale Miranda, 154 Sleepy Hollow Rd., Briarcliff Manor, N.Y. 10510
Filed Jul. 3, 1997, Ser. No. 73,201
Term of patent 14 years
LOC (6) Cl. 26 - *99*
U.S. Cl. D26—142



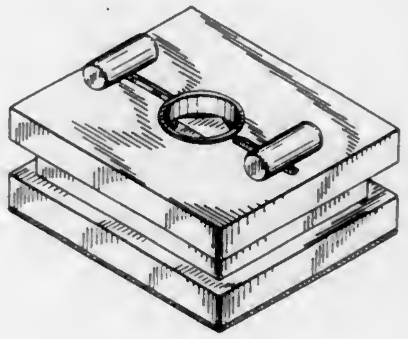
396,324
ASH TRAY
David R. Perkins, Manchester, Mass., assignor to Glass Dimensions, Inc., Essex, Mass.
Filed Jul. 21, 1997, Ser. No. 73,910
Term of patent 14 years
LOC (6) Cl. 27 - *03*
U.S. Cl. D27—135



396,325
CIGARETTE CARRIER
Thomas R Johnsey, 825 Eucalyptus Dr., El Segundo, Calif. 90245
Filed Jul. 25, 1997, Ser. No. 74,507
Term of patent 14 years
LOC (6) Cl. 27 - *06*
U.S. Cl. D27—187



396,326
CIGAR CUTTER
E. Louis Makrinos, 1374 Post Rd., Old Greenwich, Conn. 06870
Filed Jul. 29, 1997, Ser. No. 74,196
Term of patent 14 years
LOC (6) Cl. 27 - *06*
U.S. Cl. D27—195



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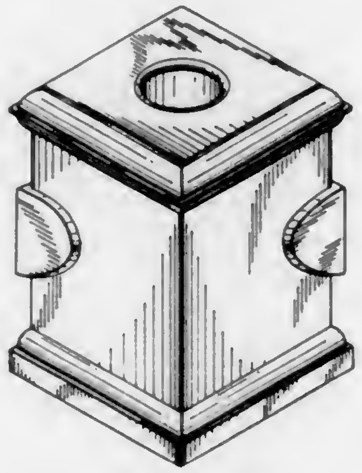
CIGAR CUTTER

E. Louis Makrinos, 1374 Post Rd., Old Greenwich, Conn. 06870

Filed Jul. 29, 1997, Ser. No. 74,197

Term of patent 14 years

U.S. Cl. D27—195



396,328

APPLICATOR FOR BODY LOTION

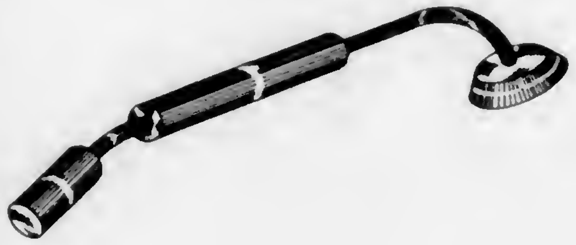
Earline Jarvis, 9148 S. Loomig, Chicago, Ill. 60620

Filed Sep. 26, 1997, Ser. No. 77,071

Term of patent 14 years

LOC (6) Cl. 28 - *07*

U.S. Cl. D28—7



396,329

COMPACT CASE

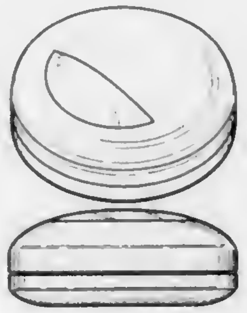
Garfield Litton, Glenrock, N.J., assignor to Revlon Consumer Products Corporation, New York, N.Y.

Filed Sep. 19, 1997, Ser. No. 76,949

Term of patent 14 years

LOC (6) Cl. 28 - *03*

U.S. Cl. D28—82



396,330

ELBOW PAD

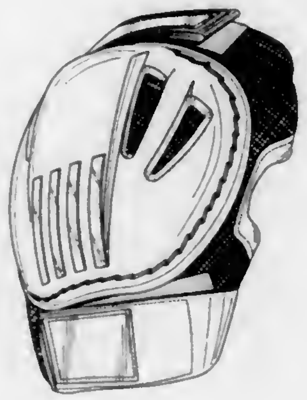
Richard Highlands Oetting, Deephaven, Minn., assignor to Rollerblade, Inc., Minnetonka, Minn.

Filed Apr. 30, 1996, Ser. No. 53,764

Term of patent 14 years

LOC (6) Cl. 29 - *02*

U.S. Cl. D29—121



396,331

COMBINED BIRD SHELTER AND FEEDER

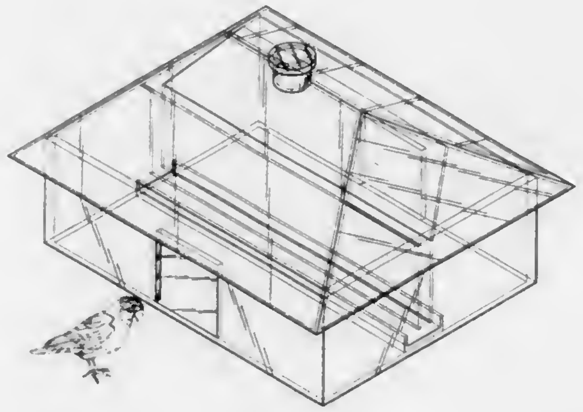
Gary R. Niemetz, 8520 Vasel Ave., St. Louis, Mo. 63123

Filed Feb. 3, 1997, Ser. No. 67,625

Term of patent 14 years

LOC (6) Cl. 30 - *02*

U.S. Cl. D30—124



396,332

BED FOR PETS

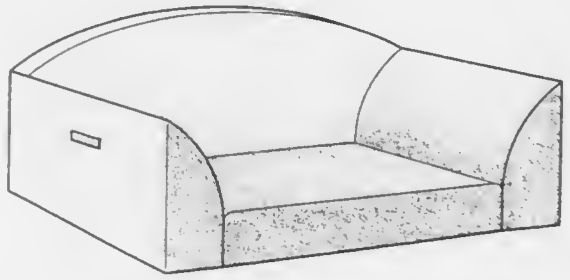
Franklin D. McMahon, New York, N.Y., assignor to Univier Corp., New York, N.Y.

Filed Dec. 24, 1996, Ser. No. 64,221

Term of patent 14 years

LOC (6) Cl. 06 - *01*

U.S. Cl. D30—118



396,333

FOAL GATE

Pamela J. Alford, Rte. 2, Box 1775, and Richard D. Jackson, P.O. Box 119, both of Marble Hill, Mo. 63764

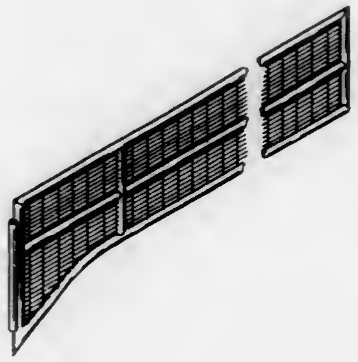
Filed Oct. 11, 1996, Ser. No. 64,603

The portion of the term of this patent subsequent to Jul. 15, 2011, has been disclaimed.

Term of patent 14 years

LOC (6) Cl. 30 - *02*

U.S. Cl. D30—119



396,334

BIRD FEEDER

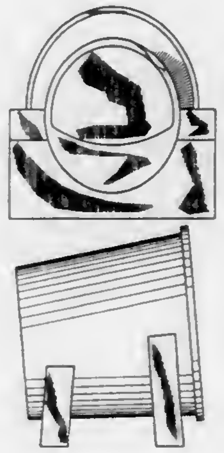
Sam Gutierrez, 3209 Garnet St., Los Angeles, Calif. 90023

Filed Jan. 21, 1997, Ser. No. 65,134

Term of patent 14 years

LOC (6) Cl. 30 - *03*

U.S. Cl. D30—124



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LIST OF PATENTEES

TO WHOM

PATENTS WERE ISSUED ON THE 21st DAY OF JULY, 1998

NOTE— Arranged in accordance with the first significant character or word of the name
(in accordance with city and telephone directory practice).

- A.K Technical Laboratory Inc.: *See—*
  - Takeuchi, Setsuyuki, 5,783,138, Cl. 264-537.000.
- Aasberg, Olav L. Apparatus for implanting hair-roots, and a device for placing hair-roots on a conveyor belt for use in the apparatus. 5,782,843, Cl. 606-133.000.
- ABB Flexible Automation Inc.: *See—*
  - O'Ryan, David E.; and Burke, Richard D., 5,782,943, Cl. 55-332.000.
- ABB Patent GmbH: *See—*
  - Dittmar, Ewald; Kochs, Hans-Dieter; and Hilmer, Holger, 5,784,547, Cl. 395-182.020.
- ABB Power T&D Company, Inc.: *See—*
  - Bouhenguel, Redjem; and Elmore, Walter A., 5,784,239, Cl. 361-71.000.
  - Yang, Lifeng, 5,783,946, Cl. 324-522.000.
- ABB Research Ltd.: *See—*
  - Döbbeling, Klaus; Knöpfel, Hans Peter; and Griffin, Timothy, 5,782,627, Cl. 431-9.000.
- Abbott Laboratories: *See—*
  - Baker, William R.; Rosenberg, Saul H.; Fung, Anthony K. L.; Rockway, Todd W.; Fakhoury, Stephen A.; Garvey, David S.; Donner, B. Gregory; O'Connor, Stephen J.; Prasad, Rajnandan N.; Shen, Wang; Stout, David M.; and Sullivan, Gerard M., 5,783,593, Cl. 514-381.000.
  - Kolasa, Teodozyj; Brooks, Clint D. W.; and Gunn, David E., 5,783,586, Cl. 514-311.000.
  - Mattingly, Phillip Gregory; and Bennett, Larry Gene, 5,783,699, Cl. 546-104.000.
- Abboud, Samir Elias; Apuzzo, Nickolas Christopher; Brown, Jeffrey Bernard; Cunningham, Earl Albert; Hannon, David Malcolm; Mallette, Raymond Patrick; Tyler, Paul Sheldon; Voss, Steven Harry; and Wallash, Albert John, to International Business Machines Corporation. Magnetic reinitialization of thin film magnetoresistive reproducing heads at the suspension level of media drive manufacturing. 5,783,981, Cl. 335-284.000.
- Abe, Michiharu, to Ricoh Company, Ltd. Information recording method and device. 5,784,355, Cl. 369-116.000.
- Abe, Shinichi, to Toyota Jidosha Kabushiki Kaisha. Apparatus for controlling a heater for heating an air-fuel ratio sensor. 5,782,227, Cl. 123-689.000.
- Abe, Takao: *See—*
  - Hayashi, Kazuhiko; Sato, Chisato; Tamai, Satoshi; Abe, Takao; Isoda, Takeshi; Mihira, Ado; and Kumagai, Toshio, 5,783,703, Cl. 548-193.000.
- Abe, Takeshi: *See—*
  - Nakatani, Yoshihiro; Takahashi, Koji; Hieda, Teruo; Kyuma, Kenji; Suzuki, Koichiro; Abe, Takeshi; and Ishikawa, Yoshifumi, 5,784,521, Cl. 386-46.000.
- Abela, George S.; Friedl, Stephan E.; Mathews, Eric D.; and Bowden, Russell W., to Abela Laser Systems, Inc.; and University of Florida Research Foundation, Inc. Cardiac catheter anchoring. 5,782,824, Cl. 606-15.000.
- Abela Laser Systems, Inc.: *See—*
  - Abela, George S.; Friedl, Stephan E.; Mathews, Eric D.; and Bowden, Russell W., 5,782,824, Cl. 606-15.000.
- Abelleira, Angel; and Hallock, John, to W.R. Grace & Co.-Conn. Additive for production of highly workable mortar cement. 5,782,972, Cl. 106-696.000.
- Abend, Robert; Shimizu, Hiroaki; and Ishii, Norihiro, to Tuff Torq Corporation; and Kanzaki Kokyukoki Mfg. Co. Axle driving apparatus. 5,782,142, Cl. 74-607.000.
- Abitbol, Marc; and Maillart, Jean-Luc, to Bertin & Cie; and Sollac. Method and apparatus for identifying the position in three dimensions of a movable object such as a sensor or a tool carried by a robot. 5,784,282, Cl. 364-474.280.
- Abraham, Martin, to Laser Industries Ltd. Laser beam delivery method and system. 5,783,798, Cl. 219-121.730.
- Abraham, Nadar G.: *See—*
  - Levere, Richard D.; Abraham, Nadar G.; Schwartzman, Michal L.; and Dunn, Michael W., 5,783,201, Cl. 424-401.000.
- Abram, Albert Z.: *See—*
  - Tomlinson, Roderick P.; Halls, Neil G.; and Abram, Albert Z., 5,783,202, Cl. 424-405.000.
- Abramson, Jeffrey M., to Intel Corporatiion. Load buffer integrated dynamic decoding logic. 5,784,639, Cl. 395-800.230.
- Acampora, Alfonse Anthony; and Bunting, Richard Michael, to General Electric Company. Data processor for assembling transport data packets. 5,784,110, Cl. 348-423.000.
- Ackerman, Douglas Warren: *See—*
  - Sardelis, Timothy; Ackerman, Douglas Warren; and McJames, William, 5,783,001, Cl. 148-607.000.
- Acushnet Company: *See—*
  - Lammi, Robert N., 5,783,293, Cl. 428-212.000.
- Adachi, Kazutaka, to Nissan Motor Co., Ltd. CVT control system. 5,782,719, Cl. 477-46.000.
- Adachi, Koji; Ishikawa, Hiroshi; Ogi, Kenji; Kawamoto, Koushi; and Wada, Yoshinori, to Fuji Xerox Co., Ltd. Image output device and processing method converting an image formation command into raster format. 5,784,062, Cl. 345-418.000.
- Adachi, Shizuo; Hirata, Junko; and Miyamoto, Hiroshi, to Sony Corporation. Telephone having a hold function. 5,784,458, Cl. 379-435.000.
- Adams, Jerry L.: *See—*
  - Lee, John C.; Adams, Jerry L.; Gallagher, Timothy F.; Green, David W.; Heys, John Richard; McDonnell, Peter C.; McNulty, Dean E.; Strickler, James E.; and Young, Peter R., 5,783,664, Cl. 530-350.000.
- Adams, John Leonard: *See—*
  - Smith, Avail Joy; and Adams, John Leonard, 5,784,358, Cl. 370-230.000.
- Adams, Nathan William: *See—*
  - Berliner, David L.; Adams, Nathan William; and Jennings-White, Clive L., 5,783,571, Cl. 514-177.000.
- Adams, Richard J.; and Pippin, Mark N., to Schwinn Cycling & Fitness Inc. Steering mechanism safety system. 5,782,479, Cl. 280-279.000.
- Adams Rite Manufacturing Co.: *See—*
  - Uyeda, Alan K., 5,782,509, Cl. 292-DIG. 66.000.
- Adams, Robert Dean; Connor, John; Koch, Garrett Stephen; and Ternullo, Luigi, Jr., to International Business Machines Corporation. Test converage of embedded memories on semiconductor substrates. 5,784,323, Cl. 365-201.000.
- Adda, Josette: *See—*
  - Sernit, Eric; Fromont, Bernard; Bocquillon, Pascal; and Adda, Josette, 5,784,341, Cl. 367-155.000.
- Adler, Lee M.: *See—*
  - Allen, Charles S.; Shaw, Daniel C.; and Adler, Lee M., 5,781,942, Cl. 4-623.000.
- Admotion Corporation: *See—*
  - Dehli, Hans J.; and Peeters, Bradford D., 5,783,919, Cl. 318-466.000.
- Adorno/Rogers Technology, Inc.: *See—*
  - Rogers, Richard H.; and Huntress, Robert M., 5,782,483, Cl. 280-642.000.
- Adtran, Inc.: *See—*
  - Kruse, Grant Joseph; Coker, James Brian; and McCleary, Jacob Daniel, 5,783,777, Cl. 174-66.000.
- Advanced Cardiovascular Systems, Inc.: *See—*
  - Lau, Lilip; Hartigan, William M.; Khosravi, Farhad; Klemm, Kurt R.; and Sigwart, Ulrich, 5,782,855, Cl. 606-194.000.
  - Schneiderman, Gary, 5,782,740, Cl. 600-1.000.
- Advanced Elastomer System, L.P.: *See—*
  - Venkataswamy, Krishna, 5,783,631, Cl. 525-92.00F.
- Advanced Learning Corp.: *See—*
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- Advanced Micro Devices, Inc.: *See—*
  - Allen, Michael B.; Swartz, Dennis C.; and Lee, Patrick B., 5,782,980, Cl. 118-715.000.
  - Asghar, Saf; Ireton, Mark; and Bartkowiak, John G., 5,784,640, Cl. 395-800.350.
  - Brennan, William S.; Dawson, Robert; Fulford, H. Jim, Jr.; Hause, Fred N.; Bandyopadhyay, Basab; and Michael, Mark W., 5,783,481, Cl. 438-623.000.
  - Dawson, Robert; Michael, Mark W.; Brennan, William S.; Bandyopadhyay, Basab; Fulford, H. Jim, Jr.; and Hause, Fred N., 5,783,864, Cl. 257-758.000.
  - Gardner, Mark I.; and Gilmer, Mark C., 5,783,469, Cl. 438-199.000.
  - Gulick, Dale E.; Lambrecht, Andy; Webb, Mike; Hewitt, Larry; and Barnes, Brian, 5,784,592, Cl. 395-500.000.
  - Kadosh, Daniel; Dawson, Robert; and Hause, Fred N., 5,783,458, Cl. 437-44.000.
  - Kalkunte, Mohan; Kadambi, Jayant; Mangin, Jim; and Krishna, Gopal, 5,784,375, Cl. 370-448.000.
  - MacDonald, James R., 5,784,627, Cl. 395-750.010.
  - Runaldue, Thomas Jefferson, 5,784,374, Cl. 370-414.000.
  - Strongin, Geoffrey; Liu, Yi; and Tucker, Michael, 5,784,494, Cl. 382-233.000.
- Advanced RISC Machines Limited: *See—*
  - Glass, Simon James; and Jaggar, David Vivian, 5,784,602, Cl. 395-561.000.
- Advanced Technology Institute of Commuter-Helicopter, Ltd.: *See—*
  - Goi, Tatsuhiko; Yamauchi, Nobuyoshi; and Yamakawa, Eiichi, 5,782,433, Cl. 244-60.000.

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- Advanced Technology Laboratories, Inc.: *See—*
  - Hwang, Juin-Jet; and Pflugrath, Lauren S., 5,782,769, Cl. 600-454.000.
- Advanced Technology Materials, Inc.: *See—*
  - Baum, Thomas H.; Kirlin, Peter S.; and Pombrik, Sofia, 5,783,716, Cl. 556-136.000.
  - Kurtz, David S.; and Ruud, Clay O., 5,784,432, Cl. 378-70.000.
- Advanced Television Test Center: *See—*
  - Rhodes, Charles W., 5,784,113, Cl. 348-441.000.
- Advantest Corp.: *See—*
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- Africk, Cary: *See—*
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- AGA Aktiebolag: *See—*
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- AGFA Gevaert Aktiengesellschatt: *See—*
  - Schröder, Rolf; Lermann, Peter; Engelsmann, Dieter; Steiner, Claus; Heidrich, Jörg; Lührig, Hermann; Kopf, Paul; and Schlagheck, Julian, 5,784,652, Cl. 396-6.000.
- Agfa-Gevaert, N.V.: *See—*
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- Agresearch, New Zealand Pastoral Agriculture Research Institute Ltd.: *See—*
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  - Kellogg, Jill Anne; and Bestwick, Richard Keith, 5,783,393, Cl. 435-6.000.
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  - Rendall, John S.; and Ahghar, Massoud, 5,783,280, Cl. 428-131.000.
- Ahmed, Fahim U.; Goldschmidt, James E.; and La Cosse, Gerald E., to Kay Chemical Company. Enzymatic detergent composition and method for degrading and removing bacterial cellulose. 5,783,537, Cl. 510-193.000.
- Ahn, Chul Woong, to Samsung Electronics Co., Ltd. Disc changing device with locking movable member for compact disc player. 5,784,344, Cl. 369-36.000.
- Ahn, Jae-Min; Kim, Young-Ky; and Seo, Chun-Young, to Samsung Electronics Co., Ltd. Multiple path delay time searcher in reverse link communication channel of a communication system employing a code division multiple access method. 5,784,364, Cl. 370-335.000.
- Ahne, Hellmut: *See—*
  - Sezi, Recai; and Ahne, Hellmut, 5,783,654, Cl. 528-310.000.
- Aida Engineering Ltd.: *See—*
  - Ishibashi, Shigeo; and Miyashita, Tooru, 5,782,132, Cl. 74-44.000.
- Aijohn Establishment: *See—*
  - Pilsan, Horatiu O., 5,782,680, Cl. 451-317.000.
- Aiken, Luke T. Power tool cord locking assembly. 5,782,649, Cl. 439-369.000.
- Aiolova, Maria: *See—*
  - Lee, Dosuk D.; Rey, Christian; Aiolova, Maria; and Tofighi, Ali, 5,783,217, Cl. 424-602.000.
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- Aisin AW Co., Ltd.: *See—*
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  - Tsutsui, Hiroshi; Tsukamoto, Kazumasa; Hayabuchi, Masahiro; Nishida, Masaaki; Yamamoto, Yoshihisa; Kano, Toshihiro; Kubo, Takayuki; and Tsuchiya, Saoto, 5,782,711, Cl. 477-156.000.
- Aisin Seiki Kabushiki Kaisha: *See—*
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- Aizfagendler, Mark: *See—*
  - Stancu, Alexei; and Aizfagendler, Mark, 5,784,158, Cl. 356-326.000.
- Aizikowitz, Nava Arela; Prosser, Edward Curtis; and Roediger, Robert Ralph, to International Business Machines Corporation. Method and apparatus for using partner information to color nodes in an interference graph within a computer system. 5,784,066, Cl. 345-440.000.
- Ajit, Janardhanan S., to International Rectifier Corporation. Reduced mask process for manufacture of MOS gated devices using dopant-enhanced-oxidation of semiconductor. 5,783,474, Cl. 438-279.000.
- Akakabe, Yukie: *See—*
  - Tomozawa, Hideki; Saida, Yoshihiro; Kato, Junya; Akakabe, Yukie; Ikenoue, Yoshiaki; and Ichikawa, Reiko, 5,783,251, Cl. 427-8.000.
- Akao, Yasushi: *See—*
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- Akashi, Akira; Miyawaki, Mamoru; Suzuki, Kenji; and Nakayama, Toshiki, to Canon Kabushiki Kaisha. Focus detecting apparatus having photoelectric area sensors. 5,784,655, Cl. 396-128.000.
- Akeno, Keita: *See—*
  - Ozaki, Mitsuo; Suzuki, Shigeharu; Sakai, Shino; Akeno, Keita; Umemiya, Shigeyoshi; and Yamagishi, Yasuo, 5,784,081, Cl. 347-30.000.
- Akeno, Mitsuru; and Murasaki, Ryuichi, to YKK Corporation. Molded surface fastener. 5,781,969, Cl. 24-452.000.
- Akiba, Hirokazu: *See—*
  - Okubo, Yoshio; Hori, Toshiaki; Watanabe, Hiroyuki; Akiba, Hirokazu; and Ohtaki, Mizuo, 5,782,161, Cl. 92-71.000.
- Akiba, Takao; and Enami, Katsuya, to TEAC Corporation. Disk drive apparatus which eliminates the disk eject button. 5,784,350, Cl. 369-77.100.
- Akinori, Osanai, to Toyota Jidosha Kabushiki Kaisha. Evaporated fuel treatment device of an engine. 5,782,218, Cl. 123-198.00D.
- Akiyama, Koichi; Morita, Kenichi; and Terada, Hideki, to Takeda Chemical Industries, Ltd. Unsaturated polyester resin composition. 5,783,635, Cl. 525-168.000.
- Akiyama, Ryota; Munakata, Akio; Koga, Yuzuru; and Ishizaki, Masayuki, to Fujitsu Limited. System for and method of authenticating a client. 5,784,464, Cl. 380-25.000.
- Akiyoshi, Takanori: *See—*
  - Mochizuki, Tadashi; Sato, Shigeomi; Akiyoshi, Takanori; Sakashita, Akiko; and Ishibashi, Yohichi, 5,784,153, Cl. 356-315.000.
- Akra, Mohamad A.; and Mitter, Sanjoy K., to Massachusetts Institute of Technology. Method and apparatus for automated recognition of text embedded in cluttered observations. 5,784,490, Cl. 382-215.000.
- Aksys, Ltd.: *See—*
  - Kenley, Rodney S.; Treu, Dennis M.; and Pawlak, Kenneth E., 5,783,072, Cl. 210-195.200.
- Aktiebolaget Electrolux: *See—*
  - Kilström, Lars; Riise, Björn; and Haegermarck, Anders, 5,781,960, Cl. 15-319.000.
- Akutsu, Eisaku; Sasaki, Kenji; and Aoki, Keiji, to Toyota Jidosha Kabushiki Kaisha. Communications infrasturcture system for vehicles. 5,784,005, Cl. 340-905.000.
- Akzo Nobel N.V.: *See—*
  - Vermeulen, Arno; Dijkema, Rein; and Kok, Jacobus Johannes, 5,783,197, Cl. 424-267.100.
  - Willemse, Martha Jacoba; and Sondermeijer, Paulus Jacobus Antonius, 5,783,192, Cl. 424-199.100.
- Akzo Nobel NV: *See—*
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- Al-jon, Inc.: *See—*
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- Alakhov, Valery Yulievich: *See—*
  - Kabanov, Alexander Victorovich; and Alakhov, Valery Yulievich, 5,783,178, Cl. 424-78.310.
- Alaloof, Jacob. Projection system for the rider of a non-enclosed vehicle and vehicle incorporating same. 5,781,936, Cl. 2-456.000.
- Alamouti, Siavash M., to AT&T Wireless Services, Inc. Cyclic trelles coded modulation. 5,784,417, Cl. 375-341.000.
- Albemarle Corporation: *See—*
  - Magin, Ralph W.; Sauer, Joe D.; and DeLaet, Dru L., 5,783,516, Cl. 504-206.000.
- Albers, David G., Jr., to Purolator Products Company. Fuel filter having improved communication with a contaminant container. 5,783,076, Cl. 210-305.000.
- Albert, Bernhard: *See—*
  - Hagen, Helmut; and Albert, Bernhard, 5,783,694, Cl. 540-123.000.
- Albert Einstein College of Medicine of Yeshiva University: *See—*
  - Jacobs, William R., Jr.; Bloom, Barry R.; Collins, Desmond Michael; de Lisle, Geoffrey W.; Pascopella, Lisa; and Kawakami, Riku Pamela, 5,783,386, Cl. 435-6.000.
- Albert, Larry T.; and Athari, Frank Faez, to Black & Decker Inc. Self-oscillating buck mode battery charger. 5,783,930, Cl. 320-140.000.
- Albertalli, David; Gregory, Paul; Capps, Larry; and Schmidt, Noel, to Raster Graphics, Incorporated. Printer head carriage and method for aligning printer heads on a printer head carriage. 5,782,184, Cl. 101-486.000.
- Albertsen, Hans; Anand, Rakesh; Carlson, Mary; Groden, Joanna; Hedge, Philip John; Joslyn, Geoff; Kinzler, Kenneth; Markham, Alexander Fred; Nakamura, Yusuke; Thliveris, Andrew; Vogelstein, Bert; and White, Raymond L., to Johns Hopkins University, The; University of Utah, The; Zeneca Pharmaceuticals; and Cancer Institute, The. APC (adenomatous *polyosis coli*) protein. 5,783,666, Cl. 530-350.000.
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Zeneca Limited: *See—*
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Zheng, Hua; and Wright, Jeffrey P., to Micron Technology Corporation. Clock frequency detector for a synchronous memory device. 5,784,332, Cl. 365-233.000.
Zhou, Changming; Shou, Guoliang; Yamamoto, Makoto; and Takatori, Sunao, to Sharp Kabushiki Kaisha; and Yozan, Inc. Inverted amplifying circuit. 5,783,961, Cl. 327-85.000.
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LIST OF REISSUE PATENTEES

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PATENTS WERE ISSUED ON THE 21st DAY OF JULY, 1998

NOTE— Arranged in accordance with the first significant character or word of the name (in accordance with city and telephone directory practice).

- Bernier, Eric: *See—*
  - Pezzani, Robert, and Bernier, Eric, RE. 35,854, Cl. 361-56.000.
- Blaettner, Harald E.; Uhen, Richard F.; Ellis, Robert E.; Cunningham, Eldon R.; Usher, Michael J.; and Miller, Joseph E., to General Electric Company. Structured product dynamoelectric machine. RE. 35,855, Cl. 384-204.000.
- Collins, Ellsworth H.; Fultz, William A.; and Mattingly, James F., to Interlake Material Handling, Inc. High speed lineshaft-driven accumulating conveyor. RE. 35,851, Cl. 198-781.060.
- Cunningham, Eldon R.: *See—*
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- Eastman Kodak Company: *See—*
  - Pearson, Douglas Harold, RE. 35,856, Cl. 396-440.000.
- Ellis, Robert E.: *See—*
  - Blaettner, Harald E.; Uhen, Richard F.; Ellis, Robert E.; Cunningham, Eldon R.; Usher, Michael J.; and Miller, Joseph E., RE. 35,855, Cl. 384-204.000.
- Fultz, William A.: *See—*
  - Collins, Ellsworth H.; Fultz, William A.; and Mattingly, James F., RE. 35,851, Cl. 198-781.060.
- General Electric Company: *See—*
  - Blaettner, Harald E.; Uhen, Richard F.; Ellis, Robert E.; Cunningham, Eldon R.; Usher, Michael J.; and Miller, Joseph E., RE. 35,855, Cl. 384-204.000.
- Hydroplan Engineering Ltd.. *See—*
  - Mehoudar, Raphael, RE. 35,857, Cl. 405-36.000.
- Interlake Material Handling, Inc.: *See—*
  - Collins, Ellsworth H.; Fultz, William A.; and Mattingly, James F., RE. 35,851, Cl. 198-781.060.
- Mattingly, James F.: *See—*
  - Collins, Ellsworth H.; Fultz, William A.; and Mattingly, James F., RE. 35,851, Cl. 198-781.060.
- Mehoudar, Raphael, to Hydroplan Engineering Ltd. Irrigation systems. RE. 35,857, Cl. 405-36.000.
- Miller, Joseph E.: *See—*
  - Blaettner, Harald E.; Uhen, Richard F.; Ellis, Robert E.; Cunningham, Eldon R.; Usher, Michael J.; and Miller, Joseph E., RE. 35,855, Cl. 384-204.000.
- Nikon Corporation: *See—*
  - Takagi, Tadao, RE. 35,852, Cl. 318-116.000.
- Pearson, Douglas Harold, to Eastman Kodak Company. Light shielding apparatus. RE. 35,856, Cl. 396-440.000.
- Pezzani, Robert; and Bernier, Eric, to SGS-Thomson Microelectronics, S.A. Programmable protection circuit and its monolithic manufacturing. RE. 35,854, Cl. 361-56.000.
- SGS-Thomson Microelectronics, S.A.: *See—*
  - Pezzani, Robert; and Bernier, Eric, RE. 35,854, Cl. 361-56.000.
- Takagi, Tadao, to Nikon Corporation. Power supply frequency regulating device for vibration wave driven motor. RE. 35,852, Cl. 318-116.000.
- Uhen, Richard F.: *See—*
  - Blaettner, Harald E.; Uhen, Richard F.; Ellis, Robert E.; Cunningham, Eldon R.; Usher, Michael J.; and Miller, Joseph E., RE. 35,855, Cl. 384-204.000.
- Usher, Michael J.: *See—*
  - Blaettner, Harald E.; Uhen, Richard F.; Ellis, Robert E.; Cunningham, Eldon R.; Usher, Michael J.; and Miller, Joseph E., RE. 35,855, Cl. 384-204.000.

LIST OF REEXAMINATION PATENTEES

TO WHOM

CERTIFICATES WERE ISSUED

- Allen, Ronald L.; Bishop-Jones, Brenda J.; Cykana, Michael J.; Lui, Eddie K.; and Sipe, Stanley W., to Electrocom Automation, L.P. Apparatus for intercepting and forwarding incorrectly addressed postal mail. B1 422,821, Cl. 364-478.070.
- Binder, John; Schniedermeier, Henry W.; Shelton, Lawrence S.; Sygnator, Henry A.; and Gabriel, William L., to Illinois Tool Works Inc. Method of forming a head on a fastener. B1 533,379, Cl. 72-316.000.
- Bishop-Jones, Brenda J.: *See—*
  - Allen, Ronald L.; Bishop-Jones, Brenda J.; Cykana, Michael J.; Lui, Eddie K.; and Sipe, Stanley W., B1 422,821, Cl. 364-478.070.
- Bohr, Mark T., to Intel Corporation. Process for forming contact openings through oxide layers. B1 372,034, Cl. 438-624.000.
- Cykana, Michael J.: *See—*
  - Allen, Ronald L.; Bishop-Jones, Brenda J.; Cykana, Michael J.; Lui, Eddie K.; and Sipe, Stanley W., B1 422,821, Cl. 364-478.070.
- Electrocom Automation, L.P.: *See—*
  - Allen, Ronald L.; Bishop-Jones, Brenda J.; Cykana, Michael J.; Lui, Eddie K.; and Sipe, Stanley W., B1 422,821, Cl. 364-478.070.
- Gabriel, William L.: *See—*
  - Binder, John; Schniedermeier, Henry W.; Shelton, Lawrence S.; Sygnator, Henry A.; and Gabriel, William L., B1 533,379, Cl. 72-316.000.
- Illinois Tool Works Inc.: *See—*
  - Binder, John; Schniedermeier, Henry W.; Shelton, Lawrence S.; Sygnator, Henry A.; and Gabriel, William L., B1 533,379, Cl. 72-316.000.
- Intel Corporation: *See—*
  - Bohr, Mark T., B1 372,034, Cl. 438-624.000.
- Lui, Eddie K.: *See—*
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- R-Tech Ueno, Ltd.: *See—*
  - Ueno, Ryuzo; and Ueno, Ryuji, B1 166,178, Cl. 514-573.000.
- Ross, Gilbert B.; and Stevens, Theodore E., to Spectrum 21 Licensing Corp. Cultured onyx products and methods therefor. B1 433,070, Cl. 523-171.000.
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- Ueno, Ryuji: *See—*
  - Ueno, Ryuzo; and Ueno, Ryuji, B1 166,178, Cl. 514-573.000.
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- Alford, Pamela J.; and Jackson, Richard D. Foal gate. 396,333, Cl. D30-119.000.
- Alvern Norway ASA: *See—*
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  - Alvern, Øyvind, 396,266, Cl. D23-227.000.
- Alvern, Øyvind, to Alvern Norway ASA. Advertising carrying body for use on a filler gun. 396,265, Cl. D23-227.000.
- Alvern, Øyvind, to Alvern Norway ASA. Advertising carrying body for use on a filler gun. 396,266, Cl. D23-227.000.
- American Tack & Hardware Co., Inc.: *See—*
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- Anderson, Torrence C.; and Tyra, Terry A., to Suncast Corporation. Garden tool organizer. 396,159, Cl. D6-553.000.
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- Bacome, Edward Allen; Fankhauser, Philip Glenn; and Fitzpatrick, Michael Joseph, to Epmark, Inc. Condominium building. 396,298, Cl. D25-17.000.
- Bakes, Robert Timothy, to Orthotic Consultants Asia Pacific Pty. Ltd. Shoulder abduction pillow. 396,291, Cl. D24-190.000.
- Ballay, Joseph M.: *See—*
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- Baumgartner, Heinrich; and Frick, Ewald, to BBS Kraftfahrzeugtechnik AG. Vehicle wheel face. 396,208, Cl. D12-211.000.
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- Beecher, Christina M., to Hasbro, Inc. Infant's rattle. 396,253, Cl. D21-65.000.
- Beermann, Frank; Rager, Bernd; and Armbrecht, Dieter, to Keiper Recaro GmbH & Co. Vehicle seat. 396,152, Cl. D6-356.000.
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- Breznik, Andrej. Massager. 396,297, Cl. D24-211.000.
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- Brunner, Robert; and Gatrall, Simon, to Toshiba America Information Systems, Inc. Monitor stand. 396,223, Cl. D14-114.000.
- Burdick, Robert. Fishing rod and reel. 396,262, Cl. D22-138.000.
- Burns, Cari L.; and Chieda, Robert Andrew, to Newell Operating Company. Knob. 396,179, Cl. D8-310.000.
- Burns, Cari L.; and Chieda, Robert Andrew, to Newell Operating Company. Knob. 396,180, Cl. D8-310.000.
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  - Burns, Cari L.; and Chieda, Robert Andrew, 396,180, Cl. D8-310.000.
- Chiu, Si Fu. Flashlight. 396,314, Cl. D26-49.000.
- Chung, Lee Hsin-Chih. Grinder. 396,175, Cl. D8-62.000.
- Churchville, Barbara Ann; and Darrone, Allen Edward, to Franklin Mint Company. Ornamental plate and candle holder display. 396,309, Cl. D26-10.000.
- Clarence J. Venne, Inc.: *See—*
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- Coglin, James B. Wall-mounted storage cabinet. 396,161, Cl. D6-574.000.
- Cohen, Milton L.; Siegel, Jeff; and Krent, Adam, to Lifetime Hoan Corporation. Handle for kitchen tools and gadgets. 396,168, Cl. D7-395.000.
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- Conway, James F., to ACI Plastics, Inc. Combined condiment caddy and napkin holder. 396,171, Cl. D7-590.000.
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NOTE—First number, class; second number, subclass; third number, patent number

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CLASS 101

119	5,782,178
128.4	5,782,179
148	5,782,180
153	5,782,181
177	5,782,182
232	5,782,183
486	5,782,184

CLASS 102

334	5,783,768

CLASS 104

60	5,782,186

CLASS 105

3	5,782,187

CLASS 106

2	5,782,961
	5,782,962
31.27	5,782,963
31.33	5,782,965
31.43	5,782,966
31.58	5,782,967
476	5,782,968
498	5,782,969
681	5,782,970
690	5,782,971
696	5,782,972
744	5,782,973

CLASS 108

25	5,782,185

CLASS 110

346	5,782,188

CLASS 112

102.5	5,782,189
176	5,782,190
441	5,782,191
470.05	5,782,192
470.13	5,782,193

CLASS 114

79 W	5,782,194
162	5,782,195
229	5,782,196
230	5,782,197

CLASS 116

139	5,782,198

CLASS 117

82	5,782,974
89	5,782,975

CLASS 118

118	5,782,976
119	5,782,977
321	5,782,978
500	5,782,979
715	5,782,980
719	5,782,981

CLASS 119

14.02	5,782,199
53	5,782,200
57.4	5,782,201
78	5,782,202
166	5,782,203
255	5,782,204
484	5,782,205
622	5,782,206
707	5,782,207

CLASS 122

367.3	5,782,208
379	5,782,209

CLASS 123

41 E	5,782,210
55.2	5,782,213
56.3	5,782,219
65 PE	5,782,214
79 C	5,782,215
90.11	5,782,211
90.16	5,782,216
193.6	5,782,217
198 D	5,782,218
436	5,782,221
456	5,782,222
510	5,782,223
545	5,782,225
568	5,782,226
689	5,782,227

CLASS 124

6	5,782,228
25.6	5,782,229

CLASS 126

25 R	5,782,224
41 R	5,782,230
200	5,782,231

CLASS 127

37	5,782,982

CLASS 128

200.14	5,782,232
202.22	5,782,233
205.27	5,782,234
206.15	5,782,235
207.17	5,782,236
633	5,782,237
639	5,782,238
642	5,782,239
671	5,782,240
696	5,782,241
845	5,782,243
869	5,782,244
898	5,782,245

CLASS 131

364	5,782,246

CLASS 132

76.4	5,782,247
200	5,782,248
	5,782,249
327	5,782,250

CLASS 134

1	5,782,983
1.3	5,782,986
2	5,782,984
10	5,782,985
15	5,782,987
18	5,782,988
22.19	5,782,989
26	5,782,990
37	5,782,991

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42	5,782,992
103.1	5,782,252
105	5,782,253
109	5,782,254
167 R	5,782,255

CLASS 135

77	5,782,256

CLASS 136

251	5,782,993
	5,782,994
257	5,782,995

CLASS 137

43	5,782,258
71	5,782,259
118.02	5,782,260
155	5,782,261
202	5,782,262
487.5	5,782,263
550	5,782,265
551	5,782,266
596.17	5,782,267
625 69	5,782,268
630 22	5,782,269

CLASS 138

109	5,782,270

CLASS 139

192	5,782,271
455	5,782,272

CLASS 140

92 4	5,782,273

CLASS 141

90	5,782,274
94	5,782,275
332	5,782,276
352	5,782,277

CLASS 144

220	5,782,278
286.1	5,782,279

CLASS 148

33.1	5,782,996
33.3	5,782,997
113	5,782,998
320	5,782,999
605	5,783,000
607	5,783,001

CLASS 149

19 6	5,783,769
36	5,783,773

CLASS 150

113	5,782,280

CLASS 152

209 R	5,783,002
451	5,783,003
534	5,783,004

CLASS 156

63	5,783,005
64	5,783,006
	5,783,007
66	5,783,012
73 2	5,783,008
90	5,783,009
159	5,783,010
167	5,783,011
180	5,783,013
209	5,783,014
213	5,783,015
214	5,783,016
231	5,783,017
281	5,783,018
285	5,783,019
291	5,783,020
295	5,783,021
344	5,783,022
345	5,783,023
351	5,783,024
359	5,783,025
378	5,783,026
494	5,783,027
504	5,783,028
510	5,783,029
549	5,783,030
556	5,783,031
	5,783,032
	5,783,033
579	5,783,034
584	5,783,035
643.1	5,783,036

CLASS 160

92	5,782,281
206	5,782,282
229 1	5,782,283
370.22	5,782,284

CLASS 162

65	5,783,037
135	5,783,038
146	5,783,039
164.1	5,783,041
198	5,783,042
265	5,783,043
278	5,783,044
301	5,783,045

CLASS 164

113	5,782,285
132	5,782,286
155.3	5,782,287
516	5,782,289

CLASS 165

76	5,782,291
80 3	5,782,292
110	5,782,293
168	5,782,294
174	5,782,295
231	5,782,290
268	5,782,296

CLASS 166

85 1	5,782,297
133	5,782,298
230	5,782,299
278	5,782,300
302	5,782,301
305 1	5,782,302
311	5,782,303
356	5,782,304
376	5,782,305
387	5,782,306

CLASS 172

156	5,782,307
540	5,782,309

CLASS 174

35 R	5,783,771
	5,783,772
48	5,783,774
50	5,783,775
64 R	5,783,776
66	5,783,777
77 R	5,783,778

CLASS 175

53	5,782,311
323	5,782,310

CLASS 180

69 2	5,782,312
219	5,782,313

CLASS 181

229	5,783,780
241	5,783,781
272	5,783,782

CLASS 182

129	5,782,314

CLASS 184

5 1	5,782,318
6.17	5,782,316
6.3	5,782,315

CLASS 187

270	5,782,317
376	5,782,319
394	5,783,783
	5,783,784

CLASS 188

18 A	5,782,320
71 8	5,782,321
72.4	5,782,322
72 6	5,782,323
218 R	5,782,324

CLASS 190

18 A	5,782,325

CLASS 192

3.26	5,782,326
3.29	5,782,327
35	5,782,328
45.1	5,782,329
53.32	5,782,331

CLASS 198

324	5,782,330
336	5,782,333
357	5,782,332
418.3	5,782,334
465.4	5,782,335
	5,782,336
781.06	RE. 35,851
803.1	5,782,337
803 13	5,782,338
836.3	5,782,339
841	5,782,340

CLASS 200

1 B	5,783,785
5 R	5,783,787
43 14	5,782,341
51 17	5,783,788
331	5,782,342

CLASS 201

25	5,783,046

CLASS 202

154	5,783,047

CLASS 204

157.15	5,783,790
157.6	5,783,789
192 12	5,783,048
192.14	5,783,049
242	5,783,050
254	5,783,051
260	5,783,052
280	5,783,053
296	5,783,054
298 04	5,783,055
403	5,783,056

CLASS 205

99	5,783,057
205	5,783,058
226	5,783,059
337	5,783,060
673	5,783,061
718	5,783,062
775	5,783,063

CLASS 206

140	5,782,343
217	5,782,344
222	5,782,345
228	5,782,346
308.1	5,782,347
	5,782,348
	5,782,349
308.2	5,782,350
308 3	5,782,352
315 1	5,782,351
316.2	5,782,353
320	5,782,354
387.1	5,782,355
454	5,782,356
461	5,782,357
509	5,782,358
538	5,782,359
600	5,782,360
711	5,782,361
	5,782,362

CLASS 208

262.1	5,783,068
400	5,783,065

CLASS 209

2	5,782,363
643	5,782,364
674	5,782,365

CLASS 210

150	5,783,066
	5,783,069
169	5,783,070
195 1	5,783,071
195.2	5,783,072
205	5,783,073
222	5,783,074
232	5,783,067
	5,783,075
305	5,783,076
388	5,783,077
444	5,783,078
500 23	5,783,079
502.1	5,783,080
611	5,783,081
634	5,783,082
636	5,783,083
638	5,783,084
651	5,783,085
	5,783,086
	5,783,087
679	5,783,088
703	5,783,089
748	5,783,090
755	5,783,091
759	5,783,092
767	5,783,093
	5,783,094
776	5,783,095
806	5,783,096

CLASS 211

41 12	5,782,366
124	5,782,367
194	5,782,368

CLASS 215

344	5,782,369

CLASS 216

41	5,783,097
56	5,783,098
59	5,783,099
67	5,783,100
68	5,783,101
	5,783,102

CLASS 218

57	5,783,791

CLASS 219

86 1	5,783,792
118	5,783,794
121.45	5,783,795
121.69	5,783,797
121.71	5,783,793
121.73	5,783,798
137 PS	5,783,799
225	5,783,800
270	5,783,801
386	5,783,802
392	5,783,803
494	5,783,804
	5,783,805
635	5,783,806
685	5,783,807

CLASS 220

4.02	5,782,370
4 22	5,782,371
8	5,782,372
269	5,782,373
404	5,782,374
450	5,782,375
669	5,782,376

CLASS 221

24	5,782,378
93	5,782,379
94	5,782,377

CLASS 222

2	5,782,380
23	5,782,381
52	5,782,382
81	5,782,383
94	5,782,384
103	5,782,385
153 14	5,782,386
546	5,782,388

CLASS 223

66	5,782,389

CLASS 224

148 6	5,782,390
310	5,782,391
326	5,782,392

CLASS 226

187	5,782,394

CLASS 227

130	5,782,395
175.3	5,782,396
176.1	5,782,397

CLASS 228

17.5	5,782,398
41	5,782,399
49 5	5,782,400
102	5,782,401
221	5,782,402
264	5,782,403

CLASS 229

103.1	5,782,404

CLASS 235

379	5,783,808
380	5,783,809
385	5,783,810
472	5,783,811
	5,783,812
	5,783,813

CLASS 238

2	5,782,405
67	5,782,406

CLASS 239

24	5,782,407
34	5,782,408
56	5,782,409
63	5,782,410
88	5,782,411
197	5,782,412
589	5,782,414
754	5,782,415

CLASS 241

194	5,782,416
277	5,782,417

CLASS 242

231	5,782,418
236	5,782,419
289	5,782,420
336	5,782,421
347	5,782,422
374	5,782,423
419.3	5,782,424
526 3	5,782,425
	5,782,426
596.8	5,782,428

CLASS 244

2	5,782,427
3.11	5,782,429
17 27	5,782,430
52	5,782,431
53 R	5,782,432
60	5,782,433
110 B	5,782,434
134 D	5,782,435
229	5,782,436

CLASS 246

276	5,782,437

CLASS 248

27.3	5,782,438
49	5,782,439
58	5,782,440
68 1	5,782,441
156	5,782,443
188.8	5,782,444
206.5	5,782,445
220.21	5,782,446
227.1	5,782,447
231.9	5,782,442
311.2	5,782,448
346 03	5,782,449
346 07	5,782,450
425	5,782,451
459	5,782,452
523	5,782,453

CLASS 249

46	5,783,103

CLASS 250

201 3	5,783,814
208.1	5,783,815
231.13	5,783,816
231.14	5,783,817
239	5,783,818
	5,783,819
	5,783,820
252 1	5,783,821
259	5,783,822
281	5,783,823
	5,783,824
330	5,783,825
341 8	5,783,826
347	5,783,827
364	5,783,828
367	5,783,829
492.21	5,783,830
495.1	5,783,831
506.1	5,783,832
548	5,783,833
559 33	5,783,834
559 46	5,783,835
574	5,783,836

CLASS 251

129 1	5,782,454
345	5,782,455

CLASS 252

69	5,783,104
187.31	5,783,105
301 36	5,783,108
301.45	5,783,106
301.6 R	5,783,107
314	5,783,109
315 1	5,783,110
500	5,783,111
	5,783,112
	5,783,643
512	5,783,113
582	5,783,114
	5,783,115
586	5,783,116

CLASS 253

693	5,783,861

CLASS 254

126	5,782,456
	5,782,457
209	5,782,458
323	5,782,459

CLASS 257

21	5,783,838
	5,783,839
24	5,783,840
56	5,783,841
59	5,783,842
66	5,783,843
103	5,783,844
198	5,783,845
204	5,783,846
275	5,783,847
296	5,783,848
315	5,783,849
355	5,783,850
	5,783,851
410	5,783,852
415	5,783,853
467	5,783,854
560	5,783,855
571	5,783,966
618	5,783,856
664	5,783,857
675	5,783,860
714	5,783,862
758	5,783,864
774	5,783,865
780	5,783,866
783	5,783,867
784	5,783,868
791	5,783,870

CLASS 261

29	5,783,117
37	5,783,118
97	5,783,119

CLASS 264

1.34	5,783,120
1.36	5,782,460
28	5,783,121
39	5,783,122
	5,783,123
41	5,783,124
45.3	5,783,125
102	5,783,126
103	5,783,127
135	5,783,128
136	5,783,129
138	5,783,130
196	5,783,131
257	5,783,132
261	5,783,133
272 14	5,783,134
313	5,783,135
401	5,783,136
510	5,783,137
537	5,783,138
625	5,783,139

CLASS 266

45	5,783,140
87	5,783,141
145	5,783,142

CLASS 267

140	5,782,461
140.13	5,782,462

CLASS 269

87.1	5,782,463

CLASS 270

19	5,782,464
52.23	5,782,465
58 08	5,782,466
58.13	5,782,467

CLASS 271

10.05	5,782,468
177	5,782,469

CLASS 273

139	5,782,470
256	5,782,471
274	5,782,472
292	5,782,473

CLASS 280

14.2	5,782,475
	5,782,476
79 7	5,782,477

279	5,782,479
282	5,782,480
602	5,782,482
642	5,782,483
663	5,782,484
728.2	5,782,481
735	5,782,485
737	5,782,486
741	5,782,487
743.1	5,782,488
	5,782,489
789	5,782,490
801.2	5,782,491
806	5,782,492
837	5,782,493

CLASS 281

2	5,782,494
81	5,782,495

CLASS 283

81	5,782,496
110	5,782,497

CLASS 285

3	5,782,498
23	5,782,499
24	5,782,500
81	5,782,501
87	5,782,502
94	5,782,503
147.3	5,782,504
175	5,782,505
227	5,782,506
319	5,782,508

CLASS 292

DIG. 66	5,782,509
67	5,782,507
165	5,782,510
219	5,782,511
251.5	5,782,512
319	5,782,513

CLASS 293

118	5,782,514

CLASS 294

2	5,782,515
25	5,782,516
27.1	5,782,517
57	5,782,518
68.3	5,782,519

CLASS 296

39.2	5,782,520
100	5,782,522
146.6	5,782,523
181	5,782,521
	5,782,524
188	5,782,525
217	5,782,527

CLASS 297

60	5,782,528
157.1	5,782,526
216.13	5,782,529
230.1	5,782,531
338	5,782,532
	5,782,533
423.13	5,782,534
423.36	5,782,535
440.15	5,782,536
473	5,782,537

CLASS 298

17.5	5,782,538

CLASS 299

11	5,782,539

CLASS 301

64 4	5,782,540

CLASS 303

3	5,782,541
7	5,782,542
146	5,782,543

CLASS 307

10.1	5,783,871
46	5,783,872
104	5,783,873
113	5,783,874
116	5,783,875
135	5,783,876

CLASS 310

12	5,783,877
	5,783,878
40 MM	5,783,879
67 R	5,783,880
68 C	5,783,881
68 R	5,783,882
74	5,783,883
90	5,783,884
90.5	5,783,885
	5,783,886
	5,783,887
91	5,783,888
156	5,783,890
180	5,783,891
258	5,783,892
266	5,783,893
	5,783,894
268	5,783,895
313 A	5,783,896
316	5,783,897
	5,783,898
317	5,783,899

CLASS 312

7.2	5,782,544
217	5,782,545
236	5,782,546

CLASS 313

420	5,783,900
440	5,783,901
	5,783,902
495	5,783,904
497	5,783,905
586	5,783,906
625	5,783,907

CLASS 315

82	5,783,908
159	5,783,909
167	5,783,910
225	5,783,911
248	5,783,912
371	5,783,913
504	5,783,914

CLASS 318

116	RE. 35,852
135	5,783,915
254	5,783,916
439	5,783,917
447	5,783,918
466	5,783,919
500	5,783,920
568.11	5,783,921
568.14	5,783,922
601	5,783,923
	5,783,924
661	5,783,925

CLASS 320

106	5,783,926
110	5,783,927
122	5,783,928
139	5,783,929
140	5,783,930

CLASS 322

16	5,783,932

CLASS 323

282	5,783,933
312	5,783,934
313	5,783,935
315	5,783,936
	5,783,937

CLASS 324

71.2	5,783,938
154 R	5,783,939
207.25	5,783,940
242	5,783,941
244	5,783,944
306	5,783,942
318	5,783,943
348	5,783,945
522	5,783,946
765	5,783,947

CLASS 326

88	5,783,948
106	5,783,949

CLASS 327

12	5,783,950
52	5,783,951
53	5,783,957
85	5,783,961
94	5,783,952
101	5,783,953
103	5,783,954
108	5,783,955
157	5,783,956
202	5,783,958
292	5,783,959
295	5,783,960
306	5,783,963
390	5,783,962
408	5,783,964
532	5,783,965

CLASS 329

303	5,783,967

CLASS 330

107	5,783,968
124 R	5,783,969
269	5,783,970

CLASS 331

17	5,783,971
	5,783,972
35	5,783,973

CLASS 332

103	5,783,974

CLASS 333

101	5,783,975
134	5,783,976
174	5,783,977
202	5,783,978
	5,783,979
	5,783,980

CLASS 335

284	5,783,981

CLASS 336

9	5,783,982
76.7	5,783,983
155	5,783,984

CLASS 337

278	5,783,985
348	5,783,986
401	5,783,987

CLASS 340

426	5,783,988
	5,783,989
438	5,783,990
444	5,783,991
445	5,783,992
525	5,783,993
539	5,783,994
545	5,783,995
571	5,783,996
576	5,783,997
636	5,783,998
664	5,783,999
825.44	5,784,000
	5,784,001
825.5	5,784,002
825.79	5,784,003
854.6	5,784,004
905	5,784,005
	5,784,006
933	5,784,007

CLASS 341

20	5,784,008
23	5,784,009
61	5,784,010
67	5,784,011
	5,784,012
100	5,784,013
118	5,784,015
120	5,784,016
126	5,784,017
136	5,784,018
141	5,784,019
	5,784,020

CLASS 342

20	5,784,021
80	5,784,022
104	5,784,023
	5,784,024
160	5,784,026
357	5,784,027
	5,784,028
	5,784,029
373	5,784,030
	5,784,031

CLASS 343

702	5,784,032
786	5,784,033
895	5,784,034

CLASS 345

3	5,784,035
7	5,784,036
87	5,784,037
88	5,784,038
89	5,784,039
	5,784,040
	5,784,041
94	5,784,042
100	5,784,043
113	5,784,044
121	5,784,045
127	5,784,046
	5,784,047
149	5,784,049
154	5,784,050
161	5,784,051
167	5,784,052
174	5,784,053
177	5,784,054
199	5,784,055
332	5,784,056
339	5,784,057
340	5,784,058
353	5,784,059
354	5,784,060
358	5,784,061
418	5,784,062
419	5,784,070
420	5,784,063
422	5,784,064
431	5,784,065
440	5,784,066
	5,784,067
441	5,784,068
467	5,784,069
	5,784,071
508	5,784,072
511	5,784,073
515	5,784,074
516	5,784,075
519	5,784,076

CLASS 347

2	5,784,077
14	5,784,078
20	5,784,079
23	5,784,080
30	5,784,081
49	5,784,082
54	5,784,083
70	5,784,085
85	5,784,086
	5,784,087
86	5,784,088
88	5,784,089
102	5,784,090
131	5,784,091
190	5,784,092
243	5,784,094

CLASS 348

6	5,784,095
32	5,784,096
43	5,784,097
45	5,784,098
222	5,784,099
251	5,784,100
282	5,784,101
296	5,784,102
312	5,784,103
353	5,784,104
372	5,784,105
380	5,784,106
412	5,784,107
415	5,784,108
423	5,784,110
	5,784,112
441	5,784,113
452	5,784,114
	5,784,115
453	5,784,116
505	5,784,118
512	5,784,119
537	5,784,120
547	5,784,121
549	5,784,122
556	5,784,123
558	5,784,117
564	5,784,124
570	5,784,125
708	5,784,126
730	5,784,127
739	5,784,129

CLASS 349

39	5,784,131
44	5,784,132
	5,784,133
84	5,784,134
85	5,784,135
86	5,784,136
88	5,784,137
93	5,784,138
117	5,784,139
174	5,784,140
191	5,784,141

CLASS 351

119	5,784,142
138	5,784,143
169	5,784,144
205	5,784,145
214	5,784,146
219	5,784,147
221	5,784,148

CLASS 353

28	5,782,547
42	5,782,548

CLASS 355

35	5,784,149
53	5,784,150

CLASS 356

41	5,784,151
73	5,784,152
128	5,784,154
141.1	5,784,155
141.5	5,784,156
315	5,784,153
318	5,784,157
326	5,784,158
328	5,784,159
345	5,784,160
346	5,784,162
349	5,784,161
351	5,784,163
359	5,784,164
363	5,784,166
369	5,784,167
375	5,784,168

CLASS 358

296	5,784,171
298	5,784,172
403	5,784,173
404	5,784,174
433	5,784,175
463	5,784,176
468	5,784,177
482	5,784,178
498	5,784,179
501	5,784,180

CLASS 359

1	5,784,181
	5,784,182
124	5,784,183
125	5,784,184
133	5,784,170
136	5,784,185
200	5,784,186
248	5,784,187
	5,784,188
254	5,784,189
291	5,784,190
308	5,784,191
341	5,784,192
398	5,784,193
511	5,784,195
529	5,784,196
530	5,784,197
534	5,784,198
567	5,784,200
582	5,784,201
618	5,784,202
	5,784,203
686	5,784,204
687	5,784,205
698	5,784,206
700	5,784,207
704	5,784,208
720	5,784,209
802	5,784,210
808	5,784,214
871	5,784,211
	5,784,212
872	5,784,213

CLASS 360

8	5,784,215
48	5,784,216
64	5,784,217
71	5,784,218
77.08	5,784,219
78.14	5,784,220
93	5,784,221
96.5	5,784,222
113	5,784,224
	5,784,225
	5,784,226
126	5,784,228
130.21	5,784,229
132	5,784,227
137	5,784,230

CLASS 361

18	5,784,231
22	5,784,232
36	5,784,233
56	RE. 35,854
	5,784,235
	5,784,236
62	5,784,237
65	5,784,238
71	5,784,239
85	5,784,240
111	5,784,241
	5,784,242
115	5,784,243
154	5,784,244
	5,784,245
170	5,784,246
523	5,784,247
	5,784,248
622	5,784,249
627	5,784,250
683	5,784,251
	5,784,252
686	5,784,253
690	5,784,254
692	5,784,255
699	5,784,256
704	5,784,257
748	5,784,258
752	5,784,259
762	5,784,260
767	5,784,261
777	5,784,262
785	5,784,263
803	5,784,264

CLASS 362

61	5,782,550
80	5,782,549
101	5,784,265
148	5,782,551
183	5,782,552
245	5,782,553
294	5,782,554
373	5,782,555

CLASS 363

16	5,784,266
43	5,784,267
55	5,784,268
89	5,784,269
132	5,784,270

CLASS 364

133	5,784,271
158	5,784,272
176	5,784,273
184	5,784,274
191	5,784,275
	5,784,276
400.01	5,784,277
468.01	5,784,278
468.26	5,784,279
474.23	5,784,281
474.28	5,784,282
475.03	5,784,283
478.07	B1 422,821
487	5,784,284
	5,784,285
488	5,784,286
490	5,784,287
	5,784,289
	5,784,290
491	5,784,291
	5,784,292
496	5,784,294
514 R	5,784,293
550	5,784,295
551.01	5,784,296
554	5,784,297
557	5,784,298
571.01	5,784,299
574	5,784,300
578	5,784,301
	5,784,302
718.01	5,784,303
724.19	5,784,304
735.02	5,784,305
750.5	5,784,306
766	5,784,307
770	5,784,308
841	5,784,309

CLASS 365

145	5,784,310
150	5,784,311
182	5,784,313
185.18	5,784,325
185.19	5,784,326
185.2	5,784,314
185.22	5,784,315
	5,784,316
	5,784,317
	5,784,318
185.33	5,784,319
189.01	5,784,320
200	5,784,321
201	5,784,322
	5,784,323
207	5,784,324
218	5,784,327

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222	5,784,328
227	5,784,329
230.06	5,784,330
	5,784,331
233	5,784,332

CLASS 366

155.1	5,782,556
176.2	5,782,557
199	5,782,558
279	5,782,559
298	5,782,560

CLASS 367

30	5,784,333
47	5,784,334
72	5,784,335
123	5,784,336
131	5,784,337
	5,784,338
134	5,784,339
140	5,784,340
155	5,784,341

CLASS 368

76	5,784,342

CLASS 369

13	5,784,343
36	5,784,344
44.23	5,784,345
50	5,784,346
54	5,784,347
	5,784,348
58	5,784,349
77.1	5,784,350
77.2	5,784,351
94	5,784,352
102	5,784,353
112	5,784,354
116	5,784,355
124	5,784,356

CLASS 370

218	5,784,357
230	5,784,358
244	5,784,359
252	5,784,360
286	5,784,361
310	5,784,368
321	5,784,362
332	5,784,363
335	5,784,364
337	5,784,365
342	5,784,366
358	5,784,369
360	5,784,367
395	5,784,370
397	5,784,371
398	5,784,372
402	5,784,373
414	5,784,374
448	5,784,375
460	5,784,376
463	5,784,377
498	5,784,378
503	5,784,379
509	5,784,380
	5,784,381

CLASS 371

22.3	5,784,382
22.31	5,784,384
22.4	5,784,383
36	5,784,386
37.1	5,784,387
37.5	5,784,388
40.11	5,784,390
40.18	5,784,391
43.1	5,784,392
49.1	5,784,393
	5,784,394

CLASS 372

26	5,784,395
29	5,784,396
43	5,784,397
50	5,784,398
	5,784,399
96	5,784,400

CLASS 374

137	5,784,401
151	5,782,561

CLASS 375

200	5,784,402
207	5,784,403
211	5,784,404
222	5,784,405
224	5,784,406
	5,784,407
258	5,784,408
286	5,784,409
302	5,784,412
308	5,784,413
324	5,784,414
341	5,784,415
	5,784,416
	5,784,417
345	5,784,410
347	5,784,418
354	5,784,420
	5,784,421
355	5,784,422
368	5,784,411

CLASS 376

156	5,784,423
189	5,784,424
249	5,784,425
260	5,784,426

CLASS 377

72	5,784,427

CLASS 378

4	5,784,428
38	5,784,429
57	5,784,430
65	5,784,431
70	5,784,432
168	5,784,433
191	5,784,434
197	5,784,435
350	5,784,419

CLASS 379

88	5,784,436
89	5,784,437
	5,784,438
91.01	5,784,439
106.01	5,784,441
114	5,784,442
119	5,784,443
142	5,784,444
167	5,784,446
202	5,784,447
215	5,784,448
230	5,784,449
233	5,784,450
265	5,784,451
	5,784,452
	5,784,453
406	5,784,454
410	5,784,455
419	5,784,456
421	5,784,457
435	5,784,458

CLASS 380

4	5,784,459
	5,784,460
21	5,784,461
	5,784,462
	5,784,463
25	5,784,464

CLASS 381

10	5,784,465
15	5,784,466
17	5,784,467
24	5,784,468
25	5,784,477
68.6	5,784,470
69	5,784,471
86	5,784,472
	5,784,473
97	5,784,474
104	5,784,475
107	5,784,476
151	5,784,478
205	5,784,479

CLASS 382

131	5,784,481
132	5,784,482
135	5,784,483
148	5,784,484
156	5,784,485
175	5,784,487
176	5,784,488
192	5,784,489
215	5,784,490
232	5,784,491
	5,784,492
233	5,784,494
237	5,784,495
	5,784,496
247	5,784,497
254	5,784,498
264	5,784,499
270	5,784,500
286	5,784,501
300	5,784,502
306	5,784,503
309	5,784,504

CLASS 383

15	5,782,562

CLASS 384

204	RE. 35,855
450	5,782,563
495	5,782,564
537	5,782,565
	5,782,566

CLASS 385

17	5,784,505
24	5,784,506
31	5,784,507
	5,784,508
49	5,784,509
53	5,784,510
57	5,784,511
61	5,784,512
88	5,784,513
99	5,784,514
134	5,784,515
	5,784,516
146	5,784,517

CLASS 386

46	5,784,521
	5,784,522
68	5,784,518
69	5,784,520
92	5,784,519
94	5,784,523
106	5,784,524
107	5,784,525
109	5,784,526
111	5,784,527
112	5,784,528
128	5,784,529

CLASS 392

306	5,784,530
494	5,784,531

CLASS 395

2.33	5,784,532
2.38	5,784,533
3	5,784,534
	5,784,535
27	5,784,536
50	5,784,538
	5,784,539
51	5,784,540
82	5,784,541
95	5,784,542
102	5,784,543
112	5,784,544
148	5,784,545
154	5,784,546
182.02	5,784,547
182.03	5,784,537
182.04	5,784,548
182.11	5,784,551
182.22	5,784,549
183.09	5,784,550
183.14	5,784,552
	5,784,553
183.21	5,784,554
200.08	5,784,556
200.13	5,784,559
200.31	5,784,560
200.34	5,784,561
200.47	5,784,562
200.5	5,784,555
	5,784,557
200.51	5,784,563
200.54	5,784,564
200.59	5,784,565
	5,784,566
200.6	5,784,558
200.61	5,784,567
200.64	5,784,568
200.65	5,784,569
200.77	5,784,570
	5,784,571
	5,784,572
200.8	5,784,573
280	5,784,574
	5,784,575
283	5,784,576
284	5,784,577
285	5,784,578
286	5,784,579
287	5,784,580
290	5,784,581
297	5,784,582
353	5,784,583
376	5,784,584
385	5,784,585
392	5,784,586
	5,784,587
	5,784,588
393	5,784,589
449	5,784,590
500	5,784,591
	5,784,592
	5,784,593
	5,784,594
	5,784,595
	5,784,596
552	5,784,597
556	5,784,598
	5,784,599
558	5,784,600
559	5,784,601
561	5,784,602
581	5,784,603
585	5,784,604
	5,784,605
591	5,784,606
595	5,784,607
602	5,784,608
609	5,784,609
615	5,784,610
651	5,784,611
653	5,784,612
670	5,784,613
672	5,784,614
	5,784,616
674	5,784,617
677	5,784,618
681	5,784,615
682	5,784,619
683	5,784,620
702	5,784,621
726	5,784,622
	5,784,623
732	5,784,624
733	5,784,625
750.01	5,784,626
	5,784,627
	5,784,628
750.08	5,784,629
800	5,784,630
	5,784,631
	5,784,632
800.01	5,784,634
800.23	5,784,639
800.32	5,784,635
800.35	5,784,640
800.37	5,784,636
	5,784,637
800.43	5,784,638
822	5,784,641
823	5,784,642
825	5,784,643
829	5,784,644
853	5,784,645
858	5,784,646
859	5,784,647
860	5,784,648
872	5,784,649
880	5,784,633
882	5,784,650

CLASS 396

2	5,784,651
6	5,784,652
87	5,784,653
104	5,784,654
128	5,784,655
272	5,784,656
299	5,784,657
311	5,784,658
409	5,784,659
440	RE. 35,856
	5,784,660
618	5,784,661
647	5,784,662

CLASS 399

8	5,784,663
	5,784,664
13	5,784,665
44	5,784,666
49	5,784,667
55	5,784,668
58	5,784,669
91	5,784,670
110	5,784,671
118	5,784,672
149	5,784,673
297	5,784,674
	5,784,675
301	5,784,676
302	5,784,677
329	5,784,678
335	5,784,679
374	5,784,680

CLASS 400

621	5,782,567

CLASS 401

122	5,782,568

CLASS 402

36	5,782,569

CLASS 403

13	5,782,570
31	5,782,571
90	5,782,572
135	5,782,573
	5,782,574
270	5,782,575
337	5,782,576

CLASS 404

14	5,782,577

CLASS 405

36	RE. 35,857
37	5,782,578
52	5,782,579
128	5,782,580
186	5,782,581
262	5,782,582
281	5,782,583
303	5,782,584

CLASS 408

17	5,782,585
56	5,782,586
59	5,782,587
80	5,782,588
233	5,782,589

CLASS 409

124	5,782,590
131	5,782,591
137	5,782,592
231	5,782,593

CLASS 411

176	5,782,594
352	5,782,595
433	5,782,597

CLASS 412

4	5,782,598

CLASS 413

31	5,782,599

CLASS 414

490	5,782,600
563	5,782,596
	5,782,601
672	5,782,602

CLASS 415

1	5,782,603
71	5,782,604
121.1	5,782,605

CLASS 416

142	5,782,606
224	5,782,607

CLASS 417

43	5,782,608
44.1	5,782,609
53	5,782,610
234	5,782,611
266	5,782,612
269	5,782,613
	5,782,614
310	5,782,615
364	5,782,616
395	5,782,617
410.3	5,782,618
462	5,782,619
	5,782,620
470	5,782,621

CLASS 418

63	5,782,622
153	5,782,623
195	5,782,624

CLASS 419

11	5,784,681

CLASS 420

52	5,783,143
94	5,783,145

CLASS 422

22	5,783,147
26	5,783,146
56	5,783,148
61	5,783,149
	5,783,150
82.06	5,783,152
83	5,783,153
98	5,783,154
102	5,783,155
186	5,784,682
292	5,783,156

CLASS 423

47	5,783,158
179	5,783,159
237	5,783,160
265	5,783,161
348	5,783,162
556	5,783,163
584	5,783,164
598	5,783,165
617	5,783,166
701	5,783,167
702	5,783,168
	5,783,321

CLASS 424

1.65	5,783,169
1.69	5,783,170
1.73	5,783,171
49	5,783,172
59	5,783,173
	5,783,174
62	5,783,175
64	5,783,176
78.17	5,783,177
78.31	5,783,178
85.2	5,783,179
	5,783,181
93.21	5,783,182
94.1	5,783,183
130.1	5,783,184
133.1	5,783,185
143.1	5,783,186
158.1	5,783,187
184.1	5,783,188
195.1	5,783,189
	5,783,190
199.1	5,783,192
207.1	5,783,193
211.1	5,783,194
229.1	5,783,195
234.1	5,783,196
267.1	5,783,197
400	5,783,199
401	5,783,200
	5,783,201
405	5,783,202
	5,783,203
406	5,783,204
426	5,783,205
440	5,783,207
448	5,783,208
	5,783,209
450	5,783,210
	5,783,211
472	5,783,212
473	5,783,213
499	5,783,214
501	5,783,215
578	5,783,216
602	5,783,217

CLASS 425

101	5,783,218
113	5,783,219
116	5,783,220
143	5,783,221
151	5,783,222
185	5,783,223
192 R	5,783,224
202	5,783,225
205	5,783,226
318	5,783,227
344	5,783,228
388	5,783,229
421	5,783,230
451.9	5,783,231
526	5,783,232
547	5,783,233
549	5,783,234

CLASS 426

16	5,783,235
36	5,783,236
	5,783,237
63	5,783,238
68	5,783,239
231	5,783,240
276	5,783,241
320	5,783,242
425	5,783,243
536	5,783,244
580	5,783,245
594	5,783,246
650	5,783,247

CLASS 427

2.27	5,783,248
2.29	5,783,249
4	5,783,250
8	5,783,251
81	5,783,253

140	5,783,151
	5,783,254
228	5,783,255
238	5,783,256
255.2	5,783,257
298	5,783,258
379	5,783,252
447	5,783,259
459	5,783,335
493	5,783,260
526	5,783,261
529	5,783,262
580	5,783,263

CLASS 428

13	5,783,264
	5,783,265
34.3	5,783,266
34.4	5,783,267
34.5	5,783,268
35.2	5,783,269
	5,783,270
35.5	5,783,271
35.7	5,783,272
35.9	5,783,273
36.9	5,783,274
79	5,783,276
86	5,783,277
102	5,783,278
116	5,783,279
131	5,783,280
138	5,783,275
	5,783,281
	5,783,282
141	5,783,283
161	5,783,284
172	5,783,285
188	5,783,286
192	5,783,287
195	5,783,288
	5,783,289
198	5,783,290
212	5,783,292
	5,783,293
215	5,783,294
216	5,783,295
	5,783,296
304.4	5,783,297
323	5,783,298
329	5,783,299
332	5,783,300
	5,783,301
343	5,783,302
354	5,783,303
364	5,783,304
408	5,783,305
411.1	5,783,306
412	5,783,307
422	5,783,308
432	5,783,309
434	5,783,310
447	5,783,311
573	5,783,312
627	5,783,313
	5,783,314
633	5,783,315
660	5,783,316
673	5,783,317
680	5,783,318
690	5,783,319
694 ML	5,783,320

CLASS 429

7	5,783,322
31	5,783,324
42	5,783,325
57	5,783,326
97	5,783,327
137	5,783,328
174	5,783,329
212	5,783,330
217	5,783,331
218	5,783,332
223	5,783,333
	5,783,334

CLASS 430

5	5,783,336
	5,783,337
7	5,783,338
	5,783,339
22	5,783,340
	5,783,341
30	5,783,342
47	5,783,343
65	5,783,344
102	5,783,345
106	5,783,346
110	5,783,347
115	5,783,349
116	5,783,350
124	5,783,348
133	5,783,351
137	5,783,352
138	5,783,353
170	5,783,354
191	5,783,355
240	5,783,356
264	5,783,357
269	5,783,358
270.1	5,783,359
270.12	5,783,360
271.1	5,783,361
273.1	5,783,362
296	5,783,363
302	5,783,364
311	5,783,365
	5,783,366
313	5,783,367
315	5,783,368
317	5,783,369
318	5,783,370
321	5,783,371
363	5,783,372
	5,783,373
400	5,783,374
414	5,783,375
460	5,783,376
522	5,783,377
567	5,783,378
603	5,783,379
619	5,783,380

CLASS 431

8	5,782,626
9	5,782,627
326	5,782,629
355	5,782,630

CLASS 433

14	5,782,631
26	5,782,632
90	5,782,633
132	5,782,634
143	5,782,635
165	5,782,636
173	5,782,637
206	5,782,638

CLASS 434

29	5,782,639
157	5,782,640
200	5,782,628
307 R	5,782,642

CLASS 435

4	5,783,381
	5,783,382
5	5,783,383
	5,783,412
6	5,783,384
	5,783,385
	5,783,386
	5,783,387
	5,783,389
	5,783,390
	5,783,391
	5,783,392
	5,783,393
	5,783,394
	5,783,395
	5,783,406
7.1	5,783,396
	5,783,397
	5,783,398
7.2	5,783,399
7.23	5,783,403
	5,783,404
7.4	5,783,400
7.9	5,783,401
15	5,783,405
25	5,783,407
29	5,783,408
34	5,783,410
	5,783,411
68.1	5,783,413
69.1	5,783,414
	5,783,415
	5,783,416
	5,783,417
	5,783,418
	5,783,420
69.2	5,783,421
69.3	5,783,422
69.6	5,783,423
91.31	5,783,425
115	5,783,427
145	5,783,428
147	5,783,429
172.3	5,783,431
183	5,783,432
199	5,783,433
219	5,783,434
252.3	5,783,435
	5,783,436
286.1	5,783,439
304.3	5,783,440
320.1	5,783,441
	5,783,442
721	5,783,402

CLASS 436

35	5,783,445
45	5,783,446
69	5,783,447
132	5,783,449
161	5,783,450
180	5,783,451
183	5,783,452
518	5,783,453
525	5,783,454
	5,783,455

CLASS 437

35	5,783,457
44	5,783,458
194	5,783,459

CLASS 438

3	5,783,460
17	5,783,461
	5,783,462
112	5,783,463
	5,783,464
115	5,783,426
119	5,783,465
122	5,783,466
131	5,783,467
166	5,783,468
199	5,783,469
253	5,783,470
257	5,783,471
265	5,783,473
279	5,783,474
303	5,783,475
335	5,783,472
425	5,783,476
455	5,783,477
592	5,783,478
	5,783,479
599	5,783,480
623	5,783,481
624	5,783,482
	B1 372,034
627	5,783,483
631	5,783,484
637	5,783,485
682	5,783,486
685	5,783,487
692	5,783,488
	5,783,489
	5,783,490
702	5,783,491
710	5,783,492
718	5,783,493
719	5,783,494
738	5,783,495
743	5,783,496
747	5,783,497
778	5,783,498
787	5,783,499

CLASS 439

79	5,782,644
289	5,782,645
346	5,782,646
358	5,782,647
369	5,782,648
	5,782,649
399	5,782,650
405	5,782,651
417	5,782,652
467	5,782,653
500	5,782,654
510	5,782,655
579	5,782,656
595	5,782,657
	5,782,658

CLASS 440

1	5,782,659
36	5,782,660
61	5,782,662

CLASS 441

25	5,782,663
65	5,782,664

CLASS 442

57	5,783,501
123	5,783,502
340	5,783,503
395	5,783,504
411	5,783,505

CLASS 445

24	5,782,665
73	5,782,666

CLASS 446

69	5,782,667
220	5,782,668
342	5,782,669

CLASS 450

1	5,782,670
38	5,782,671
57	5,782,672

CLASS 451

2	5,782,673
9	5,782,674
56	5,782,675
82	5,782,676
85	5,782,677
269	5,782,678
296	5,782,679
317	5,782,680
523	5,782,681
548	5,782,682

CLASS 452

27	5,782,683
128	5,782,684
138	5,782,685

CLASS 453

10	5,782,686

CLASS 454

184	5,782,687
233	5,782,688
296	5,782,689
369	5,782,690

CLASS 455

5.1	5,784,683
9	5,784,684
31.2	5,784,685
45	5,784,686
78	5,784,687
90	5,784,688
126	5,784,689
127	5,784,690
186.1	5,784,691
333	5,784,692
434	5,784,693
442	5,784,695

CLASS 462

4	5,782,691

CLASS 463

1	5,782,692

CLASS 464

64	5,782,694
111	5,782,695
145	5,782,696

CLASS 470

8	5,782,697

CLASS 472

61	5,782,698
118	5,782,699

CLASS 473

48	5,782,693
195	5,782,700
235	5,782,701
280	5,782,702
	5,782,703
282	5,782,704
300	5,782,705
341	5,782,706
374	5,782,707
408	5,782,708

CLASS 474

110	5,782,709
138	5,782,625
144	5,782,714
152	5,782,712
160	5,782,713

CLASS 475

48	5,782,715
149	5,782,716
221	5,782,717

CLASS 477

45	5,782,718
46	5,782,719
86	5,782,710
156	5,782,711

CLASS 482

52	5,782,722
54	5,782,723
129	5,782,727
148	5,782,728

CLASS 492

7	5,782,729
56	5,782,730

CLASS 493

16	5,782,731
131	5,782,732
213	5,782,733
313	5,782,734
338	5,782,735
392	5,782,736
405	5,782,737

CLASS 501

14	5,783,506
17	5,783,507
97.1	5,783,509
127	5,783,510
146	5,783,511

CLASS 502

124	5,783,512
175	5,783,513
185	5,783,514
207	5,783,515

CLASS 503

227	5,783,517
	5,783,518
	5,783,519

CLASS 504

140	5,783,520
206	5,783,516
272	5,783,521
294	5,783,522
320	5,783,523

CLASS 507

90	5,783,524
252	5,783,525
261	5,783,526
269	5,783,527

CLASS 508

200	5,783,528
216	5,783,529
505	5,783,530
510	5,783,531

CLASS 510

114	5,783,532
119	5,783,533
124	5,783,534
126	5,783,535
141	5,783,536
193	5,783,537
197	5,783,538
223	5,783,539
224	5,783,540
	5,783,541
234	5,783,542
280	5,783,543
293	5,783,544
305	5,783,545
	5,783,546
320	5,783,547
324	5,783,548
337	5,783,549
372	5,783,550
407	5,783,551
441	5,783,552
470	5,783,553
488	5,783,554

CLASS 514

2	5,783,555
4	5,783,556
11	5,783,557
12	5,783,558
	5,783,559
	5,783,560
	5,783,561
15	5,783,562
19	5,783,563
42	5,783,564
44	5,783,565
	5,783,566
	5,783,567
53	5,783,568
54	5,783,569
56	5,783,570
177	5,783,571
212	5,783,572
213	5,783,573
232.8	5,783,575
242	5,783,576
247	5,783,577
255	5,783,579
269	5,783,580
278	5,783,582
282	5,783,583
297	5,783,584
300	5,783,585
311	5,783,586
330	5,783,587
373	5,783,589
374	5,783,590
376	5,783,591
378	5,783,592
381	5,783,593
400	5,783,594
423	5,783,596
447	5,783,597
454	5,783,598
457	5,783,599
547	5,783,600
557	5,783,601
	5,783,602
573	B1 166,178
574	5,783,603
627	5,783,604
629	5,783,605
649	5,783,606

CLASS 518

713	5,783,607

CLASS 521

29	5,783,608
47.5	5,783,609
51	5,783,610
	5,783,611
56	5,783,612
89	5,783,613

CLASS 522

170	5,783,615

CLASS 523

171	B1 433,070
205	5,783,614

CLASS 524

58	5,783,616
275	5,783,618
318	5,783,619
405	5,783,620
439	5,783,621
444	5,783,622
459	5,783,623
494	5,783,624
509	5,783,625
555	5,783,626

CLASS 525

54.1	5,783,627
59	5,783,628
63	5,783,629
74	5,783,630
92 F	5,783,631
123	5,783,632
131	5,783,633
133	5,783,634
168	5,783,635
199	5,783,636
240	5,783,637
	5,783,638
286	5,783,639
329.3	5,783,640
333.8	5,783,641
348	5,783,642
504	5,783,644

CLASS 526

88	5,783,645
204	5,783,646
227	5,783,647
245	5,783,648
256	5,783,649
277	5,783,650

CLASS 528

21	5,783,651
48	5,783,652
196	5,783,653
310	5,783,654
	5,783,657
331	5,783,655
353	5,783,656
362	5,783,659
590	5,783,658

CLASS 530

300	5,783,661
328	5,783,662
329	5,783,663
350	5,783,664
	5,783,665
	5,783,666
	5,783,667
	5,783,669
	5,783,672
388.15	5,783,670
388.25	5,783,671
400	5,783,673

VOL
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2
1
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1998
UMI

413	5,783,674

CLASS 534

15	5,783,676

CLASS 536

4.1	5,783,677
18.2	5,783,678
23.1	5,783,679
23.2	5,783,680
24.1	5,783,681
24.3	5,783,682
24.5	5,783,683
25.3	5,783,684
	5,783,685
25.4	5,783,686
26.6	5,783,687
27.12	5,783,688
28.52	5,783,689
55.1	5,783,691
55.3	5,783,690
123.1	5,783,692
124	5,783,693

CLASS 540

123	5,783,694

CLASS 544

126	5,783,696
172	5,783,697
230.2	5,783,574
285	5,783,698

CLASS 546

104	5,783,699
162	5,783,700
169	5,783,701
220	5,783,702

CLASS 548

142	5,783,704
193	5,783,703
247	5,783,705
316.4	5,783,706
321.1	5,783,707
470	5,783,708
535	5,783,709

CLASS 549

24	5,783,710
425	5,783,711
554	5,783,712
	5,783,713

CLASS 554

156	5,783,714

CLASS 556

11	5,783,715
136	5,783,716
187	5,783,717
453	5,783,718
455	5,783,719
470	5,783,720
472	5,783,721

CLASS 560

27	5,783,722
48	5,783,723
120	5,783,724
188	5,783,725
261	5,783,726
352	5,783,727

CLASS 562

8	5,783,730
21	5,783,728
409	5,783,729
519	5,783,731

CLASS 564

108	5,783,734
134	5,783,735
484	5,783,736

CLASS 568

12	5,783,738
432	5,783,737
590	5,783,732
724	5,783,733

CLASS 600

1	5,782,739
	5,782,740
3	5,782,741
	5,782,742
9	5,782,743
25	5,782,744
30	5,782,745
37	5,782,746
104	5,782,747
	5,782,748
117	5,782,749
119	5,782,750
137	5,782,752
157	5,782,751
210	5,782,753
309	5,782,754
322	5,782,755
	5,782,756
323	5,782,757
336	5,782,758
369	5,782,759
381	5,782,760
391	5,782,761
407	5,782,762
	5,782,763
411	5,782,764
424	5,782,765
443	5,782,766
	5,782,767
	5,782,768
454	5,782,769
476	5,782,770
478	5,782,771
520	5,782,772
523	5,782,773
547	5,782,774
567	5,782,775
585	5,782,776
587	5,782,777
	5,782,778

CLASS 601

70	5,782,779

CLASS 602

6	5,782,780
19	5,782,781
	5,782,782
20	5,782,783
21	5,782,784
26	5,782,785
41	5,782,786
46	5,782,787
48	5,782,788
52	5,782,789
75	5,782,790

CLASS 604

4	5,782,791
5	5,782,792
14	5,782,793
15	5,782,794
22	5,782,795
29	5,782,796
49	5,782,797
	5,782,798
	5,782,799
54	5,782,800
55	5,782,801
68	5,782,802
110	5,782,803
	5,782,804
131	5,782,805
	5,782,806
164	5,782,807
167	5,782,812
174	5,782,813
207	5,782,814
218	5,782,815
256	5,782,816
	5,782,817
265	5,782,808
280	5,782,809
	5,782,810
282	5,782,811
313	5,782,871
349	5,782,818
385.1	5,782,819
404	5,782,872
411	5,782,820

CLASS 606

1	5,782,821
5	5,782,822
7	5,782,823
15	5,782,824
	5,782,825
22	5,782,834
34	5,782,826
41	5,782,827
42	5,782,828
46	5,782,829
61	5,782,830
	5,782,831
	5,782,832
	5,782,833
79	5,782,835
	5,782,836
106	5,782,837
108	5,782,838
113	5,782,839
114	5,782,840
129	5,782,841
130	5,782,842
133	5,782,843
139	5,782,844
144	5,782,845
159	5,782,847
	5,782,848
	5,782,849
167	5,782,850
182	5,782,852
187	5,782,853
194	5,782,854
	5,782,855
201	5,782,856
204	5,782,858
204.35	5,782,857
205	5,782,859
213	5,782,860
216	5,782,861
232	5,782,862
	5,782,863
	5,782,864
	5,782,865
	5,782,866
234	5,782,867
235	5,782,868
242	5,782,869
244	5,782,870

CLASS 607

2	5,782,873
	5,782,874
	5,782,875
4	5,782,876
5	5,782,878
6	5,782,879
9	5,782,880
	5,782,881
10	5,782,882
14	5,782,883
17	5,782,884
	5,782,885
	5,782,886
25	5,782,887
27	5,782,888
28	5,782,889
32	5,782,890
36	5,782,891
37	5,782,892
48	5,782,893
53	5,782,894
88	5,782,895
	5,782,896
101	5,782,897
119	5,782,898
122	5,782,899
	5,782,900
130	5,782,901
143	5,782,902

CLASS 623

1	5,782,903
	5,782,904
	5,782,905
	5,782,906
	5,782,907
	5,782,908
	5,782,909
	5,782,912
3	5,782,910
5	5,782,911
11	5,782,913
	5,782,914
	5,782,915
12	5,782,916
16	5,782,917
	5,782,918
17	5,782,919
18	5,782,920
20	5,782,921
	5,782,922
	5,782,923
	5,782,924
	5,782,925
21	5,782,926
	5,782,927
22	5,782,928
	5,782,929
23	5,782,930

CLASS 636

167	5,782,851

CLASS 705

36	5,784,696

CLASS 711

164	5,784,704
169	5,784,705
170	5,784,697
171	5,784,698
	5,784,699
172	5,784,700
173	5,784,701
	5,784,702
	5,784,703
202	5,784,706
206	5,784,707
207	5,784,708
	5,784,709
212	5,784,710
213	5,784,711
219	5,784,712
220	5,784,713

CLASSIFICATION OF DESIGNS

D2—	857	396,135
	872	396,136
	961	396,138
	962	396,139
	972	396,140
		396,141
		396,142
D3—	201	396,143
	287	396,144
D4—	104	396,145
	113	396,146
D6—	301	396,147
	302	396,148
	308	396,149
	318	396,150
	335	396,151
	356	396,152
	370	396,153
	470	396,154
	502	396,155
		396,156
	525	396,157
	540	396,158
	553	396,159
	567	396,160
	574	396,161
		396,162
		396,163
D7—	330	396,164
		396,165
	333	396,166
	386	396,167
	395	396,168
	402	396,169
	590	396,170
		396,171
	615	396,172
	683	396,173
D8—	62	396,175
	68	396,177
		396,178
	310	396,179
		396,180
	350	396,181
	375	396,182
	376	396,183
	395	396,184
	396	396,185
D9—	300	396,186
	418	396,187
	448	396,188
	449	396,190
	515	396,189
	574	396,191
D10—	14	396,192
	30	396,193
	31	396,194
	70	396,195
	92	396,196
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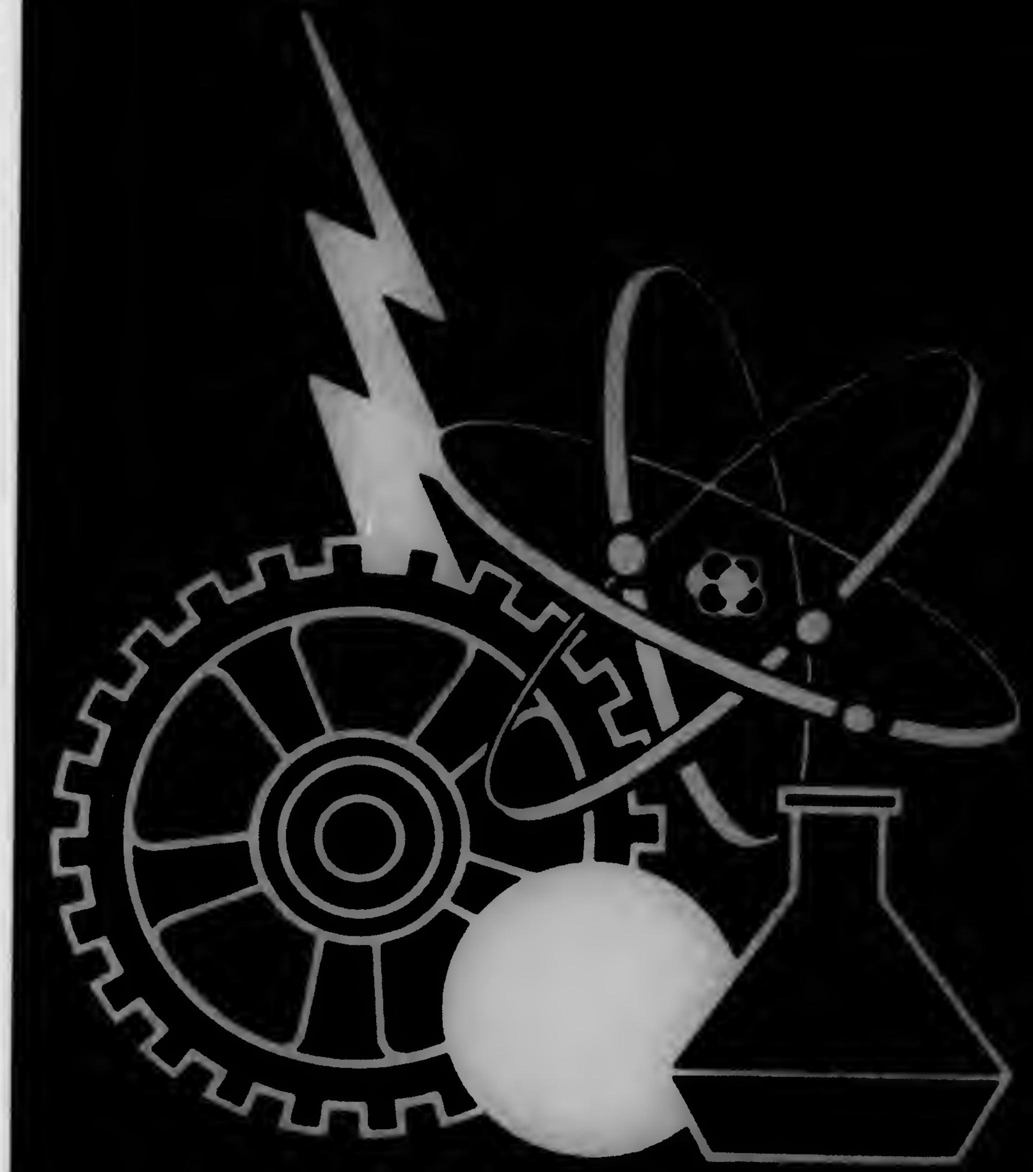

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PATENT AND TRADEMARK OFFICE NOTICES

Patent Cooperation Treaty (PCT) Information

For information concerning PCT member countries, see the notice appearing in the *Official Gazette* at 1205 O.G. 4, on December 2, 1997.

For use of the European Patent Office as an International Searching Authority for international applications filed in the United States Receiving Office, see the notice appearing in the *Official Gazette* at 1022 O.G. 52, on September 28, 1982.

For use of the European Patent Office as an International Preliminary Examining Authority for international applications filed in the United States Receiving Office, see the notices appearing in the *Official Gazette* at 1080 O.G. 2, on July 7, 1987, and at 1091 O.G. 2, on June 7, 1988. There is no longer a limit on the number of such international applications accepted for international preliminary examination by the European Patent Office; see the notice appearing at 1116 O.G. 32, on July 17, 1990.

The search fee of the European Patent Office was increased, effective January 1, 1998, and was announced in the *Official Gazette* at 1205 O.G. 3, on December 2, 1997.

International fees were changed, effective on May 1, 1997, due to a change in the exchange rate of the U.S. dollar with regard to the Swiss franc, and were announced in the *Official Gazette* at 1197 O.G. 69, on April 22, 1997. The basic fee and the designation fee were further changed effective January 1, 1998 and were announced in the *Official Gazette* at 1205 O.G. 3, on December 2, 1997.

Certain domestic PCT fees and charges for International Search and Preliminary Examination were changed, effective October 1, 1997, and were announced in the *Official Gazette* at 1201 O.G. 63, on August 19, 1997.

The schedule of PCT fees (in U.S. dollars), effective January 1, 1998, is as follows:

International Application (PCT Chapter I) fees:	
Transmittal fee	240.00
Search Fee	
U.S. Patent and Trademark Office (USPTO) as International Searching Authority (ISA)	
— No corresponding prior U.S. national application filed under 35 U.S.C. 111(a)	700.00
— Corresponding prior U.S. national application filed under 35 U.S.C. 111(a)	450.00
— Supplemental search fee, per additional invention (payable only upon invitation)	210.00
European Patent Office as ISA	1250.00
International fees	
Basic fee	455.00
Basic supplemental fee (for each page over 30)	10.00
Designation fee per country or region	
— For the first 11 national or regional offices designated	105.00
— For each designation in excess of 11 offices	No Charge
Precautionary designation fee and confirmation fee for each precautionary designation confirmed (PCT Rule 15.5)	
— Designation fee	105.00
— Confirmation fee	52.50
International Application (PCT Chapter II) fees associated with filing a Demand for Preliminary Examination:	
Handling fee	162.00
Preliminary examination fee	
USPTO as International Preliminary Examining Authority (IPEA)	
— USPTO was ISA in PCT Chapter I	490.00
— Additional examination fee, per additional invention (payable only upon invitation)	140.00
— USPTO was not ISA in PCT Chapter I	750.00
— Additional examination fee, per additional invention (payable only upon invitation)	270.00

U.S. National Stage Fees	Small Entity	Regular
Basic National fee		
USPTO was IPEA		
— All claims presented satisfied provisions of PCT Article 33(2) to (4)	49.00	98.00
— All claims presented did not satisfy provisions of PCT Article 33(2) to (4)	360.00	720.00
USPTO was ISA but not IPEA	395.00	790.00
USPTO was neither ISA nor IPEA		
— Search report has not been prepared by the European Patent Office or the Japanese Patent Office	535.00	1070.00
— Search report has been prepared by the European Patent Office or the Japanese Patent Office	465.00	930.00
Other National fees		
— For each independent claim in excess of 3	41.00	82.00
— For each claim in excess of 20.	11.00	22.00
— For each application containing a multiple dependent claim	135.00	270.00
— Surcharge for filing oath or declaration after the time limit applicable under PCT Article 22 or 39(1)	65.00	130.00
— Processing fee for filing English translation after the time limit applicable under PCT Article 22 or 39(1)	130.00	130.00

Nov. 10, 1997

BRUCE A. LEHMAN
Assistant Secretary of Commerce and
Commissioner of Patents and Trademarks

Notice of Maintenance Fees Payable

Title 37 Code of Federal Regulations (CFR), Section 1.362(d) provides that maintenance fees may be paid without surcharge for the six-month period beginning 3, 7, and 11 years after the date of issue of patents based on applications filed on or after Dec. 12, 1980. An additional six-month grace period is provided by 35 U.S.C. 41(b) and 37 CFR 1.362(e) for payment of the maintenance fee with the surcharge set forth in 37 CFR 1.20(h), as amended effective Dec. 16, 1991. If the maintenance fee is not paid in the patent requiring such payment the patent will expire on the 4th, 8th, or 12th anniversary of the grant.

Attention is drawn to the patents which were issued on July 25, 1995 for which maintenance fees due at 3 years and six

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months may now be paid. The patents have patent numbers within the following ranges:

Utility Patents 5,435,006 through 5,437,060
Reissue Patents based on the above identified patents.

Attention is drawn to the patents which were issued on July 23, 1991 for which maintenance fees due at 7 years and six months may now be paid. The patents have patent numbers within the following ranges:

Utility Patents 5,033,115 through 5,034,997
Reissue Patents based on the above identified patents.

Attention is drawn to the patents which were issued on July 21, 1987 for which maintenance fees due at 11 years and six months may now be paid. The patents have patent numbers within the following ranges:

Utility Patents 4,680,812 through 4,682,370
Reissue Patents based on the above identified patents.

No maintenance fees are required for design or plant patents.

Payments of maintenance fees in patents should be directed to "Commissioner of Patents and Trademarks, Box M. Fee, Washington, D.C. 20231."

For patents based on applications filed on or after Dec. 12, 1980, but before Aug. 27, 1982, patent owners must establish small entity status according to 37 CFR 1.27 if they have not done so and if they wish to pay the small entity amount.

The current amounts of the maintenance fees due at 3 years and six months, 7 years and six months, and 11 years and six months are set forth in 37 CFR 1.20(e)-(g), as amended Oct. 1, 1997, which are reproduced below:

37 CFR § 1.20 Post-issuance fees

(e) For maintaining an original or reissue patent, except a design or plant patent, based on an application filed on or after Dec. 12, 1980, in force beyond 4 years; the fee is due by three years and six months after the original grant:

By a small entity (§ 1.9(f)) $525.00
By other than a small entity $1,050.00

(f) For maintaining an original or reissue patent, except a design or plant patent, based on an application filed on or after Dec. 12, 1980 in force beyond 8 years; the fee is due by seven years and six months after the original grant:

By a small entity (§ 1.9(f)) $1,050.00
By other than a small entity $2,100.00

(g) For maintaining an original or reissue patent, except a design or plant patent, based on applications filed on or after Dec. 12, 1980 in force beyond 12 years; the fee is due by eleven years and six months after the original grant:

By a small entity (§ 1.9(f)) $1,580.00
By other than a small entity $3,160.00

The amount of the surcharge for paying the maintenance fee during the grace period or after expiration of the patent are set forth in 37 CFR 1.20(h), and (i) which are reproduced below:

(h) Surcharge for paying a maintenance fee during the 6 month grace period following the expiration of three years and six months, seven years and six months, and eleven years and six months after the date of the original grant of a patent based on an application filed on or after Dec. 12, 1980:

By a small entity (§ 1.9(f)) $65.00
By other than a small entity $130.00

(i) Surcharge for accepting a maintenance fee after expiration of a patent for non-timely payment of a maintenance fee where the delay is shown to the satisfaction of the Commissioner to have been:

(1) unavoidable $700.00
(2) unintentional $1,640.00

Notice of Expiration of Patents Due to Failure to Pay Maintenance Fee

35 U.S.C. 41 and 37 CFR 1.362(g) provide that if the required maintenance fee and any applicable surcharge are not paid in a patent requiring such payment, the patent will expire at the end of the 4th, 8th or 12th anniversary of the grant of the patent depending on the first maintenance fee which was not paid.

According to the records of the Office, the patents listed below have expired due to failure to pay the required maintenance fee and any applicable surcharge.

PATENTS WHICH EXPIRED May 20, 1998 DUE TO FAILURE TO PAY MAINTENANCE FEES

Patent Number	Serial Number	Issue Date
Re. 32,816	07/151,275	01/03/89
(4,589,711)	(06/686,093)	(05/20/86)
Re. 33,262	07/181,212	07/17/90
(4,589,311)	(06/549,346)	(05/20/86)
Re. 33,958	07/695,457	06/16/92
(4,924,691)	(07/314,777)	(05/15/90)
4,589,149	06/702,497	05/20/86
4,589,157	06/698,267	05/20/86
4,589,159	06/566,210	05/20/86
4,589,162	06/651,981	05/20/86
4,589,163	06/584,159	05/20/86
4,589,164	06/618,897	05/20/86
4,589,174	06/593,730	05/20/86
4,589,177	06/735,820	05/20/86
4,589,187	06/572,801	05/20/86
4,589,200	06/748,102	05/20/86
4,589,202	06/637,932	05/20/86
4,589,227	06/605,551	05/20/86
4,589,235	06/588,447	05/20/86
4,589,236	06/617,318	05/20/86
4,589,242	06/610,608	05/20/86
4,589,244	06/483,056	05/20/86
4,589,254	06/630,053	05/20/86
4,589,255	06/664,643	05/20/86
4,589,256	06/543,829	05/20/86
4,589,259	06/756,321	05/20/86
4,589 260	06/549,317	05/20/86
4,589,274	06/645,199	05/20/86
4,589,279	06/733,146	05/20/86
4,589,280	06/666,358	05/20/86
4,589,282	06/642,459	05/20/86
4,589,284	06/683,304	05/20/86
4,589,286	06/595,114	05/20/86
4,589,301	06/488,963	05/20/86
4,589,303	06/643,938	05/20/86
4,589,319	06/679,652	05/20/86
4,589,327	06/593,389	05/20/86
4,589,329	06/504,249	05/20/86
4,589,332	06/771,596	05/20/86
4,589,341	06/744,511	05/20/86
4,589,345	06/600,812	05/20/86
4,589,358	06/699,027	05/20/86
4,589,360	06/766,904	05/20/86
4,589,368	06/655,943	05/20/86
4,589,374	06/730,388	05/20/86
4,589,378	06/689,914	05/20/86
4,589,379	06/663,207	05/20/86
4,589,380	06/628,829	05/20/86
4,589,382	06/456,692	05/20/86
4,589,389	06/743,977	05/20/86
4,589,396	06/755,721	05/20/86
4,589,397	06/634,393	05/20/86
4,589,408	06/636,893	05/20/86
4,589,412	06/567,506	05/20/86
4,589,414	06/602,607	05/20/86
4,589,415	06/645,831	05/20/86
4,589,417	06/648,818	05/20/86
4,589,420	06/630,782	05/20/86
4,589,425	06/627,335	05/20/86
4,589,430	06/595,685	05/20/86
4,589,435	06/653,709	05/20/86
4,589,437	06/568,582	05/20/86
4,589,443	06/627,996	05/20/86
4,589,444	06/610,708	05/20/86
4,589,448	06/634,477	05/20/86
4,589,452	06/677,075	05/20/86
4,589,470	06/608,079	05/20/86
4,589,473	06/710,501	05/20/86
4,589,476	06/734,940	05/20/86
4,589,482	06/617,025	05/20/86
4,589,488	06/506,186	05/20/86
4,589,489	06/672,543	05/20/86
4,589,497	06/610,200	05/20/86
4,589,498	06/705,199	05/20/86
4,589,510	06/627,454	05/20/86
4,589,515	06/679,247	05/20/86
4,589,524	06/753,201	05/20/86
4,589,535	06/650,951	05/20/86
4,589,539	06/532,436	05/20/86
4,589,543	06/658,188	05/20/86
4,589,546	06/690,258	05/20/86
4,589,550	06/694,653	05/20/86
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4,589,563	06/649,076	05/20/86
4,589,564	06/720,198	05/20/86
4,589,565	06/709,100	05/20/86
4,589,568	06/597,441	05/20/86
4,589,576	06/523,930	05/20/86
4,589,583	06/642,403	05/20/86
4,589,585	06/779,015	05/20/86
4,589,594	06/605,286	05/20/86
4,589,597	06/538,204	05/20/86
4,589,606	06/665,664	05/20/86
4,589,607	06/692,768	05/20/86
4,589,610	06/549,861	05/20/86
4,589,615	06/402,464	05/20/86
4,589,618	06/435,599	05/20/86
4,589,620	06/563,441	05/20/86
4,589,622	06/676,164	05/20/86
4,589,637	06/593,717	05/20/86
4,589,641	06/726,425	05/20/86
4,589,642	06/631,593	05/20/86
4,589,644	06/755,185	05/20/86
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4,589,730	06/517,651	05/20/86
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4,589,742	06/643,911	05/20/86
4,589,749	06/709,853	05/20/86
4,589,768	06/667,445	05/20/86
4,589,775	06/554,549	05/20/86
4,589,780	06/787,699	05/20/86
4,589,782	06/618,961	05/20/86
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4,589,819	06/615,635	05/20/86
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4,589,838	06/721,324	05/20/86
4,589,847	06/638,635	05/20/86
4,589,850	06/651,848	05/20/86
4,589,851	06/732,113	05/20/86
4,589,852	06/671,625	05/20/86
4,589,856	06/706,670	05/20/86
4,589,859	06/658,272	05/20/86
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4,589,863	06/603,202	05/20/86
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4,589,937	06/421,634	05/20/86
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4,589,952	06/670,463	05/20/86
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4,589,958	06/697,935	05/20/86
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4,589,991	06/749,989	05/20/86
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4,589,996	06/645,097	05/20/86
4,589,998	06/529,190	05/20/86
4,590,001	06/593,725	05/20/86
4,590,010	06/724,474	05/20/86
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4,590,013	06/735,151	05/20/86
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4,590,017	06/703,063	05/20/86
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4,590,022	06/662,507	05/20/86
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4,590,087	06/574,498	05/20/86
4,590,090	06/402,706	05/20/86
4,590,109	06/713,811	05/20/86
4,590,110	06/610,242	05/20/86
4,590,116	06/577,221	05/20/86
4,590,119	06/622,771	05/20/86
4,590,120	06/691,855	05/20/86
4,590,128	06/704,380	05/20/86
4,590,134	06/733,030	05/20/86
4,590,135	06/733,028	05/20/86
4,590,137	06/595,531	05/20/86
4,590,138	06/729,453	05/20/86
4,590,143	06/584,546	05/20/86
4,590,145	06/750,703	05/20/86
4,590,149	06/672,763	05/20/86
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4,590,161	06/583,325	05/20/86
4,590,167	06/634,685	05/20/86
4,590,169	06/553,209	05/20/86
4,590,178	06/590,428	05/20/86
4,590,185	06/718,085	05/20/86
4,590,186	06/690,251	05/20/86
4,590,189	06/478,478	05/20/86
4,590,190	06/510,133	05/20/86
4,590,196	06/643,614	05/20/86
4,590,199	06/635,308	05/20/86
4,590,203	06/548,753	05/20/86
4,590,206	06/606,542	05/20/86

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4,590,209	06/522,546	05/20/86
4,590,215	06/622,598	05/20/86
4,590,216	06/648,028	05/20/86
4,590,224	06/642,451	05/20/86
4,590,230	06/647,070	05/20/86
4,590,235	06/721,215	05/20/86
4,590,236	06/703,093	05/20/86
4,590,240	06/685,601	05/20/86
4,590,247	06/656,454	05/20/86
4,590,250	06/754,409	05/20/86
4,590,256	06/775,706	05/20/86
4,590,259	06/677,114	05/20/86
4,590,263	06/428,455	05/20/86
4,590,265	06/724,747	05/20/86
4,590,268	06/490,288	05/20/86
4,590,281	06/587,166	05/20/86
4,590,293	06/592,739	05/20/86
4,590,294	06/765,164	05/20/86
4,590,297	06/709,613	05/20/86
4,590,299	06/700,370	05/20/86
4,590,300	06/689,891	05/20/86
4,590,304	06/734,299	05/20/86
4,590,313	06/384,318	05/20/86
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4,590,340	06/696,143	05/20/86
4,590,347	06/548,824	05/20/86
4,590,351	06/715,110	05/20/86
4,590,357	06/472,288	05/20/86
4,590,358	06/657,556	05/20/86
4,590,363	06/497,200	05/20/86
4,590,372	06/586,129	05/20/86
4,590,379	06/418,794	05/20/86
4,590,386	06/652,841	05/20/86
4,590,393	06/503,944	05/20/86
4,590,394	06/589,269	05/20/86
4,590,395	06/632,578	05/20/86
4,590,397	06/677,031	05/20/86
4,590,400	06/665,237	05/20/86
4,590,404	06/595,522	05/20/86
4,590,405	06/750,663	05/20/86
4,590,407	06/576,591	05/20/86
4,590,418	06/668,427	05/20/86
4,590,421	06/549,457	05/20/86
4,590,422	06/288,454	05/20/86
4,590,424	06/535,307	05/20/86
4,590,429	06/552,251	05/20/86
4,590,431	06/564,129	05/20/86
4,590,441	06/679,970	05/20/86
4,590,445	06/620,623	05/20/86
4,590,452	06/640,607	05/20/86
4,590,460	06/657,161	05/20/86
4,590,461	06/658,392	05/20/86
4,590,466	06/505,996	05/20/86
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4,926,251	07/178,431	05/15/90
4,926,260	07/345,394	05/15/90
4,926,272	07/039,571	05/15/90
4,926,277	07/247,482	05/15/90
4,926,279	07/281,761	05/15/90
4,926,281	07/316,172	05/15/90
4,926,283	07/400,903	05/15/90
4,926,284	06/714,684	05/15/90
4,926,292	07/391,459	05/15/90
4,926,293	07/305,382	05/15/90
4,926,295	07/413,716	05/15/90
4,926,299	07/358,425	05/15/90
4,926,300	07/322,655	05/15/90
4,926,303	07/283,153	05/15/90
4,926,306	07/389,295	05/15/90
4,926,308	07/167,859	05/15/90
4,926,309	07/242,664	05/15/90
4,926,329	07/024,068	05/15/90
4,926,341	07/108,488	05/15/90
4,926,344	07/168,648	05/15/90
4,926,349	07/044,692	05/15/90
4,926,355	07/069,433	05/15/90
4,926,356	07/162,042	05/15/90
4,926,360	07/179,064	05/15/90
4,926,364	07/223,306	05/15/90
4,926,369	07/255,089	05/15/90
4,926,371	07/291,659	05/15/90
4,926,374	07/276,200	05/15/90
4,926,379	07/300,245	05/15/90
4,926,383	07/151,377	05/15/90
4,926,390	07/216,776	05/15/90
4,926,396	07/418,574	05/15/90
4,926,397	07/434,338	05/15/90
4,926,399	07/331,266	05/15/90
4,926,410	07/178,293	05/15/90
4,926,414	07/062,003	05/15/90
4,926,417	07/351,299	05/15/90
4,926,422	07/267,492	05/15/90
4,926,425	07/204,622	05/15/90
4,926,426	07/238,085	05/15/90
4,926,430	07/429,476	05/15/90
4,926,434	07/383,047	05/15/90
4,926,442	07/208,327	05/15/90
4,926,444	07/187,978	05/15/90
4,926,470	07/257,739	05/15/90
4,926,474	07/165,268	05/15/90
4,926,478	07/292,505	05/15/90
4,926,479	07/188,284	05/15/90
4,926,481	07/279,630	05/15/90
4,926,486	07/287,511	05/15/90
5,312,252	08/075,050	05/17/94
5,312,312	08/018,147	05/17/94
5,312,483	07/815,835	05/17/94
5,312,622	07/828,870	05/17/94
5,313,483	07/875,816	05/17/94

Patent Reinstated Due to the Acceptance of a Late Maintenance Fee From 05/29/98

Patent Number	Serial Number	Filing Date	Issue Date	Granted Date
4,491,725	06/426,982	09/29/82	01/01/85	06/02/98
4,545,576	06/523,374	08/13/83	10/08/85	05/29/98
4,553,127	06/509,333	06/30/83	11/12/85	05/29/98
4,765,386	06/937,778	12/04/86	08/23/88	06/02/98
4,776,551	07/082,342	08/06/87	10/11/88	06/02/98
4,805,308	07/025,949	03/16/87	02/21/89	06/02/98
4,812,498	06/945,733	12/22/86	03/14/89	06/03/98
4,822,733	06/738,560	05/28/85	04/18/89	05/29/98
4,854,706	07/077,931	07/27/87	08/08/89	06/04/98
4,998,848	07/329,183	03/27/89	03/12/91	05/29/98
5,150,158	07/605,086	10/29/90	09/22/92	05/29/98
5,152,303	07/717,147	06/18/91	10/06/92	06/02/98
5,171,393	07/737,455	07/29/91	12/15/92	06/02/98
5,200,795	07/401,175	08/31/89	04/06/93	05/29/98
5,228,688	07/615,352	11/19/90	07/20/93	06/02/98
5,236,371	07/965,858	10/23/92	08/17/93	06/03/98
5,277,477	07/726,583	07/08/91	01/11/94	06/02/98
5,293,511	08/033,687	03/16/93	03/08/94	06/02/98

Reissue Applications Filed

Notice under 37 CFR 1.11(b). The reissue applications listed below are open to inspection by the general public in the indicated Examining Groups and copies may be obtained by paying the fee therefor (37 CFR 1.12(b)).

5,513,719, Re. S.N. 09/064,109, Apr. 22, 1998, Cl. 180/65.4, HYBRID VEHICLE, Shuzo Moroto et al., Owner of Record: *Kabushiki Kaisha Equos Research, Tokyo, Japan*, Attorney or Agent: George A. Loud, Ex. Gp.: 3106

5,522,283, Re. S.N. 09/090,763, Jun. 4, 1998, Cl. 76/27, CIRCULAR SAW LEVELING AND TENSIONING MACHINE, Ernest W. Brown, Owner of Record: *International Paper Co., Purchase, N.Y.*, Attorney or Agent: Kassim M. Ferris, Ex. Gp.: 3204

5,522,831, Re. S.N. 09/089,133, Jun. 2, 1998, Cl. 606/182, INCISING TROCAR AND CANNULA ASSEMBLY, Dennis R. Sleister, et. al., Owner of Record: *Dennis R. Sleister, East Greenwich*, Attorney or Agent: John L. Welsh, Ex. Gp.: 3309

5,523,492, Re. S.N. 09/089,043, Jun. 2, 1998, Cl. 568/606, POLYOXYPROPYLENE/POLYOXYETHYLENE COPOLYMERS WITH IMPROVED BIOLOGICAL ACTIVITY, R. Martin Emanuele, et. al., Owner of Record: *Cytrx Corp., Norcross, Ga.*, Attorney or Agent: A. M. Arismendi, Jr., Ex. Gp.: 1201

5,596,054, Re. S.N. 09/089,423, Jun. 3, 1998, Cl. 526/134, TRANSITION METAL COMPOUND, POLYMERIZATION CATALYST USING SAME AND PROCESS FOR PRODUCING STYRENIC POLYMER USING SAID POLYMERIZATION CATALYST, Mizutomo Takeuchi, Owner of

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Record: *Idemitsu Kosan Co. Ltd., Tokyo, Japan,* Attorney or Agent: Frederick D. Vastine, Ex. Gp.: 1505

5,601,349, Re. S.N. 09/089,748, Jun. 2, 1998, Cl. 312/265.6, CAPTIVE LATCH MECHANISM FOR USE WITH AN EXPANSION CARD CAGE IN A PERSONAL COMPUTER, George T. Holt, Owner of Record: *Dell USA, Austin, Tex.*, Attorney or Agent: James R. Bell, Ex. Gp.: 3507

5,638,390, Re. S.N. 09/090,057, Jun. 3, 1998, Cl. 372/38, OPTOELECTRONIC TRANSCEIVER MODULE LASER DIODE STABILIZER AND BIAS CONTROL METHOD, Patrick B. Gilliland, et. al., Owner of Record: *Methode Electronics Inc., Chicago, Ill.*, Attorney or Agent: David R. Metzger, Ex. Gp.: 2501

5,661,112, Re. S.N. 09/035,783, Mar. 6, 1998, Cl. 505/1, SUPERCONDUCTOR, Shinichiro Hatta, et. al., Owner of Record: *Matsushita Electric Industrial Co. Ltd., Osaka, Japan,* Attorney or Agent: Thomas P. Pavelko, Ex. Gp.: 1317

5,711,048, Re. S.N. 09/093,815, Jun. 9, 1998, Cl. 15/347, PORTABLE BLOWER/VAC, Anthony N. Pink, et. al., Owner of Record: *Toro Co., Bloomington, Minn.,* Attorney or Agent: James W. Miller, Ex. Gp.: 1744

Request for Reexamination Filed

Notice under 37 CFR 1.11(c). The requests for reexamination listed below are open to inspection by the general public in the indicated Examining Groups. Copies of the requests and related papers may be obtained by paying the fee therefor established in the Rules (37 CFR 1.19(a)).

In the event correspondence to the patent owner is not received, this notice will be considered to be constructive notice to the patent owner and reexamination will proceed (37 CFR 1.248(a)(5) and 1.525(b)).

5,210,846, Reexam. No. 90/004,995, May 29, 1998, Cl. 395/280, ONE-WIRE BUS ARCHITECTURE, Robert D. Lee, et. al., Owner of Record: *Dallas Semiconductor Corp., Dallas, Tex.*, Attorney or Agent: Steven R. Greenfield, Jenkins and Gilchrist, Dallas, Tex., Ex. Gp.: 2781, Requester: Al Scheule, Benchmarq Microelectronics, Dallas, Tex.

5,242,343, Reexam. No. 90/004,998, May 15, 1998, Cl. 482/057, STATIONARY EXERCISE DEVICE, Larry Miller, Owner of Record: *Inventor*, Attorney or Agent: Ronald W. Citkowski, Gifford Krass Groh Sprinkle Patmore Anderson and Citkowski, Birmingham, Mich., Ex. Gp.: 3733, Requester: Brunswick Corp., Lake Forest, Mich. c/o Michael B. McMurray, Chicago, Ill.

5,256,894, Reexam. No. 90/005,001, May 29, 1998, Cl. 180/065.1, SEMICONDUCTOR DEVICE HAVING VARIABLE IMPURITY CONCENTRATION POLYSILICON LAYER, Katsuya Shino, Owner of Record: *Kabushiki Kaisha Toshiba, Kawasaki-shi, Japan,* Attorney or Agent: Richard L. Schwaab, Foley and Lardner, Washington, D.C., Ex. Gp.: 3611, Requester: Owner

5,316,596, Reexam. No. 90/004,993, May 27, 1998, Cl. 148/321, ROLL SHELL MATERIAL AND CENTRIFUGAL CAST COMPOSITE ROLL, Yoshihiro Kataoka, Owner of Record: *Kawasaki Steel Corp., Tokyo, Japan,* Attorney or Agent: Dvorak and Orum, Chicago, Ill., Ex. Gp.: 1742, Requester: Owner

5,361,757, Reexam. No. 90/004,992, May 22, 1998, Cl. 600/310, SUBCUTANEOUS RADIATION REFLECTION PROBE, Roger E. Smith, et. al., Owner of Record: *Utah Medical Products, Midvale, Utah,* Attorney or Agent: Calvin E. Thorpe, Thorpe North and Western, Sandy, Utah, Ex. Gp.: 3736, Requester: Stephan A. Pendorf, Tampa, Fla.

5,383,829, Reexam. No. 90/004,999, May 15, 1998, Cl. 482/057, STATIONARY EXERCISE DEVICE, Larry Miller, Owner of Record: *Inventor*, Attorney or Agent: Ronald W. Citkowski, Gifford Krass Groh Sprinkle Patmore Anderson and Citkowski, Birmingham, Mich., Ex. Gp.: 3733, Requester: Brunswick Corp., Lake Forest, Ill. c/o Michael B. McMurray, Chicago, Ill.

5,446,489, Reexam. No. 90/004,994, May 28, 1998, Cl. 348/003, CABLE TELEVISION BILLING METHOD, Andrew Egendorf, Owner of Record: *Inventor*, Attorney or Agent: Ira J. Schaefer, Sprung Kramer Schaefer and Briscoe, Tarrytown, N.Y., Ex. Gp.: 2711, Requester: Owner

5,525,516, Reexam. No. 90/004,997, June 1, 1998, Cl. 436/056, METHOD FOR TAGGING PETROLEUM PRODUCTS, James J. Krutak, et. al., Owner of Record: *Eastman Chemical Co., Kingsport, Tenn.*, Attorney or Agent: Karen A. Harding, Eastman Chemical Co., Kingsport, Tenn., Ex. Gp.: 1743, Requester: Owner

5,573,751, Reexam. No. 90/005,000, May 15, 1998, Cl. 424/009.52, PERSISTANT GASEOUS BUBBLES AS ULTRASOUND CONTRAST MEDIA, Steven C. Quay, Owner of Record: *Sonus Pharmaceuticals, Inc., Costa Mesa, Calif.*, Attorney or Agent: W. Patrick Bengtsson, Limbach and Limbach, San Francisco, Calif., Ex. Gp.: 1632, Requester: Molecular Biosystems, Inc., San Diego, Calif.; c/o Thomas E. Ciotti, Morrison and Foerster, Palo Alto, Calif.

5,683,503, Reexam. No. 90/004,996, May 29, 1998, Cl. 106/804, COMPOSITION FOR AND METHOD OF PUMPING CONCRETE, Daniel P. Montgomery, Owner of Record: *Fritz Industries, Inc., Mesquite, Tex.*, Attorney or Agent: Thomas R. Weaver, Duncan, Okla., Ex. Gp.: 1755, Requester: Veal and Associates, Birmingham, Ala.

Notice of Expiration of Trademark Registrations Due To Failure to Renew

15 U.S.C. 1059 provides that each trademark registration maybe renewed for periods of ten years from the end of the expiring period upon payment of the prescribed fee and the filing of an acceptable application for renewal. This may be done at any time within six months before the expiration of the period for which the registration was issued or renewed, or it may be done within three months after such expiration on payment of an additional fee.

According to the records of the Office, the trademark registrations listed below are expired due to failure to renew in accordance with 15 U.S.C. 1059.

TRADEMARK REGISTRATIONS WHICH EXPIRED
June 8, 1998
DUE TO FAILURE TO RENEW

Reg. Number	Serial Number	Reg. Date
118,386	71/101,854	09/04/1917
118,412	71/103,825	09/04/1917
347,733	71/389,130	07/06/1937
349,448	71/370,304	08/31/1937
349,450	71/373,394	08/31/1937
349,452	71/374,643	08/31/1937
349,483	71/384,994	08/31/1937
349,614	71/390,925	08/31/1937
349,648	71/391,354	08/31/1937
349,655	71/391,413	08/31/1937
349,665	71/391,538	08/31/1937
349,707	71/391,962	08/31/1937
349,708	71/391,970	08/31/1937
349,733	71/392,632	08/31/1937
349,734	71/392,657	08/31/1937
611,782	71/667,776	09/06/1955
645,635	72/015,609	05/21/1957
646,070	72/013,902	05/28/1957
649,958	72/020,341	08/13/1957
651,033	72/015,440	09/03/1957
651,039	72/013,374	09/03/1957
651,054	71/690,736	09/03/1957
651,066	72/014,700	09/03/1957
651,077	72/021,644	09/03/1957
651,078	72/022,105	09/03/1957
651,079	72/022,823	09/03/1957
651,084	72/023,369	09/03/1957
651,085	72/023,371	09/03/1957
651,086	72/023,455	09/03/1957
651,092	72/020,596	09/03/1957
651,094	72/022,910	09/03/1957
651,106	72/018,967	09/03/1957
651,111	72/020,576	09/03/1957
651,119	72/021,396	09/03/1957
651,121	72/021,510	09/03/1957
651,122	72/021,512	09/03/1957
651,124	72/021,515	09/03/1957
651,126	72/021,719	09/03/1957
651,129	72/022,291	09/03/1957
651,133	72/011,667	09/03/1957
651,135	72/017,878	09/03/1957
651,137	72/021,768	09/03/1957
651,143	72/009,301	09/03/1957
651,144	72/013,887	09/03/1957
651,149	72/018,356	09/03/1957
651,155	72/021,214	09/03/1957
651,166	72/022,839	09/03/1957
651,192	72/013,496	09/03/1957
651,193	72/017,363	09/03/1957
651,195	72/017,807	09/03/1957
651,196	72/019,760	09/03/1957
651,197	72/019,761	09/03/1957
651,200	72/019,880	09/03/1957
651,205	72/010,010	09/03/1957
651,206	72/015,613	09/03/1957
651,207	72/018,782	09/03/1957
651,208	72/020,411	09/03/1957
651,216	72/023,241	09/03/1957
651,220	71/691,791	09/03/1957
651,223	72/015,689	09/03/1957
651,224	72/016,040	09/03/1957
651,225	72/016,312	09/03/1957
651,230	72/018,941	09/03/1957
651,240	72/021,836	09/03/1957
651,242	72/022,136	09/03/1957
651,251	72/013,519	09/03/1957
651,254	72/017,784	09/03/1957
651,259	71/659,615	09/03/1957
651,261	71/671,825	09/03/1957
651,263	71/684,761	09/03/1957
651,266	71/698,746	09/03/1957
651,269	72/005,043	09/03/1957
651,274	72/012,107	09/03/1957
651,306	72/006,236	09/03/1957
651,307	72/002,062	09/03/1957
651,315	72/007,888	09/03/1957
651,316	72/007,890	09/03/1957
1,056,410	73/086,776	01/18/1977
1,064,037	73/085,616	04/19/1977
1,065,724	73/103,862	05/17/1977
1,068,704	73/097,419	06/28/1977
1,071,653	73/096,589	08/16/1977
1,071,668	73/089,263	08/16/1977
1,075,696	73/108,736	10/18/1977
1,084,452	73/133,812	02/07/1978

Notice Regarding Technical Center Box Issue Fee Mailings

The Office will begin mailing address labels with the PTOL-85, "Notice of Allowance and Issue Fee Due" for patent applications allowed in all Technology Centers. These address labels should be used to ensure proper routing of post-allowance correspondence. This directive supersedes the "Special Boxes for Patent Mail" instruction. Any Notice of Allowance and Issue Fee Due received without the accompanying address labels should continue to be addressed to Box Issue Fee.

March 11, 1998

NICHOLAS P. GODICI
Deputy Assistant Commissioner
for Patents (Acting)

Service by Publication

A petition to cancel the registrations identified below having been filed, and the notice of such proceeding sent by certified mail to registrants at their last known address having been returned by the Postal Service as undeliverable, notice is hereby given that unless the registrants listed herein, their assigns or legal representatives, shall enter an appearance within thirty days of this publication, the cancellation will proceed as in the case of default.

Illinois-California Express, Inc., Denver, Colo., Reg. No. 664,855, for the mark "ICX", Canc. No. 27,505.

The Beverage Source, Inc., San Francisco, Calif., Reg. No. 690,650, for the mark "ARRIBA", Canc. No. 27,506.

Great Bear Technology, Inc., Moraga, Calif., Reg. No. 1,905,756, for the mark "SPORTZFREAKZ", Canc. No. 27,513.

Scott Louis Inc., Los Angeles, Calif., Reg. No. 1,074,089, for the mark "TRIAD", Canc. No. 27,048.

KATRINA PETERSON
Supervisory Legal Assistant
Trademark Trial and
Appeal Board, for
ROBERT M. ANDERSON
Deputy Assistant Commissioner
for Trademarks

Errata

"All reference to Patent No. 5,758,393 to Franz Wier, of Goggingen, Germany, BUCKLE FOR SAFETY BELTS IN VEHICLES appearing in the *Official Gazette* of June 02, 1998, should be deleted since no patent was granted."

Certificates of Correction for July 28, 1998

B1-4653030
B1-5172338
D. 280,910
D. 375,829
D. 380,910
D. 383,833
D. 389,793
D. 389,845
D. 392,204
D. 392,282
Re. 35,748
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5,657,742
5,658,461

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5,661,779
5,662,274
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5,747,267
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5,752,200
5,752,681
5,754,202
5,754,373
5,755,766
5,756,109
5,756,841
5,756,927

Summary of Final Decisions Issued by the Trademark Trial and Appeal Board

June 8-12, 1998

Date Issued	Type of Case(1)	Proceeding or App'n No.	Party/Parties	Issue	TTAB Decision	Opposer's/Petitioner's Mark and Goods/Services	Applicant's/ Respondent's Mark and Goods/Services	Mark and Goods Cited by Examining Attorney	Citable as Precedent of TTAB
6-8	EX	74/622,150	Leslie Weinstein	2(d)	Refusal Affirmed		"TRUE LOCK" [locking metal fasteners]	"TRU-LOK" [metal screws]	No
6-9	OPP	97,936	Blue Cross and Blue Shield of Minnesota v. Rx Aware, Inc.	2(d)	Opposition Sustained	"AWARE" and "AWARE GOLD" [both marks registered for health insurance underwriting services, administering insurance plans for others and arranging health care services for others] and "AWARE CARE" [used in connection with arranging health care for others]	"RxAWARE" (in stylized lettering) [consulting services in the field of drug interactions]		No
6-11	EX (R)	74/543,143	Sport-Design, Inc.	2(d)	Request for Reconsideration Denied (Refusal Affirmed)		"STARS OF TOMORROW" [children's sports products, namely, baseballs, baseball bats and gloves, tennis rackets, footballs, basketballs and soccer balls]	"STAR OF TOMORROW" [golf clubs]	No
6-11	EX	74/464,118	Boston Beer Company Limited Partnership	2(e)(1); whether asserted mark is registrable under Section 2(f) or is, rather, inherently incapable of functioning as a mark	Refusal Affirmed		"THE BEST BEER IN AMERICA" [beer and ale]		Yes

(1)EX=EX PARTE APPEAL; OPP=OPPOSITION; CANC=CANCELLATION; CU=CONCURRENT USE; (SJ)=SUMMARY JUDGMENT; (R)=REQ. FOR RECONSIDERATION; (MD)=MOTION TO DISMISS; (MR)=MOTION TO REOPEN

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Date Issued	Type of Case[1]	Proceeding or App'n No.	Party/Parties	Issue	TTAB Decision	Opposer's/Petitioner's Mark and Goods/Services	Applicant's/ Respondent's Mark and Goods/Services	Mark and Goods Cited by Examining Attorney	Citable as Precedent of TTAB
6-11	EX	74/654,198	Casino Data Systems	2(d); whether the specimens of record demonstrate trademark use of the asserted mark	Refusal Affirmed (on both grounds)		"GRAPHIT" [computer programs, namely, software for use in gaming environment for player tracking]	"GRAPH IT" [computer programs in the form of magnetic tapes]	No
6-11	EX	74/601,983	Middleby Marshall, Inc.	2(e)(1)	Refusal Affirmed		"RAPIDSTEAM" [commercial electric cooking steamers]		No
6-11	OPP	93,436	Hard Rock Cafe Licensing Corp. v. Thomas D. Elsea	2(d)	Opposition Dismissed	"HARD ROCK CAFE" [t-shirts, sweatshirts, polo shirts, sport shirts, jackets, hats, caps and belts]; "HARD ROCK CAFE" (and design) [t-shirts, sweatshirts, polo shirts, sport shirts, jackets, hats, caps, belts; metal key rings; jewelry, namely, decorative pins, tie pins, lapel pins of non-precious metal]; "HARD ROCK CAFE" (and design) [restaurant and prepared take out food service]	"COUNTRY ROCK CAFE SALOON DANCE HALL" (and design) [jewelry; beverage glassware; shirts, jackets and sweatshirts; restaurant and nightclub services]		Yes

(1)EX=EX PARTE APPEAL; OPP=OPPOSITION; CANC=CANCELLATION; CU=CONCURRENT USE; (SJ)=SUMMARY JUDGMENT; (R)=REQ. FOR RECONSIDERATION; (MD)=MOTION TO DISMISS; (MR)=MOTION TO REOPEN

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Box 12	Contributions to the Examiner Education Program.
Box 313b	Petitions under 37 CFR 1.313(b) to withdraw a patent application from issue after payment of the issue fee and any papers associated with the petition, including papers necessary for filing a continuing application.
Box AF	Expedited procedure for processing amendments and other responses after final rejection.
Box Comments Patents	Public comments regarding patent related regulations and procedures.
Box CPA	Requests for Continued Prosecution Applications (CPA's) under 37 CFR 1.53(d).
Box DAC	Petitions decided by the Office of Petitions including petitions to revive and petitions to accept late payment of issue fees or maintenance fees.
Box DD	Disclosure Documents or materials related to the Disclosure Document Program.
Box Design	The filing of all design patent applications and any communications relating thereto.
Box Issue Fee	All communications following the receipt of a PTOL-85, "Notice of Allowance and Issue Fee Due," and prior to the issuance of a patent should be addressed to Box Issue Fee, unless advised to the contrary. Assignments are the exception. Assignments should be submitted in a separate envelope and not be sent to Box Issue Fee.
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Box Non-Fee Amendment	Non-fee amendments to patent applications. (Use Box AF for responses after final rejection).
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Box Patent Ext.	Applications for patent term extension and any communications relating thereto.
Box PCT	Mail related to applications filed under the Patent Cooperation Treaty.
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Box Reconstruction	Correspondence pertaining to the reconstruction of lost patent files.
Box Reexam	Requests for Reexamination for *original* request papers *only*.
Box Sequence	Submission of diskette for biotechnical application.
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Assistant Commissioner for Trademarks
2900 Crystal Drive
Arlington, Virginia 22202-3513

Box Designations	Explanation
Box NEW APP FEE	New trademark applications and fees.
Box ITU FEE	Statements of Use (SOUs) and extension requests.
Box TTAB FEE	Oppositions, cancellation petitions, and ex parte appeals.
Box TTAB NO FEE	Interferences, motions, and extension requests.
Box STATUS NO FEE	Written status inquiries.
Box POST REG FEE	Affidavits, renewals, corrections and amendments.
Box RESPONSES NO FEE	Responses to Examining Attorneys' Office actions and Post Registration actions.

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SPECIAL BOXES APPLICABLE TO *BOTH* PATENT AND TRADEMARK MAIL

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Box 6	Mail for the Office of Procurement.
Box 8	All papers for the Office of the Solicitor *except* communications relating to *pending litigation and disciplinary proceedings*; papers relating to pending litigation in court cases shall be mailed only to Office of the Solicitor, P.O. Box 15667, Arlington, Virginia 22215 and papers relating to pending disciplinary proceedings before the Administrative Law Judge or the Commissioner shall be mailed only to the Office of the Solicitor, P.O. Box 16116, Arlington, Virginia 22215.
Box 9	Coupon orders for U.S. patent and trademark copies.
Box 10	Orders for certified copies of PTO documents.
Box 11	Electronic Ordering Service (EOS).
Box 13	Mail for the Employee and Labor Relations Division.
Box 14	Mail directed to the APS Contracts Office.
Box 16	Deposit Account Replenishment Checks.
Box 17	Invoices directed to the Office of Finance.
Box 171	Vacancy Announcement Applications.
Box Assignment	All assignment documents except those filed with new applications.
Box EEO	Mail for the Office of Civil Rights.
Box Interference	Communications relating to interferences and applications and patents involved in interference.
Box M Fee	Correspondence regarding patent maintenance fees and related matter.
Box OED	Mail for the Office of Enrollment and Discipline.

Reference Collections of U.S. Patents and Trademarks Available for Public Use in Patent and Trademark Depository Libraries

The following libraries, designated as Patent and Trademark Depository Libraries (PTDLs), receive patent and trademark information from the U.S. Patent and Trademark Office. Many PTDLs have on file patents issued since 1790, trademarks published since 1872, and select collections of foreign patents. All PTDLs receive both the patent and trademark sections of the *Official Gazette of the U.S. Patent and Trademark Office* and numerical sets of patents in a variety of formats. Patent and trademark search systems in the Cassis CD-ROM series are available at all PTDLs to increase access to that information. It is through the CD-ROM systems and other depository materials that preliminary patent and trademark searches may be conducted through the numerically arranged collections.

Each PTDL offers reference publications which outline and provide access to the patent and trademark classification systems, as well as other documents and publications which supplement the basic search tools. PTDLs provide technical staff assistance in using all materials.

All information is available for use by the public free of charge. However, there may be charges associated with the use of on-line systems, photocopying and related services.

Since there are variations in the scope of patent and trademark collections among the PTDLs, and their hours of service to the public vary, anyone contemplating use of these collections at a particular library is urged to contact that library in advance about its collections, services, and hours in order to avert possible inconvenience.

Partnership PTDLs provide enhanced and expanded services for which fees are charged. They offer on-line patent text and image searching, on-line trademark searching, and videoconferencing for examiner interviews and workshops. They accept disclosure documents on site, order file wrappers, assignment documents and certified copies for their customers, and host a variety of seminars aimed at specific audiences, including practitioners, paralegals, and independent inventors. Currently, partnerships are located at the Great Lakes Patent and Trademark Center (GLPTC) at the Detroit Public Library in Detroit, Michigan and the Sunnyvale Center for Innovation, Invention and Ideas (SCI^3) in Sunnyvale, California.

State	*Name of Library*	*Telephone Contact*
Alabama	Auburn University Libraries	(334) 844-1747
	Birmingham Public Library	(205) 226-3620
Alaska	Anchorage: Z.J. Loussac Public Library	(907) 562-7323
Arizona	Tempe: Noble Library, Arizona State University	(602) 965-7010
Arkansas	Little Rock: Arkansas State Library	(501) 682-2053
California	Los Angeles Public Library	(213) 228-7220
	Sacramento: California State Library	(916) 654-0069
	San Diego Public Library	(619) 236-5813
	San Francisco Public Library	(415) 557-4500
	Sunnyvale Center for Innovation, Invention and Ideas	(408) 730-7290
Colorado	Denver Public Library	(303) 640-6220
Connecticut	Hartford Public Library	Not Yet Operational
	New Haven Free Public Library	Not Yet Operational
Delaware	Newark: University of Delaware Library	(302) 831-2965
Dist. of Columbia	Washington: Howard University Libraries	(202) 806-7252
Florida	Fort Lauderdale: Broward County Main Library	(954) 357-7444
	Miami-Dade Public Library	(305) 375-2665
	Orlando: University of Central Florida Libraries	(407) 823-2562
	Tampa Campus Library, University of South Florida	(813) 974-2726
Georgia	Atlanta: Price Gilbert Memorial Library, Georgia Institute of Technology	(404) 894-4508
Hawaii	Honolulu: Hawaii State Public Library System	(808) 586-3477
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	Springfield: Illinois State Library	(217) 782-5659
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	West Lafayette Siegesmund Engineering Library, Purdue University	(765) 494-2872
Iowa	Des Moines: State Library of Iowa	(515) 281-4118
Kansas	Wichita: Ablah Library, Wichita State University	(316) 978-3155
Kentucky	Louisville Free Public Library	(502) 574-1611
Louisiana	Baton Rouge: Troy H. Middleton Library, Louisiana State University	(504) 388-8875
Maine	Orono: Raymond H. Fogler Library, University of Maine	(207) 581-1678
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Massachusetts	Amherst: Physical Sciences Library, University of Massachusetts	(413) 545-1370
	Boston Public Library	(617) 536-5400 Ext. 265
Michigan	Ann Arbor: Media Union Library, University of Michigan	(313) 647-5735
	Big Rapids: Abigail S. Timme Library, Ferris State University	(616) 592-3602
	Detroit: Great Lakes Patent and Trademark Center	(313) 833-3379
Minnesota	Minneapolis Public Library and Information Center	(612) 630-6120
Mississippi	Jackson: Mississippi Library Commission	(601) 359-1036
Missouri	Kansas City: Linda Hall Library	(816) 363-4600
	St. Louis Public Library	(314) 241-2288 Ext. 390
Montana	Butte: Montana College of Mineral Science and Technology Library	(406) 496-4281
Nebraska	Lincoln: Engineering Library, University of Nebraska-Lincoln	(402) 472-3411
Nevada	Reno: University of Nevada, Reno Library	(702) 784-6500 Ext. 257
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	Piscataway: Library of Science and Medicine, Rutgers University	(908) 445-2895
New Mexico	Albuquerque: University of New Mexico General Library	(505) 277-4412
New York	Albany: New York State Library	(518) 474-5355
	Buffalo and Erie County Public Library	(716) 858-7101
	New York Public Library (The Research Libraries)	(212) 592-7000
	Stony Brook: Engineering Library, State University of New York	Not Yet Operational
North Carolina	Raleigh: D.H. Hill Library, North Carolina State University	(919) 515-3280
North Dakota	Grand Forks: Chester Fritz Library, University of North Dakota	(701) 777-4888
Ohio	Akron - Summit County Public Library	(330) 643-9075
	Cincinnati and Hamilton County, Public Library of	(513) 369-6971
	Cleveland Public Library	(216) 623-2870
	Columbus: Ohio State University Libraries	(614) 292-6175
	Toledo/Lucas County Public Library	(419) 259-5212
Oklahoma	Stillwater: Oklahoma State University Center for International Trade Development	(405) 744-7086
Oregon	Portland: Paul L. Boley Law Library, Lewis & Clark College	(503) 768-6786
Pennsylvania	Philadelphia, The Free Library of	(215) 686-5331
	Pittsburgh, Carnegie Library of	(412) 622-3138
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Puerto Rico	Mayaquez General Library, University of Puerto Rico	(787) 832-4040 Ext. 3459
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South Carolina	Clemson University Libraries	(864) 656-3024
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	Nashville: Stevenson Science Library, Vanderbilt University	(615) 322-2717
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	College Station: Sterling C. Evans Library, Texas A & M University	(409) 845-3826
	Dallas Public Library	(214) 670-1468
	Houston: The Fondren Library, Rice University	(713) 527-8101 Ext. 2587
	Lubbock: Texas Tech University	(806) 742-2282
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Washington	Seattle: Engineering Library, University of Washington	(206) 543-0740
West Virginia	Morgantown: Evansdale Library, West Virginia University	(304) 293-2510 Ext. 113
Wisconsin	Madison: Kurt F. Wendt Library, University of Wisconsin Madison	(608) 262-6845
	Milwaukee Public Library	(414) 286-3051
Wyoming	Casper: Natrona County Public Library	(307) 237-4935

PATENT EXAMINING CORPS

BRUCE A. LEHMAN, Commissioner
LAWRENCE J. GOFFNEY Jr., Assistant Commissioner for Patents
NICHOLAS P. GODICI, (Acting) Deputy Assistant Commissioner for Patents
STEPHEN G. KUNIN, Deputy Assistant Commissioner for Patent Policy

PATENT EXAMINING GROUPS	Phone number Area Code 703	New Case Date*
CHEMICAL EXAMINING GROUPS		
GENERAL METALLURGICAL, INORGANIC, PETROLEUM AND ELECTRICAL CHEMISTRY, ENGINEERING AND DESIGNS, GROUP 1100—THEODORE MORRIS, Director	308-0661	01/10/96
ORGANIC CHEMISTRY, DRUG, BIO-AFFECTING AND BODY TREATING COMPOSITION, GROUP 1200/2900—JOHN E. KITTLE, Director	308-1235	06/18/96
SPECIALIZED CHEMICAL INDUSTRIES AND CHEMICAL ENGINEERING, GROUP 1300—RICHARD V. FISHER, Director	308-0651	07/15/96
HIGH POLYMER CHEMISTRY; PLASTICS, COATING, PHOTOGRAPHY STOCK MATERIALS AND COMPOSITIONS, GROUP 1500—MARY LEE, Acting Director	308-2351	05/20/96
BIOTECHNOLOGY, GROUP 1800—JOHN J. DOLL, Director	308-0196	11/09/95
ELECTRICAL EXAMINING GROUPS		
INDUSTRIAL ELECTRONICS, PHYSICS AND RELATED ELEMENTS, GROUP 2100—STEWART LEVY, Director	308-1782	11/06/95
SPECIAL LAWS AND ADMINISTRATION, GROUP 2200—ROBERT E. GARRETT, Director	308-0511	04/12/96
COMPUTER SYSTEMS AND COMPUTER APPLICATION, GROUP 2300—JOSEPH J. ROLLA, Director	305-3900	04/12/96
SPECIAL COMPUTER APPLICATIONS: COMPUTER GRAPHICS, BUSINESS PRACTICES, & DIAGNOSTIC TESTING, GROUP 2400—GERALD GOLDBERG, Director	305-3900	12/15/95
ELECTRONIC AND OPTICAL SYSTEMS AND DEVICES, GROUP 2500—JANICE A. HOWELL, Director	308-0956	10/14/96
TELECOMMUNICATIONS, GROUP 2600—JIN F. NG, Director	305-3900	09/13/95
DESIGN, GROUP 2900—JOHN E. KITTLE, Director	305-3293	06/07/96
MECHANICAL EXAMINING GROUPS		
HANDLING AND TRANSPORTATION MEDIA, GROUP 3100—JOHN F. TERAPANE, JR., Director	308-1113	12/08/95
MATERIAL SHAPING, ARTICLE MANUFACTURING AND TOOLS, GROUP 3200—ETHEL CROSS, Director	308-1148	02/04/97
MEDICAL INSTRUMENTS, DIAGNOSTIC EQUIPMENT AND TREATMENT DEVICES; SURGERY AND SURGICAL SUPPLIES; AMUSEMENT AND EXERCISING DEVICES; ANIMAL HUSBANDRY; SPORTING GOODS; TOBACCO PRODUCTS AND MANUFACTURING EQUIPMENT; AND PRINTING, GROUP 3300—J.J. LOVE, Director	308-0858	01/31/96
SOLAR, HEAT, POWER, AND FLUID ENGINEERING DEVICES, GROUP 3400—DONALD G. KELLY, Director	308-0861	02/06/96
GENERAL CONSTRUCTION, PETROLEUM AND MINING ENGINEERING, GROUP 3500—A.L. SMITH, Director	308-2168	01/14/97

*A communication from the examiner should have been received in most applications filed prior to this date.

Patents will Expire as Follows:
(1) The term of any utility or plant patent that is in force on or results from an application filed before June 8, 1995 is the greater of the 20 year term provided in 35 U.S.C. 154(a)(2) or 17 years from grant subject to any terminal disclaimers. 35 U.S.C. 154(c)(1).
(2) All utility and plant patents granted on applications having an actual United States filing date on or after June 8, 1995 are granted for a term which begins on the date on which the patent is granted and ends 20 years from the date on which the application was filed in the United States. If the application contains a specific reference to an earlier application under 35 U.S.C. 120, 121 or 365(c), the patent term ends twenty years from that date on which the earliest application was filed. 35 U.S.C. 154(a)(2).
(3) All design patents are granted for a term of 14 years from the date of the grant.
However, the term of any patent may have been curtailed by disclaimer under the provisions of 35 U.S.C. 153, have lapsed due to failure to pay maintenance fees, or have been extended under the provisions of 35 U.S.C. 154, 155, or 156. Thus, if more reliable information is needed with respect to a particular patent, then the specific patent file should be reviewed to determine the actual date of patent expiration.

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TRADEMARK OPERATION

Bruce A. Lehman, Commissioner
Philip G. Hampton, II, Assistant Commissioner
Robert M. Anderson, Deputy Assistant Commissioner
David E. Bucher, Director, Trademark Examining Office
Condition of Trademark Applications as of June 1, 1998

Law Office	Oldest Date New*	 Amendment Filed
Law Office 101—Ron Williams, Managing Attorney, (703) 308-9101—4th Floor Foods, Beverages, Wines & Spirits—Int. Classes 29, 30, 31, 32, 33 Services—Int. Classes 35, 36, 37, 38, 39, 40, 41, 42	01/09/98	03/16/98
Law Office 102—Thomas Shaw, Acting Managing Attorney, (703) 308-9102—5th Floor Scientific Equipment & Furniture—Int. Classes 9, 20 Services—Int. Classes 35, 36, 37, 38, 39, 40, 41, 42	10/14/97	02/11/98
Law Office 103—Michael A. Szoke, Acting Managing Attorney, (703) 308-9103—5th Floor Scientific Equipment & Furniture—Int. Classes 9, 20 Services—Int. Classes 35, 36, 37, 38, 39, 40, 41, 42	09/16/97	05/01/98
Law Office 104—Sidney Moskowitz, Managing Attorney, (703) 308-9104—6th Floor Unwrought metals, Industrial Equipment, Tools, Installation, Vehicles, Firearms, Musical Instruments, Building Materials & Floor Coverings—Int. Classes 6, 7, 8, 11, 12, 13, 15, 19, 27 Services—Int. Classes 35, 36, 37, 38, 39, 40, 41, 42	08/21/97	03/05/98
Law Office 105—Thomas Howell, Managing Attorney, (703) 308-9105—6th Floor Chemicals, Paints, Lubricants, Pharmaceuticals, Medical Apparatus & Tobacco—Int. Classes 1, 2, 4, 5, 10, 34 Services—Int. Classes 35, 36, 37, 38, 39, 40, 41, 42	10/14/97	02/12/98
Law Office 106—Mary Sparrow, Managing Attorney, (703) 308-9106—7th Floor Cosmetics, Cleaning Preparations, Paper Products & Toys—Int. Classes 3, 16, 28 Services—Int. Classes 35, 36, 37, 38, 39, 40, 41, 42	10/31/97	04/14/98
Law Office 107—Thomas Lamone, Managing Attorney, (703) 308-9107—7th Floor Cosmetics, Cleaning Preparations, Paper Products & Toys—Int. Classes 3, 16, 28 Services—Int. Classes 35, 36, 37, 38, 39, 40, 41, 42	01/09/98	03/10/98
Law Office 108—David Shallant, Managing Attorney, (703) 308-9108—8th Floor Precious metals, Fibers, Leather goods, Housewares, Cordage, Yarns, Fabrics, Clothing & Notions—Int. Classes 14, 17, 18, 21, 22, 23, 24, 25, 26 Services-Int. Classes 35, 36, 37, 38, 39, 40, 41, 42	08/27/97	01/21/98
Law Office 109—Deborah Cohn, Managing Attorney, (703) 308-9109—8th Floor Precious metals, Fibers, Leather goods, Housewares, Cordage, Yarns, Fabrics, Clothing & Notions—Int. Classes 14, 17, 18, 21, 22, 23, 24, 25, 26 Services—Int. Classes 35, 36, 37, 38, 39, 40, 41, 42	08/21/97	04/14/98
**Collective Marks—Class 200 **Certification Marks—Classes A & B		
Office of Trademark Services—Terron Simms, Director, (703) 308-9100 Trademark Assistance Center—(703) 308-9000 Pre-Examination—Alan Lambert, Supervisor, (703) 308-9401 ext. 188 Intent-To-Use—(ITU)—(703) 308-9500 Post Registration Section—Mary Bowman, Supervisor, (703) 308-9500 ext. 126		
Affidavits Under Sections 8 & 15 (All Classes)	04/20/98	—0—
Renewals (All Classes)	04/20/98	—0—
Section 12(c) Publications (All Classes)	03/16/98	—0—

1. ** Assigned to all Law Office

2. Applicants with inquiries concerning the status of their applications and a touch telephone should call (703) 305-8747 from 6:30 a.m. to Midnight EST, Monday through Friday. This automated voice system will provide the current status of your application. Applicants are urged not to file unnecessary inquiries concerning the status of their applications. See SECTION 411 of the TRADEMARK MANUAL OF EXAMINING PROCEDURE.

3. * These dates identify the oldest unassigned new case in each Law Office. All cases with earlier dates have either been examined and made the subject of an action or are currently being worked on by the assigned examining attorney.

REEXAMINATIONS

JULY 28, 1998

Matter enclosed in heavy brackets [ ] appears in the patent but forms no part of this reexamination specification; matter printed in italics indicates additions made by reexamination.

B1 4,486,450 (3580th)
METHOD OF TREATING PSORIATIC SKIN AND COMPOSITION

Joel E. Bernstein, 600 Knightsbridge Pkwy., Lincolnshire, Ill. 60069, assignor to Joel E. Bernstein, Lincolnshire, Ill.
Reexamination Request Nos. 90/004,043, Dec. 11, 1995 and 90/004,731, Aug. 28, 1997.
Reexamination Certificate for Patent 4,486,450, issued Dec. 4, 1984, Ser. No. 167,312, Jul. 14, 1980.
Int. Cl.^{6} A61K *31/165*

U.S. Cl. 514—627

AS A RESULT OF REEXAMINATION, IT HAS BEEN DETERMINED THAT:

The patentability of claims **1–8** is confirmed.

Claim **10** is cancelled.

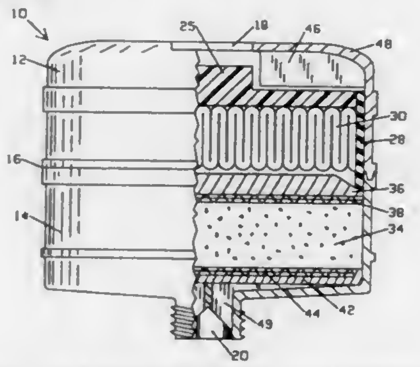
Claim **9** is determined to be patentable as amended.

9. An antipsoriatic composition [comprising] *consisting essentially of* a pharmaceutically acceptable *cream* carrier [of a cream or ointment] and capsaicin present in an amount [not less than about 0.01] *greater than 0.01 percent and less than 0.1* percent by weight of the carrier *wherein said amount provides effective therapy after topical application of the skin.*

B1 5,062,874 (3581st)
FILTER SEALING APPARATUS

Pierre Legare, Ontario, Canada, and David W. Pike, Salisbury, England, assignors to Her Majesty the Queen as represented by the Minister of National Defence of her Majesty's Canadian Government, Ottawa, Canada
Reexamination Request No. 90/004,606, Mar. 28, 1997.
Reexamination Certificate for Patent 5,062,874, issued Nov. 5, 1991, Ser. No. 533,626, Jun. 5, 1990.
Int. Cl.^{6} B01D *50/00*

U.S. Cl. 55—337



AS A RESULT OF REEXAMINATION, IT HAS BEEN DETERMINED THAT:

The patentability of claims **1–15** and **18–29** is confirmed.

Claim **16** is cancelled.

New claims **30** and **31** are added and determined to be patentable.

20. A sealant deflector for deflecting sealant toward a wall of a fluid filter housing during sealing in assembly of said fluid filter, said fluid filter including an inlet and an outlet with a filtering media situated therebetween, comprising:

deflecting means including a deflection surface for receiving a quantity of sealant in liquid state through one of said inlet and outlet while said deflecting means is rotating within said fluid filter housing during said sealing step and for flinging said sealant outward;

support means for carrying said deflecting means;

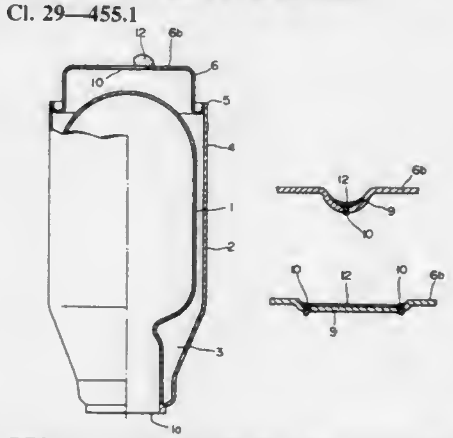
fixing means for permanently fixing said support means and thus said deflecting means in a predetermined location below one of said inlet and outlet within said fluid filter housing; and

said fixing means further comprising self-centering means, for disposing said support means in a central area of said fluid filter, including a plurality of arms extending radially from said support means.

B1 5,153,977 (3582nd)
METHOD FOR MAKING DOUBLE-WALLED INSULATING METAL CONTAINER

Shouji Toida; Shigeru Tsuchiya; Keiki Ariga; Seiichi Itoh, and Hidetoshi Ohta, all of Tokyo, Japan, assignors to Nippon Sanso Corporation, Tokyo, Japan
Reexamination Request No. 90/004,885, Dec. 30, 1997.
Reexamination Certificate for Patent 5,153,977, issued Oct. 13, 1992, Ser. No. 649,484, Feb. 1, 1991.
Int. Cl.^{6} B23P *19/04*

U.S. Cl. 29—455.1



AS A RESULT OF REEXAMINATION, IT HAS BEEN DETERMINED THAT:

The patentability of claims **1–7** is confirmed.

1. A method for making a thermally insulating metal container comprising the steps of:
   (a) preparing an inner casing having a mouth portion;
   (b) preparing an outer casing having a mouth portion, a bottom portion, and an evacuation opening of a given shape provided in the outer casing and having a length not exceeding a diameter at one end remote from the mouth portion of said outer casing;
   (c) joining the mouth portions of each casing to each other and fitting the bottom portion to the diameter of said one end of said outer casing thereby forming a container assembly, and defining an insulating space enclosed by the inner casing and the outer casing;
   (d) placing a quantity of a joining material near the evacuation opening so that said joining material upon melting will flow into the evacuation opening;
   (e) vacuum heating said assembly with the joining material disposed near the evacuation opening of said outer casing so as to vacuumize the insulating space;
   (f) raising a temperature of the joining material so as to liquify the joining material to cover and to seal the evacuation opening completely;
   (g) lowering the temperature of the joining material to solidify the joining material to seal off the evacuation opening; and
   (h) maintaining the shape of the evacuation opening substantially constant during the termperature raising step.

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REISSUES

JULY 28, 1998

Matter enclosed in heavy brackets **[ ]** appears in the original patent but forms no part of this reissue specification; matter printed in italics indicates additions made by reissue.

Re. 35,858

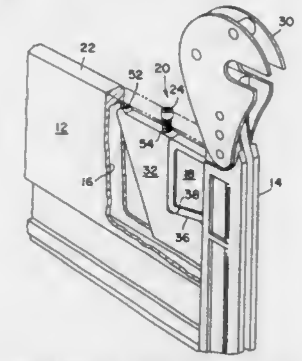
HEDDLE FRAME ASSEMBLY WITH RELEASABLE END

Gene E. Faasse, Taylors, S.C., assignor to Steel Heddle Manufacturing Co., Greenville, S.C.

Original No. 5,411,061, dated May 2, 1995, Ser. No. 168,754, Dec. 16, 1993. Application for reissue May 1, 1997, Ser. No. 886,825

Int. Cl.^{6} D03C *9/06*

U.S. Cl. 139—91 **27 Claims**



27. A heddle frame having a pair of laterally extending slats and a pair of end braces connected to said slats to form a generally rectangular frame, wherein each of the connections between said slats and said end braces comprises:

- *an elongated opening defined within the end of said slats;*
- *an inwardly directed extension food configured on and extending essentially perpendicular from said end brace, said extension foot having a width so as to be slidable within said elongated opening of said slat; and*
- *at least one releasable locking member operably configured to lock said extension foot within said slat in a locked position and to release said end brace from said slat in a released position, said locking member disposed through an outward edge of said slat and extending into said elongated opening of said slat, said extension foot comprising a hole defined therein for receiving said locking member and further comprising an insert carried therein, said locking member extending through said hole into said insert for locking engagement with said insert.*

Re. 35,859

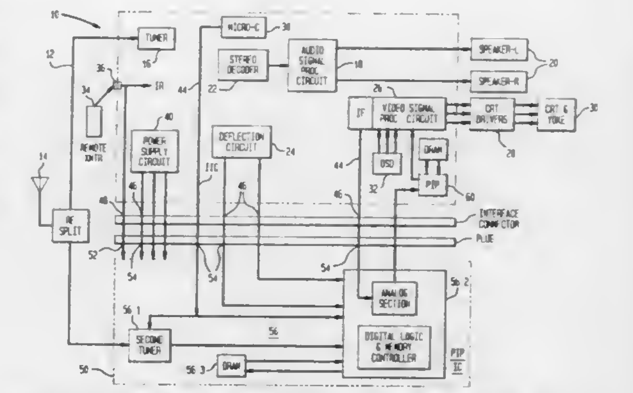
INTERFACE SYSTEM FOR A TELEVISION RECEIVER

Timothy James Gardner; Spyros Bournias, and Larry Johnson, all of Knoxville, Tenn., assignors to Philips Electronics North America Corporation, New York, N.Y.

Original No. 5,592,234, dated Jan. 7, 1997, Ser. No. 362,037, Dec. 22, 1994. Application for reissue Sep. 22, 1997, Ser. No. 935,001

Int. Cl.^{6} H04N *5/44*

U.S. Cl. 348—553 **14 Claims**



7. A television receiver for use in a television interface system, said television interface system comprising said television receiver and circuit board means accessible by a user of said television receiver for connection to said television receiver, said television receiver comprising a tuner for receiving and selectively tuning to a television signal, a deflection circuit coupled to said tuner for generating deflection signals from synchronization signals contained in said television signal, an audio signal processing circuit coupled to said tuner for processing an audio signal contained in said television signal, o video signal processing circuit coupled to said tuner for processing a video signal contained in said television signal, a display coupled to said deflection circuit and said video signal processing circuit for displaying said video signal in dependence on said deflection signals, and a power supply circuit for supplying operating power to each of the above components, and said circuit board means comprising circuit means for connecting to at least one of the audio signal processing circuit, the deflection circuit and the power supply circuit in the television receiver for modifying the operation of said television receiver thereby providing additional features for the user, characterized in that said television receiver further comprises:

- *standard bus means having M leads separately connected to said audio signal processing circuit, said deflection circuit, said video signal processing circuit and said power supply circuit, where M is an integer greater than one; and*
- *connector means having M contacts connected, respectively, to said M leads in said standard bus means, for connecting said television receiver to said circuit board means.*

Re. 35,860

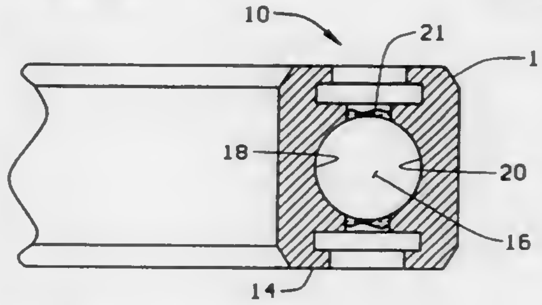
CORROSION-RESISTANT ZINC-NICKEL PLATED BEARING RACES

Peter C. Ward, Peterborough, N.H., assignor to MPB Corporation, Keene, N.H.

Original No. 5,352,046, dated Oct. 4, 1994, Ser. No. 923,371, Jul. 31, 1992. Continuation-in-part of Ser. No. 710,656, Jun. 5, 1991, abandoned. Application for reissue Oct. 1, 1996, Ser. No. 722,752

Int. Cl.^{6} F16C *33/62*

U.S. Cl. 384—492 **23 Claims**



21. An antifriction bearing comprising:

- *a first race having a raceway;*
- *a second race having a raceway that is presented toward the raceway of the first race;*
- *at least one of the races including a substrate and zinc alloy over the substrate in the form of a plating, the zinc alloy plating being at least along the raceway of said one race; and*
- *rolling elements located between the races at the raceways thereof.*

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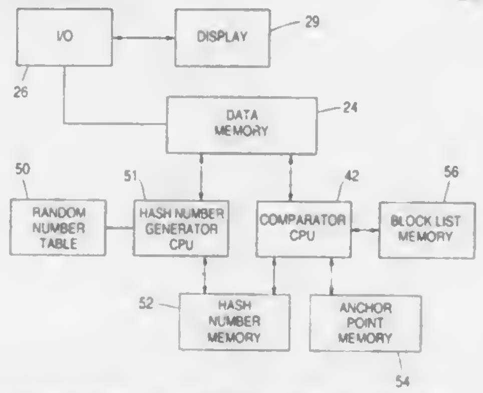
Re. 35,861
APPARATUS AND METHOD FOR COMPARING DATA GROUPS

Cary L. Queen, Los Altos, Calif., assignor to Advanced Software, Inc., Los Altos, Calif.

Original No. 4,807,182, dated Feb. 21, 1989, Ser. No. 839,326, Mar. 12, 1986. Continuatinn of Ser. No. 881,478, May 11, 1992, abandoned. Application for reissue May 9, 1996, Ser. No. 638,722

Int. Cl.⁶ G06F *15/00;17/21*

U.S. Cl. 395—772 **28 Claims**



1. An automated *text* comparison system, comprising:

input means for receiving commands, and for providing electronic signals representing a plurality of characters [including] *representing* words, *short groups of words or phrases*, and sentences;

memory means coupled to said input means for storing as binary representations at least first and second groups of said characters;

processing means coupled to said memory means and to said input means for detecting and identifying differences between said words, *short groups of words or phrases*, and sentences in said first and second groups of said characters *when said differences do not consist of a line of text or a group of lines of text and regardless of whether or not the text wraps around an end of a line or a plurality of lines*;

display means coupled to said processing means for providing a display of said differences *by displaying the text with the differences designated within the text lines*.

Re. 35,862
DELIVERY SYSTEMS FOR PHARMACOLOGICAL AGENTS ENCAPSULATED WITH PROTEINOIDS

Solomon Steiner, Mt. Kisco, and Robert Rosen, Rochester, both of N.Y., assignors to Emisphere Technologies, Inc., Hawthorne, N.Y.

Original No. 4,925,673, dated May 15, 1990, Ser. No. 98,027, Aug. 14, 1987. Continuation of Ser. No. 883,562, May 15, 1992, abandoned, which is a continuation-in-part of Ser. No. 897,361, Aug. 18, 1986, abandoned. Application for reissue Jun. 2, 1994, Ser. No. 252,979

Claims priority, application WIPO, Aug. 14, 1987, PCT/US87/02025

Int. Cl.⁶ A61K *9/66*

U.S. Cl. 424—455 **55 Claims**

24. Composition comprising a pharmacologically active agent encapsulated within proteinoid microspheres having diameters predominantly less than about 10 microns and formed from thermal condensation polymers of mixed amino acids.

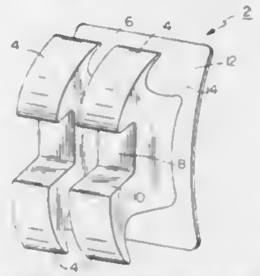
Re. 35,863
ORTHODONTIC BRACKET

Robit C. L. Sachdeva, Plano, Tex., and Yoshiki Oshida, Gaithersburg, Md., assignors to Ormco Corporation, Glendora, Calif.

Original No. 5,232,361, dated Aug. 3, 1993, Ser. No. 864,396, Apr. 6, 1992. Application for reissue Aug. 2, 1995, Ser. No. 510,511

Int. Cl.⁶ A61C *3/00*

U.S. Cl. 433—8 **20 Claims**



1. An orthodontic [bracket] *appliance not including an archwire, for attachment to a tooth in the oral cavity and cooperable with an archwire, said appliance* having a body portion formulated of at least one of a group comprised of alloys based on elements Ti, Zr, Si, B, Be, Cr, Nb and Co in a composition in which at least one of the elements of this group exists in the body portion in a range of between 40% and greater than 99% by weight, *and wherein said appliance does not include any nickel or nickel alloy surfaces exposed to the oral cavity when the appliance is attached to a tooth in the oral cavity.*

Re. 35,864
PARI-MUTUEL ELECTRONIC AND LIVE TABLE GAMING

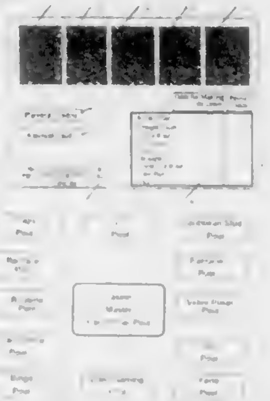
Gary Weingardt, 5416 Gipsy, Las Vegas, Nev. 89107

Original No. 5,476,259, dated Dec. 19, 1995, Ser. No. 152,462, Nov. 12, 1993. Continuatinn-in-part of Ser. No. 897,363, Jun. 11, 1992, Pat. No. 5,275,400. Application for reissue Nov. 6, 1996, Ser. Nn. 743,672

The portion of the term of this patent subsequent to Jan. 4, 2011, has been disclaimed.

Int. Cl.⁶ A63F *9/24*

U.S. Cl. 463—28 **74 Claims**



1. A method of playing a live casino table game comprising:

a) a player making a wager to participate in the live casino table game;

b) allocating a portion of the wager to the gaming establishment as its share of the wager for providing the game;

c) allocating the remainder of the wager to a common pari-mutuel pool to provide a source of funds for paying the player;

d) determining whether the player is a winner or loser for a particular play of the game;

e) paying the player a predetermined payout amount from the common pari-mutuel pool for a winning play; and

f) collecting all losing wagers into the common pari-mutuel pool

60. The method of claim 1 in which the live casino table game is keno and the predetermined payout amount is based on conventional keno winning combinations.

Re. 35,865
PREPARATION OF GLUTARIC ACID DERIVATIVES

Stephen Challenger, Kingsdown, England, assignor to Pfizer Inc., New York, N.Y.

Original No. 5,166,406, dated Nov. 24, 1992, Ser. No. 504,493, Apr. 4, 1990. Application for reissue May 15, 1997, Ser. No. 856,612

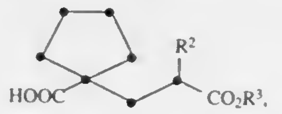
Claims priority, application United Kingdom, Apr. 5, 1989, 8907704

Int. Cl.⁶ C07C *69/74*

U.S. Cl. 560—122 **16 Claims**

1. A process for preparing a compound of the formula:

(I)

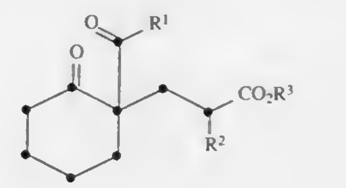


or a base salt thereof,

wherein R^2 is hydrogen or C_1–C_6 alkyl optionally substituted by up to 3 substituents each independently selected from the group consisting of C_1–C_6 alkoxy and C_1–C_6alkoxy (C_1–C_6alkoxy)-; and R^3 is C_1–C_6 alkyl or benzyl, said benzyl group being optionally ring-substituted by up to 2 nitro or C_1–C_4 alkoxy substituents,

comprising: reacting a compound of the formula:

(II)



wherein R^1 is C_1–C_4 alkyl, phenyl, benzyl or C_1–C_4 alkoxy; and R^2 and R^3 are as previously defined for a compound of the formula (I), with peroxide ions.

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PLANT PATENTS

GRANTED JULY 28, 1998

Illustrations for plant patents are usually in color and therefore it is not practicable to reproduce the drawing.

10,521
TERNSTROEMIA GYMNANTHERA 'GREWAD'

Marilyn Hunt, Wharton, Tex., and Grady Wadsworth, deceased, late of El Campo, Tex., by Judith K. Wadsworth, legal representative, assignors to Greenleaf Nursery Company, Park Hill, Okla.

Filed Dec. 4, 1996, Ser. No. 757,757
Int. Cl.^{6} A01H *5/00*

U.S. Cl. Plt.—54.1 **1 Claim**

1. A new and distinct cultivar of *Ternstroemia gymnanthera* named 'Grewad', as herein illustrated and described.

10,522
TERNSTROEMIA GYMNANTHERA 'GREVAN'

Jim Van Antwerp, Grand Bay, Ala., assignor to Greenleaf Nursery Company, Park Hill, Okla.

Filed Dec. 4, 1996, Ser. No. 759,557
Int. Cl.^{6} A01H *5/00*

U.S. Cl. Plt.—54.1 **1 Claim**

1. A new and distinct cultivar of *Ternstroemia gymnanthera* plant named 'Grevan', as herein illustrated and described.

10,523
AZALEA PLANT NAMED 'THEO'

Otto Stahnke; Peter Dettmer, and Eleonore Dettmer, all of 38524 Bromer Strasse 104, Sassenburg-Grussendorf, Germany

Filed Feb. 19, 1997, Ser. No. 802,236
Int. Cl.^{6} A01H *5/00*

U.S. Cl. Plt.—56 **1 Claim**

1. A new and distinct Azalea plant named 'Theo', as illustrated and described.

10,524
CARNATION PLANT NAMED 'CFPC PEACH MAJESTIC'

Walter H. Jessel, Jr., Gonzales, Calif., assignor to California Florida Plant Co., L.P., Salinas, Calif.

Filed Sep. 10, 1996, Ser. No. 711,035
Int. Cl.^{6} A01H *5/00*

U.S. Cl. Plt.—70.5 **1 Claim**

1. A new and distinct variety of carnation plant substantially as shown and described.

10,525
DAHLIA PLANT NAMED 'ART DECO'

Aad Verwer, Lisse, Netherlands, assignor to Gebr. Verwer, Lisse, Netherlands

Filed Mar. 12, 1997, Ser. No. 815,869
Int. Cl.^{6} A01N *5/00*

U.S. Cl. Plt.—87.8 **1 Claim**

1. A new and distinct cultivar of Dahlia plant named 'Gallery Art Deco', as illustrated and described.

10,526
ILEX HYBRID VARIETY NAMED 'XIA XIANG'

Cecil T. Pounders, Jr., 3140 Old Moulton Rd., Decatur, Ala. 35603

Filed Apr. 23, 1997, Ser. No. 842,474
Int. Cl.^{6} A01H *5/00*

U.S. Cl. Plt.—65 **1 Claim**

1. A new and distinct variety of Ilex plant, substantially as herein shown and described, characterized particularly as to novelty by the unique combination of:

(a) a vigorous densely branched shrub with a symmetrical crown with only minimal shearing,
(b) compact, upright growth habit with strong apical dominance, adapted to a wide range of landscape applications,
(c) evergreen minutely spine tipped serrulate deep green leaves which are borne on branches that become pendulous when plants are not sheared,
(d) pistillate flowers borne abundantly on initial spring shoots giving a well distributed fruit set with berries maturing to a colorful red in the early fall then persisting throughout the winter,
(e) cold hardiness, heat and drought tolerance equivalent to *Ilex opaca*.

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PATENTS

GRANTED July 28, 1998

ERRATA

For CLASS	See PATENT NO.
074—335	5,784,917
114—039	5,784,976
114—061	5,784,977
114—103	5,784,978
114—218	5,784,979
114—263	5,784,980
114—299	5,784,981
114—361	5,784,982
114—363	5,784,983
060—278	5,785,030
126—009	5,785,045
126—009	5,785,046
126—039	5,785,047
403—388	5,785,460
403—405	5,785,461
411—433	5,785,480
273—292	5,785,606
494—027	5,785,637
425—349	5,786,079
437—031	5,786,222
528—403	5,786,308
546—277	5,786,473
549—447	5,786,494
114—021	5,786,545
248—442	5,786,861
395—309	5,786,885
445—050	5,787,337
701—029	5,787,499

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PATENTS

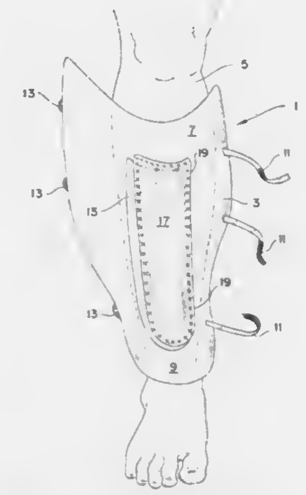
GRANTED JULY 28, 1998

GENERAL AND MECHANICAL

5,784,714

Patent Not Issued For This Number

5,784,715
LADDER-MATE SHIN PROTECTOR
George S. Buchanan, 19499 NE. 10th Ave., Miami, Fla. 33179
Filed Mar. 13, 1997, Ser. No. 815,923
Int. Cl.^{6} A41D *13/00*
U.S. Cl. 2—22 **6 Claims**



1. A shine protector apparatus comprising:

a first layer made of a soft material and adapted to engage the skin of a user about the lower leg and shin, said first layer having sides with means along said sides for fastening the first layer around a user's lower leg and shin;

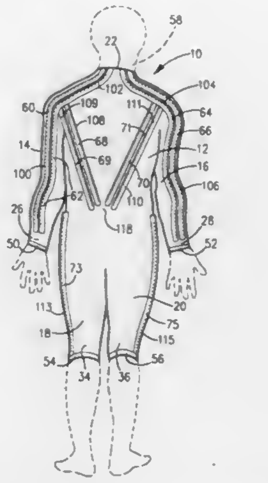
a second layer facing against said first layer and smaller in facing surface area than said first layer and extending in the same vertical direction as a user's shin area when worn, said second layer being made of a material substantially harder and more rigid than said first layer; and

a third layer substantially the same shape as the second layer and overlapping and facing against the second layer and extending in the same direction, said third layer being made of a material less rigid than the second layer but harder than the first layer whereby said three layers face each other one on top of the other and are joined together to form a single unitary three layered structure.

5,784,716
ARTICULAR CONDITIONING SYSTEM AND METHOD
Steven James Holt, and Alan Wayne Holt, both of 2383 Wine Ridge Dr., Birmingham, Ala. 35244
Division of Ser. No. 300,409, Sep. 2, 1994, Pat. No. 5,555,562. This application Sep. 16, 1996, Ser. No. 714,595
Int. Cl.^{6} A63B *21/065*
U.S. Cl. 2—69 **13 Claims**

1. A method of conditioning a human body, said body having a joint, said method comprising the steps of:

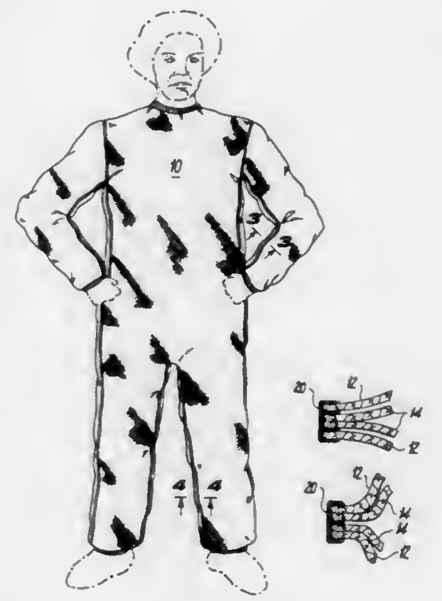
performing an activity while wearing a suit over said body joint and while said suit is provided with a first set of weight members, a first one of said weight members having a distal end portion and a proximal end portion, said first weight member being located over said body joint such that said body joint is located between said end portions;



subsequently, removing said first set of weight members from said suit; and

subsequently, performing said activity while wearing said suit with a second set of weight members, said second set of weight members being heavier than said first set of weight members.

5,784,717
CLEANROOM COVERALL
John Stephen Singer, Bayberrie Dr., Westover Park, Stamford, Conn. 06902
Filed Mar. 20, 1996, Ser. No. 619,075
Int. Cl.^{6} A41D *13/00*
U.S. Cl. 2—79 **5 Claims**



1. A cleanroom coverall comprising:

an inner and outer layer of fabric material, said inner layer comprising a first set of panels formed of a first electrostatic fabric material, each of said panels of said first set having shape and size conforming to a portion of wearer's body,

said outer layer comprising a second set of panels formed of a second electrostatic fabric material, each of said panels of said second set being respectively shaped and sized to conform to a panel in said first set,

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each of said first and second fabric materials being capable of preventing the passage therethrough of particles greater than 0.3 microns,

said panels of said first and second sets being arranged along their peripheral edges in respective pairs so as to form said coverall, the edges between adjacent pairs of said panels being joined in a four ply seam so that the peripheral edges of said first panels in adjacent paired panels are in abutment with each other and the peripheral edges of said second panels in said adjacent paired panels overly the edges of the first panels, said coverall when assembled being capable of preventing the passage of particles equal to and greater then 0.2 microns.

5,784,718

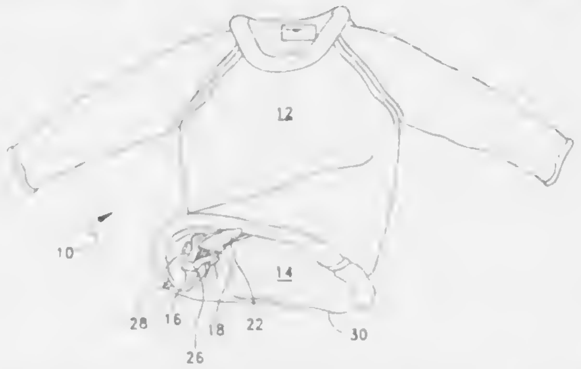
SWEATER HAVING AN INSIDE POCKET WITH A DOLL INSIDE THE POCKET AND METHOD

Evelyn M. Finnegan, 392 Hatherly Rd., North Scituate, Mass. 02066

Continuation-in-part of Ser. No. 43,182, Aug. 28, 1995, Pat. No. Des. 383,286. This application Jul. 15, 1997, Ser. No. 893,083

Int. Cl.⁶ A41D *1/04*

U.S. Cl. 2—90 **9 Claims**



1. A child's upper body garment with a removable/securable doll in a hidden pocket therein, which garment comprises:

a) an upper body garment adapted for use by a child having a front portion with a garment exterior surface, a garment interior surface, and a lower portion garment edge;

b) a pocket having an interior pocket space to receive therein a small child's doll, the pocket having a pocket exterior surface, and an upper pocket edge with ends positioned on the garment interior surface and lower right front portion of said garment;

c) a child's doll adapted to be placed in the pocket space of said pocket, and to have the head and extending arms of the doll extending outwardly above the pocket edge; and

d) a closure means having a one end and other end, one end secured to the garment interior surface and the other end secured by detachable, cooperating fasteners to the pocket exterior surface, to provide for a child to secure easily the doll in the hidden pocket when the other end is fastened in place, and to unsecure the doll for removal and play from the hidden pocket, when the other end is unfastened by the child, when the lower garment edge is turned upwardly to expose the hidden pocket

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5,784,719

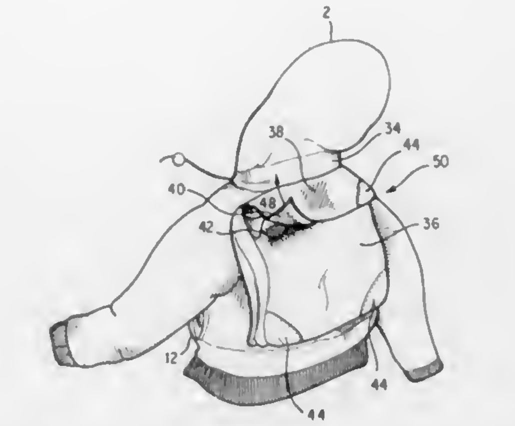
JACKET WITH REAR COMPARTMENT

Laurie-Anne Robinson, 2804 Majestic Ct., Troy, Mich. 48083

Filed Apr. 21, 1997, Ser. No. 844,753

Int. Cl.⁶ A41D *1/02*

U.S. Cl. 2—94 **1 Claim**



1. A jacket comprising

a torso having a top, rear, and bottom portion;

a pair of substantially identical sleeves attached to said torso;

a waistband attached to said bottom;

a hood which is removably attached to said top of said torso;

a substantially rectangular storage compartment having a plurality of reinforcement portions which are deployed at opposed ends of said storage compartment and which is removably attached to said rear of this torso proximate to said collar and only being attached to said rear of said torso at the upper central region of said rear, said storage compartment further having a generally rectangular flap portion which is moveable between a first storage compartment open position and a second storage compartment closed portion, said flap further having a plurality of reinforcement portions which cooperate with said reinforcement portions located upon said storage compartment in order to protect said storage compartment from wear damage, said to storage compartment further having opposed expandable side portions which are longitudinally coextensive to said storage compartment and which move to an expandable position to allow storage of goods in said storage compartment.

5,784,720

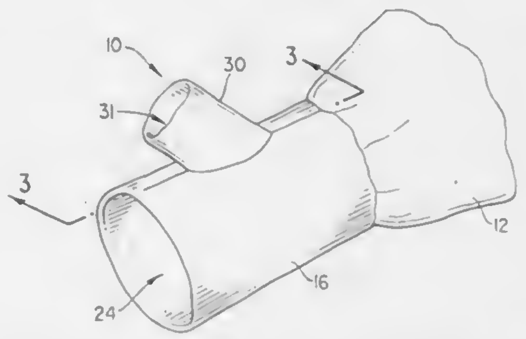
GARMENT CUFF WITH A THUMB OPENING

Charles B. Mellon, Clovis, and Mark A. Mellon, Coarsegold, both of Calif., assignors to Handcuffs, Inc., Fresno, Calif.

Continuation of Ser. No. 741,347, Oct. 29, 1996, which is a continuation of Ser. No. 444,398, May 19, 1995. This application Jul. 3, 1997, Ser. No. 887,736

Int. Cl.⁶ A41B *7/00;* A41D *19/00*

U.S. Cl. 2—125 **11 Claims**



1. A garment having a pair of sleeves, each of said sleeves having an interior surface, an exterior surface, and an end of each of said sleeves proximate the hand of the wearer comprising a convertible cuff, said cuff having a first finger opening for permitting the fingers of the wearer to extend from said interior surface to said exterior surface, said convertible cuff having a first position in which said cuff is folded over a portion of said sleeve appearing as a conventional cuff on said sleeve and a second position in which said cuff is unfolded to cover a portion of the user's hand, a portion of said cuff in said unfolded position extending to the knuckle area of the hand where the fingers meet the hand forming a partial hand covering and a second thumb opening for permitting the thumb of the wearer to extend from said interior surface to said exterior surface of one of said sleeves, and a tubular portion extending from said second thumb opening and covering at least a portion of the thumb of the wearer.

5,784,721

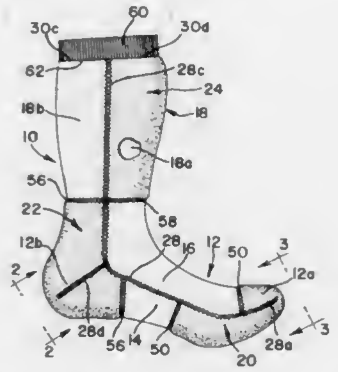
PADDED FLEECE SOCK AND METHOD OF MAKING SAME

Frances M. Huff, Jackson Hole, Wyo., assignor to Wyoming Woolens, Jackson Hole, Wyo.

Filed Aug. 15, 1996, Ser. No. 698,873

Int. Cl.⁶ A41B *11/00*

U.S. Cl. 2—239 **16 Claims**



1. A method for making a padded sock comprising the steps of:

a) forming a first single-piece generally rectangular blank of polyester fleece material having generally parallel longitudinal marginal edges and first and second pairs of laterally opposed dart cuts formed in said longitudinal marginal edges intermediate the length of the blank,

b) forming a second single-piece blank of polyester fleece material having laterally opposite longitudinal marginal edges and a pair of laterally opposed dart cuts formed in said marginal edges so as to enable said second blank to be placed in superimposed relation on said first blank with the longitudinal marginal edges and dart cuts of the second blank in juxtaposed relation with longitudinal marginal edges and a first pair of dart cuts on said first blank, said second blank having substantially transverse marginal end edges,

c) positioning said second blank in said superimposed relation on said first blank and securing said marginal end edges of said second blank to said first blank by stitched seams disposed generally transverse to said longitudinal marginal edges of said first blank,

d) folding said first blank generally transversely of itself so as to bring each longitudinal marginal edge into mutually opposed relation with itself and with marginal edges of each of said dart cuts being in mutually opposed relation, and

e) securing said mutually opposed longitudinal marginal edges and dart cut edges together by at least one flatlock seam so as to form a sock having a foot receiving portion and a leg encompassing portion, said flatlock seam also securing said longitudinal and dart cut marginal edges of said second blank to the corresponding marginal edges of the first blank so as to form a double layer padded area on the sock adjacent a toe or heel of the foot receiving portion of the sock.

5,784,722

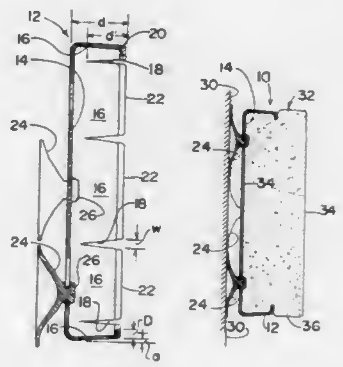
SHOWER BACK SCRUBBER

Luis A. Ureta, 4871 Wiota St., Los angeles, Calif. 90041, and Virgo V. Ballares, 5071 Cartagena Cir., La Palma, Calif. 90623

Filed Oct. 2, 1996, Ser. No. 720,664

Int. Cl.⁶ A47K *7/04*

U.S. Cl. 2—244.1 **5 Claims**



1. A shower back scrubber device, comprising the combination of:

a substantially rigid housing including a rear wall and a plurality of resilient side wall segments peripherally of said rear wall, each of said side wall segments having an inwardly disposed lip therealong;

a plurality of suction cups secured to said rear wall for releasably securing said housing to a shower wall; and

a sponge releasably held by said housing, said sponge having a thickness greater than the depth of said side wall segments and retained along said thickness by the lips along said side wall segments, said side wall segments biasing said lips against said sponge.

5,784,723

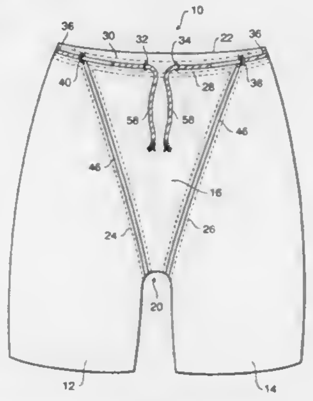
FIGURE ENHANCING GARMENT

Rhonda W. Noble, and Edward J. Noble, Jr., both of Corona del Mar, Calif., assignors to Noble Ideas, Inc., Corona del Mar, Calif.

Continuation-in-part of Ser. No. 670,607, Jun. 26, 1996, abandoned. This application Aug. 2, 1996, Ser. No. 692,845

Int. Cl.⁶ A41B *9/00;9/02*

U.S. Cl. 2—400 **18 Claims**



1. A figure enhancing garment comprising

a pair of pants, and

an adjustable pulley system built into the fabric of said pair of pants, said adjustable pulley system comprising a belt portion having opposing ends, a first elastic member adjustably coupled to said opposing ends of said belt portion, and a second elastic member slidably connected to said belt portion and said first elastic member and extending therebetween.

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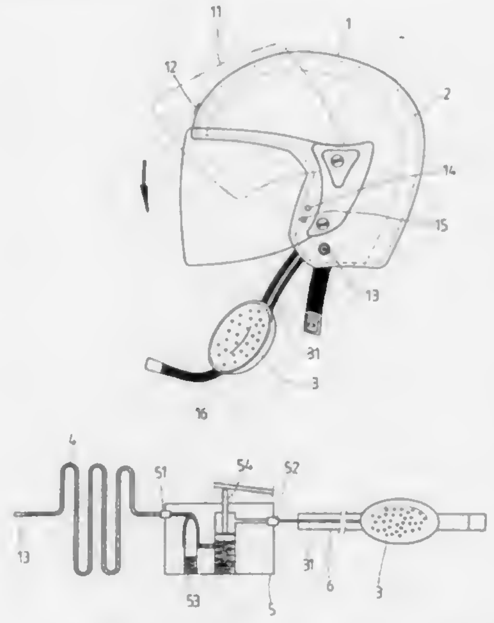
5,784,724
RESCUING HELMET ASSEMBLY

Juan Liang, No. 3, Lane 197, Jeng-Guan St., Taiping Country, Taichung Hsien, Taiwan
Filed Jul. 28, 1997, Ser. No. 901,535
Int. Cl.^{6} A42B *3/00*
U.S. Cl. 2—424 **1 Claim**



1. A rescuing helmet assembly which comprises a full-protected helmet which is configured by a helmet body and a lining helmet, a transparent protecting face mask being pivotally attached to said helmet body in a manner that the front portion of said helmet body can be well protected, characterized in that:

said helmet body is provided with a spot light in the front portion and an inflow inlet at a side portion, a light switch and an oxygen switch being disposed in the path of the downward movement of said protecting face mask, said helmet body being provided with a fastening strap in which a mouth/nose mask is mounted thereto, said mouth/nose mask being further connected to said helmet body via a connecting tube;

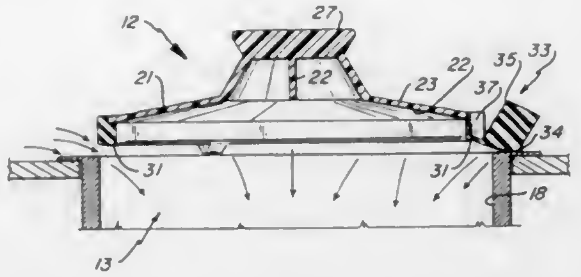
said lining helmet being fixedly provided with a copper tube on the top surface, one end of said copper tube being connected to said inflow inlet and the other end of said copper tube being connected to a chamber which in turn is connected to said connecting tube;

said chamber being provided with couplers at both ends and which are connected with said copper tube and said connecting tube respectively, a regulating knob and a controlling valve being disposed between said couplers, said controlling valve being connected with said oxygen switch such that when said oxygen switch is pushed inward, an open circuit is established for oxygen releasing and when said oxygen switch is returned to its original position, said oxygen is shut-off;

wherein when said protecting face mask is pulled downward, said light switch and said oxygen switch are sequentially triggered such that said spot light is turned on and the oxygen is supplied to the user.

5,784,725
DRAIN CLOSURE

Evelyn S. Joiner, 3880 S. Hillcrest Dr., Denver, Colo. 80237
Filed Jul. 3, 1997, Ser. No. 887,651
Int. Cl.^{6} A47K *1/14*
U.S. Cl. 4—295 **9 Claims**



1. A drain closure, comprising:

a closure body having oppositely facing first and second surfaces,

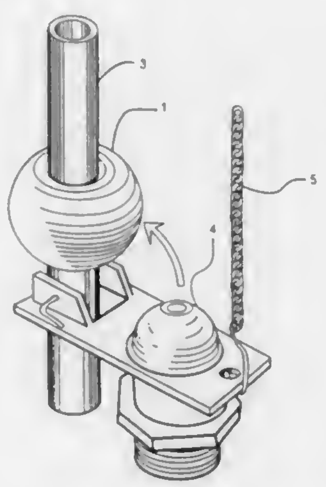
a flexible annular sealing member connected to said first surface adjacent a peripheral edge of said body, said sealing member being sized and shaped to contact and form a seal with an inner radial surface of a drain outlet,

a plurality of circumferentially spaced, flexible legs connected to said sealing member, each leg having an end disposed axially beyond a plane of said first surface to support said first surface above said drain outlet when said body is upright in a first position allowing water to pass through said drain outlet,

said legs being deflected back from said sealing member as said closure body, sealing member and legs are inserted down into said drain outlet, said sealing member forming a seal against said inner radial surface in a second position preventing fluid flow through said drain outlet.

5,784,726
TOILET FLAPPER VALVE CONTROL

Steven G. Kay, 1432 Brooklyn Blvd., Bay Shore, N.Y. 11706
Filed May 2, 1997, Ser. No. 850,194
Int. Cl.^{6} E03D *1/14*
U.S. Cl. 4—324 **8 Claims**

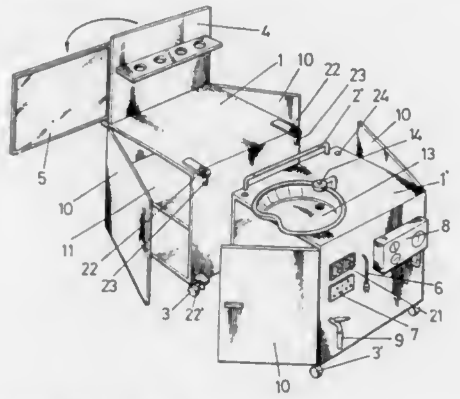


1. In combination with an overflow pipe of a toilet, a device for limiting upward movement of a flapper valve, wherein upon flushing the toilet the flapper valve is raised to a maximum height, comprising:

a one-piece spherical body having a bore therethrough, said spherical body being inserted over the overflow pipe and positioned for contact with the flapper valve, said bore having a diameter less than the diameter of the overflow pipe, such that said body fits snugly around the overflow pipe and does not move from its position.

5,784,727
MOBILE UNIT FOR HAIR CARE SERVICES IN HOSPITALS AND SIMILAR LOCATIONS

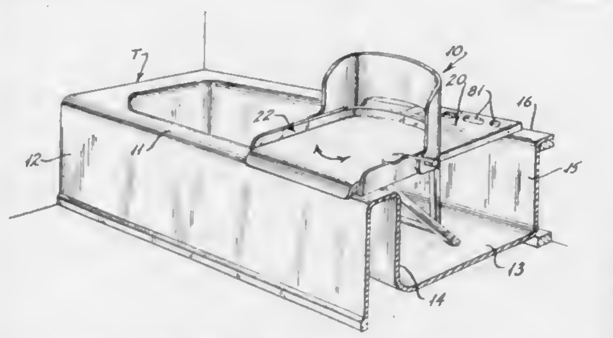
AnaMaria Perez Garcia, Alcantara, Spain, assignor to Manuel Irago Garcia, Madrid, Spain
Filed Mar. 1, 1996, Ser. No. 609,272
Claims priority, application Spain, Mar. 1, 1995, 9500549; Feb. 23, 1996, 9500461
Int. Cl.^{6} A45D *19/04*
U.S. Cl. 4—516 **2 Claims**



1. A mobile unit for hair care services in hospitals and similar locations, essentially characterized in that it has a generally prismatic body (**1**), means (**3**) for transportation attached to the body (**1**), doors (**10**) disposed on the body (**1**) for enclosing a pair of tanks (**12**) for holding clean water and dirty water, an electrical device for heating the clean water held in the tanks, shelves (**11**) included in the body (**1**) for storing hair care utensils, a tray (**13**) and a shower head (**14**) further included in the body (**1**), wherein the shower head is connected to the clean water tank (**12**), wherein the tray (**13**) is associated with a pipe connected to the dirty water tank, a clean water pump and a dirty water pump being included (**9**), and a mirror (**5**) being hinged on a panel, on the side of which there also is a handle (**2**) for maneuvering and transporting of the unit, wherein the tray is mounted on an additional adjustable-tilt frame stand (**15**), the frame stand including a pair of rings (**18**), through which a rigid tube (**19**) from the tray (**13**) is passed to mount the tray to the frame stand and enable personal hygiene services to be provided to persons who are bedridden.

5,784,728
PORTABLE BATH BENCH/SEAT

Bruce Weddendorf, Decatur, and Betty A. Strother, Boaz, both of Ala., assignors to Patent/Marketing Concepts, LLC, Boaz, Ala.
Filed Feb. 18, 1997, Ser. No. 800,537
Int. Cl.^{6} A47K *3/12*
U.S. Cl. 4—579 **17 Claims**



1. A portable bath chair apparatus for use with a bathtub having an outer wall defining an upper ledge and a bottom wall, the portable bath chair apparatus comprising,

a main frame having a pair of elongated side members, a bench having upper and lower portions, said lower portion of said bench being slidably mounted to said main frame for longitudinal movement therealong so that said bench overlies said main frame and said main frame having a first end adapted for extending over the upper ledge of the bathtub and a second end adapted for extending inwardly of the bathtub,

at least one clamp assembly mounted adjacent said first end of said main frame, said first clamp assembly including opposing arm portions adapted to engage the upper ledge of the outer wall of the bathtub,

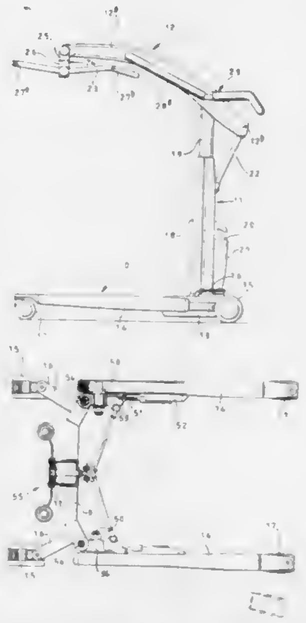
a leg assembly including a pair of spaced leg members having first ends pivotally mounted to said main frame and second ends adapted to selectively engage the bottom wall of the bathtub, and strut members having first ends pivotally mounted to said leg members and second ends pivotally mounted to means for sliding,

means for connecting said means for sliding to said main frame so as to be moveable longitudinally in generally parallel relationship with respect to said side members of said main frame, and

locking means for locking said slide means in fixed relationship with respect to said main frame.

5,784,729
INVALID HOIST

Robert Dunn; Michael George Gill, both of Cheltenham; John Greaves, Romsey; Richard Ian Lees, and Bruce Edward Somerton, both of Gloucestershire, all of England, assignors to Arjo Limited, Gloucester, England
PCT No. PCT/GB95/00606, § 371 Date Feb. 11, 1997, § 102(e) Date Feb. 11, 1997, PCT Pub. No. WO95/30400, PCT Pub. Date Nov. 16, 1995
PCT Filed Mar. 20, 1995, Ser. No. 737,531
Claims priority, application United Kingdom, May 10, 1994, 9409211; Jan. 27, 1995, 9501629
Int. Cl.^{6} A61G *7/10*
U.S. Cl. 5—86.1 **16 Claims**



1. An invalid hoist comprising a mobile chassis (**10**), a lifting column (**11**) upstanding from the chassis and a lifting arm (**12**) supported by the lifting column, wherein the chassis comprises a transversely extending portion (**13**) from which the lifting column upstands and two side members (**14**) which are pivotable between a first in use position in which they project forwardly from the transversely extending portion and a second storage position in which they extend parallel or substantially parallel to the lifting column and which are also pivotable between a position in which they extend parallel or substantially parallel to one another and a position in which they diverge towards their forward ends.

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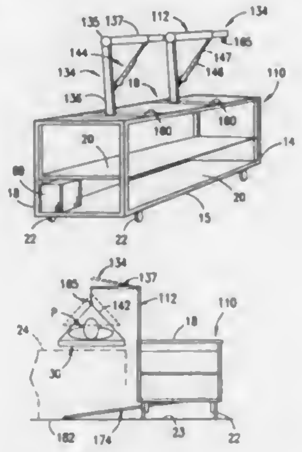
5,784,730
PATIENT LIFT/TRANSFER MECHANISMS FOR GURNEY

Dermot A. Hunt, 250 Fairfield Ct., Palatine, Ill. 60067
Continuation-in-part of Ser. No. 518,482, Aug. 23, 1995, Pat. No. 5,579,547. This application Dec. 2, 1996, Ser. No. 756,891
Int. Cl.^{6} A61G *7/10; 7/14*
U.S. Cl. 5—86.1 **10 Claims**



1. For a gurney having side edges terminating near spaced corners, and corner wheels movably supporting the gurney, a lift/transfer mechanism for shifting a patient between the gurney and an adjacent transfer structure disposed side-by-side next to the gurney, comprising

a patient board suited for carrying a patient and be removably supported on a gurney top surface,

a pair of boom arms each having generally straight lower and upper end sections angled relative to one another, and means mounting the boom arms at corresponding lower end sections to the gurney near the gurney top surface, each boom arm upper end section being sized when the lower end section is positioned near one side edge to overlie the gurney top surface, patient board and any patient thereon, and each boom arm upper end section having a hook carried thereby to likewise overlie the gurney top surface in this operative position;

flexible nonextendable straps and means for releasibly connecting the straps between and relative to the patient board and the boom arm hooks;

means for raising and lowering the boom arm hooks and the patient board connected thereto and for suspending said board below and from the boom arm upper end sections; and

means for shifting the boom arms to a different operative position whereby the boom arm hooks and the patient board suspended therefrom are laterally shifted to ove-lie an adjacent transfer structure disposed side-by-side next to the gurney.

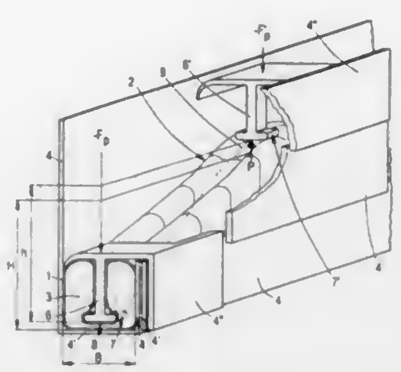
5,784,731
PNEUMATIC SPRUNG SURFACE BEARING AND ITS USES

Erhard Weber, Keăntrupstr. 4, D-49082 Osnabrueck, Germany
PCT No. PCT/EP94/02772, § 371 Date Apr. 11, 1996, § 102(e) Date Apr. 11, 1996, PCT Pub. No. WO95/07644, PCT Pub. Date Mar. 23, 1995
PCT Filed Aug. 20, 1994, Ser. No. 612,831
Claims priority, application Germany, Sep. 15, 1993, 43 31 240.3
Int. Cl.^{6} A47C *23/06*
U.S. Cl. 5—238 **12 Claims**

1. A hydrodynamic sprung surface bearing comprising:

a tube-shaped container;

at least two side walls against which the container partially bears and which allow deformation of the container in a single outward direction: and



at least two bearing elements abutting the container, each bearing element having a bearing surface pressing against a surface of the container, the bearing surfaces being smaller, in total, than the surface of the container,

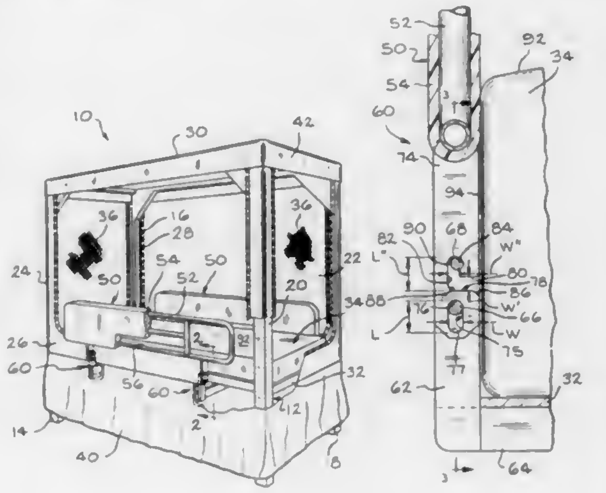
wherein the container is filled with a substantially incompressible medium; and

wherein, upon application of a force to the container by a bearing element, the bearing element causes a change in a shape of the container, including positive arching of the surface of the container; and

wherein a portion of each side wall bears against the container, and at least one side wall comprises a flexible member allowing a change of shape of the container, including positive arching of the surface of the container.

5,784,732
SIDE RAIL FOR A BED ENCLOSURE

Robert L. Vail, 213 Cedar Point Rd., Oregon, Ohio 43618
Filed Apr. 9, 1997, Ser. No. 838,749
Int. Cl.^{6} A47C *21/08*
U.S. Cl. 5—430 **20 Claims**



7. A bed for a person comprising:

a frame;

a mattress supported by said frame, said mattress having a side and a top surface; and

a side rail; and

a hinge assembly pivotally attaching said side rail to said frame, said hinge assembly comprising:

a first member secured to said frame of said bed;

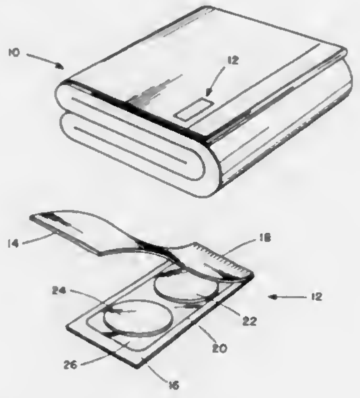
a second member secured to said side rail, said second member pivotally connected to and movable between a first position and a second position with respect to said first member, said second member having first and second spaced apart slots formed therein;

a first pin fastened to said first member and extending therefrom through said first slot of said second member thereby pivotally supporting said second member relative to said first member; and

a second pin fastened to said first member and extending therefrom, said second pin being disposed within said second slot when said second member is in said first position to prevent movement between said first and second members.

5,784,733
BLANKET WITH COMPARTMENT HOUSING A SOUND PRODUCING DEVICE

Khalil Rasamny, and James Barone, both of 165 Grassy Plains St., Bethel, Conn. 06801
Filed May 12, 1997, Ser. No. 855,861
Int. Cl.^{6} A47G *9/02*
U.S. Cl. 5—482 **1 Claim**



1. A blanket apparatus comprising:

a cloth blanket of pliable flexible material;

a generally rectangular shaped cloth compartment formed of two pieces of cloth sewn along the periphery thereof;

a flat sound producing device located within said cloth compartment said sound producing device including a manually operable switch and a timing device to control the period of time of the sound;

a water impermeable envelope located within said cloth compartment and surrounding said sound producing device;

said cloth compartment being securely sewn to the cloth blanket in the area of a corner thereof.

5,784,734
PATIENT TREATMENT APPARATUS

Gerald R. Scott, Villa Park; James P. Moulton, Elgin, both of Ill.; V. Craig Seyl, Lenexa, Kans.; John L. Emrich, Algonquin, and Wayne L. Peterson, St. Charles, both of Ill., assignors to Standex International, Salem, N.H.
Continuation of Ser. No. 527,555, Sep. 13, 1995. This application Jan. 16, 1997, Ser. No. 783,428
Int. Cl.^{6} A61G *13/08*
U.S. Cl. 5—613 **13 Claims**

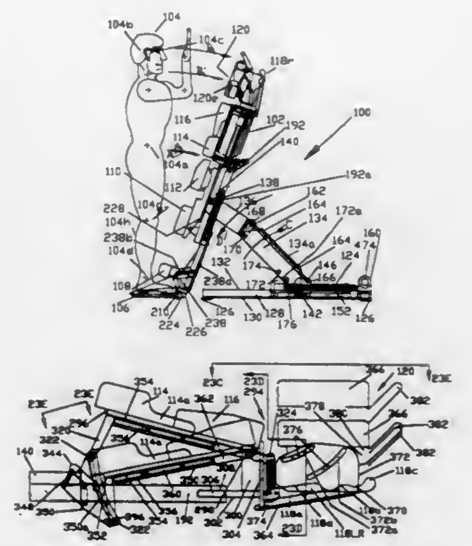
1. Treatment apparatus supporting a patient lying in a treatment position for manipulation comprising:

a base;

a table supported for movement by said base;

a plurality of cushion means mounted for movement along said table for supporting the patient; said cushion means being selectively positioned to accommodate a plurality of patients of different size;

drive means for moving at least one of said cushion means to a selected position on said table means for accommodating a particular one of said plurality of patients;

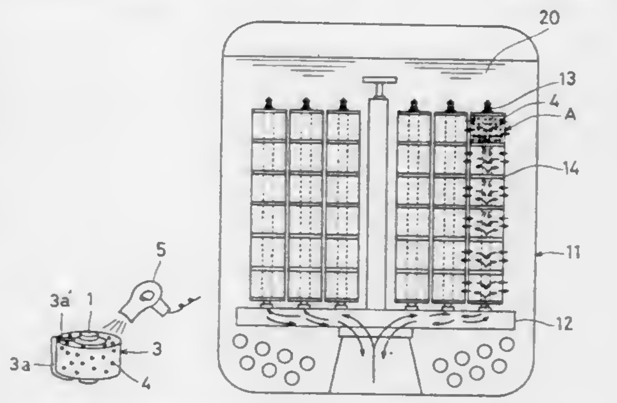


control means for operatively controlling said drive means to selectively position said at least one of said cushion means for one of said plurality of patients; and

said drive means further include an electrically powered motor operatively controlled by said control means for moving said table between selected working levels for treatment of the patient.

5,784,735
METHOD FOR EVENLY DYEING YARN CHEESES

Kazuhiko Ono, Kobe, Japan, assignor to Osaka Bobbin Co., Ltd., Osaka, Japan
Filed Dec. 16, 1996, Ser. No. 766,131
Int. Cl.^{6} D06B *5/18*
U.S. Cl. 8—155.1 **4 Claims**



1. A method of evenly dyeing a yarn cheese comprising the steps of:

providing a yarn cheese, said yarn cheese comprising a yarn wound on a bobbin to have a circular configuration;

enveloping the yarn cheese in a perforated heat shrinkable, uniaxially stretched synthetic film covering, said covering having a lengthwise linear portion which is hot-melt sealed to form a longitudinal joint and is uniaxially stretched in the lateral direction, said longitudinal joint having a fin extending laterally from and along the length thereof;

applying heat to the covering to cause it to shrink and conform to the configuration of the yarn cheese and wrap the yarn cheese tightly therein;

providing a dyeing machine having a carrier and spindles mounted vertically on the carrier;

placing the wrapped yarn cheese onto a spindle; and

flowing a dye liquor from the spindle through the wrapped yarn cheese and back through the wrapped yarn cheese to the spindle to evenly dye the yarn cheese.

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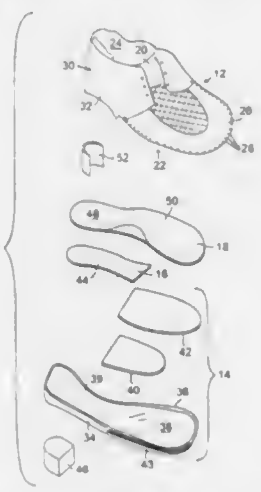
5,784,736
METHOD FOR CONSTRUCTION OF FOOTWEAR

James E. Issler, Greenwich, Conn., and Thomas E. McClaskie, Bethlehem, Pa., assignors to H.H. Brown Shoe Company, Inc., Greenwich, Conn.
Filed Jan. 17, 1997, Ser. No. 785,686
Int. Cl.^{6} A43B *9/02;13/28*
U.S. Cl. 12—142 B **10 Claims**



1. A method for construction of footwear comprising the steps of:

providing an upper defining a volume for receiving a wearer's foot, the upper having a rearward portion with a peripheral lasting edge;

providing an outsole having a forward portion, a rearward portion and a cavity formed in at least the forward portion of a top surface of the outsole;

providing and securing resilient material within the cavity of the outsole;

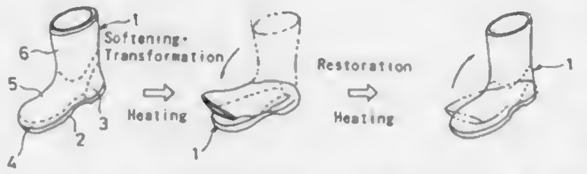
sewing, along a peripheral edge portion of the outsole, the forward portion only of the outsole to the upper, said sewing includes stitching a thread through the peripheral edge portion of the outsole, through the peripheral edge of the upper and into the cavity of the outsole;

after sewing the forward portion to the upper, lasting, along an edge of a last, the peripheral lasting edge portion of the upper over an insole tuck temporarily secured to the last; and

securing the rearward portion only of the outsole to the lasted rearward portion of the upper.

5,784,737
FOLDING SHOES AND PROCESS FOR MANUFACTURING THE SAME

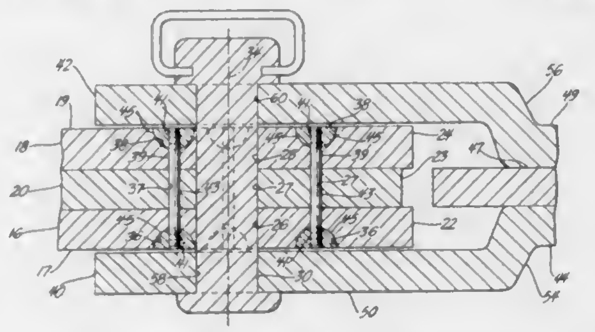
Knutoku Tsuji, Kagawa-ken, Japan, assignor to Yoshitaka Tsuji, and Teruyuki Tsuji, both of Kagawa, Japan
Continuation of Ser. No, 685,004, Jul. 22, 1996, abandoned, which is a division of Ser. No. 935,425, Aug. 26, 1992, abandoned. This application Oct. 20, 1997, Ser. No. 954,562
Int. Cl.^{6} A43B *23/17;1/10*
U.S. Cl. 12—142 E **5 Claims**



1. A process for manufacturing a folding shoe having an instep which comprises making a sheet composed of a cloth spread coated with uncrosslinked shape-memory resins which form shape-memory resins having a glass transition temperature of 40° to 70° C. upon curing, cutting parts from said sheet coated with uncrosslinked shape-memory resins into shapes including at least said instep, joining parts including the parts made from said sheet together by at least one of stitching or pasting to furnish a half-finished shoe, and curing said half-finished shoe by heating at a temperature at least equal to the crosslinking temperature of said uncrosslinked shape-memory resins.

5,784,738
HINGE MODIFIED TO HAVE TORQUE LIMITING FASTENER

Gregory J. Updike, 463 Vester, Ferndale, Mich. 48220-1955
Filed May 6, 1996, Ser. No. 649,855
Int. Cl.^{6} E01D *15/12;* **F16B** *31/00*
U.S. Cl. 14—2.4 **3 Claims**



1. A method of making a hinge connection between a first webbing and a second webbing, comprising:

placing male hinge plates on opposite sides of the first webbing;

fixing female hinge plates on opposite sides of the second webbing;

providing pockets at outer surfaces of the male hinge plates

fabricating a shaft harder than the male plates;

threading the shaft at both ends;

passing the shaft through the male hinge plates and first webbing;

providing nuts harder than the male plates, the nuts having twist-off heads and recess bodies connected to the heads;

threading the nuts onto the threaded ends until the recess bodies conform to the pockets and until no part of the bodies extend beyond the outer surfaces of the male plates, such that no parts of the ends extend beyond planes in which lie the outer surfaces;

preventing the nuts from damaging the male plates by means of torque control necks connecting the heads to the recess bodies;

twisting the heads off the nuts while tightening the nuts in engagement with the male plates, the necks breaking at a torque no greater than a chosen maximum;

after twisting off the heads, removing any portions of the necks extending beyond the outer surfaces of the male plates;

placing the male hinge plates adjacently between the female hinge plates such that axial gaps between outer surfaces of the male plates and the female plates are minimized;

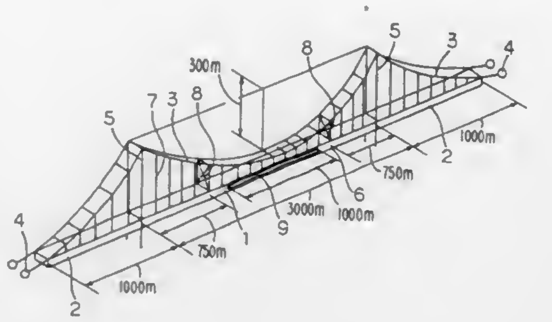
placing a hinge pin along a common hinge axis of the male plates and female plates.

5,784,739
SUPER-LONG SPAN SUSPENSION BRIDGE

Tadaki Kawada, Musashino; Masahiro Yoneda, Izumi, and Shunzo Nakazaki, Urawa, all of Japan, assignors to Kawada Industries, Inc., Tokyo, Japan
Filed Oct. 2, 1996, Ser. No. 720,688
Claims priority, application Japan, Oct. 16, 1995, 7-291691
Int. Cl.^{6} E01D *11/02*
U.S. Cl. 14—18 **3 Claims**

1. A super-long suspension bridge comprising a

a main cable having a tension,



a plurality of anchors retaining the tension occurring in the cable,

a plurality of towers supporting the main cable and including first and second towers which are adjacent to one another,

a center span having a center span length which is equal to the distance between said first and second towers, said center span length being larger than 2,000 m,

a bridge floor having a live load acting thereon,

a stiffening girder distributing the live load acting on the bridge floor,

a plurality of hangers suspending the stiffening girder from the main cable,

first and second temporary mass application members, said first temporary mass application member being capable of temporarily applying a predetermined amount of additional load on a first side of the stiffening girder and said second temporary mass application member being capable of temporarily applying a predetermined amount of additional load on a second side of the stiffening girder,

said first and second temporary mass application members being located at and being coextensive with a center portion of said center span, said center portion having a center portion length equal to of the center span length and one of said first and second temporary mass application members being on a windward side of said center span during a storm,

a mass weighing 30% or less of the weight of the girder temporarily applied in said one of said mass application members on the windward side alone during a storm,

a first cross stay provided at a point inward from said first tower at a distance equal to to of the center span length, and

a second cross stay provided at a point inward from said second tower at a distance equal to to of said center span length.

5,784,740
DOCK LEVELER

Thomas M. DiSieno; John J. LeTourneau, both of Athens, N.Y., and Bruce R. Winter, Muskego, Wis., assignors to Overhead Door Corporation, Dallas, Tex.
Filed Sep. 17, 1996, Ser. No. 714,853
Int. Cl.^{6} E01D *1/00*
U.S. Cl. 14—71.3 **54 Claims**

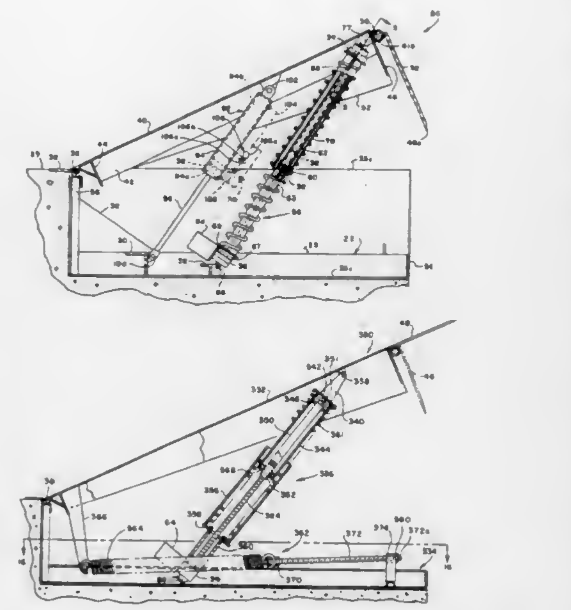
1. A dock leveler for forming a path between a loading dock and a loadbed of a vehicle for transferring cargo therebetween, including:

a generally planar ramp including hinge means for permitting pivotal movement of said ramp in opposite directions between a generally horizontal storage position and an elevated position about said hinge means;

an electric actuator operably connected to said ramp and including a drive motor;

a rotatable member drivenly connected to said drive motor;

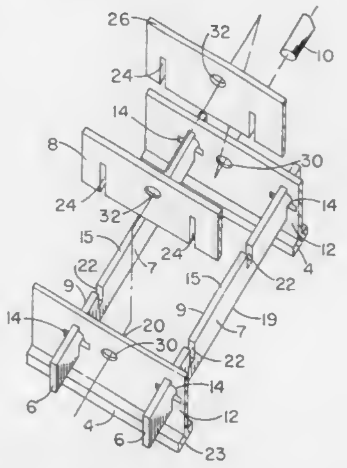
a linearly extensible member engaged with said rotatable member and operable to move between extended and retracted positions with respect to said rotatable member in response to rotation of said rotatable member for moving said ramp to an elevated position, said linearly extensible member being retractable with respect to said ramp; and



a member operably engaged with said linearly extensible member and operable to permit retraction of said linearly extensible member when said ramp engages a loadbed without imposing driving forces on said drive motor when said ramp is engaged with said loadbed.

5,784,741
WELD-FREE GRATINGS FOR BRIDGE DECKS WITH IMPROVED SLOTTED OPENING

Ronald W. Mangone, New Kensington, Pa., assignor to Mangone Enterprises, New Kensington, Pa.
Continuation-in-part of Ser. No. 541,732, Oct. 10, 1995, Pat. No. 5,642,549. This application Jun. 12, 1996, Ser. No. 661,919
Int. Cl.^{6} E04C *2/42*
U.S. Cl. 14—73 **16 Claims**



1. A weldless grating comprising:

(a) a plurality of longitudinally extending primary load bearing members having a top, a bottom, and a web located between said top and said bottom, the primary load bearing member having a plurality of spaced-apart openings in said web, the openings in each of said primary load bearing members being aligned with the openings in adjacent primary load bearing members;

(b) a plurality of secondary load bearing members having an upper edge and a lower edge, the secondary load bearing members provided with first slots extending downwardly

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through the upper edge to provide top slots and with upwardly extending slots through the lower edge to provide bottom slots located opposite said top slots,

the secondary load bearing members positioned in the aligned openings in said web of the primary load bearing members, said top and bottom slots in said secondary load bearing member forming a locking engagement with said web surrounding said openings in said primary load bearing members,

the secondary load bearing members having a width and provided with secondary downwardly extending slots through said upper edge, secondary downwardly extending slots located between primary load bearing members, the secondary downwardly extending slots comprised of an upper portion extending downwardly from said upper edge and a lower portion located below said upper portion, the upper portion and lower portion having a first face and a second face, the upper portion having a first extent "y" as measured from the first face to the second face and the lower portion having a second extent "x" as measured from the first face to the second face, the first extent "y" being greater than the second extent "x";

(c) a plurality of tertiary load bearing members positioned in the secondary slots in the secondary load bearing members, the tertiary load bearing member having a width slightly smaller than said first extent to provide a snug fit therewith; and

(d) a rod extending through said tertiary load bearing members and said primary load bearing members locking said tertiary load bearing members in the slots in said secondary load bearing members and locking said secondary load bearing members in the openings in said primary load bearing members to form said grating.

5,784,742

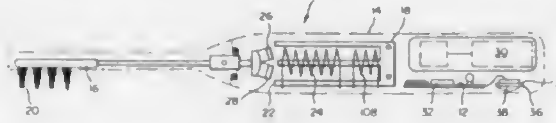
TOOTHBRUSH WITH ADAPTIVE LOAD SENSOR

David Giuliani, Mercer Island; Ryan W. McMahon, and James Christopher McInnes, both of Seattle, all of Wash., assignors to Optiva Corporation, Bellevue, Wash.

Filed Jun. 23, 1995, Ser. No. 494,322

Int. Cl.^{6} A46B *13/02*

U.S. Cl. 15—22.1 **28 Claims**



1. A toothbrush comprising:

a brushhead including a set of bristles attached thereto;

a drive assembly connected to said brushhead so as to cause selective movement of said brushhead;

an energizing circuit connected to said drive assembly for selectively applying a drive signal to said drive assembly so as to actuate said drive assembly, wherein the drive assembly signal varies in accordance with variations in a load on said drive assembly;

a load sensing assembly for producing a load signal representative of said drive signal, said load sensing assembly being adapted to compare said load signal to a threshold value, and to generate an alarm signal when the load signal/threshold value comparison indicates said brushhead is subjected to a predetermined excessive load, wherein said threshold value is initially set to a preselected load value plus a reference value, prior to the drive assembly being actuated, wherein load value is representative of a no-load condition for the brushhead and wherein the load value and hence the threshold value decrease during a brushing operation as the load value decreases to the smallest amount thereof sensed during each brushing operation, the load value remaining at the smallest load value sensed for the remainder of each brushing operation; and

an alarm circuit connected to said load sensing assembly and responsive to said alarm signal, said alarm circuit being constructed to generate a warning indicative of the brushhead overloading.

5,784,743

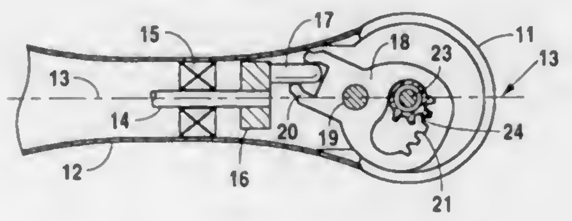
ELECTRIC TOOTHBRUSHES

Kwok Nam Shek, Tuen Mun, Hong Kong, assignor to Addway Engineering Limited, Hong Kong

Filed Dec. 30, 1996, Ser. No. 777,534

Int. Cl.^{6} A61C *17/34;* **A46B** *13/02*

U.S. Cl. 15—22.1 **6 Claims**



1. An electric toothbrush having a handle, a brush head and a shank having a central longitudinal axis extending between the handle and the brush head, a drive shaft extending along the central axis from a motor in the handle to a remote end thereof and said drive shaft having a finger off-set from the central axis at the remote end, a wobble plate pivotably mounted on the central axis having a first end and a second end, a fork at the first end of the wobble plate that embraces the finger and an arcuate contact drive surface at the second end, a brush holder pivotably mounted by a shaft on the central axis to the brush head, and a circular contact surface rotatable with the shaft that engages the arcuate contact surface such that when the drive shaft is rotated by the motor continuously in one direction the brush holder is rotated backwards and forwards.

5,784,744

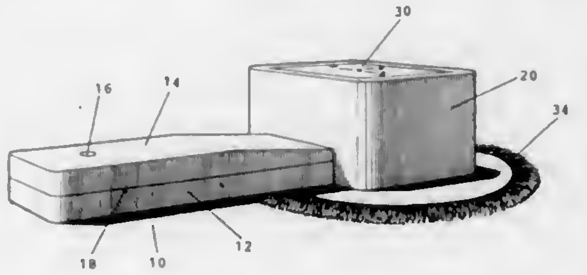
PORTABLE SHAMPOO DEVICE

Steven Toran, P.O. Box 1804, Hoboken, N.J. 07030

Filed Jan. 9, 1997, Ser. No. 781,120

Int. Cl.^{6} A46B *13/04*

U.S. Cl. 15—29 **3 Claims**



1. A portable shampoo device, comprising:

a handle housing comprising the combination of a first elongated generally flat housing having a cleaning fluid therein, said first housing having a bottom planar surface, and a second elongated generally flat housing having batteries therein, said second housing having an upper planar surface;

means for manually coupling and decoupling said first housing to said second housing, said first and second housings extending generally parallel to each other wherein said bottom planar surface abuts said upper planar surface;

said first housing, when coupled to said second housing, being fluid-tight relative thereto;

a motor housing including a multi-speed direct current motor having a power shaft output thereof, said motor being in electrical communication with electrodes of said batteries, said motor housing being attached to said second housing; and

brush means being secured to said power shaft output.

5,784,745

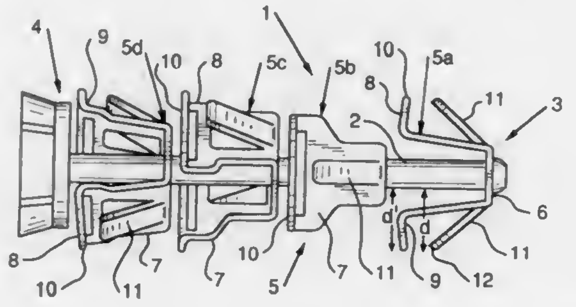
EASY INSERT TUBE CLEANER

Gregory J. Saxon, and Jerzy Krysicki, both of Oakmont, Pa., assignors to Conco Systems, Inc., Verona, Pa.

Filed Sep. 12, 1997, Ser. No. 928,847

Int. Cl.^{6} B08B *9/04*

U.S. Cl. 15—104.061 **9 Claims**



1. A tube cleaner comprising a shaft having a nose portion at a front end and tail portion at a rear end thereof; and a plurality of spaced scraper devices secured to the shaft intermediate the nose portion and tail portion, each said scraper device comprising a U-shaped scraper having a base and at least two leg portions, said leg portions extending in the direction of said tail portion and having scraping sections extending outwardly from a terminal end thereof; and a tongue on each said leg portion extending therefrom rearwardly and outwardly to a position adjacent the scraping section of the respective leg portion.

5,784,746

ABRASIVE MOP HEAD

Todd A. Williams, Aliso Viejo, and Richard A. Williams, Dana Point, both of Calif., assignors to Economics in Technology, Costa Mesa, Calif.

Continuation-in-part of Ser. No. 608,092, Feb. 28, 1996, abandoned, which is a continuation-in-part of Ser. No. 334,203, Nov. 4, 1994, abandoned. This application Apr. 29, 1996, Ser. No. 638,840

Int. Cl.^{6} A47L *13/12*

U.S. Cl. 15—118 **17 Claims**

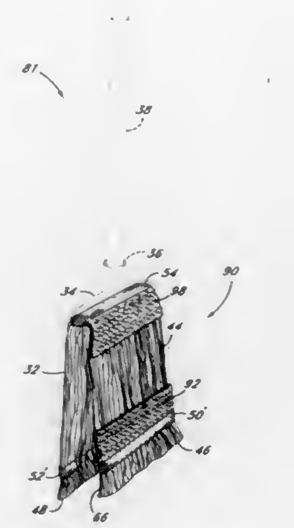
1. A mop head that removes grease load and increases the coefficient of friction of a floor by abrasive point load mopping, comprising:

a plurality of elongated strands of absorbent material having a first plurality of free ends and a second plurality of free ends;

a mop handle attachment region located intermediate said first plurality of free ends and said second plurality of free ends, said mop handle attachment region adapted to attach to a mop handle;

a first abrasive pad having a distal end and a proximal end, said first pad attached to said strands intermediate said first plurality of free ends and said handle attachment region, said distal end of said first pad closer to said first plurality of free ends and said proximal end of said first pad closer to, yet spaced away from, said handle attachment region; and

at least one additional abrasive pad having a proximal end and a distal end, said distal end of said additional pad intermediate said proximal end of said first pad and said handle attachment region.



5,784,747

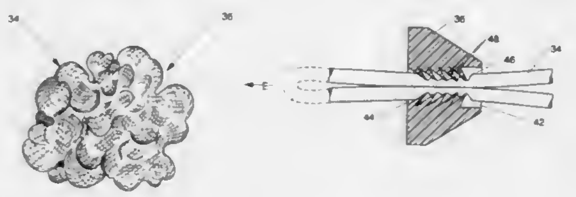
CLEANSING PUFF

Richard M. Girardot, Cincinnati, Ohio; Craig A. Hawkins, Ashiya, Japan; Ronald Kortelink, Pittsford, N.Y.; Frank Lodi, Niles, and Richard R. Tompkins, Glendale Heights, both of Ill., assignors to The Procter & Gamble Company, Cincinnati, Ohio

Filed Nov. 1, 1995, Ser. No. 548,361

Int. Cl.^{6} A47L *17/08;* **A47K** *7/02*

U.S. Cl. 15—229.11 **4 Claims**



1. A scrubbing apparatus comprising:

(a) a folded piece of open-cell mesh; and

(b) a locking tether, the tether comprising a cord and a locking cleat, said locking cleat engaging said cord and maintaining a substantially permanent binding force when said locking tether is secured about the piece of mesh so as to encircle and substantially permanently hold the piece of mesh together.

5,784,748

VEHICLE LAUNDRY IMPLEMENT AND REPLACEABLE CLOTH ELEMENTS FOR USE THEREWITH

Michael J. Belanger, Novi, and Robert J. Wentworth, Farmington Hills, both of Mich., assignors to Belanger, Inc., Northville, Mich.

Filed Apr. 29, 1996, Ser. No. 641,024

Int. Cl.^{6} B60S *3/06*

U.S. Cl. 15—230.14 **24 Claims**

1. A replaceable element for a cloth-type vehicle laundry implement wherein brushes rotate in an edge-wise manner, the element having an overall shape of a sector of a circle and having opposite, parallel, plane faces, being made of non-woven, synthetic fabric and having a first vehicle-containing peripheral edge, said element being subdivided into compound radial fingers extending to said edge by a first set of relatively widely spaced slits of a first length and a second set of relatively closely spaced slits intermediate the

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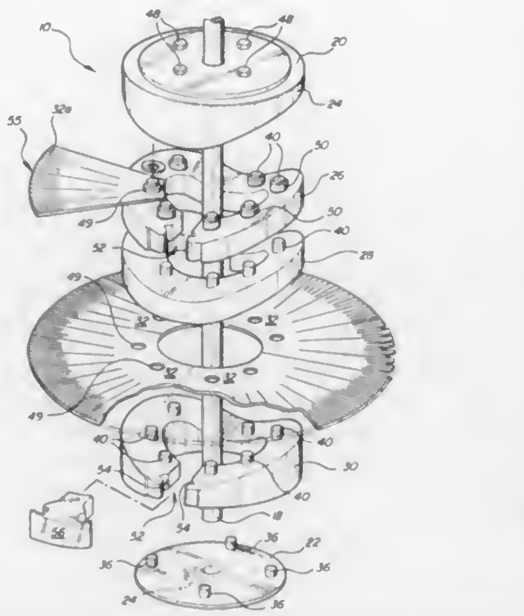
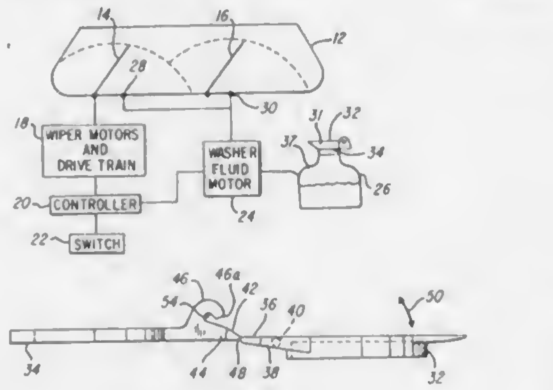


first slits and of a second length, the first length being substantially greater than the second length.

5,784,749
WINDSHIELD WIPER ASSEMBLY WITH RESERVOIR SEALING SYSTEM

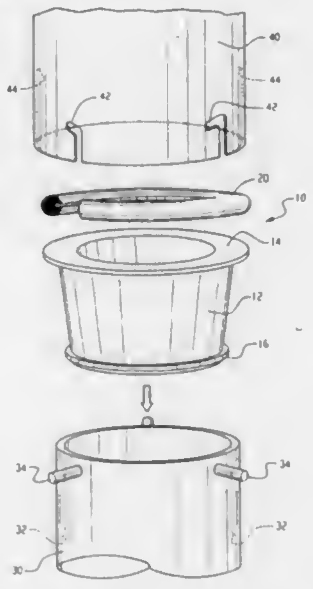
Robert Garbacik, Jr., Cincinnati, and Richard L. Ponziani, Centerville, both of Ohio, assignors to ITT Automotive Electrical System, Inc., Auburn Hills, Mich.
Division of Ser. No. 672,948, Jul. 1, 1996, Pat. No. 5,628,422. This application Apr. 7, 1997, Ser. No. 838,459
Int. Cl.⁶ B60S *1/46; 1/50;* **B65D** *41/32*
U.S. Cl. 15—250.02 **7 Claims**



1. A windshield wiper system comprising:
a set of windshield wipers for wiping operation over a windshield;
a controller for controlling the operation of the windshield wipers;
a wash switch coupled to said controller for causing said windshield wiper system to go into a wash cycle;
a driver coupled to said set of windshield wipers and said controller for actuating said set of windshield wipers when a user activates said wash switch;
a reservoir for storing windshield wiper fluid, said reservoir having an opening therein;
a wash fluid pump fluidly coupled to said reservoir for pumping fluid from said reservoir to said windshield in response to a signal from said controller;
a seal coupled to said reservoir for sealing said opening in said reservoir, said seal being a one-piece molded construction comprising:
a reservoir mount for mounting on said reservoir;
a reservoir cap for hingeably mounting to said reservoir mount such that said reservoir cap may be actuated from an open position to a sealed position where said reservoir opening becomes sealed;
said reservoir mount and said reservoir cap being integrally formed in a one-piece construction and comprising a line of weakness therebetween;
said reservoir mount comprising a first hinge member and said reservoir cap comprising a second hinge member for hingedly mating with said first hinge member after said reservoir mount and said reservoir cap have been separated along said line of weakness.

5,784,750
MULTI-COMPONENT FLOW PASSAGE ASSEMBLY WITH SNAP IN SEALING ADAPTOR

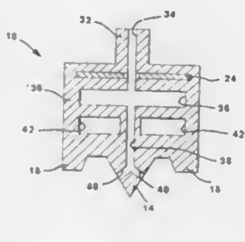
Denis Sankovic, Euclid, Ohio; Erik S. Larson, Framingham, Mass., and Martin Warchola, Medina, Ohio, assignors to The Scott Fetzer Company, Westlake, Ohio
Filed Jul. 12, 1996, Ser. No. 679,542
Int. Cl.⁶ A47L *9/00*
U.S. Cl. 15—246.2 **10 Claims**

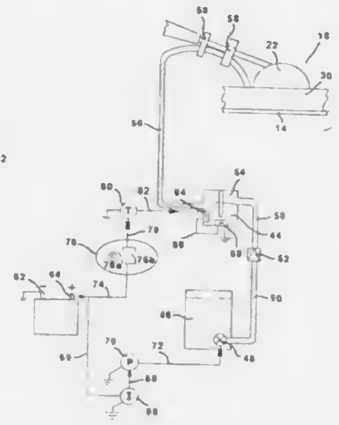


1. A flow passage assembly for a vacuum cleaner comprising:
a first flow passage section connected to an impeller body of the vacuum cleaner including an impeller for creating an air flow;
a second flow passage section, disengageably attached to the first flow passage section, and connected to a removable attachment section for receiving the air flow generated by the impeller, wherein the attachment section is selected from the group consisting of a dust-collecting bag, a shampoo-receiving reservoir, and a blower attachment;
an adaptor for providing a seal between the respective first and second flow passage sections, wherein said adaptor comprises:
a generally elongated adaptor body which extends into the interior of a respective one of said first and second flow passage sections;
a rim, located substantially proximate to one end of the adaptor body for seating on the perimeter of a junction end on the respective one of said first and second flow passage sections;
a sealing ring, attached peripherally to the rim, for sealingly engaging the perimeter of a junction end on the respective other of said first and second flow passage sections; and
a bead, located on said adaptor body at a position spaced from said rim, for mechanically engaging with a cooperative structure on the respective one of said first and second flow passage sections seated thereon, in order to securely retain the adaptor to the respective flow passage section.

5,784,751
HEAT ABSORBING WINDSHIELD WIPER

Clyde A. Tippets, 3046 Lampman Dr., Billings, Mont. 59102
Filed Mar. 4, 1997, Ser. No. 805,921
Int. Cl.⁶ B60S *1/46; 1/52*
U.S. Cl. 15—250.04 **3 Claims**



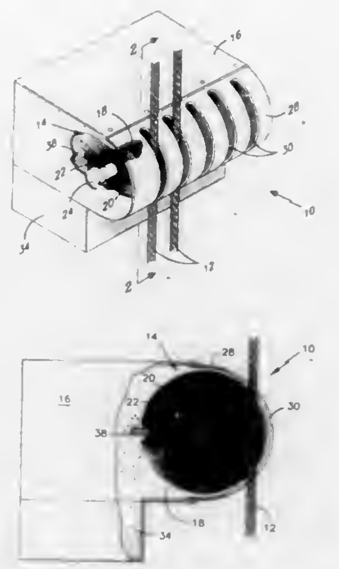


1. A heat absorbing windshield wiper including structure for spraying windshield washer fluid onto a curved windshield:
an elongate body having a first and second internal cavity;
the first cavity having a bore fluidly connecting the first cavity with an exterior surface of the elongate body;
the first cavity further having a passageway fluidly connecting the first cavity with a nozzle located on an extension surface of the elongate body adjacent the windshield;
the second internal cavity being closed;
a spline embedded in and extending along the elongate body to shape the elongate body to rest against the curved windshield;
a pumping means for pumping washer fluid into the first cavity through the bore, and then from the first cavity, onto the windshield through the passageway;
a heating means for heating the washer fluid;
a heat retaining fluid continuously trapped in the second internal cavity; and
a fastening means for fastening the heat absorbing windshield wiper to a conventional vehicle wiper arm.

5,784,752
ROPE CLEANING DEVICE

John D. Barrett, Brooklyn, N.Y., and Christopher J. Elliott, Manchester, Conn., assignors to Otis Elevator Company, Farmington, Conn.
Filed Jun. 18, 1996, Ser. No. 666,709
Int. Cl.⁶ A46B *15/00*
U.S. Cl. 15—256.6 **16 Claims**

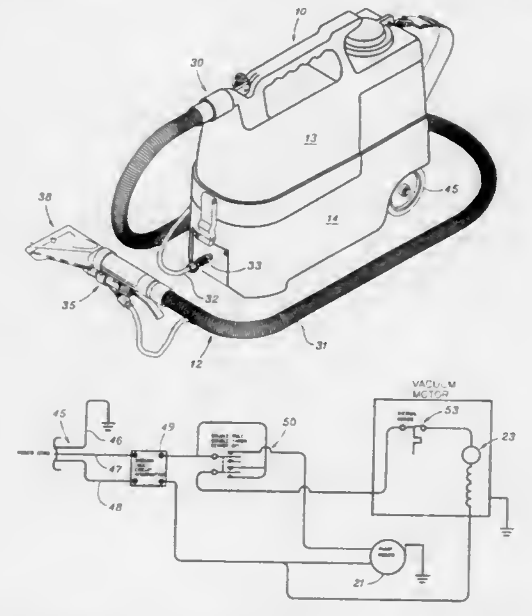
1. A cleaning device for removing sludge from elevator ropes in an elevator, the improvement comprising:
a brush assembly including a brush, said brush having a plurality of bristles protruding radially outward for engagement with said elevator ropes for removing sludge;
a housing supporting said brush assembly and enclosing a first portion of said brush; and



a receptacle removably attached to said housing for collecting said sludge.

5,784,753
CARPET SPOTTING MACHINE WITH THERMOSTATIC PROTECTION AGAINST OVERFLOW

Kenneth A. Kaczmarz, Hoffman Estates; Jesse V. Mondigo, Aurora, and Gary Edward Palmer, Roselle, all of Ill., assignors to Minuteman International, Inc., Addison, Ill.
Filed Dec. 26, 1996, Ser. No. 778,041
Int. Cl.⁶ A47L *9/28*
U.S. Cl. 15—319 **3 Claims**



1. In combination, a portable carpet cleaning machine having a tank for storing a cleaning solution; a hand-actuatable spray nozzle; a pump for feeding said solution to said nozzle under pressure; a vacuum recovery nozzle; a recovery tank for receiving spent solution from said vacuum recovery nozzle; a vacuum motor including a winding and adapted to produce a vacuum in said recovery tank, the air flowing from said recovery tank through said vacuum motor to exhaust; and a fast-acting, heat-sensitive thermostatic switch connected in electrical circuit with said motor and in heat transfer relation with said winding of said motor such that said thermostatic switch will interrupt the flow of current in said motor winding upon sensing a temperature rise in said winding above a

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predetermined temperature and less than about 30 seconds after overflow water is passed from said recovery tank to said vacuum motor.

5,784,754

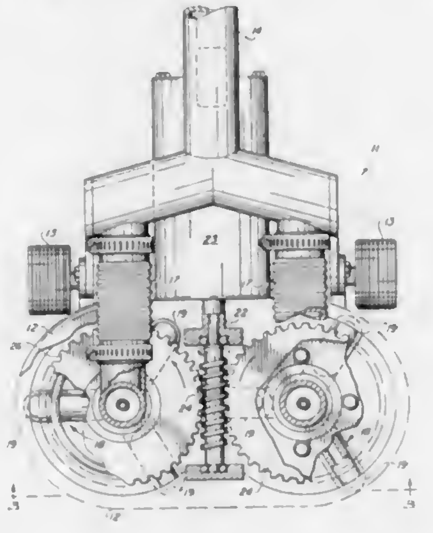
SURFACE CLEANING APPLIANCE

Michael J. Roden, Prescott, and Steven S. Wickert, Prescott Valley, both of Ariz., assignors to Professional Chemicals Corporation, Chandler, Ariz.

Filed Jun. 13, 1997, Ser. No. 874,535

Int. Cl.^{6} A47L ***5/30***

U.S. Cl. 15—320 **2 Claims**



1. A surface cleaning appliance comprising a housing, a pair of rotatable head structures mounted for rotation about parallel vertical axes in said housing, each of said rotatable head structures comprising at least one spray nozzle for spraying cleaning fluid onto the surface to be cleaned and at least one vacuum nozzle for extracting cleaning fluid and debris from the surface, each of said head structures having a spur gear thereon for rotation with the structure, a worm gear having a substantially horizontal axis positioned between and in engagement with the spur gears, and means for rotating said worm gear to cause rotation of said head structures.

5,784,755

WET EXTRACTOR SYSTEM

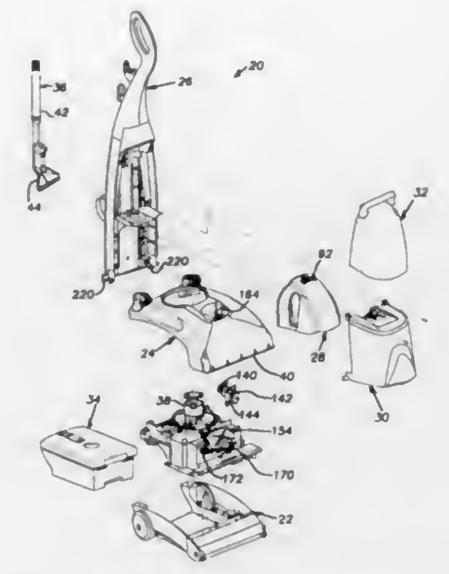
Richard Karr, Wapella; David Erickson; Kevin Genge, both of Normal; William Hanold, Bloomington; Gregory Luchberling, Heyworth, and William Phelan, Normal, all of Ill., assignors to White Consolidated Industries, Inc., Cleveland, Ohio

Filed Jan. 18, 1996, Ser. No. 588,438

Int. Cl.^{6} A47L ***7/00***

U.S. Cl. 15—334 **6 Claims**

1. A wet extractor comprising:
- a main body;
- a suction fan attached to said main body and having an inlet;
- a floor suction nozzle;
- an above-floor suction nozzle;
- a cleaning solution dispensing tank having an outlet;
- a cleaning solution spray nozzle having an inlet;
  - a cleaning solution pump having an inlet in fluid communication with said outlet of said cleaning solution dispensing tank and an outlet in fluid communication with said inlet of said cleaning solution spray nozzle;
- a pump motor operatively connected to said cleaning solution pump for driving said cleaning solution pump; and



- a converter assembly having an outlet in fluid communication with said inlet of said suction fan, a first inlet in fluid communication with said floor suction nozzle, a second inlet in fluid communication with said above-floor suction nozzle, a movable valve member adapted to block said second inlet in a first position and to block said first inlet in a second position, a moveable external knob attached to said valve member for selectively moving said valve member between said first position and said second position, and a switch, electrically responsive to the position of the knob, to de-energize the pump motor when said knob is moved away from said second position and to energize the pump motor when said knob is moved into said second position.

5,784,756

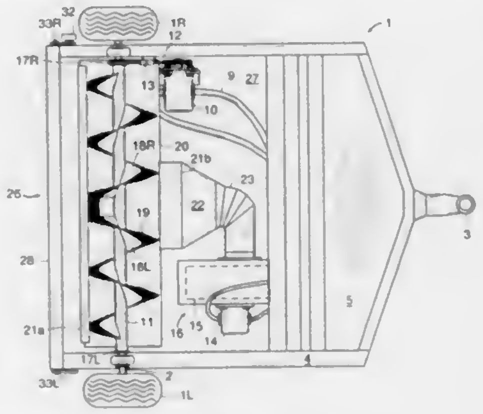
DEBRIS CLEANER WITH COMPOUND AUGER AND VACUUM PICKUP

Alexander H. Slocum, Bow, N.H., and Martin L. Culpepper, Winthrop, Mass., assignors to Massachusetts Institute of Technology, Cambridge, Mass.

Filed Apr. 26, 1996, Ser. No. 638,166

Int. Cl.^{6} E01H ***1/04***

U.S. Cl. 15—348 **17 Claims**



1. A cleaning device comprising:
- (A) an auger including
  - a rotatable core with a first end and a second end, fighting around the core between the first and second ends, and compliant combing attachments along an edge of the fighting; and
- (B) a suction device with a nozzle at the midpoint of the length of the core;

whereby, when the core is rotated, the compliant combing attachments dislodge material from a surface with which they make contact without damaging the surface and the dislodged material is conveyed by the auger to the midpoint of the length of the core where it is vacuumed into the nozzle by the suction device.

5,784,757

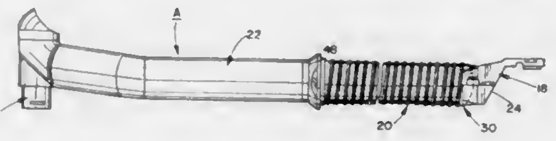
VACUUM CLEANER HOSE ASSEMBLY

Mark E. Cipolla, Chardon, Ohio, assignor to Royal Appliance Mfg. Co., Cleveland, Ohio

Filed Jan. 11, 1996, Ser. No. 587,860

Int. Cl.^{6} A47L ***9/24***

U.S. Cl. 15—351 **16 Claims**



7. A vacuum cleaner hose assembly for connecting a nozzle opening and a filter bag, said hose assembly comprising:
- an air inlet connector secured to a nozzle body of the vacuum cleaner and communicating with said nozzle opening, said air inlet connector comprising:
  - a first portion having a snap connector with a flanged top edge,
  - a second portion having a recess sized to fit the flanged top edge of the snap connector,
  - a first end secured to said nozzle body, and
  - a second end having screw threads on an exterior wall of said air inlet connector;
- a flexible hose having:
  - first screw threads located on an interior wall thereof at a first end of said flexible hose for coupling said second end of said air inlet connector to said first end of said flexible hose by mating said exterior screw threads of said second end of said air inlet connector with said first screw threads of said first end of said flexible hose, and
  - second screw threads located on said interior wall of said flexible hose at a second end thereof; and,
- a rigid tube secured in a main body case, said rigid tube including:
  - a first end having screw threads on an exterior wall thereof for coupling said first end of said rigid tube to said second end of said flexible hose by mating said exterior screw threads of said first end of said rigid tube with said interior screw threads on said second end of said flexible hose, and
  - a second end secured to the main body case of the vacuum cleaner.

5,784,758

LOW PROFILE SELF-LATCHING KNIFE HINGE

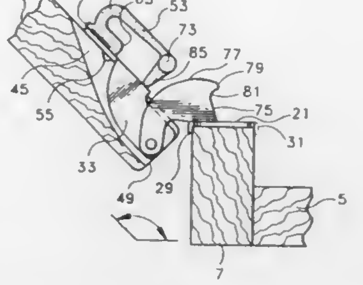
Joseph Carrick, San Marcos, Calif., assignor to Youngdale Manufacturing Corp., Vista, Calif.

Filed Apr. 4, 1997, Ser. No. 825,977

Int. Cl.^{6} E05D ***11/10***

U.S. Cl. 16—335 **8 Claims**

1. A hinge for mounting a door for swinging between open and closed positions on a frame, said hinge comprising:
- a) a door and frame wings mountable to the door and frame, respectively;
- b) a pivot interconnecting said wings to permit swinging of said door between said open and closed positions;
- c) a latching finger disposed in close spaced-opposing relation with said door wing and having first and second distal ends and including a large bend intermediate said first and second ends to provide spring action thereto;



  - i) a second smaller reverse bend formed at said first distal end and arranged for overlapping engagement with a locking edge formed on said door wing; and,
  - ii) a tab formed on said finger spaced-apart from said second bend for insertion into a cut-out formed on said door wing spaced-apart from said locking edge to steady said finger in connection with said door wing, said simultaneous overlapped engagement of said reverse bend and insertion of said tab in said cut-out providing significant locking power to said finger in said door wing;
- d) said second end of said finger extending toward said frame wing and having a cam formed thereon spaced-apart from said frame wing when said door is in the open position;
- e) a cam surface formed on said frame wing, opposite said cam, engageable with said cam to force said second distal end of said finger to swing away from said door wing as the door is swung toward said door-closing position; and,
- f) a pocket in said cam surface adjacent said cam surface, said cam on said second distal end of said finger snapping resiliently toward said door wing and into said pocket as the door reaches said closed position and thereafter coacting with said pocket to latch the door releasably in the closed position.

5,784,759

HINGE CONSTRUCTION

David Russell King, 61-67 Parramatta Road, Annandale, New South Wales 2038, Australia

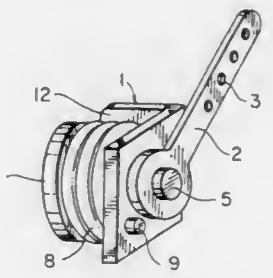
PCT No. PCT/AU94/00669, § 371 Date Jul. 26, 1996, § 102(e) Date Jul. 26, 1996, PCT Pub. No. WO95/12735, PCT Pub. Date May 11, 1995

PCT Filed Oct. 31, 1994, Ser. No. 649,618

Claims priority, application Australia, Nov. 2, 1993, PM2168

Int. Cl.^{6} E05D ***11/08***

U.S. Cl. 16—342 **4 Claims**



1. A hinge construction, comprising a fixed hinge member and a movable hinge member fixed to a mandrel, the mandrel having an enlarged head at one end and being rotatably supported on the fixed hinge member, and a single coil spring, one end of the coil spring is anchored immovably to the fixed hinge member, the other end being free, the coil spring closely surrounding the mandrel but being restrained from axial movement by the fixed hinge member at the one end and the enlarged head at the other, a interior surface of the spring being in contact only with the mandrel and over an entire length of the mandrel, such that movement of the movable hinge member in one direction rotates the mandrel in a sense

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acting to uncoil the coil-spring thus allowing free movement of the movable hinge member whereas movement of the movable hinge member in the opposite direction acts to cause the coil-spring to tighten about the mandrel and thus resist movement.

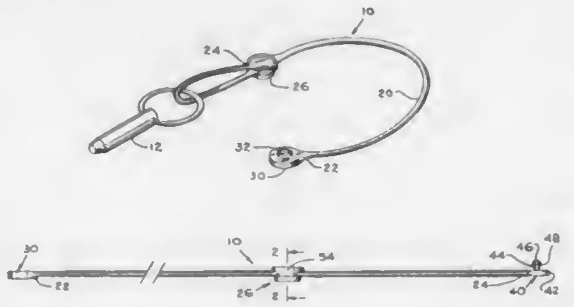
5,784,760
RETAINING MECHANISM FOR SECURING CONNECTING MEMBERS

Rue Leitzke, Hustisford; Harry Swenson, Beaver Dam; Roman Baus, Rubicon, all of Wis., and Frank Lodi, Niles, Ill., assignors to Pivot Point, Inc., Hustisford, Wis.

Filed Mar. 10, 1997, Ser. No. 815,271

Int. Cl.^{6} A44B *21/00;* **A45F** *5/00*

U.S. Cl. 24—3.13 **12 Claims**



1. A retaining apparatus for retaining a work piece within a predetermined distance from a work piece receptacle, the retaining apparatus comprising:

- a generally elongated flexible member having a proximate end and a distal end, an eyelet structure having an aperture formed therein, said eyelet structure being connected to the proximate end of the generally elongated flexible member;
- a keeper having a keeper pin attached thereto, said keeper being connected to the distal end of the generally elongated flexible member;
- said keeper pin having an annular tapered distal end portion defining a radially extending locking shoulder,
- a releasable receptacle having a retaining aperture, said receptacle being located between said proximate end and said distal end, said aperture being sized to retain said keeper pin within said aperture, and including at least two keeper retaining prongs, said prongs being formed circumferentially about the retaining aperture and extending radially inwardly therein, each of said prongs including a downwardly depending distal finger portion arranged to releasable retain said locking pin shoulder when said keeper pin has been inserted within said aperture.

5,784,761
VEHICLE LOAD RETAINER

Paul Dean Allen, 4620 North Ave., Sacramento, Calif. 95821

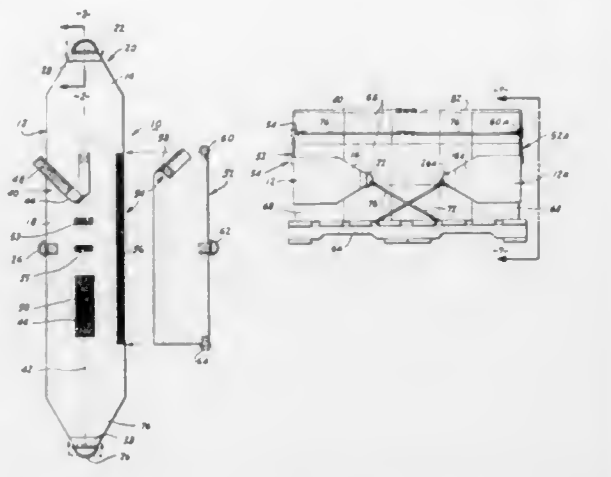
Filed Sep. 27, 1996, Ser. No. 722,630

Int. Cl.^{6} B60P *7/16*

U.S. Cl. 24—16 R **5 Claims**

1. A load retainer usable with at least one tie down line, comprising:

- a. a flexible resilient body having a first end portion, a second end portion, and an intermediate portion connected to said first and second end portions;
- b. means intended for selectively engaging said first and second end portions of said flexible resilient body to at least one tie down line, including a first projection extending from said first end portion, and means for connecting a portion of said first projection to the flexible body to form a first closed loop, and a second projection extending from said second end portion, and means for connecting a portion of said second projection to the flexible body to form a second closed loop;



- c. adjustment means for compressing a dimension of said intermediate portion of said flexible resilient body, said adjustment means including a first flap, an anchor, and means for fastening said first flap to said anchor, said first flap and anchor connected to said flexible resilient body; and
- d. a flexible holding flange, and means for removably attaching said flexible holding flange to said intermediate portion of said flexible resilient body, for permitting said flexible holding flange to be completely removed from said flexible resilient body and to extend outwardly from said flexible resilient body to engage the load.

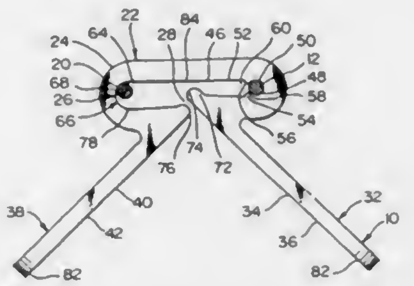
5,784,762
TRELLIS WIRES TIEING CLIPS USED WHEN CONTROLLING THE DIRECTION OF GROWTH AND THE SUPPORT OF PLANT FOLIAGE OF A CROP

Leonard M. Huntting, 394 Huntting Rd., Silver Creek, Wash. 98585

Filed Jan. 22, 1997, Ser. No. 786,860

Int. Cl.^{6} F16L *3/08;* **A44B** *21/00*

U.S. Cl. 24—129 R **14 Claims**



1. A trellis wires tieing clip, to be used with other like spaced trellis wires tieing clips to keep parallel side by side trellis wires spaced apart at a preselected minimum distance, with each tieing trellis wires clip being essentially permanently positioned until intentionally removed, first at a selected location on one of the trellis wires, designated as the longitudinal reference trellis wire, where this clip will so remain for a long time, and subsequently when plant foliage is gathered and directed between the trellis wires, the trellis wires tieing clip is also then more conveniently and more removably positioned on the other one of the trellis wires, designated as the longitudinal gathering trellis wire, until the trellis wires are to be separated again to remove the plant foliage, comprising an overall tieing clip body having the integral portions of:

- a. a transverse elongated top body portion;
- b. a transverse elongated trellis wires receiving volume in the top body portion having a right side and a left side, with the right side being of a smaller volume with a variable depth always being of less depth than the large volume of the left side;
- c. a restricted centered bottom entry, when intentionally opened wider, to guide trellis wires one at a time into the transverse elongated trellis wire receiving volume and having a right side and a left side, with the right side extending up into the trellis wires receiving volume, and the left side stopping at the bottom of the trellis wires receiving volume;
- d. a right side arm substantially depending at a wire guiding angle of substantially forty five degrees outwardly from the transverse elongated top body portion commencing at the right side of the centered bottom entry, to also serve to receive finger applied forces to open the restricted bottom entry; and
- e. a left side arm substantially depending at a wire guiding angle of substantially forty five degrees outwardly from the transverse elongated top body portion commencing at the left side of the centered bottom entry to also serve to receive finger applied forces to open the restrictive bottom entry, and the included entry angle between the depending right side arm and the depending left side arm is substantially ninety degrees.

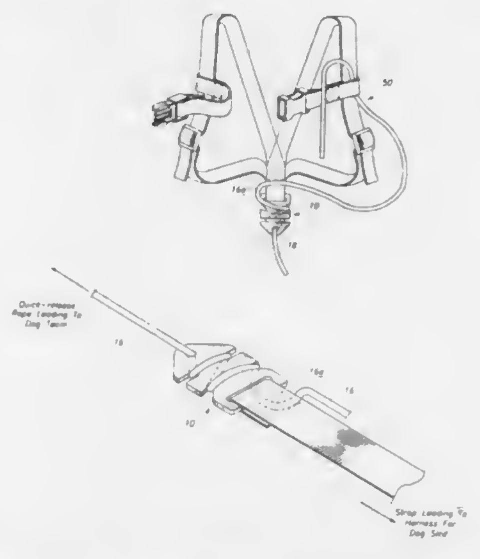
5,784,763
TOW LINE QUICK RELEASE HITCH

Monty S. Cassidy, P.O.Box 43, Seeley Lake, Mont. 59868

Filed May 23, 1997, Ser. No. 862,653

Int. Cl.^{6} F16G *11/00*

U.S. Cl. 24—130 **4 Claims**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16a
18
Quick-release Rope Leading To Dog Team
16a
Strap Leading To Harness For Dog Sled

1. A quick release hitch assembly comprising a tow line means having a free tow line end and a flat plate body means, said body means having:

- (a) a first opening at a first end for attachment to a connector, and a second opening at a second end through which said tow line is insertable;
- (b) a first pair of side notches adjacent to said second opening, each notch of said first pair opening to one side of said body means and extending transversely into said body means toward the other notch of said first pair generally perpendicular to a longitudinal axis of said body means, each notch of said first pair being formed to receive the tow line means;
- (c) and a second pair of side notches adjacent to said first opening, each notch of said second pair opening to one side of said body means and extending obliquely into said body means toward an opposite one of said first pair of side notches, each notch of said second pair narrowing inward and being formed to receive and secure the tow line means when the tow line means is inserted through said second opening and wound around said body means and extended through said first pair of side notches before being extended through one of said second pair of notches

said tow line end extending sequentially though said second opening, through one of the notches of said first pair, transversely around said body means and through the other notch of said first pair, obliquely across said body means and through at least one notch of said second pair when said hitch assembly is attached to a load whereby, when said hitch assembly is under load, said tow line means is quickly released from said body means when said tow line end is pulled free of the notches of said second pair and allowed to freely run sequentially through the notches of said first pair and out through said second opening.

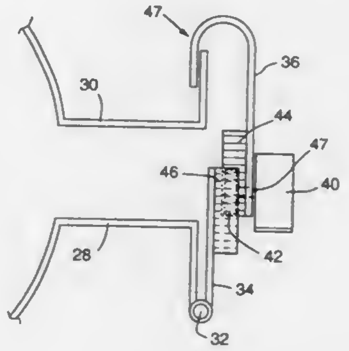
5,784,764
COUPLING DEVICE FOR QUICK ENGAGEMENT AND RELEASE

Alexander S. Djordjevic, 1451 Treat Blvd., #235, Walnut Creek, Calif. 94596

Filed Nov. 4, 1996, Ser. No. 742,668

Int. Cl.^{6} F16L *33/06*

U.S. Cl. 24—279 **2 Claims**



1. A coupling device for securing a first and a second flange of a C-shaped clamp together, comprising:

- a) a C-shaped clamp having a first and a second flange; and
- b) a connector for adjustably coupling the first flange to the second flange,

wherein the connector is adjustable by the user without the use of a tool and wherein the connector comprises:

- i) a brace having left, right, top and bottom edges, and first and second sides, wherein: th brace is hinged to the first flange,
- ii) a first serrated strip having a first serrated edge coupled to the first side of the brace wherein the first serrated edge faces the right edge of the brace;
- iii) a hooked latch having left, right, top and bottom edges, and first and second sides, wherein the hooked latch is configured to hook onto the second, flange;
- iv) a second serrated strip having a second serrated edge coupled to the second side of hooked latch wherein the second serrated edge faces the left edge of the latch;
- v) a gear having teeth, the gear seated between the first and second serrated edges wherein the: teeth are engaged with the first and second serrated edges; and
- vi) a handle coupled to the gear; whereby rotating the handle in a first direction correspondingly rotates the gear in the first direction and translates the brace and the hooked latch together thereby translating the first and second flanges together, and whereby rotating the handle in a second opposite direction rotates the gear in the second direction and translates the brace and the hooked latch apart thereby translating the first and second flanges apart.

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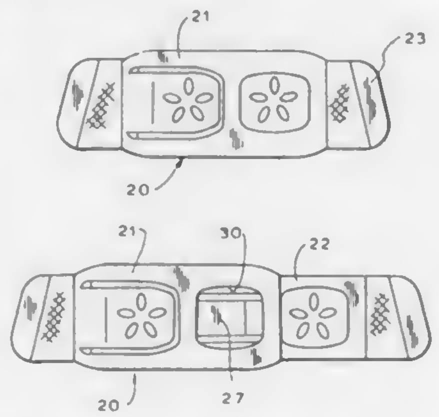
5,784,765
PARTIAL-RELEASE FRONT CLOSURE FOR AN UPLIFT BRASSIERE

Gerhard Fildan, A. Baumgartnerstr. 44, C2211, A1230, Vienna, Austria

Filed May 14, 1997, Ser. No. 855,681

Int. Cl.^{6} A44B *11/00*

U.S. Cl. 24—615 **8 Claims**



1. A front closure for a brassiere comprising:
a female closure member having:
  a flat elongated body having a slot at one end thereof,
  means at an opposite end of said flat elongated body for securing said female closure member to one cup of a brassiere,
  an actuating plate extending from said opposite end partly across a face of said body toward said one end,
  a window formed in said face between said plate and said one end, and
  a first detent formed on said body at one side of said window proximal to said plate and a second detent formed on said body proximal to said one end thereof; and
an elongated male closure member having:
  a tongue receivable in said slot,
  a resilient finger on said tongue engageable with said first detent in a position of said finger behind said plate, whereby said plate is actuatable to deflect said finger out of engagement with said first detent and said finger is engageable with said second detent upon partial withdrawal of said tongue from said slot, said finger being exposed through said window upon engagement of said finger with said second detent, and
  means for securing said male closure member to another cup of said brassiere.

5,784,766
BUCKLE MECHANISM

Andrew John Downie, and David Burke, both of Carlisle, United Kingdom, assignors to AlliedSignal Inc., Morristown, N.J.

PCT No. PCT/GB95/01065, § 371 Date Apr. 14, 1997, § 102(e) Date Apr. 14, 1997, PCT Pub. No. WO95/30347, PCT Pub. Date Nov. 16, 1995

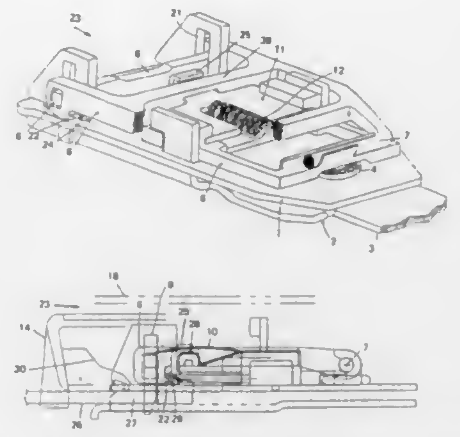
PCT Filed May 10, 1995, Ser. No. 737,367

Claims priority, application United Kingdom, May 10, 1994, 9409246

Int. Cl.^{6} A44B *11/00*

U.S. Cl. 24—641 **16 Claims**

1. A buckle mechanism comprising a movable button member and locking means movable transversely to the plane of movement of the button to engage or disengage a locking surface of a co-operating tongue wherein mutually co-operating abutments are provided respectively on the button member and on the locking means to lock the buckle against transverse forces tending to move the locking means to a position of disengagement wherein the locking means is resiliently biased into locking engagement with the tongue, and wherein the locking means comprises a locking member constrained to move in a plane transverse to the plane of the tongue insertion path, which locking member is guided by a rocking support member, wherein one of the abutments is provided on the rocking support member, the buckle mechanism further comprising an inertial overlocking member independent of the tongue, resiliently biased in the tongue withdrawal direction and slidably mounted in a plane spaced from the tongue insertion path and adapted to overcome the resilient bias under the action of inertia forces in the plane of the tongue insertion path, the inertial overlocking member having at least one overlocking surface to block movement of the locking member against the action of inertia forces so as to prevent the locking member moving out of engagement with the tongue under inertial forces.



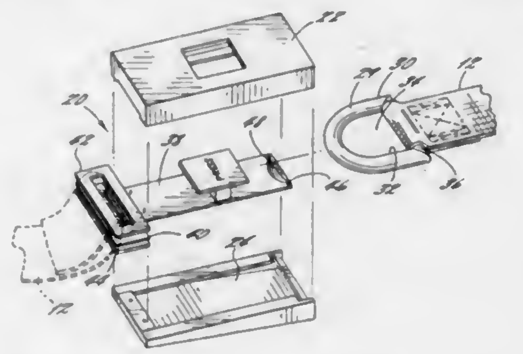
5,784,767
SELF-ALIGNING SEAT BELT BUCKLE

Archibald C. Doty, Jr., 347 Jackson Rd., Fletcher, N.C. 28732

Filed Feb. 24, 1997, Ser. No. 806,838

Int. Cl.^{6} A44B *11/26*

U.S. Cl. 24—665 **24 Claims**



1. A self-aligning safety belt buckle comprising:
a tongue member defined at least in part by a shackle having an inner and outer margin and an end portion defining a central aperture which is greater in area than an area of said shackle defined between said margins, said end portion configured to cooperate with a belt;
an elongate, substantially planar latching mechanism moveable between a latching and an unlatching position and having a distal end configured to cooperate with a belt and a proximal end having a catch extending therefrom, said catch being biased towards the latching position and configured to be received within said central aperture of said tongue member; and
a buckle housing defining a cavity for receiving said latching mechanism and having a tongue receiving aperture defined by an end of said buckle housing, said tongue receiving aperture being configured to receive said tongue member into said cavity wherein said tongue member is inserted into said tongue receiving aperture and is releasably secured with said catch in said latching position.

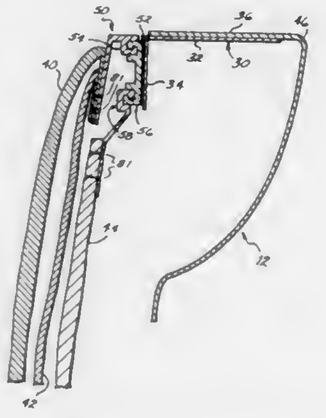
5,784,768
CASKET HAVING QUICKLY INTERCHANGEABLE AND ADJUSTABLE INTERIOR

Ilija Rojdev, Fairfield, Ohio, assignor to Batesville Casket Company, Inc., Batesville, Ind.

Filed Mar. 20, 1995, Ser. No. 406,510

Int. Cl.^{6} A61G *17/00*

U.S. Cl. 27—19 **43 Claims**



1. A casket having a quickly interchangeable and adjustable interior comprising:
  a casket shell;
  an elongated fastening device having first and second portions, said first portion being secured to said casket shell; and
  decorative fabric secured to said second portion of said fastening device;
  one of said first and second fastening device portions including a longitudinally continuous female fastening element, the other of said first and second fastening device portions including a longitudinally continuous male fastening element receivable in said female fastening element, said male and female fastening elements being readily relatively moveable longitudinally when said fastening elements are engaged;
  said fastening device being constructed and arranged to thereby provide, without any need for using tools, quick installation and removal of said decorative fabric in said casket shell by engagement and disengagement, respectively of said male and female fastening elements and providing longitudinal adjustment of said decorative fabric relative to said casket shell by moving said fastening elements longitudinally relative one another.

5,784,769
CONVERSION METHOD FOR A HIDDEN STORAGE/UTILITY SYSTEM

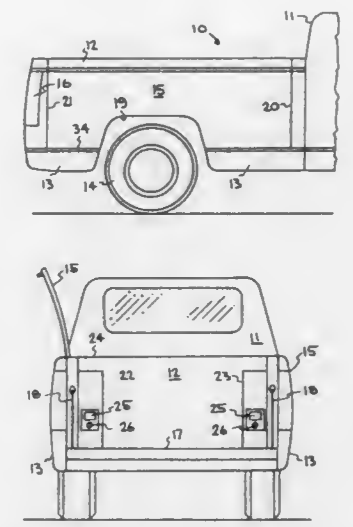
Scott Clare, 3381 Shawn Ct., Hayward, Calif. 94541

Division of Ser. No. 685,678, Jul. 24, 1996, abandoned, which is a continuation-in-part of Ser. No. 506,893, Jul. 26, 1995, Pat. No. 5,567,000. This application Sep. 9, 1997, Ser. No. 925,996

Int. Cl.^{6} B23P *11/00;* B60R *11/06*

U.S. Cl. 29—401.1 **20 Claims**

1. A method for converting a conventional bed of a vehicle or trailer having wheel wells and side panels having an external appearance into a storage/utility bed without altering the external appearance of the side panels, comprising:
  removing an inner panel section of at least one of the side panels;
hinging an outer panel section of the at least one side panel;
forming a storage enclosure along at least one side of the bed so as to cover at least one of the wheel wells, whereby raising of the outer panel section exposes the interior of the storage enclosure; and
providing a latching means for latching said outer panel section to the bed.



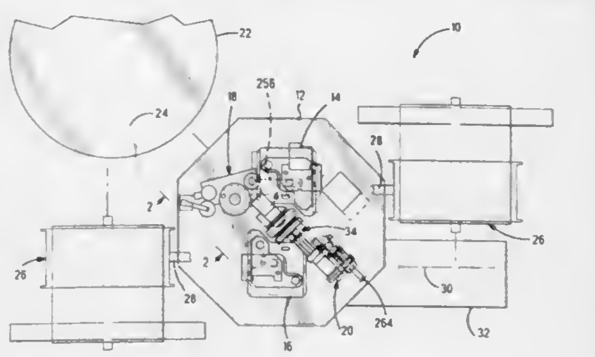
5,784,770
WIRE FEED AND POSITIONING UNIT

Alden Owen Long, Jr., Carlisle, and Douglas Sebastian Pfautz, Landisville, both of Pa., assignors to The Whitaker Corporation, Wilmington, Del.

Continuation of Ser. No. 707,166, Aug. 30, 1996, abandoned. This application Aug. 29, 1997, Ser. No. 921,107

Int. Cl.^{6} H01L *43/04*

U.S. Cl. 29—564.4 **25 Claims**



1. In a machine for making electrical leads having a frame, a wire cutting and stripping unit attached to said frame, and a terminating unit attached to said frame,
  a wire handling mechanism for feeding electrical wire with respect to said wire cutting and stripping unit and for positioning an end of said wire with respect to both said wire stripping unit and said terminating unit comprising:
  (a) a platform coupled to said frame, said platform having a wire feed mechanism and a wire outlet through which said wire is fed upon actuation of said feed mechanism, said platform being pivotable with respect to said frame between a first position wherein said wire outlet is adjacent said wire stripping unit and a second position wherein said wire outlet is adjacent said terminating unit;
  (b) an outer shaft attached to said platform having a longitudinal axis and a hole through said shaft substantially parallel to said axis, said outer shaft arranged to pivot with

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respect to said frame and thereby pivot said platform between said first and second positions;
(c) an inner shaft extending through said hole, and upon rotation thereof with respect to said platform, arranged to effect said actuation of said feed mechanism;
(d) a single actuator attached to said frame;
(e) a coupling mechanism coupling said single actuator to both said outer shaft and said inner shaft and arranged to selectively either rotate said inner shaft with respect to said platform while holding said outer shaft stationary with respect to said frame or to pivot said outer shaft with respect to said frame while holding said inner shaft stationary with respect to said platform.

5,784,771

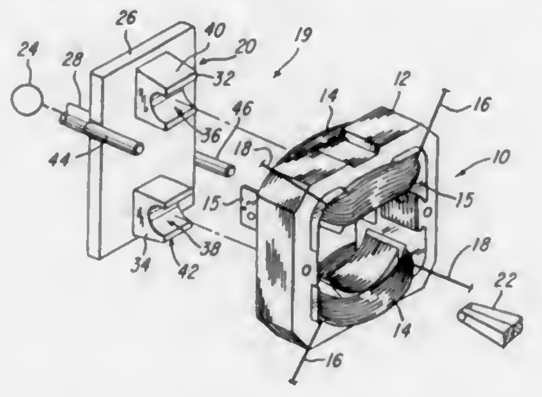
STATOR MANUFACTURING METHOD AND APPARATUS

John M. Beakes, and Howard S. Hunter, both of Fairborn, Ohio, assignors to Globe Products Inc., Huber Heights, Ohio

Filed Feb. 2, 1996, Ser. No. 597,444

Int. Cl.^{6} H02K *15/00*

U.S. Cl. 29—596 **7 Claims**



1. In an apparatus for manufacturing an electric motor stator comprising a winding machine for winding field coils formed from magnet wire onto a stator core, each of said coils having a finish wire, the improvement comprising:
wire-guide tooling movable to a position adjacent said stator, said wire-guide tooling have a wire-guiding surface which, when in said position adjacent said stator, guides wire drawn thereacross to extend across a coil outwardly thereof and adjacent the stator core;
means for manipulating said finish lead so that the last wound coil end turn of said coil is drawn across said wire-guiding surfaces of said wire-guide tooling; and
wherein said manipulation means further manipulates said finish lead to insert said finish lead between a portion of said coil and a portion of said stator core adjacent said coil.

5,784,772

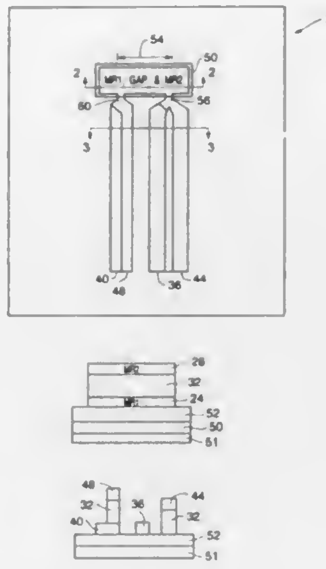
METHOD OF SIMULTANEOUSLY FORMING MR SENSORS IN A DUAL ELEMENT MR HEAD

Diane C. Ewasko, Boulder; James C. Cates, Louisville; Richard W. Crowell, Broomfield, and Richard H. Dee, Louisville, all of Colo., assignors to Storage Technology Corporation, Louisville, Colo.

Filed Dec. 21, 1995, Ser. No. 576,814

Int. Cl.^{6} G11B *5/127;5/39*

U.S. Cl. 29—603.15 **14 Claims**



1. A method of forming a magnetoresistive (MR) head having first and second MR elements, said first MR element including a first MR sensor with a first and a second lead for conducting current through said first MR sensor, said second MR element including a second MR sensor with a third and a fourth lead for conducting current through said second MR sensor, the method comprising the steps of:
providing a first magnetic layer and a second magnetic layer on a substrate, wherein at least portions of said first magnetic layer and said second magnetic layer are separated by an intermediate gap layer;
first forming said first MR sensor and said first and second leads from said first magnetic layer in said substrate while simultaneously forming said second MR sensor and said third and fourth leads from said second magnetic layer in said substrate.

5,784,773

APPARATUS FOR SETTING CUTTING TOOL

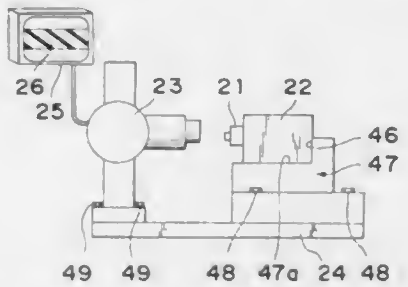
Nobuo Yashuhira, Hirakata, and Shuji Ueda, Neyagawa, both of Japan, assignors to Matsushita Electric Industrial Co., Ltd., Osaka-fu, Japan

Division of Ser. No. 364,117, Dec. 27, 1994, Pat. No. 5,619,783. This application Feb. 14, 1997, Ser. No. 801,581

Claims priority, application Japan, Dec. 28, 1993, 5-336227

Int. Cl.^{6} B23P *21/00*

U.S. Cl. 29—720 **20 Claims**



1. An apparatus for setting a cutting tool on a processing machine for performing a cutting operation on a workpiece, said apparatus comprising:
a cutting tool holder, mountable on the processing machine, for mounting the cutting tool to the processing machine such that the cutting tool can be adjusted in posture relative to the processing machine;

an interference fringe generator for generating, when light is reflected on the cutting tool mounted to said cutting tool holder, an interference fringe based on the light reflected on the cutting tool mounted to said cutting tool holder;
a posture detector for detecting the posture of the cutting tool based on the interference fringe generated by said interference fringe generator; and
a fixing device for fixing said cutting tool holder in a predetermined position with respect to said posture detector.

5,784,774

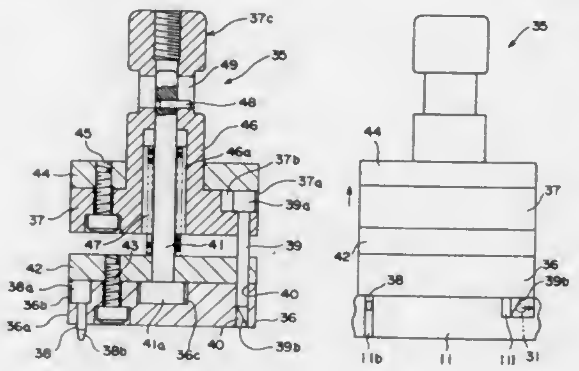
IC SOCKET JIG

Yasushi Kajiwara, Kawaguchi, Japan, assignor to Enplas Corporation, Saitama, Japan

Filed Apr. 1, 1996, Ser. No. 625,948

Int. Cl.^{6} H05K *13/04*

U.S. Cl. 29—758 **4 Claims**



1. An IC socket jig for operating an IC socket having a socket body sized for accommodating therein an electronic component and a slider which is movably attached to said socket body so as to press and affix and release the electronic component with respect to said socket body, said IC socket jig comprising:
a cam member adapted to be moved toward said socket body and away from said socket body in moving directions which are substantially perpendicular to a sliding direction of said slider, said cam member being moveable into wiping contact with said slider, said cam member moving said slider when in wiping contact therewith and while moving toward and away from said socket body; and
a positioning pin, connected to said cam member, and adapted to be fitted into a positioning hole formed in said socket body, said positioning pin being movable relative to said cam member in a direction parallel to a moving direction of said cam member within a predetermined distance so that said positioning pin can be fitted into said positioning hole before said cam member is brought into wiping contact with said slider and also can be drawn out of said positioning hole after said cam member is moved away from said slider.

5,784,775

Patent Not Issued For This Number

5,784,776

PROCESS FOR PRODUCING FLAT HEAT EXCHANGE TUBES

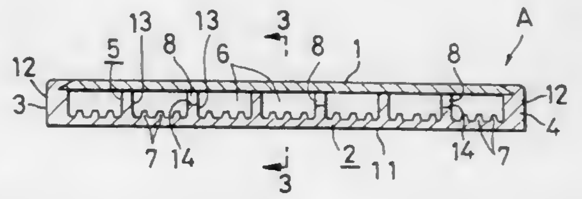
Yoshihiro Saito, Mino; Takashi Tamura, Funabashi; Satoru Kaimura; Satoshi Hozumi, both of Oyama; Masashi Sakaguchi, Saitama; Hirosaburo Hirano, Tochigi; Yuji Yamamoto, and Shinji Ito, both of Oyama, all of Japan, assignors to Showa Aluminum Corporation, Sakai, Japan

Continuation-in-part of Ser. No. 665,310, Jun. 17, 1996, which is a division of Ser. No. 283,504, Aug. 1, 1994, Pat. No. 5,553,377, which is a division of Ser. No. 77,069, Jun. 16, 1993, abandoned. This application Dec. 27, 1996, Ser. No. 774,216

Claims priority, application Japan, Dec. 28, 1995, 7-342471

Int. Cl.^{6} B23P *15/26*

U.S. Cl. 29—890.046 **18 Claims**



15. A process for producing a flat heat exchange tube in the form of a flat metal tube having parallel refrigerant passages in its interior and comprising flat upper and lower walls to which fins are to be joined, and a plurality of reinforcing walls connected between the upper and lower walls, extending longitudinally of the tube and spaced apart from one another by a predetermined distance, using two rolling mills each comprising a central work roll and a plurality of planetary work rolls arranged around a portion of the periphery of the central work roll and spaced apart circumferentially thereof, the central work roll or the planetary work rolls being formed with parallel annular grooves in the periphery of the roll, projections being formed at a predetermined interval in each of the annular grooves and having a height smaller than the depth of the grooves, the process comprising the step of rolling by each of the mills a metal sheet blank having a thickness greater than the wall thickness of the heat exchange tube to be produced and thereby reducing the thickness of the blank to a specified tube wall thickness with the peripheral surface of the central work roll and the peripheral surfaces of the planetary work rolls to form a flat portion, cause the annular grooves to form ridges projecting from the flat portion integrally therewith, cause the projections in each groove to form cutouts in the upper edge of each of the ridges at the predetermined interval and bend opposite sides edges of the blank toward the direction of projection of the ridges, and the step of joining the resulting two metal sheets as opposed to each other at the side edges to obtain the side walls, make the flat portions of the two metal sheets serve as the upper and lower walls, join downward ridges to upward ridges and thereby form the reinforcing walls, and combine the cutouts of the opposed ridges to form communication holes for holding the parallel refrigerant passages in communication with one another.

5,784,777

ELECTRONIC-COMPONENT REMOVING SYSTEM

Koichi Asai, Nagoya, and Kunio Oe, Chiryu, both of Japan, assignors to Fuji Machine Mfg. Co., Ltd., Chiryu, Japan

Filed May 13, 1996, Ser. No. 645,489

Claims priority, application Japan, May 18, 1995, 7-119455

Int. Cl.^{6} H05K *3/30*

U.S. Cl. 29—832 **24 Claims**

6. A process of mounting each of a plurality of electronic components on a printed circuit board, comprising the steps of:
supporting a carrier tape including at least one elongate adhesive tape to which the components are adhered at a regular interval of distance in a length-wise direction of the adhesive tape, the adhesive tape having at least one opening formed through the

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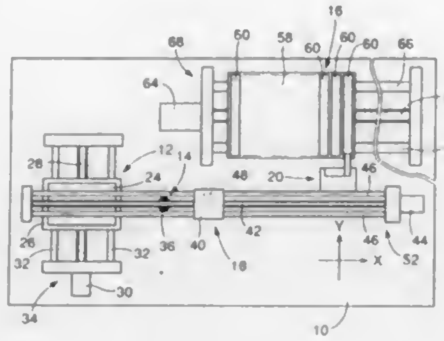


thickness thereof, said each of the components adhered to the adhesive tape being exposed through the opening,

feeding the carrier tape in a feeding direction parallel to the length-wise direction of the adhesive tape,

moving a thrust member between a thrusted position thereof and a retracted position thereof through the opening of the adhesive tape, in a thrusting direction substantially perpendicular to the feeding direction,

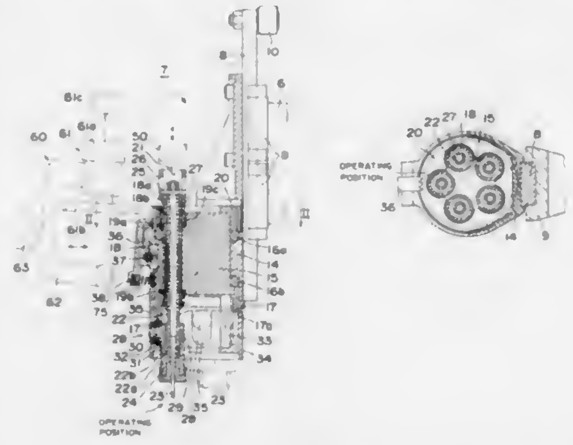
moving a movable member between an electronic-component removing position thereof in which a holder supported by the movable member is opposed via said each component to the thrust member and, when the thrust member is moved to the thrusted position through the opening of the adhesive tape to thrust said each component toward the holder, the holder is moved with said each component relative to the movable member in the thrusting direction to remove said each component from the adhesive tape, and a different position thereof away from the removing position, and

mounting said each component removed from the adhesive tape, on the printed circuit board.

5,784,778
COMPONENT MOUNTING APPARATUS AND COMPONENT MOUNTING METHOD

Yoshihiro Yoshida, Yao; Noriaki Yoshida, Ikeda; Takeshi Takeda, Osaka, and Kanji Hata, Katano, all of Japan, assignors to Matsushita Electric Industrial Co., Ltd., Osaka, Japan

Filed Jan. 17, 1996, Ser. No. 587,462
Claims priority, application Japan, Jan. 17, 1995, 7-004786
Int. Cl.^{6} H05K *3/30;* **B23P** *19/00*
U.S. Cl. 29—834 **19 Claims**



1. A component mounting apparatus in which a mounting head having a plurality of suction nozzles for suctioning components is connectable with a moving body that is movable between a component feeding station and a component mounting station, said component mounting apparatus comprising:

a rotary body having a periphery and an axis and being fitted in the mounting head so as be rotatable about the axis, said rotary body further having an operating position at which one of said suction nozzles is located when operated to suction a component or mount a suctioned component on a board;

a cam fixed to the mounting head comprising an annular cam surface that is arranged along the periphery of the rotary body so that said cam does not rotate with said rotary body;

nozzle shafts arranged along the periphery of said rotary body, said nozzle shafts having respective lower ends, and said nozzle shafts having respective said suction nozzles at said respective lower ends;

outer cylinders having respective said nozzle shafts located therein such that said nozzle shafts are freely movable in an up and down direction in said outer cylinders, said outer cylinders being disposed along the periphery of said rotary body such that said outer cylinders are elongate in the axial direction of said rotary body, and each of said outer cylinders having an engaging part at an upper end thereof adapted to be engaged with a rotary device for rotating each of said outer cylinders; and

engaging devices on respective said nozzle shafts that are rotatable with respect to said nozzle shafts and that contact with said cam surface of said cam so as to be capable of moving said nozzle shafts in correspondence with said cam surface based on rotation of said rotary body;

wherein when only one of said nozzle shafts is located at the operating position of said rotary body in accordance with rotation of said rotary body, the one of said suction nozzles of the one of said nozzle shafts is used for suctioning a component or mounting a suctioned component on a board.

18. A component mounting method for mounting a component on a board with a component mounting apparatus in which a mounting head having a plurality of suction nozzles for suctioning components is connectable with a moving body that is movable between a component feeding station and a component mounting station, the component mounting apparatus comprising:

a rotary body having a periphery and an axis and being fitted in the mounting head so as be rotatable about the axis, the rotary body further having an operating position at which one of the suction nozzles is located when operated to suction a component or mount a suctioned component on a board,

a cam fixed to the mounting head comprising an annular cam surface that is arranged along the periphery of the rotary body so that the cam does not rotate with the rotary body, nozzle shafts arranged along the periphery of the rotary body, the nozzle shafts having respective lower ends, and the nozzle shafts having the respective suction nozzles at the respective lower ends,

outer cylinders having respective said shafts located therein such that the nozzle shafts are freely movable in an up and down direction in the outer cylinders, the outer cylinders being disposed along the periphery of the rotary body such that the outer cylinders are elongate in the axial direction of the rotary body, and each of the outer cylinders having an engaging part at an upper end thereof adapted to be engaged with a rotary device for rotating each of the outer cylinders, and

engaging devices on the respective nozzle shafts that are rotatable with respect to the nozzle shafts and that contact with the cam surface of the cam so as to be capable of moving the nozzle shafts in correspondence with the cam surface,

wherein when only one of the nozzle shafts is located at the operating position of the rotary body in accordance with rotation of the rotary body, the one of the suction nozzles of the one of the nozzle shafts is used for suctioning a component or mounting a suctioned component on a board, and wherein the cam surface of the cam is designed to lower only one of the nozzle shafts to a position where the suction nozzle is prepared for a suction operation at the operating position of the suction nozzle,

said method comprising:

rotating the rotary body, thereby:

locating the only one of the nozzle shafts at the operating position and thus lowering the only one of the nozzle

shafts from the rotary body with the rest of the nozzle shafts not being lowered, and

moving the mounting head downward at the component feeding station;

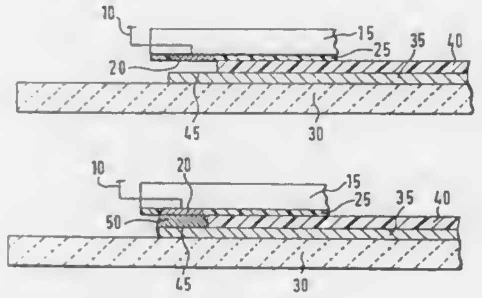
suctioning the component with the suction nozzle of the lowered nozzle shaft; and

mounting the component suctioned with the suction nozzle of the lowered nozzle shaft on the board at the component mounting station.

5,784,779
METHOD FOR JOINING AN ELECTRICAL CONNECTION OF A NON-PACKAGED IC COMPONENT WITH A CONDUCTIVE STRIP ON A SUBSTRATE

Werner Gruenwald, Gerlingen; Ralf Haug, Leonberg; Martin Seyffert, and Frank-Dieter Hauschild, both of Hildesheim, all of Germany, assignors to Robert Bosch GmbH, Stuttgart, Germany

PCT No. PCT/DE96/00432, § 371 Date Oct. 22, 1996, § 102(e) Date Oct. 22, 1996, PCT Pub. No. WO96/36991, PCT Pub. Date Nov. 21, 1996
PCT Filed Mar. 12, 1996, Ser. No. 727,541
Claims priority, application Germany, May 20, 1995, 195 18 659.1
Int. Cl.^{6} H05K *3/32;3/18;13/04*
U.S. Cl. 29—840 **7 Claims**



1. Method for conductively joining a surface of an electrical connection of a non-packaged IC component with a conductive strip on a substrate comprising: applying a spacing means to the conductive strip outside of a contact surface thereof; positioning the IC component relative to the spacing means and the substrate such that the surface to be connected of the IC component and the contact surface of the conductive strip of the substrate are facing each other at a distance to define a free volume there between; and, filling in the free volume between the two surfaces to be connected by applying an electrically conductive material simultaneously to the contact surface of the conductive strip and to the surface to be connected of the IC component by the precipitation of the electrically conductive material from a galvanized bath or from a reduction bath without current.

5,784,780
METHOD OF MOUNTING A FLIP-CHIP

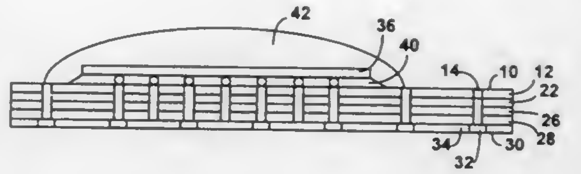
Mike C. Loo, San Jose, Calif., assignor to LSI Logic Corporation, Milpitas, Calif.

Division of Ser. No. 538,631, Oct. 4, 1995, Pat. No. 5,637,920. This application Jan. 3, 1997, Ser. No. 778,909
Int. Cl.^{6} H05K *3/34*
U.S. Cl. 29—840 **2 Claims**

1. A method of mounting a flip-chip comprising:

providing a package having an insulating substrate having a substantially flat top surface and an opposing substantially flat bottom surface, and also having at least one rigid layer,

disposing a plurality of electrically conductive contacts on the top surface of the substrate for receiving the flip-chip and making electrical contact thereto,



extending a plurality of electrically conductive through-holes, disposed at a pitch one from the other, from the top surface of the substrate to the bottom surface of the substrate,

making electrical interconnections between the contacts and the through-holes with a plurality of electrically conductive traces,

attaching a z-conductive layer having a substantially flat top surface and an opposing substantially flat bottom surface to the substrate, the z-conductive layer disposed such that the top surface of the z-conductive layer is adjacent to and planar with the bottom surface of the substrate,

providing electrical continuity between the bottom surface of the z-conductive layer and the through-holes,

attaching a plurality of electrically conductive connectors, having a diameter that is greater than the pitch between the through-holes, to the bottom surface of the z-conductive layer,

disposing the electrically conductive connectors so as to be in electrical contact through the z-conductive layer with no more than one through-hole, with at least a portion of the connectors underlying the contacts,

mounting the flip-chip to the top surface of the substrate,

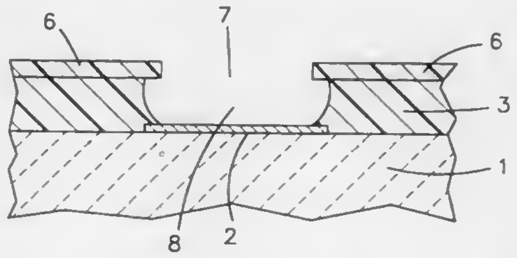
electrically connecting the flip-chip to the electrically conductive contacts disposed on the top surface of the substrate,

under-filling between the flip-chip and the top surface of the substrate, and encapsulating the flip-chip.

5,784,781
MANUFACTURING PROCESS FOR ORGANIC CHIP CARRIER

Masaharu Shirai, Kusatsu; Kenji Terada, Mioriyama; Yutaka Tsukada, Shiga-ken, and Shuhei Tsuchita, Kusatsu, all of Japan, assignors to International Business Machines Corporation, Armonk, N.Y.

Filed Nov. 16, 1995, Ser. No. 559,214
Claims priority, application Japan, Nov. 22, 1994, 6-288114
Int. Cl.^{6} H05K *1/14*
U.S. Cl. 29—846 **9 Claims**



1. A manufacturing process for an organic chip carrier, comprising the steps of:

forming a resin layer on a substrate, said resin layer including photosensitive resin and being positioned on a top surface of said substrate, and said resin layer having a thickness greater than a first thickness;

forming cavities in a predetermined pattern on said resin layer by exposing and developing said resin layer;

heat-curing said resin layer formed with cavities; and

reducing the thickness of said heat-cured resin layer to said first thickness, thereby forming via holes derived from said cavities.

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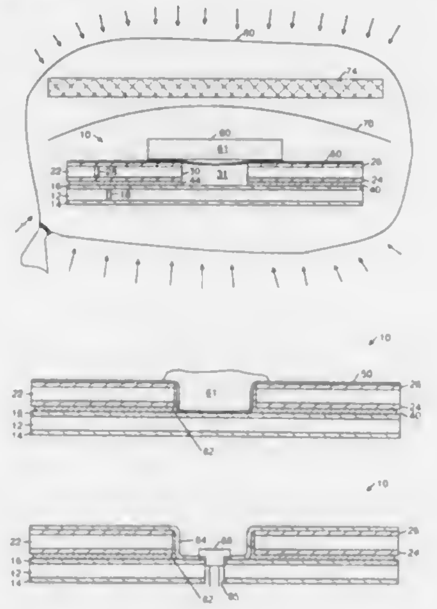
5,784,782
METHOD FOR FABRICATING PRINTED CIRCUIT BOARDS WITH CAVITIES

Christina Marie Boyko, Vestal; Donald Seton Farquhar, Endicott; Robert Maynard Japp, Vestal, and Michael Joseph Klodowski, Endicott, all of N.Y., assignors to International Business Machines Corporation, Armonk, N.Y.

Filed Sep. 6, 1996, Ser. No. 709,373

Int. Cl.⁶ H05K *3/10;3/36;3/42;3/46*

U.S. Cl. 29—848 **18 Claims**



1. A method for fabricating a printed circuit board, said method comprising the steps of:

laying a sticker sheet on a first, metallized dielectric layer;

laying a second, metallized dielectric layer on said sticker sheet, said second metallized dielectric layer and said sticker sheet each having a window which is registered with the other window forming a cavity;

laying a flexible release layer above said second metallized dielectric layer;

laying a thermosetting visco-plastic material on said release layer over said cavity;

subjecting said first and second metallized dielectric layers, sticker sheet, release layer and visco-plastic material to heat and pressure, said pressure forcing said visco-plastic material against a floor region of said cavity before the heat and pressure cause the sticker sheet to flow onto said floor region, said heat and pressure causing said sticker sheet to flow and conform to said visco-plastic material on said floor region, and curing said sticker sheet and thereby binding said first and second metallized dielectric sheets to each other.

5,784,783
METHOD OF REMOVING AN INJECTOR SLEEVE

Donald L. Carpenter, 5294 Waterloo Rd., Burlington, Ky. 41005

Filed Apr. 18, 1997, Ser. No. 843,557

Int. Cl.⁶ B23P *15/00*

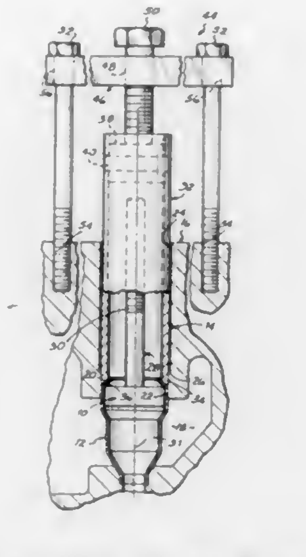
U.S. Cl. 29—888.011 **20 Claims**

1. A method of removing an injector sleeve from an injector bore of an engine, the method comprising the steps of:

inserting a pull plate into the injector sleeve and past a rim of the injector sleeve;

curling at least a portion of the rim of the injector sleeve inwardly toward a centerline axis of the injector sleeve; and

removing the pull plate from the injector bore of the engine so that the inwardly curled portion of the rim of the injector sleeve contacts the pull plate to thereby dislodge the injector sleeve from the injector bore and the injector sleeve is removed from the injector bore along with the pull plate.



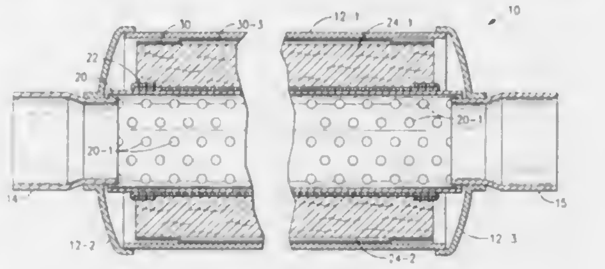
5,784,784
METHOD OF MAKING A REFRIGERATION COMPRESSOR MUFFLER

Paul J. Flanigan, Cicero; Charles E. Ebbing, and Thomas S. Katra, both of Fayetteville, all of N.Y., assignors to Carrier Corporation, Syracuse, N.Y.

Division of Ser. No. 546,250, Oct. 20, 1995. This applicatinn Nov. 25, 1996, Ser. No. 753,451

Int. Cl.⁶ B23P *15/00*

U.S. Cl. 29—890.08 **3 Claims**



1. A method of assembling a muffler suitable for use in a high pressure, closed circuit comprising the step of:

A) forming a subassembly by taking the serial steps of:
  a) placing a heat resistant fabric covering over a perforate tube,
  b) placing fiberglass packing over said covering,
  c) locating a circumferentially adjustable preload sleeve over said packing to thereby form the subassembly;

B) circumferentially contracting the sleeve and placing said subassembly in the bore of the shell of a pressure vessel in a force fit; and

C) sealing end caps to the shell to thereby complete assembly of said muffler.

5,784,785
FOLDING LONGITUDINAL RAZOR

Alexandra Polites, New York, N.Y., assignor to Violex-Bic, S.A., Greece

Filed Jun. 9, 1997, Ser. No. 871,070

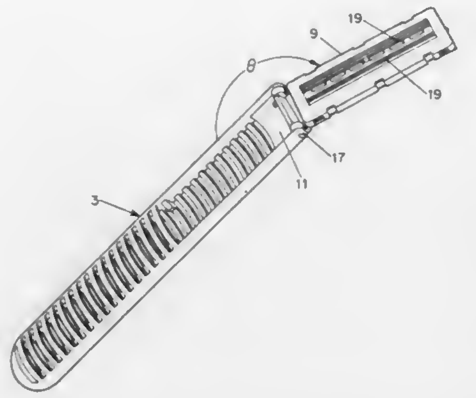
Int. Cl.⁶ B26B *21/10*

U.S. Cl. 30—53 **5 Claims**

1. A razor comprising:

a hollow handle having a bottom end, a top end and two sides, the handle including a plurality of axially spaced apertures along each side of the handle, a first recess for receiving a shaving head on one side of the handle, a second recess for receiving a lip portion of the shaving head on the opposite side of the handle, a pivot means located at the top end of the handle, and

a shaving head pivotally attached to the pivot means, the shaving head including a lip portion extending axially above the pivot means, wherein applying force to the lip portion causes the shaving head to pivot about the pivot means and engages the lip portion in the second recess.



5,784,786
BLADE SCABBARD AND SHARPENER

David Mark Williams, Eyan, England, assignor to McPherson's Limited, Victoria, Australia

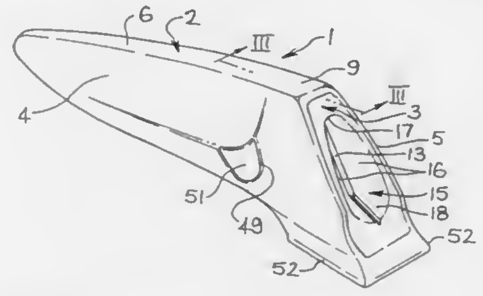
PCT No. PCT/AU95/00652, § 371 Date Apr. 4, 1997, § 102(e) Date Apr. 4, 1997, PCT Pub. No. WO96/11086, PCT Pub. Date Apr. 18, 1996

PCT Filed Oct. 5, 1995, Ser. No. 809,427

Claims priority, application Australia, Oct. 5, 1994, PM 8597; Oct. 7, 1994, PM 8641

Int. Cl.⁶ B24D *13/08;* **B26B** *29/02*

U.S. Cl. 30—138 **29 Claims**



1. A blade scabbard including,

a hollow housing for containing a blade,

an access opening at an end of the housing through which said blade can be moved longitudinally to be inserted into or withdrawn from said housing,

blade sharpening means positioned to be engageable by a cutting edge of said blade when said blade is located within said housing, means connecting said sharpening means to said housing to permit relative movement between an active position at which said sharpening means is operative to sharpen said cutting edge and an inactive position at which said sharpening means is not so operative, said sharpening means being responsive to movement of said blade relative to said housing so as to be thereby moved towards said inactive position when the blade is being inserted into the housing and moved towards said active position when the blade is being withdrawn from the housing,

restraining means connected to said housing and being operative to coact with said blade or a member associated therewith when the blade is at a predetermined position of insertion within said housing so as to thereby prevent withdrawal of said blade from the housing,

said restraining means being responsive to movement of said sharpening means into said active position so as to be thereby automatically rendered inoperative,

and manual release means which is operable to render said restraining means inoperative.

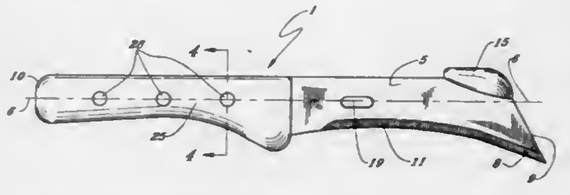
5,784,787
SHEET METAL PENETRATING TOOL

Alan Jensen, 904 Abbot St., Richland, Wash. 99352

Filed Jan. 3, 1997, Ser. No. 833,021

Int. Cl.⁶ B26F *1/00*

U.S. Cl. 30—168 **10 Claims**



1. A sheet metal penetrating tool comprising:

A. a shaft having a first end and a second end; a shaft top edge extending from the first end to the second end; a shaft blade edge generally proximal the first end, a handle means proximal the second end and a longitudinal axis passing through the shaft generally centrally positioned from the first end to the second end and generally longitudinally bisecting the shaft between the shaft blade edge and the shaft top edge;

B. a penetrating point extends from the shaft blade edge proximal the first end; the penetrating point provides sheet metal penetrating properties; an anvil is affixed by means to the shaft top edge intermediate the first end and the handle means and fulfills a dual purpose of providing a hammer function and of being struck with a hammer as a means of causing the penetrating point to penetrate sheet metal;

C. the shaft blade edge is formed generally within the portion of the shaft proximal the first end extending to the handle means and provides a surface or edge with sheet metal cutting properties.

5,784,788
CUTTING TOOL FOR REMOVING A SEALANT SURROUNDING A VEHICLE WINDSHIELD

Jeffrey R. Cothery, Southfield, Mich., assignor to Reid Manufacturing, Southfield, Mich.

Filed Mar. 6, 1997, Ser. No. 812,439

Int. Cl.⁶ B26B *5/00*

U.S. Cl. 30—294 **11 Claims**

1. A cutting tool for piercing a sealant surrounding a vehicle windshield, said cutting tool comprising:

a body having a desired thickness and length;

a blade including a first insertable portion and a second cutting portion;

receptacle means located at a first selected end of said body for receiving said first insertable portion of said blade;

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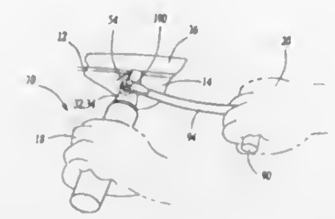
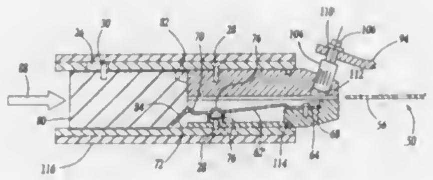


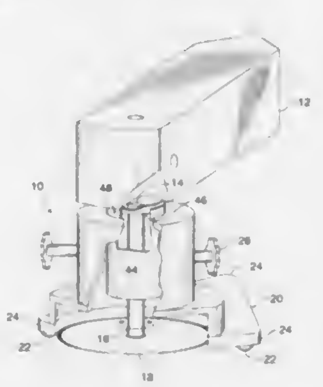


a gripping handle mounted to a first end of an elongate stem portion and a second end of said stem portion being pivotally secured to said body; and

blade engaging means and blade release means incorporated into said body to secure said blade and to facilitate removal and replacement of said blade.

5,784,789
ROTARY TRIM SAW

Joseph J. Vargas, 10390 Clayton Rd., San Jose, Calif. 95127
Filed Sep. 18, 1996, Ser. No. 715,443
Int. Cl.^{6} B27B *9/04*
U.S. Cl. 30—388 **26 Claims**



1. A rotary trim saw for attachment to a source of rotary power, the rotary trim saw comprising:

a sleeve attached to a housing for holding the source of rotary power and having a rack disposed on an outer surface of said sleeve and approximately longitudinally parallel to an axis of said sleeve;

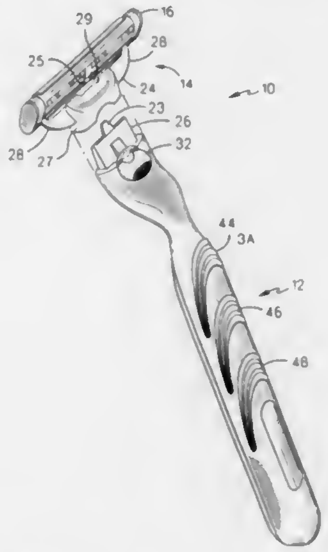
a drive shaft having a blade attachment end attached to a circular cutting blade and a drive end coupled to the source of rotary power, said rotatable drive shaft disposed within said sleeve and approximately longitudinally parallel to said axis of said sleeve;

a removable base having a rotatable attached pinion for engaging said rack and a base opening defined by an inner edge for fitting around said sleeve; and

a position of said cutting blade relative to said base adjustable along said axis of said sleeve in response to rotation of an adjustment knob attached to said pinion.

5,784,790
SHAVING RAZOR AND METHOD

William C. Carson, III, Acton; Alejandro C. Lee, Cambridge; Stephen C. Metcalf, West Newton; Paul Nowak, Danvers; Robert A. Trotta, Pembroke, and Charles B. Worrick, Hanson, all of Mass., assignors to The Gillette Company, Boston, Mass.
Continuation-in-part of Ser. No. 630,437, Apr. 10, 1996. This application Feb. 19, 1997, Ser. No. 802,814
Int. Cl.^{6} B26B *21/52*
U.S. Cl. 30—532 **41 Claims**



1. A shaving razor handle for connection to a replaceable cartridge comprising

an elongated hand gripping structure having a subassembly connecting end with inwardly directed handle surfaces, and

a subassembly that is permanently connected to said elongated hand gripping structure comprising

a handle connecting structure having outer, handle-supporting side surfaces that mate with said inwardly directed handle surfaces,

a cartridge connecting structure having outer, cartridge-supporting side surfaces that mate with inwardly directed cartridge surfaces of a recess on a replaceable cartridge, said cartridge connecting structure including cartridge holding structure for releasably holding said replaceable cartridge, and

a movable component within said cartridge connecting structure for interacting with said cartridge when connected to said cartridge connecting structure,

said cartridge connecting structure and said handle connecting structure having contiguous portions,

whereby said subassembly is substantially covered when said cartridge is connected to said cartridge connecting structure.

5,784,791
ADJUSTABLE COMPASS

Rodney S. Nakamura, 1047 Hooli Pl., Pearl City, Hi. 96782
Filed May 16, 1996, Ser. No. 648,615
Int. Cl.^{6} B43L *9/04*
U.S. Cl. 33—27.03 **13 Claims**

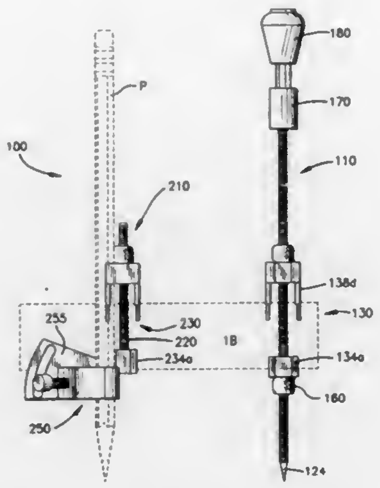
1. A device, comprising:

a pivot member having a bottom portion;

an open faced adjustable pivot clamp having laws movable over a range of separation distances mounted on said pivot member;

a pivot point attached to said bottom portion of said pivot member;

an open faced adjustable utensil clamp having jaws movable over a range of separation distances;



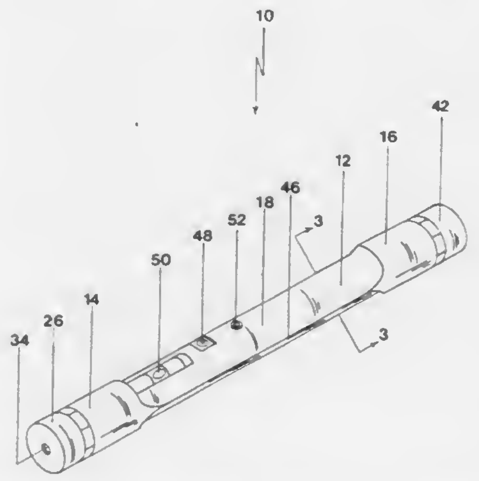
a utensil holder attached to said utensil clamp;

whereby said pivot clamp is attachable to a pivot portion of an intermediate bar and said utensil clamp is attachable to a utensil portion of said intermediate bar to form a compass;

wherein said jaws of said pivot clamp are mounted on and threadingly engaged with a pivot clamp threaded rod, whereby said jaws of said pivot clamp can be adjusted to clampingly engage said pivot portion of said intermediate bar.

5,784,792
HAND-HELD LASER LEVEL GRADE CHECKING DEVICE

James A. Smith, 2964 Northhill, Selma, Calif. 93662
Filed May 13, 1996, Ser. No. 645,120
Int. Cl.^{6} G01C *5/24*
U.S. Cl. 33—227 **17 Claims**



1. A hand-held laser level grade checking device, comprising:

a generally cylindrical housing having a generally cylindrical forward end, a generally cylindrical rearward end and a generally oval central section forming a pair of ridges on opposite sides of the external surface of said housing;

laser diode means for emitting a visible laser beam;

positioning means positioning said laser diode means within said housing;

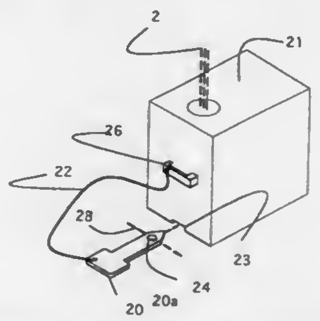
power means electrically connected to said laser diode means for powering said laser diode means; and

optical means located forward of said laser diode means for receiving said visible laser beam and delivering a collimated light beam of low divergence out of said housing;

wherein said ridges form alignment means in parallel relationship with said collimated light beam for aligning said collimated light beam with a measurement mark on an external measurement device.

5,784,793
MARKING TEMPLATE FOR CONSTRUCTION LASERS

Joseph F. Rando, Los Altos Hills, Calif., assignor to LeveLite Technology Inc., Mountain View, Calif.
Filed Apr. 12, 1996, Ser. No. 631,572
Int. Cl.^{6} G01C *15/02*
U.S. Cl. 33—282 **6 Claims**



1. A plumb beam laser projector tool, comprising:

a housing,

means in the housing for projecting a plumb, upwardly directed laser beam,

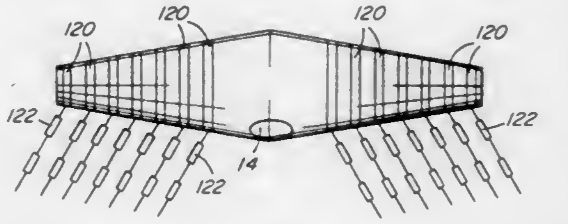
a template member which is movable relative to the housing, having reference marking means suitable for visually locating a mark or point on a floor under the template member,

registry means cooperative between the template member and the housing for enabling positioning of the template member substantially at the bottom of the housing in a position of tactile registry with the housing wherein the reference marking means is positioned on a line on which the plumb beam lies,

the registry means comprising a groove in the bottom of the housing, with the template member being sized to slide in the groove, from an outward position wherein the mark or point can be visually located with the marking means, to a fully inward position wherein the marking means is on said line, said fully inward position being said position of tactile registry and being capable of being determined by touch by a user.

5,784,794
SENSING DEVICE

Donald Fredrick Nelson, 305 - 4311 - 73rd St. NW. Calgary, Alberta, Canada, T3B 2M2
Continuation-in-part of Ser. No. 148,458, Nov. 8, 1993, Pat. No. 5,444,917. This application Aug. 28, 1995, Ser. No. 520,146
Int. Cl.^{6} G01C *9/06*
U.S. Cl. 33—366 **7 Claims**



1. A computer input device comprising:

a body containing a tube comprising opposed cones, joined at the cone bases;

a first conductor in the tube able to move along the tube;

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a plurality of spaced contacts within the tube;
conductors extending from the spaced contacts;
first interface means to receive information from said conductors as to the position of the first conductor in the tube and input information to the computer based on the position of the first conductor; and
second interface means to input information to the computer.

5,784,795
TOUCH PROBE

Leonida Tinarelli, Bologna, Italy, assignor to Marposs, S.p.A., Bentivoglio, Italy

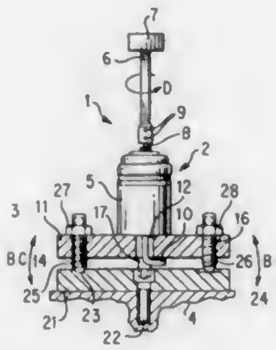
PCT No. PCT/EP94/03894, § 371 Date May 23, 1996, § 102(e) Date May 23, 1996, PCT Pub. No. WO95/15477, PCT Pub. Date Jun. 8, 1995

PCT Filed Nov. 24, 1994, Ser. No. 649,674

Claims priority, application Italy, Dec. 1, 1993, BO93 A 000481

Int. Cl.⁶ G01B *5/03*

U.S. Cl. 33—559 **13 Claims**



1. A touch probe, with a base unit comprising a casing, a movable arm-set assembly housed in the casing and provided with an arm protruding from the casing and a feeler fixed to the arm end external to the casing, and an adjustment and locking device for locking the base unit to a support and adjusting the position of the feeler by means of rotational displacements about a first geometrical axis, wherein the adjustment and locking device comprises a first and a second reference element with substantially spherical couplings between the base unit and the support for enabling rotational adjustment displacements of the base unit about the first geometrical axis, and two locking elements, coupled to the base unit and to the support, and adjustable along a longitudinal direction, perpendicular to said first geometrical axis, characterized in that at least one of the reference elements is adjustable along the longitudinal direction, to enable rotational displacements, for the adjustment of the base unit, about a second geometrical axis, perpendicular to the first geometrical axis and to said longitudinal direction, by means of the spherical coupling defined by a second reference element.

5,784,796
LINEAL COUNT RECORDER

Wesley C. Kuehl, Greenwood, Wis., assignor to Owen Manufacturing Inc., Owen, Wis.

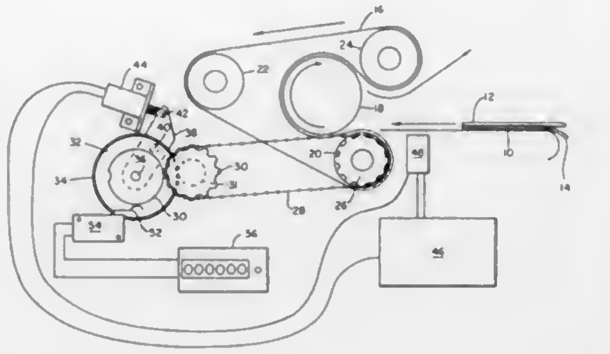
Filed Mar. 12, 1996, Ser. No. 615,854

Int. Cl.⁶ G01B *5/04;* B65H *7/02*

U.S. Cl. 33—739 **5 Claims**

1. A lineal count recorder for an engineering drawing copier including exposing means and an endless belt passing over plural rollers for moving the paper past the exposing means, said recorder comprising

a paper sensor which indicates when paper is present at the exposing means,



a measuring device for measuring belt movement when the device is active and for accumulating measurements made from one active cycle to another and

a controller, responsive to the sensor, for activating the measuring device only when paper is sensed at the exposing means, whereby the measured belt movement is accumulated from paper to paper, regardless of paper size, so as to indicate a cumulative total lineal footage of paper fed through the copier.

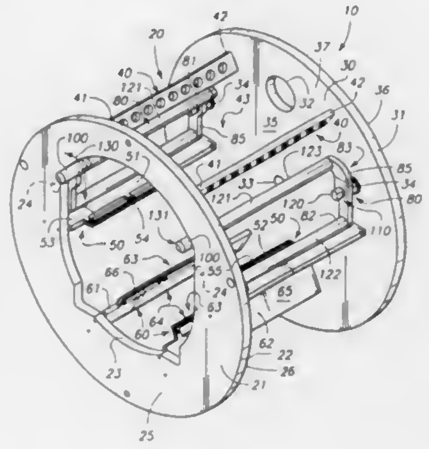
5,784,797
CARRIERLESS CENTRIFUGAL SEMICONDUCTOR PROCESSING SYSTEM

Gary L. Curtis; Raymon F. Thompson; Robert W. Berner, and Ed Fix, all of Kalispell, Mont., assignors to Semitool, Inc., Kalispell, Mont.

Continuation-in-part of Ser. No. 236,424, Apr. 28, 1994, Pat. No. 5,544,421, Ser. No. 415,927, Mar. 31, 1995, Pat. No. 5,660,517, and Ser. No. 415,240, Apr. 3, 1995, Pat. No. 5,678,320. This application Mar. 26, 1996, Ser. No. 622,349

Int. Cl.⁶ F26B *17/24*

U.S. Cl. 34—58 **64 Claims**



1. A centrifugal process rotor for holding a plurality of semiconductor articles for centrifugal treatment, comprising:

a rotor frame mounted for rotation;

a receiver on the rotor frame for receiving the plurality of semiconductor articles;

at least one movable article retainer connected to the rotor frame and rotatable with the rotor frame; said at least one movable article retainer being movable relative to the rotor frame and semiconductor articles held in the receiver to maintain semiconductor articles at desired processing positions on the rotor when the at least one movable article retainer is in a closed position.

5,784,798
IMPLEMENT FOR SUPPORTING PAINT-ROLLER SLEEVES

David Brian Taylor, 4 Farndale Road, Milton, Weston Super Mare, BS22 9QA, Great Britain

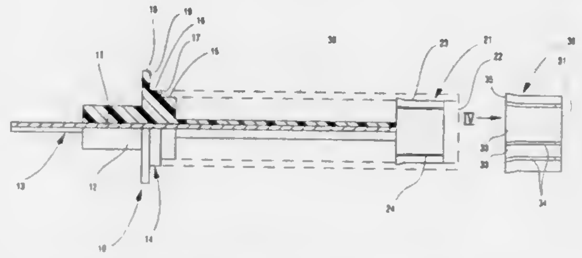
PCT No. PCT/GB95/01769, § 371 Date Jan. 27, 1997, § 102(e) Date Jan. 27, 1997, PCT Pub. No. WO96/03287, PCT Pub. Date Feb. 8, 1996

PCT Filed Jul. 26, 1995, Ser. No. 776,339

Claims priority, application United Kingdom, Jul. 28, 1994, 9415201

Int. Cl.⁶ F26B *17/24*

U.S. Cl. 34—58 **13 Claims**



1. An implement for supporting selectively each of at least two roller sleeves of different internal diameters for rotation about an axis established by each roller sleeve, the implement comprising an elongate support adapted to extend through a selected roller sleeve and having support means for supporting the smaller-diameter roller sleeve at two longitudinally-spaced positions, the elongate support also being adapted to support the larger-diameter roller sleeve at a first position and the implement further including adapter means engageable with the support means for the smaller-diameter roller sleeve and adapted, when so engaged to the support means, to support the larger-diameter roller sleeve at a second position spaced from the first position, both the support means and the adapter means being resiliently and radially compressible to engage the selected roller sleeve frictionally at the second position.

5,784,799
VACUUM PROCESSING APPARATUS FOR SUBSTATE WAFERS

Shigekazu Kato, Kudamatsu; Kouji Nishihata, Tokuyama; Tsunehiko Tsubone, Hikari, and Atsushi Itou, Kudamatsu, all of Japan, assignors to Hitachi, Ltd., Tokyo, Japan

Division of Ser. No. 593,870, Jan. 30, 1996, Pat. No. 5,661,913, which is a continuation of Ser. No. 443,039, May 17, 1995, Pat. No. 5,553,396, which is a division of Ser. No. 302,443, Sep. 9, 1994, Pat. No. 5,457,896, which is a continuation of Ser. No. 96,256, Jul. 26, 1993, Pat. No. 5,349,762, which is a continuation of Ser. No. 751,951, Aug. 29, 1991, Pat. No. 5,314,509. This application Jun. 26, 1997, Ser. No. 882,731

Claims priority, application Japan, Aug. 29, 1990, 2-225321

Int. Cl.⁶ F26B *13/30*

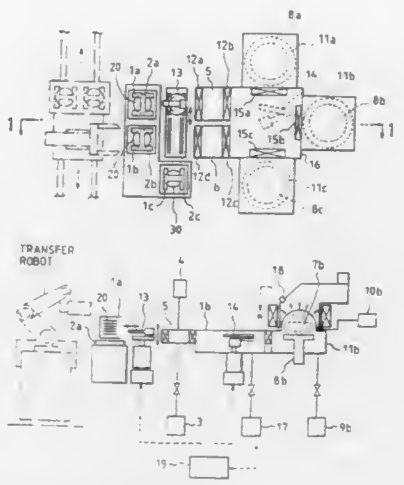
U.S. Cl. 34—92 **8 Claims**

1. A conveyor system for use in a vacuum processing apparatus, comprising:

an atmospheric loader;

a vacuum loader; and

a lock chamber for connecting said atmospheric loader and said vacuum loader, such that a substrate to be processed is conveyed one by one,



wherein said vacuum loader has
(1) a convey chamber;
(2) a convey structure; and
(3) plural vacuum processing chamber installation portions.

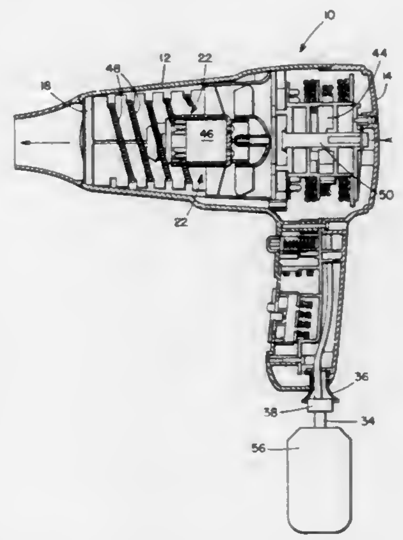
5,784,800
CORD REEL DRYER

Daniel Santhouse, Wilton, Conn., and Fung Kam Fai, Hong Kong, Hong Kong, assignors to Conair Corporation, Stamford, Conn.

Filed Nov. 8, 1996, Ser. No. 745,684

Int. Cl.⁶ A45D *00/00*

U.S. Cl. 34—97 **6 Claims**



1. A hair dryer having a primary air inlet, an air outlet and a primary air passage therebetween with heating means positioned therein, said hair dryer comprising:

a housing;

a cord reel positioned in said housing and having an axis of rotation generally aligned with said primary air passage, said cord reel thereby positioned across said primary air passage and between the air inlet and the air outlet; and

at least one vent formed through said housing, said at least one vent being effective to provide a secondary air pathway to the primary air passage at a location between said cord reel and the air outlet, to prevent overheating of said hair dryer in an event of operation thereof when a cord is reeled on said cord reel.

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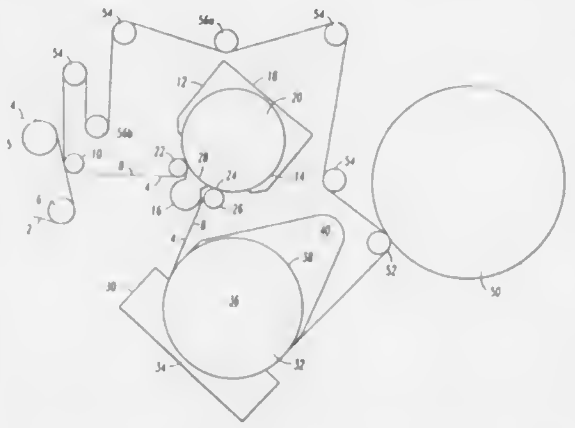
5,784,801
PAPER DRYING MACHINE FOR DRYING A PAPER WEB IN A PAPER DRYING MACHINE

Benjamin A. Thorp, Richmond, Va., and James Gilpatrick, Vancouver, Wash., assignors to James River Corporation of Virginia, Richmond, Va.

Division of Ser. No. 549,149, Oct. 27, 1995. This application Dec. 9, 1996, Ser. No. 762,249

Int. Cl.^{6} D21F *5/00*

U.S. Cl. 34—115 **4 Claims**



1. A drying apparatus for drying a wet paper web comprising:
- a first drying means including a first rotatable drum, said first rotatable drum having an inner perimeter and an outer perimeter;
- a second drying means including a second rotatable drum, said second rotatable drum having an inner perimeter and an outer perimeter; and
- a fabric sheet for carrying a paper web, said fabric sheet being entrained through said first drying means around said outer perimeter of said rotatable drum and through said second drying means around said outer perimeter of said second rotatable drum;
- wherein said first drying means supplies a drying air in one of a direction from the inner perimeter of said first rotatable drum toward the outer perimeter of said first rotatable drum and an outer perimeter of said first rotatable drum toward an inner perimeter of said first rotatable drum, and said second drying means supplies a drying air in a direction opposite to that of a direction of said first drying means.

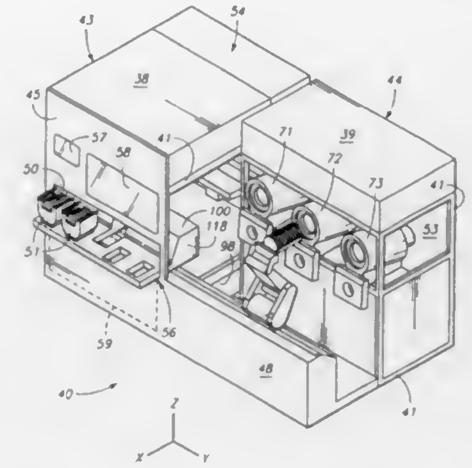
5,784,802
SEMICONDUCTOR PROCESSING SYSTEMS

Raymon F. Thompson; Robert W. Berner; Gary L. Curtis, all of Kalispell; Stephen P. Culliton, Bozeman, and Blaine G. Wright, Kalispell, all of Mont., assignors to Semitool, Inc., Kalispell, Mont.

Division of Ser. No. 415,240, Apr. 3, 1995, Pat. No. 5,678,320, which is a continuation-in-part of Ser. No. 236,424, Apr. 28, 1994, Pat. No. 5,544,421. This application Jun. 24, 1997, Ser. No. 881,682

Int. Cl.^{6} F26B *5/08*

U.S. Cl. 34—312 **26 Claims**



1. A method for processing semiconductor articles, comprising:
- engaging plural contact members with an engagement head which is controllable to detach or engage said contact members;
- transferring a plurality of semiconductor articles from an article carrier to form a processing array supported by said plural contact members;
- moving the processing array to a processing station;
- installing said processing array in said processing station;
- processing said processing array within the processing station.

5,784,803
OIL REMOVING METHOD FOR A PIPE COIL

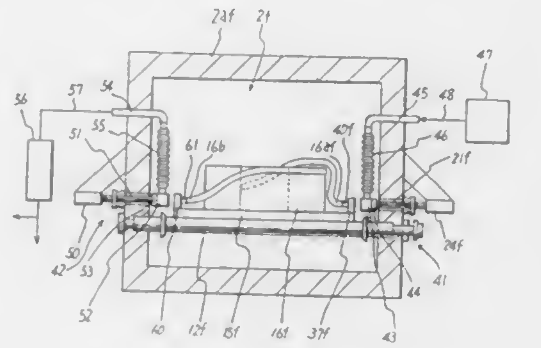
Katsumasa Toyoda, Ohgaki; Takashi Miyajima, Gifu-ken, and Yoshihiro Umeda, Nagoya, all of Japan, assignors to Daidotokushuko Kabushikikaisha, Japan

Division of Ser. No. 228,523, Apr. 15, 1994, Pat. No. 5,603,167. This application Nov. 22, 1996, Ser. No. 755,500

Claims priority, application Japan, Nov. 11, 1993, 5-307478; Nov. 25, 1993, 5-321268

Int. Cl.^{6} F26B *7/00*

U.S. Cl. 34—437 **2 Claims**



1. A method of removing oil from the oil-containing pipe of a pipe coil which comprises the steps of:
- (a) providing a pipe of a pipe coil having oil adhered to the inner surface of said pipe;
- (b) heating said pipe coil within a furnace to a temperature above the vaporizing temperature of said oil adhered to the inner surface of said pipe of said pipe coil to vaporize said oil within said pipe,
- (c) feeding an oil purging gas into one end of said pipe of said pipe coil after said oil has been vaporized, and
- (d) discharging said vaporized oil with said purging gas from the other end of said pipe,
- (e) said purging gas having a sufficiently high temperature to maintain the vaporized condition of said oil;
- (f) wherein said step of discharging the vaporized oil from the other end of said pipe includes the step of discharging the vaporized oil from the furnace.

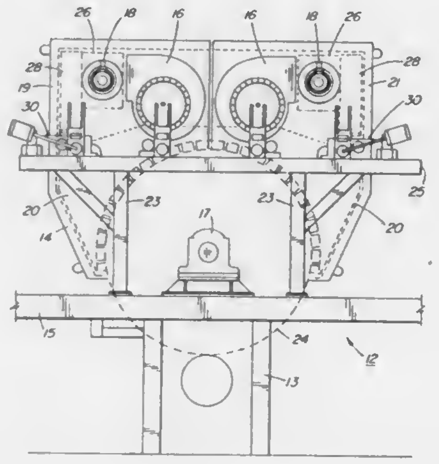
5,784,804
YANKEE HOOD WITH INTEGRAL AIR HEATING SYSTEM

George Z. Nowakowski, Montreal, Canada, assignor to Asea Brown Boveri, Inc., LaSalle, Canada

Filed Mar. 25, 1996, Ser. No. 621,482

Int. Cl.^{6} F26B *3/00*

U.S. Cl. 34—446 **3 Claims**



1. A Yankee hood assembly having an integral air heating and distribution system, said assembly comprising:
- a Yankee hood enclosure adapted to envelope a portion of a dryer cylinder, said hood enclosure having two halves, a wet end and a dry end;
- a plurality of internal moisture profiling sections arranged across the inner operative face of each half of said hood enclosure;
- dampers associated with said air profiling sections to provide air flow quantity adjustment prior to discharge of said air onto a paper web on said dryer cylinder;
- moisture profiling headers located internally of the hood enclosure for feeding air to said profiling sections;
- each half of said Yankee hood enclosure incorporating (a) a single air circulating fan mounted internally thereof; and (b) an internal combustion system located downstream of said single circulating fan and intermediate said fan and the air distribution system.

5,784,805
WOOD TREATING APPARATUS

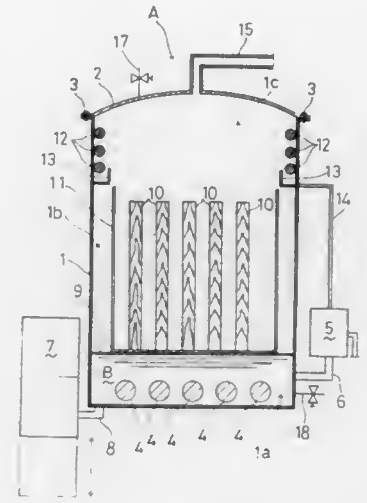
Yotaro Hashimoto, Shiga-ken, Japan, assignor to Eiwa Co., Ltd., Shiga-ken, Japan

Continuation of Ser. No. 350,627, Dec. 7, 1994, abandoned, which is a continuation of Ser. No. 33,155, Mar. 16, 1993, abandoned. This application Nov. 4, 1996, Ser. No. 743,385

Claims priority, application Japan, Apr. 10, 1992, 4-089198; Dec. 22, 1992, 4-342513; Feb. 17, 1993, 5-028132

Int. Cl.^{6} F26B *17/00*

U.S. Cl. 34—589 **14 Claims**



10. A wood treating apparatus, comprising:
- a solvent tank which is filled with a mixture of chlorine-based solvent and water, said solvent tank including a heater for heating said mixture to generate vapor of said chlorine-based solvent and said water at the same time;
- a treating chamber for containing wood to be treated, said treating chamber receiving said vapor of said chlorine-based solvent and water from said solvent tank, said treating chamber having an upper portion;
- a cooling chamber arranged adjacent said treating chamber for cooling and condensing said vapor of said mixture; and
- a hot air pipe for providing a hot air to said wood that has been treated by said vapor of said mixture to dry said wood.

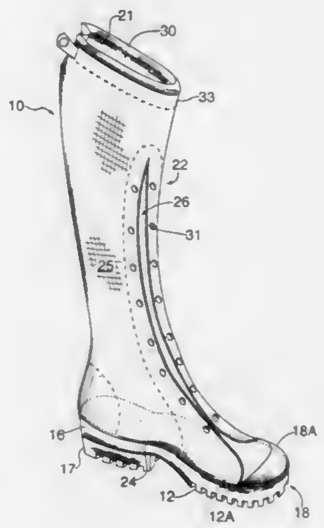
5,784,806
FLEXIBLE FOOT GEAR

Lydia Wendt, 334 W. 47th St., Apt. 2C, New York, N.Y. 10036

Filed Aug. 20, 1996, Ser. No. 697,138

Int. Cl.^{6} A41D *17/00;* **A43B** *11/00*

U.S. Cl. 36—2 R **30 Claims**



1. A foot gear comprising:
- (a) a flexible sole at a lower portion thereof having a forward, toe region;
- (b) an upper portion securely attached to said flexible sole adapted to conform with the ankle of a wearer and extend thereabove;
- (c) a tongue portion securely attached to said flexible sole at said toe region and extending upwardly therefrom in a manner such that said tongue portion provides ease of entry of a foot of the wearer and adjustment for conformation of the foot gear to the foot and ankle of the wearer; and
- (d) wherein said upper portion and said tongue portion are comprised of a stretchable, weave fabric consisting essentially of a combination of a substantially non-stretch yarn woven with a weft-stretch elastomeric yarn, wherein said fabric and said portions are adapted to snugly conform to at least the foot and ankle of the wearer.

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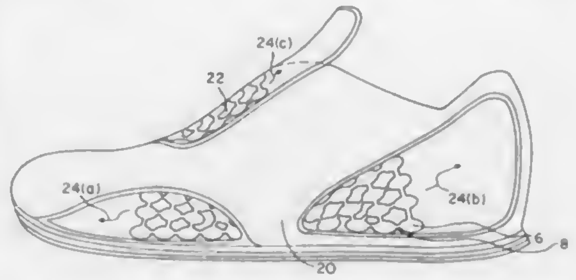
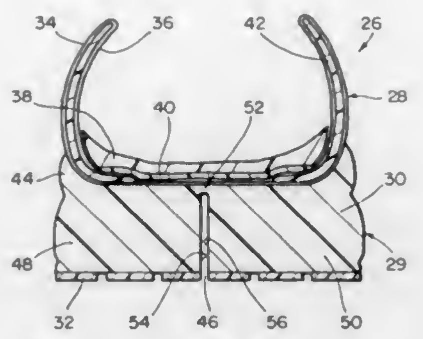
5,784,807
FLUID FILLED SUPPORT SYSTEM FOR FOOTWEAR
Todd A. Pagel, 802 N. 5th Ave., Wausau, Wis. 54401
Filed Sep. 18, 1996, Ser. No. 715,244
Int. Cl.^{6} A43B *13/18;13/38;7/14;* **A47C** *16/00* ,
U.S. Cl. 36—93 **18 Claims**



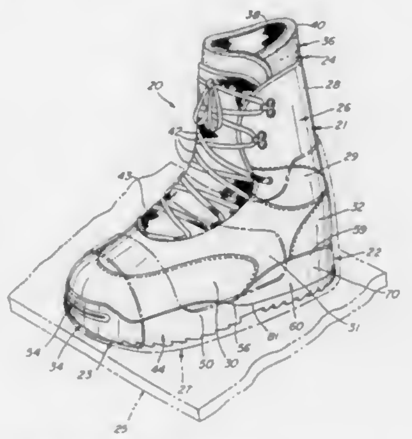
1. A fluid cushioning and supporting apparatus for an article of footwear, comprising:
  a support member of a shape to cushion a foot, said support member surrounding a substantial portion of the foot including an upper portion of the foot;
  a plurality of fluid-containing pods spaced apart from one another formed throughout said support member for absorbing shocks encountered by the footwear; and
  a plurality of fluid communication channels positioned between said fluid-containing pods for traversely interconnecting said fluid-containing pods and maintaining said fluid-containing pods in fluid communication;
  wherein said plurality of fluid-containing pods includes a first set of fluid-containing pods having two fluid communication channels attached thereto for directly connecting each of said first set of fluid-containing pods to two adjacent fluid-containing pods;
  a second set of fluid-containing pods having three fluid communication channels attached thereto for directly connecting each of said second set of fluid-containing pods to three adjacent fluid-containing pods; and
  a third set of fluid-containing pods having four fluid communication channels attached thereto for directly connecting each of said third set of fluid-containing pods to four adjacent fluid-containing pods and
  wherein at least one of said plurality of fluid communication channels extending between a first pair of fluid-containing pods transversely intersects another of said fluid communication channels extending between a second pair of fluid-containing pods wherein said second pair of fluid-containing pods is different from said first pair of fluid-containing pods.

5,784,808
INDEPENDENT IMPACT SUSPENSION ATHLETIC SHOE
Stan Hockerson, 1716 Gerogia St., NE., Albuquerque, N. Mex. 87110
Continuation of Ser. No. 400,336, Mar. 8, 1995, abandoned, which is a continuation-in-part of Ser. No. 259,744, Jun. 14, 1994, abandoned, which is a continuation of Ser. No. 24,601, Mar. 1, 1993, abandoned. This application Sep. 17, 1996, Ser. No. 714,964
Int. Cl.^{6} A43B *13/18*
U.S. Cl. 36—102 **3 Claims**

1. An athletic shoe comprising an upper for wearing about a user's foot, a sole mounted to the upper, said sole having a forefoot portion and a heel portion, said heel portion comprising a midsole carried below the upper and an outsole carried below the midsole, said outsole having a bottom surface at least partially bounded by a peripheral rim, a lasting board mounted within the upper above the sole and extending forwardly from the heel portion toward the forefoot portion, said lasting board above the heel portion being devoid of penetrating channels, a rigid heel counter mounted in the upper above said heel portion, said sole being formed with a longitudinal channel in the midsole and outsole with the channel extending through the peripheral rim and with the channel dividing the midsole and outsole of the heel portion into a pair of laterally adjacent compression elements, said compression elements having interior sidewalls which are spaced apart an effective distance to isolate the compression elements from motion of their interior sidewalls and permitting independent movement of the compression elements, said channel extending upwardly through the sole and being separated from the upper by a connecting portion of the sole which has a vertical height that is effective to present a minimal transfer of motion between the compression elements responsive to stress forces whereby the heel counter and compression elements control the user's foot pronation movement with substantially low acceleration from an initial heel strike phase to a loading phase of the gait cycle for the shoe.



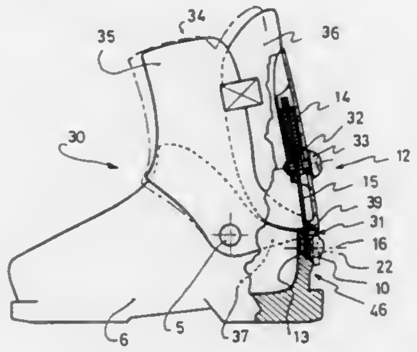
5,784,809
SNOWBOARDING BOOT
Steven C. McDonald, Portland, Oreg., assignor to The Burton Corporation, Burlington, Vt.
Filed Jan. 8, 1996, Ser. No. 585,186
Int. Cl.^{6} A43B *5/04*
U.S. Cl. 36—117.5 **19 Claims**



1. A snowboarding boot comprising:
a snowboarding boot upper; and
a snowboarding boot sole section joined to the snowboarding boot upper, the snowboarding boot sole section having a toe section and a heel section and including:
  a resilient outersole extending substantially from the toe section to the heel section, the outersole including outersole sidewalls at the toe section that extend upwardly in engagement with the snowboarding boot upper, the outersole sidewalls having a height that decreases from the toe section towards the heel section; and
  a midsole constructed from a semi-rigid cushioning material joined to the outersole and including midsole sidewalls tat extend upwardly at the heel section in engagement with the snowboarding boot upper, the midsole sidewalls having a height that decreases from the heel section towards the toe section;

  wherein the height of the midsole sideways is greater than the height of the outersole sidewalls adjacent the heel section and the height of the outersole sidewalls is greater than the height of the midsole sidewalls adjacent the toe section;
  wherein the snowboarding boot upper and the snowboarding boot sole section are constructed and arranged to provide a snowboarding boot with the specific stiffness, flexibility and lateral support required for the sport of snowboarding.

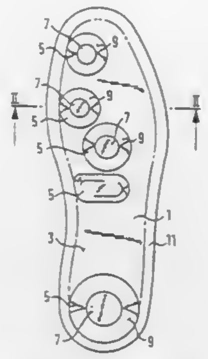
5,784,810
SKI BOOT
Laurent Bonaventure, Cran-Gevrier, France, assignor to Salomon S.A., Cedex, France
Continuation of Ser. No. 559,444, Nov. 15, 1995, abandoned. This application Aug. 8, 1997, Ser. No. 908,607
Claims priority, application France, Dec. 2, 1994, 94 14750
Int. Cl.^{6} A43B *5/04*
U.S. Cl. 36—118.2 **5 Claims**



1. A ski boot comprising a shell base (**6**) surmounted by an upper (**2**, **34**, **44**, **54**) jointed to said shell base around an axis (**5**) and a stiffness-control device (**12**) for limiting angular pivoting motion of said upper, said stiffness-control device comprising an upper support element (**13**) in the form of a pulley arranged on the upper (**2**, **34**, **44**, **54**) and a lower support element (**14**) arranged on a part of the shell base (**6**), said upper and lower support elements being connected by a connection member (**15**), one of said upper and lower support elements (**13**, **14**) being associated with a shoulder forming a rear support stop (**10**) of the upper (**2**, **34**, **44**, **54**), wherein the upper support element (**13**) of said stiffness-control device is rigidly linked to the rear support stop (**10**) along a common axis of rotation (**16**) embodied by a cylindrical bearing surface constituting an extension of said rear support stop (**10**), thus constituting a rotating assembly (**10-13**), and wherein the upper support element (**13**) and the rear support stop (**10**) are both moved off-center on a same side and by a same value in relation to the axis of rotation (**16**) of said rotating assembly (**10-13**), said rotating assembly remaining in fixed position on a part of said boot on which it is mounted.

5,784,811
SHOE INSOLE
Walter Mauch, Klemensplatz 10, W-4000, Düsseldorf 31, Germany, assignor to Walter Mauch, Dusseldorf, Germany
Continuation of Ser. No. 200,306, Feb. 23, 1994, abandoned, which is a continuation of Ser. No. 934,466, Sep. 15, 1992, abandoned. This application Sep. 30, 1997, Ser. No. 944,103
Claims priority, application Germany, Mar. 15, 1990, 90 02 962.3
Int. Cl.^{6} A43B *13/40;13/38*
U.S. Cl. 36—141 **21 Claims**

1. A method of selectively massaging at least one reflex zone of a foot-sole of a shoe wearer, comprising
  (a) providing a shoe insole comprising:



  a flat base-sole corresponding to a shoe contour, said shoe insole being made of a single piece of foam with a shore hardness A of 30° to 45°,
  said shoe insole comprising a plurality of integral cushion-elevations formed thereupon, with each of said cushion-elevations comprising an elevation section which gradually increases in thickness from a surface of said base-sole to a peak region which comprises a thickest portion of each cushion-elevation, and wherein each of said elevation sections fully encompasses one corresponding peak region, each peak region comprising an essentially flat plateau area which forms a rest surface upon which a foot-sole can rest, said peak regions projecting upward from the base-sole by a thickness which is up to twice a mean thickness of an area of the base-sole adjoining the cushion-elevations,
  wherein a first circular flat plateau area, fully encompassed by said elevation section, is formed in a heel region of said insole,
  wherein a second circular flat plateau area, fully encompassed by said elevation section, is formed in a toe region of said insole, and
  wherein a third circular flat plateau area, fully encompassed by said elevation section, and a fourth elongated flat plateau area, fully encompassed by said elevation section, are formed in a mid region of said insole between said heel region and said toe region,
  (b) contacting the shoe insole with the foot-sole, and
  (c) applying pressure to the shoe insole with the foot-sole to selectively massage at least one reflex zone of the foot-sole.

5,784,812
METHOD OF CONTROLLING THE POSITIONING OF AN OUTFIT TILTING CYLINDER MOUNTED ON THE DESCENDING LIFT FRAME OF MOVABLE CONSTRUCTION MACHINES
Gustav Leidinger, Friedberg; Walter Kolb, Augsburg, and Günter Brönner, Kissing, all of Germany, assignors to O&K Orenstein & Koppel AG, Berlin, Germany
PCT No. PCT/EP95/02721, § 371 Date Jan. 10, 1997, § 102(e) Date Jan. 10, 1997, PCT Pub. No. WO96/02707, PCT Pub. Date Feb. 1, 1996
PCT Filed Jul. 12, 1995, Ser. No. 666,436
Claims priority, application Germany, Jul. 13, 1994, 44 24 621.8; Oct. 19, 1994, 44 37 300.7
Int. Cl.^{6} E02F *5/02*
U.S. Cl. 37—348 **16 Claims**

1. A method for the positionally correct placement of an operating equipment including a scoop tiltably disposed on a descending lift frame of a mobile machine including a wheeled loader, the method comprising the steps of:
  actuating an automatic positioning device thereby activating a first magnetic valve utilizing a logical switching device cooperating with the automatic positioning device for switching a tilting piston of a control slide operatively connected to a tilting cylinder and to the lift frame into a position in which the control slide releases an oil flow to the tilting cylinder;
  conveying the oil flow utilizing a controlled pump;

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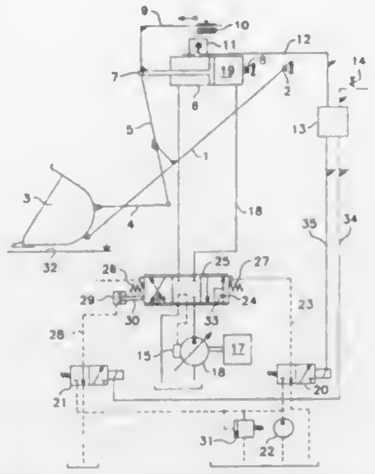


performing a plurality of measurements of a traveled distance of a piston rod of the tilting cylinder at predeterminable places during a continued extension of the piston rod thereby obtaining distance measurement values;

triggering a first signal in response to a first one of the distance measurement values for activating a second magnetic valve utilizing the logical switching device for moving the tilting piston into a position where a predeterminable reduced oil flow is released to the tilting cylinder; and

triggering, during a slowed-down, extending movement of the piston rod, a second signal in response to a second one of the measurement values for deactivating the logical switching device with respect to the first magnetic valve and the second magnetic valve and for interrupting an oil flow to the tilting cylinder.

5,784,813
SPOOL AND WEDGE ASSEMBLY

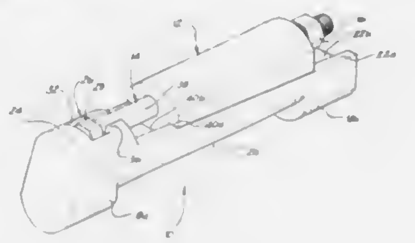
Oscar Balassa, Queensland, and Bruce Wells, Kings Langley, both of Australia, assignors to Cutting Edges Pty. Limited, New South Wales, Australia

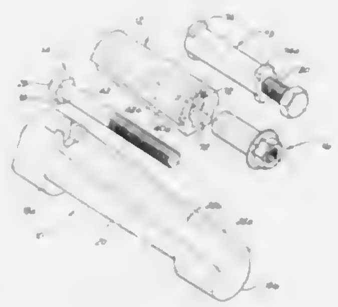
Filed Sep. 11, 1996, Ser. No. 712,260

Claims priority, application Australia, Sep. 13, 1995, PN5406

Int. Cl.⁶ E02F ***9/28;3/14***

U.S. Cl. 37—455 **18 Claims**





1. A spool and wedge assembly for attaching a replaceable implement to an earthworking bucket, the spool and wedge assembly including:

at least one spool having a first surface,

at least one wedge having a second surface,

the first and second surfaces co-operating to form a ramp arrangement which causes lateral expansion of the spool and wedge assembly upon relative axial movement in a first direction in which said surfaces are drawn towards each other,

bolting means for forcing said relative movement in said first direction, and

disengagement means separately activatable from said bolting means for causing relative movement of said spool and said wedge in a second direction opposite said first direction.

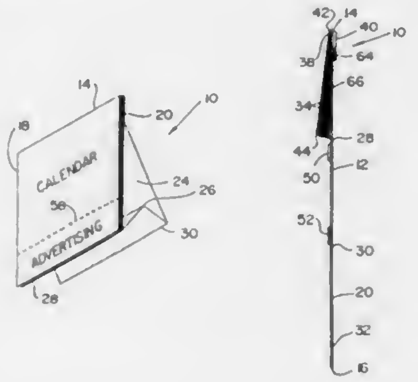
5,784,814
CALENDAR DISPLAY

Richard M. Capehart, Richmond, Va., assignor to Innovative Creations, Inc., Richmond, Va.

Filed Feb. 26, 1996, Ser. No. 605,844

Int. Cl.⁶ G09D ***3/04***

U.S. Cl. 40—121 **15 Claims**



1. A display comprising:

a support defining first and second opposed edges and third and fourth opposed edges, and further defining opposed front and back surfaces;

said support defining a first scored line of structural weakness for aiding bending located substantially midway between said first and second opposed edges;

said support defining a second perforated line of structural weakness for aiding bending or severance located between said first scored line and said first edge;

said support defining a third scored line of structural weakness for aiding bending located between said first scored line and said second edge;

said support further defining a fourth scored line of structural weakness for aiding bending located between said third scored line and said second edge;

a plurality of stacked sheets bearing indicia and defining upper margins removably connected at said margins to each other and to said front surface of said support adjacent to said first edge;

a first adhesive strip located adjacent to said first edge on said back surface and between said first edge and said second perforated line;

wherein said second and third lines are located substantially equidistant from said first scored line; and

wherein each of said sheets defines first and second opposed edges and third and fourth opposed edges which are positioned in substantial alignment with said first edge of said support, said second perforated line, and said third and fourth edges of said support, respectively.

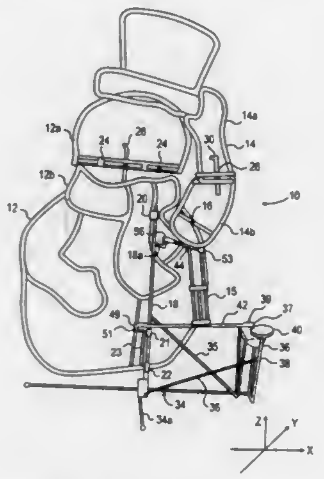
5,784,815
LIGHTED SCULPTURE WITH PLURAL SYNCHRONIZED MOTIONS

Terry Hermanson, New York, N.Y., assignor to Mr. Christmas Incorporated, New York, N.Y.

Filed Oct. 4, 1996, Ser. No. 725,700

Int. Cl.⁶ G09F ***19/08***

U.S. Cl. 40—414 **56 Claims**



1. An animated display device comprising:

a main shaft having a first axis;

a display rotatably secured to said main shaft, said display including a first portion;

driving means for driving said display to oscillate about said main shaft in a primary motion; and

means for converting the primary motion of said display into a secondary motion, wherein said first portion moves in both the primary and secondary motions.

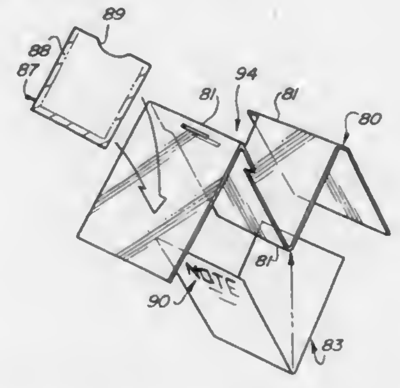
5,784,816
PROTECTIVE TICKET HOLDER AND MEMORABILIA DEVICE

Timothy J. Zapawa, 5951 Lodewyck St., Detroit, Mich. 48224-1311

Filed May 24, 1996, Ser. No. 653,175

Int. Cl.⁶ G09F ***3/18***

U.S. Cl. 40—654.01 **15 Claims**



12. A ticket holder adapted to be worn by a patron comprising:

a generally transparent laminated sheet including top and bottom surfaces, said sheet having a first side with a dimension greater than a second side of said sheet, said sheet formed with a plurality of parallel fold lines, said fold lines perpendicular to said first side of said sheet, said fold lines thereby defining an even number of adjacent panels, including innermost and outermost panels, said panels being hinged to each other along said fold lines common to adjacent panels, said fold lines being alternatingly formed in said top and bottom surfaces, said sheet folded along said fold lines to form the sheet into an accordion-like shape and to bring said panels into a superimposed substantially parallel relationship; and

an insert having printed information on at least one side, and said insert disposed between at least two of said panels in facing contact therewith, said insert fixed positionally by sealing at least a corresponding three edges of said outermost panels which do not include fold lines therewith.

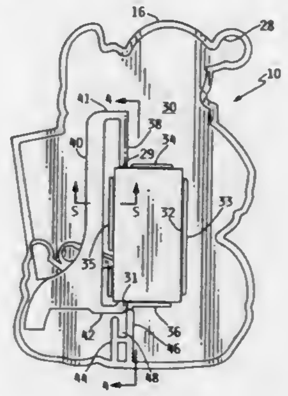
5,784,817
PICTURE HOLDER AND ORNAMENTAL FRAME

Jerome G. Behme, 2910 Zanzibar La., Plymouth, Minn. 55447

Filed Mar. 12, 1996, Ser. No. 614,401

Int. Cl.⁶ G09F ***1/12***

U.S. Cl. 40—748 **4 Claims**



1. A picture holder and ornamental frame, comprising:

a) a substantially flat top surface comprising an image portion, said surface being adapted for applying an ornamental image thereto;

b) a perimeter about said image portion having an edge shaped to conform to the outline of an ornamental image, said edge having a predetermined height extending rearwardly away from said top surface;

c) a photo recess formed at least partially into said top surface, said photo recess having a recessed surface offset lower than said top surface;

d) a rear surface being defined by the inverse side of said image portion and being recessed within the perimeter defined by said edge;

e) a hinged photo stand attached to said rear surface, said photo stand having a pivotal support foot connected to a hinge pin, and said hinge pin pivotally held against said rear surface; and

f) a pair of spaced apart walls arising from said rear surface, the space between said walls being aligned with said hinge pin and being adjacent and not in contact with an end of said hinge pin, whereby said hinge pin can be slidably moved in a linear motion along the axis of the hinge pin between said pair of spaced apart walls.

5,784,818
FIREARM HAVING A FIRE CONTROL SAFETY

N. Stuart Otteson, 1705 Dogwood Dr., Alexandria, Va. 22302

Filed Jul. 23, 1996, Ser. No. 681,555

Int. Cl.⁶ F41A ***17/00***

U.S. Cl. 42—70.04 **3 Claims**

1. In a firearm, a firing means, said firing means releaseably blocked by a trigger mechanism and a safety mechanism, said trigger mechanism having an actuating means operated by movement of the trigger finger in a direction parallel to the barrel bore to unblock the firing means, the improvement comprising a safety mechanism actuating means which operates by way of finger movement collinear with the finger movement employed to operate the trigger mechanism actuating means, the safety mechanism

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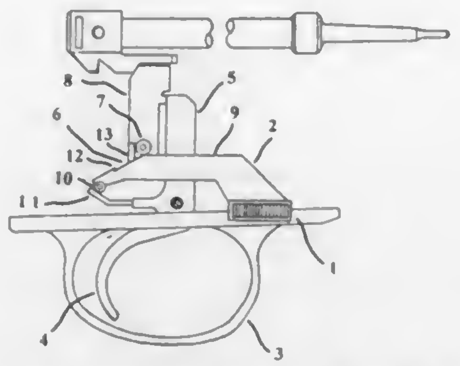


actuating means being located above and forward of the trigger mechanism actuating means and at a distance adjacent to the trigger mechanism actuating means which allows, without shifting from the preparation-to-fire handgrip on the firearm, the use of the same finger to operate both the trigger mechanism actuating means and the safety mechanism actuating means.

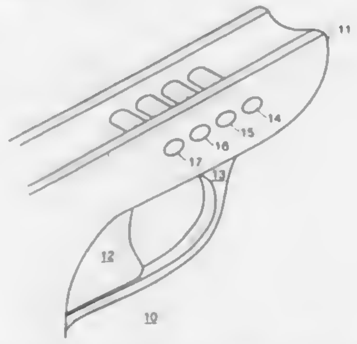
5,784,819
TRIGGER SAFETY LOCK

Richard Blair Roper, 717 White Oak Clr., Flowood, Miss. 39208

Filed Mar. 3, 1997, Ser. No. 810,643

Int. Cl.^{6} F41A *17/00*

U.S. Cl. 42—70.11 **2 Claims**



1. A safety lock device for a firearm trigger comprising an engagement portion movable to a position in which the engagement portion can be operatively locked to prevent movement of the trigger and block a firing mechanism; the safety lock consisting of lock members operatively movable to a locked configuration which locks movement of the engagement portion; the engagement portion monolithically connected to and operatively linked to the trigger of the firing mechanism; the engagement portion consisting of a sliding member with a notch and an open keyway; the lock members comprising sliding buttons that can be set to "on" or "off" settings for the locked and unlocked positions; each sliding button being notched perpendicular to its long axis and movable into a slot tube that is perpendicular to the engagement portion; and the engagement portion being notched perpendicular to its long axis such that when the sliding buttons are longitudinally moved to a position where the notches in the sliding buttons create an open keyway the engagement portion may move to allow operation of the trigger.

5,784,820
ARM STABILIZER

Kenneth C. Wood, RR 2 Box 228, Mouth of Wilson, Va. 24363

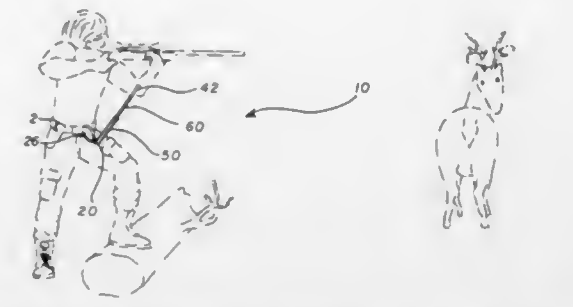
Filed Mar. 20, 1997, Ser. No. 821,210

Int. Cl.^{6} F41C *27/00*

U.S. Cl. 42—94 **9 Claims**

1. An arm stabilizer comprising:

a hip support member;



a telescoping support member extending from said hip support member, wherein said telescoping support member includes sleeve member having a first end and a second end, said first end attached to said hip support member,

an extension member matingly coupled within said sleeve member and selectively and adjustably extendable outward from said second end of said sleeve member, and

an extension locking means for locking said extension member in a selected position along said continuum of positions;

an arm support member rotatably attached to said telescoping support member opposite said hip support member for supporting an extended arm of a user of the arm stabilizer, said telescoping support member providing for selective adjustment of said arm support member along a continuum of positions;

a thumb screw having internal threads; and

a compression band coupled around said sleeve member near said second end, said compression band having an inner diameter less than an outer diameter of said sleeve member and having opposed ends with perpendicularly projecting portions, said perpendicularly projecting portions having external threads which threadingly mate with said internal threads of said thumb screw, said perpendicularly projecting portions provided in spaced relation and defining a spaced region which decreases when said thumb screw is tightened thereby compressing and tightening said compression band around said sleeve member and thereby compressing and tightening said second end of said sleeve member around said extension member.

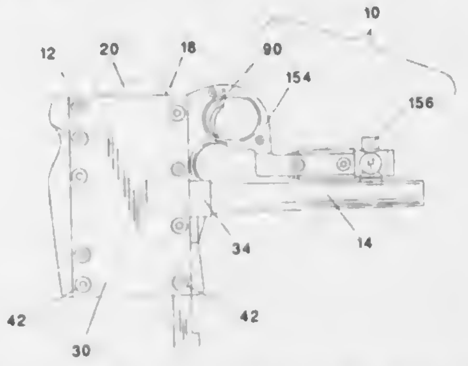
5,784,821
ELECTRICALLY DISCHARGED AND GAS OPERATED FIREARM

Donald G. Gerard, 2720 Birch Tree Dr., St. Charles, Mo. 63301

Filed Jul. 15, 1997, Ser. No. 892,917

Int. Cl.^{6} F41A *19/00*

U.S. Cl. 42—84 **33 Claims**



1. An electrically discharged and gas operated firearm comprising:

a main body, said main body having a front plate, back plate, left side plate and right side plates, said plates defining a chute through the center of said main body;

a barrel attachment means contained on said front plate and in alignment with a bore through said front plate from a front surface to said chute; a gun barrel being attached to said barrel attachment means;

a cassette having a plurality of lateral bores therethrough, said cassette slides into said chute in said main body, each of said lateral bores for receiving a cartridge and being a firing chamber for said cartridge;

a piston installed within a piston port in said main body, said piston being operated by gasses feed from the breech of said barrel through a gas port extending from said breech to said piston port;

a slide connected to and operated by said piston, said slide contained within an opening on said body and traveling in conjunction with said piston;

a pulldown link pivotally attached to said slide and positioned within an indentation on an inside surface of said chute, said pulldown link having a pawl to engage said cassette; as said slide operates said pulldown link said pulldown link operates to reposition said cassette in said chute;

an indexer link pivotally attached within an indentation within said chute, said indexer link pivotally operated by said pulldown link, said indexer link having an index link pin that engages or disengages an index cavity on said cassette as said indexer link is pivoted; said indexer link holding said cassette in a specific position when said index link pin is engaged with said index cavity in such a position that a bore containing a cartridge on said cassette is in alignment with said bore aligned with said barrel;

an electric trigger attached to an outside surface of said main body;

an electrical firing pin attached to and extending through an opening on said back plate of said main body, said electrical firing pin in alignment with said bore containing a cartridge in said cassette and in alignment with said barrel attached to said front plate of said main body; and

an electric circuit electrically attached between said electric firing pin and said electric trigger for providing a controlled electrical pulse to said electric firing pin when said electric trigger is actuated.

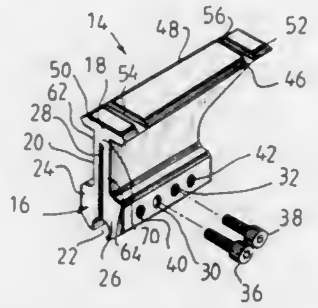
5,784,822
RELIABLE SCOPE MOUNT

Bob V. Korapaty, 5243 Grace Ave., Brownsville, Tex. 78521

Filed Apr. 15, 1997, Ser. No. 834,453

Int. Cl.^{6} F41G *1/387*

U.S. Cl. 42—101 **5 Claims**



1. A scope mount for retaining a scope on a rifle comprising:

a) a mount section for retaining said scope;

b) means for clamping said scope mount to said rifle;

c) said clamping means comprising a mid section connected at one end to said mount section and having first and second legs extending away from said mount section, said legs being spaced to form a spreader slot, and each of said legs terminating in ends shaped to engage said rifle;

d) said first and second legs having a pair of recesses, the recesses in one of said legs being threaded, adjacent said shaped ends accommodating threaded screw members for clamping said legs on said rifle;

e) said second leg having another threaded recess adjacent the shaped end thereof engaging said rifle accommodating a threaded screw member to engage said first leg to spread said legs for enlarging said spreader slot to permit said scope mount to be placed on or removed from said rifle; and

f) means to allow said scope mount to be radially adjustable from a standard vertical position atop said rifle.

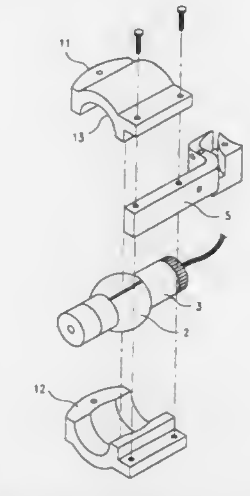
5,784,823
LASER SIGHT ASSEMBLY

Kuo-Ti Chen, Pin-Chen, Taiwan, assignor to Quarton Inc., Taipei, Taiwan

Filed Apr. 18, 1997, Ser. No. 844,331

Int. Cl.^{6} F41G *1/34;* **F41C** *3/14*

U.S. Cl. 42—103 **13 Claims**



1. A laser sight assembly comprising a casing adapted for fixing to a gun, a socket member mounted in said casing, and a laser module mounted in said socket member and controlled to emit a laser beam for guiding the eye, wherein said casing comprises a top shell and a bottom shell fastened together, said top shell comprising a plurality of through holes, a longitudinal channel, and a smoothly curved transverse groove on said longitudinal channel, said bottom shell comprising a plurality of screw holes respectively fastened to said through holes of said top shell by screws, a longitudinal channel matching with said longitudinal channel of said top shell, and a smoothly curved transverse groove on said longitudinal channel of said bottom shell; said socket member is mounted within said casing between said smoothly curved transverse groove of said top shell and said smoothly curved transverse groove of said bottom shell, and can be turned between said top shell and said bottom shell to adjust the firing angle of said laser module.

5,784,824
FISH RETAINER FOR ICE FISHING

Mike Myroniuk, Box 204, Myrnam, Alberta, Canada, T0B 3K0

Filed May 1, 1996, Ser. No. 641,492

Int. Cl.^{6} A01K *69/00*

U.S. Cl. 43—4 **6 Claims**

1. A fish retainer for ice fishing, comprising:

a base;

an elongate member depending substantially vertically from the base, the elongate member having a first end, a second end and a longitudinal axis, a fish retaining gate being asymmetrically mounted in a fixed substantially perpendicular orientation to the second end, the elongate member being mounted for rotation about the longitudinal axis, rotation of the elongate member resulting in orbital movement of the fish retaining gate on a substantially horizontal plane, the rotation of the

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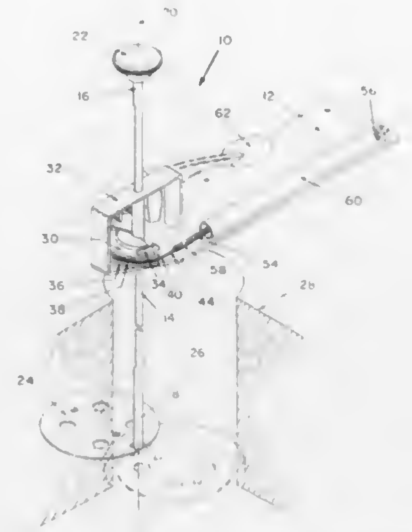


elongate member to a first rotational position positioning the fish retaining gate in a non-obstructing position and the rotation of the elongate member to a second rotational position positioning the fish retaining gate in an obstructing position;

biasing means urging the elongate member toward the second rotational position; and

locking means locking the elongate member in the first rotational position, such that upon the locking means being released the elongate member is urged by the biasing means to the second rotational position in which the fish retaining gate is in the obstructing position, the locking means including a catch support mounted to the elongate member, the catch support supporting a first catch that in the first rotational position mates with a second catch positioned on a pivotally mounted trigger member on the base, such that upon the trigger member being pivoted the second catch is disengaged from the first catch thereby permitting the elongate member to be urged by the biasing means to the second rotational position.

5,784,825

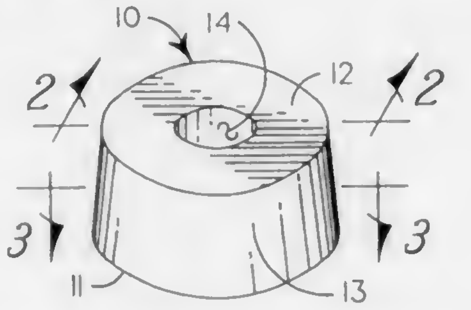
DISSOLUBLE FISHING SINKER

Nadine Ross, 4869 Hwy. 395 N., Kettle Falls, Wash. 99141

Filed Apr. 12, 1996, Ser. No. 629,935

Int. Cl.^{6} A01K *95/00*

U.S. Cl. 43—43.12 **3 Claims**



1. An annular dissoluble fishing sinker, comprising in combination:

a dried homogeneous mixture of from about 4 to 4.25 parts by volume of minus ten mesh sand; from about 0.25 to 1.33 parts by volume of particulated, water swellable cellulosic material; from about 0.667 to 1.0 parts by volume of wheat flour; and from about 1.5 to 2.667 parts by volume of gelatin solution comprising one-half ounce of dry animal gelatin dissolved in one quart of water.

5,784,826

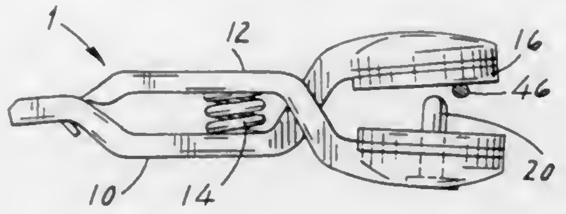
SAFETY FISHING LINE RELEASE

Jack A. Walker, N38 W27273 Parkside Rd., Pewaukee, Wis. 53072

Filed Jan. 24, 1997, Ser. No. 788,690

Int. Cl.^{6} A01K *91/03*

U.S. Cl. 43—43.12 **30 Claims**



1. A safety fishing line release for positively retaining a fishing line comprising:

a first arm;

a second arm;

a first frictional pad which is fastened to said first arm at a second end;

a second frictional pad which is fastened to said second arm at a second end, said frictional pads being fabricated from different material than said arms; and

a peg which protrudes outward from said second frictional pad, said first frictional pad and said first arm having a peg opening which is sized to loosely receive said peg.

5,784,827

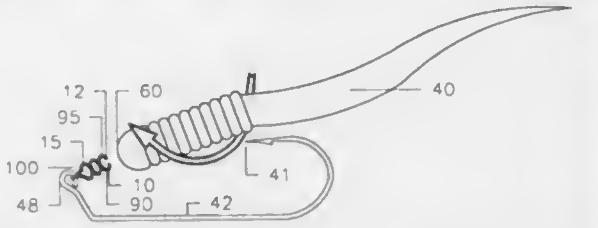
DEVICE FOR SECURING BAITS TO FISH HOOKS

Alfredo Jimenez, Jr., 255 Lake Ridge Dr., Seguin, Tex. 78155, and David Leon Bush, 3030 Morning Ridge, San Antonio, Tex. 78247

Filed Jun. 3, 1997, Ser. No. 868,165

Int. Cl.^{6} A01K *83/06*

U.S. Cl. 43—44.8 **11 Claims**



1. A device for securing a bait to a hook comprising: a filament formed in a serpentine configuration, said configuration having a first coil and a second coil, said coils having a first end and an open second end, said coils connected at said first ends and are diametrically opposed; and a self centering attachment for said baits consisting of the said open second ends of said coils; and a hook attachment consisting of the connection of said first ends of said coils.

5,784,828

SLIP-ON FISHING WEIGHT

Evan Thompson, 5026 E. Hawthorn, Tucson, Ariz. 85711

Filed Jul. 7, 1997, Ser. No. 888,546

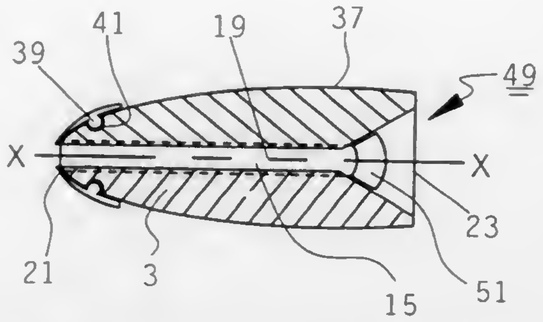
Int. Cl.^{6} A01K *95/00;95/02*

U.S. Cl. 43—44.9 **9 Claims**

1. A weight for a fishing line comprising:

a) a weighted body defined by an outer surface, having an overall specific gravity greater than one;

b) said body further defined by forward and rearward end portions in spaced-apart arrangement aligned along a longitudinal central axis;



c) said body having an axial bore formed therein passing therethrough interconnecting said forward and said rearward end portions;

d) an elongated hollow tube pivotally mounted in and concentrically aligned in said axial bore, terminated by first and second distal ends;

e) said body and said tube each having formed therein a radial slot extending along the entire length thereof and extending outward from said central axis for receipt therein of the fishing line;

f) first means exterior said first distal end portion of said tube and extending outward from said tube for turning said tube in said body to rotate said tube slot to a position relative to said radial body slot; said means including cooperative detent means formed in said body and bump means formed in said tube for inter-engagement therewith and, further, at least one arm extending outward from said first distal end of said tube and bent backward over said outer surface of said body and having said bump means formed therein for entrance into said detent means; and,

g) second means cooperating with said first means for retaining said tube in said body.

5,784,829

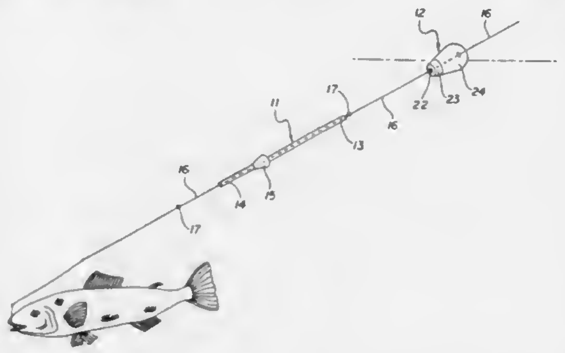
FISHING BOBBER

Charles H. Latta, 235 Aspen Dr., Birmingham, Ala. 35209

Filed Jan. 7, 1997, Ser. No. 779,756

Int. Cl.^{6} A01K *93/02*

U.S. Cl. 43—44.91 **9 Claims**



1. A fishing bobber assembly for use in combination with a fishing line, comprising:

a) means for indicating movement of said fishing line, wherein said indicating means is secured to said fishing line for substantially concomitant movement therewith, said indicating means comprising an elongated buoyant material having a longitudinal axis and an upper portion and a lower portion wherein said upper portion tends to float above the surface of water, said indicating means further comprising blocking means formed on said lower portion thereof; and

b) means for slidably engaging said indicating means relative to said longitudinal axis, said engaging means having an axial bore therethrough for receiving said upper portion of said indicating means therein, wherein a diameter of said axial bore is less than a diameter of said blocking means such that said engaging means cannot slide thereover, said engaging means comprising a buoyant material such that said engaging means tends to float at the water surface, wherein said buoyant material has a buoyancy less than the buoyancy of said indicating means such that during casting of said fishing line, said engaging means will slide along said longitudinal axis in a first longitudinal direction to abut said blocking means to impart greater inertial mass to said indicating means, wherein said engaging means offers no resistance to movement of said indicating means in a second longitudinal direction opposite said first longitudinal direction such that said indicating means can become easily disengaged from said engaging means when said indicating means is pulled in said second longitudinal direction such that said engaging means remains at the water surface.

5,784,830

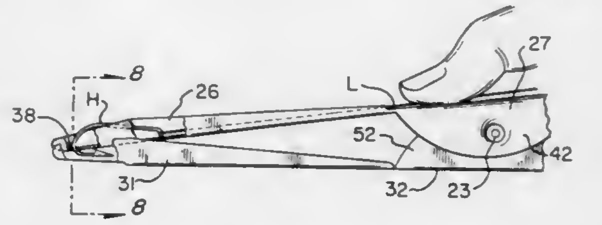
FISH HOOK REMOVING DEVICES

John H. Brumfield, 4610 Emerald Dr., Colorado Springs, Colo. 80918

Filed Jan. 2, 1996, Ser. No. 582,115

Int. Cl.^{6} A01K *97/18*

U.S. Cl. 43—53.5 **12 Claims**



1. A hand-held fish hook removing device comprising:

a top member and a bottom member pivotally connected to one another between opposite front and rear ends to rotate about a pivot axis between a first position and a second position in a rocker motion,

said top member having a top front portion having a top base wall portion with a longitudinally extending open top slot opening in the front end for receiving a fish hook, a top intermediate portion and a top handle portion,

said top intermediate portion being generally an inverted U shape having a top base wall portion and a pair of spaced downwardly extending top side wall portions,

said bottom member having a bottom front portion arranged to cover a hook barb of said fish hook when said fish hook is in said top member, a bottom intermediate portion and a bottom handle portion,

whereby when said fish hook is embedded inside a fish said fish hook is received in said top slot by a movement of said top front portion and bottom front portion into the inside of a fish, said fish hook is released for the removing of said fish hook from the mouth of said fish,

said bottom intermediate portion being generally U-shaped having a bottom base wall portion and a pair of spaced upwardly extending bottom side wall portions,

said pair of top side wall portions overlapping said pair of bottom side wall portions and releasably fastened in a rocker hinge at said pivot axis about which said top member and bottom member rock back and forth between said positions,

said pair of top side wall portions having a pair of aligned first indentations and said bottom pair of wall side portions having a pair of aligned second indentations that receive and slidably interfit with said aligned first pair of indentations, said pairs of first and second indentations being slidably engaged and caused to flex for releasably holding said top and bottom members at said pivot axis for pivotal movement and enabling ready assembly and disassembly of the top and bottom members,

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an elongated horizontally extending inside slot in said top base wall portion rearwardly of said open top slot for passing a weight on a hook having a shank and barb end and supporting said shank along said top base wall portion,

said bottom front portion having a longitudinally extending open bottom slot opening at the front end for receiving said barb end,

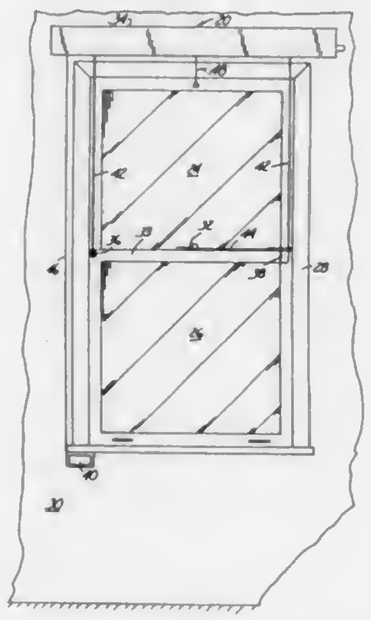
each of said top and bottom front portions being generally U-shaped in cross section and upright to open at the top, each of said top and bottom front portions having a straight base section and spaced, straight side sections, and tapered toward the front end, said side sections being concavely rounded at a front end, said top front portion nesting in said bottom front portion in said first position to maintain alignment of and reinforce said pivotal connection between said first and second pairs of indentations,

said bottom front portion having a pair of opposed recesses opening in the top of said side sections of said bottom front portion to hold a first hook and a second hook of a treble hook gripped between said top and bottom front portions against movement with a third hook of said treble hook extending through said open bottom slot for the removal of said treble hook from the mouth of a fish.

5,784,831
WINDOW PROPELLING SYSTEM

Michael A. Licking, 1129 Boulevard, Sturgis, S. Dak. 57785
Continuation-in-part of Ser. No. 303,408, Sep. 9, 1994, Pat. No. 5,595,026. This application Jan. 21, 1997, Ser. No. 786,622
Int. Cl.⁶ E05B *65/10*

U.S. Cl. 49—141 — 2 Claims

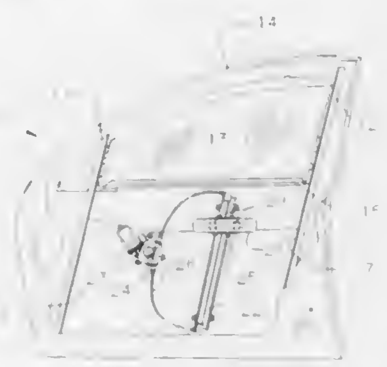


1. An emergency window propelling system, the system comprising:
- a lift cable system for attachment to a window;
- uni-directional forced fluid motion means to operate the lift cable system to propel open the window to which the lift cable system is attached; and
- coupling means connecting the lift cable system to the forced fluid motion means when the window to which the lift cable system is attached is closed to permit the forced fluid motion means to propel the window open, the coupling means disconnecting the lift cable system from the forced fluid motion means to permit manual opening and closing of the window.

5,784,832
SELF ALIGNING WINDOW REGULATOR

Michael F. LeeVan, South Bend, Ind., assignor to Excel Industries, Inc., Elkhart, Ind.
Filed Nov. 18, 1996, Ser. No. 746,826
Int. Cl.⁶ E05F *11/48*

U.S. Cl. 49—352 — 7 Claims

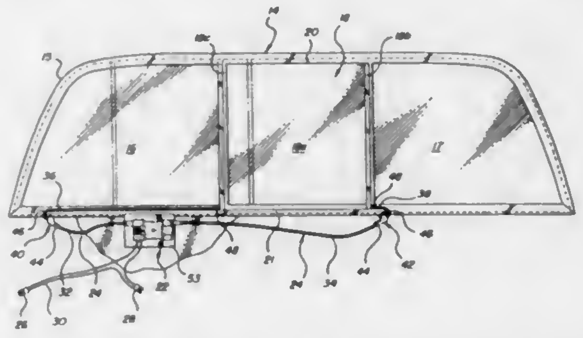


1. A self-aligning cable-drum window regulator comprising, in combination:
- a windowpane slidably mounted in a window opening of a motor vehicle door;
- a rail fixedly attached to the door;
- a glider slidably mounted on the rail;
- a slide connected to one of the windowpane above a bottom edge of the windowpane and the glider; and
- a C-channel having upper and lower flanges defining a generally rectangular area snugly receiving the slide;
  wherein the C-channel is connected to the other of the windowpane above a bottom edge of the windowpane and the glider, allowing for at least limited fore and aft adjustment of the windowpane relative to the window opening by sliding of the slide in the C-channel.

5,784,833
SILDING WINDOW WITH MOTOR-DRIVEN REGULATOR

Edward Sponable, Novi, and Raymond Zeller, Westland, both of Mich., assignors to Hi-Lex Corporation, Battle Creek, Mich.
Filed Aug. 14, 1996, Ser. No. 696,657
Int. Cl.⁶ E05F *11/48;11/53*

U.S. Cl. 49—360 — 6 Claims



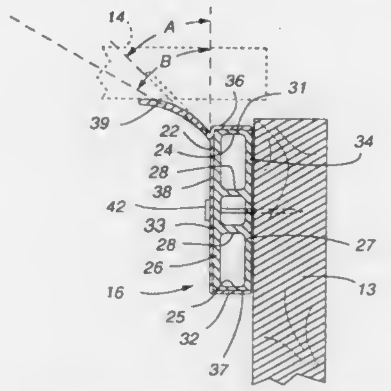
1. A power-driven sliding window assembly for an automotive vehicle wherein a window regulator mechanism moves a window along a substantially horizontal path between an open and a closed position, the window having a bottom edge retained along substantially its entire length in a lower guide rail and slidable linearly therein between the open and closed positions, the regulator mechanism comprising:
- a drive unit comprising a reversible electric motor and a cable drum driven by the motor;

- a first cable guide disposed adjacent a first end of the lower guide rail in substantially coplanar alignment with the window;
- a second cable guide disposed adjacent a second end of the lower guide rail in substantially coplanar alignment with the window;
- a first cable length having a first end connected to the window adjacent a first lower corner thereof and a second end engaging the cable drum, the first cable length extending from the cable drum to engage the first cable guide and extend therefrom along a first path substantially parallel with and above the lower guide rail to reach the window; and
- a second cable length having a first end connected to the window adjacent a second lower corner thereof and a second end engaging the cable drive drum, the second cable length extending from the cable drum to engage the second cable guide and extend therefrom along a second path substantially parallel with and above the lower guide rail to reach the window.

5,784,834
DOOR SEAL

Ellis D. Stutzman, 8070 Meade, Westminster, Colo. 80030
Filed Jan. 3, 1997, Ser. No. 775,969
Int. Cl.⁶ E06B *7/16*

U.S. Cl. 49—475.1 — 14 Claims

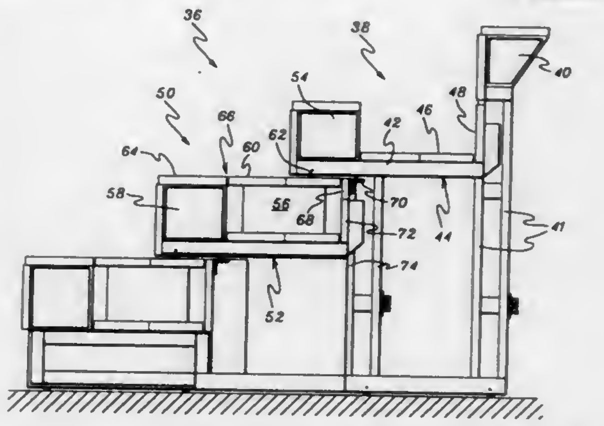


1. A door seal for sealing a gap between a garage door and a garage door frame comprising:
- a hollow, rigid base portion having an outer face, an inner face, a front end face, and a rear end face, said inner face being adapted for mounting to the garage door frame, said base portion being made of a rigid first compound of a plastic material and extruded, said base portion having a front end wall, a rear end wall, an outer wall and an inner wall arranged as a rectangle and a pair of spaced intermediate walls spaced from and inwardly of said front and rear end walls and connected to said outer and inner walls, and
- a flexible combination cover and seal portion secured to and extending at least only over said outer face and said rear end face, said cover and seal portion having a flap adapted for engaging the garage door when the garage door is closed and sealing the gap between the garage door and garage door frame, said flap extending at an angle from said outer face, said cover and seal portion being made of a flexible second compound of said plastic material and coextruded with said base portion to form an integral unit with said base portion, and a plurality of apertures at spaced intervals along and extending through said outer and inner walls between said intermediate walls to receive fasteners to secure a base portion to said door frame beam.

5,784,835
TELESCOPING SEATING SYSTEM WITH CONTINUOUS FOOT EXTENSION SUPPORT

Louis Robert McArthur, Jr., 105 Mill St., Corinth, N.Y. 12822
Filed Jun. 26, 1996, Ser. No. 670,676
Int. Cl.⁶ E04H *3/12*

U.S. Cl. 52—9 — 12 Claims

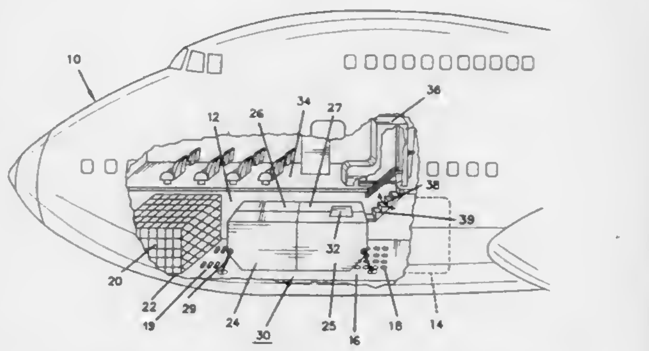


1. A support structure for a telescoping seating system including a plurality of seating levels, each seating level above a lowest seating level including a seat member and a foot extension member, each seat member below a highest seat member being coupled to the foot extension member of a next higher seating level, the support structure comprising:
- one or more support members coupled to or integral with the foot extension member of a first seating level, an upper surface of each of the one or more support members being substantially coplanar with an upper surface of the seat member of a second seating level directly below the first seating level; and
- a wheel coupled to the foot extension member of a third seating level directly above the first seating level, wherein the upper surface of the seat member of the second seating level and the upper surface of each of the one or more support members together substantiallycontinuously support the wheel between a closed position and an opened position of the telescoping seating system.

5,784,836
DEMOUNTABLE COMFORT MODULES FOR PASSENGER AIRCRAFT

Stephen D. Ehrick, Yorba Linda, Calif., assignor to BE Aerospace, Inc., Wellington, Fla.
Filed Nov. 3, 1994, Ser. No. 333,967
Int. Cl.⁶ E04H *1/00*

U.S. Cl. 52—79.8 — 4 Claims



1. A mountable and demountable system for providing sleeping compartments for passengers in an aircraft, comprising:
- a set of container modules having outer configurations that each substantially conform to the volumetric configurations of

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standardized cargo containers, the modules each having at least two open sides and at least two outer side walls, and being configured to nest together to define a single housing bounded by the outer side walls, the modules being joined at facing open sides to define a substantially larger enclosed volume having a multiple spaced apart sleeping compartments disposed to be accessible from the interior of the housing;

sleeping surfaces disposed in the sleeping compartments of the modules such that each is accessible from the interior wherein at least some of the sleeping surfaces protrude from the open sides of the modules into the interior of an abutting adjacent module when nested together, and

means in at least one wall of the modules for providing access to the interior of the housing from the exterior.

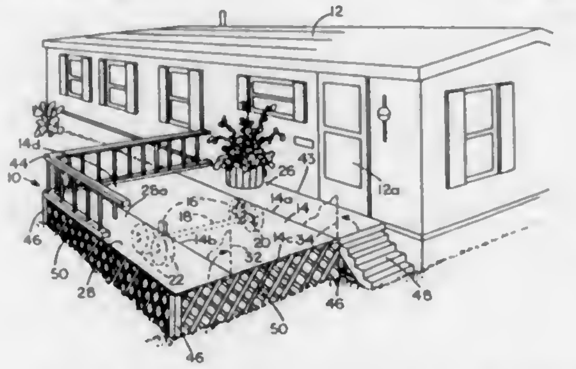
5,784,837
COLLAPSIBLE TRANSPORTABLE DECK FOR A HOUSE TRAILER OR MOBILE HOME

Darrel J. Klein, R.R. 2, Box 17, Breckenridge, Minn. 56520, and Darin D. Klein, P.O. Box 63, Holyoke, Colo. 80734

Filed Jan. 24, 1996, Ser. No. 590,881

Int. Cl.^{6} E04H *1/12*

U.S. Cl. 52—143 **26 Claims**



1. A portable and collapsible deck suited for use at the entrance of a house trailer or mobile home comprising,

a floor having opposed longitudinally extending side edges and opposed laterally extending front and rear edges,

at least one movable wall having a first edge at the level of the floor,

fastening means for connecting one of the side edges of the floor and said first edge of the wall,

said wall is movable between a) a vertical collapsed position extending upwardly from one side edge of the floor when the deck is being transported and b) a horizontal deployed position extending laterally from the floor such that the floor and wall cooperate to provide a flat, horizontally disposed substantially continuous deck surface that includes said floor and said wall,

rotatable ground engaging supporting wheels below the deck,

wheel support means that is separate from the wall and aligned below the floor for holding the wheels below the floor and in contact with the ground at all times to directly support the floor,

said movable wall being supported by the floor,

the wall being movable independent of the wheels between said horizontal and vertical positions,

a plurality of spaced apart columns located beneath the deck and extending upwardly from the ground for supporting the deck in a fixed position with the wall spaced above the ground when in the horizontal deployed position,

coupling means at one end of the deck to facilitate connecting the deck to a towing vehicle when the deck is to be transported from one location to another,

said deck having at least one mating edge that is adapted to be placed adjacent a wall of the house trailer or mobile home,

such that the deck can be located adjacent to the entrance of the house trailer to enable a person to walk from the house trailer or mobile home onto the deck when the deck is deployed and the deck can be collapsed for being transported by means of the towing vehicle from one location to another while supported on the wheels.

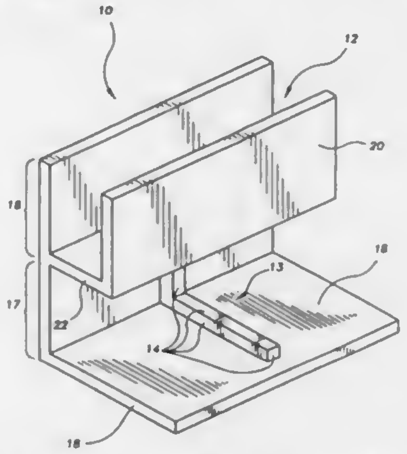
5,784,838
DRAIN FOR DRAINING WATER FROM A BASEMENT FLOOR

Jeffery L. Phillips, 118 Logtown Rd. Ext., Fultonville, N.Y. 12072

Filed Mar. 28, 1997, Ser. No. 828,426

Int. Cl.^{6} E02D *19/00*

U.S. Cl. 52—169.5 **13 Claims**



1. A drain for draining water from a basement floor or foundation, comprising:

a) a channel having a vertical back wall, a vertical front wall parallel to the back wall, and a bottom wall perpendicular to the front and back walls and connected between the front and back walls to form a base of the channel;

b) a connecting wall extending below the channel and co-planer with the back wall, having a front and back surface;

c) a connecting base extending parallel to and spaced from the bottom wall, and connected to one end of the connecting wall, the connecting base having a front and back surface; and

d) a drain tube being perpendicular to the channel, extending from the bottom wall, through the connecting wall and connecting base, and forming a void along the back surfaces of both the connecting wall and the connecting base.

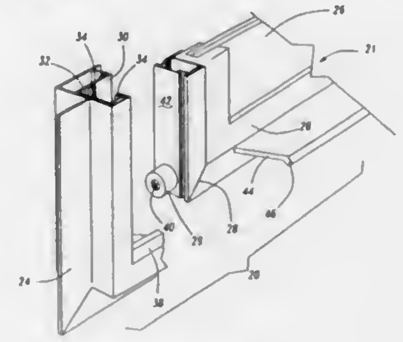
5,784,839
EASY TO ASSEMBLE WINDOW

Edward K. LaVanway, Troy, Mich., assignor to Weather King Windows and Doors, Inc., Farmington, Mich.

Filed Feb. 21, 1997, Ser. No. 803,998

Int. Cl.^{6} E05D *15/22*

U.S. Cl. 52—204.1 **5 Claims**



1. A window assembly comprising:

a window frame to be received in a building, said window frame defining a generally rectangular shape, said generally rectangular shape having sides which are to extend vertically in an assembled position, said sides defining a channel along at least the majority of the length of said sides;

a window pane surrounded by a sash frame, said sash frame receiving pivot pins at each side, said pane and said sash frame defining a sash, said pivot pins defining a pivot axis for said sash frame in said window frame, and said pivot pins being sized to be received within said channels in said side window frame such that said pins may move within said channel along the majority of the length of said sides;

said window frame has a rear face extending along the portion of each said side of said window frame which defines said channel, and said window frame has a forward ledge defined along a bottom of said window frame extending generally horizontally in an assembled position, said window sash being pivotable within said window frame between opened and closed positions, and said window sash having structure abutting both said rear face and said forward ledge when in said open position to stop further pivoting movement of said window sash relative to said window frame:

said window sash contacts said rear face at a rear lower corner of said window sash, and said window sash being formed with a ledge extending forwardly of said sash frame, said ledge contacting said forward ledge of said window frame to provide said two stop locations; and

said contact between said corner and said face is above a central axis of said pivot pins when said window sash is mounted in its intended orientation, and the contact between said ledge and said forward ledge is below the center axis of said pivot pin such that the combined stops provide a secure mount of said window sash.

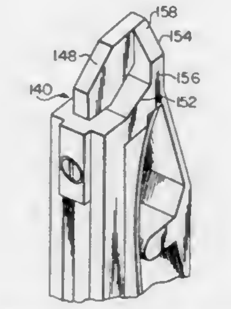
5,784,840
ADJUSTABLE WINDOW CONSTRUCTION

Earl L. Dodson, Roanoke, Va., assignor to Lineal Technologies, Inc., Roanoke, Va.

Filed Dec. 23, 1996, Ser. No. 771,509

Int. Cl.^{6} E05F *1/00*

U.S. Cl. 52—204.5 **16 Claims**



1. A vertically adjustable window construction comprising in combination:

a window casing defining a window opening and having on each side of said opening a vertical guide, a vertical slot adjacent said guide and facing said window opening, and an elongate vertical passage behind and communicating with said slot;

a window member located in said window opening and having sides configured to slidably mate with and be retained between said guides;

a sash carrier slidable in each of said passages and connected through said slot to said window member;

an elongate biasing member at least partially housed in each of said passages and attached to said sash carrier for upwardly biasing said sash carrier to at least partially counterbalance the weight of said window member; and

an elongate cover member in each of said passages located alongside said biasing member and covering at least a portion of said slot in the region above said window member, the lower end of said cover member being engageable by said sash carrier when said sash carrier reaches its uppermost position;

wherein the upper end of said sash carrier is tapered and dimensioned to progressively engage said cover member to gradually slow said sash carrier and lessen its impact with said cover member.

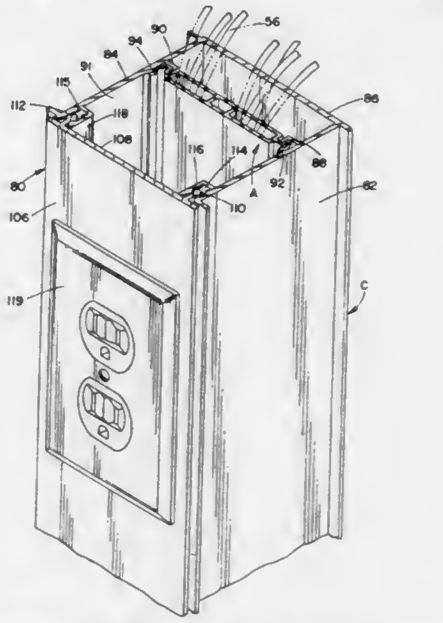
5,784,841
ELECTRICAL RACEWAY HOUSED IN A STRUCTURAL MEMBER

Jeffrey A. Nowell, Hudson, Ohio, assignor to Patio Enclosures, Inc., Macedonia, Ohio

Filed Jan. 11, 1996, Ser. No. 583,947

Int. Cl.^{6} H02G *3/00*

U.S. Cl. 52—220.5 **24 Claims**



6. A structural member for a building, comprising:

a one piece elongated support member having a pair of legs defining a trough therebetween and a projection extending into said trough from each of said legs; and,

an electrical raceway removably secured to said support member, said raceway comprising:

- a tubular housing having a first end and a second end and a channel extending longitudinally through said housing from said first end toward said second end, said channel being adapted to accommodate an associated electrical conductor,
- a first wing projecting away from a first side of said tubular housing, and
- a second wing projecting away from a second side of said tubular housing, said first and second wings cooperating with said projections of said support member to secure said tubular housing in said support member, and

wherein said first wing and said second wing are resilient spring clips which clip into the projections of the elongated support member.

5,784,842
ROOF ARRANGEMENT COMPRISING TARPAULINS AND A PLURALITY OF LATTICE GIRDERS

Anton Wackerbauer, Martinsried, Germany, assignor to WACO, Wackerbauer & Co., Eichenau, Germany

Filed Jul. 17, 1996, Ser. No. 682,210

Claims priority, application Germany, Jul. 18, 1995, 195 26 197.6

Int. Cl.^{6} E04B *1/18*

U.S. Cl. 52—222 **27 Claims**

1. A roof arrangement for suspending a plurality of tarpaulins in overlapping arrangement between a plurality of lattice girders, the roof arrangement comprising in combination:

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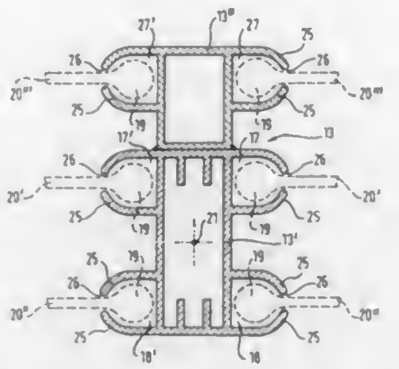


a plurality of tarpaulins, each tarpaulin having at least a central tarpaulin expanse and paired parallel edges, each of the paired parallel edges having pipings defining expanded thickness to the tarpaulin expanse at the edges thereof;

at least a pair of side-by-side spaced apart lattice girders, each of the lattice girders including,

an upper elongate chord;

a lower elongate chord underlying the upper elongate chord;

a medial elongate chord disposed between the upper elongate chord and the lower elongate chord;

interconnecting members extending between the upper elongate chord, the lower elongate chord and the medial elongate chord for fastening said members into the lattice girder;

at least an upper groove member attached to the lattice girder opening at least to one side of the lattice girder to receive and retain a first tarpaulin piping with the tarpaulin extending from the groove member; and,

at least a lower groove member attached to the lattice girder opening at least to the one side of the lattice girder to receive and retain a tarpaulin piping with the tarpaulin extending from the groove member;

the respective groove members facing one another from the side-by-side spaced apart lattice chords;

a first tarpaulin threaded at the pipings to the upper groove member of the lattice girders; and,

a second tarpaulin threaded at the pipings to the lower groove member of the lattice girders;

whereby when the lattice girders are spaced side-by-side, respective first tarpaulins and second tarpaulins are placed in the upper groove member and in the lower groove member to at least overlap one another to form the roof arrangement.

5,784,843

INTEGRATED PREFABRICATED FURNITURE SYSTEM FOR FITTING-OUT OPEN PLAN BUILDING SPACE

Ernest P. Greer, Grand Rapids, Mich.; Robert J. Luchetti, Cambridge, Mass.; David A. Shipman; Jack A. Tanis, both of Grand Rapids, Mich.; Gregg Robert Draudt, Watertown; Anne C. Ackerly, Cambridge, both of Mass., and Michael Tingley, Portland, Oreg., assignors to Steelcase Inc., Grand Rapids, Mich.

Filed Dec. 30, 1994, Ser. No. 367,804

Int. Cl.^{6} E04B *2/74*

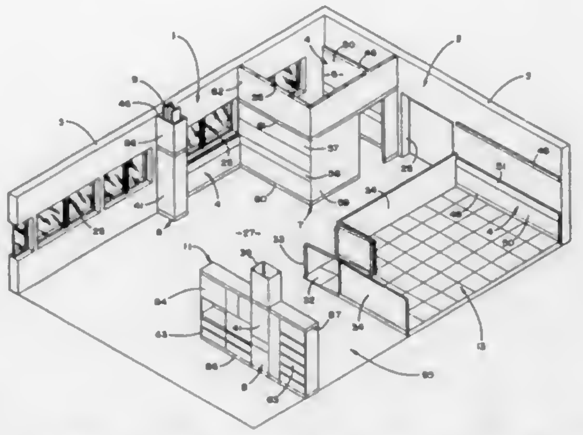
U.S. Cl. 52—220.7 **30 Claims**

1. An integrated prefabricated furniture system for fitting-out building space of the type having a generally open plan interior defined by fixed walls, comprising:

a demountable architectural wall system for covering the fixed walls of an associated building room, including:

a plurality of horizontally extending mounting channels for attachment to the fixed walls along upper and lower portions thereof;

a plurality of horizontally extending belt zone utility troughs for attachment to the fixed walls at a position vertically in between the upper and lower portions thereof, adjacent a predetermined worksurface height;



a plurality of cover panels, at least some of which are full width and have a horizontally elongated front elevational shape, and are detachably attached to said mounting channels and said utility troughs to thereby cover the fixed walls;

a portable partition system for spatially dividing the open plan interior of the associated building room into a plurality of work settings, including:

a plurality of freestanding panels detachably interconnected side-by-side in a predetermined plan configuration and having:

internal frames, at least some of which carry a horizontally extending utility raceway positioned adjacent the predetermined worksurface height; and

a plurality of cover panels, each having a horizontally elongated front elevational shape, and being detachably attached to opposite sides of said frames to enclose the same; and wherein

said belt zone utility troughs on said demountable architectural wall system, and said utility raceways on said portable partition system have a substantially equal width and are positioned at a common height to present a uniform horizontal appearance datum throughout the building room, and permit the continuous routing of utilities therethrough.

5,784,844

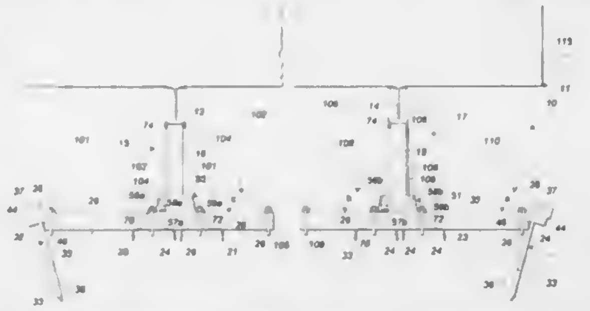
FOUNDATION FOR MANUFACTURED HOME

Charles J. Mackarvich, 1720 Tyler Green Trail, Smyrna, Ga. 30080

Continuation-in-part of Ser. No. 629,834, Apr. 10, 1996. This application May 9, 1996, Ser. No. 644,069

Int. Cl.^{6} E02D *27/00*

U.S. Cl. 52—292 **14 Claims**



1. A support assembly for supporting a manufactured home including parallel first and second support joists above a ground surface, said support assembly including:

a first upright pier and a second upright pier adapted to be aligned with each other across a length of the support joists of the manufactured home with each pier having an upper end, said upper end of each of said first upright pier and said second upright pier for supporting the first joist and the second joist respectively, said first upright pier and said second upright pier each having a lower end for placement adjacent the ground surface;

a first tie down shoe and a second tie down shoe positioned at the lower end of said first upright pier and said second upright pier respectively;

tie down anchors adapted to be anchored in the ground, a first tie down anchor positioned adjacent an outer side of said first upright pier, a second tie down anchor positioned adjacent an outer side of said second upright pier; and

a first anchor tie and a second anchor tie, said first anchor tie and said second anchor tie connected to said first anchor and said second anchor respectively and said first anchor tie and said second anchor tie adapted to extend at an upward incline from said first anchor and said second anchor and over the first support joist and the second support joist respectively and downwardly from the support joists to connect to said first tie down shoe and said second tie down shoe respectively.

5,784,845

OPEN-CELL FOAMS IN ROOFING SYSTEMS

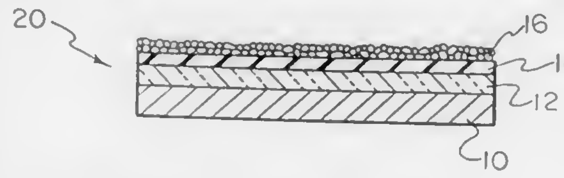
Daniel D. Imeokparia, Pickerington; Creston D. Shimdt, Nashport; Kyung W. Suh, Granville, and Michael J. Ennis, Reynoldsburg, all of Ohio, assignors to The Dow Chemical Company, Midland, Mich.

PCT No. PCT/US95/04261, § 371 Date Oct. 31, 1996, § 102(e) Date Oct. 31, 1996, PCT Pub. No. WO96/00335, PCT Pub. Date Jan. 4, 1996

PCT Filed Apr. 6, 1995, Ser. No. 737,203

Int. Cl.^{6} E04C *2/20;* **E04D** *1/22*

U.S. Cl. 52—408 **23 Claims**



1. A roofing system for a structure, comprising:

a) a roof deck;

b) a protective layer of a plurality of panels of an extruded alkenyl aromatic polymer foam situated above and adjacent the deck, the foam comprising an alkenyl aromatic polymer material having greater than 50 percent by weight alkenyl aromatic monomeric units, the foam having 30 percent or more open cell content; and

c) a substantially waterproof membrane situated above and adjacent to the foam panels.

5,784,846

STRUCTURE AND METHOD OF REDUCING AND REDISTRIBUTING UPLIFT FORCES ON MEMBRANE ROOFS

Raymond D. Godschalx, Rancho Cucamonga, Calif., assignor to Building Materials Corporation of America, Wayne, N.J.

Continuation of Ser. No. 479,312, Jun. 7, 1995, which is a continuation-in-part of Ser. No. 316,595, Sep. 30, 1994, Pat. No. 5,579,619. This application Jul. 24, 1997, Ser. No. 900,053

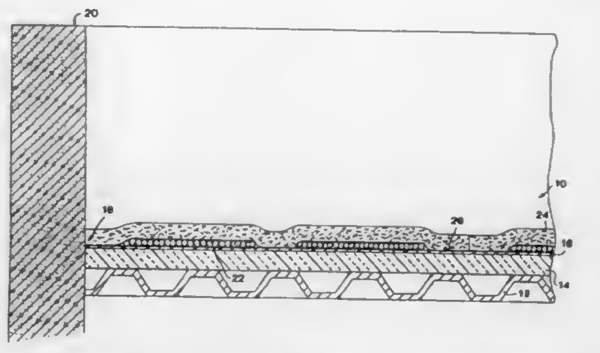
Int. Cl.^{6} E04B *5/12*

U.S. Cl. 52—409 **5 Claims**

1. A method of reducing and redistributing uplift forces on a flat roof resulting from a wind blowing over the roof at a rooftop wind speed creating a pressure differential, comprising the steps of:

providing a flat roof having a membrane; and

installing an air permeable and resilient mat, constructed of randomly aligned fibers which are joined by a binding agent, over the membrane, the mat having openings of a size to reduce the wind velocity over the membrane from that of



rooftop wind speed while the openings being of a size that the mat is not lifted by the pressure differential therein reducing and redistributing uplift forces on the membrane.

5,784,847

SUSPENSION SYSTEM FOR FALSE CEILINGS

Per Wiklund, Boden, Sweden, assignor to AW Nordic System AB, Vuollerim, Sweden

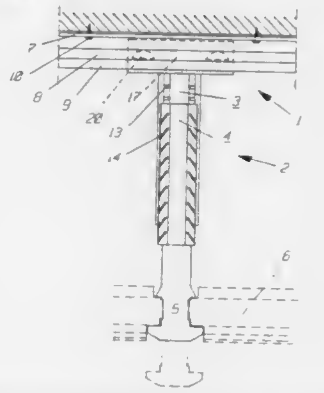
PCT No. PCT/SE95/01025, § 371 Date Mar. 3, 1997, § 102(e) Date Mar. 3, 1997, PCT Pub. No. WO96/09449, PCT Pub. Date Mar. 28, 1996

PCT Filed Sep. 12, 1995, Ser. No. 793,591

Claims priority, application Sweden, Sep. 22, 1994, 9403194

Int. Cl.^{6} E04B *5/52*

U.S. Cl. 52—506.07 **5 Claims**



1. A suspension system for mounting of a false ceiling comprising:

a system of ceiling rails adapted to be connected to an existing ceiling,

a number of suspension pendulums adapted to be mounted in said ceiling rails (1), each of which comprises:

an upper telescopic part having means for mounting of said part in a ceiling rail, and

a lower telescopic part having means for connecting false ceiling plates to said suspension pendulums,

said telescopic parts of each suspension pendulum being slidable in relation to each other and having a substantially C-shaped horizontal cross section having branches which are at least slightly resilient so as to enable interconnection of said telescopic parts, and

said upper and lower telescopic parts being formed with cooperating snap locking means.

5,784,848

ROOFING SYSTEM AND SHINGLE

Philip Toscano, 265 Kings Hwy., Clarksboro, N.J. 08020

Filed Nov. 5, 1996, Ser. No. 744,124

Int. Cl.^{6} E04D *3/24;3/36*

U.S. Cl. 52—519 **23 Claims**

1. A shingle for a roof comprising:

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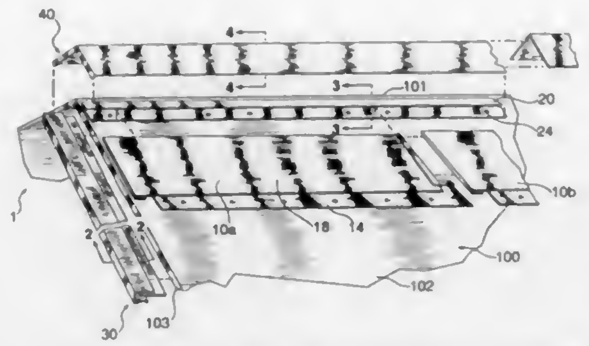


- a panel having a bottom edge, a first side edge and a second side edge;
- a bottom flange attached to and extending continuously along at least a portion of the bottom edge wherein the bottom flange is offset laterally from the bottom edge of the panel;
- a plate having a flat, rectangular shape attached to the bottom flange distal to the panel and extending continuously along the bottom flange;
- wherein the plate is offset laterally from the bottom edge of the panel, forming a projection which extends beyond at least one side edge of the panel and wherein the panel, the bottom flange and the plate form an S shape;
- a first side flange attached to and extending along at least a portion of the first side edge; and
- a second side flange attached to and extending along at least a portion of the second side edge.

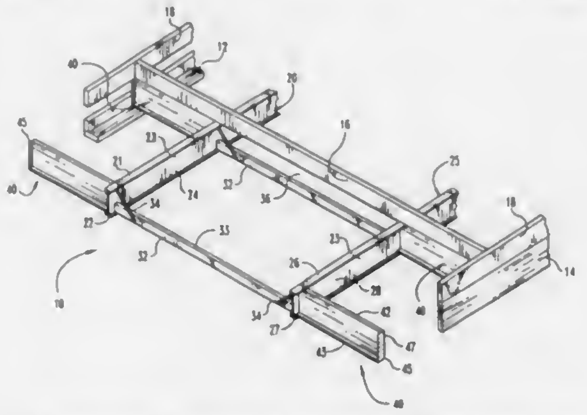
5,784,849
FLOOR FRAME ASSEMBLY

David L. DeVon, Elkhart; Brian J. Ellias, Granger; David E. Ganger, Goshen, all of Ind., and John F. Hughes, Edwardsburg, Mich., assignors to Banks Lumber Company, Inc., Elkhart, Ind.

Continuation of Ser. No. 232,803, Apr. 22, 1994, Pat. No. 5,579,622. This application Nov. 7, 1996, Ser. No. 744,984

Int. Cl.^{6} E04C *2/38*

U.S. Cl. 52—653.1 **8 Claims**



5. A combination comprising a plurality of floor frame assemblies set upon a foundation, each of said floor frame assemblies including first and second structural support beams, said first and second structural support beams arranged side by side and extending in a longitudinal direction, said first structural support beam including an outwardly directed side surface and an inwardly directed side surface, said second structural support beam including an outwardly directed side surface and an inwardly directed side surface, said first structural support beam inwardly directed side surface faces said second structural support beam inwardly directed side surface;

- each of said floor frame assemblies further including a plurality of cross members connecting said first structural support beam to said second structural support beam from one of said inwardly directed side surfaces to the other, each of said cross members having a top surface and a bottom surface;
- each of said floor frame assemblies further including a first plurality of outriggers each rigidly secured to said first structural support beam and extending transversely from said first structural support beam outwardly directed side surface and a second plurality of outriggers each rigidly secured to said second structural support beam and extending transversely from said second structural support beam outwardly directed side surface and each of said outriggers being of a rectangular shape, having a top surface, a bottom surface, and an outer end; and
- each of said floor frame assemblies further including a beam member connected across said outer ends of at least said first plurality of outriggers;
- said plurality of floor frame assemblies being secured together with one of said beam members abutted and connected to another of said beam members; and the said second plurality of outriggers of at least two of said floor frame assemblies being supported upon said foundation.

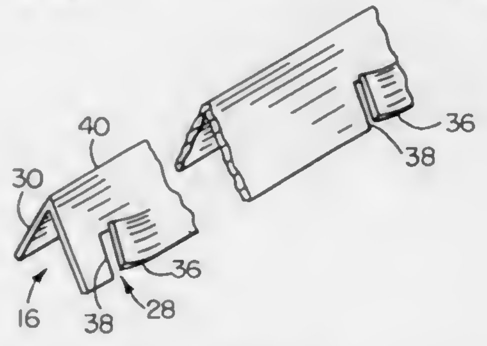
5,784,850
STUD WALL SYSTEM AND METHOD USING SPACER MEMBER

William L. Elderson, 1164 Lloyd Rd., Wickliffe, Ohio 44092

Filed Nov. 10, 1994, Ser. No. 337,625

Int. Cl.^{6} E04B *2/60*

U.S. Cl. 52—667 **18 Claims**



1. A stud spacer member comprising:

- an elongate member having a transverse cross-section in the shape of a V, said elongate member having longitudinally extending planar first and second portions joined at a vertex of the V and forming respective sides of the V; and
- each one of said first and second portions of said elongate member having an outer edge and at least three equal spaced notches disposed along the length thereof and opening to said outer edge for receiving and engaging therein a web of a metal stud, said notches each having at least one side thereof formed by a resilient flap, whereby the web of the metal stud may be biased against an opposite side of the notch, and wherein said notches are formed in said planar first and second portions of said elongate member and said resilient flap is permanently bent out of said planar first and second portions.

5,784,851
CENTRIFUGALLY CAST POLE AND METHOD

Tom W. Waugh, 1701 31st Pl., SW., Alabama, Ala. 35221

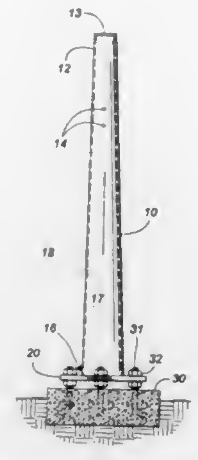
Filed Apr. 23, 1996, Ser. No. 636,389

Int. Cl.^{6} E04C *3/36*

U.S. Cl. 52—736.1 **5 Claims**

1. A centrifugally cast, ductile iron utility pole comprising:

- an elongated, hollow pole member which is formed by centrifugal casting so as to have an externally tapered shape with said pole member having a variable wall thickness and having variable outside cross-sectional dimensions whereby said wall thickness and said outside cross-sectional dimensions vary perpendicularly to the member's long axis and where said variable wall thickness varies proportionately to said outside cross-sectional dimensions so that the wall thickness imparted to the member by the centrifugal casting operation is progressively and uniformly increased from one end of the member to the other.



5,784,852

Patent Not Issued For This Number

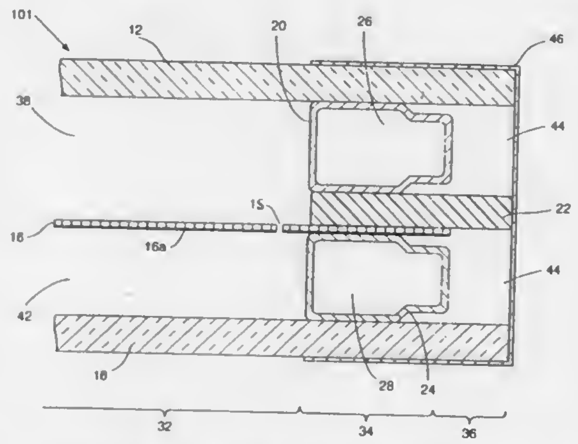
5,784,853
THERMALLY INSULATING MULTIPANE GLAZING STRUCTURE

Thomas G. Hood, San Francisco; Roger F. Iles, San Carlos, both of Calif., and Peter J. Millar, Zephyr Cove, Nev., assignors to Southwall Technologies Inc., Palo Alto, Calif.

Continuation of Ser. No. 896,478, Jun. 10, 1992, Pat. No. 5,544,465, which is a continuation-in-part of Ser. No. 389,231, Aug. 2, 1989, Pat. No. 5,156,894. This application Jul. 8, 1996, Ser. No. 676,816

Int. Cl.^{6} E06B *3/663*

U.S. Cl. 52—786.13 **13 Claims**



1. A multipane window glazing structure comprising three substantially parallel sheets of glazing held in spaced adjacent relationship to each other by peripheral spacers, the first and third of said three sheets of glazing being rigid glass or plastic and representing exterior faces of said structure and the second of said three sheets of glazing being a flexible transparent plastic sheet contained on the interior of said structure, the peripheral spacer between the first and second sheets of glazing comprised of a body of a physically stable closed cell foam polymer having a thermal conductivity of less than about 0.8 BTU/in×ft^2×hr×°F. extending around the periphery of the first and second glazing sheets and adhered to an additional spacer body having a hollow cross-sectional tubular structure which also extends around the periphery of the first and second glazing sheets, said additional spacer body being formed from a material other than physically stable closed cell foam polymer, said additional spacer body and said closed cell foam body together sized to span the spaced relationship between the first and second sheets of glazing with one of said closed cell foam body and said additional spacer body being adhered to the first glazing sheet and the other of said closed cell foam body and said additional spacer body being adhered to the second glazing sheet.

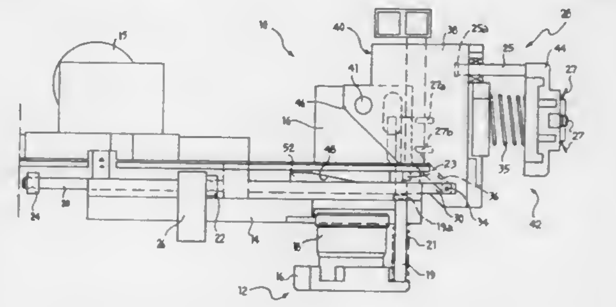
5,784,854
PERFORATING AND PLUGGING DEVICE FOR A MACHINE FOR DISPENSING DYES OR FLUID PRODUCTS IN GENERAL

Leopoldo Mazzalveri, Bologna, Italy, assignor to Corob S.p.A., Medolla, Italy

Filed Dec. 5, 1996, Ser. No. 760,747

Int. Cl.^{6} B65B *61/20*

U.S. Cl. 53—50 **7 Claims**



1. A perforating and plugging device for a machine for dispensing dyes or fluid products in general comprising at least one delivery nozzle and a support structure for at least one container, characterized in that it comprises:

- a perforating member which, in use, is intended to form a hole in a predetermined upper portion of the container substantially in vertical alignment with the at least one nozzle of the dispensing machine,
- a plugging member comprising a housing element movable selectively from a rest position in which the housing element is accessible from the front to receive a plug to an operative, plugging position in order, in use, to fit the plug in the corresponding hole formed in the container by the perforating member, and
- drive means for moving the plugging member from the rest position to the operative position in which the plug is substantially in vertical alignment with the at least one nozzle of the dispensing machine, and consequently, with the hole formed in the container by the perforating member,
- wherein the perforating member is coupled to a device for moistening the at least one nozzle of the dispensing machine and is movable selectively from the perforating position to a position of disengagement in order to free the at least one nozzle from the moistening device and to enable fluid products to be dispensed through the hole formed in the container.

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5,784,855
APPARATUS FOR THE PRODUCTION OF, IN PARTICULAR, CIGARETTE PACKS

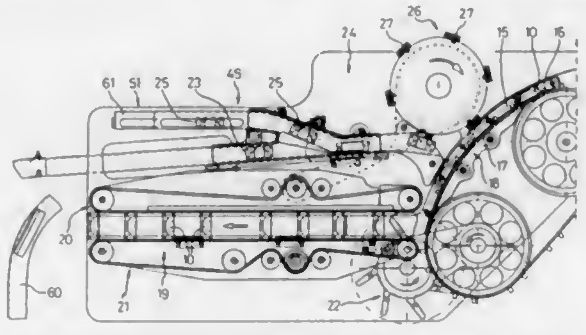
Heinz Focke, Verden, and Hans-Jurgen Bretthauer, Bremen, both of Germany, assignors to Focke & Co., Verden, Germany

Filed Oct. 23, 1996, Ser. No. 735,636

Claims priority, application Germany, Oct. 24, 1995, 195 39 417.8

Int. Cl.^{6} B65B *19/22;61/00*

U.S. Cl. 53—53 **16 Claims**



1. An apparatus for the production of packs (**10**), each having a pack content which is wrapped in a folding assembly by a blank of packaging material, said apparatus comprising:
- a) a discharge conveyor (**19**);
- b) a band conveyor (**15**) which is associated with said folding assembly and from which the packs (**10**) are transferred to said discharge conveyor (**19**), said band conveyor (**15**) having a conveying strand (**18**) on which the packs (**10**) lie;
- c) a pack conveyor;
- d) an outward-transfer wheel (**26**), associated with said band conveyor (**15**), for removing individual, selected ones of said packs (**10**) from said conveying strand (**18**) and for conveying the removed packs to said pack conveyor (**45**) for further transportation of the removed packs;
- e) means for rotating said outward-transfer wheel (**26**) in a vertical plane in synchronism with said band conveyor (**15**);
- f) a plurality of receptacles (**27**) which are mounted on a circumference of said outward-transfer wheel (**26**) at a distance from one another and which are adapted for controlled gripping of the individual packs (**10**),
- g) the receptacles (**27**) having suction heads, pressurized by a partial vacuum, for gripping the packs (**10**); and
- h) means for controlling the partial vacuum so that the receptacles grip only said individual, selected packs (**10**), while all other packs remain on the conveying strand (**18**) for transfer to said discharge conveyor (**19**).

5,784,856
ROUND BALE PRESS FOR REFUSE AND REFUSE PACKING DEVICES WITH SUCH A ROUND BALE PRESS

Jakob Altvater, Bad Wurzach; Erwin Rampp, Wolfertschwenden, and Erich Sieger, Friedrichshafen, all of Germany, assignors to Altvater RPP 1200 GmbH, Germany

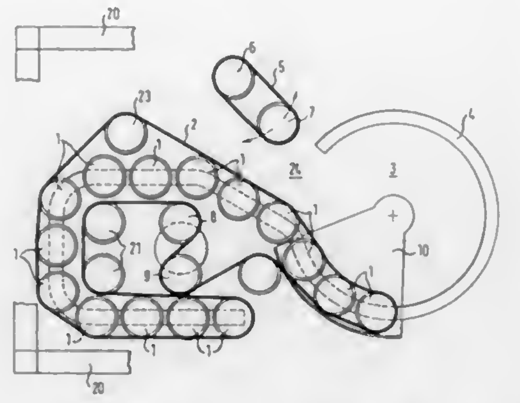
Filed Mar. 6, 1996, Ser. No. 611,425

Claims priority, application Germany, Oct. 2, 1995, 195 36 750.2

Int. Cl.^{6} B65B *63/04*

U.S. Cl. 53—118 **28 Claims**

25. A refuse packaging device, comprising:
- a round bale press having a pair of endwalls, a plurality of spaced rolls between the endwalls, at least one of the spaced rolls being driveable, at least one endless belt supported by the spaced rolls, and means for slidably supporting the spaced rolls for forward movement in a curved path to define a cylindrical pressing chamber with a feed opening on the periphery, the pressing chamber being capable of forming round bales, and for reverse movement of the rolls in the curved path to deliver the formed bales from the cylindrical pressing chamber,
- a wrapping apparatus arranged downstream of the round bale press for wrapping the formed round bales, wrapped peripherally in a netting web, in one or more foil webs, and
- a delivery station arranged beyond the wrapping apparatus for the refuse bales wrapped up completely with the foil web.



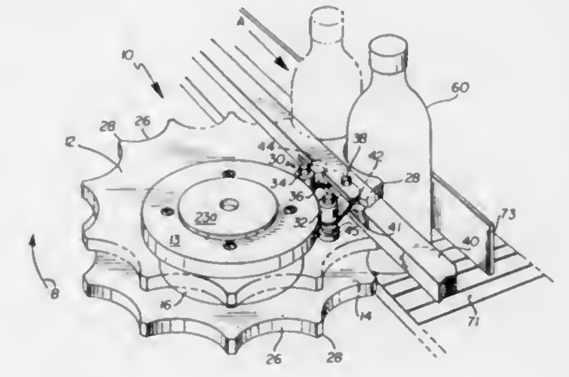
5,784,857
SELF- LOCATING STAR WHEEL SYSTEM FOR A PACKAGING MACHINE

Colin P. Ford, Woodstock, Ga., and Carl J. Taute, Merrifield, Minn., assignors to Riverwood International Corporation, Atlanta, Ga.

Filed May 13, 1997, Ser. No. 855,399

Int. Cl.^{6} B65B *35/30*

U.S. Cl. 53—201 **23 Claims**



1. A self locating star wheel system for use with articles processed by a machine:
- (a) a star wheel assembly having
  - (i) at least one star wheel;
  - (ii) a hub attached to said at least one star wheel;
  - (iii) a cam attached to said hub said cam having an outer surface;
- (b) means for supporting said star wheel assembly; and
- (c) a cam follower which engages said outer surface of said cam, said cam follower being connected to the machine, wherein a geometric relationship exists among said at least one star wheel, said cam and said cam follower such that when said outer surface of said cam is engaged with said cam follower, said star wheel is properly located with respect to a stream of the articles.

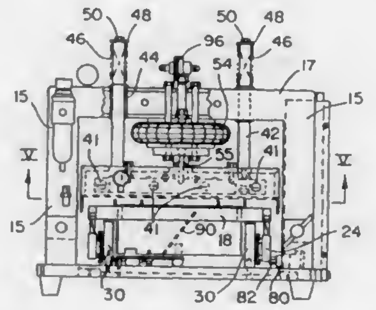
5,784,858
DRAWER ACTION TRAY SEALING MACHINE

Mark S. Lastovich, Rockford, and Perry R. DeYoung, Grand Rapids, both of Mich., assignors to Oliver Products Company, Grand Rapids, Mich.

Filed Apr. 8, 1996, Ser. No. 629,269

Int. Cl.^{6} B65B *7/28*

U.S. Cl. 53—329 **9 Claims**



1. A container and lid sealing apparatus comprising:
- a frame including fixed beams;
- a container support including a container receiver;
- rails mounting said support for horizontal movement thereof in a plane above an upper surface of said fixed beams between a loading-unloading position and a sealing position where said support overlies said fixed beams;
- said support being resiliently mounted to said rails to be depressible under vertical force for lowering said support onto said fixed beams;
- an upper heater platen suspended above said support and beams; and
- an air actuator above said platen actuable to force said upper heater platen downwardly onto a container and lid on said support, to force said support down onto said fixed beams and seal a lid onto a container on said support.

5,784,859
WRAPPING MATERIAL HAVING AN EXTENSION FOR DESIGN INDICIA FOR WRAPPING FLOWER POTS AND METHODS

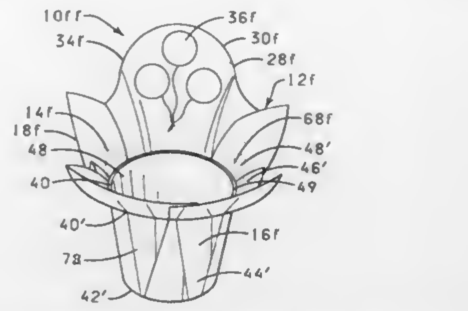
Donald E. Weder, Highland, and Lisa A. Straeter, Breese, both of Ill., assignors to Southpac Trust International, Inc.

Continuation-in-part of Ser. No. 973,471, Nov. 9, 1992, Pat. No. 5,544,469, which is a continuation-in-part of Ser. No. 865,563, Apr. 9, 1992, Pat. No. 5,245,814, which is a continuation of Ser. No. 649,379, Jan. 31, 1991, Pat. No. 5,111,638, which is a continuation of Ser. No. 249,761, Sep. 26, 1988, abandoned, said Ser. No. 973,471 is a continuation of Ser. No. 893,586, Jun. 2, 1992, Pat. No. 5,181,364, which is a continuation of Ser. No. 707,417, May 28, 1991, abandoned, which is a continuation of Ser. No. 502,358, Mar. 29, 1990, abandoned, which is a continuation-in-part of Ser. No. 391,463, Aug. 9, 1989, abandoned, which is a continuation-in-part of Ser. No. 249,761, Sep. 26, 1988, abandoned. This application Jun. 7, 1995, Ser. No. 479,296

Int. Cl.^{6} B65B *61/00;11/02*

U.S. Cl. 53—397 **6 Claims**

2. A wrapping method, comprising the steps of:
- providing a sheet of material having an upper surface, a lower surface and an outer periphery, the sheet of material being preformed into a flower pot cover comprising at least a base having an open upper end, a lower end, an inner periphery having a retaining space therein and an outer periphery;
- providing an extension having a design indicia thereon, the extension having an upper surface, a lower surface, and an outer periphery;
- providing a pot having an upper end, a lower end and an outer peripheral surface;
- disposing the extension on at least a portion of the outer peripheral surface of the pot;
- positioning the extension on the pot such that the extension extends a distance away from the pot, thereby effectively displaying the design indicia on the extension;
- connecting the extension to the pot; and
- disposing the pot into the open upper end of the preformed flower pot cover such that at least a portion of the outer peripheral surface of the pot is adjacent at least a portion of the inner periphery of the flower pot cover; and
- positioning the flower pot cover such that the extension extends a distance away from the flower pot cover.



5,784,860
SEALED BAG AND CONTAINER FOR ACCOMMODATING ELECTRONIC DEVICE, AND METHOD FOR FACILITATING STORING AND TRANSPORTING ELECTRONIC DEVICE USING SUCH SEALED BAG AND CONTAINER

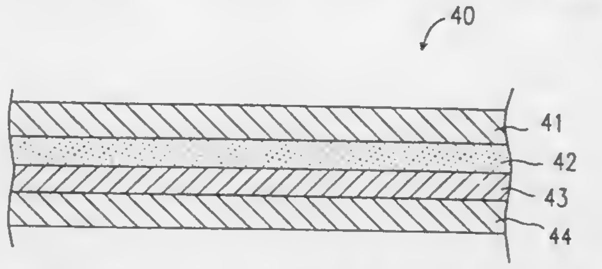
Hisashi Fujikawa, Mie-ken, and Youki Yoneda, Osaka, both of Japan, assignors to Sharp Kabushiki Kaisha, Osaka, Japan

Filed Jun. 27, 1996, Ser. No. 671,636

Claims priority, application Japan, Jun. 29, 1995, 7-163990; Mar. 15, 1996, 8-059854; May 21, 1996, 8-125994

Int. Cl.^{6} B65D *81/00*

U.S. Cl. 53—434 **12 Claims**



1. A sealed bag for vacuum-packing an electronic device in the state of being evacuated and partially thermally fused at an opening thereof, the sealed bag comprising a multi-layer film including:
- a first anti-static layer;
- a thin metal layer;
- an insulative layer; and
- a second anti-static layer

wherein the multi-layer film has a water vapor transmission of 0.1 (g/m^2· 24 hr.·40° C.–90% Rh) or less.

4. A method for facilitating storing an electronic device, comprising the steps of:
- inserting the electronic device into a sealed bag formed of a multi-layer film including a first anti-static layer, a thin metal layer, an insulative layer, and a second anti-static layer, wherein the multi-layer film has a water vapor transmission of 0.1 (g/m^2·24 hr.·40° C.–90% Rh) or less; and
- evacuating the sealed bag and thermally fusing an opening of the sealed bag to vacuum-pack the electronic device in the sealed bag.

8. A sealed bag for vacuum-packing an electronic device in the state of being evacuated and partially thermally fused at an opening thereof, the sealed bag comprising a multi-layer film including:

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a first anti-static layer;
a thin metal layer;
an insulative layer; and
a second anti-static layer

wherein the multi-layer film has an oxygen permeability of 0.1 (cc/m^2· 24 hr.·20° C.–100% Rh) or less.

11. A method for facilitating storing an electronic device, comprising the steps of:

inserting the electronic device into a sealed bag formed of a multi-layer film including a first anti-static layer, a thin metal layer, an insulative layer, and a second anti-static layer, wherein the multi-layer film has an oxygen permeability of 0.1 (cc/m^2·24 hr.·20° C.–100% Rh) or less; and

evacuating the sealed bag and thermally fusing an opening of the sealed bag to vacuum-pack the electronic device in the sealed bag.

5,784,861

COUPON INSERTING APPARATUS AND METHOD

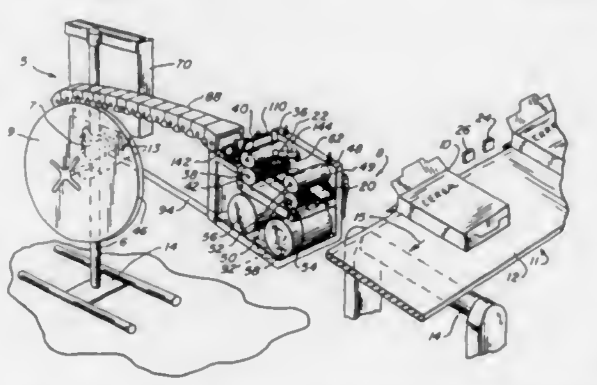
Thomas George Kotsiopoulos, Northfield, Ill., assignor to C. Joyce Witt, Barrington, Ill.

Continuation of Ser. No. 486,766, Jun. 7, 1995, Pat. No. 5,588,280, which is a continuation of Ser. No. 129,482, Sep. 29, 1993, abandoned, which is a continuation of Ser. No. 819,766, Jan. 13, 1992, abandoned, which is a continuation of Ser. No. 634,923, Dec. 21, 1990, Pat. No. 5,079,901, which is a continuation of Ser. No. 348,860, May 8, 1989, abandoned.

This application Oct. 24, 1996, Ser. No. 736,474

Int. Cl.^{6} B65H *25/10*

U.S. Cl. 53—435 **52 Claims**



20. A coupon inserter adapted to successively position coupons so that the coupons may be inserted into containers moving past a dispense location, said coupons being provided in a continuous web wherein a trailing edge of a forwardmost coupon is detachably connected to a leading edge of a successive coupon by a weakened separable portion disposed therebetween, said apparatus comprising:

opposed positioning rolls rotatably mounted and defining a bight such that said forwardmost coupon may be controlled between said positioning rolls;

opposed infeed rolls disposed upstream from said positioning rolls, said infeed rolls rotatably mounted and oriented for directing said forwardmost coupon toward said bight of said positioning rolls;

a positioning drive mechanism coupled to at least one of said positioning rolls for driving said positioning rolls at a first speed;

an infeed drive mechanism coupled to at least one of said infeed rolls operating in response to a control signal to drive said infeed rolls thereby effecting movement of said forwardmost coupon toward said bight of said positioning rolls in a feeding mode, said infeed drive mechanism operating in response to said control signal to rotate said infeed rolls at a speed less than that of the positioning rolls in a bursting mode when at least a portion of said forwardmost coupon is disposed between said positioning rolls and the weakened separable portion is disposed between said infeed rolls and said positioning rolls;

a coupon sensor disposed at a pre-dispense location in spaced relation from said positioning rolls adapted to detect the forwardmost coupon at the pre-dispense location; and

a control circuit providing said control signal to said infeed drive mechanism, said control signal being determined based upon a timing input signal provided by relating to when one of said containers will move past said dispense location and a sensing signal from said coupon sensor relating to the presence of coupons at said pre-dispense location, said control circuit providing said control signal in response to said timing data and said sensing signal in said bursting mode to decelerate said infeed rolls to a speed less than said first speed while said positioning rolls are rotated at said first speed so that said forwardmost coupon is separated from said continuous web and delivered toward said dispense location such that said one container will intercept said forwardmost coupon at said dispense location.

5,784,862

DEVICE FOR THE PACKING UNDER VACUUM OF PRODUCTS CONTAINED IN FLEXIBLE BAGS

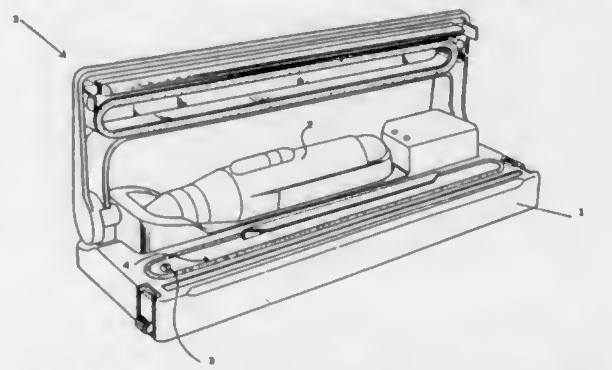
Maina Germano, Via Rossini, 3 - 20096 Pioltello (Milan), Italy

Filed Jan. 22, 1996, Ser. No. 589,537

Claims priority, application Italy, Jan. 27, 1995, MI950048 U

Int. Cl.^{6} B65B *31/00*

U.S. Cl. 53—512 **4 Claims**



1. An apparatus for packing products under vacuum in a plastic bag having an opening and wrinkled walls defining micro-ribs for the passage of air to be sucked from the opening, the apparatus comprising:

a base (1) defining a seat for receiving a suction device;

a self-contained suction device (2) removably engaged into said seat, said suction device having a suction point engageable with a container which is separate from said base, to evacuate the container when the suction device is removed from the seat;

first gasket means (9) on said base, defining a first chamber (4) for receiving the bag opening;

a wall member (10) in said first chamber and onto which the bag opening is engageable for holding the bag opening, open;

a warming element (16) on said base (1) spaced from said first gasket means (9) and at a location on said base for engaging across the bag when the bag opening is engaged with said wall member (10);

a cover (3) pivotally mounted to said base (1) for movement between a closed position and an open position;

second gasket means (13) defining a second chamber (12) in said cover (3), said second gasket means being positioned on said cover so that when said cover is in said closed position, said first and second gasket means engage each other to align said first and second chambers to be above and below the bag opening;

a pressing member (17) connected to said cover and spaced from said second gasket means, said pressing member being positioned on said cover so as to be aligned with said warming element (16) when said cover is in said closed position for sealing a bag whose opening is engaged with said wall member;

a duct (5) in said base and connected between said first chamber and said seat, said suction point of said suction device being engaged with said duct when said suction device is in said seat for establishing suction in said duct and in said first chamber when said first and second chambers are engaged with each other in said closed position of said cover; and

a manually operated valve (6, 7) connected in said duct and having a first position for communicating said suction point of said suction device with said first chamber and a second position communicating said first chamber with atmosphere for relieving any suction in said first chamber.

5,784,863

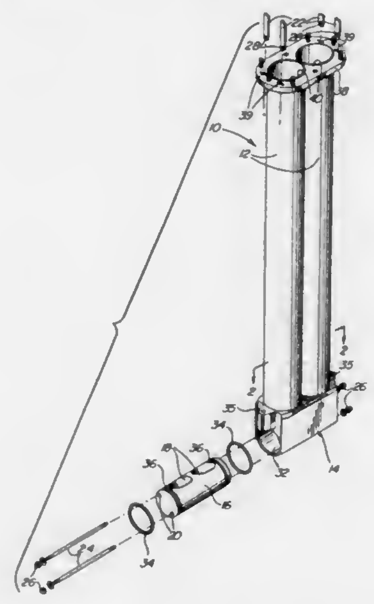
SANITARY FILL TUBE AND ROTARY VALVE ASSEMBLY FOR A POUCH PACKAGING MACHINE

Steven D. Davis, Yuciapa, Calif., assignor to Winpak Lane, Inc., San Bernardino, Calif.

Filed Jun. 2, 1997, Ser. No. 867,499

Int. Cl.^{6} B65B *9/12*

U.S. Cl. 53—551 **19 Claims**



1. A fill tube assembly for a form, fill and seal pouch packaging machine; comprising, in combination:

a pair of cylindrical fill tubes having upper ends and lower ends;

a plate means having a pair of apertures therein secured in the packaging machine and to the upper ends in alignment with the cylindrical fill tubes;

a forming spreader having an opening therein secured to the lower ends for forming a packaging film tube around said spreader;

a rotor means having a pair of passageways formed therein, sealing secured in the film forming spreader in alignment with the lower ends; and

operating means, guided by the plate means, secured to the rotor means for moving the pair of passageways between open and closed positions.

5,784,864

MACHINE FOR OVERWRAPPING BAGGAGE

Daniel Laury, Neuilly, France, assignor to Probag S.A., Paris, France

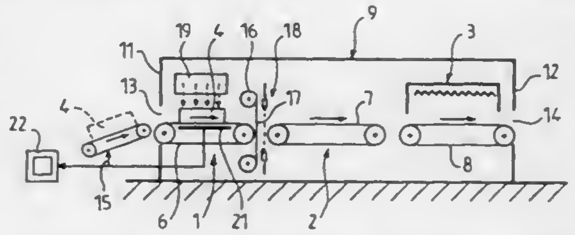
PCT No. PCT/FR95/00598, § 371 Date Nov. 8, 1996, § 102(e) Date Nov. 8, 1996, PCT Pub. No. WO95/30580, PCT Pub. Date Nov. 16, 1995

PCT Filed May 9, 1995, Ser. No. 737,289

Claims priority, application France, May 9, 1994, 94 05687

Int. Cl.^{6} B65B *53/02;57/00*

U.S. Cl. 53—557 **3 Claims**



1. Apparatus for overwrapping baggage, comprising in succession, upstream to downstream:

a baggage arrival station including an upstream conveyor for placing flat thereon baggage to be wrapped, and security control means operatively disposed for visually inspecting the contents of each piece of baggage placed flat on the upstream conveyor;

a station for forming a protective tubular enclosure, made of shrinkable thermoplastic material, around each piece of baggage, comprising an intermediate enclosing conveyor;

a third station including a downstream conveyor, and a tunnel oven for heat shrinking the protective tubular enclosure;

said conveyors extending in a horizontal direction and being aligned, and means for driving said conveyors in the same direction so as to obtain after the third station overwrapped baggage;

a common enclosure for housing said stations; and

ejection means for ejecting a piece of baggage indicated by the security control means as being suspect, said ejection means being constructed and arranged to stop advance of said baggage within the common enclosure and eject said baggage immediately after detection, and before said baggage reaches the station for forming the protective enclosure.

5,784,865

TRUCK-MOUNTED AGRICULTURAL FEED BAGGING MACHINE

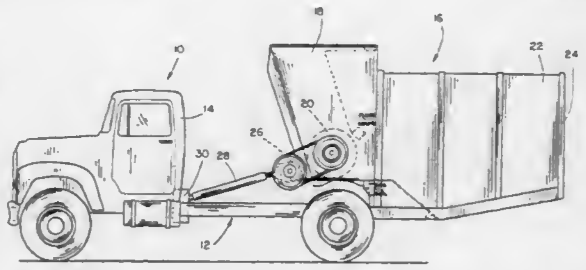
Steven R. Cullen, Astoria, Oreg., assignor to Versa Corp.

Continuation of Ser. No. 200,757, Feb. 22, 1994. This application Oct. 20, 1994, Ser. No. 326,467

The portion of the term of this patent subsequent to Mar. 29, 2011, has been disclaimed.

Int. Cl.^{6} B65B *9/10;1/24*

U.S. Cl. 53—567 **7 Claims**



1. In combination:

a self-propelled vehicle including wheeled frame means having an engine and all operator's cab mounted thereon, said vehicle having rearward and forward ends and a rear frame portion;

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and an agricultural feed bagging machine positioned on and supported by said rear frame portion of said vehicle for bagging agricultural feed material into agricultural bags having an open mouth;

said bagging machine comprising a frame means positioned on and supported by said rear frame portion; a tunnel on said frame means having an intake end for receiving the material to be bagged and an output end adapted to receive the open mouth of the agricultural bag; a hopper on said frame means forwardly of said tunnel for receiving the material to be bagged; and a horizontally disposed rotor rotatably mounted on said frame means at the intake end of said tunnel for forcing the material to be bagged from said hopper into said tunnel and into said bag, the pressure of the material forced into said bag urging said vehicle forwardly as said rotor fills said bag.

5,784,866

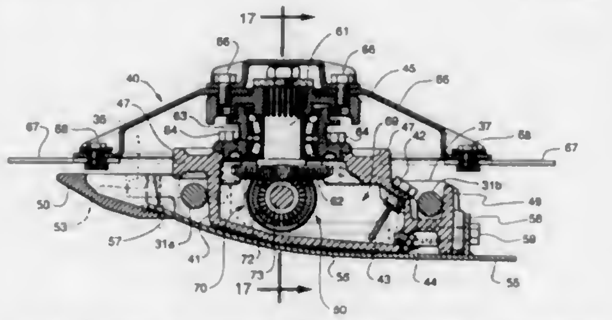
DISC CUTTERBAR FOR AGRICULTURAL IMPLEMENTS

Steven J. Campbell, and Kenneth W. McLean, both of New Holland, Pa., assignors to New Holland North America, Inc., New Holland, Pa.

Filed Jun. 25, 1996, Ser. No. 673,604

Int. Cl.^{6} A01D *34/66*

U.S. Cl. 56—6 **8 Claims**



1. In a modular disc cutterbar having a plurality of transversely spaced cutter modules interconnected in a modular configuration with alternating spacer modules, each said cutter module including a rotatable disc member having a knife mounted thereto for severing standing crop material by impact action upon rotation of said disc member, each said cutter module being rotatably driven by a drive mechanism interconnecting the cutter modules, an improved drive mechanism comprising:

a drive assembly mounted in each cutter module and having a shaft member, a drive gear mounted on said shaft member and two opposing hubs affixed, respectively, to opposing ends of said shaft member, each said hub having an exposed opening; and

a separate transfer shaft corresponding to each spacer module and spanning the distance between the adjacent said hubs on adjacent cutter modules, each said transfer shaft being independently disengageable from any corresponding hub to permit a disassembly of said drive mechanism at any selected transverse location along said disc cutterbar without disengagement of other transfer shafts.

5,784,867

VARIABLE FORCE TRACTION ENHANCE SYSTEMS

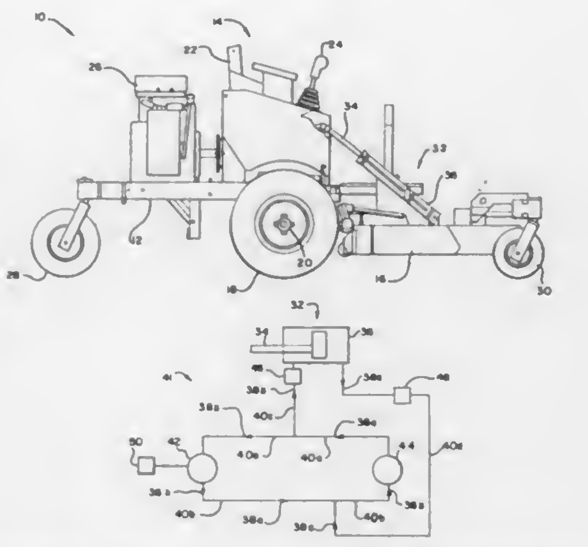
Douglas McFarland, 1625 19th Ave. #10, Route 2, Sidney, Nebr. 69162, and Donald H. Parkes, Lamoni, Iowa, assignors to Shivvers Incorporated, Corydon, and Douglas McFarland, Lamoni, both of Iowa

Filed Oct. 3, 1995, Ser. No. 538,814

Int. Cl.^{6} A01D *34/64;75/18*

U.S. Cl. 56—10.2 R **41 Claims**

1. A hydraulic system for a vehicle having a ground engaging drive wheel and an implement comprising:



a hydraulic pump supplying hydraulic fluid under pressure to a hydraulic motor through a first hydraulic line, the hydraulic motor being connected to the drive wheel, the hydraulic motor having a resistance to motion proportional to a resistance to motion of the drive wheel, the hydraulic fluid pressure being proportional to the hydraulic motor resistance to motion;

a hydraulic cylinder in fluid communication with the first hydraulic line; and,

a piston mounted in the cylinder for reciprocating motion, the piston being in fluid contact with the hydraulic fluid in the first hydraulic line, the hydraulic cylinder and piston connecting the vehicle to the implement, wherein the piston and hydraulic cylinder transfer a weight from the implement to the vehicle proportional to the fluid pressure in the first hydraulic line.

5,784,868

CONTROL SYSTEM FOR OUTDOOR POWER EQUIPMENT

Chris A. Wadzinski, Inver Grove Heights; Bart T. Ellson, Chanhassen; Anthony N. Pink, Shorewood, and Jay J. Kakuk, Plymouth, all of Minn., assignors to The Toro Company, Minneapolis, Minn.

Filed Jun. 13, 1996, Ser. No. 662,614

Int. Cl.^{6} A01D *69/08;75/20*

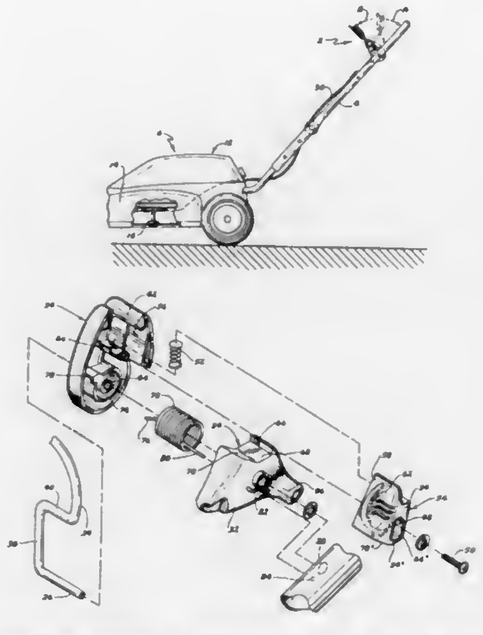
U.S. Cl. 56—10.8 **21 Claims**

1. A control system for an outdoor power equipment unit having a selectively actuable component, which comprises:

(a) a first movable control member mounted on the unit for movement between a component disengaged position and a component engaged position using a first operator action;

(b) a second movable control member mounted on the unit for movement between a component disengaged position and a component engaged position using a second operator action that is separate and distinct from the first operator action, wherein both the first and second control members must be moved, respectively, into the component engaged positions using the first and second operator actions to obtain actuation of the component; and

(c) means for mechanically camming the second movable control member back into the second control member's component disengaged position during movement of the first movable control member from the first control member's component engaged position to its component disengaged position.



5,784,869

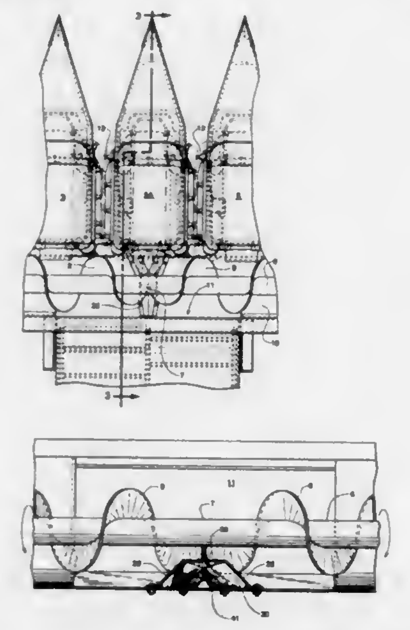
CORN HEAD AUGER TROUGH DIVIDER

James F Rayfield, New Holland, Pa., assignor to New Holland North America, Inc., New Holland, Pa.

Filed Jan. 31, 1997, Ser. No. 792,021

Int. Cl.^{6} A01F *12/00*

U.S. Cl. 56—119 **17 Claims**



1. In a corn head operationally attached to a combine by a feeder house, said corn head having a plurality of row dividers, each row divider extending forward of an auger trough said row divider containing a stalkroll, a stripper plate, a gathering chain and a gear box, said corn head also having a transverse auger with a left handed flighting and a right handed flighting, said auger cooperating with the auger trough to move a flow of corn crop to the feeder house, the improvement comprising a divider Generally perpendicularly affixed to the trough between the row divider and the feeder house, said divider located beneath the transverse auger and between the left handed flighting and right handed flighting, wherein the divider further comprises a rear divider partially nested within a front divider, said front divider affixed behind a center row divider, whereby a flow of crop material is changed by the divider so as to enter the feeder house in a rearward manner.

5,784,870

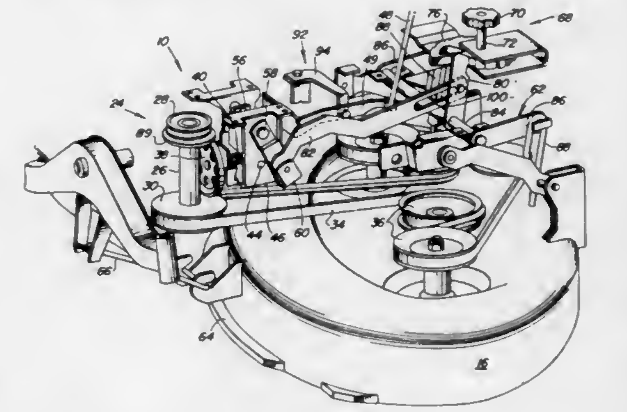
POWER LIFT MECHANISM FOR MOWER DECK

Brian David Seegert; Royal Aaron Henning, both of Hartford; Daniel Angelo Sebben, West Bend; Timothy Paul Zellmer, Horicon; William Garrald Cameron, Juneau, and Wayne Robert Hutchison, Mayville, all of Wis., assignors to Deere & Company, Moline, Ill.

Filed Mar. 22, 1996, Ser. No. 621,278

Int. Cl.^{6} A01D *67/00*

U.S. Cl. 56—320.1 **23 Claims**



1. A mechanism for applying rotative force to a driven member comprising:

a shaft operatively rotatably driven by a power source,

first and second plate members mounted with the shaft, said first and second plate members being spaced from one another to define a space therebetween,

a disk to which the driven member is operatively coupled for rotation, said disk being positioned generally between the first and second plate members,

said disk being pivotable to and between first, second and third positions, wherein:

in its first position, the disk abuts the first plate member for rotation therewith for causing the driven member to rotate in a first direction,

in the second position, the disk abuts the second plate member for rotation therewith for causing the driven member to rotate in a second direction opposite to the first direction, and

in the third position, the disk is spaced from both the first and second plate members such that the driven member is not caused to rotate in either direction,

wherein said first plate member further comprises a first pulley operatively coupled with the shaft, and said second plate member further comprises a second pulley operatively coupled with the shaft.

5,784,871

AUTOMATED CONTROL SYSTEM FOR VEGETABLE HARVESTERS

James Glancey, Chesapeake City, Md.; Keith Carlilse, Greenwood, and Michael Dukes, Wilmington, both of Del., assignors to University of Delaware, Newark, Del.

Filed Oct. 10, 1996, Ser. No. 731,184

Int. Cl.^{6} A01D *43/06;90/00*

U.S. Cl. 56—327.1 **20 Claims**

1. An apparatus for mobile harvesting vegetables, comprising;

a frame adapted to be connected to a tractor;

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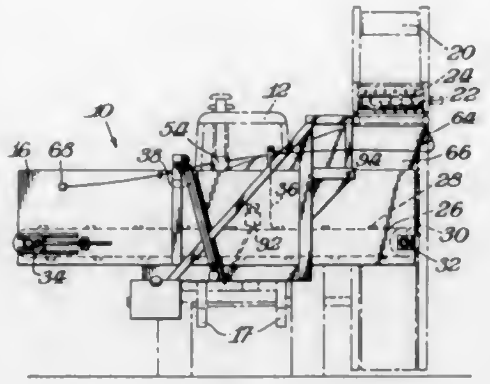
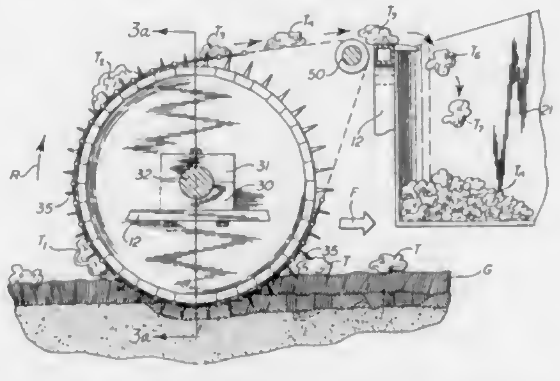


a collection bin movably mounted to the frame for collecting vegetables as they are harvested; and
an automated control system for moving the vegetables relative to the frame, for moving the collection bin in accordance with the position and amount of vegetables collected and for controlling the speed of such movement, thereby repositioning the collection bin, the automated control svstem comprising:
an actuator for moving the movably mounted collection bin,
a power source for providing power to the actuator,
one or more sensors to detect the vertical height and/or position of vegetables collected in the collection bin, wherein the sensors provide corresponding electric signals,
a variable speed drive to control the speed of the actuator,
a manual, mode-selector switch to designate a filling mode, an unloading mode or a manual override, wherein the manual, mode-selector switch provides an electric signal corresponding to the mode selected, and
a process controller which receives signals from the one or more sensors and the manual mode-selector switch as input, processes such input, and provides an output signal to the variable speed drive indicating when the actuator should run, what the speed should be, and when the motor should shut off, thereby controlling the position and speed of movement of the collection bin during vegetable harvesting.

5,784,872
TRASH PICK-UP AND COLLECTION SYSTEM

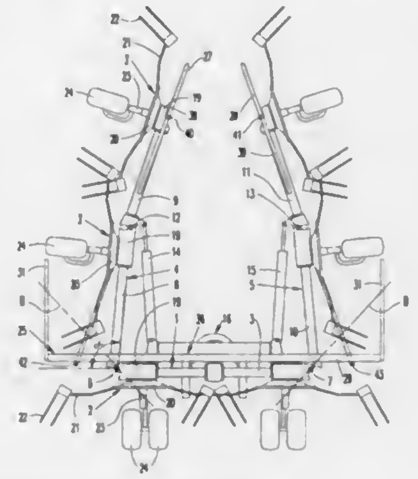
Lee Frank Sadler, Lexington, Ky., assignor to Sadler Inventions, Inc., Lexington, Ky.
Filed Apr. 30, 1997, Ser. No. 846,379
Int. Cl.⁶ A01D *43/02;* **E01H** *15/00*
U.S. Cl. 56—364 **20 Claims**



1. A trash pick-up and collection apparatus for travel along a path to be cleared comprising:
a rotary drum assembly having a length along a longitudinal axis and having a plurality of spikes therearound defining a trash pick-up area to impale and pick-up trash along said path;
a flexible continuous trash removing mechanism wrapped around the drum assembly which extends substantially along said length at least in the pick-up area, for lifting, stripping and carrying the trash from the spikes; and
a collection bin for receiving the trash carried by the removing mechanism,
whereby the trash is picked-up, lifted, stripped and carried for collection in a positive manner.

5,784,873
HAYMAKING MACHINE WITH A FOLDABLE PROTECTION DEVICE

Jérôme Aron, Dossenheim-Sur-Zinsel, France, assignor to Kuhn S.A., Saverne Cedex, France
Filed Mar. 21, 1997, Ser. No. 820,889
Claims priority, application France, Mar. 29, 1996, 96 04143
Int. Cl.⁶ A01D *78/10*
U.S. Cl. 56—377 **7 Claims**

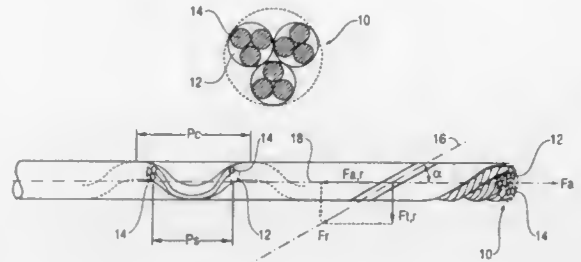


1. A haymaking machine including:
a chassis of elongated shape which carries several tedding and/or windrowing rotors equipped with working tools, which chassis is made in a central part and lateral parts which are articulated to the central part by means of pivots about which they can be folded upward for transport and/or setting down,
a protection device which at least partially surrounds the rotors being connected to said chassis, which protection device includes lateral elements which can also be folded upward for transport and/or setting down and which can be moved so as to reduce the height of the machine in this transport and/or set-down position,
wherein each lateral element of the protection device includes at least one substantially straight section which is guided in such a way that it can move longitudinally in a bearing which is connected to the corresponding lateral part of the chassis.

5,784,874
MULTI-STRAND CORD FOR TIMING BELTS

Pol Bruyneel, Wielsbeke; Rik Depraetere, Zwevegem, and Frans Van Giel, Otegem, all of Belgium, assignors to N.V. Bekaert S.A., Zwevegem, Belgium
Filed Apr. 15, 1997, Ser. No. 834,273
Claims priority, application European Pat. Off., Jun. 3, 1996, 96201546
Int. Cl.⁶ D02G *3/02*
U.S. Cl. 57—237 **8 Claims**

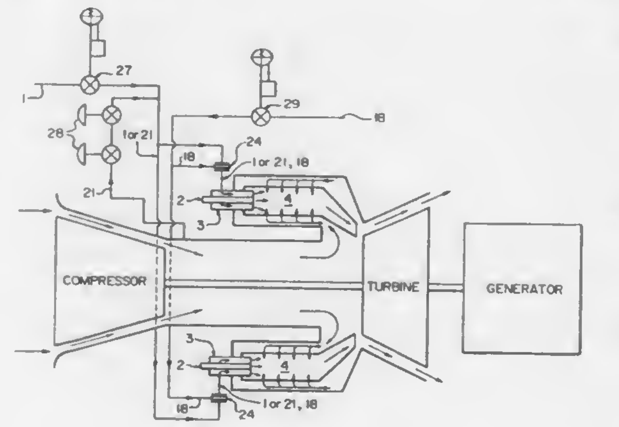
1. A steel cord (**10**) for the reinforcement of timing belts or transmission belts,
said steel cord comprising only two to five strands (**12**) tightly twisted with each other in a first direction at a cord twisting pitch,



each of said strands (**12**) comprising only two to seven steel filaments (**14**) tightly twisted with each other in said first direction at a strand twisting pitch,
said steel filaments (**14**) having a diameter ranging from 0.03 to 0.40 mm,
the ratio strand twisting pitch to filament diameter being greater than 30,
the ratio cord twisting pitch to filament diameter being greater than 30,
the ratio cord twisting pitch to strand twisting pitch being greater than 1.

5,784,875
WATER INJECTION INTO A GAS TURBINE USING PURGE AIR

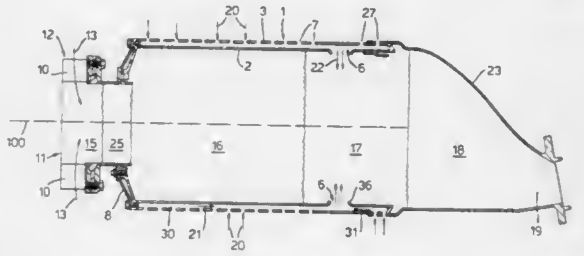
William O. Statler, Scotia, N.Y., assignor to Innovative Control Systems, Inc., Clifton Park, N.Y.
Filed Nov. 27, 1995, Ser. No. 562,857
Int. Cl.⁶ F02C *3/30*
U.S. Cl. 60—39.05 **6 Claims**



1. A process for reducing NOX emissions and/or increasing power output from a dual fuel turbine when said turbine is operating on oil fuel comprising:
using said turbine including a set of dual fuel injection nozzles for delivering oil fuel to a combustion zone, a purge air flow system including means for flowing purge air through plural gas fuel portions of the dual fuel injection nozzles when the turbine is being operated on oil fuel; and
supplying a controlled flow of water via at least a section of said gas fuel portions of the dual fuel injection nozzle to the combustion zone during operation of the gas turbine on oil fuel, said water transported to said combustion zone by said purge air flowing therethrough.

5,784,876
COMBUSTER AND OPERATING METHOD FOR GAS-OR LIQUID-FUELLED TURBINE ARRANGEMENT

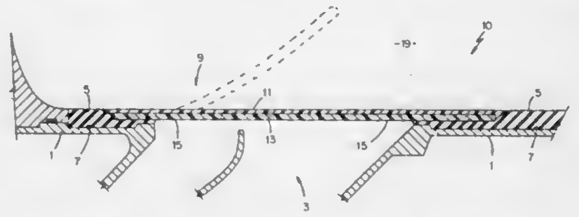
Hisham Salman Alkabie, Lincoln, United Kingdom, assignor to European Gas Turbines Limited, Lincoln, United Kingdom
Filed Feb. 21, 1996, Ser. No. 604,675
Claims priority, application United Kingdom, Mar. 14, 1995, 9505067
Int. Cl.⁶ F02C *7/18;* **F23R** *3/04*
U.S. Cl. 60—39.06 **11 Claims**



1. A gas- or liquid-fuelled turbine arrangement comprising a combustor, a turbine connected to said combustor and a compressor means connected to said turbine, said compressor means being operative to supply air to said combustor in a first amount for combustion and in a second amount for cooling, said combustor comprising a mixing zone, for the mixing of fuel with said first amount of air, a primary combustion zone downstream of said mixing zone and a post-primary combustion zone downstream of said primary combustion zone, said primary zone and post-primary zone both being contained within a wall of said combustor and containing a flow of combustion gases during operation of said turbine arrangement, said turbine arrangement comprising impingement cooling means for providing impingement cooling of said wall by way of said second amount of air and injection means for allowing an injection of a plurality of cooling jets into said post-primary zone transverse to said combustion gas flow, said compressor means providing a said first amount of air which is at least 50% of said supplied air.

5,784,877
ROCKET-RAMJET ENGINE CASING PORT CLOSURE

Patrick W. Hewitt, Warrenton, Va., assignor to Atlantic Research Corporation, Vienna, Va.
Filed Nov. 8, 1996, Ser. No. 745,641
Int. Cl.⁶ F02K *7/18*
U.S. Cl. 60—204 **21 Claims**



1. In a rocket-ramjet engine casing having at least one port opening for ramjet engine operation and an insulating lining covering an interior surface of the casing, the improvement comprising a composite material closure coextensive with the insulating lining for sealing the at least one port opening during rocket engine operation and at least one pyrotechnic charge device affixed to said composite material closure to detonate an opening in said composite material to permit ramjet operation.

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5,784,878
IDLE SPEED CONTROL SYSTEM OF INTERNAL COMBUSTION ENGINE

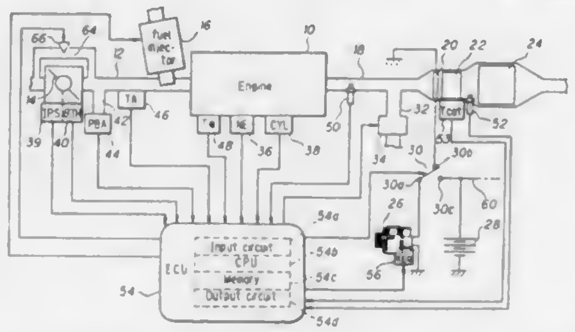
Hiroaki Kato; Yuichi Shimasaki; Takashi Komatsuda; Akihisa Saito; Hiroaki Muramatsu; Takuya Aoki; Tetsu Teshirogi; Hideo Furumoto, all of Wako, and Takayoshi Nakayama, Haga, all of Japan, assignors to Honda Giken Kogyo Kabushiki Kaisha, Tokyo, Japan

Filed Jul. 2, 1996, Ser. No. 674,692

Claims priority, application Japan, Jul. 4, 1995, 7-191243

Int. Cl.^{6} F01N *3/20;3/30*

U.S. Cl. 60—274 12 Claims



5. A method for controlling an idle speed of an internal combustion engine, having

a catalytic converter installed in an exhaust system of the engine for reducing pollutants from exhaust gases emitted from the engine, the catalytic converter having a heater; and

a current supply circuit for supplying current to the heater of the catalytic converter;

wherein the method comprises the steps of:

(a) detecting whether the engine is in an idling state;

(b) detecting an engine coolant temperature of the engine;

(c) detecting an ambient temperature of the exhaust system of the engine;

(d) determining a desired idle speed of the engine with respect to at least the engine coolant temperature when the engine is in the idling state;

(e) determining an augmentative correction amount based upon the exhaust system ambient temperature to increase the desired idle speed when the heater of the catalytic converter is supplied with current, wherein the augmentative correction amount being determined in such a manner that the augmentative correction amount decreases with increasing exhaust system ambient temperature; and

(f) controlling a speed of the engine to the desired idle speed.

5,784,879
AIR-FUEL RATIO CONTROL SYSTEM FOR INTERNAL COMBUSTION ENGINE

Hisayo Dohta, Kariya; Katsuhiko Kawai, Nagoya, and Shigenori Isomura, Kariya, all of Japan, assignors to Nippondenso Co., Ltd., Kariya, Japan

Filed Jul. 1, 1996, Ser. No. 673,123

Claims priority, application Japan, Jun. 30, 1995, 7-165247; Dec. 20, 1995, 7-331334; May 13, 1996, 8-117290

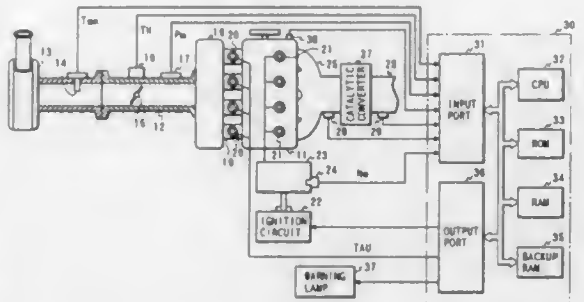
Int. Cl.^{6} F01N *3/10;3/28*

U.S. Cl. 60—276 17 Claims

1. An air-fuel ratio control apparatus for an internal combustion engine comprising:

air-fuel ratio determining means for determining an air-fuel ratio of exhaust gases flowing upstream of a catalytic converter;

air-fuel ratio controlling means for controlling the air-fuel ratio determined by said air-fuel ratio determining means so as to agree with a target air-fuel ratio under feedback control;



sorbed substance amount determining means for determining the amount of substances sorbed in the catalytic converter based on the air-fuel ratio determined by said air-fuel ratio determining means using a catalytic converter model established using parameters indicating adsorption reaction of exhaust gas components entering the catalytic converter, oxidation-reducing reaction of the substances sorbed in the catalytic converter with the exhaust gas components, desorption reaction of the substances sorbed in the catalytic converter, and a non-reacted portion of the exhaust gas components; and

target air-fuel ratio determining means for determining said target air-fuel ratio so that the amount of substances determined by said sorbed substance amount determining means falls within a given range.

5,784,880
ENGINE FUEL SUPPLY CONTROL DEVICE

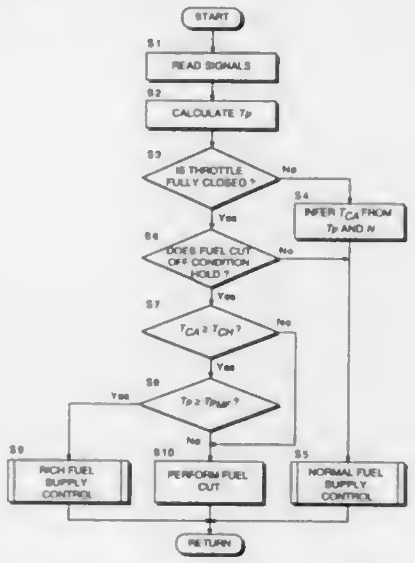
Takayuki Toshiro, Fujisawa; Koichi Mori, Sagamihara, and Kimiyoshi Nishizawa, Yokohama, all of Japan, assignors to Nissan Motor Co., Ltd., Kanagawa, Japan

Filed Jul. 22, 1996, Ser. No. 684,669

Claims priority, application Japan, Jul. 31, 1995, 7-195506

Int. Cl.^{6} F01N *3/28*

U.S. Cl. 60—277 5 Claims



1. A fuel supply control device for use with an internal combustion engine, said engine having an intake passage, an exhaust passage, a catalytic converter having a catalyst provided in said exhaust passage, and means for supplying fuel, comprising:

means for cutting off supply of fuel by said fuel supplying means in a predetermined engine deceleration condition;

means for inferring a value for a temperature of said catalyst;

means for detecting an air flow amount in said intake passage;

means for comparing together a value indicative of said inferred catalyst temperature and a previously set first constant value;

means for comparing together the air flow amount in said engine deceleration condition and a previously set second constant value; and

means for prohibiting fuel supply cut off by said fuel supply cut off means when said value indicative of said inferred catalyst temperature is greater than said first constant value and also said intake air amount is greater than said second constant value.

5,784,881
MULTI-PART EXHAUST MANIFOLD ASSEMBLY WITH WELDED CONNECTIONS

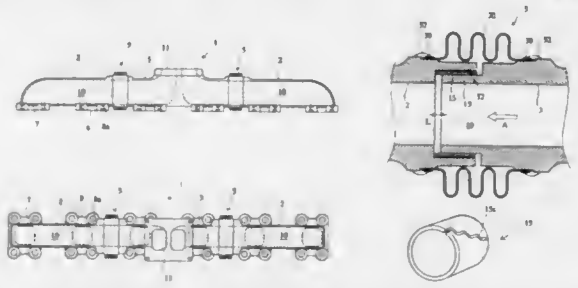
Koki Otsuka, and Kenji Itoh, both of Moka, Japan, assignors to Hitachi Metals, Ltd., Tokyo, Japan

Filed Jan. 10, 1997, Ser. No. 782,491

Claims priority, application Japan, Jan. 11, 1996, 8-002883; Mar. 5, 1996, 8-047092

Int. Cl.^{6} F01N *7/00*

U.S. Cl. 60—322 9 Claims



1. An exhaust manifold assembly comprising at least two manifold part members, an annular end projection of one manifold part member receiving an annular end projection of the other manifold part member to form a connection portion, further comprising:

(a) a slidable tubular member inserted into a gap between said annular end projection of one manifold part member and said annular end projection of the other manifold part member, said slidable tubular member being an annular member made of a metal material having good heat resistance and oxidation resistance; and

(b) a flexible pipe comprising a corrugated pipe portion and tubular portions integrally extending from both ends of said corrugated pipe portion, said flexible pipe extending along the exhaust manifold assembly so as to cover said connection portion, said tubular portions of said flexible pipe being continuously welded to outer surfaces of said manifold part members, whereby said connection portion is completely sealed by said flexible pipe.

5,784,882
EXHAUST MANIFOLD FOR CONDUCTING EXHAUST GAS OUT OF AN INTERNAL COMBUSTION ENGINE

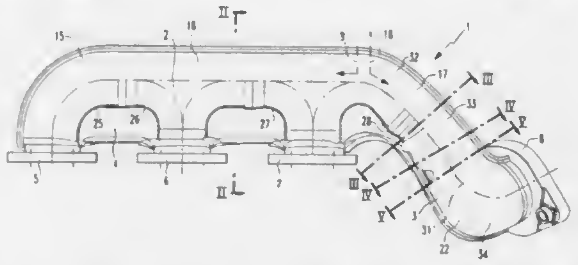
Pierre Bonny, Hamburg, and Thorsten Sternal, Moisburg, both of Germany, assignors to Daimler-Benz AG, Stuttgart, Germany

Filed Jul. 14, 1997, Ser. No. 891,737

Claims priority, application Germany, Jul. 17, 1996, 196 28 798.7

Int. Cl.^{6} F01N *7/10*

U.S. Cl. 60—323 8 Claims



1. An exhaust manifold for conducting exhaust gas from an internal combustion engine, said exhaust manifold comprising a collection pipe structure having branches with engine flanges at their ends for connection to spaced cylinder outlet ports of said engine and an outlet flange at the downstream end of said collection pipe structure for connection to an exhaust pipe, said collection pipe structure having an outlet region with a cross-sectional area having substantially different diameters in first and second directions which extend normal to each other so as to define an oval or drop-like cross-sectional area, which in a downstream direction changes continuously up to an end section of said outlet region where said normally extending diameters are equal and said collection pipe structure has a circular cross-section.

5,784,883
METHOD OF CONTROLLING SPEED CHANGE OF HYDRAULIC DRIVE DEVICE FOR VEHICLE AND SPEED CHANGE DEVICE

Yasunori Ohkura, Kawasaki; Hikosaburo Hiraki, Oyama; Noboru Kanayama, Ninomiya-machi, and Ryutaro Makida, Kawasaki, all of Japan, assignors to Komatsu Ltd., Tokyo, Japan

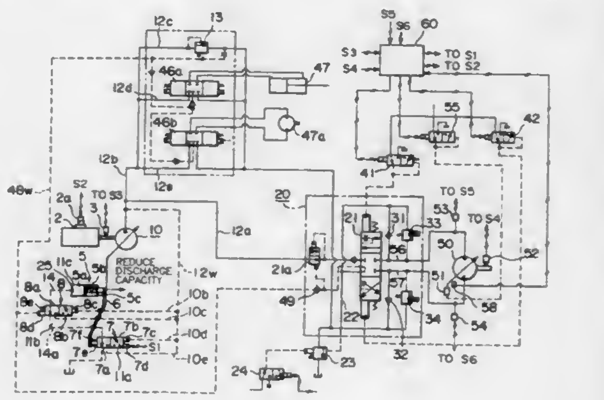
PCT No. PCT/JP95/02279, § 371 Date May 8, 1997, § 102(e) Date May 8, 1997, PCT Pub. No. WO96/15394, PCT Pub. Date May 23, 1996

PCT Filed Nov. 8, 1995, Ser. No. 836,514

Claims priority, application Japan, Nov. 9, 1994, 6-301495

Int. Cl.^{6} F16D *31/00*

U.S. Cl. 60—327 22 Claims



11. Apparatus comprising:

a vehicle;

an engine;

a device for changing a rotational speed of the engine by an accelerating amount;

a hydraulic pump, said hydraulic pump being driven by the engine;

a directional control valve;

a hydraulic motor for traveling the vehicle, the hydraulic motor receiving pressurized oil from the hydraulic pump through the directional control valve;

a shifter to select forward traveling or reverse traveling of the vehicle;

an operating machine;

an operating machine actuator for driving said operating machine; and

a control device, wherein said control device comprises at least one of the following eleven combinations of features:

(A) a motor rotational speed sensor for detecting a traveling speed of the vehicle from a rotational speed of the hydraulic motor; and

an accelerating amount detection sensor for detecting the accelerating amount;

wherein said control device discriminates, from the accelerating amount and the rotational speed of the hydraulic motor, between a powering travel of the vehicle and a braking travel of the vehicle; and

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when a powering travel is discriminated, said control device opens fully the directional control valve in response to the rotational speed of the hydraulic motor and the accelerating amount, thereby reducing resistance of the directional control valve;

(B) a motor rotational speed sensor for detecting a traveling speed of the vehicle from a rotational speed of the hydraulic motor; and

an accelerating amount detection sensor for detecting the accelerating amount;

wherein said control device discriminates, from the accelerating amount and the rotational speed of the hydraulic motor, between a powering travel of the vehicle and a braking travel of the vehicle;

wherein when a braking travel is discriminated and the accelerating amount is in a relatively low range, said control device partially opens the directional control valve only a first predetermined amount in response to the rotational speed of the hydraulic motor and the accelerating amount; and

wherein when a braking travel is discriminated and the accelerating amount is in a relatively high range, said control device partially opens the directional control valve only a second predetermined amount in response to the rotational speed of the hydraulic motor and the accelerating amount, the second predetermined amount being greater than the first predetermined amount;

(C) a motor rotational speed sensor for detecting a rotational speed of the hydraulic motor; and

an accelerating amount detection sensor for detecting the accelerating amount;

wherein said control device discriminates, from the accelerating amount and the rotational speed of the hydraulic motor, between a powering travel and a braking travel; and

when a braking travel is discriminated, said control device allows oil, returning from the hydraulic motor toward a tank, to have a high pressure so as to be fed to the supply side of the hydraulic motor if an inlet pressure to the hydraulic motor is lower than a predetermined suction pressure of the hydraulic motor;

(D) a motor rotational speed sensor for detecting a traveling speed of the vehicle from a rotational speed of the hydraulic motor; and

a sensor for detecting a rotational speed of the engine;

wherein said control device controls absorbing torque of the hydraulic pump within a predetermined range in response to the rotational speed of the hydraulic motor and the rotational speed of the engine;

wherein said control device decreases the absorbing torque of the hydraulic pump if the traveling speed is in a high range and increases the absorbing torque of the hydraulic pump if the traveling speed is in a low range;

(E) a motor rotational speed sensor for detecting a traveling speed of the vehicle from a rotational speed of the hydraulic motor; and

an accelerating amount detection sensor for detecting the accelerating amount;

wherein said control device controls the rotational speed of the engine within a predetermined range in response to the accelerating amount and the rotational speed of said hydraulic motor, wherein said control device increases the rotational speed of the engine so that the gradient of the change of the rotational speed of the engine is increased if the traveling speed is in a high range, and said control device decreases the rotational speed of the engine so that the gradient of the change of the rotational speed of the engine is decreased if the traveling speed is in a low range;

(F) a motor rotational speed sensor for detecting a traveling speed of the vehicle from a rotational speed of the hydraulic motor; and

a pressure sensor for detecting a supply side pressure of the hydraulic motor;

wherein said control device controls a discharge capacity of the hydraulic motor in response to the rotational speed of the hydraulic motor and the supply side pressure of the hydraulic motor, wherein said control device controls the discharge capacity of the hydraulic motor so as to decrease the discharge capacity and increase a gradient of change of the discharge capacity if the traveling speed is in a high range, and wherein said control device controls the discharge capacity of the hydraulic motor so as to increase the discharge capacity and decrease the gradient of change of the discharge capacity if the traveling speed is in a low range;

(G) a brake pedal;

a motor rotational speed sensor for detecting a traveling speed of the vehicle from a rotational speed of the hydraulic motor; and

a sensor for detecting a braking amount due to a depressing of said brake pedal;

wherein said control device controls a discharge capacity of the hydraulic motor within a predetermined range in response to the accelerating amount and the braking amount, wherein said control device controls the discharge capacity of the hydraulic motor so as to decrease the discharge capacity if the traveling speed is in a high range, and said control device controls the discharge capacity of the hydraulic motor so as to increase the discharge capacity if the traveling speed is in a low range;

(H) a motor rotational speed sensor for detecting a rotational speed of the hydraulic motor;

a sensor for detecting a selected position of the shifter; and

a sensor for detecting a rotational speed of the engine;

wherein said control device calculates an absorbing torque of the hydraulic pump responsive to the rotational speed of the hydraulic motor and the rotational speed of the engine and wherein said control device calculates a first value of the absorbing torque when a detected selected position of the shifter indicates forward traveling, and calculates a second value of the absorbing torque when a detected selected position of the shifter indicates rearward traveling, wherein the second value is greater than the first value;

(I) a motor rotational speed sensor for detecting a rotational speed of the hydraulic motor;

an accelerating amount detection sensor for detecting the accelerating amount; and

a sensor for detecting a selected position of the shifter;

wherein, when a detected selected position of the shifter indicates forward traveling or reverse traveling, said control device provides for creep traveling by partially opening the directional control valve only a predetermined amount in response to the accelerating amount and the rotational speed of the hydraulic motor;

(J) a brake pedal;

motor pressure sensors for detecting inlet pressure to the hydraulic motor and outlet pressure from the hydraulic motor;

a braking amount detection sensor for detecting a braking amount of the brake pedal;

an oil tank;

a return circuit formed between the directional control valve and the oil tank; and

a variable pressure two-stage back pressure valve for controlling pressure in the return circuit; and

wherein, at a time of braking, the control device compares the detected inlet pressure with a permissible suction pressure of the hydraulic motor, and when the detected inlet pressure is lower than the permissible suction pressure, the control device outputs a command to the two-stage back pressure valve to increase the pressure in the return circuit; and

(K) a mode selection switch for selecting an operating mode or a traveling mode; and

a mode detection sensor for detecting the thus selected mode; and

wherein, when the mode selection switch selects the traveling mode, the control device outputs an operation command to the directional control valve for supplying pressurized oil passing through the directional control valve to the hydraulic motor, and wherein, when the mode selection switch selects the operating mode, the control device outputs either (a) an operation command for supplying pressurized oil passing through the directional control valve to the hydraulic motor or (b) an operation command for supplying pressurized oil passing through the directional control valve to the hydraulic motor and the operating machine actuator.

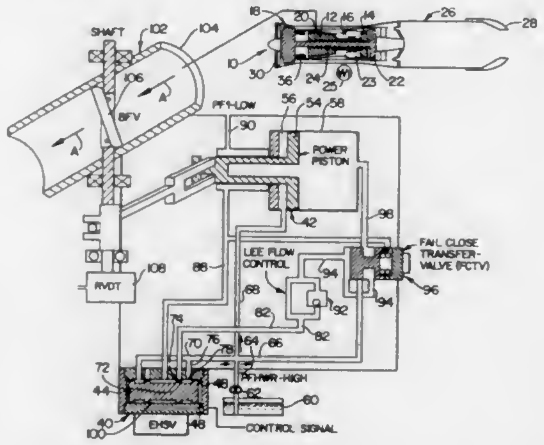
5,784,884
FAIL-SAFE TRANSFER VALVE

Wayne M. Poerio, Juno Beach, aod Matthias Eder, Stuart, both of Fla., assignors to United Technologies Corporation, Hartford, Conn.

Filed Dec. 20, 1995, Ser. No. 575,567

Int. Cl.⁶ F16D *31/02*; F15B *11/00*

U.S. Cl. 60—403 **5 Claims**



1. A fail-safe hydromechanical apparatus for a servo system including servo fluid being at a high and low servo pressure, a power piston for providing an output signal, control means for generating an electronic signal, a hydraulic servo valve responsive to said actuation of control means for controllling said power piston, said fail-safe hydromechanical apparatus comprising an equal area shuttle valve, said shuttle valve being responsive to high and low servo pressure, fluid connecting means interconnecting high pressure, said power piston and said equal area shuttle valve, resilient means abutting said shuttle valve, said shuttle valve having a working face subjected to high and low servo pressure, means for connecting said working face with low pressure when said hydraulic servo valve malfunctions in the hard over position, said resilient means being sized to position said shuttle valve to connect said high pressure servo fluid to said power piston to position said power piston in the fail-safe position.

5,784,885
PRESSURIZED FLUID SUPPLY SYSTEM

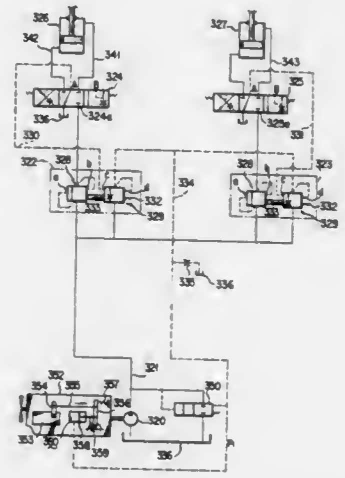
Kazuyoshi Ishihama; Kazunori Ikei, and Kazuo Uehara, all of Kanagawa, Japan, assignors to Kabushiki Kaisha Komatsu Seisakusho, Japan

Division of Ser. No. 411,817, Apr. 10, 1995, Pat. No. 5,651,390. This application Feb. 13, 1996, Ser. No. 600,505

Claims priority, application Japan, Oct. 23, 1992, U.M. HEI4-74091; Oct. 23, 1992, U.M. HEI4-74110; Oct. 23, 1992, HEI 4-285777; Oct. 23, 1992, HEI 4-285803; Oct. 29, 1992, U.M. HEI4-75260; Oct. 29, 1992, U.M. HEI4-75261; Nov. 4, 1992, U.M. HEI4-76058; Nov. 11, 1992, U.M. HEI4-77615

Int. Cl.⁶ F16D *31/02*

U.S. Cl. 60—423 **4 Claims**



1. A pressurized fluid supply system for supplying a discharged pressurized fluid of a hydraulic pump driven by an engine to a plurality of actuators via a pressure compensation valve and a direction switching valve, an unload valve being provided in a discharge line of said hydraulic pump, and said unload valve being biased in an unloading direction by a pump discharge pressure and in an on-load direction by a load pressure, comprising:

a cylinder operable in response to the load pressure is provided in a revolution speed control portion of the engine so that engine revolution speed is lowered when the load pressure is less than or equal to a set value.

5,784,886
HYDRO-AIR RENEWABLE POWER SYSTEM

Melvin L. Prueitt, 161 Cascabel, Los Alamos, N. Mex. 87544

Division of Ser. No. 518,499, Aug. 23, 1995, Pat. No. 5,551,238. This application May 30, 1996, Ser. No. 656,885

Int. Cl.⁶ F01K *25/06*

U.S. Cl. 60—649 **2 Claims**

1. In a power generating system using concentration energy in a concentrated brine solution as an energy source, a brine concentrator comprising:

an air flow heat exchanger for admitting hot dry air at one end and for exhausting cool humid air at another end;

a warm water loop contacting said air flow heat exchanger for extracting heat from said air flow to heat a circulating water flow;

a cool water loop contacting said air flow heat exchanger for adding energy to said air flow;

a water spray in said air flow heat exchanger intermediate said warm water loop and said cool water loop as an energy exchange medium between said cool water loop and said hot dry air;

a brine concentrating unit receiving relatively dilute brine, wherein said relatively dilute brine is heated by said warm

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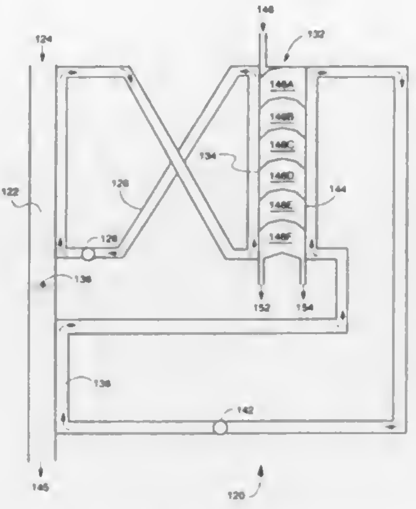


water loop to evaporate water from said brine solution to form a more concentrated brine solution and said evaporated water is condensed by said cool water loop.

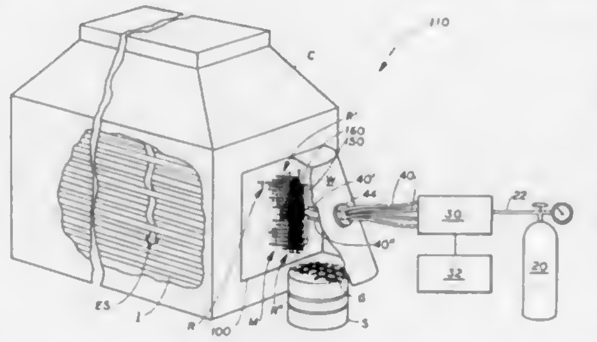
5,784,887
TARGETED FLUID DELIVERY SYSTEM

Winston Chow, P.O. Box 10412, Palo Alto, Calif. 94303; Yusuf G. Mussalli, 245 Summer St., Boston, Mass. 02210, and Barry C. Syrett, P.O. Box 10412, Palo Alto, Calif. 94303

Division of Ser. No. 307,383, Sep. 14, 1994, Pat. No. 5,442,921, which is a continuation of Ser. No. 20,629, Feb. 22, 1993, abandoned. This application Jul. 7, 1995, Ser. No. 478,514

Int. Cl.^{6} F01K *25/06;* **F01B** *31/00*

U.S. Cl. 60—657 **20 Claims**



1. In a power plant in which exhaust fluid exiting downstream from a turbine is cooled by means of a heat exchanger, and in which a heat exchange fluid for the heat exchanger passes into a plurality of tubes each having an inlet which receive the heat exchange fluid, the tubes are deployed in a matrix in the heat exchanger for heat transfer from the exhaust fluid passing over the tubes, the improvement comprising:

a means for adding a first fluid to the heat exchange fluid adjacent at least one said inlet of each said tube of said matrix, said first fluid adding means integrated within said matrix of tubes to provide unobstructed access for the heat exchange fluid at each said tube inlet.

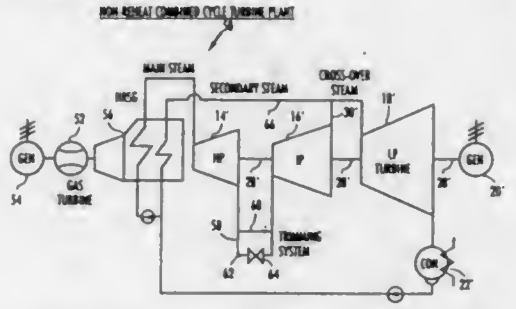
5,784,888
METHOD AND APPARATUS OF CONVERSION OF A REHEAT STEAM TURBINE POWER PLANT TO A NO-REHEAT COMBINED CYCLE POWER PLANT

Heinz Termuehlen, Nokomis, Fla., assignor to Siemens Power Corporation, Richland, Wash.

Division of Ser. No. 495,012, Jun. 27, 1995, Pat. No. 5,660,037. This application Nov. 14, 1996, Ser. No. 749,251

Int. Cl.^{6} F01K *13/00*

U.S. Cl. 60—677 **2 Claims**



1. A non-reheat combined cycle power plant, comprising

a heat recovery steam generator having a first steam generator section and a second steam generator section; said first steam generator section producing main steam and said second steam generator section producing secondary steam, said first steam generator section and said second steam generator section being configured to simultaneously produce steam at a different pressure and temperature;

a steam turbine including a plurality of turbine sections, the steam turbine receiving steam under pressure and successively expanding the steam through the turbine sections resulting in a total pressure drop through the turbine, a first of said turbine sections receiving said main steam produced by said first steam generator section, a subsequent one of said turbine sections receiving said secondary steam produced by said second steam generator section; and

an adjustable trimming system coupled between an exhaust of said first turbine section and an inlet of a second of said turbine sections for adjustment of the pressure drop between said first and second turbine sections.

5,784,889
DEVICE FOR DAMPING THERMOACOUSTIC PRESSURE VIBRATIONS

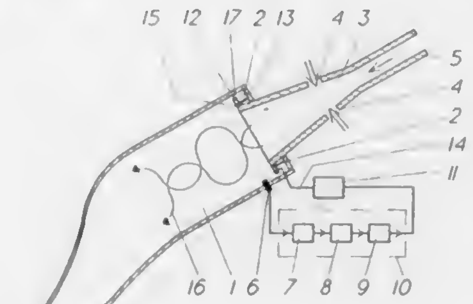
Franz Joos, Weilheim, Germany, and Marcel Schirbach, Adlikon, Switzerland, assignors to Asea Brown Boveri AG, Baden, Switzerland

Filed Oct. 3, 1996, Ser. No. 720,865

Claims priority, application Germany, Nov. 17, 1995, 195 42 918

Int. Cl.^{6} F02C *7/24*

U.S. Cl. 60—725 **2 Claims**



1. The device for damping thermoacoustic pressure vibrations in a combustion chamber comprising a regulating device including an input and an output, a pressure sensor connected to said input of said regulating device, wherein said regulating device is connected at said output to means for electrically controlling the flame in the combustion chamber, wherein said means for electrically controlling the flame comprises a voltage source and an electrode, and wherein said electrode is connected to a heat shield which annularly surrounds the outflow side of a burner.

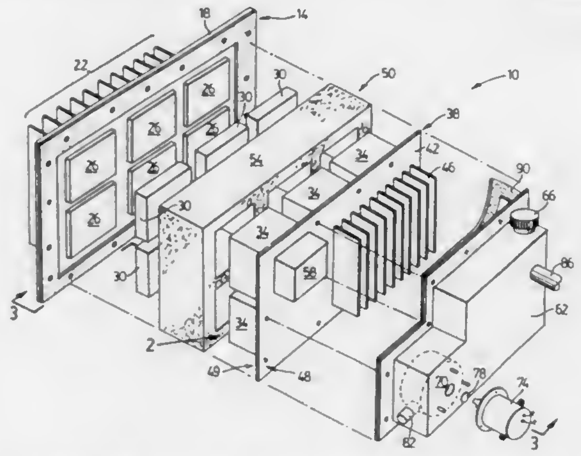
5,784,890
COMPACT THERMOELECTRIC REFRIGERATION DRIVE ASSEMBLY

John D. Polkinghorne, 66 Fairwood Place East, Burlington, Ontario, Canada, L7T 2B6

Filed Jun. 3, 1996, Ser. No. 657,160

Int. Cl.^{6} F25B *21/02*

U.S. Cl. 62—3.7 **15 Claims**



1. A thermoelectric refrigeration drive assembly, comprising:

at least one thermoelectric heat transfer device having first and second active surfaces;

a collector member in thermal contact with said first active surface of said at least one thermoelectric heat transfer device;

a heat exchanger for rejecting heat from a cooling fluid:

a storage tank for storing a supply of cooling fluid for said heat exchanger, said storage tank being sized to contain a supply of cooling fluid in excess of that required to fill said heat exchanger;

a transfer member comprising at least a portion of said storage tank and being in thermal contact with said second active surface of each said at least one heat transfer device and thermally contacting said cooling fluid in said storage tank;

insulation means to inhibit heat transfer between said collector member and said transfer member other than through said thermoelectric heat transfer device and wherein upon application of a suitable dc current to said thermoelectric heat transfer device heat energy is transferred from said collector member and its surroundings through said at least one heat transfer device to said cooling fluid through said transfer member and from said cooling fluid to said heat exchanger.

5,784,891
ACTUATOR BUTTON FOR TEST SWITCH OF AN ICE MAKER

Gun Il Lee, Seoul, Rep. of Korea, assignor to Samsung Electronics Co., Ltd., Suwon, Rep. of Korea

Filed Oct. 7, 1996, Ser. No. 726,656

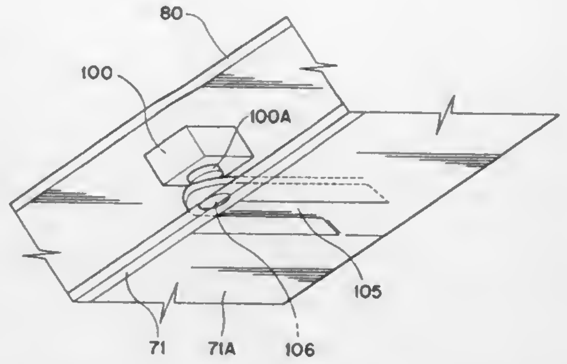
Claims priority, application Rep. of Korea, Dec. 22, 1995, 95-54789

Int. Cl.^{6} F25B *49/00*

U.S. Cl. 62—126 **1 Claim**

1. A refrigerator comprising:

a freezing compartment;



an ice maker housed in the freezing compartment and including a container in which water is converted to ice;

an operating member including a casing, a motor mounted in the casing for twisting the container for discharging the ice therefrom, and a manually operable test switch for activating the operating member to test its operability; the test switch including:

an electrical contact mounted inside the casing and including a projection, and

a button for contacting the projection to activate the motor, the projection extending toward a wall of the casing,

the button comprising a strip having two parallel sides and a front edge cut from the wall of the casing, and a base remaining integral with the wall, the front edge of the strip being of less thickness than the wall, the button being inherently biased to a position out of engagement with the contact, independently of a separate spring element, the button being elastically flexible so that a front portion of the button is engageable with the projection.

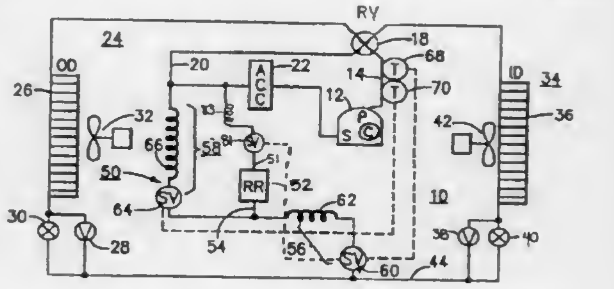
5,784,892
REFRIGERANT CHARGE VARIATION MECHANISM

Wayne P. Reedy, Edwardsville, Ill., assignor to Electric Power Research Institute, Inc., Palo Alto, Calif.

Filed Sep. 9, 1996, Ser. No. 708,810

Int. Cl.^{6} F25B *41/00*

U.S. Cl. 62—174 **5 Claims**



1. A heat pump system capable of heating and cooling an indoor space, comprising:

a refrigerant compressor having a discharge port for discharging compressed refrigerant vapor and a suction port for returning low pressure refrigerant vapor to the compressor;

indoor and outdoor heat exchangers, each having respective heat exchanging coils having first and second refrigerant ports, and indoor and outdoor expansion devices respectively coupled to said second refrigerant ports;

a reversing valve having a first port coupled by a pressure line to the discharge port of said compressor, a second port coupled by a suction line to the suction port of said compressor, and third and fourth ports coupled respectively to the first ports of said indoor and outdoor heat exchanger coils; said reversing valve having a heating position in which the compressed refrigerant is supplied to the indoor coil and the low pressure vapor is returned from the outdoor coil, and a cooling position

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in which compressed refrigerant is supplied to the outdoor coil and the low pressure vapor is returned to the indoor coil;
a condensed refrigerant line interconnecting said indoor and said outdoor heat exchangers for supplying condensed refrigerant from one of said heat exchanger coils to the expansion device of the other heat exchanger; and
refrigerant charge variation means for varying the amount of refrigerant in the system based on operating conditions, including:
  a refrigerant reservoir, having a first branch connected to the condensed refrigerant line and a second branch, separate from said first branch, connected to the suction line, said first and second branches including respective first and second valves and flow restrictor elements connected in series;
  means coupled to the compressor discharge line for detecting the amount of thermal energy of the compressed refrigerant being discharged from said compressor;
  means for actuating said first and second valves based on the thermal energy of the compressed refrigerant in order to transfer refrigerant from the condensed refrigerant line to the reservoir when said thermal energy is below a predetermined level and to transfer refrigerant from said reservoir to said suction line when said thermal energy is above a predetermined level; and
  means for lowering the pressure of refrigerant contained in said refrigerant reservoir when the pressure in said reservoir is higher than the pressure of condensed refrigerant in said pressure line.

5,784,893
AIR CONDITIONING SYSTEM WITH BUILT-IN INTERMEDIATE HEAT EXCHANGER WITH TWO DIFFERENT TYPES OF REFRIGERANTS CIRCULATED

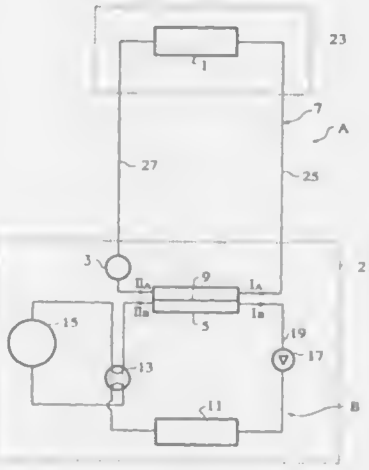
Kokichi Furuhama, Tokyo; Tetsuo Sano, Shizuoka-ken, and Masao Ozu, Kanagawa-ken, all of Japan, assignors to Kabushiki Kaisha Toshiba, Kawasaki, Japan

Continuation of Ser. No. 400,879, Mar. 8, 1995, abandoned. This application Apr. 10, 1997, Ser. No. 835,639

Claims priority, application Japan, Mar. 30, 1994, 6-061632

Int. Cl.^{6} F25D *17/06*

U.S. Cl. 62—333 **20 Claims**



1. A split-type air conditioning system comprising:
a first refrigerant circuit in which a first refrigerant circulates, the first refrigerant circuit including
  an indoor heat exchanger and
  fluid drive means, connected to the indoor heat exchanger by way of a first piping, for driving the first refrigerant;
a second refrigerant circuit in which a second refrigerant circulates, the second refrigerant circuit including
  compressor means for compressing the second refrigerant,
  expansion means, connected to the compressor means, for expanding the second refrigerant, and
  an outdoor heat exchanger connected to the compressor means and the expansion means by way of a second piping; and
intermediate means provided in an outdoor location for heat-exchanging between the first refrigerant in the first refrigerant circuit and the second refrigerant in the second refrigerant circuit;
wherein the pressure loss of the first refrigerant in the first piping per unit length is smaller than the pressure loss of the second refrigerant, while the theoretical coefficient of performance (COP) of the second refrigerant determined by a thermal property thereof is greater than the theoretical coefficient of performance (COP) of the first refrigerant determined by a thermal property thereof.

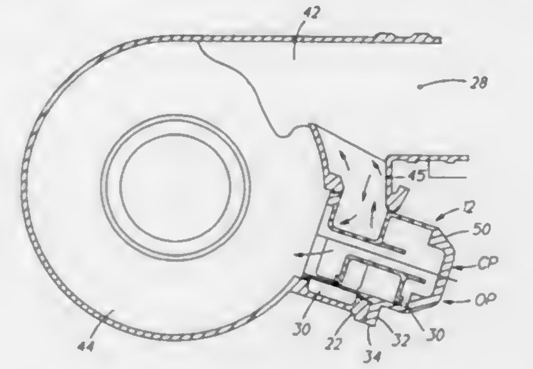
5,784,894
INTEGRAL BYPASS VALVES AND AIR CYCLE MACHINE

Donald E. Army, Jr., Springfield, Mass.; Christopher McAuliffe, Windsor, and Michael D. Greenberg, Bloomfield, both of Conn., assignors to United Technologies Corporation, Windsor Locks, Conn.

Filed Dec. 18, 1996, Ser. No. 768,385

Int. Cl.^{6} F25D *9/00*

U.S. Cl. 62—402 **44 Claims**



1. A bypass valve for use with a component of an air cycle machine, wherein said component includes a conditioning member, an inlet and an outlet and said air cycle machine includes a component housing portion, said component housing portion defining a first volume and including means for receiving said valve, comprising:
  means for mating with said means for receiving;
  an air entrance opening adapted to be positioned adjacent said inlet;
  an air exit opening adapted to be positioned adjacent said outlet; and
  valve means for controlling at least one of temperature and pressure of said air at said outlet by permitting air flow from said entrance opening to said exit opening and bypassing said conditioning member and by prohibiting air flow from said entrance opening to said exit opening for directing substantially all of said air into said conditioning member, wherein said valve means is adapted to be substantially entirely positioned inside of said first volume in said means for receiving.

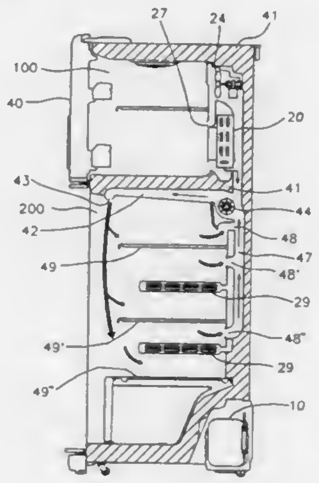
5,784,895
REFRIGERATOR WITH AN AIR CURTAIN GENRATOR

Young-Houn Choi, Pucheon, Rep. of Korea, assignor to Daewoo Electronics Co., Ltd., Seoul, Rep. of Korea

Filed Apr. 3, 1997, Ser. No. 826,578

Int. Cl.^{6} F25D *17/04*

U.S. Cl. 62—407 **24 Claims**



1. A refrigerator comprising:
a freezing room;
a refrigerating room;
producing means for producing cool air;
circulating means for circulating the cool air in said freezing room and said refrigerating room, including a feeding duct provided with at least one feeding port, a suction duct provided with at least one suction port and a fan member; and
generating means for generating an air curtain in said refrigerating room,
said generating means comprising:
  a supply duct for the air curtain, including a supply port installed adjacent to a door of said refrigerating room to downwardly inject air flows for the air curtain therethrough, being installed at an uppermost portion within said refrigerating room to extend from a rear portion of said refrigerating room to a front portion thereof, and being communicated with said suction duct; and
  a crossflow fan for the air curtain, installed within said supply duct to generate the air flows and being operated to be driven at the time of opening of said door and stop at the time of closing of said door,
wherein said injected air flows for the air curtain are sucked through said suction port and said suction duct.

5,784,896
FREEZER OR REFRIGERATOR CONSTRUCTION SUITABLE FOR FOOD SERVICE USE

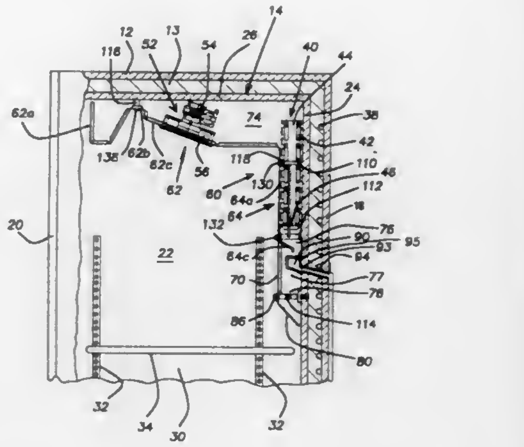
Jerome Tronnes, deceased, late of Eagan, Minn., by Scott Tronnes, executor, and Guy Stormo, St. Cloud, Minn., assignors to White Consolidated Industries, Inc., Cleveland, Ohio

Filed Mar. 25, 1997, Ser. No. 823,722

Int. Cl.^{6} F25D *17/04*

U.S. Cl. 62—407 **21 Claims**

12. A refrigeration unit for holding storage items to be refrigerated, said refrigeration unit comprising;
  an insulated enclosure defining a compartment, said enclosure having a top wall, a rear wall and opposing side walls;
  a rear plate spaced forward from the rear wall so as to form a rear channel therewith, said rear plate having a lower end spaced forward from the rear wall so as to form an inlet for the rear channel;
  an evaporator disposed within the rear channel;



  a drain trough disposed within the rear channel below the evaporator; and
  a grate covering the inlet to the rear channel so as to prevent storage items from being pressed up against the lower end of the rear plate and blocking air flow into the inlet of the rear channel wherein the grate slopes downwardly and rearwardly to the rear wall so as to help prevent storage items from being disposed flush against the grate and blocking air flow through the grate.

5,784,897
EVAPORATOR OF REFRIGERATOR

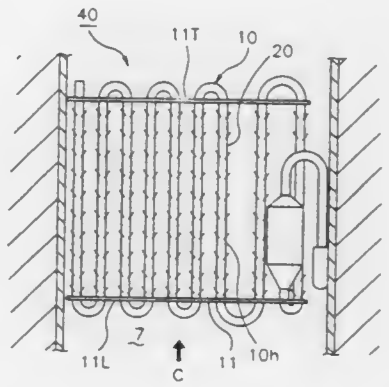
Jun-Chul Shin, Incheon, Rep. of Korea, assignor to Daewoo Electronics Co., Ltd., Sepul, Rep. of Korea

Filed Apr. 9, 1997, Ser. No. 835,619

Claims priority, application Rep. of Korea, Apr. 6, 1996, 96-19757

Int. Cl.^{6} F25B *39/02;* **E21B** *33/12*

U.S. Cl. 62—515 **3 Claims**



1. In an evaporator of a refrigerator provided in a cool air passage for heat-exchanging the cool air circulated in a refrigerating compartment and a freezing compartment, said evaporator comprising
  a serpentine heat-exchanging pipe containing refrigerant, respective axis of each straight portion of said pipe being substantially parallel to each other and generally in the direction of air flow through said cool air passage; and
  a heat-exchanging member provided around a circumference of said heat-exchanging pipe in a spiral manner, wherein said heat-exchanging member is shaped as a band having two longitudinal end portions, one longitudinal end portion of said band-shaped heat-exchanging member is in contact along the circumference of said heat-exchanging pipe and the other

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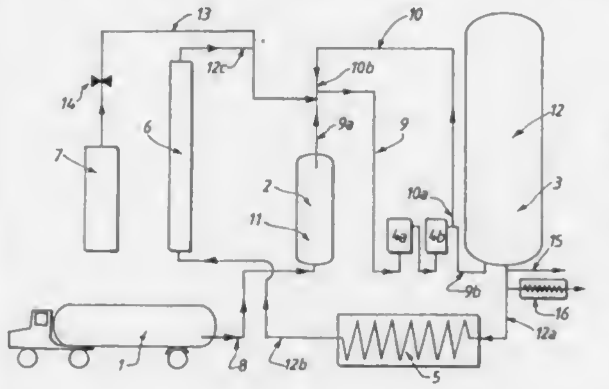
longitudinal end portion of said band-shaped heat-exchanging member which is free from being in contact with said heat-exchanging pipe is sloped upstream in the direction of the cool air flow.

5,784,898
PROCESS AND DEVICE FOR THE PREPARATION OF A CRY OGENIC FLUID IN THE HIGH PURITY LIGUID STATE

Daniel Gary, Montigny Le Bretonneux, France, assignor to L'Air Liquide, Societe Anonyme Pour L'Etude et L'Exploitation des Procedes Georges Claude, Paris Cedex, France

Filed May 14, 1997, Ser. No. 854,446
Claims priority, application France, Jun. 7, 1996, 96 07100
Int. Cl.^{6} F25J *1/00*
U.S. Cl. 62—636 **19 Claims**



1. Process for the preparation of a cryogenic fluid in the high purity liquid state, substantially free from at least one of the impurities which it contains, the process comprising:

contacting impure cryogenic fluid in the liquid state with an adsorbent permitting adsorption of at least one of the impurities;

recovering purified cryogenic fluid in the high purity liquid state; and

maintaining the adsorbent at a low temperature by cooling at least a portion of the adsorbent with the purified cryogenic fluid in the liquid state for at least a portion of the period of a stoppage stage separating a purification cycle N and a subsequent consecutive purification cycle N+1.

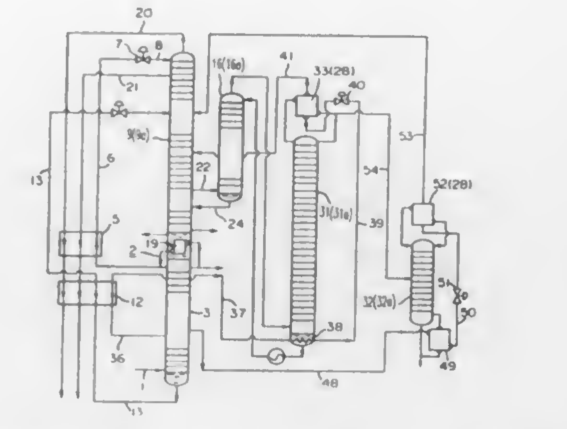
5,784,899
ARGON SEPARATION METHOD AND APPARATUS THEREFOR

Toshiyuki Nojima; Tomlo Kura, and Hideyuki Honda, all of Kawasaki, Japan, assignors to Nippon Sanso Corporation, Tokyo, Japan

PCT No. PCT/JP96/01683, § 371 Date Feb. 20, 1997, § 102(e) Date Feb. 20, 1997, PCT Pub. No. WO97/01068, PCT Pub. Date Jan. 9, 1997
PCT Filed Jun. 19, 1996, Ser. No. 776,611
Claims priority, application Japan, Jun. 20, 1995, 7-153701
Int. Cl.^{6} F25J *3/04*
U.S. Cl. 62—648 **13 Claims**

1. An argon separation method in which air is liquefied and distilled in a double distillation column, oxygen and nitrogen are collected, argon-containing oxygen is withdrawn from the lower pressure column of the double distillation column, directed into a crude argon column, and distilled to obtain crude argon; comprised,

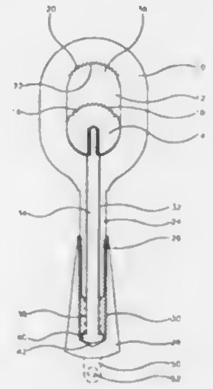
a dry-type condenser is employed as the crude argon condenser for the crude argon column, and liquefied air withdrawn from a plate which is higher than the bottom of the higher pressure column is supplied as a cold source for the condenser.



5,784,900
BODY JEWELRY

Patrick Czupryniak, R.R. #5 Dwyer Hill Road Smiths Falls, Ontario, Canada, K7A 4S6

Filed May 29, 1997, Ser. No. 865,224
Int. Cl.^{6} A44C *1/00*
U.S. Cl. 63—3 **18 Claims**



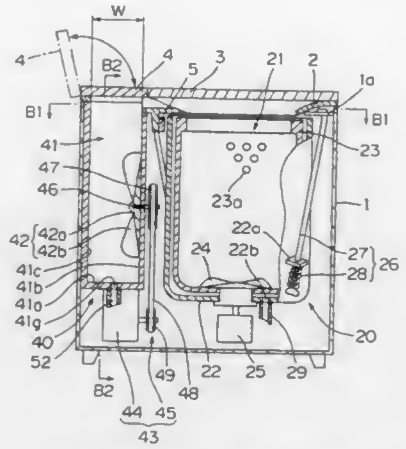
1. A jewelry device which comprises:
a unitary body having an aperture defined therein;
a bore through the unitary body opening into the aperture;
a shaft disposed within said bore, the shaft having a first end outside the aperture and a second end inside the aperture;
a clamping member surmounting the second end of said shaft and slidably disposed within the aperture for displacement between a substantially closed position adjacent an inside portion of the aperture and an open position spaced therefrom; and
actuating means engaging the first end of the shaft for effecting longitudinal movement of the shaft to displace the clamping member towards or away from the closed position.

5,784,901
WASHING MACHINE

Shuji Yanase, Motosu-gun; Toshihiro Tamura, Moriyama; Shigeki Yoshida, Otsu; Takuya Noro, Otsu; Naoki Kitayama, Otsu, and Masakazu Matsumoto, Kusatsu, all of Japan, assignors to Sanyo Electric Co., Ltd., Osaka, Japan

Filed Aug. 7, 1996, Ser. No. 694,507
Claims priority, application Japan, Aug. 31, 1995, 7-224363
Int. Cl.^{6} D06F *31/00*
U.S. Cl. 68—27 **16 Claims**

1. A washing machine comprising:

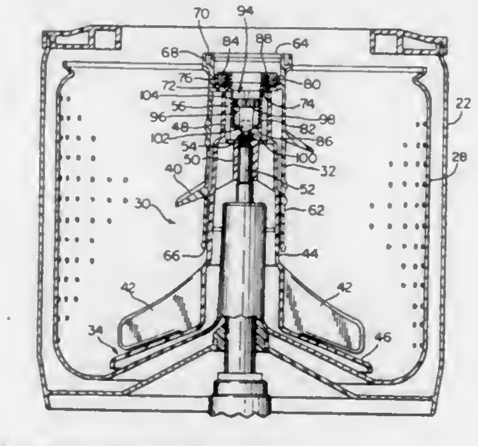


a washing tub having a bottom and side walls raised from the circumference of the bottom for containing wash water and laundry; and
a pulsator provided in the washing tub and having a disk rotatable about a center axis thereof and projections provided on a surface of the disk for agitating the wash water and the laundry,
the washing tub having a pair of long side walls and a pair of short side walls, and a plane shape being an approximately rectangular inner shape comprising a pair of long sides having a length D defined by the pair of long side walls and a pair of short sides having a length W defined by the pair of short side walls,
the pulsator being so provided on one of the pair of long side walls that the center axis is perpendicular to the long side wall,
the diameter A of the disk of the pulsator being so set that W<A,
each projection of the pulsator being elongated on the disk along a radial direction of the disk,
each projection having height from the surface of the disk that is relatively lower in the vicinity of the center axis and relatively higher at portions remote from the center axis.

5,784,902
AUTOMATIC WASHER AND LOAD RESPONSIVE AGITATOR THEREFOR

Robert J. Pinkowski, Baroda, and Robert Harlan Nehrig, Stevensville, both of Mich., assignors to Whirlpool Corporation, Benton Harbor, Mich.

Filed Jan. 31, 1997, Ser. No. 792,443
Int. Cl.^{6} D06F *33/02*
U.S. Cl. 68—12.02 **17 Claims**



17. An automatic washer comprising:
a motor having a drive shaft; and
an agitator comprising:
a base mounted to a drive shaft;
an auger;
a uni-directional drive engaging the auger; and
a force responder connecting the uni-directional drive to one of the drive shaft and the base, wherein the force responder permits the translational movement of the auger in response to forces imparted to the auger by a contacting wash load.

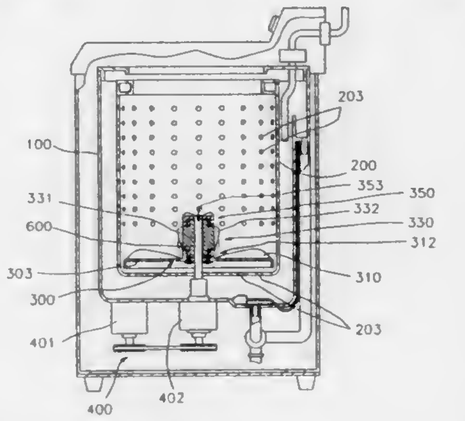
5,784,903

Patent Not Issued For This Number

5,784,904
WASHING MACHINE WITH A COMPOUND PULSATOR HAVING A PLURALITY OF SUB-PULSATORS

Kab Jin Youn, Kwangju, Rep. of Korea, assignor to Daewoo Electronics Co., Ltd., Seoul, Rep. of Korea

Filed Jul. 25, 1996, Ser. No. 687,173
Claims priority, application Rep. of Korea, Jul. 27, 1995, 95 22378
Int. Cl.^{6} D06F *13/02*
U.S. Cl. 68—133 **20 Claims**



19. A washing machine with a compound pulsator having a plurality of sub-pulsators comprising:
a stationary tub for receiving washing water when washing;
a revolving shaft disposed at the center of the bottom of the stationary tub;
a washing tub coaxially connected with the stationary tub, the washing tub being revolvable on the revolving shaft and having a plurality of washing water communication holes; and
a compound pulsator having
  a bottom sub-pulsator mounted on the bottom of the washing tub which is revolvable on the revolving shaft,
  a top sub-pulsator mounted on an upper part of the revolving shaft which is revolvable on the revolving shaft,
  an intermediate sub-pulsator mounted coaxially with the revolving shaft between the bottom sub-pulsator and the top sub-pulsator which is revolvable on the revolving shaft, and
  a revolution controlling part having one or more first projectors formed on an outer-circumference of the intermediate sub-pulsator, one or more first prime projector formed on an inner-circumference of the top sub-pulsator, one or more second projectors formed on an outer-circumference of the intermediate sub-pulsator, and one or more second prime projector formed on an inner-circumference of the bottom sub-pulsator, wherein the first and second projectors are aligned on a straight line, and the first prime and second prime projectors are aligned on a straight line,
wherein, the upper part of the intermediate sub-pulsator is inserted into the top sub-pulsator in the revolvable state on the revolving axis, and the lower part of the intermediate sub-pulsator is inserted into the bottom sub-pulsator in the

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revolvable state on the revolving axis, so that, after the top and bottom sub-pulsator are revolved by a predetermined degree integrally with the revolving shaft regardless of revolution of the intermediate sub-pulsator, the first and first prime projectors and the second and second prime projectors are respectively engaged with each other, and thereby the intermediate sub-pulsator is engaged with the top and bottom sub-pulsators to be revolved therewith.

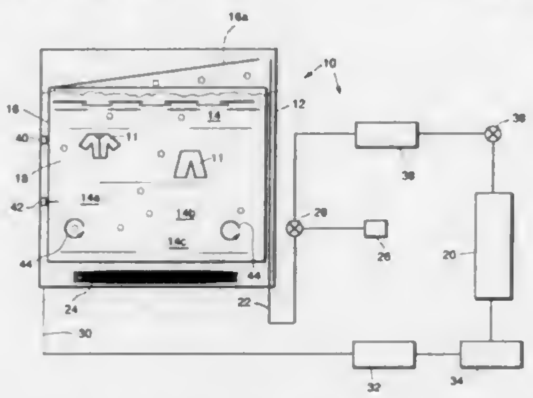
5,784,905
LIQUID CARBON DIOXIDE CLEANING SYSTEM EMPLOYING A STATIC DISSIPATING FLUID

Carl W. Townsend, Los Angeles; Sidney C. Chao, Manhattan Beach, and Edna M. Purer, Los Angeles, all of Calif., assignors to Hughes Electronics, Los Angeles, Calif.

Filed Dec. 3, 1996, Ser. No. 753,853

Int. Cl.^{6} D06F *43/02*

U.S. Cl. 68—13 R **10 Claims**



1. A liquid carbon dioxide dry cleaning system comprising:
a pressurizable vessel into which garments are loaded that are to be cleaned;
a conductive, perforated and grounded cleaning drum disposed within the pressurizable vessel;
liquid carbon dioxide dry cleaning fluid disposed in the pressurizable vessel;
an antistatic agent disposed in the liquid carbon dioxide cleaning fluid for dissipating static charge on the garments generated by friction during cleaning of the garments; and
agitation means for agitating the garments during cleaning;
and wherein static charge present on the garments is transferred through the liquid carbon dioxide dry cleaning fluid to the cleaning drum to ground, which minimizes static charge on the garments and redeposition of suspended soil onto the garments caused by such static charge.

5,784,906
LOCKING BOLT FOR OVERHEAD SUPPORT OF WEIGHTED ARTICLES

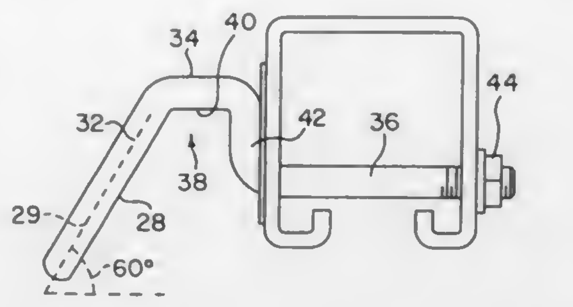
Junius T. Moore, Charleston, W. Va., assignor to The Moore Company, Inc., Charleston, W. Va.

Filed Dec. 6, 1996, Ser. No. 761,775

Int. Cl.^{6} E05B *65/00*

U.S. Cl. 70—57 **2 Claims**

1. A locking bolt for securing members in place, said bolt having a root portion insertable through a support member, said root portion having a longitudinal axis, a first leg portion extending at an angle to said root portion, a second leg portion extending from said first leg portion in a direction parallel to said longitudinal axis of said root portion and a third leg portion extending from said second leg portion at a selected angle that is less than 120°, said third leg portion terminating in an eyelet having an opening for receiving a locking member with said eyelet spaced a distance from said root portion by means of said leg portions whereby a locking plate having an opening is insertable onto said second leg portion over said third leg portion and retained on said second leg portion when a locking member is locked in said eyelet.



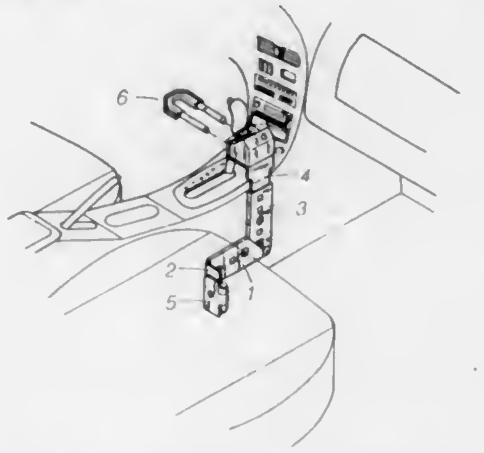
5,784,907
ADJUSTABLE AND EXPANDABLE DEVICE FOR LOCKING GEAR-SHIFTING LEVER OF MOTOR VEHICLE

Hsi-Yen Hu, 14 Lane Pa Tei, Yung Ching Hsiang, Changhua, Taiwan, and Yuan-Chih Chiang, 386 Shan Chiao Road, Sec, 3, She Tou Hsiang, Changhua, Taiwan

Filed Jul. 23, 1997, Ser. No. 899,209

Int. Cl.^{6} B60R *25/06*

U.S. Cl. 70—203 **1 Claim**



1. A locking device for disabling the gear-shifting lever of a motor vehicle, said locking device comprising a body and a shackle having two arms engageable and disengageable with said body;
wherein said body comprises:
a horizontal tube of a hollow construction and having a plurality of adjusting holes, a slot, and a lug having a pivoting hole, said adjusting holes being arranged at an interval along the direction of a longitudinal axis of said horizontal tube, said slot extending along the direction of the longitudinal axis of said horizontal tube;
a vertical tube of a hollow construction and having a plurality of adjusting holes, a slot, and a lug having a pivoting hole which is engaged with a pivot for fastening pivotally said vertical tube adjustably located in a vertical position in relation to said horizontal tube, said adjusting holes of said vertical tube being arranged at an interval along the direction of a longitudinal axis of said vertical tube, said slot extending along the direction of the longitudinal axis of said vertical tube;

a shackle piece provided at one end thereof with a fastening hole corresponding in location to said adjusting holes of said vertical tube and engageable with a fastening bolt which is in turn engageable with any one of said adjusting holes of said vertical tube, said shackle piece further provided at another end thereof with two arm holes for receiving said two arms of said shackle, said shackle piece being adjustably received in said slot of said vertical tube such that said shackle piece is located in said slot by said fastening bolt;
a slide piece provided at one end thereof with a fastening hole corresponding in location to said adjusting holes of said horizontal tube and engageable with a fastening bolt which is in turn engageable with any one of said adjusting holes of said horizontal tube, said slide piece being adjustably received in said slot of said horizontal tube such that said slide piece is located in said slot by said fastening bolt, said slide piece further provided at another end thereof with a lug having a pivoting hole;
a pivoting seat provided with a pivoting hole for fastening pivotally said pivoting seat with said slide piece by a pivot which is engaged with said pivoting hole of said pivoting seat and said pivoting hole of said lug of said slide piece, said pivoting seat further provided with a fastening hole for fastening said pivoting seat with a body of the motor vehicle.

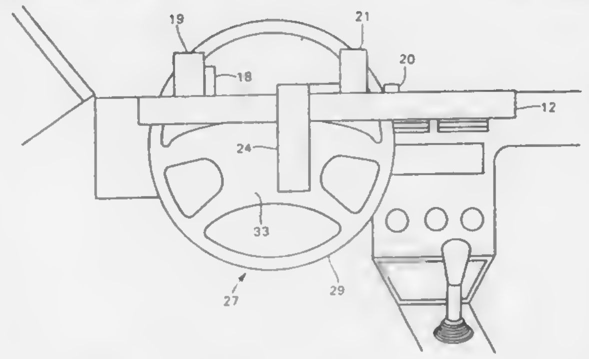
5,784,908
AUTOMOBILE ANTI-THEFT DEVICE

Robert A. Hileman, Jr., 286 Katie Dr., Feasterville, Pa. 19053

Continuation-in-part of Ser. No. 476,700, Jun. 7, 1995, Pat. No. 5,673,577. This application Oct. 23, 1996, Ser. No. 735,606

Int. Cl.^{6} B60R *25/02*

U.S. Cl. 70—209 **16 Claims**



1. A tamper resistant anti-theft device for attachment to an automobile steering wheel having a center mounted air bag and an exterior diameter of a selected size, the anti-theft device comprising:
a bar having first and second ends and adapted to have a length greater than the exterior diameter of the steering wheel;
a first means fixed at the first end of the bar for engaging a first portion of the steering wheel;
a second means fixed on the bar at a position between the ends thereof for engaging a second portion of the steering wheel;
a closing latch mounted between the first and second means of the bar for movement from an opened position to a locked position that confines the second portion of the steering wheel between the closing latch and the second means;
reinforcement means for limiting movement of the device and preventing the cutting of an adjacent portion of the steering wheel;
a covering member attached to and movable with the closing latch to the locked position where it overlies the center mounted air bag; and
a locking means for locking the closing latch in the locked position secured to the bar at a position which is concealed beneath the covering member when the closing latch is in the locked position.

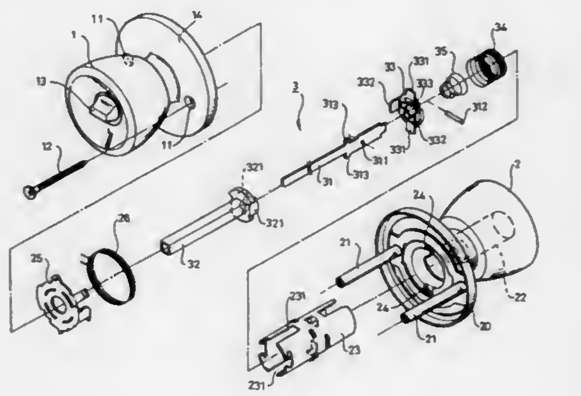
5,784,909
CONTROL MECHANISM FOR TUBULAR LOCKS

Lan Shi Huang, Kaohsiung, Taiwan, assignor to Taiwan Fu Hsing Industry Co., Ltd., Kaohsiung Hsien, Taiwan

Filed Apr. 22, 1997, Ser. No. 843,775

Int. Cl.^{6} B60R *25/02*

U.S. Cl. 70—224 **4 Claims**



1. A tubular lock assembly, comprising:
an inner handle adapted to be rotatably mounted to an inner side of a door plate, a button being rotatably mounted in the inner handle;
a first means for returning the inner handle after a rotational movement of the inner handle;
an outer handle adapted to be rotatably mounted to an outer side of the door plate, an outer protective cover being mounted to the outer side of the door plate and including a pair of notches defined therein, a sleeve having a first end securely attached to the outer handle to rotate therewith and a second end, a lock core being mounted in the outer handle; and
a control mechanism comprising:
  a tubular shaft having a first end securely attached to the inner handle to rotate therewith and a second end, two blocks being formed on the second end of the tubular shaft and having an operative recess defined therebetween,
  a latch plate extending through the tubular shaft and including a first end attached to and thus rotatably actuated by the button and a second end attached to the lock core to rotate therewith, the latch plate further including a pair of protrusions formed on a mediate portion thereof, and
  a second means for biasing the protrusions of the latch plate to bear against the second end of the tubular shaft,
  a stop plate including a central hole through which the latch plate fittingly extends, the stop plate being engaged with the tubular shaft to rotate therewith, the stop plate further including two teeth respectively, removably received in the notches of the outer protective cover, and
  a third means for biasing the teeth of the stop plate to disengage from the notches of the outer protective cover for unlatching;
whereby the teeth of the stop plate are received in the notches of the outer protective cover when the tubular lock assembly is in a locked position, and unlatched by rotation of the inner handle in either direction which causes the protrusions to be received in the operative recess of the tubular shaft such that the teeth of the stop plate disengage from the notches of the outer protective cover by the third means.

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5,784,910
LOCKING APPARATUS

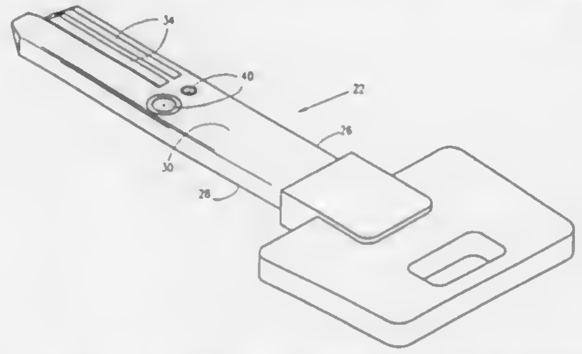
Noach Elzen, Rishon Lezion, and Dani Markbreit, Azor, both of Israel, assignors to Mul-T-Lock Ltd., Yavne, Israel

Continuation of Ser. No. 340,352, Nov. 14, 1994, Pat. No. 5,520,035, which is a continuation of Ser. No. 9,069, Jan. 26, 1993, abandoned. This application Mar. 11, 1996, Ser. No. 613,664

Claims priority, application Israel, Jan. 8, 1993, 104349

Int. Cl.^{6} E05B *19/12*

U.S. Cl. 70—395 **5 Claims**



1. A key blank for use with a lock having a row of lock pins, said key blank comprising:

a generally elongate shaft portion extending along a shaft axis and defining first and second generally flat oppositely directed side surfaces, joined by edge surfaces narrower than said side surfaces, said first side surface defining a first key combination surface and having formed thereon elongate keyway guides extending at least partly along said shaft and arranged to underlie at least part of said row of lock pins in said lock; and

at least one first movable pin element retained within the elongate shaft portion,

said at least one first movable pin element axially spaced from said keyway guides and extending along a first movable pin axis, said first movable pin axis being perpendicular to said side surfaces, wherein said at least one first movable pin element extends from said first side surface to said second side surface and is displaced axially along said first movable pin axis from said second side surface inwardly towards said first side surface, such that when said at least one first movable pin element is recessed with respect to said second side surface it protrudes outwardly from said first side surface.

5,784,911
APPARATUS FOR MANUFACTURING A WELDED PIPE

Yuji Hashimoto; Takaaki Toyooka; Motoaki Itatani; Susumu Itatani, and Tsutomu Ide, all of Chiba, Japan, assignors to Kusakabe Electric & Machinery Co., Ltd., and Kawasaki Steel Corporation, both of Hyogo-Ken, Japan

Continuation of Ser. No. 386,362, Feb. 9, 1995, abandoned. This application Feb. 21, 1997, Ser. No. 803,923

Int. Cl.^{6} B21D *39/02;5/08;51/28*

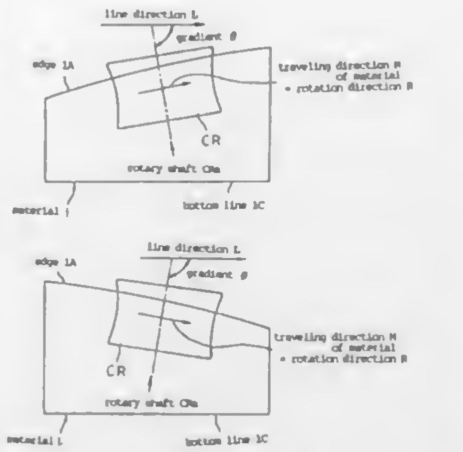
U.S. Cl. 72—52 **14 Claims**

1. An apparatus for manufacturing a welded pipe, wherein the apparatus comprises:

a first roller disposed in an upstream composition area of a horizontal manufacturing line of said apparatus, said first roller having a first rotary axis which is substantially vertical with respect to said horizontal manufacturing line, wherein said first rotary axis is slanted in a direction with respect to said horizontal manufacturing line, whereby one end of said first rotary axis is closer to a beginning of said horizontal manufacturing line than another end of said first rotary axis; and

a second roller disposed opposite to said first roller in said upstream composition area of said horizontal manufacturing line, wherein said second roller has a second rotary axis which is substantially vertical with respect to said horizontal manufacturing line, wherein said second rotary axis is slanted in a direction with respect to said horizontal manufacturing line, whereby one end of said second rotary axis is closer to a beginning of said horizontal manufacturing line than another end of said second rotary axis,

wherein said first rotary axis and said second rotary axis are slanted to extend in the same direction, such that said first rotary axis and said second rotary axis are substantially parallel to each other to form a plane, said plane disposed at an angle to said horizontal manufacturing line and wherein vertical slip caused when a strip of pipe material contacts a surface of each of said first and second rollers is reduced.



5,784,912
TANGENTIAL ROLLING HEAD

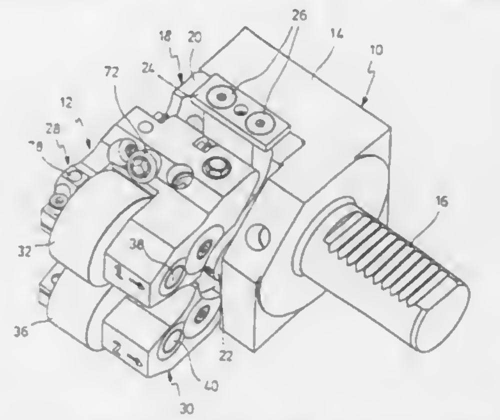
Andreas Focken, Schwarzenbek, and Klaus Oppelt, Lauenburg, both of Germany, assignors to Wilhelm Fette GmbH, Schwarzenbek, Germany

Filed Jun. 6, 1997, Ser. No. 870,885

Claims priority, application Germany, Jun. 7, 1996, 296 10 183.4

Int. Cl.^{6} B21H *03/04*

U.S. Cl. 72—104 **16 Claims**



1. A tangential thread rolling head with two fork-shaped rolling head arms in which thread rollers are rotatably mounted by way of parallel axles, wherein said thread rollers are in engagement with a pinion, sitting on said axles, of a gear which couples both thread rollers, and said thread rollers and pinion are formed such that said rollers are laterally insertable before installing said axles, a rolling head holder on which said rolling head arms are pivotably mountable about a common axle running parallel to said roller axles, threaded means for adjusting the distance of said thread roller axles from one another and adjusting means for the pivotal position of said rolling head to said rolling head holder, wherein cooperating

claws of said thread roller and pinion are formed such that said roller may only be laterally inserted in a single defined rotational position.

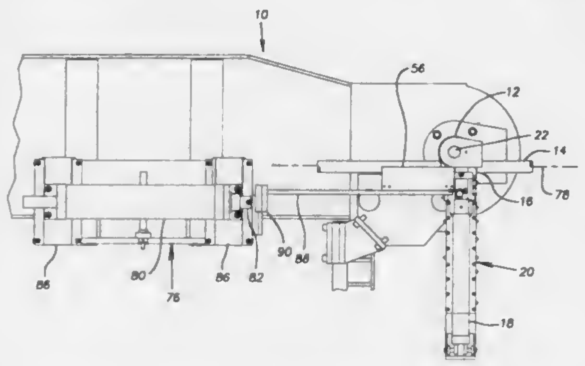
5,784,913
PRESSURE DIE ASSIST BOOST SYSTEM FOR TUBE BENDING MACHINE

Ajay K. Bhandari, Westlake, Ohio, assignor to Pines Manufacturing, Westlake, Ohio

Filed Oct. 6, 1995, Ser. No. 540,064

Int. Cl.^{6} B21D *7/04;9/05;* **B21B** *37/08*

U.S. Cl. 72—149 **20 Claims**



1. A tube bending machine for cold bending at least one bend in a tube, said tube bending machine comprising:

a rotatable bend die about which the tube is bent, at least a portion of said bend die having a pinch-type tube groove for receiving an inner side wall of the tube and substantially preventing relative movement between said bend die and the inside wall of the tube;

a rotatable clamp die disposed outwardly of said bend die and movable to secure the tube between the clamp die and the bend die at a location adjacent a selected location for the bend;

a pressure die engagable with an outside wall of the tube trailing the selected location for the bend to exert a generally tangential pressure on the tube, said pressure die having a pinch-type tube groove with multiple radiuses for receiving the tube to substantially prevent relative movement between the pressure die and the outer side wall of the tube; and

a pressure die boost system for advancing said pressure die in a forward direction as said bend die is rotated, said boost system comprising:

a actuator including a hydraulic cylinder with a piston, a pusher coupling said piston to said pressure die, and ports in said cylinder on opposite sides of said piston; and

an electro-hydraulic control system for automatically driving said actuator in accordance with pre-programmed parameters, said electro-hydraulic control system including a hydraulic pump for providing hydraulic fluid to said cylinder, a proportional flow directional valve connected to said ports for varying flow of the hydraulic fluid from said hydraulic pump to each of said ports of said cylinder, a proportional pressure control valve connecting said hydraulic pump to said proportional flow directional valve for varying pressure of the hydraulic fluid, a sensor for detecting a rotational angle of said bend die, and a controller in electrical communication with said sensor for receiving a signal from said sensor representative of said rotational angle and with said proportional flow directional valve and said proportional pressure control valve for providing control signals to set flow and pressure of the hydraulic fluid to pre-selected levels at pre-selected angles of said bend die.

5,784,914
METHOD TO CONTROL BETWEEN ROLLING STANDS THE DRAWING OF THE ROLLED STOCK AND RELATIVE DEVICE

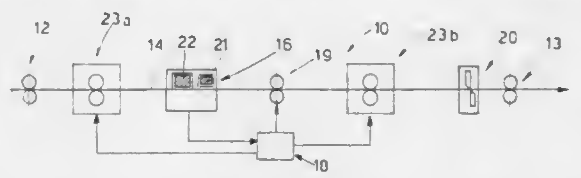
Lorenzo Ciani, Udine, Italy, assignor to Ceda SpA Costruzioni Elettromeccaniche e Dispositivie d'Automazione, Buttrio, Italy

Filed Aug. 2, 1996, Ser. No. 691,798

Claims priority, application Italy, Aug. 3, 1995, UD95A0152

Int. Cl.^{6} B21B *39/08*

U.S. Cl. 72—205 **13 Claims**



7. A device to control the drawing of a length of rolled stock in a segment of a rolling line comprising one of a rolling unit cooperating with a drawing unit or two cooperating rolling units, the device being characterized in that there is also included at least between the upstream rolling unit and the downstream rolling unit and/or the drawing unit a measurement device to measure the drawing force imparted to the rolled stock in the segment, the measurement device comprising at least:

a detecting unit to detect and measure a vibration parameter comprising at least one of a frequency and an amplitude of a transverse vibration of the length of rolled stock;

means for correlating the at least one of the frequency or amplitude a corresponding value of a drawing force being exerted on the rolled stock; and

means for correcting, by feedback, working parameters of the downstream rolling unit or drawing unit and/or the upstream rolling unit for maintaining the drawing force to a substantially constant value.

5,784,915
MACHINE FOR BENDING SHEET METAL MARGINS

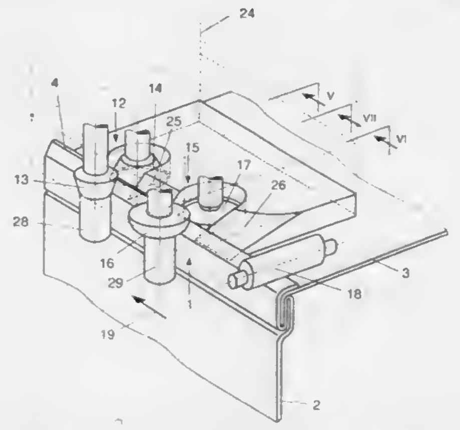
Marco Allemann, Untervaz, and Andreas Janutin, Chur, both of Switzerland, assignors to Trumpf GmbH & Co., Ditzengen, Germany

Filed Apr. 17, 1997, Ser. No. 837,370

Claims priority, application Germany, Apr. 16, 1996, 296 06 725 U

Int. Cl.^{6} B21D *17/10*

U.S. Cl. 72—211 **23 Claims**



1. In a machine for joining overlapping edge portions of two sheet metal parts, a first part having an edge portion extending perpendicularly to a body portion of said first part and an edge portion of a second part being generally S-shaped with said perpendicular edge portion of said first part extending between said outer sections of said S-shaped portion of said first part, the

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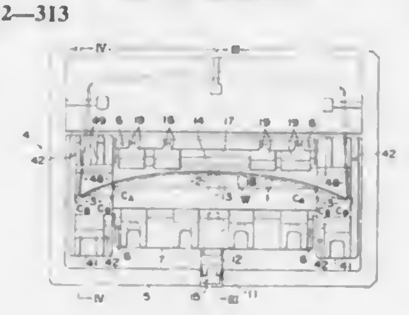
outermost section of said S-shaped portion having a projecting portion extending above a plane of said body portion of said first part, said machine comprising:
- (a) a frame;
- (b) a first pair of cooperating rollers rotatably mounted on said frame for rotation about parallel axes and having oppositely inclined conical forming surfaces defining a roll nip therebetween extending in a plane oriented at an acute angle to said axes of rotation;
- (c) a second pair of cooperating rollers spaced from said first pair of rollers and rotatably mounted on said frame for rotation about parallel axes aligned with and parallel to said axes of said first pair, said second pair having oppositely inclined generally conical forming surfaces defining a roll nip therebetween extending in a plane oriented at an acute angle to said axes of rotation which is greater than the angle of the nip in said first pair, at least one roller of each pair of cooperating rollers being rotatably driven;
- (d) an abutment member on said frame disposed between said first and second pairs of rollers having a surface inclined at an angle approximating the angle of said nip of said first pair of rollers, and said machine is oriented with its abutment member extending along said body portion of said first part and said roll forming surfaces of said first pair of rollers being disposed on opposite sides of said projecting portion of said outermost section to bend the projecting portion of said second part toward said body portion of said first part as the machine is moved along overlapping edge portions and said abutment surface provides a guide for the bent portion of said outermost section; and
- (e) a pressure roller rotatably mounted on said frame at a point spaced from said second pair for rotation about an axis perpendicular to said axes of said pairs of forming rollers to press said folded extending portion of said second part against the surface of said body portion of said first part.

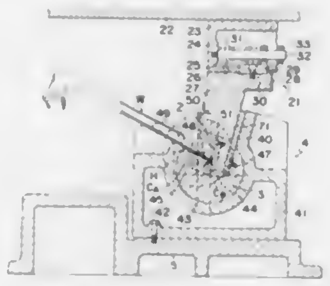
5,784,916
THIN SHEET FORMING DIE ASSEMBLY INCLUDING A LOWER DIE HAVING PLURAL PARALLEL ROTATING CYLINDRICAL MEMBERS

Mitsuo Matsuoka, Hirakata, Japan, assignor to Umix Co., Ltd., Osaka, Japan

Filed Feb. 5, 1997, Ser. No. 795,806
Int. Cl.⁶ B21D *5/04*

U.S. Cl. 72—313 **17 Claims**





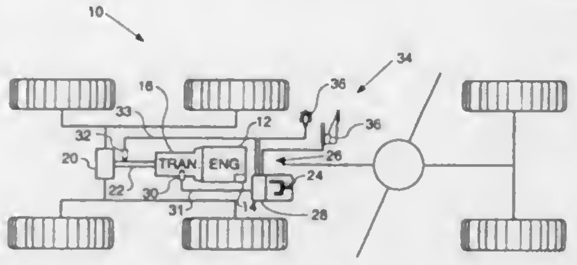
1. A pressing apparatus comprising a lower die having a supporting portion for supporting a metal sheet material to be worked and an upper die movable in a path downwardly and linearly with respect to said lower die to abut on the material to be worked, so as to shape the material to be worked, said pressing apparatus further comprising:
- at least one cylindrical member having an outer surface and end faces and being rotatably disposed in said lower die adjacent said supporting portion, said cylindrical member having a groove opening to said outer surface and along its axial extent and a recess-forming portion formed at an edge portion of said groove near to said supporting portion and stepped inside from said path of said upper die;
- a slide cam having a recess-forming portion and slidably arranged on said upper die for confronting said cylindrical member; and
- an automatic return element, provided in said lower die, for rotationally returning said cylindrical member to a starting position at which said material, after being shaped, can be taken out from said lower die,
- wherein said material to be worked is placed on said supporting portion of said lower die and is shaped by rotating said recess-forming portion of said cylindrical member by sliding movement of said recess-forming portion of said slide cam, and thereafter said cylindrical member is rotationally returned to said starting position by said automatic return element so that the worked material can be taken out from said lower die,
- and wherein said at least one cylindrical member comprises a plurality of cylindrical members, the rotational axes of which differ and are parallel to one another, and a linkage mechanism mounted to said plurality of cylindrical members such that the plurality of cylindrical members are each returned to said starting position by said automatic return element.

5,784,917
TRANSMISSION SHIFT CONTROL STRATEGY

Randy R. Hayward, Mapleton, Ill., assignor to Caterpillar Inc., Peoria, Ill.

Filed Mar. 3, 1997, Ser. No. 813,960
Int. Cl.⁶ F16H *59/72*

U.S. Cl. 74—335 **9 Claims**



1. A method for controlling the shift strategy of a transmission adapted for use on a machine being started or operated when the oil in the transmission is cold, the machine includes a source of pressurized fluid for pressurizing the fluid actuated clutches and a shift lever movable from a neutral position to select the desired direction of travel and the desired gear ratio and direct a signal representative thereof to a controller that controls engagement of certain ones of a plurality of fluid actuated clutches to obtain the desired direction and gear ratio, the method comprising the steps of:
- detecting an operating condition of the oil in the transmission;
- determining if the operating condition of the oil is above a predetermined operating value;
- turning on an indicator lamp if the operating condition of the oil is below the predetermined operating value;
- moving the shift lever from the neutral position to a desired directional and gear ratio position;
- comparing the amount of time the shift lever had been in the neutral position to a predetermined amount of time;
- flashing the indicator lamp if the amount of time the shift lever was in the neutral position is less than the predetermined amount of time;

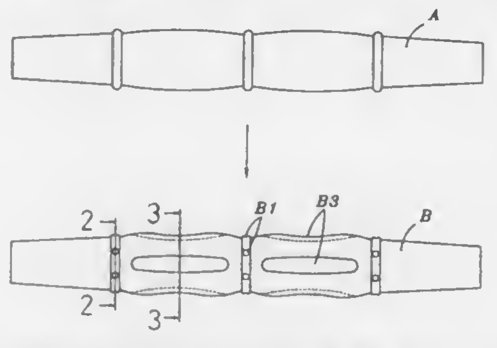
- inhibiting engagement of the clutches for the gear ratio requested by the shift lever position if the amount of time is less than the predetermined amount of time; and
- requiring the shift lever be moved back to the neutral position to reset the controller.

5,784,918
METHOD AND APPARATUS FOR SWAGING METALLIC EMBOSSED PIPES

Tseng Shao-Chien, No. 130 Sec 2, Yang-Shin Rd., Yang-Mei Taoyuan 326, Taiwan

Filed Mar. 6, 1997, Ser. No. 812,261
Int. Cl.⁶ B21D *15/04*

U.S. Cl. 72—370.04 **5 Claims**



1. A method for swaging concave wall units on an embossed metallic pipe comprising the following steps:
- A. constructing a die core from a hollow holding pipe with a plurality of openings in an outer wall thereof, said openings are in communication with a central pipe hole of said holding pipe;
- B. covering said holding pipe with a layer of plastic film;
- C. inserting said die core comprising said holding pipe covered with said layer of plastic into a pipe hole of said embossed pipe;
- D. filling a space between said plastic film and said embossed pipe with melted plastisol, said central pipe hole of said holding pipe remains open due to said layer of plastic, said melted plastisol thereafter solidifying to a deformable solid;
- E. said embossed pipe with said die core is mounted in a swaging apparatus, two positioning seats are used to secure and to adjust positions of two ends of said embossed pipe;
- F. a plurality of swage processing seats generate a plurality of radial and inward pressing forces from a plurality of punching heads, thereby forming concave shapes in a wall of said embossed pipe, said plastisol absorbing some of said forces by being forced through said openings in said holding pipe to said pipe hole of said holding pipe;
- G. heating said embossed pipe to again melt said plastisol; and
- H. removing said die core and said melted plastisol from said pipe hole of said embossed pipe.

5,784,919
FOLDING UNIT

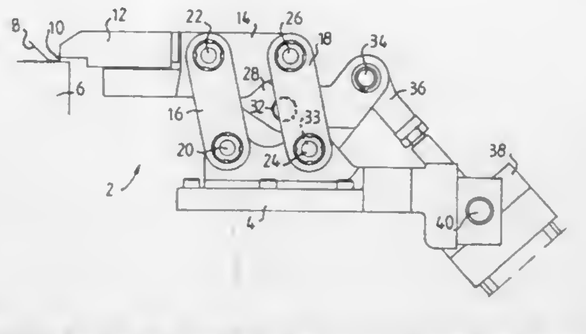
Mikael Mattsson, Mörrum, Sweden, assignor to AB Volvo, Gothenburg, Sweden

PCT No. PCT/SE95/00579, § 371 Date Nov. 15, 1996, § 102(e) Date Nov. 15, 1996, PCT Pub. No. WO95/32820, PCT Pub. Date Dec. 7, 1995

PCT Filed May 23, 1995, Ser. No. 737,127

Claims priority, application Sweden, May 27, 1994, 9401833
Int. Cl.⁶ B21J *9/18*

U.S. Cl. 72—450 **6 Claims**



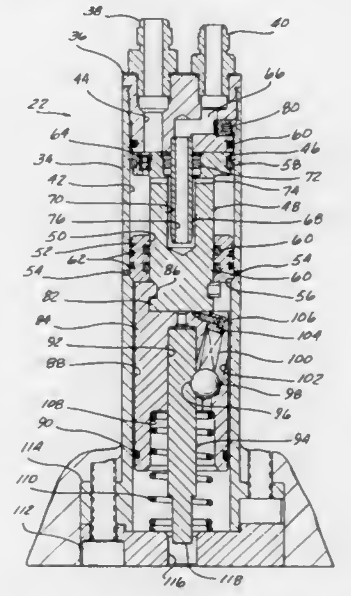
1. Prebending unit for achieving a reciprocating movement comprising a tool holder pivotally joined to a foundation, said tool holder being supported by parallel links, which are journalled in pivot points on the foundation, and in pivot points on the tool holder, in such a manner as to be displaceable by an operating device coupled to a drive device, along a predetermined path of movement between a starting position and a work position, wherein the operating device includes said parallel links and operating means joined to a knee-joint mechanism, which has a link having a first end and a second end, the first end being joined to one of the pivot points located on the tool holder, said one pivot point on the tool holder being common to said link and one of the parallel links, the second end of said link being joined to a first pivot point on a triangle link; a second pivot point on the triangle link being joined to one of the pivot points which is fixed in the foundation and which is common to the triangle link and another one of the parallel links; the operating means being joined to a third pivot point on the triangle link whereby the knee-joint mechanism actuated by the operating means can be moved from a retracted position where the tool holder is in its starting position, to a completely extended position where the tool holder is in its work position, and then be returned to the retracted position.

5,784,920
ACTUATOR-PUNCH ASSEMBLY WITH FORMING DIE INSTALLATION

Paul M. Kadis, 9685 Fox Meadow, Chardon, Ohio 44024

Division of Ser. No. 234,326, Apr. 28, 1994, Pat. No. 5,555,760.
This application Sep. 13, 1996, Ser. No. 713,659
Int. Cl.⁶ B21J *9/12*

U.S. Cl. 72—453.18 **9 Claims**



1. An actuator assembly for a punch comprising:
- an elongated housing cylinder sleeve having an internal bore;
- an end cap mounted at one end of said housing internal bore to close off said bore;
- a piston slidable in a first section of said housing internal bore adjacent said end cap;

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said piston, said housing internal bore and said end cap together defining a pressure chamber;

means for controllably supplying fluid under pressure to said pressure chamber for causing stroking of said piston in said first section of said housing internal bore;

a piston rod attached to said piston and extending through said internal bore in a direction away from said end cap;

said housing internal bore having a shoulder at an intermediate location along the length of said housing internal bore;

an annular rod seal gland member sealingly fit within said first section of said housing internal bore and positioned abutted against said shoulder and having an inner diameter through which said piston rod extends, said piston rod sealed to said inner diameter and having an end protruding past said rod seal gland member;

a punch retainer for holding a punch, said punch retainer slidable in a second section of said housing internal bore located beyond said shoulder spaced from said first section of said housing internal bore;

said punch retainer coupled to said protruding end of said piston rod to be stroked in said second section of said housing internal bore by stroking of said piston in said first section of said housing internal bore, thereby causing a punch in said punch retainer to be driven for carrying out a punching operation.

5,784,921
DEVICE FOR ADJUSTING THE STRAIGHTENING BENCH OF THE CAR BODY STRAIGHTENING AND MEASURING SYSTEM

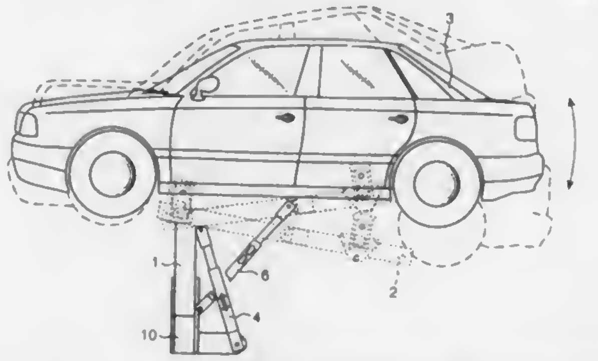
Olavi Venäläinen, Kuopio, Finland, assignor to Autorobot Finland Oy, Kuopio, Finland

Filed Sep. 13, 1996, Ser. No. 715,545

Claims priority, application Finland, Mar. 14, 1994, 941191

Int. Cl.^{6} B21D *1/12*

U.S. Cl. 72—457 **2 Claims**



1. A car body straightening and measuring system comprising:

a generally vertical frame pipe;

a support structure partially received within said frame pipe and adapted to be movable with respect to said frame pipe;

a straightening bench constructed and arranged to operatively support a vehicle thereon, said straightening bench being attached to said support structure and being movable with said support structure with respect to said frame pipe so as to be height adjustable, said straightening bench being pivotally attached to said support structure so as to be movable with respect to said support structure between an inclination below a horizontal orientation and an inclination above a horizontal orientation;

a first cylinder attached at one end thereof to said frame pipe and at an opposite end thereof to said straightening bench, said first cylinder being constructed and arranged so as to be selectively actuatable to move said support structure and said straightening bench with respect to said frame pipe to vary the height of said straightening bench; and

a second cylinder attached at one end thereof to said straightening bench and at an opposite end thereof to said support structure, said second cylinder being constructed and arranged so as to be selectively actuatable to vary the position of said straightening bench with respect to said support member between the inclination below the horizontal orientation and the inclination above the horizontal orientation, said second cylinder being movable with said support structure and said straightening bench with respect to said frame pipe when the height of said straightening bench is varied and wherein a vertical groove is formed in said frame pipe to accommodate said second cylinder to enable said second cylinder to move with said support structure when the height of said straightening bench is varied.

5,784,922
MOTOR FOR CONVERTING ROTATION OF A SHAFT TO LINEAR MOVEMENT

Shigeto Ozaki; Hironori Ito; Motonori Noda; Yuzuru Ikeda, and Shinichi Kusakabe, all of Kariya, Japan, assignors to Kabushiki Kaisha Toyoda Jidoshokki, Kariya, Japan

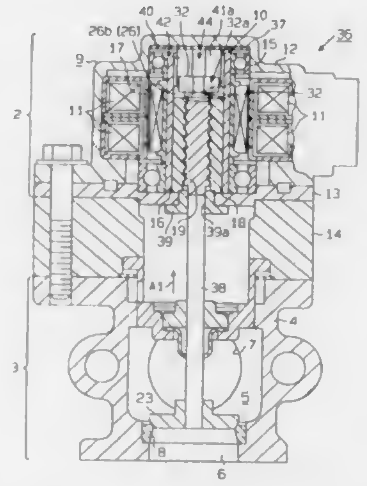
Continuation of Ser. No. 509,127, Jul. 31, 1995, abandoned.

This application Jul. 28, 1997, Ser. No. 901,318

Claims priority, application Japan, Aug. 6, 1994, 6-204303; Aug. 6, 1994, 6-204304

Int. Cl.^{6} F16K *31/04;* H02K *37/22*

U.S. Cl. 74—424.8 VA **9 Claims**



1. A motor mounted within a housing, said motor including a stator fixed within said housing and a rotatable cylindrical rotor within said stator and having a female threaded nut formed inside the rotor and a screw shaft having a male threaded length portion threadedly engaged with the female threaded nut, wherein rotation of the rotor is transformed to linear movement of the screw shaft by restricting the rotation of the screw shaft, said motor comprising:

a plurality of engaging projections, including an oppositely projecting pair of engaging projections, carried by and projecting from the screw shaft;

an engagement member provided on the rotor to engage at least one of the engaging projections, said engagement member engaging said at least one of the engaging projections upon rotation of the rotor to a position to establish a longitudinal reference position of the screw shaft with respect to said stator and to prevent the screw shaft from separating from the rotor; and

a rotation preventing member attached within said housing and disposed adjacent to said screw shaft to prevent rotation of the screw shaft, said rotation preventing member having a guide surface which engages and guides the longitudinal movement of said oppositely projecting pair of engaging projections during said rotation of the rotor.

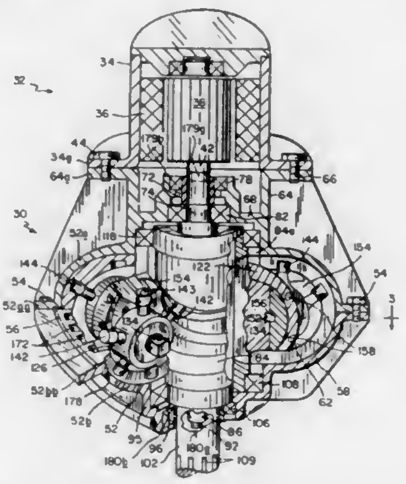
5,784,923
TOROIDAL DRIVE SYSTEM AND METHOD OF ASSEMBLING SAME

Manfred R. Kuehnle, Waldesruh Route 103 A P.O. Box 1020, New London, N.H. 03257

Filed Sep. 10, 1996, Ser. No. 711,975

Int. Cl.^{6} F16H *55/32*

U.S. Cl. 74—465 **39 Claims**



1. A toroidal drive system comprising

a housing composed of first and second mating housing sections having interior walls which cooperate to define a plurality of parallel, helix-like races inscribed in a torus having a circular axis;

securing means for securing together the two mating housing sections;

a plurality of rotary elements fixedly spaced apart along said axis, said elements each having an axle fixed at said axis and a plurality of removable, radially extending teeth rotatably encircling the corresponding axle, each tooth of each rotary element engaging in a different one of said plurality of races;

a worm mounted for rotation in said housing about a second axis substantially perpendicular to the circular axis, said worm engaging at least one tooth of each of said plurality of rotary elements;

power take off means connected to all of said axles and extending without said housing, and

means defining a hole through a housing section wall at the bottom of each race, said hole being larger than the teeth engaged in that race so that the housing sections can be mated around the rotary elements while said elements are missing some teeth and secured together by the securing means after which the missing teeth may be installed on the rotary elements through said holes by rotating the worm to align the missing tooth positions of the elements with said holes.

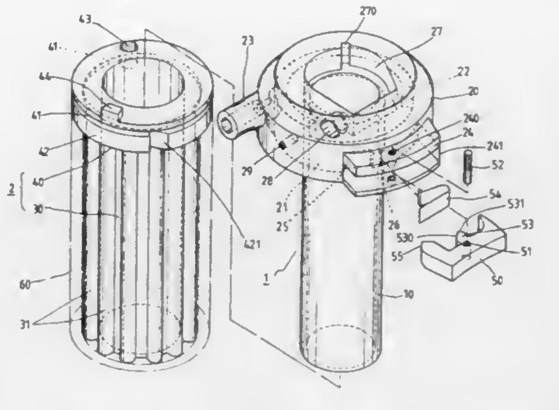
5,784,924
GEARSHIFT ADJUSTING DEVICE

Mu-Chuan Wu, No. 462-7, Chung Shan Road, Hsi Kang Hsiang, Tainan Hsien, Taiwan

Filed Mar. 25, 1997, Ser. No. 823,503

Int. Cl.^{6} B62K *23/04;* B62M *25/04*

U.S. Cl. 74—473.13 **3 Claims**



1. A gearshift adjusting device comprising:

a first hollow sleeve, a second hollow sleeve coupling with the first hollow sleeve, and a retaining ring disposed in an upper portion of the first hollow sleeve,

the retaining ring having a center hole, a slot, a first round hole, a second round hole, and a positioning bar,

the first hollow sleeve having an inner pipe and a hollow disk seat disposed on the inner pipe,

the hollow disk seat having an opening to receive the retaining ring, a positioning recess on an inner periphery of the hollow disk seat, a cage groove on the inner periphery of the hollow disk seat, a threaded hole on the hollow disk seat, a water outlet on the hollow disk seat, a tube disposed on the hollow disk seat, and a hollow positioning plate disposed on the hollow disk seat,

the hollow positioning plate having a separating plate and a through hole,

a cage seat inserted in the hollow positioning plate,

a U-shaped elastic plate disposed between the cage seat and the hollow positioning plate,

the cage seat having an inserted hole, a cage block, and a first and second arms,

a pin passing through the through hole and the inserted hole to fasten the cage seat and the hollow positioning plate together,

a notch and an inserted groove formed on the hollow disk seat,

the inserted groove receiving a portion of the U-shaped elastic plate,

the second hollow sleeve having an outer pipe and an annular ring disposed on the outer pipe,

a plurality of protruded bars disposed on an outer periphery of the outer pipe,

an outer casing enclosing the outer pipe,

the annular ring having a periphery groove, a ratchet wheel, a cage recess, and a protruded block,

the ratchet wheel having a plurality of ratchets,

the cage recess communicating with the periphery groove,

the inner pipe inserted in the outer pipe,

the hollow disk seat enclosing the annular ring, and

the protruded block inserted in the cage groove.

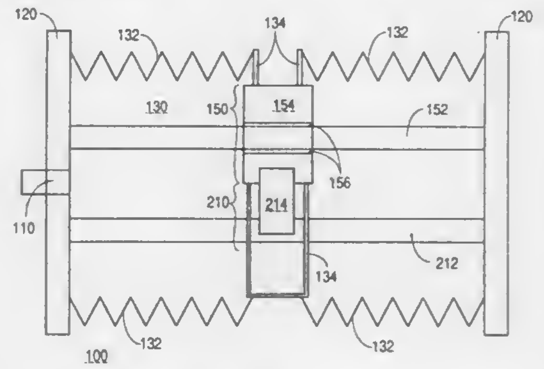
5,784,925
VACUUM COMPATIBLE LINEAR MOTION DEVICE

David Trost, San Francisco, and Lee Veneklasen, Castro Valley, both of Calif., assignors to Etec Systems, Inc., Hayward, Calif.

Filed Dec. 13, 1996, Ser. No. 766,271

Int. Cl.^{6} G05G *11/00;* F16C *33/06;* F16J *15/52*

U.S. Cl. 74—490.09 **42 Claims**



1. A vacuum compatible linear motion device comprising:

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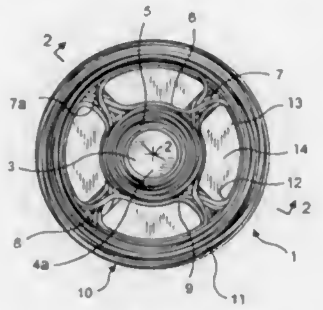
- a vacuum chamber for sustaining a first pressure substantially less than one atmosphere;
- a first fluid bearing fixably coupled to an inside surface of said vacuum chamber wherein said first fluid bearing has an axis oriented in a first direction;
- a first enclosure, wherein said first enclosure encloses said fluid bearing and is within the vacuum chamber, such that a second pressure substantially less than one atmosphere and greater than the first pressure is maintained within said first enclosure; and
- a payload within said vacuum chamber wherein said payload is fixably coupled to said first fluid bearing whereby linear motion is provided for said payload.

5,784,926
INTEGRAL COMPOSITE FLYWHEEL RIM AND HUB

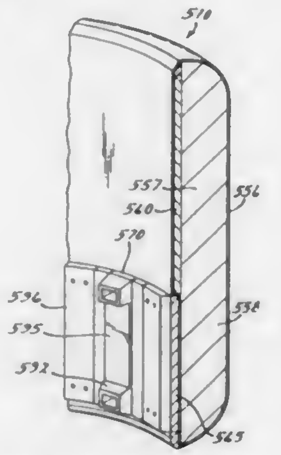
David Maass, New Haven, Conn., assignor to Dow-United Technologies Composite Products, Inc., Wallingford, Conn.
Filed Aug. 27, 1996, Ser. No. 697,539
Int. Cl.^{6} F16F *15/30*
U.S. Cl. 74—572 **16 Claims**



1. A flywheel hub preform fiber preform comprising a plurality of fibers formed in the shape of spokes, the fibers having first portions which are shaped to form a central bore sized to accept a drive shaft therein, the fibers having second portions which extend circumferentially so as to mate to a first innermost layer of a fiber preform for a flywheel rim.

5,784,927
LAMINATED BALANCE BARS FOR AN ENERGY STORAGE APPARATUS

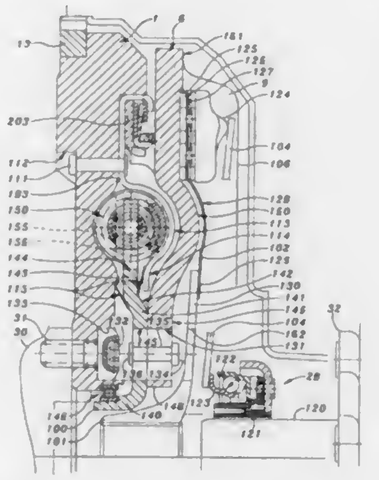
Gita P. Rao, 83 Lexington St., Belmont, Mass. 02178; Gary M. Colello, 711 Flat Hill Rd., Lunenberg, Mass. 01462, and Clifford Gunsallus, 14 Case St., N. Canton, Conn. 06059
Filed May 2, 1996, Ser. No. 642,091
Int. Cl.^{6} F16F *15/22*
U.S. Cl. 74—573 R **6 Claims**



1. An energy storage apparatus, comprising:
- an axial shaft;
- a rotor rotatably and concentrically mounted on said axial shaft;
- a plurality of balance bars provided on said rotor to compensate for imbalance of said rotor, each balance bar abutting at least one other adjacent balance bar; and
- means for reducing eddy currents around said balance bars comprising a laminated structure.

5,784,928
DAMPED FLYWHEEL, ESPECIALLY FOR A MOTOR VEHICLE

Ayman Mokdad, Saint-Ouen, and Jean-Claude Bochot, Claye-Souilly, both of France, assignors to Valeo, Paris, France
PCT No. PCT/FR95/00876, § 371 Date Feb. 28, 1996, § 102(e) Date Feb. 28, 1996, PCT Pub. No. WO96/00859, PCT Pub. Date Jan. 11, 1996
PCT Filed Jun. 30, 1995, Ser. No. 605,014
Claims priority, application France, Jun. 30, 1994, 95 08035
Int. Cl.^{6} F16F *15/139;15/167;15/131*
U.S. Cl. 74—574 **10 Claims**

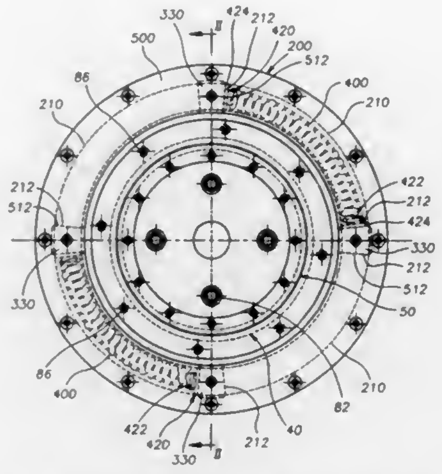


1. A damped flywheel comprising two coaxial masses (**1**, **6**), mounted for movement of one with respect to the other against circumferentially acting resilient means (**150**) and against an axially acting friction means (**170**), with one of the masses, referred to as the first mass (**1**), being adapted to be mounted in rotation on a driving shaft (**30**), while the other mass (**6**), referred to as the second mass, comprises a reaction plate (**161**) offering a friction face (**125**) for a friction disc (**127**) which is adapted to be mounted in rotation on a driven shaft, wherein the resilient means (**150**) are disposed entirely radially inwardly of the inner periphery of the friction face (**125**) of the second mass (**6**) and the second mass (**6**) has an arched portion (**160**) for overlapping the resilient means installed on the first mass (**1**).

5,784,929
DYNAMONMETER TORSIONAL DAMPING APPARATUS

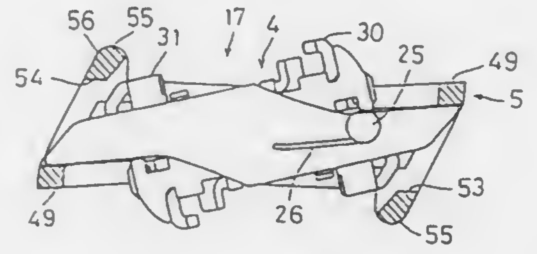
Andrew J. Abraham, Sterling Heights, and Brian R. Leslie, Rochester Hills, both of Mich., assignors to Illinois Tool Works Inc., Glenview, Ill.
Filed Sep. 10, 1996, Ser. No. 709,862
Int. Cl.^{6} F16D *3/14;* **F16F** *15/10*
U.S. Cl. 74—574 **8 Claims**

1. A torsional damping apparatus useable for damping torsional vibration between a prime mover and a dynamometer, the apparatus comprising:
- a body plate rotatable about a rotation axis, the body plate having an inner side and a substantially opposing outer side, and the outer side of the body plate coupleable to one of the prime mover and the dynamometer;
- a finger plate with a plurality of substantially radially outwardly protruding finger members, the finger plate having an inner side and a substantially opposing outer side, the finger plate rotatably coupled to the body plate wherein the finger plate is rotatable about the rotation axis, and the outer side of the finger plate coupleable to one of the dynamometer and the prime mover;
- a plurality of spring members at least partially disposed in corresponding recesses arranged about the rotation axis on the inner side of the body plate, opposing end portions of each spring member disposed between and engageable with corresponding end walls of each corresponding recess, and each of the plurality of finger members engageable with an end portion of at least one spring member;
- an outer retainer ring removably coupled on the inner side of the body plate over the plurality of spring members, the outer retainer ring retaining the spring members in the corresponding recesses of the body plate,
- wherein the finger members are engageable with the plurality of spring members to compress the plurality of spring members in response to relative rotational movement between the body plate and the finger plate about the rotation axis, and
- wherein the spring members dampen torsional stress between the prime mover and the dynamometer.



5,784,930
BICYCLE PEDAL HAVING A BRACE MEMBER THAT ROTATES RELATIVE TO A CLEAT ENGAGING MECHANISM

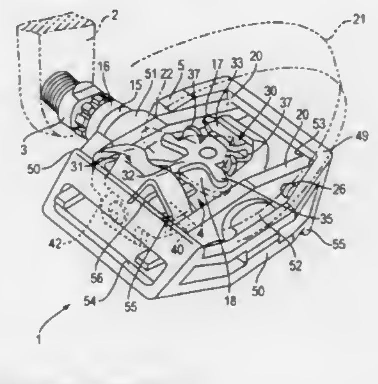
Yutaka Ueda, Tondabayashi, Japan, assignor to Shimano, Inc., Osaka, Japan
Filed Jul. 8, 1996, Ser. No. 676,929
Claims priority, application Japan, Jul. 12, 1995, 7-176305
Int. Cl.^{6} B62M *3/08*
U.S. Cl. 74—594.6 **15 Claims**



1. A bicycle pedal comprising:
- a pedal spindle (**3**);
- a support (**15**) mounted to the pedal spindle (**3**), wherein the support (**15**) rotates around the pedal spindle (**3**);
- front and rear cleat engaging members (**30**,**31**) rotatably mounted to the pedal spindle (**3**), wherein at least one of the front and rear cleat engaging members (**30**,**31**) is coupled to the support (**15**) so that the at least one of the front and rear cleat engaging members (**30**,**31**) pivots relative to the support (**15**) and rotates around the pedal spindle (**3**); and
- a brace member (**55**) rotatably mounted to the pedal spindle (**3**) and positioned behind the rear cleat engaging member (**31**), wherein the brace member (**55**) has a height that is greater than or equal to a height of the rear cleat engaging member (**31**), and wherein the brace member (**55**) rotates relative to the support (**15**).

5,784,931
BICYCLE PEDAL

Yutaka Ueda, Tondabayashi, Japan, assignor to Shimano, Inc., Osaka, Japan
Filed Jul. 8, 1996, Ser. No. 676,930
Claims priority, application Japan, Jul. 12, 1995, 7-176304
Int. Cl.^{6} G05G *1/14*
U.S. Cl. 74—594.6 **26 Claims**



1. A bicycle pedal comprising:
- a pedal spindle (**3**);
- a support (**15**) mounted to the pedal spindle (**3**), wherein the support (**15**) rotates around the pedal spindle (**3**);
- front and rear cleat engaging members (**30**,**30***b*,**31**,**31***b*) coupled to the pedal, wherein at least one of the front and rear cleat engaging members (**30**,**30***b*,**31**,**31***b*) is coupled to the support (**15**) so that the at least one of the front and rear cleat engaging members (**30**,**30***b*,**31**,**31***b*) pivots relative to the support (**15**) and rotates around the pedal spindle (**3**); and
- a tread cage (**5**) having a tread surface (**49**), the tread cage (**5**) being coupled to the pedal so that the tread cage (**5**) rotates around the pedal spindle (**3**) and rotates relative to the support (**15**).

5,784,932
ROTARY INDEXING TABLE

Joseph J. Gilberti, 98 Cotswold Way, Avon, Conn. 06001
Filed Jun. 20, 1996, Ser. No. 668,445
Int. Cl.^{6} B23Q *16/02*
U.S. Cl. 74—813 R **25 Claims**

1. A rotary indexing table comprising:
- a table having a table surface;
- a rotatable dial positioned over said table, said dial having an upper surface and an opposite lower surface, said lower surface facing and generally parallel to said table surface, said dial further having an outer edge, a circular inner edge, and an axis of rotation centered within said inner edge;
- first bearing means mounted to said table and contacting said inner edge for radially supporting the rotation of said dial on said table;
- second bearing means for axially supporting said lower surface on said table surface for rotation of said dial over said table surface, said second bearing means including a plurality of concentric grooves in one of said lower surface and said table

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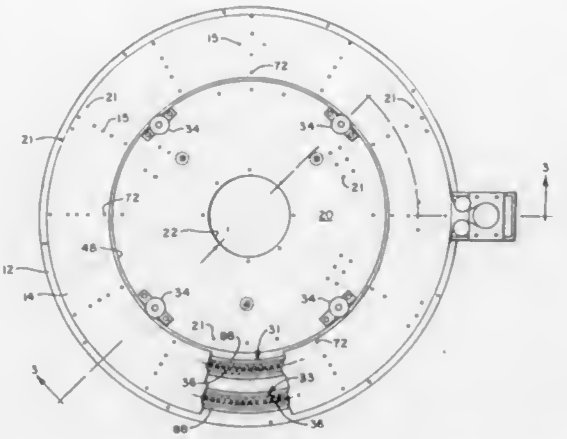
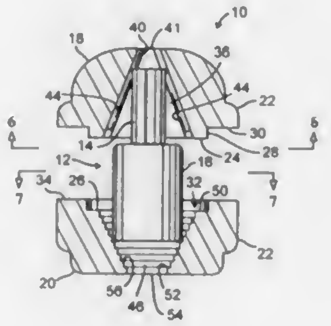


surface, said grooves having a center of curvature generally on said axis of rotation, and the other of said table surface and said lower surface defining a flat surface, and ball bearings in said grooves in contact with said flat surface of said other of said lower surface and said table surface permitting linear horizontal movement of said dial relative to said table; and

drive means engaging said dial for indexing the rotation of said dial.

5,784,933
APPARATUS FOR REMOVING A THREADED CAP FROM A CONTAINER

Avram Persellin, 3210 N. Cherry, Tucson, Ariz. 85719
Filed Dec. 19, 1996, Ser. No. 770,717
Int. Cl.^{6} B67B *7/00*
U.S. Cl. 81—3.36 **19 Claims**



1. An apparatus for unscrewing a threaded cap from its associated threaded container, said apparatus comprising:

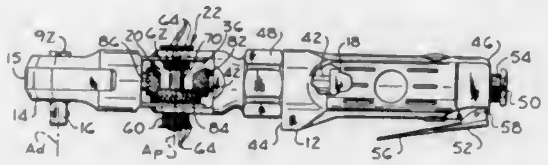
a first body having a first aperture formed therein, said first aperture being shaped to receive a variety of differently-sized threaded caps;

a second body having a second aperture formed therein, said second aperture being shaped to receive a variety of differently-sized containers; and

means for coupling said first body to said second body, wherein said means for coupling comprises a first coupling element located on said first body and a second coupling element located on said second body, and wherein said first coupling element is configured to mate with said second coupling element via a press-fitting engagement.

5,784,934
RATCHET WRENCH WITH PIVOTABLE HEAD

Osamu Izumisawa, Tokyo, Japan, assignor to Shinano Pneumatic Industries, Inc., Nagano Pref, Japan
Filed Jan. 30, 1997, Ser. No. 791,262
Int. Cl.^{6} B25B *21/00*
U.S. Cl. 81—57.26 **20 Claims**



1. A power ratchet wrench comprising:

a handle for gripping and holding the wrench;

a head having a ratchet mechanism including a drive shaft capable of powered rotation about its axis;

the head and handle having openings generally in registration with each other;

a motor disposed in the handle for driving the ratchet mechanism;

a pin received through the openings and extending transversely of the handle and head, the pin interconnecting the handle and head and being adapted to permit pivoting movement of the handle and head relative to each other about the transversely extending longitudinal axis of the pin to any of a multiplicity of selected relative angular orientations;

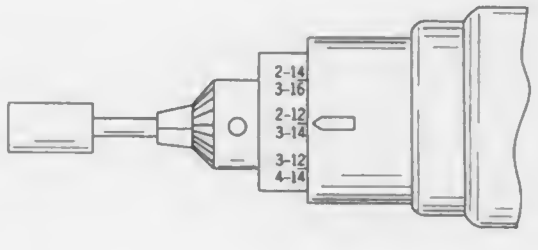
the head and handle being operatively interconnected to prevent relative translational movement between the head and handle in directions parallel to the longitudinal axis of the pin;

the pin including a first section sized and shaped for locking the handle and head together in fixed angular orientation about the pin axis and a second section sized and shaped for permitting free relative pivoting motion of the handle and head, the pin being mounted for sliding motion relative to the head and handle in a direction transverse of the handle and head between a locked position in which the first section of the pin interengages the handle and head and locks them together, and an unlocked position in which the first section does not interengage the handle and head so that the head and handle are unlocked for relative pivoting motion about the pin axis; and

a transmission constructed to transmit power from the motor to the ratchet mechanism through the pin interconnection of the handle and head.

5,784,935
POWER OPERATED TORQUE DRIVER FOR SCREW-ON WIRE CONNECTORS

Chris W. Korinek, Cedarburg, Wis., assignor to GB Electrical, Inc., Milwaukee, Wis.
Filed Nov. 29, 1994, Ser. No. 346,060
Int. Cl.^{6} B25B *23/155*
U.S. Cl. 81—467 **13 Claims**



1. An apparatus for attaching a screw-on electrical connector to a plurality of wires, said apparatus comprising:

a tool bit driver which is power-driven and hand-held;

a chuck;

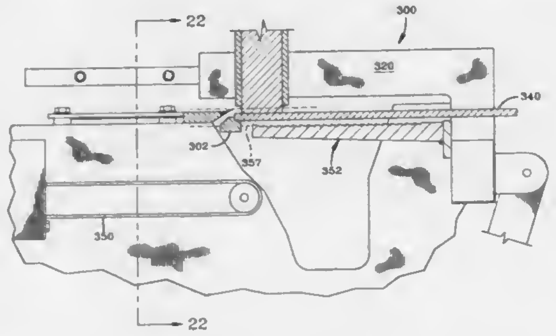
a torque limiting device connected to apply torque from said tool bit driver to said chuck, and having a mechanism for adjusting a maximum magnitude of torque applied to said chuck;

a tool coupled to said chuck and having a member for engaging the screw-on electrical connector in order to twist the screw-on electrical connector onto the plurality of wires; and

indicia associated with said torque limiting device indicating adjustments of the mechanism for a plurality of combinations of quantities and sizes of wires to be connected by the screw-on electrical connector.

5,784,936
SLICE STACKER FOR A SLICING MACHINE

Robert W. King, Worthington, Ohio, assignor to J. E. Grote Company, Inc., Blacklick, Ohio
Continuation-in-part of Ser. No. 604,760, Feb. 23, 1996, abandoned. This application May 28, 1996, Ser. No. 654,184
Int. Cl.^{6} B26D *7/32*
U.S. Cl. 83—145 **20 Claims**



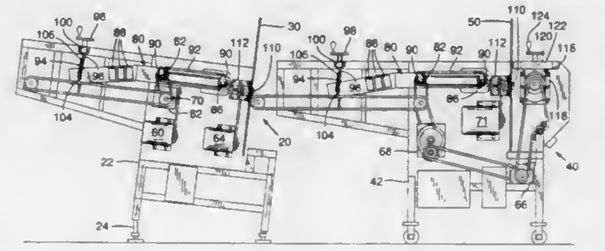
1. In a slicing machine having a reciprocatable, workpiece-retaining carriage drivingly connected to a motor for reciprocating a sliceable workpiece retained in the carriage along a first path. the slicing machine also having a cutter mounted along the first path for cutting through the workpiece when the carriage moves in a its reciprocating cycle in a first direction to form a falling slice having a selected thickness, an improved slice stacking apparatus comprising:

(a) a stacking bed having an upper, slice receiving surface for the falling slice to land upon and in which at least one groove is formed, the slice receiving surface drivingly connected to the motor and reciprocating in a predetermined, cooperating relationship with the carriage in the cycle through a second path substantially parallel to the first path and extending at least partially beneath the cutter; and

(b) a stationary rake mounted in a fixed position above the second path, said rake including at least one tine extending downwardly into the second path, said at least one tine extending into said at least one groove during at least a portion of every reciprocation cycle of the slice receiving surface, for raking the slice from the slice receiving surface as the slice receiving surface moves beneath the stationary rake in a second, opposite direction from said first direction.

5,784,937
THREE DIMENSIONAL AUTOMATIC FOOD SLICER

Garold Lee Wygal, Durham; Dennis Z. Rush, Warrenton; Peter D. Johnson, Seaside, and Paul S. Anderson, Astoria, all of Oreg., assignors to Carruthers Equipment Co., Warrenton, Oreg.
Division of Ser. No. 63,402, May 17, 1993, Pat. No. 5,410,954, which is a continuation-in-part of Ser. No. 876,123, Apr. 29, 1992, Pat. No. 5,271,304, which is a continuation of Ser. No. 547,779, Jul. 3, 1990, abandoned. This application Jan. 25, 1995, Ser. No. 378,531
Int. Cl.^{6} B26D *7/06*
U.S. Cl. 83—422 **4 Claims**

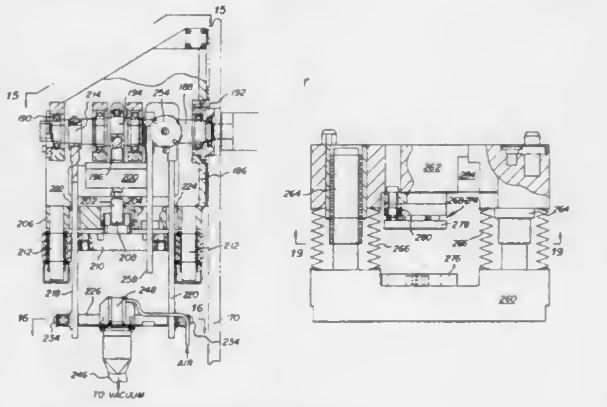


1. An automatic food slicing apparatus wherein a conveyor assembly conveys loaves of food product along a path. a cutoff knife pivotally mounted to the apparatus for cutting the loaves into slabs of a determined length, said conveyor assembly comprising:

a lower conveyor and an upper conveyor, said upper conveyor mounted on an arm that is pivotally mounted to the apparatus, and a control for controlling the pivotal movement of the arm and thereby a downward urging movement of the upper conveyor for urging the upper conveyor toward the lower conveyor and clamping of a food product between the conveyors.

5,784,938
APPARATUS FOR CUTTING STRIPS OF WEB

Joseph Albert Watkins, Rochester, and Thomas Allen Sisson, Hilton, both of N.Y., assignors to Eastman Kodak Company, Rochester, N.Y.
Continuation of Ser. No. 427,510, Apr. 24, 1995, abandoned. This application Nov. 14, 1996, Ser. No. 748,769
Int. Cl.^{6} B26D *5/16*
U.S. Cl. 83—528 **3 Claims**



1. A punch and die press, comprising:

a frame;

a crank mounted for rotation on the frame. the crank having at least three eccentric throws;

an upper platen;

a first pair of linear guides connected between the frame and the upper platen to permit reciprocating movement only of the upper platen relative to the frame;

a first link pivotably connected between the upper platen and a first of the eccentric throws;

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a lower platen mounted for movement relative to said upper platen; and,
second and third links pivotably connected respectively between the lower platen and a second and a third of the eccentric throws, wherein said second and third Links pass through respective apertures in said upper platen to guide movement of said lower platen, said lower platen being free to move relative to said upper platen;
an upper die shoe fixedly mounted to the upper platen;
a lower die shoe fixedly mounted to the lower platen;
a second pair of linear guides connected between the upper and the lower die shoes to guide reciprocating movement only of the lower shoe relative to the upper shoe,
wherein said lower platen is arranged for providing actuating motion of the lower die shoe lower platen about said second linear guides without inducing misalignment of said lower die shoe relative to said upper die shoe, and,
whereby rotation of the crank causes the upper and lower die shoes to move toward and away from each other.

5,784,939
DEVICE FOR CENTERING AND LOCKING A TOOL-SUPPORTING FRAME IN A DIE-CUTTING MACHINE

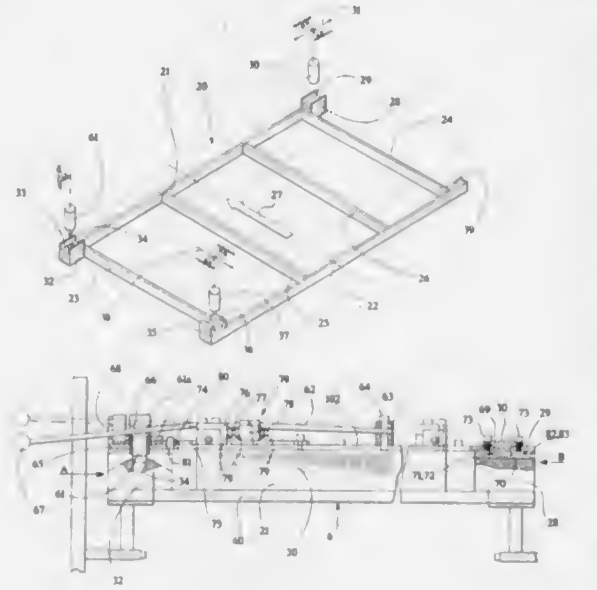
Jean-Claude Rebeaud, Le Mont, Switzerland, assignor to Bobst SA, Lausanne, Switzerland

Continuation of Ser. No. 433,317, May 3, 1995, abandoned. This application Jan. 27, 1997, Ser. No. 791,461

Claims priority, application Switzerland, May 4, 1994, 01395/94

Int. Cl.⁶ B26D *5/02*

U.S. Cl. 83—563 **4 Claims**



1. In a device for centering and locking tool-supporting frames in a die-cutting press having movable cradles, each of said cradles having means coacting with the respective tool-supporting frame to enable sliding the frame into the cradle like a drawer, the improvements comprising each tool-supporting frame having two centering points and one centering and locking point, and each cradle having a first centering and locking device for one of the points, said centering and locking device including a rod provided with a handle being mounted on the cradle and being movable manually in a C" shape slot of a plate on the cradle from a locking position to an unlocking position to engage and disengage the frame in the cradle.

5,784,940
MACHINE FOR CUTTING FLAT STOCK

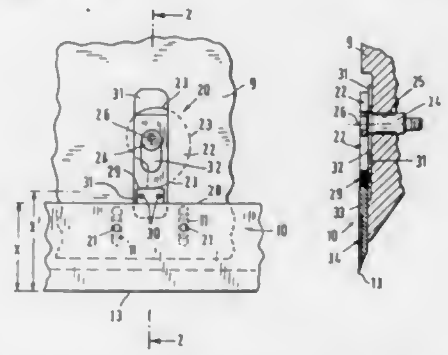
Helmut Gross, Hofheim, and Frank Stemmer, Babenhausen, both of Germany, assignors to Adolf Mohr Maschinenfabrik GmbH & Co KG, Hofheim am Taunus, Germany

Filed Mar. 12, 1996, Ser. No. 615,486

Claims priority, application Germany, Apr. 3, 1995, 195 12 106.6

Int. Cl.⁶ B26D *1/08;7/26*

U.S. Cl. 83—699.41 **15 Claims**



1. A machine for cutting flat stock and sheets of material, comprising: a counter for receiving said stock; cutting means having a knife with a cutting edge and a back opposite said cutting edge; a beam for mounting said knife; a machinery frame, said beam traveling up and down toward and away from said counter in said machinery frame; said beam having at least two separate knife-positioning elements for positioning said knife relative to said beam and supporting said knife; pressure receiving means on said back of said knife; said pressure receiving means having at least a hard area in contact with each of said knife-positioning elements, the remaining area of said receiving means being soft relative to said hard area; said knife-positioning elements having a cam resting against said pressure receiving means; a supporting shaft in said beam for supporting said knife-positioning elements and for mounting said cam; said shaft having a front side and a rear side opposite said front side; a flat guide positioned between said cam and said beam and engaging said rear side of said supporting shaft, said pressure receiving means being attached to said flat guide between said cam and said back of said knife for easy replacement of said knife, said pressure receiving means remaining in position when said knife is separated from said beam, said pressure receiving means being positioned in operative position between the back of said knife and said cam, so that said pressure-receiving means lies always against the back of said knife even when said pressure receiving means has a position differing from a specific pre-selected position; said knife being held in position relative to said beam for preventing said knife-positioning elements from digging into the back of said knife.

5,784,941
PORTABLE SAWMILL

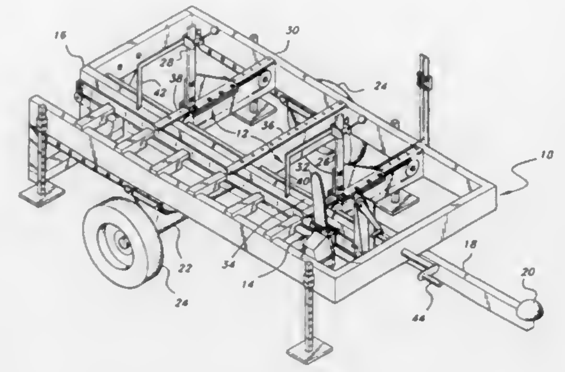
Howard Sanford Sanborn, P.O. Box 2059, Darien, Ga. 31305

Filed Oct. 31, 1996, Ser. No. 742,208

Int. Cl.⁶ B27B *3/26*

U.S. Cl. 83—794 **1 Claim**

1. A device for holding and moving a chainsaw along a linear path comprising:
a track having upper and lower travel edges;
means for removably mounting said track to a support structure;
a carriage having upper and lower grooved wheels engaging respective said upper and lower travel edges of said track;
a first post attached to a first end of said track and a second post attached to a second end of said track, said first post having a plurality of gears rotatable mounted thereon, said second post having at least one gear rotatable mounted thereon;
a handle attached to one of said plurality of gears on said first post;



a chain operatively coupled to said carriage and cooperatively engaging said plurality of gears on said first post and said at least one gear on said second post, whereby upon rotation of said handle, said chain is moved about all of said gears to move said carriage along said track;
a sawbar clamp attached to said carriage for mounting the chainsaw; and
a throttle actuator for actuating the chainsaw responsive to the movement of said carriage, said throttle actuator including an arm pivotally attached at one end thereof to said carriage, a gear rotatable attached to said arm and cooperatively engaging said chain, and a plate attached to an opposite end of said arm, said plate engaging and actuating a throttle of the chainsaw when the chain moves in a first direction, and releases the throttle when the chain moves in a second direction.

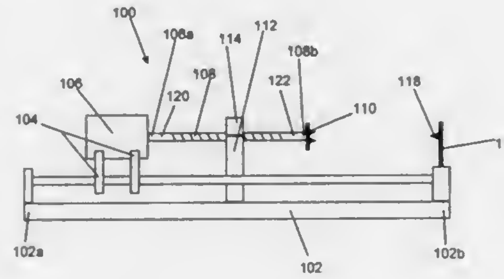
5,784,942
SPIRAL POTATO SLICING APPARATUS AND METHOD

Birdsall L. Jones, P.O. Box 8541, Coburg, Oreg. 97408

Filed Nov. 21, 1996, Ser. No. 753,218

Int. Cl.⁶ B26D *1/02*

U.S. Cl. 83—856 **14 Claims**



1. A potato slicer, comprising:
a base having a first end and a second end;
a carriage;
means for supporting said carriage on said base:
means for providing guided linear longitudinal motion of said carriage along said base;
a motor mounted on said carriage;
a longitudinal threaded shaft having a first end and a second end, the first end being nearer to the first end of said base and the second end being nearer to the second end of said base, said shaft being connected at the first end of said shaft to said motor whereby action of said motor rotates said shaft, said shaft substantially defining a potato rotation axis;
means for nonrotatably engaging a first end of a potato with the second end of said shaft, whereby rotation of said shaft causes rotation of said potato about the potato rotation axis;
means for supporting and threadedly engaging said shaft, said supporting and engaging means being connected to said base and producing longitudinal motion of said potato, said shaft, said motor, and said carriage toward the second end of said base when said shaft is engaged and rotated in a forward direction;
a cutting blade having a cutting edge and being connected to said base near the second end of said base, said cutting blade being substantially perpendicular to said potato rotation axis with the cutting edge positioned radially with respect to said potato rotation axis; and
means for rotatably engaging a second end of said potato with said cutting blade,
wherein said threaded shaft has a pitch of greater than about ten threads per inch.

5,784,943
ARRANGEMENT IN A HYDRAULIC CYLINDER

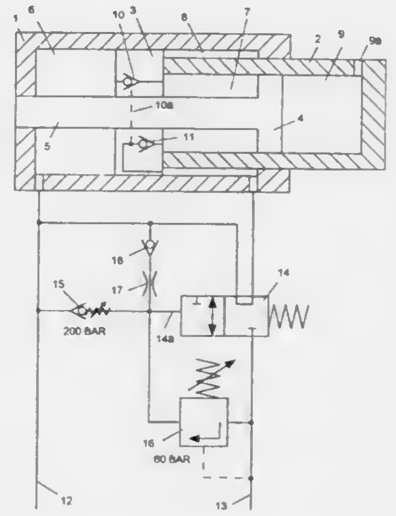
Ossi Kahra, Lahti, Finland, assignor to Tamrock Oy, Tampere, Finland

Filed Mar. 13, 1997, Ser. No. 816,341

Claims priority, application Finland, Mar. 15, 1996, 961241

Int. Cl.⁶ F15B *13/04*

U.S. Cl. 91—28 **9 Claims**



1. A control system for a hydraulic actuator, wherein the actuator comprises a cylinder; an annular ring piston slidably mounted within said cylinder, and connected to a hollow piston rod; and an auxiliary piston fixed to said cylinder by an auxiliary rod passing through the ring piston, said auxiliary piston slidably mounted within said hollow piston rod;
wherein a first cylinder space is located between said ring piston and said cylinder at a rear end of said cylinder, a second cylinder space is located between said ring piston and said auxiliary piston inside said hollow piston rod, and a third cylinder space is located between said ring piston, said hollow piston rod and said cylinder;
and the control system includes a first non-return valve mounted in said ring piston between said second cylinder space and said first cylinder space, allowing flow from said second cylinder space into said first cylinder space when pressure in said second cylinder space exceeds pressure in said first cylinder space; a second non-return valve mounted in said ring piston between said second cylinder space and said third cylinder space, allowing flow from said second cylinder space into said third cylinder space when pressure in said second cylinder space exceeds pressure in said third cylinder space; a first channel connected to said first cylinder space, for feeding pressure fluid into the actuator when it is lengthened; a second channel for feeding pressure fluid into the actuator when it is shortened; and a first pressure limit valve for controlling fluid flow into said cylinder spaces depending on pressure in said first channel when said actuator is lengthened;

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- wherein when pressure in said first channel is lower than a set value for said pressure limit valve, said third cylinder space is connected directly to said first cylinder space, while said third cylinder space is disconnected from said second channel, allowing for high speed and low force; and
- wherein when said pressure in said first channel exceeds said set value for said pressure limit valve, said third cylinder space is connected directly to said second channel, while said third cylinder space is disconnected from said first cylinder space, permitting pressure fluid to flow out of said second and said third cylinder space through said second channel and thereby allowing for higher force and lower speed.

5,784,944

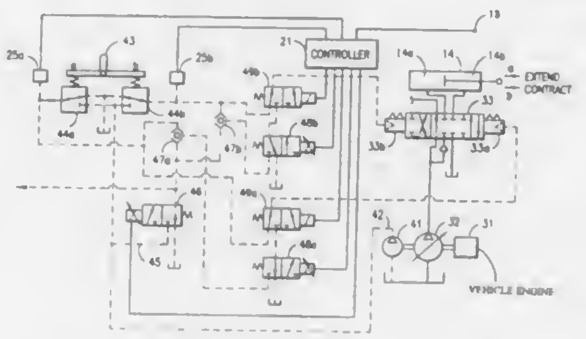
DEVICE AND METHOD FOR CONTROLLING ATTACHMENT OF CONSTRUCTION MACHINE

Shoji Tozawa, and Tomoaki Ono, both of Hyogo, Japan, assignors to Shin Caterpillar Mitsubishi Ltd., Tokyo, Japan

Filed Jul. 15, 1996, Ser. No. 679,576

Int. Cl.^{6} F15B *13/16;13/044*

U.S. Cl. 91—361 **6 Claims**



1. A device to control a mechanical linkage, using a pilot operated main control valve that controls a working fluid fed to a hydraulic actuator which operates said mechanical linkage, comprising:

- means for sensing a configuration of said linkage to produce a sensed configuration;
- means for adjusting a pilot pressure of said working fluid fed to said pilot operated main control valve in response to said sensed configuration;
- means for reducing said pilot pressure of said working fluid to a zero pressure when said mechanical linkage reaches a predefined configuration, whereby said pilot operated main control valve assumes a neutral position which halts motion of said mechanical linkage;
- a manual operation valve for manually controlling said pilot pressure of said working fluid, in a pilot pressure feed line, fed to said main control valve;
- said means for reducing said pilot pressure includes an electromagnetic proportional control valve disposed in said pilot pressure feed line between said manual operation valve and said main control valve;
- means for storing a predetermined configuration and a predetermined tolerance of said mechanical linkage;
- means for comparing said sensed configuration to said predetermined configuration; and
- means for causing said electromagnetic proportional control valve automatically to reduce said pilot pressure in said pilot feed line to said main control valve when said sensed configuration approaches said predetermined configuration by a predetermined tolerance.

5,784,945

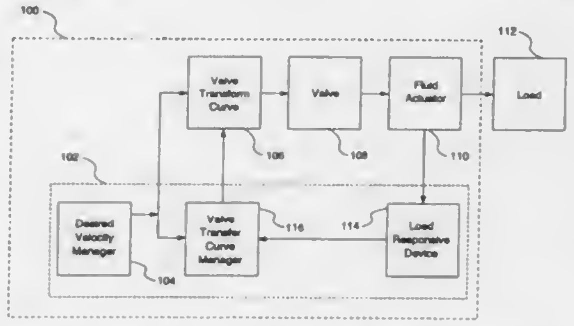
METHOD AND APPARATUS FOR DETERMINING A VALVE TRANSFORM

John J. Krone, and Qin Zhang, both of Dunlap, Ill., assignors to Caterpillar Inc., Peoria, Ill.

Filed May 14, 1997, Ser. No. 855,924

Int. Cl.^{6} F15B *13/16;* **F16D** *31/00*

U.S. Cl. 91—361 **56 Claims**



1. An apparatus for determining a valve transform curve in a fluid system, the fluid system having a valve and a fluid actuator arranged to initiate movement of a load, comprising:

- a desired velocity manager adapted to determine a desired velocity of said load and responsively generate a desired load velocity signal;
- a load responsive device adapted to determine a characteristic of said load and responsively generate a load signal; and
- a valve transform curve manager adapted to receive said desired load velocity signal and said load signal and responsively determine a valve transform curve.

5,784,946

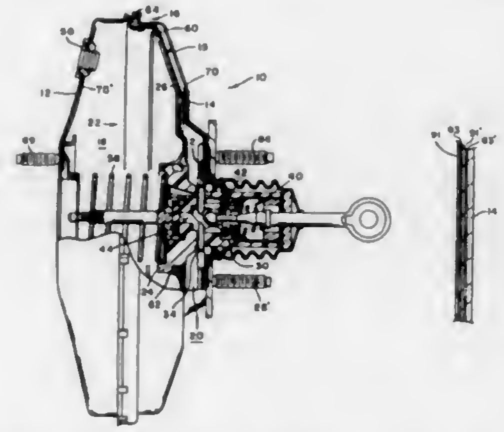
VACUUM BRAKE BOOSTER

James B. Malosh, Boroda, Mich.; Rolf Viebach, and Dave C. Yoder, both of South Bend, Ind., assignors to Robert Bosch Technologies Corporation, Broadview, Ill.

Continuation-in-part of Ser. No. 753,071, Nov. 20, 1996. This application Jul. 21, 1997, Ser. No. 897,875

Int. Cl.^{6} F15B *9/10*

U.S. Cl. 91—376 R **18 Claims**



1. In a brake booster having a first shell joined to a second shell to define a housing, said housing being separated into a first chamber and a second chamber by wall means, said first and second chambers in a first mode of operation being in communication with a first source of fluid having a first fluid pressure while in a second mode of operation said second chamber is in communication with a second source of fluid at a second fluid pressure such that a pressure differential is created across said wall means to produce an output force corresponding to an input force associated with a desired braking application, the improvement comprising:

first sound absorbing means having a first disc affixed to said second shell by a first layer of adhesive, said first disc having a diameter in a ratio of about two-thirds of an outside diameter of said second shell, said first disc attenuating sounds created during communication of said second source of fluid to said second chamber to develop said pressure differential.

5,784,947

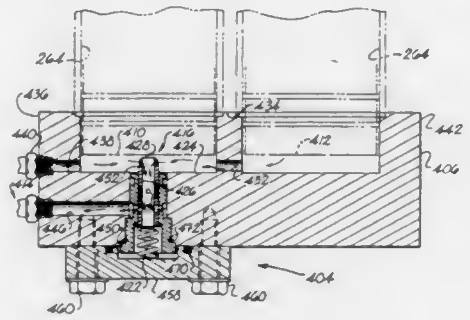
RESIDENTIAL REFUSE COLLECTION CART LIFTER WITH UNIVERSAL FEATURES

Jimmy O. Bayne, and Michael J. Susil, both of Simpsonville, S.C., assignors to Bayne Machine Works, Inc., Simpsonville, S.C.

Division of Ser. No. 267,777, Jun. 28, 1994, Pat. No. 5,447,405, which is a division of Ser. No. 979,153, Nov. 23, 1992, Pat. No. 5,333,984, which is a continuation-in-part of Ser. No. 903,078, Jun. 22, 1992, Pat. No. 5,308,211. This application Jun. 2, 1995, Ser. No. 459,749

Int. Cl.^{6} F15B *15/22*

U.S. Cl. 91—406 **16 Claims**



1. A piston responsive variable valving system for operation with a fluid activated piston movably received within a cylinder, said system comprising:

- fluid port means associated with one end of a cylinder for conducting fluid in alternate directions in the cylinder for driven movement of the fluid actuated piston therein;
- fluid flow rate regulating means received within said fluid port means for establishing one of at least two different fluid flow rates for fluid conducted in either direction therethrough so as to drive the piston, under a given load condition, at two different corresponding speeds within the cylinder, said regulating means including a movable actuation member, movement of which between respective first and second positions thereof respectively and correspondingly selects said different fluid flow rates; and
- biasing means, for biasing said movable actuation member into said first position thereof protruding into the cylinder and in the travel path of the piston movably received therein so as to select a corresponding first fluid flow rate through operation of said regulating means, and for permitting said movable actuation member to be moved into said second position thereof responsive to engagement with the piston so as to select a corresponding second fluid flow rate through operation of said regulating means.

5,784,948

POSITIVE DISPLACEMENT PUMP HAVING LEVITATING MAGNETIC PISTON SPRING CIRCUIT

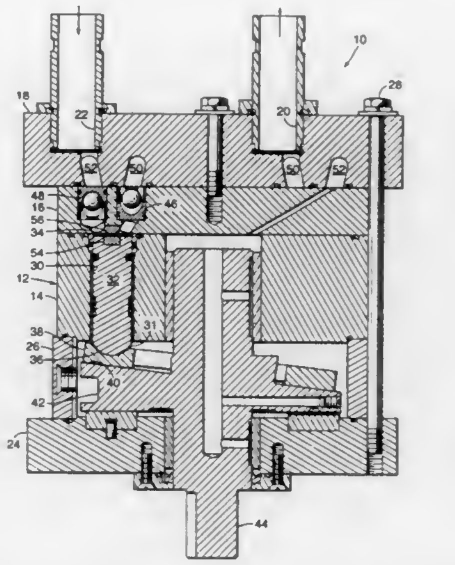
Brian M. Chrestoff, Sidney, Ohio, and Robert H. Ash, Jr., Humble, Tex., assignors to FMC Corporation, Chicago, Ill.

Filed Aug. 18, 1997, Ser. No. 912,743

Int. Cl.^{6} F01B *13/04;* **F04B** *1/12*

U.S. Cl. 92—57 **6 Claims**

1. A positive displacement pump comprising:



- a pump housing having an inlet port and an outlet port;
- a plurality of cylinders located in said housing in communication with said inlet and outlet ports;
- valve means associated with each of said cylinders to control the flow of fluid between the inlet and outlet ports and the cylinder;
- a piston reciprocally moveable in each of said cylinders, each piston having an upper pressure face at one end thereof and a piston head at a second end thereof;
- a swashplate assembly having a cam surface which interacts with each said piston head;
- wherein during rotation of said swashplate, said cam surface drives each said piston reciprocally in each said cylinder to force fluid under pressure to said outlet port;
- magnet force generating means for urging each of said pistons into continuous contact with the cam surface during an inlet feed suction stroke of said piston.

5,784,949

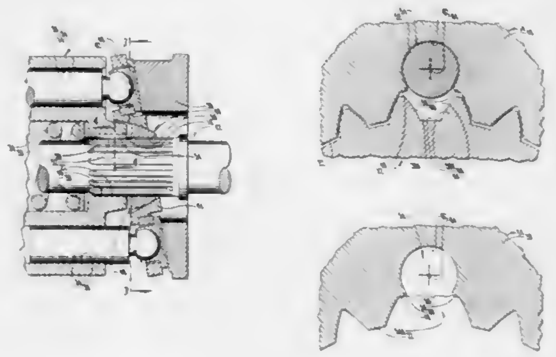
RETAINING SYSTEM FOR SLIPPER HOLDDOWN PINS

Jim D. Ryken, Roland; Jeffrey A. Baldus, State Center; David D. Dirks, and Scott D. Meyer, both of Ames, all of Iowa, assignors to Sauer Inc., Ames, Iowa

Filed Jun. 25, 1997, Ser. No. 882,135

Int. Cl.^{6} F01B *13/04*

U.S. Cl. 92—57 **13 Claims**



1. An improved apparatus for retaining slipper holddown pins radially in a hydraulic unit having a cylinder block including a center bore drivingly engaged by a shaft, the improvement being characterized by:

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the cylinder block having a plurality of elongated holes therein extending parallel to said center bore,

said holes being in communication with said center bore through an elongated throat opening extending along the length of the holes,

an elongated slipper holddown pin in each of said holes with end pins having a width greater than the transverse width of said throat opening so the pins cannot be radially displaced through the respective throat openings.

5,784,950
SINGLE HEADED SWASH PLATE TYPE COMPRESSOR HAVING A PISTON WITH AN OIL COMMUNICATION HOLE ON A SIDE OF THE PISTON REMOTE FROM THE CYLINDER BORE AND CRANK CHAMBER

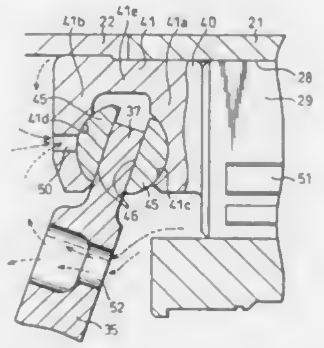
Hiroaki Kayukawa; Suguru Hirota; Hideki Mizutani; Fuminobu Enokijima; Takehito Tomita; Yoshitami Kondo; Takahiro Hamaoka, and Kenji Takenaka, all of Kariya, Japan, assignors to Kabushiki Kaisha Toyoda Jidoshokki Seisakusho, Kariya, Japan

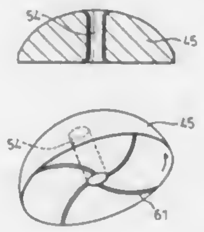
Filed Mar. 25, 1997, Ser. No. 824,368

Claims priority, application Japan, Mar. 26, 1996, 8-070448

Int. Cl.^{6} F01B *3/00*

U.S. Cl. 92—71 **10 Claims**





1. A single headed swash plate type compressor comprising:

a housing having a crank chamber and parallel cylinder bores formed therein;

pistons reciprocatingly arranged in the cylinder bores for compressing cooling gas in the cylinder bores, each of the pistons having at one end thereof axially spaced first and second bearing portions and an axially extending third portion interconnecting the first and second bearing portions, the first bearing portion being arranged on the side near the cylinder bore, the second bearing portion being arranged on the side remote from the cylinder bore, said first and second bearing portions having mutually facing surfaces with grooves formed therein;

a drive shaft rotatably arranged in the housing;

a swash plate attached to the drive shaft in the crank chamber;

a shoe slidably arranged between the swash plate and each of the first and second bearing portions in the groove thereof for converting the rotational movement of the swash plate into the reciprocal movement of the pistons; and

an oil communication hole extending through the second bearing portion for fluid communication between the groove of the second bearing portion and the crank chamber.

5,784,951
PISTON WITH A SLIDE SHOE AND METHOD OF MANUFACTURING SAME

Henry Madsen Møller, Sønderborg, Denmark, assignor to Danfoss A/S, Nordborg, Denmark

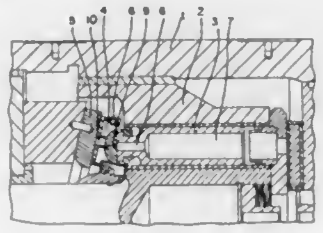
PCT No. PCT/DK95/00269, § 371 Date Dec. 23, 1996, § 102(e) Date Dec. 23, 1996, PCT Pub. No. WO96/01947, PCT Pub. Date Jan. 25, 1996

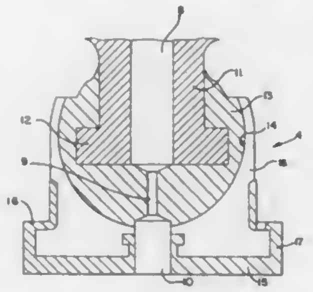
PCT Filed Jun. 27, 1995, Ser. No. 765,555

Claims priority, application Denmark, Jul. 8, 1994, 0823/94

Int. Cl.^{6} F16J *1/14*

U.S. Cl. 92—187 **12 Claims**





1. A piston with a slide shoe for a hydraulic piston engine, the slide shoe comprising a ball socket and the piston being formed with a corresponding ball head, the ball socket and the ball head being connected in a ball-and-socket joint, the ball head at least partially being constituted of a spherical surface of a friction reducing material moulded onto and retained on a portion of the piston.

5,784,952
TURNTABLE ASSEMBLY

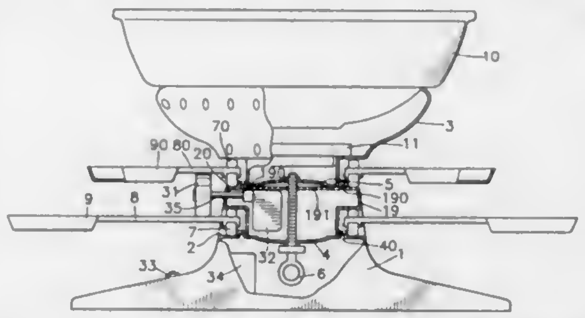
Shu Lien Liu, 2F. No. 33, Lane 52, Szu-Wei Road, Taipei, Taiwan

Filed Oct. 6, 1997, Ser. No. 944,416

Claims priority, application Taiwan, Oct. 16, 1996, 85215919

Int. Cl.^{6} A47J *36/26;39/02;* **F24C** *5/00*

U.S. Cl. 99—483 **4 Claims**



1. A turntable assembly having a rotational tableware supporting device comprising

a supporting base (1) having an enlarged bottom and a narrow upper portion, said narrow upper portion of said supporting base (1) provided with a first connecting portion (4) including a central recessed portion (40) with a through hole (44) at the center, an annular periphery portion (43) at the outer periphery thereof and an annular flange (42) which has an annular shoulder (41) serving as a guiding rail;

an oven (3) having an open bowl at the top for receiving hot pot or larger bowl and a second connecting portion (5) at the bottom which has a downward extension (50) including a central recessed portion (51) with a locking nut (54) at the center and an annular periphery portion (53) at the outer periphery thereof;

a guiding rail (2) formed between the top of the annular shoulder (41) of said first connecting portion (4) and the bottom of said oven (3) after said oven is removably fixed to said supporting base (1);

a rotational disk (8) provided with a roller assembly (7) at the central portion and a plurality of supporting brackets (9) disposed at the periphery of the rotational disk (8) for receiving and supporting dishes or plates (12) thereon;

a locking bolt (6) being inserted through said through hole (44) of said first connecting portion (4) of said supporting base (1) and locked onto said locking nut (54) of said second connecting portion (5) of said oven (3), whereby when said oven 3 with said second connecting portion (5) is releasably engaged with said supporting base 1 with said first connecting portion (4), and said guiding rail (2) is formed to support said rotational disk (8) which is spaced above the table without touching the articles disposed on the table when said rotational disk (8) is rotating and said rotational disk is thus to support a plurality of courses which are to be served.

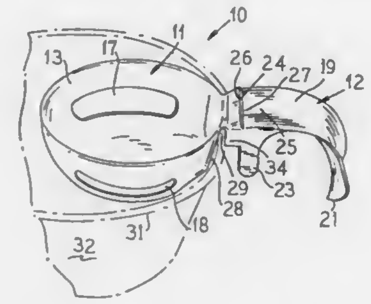
5,784,953
EGG SEPARATOR

Nigel Wang, Taipei, Taiwan, assignor to The Pampered Chef, Ltd., Addison, Ill.

Filed Mar. 12, 1996, Ser. No. 615,590

Int. Cl.^{6} A47J *19/02;43/14;* **A23N** *1/00*

U.S. Cl. 99—499 **17 Claims**



1. A unitary egg separator comprising an apertured cup for separating an egg yolk from the associated egg white of a shelled egg deposited in said cup; and a laterally outwardly extending, downwardly arcuately curved handle extending from a lip region of said cup, said handle having an upstanding flange in said handle for cracking an egg shell.

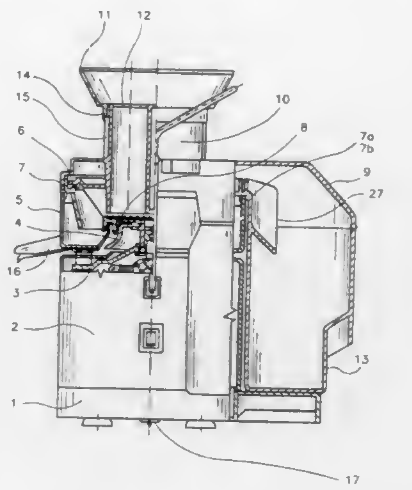
5,784,954
JUICE EXTRACTOR

Eugeniusz Kokot; Zenon Swaczyj; Marek Pilat, and Andrzej Czerpak, all of Poniatowa, Poland, assignors to Zakland Produkcji Rynkowej Sp. z o.o., Poniatowa, Poland

Filed Jun. 3, 1996, Ser. No. 657,113

Int. Cl.^{6} A47J *19/02*

U.S. Cl. 99—511 **21 Claims**



1. A juice extractor comprising

a motor having a shaft for providing rotary energy;

a coupling attached to the shaft of the motor;

a juice basin disposed above the motor for collecting juice and having an inner side of an outer wall;

an antivortex baffle having the shape of a truncated inverted cone, wherein an angle of the inverted truncated, cone of the antivortex baffle relative to a vertical line is from about 10 to 3 degrees, and wherein the antivortex baffle is placed in the juice basin for preventing upward splashing of juice an the inside of the outer wall of the juice basin.

5,784,955
CALENDER IN A PAPER-MAKING OR A COATING MACHINE

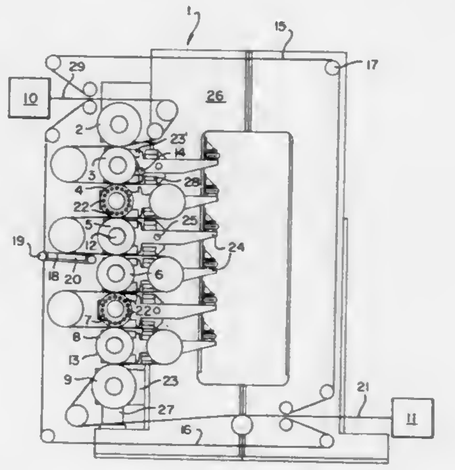
Hans-Rolf Conrad, Dormagen, Germany, assignor to Voith Sulzer Finishing GmbH, Krefeld, Germany

Filed Nov. 14, 1996, Ser. No. 746,663

Claims priority, application Germany, Nov. 21, 1995, 295 18 424 U

Int. Cl.^{6} D21G *1/00*

U.S. Cl. 100—329 **12 Claims**



9. A calender being disposed in one of a paper-making and a coating machine, said calender comprising:

at least four rollers being disposed one above the other, each of said rollers being rotatably mounted on bearings, each of said rollers being independently rotatably driven, at least two of said rollers being heatable, said at least two heatable rollers each having a plurality of peripheral bores for guiding a heating medium, at least 40% of said rollers being soft rollers, said soft rollers having an outer covering that is made of a synthetic material that is insensitive to marking so that a doctor blade can be applied to said soft roller; and

means for inserting a paper guide strip into said calender.

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5,784,956
APPARATUS FOR PRINTING MATERIALS PARTICULARLY TEXTILE MATERIALS CERAMICS PAPER OR THE LIKE

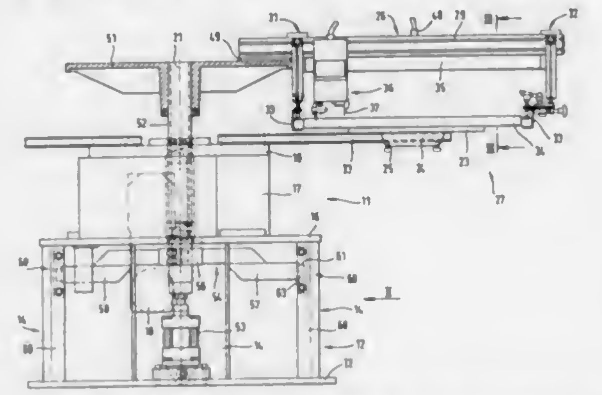
Heinz Walz, 72793 Pfullingen, Oberhaldenweg 38, Germany

Filed Aug. 7, 1997, Ser. No. 865,785

Claims priority, application Germany, May 30, 1996, 196 22 230.3

Int. Cl.⁶ B41F *15/04*

U.S. Cl. 101—115 **16 Claims**



1. Apparatus for the printing of materials, with a housing (**12**) and several printing units (**26**) which are respectively associated with a pallet (**23**) arranged on a pallet carrier (**22**) and with a rotary drive (**17**) which receives several pallets (**23**) and transfers the pallets (**23**) to a next processing station, and with a plate (**51**) which carries the printing units (**26**) and can be moved up and down by means of a lifting apparatus (**53**), characterized in that the rotary drive (**17**) is constructed as an indexing table with a rotary plate, having a working cycle in which a pallet is received at a processing station and is transferred to a next processing station under control of an electromechanical indexing system that senses and positions the pallet.

5,784,957
PRINTING MECHANISM AND MEANS FOR COOLING TRANSFER AND FORM CYLINDERS

Gunnar Rau, Königsbrunn, and Karl Heinz Müller, Gersthofen, both of Germany, assignors to Man Roland Druckmaschinen AG, Offenbach am Main, Germany

Continuation of Ser. No. 335,127, Nov. 7, 1994, Pat. No. 5,595,115. This application Mar. 29, 1996, Ser. No. 625,645

Claims priority, application Germany, Nov. 5, 1993, 9316932 U; Sep. 1, 1994, 44 31 188.5

Int. Cl.⁶ B41L *29/00;35/14*

U.S. Cl. 101—142 **9 Claims**

1. An internally cooled cylinder of a printing machine, on which cylinder a sleeve is slidable, the cylinder comprising:

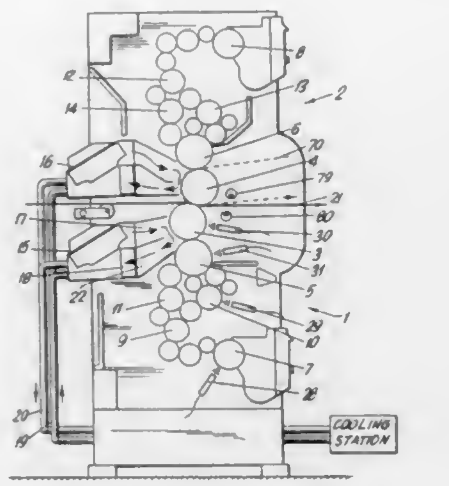
a cylinder body having a first, drive end, a second end and a cylinder jacket, the cylinder body having radial bores in the second end;

a coolant feed tube arranged in the cylinder body so as to extend between the first and second ends of the cylinder body;

a separating tube arranged within the cylinder body so as to surround the feed tube to form a cooling chamber between the separating tube and the cylinder jacket and a pressure line between the separating tube and the feed tube, the radial bores being in fluid communication with the pressure line;

a coolant feed line connected to a first end of the feed tube at the drive end of the cylinder body so as to supply a fluid coolant, radial passages being arranged in the second end of the cylindrical body so as to place a second end of the feed tube in fluid communication with the cooling chamber;

an outlet line in fluid communication with the cooling chamber at the first, drive end of the cylinder body so as to permit an outflow of coolant; and



connection means provided at the first, drive end of the cylinder body for releasably connecting a pressurized air supply to the pressure line.

5,784,958
ROTARY PRINTING MACHINE WITH AN UNDERSTRUCTURE

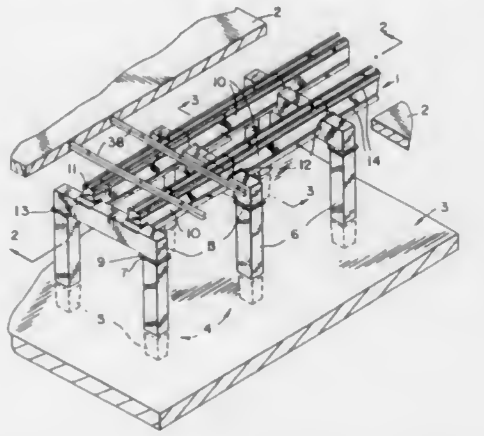
Norbert Dylla, Stadtbergen; Johann Schlittenbauer, Aichach, and Johann Öschay, Wehringen, all of Germany, assignors to MAN Roland Druckmaschinen AG, Offenbach am Main, Germany

Filed Mar. 7, 1997, Ser. No. 813,042

Claims priority, application Germany, Mar. 7, 1996, 196 50 812.6

Int. Cl.⁶ B41F *5/00*

U.S. Cl. 101—216 **20 Claims**



1. A rotary printing machine, comprising an understructure having vertical girders with upper end faces, metal plates provided on the upper end faces of the vertical girders, support elements having bottom sides, the support elements being releasably connected to the metal plates so as to rest horizontally on the upper end faces of the vertical girders, and means, located on the bottom sides of the support elements so as to correspond to the metal plates of the vertical girders, for releasably connecting the support elements to the vertical girders.

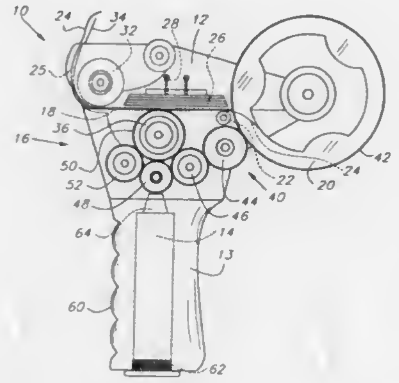
5,784,959
HAND-HELD PRINTER AND METHOD FOR ADHESIVE TAPE

Frank N. Larios, 1827 Woodacre Way, Roseville, Calif. 95661

Filed Jul. 9, 1996, Ser. No. 677,598

Int. Cl.⁶ B41F *5/04*

U.S. Cl. 101—219 **19 Claims**



1. A hand-held printer for marking on adhesive tape with wet ink, comprising:

a tape reel for holding said adhesive tape;

a plate roller for applying an imprint on said adhesive tape with said wet ink;

an ink cartridge body having an ink cartridge reservoir therein for said wet ink, said ink cartridge body having at least one aperture therein to dispense said wet ink; and

a compressor for squeezing said wet ink within said ink cartridge reservoir to force said wet ink through said at least one aperture for application to said plate roller.

5,784,960
APPARATUS AND METHOD FOR REGULATING INK DISTRIBUTION IN A PRINTING MACHINE

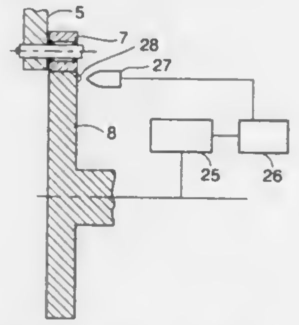
Valentin Gensheimer, Muhlheim; Achim Stoffler; Peter Hummel, both of Offenbach, and Robert Ortner, Alzenau, all of Germany, assignors to MAN Roland Druckmaschinen AG, Germany

Division of Ser. No. 514,151, Aug. 11, 1995, Pat. No. 5,685,225. This application Sep. 9, 1997, Ser. No. 926,100

Claims priority, application Germany, Aug. 11, 1994, 44 28 403.9

Int. Cl.⁶ B41F *31/06;31/14*

U.S. Cl. 101—352.09 **10 Claims**



1. An undershot inking unit for a printing machine comprising:

an ink fountain for supplying printing ink;

an ink fountain roller communicating with said ink fountain;

drive means for driving said ink fountain roller so that an ink film is generated on the surface of said ink fountain roller, said ink fountain roller drive means being controllable independently of the printing speed of said printing machine;

an inking roller;

an intermittent ductor roller journalled on a pivotal support for periodically engaging said ink fountain roller and inking roller to transfer said ink film from said ink fountain roller to said inking roller; and

a ductor roller drive means for pivoting said support and causing said ductor roller to intermittently engage said ink fountain roller and said inking roller;

said ductor roller drive means including a rotating control cam, said control cam having a predominant circumferential contour and a subordinate circumferential contour, said subordiante circumferential contour being bounded by a first boundary region and a second boundary region, said predominant circumferential contour being allocated to the throw of said ductor roller on said inking roller, said first boundary region being allocated to the transfer of said ductor roller from said inking roller to said ink fountain roller, said subordinate circumferential contour being allocated to the throw of said ductor roller on said ink fountain roller, said second boundary region being allocated to the transfer of said ductor roller from said ink fountain roller to said inking roller;

a cam follower connected to said pivotal support journalling said intermittent ductor roller for traversing said control cam to thereby cause said intermittent ductor roller to periodically engage said ink fountain roller and said inking roller; and

control means for causing said control cam to rotate at a speed directly proportional to the speed of the printing machine when said cam follower roller traverses said predominant and subordinate circumferential contours and for causing said control cam to rotate independently of the printing speed of said printing machine when said control cam traverses said first and second boundary regions.

5,784,961
METHOD AND APPARATUS FOR MOUNTING A PRINTING SLEEVE ONTO A PRINTING ROLL

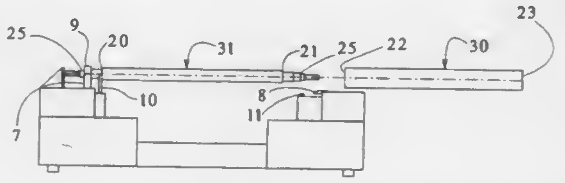
Heinz-W. Lorig, Legden, and Karl Sauressig, Vreden, both of Germany, assignors to Polywest Kunststofftechnik, Sauressig & Partner GmbH & Co. KG, Ahaus, Germany

Filed Jan. 24, 1997, Ser. No. 788,186

Claims priority, application Germany, Jan. 31, 1996, 196 03 500.7

Int. Cl.⁶ B41F *27/00;13/20*

U.S. Cl. 101—375 **10 Claims**



1. A method of mounting a printing sleeve onto a printing roll comprising the following steps:

clamping the printing roll at a first end thereof, the printing roll comprising the first end, a second end and an outer surface defining an outside diameter of the printing roll, the printing roll having a tapered outside diameter wherein the printing roll is conical in shape with the outside diameter at the first end of the printing roll being larger than the outside diameter at the second end of the printing roll;

supporting the printing roll at a point disposed between the first and second ends thereof with a retractable support arm,

pushing a first end of a base sleeve over the second end of the printing roll, the base sleeve comprising the first end, a second end and an inside surface disposed therebetween, the inside surface of the base sleeve defining a tapered inside diameter of the base sleeve wherein the base sleeve is conical in shape with the inside diameter at the first end of the base sleeve being larger than the inside diameter at the second end of the base sleeve, the base sleeve being pushed until the first end

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thereof approaches the retractable arm and the second end thereof has been pushed past the second end of the printing roll.

supporting the second end of the printing roll,

retracting the retractable arm,

pushing the base sleeve further onto the printing roll so that the first end of the base sleeve slides past the point where the printing roll was supported by the retractable arm.

5,784,962
DEVICE AND METHOD FOR CLEANING CYLINDERS IN A ROTARY PRINTING MACHINE

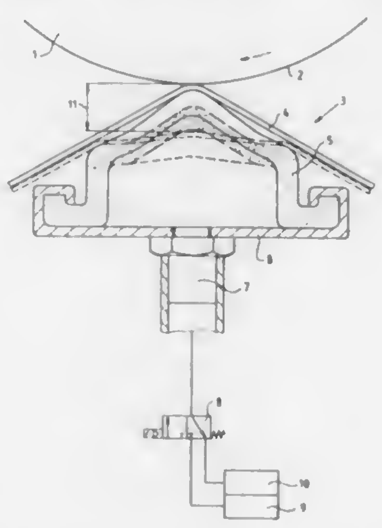
André Geis, St. Leon-Rot.Thomas, and Thomas Kraft, Leimen, both of Germany, assignors to Heidelberger Druckmaschinen Aktiengesellschaft, Heidelberg, Germany

Filed Feb. 18, 1997, Ser. No. 801,516

Claims priority, application Germany, Feb. 17, 1996, 196 05 957.7

Int. Cl.⁶ B41F *35/00;* **G03G** *21/00*

U.S. Cl. 101—423 **20 Claims**



8. A device for cleaning outer cylindrical surfaces of cylinders in a rotary printing machine, said device comprising:

an apparatus to press-on a cleaning cloth to an outer cylindrical surface of a respective cylinder;

said apparatus to press-on including an expandable hollow body;

said expandable hollow body comprising a cavity to expand said expandable hollow body upon a pressurized source being connected to said cavity;

an arrangement to selectively connect said cavity to either a pressurized source or a suction source to selectively move said expandable hollow body from an outwardly expanded position adjacent an outer cylindrical surface for bringing a cleaning cloth into contact with an outer cylindrical surface upon connection to a pressurized source, via a neutral resting position, to an inwardly expanded position spaced away from an outer cylindrical surface for withdrawing a cleaning cloth from an outer cylindrical surface upon connection to a suction source.

5,784,963
CLEANING DEVICE FOR CLEANING CYLINDERS OF A PRINTING PRESS

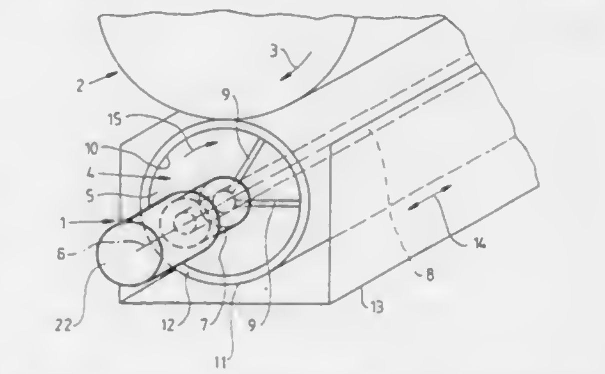
Gotthard Schmid, Malsch, Germany, assignor to Heidelberger Druckmaschinen AG, Heidelberg, Germany

Filed Aug. 8, 1996, Ser. No. 694,198

Claims priority, application Germany, Aug. 8, 1995, 295 12 758 U

Int. Cl.⁶ B41F *35/00;35/02;* **B41L** *41/00*

U.S. Cl. 101—425 **11 Claims**



1. Cleaning device for cleaning cylinders of a printing press, comprising:

a pressure member with a cleaning medium assigned thereto, said pressure member being formed as a roller angularly adjustable about a longitudinal central axis thereof, said cleaning medium being disposed on an outer cylindrical surface of said roller, said roller being formed with at least one axially extending washing-solution cleaning duct; and

a locking mechanism assigned to said roller for preventing said roller from rotating when said roller engages a cylinder of a printing press.

5,784,964
MACHINE FRAME AND METHOD OF MANUFACTURE THEREOF

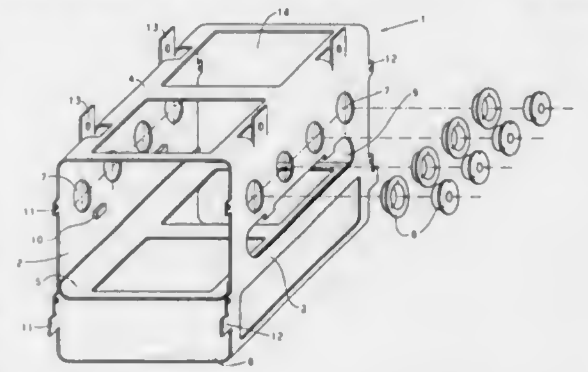
Anton Rodi, Leimen, Germany, assignor to Heidelberger Druckmaschinen AG, Heidelberg, Germany

Filed Apr. 10, 1996, Ser. No. 631,611

Claims priority, application Germany, Apr. 10, 1995, 195 13 537.7

Int. Cl.⁶ B41F *5/04*

U.S. Cl. 101—480 **12 Claims**



1. In a machine for producing three-dimensional structures on a substrate having a plurality of individual aggregate components, a machine frame whereon the aggregate components are mounted at predetermined relative positions, the machine frame comprising:

a one-piece light-weight frame having fitting devices formed thereat for securing the individual aggregate components to said one-piece frame, said fitting devices being formed at predetermined relative positions on said one-piece frame; and

said fitting devices including a plurality of press roller fitting devices, a paper transport fitting device, sheet-feeding fitting devices and sheet delivery fitting devices.

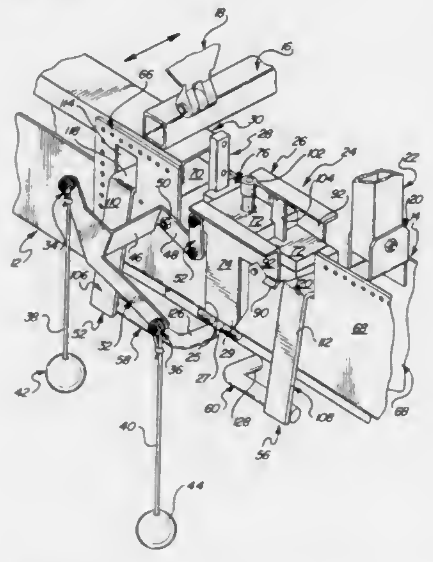
5,784,965
INTERLOCK MECHANISM FOR AN OVERHEAD TRACKWAY SYSTEM

James Zaguroli, Jr., Drayton Plains, Mich., assignor to Knight Industries, Inc., Auburn Hills, Mich.

Filed Apr. 16, 1997, Ser. No. 843,451

Int. Cl.⁶ E01B *25/26*

U.S. Cl. 104—96 **11 Claims**



1. An interlock mechanism connecting respective ends of a movable trackway and a fixed trackway section, each having running surfaces for allowing rolling of trolleys therealong, said interlock mechanism comprising:

a bridging trackway assembly mounted on one of said trackway ends to be vertically movable from a raised position to a lowered position, said bridging trackway assembly including lower trackway running surfaces brought into alignment with respective trackway running surfaces on said movable trackway and said fixed trackway as said bridging trackway assembly descends to said lowered position; and,

an operating lever system for selectively lowering and raising said bridging trackway assembly.

5,784,966
STABILIZED LIGHTWEIGHT EQUIPMENT TRANSPORT SYSTEM

Garrett W. Brown, 515 Addison Ct., Philadelphia, Pa. 19147, and David Keller, Newtown, Pa., assignors to Garrett W. Brown, Philadelphia, Pa.

Filed Jun. 19, 1996, Ser. No. 788,645

Int. Cl.⁶ G03B *17/00*

U.S. Cl. 104—304 **27 Claims**

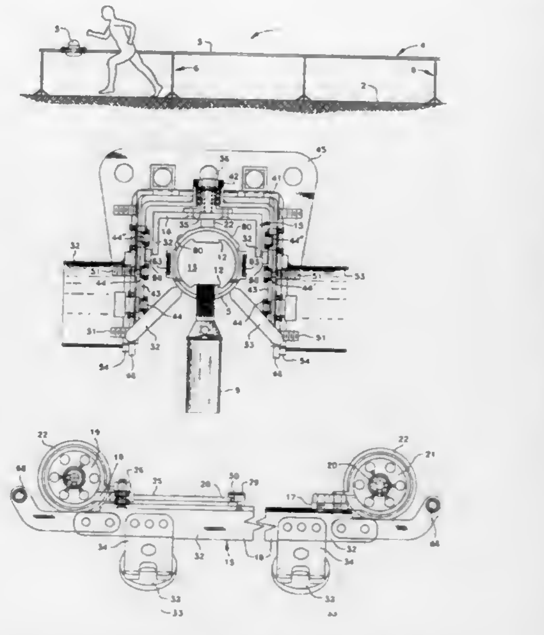
1. An apparatus for supporting and translating equipment along a rail, comprising:

(a) a car; and

(b) a support structure pivotally connected to the car about a pitch axis and adapted to support the equipment to be translated along the rail, wherein:

the pitch axis passes approximately through the center of gravity of a combination of the support structure and the equipment and excluding the car; and

the car comprises a plurality of wheels adapted to engage the rail, wherein at least one of the wheels is steerable and connected to a steering control to control the roll orientation of a complete assembly comprising the car, the support structure, and the equipment as the apparatus translates along the rail.



5,784,967
REAR STEERING AXLE DIRECTIONAL CONTROL LINKAGE FOR ROAD VEHICLES

Robert Lohr, Hangenbieten, France, assignor to Lohr Industrie, Hangenbieten, France

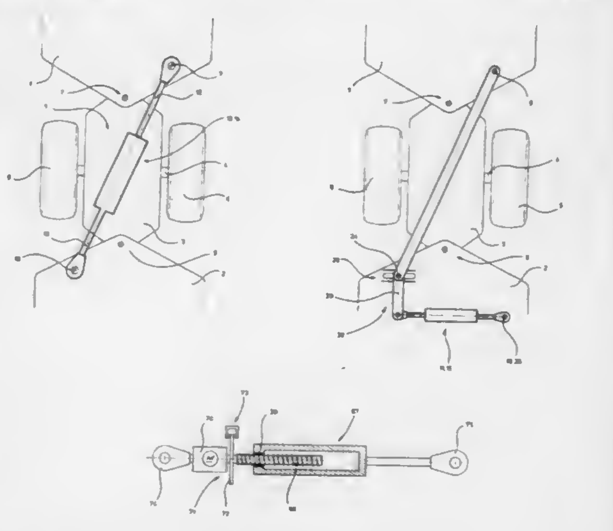
PCT No. PCT/FR95/00066, § 371 Date Jul. 25, 1996, § 102(e) Date Jul. 25, 1996, PCT Pub. No. WO95/20516, PCT Pub. Date Aug. 3, 1995

PCT Filed Jan. 23, 1995, Ser. No. 682,608

Claims priority, application France, Jan. 28, 1994, 94 01123

Int. Cl.⁶ B62D *13/00*

U.S. Cl. 105—3 **19 Claims**



1. A directional control linkage in combination with a road vehicle having a front steering module and at least one rear module each being connected to one another by articulated connections to an intermediate module, said intermediate module having an axle supporting a pair of wheels, and said directional control linkage being provided for selectively transmitting directional control from said front steering module to said rear module of said road vehicle;

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said directional control linkage being articulated at one end thereof to said front steering module and being articulated at an opposite end thereof to said rear module, without being articulated to any intermediate module, to facilitate selective directional control of said rear module;

said directional control linkage further comprising a movable element, which is movable relative to a portion of said directional control linkage, and a locking mechanism for locking said movable element in a reference position, an unlocking mechanism for unlocking said movable element, and active means for returning said movable element to the reference position, and said directional control linkage having:

an active state in which said movable element is maintained locked in the reference position and facilitates control of an orientation of said rear module;

a passive state in which said movable element is in the unlocked position and moves relative to said portion of said directional control linkage to interrupt control of said rear module; and

an intermediate state in which said active means returns said movable element to the reference position.

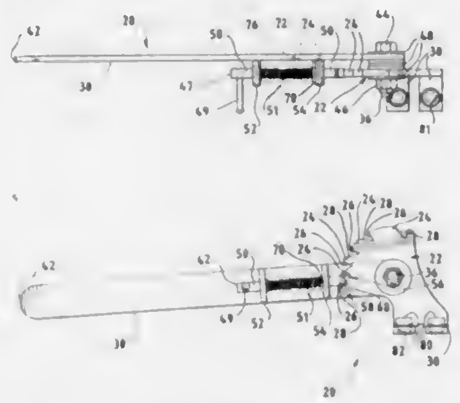
5,784,968
LOCOMOTIVE TOP DECK COVER SUPPORT BRACKET

John Kenneth MacDonnell, Crete, Ill., assignor to R. W. Mac Company, Crete, Ill.

Filed Apr. 4, 1997, Ser. No. 835,144

Int. Cl.^{6} B61C *17/00*

U.S. Cl. 105—26.05 **7 Claims**



1. A locomotive engine top deck cover support apparatus for maintaining a locomotive top deck cover in an open position, the apparatus comprising:

a ratchet member mountable to said locomotive engine and having a plurality of radially disposed ratchet teeth with respective forward and rear sides;

an axle extending through said ratchet member;

an elongated support arm having a pivot end and an opposite cover supporting end, the pivot end being pivotally mounted to said axle for movement of said support arm between a fully raised position and a fully lowered position;

a pawl mounted to said support arm for linear displacement between an engaged position in engagement with said ratchet member and a disengaged position out of engagement with said ratchet member, said pawl being biased toward said engaged position and having a ratchet member engaging end defined by an angled forward camming surface and a rear stopping surface;

said angled forward camming surface of said pawl being cooperable with the rear sides of each of said plurality of ratchet teeth to effect camming displacement of said pawl toward said disengaged position upon application of force to said support arm moving it toward its fully raised position, to allow angular displacement of said support arm past said ratchet teeth to any selective angular position;

said rear stopping surface of said pawl being cooperable with the forward sides of each of said plurality of ratchet teeth to prevent movement of the support arm past said ratchet teeth toward its fully lowered position, thereby maintaining said support bar in said selective position for supporting said locomotive engine top deck cover on said cover supporting end of said support arm; and

said pawl being manually displaceable to its disengaged position to allow movement of said support arm past said ratchet teeth toward its fully lowered position.

5,784,969
PROCESS AND DEVICE FOR REGULATING THE EARTH-RELATED INCLINATION OF RAILROAD VEHICLE BOXES

Siegbert Steidl, Herzogenaurach; Günter Wagner, Ebermannstadt; Clemens Jungkunz, Erlangen; Herbert Müller, Höchstadt; Bernhard Rath, Gladbeck, all of Germany; Anton Stribersky, Eberschwang, Austria; Peter Drücke, and Werner Niemeyer-Stein, both of Bremen, Germany, assignors to Siemens Aktiengesellschaft, Munich, Germany

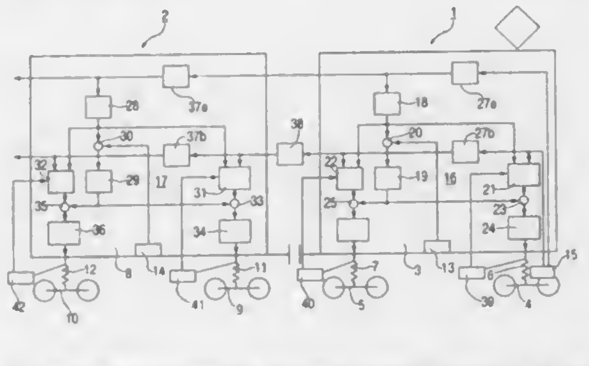
PCT No. PCT/EP95/02548, § 371 Date Jun. 18, 1997, § 102(e) Date Jun. 18, 1997, PCT Pub. No. WO96/02027, PCT Pub. Date Jan. 25, 1996

PCT Filed Jun. 30, 1995, Ser. No. 765,762

Claims priority, application European Pat. Off., Jul. 11, 1994, 94110758.3

Int. Cl.^{6} B61F *5/24*

U.S. Cl. 105—199.2 **9 Claims**



1. A process for controlling the earth-related inclination of a rail vehicle box of a railway vehicle having at least one rail vehicle box which sits on bogies, each bogie having a spring suspension and at least one pair of wheels and being pivotable about a longitudinal axis of the bogie, the process including the steps of:

a) determining a centrifugal acceleration in a horizontal plane;

b) determining from the centrifugal acceleration a setpoint for an absolute inclination of the rail vehicle box relative to the earth, the setpoint being freely predefinable as a function of travel conditions;

c) determining an actual value of the absolute inclination of the rail vehicle box relative to the earth;

d) generating at least one control signal from a difference between the setpoint and the actual value of the absolute inclination of the rail vehicle box using a freely preselectable law of formation; and

e) adjusting the angle between the bogie and the rail vehicle box across the direction of travel of the rail vehicle box as a function of the at least one control signal,

wherein the centrifugal acceleration is determined as a function of physical quantities measured in front of the rail vehicle box.

5,784,970
CARRIAGE BODY FRAME

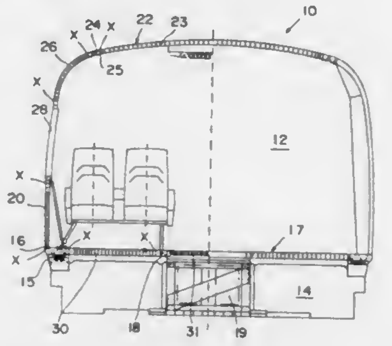
Peter Fehr, Schafhisheim; Lorenzo Kocher, Wohlen; Robert J. Dean, Uhwiesen; Roger Betschart, Weiningen, and Lutz Kampmann, Beringen, all of Switzerland, assignors to Alusuisse Technology & Management Ltd., Switzerland

Filed Jan. 8, 1997, Ser. No. 780,511

Claims priority, application European Pat. Off., Jan. 24, 1996, 96810048

Int. Cl.^{6} B61D *17/04*

U.S. Cl. 105—401 **11 Claims**



1. Carriage body frame for high speed trains, which comprises: a passenger compartment; longitudinal load-bearing sections of said passenger compartment of aluminum and light-weight composite panels inserted between the load-bearing sections; wherein,

a) the composite panels feature a plastic core adhesively bonded to outer sheets of aluminum,

b) the outer sheets extend partially over an aluminum connecting section which is integral to the composite panel, and fit to the said connecting section by virtue of shape,

c) the connecting section exhibits connecting strips which directly rest on correspondingly arranged connecting strips on said load-bearing section, and

d) the connecting section is joined to said load-bearing section by means of laser welding,

wherein the connecting strips of the connecting section run parallel to each other and are spaced a distance apart, and wherein the connecting strips of the load-bearing section run parallel to each other and are spaced a distance apart.

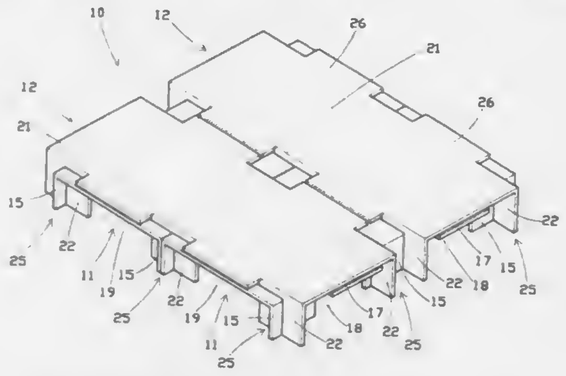
5,784,971
PALLET STRUCTURE IMPROVEMENT

Wen-Tsung Chang, Taipei Hsien, Taiwan, assignor to Cheng Loong Corporation

Filed May 21, 1997, Ser. No. 861,394

Int. Cl.^{6} B65D *19/00*

U.S. Cl. 108—51.3 **1 Claim**



1. A collapsible pallet assembly comprising:

(a) at least a pair of lengthwise beam members formed of a corrugated paper material, each said lengthwise beam member including:

(1) a surface plate portion defining a plurality of first fold lines, said surface plate portion having formed therethrough a plurality of upper slot holes;

(2) a plurality of sidewall portions extending downward from said first fold lines to substantially define a first groove space beneath said surface plate portion, each said sidewall portion having at least one lower slot hole formed therethrough, each said lower slot hole being in open communication with at least one of said surface plate portion upper slot holes; and,

(3) at least one wing piece portion projecting from said surface plate portion in a substantially coplanar manner; and,

(b) at least a pair of crosswise beam members formed of a corrugated paper material coupled in transverse manner to said lengthwise beam members, each said crosswise beam member including:

(1) a top plate portion defining a plurality of second fold lines, said top plate portion at least partially overlaying at least one of said surface plate portions of said lengthwise beam members; and,

(2) a plurality of bracket plate portions extending downward from said second fold lines to substantially define a second groove space beneath said top plate portion, each said bracket plate portion having formed therein a slotted opening delineating first and second bracket plate extending sections, each of said first and second bracket plate extending sections being adapted for insert through one of said surface plate portion upper slot holes, whereby said bracket plate portion matingly engages at least one of said sidewall portions of said lengthwise beam member.

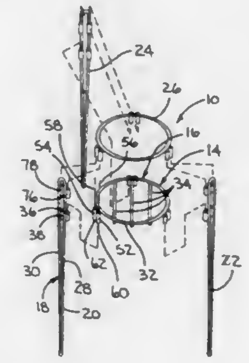
5,784,972
STAND FOR SUPPORTING ARTICLES

Bradley Emalfarb, 763 Bunker Ct., and Seymour Emalfarb, 1585 Saunders Rd., both of Riverwoods, Ill. 60015

Filed Sep. 16, 1996, Ser. No. 714,187

Int. Cl.^{6} A47B *3/06*

U.S. Cl. 108—156 **18 Claims**



1. A stand for supporting articles in an elevated position on a subjacent surface, said stand comprising:

a shelf having a support surface for an article;

a base; and

first means cooperating between the base and the shelf for allowing selective placement of the base and the shelf in

a) an operative state where the shelf is stably supported on the base without the need for separate fasteners so that the support surface is in an elevated position relative to a subjacent surface on which the base is placed and

b) a disassembled state wherein at least part of the shelf is separated from the base,

said first means comprising second means for changing the base and the shelf between the operative and disassembled states as the base and the at least part of the shelf are moved relative to each other along a substantially linear predetermined path,

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said second means comprising a first pair of connecting members on the at least part of the shelf, and a second pair of connecting members on the base,

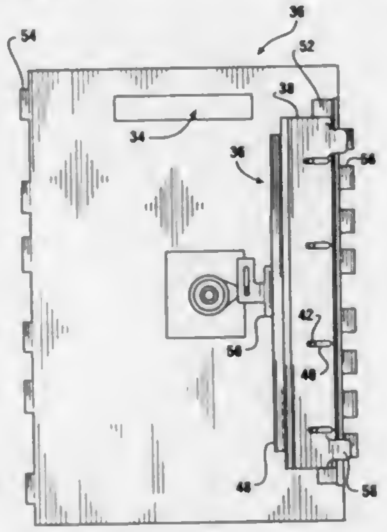
the members of the first pair of connecting members located on the at least part of the shelf to engage against the members of the second pair of connecting members on the base as the base and the at least part of the shelf move along the substantially linear predetermined path from the disassembled state to the operative,

the members of one of the first and second pairs having a first orientation relative to each other with the base and the shelf in the disassembled state, and a second orientation relative to each other with the base and the shelf in the operative state,

the members of said one of the first and second pairs configured to move from the first orientation to the second orientation as an incident of the members of the first pair engaging against the members of the second pair as the base and the at least part of the shelf move along the predetermined path from the disassembled state to the operative state.

5,784,973
SECURE ENCLOSURE FOR AUTOMATED BANKING MACHINE

Scott A. Mercer, Hanoverton; Paul J. Cox, Louisville; Kenneth C. Kontor, Chesterland, and H. Thomas Graef, Bolivar, all of Ohio, assignors to InterBold, North Canton, Ohio
Filed Mar. 12, 1996, Ser. No. 614,410
Int. Cl.^{6} E05G *1/04;* **E05B** *3/36*
U.S. Cl. 109—59 R **57 Claims**



1. Apparatus for securing a door in a closed position in an opening of an enclosure, said opening bounded by a wall, and wherein said door is in operatively connected relation with a lock changeable between secured and unsecured conditions, said apparatus comprising:

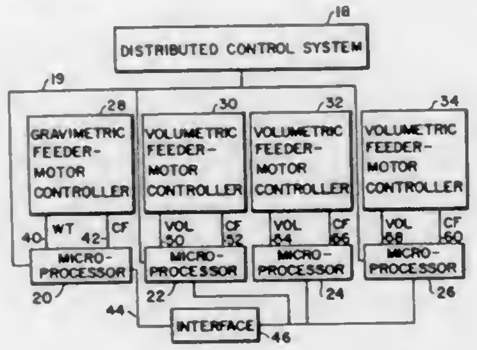
a projecting member, said projecting member in supported relation with said door, wherein in cross section and in the closed position of said door said projecting member extends inwardly in said enclosure and is adjacent said wall;

a latch, said latch in supported connection with said wall inwardly of said opening, and wherein in cross section said latch comprises a first bolt engaging portion, wherein said first bolt engaging portion extends towards said opening, and wherein in the closed position of said door said projecting member extends between said first bolt engaging portion and said wall;

a bolt, said bolt in movably supported connection on one of either said door or said wall, wherein said bolt is movable when said lock is in the unsecured condition from an extended to a retracted position, wherein when the bolt is in the retracted position the bolt is disengaged from both the first bolt engaging portion of said latch and said projecting member, wherein the door is movable in a direction outward from the interior area to an open position, and wherein when said bolt is in the extended position said bolt is in engagement with said first bolt engaging portion of said latch and with said projecting member, wherein said door is held in the closed position.

5,784,974
SYSTEM FOR IMPROVING FUEL FEED CONTROL OF VOLUMETRIC COAL FEEDERS

Kenneth J. Krauss, North Olmstead, Ohio, assignor to General Signal Corporation, Stamford, Conn.
Filed Apr. 22, 1997, Ser. No. 837,842
Int. Cl.^{6} F23N *5/18*
U.S. Cl. 110—186 **5 Claims**


18
DISTRIBUTED CONTROL SYSTEM
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32
34
GRAVIMETRIC FEEDER-MOTOR CONTROLLER
VOLUMETRIC FEEDER-MOTOR CONTROLLER
VOLUMETRIC FEEDER-MOTOR CONTROLLER
VOLUMETRIC FEEDER-MOTOR CONTROLLER
40
WT
42
CF
VOL 50
CF 52
VOL 64
CF 66
VOL 68
CF 60
MICRO-PROCESSOR
MICRO-PROCESSOR
MICRO-PROCESSOR
MICRO-PROCESSOR
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22
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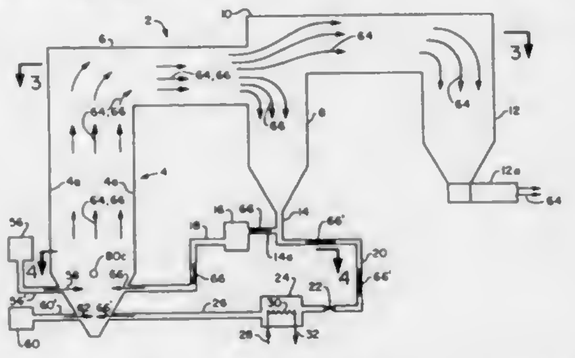
26
44
INTERFACE
46

1. A feeder system for measuring and controlling the massed feed rate of particulate fuel material comprising:

a group of volumetric feeders, and a gravimetric feeder coupled to said group of volumetric feeders; means for controlling the fuel feed rate of the volumetric feeders based upon data communicated from the gravimetric feeder, said means for controlling including a microprocessor connected to each of said feeders; a loop connected from the microprocessor of the gravimetric feeder to the respective microprocessors of the volumetric feeders; and an interface connected in said loop for selectively transmitting control signals from said gravimetric feeder to said volumetric feeders.

5,784,975
CONTROL SCHEME FOR LARGE CIRCULATING FLUID BED STEAM GENERATORS (CFB)

Michael C. Tanca, Tariffville, Conn., assignor to Combustion Engineering, Inc., Windsor, Conn.
Filed Dec. 23, 1996, Ser. No. 771,998
Int. Cl.^{6} F23G *5/00;7/00*
U.S. Cl. 110--245 **10 Claims**



1. In a circulating fluidized bed steam generator including a furnace volume, first feed means for introducing fuel and sorbent into the furnace volume, second feed means for introducing air into the furnace volume for purposes of effecting therewith the combustion of the fuel that is introduced into the furnace volume by the first feed means thereby causing flue gases and hot solids to be generated as a consequence of such combustion with the hot solids becoming entrained in the flue gases, a plurality of separator means each being operative to effect therewithin the separation of hot solids above a predetermined size from the flue gases received thereby, a backpass volume embodying at least superheat heat transfer surface, a plurality of heat exchange means having fluid circulating therethrough, a plurality of first conduit means each connecting the furnace volume in fluid flow relation with a corresponding one of the plurality of separator means so as to be operative to transport the flue gases with the hot solids entrained in the flue gases from the furnace volume to a corresponding one of the plurality of separator means, and a plurality of second conduit means each connecting a corresponding one of the plurality of separator means in fluid flow relation with a corresponding one of the plurality of heat exchange means so as to be operative to transport the hot solids above a predetermined size that are separated from the flue gases from a corresponding one of the separator means to a corresponding one of the plurality of heat exchange means for circulation therethrough and each connecting a corresponding one of the heat exchange means in fluid flow relation with the furnace volume so as to be operative to transport the hot solids after the circulation thereof through a corresponding one of the plurality of heat exchange means to the furnace volume for reinjection thereinto, the improvement of a control system for effecting therewith direct control over the temperature of the furnace volume and for also effecting therewith independent control over at least superheat steam temperature, said control system comprising:

a. a first valve means located upstream of a first one of the plurality of heat exchange means so as to be operative to control the mass flow rate of hot solids to said first one of the plurality of heat exchange means;

b. a first temperature sensor means operative for sensing the temperature of the furnace volume, said first temperature sensor means being operative to produce a temperature signal representative of the temperature of the furnace volume sensed by said first temperature sensor means;

c. a first controller means connected in circuit relation with said first temperature sensor means and with the furnace volume, said first controller means being operative to produce a command signal in response to the receipt thereby of the temperature signal produced by said first temperature sensor means when the temperature signal received thereby is representative of other than a predetermined set point temperature value for the furnace volume, said first controller means further being operative to provide to said first valve means the command signal produced thereby so as to thereby cause said first valve means to regulate the mass flow rate of hot solids to said one of the plurality of heat exchange means in order to thereby effect the return of the temperature of the furnace volume to the predetermined set point temperature value for the furnace volume;

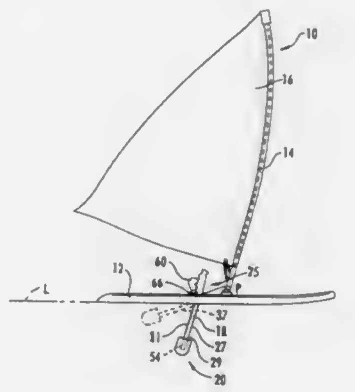
d. a second valve means located upstream of a second one of the plurality of heat exchange means so as to be operative to control the mass flow rate of hot solids to said second one of the plurality of heat exchange means;

e. a second temperature sensor means operative for sensing the temperature of the fluid exiting from said second one of the plurality of heat exchange means, said second temperature sensor means further being operative to produce a temperature signal representative of the temperature of the fluid sensed by said second temperature sensor means; and

f. a second controller means connected in circuit relation with said second temperature sensor means and said second one of the plurality of heat exchange means, said second controller means being operative to produce a command signal in response to the receipt thereby of the temperature signal produced by said second temperature sensor means when the temperature signal received thereby is representative of other than a predetermined set point temperature value for the fluid exiting from said second one of the plurality of heat exchange means, said second controller means further being operative to provide to said second valve means the command signal produced thereby so as to thereby cause said second valve means to regulate the mass flow rate of hot solids to said second one of the plurality of heat exchange means in order to thereby effect the return of the temperature of the fluid exiting from said second one of the plurality of heat exchange means to the predetermined set point temperature value for the fluid exiting from said second one of the plurality of heat exchange means.

5,784,976
WEIGHTED DAGGERBOARD STABILIZER FOR WIND SURFING APPARATUS

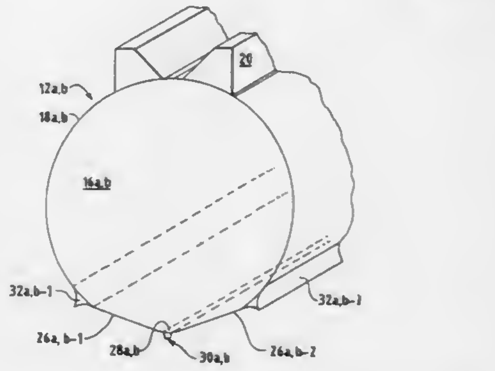
James F. Burdick, 338 Dumbarton Rd., Baltimore, Md. 21212
Filed Feb. 5, 1997, Ser. No. 795,210
Int. Cl.^{6} B63B *35/79*
U.S. Cl. 114—39.2 **25 Claims**



1. A windsurfer apparatus, comprising:
(a) a hull;
(b) a mast and sail mounted to project upward from the hull during sailing;
(c) a daggerboard removably mounted to project downward from the hull into the water during sailing;
(d) a weight fixedly attached to the daggerboard to lessen the tendency of the wind surfing apparatus to be unstable or flip during use.

5,784,977
PONTOON FOR WATERCRAFT

Maurice L. Schell, Haslett, and Ed Butcher, Corunna, both of Mich., assignors to Maurell Products, Inc., Owosso, Mich.
Filed Oct. 24, 1996, Ser. No. 736,496
Int. Cl.^{6} B63B *1/00*
U.S. Cl. 114—61 **20 Claims**



1. A structure for floatably supporting an object on a fluid comprising:

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an elongated housing having a submerged surface and an exposed surface when floating at rest on the fluid and having first and second, spaced apart elongated, lift elements affixed to and extending along the housing on said submerged surface wherein each of the lift elements includes first and second concave surfaces symmetrically located with respect to a center line of the respective lift element,

wherein said housing includes first and second elongated planar regions extending along the housing and located between the lift elements, said planar regions forming a portion of said submerged surface,

wherein the planar regions intersect at a keel region equidistant from the lift elements.

5,784,978

WIND ENERGY CATCHMENT DEVICE

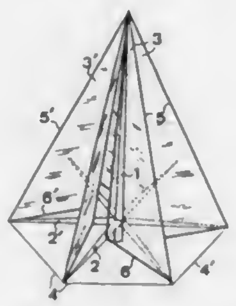
Manuel Munoz Salz, San Emilio No. 16, 1-3, 28017 Madrid, Spain

Filed May 8, 1996, Ser. No. 646,874

Claims priority, application Spain, Feb. 5, 1996, P9600263; Mar. 11, 1996, P9600578

Int. Cl.⁶ B63H *9/04; 1/06*

U.S. Cl. 114—103 **10 Claims**



1. Wind energy catchment device, comprising a rigid vertical shaft secured to the ground carrying a rotary collar on each end, a large hoop formed by a cable connected from a number of equidistant points on it by cables to said collars between said hoop and said collars; a plurality of dihedral sails that are evenly spaced with one vertex connected to the upper collar, and the outside bottom vertex Connected to the hoop by a small cable, the bottom point of the vertex of the dihedral angle, connected to a point on the cables between the hoop and the bottom collar, wherein said hoop is secured by a set of pulleys, fixed radially with the appropriate support to the ground, and said bottom collar concentrically connected to a small plate on which a gear wheel for transmission of the movement is located.

5,784,979

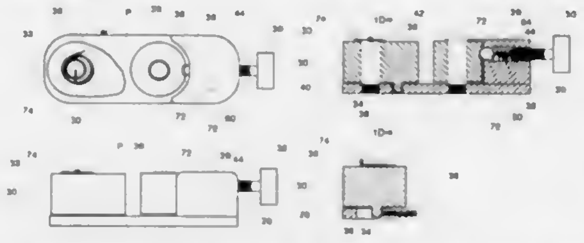
ADJUSTABLE LOAD AUTOMATIC RELEASING CLEAT

Robert H. Nelson, III, 1443 E. 54th St. Apt. 1, Chicago, Ill. 60615

Filed Apr. 21, 1997, Ser. No. 840,573

Int. Cl.⁶ B63B *21/04*

U.S. Cl. 114—218 **20 Claims**



1. An adjustable load automatic line releasing mechanism for a cleat comprising:

a rolling member comprising sufficient surface to substantially restrict said line movement, said rolling member further comprising a sufficient passage to permit attachment to said cleat, said rolling member further being mostly rotatably attached to said cleat, and

a resisting means for substantially restricting movement of said rolling member about said passage, said passage being substantially adjoined to an exterior surface of said rolling member, and

a support and fastening for positioning said resisting means for substantially restricting movement of said rolling member mostly adjacent to said rolling member in substantially a cooperative manner whereby permitting said rolling member, said resisting means for substantially restricting movement of said rolling member to retrofitably cooperate with said cleat to releasably restrain said line in a load sensitive manner.

5,784,980

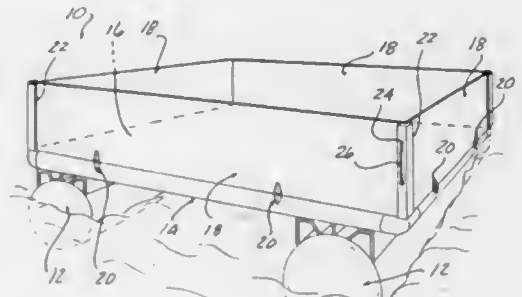
AQUATIC PLATFORM WITH ANTI-ROOSTING SYSTEM

John R. Benefiel, 6005 Upper Straits Blvd., West Bloomfield, Mich. 48234

Filed Oct. 18, 1996, Ser. No. 733,977

Int. Cl.⁶ B63B *35/44;* **E04B** *1/72*

U.S. Cl. 114—263 **7 Claims**



1. An aquatic platform comprising a platform structure supported above a body of water and having a top planar surface spaced above the level of said body of water, said top surface defined by a series of sides forming a perimeter of said platform.

an anti-roosting system comprising a series of opaque, vision blocking panels, each panel extending along and parallel to a respective side of said platform, each panel mounted to said platform so as to be movable from an upright position extending upwardly from said platform top surface, to a stowed position alongside said platform extending downwardly from said surface to allow free access to said platform surface;

a releasable holder selectively holding said panels in said upright position, said panels when in said upright position deterring roosting of fowl on said surface by blocking outward viewing by fowl alighting on the top surface.

5,784,981

V-SHAPED RETRIEVABLE ANCHOR

Leonard R. Graham, Sr., 11318 E. Highway 84, Axtell, Tex. 76624-1403

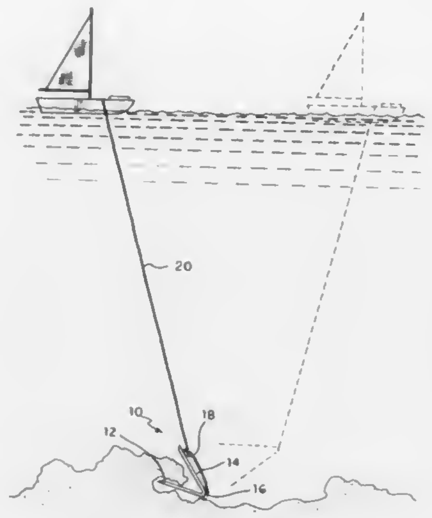
Filed Sep. 17, 1997, Ser. No. 932,185

Int. Cl.⁶ B63B *21/46*

U.S. Cl. 114—299 **13 Claims**

1. An anchor assembly structured to allow an anchor to be retrieved easily even when fouled, said retrievable anchor system comprising:

an anchor having a shank and an arm, said shank and said arm each having a distal end and a proximal end, said proximal ends of said shank and said arm being joined in V-fashion, thus to form an acute angled crown therebetween;



an anchor line having a top end and a bottom end, said bottom end being attached to said crown of said anchor, said anchor line having a shaft attaching portion disposed a predetermined, significant distance from said bottom end of said anchor line;

a tie being adapted to removably attach said shaft attaching portion of said anchor line to said distal end of said shank, said tie being adapted to break when a force exceeding a preselected value is applied to said anchor line, thus to release said shaft attaching portion of said anchor line from said shank, thereby transferring the pulling force applied to said anchor line from said shank to said crown to allow said anchor to be freed from entanglements.

5,784,982

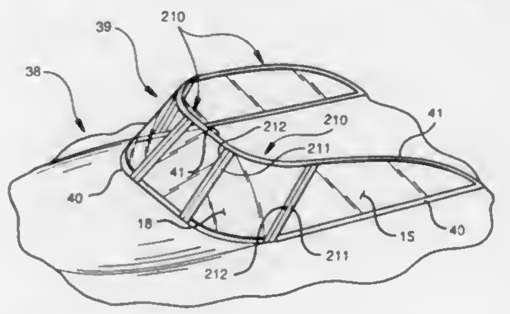
BOAT WINDSHIELD WITH VERTICAL JOINT SYSTEM

Edward J. Erskine, Benson, N.Y., assignor to N.A. Taylor Co., Inc., Gloversville, N.Y.

Filed Nov. 13, 1996, Ser. No. 748,395

Int. Cl.⁶ B63B *17/00*

U.S. Cl. 114—361 **20 Claims**



1. A boat windshield comprising:

first and second substantially rigid frame members;

first and second transparent windshield panels mounted by said first and second frame members, respectively;

said first frame member having a first, female, side including a recess;

said second frame member having a first, male, side including a projection which is shaped and dimensioned to mate with said recess;

said second frame member projection having a first slot defined therein; and

said recess having a quick connect locking clip extending outwardly therefrom toward said projection, said locking clip including a channel which cooperates with said first slot to hold said first and second frame members together.

5,784,983

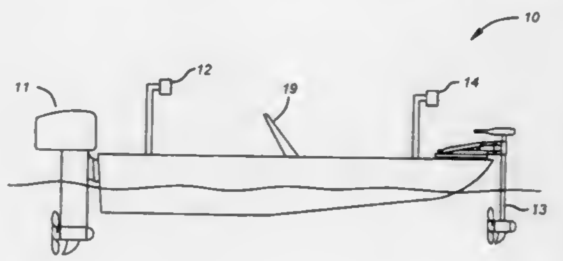
BACK SUPPORT APPARATUS FOR OUTBOARD BOAT

Barry Desmond Stegall, Broken Arrow, Okla., assignor to Brunswick Corporation, Lake Forest, Ill.

Filed Jun. 18, 1996, Ser. No. 665,789

Int. Cl.⁶ B63B *17/00*

U.S. Cl. 114—363 **20 Claims**



1. A boat standing support for a person standing in a boat having a deck, comprising:

a pedestal having a longitudinal axis;

a support pad mounted to the pedestal for contact by the person standing in the boat; and

a base secured to the deck area, the base supporting the pedestal and preventing rotation of the support pad about the longitudinal axis of the pedestal.

5,784,984

SEEDLING TRANSPORTATION APPARATUS FOR TRANSPLANTATION MACHINE

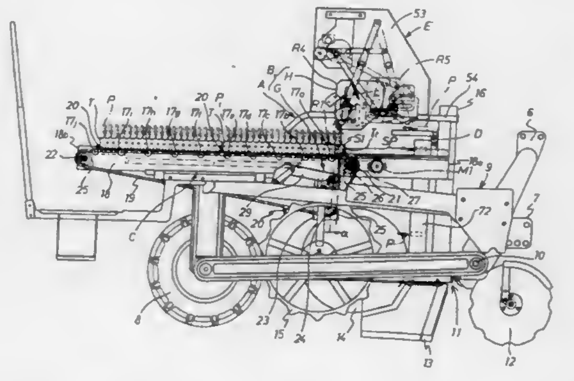
Isao Mikawa, Hokkaido, Japan, assignor to Circle Tekko Co., Ltd., Hokkaido, Japan

Filed Mar. 14, 1997, Ser. No. 818,546

Claims priority, application Japan, May 10, 1996, 8-139783

Int. Cl.⁶ A01C *11/00*

U.S. Cl. 111—105 **4 Claims**



1. A seedling transportation apparatus for a transplantation machine, comprising:

a seedling taking out apparatus for taking out a seedling upwardly from a seedling tray having seeding accommodating cells in which seedlings are accommodated;

a tray transportation apparatus having a horizontal transport path for transporting the seedling tray toward said seedling taking out apparatus;

a seedling carrying out conveyor disposed at a location higher than said horizontal transport path of said tray transportation apparatus; and

a transferring apparatus for transferring the seedling taken out by said seedling taking out apparatus onto said seedling carrying out conveyor.

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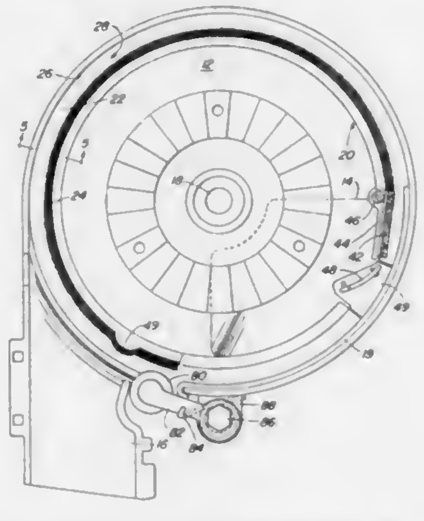
5,784,985
MECHANICAL SEED METER

James Irwin Lodico, Hampton; Terry Lee Snipes, East Moline, and Donald Raymond Wisor, Moline, all of Ill., assignors to Deere & Company, Moline, Ill.
Continuation-in-part of Ser. No. 610,644, Mar. 4, 1996, Pat. No. 5,720,233. This application Jan. 24, 1997, Ser. No. 789,225
Int. Cl.⁶ A01C *7/00*
U.S. Cl. 111—184 **11 Claims**



1. A seed meter for an agricultural machine, the seed meter comprising:

a housing having an inlet for receiving seed and an outlet through which metered seed is dispensed, the housing being provided with an axial inner wall and an outer radial wall, a radially extending flexible member mounted to the housing defines an inner radial wall, the axial inner wall, the radial outer wall and the radial inner wall defining a seed trapping zone;

a bowl being rotatively mounted to the housing, the bowl having a series of individual seed receiving cells arranged about its axial periphery, the seed receiving cells rotatively move through the seed trapping zone, the seed receiving cells defining an axial outer wall for trapping the seeds in the seed trapping zone;

seed entering the housing through the inlet form a seed puddle between the housing and the bowl, individual seeds located in this puddle are taken up by the seed receiving cells in the bowl as it is rotated through the puddle and are trapped therein in the seed trapping zone, seed trapped in the seed receiving cells is released by the outer radial wall of the housing as the seed is rotated towards the outlet, wherein the housing is further provided with a flexible and resilient flap for maintaining seed in the seed receiving cells before entering the seed trapping zone.

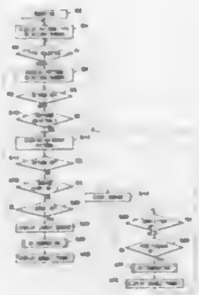
5,784,986
SEWING DATA PROCESSING DEVICE

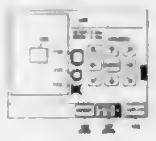
Nami Morita, Nagoya, Japan, assignor to Brother Kogyo Kabushiki Kaisha, Nagoya, Japan
Filed Dec. 13, 1996, Ser. No. 766,764
Claims priority, application Japan, Dec. 15, 1995, 7-327528
Int. Cl.⁶ D05B *21/00;* D05C *5/02*
U.S. Cl. 112—102.5 **25 Claims**

1. A sewing data processing device, comprising:

sewing pattern display means for displaying a plurality of sewing patterns based on a plurality of sets of sewing pattern data indicative of shapes of the plurality of sewing patterns;

sewing pattern selection means for selecting at least one of the plurality of sewing patterns displayed by the sewing pattern display means;





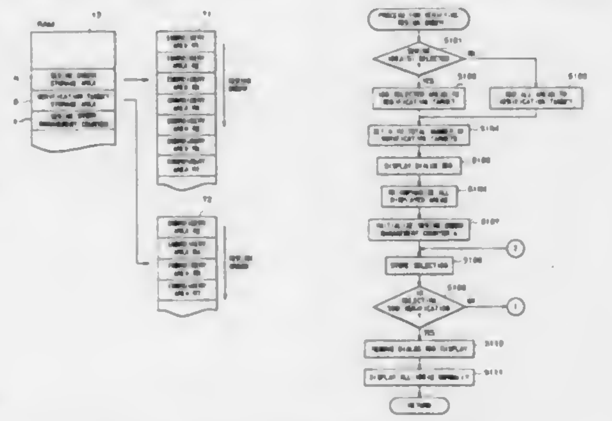
positioning means for positioning the selected sewing pattern at a desired position;

judging means for judging whether each of several embroidery frames is usable or unusable for the selected sewing pattern positioned at the desired position, the judging means judging each of the several embroidery frames based on embroidery frame data; and

output means for outputting the judged result.

5,784,987
EMBROIDERY DATA PROCESSING UNIT

Masahiro Mizuno, Nagoya, Japan, assignor to Brother Kogyo Kabushiki Kaisha, Nagoya, Japan
Filed May 27, 1997, Ser. No. 863,185
Claims priority, application Japan, May 27, 1996, 8-131758; Jan. 27, 1997, 9-012313
Int. Cl.⁶ D05B *21/00;* D05C *5/04*
U.S. Cl. 112—102.5 **22 Claims**



1. An embroidery data processing unit comprising:

means for creating a sewing pattern having a plurality of sewing areas;

memory means for storing a sewing order with respect to the plurality of sewing areas;

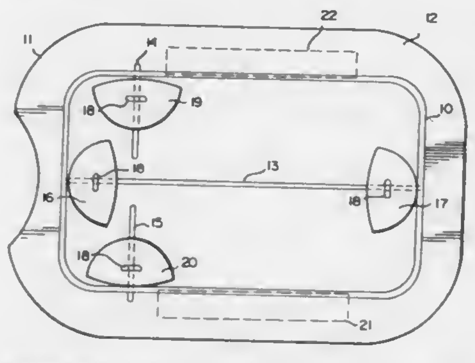
extracting means for extracting at least two sewing areas from among the plurality of sewing areas as targets for verification of sewing order;

distinguishing means for distinguishing the sewing order of the at least two sewing areas extracted by the extracting means; and

display means for displaying the sewing areas according to a distinguishing result in the distinguishing means and for displaying the sewing pattern created by the creating means.

5,784,988
METHOD AND APPARATUS FOR MOUNTING EMBROIDERY HOOPS

Robert S. Burt, Jr., P.O.Box 2117, Columbus, Miss. 39704
Filed Dec. 30, 1996, Ser. No. 775,098
Int. Cl.⁶ D05B *39/00;* D06C *03/08*
U.S. Cl. 112—103 **15 Claims**



1. An embroidery hoop mounting apparatus comprising:

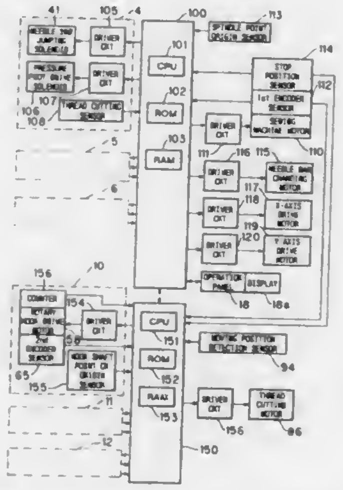
a backing;

a cam lock system adjustably carried by said backing on one side thereof for engaging the periphery of an embroidery hoop; and

a handle connected to said backing on an opposite side thereof for displacing said backing and said cam lock system relative to the embroidery hoop to releasably secure the embroidery hoop to said cam lock system.

5,784,989
SEWING MACHINE HAVING THREAD CUTTING MECHANISM

Masaki Shimizu, Toyoake, and Akio Takahashi, Gifu, both of Japan, assignors to Brother Kogyo Kabushiki Kaisha, Nagoya, Japan
Filed Feb. 28, 1997, Ser. No. 807,686
Claims priority, application Japan, Mar. 11, 1996, 8-083356
Int. Cl.⁶ D05B *65/02;19/12*
U.S. Cl. 112—300 **16 Claims**



1. A sewing machine for stitching a workpiece fabric with a needle thread and a bobbin thread, the sewing machine comprising:

a sewing machine motor;

a spindle driven by the sewing machine motor for driving a needle;

a bed having a throat plate;

a rotary hook provided in the bed for trapping a needle thread loop in cooperation with the needle;

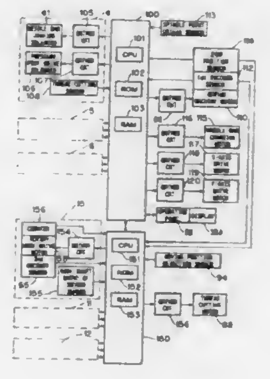
a thread cutting mechanism disposed below the throat plate for cutting the needle thread and the bobbin thread, the thread cutting mechanism comprising a movable blade connected to the actuator and a stationary blade, the movable blade being movable between a first position positioned remote from the stationary blade and a second position positioned adjacent the stationary blade, the needle thread and the bobbin thread being cut simultaneously when the movable blade is moved from the first position to the second position;

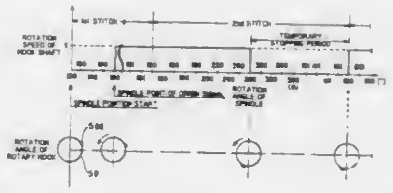
an actuator for driving the thread cutting mechanism independent of the sewing machine motor; and

control means for controlling the actuator so that only a needle thread stitched into and extending from the workpiece fabric is cut by the thread cutting mechanism without cutting the bobbin thread the control means comprising first means for stopping the movable blade to a third position positioned between the first and second position and close to the first position, in the third position the needle thread and the bobbin thread being about to be engaged with the movable blade, second means for moving the movable blade from the third position to the second position, and third means for moving the needle thread to a position engagable with the movable blade when the movable blade is moved from the third position to the second position.

5,784,990
SEWING MACHINE HAVING SPINDLE DRIVE MOTOR AND ROTARY HOOK DRIVE MOTOR

Masaki Shimizu, Toyoake; Akio Takahashi, Gifu-ken, and Tetsuo Morita, Nagoya, all of Japan, assignors to Brother Kogyo Kabushiki Kaisha, Nagoya, Japan
Filed Mar. 7, 1997, Ser. No. 813,356
Claims priority, application Japan, Mar. 11, 1996, 8-083352
Int. Cl.⁶ D05B *57/36;69/24;65/02;19/12*
U.S. Cl. 112—470.05 **29 Claims**





1. A sewing machine for stitching a workpiece fabric by a needle formed with an eyelet comprising:

a sewing machine motor;

a spindle driven by the sewing machine motor for driving the needle;

a bed having a throat plate;

a rotary hook provided in the bed for trapping a needle thread loop in cooperation with the needle;

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a rotary hook drive motor provided independent of the sewing machine motor and rotatable in synchronization with the spindle at a synchronous rotation speed;

a thread cutting mechanism disposed in the bed for cutting the thread at a position below the throat plate; and

control means for controlling rotation of the rotary hook drive motor in accordance with a predetermined rotation angle of the spindle so that an engaging period of the needle thread with the rotary hook is prolonged for a predetermined time, whereby a residual leading end part of the needle thread passing through the eyelet has a length capable of avoiding release of the residual leading end part from the eyelet of the needle during cutting of the thread by the thread cutting mechanism.

5,784,991
METHOD FOR REARING OR TRANSPORTING ENTOMOPHAGOUS INSECT

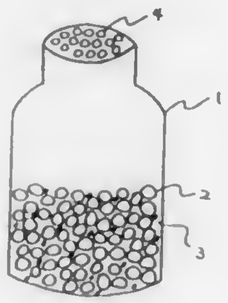
Noboru Ukishiro, and Yoshinori Shono, both of Sanda, Japan, assignors to Sumitomo Chemical Company, Limited, Osaka, Japan

Filed Dec. 4, 1996, Ser. No. 760,568

Claims priority, application Japan, Dec. 4, 1995, 7-315233

Int. Cl.⁶ A01K *67/00*

U.S. Cl. 119—6.5 **6 Claims**



1. A method of rearing entomophagous insects, which comprises adding entomophagous insects to small lumps of foamed plastic that acts as a shelter for said insects; and rearing said insects.

5,784,992
APPARATUS FOR INJECTING AVIAN EMBRYO MUSCLE TISSUE IN OVO

James Petitte, and Catherine A. Ricks, both of Raleigh, N.C., assignors to North Carolina State University, Raleigh, and Embrex, Inc., Research Triangle Park, both of N.C.

Continuation of Ser. No. 999,399, Jan. 21, 1993, abandoned, which is a continuation-in-part of Ser. No. 826,030, Jan. 27, 1992, abandoned. This application Feb. 1, 1995, Ser. No. 383,703

Int. Cl.⁶ A01K *45/00;* **A61K** *48/00;* **C12N** *15/00*

U.S. Cl. 119—6.8 **17 Claims**

1. An apparatus for simultaneously injecting muscle tissue of chicken embryos in a plurality of eggs during the last quarter of incubation, said device comprising:

engaging means for engaging said plurality of eggs;

injection means cooperating with said engaging means for inserting an elongate needle through the shells of said eggs along an essentially linear path of travel to a depth of about ⅞ inch to 1.5 inch into the shoulder or breast of said embryo; and

positioning means for positioning said elongate injection needle at the large end of said egg at an angle of about 1 to 5 degrees of offset from the long axis of said egg so that said needle is directed toward the shoulder or breast of said embryo.

5,784,993
SYSTEM FOR CONTROLLING AND OPERATING A COW-MILKING CAROUSEL

Uwe Osthues, Menden; Ralf Wohlbrück, Oelde, and Bernhard Schulze Wartenhorst, Warendorf, all of Germany, assignors to Westfalia Separator Aktiengesellschaft, Oelde, Germany

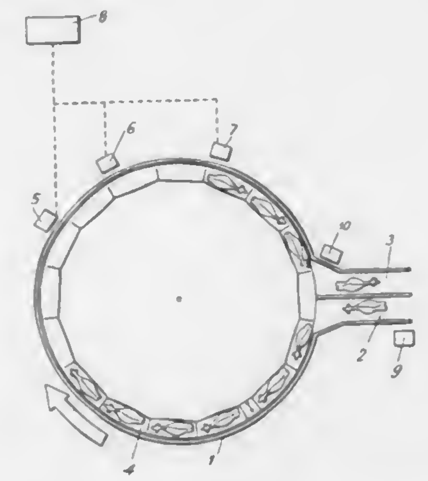
PCT No. PCT/EP94/02418, § 371 Date Jan. 25, 1996, § 102(e) Date Jan. 25, 1996, PCT Pub. No. WO95/07019, PCT Pub. Date Mar. 16, 1995

PCT Filed Jul. 22, 1994, Ser. No. 591,544

Claims priority, application Germany, Sep. 11, 1993, 43 30 894.5

Int. Cl.⁶ A01J *5/00*

U.S. Cl. 119—14.04 **12 Claims**



1. A system for controlling and operating a cow-milking carousel which is rotatable at different speeds and has an entrance, an exit and a plurality of milking stations wherein teat cups are applied to an animal and are automatically removed when the animal has been milked, the system comprising: at least two checkpoints along a direction of rotation for monitoring a position of the teat cups of milking stations passing thereby and for effecting an automatic adjustment of the speed of the carousel to maximize the number of teat cups which have not yet been removed at a first of the at least two checkpoints, but have been removed at a second of the at least two checkpoints.

5,784,994
APPARATUS AND METHOD FOR AUTOMATICALLY MILKING ANIMALS

Cornelis van der Lely, 7 Bruschenrain, CH-6300, Zug, Switzerland

PCT No. PCT/NL95/00230, § 371 Date Mar. 4, 1996, § 102(e) Date Mar. 4, 1996, PCT Pub. No. WO96/01040, PCT Pub. Date Jan. 18, 1996

PCT Filed Jun. 29, 1995, Ser. No. 596,360

Claims priority, application Netherlands, Jul. 4, 1994, 9401113

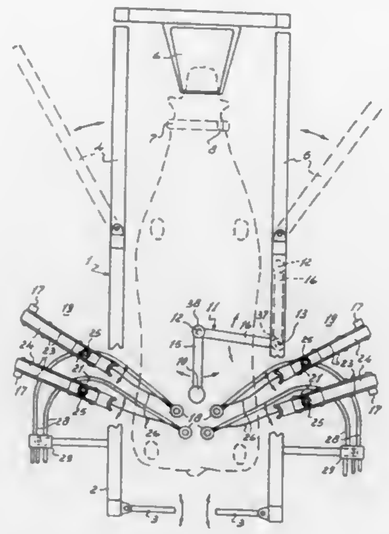
Int. Cl.⁶ A01J *3/00*

U.S. Cl. 119—14.08 **16 Claims**

1. An apparatus for automatically milking animals, such as cows that comprises milking compartments,

a milking robot including teat cups of the animals, said teat cups being supported by a robot arms means;

a detector that generates beams and uses their reflections for determining the positions of the teats, said detector being disposed on a robot arms construction spacially separated from said robot arm means, said robot arm construction comprising omni-directing means for maneuvering said detector so that said detector's beams can be aimed at different angles with respect to the teats of the animal to be milked, and whereby said omni-direction further comprises scanning means for performing a scanning motion in different directions.



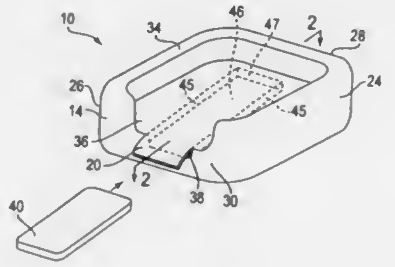
5,784,995
PET BED

Jonathan Willinger, Tenafly, N.J., assignor to J. W. Holdings Corp., Tenafly, N.J.

Filed Oct. 31, 1995, Ser. No. 550,616

Int. Cl.⁶ A01K *1/015*

U.S. Cl. 119—28.5 **17 Claims**



1. A pet bed, comprising:

a core of bedding material;

a removable cover provided over said core of bedding material said removable cover having an opening formed therein;

a removable cartridge containing a filler material inserted through said opening and located between said cover and said core of bedding material during use of said bed by a pet; and

a retainer located between said cover and said bedding material for retaining said cartridge in a predetermined position over said bedding material, wherein said retainer includes a pouch connected to said cover.

5,784,996
FEED CONVEYOR

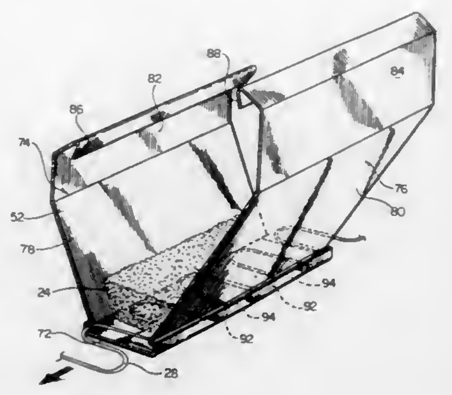
Michael E. Krehl, Corunna, Ind., assignor to CTB, Inc., Milford, Ind.

Continuation of Ser. No. 517,813, Aug. 22, 1995, Pat. No. 5,605,113. This application Nov. 4, 1996, Ser. No. 742,655

Int. Cl.⁶ A01K *5/02;* **B65G** *19/04*

U.S. Cl. 119—57.92 **22 Claims**

1. A feed conveyor for delivering feed to animals, said feed conveyor comprising: a trough member for holding the feed, said trough member including a bottom wall; a spring element disposed within the trough member for moving the feed through the trough member when said spring element is moved within the trough, said spring element being a winding, tortuous member which lies on, and substantially conforms with the bottom wall of the trough member; and a driving mechanism for moving the spring element within the bottom wall of the trough member to selectively move substantially all of the feed located in the trough member through the trough member and deliver the feed to said animals.



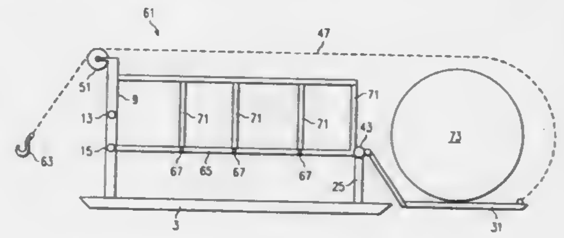
5,784,997
BALE MANGER

Rafael Perez, 176 Perez Cove, Braxton, Miss. 39044

Filed Apr. 25, 1997, Ser. No. 840,663

Int. Cl.⁶ A01K *1/10*

U.S. Cl. 119—60 **18 Claims**



1. A bale manger which comprises:

(a) a bed and rear wall extending substantially normal to said bed; and

(b) a front wall opposing and spaced from said rear wall, said front wall pivotally connected about a pivot to an end portion of said bed, said front wall having a bend therein to permit a first portion of said front wall remote from said bed, when said front wall is appropriately pivoted, to lie in a plane parallel to and below said bed with a second portion of said front wall between said bed and said first portion making an obtuse angle with said first portion.

5,784,998
AUTOMATIC FILLING AND FLUSHING VALVE ASSEMBLY FOR BOWL

Marvin Rupert Manzer, 2400 Sunset Strip, Hixson, Tenn. 37343

Filed Nov. 25, 1996, Ser. No. 758,176

Int. Cl.⁶ A01K *7/00*

U.S. Cl. 119—69.5 **20 Claims**

1. A valve assembly that is adapted to be mounted in a bowl which is adapted to contain liquid, said valve assembly comprising:

(a) a housing having a liquid-tight bulkhead at the base thereof, said housing and bulkhead defining a chamber for containment of the liquid, wherein the housing has a plurality of

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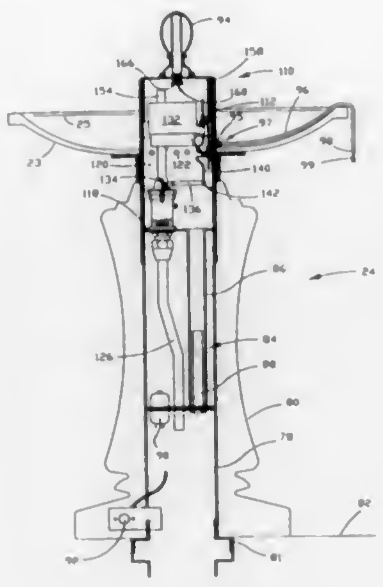


holes, each of which is located above the bulkhead and positioned so that liquid in the chamber may flow through the holes and into the bowl;

(b) a supply tube which is adapted for connection to an external source of the liquid, said tube having an opening therein that is located within the chamber for passage of the liquid from the external source into the chamber;

(c) a valve seat that is in fluid communication with the supply tube and located between the connection to the external source of the liquid and the opening for passage of the liquid into the chamber;

(d) a valve which is seated in the valve seat and adapted to be moved from an open position, which permits the flow of the liquid from the external source through the supply tube and through the opening therein into the chamber, to a closed position which stops the passage of the liquid from the external source through the opening in the supply tube;

(e) a float which is adapted to rise and fall within the chamber depending on the level of the liquid in the chamber;

(f) means for attaching the float to the valve so that a rise in the level of liquid in the chamber which raises the float to a predetermined level corresponding to the desired level of liquid in the bowl will tend to move the valve from an open position to a closed position; and

(g) means for retarding the closing of the valve as the level of liquid in the chamber reaches the predetermined level therein corresponding to the desired level of liquid in the bowl, said retarding means including a cap for the housing having a vent hole therethrough, said cap being adapted to mate with the housing so as to permit the air in the chamber above the water level to be compressed as the level of liquid rises therein, and said vent hole being sized so as to permit the air above the level of liquid in the chamber to be vented from the chamber at a controlled rate as the air is compressed to retard the closing of the valve for a predetermined period so as to permit the liquid to flow into the bowl in a quantity greater than that required to fill the bowl to the desired level so that a predetermined quantity of the liquid will overflow the bowl when the valve is actuated to permit the flow of the liquid to the bowl and before the valve is moved to a closed position.

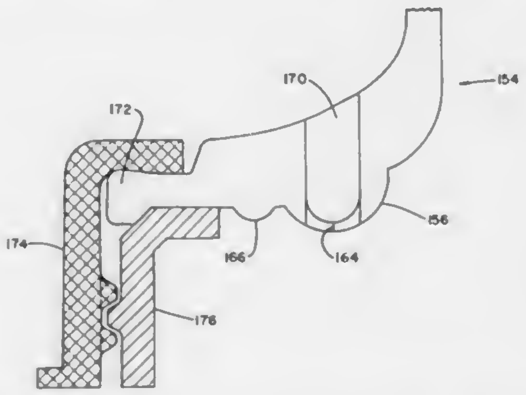
5,784,999
ANIMAL FEEDING NIPPLE

Leigh R. Larson, Johnson Creek; Reed A. Larson, Watertown, and Alan Novy, Oregon, all of Wis., assignors to Merrick's, Inc., Middleton, and Hi-Life Rubber, Inc., Johnson Creek, both of Wis.

Continuation-in-part of Ser. No. 187,445, Jan. 25, 1994, Pat. No. 5,474,028. This application Dec. 12, 1995, Ser. No. 571,346

Int. Cl.^{6} A01K *9/00*

U.S. Cl. 119—71 **11 Claims**



1. In a nipple for feeding liquids to a domesticated mammal, the nipple comprising an elastic molded body and having:

a nipple tube having a distal end and a proximate end, a length between the distal end and the proximate end and a wall with a thickness that are suitable for suckling by the mammal, and having proximate its distal end a self-sealing aperture through which liquid flows from inside the nipple tube into the mammal in response to suckling by the mammal,

a traverse wall having an inner perimeter and an outer perimeter and having an external face and an internal face, the external face being on the side of the nipple not exposed to liquid feed and the internal face being on the side of the nipple exposed to liquid feed when the nipple is used,

a vent located between the inner perimeter and the outer perimeter of the traverse wall and having a check valve at the end of the vent, and

a means for attaching the nipple to a container for liquid feed for the mammal, the improvement comprising an intervention member circumferentially spaced about the check valve to protect the check valve from contact with the container.

5,785,000
KITTY LITTER ASSEMBLY

Daniel J. Barbary, 114 Chelsea St., Stratford, Conn. 06497

Filed Jul. 18, 1997, Ser. No. 897,062

Int. Cl.^{6} A01K *29/00*

U.S. Cl. 119—166 **6 Claims**

1. A kitty litter assembly comprising:

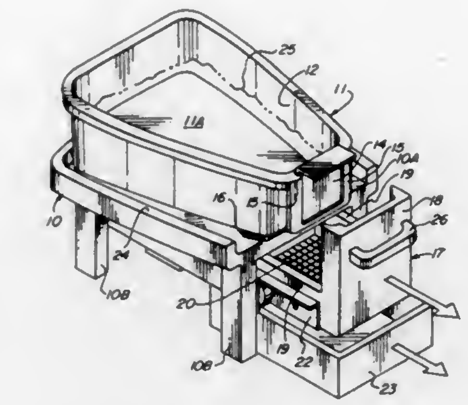
a stand having an elevated supporting surface,

a litter container, adapted to contain a layer of litter, supported on said supporting surface,

said container having an opening and a closure for sealing said opening,

a hinge hingedly connecting said litter container to said supporting surface for pivoting between a normal litter position and an inclined dumping position,

a screen drawer slidably mounted on said stand and below said supporting surface whereby said drawer is slidable between a stowed and unstowed position,



and a collector stowed in said stand below said screen drawer, whereby said screen drawer and collector are shifted to their respective unstowed position for screening the litter from the solid waste contained therein so that the litter can be recycled.

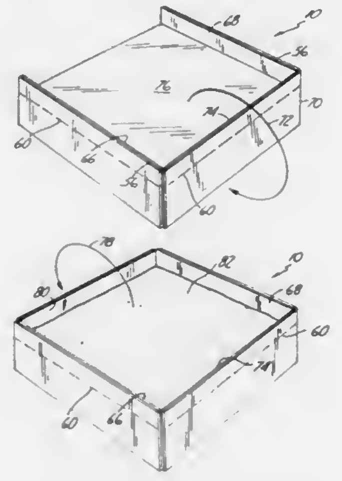
5,785,001
PET LITTER BOX HAVING EXTENDIBLE SIDES

Jerry W. Robinson, Golden Valley, Minn., assignor to Pathfinder Innovation, Inc., Minneapolis, Minn.

Filed Feb. 26, 1996, Ser. No. 606,925

Int. Cl.^{6} A01K *1/035*

U.S. Cl. 119—168 **18 Claims**



1. A litter containment system, comprising:

first and second generally opposed side walls;

third and fourth generally opposed side walls, the third and fourth side walls being coupled at opposite ends to the first and second side walls;

a bottom closure connected to the first, second, third and fourth side walls to form a container having an opening; and

a top closure including at least one panel foldably coupled to one of said side walls at a first hinge to move between a folded position to cover the opening and an extended position to define a barrier, the at least one panel including a second hinge and a third hinge spaced from the first hinge, the second hinge being located to define first and second panel portions, the at least one panel being folded relative to the second hinge to define the height of a barrier formed by the first and second panel portions, the third hinge being spaced from the first and second hinges and the at least one panel being sized to locate the third hinge to define a third panel portion foldable under the bottom closure.

5,785,002
SUBMERSIBLE BREEDING STRUCTURE

Bernard Cazin, 16 rue du Vercors, 69960 Corbas, France

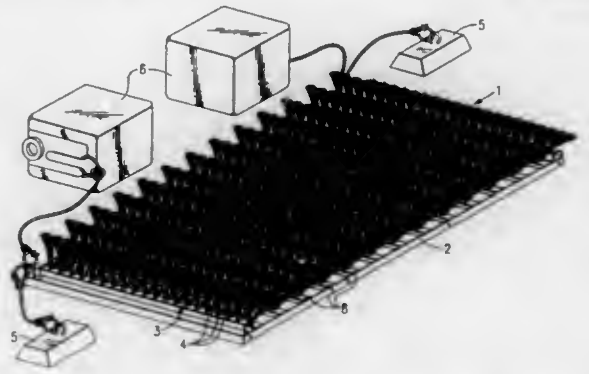
PCT No. PCT/FR95/00857, § 371 Date Dec. 24, 1996, § 102(e) Date Dec. 24, 1996, PCT Pub. No. WO96/00500, PCT Pub. Date Jan. 11, 1996

PCT Filed Jun. 28, 1995, Ser. No. 765,318

Claims priority, application France, Jun. 30, 1994, 94 08507

Int. Cl.^{6} A01K *61/00*

U.S. Cl. 119—223 **15 Claims**



1. A submersible structure for breeding pisicultural species in any aquatic environment, said structure comprising:

at least one frame member;

means of ballasting said at least one frame member; and

means for suspending said at least one frame member so as to allow said member to be positioned in medium-depth water, relative to the bottom of an aquatic environment wherein said structure includes a plurality of strips attached to said frame member, said bunches of fibers being fixedly attached at one end to said plurality of strips, and said bunches of fibers being unattached at an opposite end thereof, each of said plurality of strips extending across a major dimension of said at least one frame member.

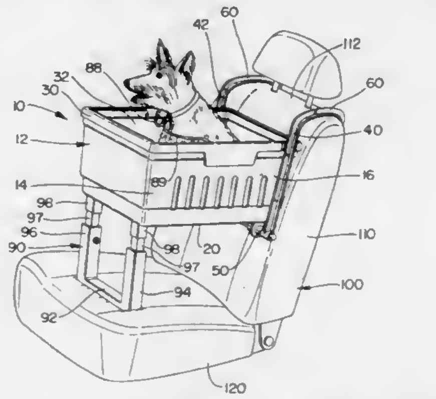
5,785,003
PET CARRIER FOR VEHICLES

Harold Jacobson, 10783 White Aspen La., Boca Raton, Fla. 33428, and Barry Semegram, 9017 Baybury La., West Palm Beach, Fla. 33411

Filed Jul. 28, 1997, Ser. No. 901,766

Int. Cl.^{6} A01K *1/035*

U.S. Cl. 119—496 **7 Claims**



1. A pet carrier adapted for use in a vehicle having windows and at least one passenger seat with a seat base and a seat back, the seat back having a forward facing side, a top end, and a rearward facing side;

said pet carrier comprising:

a basket having a forward zone and a rearward zone and including a floor and upwardly extending walls surrounding a pet containment area, said walls including a forward end wall, a

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rear end wall, and opposite side walls terminating at a top peripheral rim surrounding an open top of said pet containment area;

support means for removably supporting said basket on the passenger seat, forward of the seat back, so that said floor is supported in spaced relation above the seat base, said support means including:

a pair of arm members movably mounted to said rearward zone of said basket and each including a hooked distal end zone, said arm members being movably adjustable between a plurality of operative positions defined by said arm members extending generally upward relative to said floor so that said hooked distal end zone of each of said arm members rests over said top end and partially down said rearward facing side of said seat back;

means for adjusting said pair of arm members between said plurality of operative positions and a stowed position defined by said arm members extending below said peripheral rim towards said forward zone, adjacent said opposite side walls;

means for locking said pair of arm members in each of said plurality of operative positions and said stowed position;

forward leg means removably attachable to said forward zone and depending downwardly below said floor for supporting engagement with said seat base;

handle means for carrying said basket with one or more pets in said pet containment area when said basket is removed from the vehicle; and

pet restraining means fitted to said pet carrier and removably attachable to one or more pets carried in said pet containment area for restraining the one or more pets within said pet containment area.

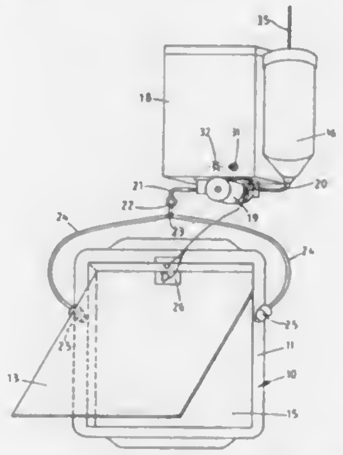
5,785,004
AUTOMATIC PET ANIMAL SPRAYING SYSTEM

Robert L. Hobbs, 14 The Elms, Longford, Lechlade, Glos. GL7 3LB, United Kingdom

Filed Feb. 14, 1997, Ser. No. 799,964

Int. Cl.^{6} A61D ***7/00***

U.S. Cl. 119—651 **18 Claims**



1. An automatic pet animal spraying system comprising:

a) a fixed frame structure defining an access aperture;

b) a displaceable cover pivotally mounted on said frame structure so as to extend across and cover the aperture when in a closed position the cover being pivotable from the closed position to the respective open positions on opposite sides of said fixed structure, the cover being moveable to one of said open positions in response to pressure on said cover from either side thereof so that a pet animal may pass through in either direction through said aperture;

c) a dispensing device located adjacent to the frame structure for applying a flowable material to the body of a pet animal passing through the aperture; and

d) a control means for activating said dispensing device in response to the passage of an animal through the aperture.

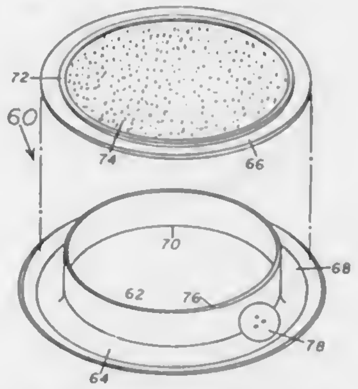
5,785,005
ANIMAL ATTRACTING TOY DEVICE

Steven D. Udelle, and Laura L. Udelle, both of 13 Seasons Dr., Punta Gorda, Fla. 33983-5432

Continuation-in-part of Ser. No. 618,899, Mar. 20, 1996, Pat. No. 5,673,651, which is a continuation-in-part of Ser. No. 475,936, Jun. 7, 1995, Pat. No. 5,517,948. This application May 20, 1997, Ser. No. 859,117

Int. Cl.^{6} A01K ***29/00***

U.S. Cl. 119—706 **11 Claims**



1. An animal attracting toy device comprising:

a) a track forming a base, said track having an inner wall, a bottom, a partially open top, and a partially open side;

b) an upper surface affixed to said partially open top of said track; and

c) an object confined within said track, said object consisting essentially of a housing, a synthesizer disposed within said housing, a power source, and a manually operated on-off switch for conserving said power source connecting the power source to the synthesizer.

5,785,006
CATTLE CRUSH

John Prentice, The Hermitage, Castle Douglas DG7 3LG, United Kingdom

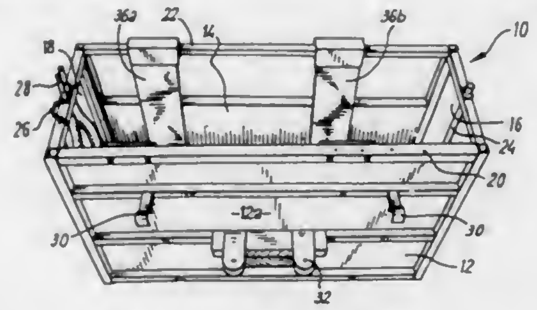
PCT No. PCT/GB95/02105, § 371 Date May 7, 1996, § 102(e) Date May 7, 1996, PCT Pub. No. WO96/07315, PCT Pub. Date Mar. 14, 1996

PCT Filed Sep. 7, 1995, Ser. No. 640,836

Claims priority, application United Kingdom, Sep. 7, 1994, 9418001

Int. Cl.^{6} A61D ***3/00***

U.S. Cl. 119—732 **10 Claims**



1. A cattle crush for restraining ruminants being portable and comprising rear and forward side faces and first and second end faces, a hinge being provided in said first end face to allow the cattle crush to be opened so that a ruminant enters the cattle crush and is disposed between said rear and forward side faces, said second end face comprising a first part rigidly connected to said rear side face and a second part rigidly connected to said forward side face, whereby said first and second parts have respective arcuate inner edges which form sides of an opening in said second end face when the cattle crush is closed, said opening being adapted to restrain a head of a ruminant.

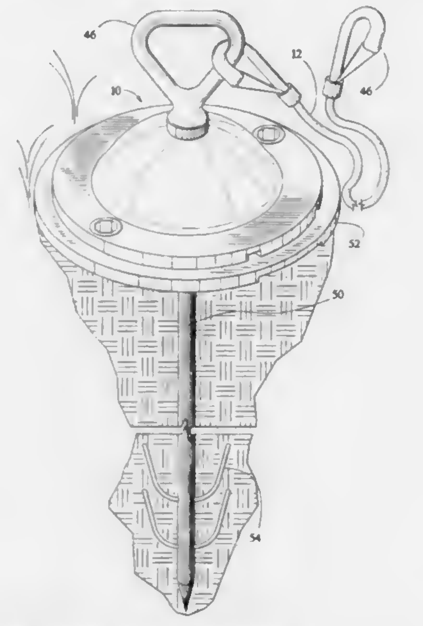
5,785,007
ANIMAL RESTRAINT DEVICE

Timothy D. Sauber, 37241 Fairview La., Lakevilla, Ill. 60046, and Donald G. Sauber, 40480 Fairview St., Antioch, Ill. 60002

Filed Nov. 13, 1996, Ser. No. 748,541

Int. Cl.^{6} A01K ***3/00***

U.S. Cl. 119—771 **19 Claims**



1. An animal restraint device comprising:

a housing having an internal swivel device, said housing having an aperture in a upper side thereof and a base on a lower side thereof, said housing having a predetermined outer configuration;

a rotatable securing device having a first end attached to said swivel device, said first end of said securing device extending through said aperture, said rotatable securing device having a second end that forms a connector;

a seal between said first end of said rotatable securing device and a wall of said aperture; and

an adapter plate attached to said base of said housing;

wherein said adapter plate is anchored in a predetermined area and wherein said connector is attached to a first end of a leash, an animal being attached to a second end of said leash.

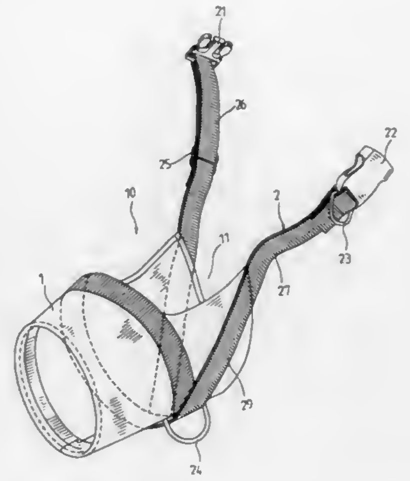
5,785,008
STRUCTURE OF DOG MUZZLE

Chun Chien Liu, 4, Chungchu Hsiang, Chungkou Tsun, Huatang Hsiang, Changhua Hsien, Taiwan

Filed Nov. 7, 1997, Ser. No. 966,303

Int. Cl.^{6} A01K ***25/00***

U.S. Cl. 119—831 **3 Claims**



1. A dog muzzle comprising a cylindrical muzzle body adapted to put over the mouth of a dog to keep it from biting, and a strap fastened to said muzzle body and adapted to secure it to the dog's head, said muzzle body having a top opening at a rear part thereof, said strap comprising two free end pieces extended from two opposite ends thereof, and buckle means adapted to joint the free end pieces of said strap, wherein said strap comprises a fixed middle part connected between its two free end pieces, the fixed middle part of said strap is wound round said muzzle body and fixed thereto by stitches, then crossed over each other at a bottom side of said muzzle body and extended upwardly backwards to two opposite rear corners of said top opening and then fixedly secured to said muzzle body in a substantially V-shaped form by stitches.

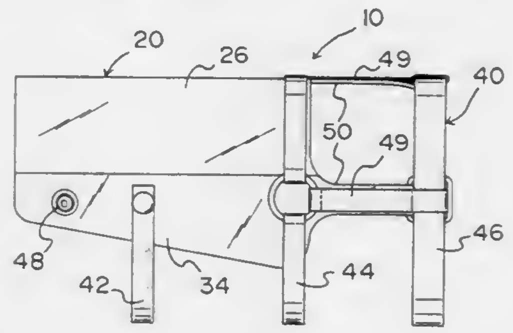
5,785,009
ANIMAL EYE PROTECTING SYSTEM

Wayne Nease, 1665 Spray Way, Newport, Tenn. 37821

Filed Jan. 7, 1997, Ser. No. 779,849

Int. Cl.^{6} A01K ***29/00;*** **B68C** ***5/00***

U.S. Cl. 119—850 **4 Claims**



1. An animal eye protecting system comprising:

a shield formed to cover a pair of eyes of an animal, said shield having;

an elongated member having a front end and a rear end,

a left member secured to a left edge of said elongated member adjacent said front end extending a finite distance towards said rear end, a right member secured to a right edge of said elongated member adjacent said front end extending a finite distance towards said rear end,

wherein said left member and said right member slant downwardly from the elongated member and away from each other,

an end member secured transversely to said first end of said elongated member and secured transversely to said left member and said right member for engaging a bridge of said animal's nose, and

wherein said end member includes a cutout concentrically positioned for receiving said bridge of said nose, said cutout positioned substantially in a vertical plane;

a left plate secured to said left member opposite of said elongated member, said left plate extending downwardly from said left member;

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a right plate secured to said right member opposite of said elongated member, said right plate extending downwardly from said right member;

a chin strap having an adjustable length, said chin strap removably coupled to said left plate at a first chin strap end and to said right plate at a second chin strap end; and

an adjustable securing means attached to said shield for securing said shield to a head of said animal; said adjustable securing means comprising:

- a plurality of coupling structures secured to said left and right plates for allowing selective positioning of said chin strap to comfortably fit on various sizes of animals;
- at least one extended member secured to said rear end of said elongated member extending parallel to said elongated member and away from said first end a finite distance;
- a neck strap secured to said extended member opposite of said elongated member for surrounding and engaging said animal's neck;
- a head strap secured to said rear end of said elongated member for substantially vertically surrounding and engaging said animal's head; and
- at least one connecting strap secured between said neck strap and said head strap.

5,785,010

COLLAR FOR HOLDING AND LEADING ANIMALS

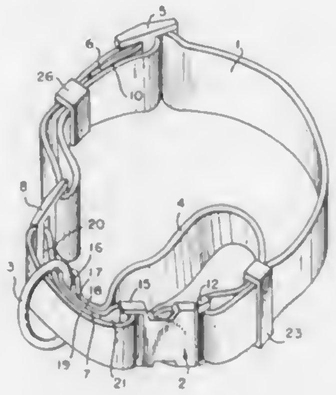
Heinrich Koch, Robert-Bosch-Strasse 9, 86899 Landsberg am Lech, Germany

Filed Jan. 24, 1997, Ser. No. 788,297

Claims priority, application Germany, Aug. 1, 1994, 9412361 U; WIPO, Jul. 31, 1995, PCT/EP95/03050

Int. Cl.⁶ A62B *33/00*

U.S. Cl. 119—863 **10 Claims**



1. A collar for holding and leading an animal having a head and neck, comprising:

(a) a flexible unitary strap (1) having first and second end portions (6, 7);

(b) means including adjustable-length means (5, 8) for connecting together said strap end portions to define a circular collar of variable endless length;

(c) quick-release clasp means (2) connected with first and second intermediate portions of said strap intermediate said end portions for temporarily reducing the size of said collar in accordance with the neck size of the animal, said quick-release clasp means being releasable to permit expansion of said collar to a size for receiving the head of the animal;

(d) said strap including a safety strap portion (4) bridging said first and second intermediate portions to maintain said collar around the neck of the animal in the event of inadvertent release of said quick-release clasp means; and

(e) fastening means (3) connected with said collar for fastening a lead thereto.

5,785,011

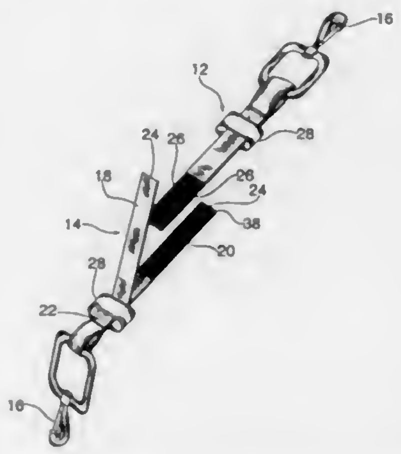
BREAK AWAY TETHER STRAP ASSEMBLY

Joseph L. Gitterman, III, 55 Shinar Mountain Rd., Washington Depot, Conn. 06794

Filed Jul. 5, 1997, Ser. No. 901,293

Int. Cl.⁶ A01K *27/00*

U.S. Cl. 119—865 **5 Claims**



1. A breakaway strap assembly for releasably restraining a movable object, comprising:

a first elongate flexible strap member having two oppositely facing elongate longitudinal surfaces thereon and having a releasable clasp at one end thereof; said first strap further having one part of a two-part flexible hook-and-loop fastener secured to at least a portion of the length of each of the said elongate longitudinal surfaces thereof;

a second elongate flexible strap having a releasable clasp coupled to one end thereof and having a bifurcated structure defining two substantially coextensive elongate strap elements that are coupled to each other at one end of each proximate to said releasable clasp and that extend therefrom to separate free ends, said strap elements being disposed in substantially parallel relationship having one face of each strap element disposed in opposed face-to-face relationship with one face of the other strap element;

each of the opposed faces of said second strap element having a second part of a two part flexible hook-and-loop fastener secured thereto for engagement with the said one part of said hook and loop fastener on said first strap; and

so that said first strap is retained between the opposed surfaces of said second strap by releasable engagement of said first and second parts of said hook-and-loop fastener.

5,785,012

ACOUSTICALLY ENHANCED COMBUSTION METHOD AND APPARATUS

Jim Parsons, Kearney, Mo.; James Joseph Schwab, Napa, Calif., and Marlin H. Anderson, Hopkinsville, Ky., assignors to BHA Group Holdings, Inc., Kansas City, Mo.

PCT No. PCT/US92/10843, § 371 Date Mar. 11, 1996, § 102(e) Date Mar. 11, 1996, PCT Pub. No. WO94/14003, PCT Pub. Date Jun. 23, 1994

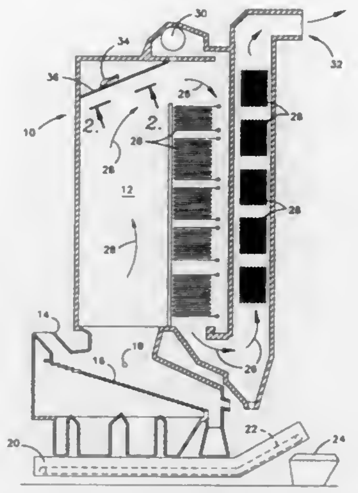
PCT Filed Dec. 15, 1992, Ser. No. 454,256

Int. Cl.⁶ F22B *15/00;25/00;37/10*

U.S. Cl. 122—235.11 **6 Claims**

1. An apparatus comprising:

a combustion chamber wherein fuels are combusted, said combustion chamber having a top wall with an aperture therein, said top wall formed of an outer layer, a layer of insulation located immediately adjacent said outer layer, a metallic sheet located immediately adjacent said insulation layer, and a layer of refractory brick located immediately adjacent said metallic sheet;



tubular water wall sections, located immediately adjacent said refractory brick layer, comprising a plurality of substantially parallel tube portions, wherein said tubular water wall sections are positioned around said aperture;

a plate, having a central opening therein, located within said aperture in said top wall; and

a horn having an enlarged mouth portion, said central opening in said plate for receiving said enlarged mouth portion of said horn, said horn adapted to direct generated acoustic energy into said combustion chamber through said aperture for enhancing the efficiency of combustion occurring in said chamber.

5,785,013

ELECTRICALLY DRIVEN COOLANT PUMP FOR AN INTERNAL COMBUSTION ENGINE

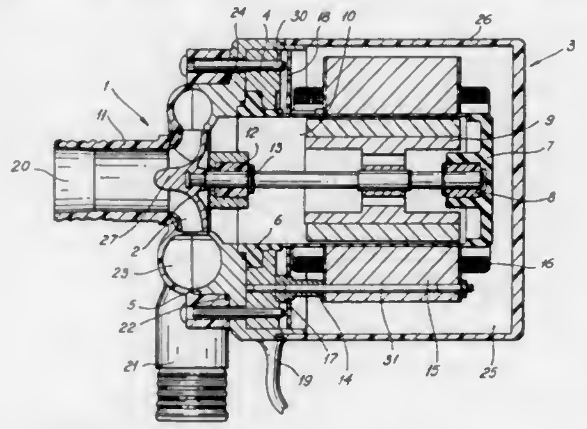
Walther Sinn, Anrath; Frank Langner, Würselen; Wolfgang Weller, Gersdorf; Wolfgang Zacher, Döbeln; Jens Teubel, Waldheim, and Ronald Rathke, Döbeln, all of Germany, assignors to Pierburg AG, Neuss, Germany

Filed Dec. 5, 1996, Ser. No. 759,425

Claims priority, application Germany, Dec. 7, 1995, 195 45 561.4

Int. Cl.⁶ F01P *5/10*

U.S. Cl. 123—41.44 **11 Claims**



1. Apparatus for pumping a coolant for cooling an internal combustion engine, said apparatus comprising:

a centrifugal pump for pumping a coolant,

electrical drive means for driving said pump,

said electrical drive means including an electrically commutated d.c. motor, and electronic circuit means connected to said d.c. motor to operate the motor in accordance with signals delivered to said electronic circuit means from an external power source, and

a cooling body operatively positioned to cool said electronic circuit means by transferring heat from said electronic circuit means to said coolant, said centrifugal pump including a pump housing and said electrical drive means including a motor having a stator with a stator housing, bolt means connecting said pump housing and said stator housing together through said cooling body,

said cooling body being connected by said bolt means to said pump housing to be cooled by the coolant pumped by the pump, said electronic circuit means being connected by said bolt means to said cooling body in heat exchange relation therewith.

5,785,014

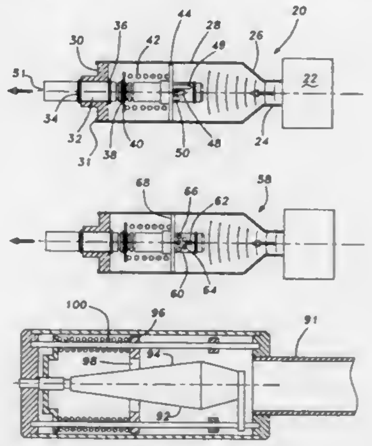
EXPANSION CHAMBER FOR TWO-CYCLE ENGINE

Gary R. Cornwell, 399445 E. River Ct., Clinton Township, Macomb County, Mich. 48038

Filed Oct. 24, 1996, Ser. No. 736,386

Int. Cl.⁶ F01N *3/00*

U.S. Cl. 123—65 PE **20 Claims**



1. An expansion chamber for a two-cycle engine comprising:

a chamber to be communicated to the exhaust of a two-cycle engine;

a closure piston moveable within said chamber, said closure piston being biased towards a closed position, increasing back pressure in said chamber moving said piston against said bias force and away from said closed position toward an open position; and

a flow cross-sectional area through said chamber increasing non-linearly as said piston moves towards said open position, said closure piston moving relative to a second member which includes a plurality of openings, the cross-sectional area of said openings in second member increasing for discrete segments of length of said second member along a direction of movement of said closure piston.

5,785,015

INTERNAL COMBUSTION ENGINE PROVIDED WITH A SYSTEM FOR DIRECT FUEL INJECTION WITH PNEUMATIC ASSISTANCE

Luc Philippe, Bell Lloch 53-54, E-17246 Santa Cristina d'Aro, and Benoit Philippe, Roca de Malvet 80, E-17246 Santa Cristina d'Aro, both of Spain

PCT No. PCT/ES95/00139, § 371 Date Sep. 20, 1996, § 102(e) Date Sep. 20, 1996, PCT Pub. No. WO96/17168, PCT Pub. Date Jun. 6, 1996

PCT Filed Nov. 24, 1995, Ser. No. 716,422

Claims priority, application France, Dec. 2, 1994, 94 14618

Int. Cl.⁶ F02B *33/06*

U.S. Cl. 123—70 R **12 Claims**

I. An internal combustion engine with one or more combustion chambers connected to an engine crankshaft, which comprises:

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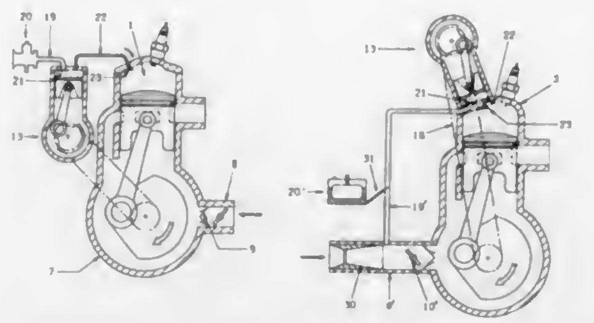


a single piston type compressor associated with each combustion chamber, wherein each compressor has successive delivery strokes each of which feeds an air-fuel mixture to the combustion chamber with which the compressor is associated, and wherein the compressor has a displacement which is distinctly lower than the displacement of the combustion chamber with which the compressor is associated;

wherein each compressor sucks via an intake pipe an air-fuel mixture and by the action of each of the delivery strokes of said compressor injects the air-fuel mixture directly into said combustion chamber through a delivery valve of said compressor placed inside said combustion chamber at the end of a delivery pipe; and

wherein each compressor is timed such that its delivery stroke ends at the latest when ignition takes place in the combustion chamber with which the compressor is associated.

5,785,016
ELECTROMAGNETIC OPERATING MECHANISM FOR GAS EXCHANGE VALVES OF INTERNAL COMBUSTION ENGINES

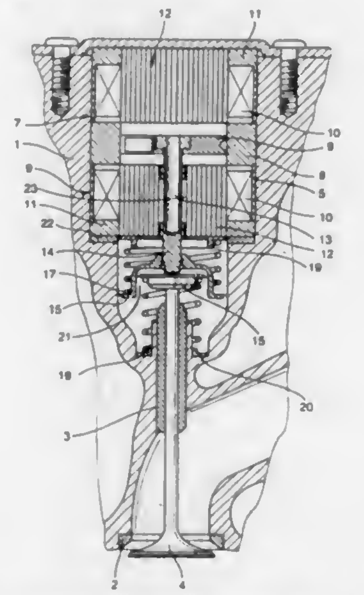
Christian Enderle, Baltmannsweiler; Jürgen Willand, Stuttgart, and Paul Wurster, Neuhengstett, all of Germany, assignors to Daimler-Benz AG, Stuttgart, Germany

Filed Apr. 18, 1997, Ser. No. 844,499

Claims priority, application Germany, Apr. 19, 1996, 196 15 435.9

Int. Cl.^{6} F01L *9/04*

U.S. Cl. 123—90.11 **9 Claims**



1. An electromagnetic operating mechanism for a gas exchange valve of an internal combustion engine capable of moving said valve between open and closed positions, said mechanism comprising:

two control magnets arranged in spaced relationship from one another in axial alignment with said valve so as to form an armature space between said control magnets, an armature axially movably disposed in said armature space and having an actuator rod extending through one of said control magnets toward said valve, and axially aligned compression springs arranged in opposition to one another, one engaging said valve so as to bias it toward a valve closing position and the other engaging said actuator rod biasing it into engagement with said valve and toward a valve opening position, said springs extending around said valve and said actuator rod outside said one control magnet.

5,785,017
VARIABLE VALVE TIMING MECHANISM

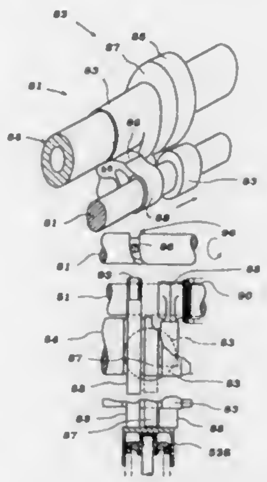
Tetsushi Saito; Hiroyuki Tsuzuku, and Naoki Tsuchida, all of Iwata, Japan, assignors to Yamaha Hatsudoki Kabushiki Kaisha, Iwata, Japan

Filed Apr. 10, 1996, Ser. No. 630,281

Claims priority, application Japan, Apr. 12, 1995, 7-086782; Jun. 22, 1995, 7-156037

Int. Cl.^{6} F01L *1/12;13/00*

U.S. Cl. 123—90.16 **29 Claims**



1. A valve operating mechanism for a reciprocating machine comprised of a poppet valve having a stem portion supported for reciprocation in an engine body, a bucket tappet having a surface engaged with the tip end of said stem portion for controlling the opening of said poppet valve and an integral operating surface, a cam shaft supported for rotation relative to sad engine body about an axis and having first and second cam lobes each associated with said bucket tappet operating surface and said poppet valve, and operating means for providing a mechanical connection between selective of said cam lobes and said bucket tappet operating surface for controlling the position of said poppet valve in response to the rotation of said cam shaft, said cam lobes and said operating means cooperating with said poppet valve for providing different lift characteristics for said poppet valve depending upon which of said cam lobes controls the position of said poppet valve.

22. A valve operating mechanism for a reciprocating machine comprised of a poppet valve supported for reciprocation along a reciprocal axis, a cam shaft rotatable about a rotational axis, said cam shaft having first and second cam lobes juxtaposed to said poppet valve, said first cam lobe being associated with said poppet valve for direct operation of said poppet valve, a follower associated with said second cam for indirect actuation of said poppet valve through said follower, said follower comprising a rocker arm supported for slidable movement between a first position wherein said rocker arm is interposed between said second cam lobe and said poppet valve and a second position wherein said rocker arm is not interposed between said second cam lobe and said poppet valve, said first cam lobe and its direct operation of said poppet valve providing a different lift for said poppet valve than said second cam lobe and said rocker arm, and means for selecting which of said cam lobes operates said poppet valve by effecting movement of said rocker arm between said positions.

5,785,018
ADUSTABLE DEVICE FOR CAM-CONTROLLED VALVE OPERATION OF A PISTON-TYPE INTERNAL COMBUSTION ENGINE

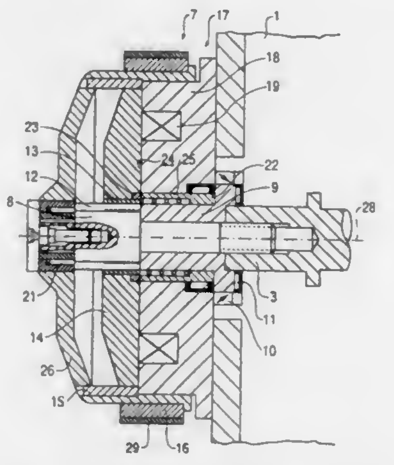
Michael Schebitz, Eschweiler, Germany, assignor to FEV Motorentechnik GmbH & Co KG, Germany

Filed Nov. 12, 1996, Ser. No. 747,595

Claims priority, application Germany, Nov. 9, 1995, 295 17 755 U

Int. Cl.^{6} F01L *1/344*

U.S. Cl. 123—90.17 **12 Claims**



1. An adjustment device for a cam-controlled valve operation in a piston-type internal combustion engine, comprising:

a camshaft adapted for actuating valves of the piston-type internal combustion engine, the camshaft having a camshaft axis and including an end having a guide surface;

a transmission element constituting a magnetic armature and arranged for being moved back and forth in a direction of the camshaft axis, the transmission element including an inner guide element opposite from and corresponding to the guide surface at the end of the camshaft and a carrier element at a radial distance from the inner guide element that meshes with a corresponding carrier surface on a drive wheel, the transmission element being arranged for being twisted coaxially and relative to the camshaft, wherein at least one of the guide surface and the carrier surface is aligned in a helical shape relative to the camshaft axis;

a stationary, switchable magnet having a pole surface facing the transmission element and presenting a magnetic force that attracts the transmission element toward the pole surface when the magnet is switched on;

a restoring means arranged along the camshaft and presenting a force urging the transmission element a way from the pole surface; and

a limit stop disposed on the camshaft for holding the transmission element at a short distance from the pole surface of the magnet and counter to the force of the restoring means when the magnet is switched on.

5,785,019
FUEL INJECTION SYSTEM FOR INTERNAL COMBUSTION ENGINE

Jiro Akagi; Masaki Takahashi; Hiroki Satow; Godo Ozawa, all of Tochigi-ken, and Noriaki Nakane, Aichi-ken, all of Japan, assignors to Komatsu Ltd., Japan

PCT No. PCT/JP95/02258, § 371 Date Apr. 29, 1997, § 102(e) Date Apr. 29, 1997, PCT Pub. No. WO96/14503, PCT Pub. Date May 17, 1996

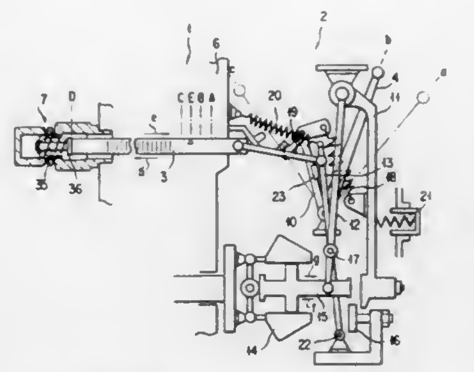
PCT Filed Nov. 6, 1995, Ser. No. 836,430

Claims priority, application Japan, Nov. 4, 1994, 6-271144

Int. Cl.^{6} F02D *31/00*

U.S. Cl. 123—365 **6 Claims**

1. A fuel injection system for an internal combustion engine comprising:



a fuel injection pump injecting a fuel in an amount corresponding to a position of a control rack;

a governor including a start spring, a control spring and an idling sub-spring biasing said control rack in a fuel injection amount increasing direction, an adjusting lever adjusting a spring load of said control spring, and a fly weight rotating together with said fuel injection pump and shifting said control rack in a fuel injection amount decreasing direction by a centrifugal force; and

a stopper mechanism restricting movement of said control rack in the fuel injection amount increasing direction, wherein

said stopper mechanism comprises a stopper opposing to an end portion of said control rack and an elastic body biasing and holding said stopper at a stop position, an elastic force of said elastic body is set to be greater than a sum of a spring load of said start spring and a spring load of said idling sub-spring while said adjusting lever is in an idling position and to be smaller than a sum of the spring load of said start spring, a spring load of said control spring and the spring load of said idling sub-spring while said adjusting lever is in partial position.

5,785,020
COMBUSTION STATE DETECTING APPARATUS FOR AN INTERNAL-COMBUSTION ENGINE

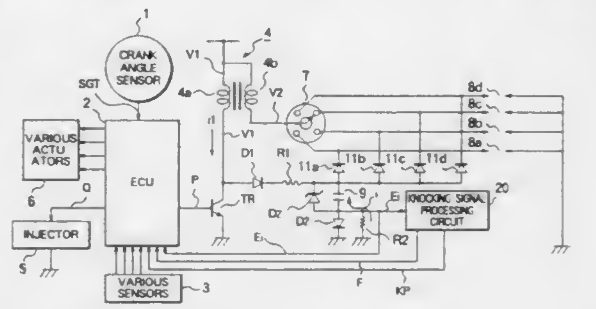
Yasuhiro Takahashi, and Wataru Fukui, both of Tokyo, Japan, assignors to Mitsubishi Denki Kabushiki Kaisha, Tokyo, Japan

Filed Jul. 9, 1997, Ser. No. 890,671

Claims priority, application Japan, Feb. 19, 1997, 9-035107

Int. Cl.^{6} F02P *5/14*

U.S. Cl. 123—425 **12 Claims**



1. A combustion state detecting apparatus for an internal-combustion engine, comprising:

an ignition coil for generating high voltage for ignition;

a spark plug for igniting a fuel-air mixture in a cylinder of the internal-combustion engine by discharging under the application of the high voltage for ignition;

an ionic current detecting circuit which includes biasing means for applying a bias voltage to the spark plug and detects, as an ionic current detection signal, the ionic current corresponding to the quantity of ions produced in the cylinder immediately after the combustion of the fuel-air mixture;

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a knocking signal processing circuit which generates a knocking signal indicative of the occurring state of knocking in the internal-combustion engine according to the ionic current detection signal; and

an ECU which computes control parameters for the internal-combustion engine and also detects the combustion state at the spark plug according to the ionic current detection signal and the knocking signal;

wherein the knocking signal processing circuit includes;

filtering means for extracting a frequency band, which corresponds to the knocking of the internal-combustion engine, from the ionic current detection signal,

an enabled/disabled detection determining means for issuing an enabled/disabled detection signal indicative of whether the detection of the knocking signal is enabled or disabled according to the ionic current detection signal, and

knocking signal switching means for rendering the output of the knocking signal effective only when the enabled/disabled detection signal indicates an enabled detection state.

5,785,021
HYDRAULICALLY ACTUATED ELECTRONIC FUEL INJECTION SYSTEM

Sergi Yudanov, Croydon Park, and William Richard Mitchell, Sylvania Waters, both of Australia, assignors to Sergi Yudanov and Invent Engineering Pty Ltd, Australia

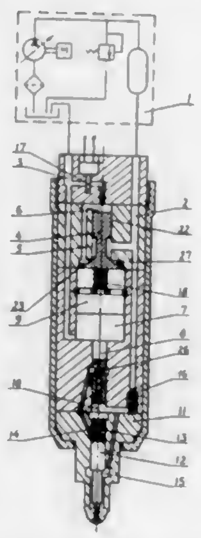
PCT No. PCT/AU95/00073, § 371 Date Nov. 12, 1996, § 102(e) Date Nov. 12, 1996, PCT Pub. No. WO95/21999, PCT Pub. Date Aug. 17, 1995

PCT Filed Feb. 15, 1995, Ser. No. 693,138

Claims priority, application Australia, Feb. 15, 1994, PM 3876; Dec. 21, 1994, PN 0176

Int. Cl.^{6} F02M *37/04*

U.S. Cl. 123—446 **15 Claims**



1. A fuel injector system for an internal combustion engine said injector system comprising an inlet port; a spill port; a pressure intensifier comprised of a piston forming a working chamber and a plunger forming a compression chamber; a nozzle with a needle, a spring biasing the needle to close the nozzle, and an outlet chamber connected to the compression chamber; a non-return valve the inlet of the non-return valve being connected to the inlet port and the outlet of the non-return valve being connected to the compression chamber; an hydraulically controlled differential valve (HDV) having a seating face located between the inlet port and the working chamber, said HDV forming a control chamber and the HDV opens towards the working chamber, said HDV using a poppet opening into the working chamber upon release from the seating face, said poppet forming a fluid flow throttling slot and a poppet chamber, wherein a flow area of the throttling slot is up to 99% less than the flow area between the HDV and the seating face during a part of the travel of the HDV, said part of the travel being up to 80% of full travel of the HDV, further wherein said poppet chamber is connected to the control chamber via a bypass channel; resilient means for biasing the HDV towards its closed position; a solenoid valve installed between the control chamber and the spill port.

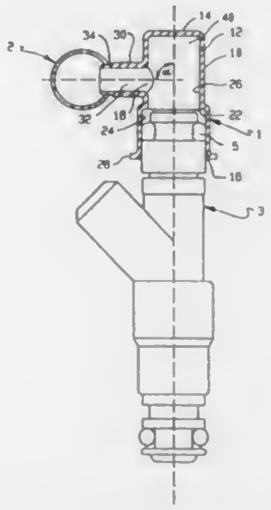
5,785,022
FUEL INJECTOR POST

William P. Haboush, II, Orion, Mich.; Roger E. Pressler, Waterloo, Ind., and Rainer G. Plamper, Huntington Woods, Mich., assignors to Epic Technical Group, Inc., Auburn Hills, Mich.

Filed May 28, 1997, Ser. No. 864,362

Int. Cl.^{6} F02M *41/00;55/02*

U.S. Cl. 123—456 **18 Claims**



1. A fuel injector post for connecting a fuel injector to a fuel rail comprising (A) a tubular body portion having a central axis and a circumferential wall, an open end for connection to a fuel injector, and an outlet associated with the circumferential wall; and (B) an adapter portion positioned at an angle α with respect to the central axis of the body portion for connection to the side of a fuel rail, the adapter portion being integral with the outlet of the tubular body portion to provide a passage in fluid communication between the tubular body portion and the fuel rail.

5,785,023
SUPERCHARGED SUPPLY FUEL CONTROL APPARATUS

Earnest C. Cross, Simi Valley, Calif., assignor to Paxton Products Inc., Camarillo, Calif.

Filed Oct. 31, 1996, Ser. No. 741,548

Int. Cl.^{6} F02M *37/04*

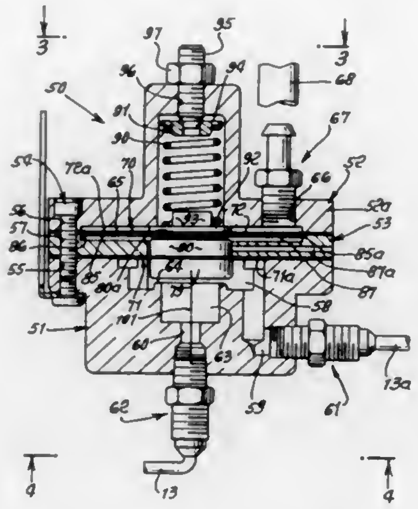
U.S. Cl. 123—463 **10 Claims**

1. The method of controlling liquid fuel pressure supplied to a supercharged internal combustion engine fueled injector or injectors, said method including:

a) providing housing means having fuel inlet and outlet ports, and a first chamber through which fuel flows in flowing to and through said ports, and through a valving port in said chamber,

b) said housing means provided to define a second chamber spaced from said first chamber,

c) providing a diaphragm assembly extending between said chambers and movable relative thereto, said assembly including a first diaphragm having a first side exposed to the first chamber, and a second diaphragm having a first side exposed to the second chamber, the second diaphragm having a second side,



d) providing means for communicating engine manifold pressure to said second diaphragm, whereby a decrease in said manifold pressure results in a reduced liquid fuel pressure delivered to said injector or injectors,

e) providing control means associated with said assembly to allow adjustment of the effective cross sectional area of the second diaphragm,

f) said providing of the control means including providing a selected size thin plate, and locating said thin plate adjacent the second side of the second diaphragm, and providing an intermediate plate to extend peripherally about the thin plate, allowing thin plate movement with the second diaphragm along an axis extending through said chambers,

g) providing adapter means extending between the diaphragms, whereby the diaphragms move together as a unit along said axis,

h) said adapter means provided to centrally underlie the thin plate whereby force is transmitted centrally between the second diaphragm and the adapter means via the thin plate, the thin plate having a central portion sandwiched between the adapter means and the second diaphragm whereby thin plates of selected different overall area may be positioned between the adapter means and the second diaphragm.

5,785,024
CYLINDER HEAD DEVICE FOR INTERNAL COMBUSTION ENGINE

Nobuo Takei; Kenjiro Hatayama, both of Kyoto; Kazuyuki Nakazato, Okazaki, and Eiji Kawazoe, Nagaokakyo, all of Japan, assignors to Mitsubishi Jidosha Kogyo Kabushiki Kaisha, Tokyo, Japan

Filed Aug. 20, 1997, Ser. No. 914,781

Claims priority, application Japan, Aug. 22, 1996, 8-221340

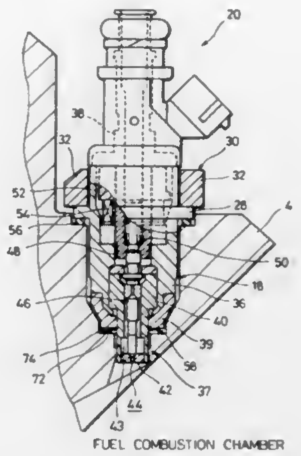
Int. Cl.^{6} F02M *55/02*

U.S. Cl. 123—470 **6 Claims**

1. A cylinder head device for an internal combustion engine including a fuel injector for directly injecting a fuel into a combustion chamber, said cylinder head device comprising:

a cylinder head including a mounting hole for receiving said fuel injector and communicated with the combustion chamber, the mounting hole having an annular stepped surface for supporting the said injector therein; and

seal means for sealing a gap between said fuel injector and the stepped surface of said mounting hole by pressing said fuel injector in said mounting hole against the stepped surface, said seal means including a ring-shaped seal member sandwiched between said fuel injector and the stepped face, said seal member having a metallic core elastically deformable in an axial direction of said mounting hole, a ring-shaped first seal region projected convexly toward said fuel injector and a ring-shaped second seal region projected convexly toward the stepped face, and elastic coating layers for covering the first and second seal regions.



5,785,025
FUEL SUPPLY FOR INTERNATIONAL COMBUSTION ENGINE

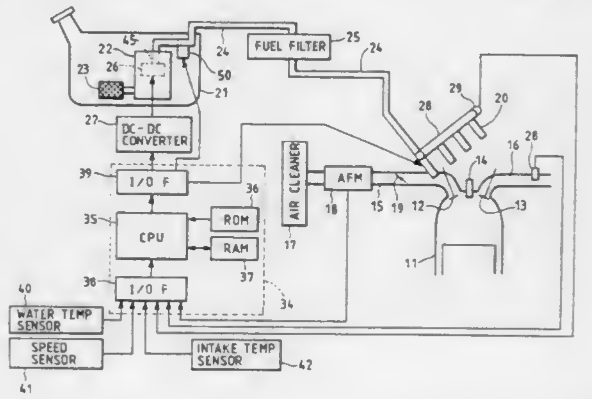
Naoki Yoshiume; Makoto Miwa, and Shigenori Isomura, all of Kariya, Japan, assignors to Nippondenso Co., Ltd., Kariya, Japan

Continuation of Ser. No. 660,938, Jun. 10, 1996, abandoned. This application Sep. 12, 1997, Ser. No. 928,401

Claims priority, application Japan, Jun. 9, 1995, 7-142756

Int. Cl.^{6} F02M *41/00;37/04*

U.S. Cl. 123—497 **8 Claims**



1. A fuel supply system for an internal combustion engine, and fuel supply system having a returnless fuel pipe arrangement in which no fuel return line is provided for returning an excessive portion of fuel, delivered under pressure from a fuel pump to a fuel injector, to a fuel tank, said fuel supply system comprising:

fuel pressure control means for controlling said fuel pump so as to converge a fuel pressure in said fuel pipe arrangement to a target fuel pressure;

a check valve provided at a fuel discharge port of said fuel pump; and

function stopping means for stopping a function of said check valve under a predetermined condition.

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5,785,026
VARIABLE VALVE TIMING MECHANISM OF ENGINE

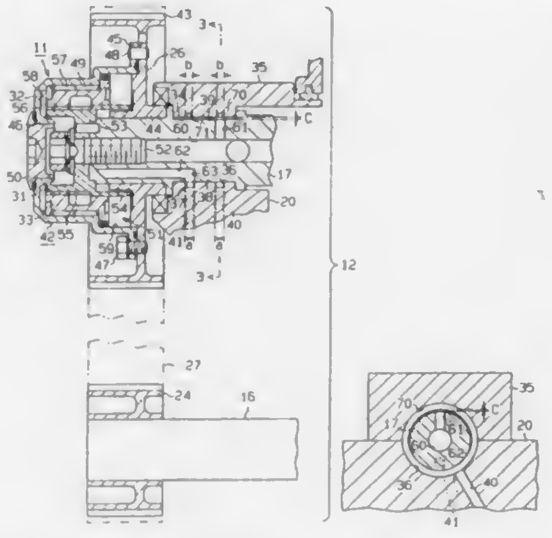
Yoshihito Moriya, Nagoya, Japan, assignor to Toyota Jidosha Kabushiki Kaisha, Toyota, Japan

Filed Apr. 4, 1997, Ser. No. 832,889

Claims priority, application Japan, Aug. 4, 1996, 8-085043

Int. Cl.⁶ F01L *1/344*

U.S. Cl. 123—90.17 **9 Claims**



1. An apparatus for adjusting the valve timing of a valve of an engine, the apparatus comprising:

a crankshaft;

a camshaft for actuating said valve, the camshaft having a journal;

a bearing for rotatably supporting said camshaft at its journal, the bearing having an inner cylindrical surface;

a rotor mounted on said camshaft, the rotor being rotatable relative to the camshaft;

a transmission means for connecting said rotor to the said crankshaft to transmit power from the engine to the rotor, wherein the transmission means applies a force to the rotor and the camshaft in a specific direction, and wherein, as a result of a net force on said camshaft, a portion of said cylindrical surface is load bearing and an opposite portion of said cylindrical surface is non-load bearing;

an actuating member for changing the relative rotational relationship between said camshaft and said rotor;

a first pressure chamber for applying a hydraulic fluid pressure to said actuating member to move said actuating member in a first direction;

a second pressure chamber for applying a hydraulic fluid pressure to said actuating member to move said actuating member in a second direction;

a first passage defined in said camshaft, the first passage being connected to said first pressure chamber;

a second passage defined in said camshaft, the second passage being connected to said second pressure chamber;

a first groove formed circumferentially in the inner cylindrical surface of said bearing, the first groove being connected to said first passage, wherein the first groove has a portion located in the load bearing portion of the cylindrical surface and a portion located in the non-load bearing portion of the cylindrical surface; and

a second groove formed circumferentially in the inner cylindrical surface of said bearing, the second groove being connected to said second passage, wherein the second groove has a portion located in the load bearing portion of the cylindrical surface and a portion located in the non-load bearing portion of the cylindrical surface; and

wherein the first and second grooves are wider in the load bearing portion of the cylindrical surface than in the non-load bearing portion of the cylindrical surface.

5,785,027
INTERNAL COMBUSTION ENGINE INTAKE AND EXHAUST SYSTEMS

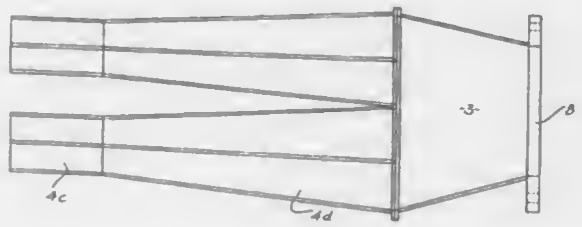
Alexander Chabry, 2/64 Market Street, Randwick New South Wales 2031, Australia

Division of Ser. No. 284,626, Aug. 11, 1994, Pat. No. 5,595,062. This application Oct. 8, 1996, Ser. No. 727,767

Claims priority, application Australia, Feb. 17, 1992, PL0916

Int. Cl.⁶ F02B *17/18*

U.S. Cl. 123—184.24 **12 Claims**



1. A reciprocating piston internal combustion engine comprising:

at least one cylinder having a cylinder wall, at least one intake port and at least one exhaust port, the ports being disposed on the cylinder wall;

at least one intake valve disposed at a corresponding intake port for regulating a flow of intake gas into the cylinder;

at least one exhaust valve disposed at a corresponding exhaust port for regulating a flow of exhaust gas out of the cylinder;

a piston in the cylinder mounted for reciprocal motion within the cylinder, the piston further being adapted to assume a bottom dead center position and a top dead center position; and

a plurality of manifold tubes comprising:

  a least one intake manifold tube connected to a corresponding intake port;

  at least one exhaust manifold tube connected to a corresponding exhaust port;

wherein each of the intake manifold tubes comprises a plurality of pipes connected end to end and including an end pipe disposed closest to a corresponding port, each of the pipes having a constant cross-section, the cross section of the pipes increasing incrementally in a direction away from the end pipe, and a tapered portion being connected to the end pipe at the exit end thereof, and to an adjacent one of the pipes at the entry end thereof; and

further including a plenum chamber device comprising an intake manifold, the intake manifold having at least one manifold outlet connected to a corresponding intake manifold tube, the plenum chamber device thereby being disposed upstream of and in flow communication with the intake port.

5,785,028
INTERNAL COMBUSTION ENGINE WITH SPARK IGNITION AND DIRECT CYLINDER FUEL INFECTION

Richard Walter Anderson, Ann Arbor; Diana Dawn Brehob, Dearborn; James Kirkland Vallance, Northville; Robert M. Whiteaker, and Jialin Yang, both of Canton, all of Mich., assignors to Ford Global Technologies, Inc., Dearborn, Mich.

Continuation of Ser. No. 225,268, Apr. 8, 1994, abandoned. This application Jun. 19, 1996, Ser. No. 667,999

Int. Cl.⁶ F02D *5/00*

U.S. Cl. 123—193.3 **18 Claims**

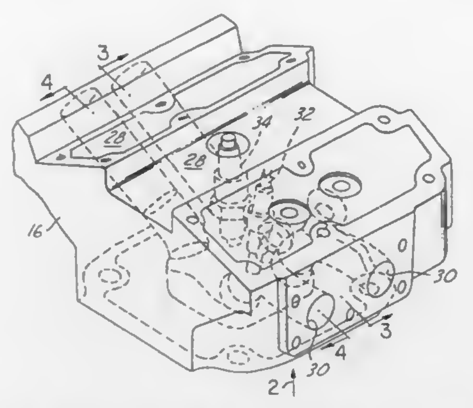
1. A reciprocating, multicylinder internal combustion engine, with each cylinder comprising:

a cylinder block having a piston reciprocably housed in a cylindrical bore formed therein, with the cylinder bore having a central axis;

a cylinder head mounted to said cylinder block so as to close the outer end of the cylinder bore;

a combustion chamber defined by the cylinder head and The top of the piston;

at least one intake valve mounted within the cylinder head;



at least one exhaust valve mounted within the cylinder head; a spark plug and a fuel injector projecting through the fire deck of the cylinder head and into the combustion chamber within a common region extending between the intake and exhaust valves, with the spark plug and the injector being disposed such that the spark plug is closer to said at least one exhaust valve than is the injector, and the injector is closer to said at least one intake valve than is the spark plug, wherein the spark plug and fuel injector are mounted within a single boss located about the central axis of the cylinder and extending upwardly from the fire deck of the cylinder head, with the cylinder head further comprising a single passage completely surrounding said boss for circulating engine coolant thereabout; and

at least one intake port formed within the cylinder head, with said port comprising a passage having a generally circular section at the intake manifold mounting surface, with the passage transitioning to a non-circular shape of reduced sectional area at the location of the intake valve guide, and with the passage area increasing downstream of the valve guide according to a diffuser angle of 7° to 8° while transitioning to a circular section at the valve seat.

5,785,029
RECIPROCATING PISTON ENGINE, ESPECIALLY INTERNAL COMBUSTION ENGINE, WITH HYPCYCLOIDAL SHAFT DRIVE

Gert Fischer, Feldafing, Germany, assignor to Bayerische Motoren Werke Aktiengesellschaft, Munich, Germany

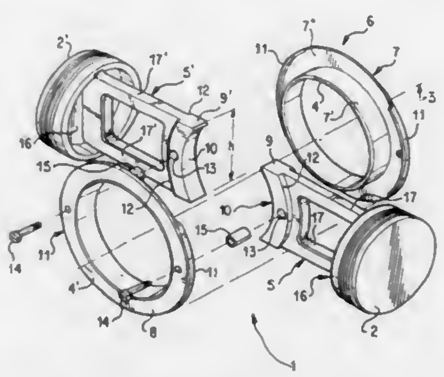
PCT No. PCT/EP96/00632, § 371 Date Aug. 14, 1997, § 102(e) Date Aug. 14, 1997, PCT Pub. No. WO96/25588, PCT Pub. Date Aug. 22, 1996

PCT Filed Feb. 14, 1996, Ser. No. 894,210

Claims priority, application Germany, Feb. 14, 1995, 195 04 891.1

Int. Cl.⁶ F02B *75/22*

U.S. Cl. 123—197.3 **17 Claims**



1. Reciprocating engine with a hypocycloid crank drive,

said engine comprising an eccentric rod connected at both ends with pistons in diametrically opposed cylinders,

said eccentric rod having a bearing opening in a central part located parallel to a crankshaft rotary axis, for rotary-movable acceptance of a stroke eccentric of the hypocycloid crank drive,

said eccentric rod comprising a plurality of rod sections that are movably mounted to the central part at an angle around said bearing opening.

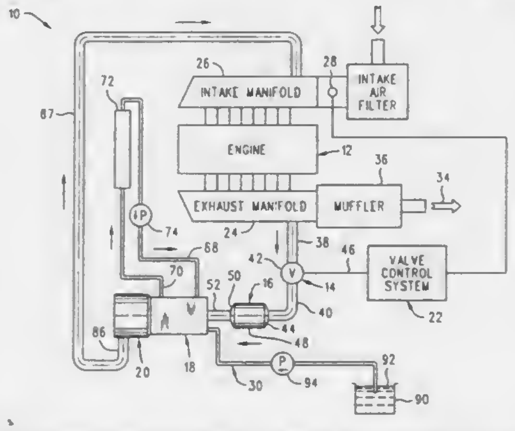
5,785,030
EXHAUST GAS RECIRCULATION IN INTERNAL COMBUSTION ENGINES

Norbert Paas, Louisville, Colo., assignor to Dry Systems Technologies, Louisville, Colo.

Filed Dec. 17, 1996, Ser. No. 768,985

Int. Cl.⁶ F02M *25/07;* **F01N** *3/02*

U.S. Cl. 60—278 **16 Claims**



1. An exhaust gas recirculation system for an internal combustion engine, the internal combustion engine including an intake manifold and an exhaust manifold, comprising:

a first valve having an inlet end and an outlet end, the inlet end being connected to the exhaust manifold;

a heat exchanger having an inlet end and an outlet end, the inlet end of said heat exchanger being connected to the outlet end of said first valve;

a filter having an inlet end and an outlet end, the inlet end of said filter being connected to the outlet end of said heat exchanger, and the outlet end being connected to the intake manifold of the engine;

a valve control system connected to said first valve for selectively opening and closing said first valve, wherein cooled and filtered exhaust gases are recirculated into the intake manifold when said first valve is open; and

an intermittent water injection system connected at about the inlet end of said heat exchanger for injecting into exhaust gases from the engine a predetermined quantity of water at periodic time intervals, wherein the predetermined quantity of water flashes to steam and creates a pressure pulse which dislodges solid particulate matter that has accumulated within said heat exchanger.

5,785,031
COMBUSTION CONTROL SYSTEM FOR IN-CYLINDER FUEL INJECTION ENGINE AND THE METHOD THEREOF

Akira Akimoto, Masashino, and Fujio Takimoto, Ichikawa, both of Japan, assignors to Fuji Jukogyo Kabushiki Kaisha, Tokyo, Japan

Filed Jun. 20, 1997, Ser. No. 880,017

Claims priority, application Japan, Jul. 15, 1996, 8-184770

Int. Cl.⁶ F02B *17/00;* **F02D** *41/06;* **F02M** *45/00*

U.S. Cl. 123—295 **6 Claims**

1. A combustion control system for an automobile in-cylinder fuel injection engine having a combustion chamber formed by a

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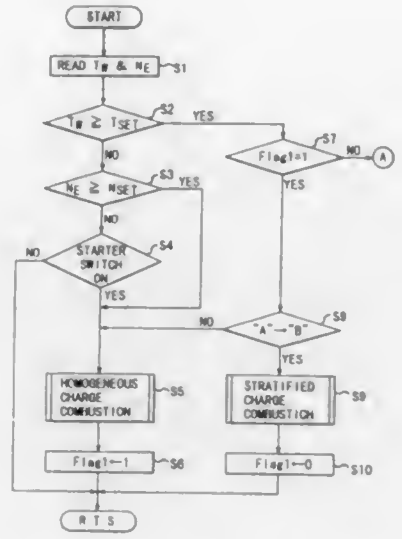


cylinder, a piston and a cylinder head, an engine temperature sensor for detecting an engine temperature, a fuel injector provided in said cylinder head for directly injecting fuel from an injection nozzle thereof into said combustion chamber and a spark plug provided in said cylinder head with an electrode thereof located near said injection nozzle, said combustion control system capable of switching a combustion strategy from a homogeneous charge combustion mode where a homogeneous charge combustion is performed to a stratified charge combustion mode where a stratified charge combustion is performed and vice versa according to an engine operating condition, comprising:

stratified combustion area establishing means for establishing a stratified combustion area where said stratified charge combustion is performed in an overall engine operating area of said engine;

homogeneous charge combustion establishing means for establishing said combustion strategy at starting said engine to be said homogeneous charge combustion mode when said engine temperature is lower than a predetermined temperature and for holding said homogeneous charge combustion mode until said engine operating condition returns to said stratified combustion area again; and

stratified charge combustion establishing means for establishing said combustion strategy during engine warm-up to be said stratified charge combustion mode when said engine temperature is equal to or larger than said predetermined temperature and at least when said engine operating condition returns to said stratified combustion area and for establishing said combustion strategy after warming-up to be said stratified charge combustion mode when said engine operating condition stays in said stratified combustion area.

5,785,032

FUEL SUPPLY SYSTEM

Keiichi Yamashita, Kariya; Kouji Izutani, Nagoya; Kingo Okada, and Hideto Takahashi, both of Kariya, all of Japan, assignors to Nippondenso Co., Ltd., Kariya, Japan

Filed Aug. 8, 1996, Ser. No. 694,118

Claims priority, application Japan, Feb. 3, 1995, 7-017308

Int. Cl.^{6} F02M *37/04*

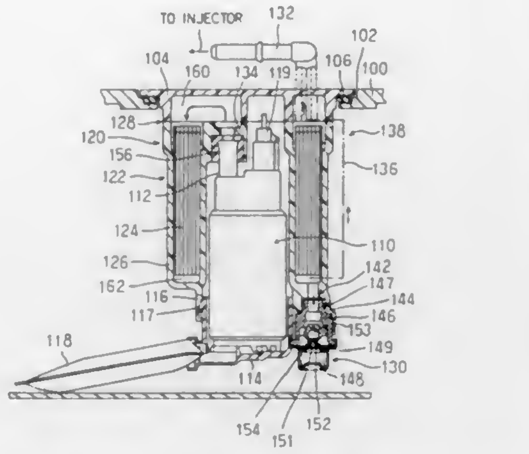
U.S. Cl. 123—509 **34 Claims**

1. A fuel supply system for supplying fuel to a fuel consuming unit, said fuel supply system comprising:

holding members holding a fuel pump having a metal case, a fuel filter element and also forming a housing containing said fuel filter element while holding said fuel pump;

said holding members having a first housing portion and a second housing portion, both connected to each other to form said housing;

said first housing portion being made of insulating resin;



said second housing portion being made of conductive resin material and contacting said metal case; and

a plurality of terminal pins for electric supply to said fuel pump insert-molded into said first housing portion made of said insulating material;

said first housing portion and said second housing portion being welded together thereby dissipating static electricity from said filter element through said second housing portion to the metal case of said fuel pump.

5,785,033

AIR/FUEL RATIO CONTROL APPARATUS

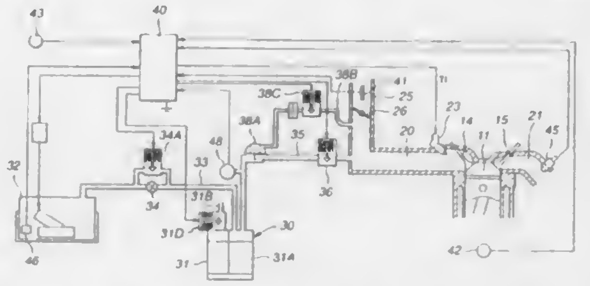
Yutaka Kawamoto; Atsushi Iochi, and Hiroshi Kuriki, all of Yokohama, Japan, assignors to Nissan Mntor Co., Ltd., Kanagawa, Japan

Division of Ser. No. 689,116, Jul. 30, 1996, Pat. No. 5,694,911, which is a division of Ser. No. 434,799, May 4, 1995, Pat. No. 5,623,914. This application Nov. 20, 1996, Ser. No. 752,883

Claims prinrity, application Japan, May 9, 1994, 6-95344; Jun. 30, 1994, 6-149625

Int. Cl.^{6} F02M *25/08*

U.S. Cl. 123—520 **7 Claims**



1. A subsystem for identifying leakage in a system supplying a gaseous mixture, including fuel evaporated in a fuel tank, from an accumulation container to a combustion chamber of an internal combustion engine, comprising:

a first passageway for directing a flow of said gaseous mixture between said container and said combustion chamber;

a pressure sensor disposed in said first passageway for sensing a pressure in said first passageway;

a temperature sensor disposed in said fuel tank for sensing a temperature of fuel in said fuel tank;

a first valve disposed in said first passageway and downstream from said pressure sensor for prohibiting the supply of the gaseous mixture to said combustion chamber; and

a processor for determining if a first sensed pressure exceeds a first threshold pressure, to thereby identify leakage in said valve;

wherein said first sensed pressure is sensed with said first valve closed and with said sensed temperature exceeding a threshold temperature.

5,785,034

EXHAUST GAS RECIRCULATION APPARATUS WITH A CLOSING ELEMENT ACTUATABLE IN THE INTAKE CONDUIT

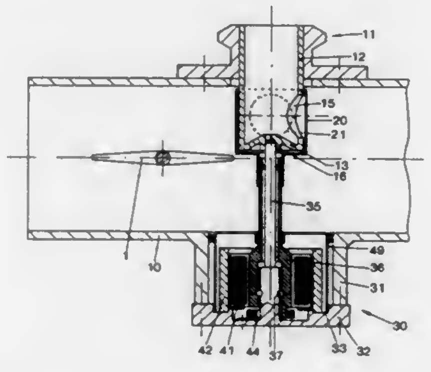
Hermann Moedinger, Weinstadt, and Thomas Linke, Waiblingen, both of Germany, assignors to Robert Bosch GmbH, Stuttgart, Germany

Filed Aug. 29, 1997, Ser. No. 894,834

Claims priority, application Germany, Dec. 29, 1995, 195 49 107.6

Int. Cl.^{6} F02M *25/07*

U.S. Cl. 123—568 **3 Claims**



1. An apparatus for exhaust gas recirculation having an exhaust gas delivery conduit connected to an intake conduit, wherein the exhaust gas delivery conduit in the intake conduit is openable and closable via a closing element actuated by an adjusting drive comprising,

an exhaust gas delivery tube (**12**) having a substantially cylindrical wall, as part of an exhaust gas delivery neck (**11**) that protrudes into the intake conduit (**10**) approximately perpendicular to a fresh gas stream;

the exhaust gas delivery tube (**12**) has an outlet opening (**15**) in the cylindrical wall;

the closing element is a rotary slide bell (**20**), which at least regionally surrounds the exhaust gas delivery tube (**12**) that protrudes into the intake conduit (**10**); and

the rotary slide bell (**20**) is coupled with an electric pivoting motor (**30**) acting as an adjusting drive.

5,785,035

IGNITION DEVICE WITH SERIES GAP HAVING SHIELDING CASE

Tetsuya Mitani, Susono; Shigehiko Mochizuki, and Hiroshi Suzuki, both of Gotenba, all of Japan, assignors to Yazaki Corporation, Tokyo, Japan

Continuation of Ser. No. 350,010, Nov. 29, 1995, abandoned. This application Nov. 25, 1996, Ser. No. 755,654

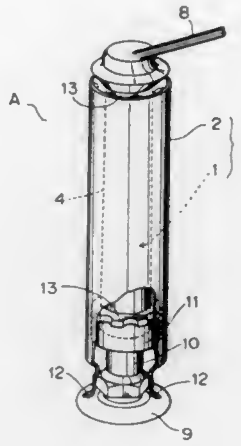
Claims priority, application Japan, Nov. 30, 1993, 5-299881; Nov. 22, 1994, 6-287869

Int. Cl.^{6} F02P *11/00*

U.S. Cl. 123—633 **16 Claims**

1. An ignition device with a series gap, comprising:

a plug cap including therein a discharge tube, said discharge tube having a pair of electrodes which form a series gap therebetween, said plug cap provided between a high tension cord and a spark plug for applying a high voltage to said spark plug; and



a tubular shielding case means encircling said discharge tube with a predetermined uniform space therefrom for preventing an ambient electric field from affecting a discharge characteristic of said discharge tube and holding the discharge characteristic thereof stable, said tubular shielding case means having means for connection to ground potential; said means for connection to ground potential comprising an abutment lug formed on said tubular shielding case means, said lug being resiliently abutted against a cylinder head.

5,785,036

ENGINE CONTROL SYSTEM

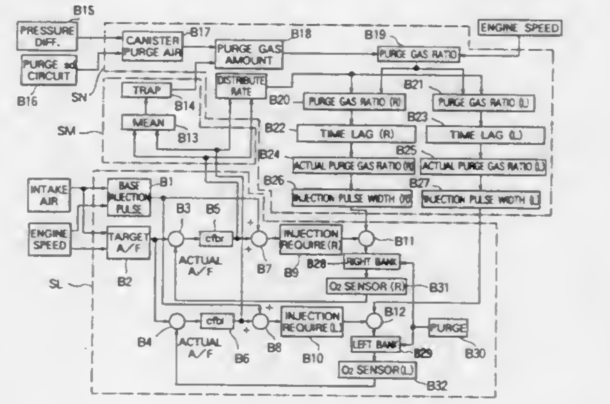
Hiroshi Ninomiya; Kouji Endo; Susumu Inoue, all of Hiroshima, and Yuji Shitani, Hatsukaichi, all of Japan, assignors to Mazda Motor Corporation, Hiroshima, Japan

Filed Sep. 24, 1996, Ser. No. 718,839

Claims priority, application Japan, Sep. 26, 1995, 7-247570

Int. Cl.^{6} F02D *41/00*

U.S. Cl. 123—673 **32 Claims**



1. A control system for a multiple cylinder engine comprising:

a vapor fuel introduction system for introducing a vapor fuel vaporized in a fuel tank into a common intake passage;

air fuel ratio detecting means for detecting an air fuel ratio in an intake passage for each cylinder or each group of cylinders of the engine downstream of the common intake passage;

feedback means for executing a feedback control with regard to a fuel supply amount based on an air fuel ratio feedback compensation value which is determined based on a difference between an output of the detection means and a target air fuel ratio for each cylinder or each group of cylinders of the engine so that the air fuel ratio of each cylinder or each group of cylinders is controlled to the target air fuel ratio; and

fuel supply means for supplying an engine fuel for each cylinder so as to equalize the air fuel ratio feedback compensation values of each of the cylinders or each group of the cylinders during an introduction of the vapor fuel.

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FUEL METERING CONTROL SYSTEM FOR INTERNAL ·COMBUSTION ENGINE

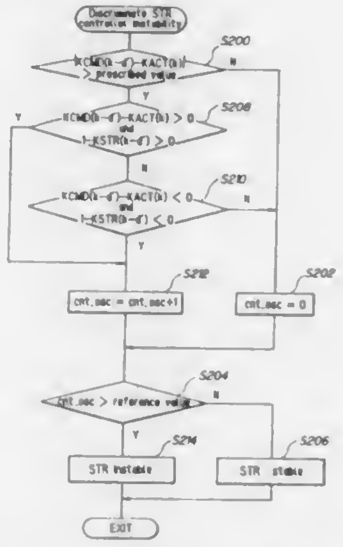
Hidetaka Maki, and Shusuke Akazaki, both of Wako, Japan, assignors to Honda Giken Kogyo Kabushiki Kaisha, Tokyo, Japan

Filed Feb. 23, 1996, Ser. No. 602,112

Claims priority, application Japan, Feb. 25, 1995, 7-061665

Int. Cl.^{6} F02D *41/14*

U.S. Cl. 123—684 **60 Claims**


Discriminate STR controller instability
S200
|KCMD(k-d')-KACT(k)| > prescribed value
N
Y
S208
KCMD(k-d')-KACT(k) > 0 and 1-KSTR(k-d') > 0
S210
KCMD(k-d')-KACT(k) < 0 and 1-KSTR(k-d') < 0
N
Y
S212
cnt_osc = cnt_osc+1
S202
cnt_osc = 0
S204
cnt_osc > reference value
N
Y
S214
S206
STR instable
STR stable
EXIT

1. A system for controlling fuel metering for an internal combustion engine having a plurality of cylinders and an exhaust system, said system comprising:

an air/fuel ratio sensor installed in said exhaust system of the engine for detecting an air/fuel ratio of the engine;

engine operating condition detecting means for detecting engine operating conditions including at least engine speed and engine load;

fuel injection quantity determining means, operatively coupled to said engine operating condition detecting means, for determining a basic quantity of fuel injection for a cylinder of the engine based on at least the detected engine operating conditions;

a feedback system having an adaptive controller and an adaptation mechanism, said adaptation mechanism receiving a controlled variable based on at least an output of said air-fuel ratio sensor and past values of a feedback correction coefficient and estimating controller parameters that are input to the adaptive controller, said adaptive controller receiving the controlled variable and the past values of the feedback correction coefficient, and, based upon the input controller parameters calculating the feedback correction coefficient to correct the basic quantity of fuel injection, such that the controlled variable is brought to a desired value;

output fuel injection quantity determining means operatively coupled to said fuel injection quantity determining means and said feedback system, for determining an output quantity of fuel injection, said output fuel injection quantity determining means correcting the basic quantity of fuel injection based on the feedback correction coefficient to determine the output quantity of fuel injection when engine operation is in a feedback control region; and

a fuel injector means operatively coupled to said output fuel injection quantity determining means, for injecting fuel in the cylinder of the engine based on the determined output quantity of fuel injection;

wherein:

a comparing means is provided for comparing the feedback correction coefficient with the detected air/fuel ratio in terms of phase; and

a feedback system instability discriminating means is provided and operatively coupled to said feedback system, for discriminating whether said feedback system is instable based on a result of the comparison, said feedback system instability discriminating means causing said adaptation mechanism to estimate the controller parameters such that the feedback system restores stability when the feedback system is discriminated to be instable.

5,785,038

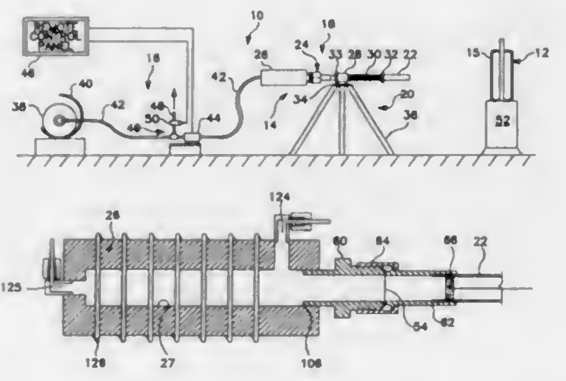
CANNON FOR DISARMING AN EXPLOSIVE DEVICE

Charles C. Mattern, Clermonte, Fla., assignor to Earth Resources Corporation, Ocoee, Fla.

Division of Ser. No. 520,792, Aug. 30, 1995, which is a continuation-in-part of Ser. No. 119,717, Sep. 10, 1993, Pat. No. 5,460,154. This application May 14, 1996, Ser. No. 645,704

Int. Cl.^{6} F41B *9/00*

U.S. Cl. 124—56 **17 Claims**



1. A method for propelling a projectile substance comprising the steps of:

inserting the projectile substance into a bore of a barrel;

attaching a rupture disk to a first end of the barrel;

coupling the first end of the barrel to a first end of a reservoir having a chamber, wherein the rupture disk forms a seal between the bore and the chamber;

at least partially filling the chamber with a liquid; and

heating the liquid to increase the pressure within the chamber until a sufficient pressure is attained within the chamber to rupture the rupture disk and propel the projectile substance out of the barrel.

15. An apparatus for propelling a projectile substance comprising:

a barrel having a bore therethrough from which the projectile substance is propelled;

a reservoir having a chamber therein and having a first end connected to a first end of said bore of said barrel;

a rupture disk disposed between said chamber and said bore to prevent communication between said chamber and said bore, until a pressure in said chamber causes said rupture disk to rupture; and

a heating coil disposed about an exterior surface of said reservoir, wherein when said heating coil is energized, a cryogenic liquid in said chamber is heated, thereby causing a pressure in said chamber to rupture said rupture disk.

5,785,039

SINGLE-CRYSTALLINE DIAMOND TIP FOR DRESSER AND DRESSER EMPLOYING THE SAME

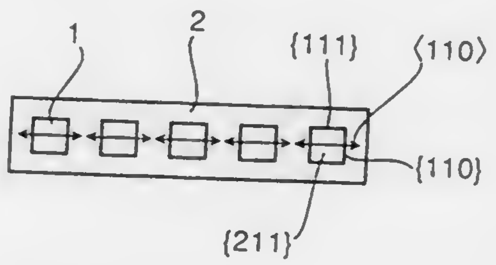
Yutaka Kobayashi, and Akito Yoshida, both of Hyogo, Japan, assignors to Sumitomo Electric Industries, Ltd., Osaka, Japan

Filed Oct. 29, 1996, Ser. No. 739,450

Claims priority, application Japan, Nov. 29, 1995, 7-310314

Int. Cl.^{6} B24B *53/12*

U.S. Cl. 125—39 **7 Claims**



1. A single-crystalline diamond tip for a dresser comprising a single-crystalline diamond having a bar shape with a longitudinal direction, an end surface extending perpendicular to said longitudinal direction, and side surfaces extending along said longitudinal direction, wherein said end surface includes a {211} crystal plane, and a first opposite pair of said side surfaces include {111} crystal planes.

5,785,040

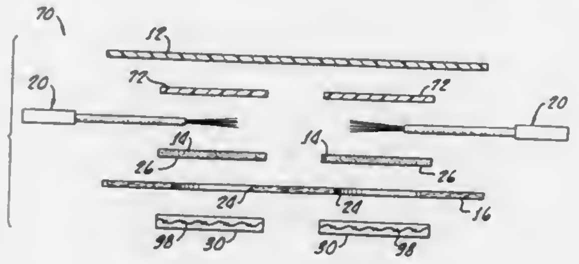
MEDICAL ELECTRODE SYSTEM

Jens Axelgaard, 811 Tumbleweed Ln., Fallbrook, Calif. 92028

Division of Ser. No. 3,120, Jan. 11, 1993, Pat. No. 5,450,845. This application Sep. 19, 1995, Ser. No. 530,689

Int. Cl.^{6} A61B *5/04;* **A61N** *1/04*

U.S. Cl. 128—640 **10 Claims**



1. A medical electrode system comprising:

a washable electrically non-conductive backing material;

a washable flexible electrically conductive patch disposed on the backing material;

a lead wire electrically connected to the patch;

an electrically non-conductive facing material disposed over the patch, the facing material including means, defining an aperture therein, for exposing a portion of the patch, said aperture having a maximum dimension smaller than a minimum dimension of the patch; and

separate and disposable electrically conductive gel means for releasably coupling the patch to a body part, the gel means having a minimum dimension larger than the aperture maximum dimension and formed from a material enabling the gel means to be removed, intact, from said body part and patch, the gel means being sufficiently transparent in order to enable visual alignment therethrough and facilitate positioning of the gel means over said aperture.

5,785,041

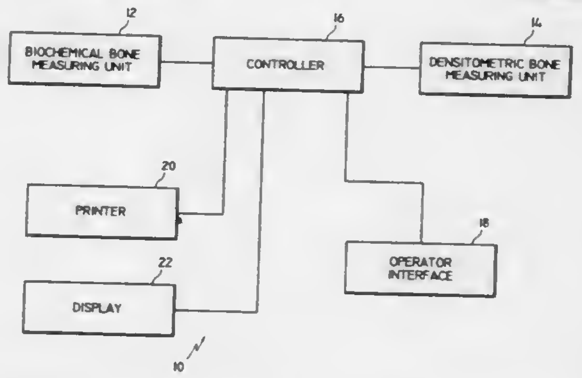
SYSTEM FOR ASSESSING BONE CHARACTERISTICS

Joel B. Weinstein, Framington, and Donald Barry, Norwood, both of Mass., assignors to Hologic Inc., Waltham, Mass.

Filed Mar. 26, 1996, Ser. No. 622,030

Int. Cl.^{6} A61B *5/05*

U.S. Cl. 128—653.1 **12 Claims**


12
16
14
BIOCHEMICAL BONE MEASURING UNIT
CONTROLLER
DENSITOMETRIC BONE MEASURING UNIT
20
PRINTER
18
OPERATOR INTERFACE
22
DISPLAY
10

1. A bone measuring system, which comprises:

a computer;

a biochemical bone measuring unit coupled to said computer and configured to obtain bone characteristic data including bone turnover data from a strip sample and to transfer said bone characteristic data to said computer; and

a densitometric bone measuring unit coupled to said computer and configured to measure bone characteristic data including bone mass data, and to transfer said bone characteristic data to said computer.

5,785,042

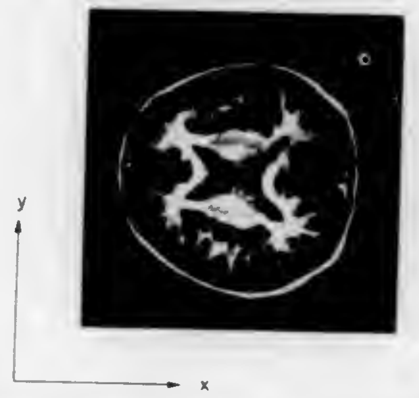
MAGNETIC RESONANCE IMAGING METHOD PROVIDING FOR CORRECTION OF STRIATION ARTIFACTS

Yi-Hsuan Kao, Durham, N.C., assignor to Duke University, Durham, N.C.

Filed Feb. 14, 1995, Ser. No. 388,614

Int. Cl.^{6} A61B *5/055*

U.S. Cl. 128—653.2 **21 Claims**



1. A method for correcting striation artifacts generated in a magnetic resonance imaging method comprising:

(A) generating by magnetic resonance imaging methodology and storing in a computer memory (i) complex raw data, having real components and imaginary components, and (ii) a first image of a selected body area, with the first image reconstructed from the raw data,

the raw data being collected in a spatial-frequency domain of the first image of the body area, and the raw data including corrupted data points such that the first image has striation artifacts thereon;

(B) selecting a homogenous material region, having real components and imaginary components;

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(C) communicating the real and imaginary components of the homogenous material region to the computer memory for correction;
(D) subjecting the real and imaginary components of the homogenous material region to a Fourier transform detection process, whereby the corrupted data points in the raw data are detected;
(E) communicating the detected corrupted data points to the computer memory and storing them therein; and
(F) subjecting the detected corrupted data points to a Fourier transform correction process to remove striation artifacts, and generating from the computer memory a corrected second image essentially free of striation artifacts.

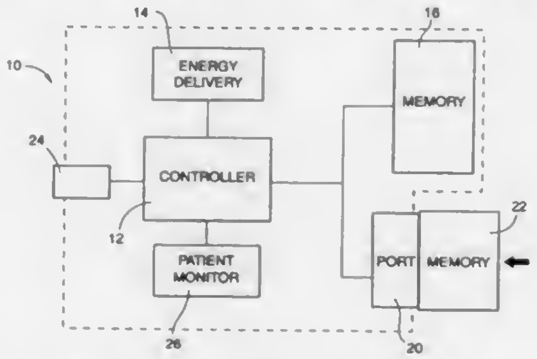
5,785,043
METHOD OF CREATING A REPORT SHOWING THE TIME CORRELATION BETWEEN RECORDED MEDICAL EVENTS

Judith L. Cyrus, Preston; Garry R. Gordon, Issaquah, and Clinton S. Cole, Seattle, all of Wash., assignors to Heartstream, Inc., Seattle, Wash.

Continuation-in-part of Ser. No. 314,395, Sep. 28, 1994, Pat. No. 5,549,115. This application May 16, 1996, Ser. No. 648,778

Int. Cl.^{6} A61B *5/044*

U.S. Cl. 128—712 **4 Claims**



1. A method of creating a report showing the time correlation between recorded medical events, the method comprising the steps of:
connecting a memory device to a display device, the memory device comprising a clock, event data and time data;
retrieving event data and time data from the memory device;
reading a memory device time from the memory device clock;
using the memory device time and the time data to associate time with the event data; and
creating a report showing time correlation between the event data.

5,785,044
FLUID SAMPLE RECEPTACLE

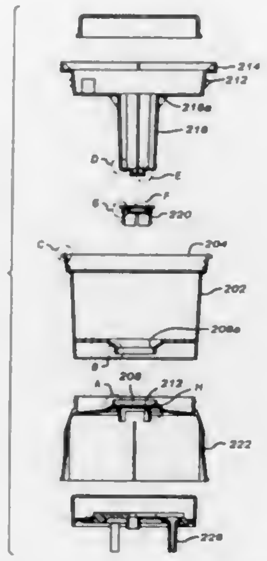
James W. Meador; Thomas L. Kraft, both of Houston, Tex.; David O'Bryan, Kennett Square, Pa.; John F. Berry; Thomas G. Miller, both of Houston, Tex.; Norman Hugh Smith, Bothell, Wash.; William S. Schnorr, Pittsburgh, Pa.; Christopher T. Nikirk, Houston, Tex.; Louis A. Waters, Jr., Bellaire, Tex., and Sean M. Donnelly, Houston, Tex., assignors to KVM Technologies, Inc., Houston, Tex.

Continuation of Ser. No. 180,872, Jan. 11, 1994, abandoned, which is a continuation-in-part of Ser. No. 27,860, Mar. 8, 1993, abandoned. This application Apr. 18, 1996, Ser. No. 634,521

Int. Cl.^{6} A61B *19/00*

U.S. Cl. 128—760 **41 Claims**

1. A fluid sample receptacle comprising:
a. an upper sample chamber having an upper access opening;



b. a lower sample chamber releasably engaged with the upper sample chamber, said lower sample chamber including a variable volume bellows and a closed openable access aperture;
c. a flow passage connecting said upper and lower chambers to conduct fluid from the upper sample chamber to the lower sample chamber; and
d. a receptacle closure and seal, engageable with the upper sample chamber and with the receptacle adjacent the flow passage to close and seal said upper access opening and to close and seal the flow passage.

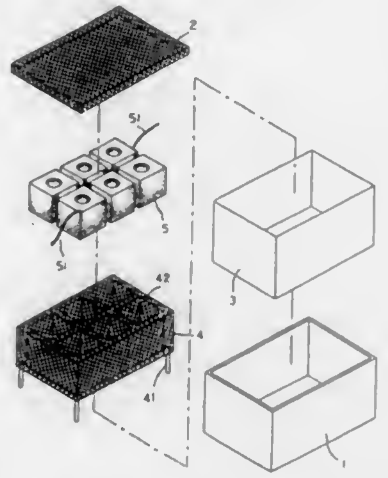
5,785,045
DISPOSABLE BARBECUE SET

Jan-Mao Chen, RM. 5C01, No. 5, Hsin-Yi Rd. Sec.5, Taipei, Taiwan

Filed Jan. 16, 1997, Ser. No. 783,450

Int. Cl.^{6} F24C *1/16*

U.S. Cl. 126—9 A **1 Claim**



1. A disposable Barbecue Set comprising an outer case, a heat-insulation inner paper wall, a supporting stand, a plurality of synthetic charcoal blocks, and a gridiron;
said outer case being a hollow cuboid made of corrugated paper and being wrapped by a shrinked plastic film before being unpacked for use;
said heat-insulation inner paper wall being fittly disposed inside said outer case;
said supporting stand being positioned inside said inner heat-insulation paper wall and having a cuboid body made of woven steel wires and four legs, said cuboid body being partitioned into several compartments;
said synthetic charcoal blocks being combustible and being provided with ignition fuses connecting said synthetic charcoal blocks together, said synthetic charcoal blocks being separately positioned in said compartments of said supporting stand; and
said gridiron being covered on a top of said outer case to serve as a top cover to close the other parts of said Barbecue Set inside said outer case before said Barbecue Set is unpacked for use and as a means for receiving food to be grilled when said shrinked plastic film of said Barbecue Set is removed;
whereby said disposable Barbecue Set can be conveniently, safely, and sanitarily used to grill food.

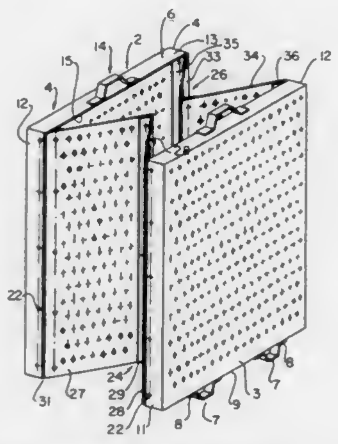
5,785,046
PORTABLE FIRE PIT

Gregory D. Colla, 879-D S. McGlincey La., Campbell, Calif. 95008

Filed Aug. 9, 1996, Ser. No. 694,519

Int. Cl.^{6} F24C *1/16*

U.S. Cl. 126—9 R **10 Claims**



1. A portable collapsible fire pit amendable to portability and storage in collapsed condition and susceptible to selective extension for use in a selected location as either a fire pit or a barbecue grill, comprising:
a) a four-sided housing having front, rear, left and right side wall selectively defining and enclosing on four sides a cubicle space within which flammable fuel may be disposed and ignited to generate flames;
b) two of said four side walls of the housing comprising unitary quadrilateral front and rear parallel metallic panels confronting one another and having top, bottom, left and right edge portions;
c) the remaining left and right side walls each comprising a pair of quadrilateral metallic side wall panel portions pivotally connected to one another and selectively movable between a collapsed condition in which said side wall panel portions of each pair are parallel to one another and an extended condition in which said side wall panel portions lie in a common plane, corresponding side wall portions of each said pair thereof pivotally connected to said left and right edge portions of said confronting front and rear metallic panels;
d) whereby said first mentioned front and rear metallic wall panels may be selectively movable between a collapsed condition in which said front and rear parallel metallic panels and said pairs of pivotally connected side wall panel portions lie in relatively close parallel juxtaposition, and an extended condition in which said front and rear parallel panels lie spaced apart a distance correlated to the extended width of said pairs of pivotally connected side wall panel portions each of which in extended condition lie perpendicular to said front and rear wall panels;
e) said front and rear side wall metallic panels including mutually reaching mounting flanges on their top, bottom, left and right edge portions; and
f) a food supporting foraminous grilling rack detachably mounted on the top mounting flanges of said front and rear side wall panels when said housing is in extended position of use.

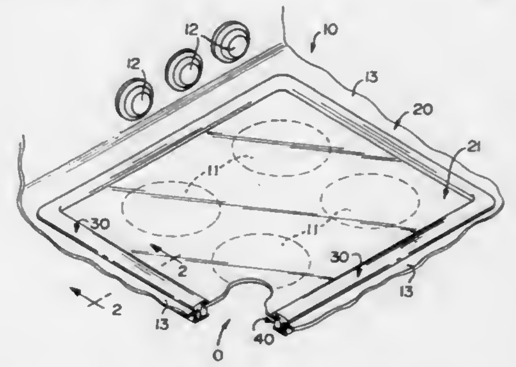
5,785,047
COOKTOP OR HOB TOP INCLUDING A PLANAR PANEL INTERLOCKED TO AN OUTBOARD FRAME BY AN INJECTION MOLDED ENCAPULATION HAVING INTEGRAL FASTENERS

Kevin Bird, Holland; Lloyd Kaper, Hamilton; Bob Herrmann, Grand Haven; Craig Bienick, Jenison; Gary Reames, Muskegon; Howard Daley, Zeeland, and Greg Wolters, Zeeland, all of Mich., assignors to Gemtrom Corporation, Sweetwater, Tenn.

Filed Jul. 9, 1997, Ser. No. 890,651

Int. Cl.^{6} F24C *3/00*

U.S. Cl. 126—39 H **36 Claims**



1. A cooktop, hob top or the like comprising a cooktop panel having a peripheral edge portion, a frame substantially bordering said peripheral edge portion, substantially one-piece homogeneous injection molded polymeric/copolymeric encapsulation means for peripherally encapsulating and securing said peripheral edge portion to said frame, and said injection molded encapsulating means includes integral injection molded attaching means for attaching said cooktop to an associated support.

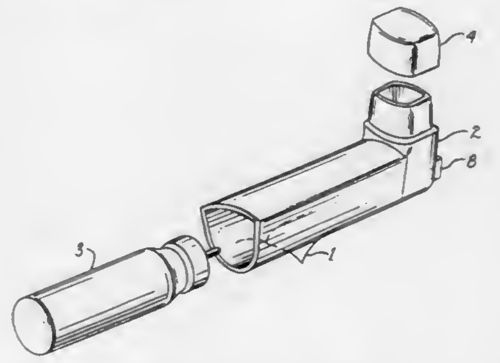
5,785,048
INHALER DEVICE WITH MEANS FOR ASSESSING ITS DEPLETION LEVEL

Steve J. Koerner, 2313 N. Sinagua Cir., Mesa, Ariz. 85203

Filed Aug. 16, 1996, Ser. No. 699,162

Int. Cl.^{6} A61M *11/00*

U.S. Cl. 128—200.23 **17 Claims**



1. An aerosol medicament dispensing system comprising:

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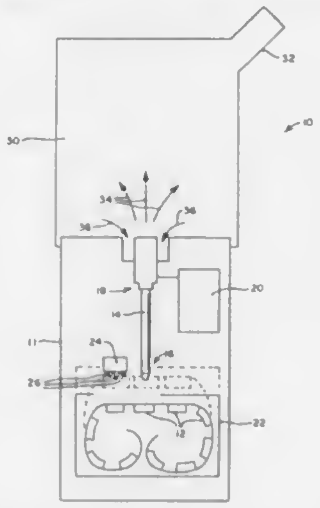
- (a) a pressurized medicament container containing a mass of medicament to be dispensed;
- (b) an adapter for removably supporting said container; and
- (c) means formed integrally with said adapter for permitting rotation of said container and adapter about an axis to provide an indication of the mass of medicament remaining in said container.

5,785,049
METHOD AND APPARATUS FOR DISPERSION OF DRY POWDER MEDICAMENTS

Adrian E. Smith, Belmont; John D. Burr, Redwood City; Jeffery W. Etter, Castro Valley; George S. Axford, Menlo Park; Shirley W. Lyons, Redwood City, and Robert M. Platz, Half Moon Bay, all of Calif., assignors to Inhale Therapeutic Systems, Palo Alto, Calif.

Filed Sep. 21, 1994, Ser. No. 309,691
Int. Cl.^{6} A61M *15/00;16/00;* **B05D** *7/14;* **B65D** *83/06*
U.S. Cl. 128—203.15 **50 Claims**



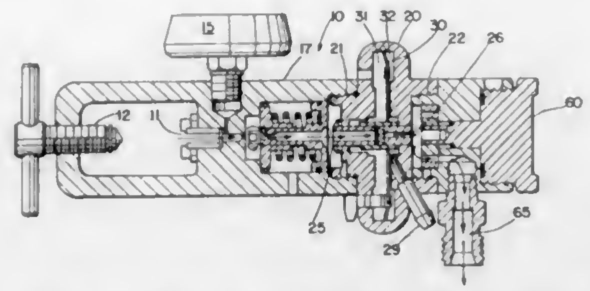
37. A method for aerosolizing a powder contained in a receptacle, said method comprising:
- coupling a powder inlet end of a feed tube with a penetration in the receptacle; and
- abruptly releasing a gas from a pressurized source and directing the released gas in a high pressure gas stream past a portion of the feed tube which is spaced apart from the powder inlet, wherein the high velocity air stream is flowed cast the outlet end of the feed tube at an angle in the range from 12.5° to 65° as measured between the gas stream and the inlet end;
- wherein the high pressure gas stream fluidizes powder in the receptacle and draws the fluidized powder through the reed tube and into the high pressure gas stream to form the aerosol, and wherein the high pressure gas stream produces a flow at the portion of the feed tube sufficient to provide shear forces to break down agglomerates within the powder.

5,785,050
OXYGEN VALVE SYSTEM

Brian R. Davidson, and Gilbert Davidson, both of 8132 Woodland Dr., Indianapolis, Ind. 46278

Filed Mar. 3, 1997, Ser. No. 811,244
Int. Cl.^{6} F16K *31/145*
U.S. Cl. 128—205.24 **1 Claim**

1. A medical gas delivery system comprising:
- means for reducing pressure (**17**) of said medical gas, regulator valve means (**20**) for controlling said medical gas,
- flow meter module means (**60**) for supplying said medical gas to a patient,

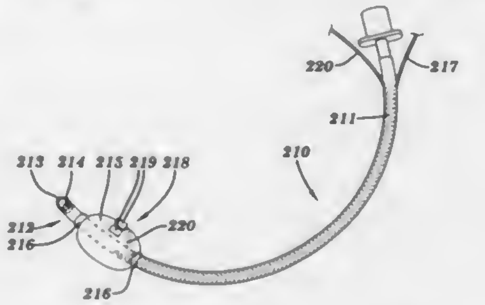


- wherein said regulator valve means (**20**) comprises single diaphragm means (**30**) for moving a shuttle (**40**),
- a central stationary stem means (**50**) for admitting flow of said medical gas and for discharging said medical gas, wherein said shuttle means is movable along said stem means,
- wherein said regulator valve (**20**) includes a port means (**29**) for responding to the inhalation and exhalation of a patient,
- wherein said stem means (**50**) includes concentric groove means (**71**) for providing a frictionless movement between said stem and said shuttle,
- wherein said stem means (**50**) includes orifice means (**53,54**) for supplying said medical gas to the region of said shuttle means,
- wherein said stationary stem means has a midpoint obstruction therein,
- wherein said shuttle means includes a cavity means (**41**) for enabling gas flow around said stem midpoint obstruction,
- wherein said shuttle means (**40**) is affixed directly to said diaphragm means (**30**) for movement therewith,
- wherein said orifice means (**53,54**) provide a central flow path for medical gas to flow through the center of said diaphragm.

5,785,051
SIGNAL GENERATING ENDOTRACHEAL TUBE APPARATUS

Randolph B. Lipscher, and Jack G. Mottley, both of Rochester, N.Y., assignors to University of Rochester, Rochester, N.Y.

Filed Jun. 21, 1996, Ser. No. 667,674
Int. Cl.^{6} A61M *16/00*
U.S. Cl. 128—207.15 **27 Claims**



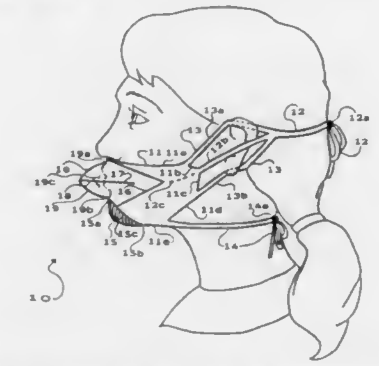
1. An endotracheal tube apparatus for providing reliable airway management in a patient, said apparatus comprising:
- flexible tube means extending from a patient's oral or nasal cavity to a distal end disposed within a patient's trachea;
- first ultrasound transducer means connected to the flexible tube means in proximity of the distal end thereof and disposed at a position in intimate contact with an anterior inner wall of a patient's trachea at substantially the midpoint of a patient's trachea;
- second ultrasound transducer means disposed in intimate contact with an anterior outer skin surface of a patient's neck at a position to transmit an ultrasound signal to or receive an ultrasound signal from said first transducer means within a patient's trachea;
- ultrasound transducer excitation means connected by electrical conductor means to transmitter means comprising one of said first and second ultrasound transducer means;

- ultrasound detector means disposed externally to the patient and connected by electrical conductor means to receiver means comprising the other of said first and second transducer means; and
- inflatable means attached to the flexible tube means in proximity to the distal end thereof, wherein the inflatable means comprises the first ultrasound transducer means, said first ultrasound transducer means being urged into intimate contact with an anterior wall of a patient's trachea upon inflating of said inflatable means.

5,785,052
VERSATILE DISPOSABLE FILM PROTECTIVE MASK

Joseph T. Johnson, 8028 Regent Park La., Charlotte, N.C. 28210

Filed Jan. 27, 1995, Ser. No. 379,021
Int. Cl.^{6} H61F *6/06*
U.S. Cl. 128—830 **18 Claims**



1. A protective mask for providing an impermeable barrier to a liquid virus, said mask comprising
- a generally planar body portion made of a thin, elastic first film material, said body portion having an interior surface, an exterior surface and an outer periphery defined by an upper boundary, a lower boundary and a pair of opposed side boundaries connecting said upper boundary and said lower boundary, said body portion comprising
  - a bottom portion formed by a plurality of folded pleats of the first film material, said bottom portion positioned adjacent said lower boundary and shaped to conform to the contour of a human being's chin;
  - a jaw web formed by at least one folded pleat of the first film material, said jaw web defining an acute angle extending between said upper boundary and said lower boundary; and
  - a flaccid cavity pouch positioned medially between said upper boundary and said lower boundary opposite said jaw web.

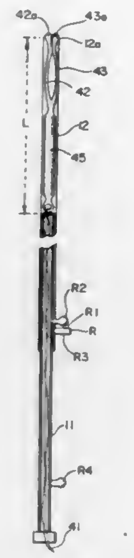
5,785,053
INSERTER FOR THE POSITIONING OF AN INTRAUTERINE DEVICE

John Macandrew, St. Neots; John Conway, Sawston; Michael Paton; Richard Gardner, both of Royston, all of Great Britain; Ilkka Rauramo, Espoo, and Matti Lehtinen, Piispanristi, both of Finland, assignors to Leiras Oy, Turku, Finland

PCT No. PCT/FI95/00666, § 371 Date Jun. 2, 1997, § 102(e) Date Jun. 2, 1997, PCT Pub. No. WO96/18365, PCT Pub. Date Jun. 20, 1996

PCT Filed Dec. 5, 1995, Ser. No. 849,550
Claims priority, application Finland, Dec. 15, 1994, 945895
Int. Cl.^{6} A61F *6/96;* **A61B** *17/42*
U.S. Cl. 128—840 **9 Claims**

1. An inserter for the positioning of an essentially T-shaped intrauterine device (IUD), said IUD comprising an elongated body having a transverse member attached at one end of said body, said transverse member comprising two wings, which inserter comprises



- a plunger having a front end adapted to receive the IUD and a rear end,
- a handle formed from or attached to the rear end of the plunger,
- a locking device operatively attached to said plunger, said locking device adapted to lock a string attached to the IUD in such a way that the IUD remains immobile in relation to the front end of the plunger, and
- a protective tube adapted to contain said IUD in a contracted configuration in which said wings of the transverse member of an essentially T-shaped IUD are pressed against each other, said protective tube having a forward end adapted for insertion into the uterus and a rear end,
- wherein the protective tube is fitted in slidable relationship around the plunger in such a way that it can be pushed, at the forward end, past the plunger at a distance which corresponds substantially to the length of the IUD in said contracted configuration, and
- wherein the rear end of the protective tube, has a first stop surface operatively attached thereto, and
- wherein the plunger, has a second stop surface operatively attached thereto located in such a way that the said second stop surface will contact said first stop surface and thereby stop movement of the protective tube in the direction of the uterus when the forward end of the protective tube is in a position in which the tips of said wings of the transverse member of said T-shaped IUD remain partly uncovered by the protective tube, but the wings nevertheless remain pressed against each other.

5,785,054
GENITAL LUBRICANT WITH ZINC SALT, LABELLED AS ANTI-VIRAL AGENT

Patrick D. Kelly, 33 Berry Oaks, St. Louis, Mo. 63122

Continuation-in-part of Ser. No. 57,001, May 3, 1993, Pat. No. 5,499,377, and Ser. No. 361,967, Dec. 22, 1994, Pat. No. 5,589,551, which is a continuation-in-part of Ser. No. 56,480, May 3, 1993, abandoned, said Ser. No. 57,001 and Ser. No. 56,480, each is a continuation-in-part of Ser. No. 737,169, Jul. 29, 1991, Pat. No. 5,208,031, which is a continuation-in-part of Ser. No. 528,495, May 25, 1990, abandoned, which is a continuation-in-part of Ser. No. 362,058, Jun. 6, 1989, abandoned. This application Jun. 5, 1995, Ser. No. 464,273
Int. Cl.^{6} A61F *6/02*
U.S. Cl. 128—842 **6 Claims**

1. An article of manufacture comprising an aqueous gel contained within a watertight tube having a sealed first end, an outlet orifice at an opposed second end, and at least one deformable plastic wall between said ends, wherein the aqueous gel is suitable for repeated daily use as a genital lubricant during sexual inter-

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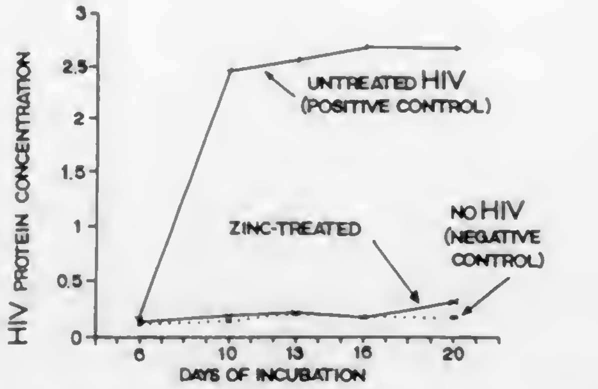
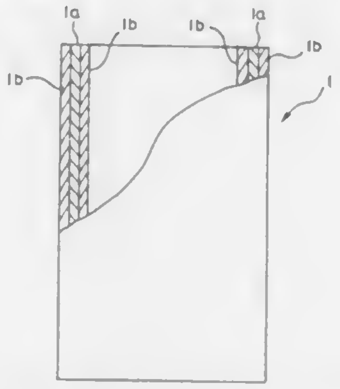


course and contains a selected water-soluble zinc salt, other than zinc sulfate, at a concentration which inhibits at least one type of sexually transmitted virus, wherein the tube is provided with a label indicating that the aqueous gel contained therein is to be applied to genital surfaces during intercourse.

5,785,055

Patent Not Issued For This Number

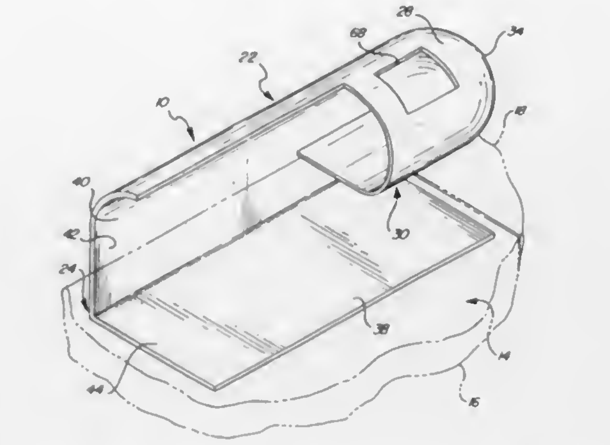
5,785,056
PRESS-FITTING PRODUCT FOR A HUMAN BODY
Daisaku Mukai, Tokyo, Japan, assignor to Nippon Sigmax Co., Ltd., and Yukigaya Chemical Industry Co., Ltd., both of Tokyo, Japan
Filed Mar. 17, 1997, Ser. No. 819,003
Claims priority, application Japan, Apr. 1, 1996, 8-078683
Int. Cl.^{6} A61G *15/00*
U.S. Cl. 128—845 **2 Claims**



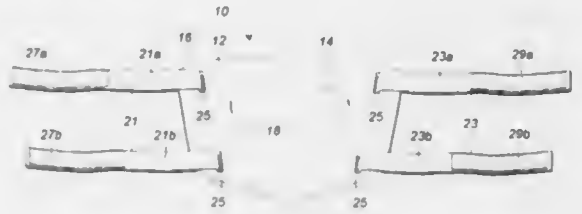
1. A press-fitting product for a human body comprising a base material constructed of continuous foam-type foam made of natural rubber, acrylonitrile-butadiene rubber or styrene-butadiene rubber, wherein the expansion ratio of foam is between 4:1 and 7:1 and the thickness of the foam is between 1 and 5 mm.

5,785,057
MEDICAL POSITIONING DEVICE
Sally A. Fischer, 598 Shenandoah, Clawson, Mich. 48017
Filed Dec. 11, 1996, Ser. No. 763,799
Int. Cl.^{6} A61F *5/37*
U.S. Cl. 128—846 **18 Claims**

1. An apparatus for positioning a hand and arm of a patient with respect to a mattress disposed on top of a surgical table, said surgical table having a drop leaf portion moveable out of a coplanar position with respect to a remaining portion of the surgical table during a surgical procedure, said apparatus comprising:
- an elongated sled for preventing injury to an upper appendage of the patient due to an object external to the body during the surgical procedure, said sled having a first portion positionable below said mattress and a second portion extending outwardly from said first portion to a position above said mattress partially sheathing said arm of said patient; and
- an end cap releasibly engageable with either longitudinal end of said sled and positionable on top of said mattress for releasibly sheathing said hand of said patient, said end cap spaced vertically above said first portion of said sled allowing insertion of said mattress therebetween.

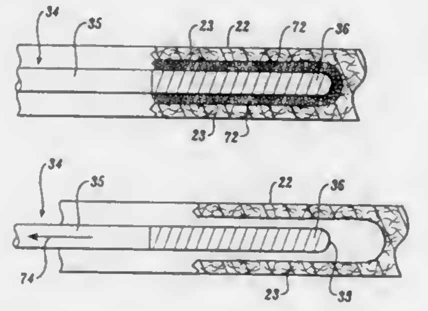


5,785,058
DISPOSABLE HEAD AND NECK IMMOBILIZATION DEVICE AND METHOD
Connell Reynolds, 7855 Hobgood Rd., Fairburn, Ga. 30213
Filed Feb. 21, 1997, Ser. No. 804,059
Int. Cl.^{6} A61B *19/00*
U.S. Cl. 128—869 **13 Claims**



1. A disposable head and neck immobilization device for use with an immobilization board having an upper side and a lower side, comprising:
- a facepiece having a cutout portion therein for receiving a patient's face, and first and second side portions on either side of the cutout portion;
- first and second straps each having a first and second end, said first end of each of said straps being connected to one of said side portions of said facepiece for securing said immobilization device over the head of a patient lying in a face up position, and said second end of each of said straps being disposed to pass through an opening in the immobilization board; and
- attachment means for affixing said device on the immobilization board.

5,785,059
METHOD OF RELEASING CONDUCTIVE ELEMENTS FROM FIBROTIC TISSUE
Willis A. Tacker, Jr., Redmond, Wash., assignor to InControl, Inc., Redmond, Wash.
Filed Apr. 3, 1997, Ser. No. 846,413
Int. Cl.^{6} A61B *17/50*
U.S. Cl. 128—898 **13 Claims**

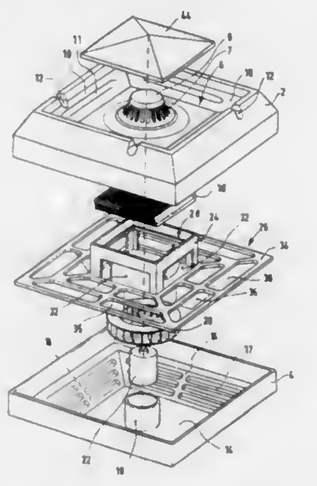


1. A method of releasing a conductive element from fibrotic tissue of a mammalian body, the method including the steps of:
- providing an indifferent electrode;
- establishing electrical contact between the indifferent electrode and the body;
- providing a generator of electrical energy;
- coupling the generator between the conductive element and the indifferent electrode; and
- causing the generator to apply electrical energy between the conductive element and the indifferent electrode, the energy having a magnitude sufficient to produce gas by electrolysis between the conductive element and the fibrotic tissue.

5,785,060

Patent Not Issued For This Number

5,785,061
ASHTRAY
Simon M. Whiteley, Hastings, England, assignor to U.S. Philips Corporation, New York, N.Y.
Filed Apr. 17, 1997, Ser. No. 841,916
Claims priority, application United Kingdom, Apr. 25, 1996, 9608509
Int. Cl.^{6} A24F *19/00*
U.S. Cl. 131—231 **10 Claims**

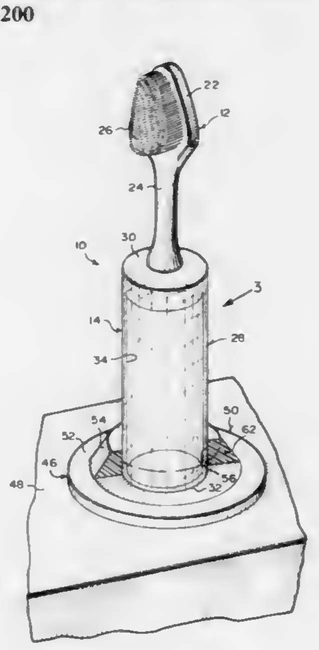


1. An ashtray comprising a casing housing a driven fan, the casing including at least one upper opening in an upper, external ashtray portion of the casing and at least one lower opening in a lower portion of the casing, the fan being disposed between, and generating a flow of air between, the upper portion and the lower portion of the casing, filtering means being located between the upper opening and the lower opening, an air return path being provided enabling the flow of air which has passed through the filtering means from within the casing to the ashtray portion of the casing.

5,785,062

Patent Not Issued For This Number

5,785,063
COMBINATION TOOTHBRUSH AND DRINKING CUP
John DePinto, 77 Merryall Rd., New Milford, Conn. 06776
Filed Feb. 3, 1997, Ser. No. 794,182
Int. Cl.^{6} A46B *11/00;15/00*
U.S. Cl. 132—200 **1 Claim**



1. The method of brushing teeth comprising the steps of:
- a) grasping a combination toothbrush and drinking cup which comprises a toothbrush having a head with bristles and a stem integral with and extending longitudinally away from said head, means forming a drinking cup comprising an enlarged hollow handle for said tooth brush, and means for attaching said stem to said enlarged hollow handle segment with the mouth of said drinking cup facing away from said head;
- b) holding said stem with said tooth brush uprignt and the mouth of said drinking cup facing down;
- c) brushing teeth with said tooth brush;
- d) inverting said cylindrical member so that said drinking cup is upright for drinking;
- e) filling said drinking cup with water;
- f) drinking the water from said drinking cup; and
- placing said combination tooth brush and drinking cup with the tooth brush upright on a stand comprising an annular base flange to sit upon a horizontal flat surface and a frustum cone portion extending upwardly from said annular base flange, said frustum cone portion having a vertical aperture for receiving the open mouth of said drinking cup.

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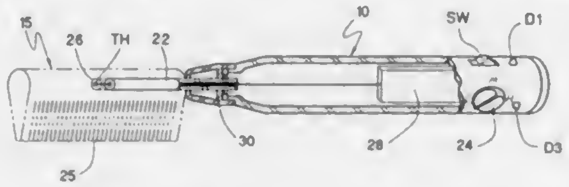
5,785,064
HIGH TEMPERATURE EXTERNALLY HEATED HAIR-STYLING DEVICES

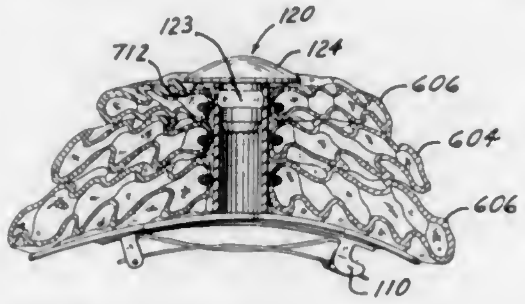
Timothy A. Simpson, 1574 Sugar Maple Way, West Bloomfield, Mich. 48324
Filed Mar. 7, 1997, Ser. No. 813,856
Int. Cl.⁶ A45D *2/12*
U.S. Cl. 132—226 **11 Claims**



1. A high temperature hair styling device comprising:
a high heat capacity externally heated hair styling body;
an over temperature alarm mounted in the hair styling body, the over temperature alarm including:
  a temperature sensor thermally connected to the hair styling body, the sensor providing a voltage signal representative of a temperature of the hair styling body;
  a variable reference voltage signal generator powered by a DC battery power source having an adjustable range whereby the reference voltage signal is calibrated to coincide with a predefined operating temperature range;
  a comparative device comparing the representative and reference voltage signals to determine when the predefined operating temperature range is exceeded;
  an indicator device responsive to the comparative device to indicate a temperature of the hair styling body exceeding the predefined operating temperature range of the hair styling body; and
  an on/off switch to connect or disconnect the reference voltage signal generator from the DC power source.

5,785,065
HAIR BARRETTE WITH REPLACEABLE ORNAMENTS

Destrina D. Johnson, 630-½ S. Broadway Apt.#1 , Menomonie, Wis. 54751
Continuation-in-part of Ser. No. 510,746, Aug. 3, 1995, Pat. No. 5,573,018. This application Jul. 25, 1996, Ser. No. 684,893
Int. Cl.⁶ A45D *8/12*
U.S. Cl. 132—275 **12 Claims**



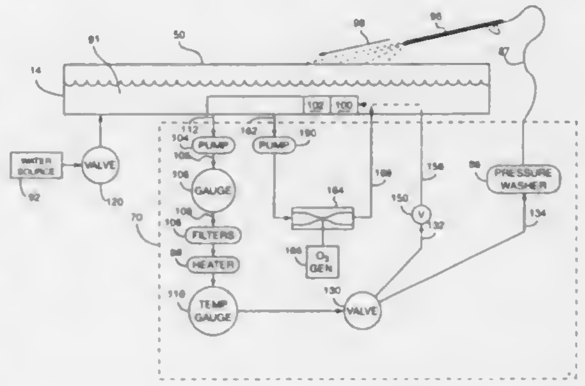
1. A hair barrette, comprising:
at least one compressible ornamental appendage having a retentive characteristic shape such that said at least one ornamental appendage returns substantially to said retentive characteristic shape subsequent to being compressed;
a hair clamp for clamping a tress of hair, said hair clamp having a reversible snap connector attached thereto such that said hair clamp and said reversible snap connector form a single unitary device thereof, said reversible snap connector adapted to removably receive said at least one compressible ornamental appendage; and
a spigot comprising an ornamental head attached to a shaft adapted to removably engage said reversible snap connector such that said at least one compressible ornamental appendage is securely retained to said hair clamp, and such that selective attachment and detachment of said spigot to said reversible snap connector selectively allows rapid replacement and addition of said at least one compressible ornamental appendage to said hair clamp, said at least one compressible ornamental appendage being compressed upon said at least one of replacing and adding said at least one compressible ornamental appendage to said hair clamp, said spigot further adapted to variably engage said reversible snap connector such that said compression of said at least one compressible ornamental appendage can be selectively varied and set to accommodate said securely retained at least one compressible ornamental appendage.

5,785,066

Patent Not Issued For This Number

5,785,067
PRESSURE WASHING APPARATUS WITH OZONATION

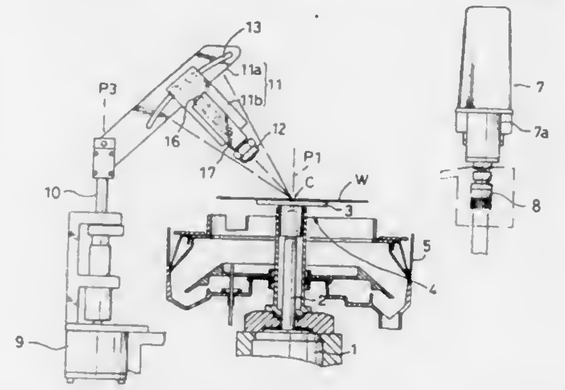
Howard B. Kosofsky, Menlo Park, Calif., assignor to EZ Environmental Solutions Corporation, Menlo Park, Calif.
Filed Oct. 15, 1996, Ser. No. 732,638
Int. Cl.⁶ B08B *3/02;13/00*
U.S. Cl. 134—102.1 **32 Claims**



1. An apparatus for washing an object having a contaminant and for recovering the contaminant, comprising:
a floor arranged to support said object;
a flowing mechanism for flowing a washing agent over said object to remove said contaminant;
a basin mounted below said floor for receiving said washing agent and said contaminant, said basin including a plurality of interconnected compartments including at least one receiving chamber arranged to receive the washing agent after it has been flowed over the object, and at least one staging chamber that does not directly receive the washing agent after the washing agent has been flowed over the object but is in fluid communication with the receiving chamber, the plurality of compartments being arranged such that the washing agent generally becomes less contaminated as the washing agent passes from the at least one receiving chamber to the at least one staging chamber, said flowing mechanism drawing said washing agent from said basin to form a substantially closed loop;
an ozone generator;
a gas-liquid mixer connected to said ozone generator to inject ozone into said washing agent;
a first pump for drawing said washing agent from the at least one staging chamber, forcing said washing agent through said mixer, and returning said washing agent through a first outlet to said basin.

5,785,068
SUBSTRATE SPIN CLEANING APPARATUS

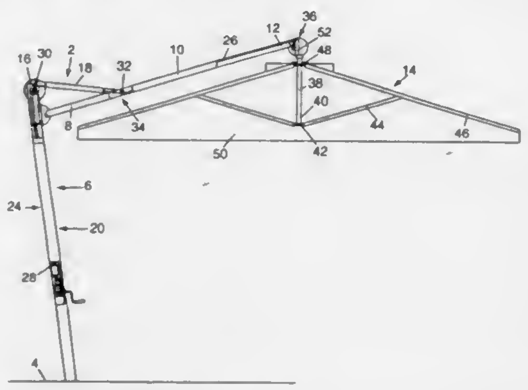
Tadashi Sasaki, and Masami Ohtani, both of Kyoto, Japan, assignors to Dainippon Screen Mfg. Co., Ltd., Japan
Filed May 17, 1996, Ser. No. 646,131
Claims priority, application Japan, May 11, 1995, 7-138668
Int. Cl.⁶ B08B *3/02*
U.S. Cl. 134—144 **20 Claims**



1. A substrate spin cleaning apparatus comprising: a substrate supporting device supporting a substrate and spinning the substrate about an axis, a nozzle delivering a cleaning liquid to a surface of the substrate in a pinpoint mode, a nozzle moving device moving the nozzle to move a liquid application point on the substrate surface between a spin center and a peripheral edge of the substrate;
a nozzle holder attached to said nozzle moving device and supporting said nozzle at a variable inclination angle with respect to said surface of said substrate; and
an arcuate guide provided on said nozzle holder and guiding said nozzle within a plane including said spin center and a tip of said nozzle and along an imaginary circle about said spin center, and allowing said nozzle to deliver the cleaning liquid to said spin center.

5,785,069
STANDING UMBRELLA

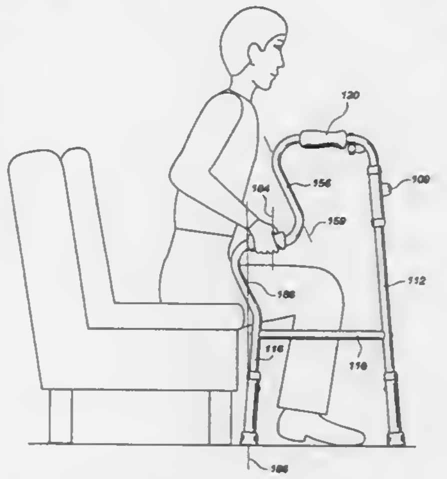
Gustav Adolf Glatz, Frauenfeld, Switzerland, assignor to Glatz AG, Frauenfeld, Switzerland
PCT No. PCT/CH95/00009, § 371 Date Aug. 19, 1996, § 102(e) Date Aug. 19, 1996, PCT Pub. No. WO95/23532, PCT Pub. Date Sep. 8, 1995
PCT Filed Jan. 13, 1995, Ser. No. 693,321
Claims priority, application Switzerland, Mar. 3, 1994, 631/94
Int. Cl.⁶ A45B *11/00*
U.S. Cl. 135—20.1 **17 Claims**



1. A standing umbrella comprising:
a stand (**2**) having a mast (**6**,**6***a*,**6***b*,**6***c*) with an upper end (**16**),
a carrier beam (**10**) having an inner end (**8**) and an outer end (**12**), with said inner end (**8**) of said carrier beam being guided on said mast for outward and inward movement of said carrier beam relative to said mast,
an umbrella stick (**38**) of a collapsible umbrella (**14**) carried on said outer end (**12**) of said carrier beam,
a connecting strut (**18**,**142**) linkedly connected between said upper end (**16**) of the mast (**6**,**6***a*,**6***b*,**6***c*) and said carrier beam (**10**),
a drive mechanism (**20**,**20***a*,**24**,**24***a*) shifting said carrier beam (**10**) relative to said mast in a shifting direction as well as opening and closing said umbrella (**14**),
said mast (**6**,**6***a*,**6***b*,**6***c*) having two guide tracks (**64**,**66**,**154**,**156**,**168**,**170**,**180**,**182**) spaced from one another, and
guide elements (**22**,**166**,**176**,**178**,**184**,**186**) on said inner end of said carrier beam in cooperation with said two guide tracks,
said guide tracks being so profiled that said guide elements (**22**,**166**,**176**,**178**,**184**,**186**) are held by the shape of said tracks transversely to said shifting direction.

5,785,070
DUAL HANDLED WALKING AND UPRISAL ASSIST DEVICE

Randall D. Block, and Darla R. Gill, both of Salt Lake City, Utah, assignors to Momentum Medical Corporation, Salt Lake City, Utah
Continuation-in-part of Ser. No. 153,456, Nov. 16, 1993, Pat. No. 5,495,867. This application Mar. 4, 1996, Ser. No. 610,624
Int. Cl.⁶ A61H *3/00*
U.S. Cl. 135—67 **38 Claims**



1. A rigid walking- and uprisal-assist device comprising:
a structural frame having a three-dimensional profile, a forward portion and at least three legs, each said at least three legs having a ground-engaging surface for positioning on a support surface;
a first side portion formed by said frame having an upper graspable handle for supporting a user in a standing position and a lower graspable handle vertically spaced apart from and positioned below said upper handle and horizontally spaced apart from said upper handle to render said lower handle unobstructed by the upper handle, said lower handle being connected to one of said at least three legs of said frame and being positioned in elevation above said ground-engaging surface of said one leg to facilitate uprisal of a user from a seated position, and said lower handle having its geometrical center positioned in alignment with and forward of a longitudinal axis formed through said one leg and ground-engaging surface of said one leg; and
a second side portion formed by said frame having an upper graspable handle for supporting a user in a standing position and a lower graspable handle vertically spaced apart from and

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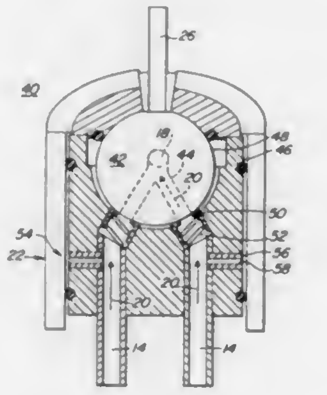
positioned below said upper handle and horizontally spaced apart from said upper handle to render said lower handle unobstructed by the upper handle, said lower handle being connected to another of said at least three legs of said frame and being positioned in elevation above said ground-engaging surface of said another leg to facilitate uprisal of a user from a seated position, and said lower handle of said second side portion having its geometrical center positioned in alignment with and forward of a longitudinal axis formed through said another leg and ground-engaging surface of said another leg.

5,785,071

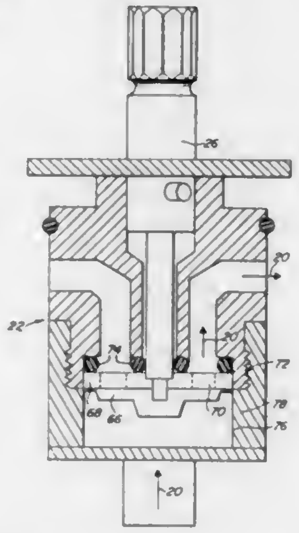
Patent Not Issued For This Number

5,785,072
COMPRESSED STOPPER CHANNEL BYPASS PIPE BURST PRESSURE RELIEF APPARATUS FOR PLUMBING FIXTURES
Jeffrey R. Gordon, Champaign, and William B. Rose, Urbana, both of Ill., assignors to The Board of Trustees of the University of Illinois, Champaign, Ill.
Division of Ser. No. 666,064, Jun. 14, 1996, Pat. No. 5,730,168. This application Jul. 30, 1997, Ser. No. 902,821
Int. Cl.⁶ F16K *31/64;11/06;15/04;15/14*
U.S. Cl. 137—59 **5 Claims**



1. A plumbing fixture comprising:
a water inlet including means for sealingly connecting the inlet to a water supply line;
a water outlet;
a housing accommodating a water supply path therein, said water supply path connecting said water inlet and said water outlet;
a manually activated water control;
water regulation means connected to said water control for controllably restricting said water supply path to control the flow rate of water through said path, said water regulation means having a shut-off seal for sealingly obstructing flow of water through said water supply path when said water control is placed in an off position;
a pressure relief path disposed upstream of said shut-off seal; and
a stopper disposed in said pressure relief path, said stopper having a compressed channel penetrating therethrough said channel permitting water to pass through said stopper to by-pass said shut-off seal only when said water control is placed in said off position and said water supply line is subject to an elevated water supply pressure exceeding a normal water supply pressure.

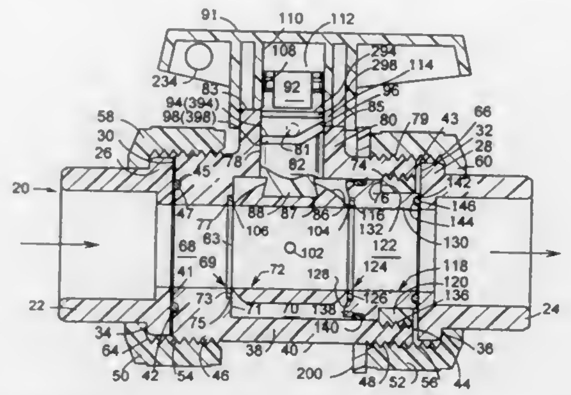
5,785,073
PIPE BURST PROTECTION PRESSURE RELIEF APPARATUS FOR SLIDING PLATE PLUMBING FIXTURES
Jeffrey R. Gordon, Champaign, and William B. Rose, Urbana, both of Ill., assignors to The Board of Trustees of the University of Illinois, Champaign, Ill.
Division of Ser. No. 666,064, Jun. 14, 1996, Pat. No. 5,730,168. This application Jul. 30, 1997, Ser. No. 902,822
Int. Cl.⁶ F16K *31/64;11/06;15/00*
U.S. Cl. 137—59 **9 Claims**



1. A plumbing fixture comprising:
a water inlet including means for sealingly connecting the inlet to a water supply line;
a water outlet;
a housing accommodating a water supply path therein, said water supply path connecting said water inlet and said water outlet;
a manually activated water control;
water regulation means including a stem connected to a movable plate and which is responsive to manipulation of said water control, and a fixed plate pressed against said movable plate having a hole therein defining a portion of said water supply path, for controllably restricting said water supply path to control the flow rate of water through said path;
a compressible member disposed to hold said fixed plate pressed against said movable plate under a normal water supply pressure and said compressible member to compress to allow separation of said movable plate from said fixed plate to allow pressure relief only when said water control is placed in said off position and said water supply line is subjected to an elevated water supply pressure exceeding said normal water supply pressure.

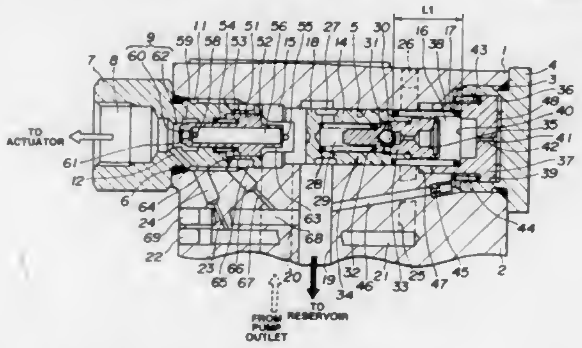
5,785,074
VENTED BALL VALVE WITH LOCK-OUT RING
Douglas A. Kieper, Clovis, Calif., assignor to Nibco, Inc., Elkhart, Ind.
Filed Jan. 2, 1997, Ser. No. 774,734
Int. Cl.⁶ F16K *5/06;11/02;41/00*
U.S. Cl. 137—68.11 **13 Claims**

1. A ball valve with shear stem comprising:
a valve body having first and second flow-through ends with a valve member receiving chamber thereinbetween and a collar extending upward from said valve body including a stem receiving passage;
a valve member disposed within said valve member receiving chamber, said valve member having a throughbore therein in operable alignment with said first and second flow-through ends;



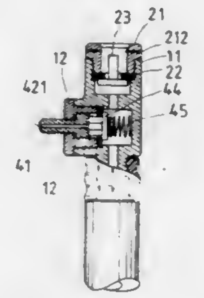
a shear stem disposed within said stem receiving passage in cooperative engagement with said valve member for rotational movement in and out of flow-through alignment with said first and second ends; and
said shear stem including an outer stem sealing member comprising a secondary circumferential groove and a secondary annular sealing member, and an inner stem sealing member comprising a primary circumferential groove and a primary annular sealing member positioned within said stem receiving passage between said valve member and said outer stem sealing member, said secondary annular sealing member presents fluid leakage from passing beyond said outer stem sealing member, when fluid leaks past said inner stem sealing member, wherein said outer stem sealing member is designed to shear and break away at said circumferential groove above inner stem sealing member, and wherein said inner stem sealing member prevents leakage from said valve member upon said shearing and breaking away of said outer stem sealing member when excessive force is applied to said shear stem.

5,785,075
FLUID-FLOW CONTROL VALVE
Yukio Uchida, and Sachiko Nojyo, both of Kanagawa, Japan, assignors to Unisia JECS Corporation, Atsugi, Japan
Filed May 28, 1997, Ser. No. 864,687
Claims priority, application Japan, May 28, 1996, 8-154753; May 28, 1996, 8-154754; May 28, 1996, 8-154755
Int. Cl.⁶ G05D *7/01*
U.S. Cl. 137—115.1 **10 Claims**



1. A fluid-flow control valve device comprising:
a spool chamber;
an outlet passage being adapted to fluidly connected to an inlet port of an hydraulic actuator;
an inlet passage being adapted to fluidly connected to a pump outlet;
a drain passage being adapted to be fluidly connected to a reservoir;
a control orifice being fluidly disposed upstream of said outlet passage for variably restricting a flow of working fluid from said inlet passage to said outlet passage;
a valve spool slidably accommodated in said spool chamber and defining a first-pressure chamber and a second pressure chamber in cooperation with an inner peripheral wall of said spool chamber; said first pressure chamber to which said inlet passage and said drain passage open to communicate said inlet passage with said outlet passage via said control orifice and to control a size of drain-passage opening in conjunction with one end of said valve spool; and said second pressure chamber into which a pressure in said outlet passage is introduced;
a control spring disposed in said second pressure chamber for biasing said valve spool toward said first pressure chamber; said control spring being in cooperation with said valve spool and said control orifice, to feed a required flow rate of working fluid from said inlet passage via said control orifice to said outlet passage and to return a remainder working fluid to said drain passage;
said control orifice consisting of a main fixed orifice and a sub-orifice being arranged parallel to said main fixed orifice, said sub-orifice being responsive to a pressure in said first pressure chamber to variably meter an opening size of said sub-orifice; and
spring-bias adjustment means for variably adjusting a set spring-bias of said control spring associated said valve spool in response to a change in the pressure in said outlet passage.

5,785,076
INFLATING ASSEMBLY FOR TIRE
Bae-Jou You, No. 63, Alley 90, Lane 1, Sec 6, Lu Ho Road, Ho Mei Cheng, Chang Hua Hsien, Taiwan
Filed May 20, 1996, Ser. No. 650,867
Int. Cl.⁶ F16K *15/20*
U.S. Cl. 137—231 **2 Claims**



1. An inflating assembly comprising generally a L-shaped body, an inflating device, a retaining device and a blowing device,
said L-shaped body having a tubular threaded portion at front and side ends, a tubular extension being provided at rear end for interconnection with a compressed air source through a hose;
said inflating device including a cover, a washer and a valve, said inflating device being mounted to said front end of said L-shaped body by means of said cover to form an inflating port thereof, said cover further including a crescent slot therein;
said retaining device including a body, a releasing lever, a pin, a spring and a retaining plate, said retaining device being installable onto a side wall of the front end of said L-shaped body such that a free end of said retaining plate which is interconnected with said releasing lever is disposed within said crescent slot of said cover of said inflating device, by the operation of said releasing lever, the retaining device being retained on a tire valve; and
said blowing device including a tubular cover having a threaded portion at both inner and outer walls, said tubular cover retaining a nozzle, a washer, a valve and a spring on the side end of said L-shaped body, said nozzle being provided with a threaded portion on its inner periphery which engages with the inner threaded portion of said tubular cover, by rotation of

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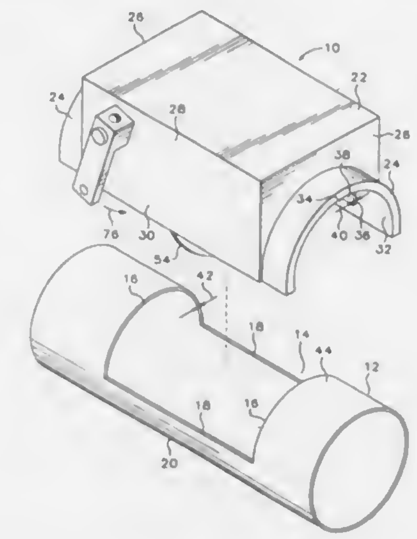
said nozzle, the timing and volume of the compressed air for blowing away dust can be adjusted and controlled.

5,785,077
EASILY REPLACEABLE VALVE
Donald C. Rice, 10207 Wildwood La., Klamath Falls, Oreg. 97603
Filed Nov. 15, 1996, Ser. No. 749,720
Int. Cl.⁶ F16K *43/00;1/18*
U.S. Cl. 137—315 **6 Claims**



5. In combination with a pipe, including a wall having a thickness and defining an opening extending therethrough to an interior of said pipe, a valve comprising:
- (a) a valve base having a saddle-like configuration, including a pair of flanges located at opposite ends of said base and a pair of side skirts extending longitudinally of said base and interconnecting said end flanges;
- (b) a body mounted on said base and including a pair of side walls defining a gate chamber;
- (c) a gate extending between said side walls and mounted for rotation with respect to said side walls;
- (d) a valve gate fastened on said gate shaft for rotation therewith, between a closed position in which said gate closes said pipe and an open position in which said gate is located within said gate chamber;
- (e) said valve being mounted on said pipe with said flanges and said side skirts in mating relationship with the outer surface of said pipe wall surrounding said opening;
- (f) wherein said base extends more than half way around said pipe and respective portions of said flanges and said side skirts are made from a resilient material which permits said portions to be spread apart during installation of or removal of said valve with respect to said pipe.

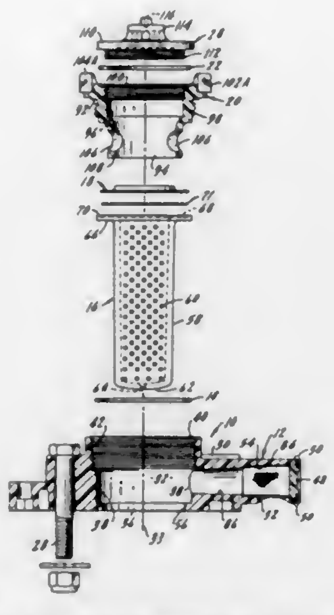
5,785,078
SAFETY VENT HOUSING
William F. Burian, Downer's Grove, Ill., and Erling Mowatt-Larssen, Valparaiso, Ind., assignors to Salco Products, Inc., Lemont, and Gatx Corporation, Chicago, both of Ill., a part interest
Filed Feb. 21, 1997, Ser. No. 803,014
Int. Cl.⁶ F16K *17/40;17/14*
U.S. Cl. 137—350 **28 Claims**

1. A safety vent for a railroad tank car, comprising:

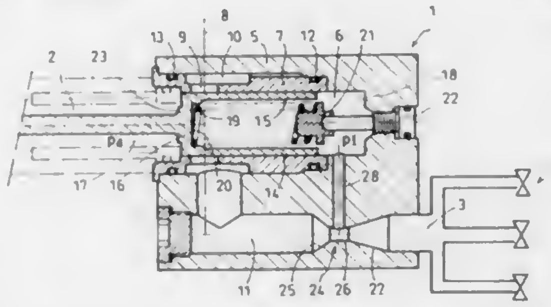
a housing connectable to the tank car, the housing having a body with a cavity therein in fluid communication with an opening in the tank car, the cavity defining an access port and a fluid flow path including an inlet and an outlet;

flow restrictor means disposed in the cavity of the body for substantially blocking the fluid flow path under normal service conditions while permitting flow from the inlet to the outlet under abnormal pressure surge conditions, the flow restrictor means and access port being arranged such that the flow restrictor means can be placed into and removed from the cavity through the access port while the housing remains attached to the tank car; and

a securement cap removably engageable with the housing to selectively close or open the access port, the securement cap having a skirt which, when the securement cap is installed in the housing, is engageable with the flow restrictor means to prevent movement of said flow restrictor means toward the access port.

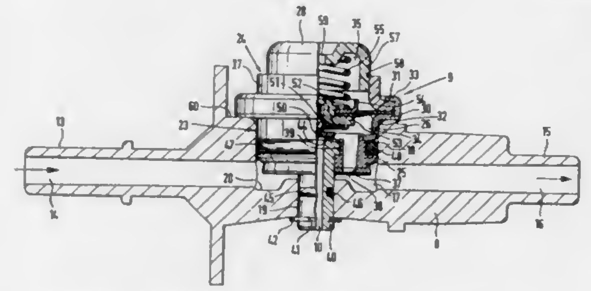


5,785,079
FLUID DISTRIBUTION VALVE
Alain François Jean Lavie, Yerres, and Claude Marcel Joseph Maillard, Vulaines sur Seine, both of France, assignors to Societe Nationale D'Etude et de Construction de Moteurs D'Aviation "Snecma" , Paris, France
Filed Apr. 30, 1996, Ser. No. 641,031
Claims priority, application France, May 3, 1995, 95 05257
Int. Cl.⁶ G05D *7/01*
U.S. Cl. 137—502 **1 Claim**



1. A fluid distribution valve adapted to be interposed between a first chamber and a second chamber for the purpose of selectively placing said first and second chambers in communication with eachother or isolating them from each other, said valve comprising a body defining an internal cavity, a sleeve disposed in said internal cavity, means defining a first duct in said body for the delivery of fluid to said second chamber, said sleeve being provided with at least one orifice which opens into said first duct, a piston slidably mounted in said sleeve so as to close or open said at least one orifice, said piston dividing said internal cavity into a feed chamber for communication with said first chamber and a control chamber whereby said piston is actuated in response to the pressures prevailing in said feed chamber and said control chamber, resilient means biassing said piston to close said at least one orifice in the absence of pressure in said feed chamber, a venturi provided in said first duct, and means defining a second duct which communicates said control chamber with said venturi at the throat thereof.

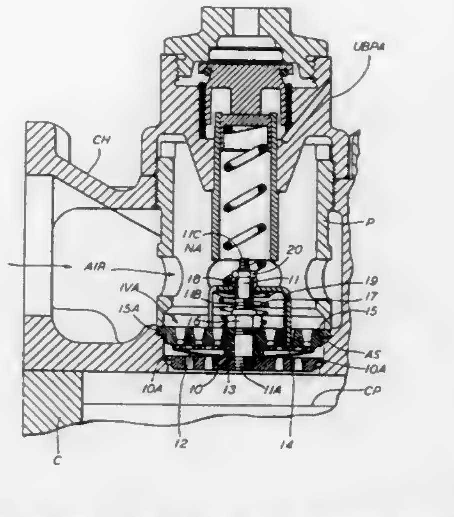
5,785,080
PRESSURE-REGULATING VALVE
Kurt Herbst, Burgstetten, Germany, assignor to Robert Bosch GmbH, Stuttgart, Germany
PCT No. PCT/DE95/00287, § 371 Date Nov. 15, 1995, § 102(e) Date Nov. 15, 1995, PCT Pub. No. WO95/25235, PCT Pub. Date Sep. 21, 1995
PCT Filed Mar. 3, 1995, Ser. No. 549,708
Claims priority, application Germany, Mar. 17, 1994, 44 09 133.8
Int. Cl.⁶ G05D *16/08;* **F16K** *27/00*
U.S. Cl. 137—510 **4 Claims**



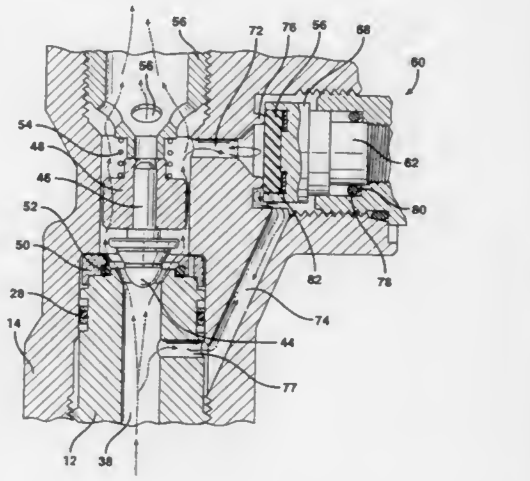
1. A pressure-regulating valve for fuel supply systems of internal combustion engines, comprising a cap and a main body, said cap includes a plastic tubular lower part (**27**) and a plastic cup-shaped upper part (**28**). said tubular lower part (**27**) or said cup-shaped upper part (**28**) is forced at least partially into one end of one of said parts and is connected thereto so that a portion of the cup-shaped upper part extends outwardly of said tubular lower part, a diaphragm clamped between one end of said tubular lower part of the cap and the main body at a circumference of said diaphragm, a compression spring which is supported at one end on said cup-shaped upper part of the cap and includes another end which acts on the diaphragm in a direction of a valve seat, the compression spring (**55**) rests on an inner surface of the cup-shaped upper part (**28**), and the tubular lower part (**27**) and the cup-shaped upper part (**28**) are welded together subsequent to being pushed together.

5,785,081
COMPRESSOR INLET VALVE
Julie A. Krawczyk, Monroeville, and Brian L. Cunkelman, Blairsville, both of Pa., assignors to Westinghouse Air Brake Company, Wilmerding, Pa.
Filed Aug. 12, 1997, Ser. No. 907,936
Int. Cl.⁶ F16K *15/00*
U.S. Cl. 137—516.23 **20 Claims**

1. An inlet valve assembly for an air compressor including a plug member disposed in a cylinder head comprising, a multi-threaded stud, a buffer plate screw-threaded onto the lower end of said multi-threaded stud, a spring plate disposed on top of said buffer plate, a guide ring disposed between said spring plate and a valve plate, an inlet valve seat located above said valve plate, a lock nut screw-threaded onto an intermediate threaded portion of said multi-threaded stud, an unloader return spring caged between said inlet valve seat and an inlet valve unloader, said inlet valve unloader slidably mounted on a guide bushing, a locknut screw-threaded onto the upper end of said multi-threaded stud, multi-threaded and said buffer plate having means for preventing damage to the air compressor in case said multi-threaded stud breaks.



5,785,082
IN-LINE FUEL FILL VALVE
Charles A. Geis, Pittsburgh; Robin N. Borland, McMurray; Dino V. Sciullo, Pittsburgh, all of Pa., and Alan J. Porter, Livonia, Mich., assignors to Superior Valve Company, Washington, Pa.
Continuation-in-part of Ser. No. 372,960, Jan. 17, 1995, Pat. No. 5,474,104. This application Dec. 12, 1995, Ser. No. 571,292
Int. Cl.⁶ F16K *17/168*
U.S. Cl. 137—516.29 **12 Claims**



1. An in-line fuel fill valve assembly for a compressed natural gas vehicle comprising:
- a) a receptacle adapted to mate with a fuel supply nozzle;
- b) a valve body having an in-line gas flow passage therethrough, said gas flow passage having first and second ends, said first end of said gas flow passage communicating with said receptacle, and said second end of said first gas flow passage terminating at an outlet which is adapted to communicate with a fuel storage vessel; and
- c) a check valve positioned in said first gas flow passage of said valve body, said check valve being normally biased into a closed position to prevent the flow of gas through said first gas flow passage and which opens in response to a flow of fuel under pressure.

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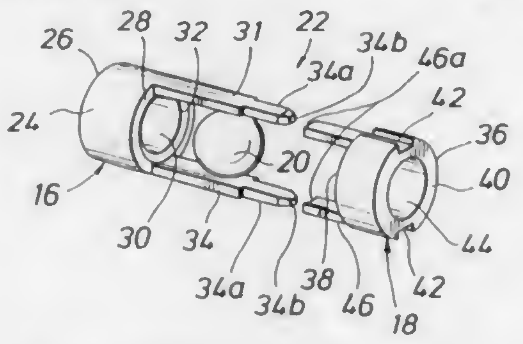
5,785,083
TUBULAR REFRIGERANT CHECK VALVE WITH SNAP-TOGETHER INTERNAL VALVE CAGE STRUCTURE

Punan Tang, Fort Smith, Ark., assignor to Rheem Manufacturing Company, New York, N.Y.

Filed Mar. 12, 1997, Ser. No. 815,217

Int. Cl.^{6} F16K *15/00*

U.S. Cl. 137—533.13 **20 Claims**



1. Check valve apparatus comprising:

a valve seat member having an annular body portion with first and second opposite ends, a tapered seating surface extending into the interior of said body portion from adjacent said second end thereof, and a circumferentially spaced plurality of leg portions extending axially outwardly from said second end and having outer end sections;

a closure member captively retainable laterally between said leg portions for axial movement relative to said annular body portion toward and away from said seating surface and being sealingly engageable with said seating surface; and

a stop member having an annular body portion with first and second opposite ends, a circumferentially spaced plurality of axially extending grooves formed in the outer side surface of said annular body portion of said stop member and configured to axially receive said outer end sections of said leg portions of said valve seat member in a press-fitted relationship therewith, and a circumferentially spaced plurality of leg portions extending axially away from said first end of said stop member body portion and having outer end sections, said stop member leg portions being positioned and configured to underlie and support said valve seat member leg portions when said outer end sections thereof are axially press-fitted into said grooves, with said outer end sections of said stop member leg portions defining stop surfaces for engaging the laterally retained closure member and stopping it a predetermined axial distance away from said seating surface.

5,785,084
FUEL REMOVAL DEVICE

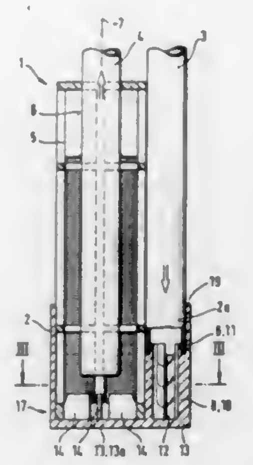
Christian Richter, Plochingen, and Karl-Heinz Siebels, Stuttgart, both of Germany, assignors to Daimler-Benz AG, Stuttgart, Germany

Filed Jun. 23, 1997, Ser. No. 880,773

Int. Cl.^{6} B01D *15/00*

U.S. Cl. 137—549 **4 Claims**

1. A fuel removal device including a fuel pickup pot of circular cross-section for disposition in a vehicle fuel tank, said fuel pickup pot having a bottom and integrally formed therewith, two cylindrical receptacles extending from said bottom, one for receiving a filter with a fuel suction line and the other for receiving a fuel return line, said one receptacle having a diameter larger than said other receptacle and both receptacles being disposed side-by-side and in contact with the walls of said pickup pot so as to form separate spaces within said pickup pot at opposite sides of said two circular receptacles, said other receptacle for receiving said fuel return line including, at least at one side thereof, an axial slot opening into one of said separate spaces and oriented toward a wall portion of said fuel pickup pot for directing fuel discharged from said return line toward said wall portion so as to permit the escape of any gas bubbles and for mixture with fresh fuel before the fuel returns to said fuel suction line.



5,785,085
CLOSED FEEDING SYSTEM FOR LIQUID FUEL

Odd Halsnes, Båstad, and Tor Audun Oftedal, Oslo, both of Norway, assignors to Forsvarets Forskningsinstitutt, Div. for Weapon and Material, Kjeller, Norway

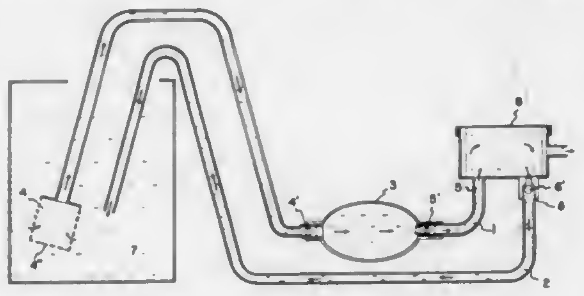
PCT No. PCT/NO95/00012, § 371 Date Aug. 14, 1995, § 102(e) Date Aug. 14, 1995, PCT Pub. No. WO95/19527, PCT Pub. Date Jul. 20, 1995

PCT Filed Jan. 16, 1995, Ser. No. 532,587

Claims priority, application Norway, Jan. 17, 1994, 940161

Int. Cl.^{6} F16L *43/00;* F02H *17/00*

U.S. Cl. 137—563 **4 Claims**



1. A closed feeding system for liquid fuel, comprising:

a reservoir;

a strainer housing;

a first flexible tube extending from the reservoir to the strainer housing, the first flexible tube having a first end being positioned flexibly in the reservoir proximate a fuel level in the reservoir and a second end being coupled to the strainer housing;

a second flexible tube running generally parallel to the first flexible tube, for return of fuel from the strainer housing to the reservoir, the second flexible tube having a first end being positioned flexibly in the reservoir proximate the fuel level in the reservoir and a second end being coupled to the strainer housing;

a pump being disposed between the first and second ends of the first flexible tube for drawing fuel from the reservoir to the strainer housing, the pump being inactive after being used to start the feeding system;

a first non-return valve being coupled to the pump at upstream of fuel flow in the first flexible tube;

a second non-return valve being coupled to the pump at downstream of the fuel flow in the first flexible tube; and

the first and second flexible tubes being arranged and configured such that the first ends of the first and second tubes can be positioned below the fuel level in the reservoir when the feeding system is operated to feed the fuel and can be positioned above the fuel level in the reservoir when the first and second flexible tubes are to be drained using the pump to avoid fuel spillage during transportation of the system.

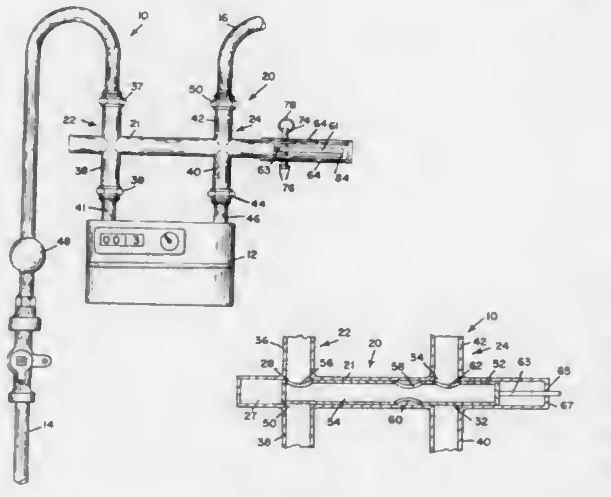
5,785,086
VALVE ASSEMBLY FOR METERED FLUID FLOW

J. Stephen Boyce, P.O. Box 1467, Dudley, Mass. 01571, and William T. Mueller, P.O. Box 988, East Longmeadow, Mass. 01028

Filed Jul. 8, 1997, Ser. No. 889,515

Int. Cl.^{6} F16K *11/07*

U.S. Cl. 137—625.38 **11 Claims**



1. A valve assembly for connection to a source of fluid to be metered, a facility for utilizing the fluid, and a fluid meter having a fluid inlet and a fluid outlet, said valve assembly comprising:

(a) a housing having an elongated bore, a first inlet opening to the bore, a first outlet opening to the bore, a second inlet opening to the bore, and a second outlet opening to the bore;

(b) a first fixture for connecting said first inlet opening to said source of fluid;

(c) a second fixture for connecting said first outlet opening to the fluid inlet of said meter;

(d) a third fixture for connecting said second inlet opening to the outlet of said meter;

(e) a fourth fixture for connecting said second outlet opening to said facility;

(f) a piston slidably mounted within said bore for selective movement within the bore to at least two operating positions including a metered fluid flow position, and a fluid flow meter bypass position, said piston having a fluid passageway, said fluid passageway having at least one inlet port and at least one outlet port spaced from said inlet port, said first inlet opening being in fluid communication with said first outlet opening and said second inlet opening being in fluid communication with said second outlet opening when said piston is in said metered fluid flow position to enable fluid from said source to flow through said meter to said facility, said inlet opening being in fluid communication with said first inlet port and blocked from fluid communication from said first outlet opening and said outlet port being in fluid communication with said second outlet opening and blocked from fluid communication with said second inlet opening so that fluid from said source of fluid is diverted from said meter through said fluid passageway to said facility when said piston is in said fluid flow meter bypass position; and

(g) means for enabling said piston to be selectively moved to any one of its operating positions within said housing.

5,785,087
WATER HYDRAULIC PROPORTIONAL CONTROL VALVE

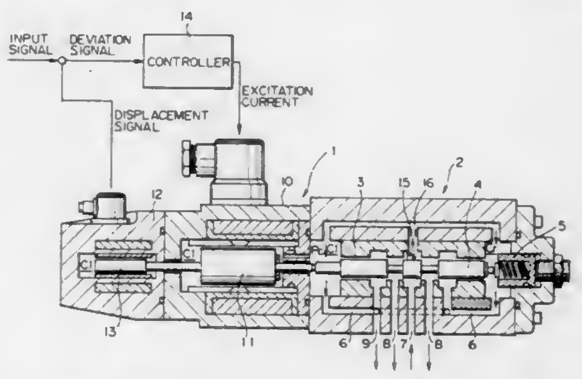
Tamami Takahashi, Tokyo, and Yuichi Usami, Kanagawa-ken, both of Japan, assignors to Ebara Corporation, Tokyo, Japan

Filed Apr. 1, 1997, Ser. No. 829,936

Claims priority, application Japan, Apr. 3, 1996, 8-081530

Int. Cl.^{6} F15B *13/044*

U.S. Cl. 137—625.65 **17 Claims**



1. A water hydraulic proportional control valve comprising: a valve body having a supply port, a control port and a return port; a spool axially movably disposed in said valve body for changing a direction of the working fluid and a flow rate of the working fluid; a direct driving mechanism which directly converts electric signals into a driving force for moving said spool, the valve opening of said control valve is controlled by means of a proportional control of the amount of a displacement of said spool from a neutral position thereof toward one direction or another according to an input signal supplied to said direct driving mechanism; spool side chambers provided on both sides of said spool; drain channels formed in communication to each of said spool side chambers; and a flow passage means separate and distinct from said direct driving mechanism and including passages formed in said valve body extending from said supply port to each of said spool side chambers; wherein a water is used as said working fluid.

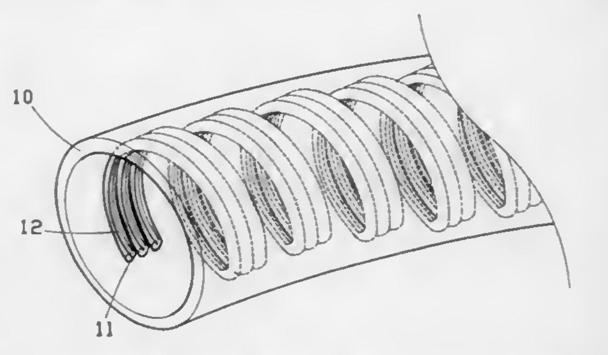
5,785,088
FIBER PORE STRUCTURE INCORPORATE WITH A V-SHAPED MICRO-GROOVE FOR USE WITH HEAT PIPES

Larry Pai, Taipei Hsien, Taiwan, assignor to Wuh Choung Industrial Co., Ltd., Taipei Hsien, Taiwan

Filed May 8, 1997, Ser. No. 852,948

Int. Cl.^{6} F28F *13/00*

U.S. Cl. 138—38 **1 Claim**



1. A pore structure for use in a heat pipe comprising a plurality of longitudinally extended fibers gathered together and spirally disposed on an internal wall surface of the heat pipe, each of said plurality of fibers having at least one longitudinal V-shaped micro-groove formed therein.

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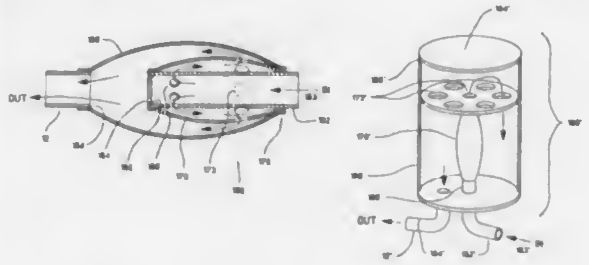
5,785,089
FLUID FLOW NOZZLE ASSEMBLY AND METHOD

Robert L. Kuykendal, and Ronald S. Deichmann, both of 1136 Washington, St. Louis, Mo. 63101
Division of Ser. No. 488,968, Jun. 8, 1995, Pat. No. 5,641,120.
This application Feb. 21, 1997, Ser. No. 803,579
Int. Cl.^{6} F21P *7/00*
U.S. Cl. 138—42 **4 Claims**

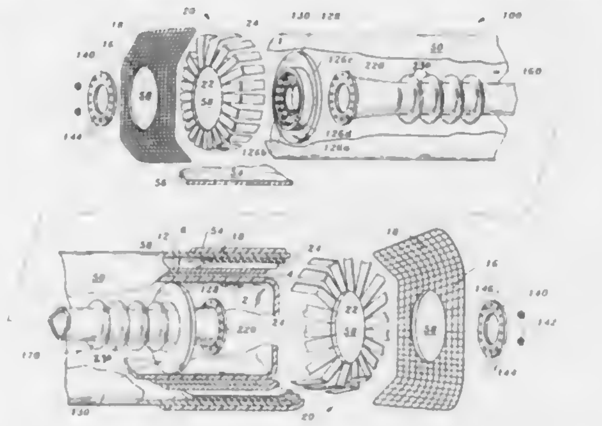


1. A pressure pulse reducing assembly comprising:
a conduit adopted to receive fluid from a source of fluid;
means blocking off an end of said conduit;
a plurality of first openings provided in said pipe adjacent said block-off means;
a first flexible tube connected to said conduit adjacent said block-off means and adjacent said openings; whereby fluid may flow through said openings and flow in an opposite direction through said flexible member than through said conduit;
second fastening means holding said first flexible tube in engagement with said conduit downstream of said block off means;
and a second flexible tube in engagement with said first flexible tube;
second openings in said first flexible tube adjacent said second fastening means;
and third openings provided in said second flexible tube to allow fluid to flow outwardly within said second flexible tube outward of said first flexible member; and
third fastening means connecting said second flexible member outboard of said block-off means to a rigid inlet means, whereby fluid may flow inwardly through said conduit to said first openings, then flow in a parallel but opposite direction along said conduit to said second openings; through said second openings along said second flexible tube in a parallel relationship, but in said rigid opposite direction to flow through said first flexible tube, and then into an inlet means whereby as fluid flows in opposite directions within said first and second flexible tube, pulses generated by compressor means may be reduced or eliminated.

2. A pressure pulse reducing assembly comprising:
a first flexible conduit having a first end having a first opening adopted to receive fluid from a source of fluid;
means for blocking off fluid flow adjacent a second end of said first conduit;
at least one second opening provided in said first conduit adjacent said means for blocking off fluid;
a second rigid conduit surrounding and completely enclosing said first conduit;
said second rigid conduit connected to said means for blocking off fluid adjacent said second end;
said second conduit having a first end having a third opening in fluid communication with said at least one second opening, and a second end having a fourth opening in fluid communication with outlet conduit means from said assembly adjacent said first opening whereby fluid may flow through said first opening and flow in said first conduit and out said second opening and then into said third opening in said second conduit an flow in a parallel but opposite direction to flow in said first conduit, out said fourth opening and then into said outlet conduit means whereby pressure pulses in said fluid may be reduced or eliminated by such flow.

5,785,090
PIPELINE STOPPER PLUG AND METHOD THEREFORE

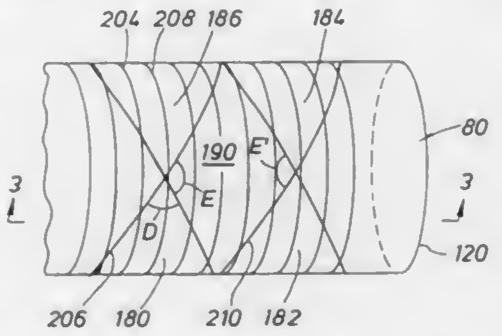
Gerald J. VanderLans, P.O. Box 758, Lodi, Calif. 95240
Division of Ser. No. 665,585, Mar. 6, 1991, Pat. No. 5,379,802.
This application Jan. 6, 1995, Ser. No. 369,753
Int. Cl.^{6} F16L *55/12*
U.S. Cl. 138—89 **28 Claims**



1. A plug for obturating a conduit having an interior bore, comprising, in combination:
a sleeve having an exterior dimension smaller than the bore of the conduit, said sleeve to be received within the bore, said sleeve having first and second ends.
a first end wall closing said first end,
a second end wall closing said second end,
plug reinforcing means integrally formed on one said end, said plug reinforcing means including means to bind said sleeve to said one said end wall, said binding means emanating from said one said end wall and extending into said sleeve, said binding means integrally formed in both said one end wall and said sleeve whereby said plug reinforcing means enhances the integrity of said plug;
wherein said plug reinforcing means includes a ring having an opening passing centrally therethrough;
wherein said binding means includes a plurality of straps each having a first tip separated from a second tip by an intermediate portion, each said strap fixedly attached to said ring with at least one of said tips integrated with said sleeve; and
wherein said plug reinforcing means includes said ring fixedly attached to one said end, said ring formed of rigid material.

5,785,091
FLEXIBLE AIR DUCT WITH DIAMOND INTERLOCK SCRIM

Blaine F. Barker, II, Pearland, Tex., assignor to Tele-Flow, Inc., Pearland, Tex.
Filed Dec. 11, 1995, Ser. No. 570,292
Int. Cl.^{6} F16L *11/02*
U.S. Cl. 138—123 **15 Claims**

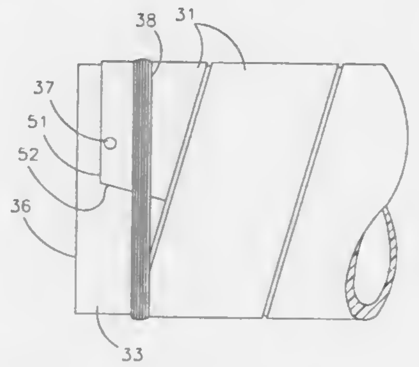


1. A flexible insulated air duct comprising:

a flexible inner core including a wire helix with spaced convolutions and a tape, said wire helix laminated in said tape;
an insulation blanket wrapped around said flexible inner core; and
a jacket covering the outer surface of said insulation blanket, said jacket including:
an inner layer;
an outer layer;
a parallel scrim; and
a criss-crossed scrim, said parallel and criss-crossed scrims laminated between said inner and outer layers.

5,785,092
HIGH-PRESSURE FIBER REINFORCED COMPOSITE PIPE JOINT

Ralph Friedrich, Hermosa Beach; Ming Kuo, Cerritos, and Kevin Smyth, Whittier, all of Calif., assignors to Ameron International Corporation, Pasadena, Calif.
Division of Ser. No. 327,616, Oct. 24, 1994, Pat. No. 5,520,422.
This application Nov. 15, 1995, Ser. No. 556,447
Int. Cl.^{6} F16L *11/00*
U.S. Cl. 138—133 **10 Claims**

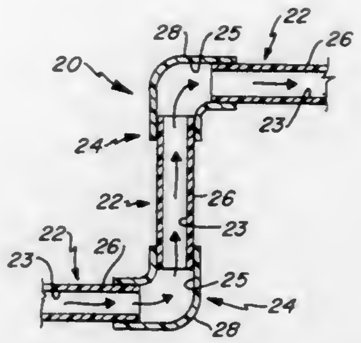


1. A composite pipe comprising:
a fiber reinforced composite pipe including at least one helically wound steel strip embedded in fiber reinforced resin and having an external joint moiety extending at least in part longitudinally on at least one end of the pipe; and wherein the helically wound steel strip ends within the longitudinal extent of the pipe joint moiety the end of the steel strip is cut off at the helix angle of the strip winding so that the cut edge is parallel to the end of the pipe and the end of the steel strip is spaced apart from the end of the pipe so as to be completely encased by fiber reinforced resin.

5,785,093
VEHICLE INCLUDING FREEZE STRESS RESISTANT FLUID CONDUCTING APPARATUSES

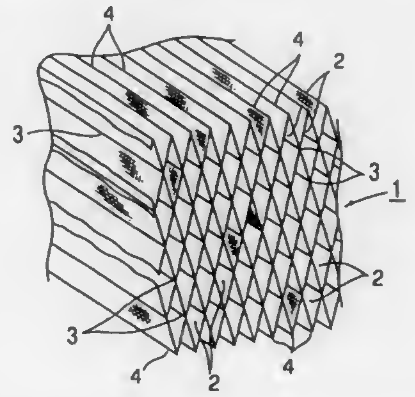
David E. Jewell, Golden, Colo., assignor to Stanley Aviation Corporation, Aurora, Colo.
Filed Jul. 1, 1996, Ser. No. 673,568
Int. Cl.^{6} F16L *9/127*
U.S. Cl. 138—178 **16 Claims**

1. An improved aircraft providing air transport having a fuselage and at least one engine mounted to said aircraft, the improvement comprising:
a fluid conducting apparatus attached to said aircraft and made of a single homogeneous material having an outer surface, an inner surface, and a hollow interior defined by said inner surface, said homogeneous material having a modulus of elasticity, yield strength, and yield stress wherein said modulus of elasticity is less than 20.5 times said yield strength when said modulus is measured at the yield stress whereby said fluid conducting apparatus can withstand multiple freeze cycles without failure.



5,785,094
THREE-DIMENSIONAL WOVEN FABRIC STRUCTURAL MATERIAL

Shigeru Yoshida, Kyoto, Japan, assignor to Unitika Glass Fiber Co., Ltd., Kyoto, Japan
Filed Mar. 19, 1996, Ser. No. 618,113
Claims priority, application Japan, Mar. 23, 1995, 7-064345; Jun. 2, 1995, 7-136887; Jun. 27, 1995, 7-161106; Mar. 13, 1996, 8-056493
Int. Cl.^{6} E06B *9/00;* D03D *1/00*
U.S. Cl. 139—384 R **6 Claims**



1. A three-dimensional woven fabric structural material, comprising:
at least the woven fabric plies integrally woven by a muti-ply weave, said structural material presenting an expanded shape extending in two directions, longitudinal and transverse, and presenting a front surface and a rear surface, a distance between which defines a thickness of said structural material; and
said at least three woven fabric plies being substantially parallel with one another and shifted from one another in a first direction of said two directions, and extending in a zigzag pattern between said front and rear surfaces, a plurality of bound portions being formed each by a crossing locus of any two of said at least three woven fabric plies, whereby at least two rows of cylindrical bag portions are thus formed and juxtaposed with each other in a direction of said thickness, said cylindrical bag portions each longitudinally extending in a second direction of said two directions and said at least two rows each extending in said first direction, any two adjacent cylindrical bag portions of a given one of said at least two rows are connected to one another along one of said plurality of bound portions, and each of said at least two rows are arranged such that each one of said cylindrical bag portions in a given one of said at least two rows is disposed between two adjacent cylindrical bag portions in an adjacent remaining one of said at least two rows.

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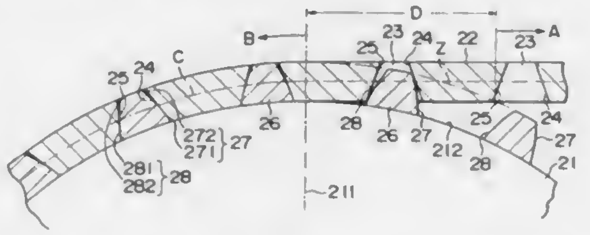
5,785,095
SPROCKET WHEEL AND RAPIER BAND USED IN RAPIER LOOM

Masahiko Kinbara, Kariya, Japan, assignor to Kabushiki Kaisha Toyoda Jidoshokki Seisakusho, Kariya, Japan

Filed Dec. 19, 1996, Ser. No. 769,953
Claims priority, application Japan, Dec. 27, 1995, 7-341387
Int. Cl.⁶ D03D *47/27*
U.S. Cl. 139—449 **21 Claims**



1. An apparatus for use in a rapier loom said apparatus including a sprocket wheel having a plurality of teeth formed along an outer periphery thereof and mounted for reciprocating rotational motion, and a rapier band having a rapier head mounted at a tip end thereof and a plurality of holes formed therethrough so as to extend between an inner surface of said rapier band facing toward said sprocket wheel and an outer surface thereof remote from said sprocket wheel, said rapier band being partially wrapped around said sprocket wheel with said teeth thereof meshing with said holes of said rapier band so that said rapier band is caused to reciprocatingly travel, thereby alternately inserting and withdrawing said rapier head into and from a shedding formed by warps under the reciprocating motion of said sprocket wheel, said sprocket wheel being characterized in that:

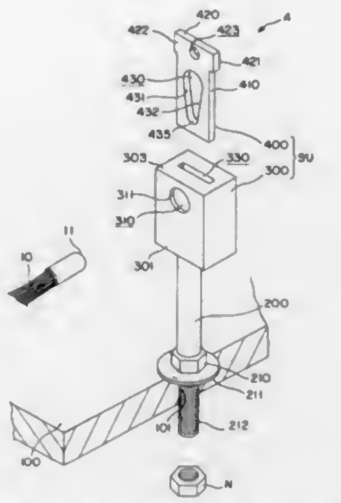
each said tooth of said sprocket wheel has tooth surfaces located upstream and downstream with respect to the rotating directions of said sprocket wheel, each said tooth surface including a dedendum surface portion and an addendum surface portion which differ in shape such that in a band meshing region in which said rapier band wraps around said sprocket wheel, each said dedendum surface portion is brought into contact with an oppositely facing wall surface of the corresponding hole of said rapier band, while in a transitional region intervening between said meshing region and a band releasing region in which said rapier band gets free from interference of said teeth of said sprocket wheel, each said dedendum surface portion does not contact said wall surface of said corresponding hole of said rapier band; and

each said addendum surface portion has such shape that in said transitional region, said addendum surface portion does not contact said wall surface of said corresponding hole of said rapier band.

5,785,096
WIRE RETAINER

Yoshihiro Araki, Yokkaichi, Japan, assignor to Sumitomo Wiring Systems, Ltd., Japan

Filed Oct. 30, 1996, Ser. No. 739,554
Claims priority, application Japan, Nov. 14, 1995, 7-295385
Int. Cl.⁶ B21F *33/00*
U.S. Cl. 140—92.1 **13 Claims**



1. A wire end retainer for arranging wires (**10**) of a wiring harness on a wire arrangement board (**100**), comprising:

a cover member fitted on end portions of the wires (**10**) to define a collected end portion (**11**),

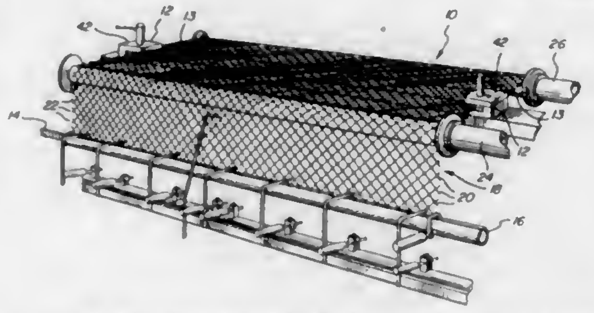
a retainer main body (**300**; **350**; **600**) having means for mounting on the wire arrangement board (**100**), the retainer main body (**330**; **350**; **600**) being formed with an accommodation space (E; **610**) for accommodating the collected end portion (**11**) of the wires (**10**), the retainer main body (**330**; **350**; **600**) further comprising an insertion restricting member (**320**; **370**; **611**; **611'**) defining a periphery of the accommodation space (E; **610**) and being disposed to engage and position the cover member of the collected end portion (**11**) in the accommodation space (**11**; **610**), and

a locking member (SU; **400**; **450**; **700**; **750**) movably mounted on the retainer main body (**300**; **350**; **600**) for movement between a retaining position for tightly holding the collected end portion (**11**) positioned in the accommodation space (E; **610**) by the insertion restricting member (**320**; **370**; **611**; **611'**) and a release position for freeing the collected end portion (**11**).

5,785,097
APPARATUS AND METHOD FOR FORMING A FLAT-TOP CHAIN LINK MATERIAL IN A CHAIN LINK WEAVING MACHINE

Jose G. Garcia, La Puente, Calif., assignor to BMCI, Inc., South El Monte, Calif.

Filed Apr. 1, 1997, Ser. No. 834,721
Int. Cl.⁶ B21F *24/17*
U.S. Cl. 140—92.7 **20 Claims**



1. A chain link material having flattened ends formed in a chain link weaving machine by the following steps:

weaving a continuous sheet of chain link material in a weaving machine with opposed ends of said continuous sheet of chain link material having cut, sharpened ends;

indexing said continuous sheet of chain link material through said chain link weaving machine until at least one of the opposed ends having cut, sharpened ends is brought to an end flattening assembly mounted in said chain line weaving machine;

trimming the cut sharpened ends by trimming means held in said end flattening assembly;

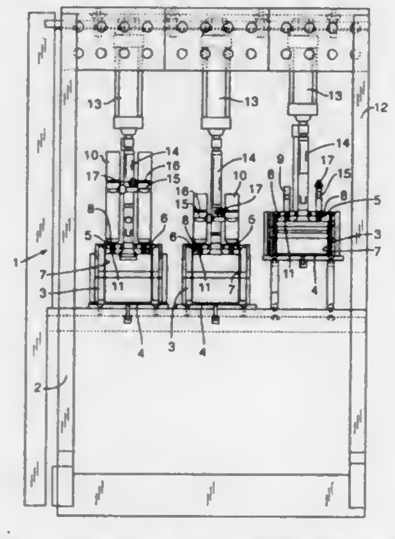
bending said trimmed ends to parallel positions by bending means in said end flattening assembly whereby a pair of said trimmed ends contact each other in a flattened configuration; and

securing the flattened, contacting, trimmed ends together by securing means held in said end flattening assembly to form a flattened edge on the chain link material.

5,785,098
METHOD AND APPARATUS FOR FILLING CONTAINERS

Vincent Kho Yue Sern; See Soon Lee, and Chew Kai Hwa, all of Singapore, Singapore, assignors to Singapore Asahi Chemical & Solder Industries Pte. Ltd., Singapore, Singapore

Filed Nov. 5, 1996, Ser. No. 743,949
Int. Cl.⁶ B65B *3/12*
U.S. Cl. 141—27 **16 Claims**



1. A syringe or cartridge having a displaceable stopper located therein; and an apparatus for filling the syringe or cartridge, the apparatus comprising;

a reservoir for holding a flowable filling material;

a plunger associated with the reservoir to exert pressure on the flowable material in the reservoir, which plunger includes at least one dispensing port defining a channel through the plunger for connection with the syringe or cartridge;

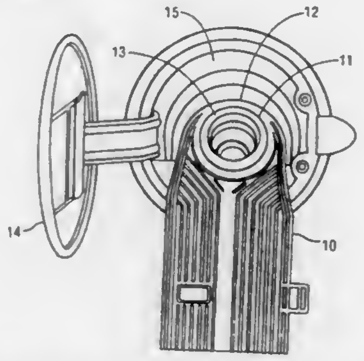
means for applying pressure to the plunger; and

a sensor mounted on the means for applying pressure to the plunger and operably associated with the stopper to sense displacement of the stopper by a predetermined amount.

5,785,099
AUTOMOBILE REFUELING GUARD

Mir Saied Kashani, Los Angeles, Calif., assignor to Saied Mir Kashani, Los Angeles, Calif.

Filed Feb. 28, 1995, Ser. No. 395,943
Int. Cl.⁶ B65B *1/04*
U.S. Cl. 141—86 **7 Claims**



1. A fuel guard to protect an automobile's surface adjacent to the automobile's fuel fill pipe, contained by a fuel filling compartment, from damage caused by incidental contact with the fuel spillage during refueling and nicks and scratches caused by incidental contact with the fuel pump nozzle, comprising:

a single sheet of flexible material having a top edge, two side edges, a bottom edge, and parallel front and back surfaces defined by said top, bottom, and side edges;

said sheet including a means for attaching a portion of said sheet, adjacent to said top edge, around said fuel fill pipe,

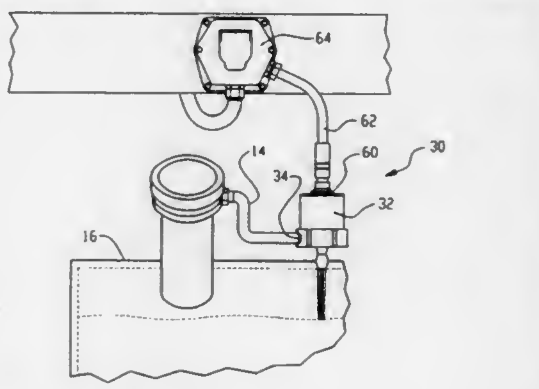
said front surface containing a plurality of raised ridges forming at least one channel; and

one or more stand-offs attached to said back surface and laterally spaced from said bottom edge of the sheet to keep said bottom edge of the sheet away from the surface of the automobile so that run-off fuel drips onto the ground and not onto the automobile.

5,785,100
LIQUID LEVEL DETECTION SYSTEM

Steve Showalter, Milmont Park, Pa., and George Birch, Turnerville, N.J., assignors to Vickers, Incorporated, Maumee, Ohio

Filed Feb. 14, 1997, Ser. No. 801,712
Int. Cl.⁶ B65B *1/04*
U.S. Cl. 141—198 **13 Claims**



1. A liquid retention system comprising:

a tank for receiving and retaining a liquid; said tank including a filling port;

a dispersing means for supplying liquid to the tank, said dispersing means including a nozzle which engages said filling port;

a pneumatic detection system, for fluidly measuring a liquid level state within the tank, wherein the liquid level state is selected from the group consisting of full and not-full;

an optical detection system, cooperating with the pneumatic detection system, for optically measuring the liquid level state within the tank, wherein the optical detection system comprises an electro-optic probe further comprising:
  - a light source;
  - a light detector;

a prism for receiving light from said light source for alternately directing and not directing said light at the detector to indicate the presence of a desired liquid level state within the tank; and
  an optical cable for conducting light from the source to the prism and back to the detector, wherein the light traverses the length of the cable and the prism along the same optical path.

5,785,101
TREE HARVESTING AND PROCESSING HEAD

Allan John Wildey, Paris, Canada, assignor to Timberjack Inc., Ontario, Canada

Continuation of Ser. No. 557,259, Nov. 14, 1995, abandoned.
This application Jun. 11, 1997, Ser. No. 873,164
Int. Cl.⁶ A01G *23/08*
U.S. Cl. 144—4.1 **12 Claims**

1. A tree harvesting and processing head comprising:

a body with means for attaching the head to a mobile machine;

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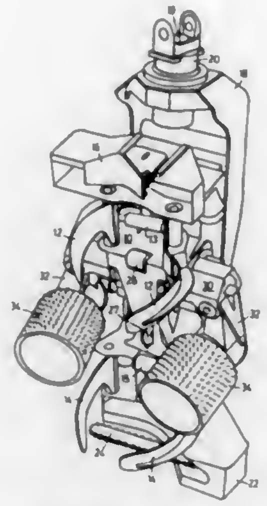


at least two pairs of grappling arms, pivotally mounted to the body for movement toward and away from each other, the first pair being mounted adjacent one end and the second pair being mounted adjacent the other end of the body, the grappling arms defining therebetween a grappling zone which extends along the length of the head;
a delimbing knife;
a cutting device for cutting a tree in the grappling zone; and
at least one pair of drive rollers wherein the drive rollers are pivotally mounted for movement to a processing position in which the rollers are in the grappling zone and to a grappling position in which the rollers are outside of the grappling zone;
wherein, there is a cross beam which is pivotally mounted to the body between the first and the second pairs of grappling arms and each drive roller is mounted on the cross beam so that the rollers move in unison and independently of the grappling arms into and out of the grappling zone upon pivotal movement of the cross beam.

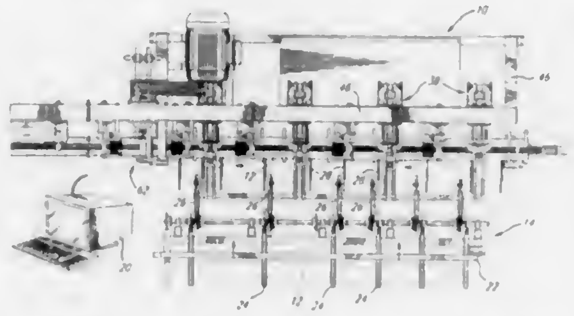
5,785,102
BOARD EDGING INFEED APPARATUS

Gérald Hamel, St-Éphrem, Canada, assignor to Industries P.H.L. Inc., St-Ephrem, Canada

Filed Feb. 20, 1997, Ser. No. 800,990

Int. Cl.⁶ B27B *1/00*

U.S. Cl. 144—387 **5 Claims**



1. An apparatus for positioning an elongate cant for the infeed of the cant into an edging device capable of longitudinally cutting the cant to remove the wane edges thereof, said apparatus comprising:
a frame structure;
a conveying module for transversely conveying the cant along a substantially straight path;
a scanning module located along the path for optically scanning the morphology of the cant and providing morphology data;
a computer module linked to the scanning means for analyzing the morphology data and calculating a longitudinal preferred infeed line for said cant;
positioning means located further along the path for transversely positioning the cant to a collinear relationship with the preferred infeed line for said cant,
the positioning means comprising a plurality of spaced apart, releasable, pinching members, said pinching members being connected to lifting and opening means to cause sequential lifting of pinching members above incoming cants, lowering of pinching members onto the cants, pinching of the cants and positioning of the pinched cants; and
feeding means for longitudinally advancing the cant along the preferred infeed line into the edging device.

5,785,103

Patent Not Issued For This Number

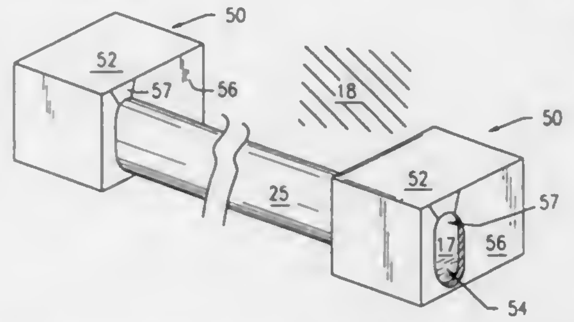
5,785,104
CONVERSION SYSTEM FOR TRAVERSE CURTAIN RODS

Paula Riley, New York, and Kenneth V. Stevens, Brooklyn, both of N.Y., assignors to New²rinkle, L.L.C., New York, N.Y.

Filed Oct. 1, 1997, Ser. No. 942,016

Int. Cl.⁶ E04F *10/00*

U.S. Cl. 160—38 **27 Claims**



1. A conversion system for changing the appearance and style of a curtain traverse rod assembly having a traverse rod supported between a pair of brackets mounted to a wall and containing a plurality of movable eyelets, the conversion system comprising:
an elongated rod cover having a hard outer shell, and a soft inner lining inside of the outer shell defining a longitudinal channel through the rod cover, the rod cover for encasing the traverse rod within the longitudinal channel;
end-bracket cover means for changing the appearance of each of the pair of brackets by concealing each bracket from view, the end-bracket cover means being connected to opposite ends of the rod cover.

5,785,105
SEALABLE CURTAIN

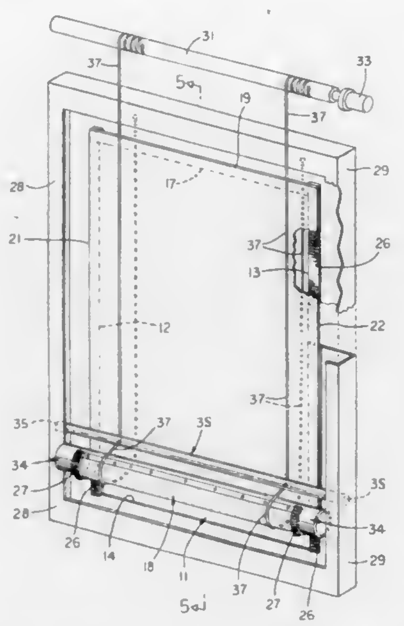
Grant W. Crider, Rte. 1, Box 17, Breman, Ala. 35033, and Charles H. Harbison, 3217 Georgetown Pl., Birmingham, Ala. 35216

Continuation-in-part of Ser. No. 556,484, Nov. 13, 1995, Pat. No. 5,566,736, and Ser. No. 684,992, Jul. 22, 1996. This application Oct. 18, 1996, Ser. No. 733,784

Int. Cl.⁶ A47G *5/02*

U.S. Cl. 160—243 **12 Claims**

1. Apparatus for opening and closing a portal in a structure comprising, in combination:
a) a pair of spaced apart opposing lateral margins of said portal;
b) a flexible curtain having elongated side portions, a first end and a second end each having a dimension commensurate



with the separation of the lateral margins, with said first end being fixedly attached across said portal at an upper end thereof;
c) an elongated roller fixedly attached to said second end of said curtain;
d) means for urging said elongated roller along a vertical path such that said elongated roller is positioned at different heights; and
e) a weighted roller supported on said elongated roller and separated therefrom by said urging means.

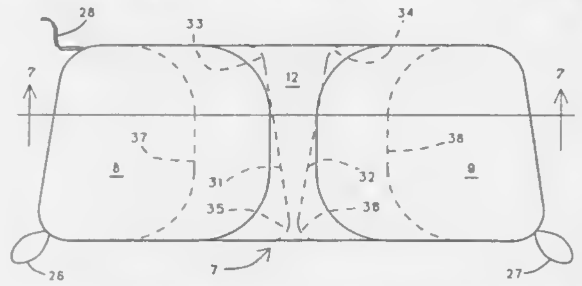
5,785,106
SUNSHIELD AND METHOD OF MANUFACTURE OF SUNSHIELD

Charles Hwang, 1714 Stoner Ave. Unit #9, Los Angeles, Calif. 90025

Division of Ser. No. 423,818, Apr. 19, 1995, Pat. No. 5,575,324, which is a continuation-in-part of Ser. No. 419,956, Apr. 7, 1995. This application Nov. 18, 1996, Ser. No. 751,905

Int. Cl.⁶ B60J *3/00*

U.S. Cl. 160—370.21 **4 Claims**



1. A sunshield for placement in a vehicle windshield for reflecting sunlight, comprising:
a continuous sheet of material having a first section and a second section with an intermediate section there between;
a first spring loop configured to correspond to the first section and a second spring loop configured to correspond to the second section;
forming a continuous ridge with a portion of the sheet of material adjacent the first spring loop and adjacent the second spring loop;
a first section of bias tape being attached to the ridge and covering the first spring loop and a second section of bias tape being attached to the ridge and covering the second spring loop;
whereby the first and second spring loops are attached to the first and second sections with the intermediate section there between.

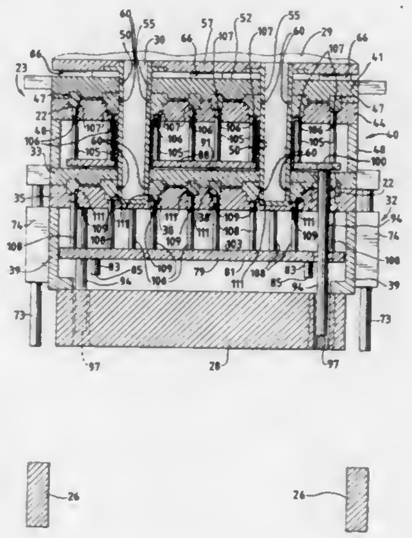
5,785,107
APPARATUS AND METHOD FOR PRODUCING MULTIPLE CORES

Pheroze J. Nagarwalla, St. Charles, Ill.; Scott Hendrie, Coldwater, Mich., and Raymond F. Witte, Naperville, Ill., assignors to Georg Fischer Disa, Inc., Oswego, Ill.

Filed Dec. 29, 1995, Ser. No. 581,071

Int. Cl.⁶ B22C *7/06;9/12;13/12*

U.S. Cl. 164—16 **15 Claims**



1. A core box assembly, comprising:
a lower core box having a lower core cavity;
an upper core box having an upper core cavity;
the upper core box being disposed above the lower core box; and
a passage through the upper core box and into the lower core box for passing core material, the passage being in fluid communication with the upper and lower core cavities.

2. The core box assembly of claim 1 wherein:
the lower core box includes a lower cope and a lower drag disposed below the lower cope, the lower core cavity being defined between the lower cope and the lower drag; and
the upper core box includes an upper cope and an upper drag disposed below the upper cope, the upper core cavity being defined between the upper cope and the upper drag.

5,785,108
APPARATUS AND METHOD FOR CHANGING PATTERN PLATES ON SHELL CASTING MOLDING MACHINE

Ulf Stangier, Ketsch, and Reiner Rommel, Brühl, both of Germany, assignors to Adolf Hottinger Maschinenbau GmbH, Mannheim, Germany

PCT No. PCT/DE95/00318, § 371 Date Nov. 18, 1996, § 102(e) Date Nov. 18, 1996, PCT Pub. No. WO95/31303, PCT Pub. Date Nov. 23, 1995

PCT Filed Mar. 8, 1995, Ser. No. 737,464

Claims priority, application Germany, May 18, 1994, 44 17 302.4

Int. Cl.⁶ B22C *13/08*

U.S. Cl. 164—21 **14 Claims**

1. An apparatus for changing pattern plates in the production of shell casting molds comprising
a pattern plate carrier for releasably mounting a pattern plate,

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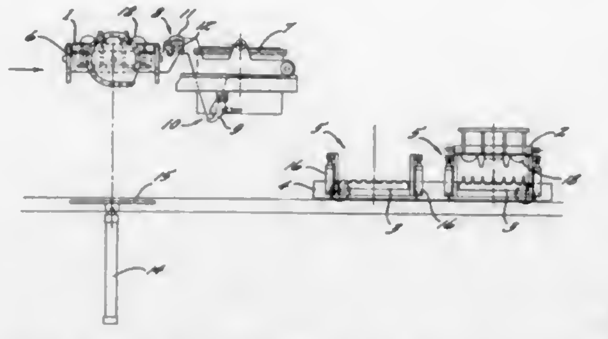


means mounting said pattern plate carrier for rotation about a horizontal axis and between an upright position and an inverted position, and

pattern plate changing means for removing a pattern plate from the pattern plate carrier and replacing the removed pattern plate with a pre-heated substituting pattern plate while the pattern plate carrier is rotated to said inverted position.

9. A method of changing pattern plates during the production of shell casting molds and utilizing a pattern plate carrier which is configured to releasably mount a pattern plate, and comprising the steps of

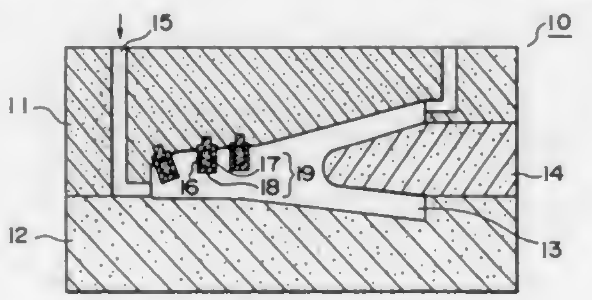
rotating the pattern plate carrier which mounts a pattern plate from an upright position to an inverted position,

releasing and removing the pattern plate from the pattern plate carrier while in said inverted position, and then

releasably mounting on the pattern plate carrier a substituting pattern plate which has been pre-heated to a working temperature of between about 250 degrees C. and about 330 degrees C.

5,785,109
METHOD FOR CASTING WEAR RESISTANT PARTS

Hiroyuki Hongawa, Hiimi, Japan, assignor to Komatsu Ltd., Tokyo, Japan
PCT No. PCT/JP95/00895, § 371 Date Feb. 4, 1997, § 102(e) Date Feb. 4, 1997, PCT Pub. No. WO95/31304, PCT Pub. Date Nov. 23, 1995
PCT Filed May 10, 1995, Ser. No. 737,477
Claims priority, application Japan, May 13, 1994, 6-123337
Int. Cl.^{6} B22D *19/14;27/00*
U.S. Cl. 164—59.1 **19 Claims**



1. A method for casting a wear resistant part which includes at least one superhard portion, said method comprising the steps of:

providing at least one holding member which can be melted by molten steel, each holding member having a cavity;

placing in the cavity of each of said at least one holding member a hardened portion forming material comprising superhard particles and graphite powder;

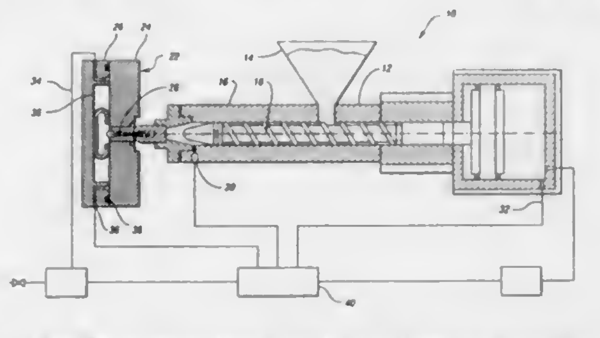
positioning said at least one holding member, containing the hardened portion forming material, in a casting mold;

pouring molten steel into the casting mold, containing the thus positioned at least one holding member, to cause the thus positioned at least one holding member to be melted into the thus poured molten steel and said superhard particles to move mainly downwardly and disperse within the thus poured molten steel while the graphite powder mainly goes into solid solution and diffuses; and

solidifying the thus poured molten steel into which the at least one holding member has melted, the superhard particles have dispersed, and the graphite powder has diffused.

5,785,110
METHOD OF INJECTING MOLTEN METAL INTO A MOLD CAVITY

Milko G. Guergov, 615 Washington #5, Monroe, Mich. 48161
Division of Ser. No. 370,602, Jan. 10, 1995, Pat. No. 5,566,743, which is a continuation-in-part of Ser. No. 236,471, May 2, 1994, Pat. No. 5,441,680. This application Sep. 9, 1996, Ser. No. 709,635
Int. Cl.^{6} B22D *17/10*
U.S. Cl. 164—113 **7 Claims**



1. A method of metal casting without the formation of significant porosity and voids for use with a metal casting apparatus including a sealable sleeve and a mold having a mold cavity formed therein, the sleeve having a plunger for pushing molten metal from the sleeve into the mold cavity in a potentially wave-forming manner, the plunger being movable between a first position at which the plunger is retracted, a second position at which injection of the molten metal into the mold cavity begins, and a third position at which the mold cavity is substantially full of molten metal, the method comprising:

supplying pressurized gas in the sleeve adjacent the molten metal prior to injection to sufficiently increase the level of solubility of hydrogen in the molten metal as the plunger is moved from the first position toward the second position, whereby to prevent formation of significant gas porosity and voids in the casting and to decrease wave formation; and

supplying pressurized gas in the mold cavity prior to injection to sufficiently increase the level of solubility of hydrogen in the molten metal in the mold cavity as the plunger is moved from the second position toward the third position, whereby to further prevent formation of significant porosity and voids in the casting.

5,785,111
BLOW-SQUEEZE MOLDING MACHINE

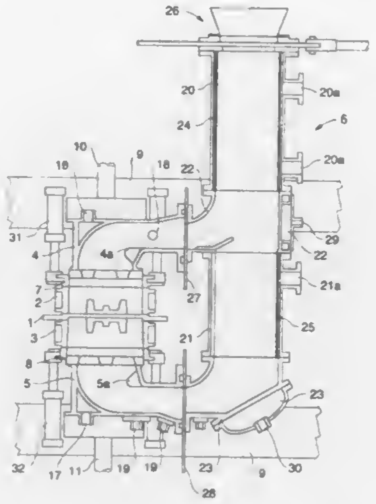
Masahide Noguchi, Toyohashi, and Kazuo Kotaka, Toyokawa, both of Japan, assignors to Sintokogio, Ltd., Nagoya, Japan
Filed Dec. 6, 1996, Ser. No. 758,742
Claims priority, application Japan, Dec. 15, 1995, 7-348092
Int. Cl.^{6} B22C *15/24*
U.S. Cl. 164—200 **2 Claims**

1. A blow-squeeze machine equipped with a match plate, upper and lower flask bodies which are each disposed so as to be able to respectively abut upper and lower surfaces of the match plate, upper and lower blow heads disposed movably up and down for blow-squeezing molding sand into the upper and lower flask bodies abutting the match plate, said upper and lower blow heads having horizontal parts and outlet ends, a sand magazine which includes at least one compressed air supply mechanism which blows molding sand into the upper and lower blow heads, and first upper and lower jet mechanisms respectively provided at first positions in the upper and lower blow heads for jetting compressed air to change the direction of the advancing molding sand so that the molding sand can simultaneously be blow-squeezed into the upper and lower flask bodies abutting the match plate, wherein:

the upper and lower blow heads respectively include hollow passages having respectively arcuate inner and outer wall bend portions near each of the outlet ends, wherein the wall bend portions are configured to respectively direct the molding sand to the upper and lower flask bodies;

second upper and lower jet mechanisms respectively provided in the upper and lower blow heads in second positions for jetting compressed air so as to fluidize the molding sand both at side and lower parts in the horizontal parts of the upper and lower blow heads; and

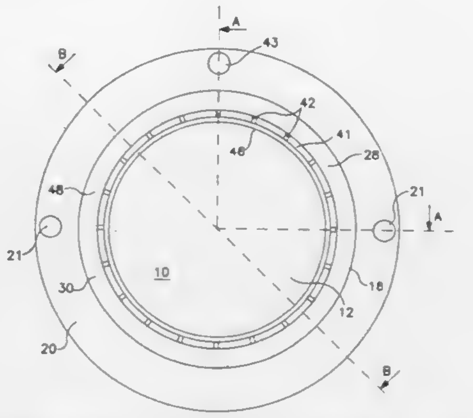
upper and lower guide members projectingly provided respectively in the inner wall bend portions of the upper and lower blow heads in positions for guiding the molding sand within the upper and lower blow heads such that combined action of the compressed air from the first upper and lower jet mechanisms and the second upper and lower jet mechanisms on the molding sand advancing through the hollow passages causes said molding sand to be dispersed towards the entire area of the outlet ends.



5,785,112
METHOD AND MODULAR CONTINUOUS CASTING MOLD FOR MANUFACTURING INGOTS

Bertrand Carrupt, Chamoson, and Maurice Constantin, Sion, both of Switzerland, assignors to Alusuisse Technology & Management Ltd., Switzerland
Filed Mar. 12, 1996, Ser. No. 614,305
Claims priority, application Switzerland, Mar. 24, 1995, 00849/95
Int. Cl.^{6} B22D *11/07;11/12;11/124;27/02*
U.S. Cl. 164—472 **29 Claims**

1. Mold for continuously casting ingots, suitable for slabs or extrusion billets, which comprises: a mold in the form of a hollow cylindrical body having a mold axis, a cylindrical shaped mold interior, and an inlet and an outlet opening; said mold including at least two closed, ring-shaped mold elements with a common concentric central axis which is the mold axis; wherein one mold element is an inner sleeve with respect to the mold axis, has sides thereof, and defines the cylindrical shaped mold interior; and the other mold element is a supporting member with sides thereof and lies outside with respect to the mold axis and the inner sleeve and accommodates the inner sleeve; wherein the mold elements are releasably joined by the inner sleeve inserted into the supporting member; and at least one side of the inner sleeve facing the supporting member and a side of the supporting member facing the inner sleeve are made such that, after joining the two ring-shaped mold elements together, a concentric, ring-shaped space which is a second coolant chamber for accommodating coolant, is formed between the inner sleeve and the supporting member.



24. Process for manufacturing ingots, suitable for rolling slabs or extrusion billets, which comprises: providing a continuously casting a mold in the form of a hollow cylindrical body having a mold axis and a cylindrical mold interior, and an inlet and an outlet opening, wherein said mold with at least two closed, ring-shaped mold elements with a common concentric central axis which is the mold axis, moreover, one of said mold elements as an inner sleeve with respect to the mold axis and lies inside with respect to the mold axis and defines the cylindrical mold interior and has an inner face facing the mold interior and has an inlet end, furthermore the other of said mold elements is a supporting member and lies outside with respect to the mold axis and the inner sleeve and accommodates the inner sleeve; feeding a molten metal or metal alloy for continuous casting through the cylindrical mold interior to give shape to the molten metal to produce a continuously cast ingot; including in the ring-shaped mold elements means for supplying coolant to cool the inner face of the inner sleeve and for jetting coolant onto the ingot emerging from the mold interior; including in the mold elements means for supplying lubricant to the inlet end of the inner sleeve; continuously lubricating the whole of the inner face of the inner sleeve; subjecting the continuously cast material to primary cooling at the inner face of the inner sleeve with the result that the ingot emerging from the mold is in the solid state, at least in its outer edge region, and cooling the ingot by coolant striking said ingot after it emerges from the mold.

5,785,113
COOLING SYSTEM FOR OPTICAL PORT

Leonid Tsatskin, 8016 17th Ave. (Apt. 3F), Brooklyn, N.Y. 11214
Filed May 6, 1996, Ser. No. 642,952
Int. Cl.^{6} F28F *27/00;* **G05D** *23/12;23/02*
U.S. Cl. 165—41 **8 Claims**

1. A cooling system for an optical port comprising at least one layer of optical glass in a frame means which includes:

connection means for connecting said frame means to an aircraft fuselage,

support means for supporting said layer of optical glass, and

cavity means arranged in heat transfer relationship with said layer of optical glass;

the cooling system comprising in combination:

pump means;

reservoir means for storage of cooling fluid;

fluid connection means connecting said pump means in flow communication with said reservoir means and said frame means for circulation of said cooling fluid through said cavity means responsive to operation of said pump means;

thermal sensing means in thermal contact with said frame means for sensing temperature of said frame means and said optical glass layer, with said thermal sensing means comprising:

cylinder means, mounted in thermal contact with said frame means, with said cylinder means filled with gas,

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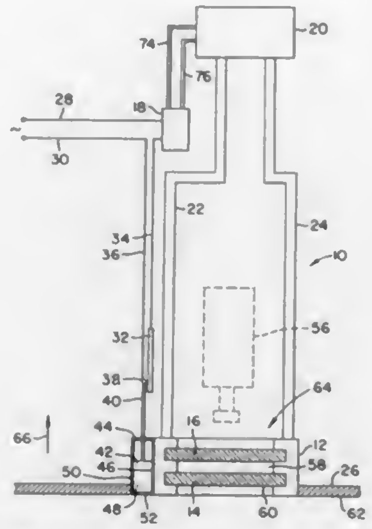


piston means slideably mounted in said cylinder means,
potentiometer means,
mechanical connection means connecting said potentiometer means and said piston means,
electrical connection means connecting said potentiometer means and said pump means, whereby thermal expansion and contraction of said gas in said cylinder means causes motion of said piston means and actuation of said potentiometer means and thereby controls said pump means for control of the cooling fluid flow through said cavity means of said frame means.

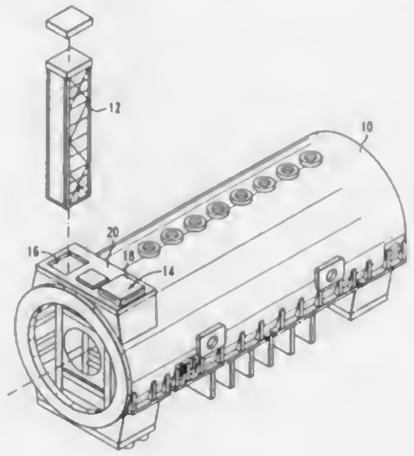
5,785,114
INTEGRAL HYDROGEN COOLER ASSEMBLY FOR ELECTRIC GENERATORS

Patrick W. Armstrong, League City, Tex., and Homer G. Hargrove, Maitland, Fla., assignors to Westinghouse Electric Corporation, Pittsburgh, Pa.

Filed Feb. 23, 1996, Ser. No. 605,938

Int. Cl.^{6} H02K *9/00;9/08;1/32*

U.S. Cl. 165—47 **11 Claims**



1. A hydrogen cooler assembly comprising:
a cooler frame;
a plurality of cooling tubes positioned within the cooler frame;
an inlet end tubesheet for supporting the cooling tubes near a first end of the cooling tubes;
an inlet chamber adjacent to the inlet end tubesheet, the inlet chamber having inlet and outlet connections;
a reverse end tubesheet for supporting the cooling tubes near a second end of the cooling tubes;
a reverse chamber adjacent to the reverse end tubesheet;
a support bracket adapted to be mounted on a frame of an electric generator;
the support bracket defining an opening sized to receive the inlet and outlet connections; and
the support bracket including a shoulder for supporting the inlet chamber.

5,785,115
DEVICE FOR FIXING A HEAT EXCHANGER OPERATING AT HIGH TEMPERATURE

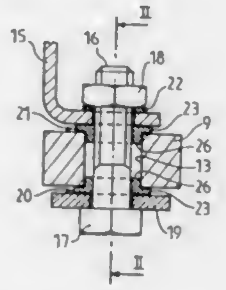
Jean-Louis Laveran, Asnieres S/Seine, France, assignor to Valeo Thermique Moteur, Le Mesnil Saint Denis, France

Filed Oct. 3, 1996, Ser. No. 724,831

Claims priority, application France, Oct. 6, 1995, 95 11817

Int. Cl.^{6} F28F *9/00*

U.S. Cl. 165—67 **12 Claims**



1. A device for fixing a heat exchanger to a support, the device comprising:
at least two spaced apart fixing zones, the device including in each of the zones a first contact surface belonging to the support, a second contact surface belonging to the exchanger and a clamping appliance suitable for securing the first and second contact surfaces to each other; and
at least one intermediate element inteposed between the first and second contact surfaces within at least one of the fixing zones to provide relative sliding of the first and second contact surfaces separated by the intermediate element to absorb thermal expansion of the exchanger.

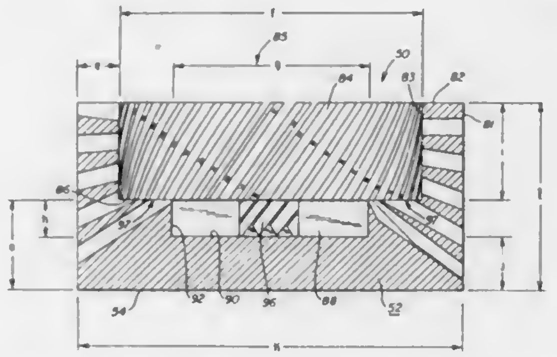
5,785,116
FAN ASSISTED HEAT SINK DEVICE

Guy R. Wagner, Loveland, Colo., assignor to Hewlett-Packard Company, Palo Alto, Calif.

Filed Feb. 1, 1996, Ser. No. 593,185

Int. Cl.^{6} F28F *7/00*

U.S. Cl. 165—80.3 **27 Claims**



19. A method of removing heat from a heat source comprising the steps of:
a) providing a heat sink assembly having an interface surface, a peripheral wall portion defining a chamber therewithin and a heat conductive base portion located between said interface surface and said chamber;
b) contacting said heat source with said interface surface;
c) causing air to move into said chamber through said peripheral wall portion; and
d) causing air to move out of said chamber through said base portion.

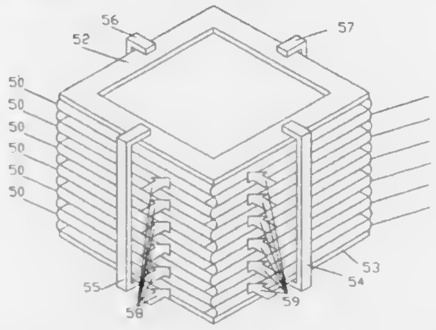
5,785,117
AIR-TO-AIR HEAT EXCHANGER CORE

Peter Karl Grinbergs, Dorchester, Canada, assignor to Nutech Energy Systems Inc., London, Canada

Filed Feb. 10, 1997, Ser. No. 798,341

Int. Cl.^{6} F28F *3/00*

U.S. Cl. 165—166 **6 Claims**



1. A core assembly for use in an air-to-air heat exchanger, said core comprising:
a plurality of square plates, each plate comprising:
an identical square planar central region;
a first pair of flexible opposed flanges bent in a first direction with respect to said central region to form approximately a 90 degree angle with the central region;
a second pair of flexible opposed edge flanges bent in a direction opposite said first direction with respect to said central region to form approximately a 90 degree angle with the central region;
wherein said core is formed by said plurality of square plates that are positioned into a stack of parallel plates such that the opposed flanges of one of said plurality of plates is located in contact with and inside mating opposed flanges of a plate directly adjacent thereto such that the opposed flanges of said one of said plurality of plates flexes inwardly and the mating opposed flanges of the plate directly adjacent flexes outwardly so that a seal is formed between the opposed flanges of the one plate and the mating opposed flanges of the plate directly adjacent thereto, thereby forming a plurality of air passages between adjacent plates such that two perpendicular air pathways are formed in an interleaved orientation;
frame means in contact with a bottom plate in said stack and a top plate in said stack for holding said plurality of plates in position.

5,785,118
HEATING DEVICE FOR A MACHINE PRODUCING CORRUGATED CARDBOARD

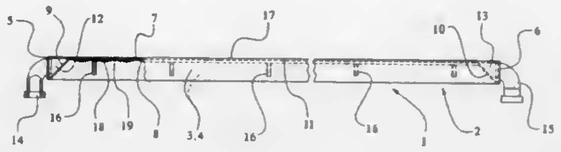
Klaus Nagel, Halstenbek, and Swen Joerissen, Kiel, both of Germany, assignors to Peters Maschinenfabrik GmbH, Hamburg, Germany

Filed Nov. 15, 1996, Ser. No. 749,631

Claims priority, application Switzerland, Nov. 15, 1995, 03231/95

Int. Cl.^{6} F28F *3/14*

U.S. Cl. 165—170 **9 Claims**



1. A heating device for a machine producing corrugated cardboard and utilizing convection from a heating fluid circulating in a plate-shaped heat exchanger, comprises a heating member in which saturated steam is circulated, said heating member having a rectangular plate member with side walls, a front wall and a back wall integral with the plate member, a bottom surface of said plate member being connected to a deformed sheet of steel having a small thickness to form passages between the plate member and sheet, said sheet of steel having opposite edges folded at 45° to a plane of the sheet so as to form an inlet chamber and an outlet chamber for a heating fluid, said heating member being associated with a rigid sub-frame, connecting means for connecting the sub-frame to the heating member including adjustment elements fitted so as to avoid heat transmission between the heating member and the sub-frame, the heating member and sub-frame being fashioned in a floating manner within the machine for manufacturing corrugated cardboard in a way to take into consideration thermal expansion resulting from the heating of the heating member.

5,785,119
HEAT EXCHANGER AND METHOD FOR MANUFACTURING THE SAME

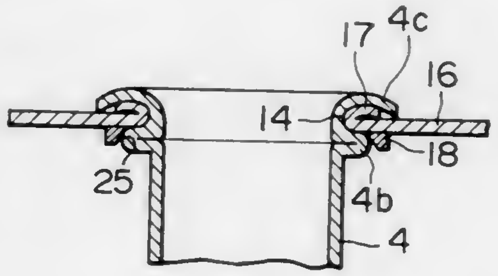
Akimichi Watanabe, Maebashi, and Hirotaka Kado, Isesaki, both of Japan, assignors to Sanden Corporation, Gunma, Japan

Filed Apr. 25, 1996, Ser. No. 637,273

Claims priority, application Japan, May 30, 1995, 7-154041

Int. Cl.^{6} F28F *9/16*

U.S. Cl. 165—178 **9 Claims**



1. A heat exchanger comprising:
a tank including a tank wall having a pipe insertion hole disposed in said tank wall, said tank wall having a burr formed around said pipe insertion hole extending toward an interior of said tank;
a fluid pipe connected to said tank wall for introducing a fluid into said tank or discharging a fluid from said tank, said fluid pipe having a flange formed on a periphery of said fluid pipe, an end portion of said fluid pipe inserted into said pipe insertion hole so that said flange contacts an outer surface of said tank wall, said inserted end portion being crimped together with said burr, such that said inserted end portion contacts said interior of said tank and said burr is flattened against said interior of said tank wall; and
an annular brazing ring disposed between said flange on said fluid pipe and said tank wall.

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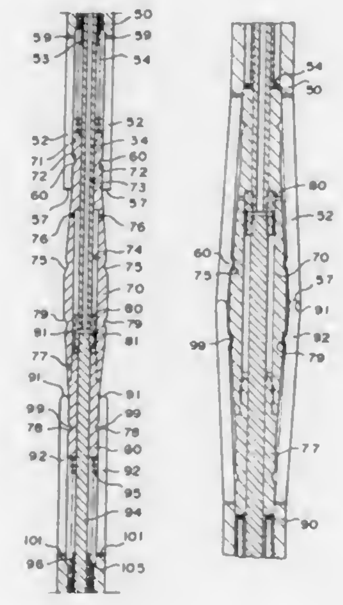
5,785,120
TUBULAR PATCH

Michael T. Smalley, Houston, and David M. Haugen, League City, both of Tex., assignors to Weatherford/Lamb, Inc., Houston, Tex.
Filed Nov. 14, 1996, Ser. No. 748,987
Int. Cl.^{6} E21B *29/00; 29/08*
U.S. Cl. 166—55 **20 Claims**

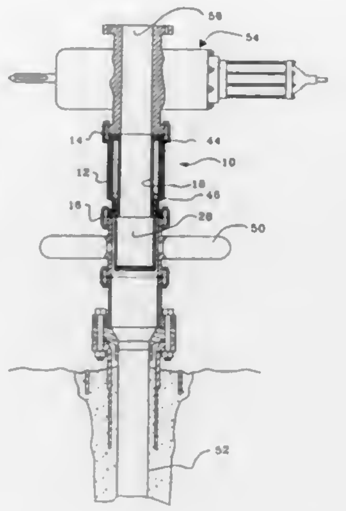


1. An expander system for passage through a liner patch to expand the liner patch to seal a hole in a tubular member, the tubular member part of a tubular string in a wellbore extending from a surface of the earth down into the earth, the expander system comprising
  a body having a top, a bottom, and a middle portion, the top having an outer diameter, the bottom having an outer diameter substantially equal to the outer diameter of the top, and the middle portion having an outer diameter greater than the outer diameter of the top,
  a first set of first fingers, each first finger movable and having a first finger top and a first finger bottom, the first finger bottoms disposed around the top of the body and releasably connected thereto,
  a second set of second fingers, each second finger movable and having a second finger top and a second finger bottom, the second finger tops disposed around the bottom of the body and releasably connected thereto,
  movement apparatus for releasing the first and second sets of fingers from the body and moving the fingers to abut the middle portion of the body so that the fingers project radially outwardly from the middle portion of the body for expanding the liner patch when pulled therethrough.

5,785,121
BLOWOUT PREVENTER PROTECTOR AND METHOD OF USING SAME DURING OIL AND GAS WELL STIMULATION

L. Murray Dallas, 801 New England Ct., Allen, Tex. 75002
Filed Jun. 12, 1996, Ser. No. 661,995
Int. Cl.^{6} E21B *33/03*
U.S. Cl. 166—90.1 **23 Claims**

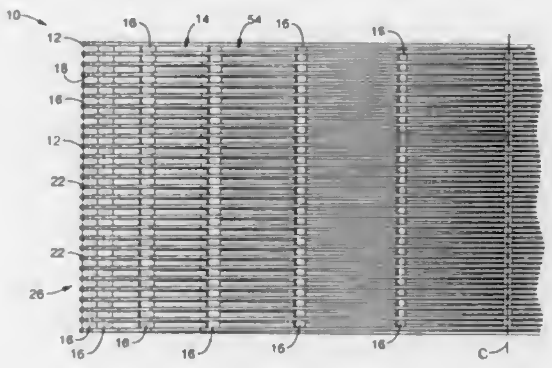
1. Apparatus for protecting a blowout preventer during a well treatment procedure to stimulate production, comprising:
  a spool having a top end, a bottom end, and spaced-apart inner and outer sidewalls that extend between the top end and the bottom end thereof;



  the spool adapted to be mounted in an operative position above a blowout preventer by the spool bottom end and beneath a high pressure valve by the spool top end; and
  a mandrel having a top end and a bottom end, the top end being received in an annular cavity between the inner and outer sidewalls of the spool, in the operative position, so that the mandrel is reciprocally movable within the cavity between an upward position, in which the mandrel is withdrawn from the blowout preventer, and a downward position, in which the mandrel extends at least partially into the blowout preventer to protect operative parts of the blowout preventer during the treatment procedure.

5,785,122
WIRE-WRAPPED WELL SCREEN

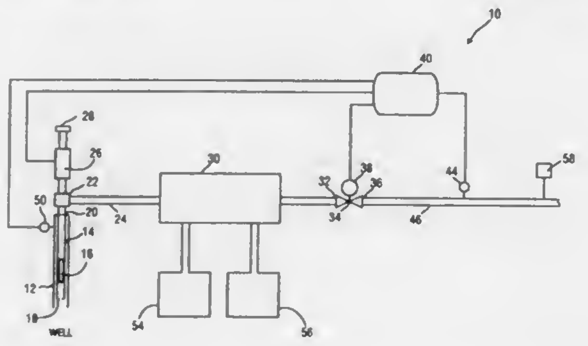
Jeffrey A. Spray, 714 W. Keystone Ave., Woodland, Calif. 95695
Filed Aug. 1, 1997, Ser. No. 904,883
Int. Cl.^{6} E21B *43/08*
U.S. Cl. 166—227 **21 Claims**



1. A well screen, comprising:
(a) a wire wound spirally to form a porous cylinder having a plurality of spaced-apart windings, said cylinder including an outer surface and an inner surface;
(b) a plurality of spacers positioned in spaces between said windings, said spacers including an inner edge and an outer edge, said inner edge of said spacer positioned flush with said inner surface of said cylinder, said outer edge of said spacer recessed from said outer surface of said cylinder; and
(c) means for securely attaching said spacers to said windings.

5,785,123
APPARATUS AND METHOD FOR CONTROLLING A WELL PLUNGER SYSTEM

James F. Lea, Jr., Tulsa, Okla., assignor to Amoco Corp., Chicago, Ill.
Filed Jun. 20, 1996, Ser. No. 665,671
Int. Cl.^{6} E21B *43/12*
U.S. Cl. 166—369 **10 Claims**

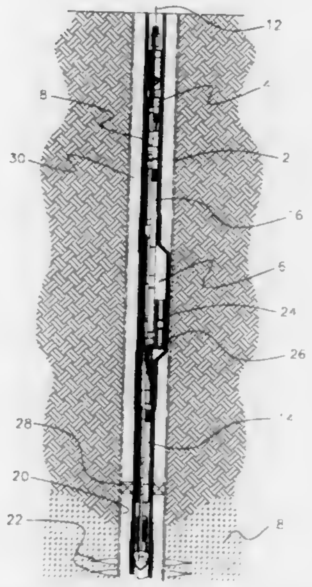


1. A method of controlling a well plunger system, said well plunger system including a plunger tube positioned within a well, a movable plunger positioned within said plunger tube, a tubing line connected to said plunger tube, said tubing line coupled to an inlet side of a valve, said valve having an outlet side connected to a sales line, said sales line connected to a gas distribution system, a sales line pressure sensor connected to said sales line, said pressure sensor capable of sensing the pressure within said sales line, a casing pressure sensor connected to casing, said casing pressure sensor capable of sensing the pressure within said casing, a plunger sensor connected near the top of said plunger tube, said plunger sensor capable of detecting the presence of said plunger proximate to said plunger sensor, and a controller capable of operating said valve, comprising the steps of:
  transmitting an arrival signal indicating the presence of the plunger near the top of the plunger tube from said plunger sensor to said controller;
  calculating with the controller a calculated average plunger speed from said arrival signal;
  transmitting a sales line pressure signal from said sales line pressure sensor to said controller;
  adjusting said calculated average plunger speed by an amount proportional to changes in the sales line pressure; and
  adjusting an amount of time said valve is closed by an amount proportional to said calculated average plunger speed.

5. A well plunger system coupling a well to a gas distribution system having a sales line, comprising:
  a plunger tube positioned within the well;
  a movable plunger positioned within said plunger tube;
  a valve having an inlet side and an outlet side, said outlet side connected to the sales line;
  a tubing line connected between said plunger tube and said inlet side of said valve;
  a sales line pressure sensor connected to said to the sales line, said sales line pressure sensor capable of sensing the pressure within the sales line and generating a sales line pressure signal; and
  a controller electrically coupled to said sales line pressure sensor to receive said sales line pressure signal, said controller adjusting an amount of time said valve is closed by an amount proportional to a change in said sales line pressure.

5,785,124
METHOD FOR ACCELERATING PRODUCTION

Jack C. Hisaw, Carencro, and Michael J. Gazewood, Scott, both of La., assignors to Production on Accelerators, Inc., Lafayette, La.
Filed Jul. 12, 1996, Ser. No. 637,915
Int. Cl.^{6} E21B *43/00*
U.S. Cl. 166—372 **13 Claims**



1. A method of increasing production from a well completed to a reservoir, the well having an aperture therein, the well forming an annulus with a casing string, the method comprising the steps of:
  installing a venturi device within the well adjacent said aperture, said venturi device including a mandrel with a port therein aligned with said aperture; a flow tube diverter in communication with said port; a nozzle, operatively connected with said flow tube diverter and forming a suction passageway, said suction passageway being in communication with said reservoir, said nozzle being directed in a parallel orientation relative to the flow profile; a mixing chamber portion, operatively associated with the nozzle; and a diffuser chamber, operatively associated with the chamber portion;
  flowing the reservoir, said reservoir producing a liquid;
  creating a zone of low pressure within said venturi device so that said zone of low pressure effects the reservoir, the step of creating said zone of low pressure including: injecting a gas into the annulus; flowing the gas through said flow tube diverter; exiting the gas at said nozzle; delivering the liquid from said reservoir into the suction passageway so that the liquid is drawn in from the area below the flow tube diverter; mixing the gas and liquid from the reservoir in the mixing chamber; and, delivering the mixed gas and liquid to the diffuser portion so that the inflow from the reservoir is increased.

5,785,125
MECHANICAL THRU-TUBING CENTRALIZER

Edward S. Royer, Houston, Tex., assignor to TIW Corporation, Houston, Tex.
Filed Oct. 21, 1996, Ser. No. 735,805
Int. Cl.^{6} E21B *17/10*
U.S. Cl. 166—380 **20 Claims**

9. A method of centralizing a tool positioned within a casing string at a position below a tubing string within the casing string and having a diameter less than the casing string, the method comprising:
  mounting an upper arm support sleeve axially movable relative to a centralizer body between a set position and a released position;

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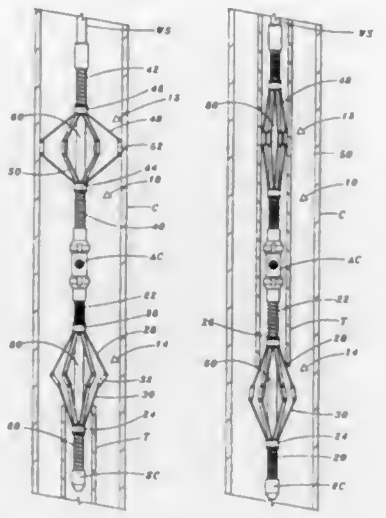


mounting a lower arm support sleeve axially movable relative to the centralizer body between a set position and a released position;

biasing the upper arm support sleeve axially downward to the set position;

biasing the lower arm support sleeve axially upward to the set position;

pivotably connecting a plurality of circumferentially spaced upper arms at an upper end to the upper arm support sleeve;

pivotally connecting a corresponding plurality of circumferentially spaced lower arms at a lower end to the lower arm support sleeve and at an upper end to a lower end of a respective one of plurality of the upper arms;

engaging an end of an upper biasing member with an upper ring for transmitting a biasing force to the upper arm support sleeve;

engaging an end of a lower biasing member with a lower ring for transmitting a biasing force to the lower arm support sleeve;

spacing an upper friction reducing pad between the upper ring and the upper arm support sleeve;

spacing a lower friction reducing pad between the lower ring and the lower arm support sleeve;

engaging the plurality of lower arms with the tubing string and moving the work string downward to move the upper arm support sleeve axially upward against its bias;

passing the tool positioned on the work string downhole through the tubing string;

passing the tool past a lower end at the tubing string and into the casing string such that the arms move radially outward to engage the casing string and centralize the tool within the casing string;

engaging the plurality of upper arms with the tubing string and moving the work string upward to move the lower arm support sleeve axially downward against its bias; and

passing the tool positioned along the work string upward through the tubing string.

14. A centralizer positionable along a work string for passing through a tubing string and centralizing the work string within a casing string having a diameter larger than the tubing string, the centralizer comprising:

a centralizer body having a throughbore for transmitting fluid through the centralizer, the centralizer body having a central axis within the throughbore;

an upper arm support sleeve axially movable relative to the centralizer body between a set position and a released position;

an upper biasing member for biasing the upper arm support sleeve to the set position;

a lower arm support sleeve axially movable relative to the centralizer body between a set position and a released position;

the centralizer body including an upper stop fixed on the centralizer body for limiting axial travel of the upper arm support sleeve on the centralizer body and thereby limiting radially outward movement of the plurality of upper arms, and a lower stop fixed on the centralizer body for limiting axial travel of the lower arm support sleeve on the centralizer body and thereby limiting radially outward movement of the plurality of lower arms;

a lower biasing member for biasing the lower arm support sleeve to the set position;

a plurality of circumferentially spaced upper arms each pivotally connected at an upper end to the upper arm support sleeve; and

a corresponding plurality of circumferentially spaced lower arms each pivotably connected at a lower end to the lower arm support sleeve and at an upper end to a lower end of a respective one of plurality of the upper arms, such that the plurality of upper arms and the plurality of lower arms are movable between the set position wherein at least one of the lower ends of the upper arms and the upper ends of the lower arms engage the casing string to centralize the work string and a released position wherein the upper arms and the lower arms radially retract with respect to the centralizer body for passing through the tubing string.

5,785,126

METHOD OF EXTINGUISHING OF FIRE IN OPEN OR CLOSED SPACES AND MEANS FOR PERFORMING THE METHOD

Ove Olsson, Kungälv, Sweden, assignor to Svenska Skum AB, Sweden

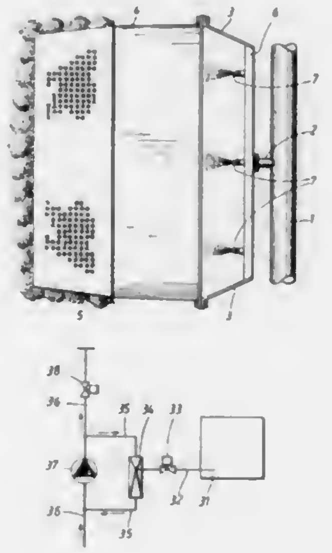
PCT No. PCT/SE94/00995, § 371 Date Apr. 23, 1996, § 102(e) Date Apr. 23, 1996, PCT Pub. No. WO95/11725, PCT Pub. Date May 4, 1995

PCT Filed Oct. 21, 1994, Ser. No. 633,762

Claims priority, application Sweden, Oct. 25, 1993, 9303500

Int. Cl.^{6} A62C *35/58*

U.S. Cl. 169—46 **8 Claims**



1. A method for extinguishing a fire in a closed or open space using water and foam, comprising the steps of:

(a) initially producing water mist using air available in the space until a predetermined period of time elapses; and

(b) after the predetermined period of time elapses, producing foam in the space using air available in the space at a suitable speed for filling the space and extinguishing the fire.

5,785,127

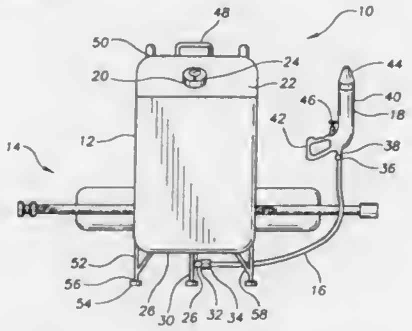
USER BACK-MOUNTED FIRE SUPPRESSOR

Willie Westley Miller, Sr., 630 St. James St., New Orleans, La. 70130

Filed Oct. 5, 1995, Ser. No. 539,669

Int. Cl.^{6} A62C *15/00*

U.S. Cl. 169—71 **8 Claims**



1. A pressurized fire suppressor mountable on a user's back for selectively discharging a fire suppressant toward a fire, and which has a reservoir for holding said fire suppressant under pressure, said fire suppressor comprising:

a high pressure tank defining the reservoir therein for holding said fire suppressant, said tank having a fill spout defining a fill opening;

a filler cap connectable to said fill spout for sealingly covering said fill opening;

a valve in fluid connection with said tank,

said valve extending through a top surface of said filler cap and being in connection therewith;

a flexible conduit having first and second connector ends, said first connector end being in fluid connection with said tank;

a suppressant discharge head for selectively discharging said fire suppressant from said tank, said suppressant discharge head being in connection with said second connector end of said flexible conduit; and

a back mounting apparatus connected to said tank.

5,785,128

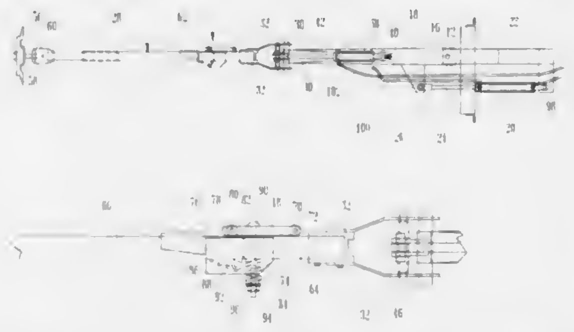
FIELD MARKER

John K. Redekop, P.O. Box 136, Plum Coulee, Manitoba, Canada, ROG 1R0

Filed Mar. 18, 1996, Ser. No. 617,351

Int. Cl.^{6} A01B *69/02*

U.S. Cl. 172—126 **12 Claims**



1. A field marker for use with a farm implement having a frame portion including laterally spaced frame ends to which the marker can be secured, said field marker comprising: an inner wing section having proximal and distal ends; first pivot means pivotally connecting said proximal end of said inner wing section to an implement frame end; first hydraulic cylinder means connected between said implement frame end and said inner wing section for pivoting said inner wing section about said first pivot means between operating and stowage conditions; an outer arm section having an outer arm portion pivotally connected to an inner arm portion which is substantially shorter than said outer arm portion, each arm portion having proximal and distal ends; second pivot means pivotally connecting said proximal end of said inner arm portion to said distal end of said inner wing section; second hydraulic cylinder means connected between said inner wing section and said inner arm portion for pivoting said outer arm section relative to said inner wing section; a marker disc rotatably mounted to said distal end of said outer arm portion; and breakaway means within said arm section adjacent said proximal end of said outer arm portion and said distal end of said inner arm portion for permitting said inner and outer portions of said outer arm section to pivot relative to each other should said disc or said outer arm section encounter an immovable object and to be readily realigned following such relative pivoting.

5,785,129

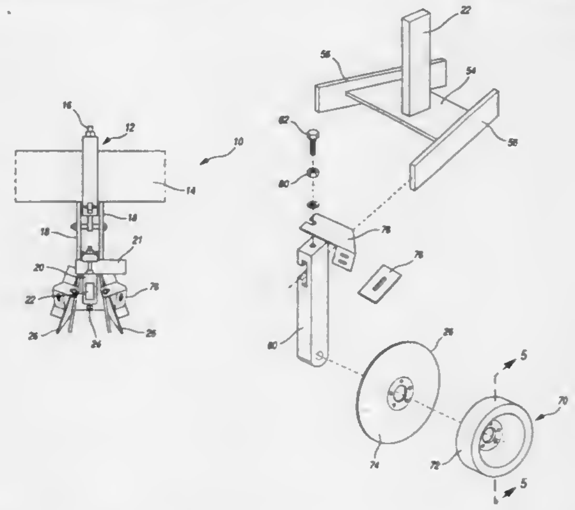
ROW CROP CULTIVATOR HAVING A FIXED DEPTH OF PENETRATION

Russell J. Keller, HC1 Box 2, and Steven D. Keller, HC1 Box 4, both of Tintah, Minn. 56583

Continuation of Ser. No. 565,972, Dec. 1, 1995, abandoned. This application Feb. 5, 1997, Ser. No. 796,656

Int. Cl.^{6} A01B *5/00*

U.S. Cl. 172—536 **5 Claims**



1. A row crop cultivator of the type used to unearth weeds on opposite sides of rows of field crops comprising:

a generally elongate draw bar configured to be drawn above multiple rows of crop plants with said draw bar oriented transversely to said rows;

a plurality of disc suspension systems operatively connected to said draw bar at spaced intervals;

a pair of generally circular discs journalled for rotation on each of said disc suspension systems;

said disc suspension systems being configured to restrain said discs against lateral movement relative to said rows when said draw bar is dawn lengthwise of said rows while allowing limited vertical movement of said discs to permit said discs to adjust vertically to irregular conditions of a field; and

a generally cylindrical band fixed to at least one side of each disc and having a diameter which is smaller than the diameter of said disc, said band being disposed concentrically about the axis of rotation of said disc and having a generally cylindrical surface oriented substantially parallel to the surface of the field, said band further being an integrally formed sheet metal member with said cylindrical surface connected by a conical portion to a central mounting flange portion;

wherein said cylindrical surface is of sufficient width to ride along the surface of the field and limit the depth of penetration of the disc into the field to a maximum depth equal to the difference between the radius of the disc and the radius of the band.

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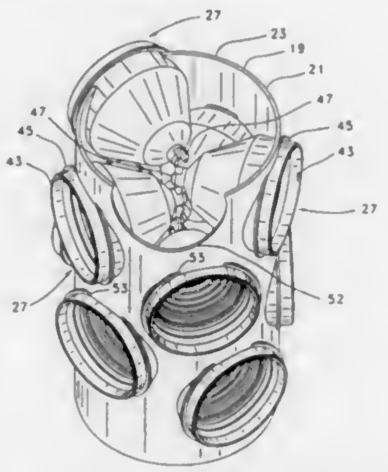
5,785,130
HIGH DENSITY PERFORATING GUN SYSTEM

David S. Wesson, Waxahachie, and Dan W. Pratt, Fort Worth, both of Tex., assignors to Owen Oil Tools, Inc., Fort Worth, Tex.

Filed Oct. 1, 1996, Ser. No. 724,691
Int. Cl.^{6} E21B *43/117*
U.S. Cl. 175—4.6 **8 Claims**



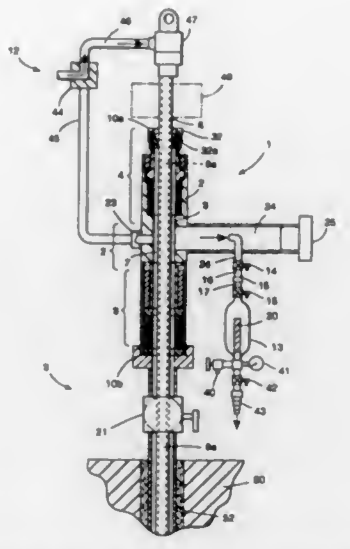
1. A tubular, high shot density well perforating gun for producing a perforation through a well casing comprising:
- a carrier housing tube having an outside diameter within a range of about 4$\frac{7}{16}$ths to 5¼th inches;
- a charge holder tube positioned generally coaxially within the carrier housing tube;
- a plurality of shaped charge cases, containing shaped explosives, carried spirally by the charge holder tube within a range of about 135 to 145 degree phasing and a shot density of at least 18 shots per foot;
- a primer cord positioned inside the charge holder tube to detonate the shaped explosives;
- the shaped charge cases having a plurality of ears to receive the primer cord;
- the shaped charge cases having a liner with a diameter of at least about 1.690 inches;
- the shaped charge cases having a length such that the primer cord is substantially coaxial with the charge holder tube to prevent loss of performance of the shaped explosives due to charge interference; and
- wherein each shaped explosive is configured such that the diameter of perforations produced by the shaped explosives is at least 0.70 of an inch.

5,785,131
PRESSURIZED FORMATION SAMPLE COLLECTION

Ian Gray, 48 Marriott Street, Coorparoo, Queensland 4151, Australia

Filed Mar. 18, 1996, Ser. No. 617,160
Claims priority, application Australia, Mar. 20, 1995, PN824
Int. Cl.^{6} E21B *49/00*
U.S. Cl. 175—46 **8 Claims**

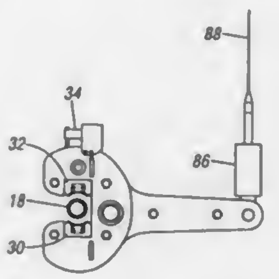
1. Apparatus for permitting sampling of borehole drilling fluid at a pressure above that otherwise existing at a wellhead comprising:
- a jacket attachable to the wellhead and through which in use can pass a drill rod which carries pressurized drilling fluid to the working end of the drill rod and out into the annulus of the borehole, the jacket having a drill rod seal at a location spaced from the wellhead and an outlet port leading from the interior of the jacket to a pressure regulator, whereby return fluid with any entrained particles or seam fluid from a drilled formation passes back into the jacket and on out through the outlet port and the pressure regulator and thence to waste, wherein the regulator comprises an annular space through which fluid can flow from an inlet to an outlet, which annular space is defined between an inner rod and a surrounding elastomer pipe which in use is squeezed radially inwards towards the inner rod by fluid pressure maintained between the outside of the elastomer pipe and a surrounding housing, and a sampling system in communication with the outlet port at a location upstream of the regulator, the sampling system intercepting a proportion of the drilling fluid passing to the regulator for enabling sorption pressures, gas contents, bubble points or other characteristics of the return fluid and entrained contents to be determined.



5,785,132
BACKUP TOOL AND METHOD FOR PREVENTING ROTATION OF A DRILL STRING

Allan S. Richardson, 71 Woodacres Dr., SW., Calgary, AB, Canada, T2W 4V8, and Monte N. Wright, 205 McEwan Valley Rd., NW., Calgary, AB, Canada, T3K 357

Filed Feb. 29, 1996, Ser. No. 608,727
Int. Cl.^{6} B25B *13/50*
U.S. Cl. 175—57 **3 Claims**

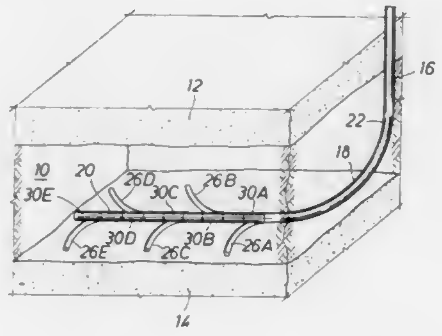


3. A method for preventing rotation of a drill string without damaging the drill string, comprising the steps of:
- engaging a drill pipe body at the Proximal end of said drill string with a plurality of jaws, said jaws contacting said drill pipe body over a sufficiently large area that gripping and torsional forces can be transferred without damaging said drill pipe body;
- connecting said jaws to a member capable of resisting a rotational force applied to said drill string; and
- transferring said rotational force from said jaws through a pressure regulating cylinder, said pressure regulating cylinder being in fluid communication with an hydraulic actuator, said hydraulic actuator moving said jaws into engagement with said drill pipe body and creating pressure securing said jaws against said drill pipe body such that when said rotational forces increase, said pressure applied by said actuator increases.

5,785,133
MULTIPLE LATERAL HYDROCARBON RECOVERY SYSTEM AND METHOD

Mark J. Murray, Sugar Land, and Britt O. Braddick, Houston, both of Tex., assignors to TIW Corporation, Houston, Tex.

Filed Aug. 29, 1995, Ser. No. 520,579
Int. Cl.^{6} E21B *7/08*
U.S. Cl. 175—61 **48 Claims**



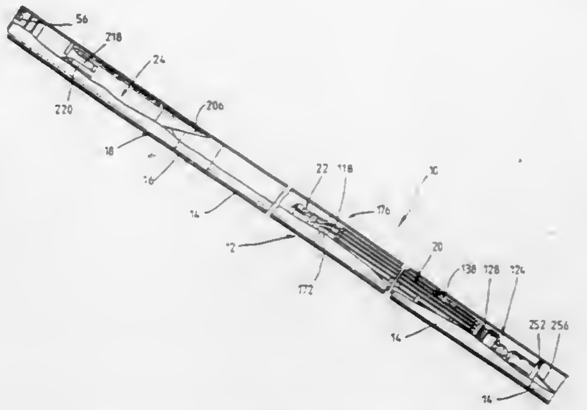
1. An assembly for drilling a lateral from a borehole into a formation of interest, the assembly comprising:
- an elongate tubular secured within the borehole, the tubular having one or more tubular non-ferrous material portions along the length thereof, each tubular non-ferrous portion having a tubular ferrous material portion spaced axially below the tubular non-ferrous portion;
- one or more whipstock locators each fixed to a respective tubular ferrous portion at a desired axial spacing relative to a respective tubular non-ferrous portion above the ferrous portion, each whipstock locator including a locator sleeve having a bore therethrough and a locator notch in the locator sleeve;
- a whipstock assembly including a radially movable lug for engagement with the locator notch to fix the whipstock assembly in a selected azimuth orientation within the tubular and in a selected axial position such that a whipstock face is within the respective non-ferrous portion of the tubular;
- a locator tool movable within the tubular for engagement with the locator notch to determine the azimuth of the locator notch;
- the whipstock assembly including an adjustment member for circumferentially adjusting the position of the lug relative to the whipstock face to selectively control the azimuth of the whipstock face when the whipstock is fixed on a respective locator and thus the azimuth of the drilled lateral; and
- a drill bit for engaging the whipstock face and drilling a window through the tubular non-ferrous portion of the tubular and then into the formation of interest.

5,785,134
SYSTEM FOR IN-SITU REPLACEMENT OF CUTTING MEANS FOR A GROUND DRILL

Gavin Thomas McLeod, 21B Hertford Close, Bullcreek, Western Australia 6154, and Matthew Vance Egan, 21 San Miguel Drive, Leeming, Western Australia 6155, both of Australia

Division of Ser. No. 433,402, May 18, 1995. This application Jun. 7, 1995, Ser. No. 475,905
Claims priority, application Australia, Jun. 16, 1993, PL9407; Mar. 2, 1994, PM4158; Dec. 22, 1994, PM4159
Int. Cl.^{6} E21B *10/64*
U.S. Cl. 175—258 **14 Claims**

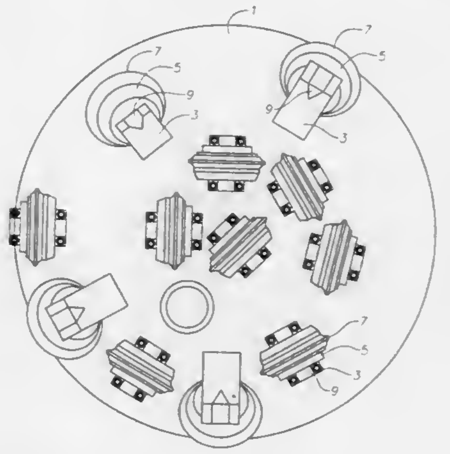
1. A drive sub adapted for connection to a lower end of a ground drill, said drive sub comprising a tubular member provided with seating means formed circumferentially about an inner wall of said tubular member for seating cutting means of said ground drill in a cutting position, said seating means comprising a series of surfaces configured and juxtaposed so that said cutting means can slide linearly relative to said member when in said cutting position in response to said ground drill being lifted from and lowered onto the bottom of a hole being drilled by said ground drill.



5,785,135
EARTH-BORING BIT HAVING CUTTER WITH REPLACEABLE KERF RING WITH CONTOURED INSERTS

Dolph Crawley, Arlington, Tex., assignor to Baker Hughes Incorporated, Houston, Tex.

Filed Oct. 3, 1996, Ser. No. 724,875
Int. Cl.^{6} E21B *9/08*
U.S. Cl. 175—373 **14 Claims**



1. An improved earth-boring bit comprising:
- a bit body;
- at least one journal member having a pair of ends;
- at least one saddle member secured to the bit body to receive and support each end of the journal member;
- a cutter shell mounted for rotation on the journal member;
- at least one kerf ring releasably secured to the cutter shell, the kerf ring including a pair of opposing sides that converge to define a crest for disintegration of formation material; and
- a plurality of hard metal inserts imbedded and secured in rows to the kerf ring, the inserts generally flush with the sides and extending to the crest of the kerf ring.

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5,785,136
HYBRID DRIVE AND OPERATING METHOD THEREFOR

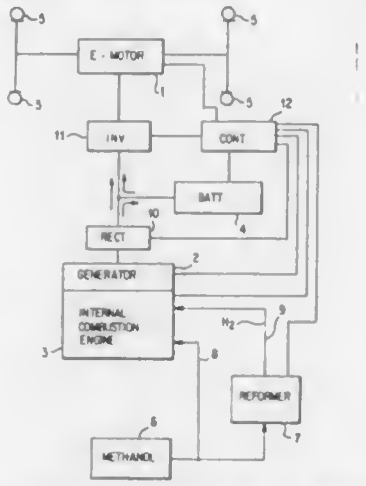
Bernd Falkenmayer, Schwieberdingen, and Peter Antony, Lorch, both of Germany, assignors to Mercedes-Benz AG, Germany

Filed Mar. 15, 1996, Ser. No. 616,574

Claims priority, application Germany, Mar. 29, 1995, 195 11 516.3

Int. Cl.^{6} F02B *43/08*

U.S. Cl. 180—65.2 **8 Claims**



1. Hybrid drive for a motor vehicle, of the type having a thermal engine that can be operated with a hydrocarbon containing fuel suitable for generating hydrogen, a fuel storage tank for storing said fuel, an energy storage device in which the energy generated by the thermal engine can be stored, and a drive motor whose operating state depends on the energy from the thermal engine and/or the energy storage device, wherein:

a hydrogen-generating unit is connected to receive fuel from the fuel storage tank, and generates hydrogen therefrom;

the thermal engine can be operated alternatively on hydrogen generated by said hydrogen-generating unit; and

the thermal engine is configured for optional operation on fuel from said storage tank when said vehicle is in a higher driving load range, and for operation on hydrogen generated by said hydrogen-generating unit when said vehicle is in a lower driving range.

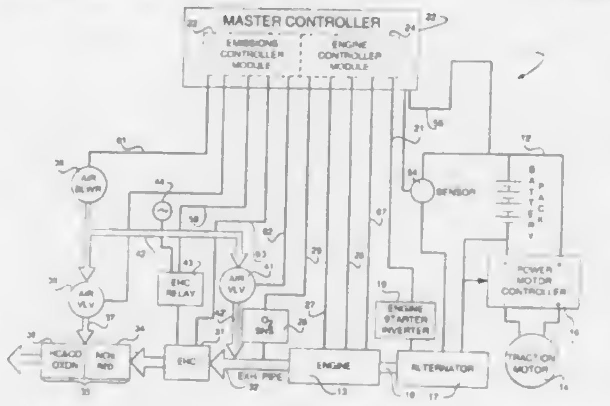
5,785,137
HYBRID ELECTRIC VEHICLE CATALYST CONTROL

John S. Reuyl, Palo Alto, Calif., assignor to Nevcor, Inc., Palo Alto, Calif.

Filed May 3, 1996, Ser. No. 642,519

Int. Cl.^{6} B60K *1/00*

U.S. Cl. 180—65.2 **8 Claims**



1. A hybrid electric vehicle comprising in combination:

A. an electrically powered motor connected to provide the sole driving torque for said vehicle;

B. an electrical energy storage device connected to said motor to provide electrical energy for driving said vehicle;

C. a generator for applying electrical energy to the electrical energy storage device.

D. a sensor for determining when the electrical energy in said storage device is at a predetermined level and providing an output.

E. a heat engine having one or more undesired constituents in its exhaust gas when said engine is operating to drive said generator;

F. a catalytic converter including a catalyst heated by electrical energy for at least one of said constituents connected to receive exhaust gas from said engine; and

G. a controller responsive to said sensor output for applying electrical energy to said converter to cause heating of said catalyst and thereafter operating said heat engine.

5,785,138
OPERATING METHOD FOR A HYBRID CAR

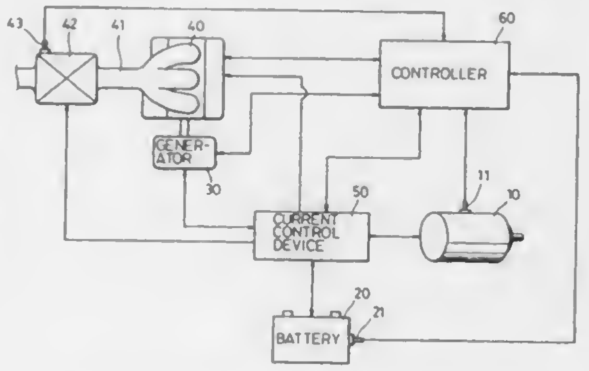
Masato Yoshida, Kyoto, Japan, assignor to Mitsubishi Jidosha Kogyo Kabushiki Kaisha, Tokyo, Japan

Continuation of Ser. No. 60,992, May 14, 1993, abandoned. This application Jul. 28, 1997, Ser. No. 901,259

Claims priority, application Japan, May 15, 1992, 4-123812; May 15, 1992, 4-123813; May 15, 1992, 4-123817

Int. Cl.^{6} B60K *1/02*

U.S. Cl. 180—65.2 **37 Claims**



1. A method for operating a hybrid car, comprising:

providing an electric motor to drive driving wheels of said hybrid car;

providing a battery to supply electrical power to said electric motor;

providing a generator to charge said battery, said generator being provided independently from said electric motor;

providing an internal combustion engine to drive said generator, said internal combustion engine driving said generator without providing output torque to said motor;

sensing, with at least first and second sensors, at least an actual vehicle velocity and a depression degree of an accelerator pedal;

establishing a predetermined target vehicle velocity based on said sensed depression degree;

controlling said electric motor based on said sensed actual vehicle velocity and said established predetermined target vehicle velocity;

determining a charge state of said battery;

setting a target engine operating state in accordance with at least said charge state; and

controlling said internal combustion engine to achieve said target engine operating state.

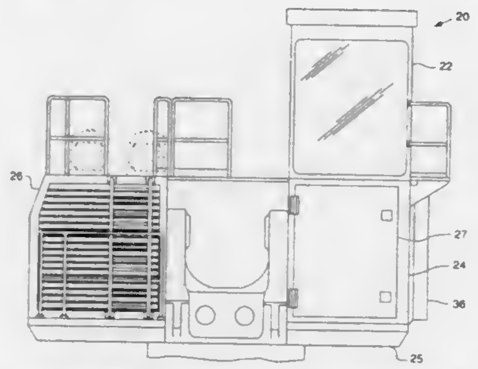
5,785,139
COOLING SYSTEM MOUNTING ARRANGEMENT AND METHOD

Allan L. Freedy, Aurora; Glenn W. Shields, Big Rock; Stephen D. Tiernan, Peoria, all of Ill., and Kenneth J. Chlad, Chagrin Falls, Ohio, assignors to Caterpillar Inc., Peoria, Ill.

Filed May 25, 1995, Ser. No. 452,553

Int. Cl.^{6} B60K *11/02*

U.S. Cl. 180—68.1 **20 Claims**



1. A cooling system mounting arrangement for use with construction equipment, comprising:

a platform of an article of construction machinery;

an engine enclosure mounted to said platform, said engine enclosure including an engine cooling system;

a cab riser mounted to said platform adjacent to said engine enclosure, said cab riser being adapted for ducting cooling air to an auxiliary cooling system;

a cab mounted to said cab riser; and

an auxiliary cooling system disposed in said cab riser separate from said engine cooling system, said auxiliary cooling system including a heat exchanger and a fan assembly for flowing cooling air across said heat exchanger.

5,785,140
VEHICULAR VIBRATION ISOLATING APPARATUS

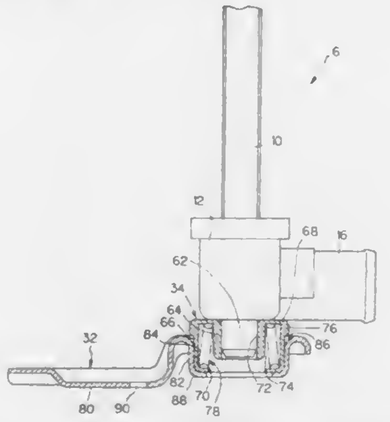
Takehiro Suzuki, and Masamitsu Matsuura, both of Hamamatsu, Japan, assignors to Suzuki Motor Corporation, Shizuoka-ken, Japan

Filed Jan. 2, 1996, Ser. No. 582,196

Claims priority, application Japan, Jan. 17, 1995, 7-022301; Jan. 17, 1995, 7-022307

Int. Cl.^{6} B60K *11/04*

U.S. Cl. 180—68.4 **3 Claims**



1. A vehicular vibration isolating apparatus, comprising an upper tank of a radiator carried, via an upper bush of an elastic material, on an upper bracket installed to an upper member on a vehicle body side, a lower tank of said radiator carried, via a lower bush of an elastic material, on a lower bracket installed to a lower member on the vehicle body side, gaps formed between said upper bracket and said upper bush, and a spring for elastically supporting said radiator installed between said lower tank and said lower bracket, by which a dynamic damper is formed by means of said radiator, along with said upper bush, said upper bracket, said lower bush, and said lower bracket connected to said radiator, and said spring, wherein said lower bush is provided with an internal space such as to contain said spring, and a seal member installed on the lower face of said lower bush so as to close said internal space, and wherein said seal member has an antifriction surface having a low coefficient of friction on the side in contact with said lower bracket.

5,785,141
MOTORCYCLE CHASSIS AND SWING ARM COMBINATION

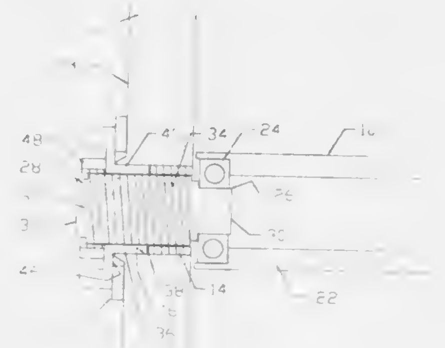
Steven Breitkreutz, Rochester, and David Zhi Xia, Edmonton, both of Canada, assignors to John Lehman, Westlock, and Larry David Stricchuk, Spruce Grove, both of Canada

Filed Jan. 15, 1997, Ser. No. 784,190

Claims priority, application Canada, Jan. 18, 1996, 2167560

Int. Cl.^{6} B62D *61/02*

U.S. Cl. 180—219 **2 Claims**



1. In combination:

a motorcycle chassis having two axially aligned internally threaded pin receiving bushings secured in axially aligned passages extending through opposed sides of the motorcycle chassis;

a swing arm having opposed ends in which are positioned bearings, the bearing having axially aligned pin receiving apertures;

a pair of mounting pins, each of the mounting pins having a first end, a second end, and an externally threaded body, the externally threaded body being sized to mate with the internally threaded pin receiving bushings;

a sleeve having a first end, a second end, an external diameter sized to fit within the passages of the motorcycle chassis and an internal diameter slightly larger than the external diameter of the body of the mounting pin, such that the sleeve slides over the mounting pin, the second end of the sleeve having a flange;

threaded main body of each of the mounting pins being mated with the internally threaded pin receiving bushings in the motorcycle chassis until the first end of the mounting pins is positioned within pin receiving apertures of the swing arm;

the first end of the sleeve being positioned over the body of the mounting pin with the first end of the sleeve abutting against the bushing and the flange at the second end of the sleeve engaging the motorcycle chassis; and

a nut secured to the second end of the mounting pin, thereby maintaining the sleeve in position.

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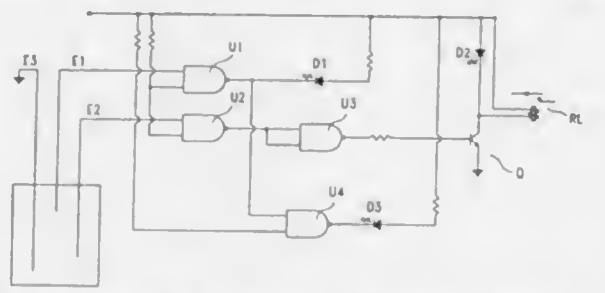
5,785,142
BRAKE OIL LEVEL SAFETY DEVICE FOR MOTOR

Chih-Chun Lo, P.O. Box 372, Hsin-Chu, Taiwan

Filed Aug. 7, 1996, Ser. No. 689,380

Int. Cl.⁶ G01F *23/00*

U.S. Cl. 180—271 **1 Claim**



1. A brake oil level safety device mounted in a brake oil cup of an oil brake system of a motor vehicle and connected in series between an ignition system and a battery power supply of said motor vehicle to detect the level of brake oil in said brake oil cup and to cut off power supply from said ignition system when the level of brake oil in said brake oil cup drops below a predetermined range, the device comprising a grounding conductor mounted in said brake oil cup, a lower oil level detecting conductor mounted in said brake oil cup above the elevation of said grounding conductor, an upper oil level detecting conductor mounted in said brake oil cup above the elevation of said lower oil level detecting conductor, a first NOT-AND gate having an input end connected to said upper oil level detecting conductor, a second NOT-AND gate having an input end connected to said lower oil level detecting conductor, a fourth NOT-AND gate having an input end connected to the output end of said first NOT-AND gate, a first light emitting diode connected to the output end of said first NOT-AND gate, a second light emitting diode connected to the output end of a third NOT-AND gate through the collector of a transistor, said first NOT-AND gate, said second NOT-AND gate, and said fourth NOT-AND gate having a respective second input end respectively connected to said power supply, said fourth NOT-AND gate having the output end connected to a third light emitting diode, said third NOT-AND gate having two input ends respectively connected to the output end of said second NOT-AND gate and the output end connected to the base of said transistor, and a relay connected between the collector of said transistor and said power supply.

5,785,143
MOTOR-VEHICLE DRIVE LINE WITH A DRIVE MOTOR, GEARBOX AND AXLE

Fritz Leber; Wolfgang Rebholz, and Tilo Huber, all of Friedrichshafen, Germany, assignors to ZF Friedrichshafen AG, Friedrichshafen, Germany

PCT No. PCT/EP94/03403, § 371 Date Apr. 18, 1996, § 102(e) Date Apr. 18, 1996, PCT Pub. No. WO95/11141, PCT Pub. Date Apr. 27, 1995

PCT Filed Oct. 15, 1994, Ser. No. 633,785

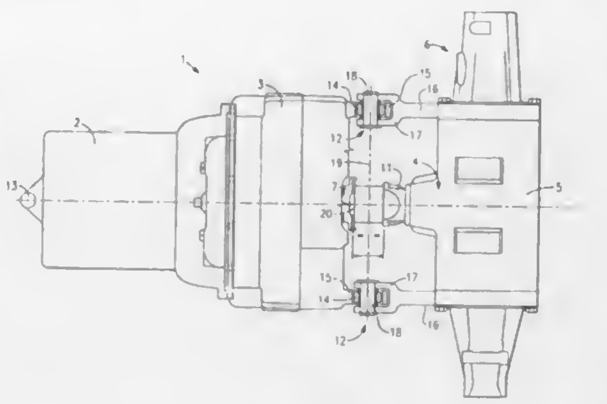
Claims priority, application Germany, Oct. 20, 1993, 43 35 756.3

Int. Cl.⁶ B60K *17/22*

U.S. Cl. 180—374 **17 Claims**

1. A motor-vehicle drive train (**1**) having a drive motor (**2**), a transmission (**3**) and a differential transmission (**4**) driving an axle (**6**); a joint shaft (**9**) connecting an output shaft (**7**) of said transmission (**3**) with an input shaft (**11**) of said differential transmission (**4**) via joints (**8**, **10**), and said drive motor (**2**) and said transmission (**3**) being pivotably situated about an axis of rotation (**19**) which is located adjacent a center of said joint shaft (**9**) and extending perpendicular to said drive train;

- wherein said drive motor (**2**) and said transmission (**3**) are both supported by an additional joint (**13**) which absorbs lateral divergences of said drive train;



- said axis of rotation (**19**) extends through a center of two bolts (**18**), which are components of two pivot joints (**12**), which interconnect said transmission (**3**) with said axles (**6**); and
- said two bolts (**18**) of said two pivot joints (**12**) are passed through rubber elements (**14**) situated in one of a bearing bracket (**15**) and a guide rod (**16**).

5,785,144
POWER STEERING SYSTEM/SERVO CONTROL

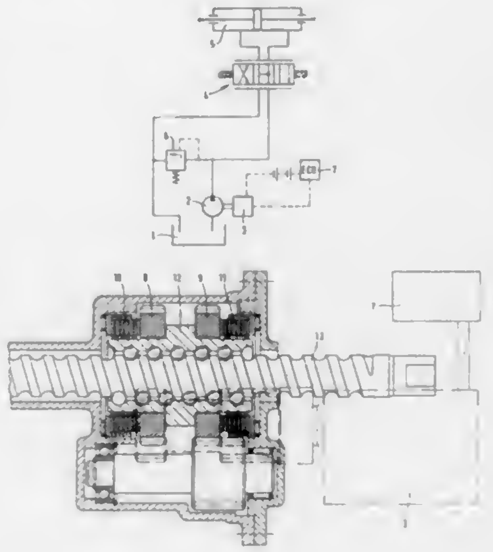
Aydoğan Cakmaz, Stuttgart, and Arno Roehringer, Ditzingen, both of Germany, assignors to Mercedes-Benz AG, Germany

Filed May 19, 1995, Ser. No. 446,566

Claims priority, application Germany, May 24, 1994, 44 18 118.3

Int. Cl.⁶ B62D *5/06;6/00;* **F04B** *49/06*

U.S. Cl. 180—422 **11 Claims**



1. A servo control for use as a power steering system for motor vehicles, comprises one of an electromechanical and electrohydraulic support of setting strokes of a steering device, a constantly running electric motor operatively coupled to a control member by power flux adapted to be controlled by the steering device, wherein the control member is a motor control with electronic load recognition operatively associated with the electric motor so as to maintain the electric motor at a very low output or brings the electric motor to a very low output when the electric motor is operating against a low load, and to bring the electric motor to a high output or maintain the electric motor at a high output when the electric motor is operating against an increased load.

5,785,145
ARRANGEMENT OF CIRCUIT CASINGS AND CIRCUIT BOARDS IN A POWER STEERING DEVICE

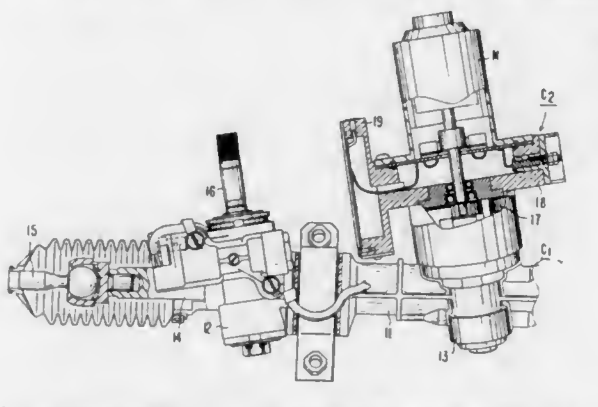
Hirokazu Wakao, Kani; Akira Endo, Gifu-ken, and Yoshinori Kogiso, Mizunami, all of Japan, assignors to Kayaba Industry Co., Inc., Tokyo, Japan

Filed Jan. 4, 1996, Ser. No. 583,226

Claims priority, application Japan, Jan. 19, 1995, 7-023274

Int. Cl.⁶ B62D *5/04*

U.S. Cl. 180—443 **20 Claims**



1. An arrangement of circuit casings and circuit boards in a motorized power steering device comprising:

- a drive circuit casing including a drive circuit board having a drive circuit;
- a control circuit casing including a control circuit board having a control circuit for outputting a control signal to said drive circuit, said control circuit casing being connected to said drive circuit casing;
- a gear casing connected to said drive circuit casing; and
- an electric motor attached to said drive circuit casing;
- said gear casing and said electric motor casing being connected to said drive circuit casing such that said drive circuit casing is interposed between said gear casing and said electric motor of the motorized power steering device.

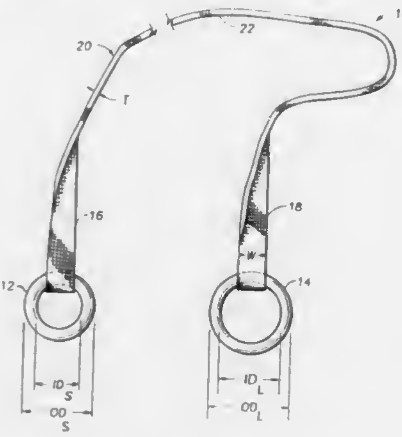
5,785,146
ARBOREAL CLIMBING AND SUPPORT METHOD AND APPARATUS

Kenneth Michael Palmer, Auburndale, Mass., assignor to International Champion Techniques, Inc., Weston, Mass.

Filed May 18, 1995, Ser. No. 443,626

Int. Cl.⁶ A47L *3/04*

U.S. Cl. 182—3 **22 Claims**



1. An arboreal climbing and support apparatus comprising:

- a compliant element;
- a first closed annular member loosely captured by said compliant element at a proximal end thereof; and
- a second closed annular member loosely captured by said compliant element at a distal end thereof, wherein said first and second annular members are configured to preclude passage of either one of said annular members through another, and said first and second annular members have dissimilar respective internal diameter values.

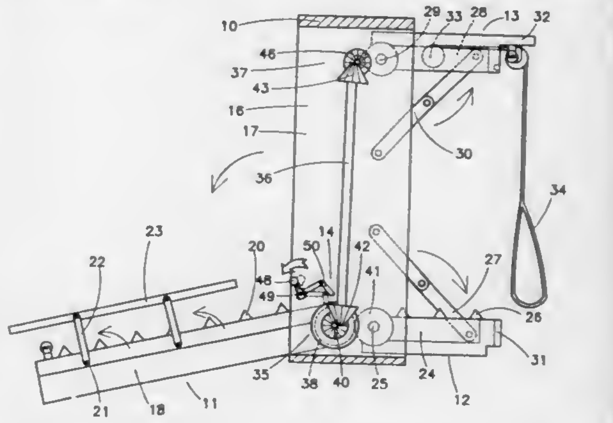
5,785,147
ESCAPE LADDER STRUCTURAL IMPROVEMENT

Kenten Lee, 5F, No. 8-37, Lung Hsing Rd., Pa Li, Taipei Hsien, Taiwan

Filed Jul. 22, 1997, Ser. No. 898,289

Int. Cl.⁶ E06C *9/10*

U.S. Cl. 182—70 **6 Claims**



1. A type of escape ladder structural improvement (**1**), comprising:

- a housing, being a hollow housing that can be fixed at an appropriate location in a building; the hollow interior of the housing comprising an escape channel; one side of the housing's hollow interior comprising a gear chamber; the front and rear sides of the gear chamber can be properly sealed, reserving an appropriate vent hole at the rear of the gear chamber;
- an inside ladder, comprising a plate body; on the lower part of the plate body being a transmission shaft; the transmission shaft being fixed onto the two side walls inside the hollow interior; the inside ladder can extend backwards or forwards to close the rear opening of the hollow interior with the transmission shaft serving as its fulcrum;
- an outside ladder, comprising a plate body; on the lower part of the plate body being a transmission shaft; the transmission shaft being fixed onto the two side walls inside the hollow interior; the outside ladder can extend forwards or backwards to close the lower part of the front opening of the hollow interior, with the transmission shaft serving as its fulcrum; between one side of the plate body and the inside wall of the hollow interior being connected with a collapsible connecting rod;
- an outside cover, comprising a plate body; on the upper part of the plate body being a transmission shaft; the transmission shaft being fixed on the two side walls in the hollow interior; the outside cover can extend forwards or backwards to close the upper part of the front opening of the hollow interior with the transmission shaft serving as its fulcrum; between one side of the plate body and the inside wall of the hollow interior being connected with a collapsible connecting rod; on the plate body of the outside cover being a slow descending equipment and such escape devices; and
- a gear transmission mechanism, installed in the gear chamber of the housing, comprising a lower gear unit, a linked shaft and an upper gear unit; said lower gear unit being connected with the transmission shafts of the inside ladder and the outside ladder; the lower gear unit being connected with the upper gear unit through the linked shaft; said upper gear unit being connected with the transmission shaft of the outside cover; on

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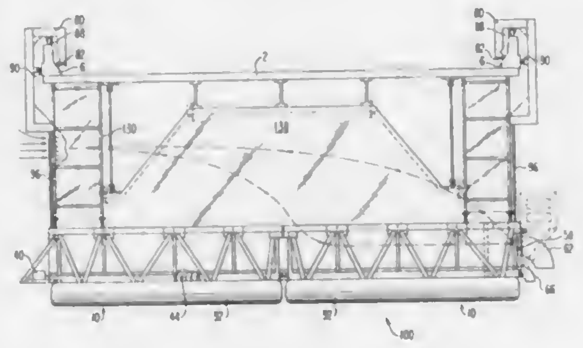
the side of the lower gear unit being fitted with a handle; the handle being supported by a shaft in the gear chamber; the lower part of the handle being connected with a catch lever; the catch lever can be positioned at the lower gear unit, so the gear transmission will not rotate;

By pulling the handle of the gear transmission mechanism, the catch lever is disengaged from the lower gear unit, so the gear transmission can rotate, and the inside ladder can swing backwards to extend by its own gravitational force, and via the gear transmission mechanism, the outside cover and the outside ladder will swing forwards to extend, so that the escapee will be able to climb the inside ladder, to the hollow interior of the housing and to the outside ladder, and out of the scene by means of the escape device on the outside cover.

5,785,148
ENVIRONMENTALLY SAFE WORK PLATFORM WITH BUOYANCY SYSTEM

Robert J. Wildner, R.D. 2, Box 347A, Johnstown, Pa. 15904
Division of Ser. No. 391,515, Feb. 21, 1995, which is a continuation-in-part of Ser. No. 340,306, Nov. 14, 1994, Pat. No. 5,484,035, and Ser. No. 172,925, Dec. 27, 1993, Pat. No. 5,417,301. This application Apr. 30, 1996, Ser. No. 641,283
Int. Cl.⁶ E04G *3/10*

U.S. Cl. 182—138 16 Claims



1. A work platform assembly positionable at and spanning an underside of a structure located above a body of water to provide worker support and access to and treatment of surfaces of the structure, the work platform assembly comprising:

a body, said body includes a bottom periphery and an assembly frame;

a trough for collecting particulate material;

worker supporting structure positioned atop said trough for supporting a worker thereon;

a conveyor system for discharging the particulate material from the trough; and

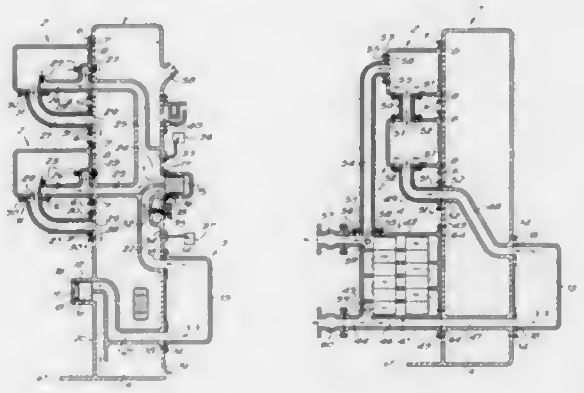
a buoyancy system structurally coupled to said body, said buoyancy system providing the work platform assembly with sufficient buoyancy to permit the work platform assembly to float in the body of water below the surface to be treated, said buoyancy system includes a plurality of floatation members positioned adjacent the bottom periphery of the said body of the work platform assembly and being removably attached to said assembly frame, said floatation members being transportable with said work platform assembly to a position adjacent the surface to be treated, each said floatation member includes a floatation imparting device and at least one platform fastening plate attached to said floatation imparting device, said fastening plate being removably attached to said assembly frame of said work platform assembly;

said floatation device fastening plate including a generally horizontally oriented slot therein, said body of said work platform assembly further includes a generally horizontally oriented flange, said flange being insertable into said slot for restraining the movement of said flange with respect to said floatation member.

5,785,149
SCREW-TYPE COMPRESSOR

Guido Jan Luyts, Ekeren, Belgium, assignor to Atlas Copco Airpower, Naamloze Vennootschan, Wilrijk, Belgium
Filed Sep. 12, 1996, Ser. No. 711,898
Claims priority, application Belgium, Sep. 12, 1995, 09500747
Int. Cl.⁶ F01M *9/00*

U.S. Cl. 184—6.12 7 Claims



1. A screw-type compressor of the type comprising the structure of a gearcase, at least one pressure stage, a lubricating mechanism and a cooling arrangement, wherein the lubricating mechanism includes a reservoir for maintaining lubricant, a pump for pumping said lubricant, a lubricant cooler for cooling said lubricant, a filter for filtering said lubricant, distribution nozzles for discharging said lubricant and lubricant conduits for conducting said lubricant between these structures of the lubricating mechanism, and wherein said cooling arrangement includes a fluid coolant mechanism for cooling said lubricant cooler, and interconnecting coolant conduits for passing cooling fluid between components of said lubricating mechanism and said cooling arrangement,

said components of said lubricating mechanism and said cooling arrangement being both directly mounted on the exterior of and integrated within said gearcase, and portions of said lubricant and coolant conduits being integrated within said gearcase so that only portions of said lubricant and coolant conduits are disposed outside said gearcase, said lubricating mechanism or said cooling arrangement; and wherein at least said fluid coolant mechanism, said filter, said lubricant cooler, and portions of said nozzles are separately mounted directly on and externally of said gearcase within respective housings.

5,785,150
SWASH PLATE TYPE AXIAL PISTON PUMP INCLUDING LUBRICATION MECHANISM, AND VALVE PLATE

Tsutomu Tominaga; Tatsuya Ikegami; Kazuyoshi Yamamoto; Osamu Matsumoto; Kazuyuki Ushio, all of Tokyo; Kyoya Igarashi, Kanagawa; Tateo Kume, Aichi; Nobuaki Murakami, Kyoto, and Hideyuki Oda, Aichi, all of Japan, assignors to Mitsubishi Denki Kabushiki Kaisha, and Mitsubishi Jidosha Kogyo Kabushiki Kaisha, both of Tokyo, Japan
Filed Feb. 24, 1997, Ser. No. 805,006
Claims priority, application Japan, Feb. 22, 1996, 8-035019
Int. Cl.⁶ F01M *1/00*

U.S. Cl. 184—6.17 9 Claims

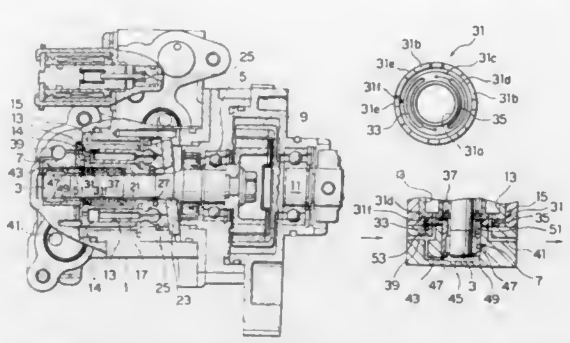
1. A swash plate type axial pump comprising:

a housing;

a rotary shaft mounted for rotation in said housing;

a swash plate mounted in said housing and fixable at an incline with respect to an axis of said rotary shaft;

a cylinder block attached to said rotary shaft so as to be axially slidable relative to said rotary shaft and rotated integrally with said rotary shaft said cylinder block including a plurality of cylinders, each having a pump chamber partitioned therein;



a plurality of pistons, each slidably engaged with one of said plurality of cylinders and coupled to a shoe abutted against said swash plate;

a suction path provided in said housing for supplying an operating fluid into the pump chambers in said plurality of cylinders;

a discharge path provided in said housing for discharging the operating fluid from the pump chambers in said plurality of cylinders;

a valve plate having a first end surface abutted against an inner surface of said housing and a second end surface abutted against a bottom of said cylinder block, and said valve plate having a suction port and a discharge port for causing said suction path and said discharge path to selectively communicate with the pump chambers in said plurality of cylinders; and

lubrication means for supplying a lubricant through said valve plate and directly to said second end surface, thereby lubricating the surfaces of said valve plate in contact with the bottom of said cylinder block.

7. A valve plate, comprising:

an annular body having a center hole;

an outer peripheral land portion provided on an end surface of said annular body;

a seal land portion provided on the end surface of said annular body between said center hole and said outer peripheral land portion;

a suction port and a discharge port provided in said seal land portion by passing an arc shaped slot therethrough;

a continuous annular groove provided between said outer peripheral land portion and said seal land portion; and

a lubricating hole provided through said annular body which opens into said continuous annular groove.

5,785,151
COMPRESSOR WITH IMPROVED OIL PUMP AND FILTER ASSEMBLY

Emanuel D. Fry, Tecumseh, and Scott L. Reiniche, North Adams, both of Mich., assignors to Tecumseh Products Company, Tecumseh, Mich.
Filed Nov. 15, 1996, Ser. No. 749,471
Int. Cl.⁶ F04C *29/02*

U.S. Cl. 184—6.16 15 Claims

1. A compressor, comprising:

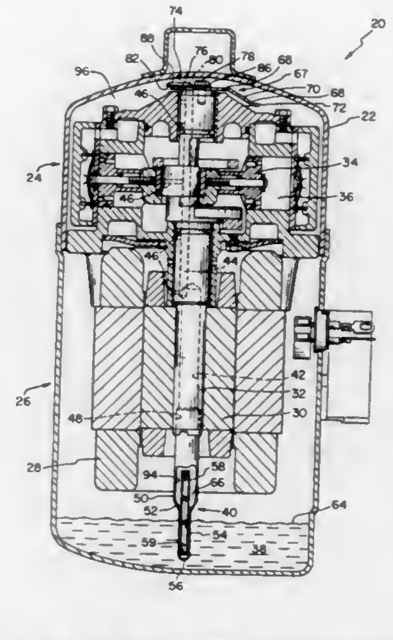
an outer housing;

a compressor mechanism disposed within said housing and having a crankshaft;

a motor disposed within said housing and driving said crankshaft, said crankshaft including an axial passageway having an upper end and a lower end, said axial passageway in fluid communication with said compressor mechanism;

an oil pick-up tube connected to said crankshaft for rotation therewith and extending into an oil sump provided within said housing, said pick-up tube including a lower reduced diameter section and an upper enlarged diameter section, oil from said sump being drawn into an inlet provided in said reduced diameter section when said crankshaft rotates; and

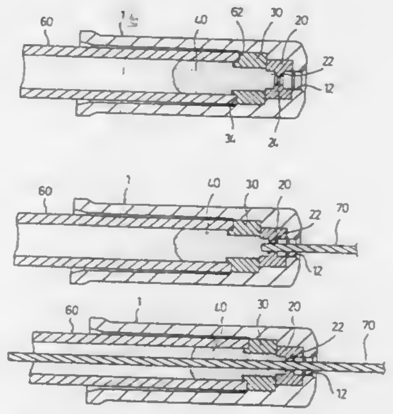
a cylindrical screen disposed within said lower reduced diameter section and at least a portion of said upper enlarged diameter section of said oil pick-up tube, an annular space formed between said cylindrical screen and said enlarged diameter section, rotation of said crankshaft and screen causing the oil from said sump to migrate up said screen through said reduced diameter section, the oil being expelled from said screen radially outward to said enlarged diameter section and upward to said axial passageway and said compressor mechanism, whereby the pumping capability of said oil pick-up tube is enhanced.



5,785,152
LUBRICANT-CONTAINING END CAP FOR A BICYCLE CONTROL CABLE

Kouji Fujita, and Satoru Koga, both of Sakai, Japan, assignors to Shimano, Inc., Osaka, Japan
Continuation-in-part of Ser. No. 669,947, Jun. 25, 1996, Pat. No. 5,636,709. This application Mar. 10, 1997, Ser. No. 814,546
Claims priority, application Taiwan, Oct. 15, 1996, 85112580
Int. Cl.⁶ F16N *7/12*

U.S. Cl. 184—16 20 Claims



1. An end cap for a bicycle control cable of the type wherein an inner cable (**70**) slide within an outer casing (**60**) comprising:

a housing (**10**) defining a hollow chamber (**15**), the housing (**10**) having a first end defining a first opening (**12**) for receiving the inner cable (**70**) therethrough and a second end defining a second opening (**14**) adapted to fit to the outer casing (**60**) of the bicycle control cable;

a lubricant (**40**) disposed in the chamber (**15**);

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a screen (**20**,**30**) screening the first opening (**12**) at the first end of the housing (**10**);
wherein the hollow chamber (**15**) is open through the second end of the housing (**10**) so that the lubricant (**40**) is exposed through the second end of the housing (**10**); and
wherein the lubricant (**40**) does not flow out of the housing (**10**) at 80° C. or lower.

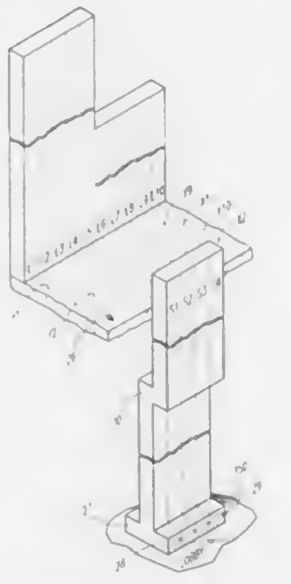
5,785,153
SYNCHRONIZING ELEVATOR ARRIVAL AT A LEVEL OF A BUILDING

Bruce A. Powell, Canton; Joseph Bittar, Avon; Frederick H. Barker, Bristol; Samuel C. Wan, Simsbury; Paul Bennett, Waterbury; Anthony Cooney, Unionville; Richard C. McCarthy, Simsbury, all of Conn., and John K. Salmon, deceased, late of Southwindsor, Conn., by Lucymary Salmon, legal representative, assignors to Otis Elevator Company, Farmington, Conn.

Continuation-in-part of Ser. No. 564,703, Nov. 29, 1995, Pat. No. 5,660,249. This application Jun. 19, 1996, Ser. No. 666,181

Int. Cl.^{6} B66B *9/00*

U.S. Cl. 187—249 **27 Claims**



1. A method of synchronizing the arrival, at a given level of a building, of a selected one of a group of elevators operating above said building level with the arrival at said building level of a selected one of a group of elevators operating below said building level, at least one of said groups being a group of local elevators serving a plurality of contiguous levels of said building, each of said elevators operating in response to a motion controller to achieve a determinable motion profile as it traverses a run, comprising:
identifying a first elevator of one of said groups which is to run to said level;
selecting, for relationship with said first elevator in a synchronizing set, a second elevator from another of said groups, which is predicted to be the elevator of said another group, not related to an elevator in a synchronizing set, which will next reach said building level;
defining a committed set of elevators by relating said first elevator with said second elevator;
when each of said elevators has been dispatched on a run, generating for each elevator in said set, as a function of said motion profile and scheduled stops, if any, corresponding to each of said elevators, a time signal representing the time it is predicted that the corresponding elevator will take to reach said building level;
predicting, from said time signals for each elevator of said set, which of said elevators will arrive at said building level before another one of said elevators and which of said elevators will arrive at said building level after another one of said elevators;
delaying one of said set of elevators which is predicted to arrive at said level before another elevator of said set, in a manner to cause said set of elevators to arrive at said building level at more nearly the same time, by alternatively
in the event that one of said elevators which is predicted to arrive at said level before another elevator of said set is one selected from a local group, delaying the closing of the elevator door of said one elevator at a stop in a manner related to the difference in the times represented by said time signals; and
in the event that one of said elevators which is predicted to arrive at said level before another elevator of said set is one selected from a group other than a local group, controlling the speed of said one elevator in a manner related to the difference in the times represented by said time signals; and
hastening the one of said elevators which is predicted to arrive at said building level after another one of said elevators, in a manner to cause said elevators to arrive at said building level at more nearly the same time, by penalizing the assignment of hall calls to said one elevator by an amount related to the difference in time indicated by said time signals.

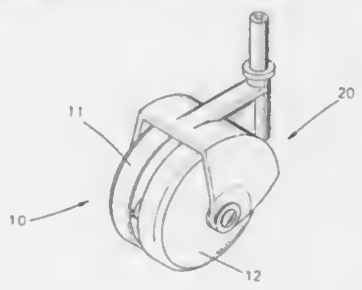
5,785,154
WHEEL WITH BRAKE DEVICE

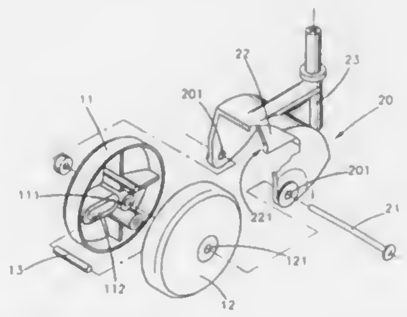
Chih-Yao Chen, Hsin Chu, Taiwan, assignor to Kingstar Baby Carriages, Co., Ltd., Taiwan

Filed Feb. 20, 1997, Ser. No. 804,109

Int. Cl.^{6} B60B *33/00*

U.S. Cl. 188—1.12 **2 Claims**





1. A wheel, comprising:
first and second wheel housings, each wheel housing defining a trough portion;
a wheel mount having a convex ridge, said wheel mount rotatably supporting said first and said second wheel housings such that said trough portions are aligned to form a trough, said convex ridge having a locking portion disposed between said wheel housings; and
a locking shaft movably received in said trough,
wherein when said wheel housings are rotating at a locking speed, said locking shaft moves radially in said trough and engages said locking portion of said convex ridge to prevent rotation of said wheel.

5,785,155
LINEAR MOTION CLAMPING UNIT

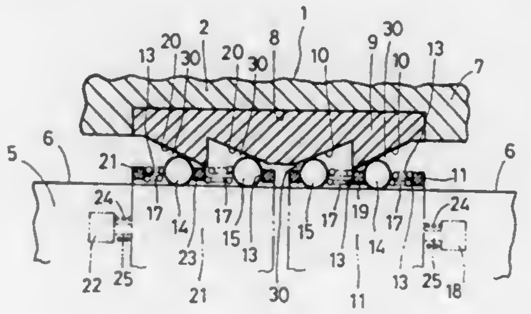
Toshiaki Geka, Kamakura, and Kazunari Shibazaki, Numazu, both of Japan, assignors to Nippon Thompson Co., Ltd., Tokyo, Japan

Filed Sep. 30, 1996, Ser. No. 723,042

Claims priority, application Japan, Nov. 22, 1995, 7-326228

Int. Cl.^{6} F16C *29/06*

U.S. Cl. 188—41 **9 Claims**



1. A linear motion clamping unit comprising:
a track rail having sidewall surfaces; and
a casing unit straddling the track rail and capable of being locked at an arbitrary position on the track rail;
wherein the casing unit includes:
retainers having openings facing the sidewall surfaces of the track rail;
rolling members held in the openings of the retainers and capable of rolling on the sidewall surfaces of the track rail;
casings mounted astride the track rail in such a way as to enclose the retainers;
wedge members installed in the casings and facing the sidewall surfaces of the track rail, the wedge members having inclined surfaces that produce a wedge action in the axial direction; and
actuators to move the retainers axially relative to the casings to bring the rolling members into and out of engagement with lock portions formed by the inclined surfaces of the wedge members and the sidewall surfaces of the track rail.

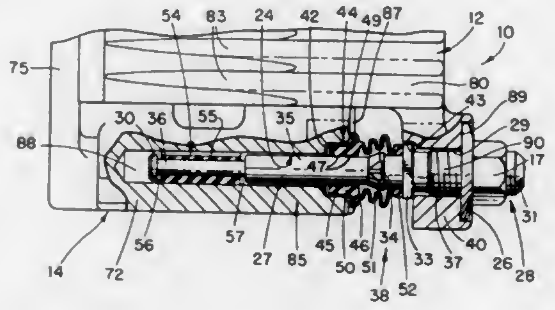
5,785,156
SLIDING BRAKE CALIPER SYSTEM

Edward Harry Warwick, Englewood, and Kenneth Larry Baldwin, Beavercreek, both of Ohio, assignors to General Motors Corporation, Detroit, Mich.

Filed Apr. 12, 1996, Ser. No. 631,430

Int. Cl.^{6} F16D *65/14*

U.S. Cl. 188—73.44 **12 Claims**



1. A sliding brake caliper system comprising:
a mounting bracket including a pair of bores;
a pair of pad assemblies;
a caliper slidably carried on the mounting bracket for applying a clamping load to the pad assemblies, the caliper including a pair of support arms, each with a mounting opening;
a pair of suspension systems slidably retaining the caliper on the mounting bracket each suspension system including a retaining pin slidably supported in one of the bores of the mounting bracket by a resilient cylindrical retaining support wherein the retaining pin includes a shoulder and a threaded end such that one of the mounting openings of the caliper support arms is received against the shoulder and held on the threaded end by a nut so that the caliper is slidable relative to the mounting bracket in coordination with the retaining pins wherein the caliper is rotatable relative to the mounting bracket by loosening only one of the nuts with the corresponding retaining pin remaining in place within the corresponding bore.

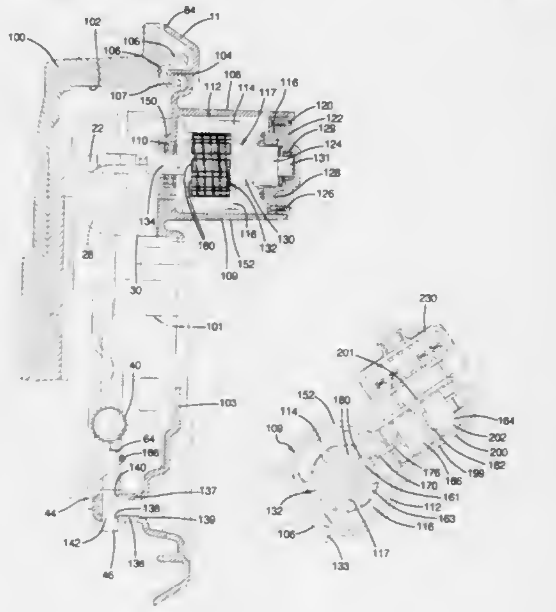
5,785,157
PARK BRAKE APPARATUS FOR VEHICLE ELECTRIC BRAKE

Curtis Albert Scott; William Frank Borchers, both of Beavercreek, and Gustavus Pearl Bock, Bellbook, all of Ohio, assignors to General Motors Corporation, Detroit, Mich.

Filed Mar. 27, 1997, Ser. No. 828,011

Int. Cl.^{6} F16D *65/27*

U.S. Cl. 188—156 **4 Claims**



1. A park brake apparatus for a vehicle electric brake comprising:
an electric motor having a rotational output shaft coupled to a brake mechanism wherein rotational movement of the electric motor in a first direction causes application of brake force in the brake mechanism and rotational movement of the electric motor in a second direction opposite the first direction causes release of brake force in the brake mechanism;
an armature for the electric motor including a plurality of radially extending armature arms; and
a solenoid having a plunger movable between extended and retracted positions, wherein, in the retracted position, the plunger is free of the radially extending armature arms and the armature spins free of the plunger and, in the extended position, the plunger engages the radially extending armature arms, locking the armature in place.

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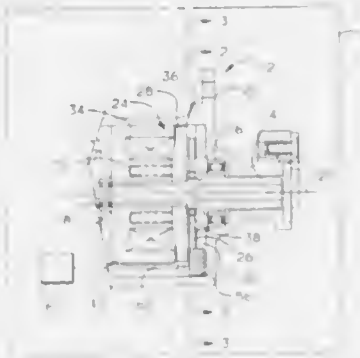
5,785,158
BRAKE APPARATUS WITH FUNCTIONAL INTEGRITY MONITOR

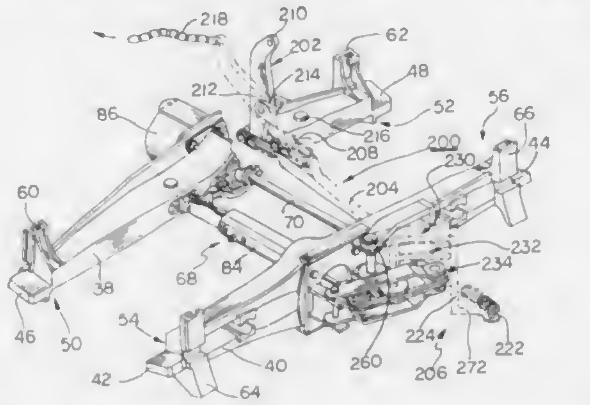
Duane H. Grimm, Rockford, Ill., assignor to Sundstrand Corporation, Rockford, Ill.
Filed Feb. 1, 1996, Ser. No. 595,157
Int. Cl.^{6} B60T *8/72*
U.S. Cl. 088—181 T **20 Claims**



1. In a braking apparatus including a brake plate rotatable about an axis, an armature and a reaction plate directly adjacent and disposed on opposite sides of said brake plate, and actuator means for urging said armature to clamp said brake plate between said armature and said reaction plate in a manner generating braking torque acting on said brake plate with respect to said armature and reaction plate for resisting rotation of said brake plate, brake integrity monitoring means comprising:
- means for providing a calibrated relative rotation of said armature with respect to said reaction plate about said axis in response to said braking torque acting on said brake plate when said actuator means are urging said armature to clamp said brake plate between said armature and said reaction plate; and
- means for measuring said calibrated relative rotation.

5,785,159
BRAKING MECHANISM FOR RAILROAD CARS HAVING BOTH PNEUMATIC AND MECHANICAL ACTUATORS

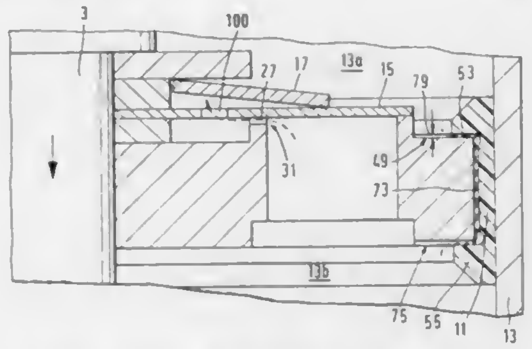
Robert G. Jackson, St. Joseph, Mich., and Leonard F. Manyek, Lansing, Ill., assignors to Triax-Davis, Inc., Benton Harbor, Mich.
Filed Jun. 5, 1996, Ser. No. 659,230
Int. Cl.^{6} B61H *13/02*
U.S. Cl. 188—219.1 **12 Claims**



1. Braking mechanism for braking the wheels of a railroad car, said braking mechanism comprising:
- a pair of opposed brake beams disposed adjacent the wheels movable between a standby position and a braking position, each of said beams carrying brake pads for contacting the wheels when said beams are in said braking position;
- linkage means connected between said beams for moving said beams between said standby position and said braking position, said linkage means including a pivot pivotally connecting the linkage means to one of said brake beams;
- a pneumatic actuator mounted on the other brake beam for operating said linkage means including an actuation rod connected to said linkage means for operating the latter; and
- a mechanical actuator including an arm mounted on said other brake beam, a member connecting said arm to said linkage means, and coupling means for coupling said member to said linkage means when said mechanical actuator is used to move said beams to said braking position, said coupling means permitting said pneumatic actuator to operate said linkage means when said pneumatic actuator is used to move said beams to said braking position.

5,785,160
PISTON WITH DIRECTION-DEPENDENT ADVANCE OPENING CROSS SECTIONS

Manfred Grundel, Niederwerrn, Germany, assignor to Fichtel & Sachs AG, Schweinfurt, Germany
Filed Jun. 28, 1996, Ser. No. 678,388
Claims priority, application Germany, Jun. 28, 1995, 195 23 397.2
Int. Cl.^{6} F16F *9/32*
U.S. Cl. 188—322.15 **20 Claims**

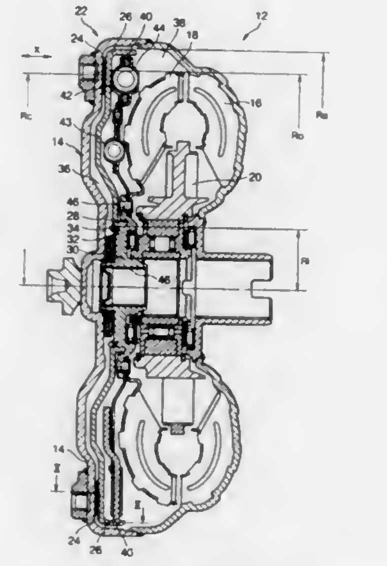


1. A vibration damper, said vibration damper comprising:
- a cylinder, said cylinder having a longitudinal axis and an inner cylinder wall disposed about said longitudinal axis;
- the longitudinal axis extending in an axial direction;
- a piston member disposed within said cylinder and dividing said cylinder into first and second working chambers, said piston member having a peripheral surface disposed towards said inner cylinder wall;
- said piston member comprising a first face facing said first working chamber and a second face facing said second working chamber, said first and said second faces of said piston member being on opposing sides of said piston member, and said peripheral surface of said piston member having an axial length extending substantially between said first and second faces of said piston member;
- a piston rod connected to said piston member and extending through at least one of said first working chamber and said second working chamber to a point exterior of said cylinder;
- a damping fluid disposed in said first and second working chambers;
- at least one damping fluid passage passing through said piston member and connecting said first and second working chambers;
- an arrangement for damping the flow of said damping fluid between said first and second working chambers through said at least one damping fluid passage;
- a piston ring member disposed about said piston member and between said peripheral surface of said piston member and said inner cylinder wall of said cylinder;

- at least one additional damping fluid passage connecting said first and second working chambers, said at least one additional damping fluid passage being disposed at least partially between said piston ring member and said peripheral surface of said piston member;
- said piston ring member being configured to move on said piston member upon said piston member moving in the axial direction in said cylinder;
- said piston ring member and said piston member being configured to block at least a portion of said at least one additional damping fluid passage upon said piston member moving in a first axial direction direction along the axial direction;
- said piston ring member and said piston member being configured to unblock said at least a portion of said at least one additional damping fluid passage upon said piston member moving in a second axial direction along the axial direction;
- said first axial direction being opposite to said second axial direction;
- said at least one additional damping fluid passage comprising a groove disposed on said peripheral surface of said piston member; and
- said groove extending substantially from said first face of said piston member to said second face of said piston member.

5,785,161
FLUID CLUTCH SYSTEM

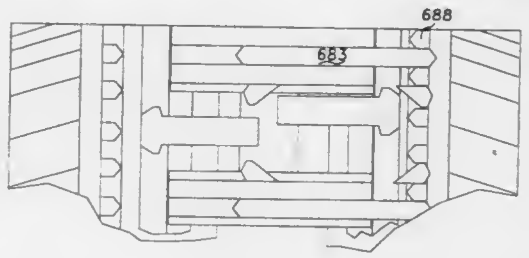
Kiyohito Murata, Susono, Japan, assignor to Toyota Jidosha Kabushiki Kaisha, Toyota, Japan
Filed Oct. 18, 1996, Ser. No. 732,686
Claims priority, application Japan, Oct. 31, 1995, 7-283632
Int. Cl.^{6} F16H *45/02*
U.S. Cl. 192—3.29 **8 Claims**



1. A fluid clutch system having a torque input member and a torque output member, wherein a piston is arranged so as to be axially movable frontwards and rearwards relative to a surface opposing to the piston, a first oil chamber and a second oil chamber are formed on both axial sides of said piston holding the piston therebetween, and wherein said piston is moved in the axial direction thereof till the piston contacts with said opposing surface by a difference between internal pressures of said first and second oil chambers, so that a frictional engagement force can be generated between said piston and said opposing surface for torque transmission between said torque input member and said torque output member via said piston and said opposing surface, said fluid clutch system comprising:
- assistant pressure force generation means for generating a pressure force which assists said frictional engagement force based on a movement of said piston.

5,785,162
RE-INDEXING MANUAL TRANSMISSION SYNCHRONIZER

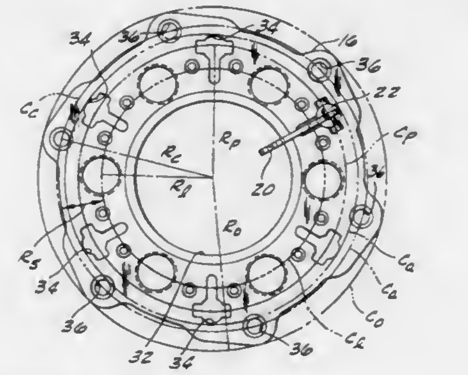
John Shaw Barksdale, Ann Arbor, Mich., assignor to Ford Global Technologies, Inc., Dearborn, Mich.
Filed Oct. 16, 1997, Ser. No. 784,221
Int. Cl.^{6} F16D *23/06*
U.S. Cl. 192—53.331 **20 Claims**



1. A clutch for drivably connecting first and second relatively rotating members disposed for relative rotation, the clutch comprising:
- the first relatively rotating member carrying a first spline tooth;
- the second relatively rotating member having a corresponding second splined tooth for engagement with the first spline tooth;
- a shaft for rotatably supporting the second member about an axis of rotation;
- means for frictionally synchronizing the second member rotationally with respect to the first member;
- means for sliding the second spline tooth into engagement with the first spline tooth;
- means for rotatably aligning the spline teeth while the second spline tooth is slid into engagement with the first spline tooth; and
- means for permitting relative rotation of the second member to the shaft while the spline teeth are being aligned and while the first and second members remain frictionally synchronized.

5,785,163
CLUTCH COVER ASSEMBLY

Christopher A. Bell, Cuba, Mo., assignor to Ace Manufacturing and Parts Co., Sullivan, Mo.
Filed Jun. 7, 1996, Ser. No. 664,240
Int. Cl.^{6} F16D *13/42;43/08*
U.S. Cl. 192—70.3 **23 Claims**



1. A centrifugal clutch cover assembly for use in a clutch as a reaction surface in selective actuation of a pressure ring to clamp a disc mounted on a drive shaft for conjoint rotation therewith between the pressure ring and a flywheel of an engine thereby to selectively interconnect the drive shaft and the engine flywheel, the clutch cover assembly comprising a flat cover plate having a center and a central opening therein for receiving the drive shaft there-

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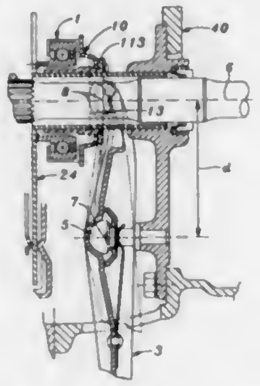
through free of connection to the cover plate, lever assemblies including levers pivotally mounted on the cover plate at angularly spaced apart locations and pressure members constructed and arranged for applying a force to the pressure ring for clamping the disc between the pressure ring and flywheel, the levers being operatively connected to the pressure members such that the pressure members apply more clamping force to the pressure ring the faster the flywheel and cover plate are rotating, multiple means for connecting the clutch cover assembly to the flywheel, said multiple connecting means being disposed at angularly spaced apart locations around the center of the cover plate, the location of each connecting means being angularly spaced from the locations of the lever assemblies.

5,785,164
DECLUTCHING DEVICE FOR A CLUTCH, ESPECIALLY FOR MOTOR VEHICLES

Laurent Hanique, Taisnil; Jean-Michel Kromwel, and Eric Marie, both of Amiens, all of France, assignors to Valeo, Paris, France

Filed Sep. 27, 1996, Ser. No. 722,638
Claims priority, application France, Oct. 9, 1995, 95 11847
Int. Cl.^{6} F16D ***23/14***
U.S. Cl. 192—99 S **7 Claims**



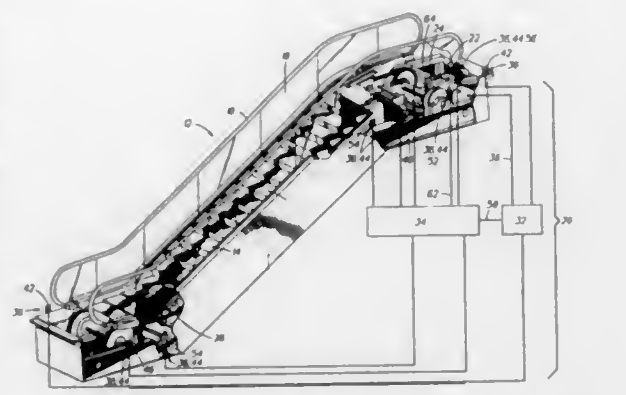
1. A declutching device for a clutch, comprising a fixed structure including a tubular guide member defining an axis, the fixed structure further including pivotal mounting means defining at least one fixed pivot point spaced away from the axis, the declutching device comprising a clutch release bearing mounted on the guide member for axial sliding movement along the guide member, and a declutching fork mounted on the mounting means for pivoting movement about the pivot point, the clutch release bearing including a manoeuvring element having a thrust zone, the declutching fork having an end portion cooperating with the thrust zone for displacing the clutch release bearing axially along the guide member, wherein the end portion of the declutching fork is profiled so as to define a line of contact of the fork with the thrust zone, the line of contact intersecting the axis regardless of the angular position of the declutching fork about the pivot point.

5,785,165
DATA COLLECTION AND ANALYSIS SYSTEM FOR PASSENGER CONVEYORS

Michael Stahlhut, Rehburg-Loccum, and Oliver Stöxen, Seelze, both of Germany, assignors to Otis Elevator Company, Farmington, Conn.

Filed Oct. 30, 1996, Ser. No. 739,573
Int. Cl.^{6} B65G ***43/00***
U.S. Cl. 198—322 **7 Claims**

1. A control system for a passenger conveyor, the passenger conveyor having a moving platform driven by a machine along a predetermined path, wherein the machine includes a supply of lubricant, the control system including:



a controller that determines the operational status of the passenger conveyor;

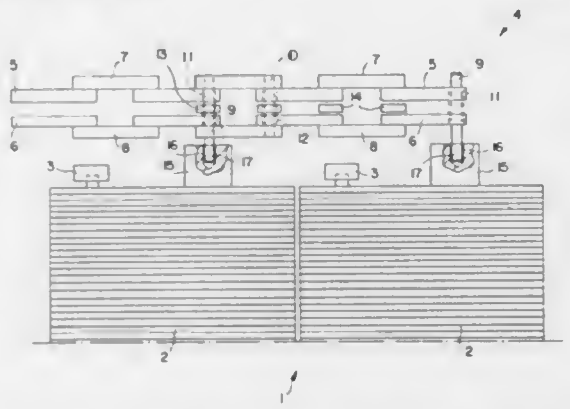
a plurality of sensors disposed throughout the passenger conveyor, wherein each of the sensors produces an analog signal, wherein the plurality of sensors include a sensor to measure the temperature of the lubricant and a sensor to measure the ambient temperature about the passenger conveyor; and

an interface that receives signals from each of the plurality of sensors, the interface converting each signal to a signal communicable to the controller and serially sending the converted signals to the controller, wherein the interface includes means to analyze the received analog signals, wherein the interface generates a warning signal if the analysis of the received signals indicates a fault condition of the passenger conveyor, and wherein the interface serially sends the warning signal to the controller, and wherein the interface determines the condition of the escalator by determining the difference between the lubricant temperature and the ambient temperature.

5,785,166
DRIVE SYSTEM FOR ESCALATORS OR MOVING SIDEWALKS

Peter Hoefling, Dortmund; Hermann Wilke, Eslohe, and Henrik Hauser, Dortmund, all of Germany, assignors to O&K Rolltreppen GmbH of Hattingen, and Ketten Wulf GmbH Gelenkketten- Und Kettenräderfabrik of Eslohe-Kückelheim, both of Germany

PCT No. PCT/EP94/03244, § 371 Date Apr. 8, 1996, § 102(e) Date Apr. 8, 1996, PCT Pub. No. WO95/09802, PCT Pub. Date Apr. 13, 1995
PCT Filed Sep. 28, 1994, Ser. No. 637,788
Claims priority, application Germany, Oct. 6, 1993, 43 34 064.4
Int. Cl.^{6} B65G ***23/02***
U.S. Cl. 198—330 **40 Claims**



1. A drive system for the steps and carriage pallets (**2**) of escalators and moving sidewalks, comprising respectively a conveyor chain (**4**) arranged beside the steps or carriage pallets (**2**), with the conveyor chain including a plurality of link pins (**9**, **10**, **42**, **78**) of different axial lengths cooperating with bushes (**11**, **12**, **44**), wherein the link pins (**9**, **42**) which are axially longer and respectively fitted with a running roller (**13**, **73**) are provided in the region of the steps or carriage pallets (**2**) and are connected with these, if desired, via further components, further including a plurality of plates (**5**, **6**, **7**, **8**, **47**, **48**, **49**, **50**) cooperating also by way of running rollers (**14**), if desired, with the axially shorter link pins (**10**, **78**) and bushes (**12**, **44**), which plates are connected in a manner fixed against relative rotation as inner plates (**5**, **6**, **49**, **50**) to the bushes (**11**, **12**, **44**) and as outer plates (**7**, **8**, **47**, **48**) to the link pins (**9**, **10**, **42**, **78**), wherein sealing elements (**28**, **29**) are provided in the region of both faces (**26**, **27**) of the bushes (**9**), characterized by the combination of the following features:

the link pins (**9**, **10**, **42**, **78**) are formed by electroplated, case-hardened steel pins,

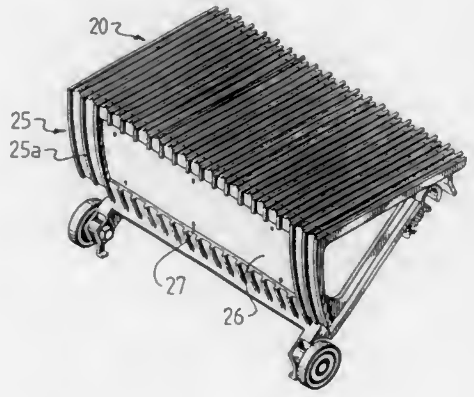
the bushes (**11**, **12**, **44**) are comprised of a case-hardened quenched and tempered steel and are electroplated,

between the link pins (**9**, **10**, **42**, **78**) and the bushes (**11**, **12**, **44**) extends at least one sliding bearing (**18**, **36**, **45**, **46**) which is formed of a thin-walled plastic bush of homogeneous design and is comprised of thermoplastic materials.

5,785,167
ESCALATORS

Noel Andrew Rugg, Auckland, New Zealand, assignor to Escalator Advertising Limited, Auckland, New Zealand

Filed Apr. 24, 1996, Ser. No. 637,103
Claims priority, application New Zealand, Apr. 28, 1995, 272019
Int. Cl.^{6} B66B ***23/12***
U.S. Cl. 198—333 **5 Claims**

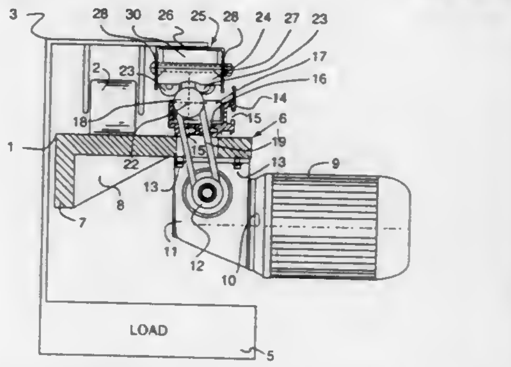


1. A device for displaying indicia on a passenger conveyor, the device comprising: a cover plate adapted and arranged to be fitted as a cover on a riser of an escalator step and connected thereto, said plate having an outer wall and an inner wall, parallel to the outer wall and joined therewith along at least one edge, between which sheet material can be mounted in use, at least the outer wall of said cover plate being at least in part transparent or translucent.

5,785,168
HIGH LOAD OVERHEAD CONVEYOR DRIVE SYSTEM

Thomas E. Beall, Jr., Arlington, Va., assignor to OCS-IntelliTrak, Inc., Cincinnati, Ohio

Filed Jan. 30, 1996, Ser. No. 594,086
Int. Cl.^{6} B65G ***29/00***
U.S. Cl. 198—465.4 **20 Claims**



1. An overhead conveyor system, for transporting at least one load along a conveying path that has at least a primary horizontal component, comprising:

a stationary frame extending along the conveying path;

a drive motor mounted to said frame and having a rotational power output;

a mechanical transmission having a power input connected to said rotational power output of said drive motor and further having a rotational power output;

a drive shaft extending along the conveying path and mounting to said frame for rotation about a shaft axis that is parallel to the conveying path;

a power connection between said rotational power output of said mechanical transmission and said drive shaft for rotatably driving said drive shaft about said shaft axis;

a carriage having a first part for driving said carriage and a second part for carrying the load;

a support surface fixed with respect to said frame and extending along the conveying path;

a support roller normally spaced above said support surface by a fixed distance when there is no load and being rotatably mounted on said second part of said carriage about an axis transverse to said shaft axis;

at least one driven wheel rotatably mounted on said first part of said carriage for rotation about a drive axis, said drive axis being non-parallel and non-perpendicular to said shaft axis, and said driven wheel engaging a top portion of said drive shaft with sufficient traction so as to form a helical loci of engagement about the periphery of said drive shaft during rotation of said drive shaft about said shaft axis to power said carriage along the conveying path in a direction of the conveying path dependent upon a direction of rotation of said drive shaft;

said carriage first part and second part being drivingly connected to each other in the direction of the conveying path and providing a lost motion connection between each other in a vertical direction;

a bias mechanism biasing said first part and said second part vertically away from each other throughout a range of said lost motion connection for providing sufficient engagement traction force between said driven wheel and said drive shaft to power the carriage along the conveying path; and

said fixed distance being less than or substantially equal to said range of said lost motion connection so that as the load

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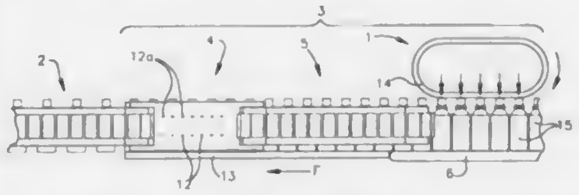
increases from the no load, said range of said lost motion connection decreases and said support roller approaches said support surface, until said support roller engages said support surface at a fixed load weight to thereby limit a portion of load weight carried by said drive shaft to said fixed load weight even when the load exceeds the fixed load weight.

5,785,169
CONVEYOR ASSEMBLY OF THE CONVEYING OF OPEN CONTAINERS

Walter C. Egger, CH-Weggis, Switzerland, assignor to VT Zurich Marketing Pte. Ltd., Balester Hill Center, Singapore
Filed Jan. 21, 1997, Ser. No. 786,641
Claims priority, application Switzerland, Oct. 18, 1996, 2549/96
Int. Cl.⁶ B65G *47/22*
U.S. Cl. 198—493 **10 Claims**

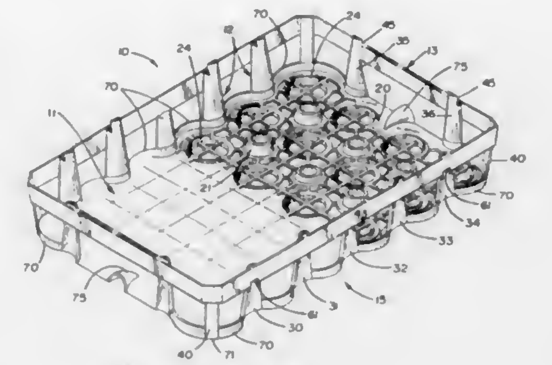


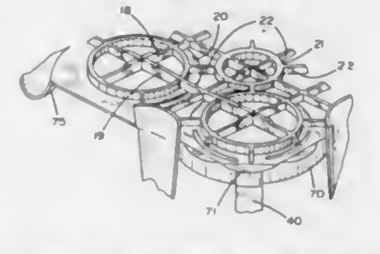
1. A conveyor assembly for the conveying of containers which are open at one end thereof, particularly for the conveying of bottles made of plastic material, comprising:
  a main conveyor means adapted to continuously convey a row of containers located within said main conveyor means at a certain distance from each other;
  a first handing over set-up means located at the input side of said main conveyor means;
  a second handing over set-up means located at the output side of said main conveyor means;
  said first and second handing over set-up means being adapted, respectively, for handing over said containers from an input conveyor apparatus to said main conveyor means and from said main conveyor means to a subsequent conveyor means;
  said first handing over set-up means located at the input side of said main conveyor means comprising a first airlock means in which said containers are aligned by means of the influence of an air stream for being handed over to said main conveyor means; and
  said second handing over set-up means located at the output side of said main conveyor means comprising a second airlock means in which said containers are aligned by means of the influence of an air stream for being handed over to said subsequent conveyor means;
  said first handing over set-up means located at the input side of said main conveyor means comprising pneumatically operated means for subjecting said containers to overpressure.

5,785,170
BEVERAGE CAN TRAY WITH IMPROVED HANDLING FEATURES

Roy Hammett, Odessa, Fla., assignor to International Container Systems, Inc., Tampa, Fla.
Continuation of Ser. No. 590,146, Jan. 23, 1996, abandoned. This application Jul. 8, 1997, Ser. No. 889,267
Int. Cl.⁶ B65D *75/00*
U.S. Cl. 206—203 **34 Claims**

1. A beverage can tray for holding a quantity of cans of beverage, said tray comprising:
  a tray floor having a top surface and a bottom surface and a plurality of spaced apart can seating means distributed over the top surface for seating a plurality of cans in spaced apart relationship to one another;

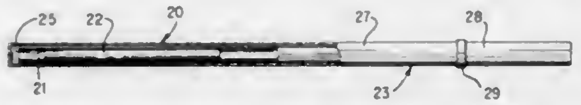




  said tray floor comprising a plurality of parallel, uniformly spaced apart, longitudinally and laterally extending orthogonally intersecting struts defining an open grid of rectangular configuration;
  said can seating means are supported by said struts;
  upstanding sidewall means extending upwardly from the floor top surface around the periphery of the floor for confining and stabilizing the cans supported on the floor;
  multi-level redoubt means formed on the underside of said struts and projecting downwardly from the underside of the tray floor a predetermined depth for cooperation with the top rims in cans supported in a sub-adjacent tray when a plurality of trays containing cans of beverage are stacked on top of one another, to impede free sliding movement of one tray over the tops of cans in a sub-adjacent tray so that the trays can be stacked together in stable relationship, but at the same time enabling said one tray to be moved laterally with respect to the sub-adjacent tray, when desired, to remove said one tray from the stack of trays, said redoubt means including an elongate redoubt of tapered depth that spans the top rim of a can formed on the underside of said struts.

5,785,171
PRIZE DELIVERY SYSTEM

James P. Howes, 122 St. Johns Rd., Wilton, Conn. 06897
Filed Jul. 2, 1997, Ser. No. 887,150
Int. Cl.⁶ B65D *85/08*
U.S. Cl. 206—232 **17 Claims**

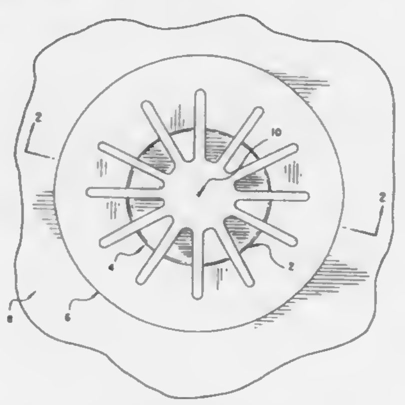


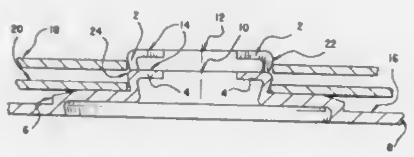
1. A prize delivery system for randomly distributing a prize award with non-prize bearing drinking straws while preventing detection of a prize by any individual prior to the opening thereof, said prize delivery system comprising:
  A. an elongated, substantially cylindrically shaped drinking straw;
  B. a prize award mounted in association with the drinking straw for retention therewith;
  C. covering means peripherally surrounding and enclosing the drinking straw and prize award, preventing visual and physical examination of the drinking straw contained therein to determine the presence of a prize award without the opening thereof; and
  D. removal means cooperatively associated with the prize award for providing easy removal of the prize award from the straw;
  whereby a prize delivery system is attained wherein a prize award is secretly concealed in association with a drinking straw, with the presence of the prize award being completely undiscoverable when compared with non-prize bearing, conventional drinking straws, thereby enabling the random distribution of prize bearing straws with non-prize bearing straws, with complete assurance that the presence of a prize award is discovered by consumers only upon opening of the prize delivery system.

16. A prize delivery system for randomly distributing a prize award with non-prize bearing drinking straws while preventing detection of a prize by any individual prior to the opening thereof, said prize delivery system comprising:
  A. an elongated, substantially cylindrically shaped drinking straw formed with food grade, temperature sensitive inks or dyes responsive to exposure to hot or cold liquids to produce prize indicating indicia on the straw; and
  B. covering means peripherally surrounding and enclosing the drinking straw and prize award, preventing visual and physical examination of the drinking straw contained therein to determine the presence of a prize award without the opening thereof; and
  whereby a prize delivery system is attained wherein a prize award is secretly concealed in association with a drinking straw, with the presence of the prize award being completely undiscoverable when compared with non-prize bearing, conventional drinking straws, thereby enabling the random distribution of prize bearing straws with non-prize bearing straws, with complete assurance that the presence of a prize award is discovered by consumers only upon opening of the prize delivery system.

5,785,172
DOUBLE ROSETTE FOR COMPACT DISC CONTAINER

David Bolognia, Lanesboro; George Rufo, Jr., Dalton, and Alvin Thomas, Pittsfield, all of Mass., assignors to Lakewood Industries, Inc., Pittsfield, Mass.
Filed Dec. 28, 1995, Ser. No. 580,326
Int. Cl.⁶ B65D *85/30*
U.S. Cl. 206—308.1 **12 Claims**

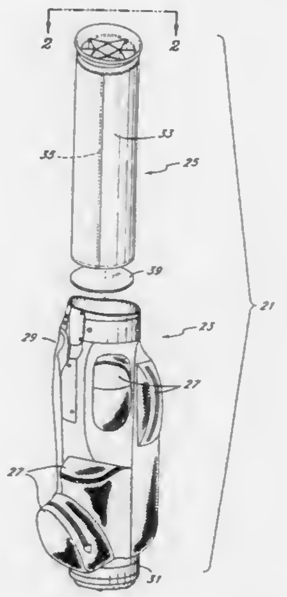




1. A storage tray for disc shaped elements having electronically stored recording media thereon and having a central opening, which storage tray has engagement means for holding and securing at least two disc shaped elements said engagements means comprising a plurality of raised flexible cantilever members centrally located in and part of the storage tray and which are in a circular arrangement with the ends thereof extending inwardly and being opened in the center thereof and which are capable of engaging the inner periphery of disc shaped elements, said plurality of raised flexible cantilever members comprising at least two concentric sets of such members one set of which is higher than the other set, respectively the upper and lower set of flexible cantilever members, said two concentric sets of flexible cantilever members emanate from one side of said storage tray.

5,785,173
GOLF BAG WITH INSERTED SYMMETRICAL FULL LENGTH DIVIDER

Jin C. Kim, 4647 Clubview Dr., Westlake Village, Calif. 91362
Division of Ser. No. 561,896, Nov. 22, 1995, Pat. No. 5,573,112. This application Oct. 24, 1996, Ser. No. 740,193
The portion of the term of this patent subsequent to Nov. 22, 2015, has been disclaimed.
Int. Cl.⁶ A63B *35/00*
U.S. Cl. 206—315.6 **15 Claims**



1. A golf bag divider assembly comprising:
  an internal divider having a plurality planar portions each having an upper and a lower edge and including at least a pair of outer edges;
  a length of covering material having a first end having a first edge and a second end having a second edge which extends below said lower edge of said internal divider providing a lower width beyond the lower edge of said internal divider, said length of covering material surrounding said internal divider and supporting said at least a pair of outer edges of said internal divider;
  a rigid covering portion surrounding said length of covering material and having a lower width adjacent the lower width of said length of covering material and attached to said length of covering material adjacent said lower width of said length of covering material; and
  a collar attached to said first end of said length of covering material.

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5,785,174

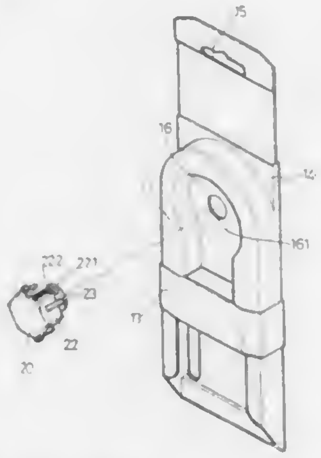
DISPLAY PACK HAVING A ROTATABLE SECURITY MEMBER

Jessie Chow, Taichung, Taiwan, assignor to Hand Tool Design Corporation, Wilmington, Del.

Filed Jun. 19, 1997, Ser. No. 879,225

Int. Cl.^{6} A45C *11/26*

U.S. Cl. 206—349 **4 Claims**



1. A display pack comprising:

a board having a first hole and a second hole respectively defined therethrough, said second hole having a toothed inner periphery, said board having an inverted U-shaped frame extending perpendicularly from a front surface thereof with said second hole being located between two extending portions of said frame, and

a rotatable security member including a polygonal head and a shank extending from one of two sides of said head, said shank having at least one flange extending radially from a free end thereof and a toothed periphery defined therein near said flange such that said rotatable security member is rotatably inserted into said second hole with said toothed periphery being engaged with said toothed inner periphery.

5,785,175

FLEXIBLE BULK BAG WITH IMPROVED BASE

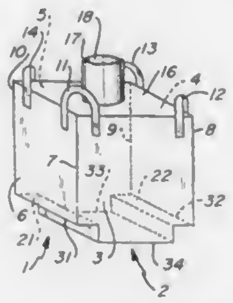
Natthi Cholsaipant, 134 Moo 7 Suan Luang Ruam Jal Road, Suan Luang Kratoomban, Samutsacorn 74110 THX

Filed Aug. 9, 1996, Ser. No. 694,997

Claims priority, application Australia, Jun. 4, 1996, 54741/96

Int. Cl.^{6} B65D *33/02*

U.S. Cl. 206—386 **12 Claims**



1. A flexible bag for storing bulk materials which can be transported by being supported on spaced tines of a forklift and having a predetermined shape when filled, said bag comprising:

a base having a base portion and a pair of base walls attached on opposite ends of said base portion, said base further including spaced longitudinal engagement members for receiving the fork tines of the fork lift thereunder, each of said spaced longitudinal members being attached to a corresponding one of said pair of base walls, said base walls extending below a level at which the tines engage the longitudinal engagement members;

at least a first side wall and a second side wall attached to and extending upward from said base, said side walls forming a space to be filled with the bulk material above the level of the tines, and said side walls and said base walls forming a second space contiguous with said first space, said second space positioned below the level of the tines and also to be filled with bulk material; and

at least one flexible stiffening member within said bag extending between said base walls, said at least one flexible stiffening member having first and second ends, said first end being attached to one wall of said pair of base walls and said second end being attached to the other wall of said pair of base walls so that said at least one flexible stiffening member is in tension when said bag is filled with bulk material to substantially hold said bag in said predetermined shape.

5,785,176

CASSETTE ACCOMMODATING CASE

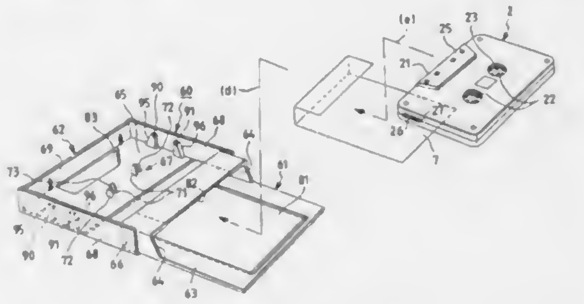
Shingo Katagiri, and Teruo Ashikawa, both of Kanagwa, Japan, assignors to Fuji Photo Film Co., Ltd., Kanagawa, Japan

Division of Ser. No. 365,551, Dec. 28, 1994, Pat. No. 5,586,654. This application Oct. 15, 1996, Ser. No. 730,758

Claims priority, application Japan, Dec. 28, 1993, U.M.HEI5-74515; Dec. 28, 1993, U.M.HEI5-74516; Sep. 29, 1994, P.HEI.6-235405

Int. Cl.^{6} B65D *85/672*

U.S. Cl. 206—387.1 **7 Claims**



1. A cassette accommodating case including a cover section for accommodating a conventional tape cassette of the type having side projections formed on side surfaces of the cassette, the cover section comprising a cover-side opening wall arranged to extend along one surface of a magnetic tape cassette and a pocket capable of accommodating one end of the magnetic tape cassette, and a casing section having two opposing side walls and comprising a pair of rotation-preventing projections provided on a casing-side opposing wall facing the cover-side opening wall to retain a pair of hubs of the magnetic tape cassette by engaging the hubs, the casing section being pivotally attached to the cover section so that the case can be opened and closed, said cassette accommodating case comprising:

at least one positioning projection provided on each of the two opposing side walls of the casing section, said at least one positioning projection having an inclined surface in a plane substantially perpendicular to the two opposing side walls for pushing and urging the magnetic tape cassette in a direction parallel to the two opposing side walls by abutting against a front end or a rear end of the side projection formed on the side surface of the magnetic tape cassette.

5,785,177

PACKAGE FOR STICK-LIKE ARTICLE

Thomas Stridsberg, Tokyo; Masashi Watanabe, Kanagawa, and Norio Kobayashi, Tokyo, all of Japan, assignors to Tetra Laval Holdings & Finance, S.A., Japan

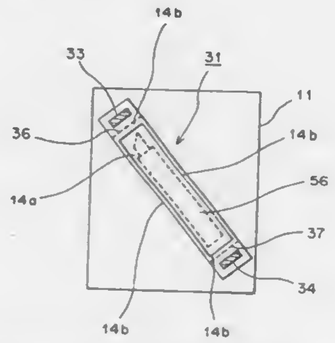
PCT No. PCT/JP95/00237, § 371 Date Aug. 15, 1996, § 102(e) Date Aug. 15, 1996, PCT Pub. No. WO95/23746, PCT Pub. Date Jul. 8, 1995

PCT Filed Feb. 20, 1995, Ser. No. 693,280

Claims priority, application Japan, Mar. 4, 1994, 6-034788

Int. Cl.^{6} B65D *75/32*

U.S. Cl. 206—446 **3 Claims**



1. A package for a stick-like article, comprising:

(a) a first film formed with flat portions at a periphery thereof and a bulging portion between said flat portions for enclosing a stick-like article;

(b) a second film which is joined to said first film by heat sealing between said flat portions and said second film, in which

(c) joint portions are formed near both longitudinal ends of said package for a stick-like article, and

(d) perforations are formed at locations which are offset from said joint portions toward the center of said package and which are slightly offset from boundaries between said bulging portion and said flat portions toward longitudinal ends of said package.

5,785,178

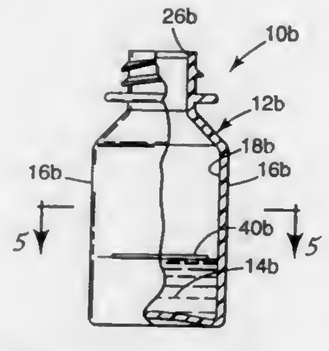
PACKAGED PHOTOCURABLE COMPOSITION

James R. Kvitrud, White Bear Lake; Thomas W. Martin, Little Canada, and Steven E. Shimota, Woodbury, all of Minn., assignors to Minnesota Mining and Manufacturing Co., St. Paul, Minn.

Filed Nov. 4, 1996, Ser. No. 743,646

Int. Cl.^{6} B65D *90/02;25/54;* **B67D** *5/38*

U.S. Cl. 206—459.1 **14 Claims**



1. A packaged composition comprising:

a vial having wall portions defining a chamber and an outlet communicating with said chamber, said wall portions being made of a polymeric material having a flexural modulus less than about 200,000 kg/cm^2;

a photocurable material in said chamber, said material being dispensed through said outlet when said wall portions are squeezed together, said wall portions transmitting less than about 1.0% of actinic radiation, and wherein at least one of said wall portions transmits at least part of the visible spectrum; and

an element in said chamber, said element having a density less than the density of said photocurable material in order to float in said photocurable material.

5,785,179

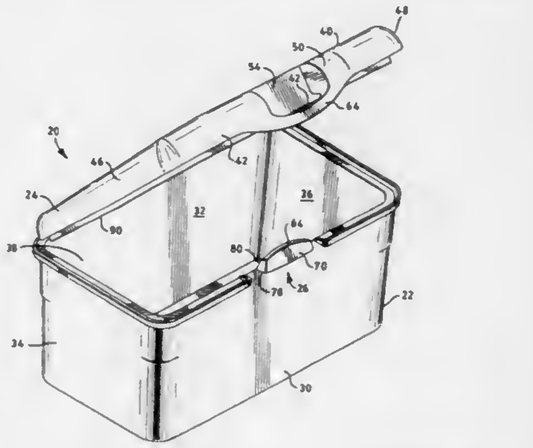
CONTAINER FOR WET WIPES HAVING AN IMPROVED CLOSURE MECHANISM

Carey Alix Buczwinski; Todd Christopher Larson; Annamaria Serbiak, all of Appleton, Wis.; Alfred Jack Astoreca, Annandale; Peter Anthony Piscopo, Medford, both of N.J., and Richard Herman Seager, Mystic, Conn., assignors to Kimberly-Clark Worldwide, Inc., Neenah, Wis.

Filed Jun. 4, 1997, Ser. No. 868,691

Int. Cl.^{6} B65D *43/00;45/00*

U.S. Cl. 206—494 **20 Claims**



1. A wet wipe container which includes a container base, a container lid which is pivotally connected to said container base and a closure which is configured to releasably lock said container lid onto said container base in a closed position wherein said closure comprises:

a) an elongated tongue projection which is connected to and extends outwardly from a front wall of said container base; and

b) a recess which is located in a convex portion of a front wall of said container lid which extends convexly outward wherein said recess defines a length of at least about 2.5 centimeters, a depth of at least about 1.0 centimeters, an aperture through which said tongue projection extends when said container is in said closed position, and a resiliently flexible lip member which extends along a portion of an outer periphery of said aperture and which is configured to flex outwardly to direct said tongue projection into said aperture and snap in position under said tongue projection when said container lid is closed.

5,785,180

CHILD-RESISTANT PACKAGE

Mark W. Dressel, Lake Zurich, and John M. Bitner, Aurora, both of Ill., assignors to G. D. Searle & Co., Chicago, Ill.

Filed Jun. 22, 1995, Ser. No. 493,582

Int. Cl.^{6} B65D *83/04*

U.S. Cl. 206—532 **9 Claims**

1. A child-resistant package comprising:

a nonrupturable layer having top and bottom surfaces,

a rupturable layer having top and bottom surfaces, the top surface thereof being attached to the bottom surface of the nonrupturable layer,

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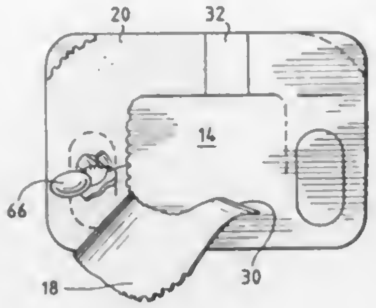


a blister sheet having a top surface attached to the bottom surface of the rupturable layer, the blister sheet having at least one article-receiving pocket which is covered by a portion of the rupturable layer,

a portion of the nonrupturable layer being unattached to the rupturable layer to provide a pull tab,

first means to facilitate pulling the pull tab along a first path on the nonrupturable layer which does not extend toward the pocket in the blister sheet whereby pulling the pull tab along said first path will not expose the portion of the rupturable layer which covers the pocket, and second means to facilitate pulling the pull tab along a second path on the nonrupturable layer which is not aligned with said first path and which intersects said first path and which extends toward the pocket in the blister sheet whereby pulling the pull tab along the second path exposes the portion of the rupturable layer which covers the pocket, and

means for permitting the pull tab to be removed from the package without exposing the portion of the rupturable layer which covers the pocket if the pull tab is pulled along said first path beyond said second path.

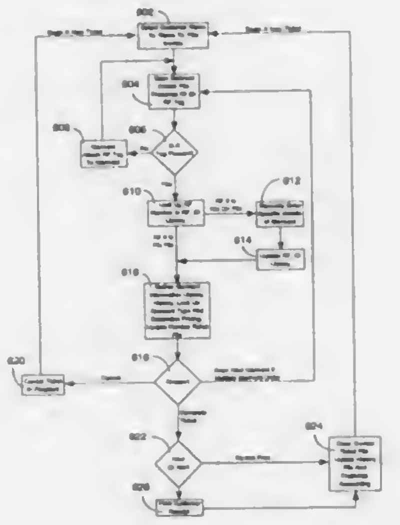
5,785,181
PERMANENT RFID GARMENT TRACKING SYSTEM

Peter J. Quartararo, Jr., Boynton Beach, Fla., assignor to Clothestrak, Inc., Margate, Fla.

Filed Nov. 2, 1995, Ser. No. 556,798

Int. Cl.⁶ B07C *5/02*

U.S. Cl. 209—3.3 **25 Claims**



1. An item tracking system for tracking the activity history of an item, comprising:

an identification device having storage for holding information related to an item, the identification device further having means to permanently attach itself to an item for the life of the item;

a reader capable of reading the information stored in the identification device, the reader further having an output for outputting information read from the identification device; and

a computer having an input attached to the reader such that information read from the identification device by the reader can be transferred from the reader to the computer, the computer further having storage to maintain a history record of the item which includes records of actions taken in regard to the item over the lifespan of the item;

whereby the computer can track actions taken in regard to the item attached to the identification device and maintain a history record of the item describing activities taken over the lifespan of the item.

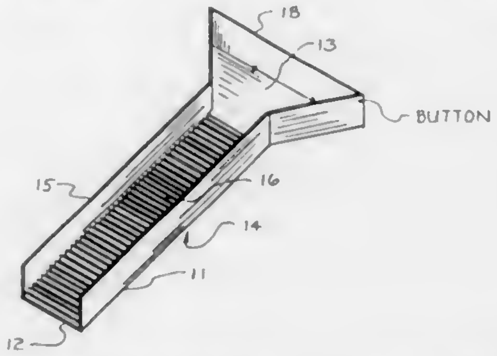
5,785,182
PORTABLE FINISHING SLUICE

Clarence W. Asheraft, R.R. 5, Box 207, Mt. Vernon, (Jefferson County), Ill. 62864

Filed Jan. 3, 1996, Ser. No. 582,308

Int. Cl.⁶ B03B *7/00*

U.S. Cl. 209—44 **2 Claims**



1. A sluice for final separation of gold from other waste materials found in natural granular deposits of slurry, the sluice comprising:

a. a bottom panel with a flared, entrance end for receiving the granular deposits and a working, exit end for discharging waste materials from the granular deposits;

b. a pair of substantially vertical side walls attaching to each side of the bottom panel in a watertight joining such that liquid and granular materials are contained and forced to flow over the full length of the bottom panel; and

c. a plurality of specially shaped grooves formed into the surface of the bottom panel to catch and hold gold particles while allowing the waste materials to be washed out of the sluice; said grooves insure that all particles are subjected to the moving force of the stream of slurry at all times.

5,785,183
DISPLAY UNIT AND ARRANGEMENT OF THIS DISPLAY UNIT IN PREMISES FURNISHED WITH AN OPENING

Alain Rejeté , 16, rue Jean Ferrandi, 75006 Paris, France

PCT No. PCT/FR94/00694, § 371 Date Feb. 1, 1996, § 102(e) Date Feb. 1, 1996, PCT Pub. No. WO95/00055, PCT Pub. Date Jan. 5, 1995

PCT Filed Jun. 10, 1994, Ser. No. 569,209

Claims priority, application France, Jun. 17, 1993, 93 07329

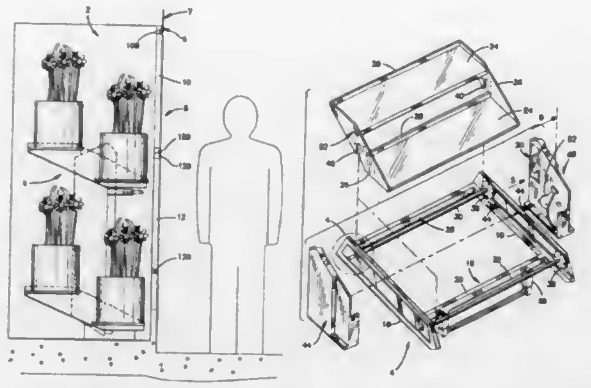
Int. Cl.⁶ A47F *3/08*

U.S. Cl. 211—1.51 **16 Claims**

1. A display unit comprising:

a main chassis having two uprights, a rotationally immobilized articulation shaft about which said main chassis is pivotable and that is fitted to said two uprights, and a rotatable horizontal spindle fitted to said two uprights;

at least one shelf pivotable about said horizontal spindle;



swinging means for pivoting said main chassis about said articulation shaft from a retracted position to a display position; and

rotating means for stabilizing an angular position of said at least one shelf independently of said main chassis and for coupling said articulation shaft and said horizontal spindle.

5,785,184
STAND WITH HANGERS FOR ITEMS OF CLOTHING

Herbert Metselaar, Sonnentaustrasse 5, 88410 Bad Wurzach, Germany

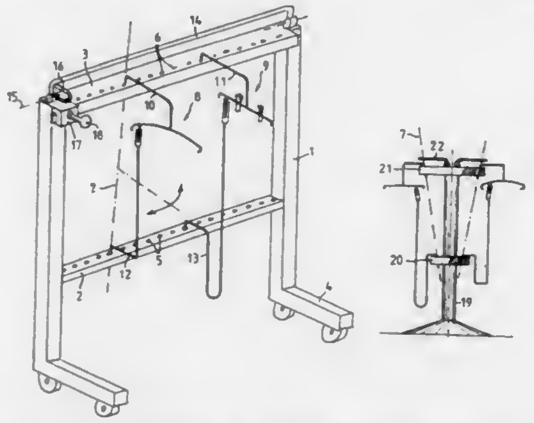
PCT No. PCT/DE95/00609, § 371 Date Nov. 4, 1996, § 102(e) Date Nov. 4, 1996, PCT Pub. No. WO95/30816, PCT Pub. Date Nov. 16, 1995

PCT Filed May 4, 1995, Ser. No. 737,112

Claims priority, application Germany, May 10, 1994, 44 16 464.4

Int. Cl.⁶ A47F *5/00*

U.S. Cl. 211—4 **15 Claims**



1. A stand with hangers for items of clothing, wherein the hangers (**8**) have two laterally projecting extension arms (**10**, **12**), of which one is passed through the sleeve or the trouser leg of the item of clothing hanging on the hanger, and wherein the extension arms (**10**, **12**) are received rotatably in bearing which are arranged at different levels on the stand and have a common axis (7) which runs alongside the item of clothing.

5,785,185
ROTARY SHOE RACK

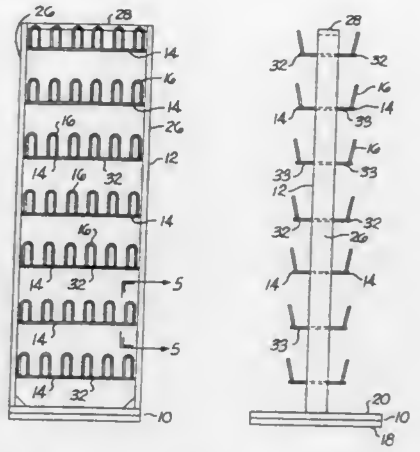
Clem M. Klebba, 1452 Welling, Troy, Mich. 48098

Filed Apr. 21, 1997, Ser. No. 845,090

Int. Cl.⁶ A47F *7/00*

U.S. Cl. 211—37 **14 Claims**

1. A rotary shoe rack comprising a circular base rotatable around a central vertical axis; an inverted U-shaped frame extending vertically upwardly from said base; said frame comprising two spaced uprights located in a plane containing the rack rotational



axis; a first set of U-shaped support members extending horizontally from said uprights in a first direction normal to the plane of said uprights; a second set of U-shaped support members extending horizontally from said uprights in a second direction normal to the plane of said uprights;

each U-shaped support member comprising a horizontal bar extending parallel to the plane of said uprights; and plural shoe supports mounted on each horizontal bar.

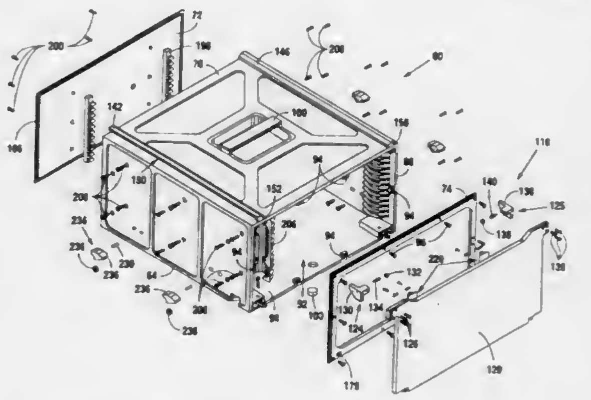
5,785,186
SUBSTRATE HOUSING AND DOCKING SYSTEM

Daniel A. Babbs, and Richard E. Shultz, both of Austin, Tex., assignors to Progressive System Technologies, Inc., Austin, Tex.

Filed Oct. 11, 1994, Ser. No. 320,947

Int. Cl.⁶ A47F *7/00;* **B65D** *85/30*

U.S. Cl. 211—41 **39 Claims**



1. A housing for maintaining a plurality of substrates in a substantially clean environment, comprising:

a box having an interior space and an opening at one end;

a plurality of combs integrally mounted within said box for slidably receiving and supporting said plurality of substrates within said interior space and maintaining each one of said plurality of substrates in spaced relationship relative to another one of said plurality of substrates; and a door assembly mounted to said box adjacent said opening of said box for covering said opening when said door assembly is in a closed position and for permitting access to said interior space when in an open position.

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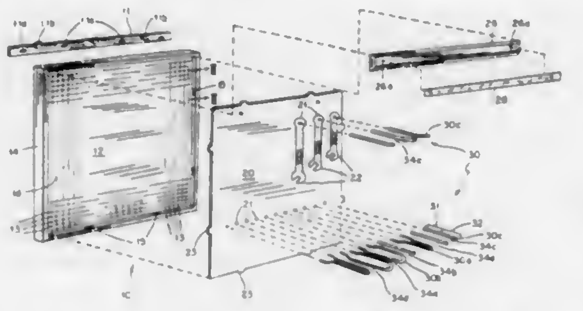
MECHANDISING DISPLAY ASSEMBLY

Daniel Lipman, and Melissa E. Lipman, both of 33 Red Spring La., Glen Cove, N.Y. 11542

Filed Apr. 29, 1996, Ser. No. 638,816

Int. Cl.⁶ A47F *5/00*

U.S. Cl. 211—59.1 **16 Claims**



1. A merchandising display assembly for receiving display hooks with axially-extending support rods designed to support and display articles of merchandise comprising:

a substantially rigid, planar mounting board having a front surface with a multiplicity of spaced-apart bores formed therein in a predetermined pattern, each bore having a diameter and a preset depth and being bordered by a sidewall, the depth of each bore being at least three times the diameter of each bore;

wherein each bore is adapted to selectively receive an axially-extending support rod with said sidewall frictionally retaining the support rod so that the display hooks support and display merchandise adjacent the planar mounting board.

5,785,188

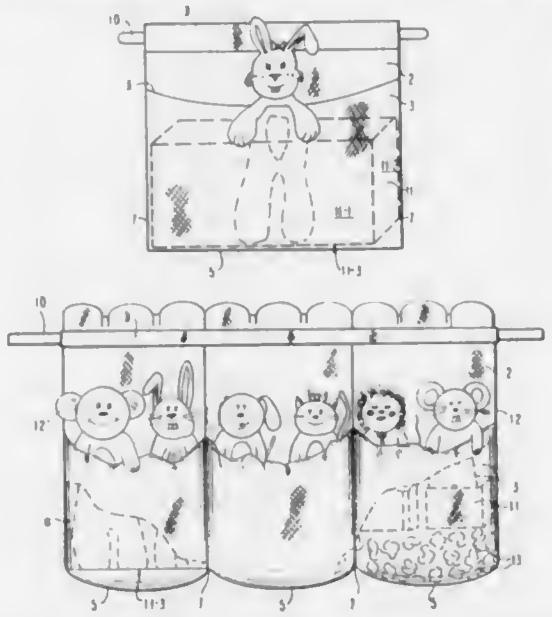
VALANCE FOR STORING AND DISPLAYING ITEMS

Patricia P. Ogden, 5995 Riverwood Dr., NW., Atlanta, Ga. 30328

Filed Jun. 20, 1996, Ser. No. 667,029

Int. Cl.⁶ A47F *5/00*

U.S. Cl. 211—88.01 **19 Claims**



1. A valance attachable to a support to be suspended from a wall and for storing and displaying an item, comprising:

a body having a front face and an upper portion;

a flexible pouch coupled to said front face of said body, said pouch having a front surface and being dimensioned to receive the item when said pouch is in an expanded state having greater volume than an unexpanded state;

a support attachment coupled to said upper portion of said body and attachable to the support to suspend said body from the support; and

expanding means, disposed within said pouch, for holding said pouch in said expanded state, and for imparting a three-dimensional appearance to said pouch.

5,785,189

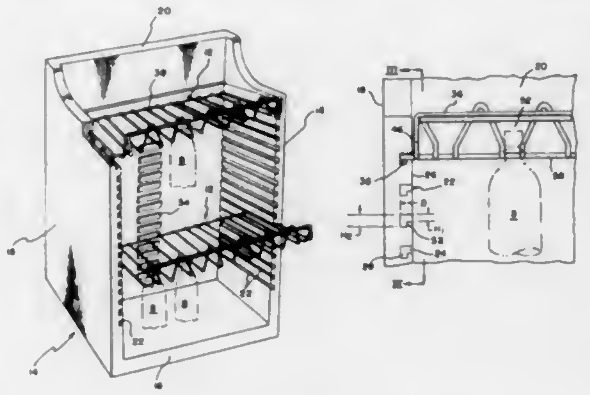
DISPLAY SHELF DEVICE HAVING A RIGID STRUCTURE

Edward N. Gollob, and James David Robertson, both of Atlanta, Ga., assignors to The Mead Corporation, Dayton, Ohio

Filed Jan. 31, 1997, Ser. No. 791,881

Int. Cl.⁶ A47F *5/00*

U.S. Cl. 211—187 **17 Claims**



1. A display shelf device comprising:

a pair of opposing side walls having inner upright surfaces facing each other, said upright surfaces being formed with a pair of substantially horizontal grooves respectively, each of said grooves having a first section adjacent to a respective one of said upright surfaces and a second section remote from said respective upright surface, said each groove having a vertical size greater at said second section than at said first section; and

a shelf provided at opposite side edges thereof with mounting means for engagement with said side walls, said mounting means being received in said grooves such that said side walls are interconnected by said shelf, said mounting means comprising locking means received in said second sections of said grooves to lock said mounting means in said grooves, said locking means having a vertical size greater than said vertical size of said each groove at said first section whereby said side walls are secured together,

wherein each of said side walls has front and rear ends defining therebetween said respective upright surface, said each groove comprising a main length including said first and second sections, said main length of said each groove extending rearward from said front end of a respective one of said side walls to an intermediate position between said front and rear ends of said respective side wall, and

wherein said each groove further comprises an auxiliary length collinear and continuous with said main length of said each groove, said auxiliary length of said each groove extending rearward from said intermediate position, said each groove having at said auxiliary length a substantially constant vertical size generally equal to a vertical size of said first section at said main length.

5,785,190

HARDWARE MOUNTING SYSTEM

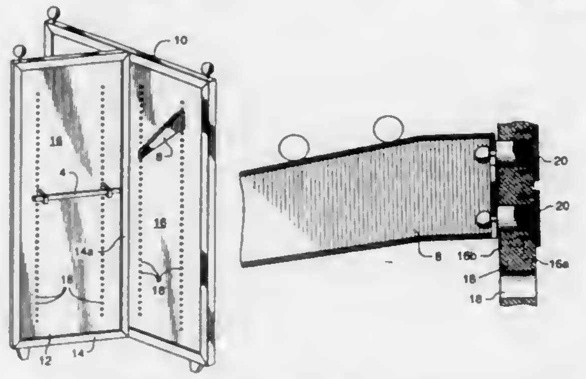
Martin Otema, 15 Pine Ridge Drive, Scarborough, Ontario, Canada, M1M 2X4

Filed Mar. 18, 1997, Ser. No. 819,836

Claims priority, application Canada, Apr. 12, 1996, 2174023

Int. Cl.⁶ A47F *5/00*

U.S. Cl. 211—189 **20 Claims**



1. A hardware mounting system for use in a display or shelving unit having at least one panel with spaced apart holes, comprising

a plurality of studs for insertion through the holes, each stud having

a securing flange for abutting a rear face of the panel,

a post projecting from the securing flange for extending through the holes in the panel, the post extending beyond a front face of the panel,

a neck projecting from the post for engaging a slot in a piece of hardware, and

an enlarged head projecting from the neck for retaining the hardware on the stud, and

at least one piece of hardware having

a rear face provided with at least two slots for engaging over the necks of two adjacent studs, the slots being spaced apart by a spacing substantially the same as the spacing of the holes and each slot being in communication with an access opening below the slot to allow for insertion of the head of a stud, and

a hollow portion forwardly of the rear face for accommodating the heads of the studs,

wherein the slots are narrower than the heads of the studs and the hardware is thereby retained in a mounted position spaced from the panel by the heads of the studs.

5,785,191

OPERATOR CONTROL SYSTEMS AND METHODS FOR SWING-FREE GANTRY-STYLE CRANES

John T. Feddema; Ben J. Petterson, and Rush D. Robinett, III, all of Albuquerque, N. Mex., assignors to Sandia Corporation, Albuquerque, N. Mex.

Filed May 15, 1996, Ser. No. 651,166

Int. Cl.⁶ B66C *13/06*

U.S. Cl. 212—275 **27 Claims**

15. A method for damping payload sway in a crane having a payload suspended by multiple variable-length cables from a trolley, the trolley being moveable in a horizontal plane, comprising the steps of:

moving the trolley via input signals from an operator input device;

providing filter means for receiving the input signals from the operator input device, the filter means being characterized by variable control parameters that can be updated;

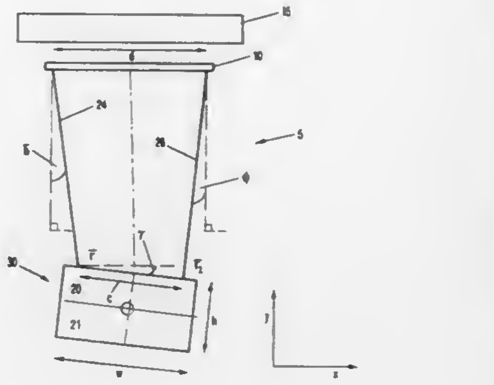
determining a variable cable length;

determining the natural frequency of oscillation ω,

updating the variable control parameters of the filter means;

changing the input signals of the filter means to output signals, the output signals being a function of the input signals and the variable control parameters; and

sending the output signals to a crane controller to damp payload sway.



5,785,192

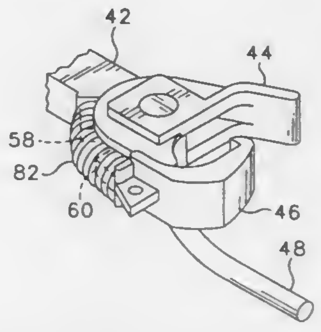
MODEL RAILROAD COUPLER

Michael Nathan Dunham, and Lawrence D. Edwards, both of Eagle Point, Oreg., assignors to Kadee Quality Products, Inc., White City, Oreg.

Filed Feb. 28, 1997, Ser. No. 808,519

Int. Cl.⁶ B61G *7/00*

U.S. Cl. 213—75 TC **13 Claims**



6. An improved coupler for use on a model railroad, the coupler including a shank, having a joining element at one end thereof for attaching the coupler to a unit of model railroad rolling stock, a coupler head, located at the other end of the shank, the coupler head having a coupler knuckle receiver for receiving a coupler knuckle therein for limited, rotational movement within the coupler head, the coupler knuckle being located on one side of the coupler head, the coupler head further having a first knuckle stop thereon for limiting rotational movement of the coupler knuckle relative to the coupler head in a first direction of rotation, and a spring extending between the coupler knuckle and the coupler head for urging the coupler knuckle, in the first direction of rotation, to a closed position, the improvement comprising:

a knuckle limiter located on the coupler knuckle for receiving the other end of the spring thereon, and having a first abutting surface thereon;

a second knuckle stop located on the one side of the coupler head adjacent the shank, for receiving one end of the spring thereon, and having a second abutting surface thereon; and

wherein said second knuckle stop and said knuckle limiter have a substantially frusto-conical shape.

wherein said knuckle limiter and said second knuckle stop are constructed and arranged to abut one another with said first and second abutting surfaces, respectively, when the coupler knuckle is shifted, in a second direction of rotation, to an open position, thereby stopping rotation of the coupler knuckle relative to the coupler head in the second direction of rotation.

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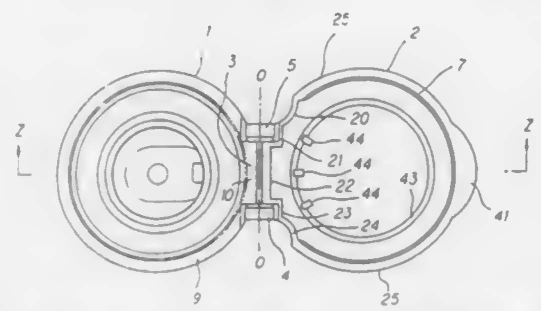
5,785,193
SNAP-HINGED CAP

Tsutomu Kobayashi, and Tsugio Arai, both of Ibaraki, Japan, assignors to Yoshino Kogyosho Co., Ltd., Tokyo, Japan
Filed Feb. 14, 1996, Ser. No. 601,644
Claims priority, application Japan, Feb. 15, 1995, 7-050482
Int. Cl.^{6} B65D *43/14*
U.S. Cl. 215—235 **8 Claims**



1. A snap-hinged cap comprising a main body section of thermoplastic synthetic resin, a cap integrally molded with the main body section, a film hinge connecting the main body section and the cap, and straps arranged on both lateral sides of the film hinge, wherein

said cap includes a skirt section which includes a lower edge;

said main body section includes a peripheral wall;

said film hinge connects a portion of the lower edge of the skirt section of the cap and a portion of the peripheral wall of the main body section;

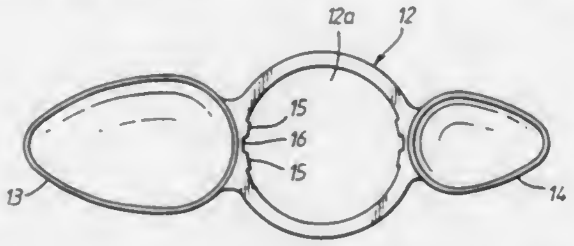
said straps are connected to the main body section and the cap at connecting sections, said connecting sections being arranged above and below an abutting surface of the lower edge of the skirt section of the cap and the main body section when the cap is closed;

each of said straps having an axially-extending; centrally-located center line longer than a straight line between said connecting sections for a given strap; and

said skirt section of the cap having a peripheral wall of differential thickness, the peripheral wall having a thin portion which extends from the film hinge to a location beyond said straps.

5,785,194
CAP FOR A CONTAINER AND OPENING MEANS THEREFOR

Brian L. Ogden, Dartford, England, assignor to Warner-Lambert Company, Morris Plains, N.J.
Continuation of Ser. No. 415,142, Mar. 28, 1995, abandoned, which is a continuation of Ser. No. 971,766, Feb. 12, 1993, abandoned. This application Feb. 26, 1997, Ser. No. 806,898
Claims priority, application United Kingdom, Jun. 7, 1991, 91 12259
Int. Cl.^{6} B65D *85/84*
U.S. Cl. 215—302 **7 Claims**



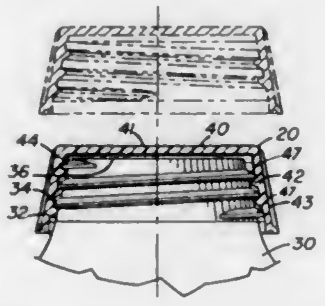
1. A kit for removing a cap on a medical container comprising, in combination:

a two-piece child-resistant cap requiring simultaneous depression and twisting for removal from the container, said cap having a top, a depending skirt and an open lower end opposite said top for receiving a neck of the medical container, said skirt having along an outer, upper surface portion thereof a first engagement structure consisting of a plurality of ribs and flutes extending axially from adjacent the top of the cap and circumferentially extending about said upper surface portion of said skirt and a seat along said upper surface portion of said skirt adjacent a base of said ribs and flutes, and

a discrete opening aid normally separate from and unconnected to said cap comprising an annular spanner for engagement over said cap and removable therefrom, said annular spanner having an interior surface carrying a second engagement structure including a pair of projections extending radially inwards and spaced from one another about said interior surface for engagement in a flute between adjacent ribs of the cap, said opening aid also comprising a twist grip handle to allow the annular spanner to abut against the seat of the cap by downward pressure over the cap, on the twist grip hand, thereby enabling the cap to be removed from the medical container upon depressing and rotating the annular spanner.

5,785,195
CONICALLY THREADED CLOSURE SYSTEM

Andrew P. Zwemer, Alamo, and Thomas Gerret Dewees, Pleasanton, both of Calif., assignors to The Clorox Company, Oakland, Calif.
Filed Nov. 7, 1996, Ser. No. 745,100
Int. Cl.^{6} B65D *41/04*
U.S. Cl. 215—329 **19 Claims**



1. A threaded closure system, comprising:

a container having a substantially circular opening and a thread portion disposed proximate thereof, said container being constructed of a thermoplastic material, said thread portion including a first continuous conical thread structure having a conical angle in the range of approximately 20° to approximately 30°; and

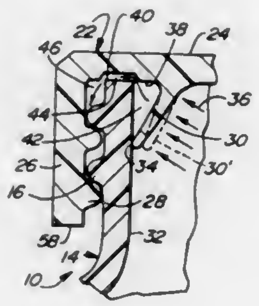
a cap having a substantially circular top and a depending cap skirt, said top including an outer surface and an interior surface, said top having a correspondingly similar shape and dimension as said container opening, said cap skirt having a correspondingly similar second continuous conical thread structure disposed on the inside surface thereof which directly engages said first conical thread structure, said second conical thread structure having a conical angle in the range of approximately 20° to approximately 30°;

said container opening and said interior surface of said cap top being sealably engaged upon said engagement of said first conical thread structure and said second conical thread structure, and sealable engagement of said container opening and said cap providing primary sealing means of the closure system;

said second conical thread structure producing plastic flow of said container thread portion upon said engagement of said first conical thread structure and said second conical thread structure, said plastic flow providing secondary sealing means of the closure system.

5,785,196
CLOSURE FOR A PRESSURIZED CONTAINER

Gary V. Montgomery, Evansville, Ind., assignor to Rexam Closures Inc., Evansville, Ind.
Continuation of Ser. No. 455,650, May 31, 1995, abandoned. This application Oct. 29, 1996, Ser. No. 739,302
Int. Cl.^{6} B65D *41/00*
U.S. Cl. 215—354 **6 Claims**



1. A closure and container package in which the sealing force is increased with an increase in container pressure, said package comprising:

a container having a threaded neck;

a closure comprising:

a top wall;

an annular skirt wall depending from said top wall and having an internal thread for securing said cap to the threaded container neck;

an annular flange extending downwardly and diverging outwardly from said top wall contacting an inside wall of said container neck at a sealing location so that an increase in container pressure will increase the sealing force; and

pressure equalizing means downstream from said sealing location including a passage located in the wall of one of said container and closure cap equalizing pressure downstream from said flange while said closure remains threaded on said container neck and said flange is contacting said inside wall of said container.

5,785,197
REINFORCED CENTRAL BASE STRUCTURE FOR A PLASTIC CONTAINER

William A. Slat, Brooklyn, Mich., assignor to Plastipak Packaging, Inc., Plymouth, Mich.
Filed Apr. 1, 1996, Ser. No. 627,674
Int. Cl.^{6} B65D *1/02*
U.S. Cl. 215—375 **14 Claims**

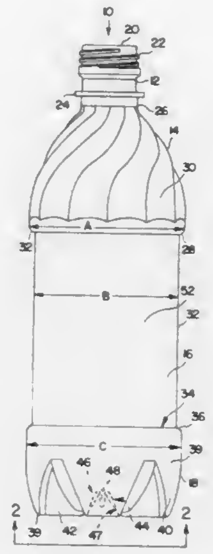
1. A plastic container, comprising:

a neck portion defining an opening;

a shoulder portion continuous with said neck portion;

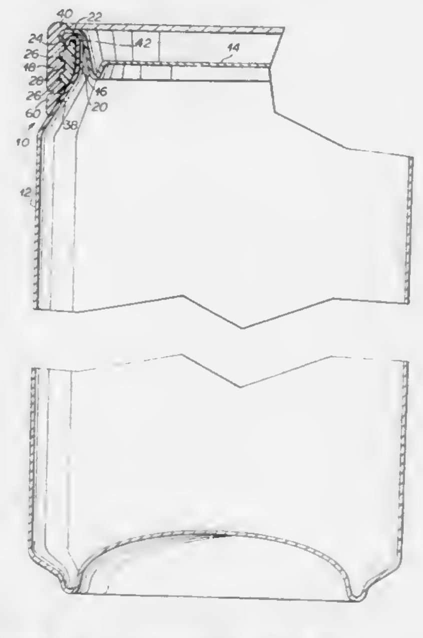
an intermediate sidewall portion continuous with said shoulder portion, said intermediate sidewall portion defining a major portion of a volume for holding a content; and

a base portion continuous with said intermediate sidewall portion, said base portion having an outer edge thereof and a structure for supporting said container on a support surface and an indentation having an outer diameter and including surface texture means thereon comprising surface deformations for enhancing the strength of said structure, wherein the outer diameter of the indentation is smaller than the neck portion opening, and including a substantially flat area between the outer edge of the base portion and the indentation to provide stability to the container, wherein said structure is comprised of one of a circumferential support ring and a plurality of circumferentially positioned feet, wherein said surface texture means for enhancing strength is substantially centered on said structure.



5,785,198
TWIST-OFF CAN END

William S. Credle, Jr., Stone Mountain, Ga., assignor to The Coca-Cola Company, Atlanta, Ga.
Filed Sep. 18, 1995, Ser. No. 529,578
Int. Cl.^{6} B65D *51/18*
U.S. Cl. 220—254 **43 Claims**



1. A twist-off can end assembly, comprising:

a cylindrical can body having an open end and a closed end with a rolled flange extending around an exterior surface of the can body at the open end and a shoulder portion joining the open end with side walls of the cylindrical can;

a collar surrounding the exterior surface of the can adjacent the open end, said collar including a can mating finish on an inner surface thereof and a closure engaging finish on an outer surface thereof, said collar being seated against the exterior surface of the open end between the rolled flange and the shoulder portion of said can body;

a closure having a lid portion and a depending peripheral skirt for operatively engaging the closure engaging finish of said collar; and

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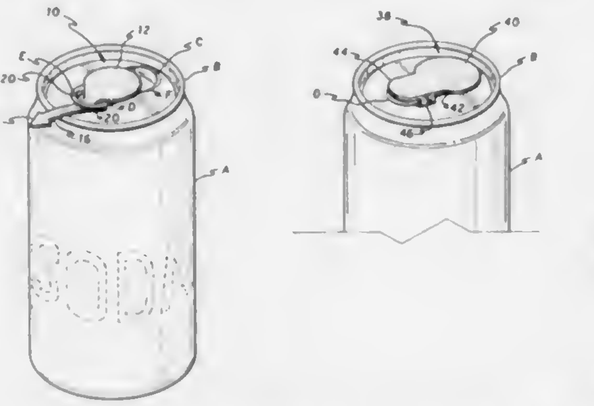
means for increasing a hermetic seal of the closure to the open end of the can body, the means for increasing including the respective configurations of said closure at a distal edge thereof and an outer peripheral surface of the rolled flange being so shaped such that forces therebetween increase in response to an increase of pressure of contents within the can body.

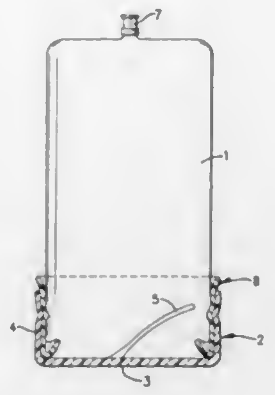
5,785,199
BEVERAGE CAN OPENING PROTECTOR
Richard Clayton Woldtke, 1718 Pinlon Dr., Roseville, Calif. 95747

Filed Dec. 4, 1996, Ser. No. 759,175
Int. Cl.⁶ B05D *51/20*
U.S. Cl. 220—258 **12 Claims**



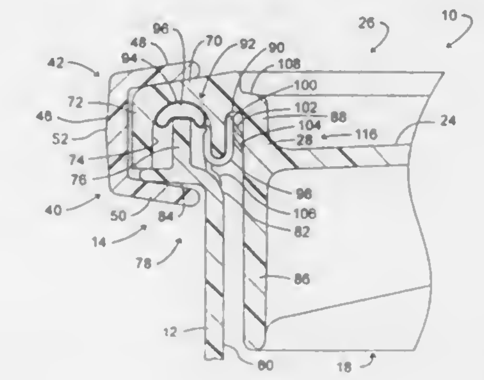
1. A beverage can opening protector for a beverage can having a pull tab, comprising:
a single piece of material having an upper surface and a lower surface, wherein said piece of material is flexible, resilient and waterproof, said piece of material also having:
a head portion, suitably dimensioned and configured to cover an opening of a beverage can;
a tail portion that is narrower than the head portion and has a front end attached to the head portion, two lateral opposing sides and an opposite rear end; and
a pair of arms, each arm attached to one said opposing side of the tail portion for attaching the protector to the pull tab.

5,785,200
SEALING DEVICE FOR A CYCLINDRICAL PACKAGE OF FLEXIBLE MATERIAL
Vilho Eriksson, O. Henriksborgsvagen 45, S-131 31 Nacka, Sweden
PCT No. PCT/SE94/00677, § 371 Date Jan. 31, 1996, § 102(e) Date Jan. 31, 1996, PCT Pub. No. WO95/01847, PCT Pub. Date Jan. 19, 1995
PCT Filed Jul. 8, 1994, Ser. No. 578,654
Claims priority, application Sweden, Jul. 8, 1993, 9302371
Int. Cl.⁶ B65D *41/04*
U.S. Cl. 220—289 **10 Claims**



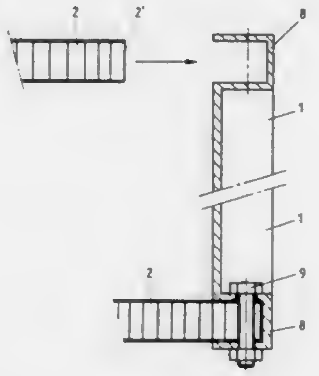
1. A combination of a container for a paste product and a closure therefor,
said container comprising a cylinder of flexible material having one closed end and one open end to which said closure is removably attached;
said closure comprising a bottom and a cylindrical wall joined to and extending from said bottom, an internal perimeter of said wall corresponding to an external perimeter of said open end to sealably close said open end when said closure is removably attached to said container; and
said wall having at least two radially inwardly directed ridges which extend helically essentially from said bottom to a free end of said wall, said ridges producing corresponding grooves in an exterior of said flexible material and inwardly displacing an interior of said flexible material of said container when said closure is removably attached to said container.

5,785,201
MOLDED LID WITH WAVE CONFIGURED CENTRAL PORTION
Paul G. Bordner, Pickerington, Ohio, and Richard P. Brandt, Crystal Lake, Ill., assignors to Container Accessories,Inc., Gahanna, Ohio
Filed May 2, 1996, Ser. No. 643,236
Int. Cl.⁶ B65D *45/34*
U.S. Cl. 220—321 **19 Claims**



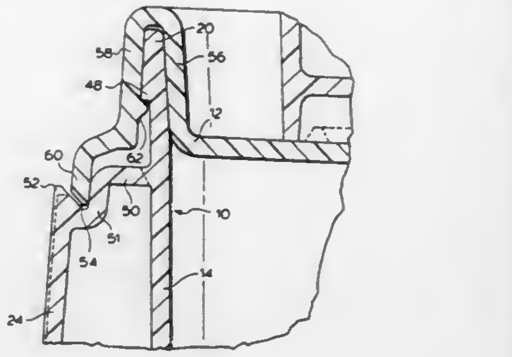
1. A molded lid for a container having a top structure with an upwardly disposed edge and an inwardly disposed wall surface, comprising:
a lid top portion having a central region disposed about a lid center axis and an intermediate region extending therefrom to an outer periphery locatable adjacent said container top structure,
an annular rim structure integrally formed with said top portion at said outer periphery having a concave annular sealing cavity for receiving said container upwardly disposed edge in sealing relationship and having a ring band locatable in adjacency with said inwardly disposed wall surface and extending downwardly therealong when said lid is positioned upon said container; and
said intermediate region being configured as a sequence of a predetermined number of waves, each of curved cross-section and defining successively occurring crests and troughs exhibiting amplitudes therebetween increasing in amplitude value radially outwardly from said lid center axis toward and having a predetermined maximum amplitude value at said ring band, said wave crests defining a shallow outwardly extending dome.

5,785,202
STOWAGE CONTAINER FOR THE USE IN AIRCRAFT
Walter A. Stephan, St. Martin/Innkreis, Austria, assignor to Fischer Advanced Composite Components GmbH, Ried im Innkreis, Austria
Continuation-in-part of Ser. No. 497,314, Jun. 30, 1995, which is a continuation-in-part of Ser. No. 23,898, Feb. 19, 1993, abandoned. This application Aug. 28, 1995, Ser. No. 520,982
Claims priority, application Austria, Feb. 20, 1992, A 312/92
Int. Cl.⁶ B65D *90/02*
U.S. Cl. 220—455 **50 Claims**



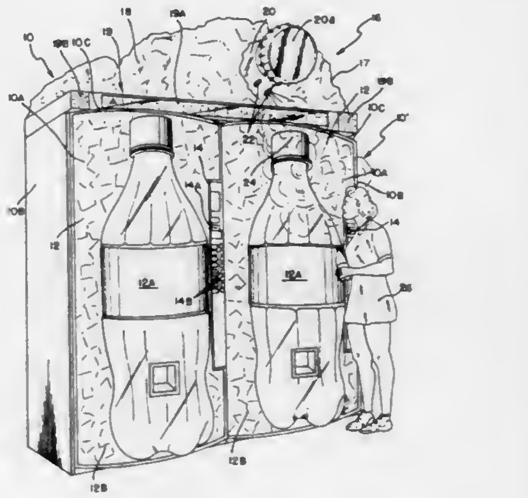
1. A stowage container for use in an aircraft, the container comprising an essentially rigid U-shaped surround member, two essentially rigid and flat end wall members, and an essentially rigid closure flap, the end wall members being made of injection-molded parts, a cured composite component forming in one single piece the U-shaped surround member, the component being manufactured of prepregs of fiber-reinforced thermoplastic material in sandwich construction with regions of honeycomb construction material interposed between at least two layers of prepregs, the component having intermediate regions of reduced thickness between the regions of honeycomb construction material, the component being bent at the intermediate regions to form the U-shaped surround member of the container, wherein the end wall member has a U-shaped flange, the flange forming a U-shaped recess with two parallel sides for receiving a portion of the component, the portion having the region of honeycomb construction material interposed between the two layers of prepregs, and wherein a fastening means passes through the two parallel sides of the recess, through the honeycomb construction material, and through the two layers of prepregs to connect the component to the end wall member.

5,785,203
TAMPER-EVIDENT CONTAINER WITH INTEGRALLY MOLDED HANDLE
Stephen H. Arshinoff, Willowdale, and Ronald J. Sturk, Brampton, both of Canada, assignors to Industrial Containers Ltd., Etobicoke, Canada
PCT No. PCT/CA94/00634, § 371 Date Jul. 7, 1995, § 102(e) Date Jul. 7, 1995, PCT Pub. No. WO95/13222, PCT Pub. Date May 18, 1995
PCT Filed Nov. 14, 1994, Ser. No. 481,374
Claims priority, application United Kingdom, Nov. 11, 1993, 9323269
Int. Cl.⁶ B65D *17/28;25/28*
U.S. Cl. 220—783 **12 Claims**



1. A tamper evident container comprising:
a main body having a top rim;
a lid to engage said top rim and seal said container;
a skirt oriented generally downwardly and outwardly about the periphery of said main body adjacent said top rim and having an upturned lip about its periphery to inhibit access to the edge of said lid when said lid is in engagement with said top rim; and
at least one tear-away portion on said skirt to expose a portion of said edge upon removal of said tear-away portion from said skirt, said tear-away portion being defined by two spaced apart lines of weakness traversing said skirt.

5,785,204
VENDING MACHINE INSTALLATION AND PAVILION WITH INTERACTIVE CUSTOMER COOLING ACCESSORY
George L. Thompson, Snellville; Kathleen Fitzsimmons Socha, Smyrna, and Lee Jones, Atlanta, all of Ga., assignors to The Coca-Cola Company, Atlanta, Ga.
Filed May 24, 1996, Ser. No. 652,924
Int. Cl.⁶ A24F *15/04*
U.S. Cl. 221—24 **19 Claims**



13. A pavilion accommodating a gathering of persons and providing evaporative cooling for persons so accommodated, the pavilion comprising:
at least one vending machine disposed within the pavilion, the at least one vending machine incorporating vend control means for receiving input signals from a customer requesting the dispensing of a selected item and producing vend signals in response thereto;
an array of nozzle assemblies for discharging a cooling mist; and
control means responsive to the vend signals for operating at least one nozzle assembly to discharge a cooling mist.

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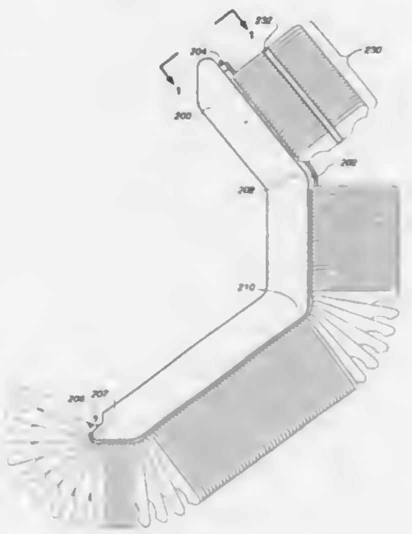
5,785,205
DISPENSER FOR DISPENSING BAG HOLDERS

Jonathan F. Kerr, Paradise Valley, Ariz., and Peter D. Dieterich, Jr., Mill Valley, Calif., assignors to Innogrip, L.P., Sausalito, Calif.

Filed May 3, 1996, Ser. No. 642,355
Int. Cl.^{6} B65H *3/58*
U.S. Cl. 221—26 **20 Claims**



1. A dispenser for plastic bag strap holders, each holder having a main U-shaped section with a pair of T-shaped end receptacles formed by bendable opposed tabs forming the spanning of T-receptacles to receive and capture bag straps, comprising:

a) an elongated guide rail means for slidably mating with a mating receptacle of one end of each bag holder of a nested stack of said holders and for maintaining said stack in a single plane.
b) said guide rail means having an infeed end and an outfeed end and having a substantial component of vertical orientation to cause said stack to feed by gravity from infeed to outfeed end, and said guide rail means being curved upwardly at said outfeed end, and
c) stop means at said outfeed end for stopping movement of said nested stack and to allow one by one removal of each holder.

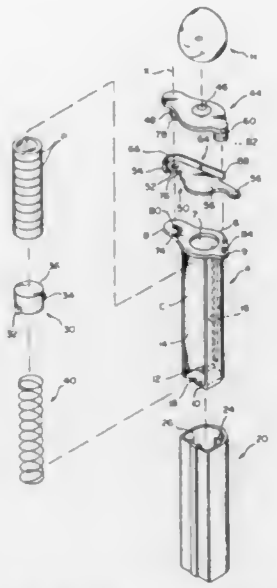
5,785,206
DISPENSER FOR CANDIES OR THE LIKE

Pak Nin Chan, Kowloon, Hong Kong, assignor to Candy Novelty Works Ltd., Kowloon, Hong Kong

Filed Oct. 18, 1996, Ser. No. 733,975
Int. Cl.^{6} G07F *11/16*
U.S. Cl. 221—271 **11 Claims**

1. A dispenser for pellets, comprising:

a body including, a compartment configured to receive a stack of pellets, and a dispensing slot located at one end of said compartment and having a side opening;
a spring positioned to bias said stack toward said one end of said compartment;
a dispensing lever having a rest position in which it is substantially in said slot and adjacent to said side opening and acts against the force of said spring to block movement of said pellets into said slot, and a cocked position in which it is moved away from said side opening to allow one of said pellets to move into a dispensing position in said slot and adjacent to said side opening, said lever being mounted on said body to pivot about a pivot axis between said rest position and said cocked position;
a substantially J-shaped leaf spring positioned to bias said lever into said rest position and having a curved end secured to said lever and arcing around said axis, and an opposite end; and



a stop carried by said body and positioned to engage said opposite end when said lever is pivoted from said rest position to said cocked position, to allow said opposite end to move linearly toward said axis but prevent said opposite end from pivoting about said axis;
wherein, when said lever is released from said cocked position, said leaf spring moves said lever into said rest position to propel a pellet in said slot out of the dispenser through said side opening.

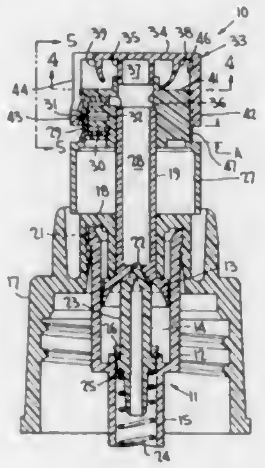
5,785,207

Patent Not Issued For This Number

5,785,208
PRECOMPRESSION PUMP SPRAYER HAVING SUCK-BACK FEATURE

Douglas B. Dobbs, Yorba Linda, and R. Pat Grogan, Downey, both of Calif., assignors to Calmar Inc., City of Industry, Calif.

Filed Apr. 10, 1996, Ser. No. 630,351
Int. Cl.^{6} B67D *1/08*
U.S. Cl. 222—148 **14 Claims**



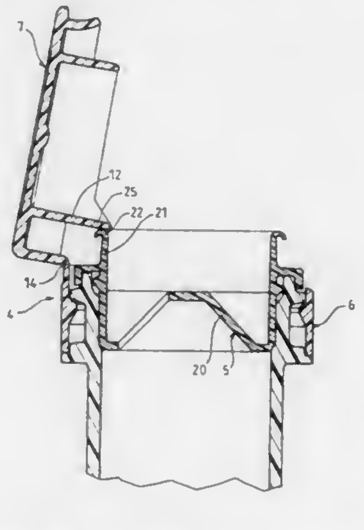
1. A precompression liquid pump sprayer comprising, a pump body having a pump piston reciprocable in a pump cylinder to therewith define a variable volume pump chamber, said piston having a discharge valve seat and a hollow stem defining a valve controlled fluid discharge passage therethrough, a discharge poppet valve engaging said valve seat in a discharge closed position under the bias of a return spring, plunger means on an end of said stem for reciprocating said piston to open said discharge valve upon reaching a threshold pressure within said pump chamber, said plunger means including a discharge spray nozzle having a discharge orifice and spin mechanics in communication with said discharge passage, the improvement wherein:

said plunger means has a manually engageable, spring loaded top end wall axially, independently shiftable relative to said piston to define a variable volume suck-back chamber in said plunger means in open communication with said discharge passage;
spring means for spring loading said plunger means, comprising a spring having a predetermined spring force less than an opposing peak pressure reached in said pump chamber which peak pressure exceeds said threshold pressure during pumping;
said end wall shifting toward said piston stem upon a spring loading of said spring in response to said peak pressure, to thereby reduce the volume of said suck-back chamber,
and said end wall shifting away from said piston stem in response to a restoring force of said spring during a return stroke of said piston, to thereby expand said suck-back chamber for inwardly drawing any residual product away from said discharge orifice and said spin mechanics.

5,785,209
TAMPERPROOF CAP WITH POURER

Bernard Guglielmini, Crimolois, France, assignor to Rical S.A., Longvic Cedex, France

Continuation of Ser. No. 452,434, May 26, 1995, abandoned. This application Jul. 25, 1997, Ser. No. 898,006
Claims priority, application France, Jun. 1, 1994, 94 06711
Int. Cl.^{6} B65D *47/10*
U.S. Cl. 222—153.07 **6 Claims**



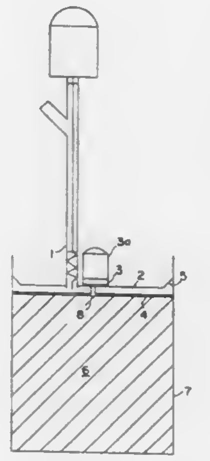
1. Tamperproof cap and pourer assembly for closing a neck of a container having an exterior attachment flange, the assembly comprising:

a cap including
  i) a fixing ring with an interior bead for attaching said cap to said exterior flange of said neck of said container,
  ii) a stopper having a disk portion and a substantially cylindrical sealing skirt extending from said disk portion, said stopper being hinged to said ring, and
  iii) a tear-off tamperproof strip joining said stopper to said ring along all of a perimeter of said stopper except for a location where said stopper is hinged to said ring,
said fixing ring, said stopper and said tamperproof strip being molded in one piece from plastics material; and
a pourer member having a pourer spout defining an opening therein through which material to be poured can pass from one side of said pourer member to an opposite side of said pourer member, the pourer member being manufactured separately from said cap and being fitted into said cap so as to fit to said neck of said container when said cap is fitted to said neck,
said pourer spout of said pourer member and said sealing skirt each having a length and diameter and being positioned relative to said location where said stopper is hinged to said ring such that said sealing skirt of said stopper fits into said pourer spout in a closed position of said stopper so as to seal said opening, and a portion of the sealing skirt rests on an upper end of said pourer spout in an open position of said stopper to hold said stopper stably in an open position.

5,785,210
PASTE CONTAINER AND DISPENSER

Guenther Amberg, Neuss; Edgar Koeppelmann, Hilden, and Walter Eichner, Siegsdorf, all of Germany, assignors to Henkel-Ecolab GmbH & Co. OHG, Duesseldorf, Germany

PCT No. PCT/EP94/03211, § 371 Date Mar. 27, 1996, § 102(e) Date Mar. 27, 1996, PCT Pub. No. WO95/09263, PCT Pub. Date Apr. 6, 1995
PCT Filed Sep. 19, 1994, Ser. No. 619,739
Claims priority, application Germany, Sep. 27, 1993, 43 32 850.4
Int. Cl.^{6} G01F *11/00*
U.S. Cl. 222—229 **20 Claims**



1. A paste container and dispenser comprising a cylinder (7) open at one end for holding the paste, a displaceable tightly fitted follower plate means (2) arranged at the open end of the cylinder, a dispenser means (1) for transporting the paste from the container, a motor and transmission means having a shaft means (3) projecting centrally through the follower plate (2); a rotatable multiple-blade stirring means (4) mounted on the shaft arranged to rotate in the paste below the follower plate means (2) arranged on the follower plate (2) outside the center thereof having means for communicating with the paste above an area covered by a blade of the stirring means (4) for transporting the paste from the container to a point of use.

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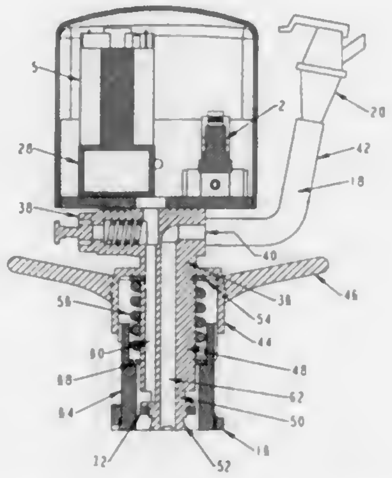
5,785,211
PORTABLE POWERED BEER KEG TAPPING DEVICE WITH AIR PRESSURE REGULATOR

Mark Tieskoetter, Dubuque, Iowa, assignor to ABD, L.C., Dubuque, Iowa

Filed Dec. 23, 1996, Ser. No. 772,339

Int. Cl.^{6} B65D *83/00*

U.S. Cl. 222—396 **20 Claims**



1. In combination, a beer keg tapping valve matable with a keg having a bayonet fitting and having a down tube therein with a spring biased valve opening into the down tube of the keg, and a pumping assembly operative with said beer keg tapping valve, the beer keg tapping valve further comprising a body having an air passageway therethrough and a liquid passageway therethrough isolated from said air passageway, said liquid passageway communicative with the opening of said keg down tube when said beer keg tapping valve is operatively coupled with said keg fitting,

said body having a nipple mounted thereon,
said nipple communicative with said air passageway,
said pumping assembly comprising
  an electric motor, an air pump, and a pressure regulator,
  the air pump having an output port coupled to said nipple of said body by a first duct,
  the pressure regulator coupled to said output port of said air pump by a second duct,
said pressure regulator operative to sense air pressure in said second duct,
said pressure regulator electrically coupled to said motor,
said motor electrically coupled to a source of electric power,
said pressure regulator preset to interrupt said electric coupling of said motor to said electric source as long as a predetermined air pressure in said second duct is present.

5,785,212
PLASTIC DISPENSE TAP FOR LIQUID BULK CONTAINERS

Arthur Steiger, Alte Bergstrasse 168, CH-8707 Uetikon am See, Switzerland

Filed Aug. 14, 1996, Ser. No. 689,802

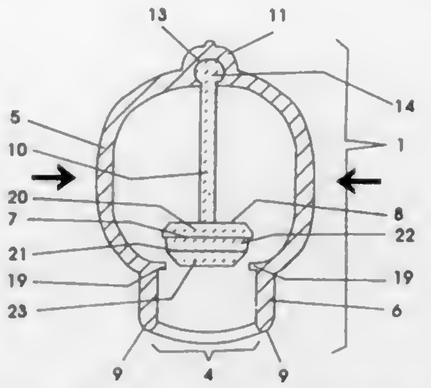
Claims priority, application Switzerland, Jun. 14, 1996, 1495/96

Int. Cl.^{6} B67D *3/00*

U.S. Cl. 222—509 **5 Claims**

1. A plastic dispense tap for a flexible liquid bulk container, said plastic dispense cap provided to close and open said flexible container, said plastic dispense cap comprising:

1) a hollow body having an elastic wall with inner and outer surfaces, said body having:
  an inlet opening and an outlet opening, and
  a lengthwise groove formed along the inner surface of the wall of the body across from the outlet opening, and extending from the side nearest to the liquid bulk container to the side farthest from the liquid bulk container; and
2) a valve element comprising:
  a valve part provided to close said outlet opening when said body is in a quiescent state, and
  a two-ended rod shaped stem connected to said valve part on one of its ends, and connected to said inner wall of said body on its other end across from said outlet opening, having:
    a thickening of the stem of the valve element such that said stem is insertable in said lengthwise groove;
    wherein said elastic body has a barrel-shaped cross section, and said wall is deformable by way of applied pressure for the purpose of generating a movement of said valve stem; and
    wherein said lengthwise groove allows insertion of said valve element from said side farthest from the liquid bulk container.



5,785,213
DEVICE FOR STOPPERING A CONTAINER AND FOR DISPENSING THE PRODUCT WHICH IT CONTAINS

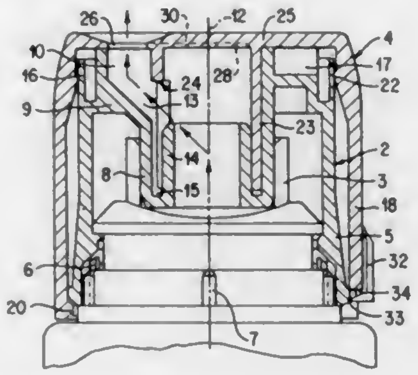
Christian Guillot, Maillat, France, assignor to Etablissements Janvier, Chassal, France

Filed Jul. 30, 1996, Ser. No. 681,986

Claims priority, application France, Aug. 11, 1995, 95 09900

Int. Cl.^{6} B65D *41/32;51/18;* **B67D** *3/00*

U.S. Cl. 222—553 **8 Claims**



1. A device for stoppering a container having a neck, and for dispensing the product which said container contains, the device comprising, a stopper fixed to the neck of the container, having a skirt which is fixed to an exterior surface of the container, a central hollow shaft resting against an internal face of the neck of the container and a closed end connecting the central hollow shaft and the exterior skirt, the closed end having an off-centered opening connected to the central hollow shaft along an oblique wall and, a cap which, mounted so that it can rotate on the stopper about an axis corresponding to that of the hollow shaft, has an exterior skirt mounted so that it can rotate on the skirt of the stopper, a central hollow shaft engaged in the central hollow shaft of the stopper and in contact therewith, the skirt and the hollow shaft of the cap being connected by a closed end including an outlet opening for the product, which opening is situated the same distance away from the axis of rotation as the opening of the stopper, and the hollow shaft of the cap including an orifice formed on the same side as the opening in the closed end and at the same height as the oblique wall of the stopper to form an oblique passage.

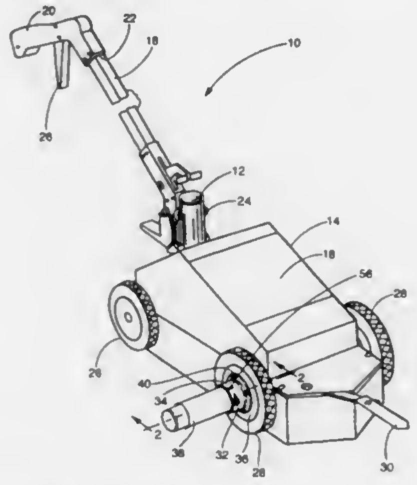
5,785,214
MOVABLE MARKING DEVICE FOR HOLDING AND AGITATING AN AEROSOL CONTAINER

Thomas J. Smrt, 10014 S. Grant Hwy., Marengo, Ill. 60152

Filed Dec. 16, 1996, Ser. No. 766,042

Int. Cl.^{6} B05B *1/28*

U.S. Cl. 222—609 **8 Claims**



1. A device for discharging the contents of a first aerosol container onto a surface and for holding and agitating a second aerosol container comprising

a housing;
means disposed on the housing for holding a first aerosol container, wherein the container has an actuator mounted on the container that moves between discharging and non-discharging positions;
actuating means which effects movement of the aerosol container actuator between the discharging and non-discharging positions;
means disposed on the device for controlling the actuating means which allows an operator to discharge the contents of the aerosol container onto the surface;
at least one rotatable wheel disposed on the device which rotates as the device is moved relative to the surface; and
means disposed on the wheel for holding a second aerosol container.

5,785,215
DRAWSTRING RESTRINGING APPARATUS

John Allen Hinkel, P.O. Box 3213, Alpine, Wyo. 83128

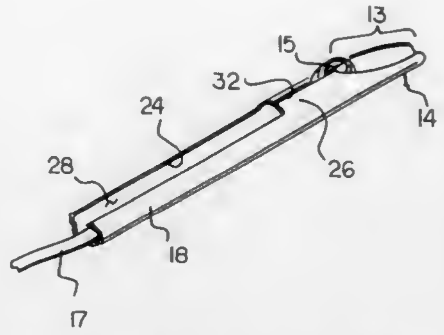
Filed Nov. 12, 1996, Ser. No. 747,439

Int. Cl.^{6} A41H *43/00*

U.S. Cl. 223—50 **4 Claims**

1. A drawstring restringing apparatus comprising:

a hollow main body having a longitudinal length, a hollow interior, a front end, a rear end, and a mid-portion located between the front end and the rear end, wherein a drawstring can be extended through the hollow interior of the main body so as to extend along all of the longitudinal length of the hollow main body;
wherein a leading portion of the front end is tapered from a top portion of the front end to a bottom portion of the front end;
wherein a portion of the front end located behind the leading portion includes a closed top;
wherein the mid-portion and the rear end include an open top which extends from the mid-portion through the rear end, the open top defining a mid-portion gap which has a mid-portion-gap width;
wherein a drawstring having a knot can be extended through the hollow interior of the main body such that the knot is abutted against the front end of the main body, and subsequently the front end and the mid-portion of the drawstring restringing apparatus can be pushed through a first aperture of a drawstring-reception channel until the front end emerges from a second aperture of the drawstring-reception channel, and subsequently the drawstring restringing apparatus can be separated from the drawstring and the drawstring-reception channel to leave the drawstring restrung in the drawstring-reception channel.



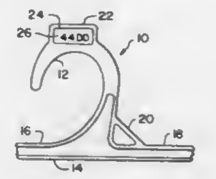
5,785,216
METHOD OF MOLDING HANGERS AND APPARATUS FOR IMPLEMENTING METHOD

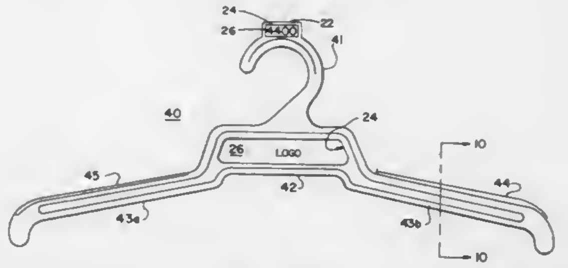
Stanley Gouldson, Northport; Roland Harmer, Centereach, and Olaf Olk, Hauppauge, all of N.Y., assignors to Spotless Plastics Pty. Ltd., Australia

Continuation-in-part of Ser. No. 885,291, May 18, 1992, abandoned, which is a continuation-in-part of Ser. No. 706,779, May 29, 1991, Pat. No. 5,135,141. This application Sep. 30, 1994, Ser. No. 315,610

Int. Cl.^{6} A47G *25/14;25/30*

U.S. Cl. 223—85 **16 Claims**





1. A coinjected plastic garment hanger having a hook member for suspending said garment hanger from a support, said hanger having a molded plastic body member attached to said hook member and including a first arm and a second arm each of which extend outwardly and downwardly from said hook member, said arms having upper garment supporting surfaces to support a garment therefrom, and at least one coinjected member molded into said garment hanger

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wherein said at least one coinjected member includes a non-slip strip molded into at least one upper garment supporting surface of said molded body member with a first coinjected non-slip strip integrally molded into said first arm and a second coinjected non-slip strip integrally molded into said second arm to assist in retaining a garment thereon;
wherein each of said coinjected non-slip strips is formed with a mechanical interlock, and said interlock is also molded into at least one surface of said molded body member to mechanically assist in bonding said non-slip strip to said molded plastic body member, said mechanical-interlock bond formed between said non-slip strip and said body member during the coinjected molding of said garment hanger.

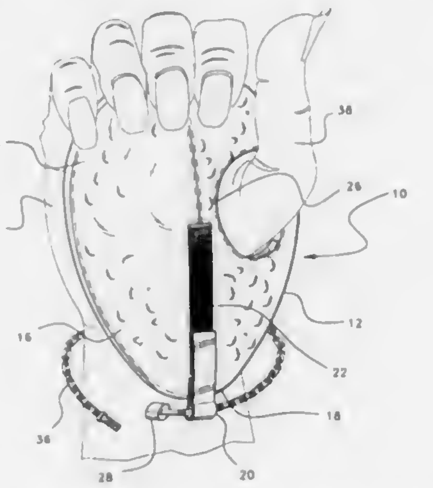
5,785,217
WRIST-WEAR ATTACHMENT DEVICE AND METHOD OF USE

William E. Gorham, Jr., 1313 N. Market St., #3410, Wilmington, Del. 19801-1511

Filed Feb. 14, 1997, Ser. No. 800,065

Int. Cl.^{6} A47G *25/80*

U.S. Cl. 223—111 **6 Claims**



1. A wrist-wear attachment device for facilitating the attachment of wrist-wear having connectable ends, the attachment device comprising:
a hand receiving member formed of a flexible web of material, said hand receiving member having a midline and a first aperture for receiving a finger, said first aperture being displaced from the midline of said hand receiving member;
a strap extending along the midline of said hand receiving member, said strap having a first end secured to a portion of said hand receiving member, a second end, a first rigid portion adjacent said first end, a second rigid portion adjacent said second end, and a flexible portion intermediate said first rigid portion and said second rigid portion; and
fastening means for removably fastening said second end of said strap to said hand receiving member; whereby
said strap is foldable at said flexible portion to retain one end of the wrist-wear between said first rigid portion and said second rigid portion.

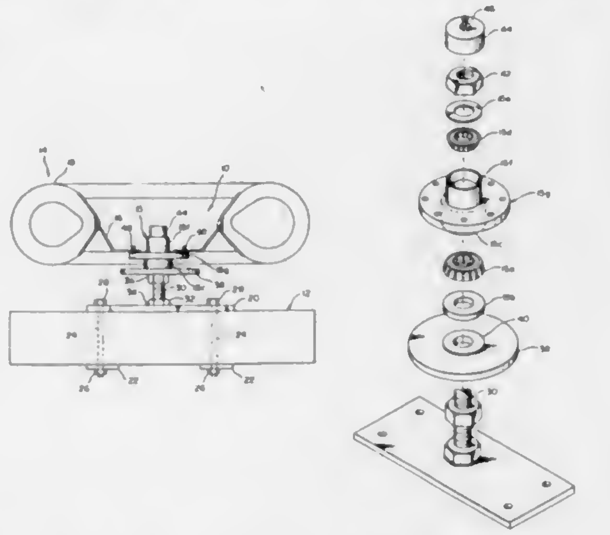
5,785,218
CARRIER BRACKET FOR READY-TO-MOUNT SPARE WHEEL AND BEARING ASSEMBLY

Jeff J. LaLone, 2712 Newberg Rd., Snohomish, Wash. 98290, and David W. Cobb, 9608—6th Pl. NE., #A, Everett, Wash. 98205

Filed Jul. 21, 1997, Ser. No. 897,575

Int. Cl.^{6} B62D *43/00*

U.S. Cl. 224—42.24 **12 Claims**



1. A bracket mountable on a vehicle for carrying a ready-to-mount spare wheel assembly which includes a hub, a pre-lubricated bearing, a wheel rim, and a tire, comprising:
anchor structure adapted to be mounted on a vehicle;
a threaded stud having a fixed end and a free end, said fixed end attached to said anchor structure so as to project the free end of the stud outwardly into a wheel receiving stowage area;
a backing plate sized as a stop against which an inside end of the hub is adapted to rest and having a centered opening sized to fit over said stud;
an adjustable securement device for positioning and securing the backing plate generally perpendicularly to the stud at an adjustable position along the stud at a selected distance from the anchor structure; and
a wheel securing nut threaded onto said stud and adapted to secure the hub, and pre-lubricated bearing on the bracket by engaging the pre-lubricated bearing inside the hub whereby the wheel rim and tire are mounted to the thusly secured hub.

5,785,219
COMBINATION KNAPSACK

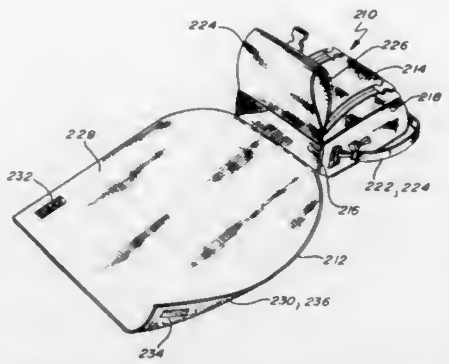
Jeffrey J. Kraft, Prescott, Wis., assignor to The Pack Company, Minneapolis, Minn.

Continuation-in-part of Ser. No. 74,430, Jun. 9, 1993, abandoned, which is a continuation-in-part of Ser. No. 21,952, Feb. 23, 1993, abandoned. This application Dec. 4, 1995, Ser. No. 566,932

Int. Cl.^{6} A45C *3/14;* **A45F** *4/06;4/02;* **A47G** *9/06*

U.S. Cl. 224—576 **12 Claims**

1. A combination knapsack comprising:
a main storage compartment defined by a front wall, a back wall, side walls, and a base wall;
carrying means connected to at least one of said front wall, back wall, side walls, and base wall for a user to readily carry said knapsack;
a blanket permanently attached to one of said front wall, back wall, and base wall, said blanket adapted to cover the wearer's legs in a sitting position and said blanket closable about the wearer's legs, said blanket being switchable between a storage mode of use in which said blanket is completely retained within said knapsack and an operational mode of use in which said blanket is fully extended outside said knapsack; and
flap means permanently attached to at least one of said front wall, back wall, and base wall and switchable to an open position during the operational mode of use and to a closed position for use as a protective covering during the storage mode of use,
wherein said flap means further comprises an insulated tubular handwarming muff.



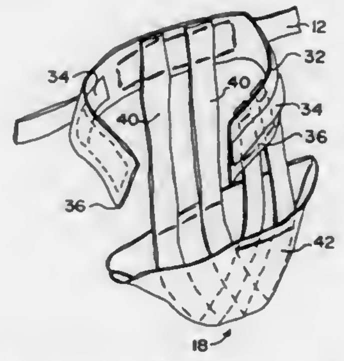
5,785,220
SHOE BELT

Paul Leddy, 1100 W. Cornelia Unit 219, Chicago, Ill. 60657

Filed Dec. 18, 1996, Ser. No. 768,838

Int. Cl.^{6} A45F *3/14*

U.S. Cl. 224—677 **2 Claims**



1. A shoe belt comprising an adjustable strap which engages about a waist of a wearer and two shoe engaging pouches depending therefrom, each shoe pouch comprising a band, a portion of which is fixed to the strap, the band having two cooperating free ends, each free end incorporating an engaging member for engaging the free ends together, a pair of parallel strips depending from the band in the portion fixed to the strap, the strips reversing direction at a predetermined position below the strap and engaging one free end of the band, the pouch further including a shoe toe basket engaged over and to a lowermost area of the strips for maintaining parallel orientation of the strips and for securely engaging a toe of a shoe therein.

5,785,221
SLOT POCKET

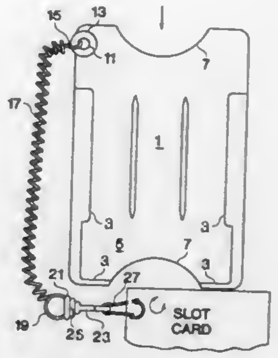
Patricia M. Bishop, 132 Old Broadway Ave., Sayville, N.Y. 11782

Filed May 21, 1997, Ser. No. 861,195

Int. Cl.^{6} A45F *5/00*

U.S. Cl. 224—269 **3 Claims**

1. Card mount apparatus comprising:
a card mount having side and bottom card retaining elements for retaining a slot card inserted therein, said card retaining elements respectively extend upwardly from the sides and bottom of the card mount to form a retaining lip thereon;
means for attaching said card mount to the clothing of a user including a safety pin mounted to the back of the card mount by a pivotal connection;
a flexible elongated member attached to said card mount and extending therefrom, said member terminating in an end remoted from the mount; and
a swivel mounted normally closed openable end piece mounted to the terminating end of the elongated flexible member, said end piece being adapted when opened to hold the card inserted in said card mount.



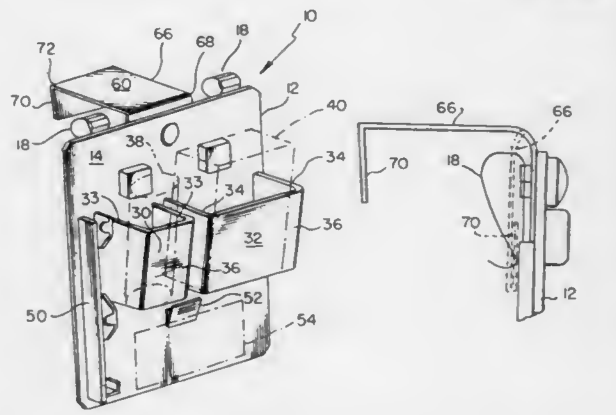
5,785,222
ARTICLE HOLDER FOR MOUNTING IN A VEHICLE

Paul T. Basso, 341 Vincent Ave., and Donald C. Ritchie, 76 Hart St., both of Lynbrook, N.Y. 11563

Filed Oct. 31, 1996, Ser. No. 742,205

Int. Cl.^{6} B60R *7/00*

U.S. Cl. 224—555 **13 Claims**



1. An article holder for mounting in a vehicle, said article holder comprising
a panel member, said panel member having article holding means extending frontally from a front face of said panel member,
a first hanger extending rearwardly from a rear face of said panel member for supporting said panel member from an edge of a first vehicle structure of a first thickness, and
at least a second hanger having a normal position wherein it extends rearwardly from said panel rear face a greater distance than said first hanger extends therefrom for supporting said panel member from an edge of a second vehicle structure having a thickness greater than the thickness of said first vehicle structures,
the said second hanger being mounted to the panel sucb as to fold from its said normal position and nest against said rear panel face when the panel member is supported with the first hanger from the first vehicle structure, said second hanger when the panel member is removed from said first vehicle

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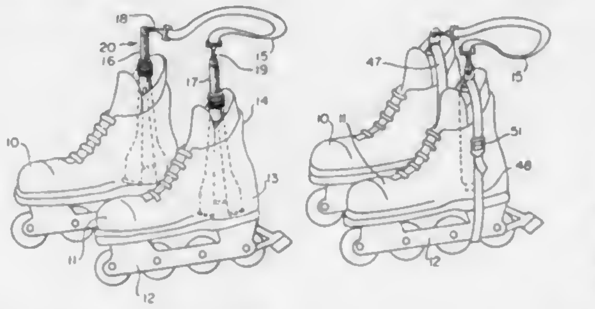
structure, restoring by self bias induced hinging action to its normal position in a pivoting movement thereof away from the rear panel face.

5,785,223
BOOT CARRIER FOR SPORTS ARTICLES

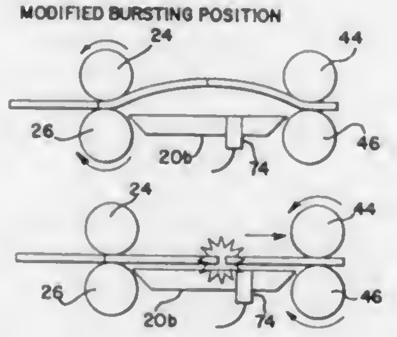
Paul H. Matsushita, 151 N. Maple St., Unit 103, Burbank, Calif. 91505
Filed Oct. 22, 1996, Ser. No. 735,125
Int. Cl.^{6} A45F *3/00*
U.S. Cl. 224—609 **3 Claims**



1. A boot carrier comprising:
a pair of support members each intended to be inserted into the interior of a respective boot;
means carried on each said support member for carrying said support members and the respective boots from place to place;
means carried on each said support member for releasably retaining said support members to the respective boots;
said carrying means includes a tether strap detachably connected to each of said support members;
each said releasable retaining means includes an elongated retaining strap carried on said support member adapted to be secured about the exterior of the boot whereby said support member is forcibly urged into the interior of the boot.

5,785,224
INSERTING APPARATUS AND METHOD USING A SNAP-AND-BURST TECHNIQUE

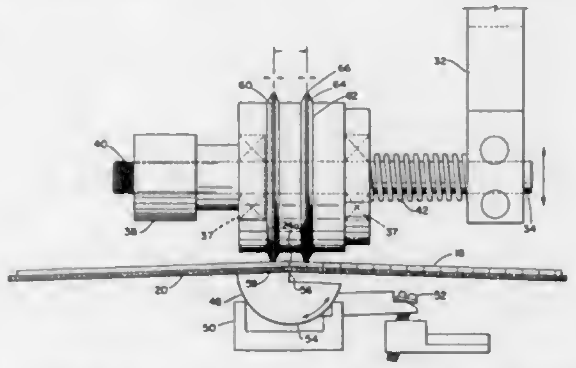
Anthony J. Nowakowski, Crystal Lake, Ill., assignor to Carol Joyce Witt, Barrington, Ill.
Filed Oct. 10, 1995, Ser. No. 541,603
Int. Cl.^{6} B65H *35/10*
U.S. Cl. 225—4 **21 Claims**



13. A method for separating coupons using feed rollers and burst rollers, wherein at least one feed roller is opposed to at least one other feed roller and at least one burst roller is opposed to said at least one other burst roller, said coupons being provided as a stream of coupons in a continuous web, wherein successive coupons are connected together by a weakened web portion extending across said web, said method comprising the steps of:
(a) advancing the continuous web along a coupon path by driving the feed rollers, said coupon path extending between the opposed feed rollers and;
(b) sensing the presence of one of said coupons at a sensing position;
(c) bowing a portion of the continuous web between the feed rollers and the burst rollers by adjusting the relative rotational speed between the feed rollers and the burst rollers such that the feed rollers are operating at a greater rotational speed than the burst rollers; and
(d) bursting a coupon from said continuous web along one of said at least one weakened web portions by adjusting the relative rotational speed between the feed rollers and the burst rollers such that the burst rollers are operating at a greater rotational speed than the feed rollers.

5,785,225
FRANGIBLE SEMICONDUCTOR WAFER DICING APPARATUS WHICH EMPLOYS SCRIBING AND BREAKING

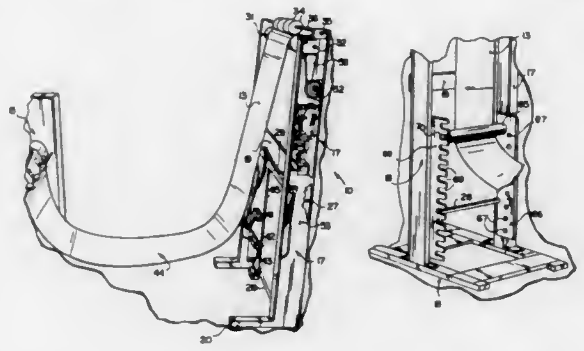
James W. Loomis, St. Helena, Calif., assignor to Loomis Industries, Inc., St. Helena, Calif.
Continuation-in-part of Ser. No. 331,253, Oct. 28, 1994, abandoned, which is a continuation of Ser. No. 109,760, Aug. 20, 1993, abandoned, which is a division of Ser. No. 804,135, Dec. 6, 1991, abandoned. This application Feb. 29, 1996, Ser. No. 608,952
Int. Cl.^{6} B26D *7/27*
U.S. Cl. 225—96.5 **45 Claims**



1. A breaking device for breaking a substrate having a plurality of closely spaced integrated circuit chips formed on the substrate with each chip having a plurality of circuits formed thereon, the breaking to occur along scribe lines spaced apart by a distance D, the distance D being equal to the width across each of the circuits on each chip plus a narrow distance between the circuits on adjacent chips, the breaking device comprising
a support member,
a body support member mounted on said support member for rotation relative thereto,
said body member having supported therein a sharp instrument for forming scribe lines on the substrate,
means for shifting said substrate and said sharp instrument relative to one another to sequentially and successively form individually a plurality of parallel scribe liens with said scribe lines being spaced apart by the distance D and lying approximately halfway between the circuits on adjacent chips,
a pair of laterally spaced annular profile members carried by said body member,
said profile members each having a wall structure terminating in a contact surface, the amount of lateral spacing between said contact surfaces of said profile members being substantially equal to ND, where N is an integer, so that the contact surfaces of said pair of profile members are spaced for surface contact with the substrate on opposite sides of one of said scribe lines to be broken, with one of said contact surfaces positioned adjacent a previously formed scribe line.

5,785,226
POWER DRIVE LOOP STAND

Wilbur Drew, and John F. Drehobl, both of Dover, N.H., assignors to Moore Business Forms, Inc., Grand Island, N.Y.
Filed Jun. 7, 1996, Ser. No. 659,896
Int. Cl.^{6} B23Q *15/12*
U.S. Cl. 226—45 **12 Claims**

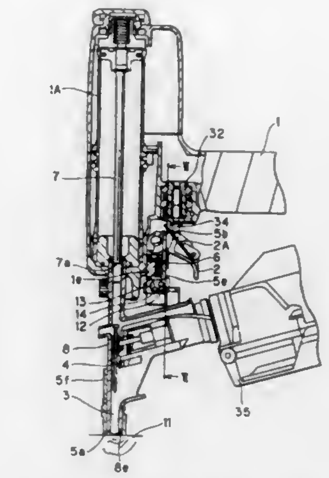


12. A powered loop stand for a web, comprising:
a frame comprising: a base; and first and second substantially parallel substantially vertical columns each having a top and a bottom, the columns attached to said base at said column bottoms;
a driven roller supported for rotation about a substantially horizontal axis by said columns adjacent said column tops;
a motor supported by said frame for powering said driven roller;
a substantially horizontally extending outfeed roller adjustably mounted to said columns below said driven roller; wherein said outfeed roller is mounted by a first substantially vertical plate mounted to said first column and having a plurality of substantially circular vertically spaced openings therein;
a second substantially vertical plate mounted to said second column and having a plurality of open ended vertically spaced slots therein, said slots substantially vertically aligned with said circular openings, respectively; and
said outfeed roller having first and second end posts for mounting in one of said circular openings and in a corresponding one of said slots, respectively.

5,785,227
ADJUSTMENT MECHANISM FOR ADJUSTING DEPTH AT WHICH PNEUMATIC NAILING MACHINE DRIVES NAILS INTO WORKPIECE

Yoshitaka Akiba, Hitachinaka, Japan, assignor to Hitachi Koki Co., Ltd., Tokyo, Japan
Filed Nov. 5, 1996, Ser. No. 740,953
Claims priority, application Japan, Nov. 10, 1995, 7-291585
Int. Cl.^{6} B25C *1/04*
U.S. Cl. 227—8 **15 Claims**

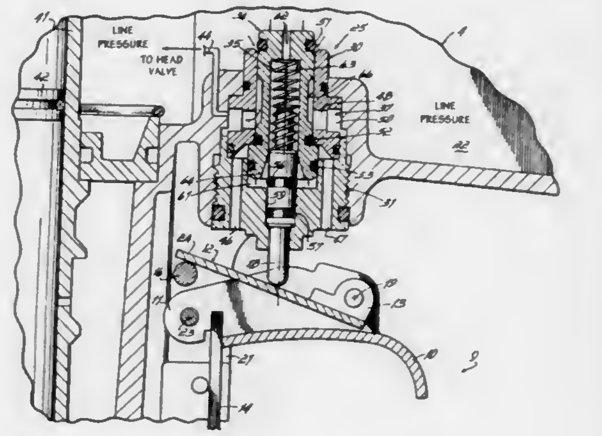
1. A pneumatic nailing machine for driving a nail into a workpiece, the pneumatic nailing machine comprising:
a main body;
a nose provided to the main body, the nail being protrudable from the nose;
a trigger pivotally supported to the main body for starting a nail driving operation;
a push lever vertically movably supported to the main body, the push lever having a lower tip portion positioned near the nose and an upper tip portion positioned near the trigger, the push lever being divided into an upper section having a lowermost end and a lower section having an uppermost end;
a drive bit supported in the main body and movable in an axial direction thereof, the drive bit being moved along the nose upon manipulation of the trigger; and
a nail driving depth adjusting mechanism for controlling a distance between a lower tip end of the nose and a lower tip end of the push lever when the push lever is pressed against the workpiece, the nail driving depth adjusting mechanism comprising:



a shaft portion rotatable about its axis, the shaft portion being positioned adjacent the trigger;
a knob portion connected to the shaft portion for rotating the shaft portion about its axis;
a first cam lobe provided to the shaft portion and having a first cam surface engageable with the lowermost end of the upper section; and
a second cam lobe provided to the shaft portion and having a second cam surface engageable with the uppermost end of the lower section, contour of the first and second cam surfaces being arranged to simultaneously move the lowermost end and the uppermost end away from each other in accordance with a rotation of the knob in one direction and to simultaneously move the lowermost end and the uppermost end toward each other in accordance with the rotation of the knob in an opposite direction.

5,785,228
DUAL MODE PNEUMATIC TOOL

Chen Chiu Fa, Ta Li, and Yang Chun Hsien, Chia Yi, both of Taiwan, assignors to Campbell Hausfeld/Scott Fetzer Company, Harrison, Ohio
Division of Ser. No. 509,023, Jul. 28, 1995, Pat. No. 5,687,897. This application Jul. 16, 1997, Ser. No. 895,311
Int. Cl.^{6} B25C *1/04*
U.S. Cl. 227—8 **2 Claims**



1. A resettable valve and trigger apparatus for use in a dual mode pneumatic tool for driving fasteners, said valve and trigger apparatus including:
a valve body;

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a reciprocable shuttle mounted in said body;
an extensible stem in said shuttle and valve body;
said stem being depressible to release pressure holding said shuttle in one position, said shuttle moving to an actuate position to vent said tool to actuate said tool to drive a fastener;
said stem being extensible to admit pressure acting on said shuttle to return said shuttle to a reset position to pressurize said tool to a ready state for subsequent actuation;
said valve being inoperable between actuations unless said shuttle is moved between actuated and reset positions; and
a trigger apparatus for controlling the extension and depression of said stem as a function of the condition of said tool with respect to a work surface and as a function of the presence or absence of a mode selecting blocking member.

5,785,229

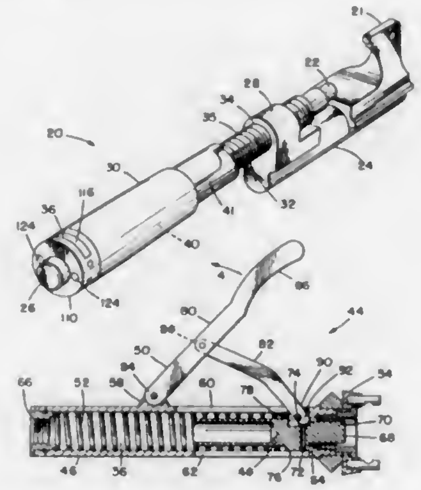
POWDER ACTUATED CONNECTING TOOL FIRING MECHANISM ADAPTER

John R. Franzini, Nashua, N.H., assignor to Framatome Connectors USA, Inc., Fairfield, Conn.

Filed Jun. 18, 1993, Ser. No. 79,338

Int. Cl.^{6} B25C *1/14*

U.S. Cl. 227—10 **21 Claims**



1. A firing mechanism adaptor comprising:
a housing;
a striker movably connected to the housing;
a cocking and trigger assembly having a first lever arm, movably connected to the housing and a second arm having a first end connected to the first lever arm and a second end for engaging and moving the striker;
a spring biasing the striker towards a firing position; and
means for connecting the housing to an end of a powder actuated connecting tool such that the striker is suitably positioned to strike a connecting tool striker at the end of the powder actuated connecting tool.

5,785,230

BUTTON ATTACHING DEVICE

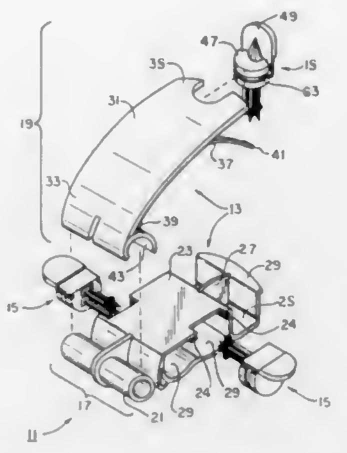
Paul A. Davignon, Uxbridge; Charles L. Deschenes, North Attleboro; Douglas Cooke, Charlestown; Hugh Smith, West Roxbury, and William Hartman, Quincy, all of Mass., assignors to Avery Dennnison Corporation, Pasadena, Calif.

Filed Nov. 19, 1996, Ser. No. 752,073

Int. Cl.^{6} A43D *69/00*

U.S. Cl. 227—71 **10 Claims**

1. A button attaching device comprising:
a top member,



a bottom member, the bottom member including an anvil,
the top member being hingedly connected to the bottom member, and
a needle block assembly mounted on the top member, the needle block assembly comprising:
a block of material,
a pair of rodless fastener dispensing needles, and
a fastener having a foot at each end of a filament, each foot being removably mounted on one of the pair of rodless fastener dispensing needles.

5,785,231

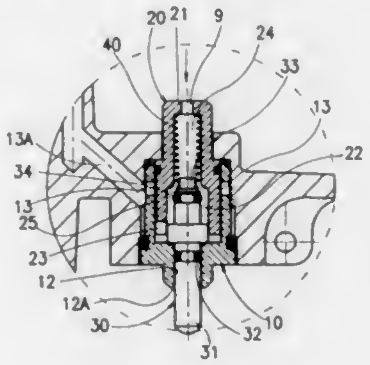
EJECTION SWITCH FOR NAILER

Yun-Chung Lee, 3F No. 117, Yuchoko Tan Shui Jen Taipei Hsien, Taiwan

Filed Sep. 30, 1997, Ser. No. 940,837

Int. Cl.^{6} B25C *1/04*

U.S. Cl. 227—130 **5 Claims**



1. An ejection switch for a nailer, leading compressed air from a compressed-air path to a head valve of a pressure cylinder in a loading state for preparing an ejection of a nail or releasing compressed air from said head valve in an ejection state for ejecting said nail, said ejection switch comprising:
a valve seat with an upper side and a lower side, mounted on said nailer, having a cavity, which is open to said upper side and has a sidewall, and a first hole in said lower side, which is connected to said cavity, with at least one valve opening passing through said sidewall;
a gliding seat, vertically glidingly mounted in said cavity of said valve seat, having an upper end with a top side passed through by a second hole, which is aligned with said first hole, and a lower end with an inner cavity; and
a moving bar, gliding in said valve seat and said gliding seat with a vertical position, having a lower part extending beyond said first hole of said valve seat and a top part within said second hole of said gliding seat, with a first sealing element above said lower part sealing said first hole or freely located in said cavity, depending on said vertical position, and a second sealing element below said top part freely located in said inner cavity or sealing said second hole, depending on said vertical position;
wherein in said ejection state, said vertical position of said moving bar is high, said second sealing element seals said second hole, compressed air is released through said first hole, and said gliding seat is pushed down by compressed air from said compressed-air path, such that, when said moving bar moves down for entering said loading state, said second sealing element leaves said second hole only after said first sealing hole has entered said first hole, and triggering of said loading state and of said ejection state follows said vertical position of said moving bar in a hysteresis-like behavior, making ejecting nails easier to control.

5,785,232

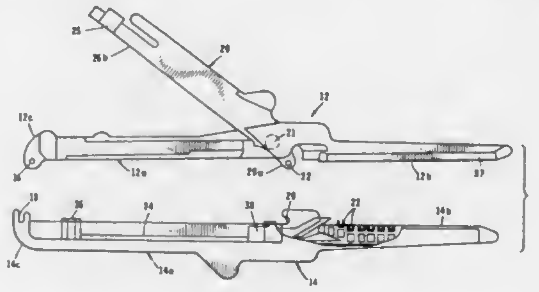
SURGICAL STAPLER

Claude Vidal, Santa Barbara; Russell J. Redmond, and Alan Plyley, both of Goleta, all of Calif., assignors to VIR Engineering, Santa Barbara, Calif.

Filed Apr. 17, 1996, Ser. No. 633,668

Int. Cl.^{6} A61B *17/068*

U.S. Cl. 227—176.1 **4 Claims**



1. A surgical stapler comprising:
(a) first and second structural members each having:
  (i) a handle portion having first and second ends;
  (ii) a jaw portion having first and second ends; and
  (iii) pivot means located proximate said second ends of said handle portions for free engagement and disengagement, said pivot means, when engaged, permitting pivotal movement of said structural members between a closed position wherein said jaw portions are in a closely spaced relationship to an open position wherein said jaw portions are spaced further apart;
(b) a locking member having first and second ends, said locking member being pivotally connected to said first structural member for pivotal movement relative thereto between a first position wherein said locking member is generally aligned with said first structural member and a second position wherein said second end of said locking member is spaced apart from said second end of said first structural member, said locking member being engageable with said second structural member and functioning upon movement from said second position toward said first position to forcefully move said first and second structural members toward said closed position;
(c) stapling means, including a staple cartridge carrying a plurality of staples, removably connected to one of said first and second structural members, for stapling together tissue disposed between said jaw portions of said structural members as said structural members are moved into said closed position;
(d) anvil means connected to the other of said first and second structural members for forming said staples carried by said staple cartridge; and
(e) jaw stabilizer means for restricting bending of said handle portions of said structural members as the tissue disposed between said jaw portions thereof is compressed as a result of said structural members moving toward said closed position, said jaw stabilizer means being connected to one of said stapling means and said anvil means and comprising a spacer segment being disposed intermediate said handle portions of said structural members as said structural members move toward said closed position.

5,785,233

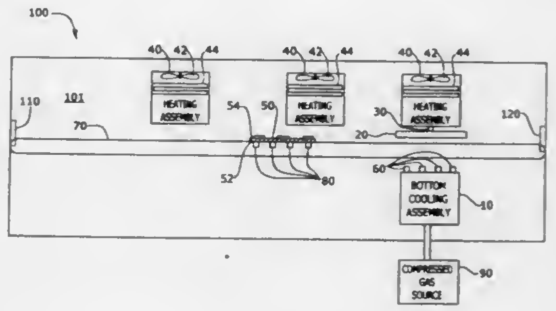
APPARATUS AND METHOD FOR SOLDER REFLOW BOTTOM COOLING

Francis C. Nutter, Methuen; Martin I. Soderland, Westboro, and Richard J. Nihan, Dracut, all of Mass., assignors to BTU International, Inc., North Billerica, Mass.

Filed Feb. 1, 1996, Ser. No. 595,274

Int. Cl.^{6} H05K *3/34*

U.S. Cl. 228—46 **16 Claims**



1. A solder reflow furnace comprising:
a transport element disposed within the solder reflow furnace;
a heating assembly disposed within the solder reflow furnace above said transport element, said heating assembly dispensing hot gas;
a cooling assembly disposed within said solder reflow furnace below said transport element, said cooling assembly dispensing cold gas; and
whereby a product having a first side and a second side is brought on said transport element into heat transfer proximity with the hot gas provided by the heating assembly and the cold gas provided by said cooling assembly such that solder on the second side of the product melts and solder on the first side of the product remains solid.

5,785,234

METHOD OF SURFACE-CONTACTING ELECTRONIC COMPONENTS

Stefan Weiss, and Elke Zakel, both of Berlin, Germany, assignors to Fraunhofer-Gesellschaft zur Forderung der angewandten Forschung e.V., Munich, Germany

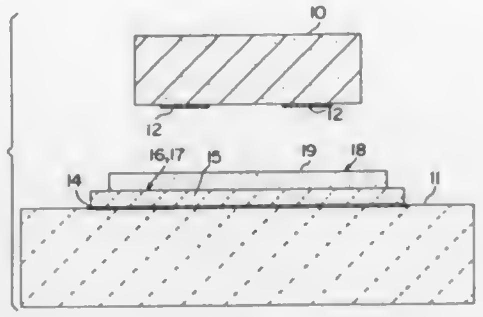
Filed Mar. 29, 1996, Ser. No. 623,540

Claims priority, application Germany, Mar. 31, 1995, 195 11 898.7

Int. Cl.^{6} A05K *3/34*

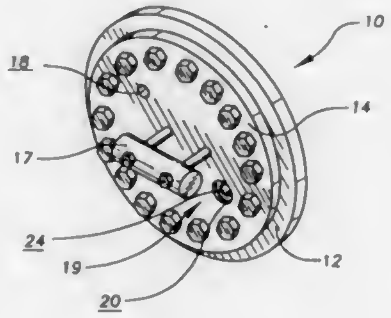
U.S. Cl. 228—223 **20 Claims**

1. A method of joining an electronic component having contact surfaces to a substrate having contact surfaces, the surfaces of at least one of the electronic component and the substrate having solderable or weldable joining material, comprising: applying an inert, acid-free polyalcohol-containing medium to the contact surfaces of either or both of the electronic component and the substrate while said electronic component contact surfaces are spaced apart from said substrate contact surfaces, bringing the contact



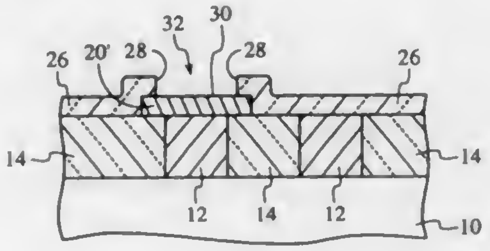
surfaces of the electronic component and the substrate into contact with each other under sufficient pressure to break up any oxide skins formed therebetween, and heating the contact surfaces sufficiently to melt the joining material, wherein the polyalcohol-containing medium forms an inert, acid-free atmosphere during the heating step which shields the contact surfaces of the electronic component and the substrate being joined to prevent oxide skin from reforming during heating.

5,785,235
PURGE BLOCK
Joel Winford Beatty, 9434 Corlett St., Baton Rouge, La. 70811
Filed May 24, 1996, Ser. No. 653,008
Int. Cl.^{6} B23K *9/16*
U.S. Cl. 228—42 **1 Claim**



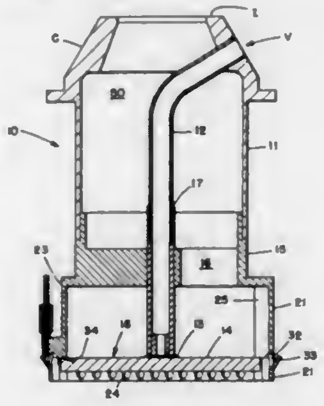
1. A purge block comprising:
a first and second, first diameter disk constructed from a substantially rigid material;
a resilient disk having a second diameter larger than said first diameter concentrically aligned and secured between said first and second first diameter disks;
at least one vent hole formed through said first and second first diameter disks and said resilient disk in a manner to form a pathway through said first and second first diameter disks and said resilient disk;
a positioning mechanism intruding from one of said first and second first diameter disk; and
a self sealing gas supply hose port including a pair of concentrically aligned holes of a second diameter formed through said first and second first diameter disks and a smaller diameter concentrically aligned hole formed through said resilient disk.

5,785,236
ADVANCED COPPER INTERCONNECT SYSTEM THAT IS COMPATIBLE WITH EXISTING IC WIRE BONDING TECHNOLOGY
Robin W. Cheung, and Ming-Ren Lin, both of Cupertino, Calif., assignors to Advanced Micro Devices, Inc., Sunnyvale, Calif.
Filed Nov. 29, 1995, Ser. No. 564,695
Int. Cl.^{6} H01L *21/60*
U.S. Cl. 228—180.5 **22 Claims**



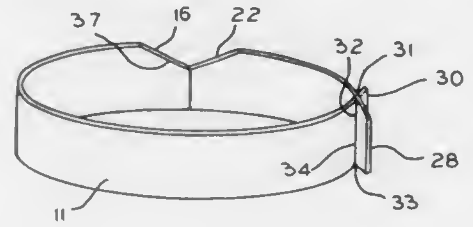
1. A process for forming electrical connection between metal wires and metal interconnects which cannot otherwise be bonded to form electrical contact therebetween, said metal wires and said metal interconnects supported over an integrated circuit structure, said metal interconnects supported in an interlayer dielectric, said process comprising:
(a) forming at least one of said metal interconnects within said interlayer dielectric;
(b) depositing a layer of aluminum on said metal interconnects and said interlayer dielectric;
(c) patterning and etching said layer of aluminum to form an aluminum pad;
(d) depositing an insulating layer over said aluminum pad, said metal interconnects, and said interlayer dielectric;
(e) patterning and etching said insulating layer to form a bonding pad opening in said insulating layer above said aluminum pad; and
(f) bonding one of said metal wires to said aluminum pad.

5,785,237
DIFFERENTIAL MULTI-FLOW CONTROL NOZZLES, APPARATUS AND PROCESS
Clifford S. Lasto, Woodbridge; Jeffrey S. Duhaime, Bethany; Brian P. Czaplicki, Oxford, and David J. Guzowski, Orange, all of Conn., assignors to Air-Vac Engineering Company, Inc., Seymour, Conn.
Filed Aug. 30, 1996, Ser. No. 708,040
Int. Cl.^{6} B23K *1/012;1/018*
U.S. Cl. 228—180.22 **14 Claims**



1. Process for controlling the uniform, substantially-simultaneous melting of the leads of a solder lead array present at the undersurface of an electrical component comprising a dielectric body while said array is in contact with or spaced slightly above, or is bonded to a corresponding circuit array present on the surface of a printed circuit board, comprising supporting said component within a nozzle housing, parallel to the printed circuit board surface, with said solder lead array and said circuit array aligned in contact or slightly spaced, introducing a continuous flow of hot gas from a gas source through said nozzle housing and against the upper surface of said dielectric body to heat said body and said solder lead array, exhausting the major volume of said hot gas flow from said component through said nozzle housing; channelling a minor volume of said hot gas flow around one or more edges of the component downwardly to the undersurface of said dielectric body and horizontally through said lead array into a discharge chamber, and exhausting said minor volume of hot gas from said discharge chamber through at least one hot gas outlet to produce the desired uniform and simultaneous melting of said solder lead array and permit bonding to or separation from the circuit array on said printed circuit board while avoiding the exposure of the melted solder lead array to the flow of the major volume of the hot gas.

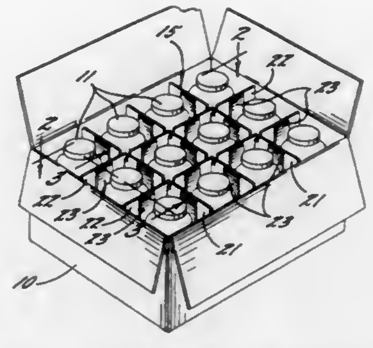
5,785,238
COMBINED PACKAGE AND REST FOR CHOPSTICKS
Daniel Tai, 1102 Hunter St., Lombard, Ill. 60148
Filed Sep. 19, 1996, Ser. No. 715,866
Int. Cl.^{6} B65D *85/20*
U.S. Cl. 229—103 **9 Claims**



1. A package, comprising:
a tubular sleeve having first and second ends;
a flap proximate said first end sized and shaped to overlap and close off said first end;
first and second edges extending between said first and second ends;
said sleeve having a midline intermediate said first and second ends and extending between said first and second edges;
said sleeve being foldable at said midline to form a fold end and to bring said first and second ends into registry with one another to form a free end;
means formed on said sleeve for attaching said free end and said fold end to one another to retain said sleeve in a generally circular pattern to form a freestanding structure; and
means on said sleeve for forming a bight.

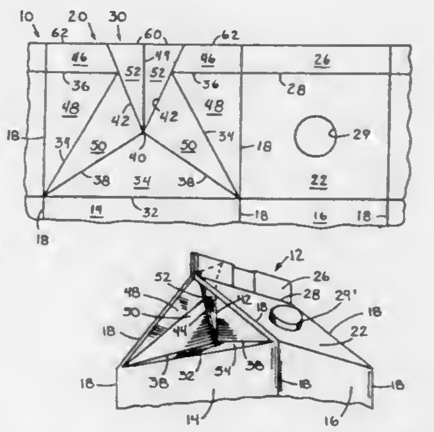
5,785,239
REDUCED MATERIAL CARTON DIVIDER AND METHOD OF PRODUCING SAME
Gordon H. Campbell, II, Marietta, and John Mark Morrow, Acworth, both of Ga., assignors to Sonoco Products Company, Hartsville, S.C.
Filed Sep. 30, 1996, Ser. No. 720,475
Int. Cl.^{6} B65D *25/04*
U.S. Cl. 229—120.36 **9 Claims**

1. A carton divider for dividing the interior of a carton into cells for receiving containers, comprising:
at least one vertically oriented longitudinal partition;



at least one separate vertically oriented transverse partition intersecting said longitudinal partition and cooperating therewith to define a plurality of cells for receiving containers, the cells having cell walls defined by the intersecting longitudinal and transverse partitions serving to separate adjacent containers from contact with one another, each one of said cell walls having opposing faces;
a vertically extending reinforcing strip mounted on a medial portion of at least one of said opposing faces of each of said cell walls; and
said reinforcing strip and said longitudinal and transverse partitions each comprise paperboard or chipboard.

5,785,240
TOP CLOSURE ARRANGEMENT FOR A RECTANGULAR CONTAINER
Michael F. Showler, Waterford, and Leslie Pape, Novi, both of Mich., assignors to Elopak Systems AG, Glattbrugg, Switzerland
Filed Aug. 19, 1996, Ser. No. 699,576
Int. Cl.^{6} B65D *5/08*
U.S. Cl. 229—137 **8 Claims**



1. On a gable top container having two oppositely disposed wider body and adjacent top panels and two oppositely disposed narrower body and adjacent top panels, a top closure arrangement comprising sealing fins formed on the wider and narrower top panels with the sealing fins on the wider top panels sealed between the sealing fins on the narrower top panels, wherein the sealing fins on each of said narrower top panels extend full width of the narrower top panels, and the sealing fins on each of said wider top panels are spaced apart and positioned at the respective sides thereof.

5,785,241
Patent Not Issued For This Number

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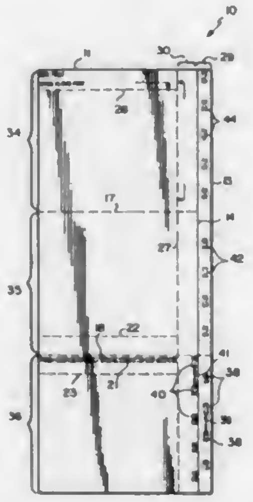
5,785,242
PRESSURE SEAL SPOT PATTERN FOR C-FOLD MAILER

Leo Lombardo, Manchester, N.H., assignor to Moore Business Forms, Inc., Grand Island, N.Y.

Filed Jul. 31, 1996, Ser. No. 690,546

Int. Cl.^{6} B65D *27/06*

U.S. Cl. 229—305 **20 Claims**



1. An intermediate for a C-fold mailer type business form comprising:
- a cut sheet of paper having a first face adapted to provide the majority of the interior of the mailer when constructed, and a second face adapted to provide the majority of the exterior of the mailer when constructed;
- said sheet having first and second opposite parallel longitudinal edges extending the entire length thereof, and opposite first and second parallel end edges;
- first and second transverse fold lines formed in said sheet parallel to said opposite end edges, and defining said sheet into first, second, and third panels, said first panel between said first end edge and first fold line, and said third panel between said second fold line and said second end edge, said second panel between said first and third panels;
- first and second longitudinal lines of weakness formed in said sheet parallel to and adjacent, but transversely spaced from, said longitudinal edges, said lines of weakness defining, with said longitudinal edges, longitudinal marginal portions;
- a first pattern of longitudinally spaced pressure cohesive elements formed in said marginal portions on said first face of said sheet third panel;
- a second pattern of longitudinally spaced pressure cohesive elements formed in said marginal portions on said second face of said sheet third panel, said second pattern of elements staggered with respect to said first pattern of elements so that cupping or distortion of said sheet at said third panel is substantially prevented; and
- other patterns of pressure cohesive formed on said marginal portions of said first face of said first and second panels for cooperating, respectively, with said second and first patterns, to seal the longitudinal edges of the mailer formed by C-folding said sheet about said first and second fold lines.

5,785,243
CLIMATE CONTROL SENSOR APPARATUS

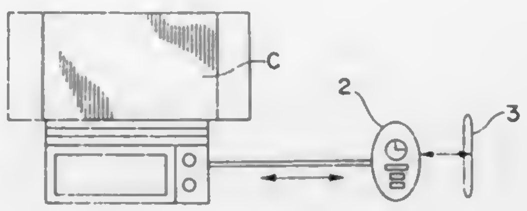
Andrew Cross, 1703 Alba Ave., Mobile, Ala. 36605

Filed Apr. 11, 1997, Ser. No. 834,017

Int. Cl.^{6} E21B *23/00;* **G05D** *23/00*

U.S. Cl. 236—47 **3 Claims**

1. An air conditioning/heat control system for a dwelling comprising:



- means connected to an entrance to a dwelling for detecting the entrance of a person to said dwelling,
- said means electrically connected to a main control panel,
- said control panel having temperature detecting means for determining the ambient temperature of said dwelling, and
- control means for setting a default temperature setting, and
- means for setting a temperature in said dwelling, and
- a countdown timer,
- whereby when said means connected to an entrance to a dwelling detects the entrance of a person to said dwelling, the main control panel deactivates said default setting and activates said countdown timer and allows a person to control the means for setting a temperature in said dwelling.

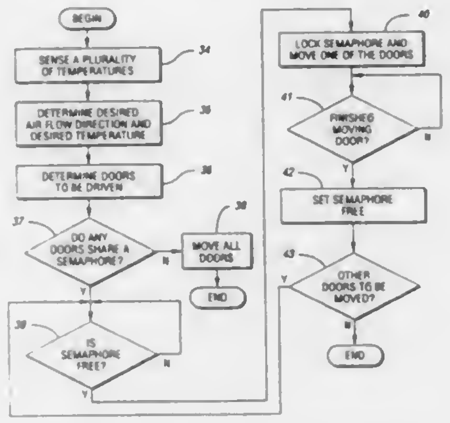
5,785,244
METHOD AND SYSTEM FOR AUTOMATICALLY CONTROLLING AN AUTOMOTIVE HVAC UNIT

Mark D. McBroom, Redford, Mich., assignor to Ford Motor Company, Dearborn, Mich.

Filed Jun. 16, 1997, Ser. No. 876,416

Int. Cl.^{6} H02P *1/54;* **F24F** *7/00*

U.S. Cl. 236—49.3 **17 Claims**


BEGIN
SENSE A PLURALITY OF TEMPERATURES
34
DETERMINE DESIRED AIR FLOW DIRECTION AND DESIRED TEMPERATURE
35
DETERMINE DOORS TO BE DRIVEN
36
37
DO ANY DOORS SHARE A SEMAPHORE?
N
Y
MOVE ALL DOORS
38
END
39
IS SEMAPHORE FREE?
N
Y
LOCK SEMAPHORE AND MOVE ONE OF THE DOORS
40
41
FINISHED MOVING DOOR?
N
Y
42
SET SEMAPHORE FREE
43
OTHER DOORS TO BE MOVED?
Y
N
END

1. A method for automatically controlling a heating, ventilating, and air conditioning (HVAC) unit of a vehicle, the HVAC unit having multiple electric motors for actuating multiple respective doors directing air flow through the HVAC unit and temperature of the air flow, the method comprising:
- sensing a plurality of temperatures;
- determining a desired temperature and desired direction of air flow based on the plurality of temperatures; and
- controlling the multiple electric motors so that their respective doors move at the same time while preventing preselected doors from operating at the same time, the multiple electric motors controlled based on the desired temperature and desired direction of air flow.

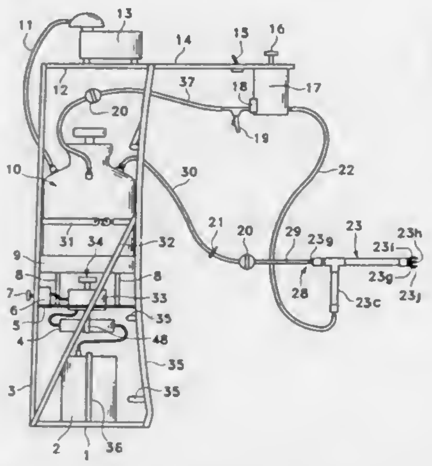
5,785,245
BACKPACK SPRAYER FOR ARTHROPOD, ARTHROPOD EGGS, OR ARTHROPOD EGG PARASITOIDS CONTAINED IN ARTHROPOD EGGS

Walker Louis Tedders, Jr., and John L. Blythe, both of Perry, Ga., assignors to The United States of America as represented by the Secretary of Agriculture, Washington, D.C.

Filed Aug. 24, 1995, Ser. No. 518,866

Int. Cl.^{6} A62C *5/02*

U.S. Cl. 239—9 **5 Claims**



1. A method for treating agricultural commodities comprising
- filling a spray tank with an aqueous suspension containing biocontrol agents selected from the group consisting of viable arthropods, arthropod eggs, arthropod parasitoids contained in arthropod eggs and mixtures thereof,
- pressurizing said tank by pumping in pressurized air into the tank in order to move said suspension from the tank to a spray gun,
- moving said aqueous suspension out of said spray gun,
- applying air from two directions on the aqueous suspension as it exits said spray gun to produce a fine spray pattern of said suspension, and
- covering said agricultural commodities with said fine spray.

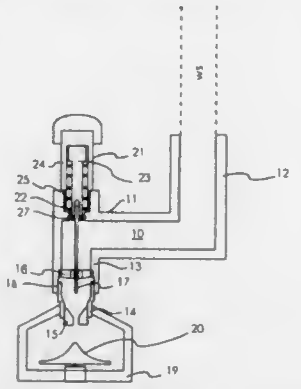
5,785,246
VARIABLE FLOW SPRINKLER HEAD

Bradley A. King; Gary L. Foster, both of Aberdeen; Dennis C. Kincaid, Kimberly, and Rodney B. Wood, Soda Springs, all of Id., assignors to Idaho Research Foundation, Inc., Moscow, Id.

Filed May 20, 1996, Ser. No. 650,295

Int. Cl.^{6} B05B *1/08*

U.S. Cl. 239—11 **12 Claims**



9. A method for varying the flow rate of a sprinkler having a body, the body having an inlet for connection to the pressurized water source and an outlet in fluid communication with the inlet, the outlet having a longitudinal axis, a nozzle having an orifice therethrough, disposed within the outlet, the nozzle orifice having a longitudinal axis common to the longitudinal axis of the outlet and a sprinkler head attached to the outlet, the sprinkler head configured to distribute water from the pressurized water source, connected to and used with a pressurized water source comprising:
- cycling the needle in and out of the orifice on a duty cycle, the means for cycling being held within the body and operatively connected to the first end of the needle to extend the needle axially along its longitudinal axis.

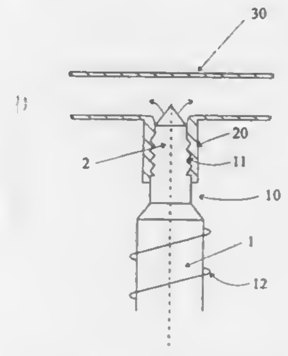
5,785,247
GAS INJECTION NOZZLE FOR GAS ASSISTED INJECTION MOLDING

Yung-Chih Chen, I-Lan; Wen-Liang Liu, and Long-Cheng Cheng, both of Hsinchu, all of Taiwan, assignors to Industrial Technology Research Institute, Hsinchu, Taiwan

Filed Jul. 5, 1995, Ser. No. 498,367

Int. Cl.^{6} B29C *45/23*

U.S. Cl. 239—135 **16 Claims**



1. An improved gas injection nozzle for use in gas-assisted injection molding process comprising:
- (a) a nozzle body, and a nozzle cap fixedly connected to said nozzle body;
- (b) a gas inlet provided in said nozzle body for allowing a gas to be injected into a mold cavity via a gas channel formed inside both said nozzle body and said nozzle cap;
- (c) heating means provided on said gas injection nozzle; and
- (d) at least one circumferential groove formed on an outer surface of said nozzle cap.

5,785,248
ROTARY SPRINKLER DRIVE ASSEMBLY WITH FILTER SCREEN

John L. Staylor; Jeff R. McKenzie, and Rebecca R. Reade, all of Riverside, Calif., assignors to The Toro Company, Minneapolis, Minn.

Filed Feb. 22, 1996, Ser. No. 605,712

Int. Cl.^{6} B05B *3/04*

U.S. Cl. 239—237 **14 Claims**

1. A gear drive assembly for a rotary sprinkler with the drive assembly being of the type that is powered by the force of water passing through the sprinkler, which comprises:
- (a) a drive housing which is configured to be substantially entirely lubricated by water entering the drive housing and which encloses a reduction gear train;
- (b) a water driven turbine located adjacent one end of the drive housing, wherein the turbine drives a turbine shaft that extends into the drive housing to rotate the reduction gear train within the drive housing;
- (c) an output shaft at the other end of the drive housing driven by the gear train, wherein the output shaft extends out of the drive housing and is suited to be attached to a nozzle assem-

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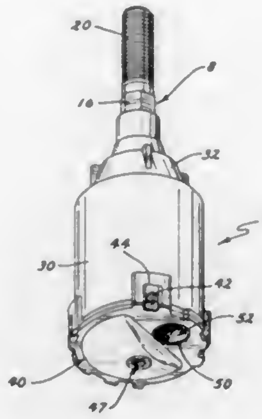


bly of the rotary sprinkler for rotating the nozzle assembly at a speed slower than the speed of rotation of the turbine; and

(d) means for creating a preferential water entry path into the drive housing which causes the substantial majority of the water that enters the drive housing during initial inrush and pressurization of the sprinkler to enter at spot(s) other than around the output shaft and the turbine shaft.

5,785,249

SINGLE BAFFLE TURBOJET ENGINE THRUST REVERSER

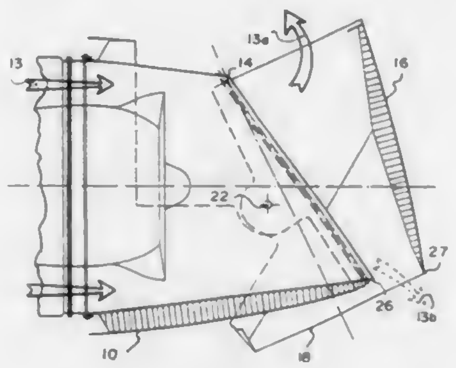
Fabrice Henri Emile Metezeau, and Guy Bernard Vauchel, both of Le Havre, France, assignors to Societe Hispano Suiza, Colombes, France

Filed Jul. 2, 1996, Ser. No. 676,085

Claims priority, application France, Jul. 5, 1995, 95 08092

Int. Cl.^{6} B64C *25/68*

U.S. Cl. 239—265.19 **8 Claims**



1. A thrust reverser for a turbojet engine comprising:

a) a duct with a longitudinal axis and having a first rearmost edge lying in a first plane extending at an oblique angle to the longitudinal axis; and,

b) a single movable thrust reverser element having a second rearmost edge forming an exhaust opening and lying in a second plane, an oblique edge and a forward portion, the thrust reverser element pivotally attached to the duct so as to move about a pivot axis between a forward thrust position wherein the second plane extends generally perpendicularly to the longitudinal axis, the exhaust opening is located rearwardly of the rearmost edge of the duct, and the oblique edge is substantially parallel to the rearmost edge of the duct whereby combustion gases passing through the duct exit the turbojet engine through the exhaust opening formed by the second rearmost edge, and a reverse thrust position in which the forward portion of the element is displaced away from the duct so as to direct gases passing through the duct between the forward portion and rearmost edge of the duct.

5,785,250

HEAD FOR DISPENSING A LIQUID PRODUCT IN THE FORM OF AN AEROSOL AND DISPENSER EQUIPPED WITH SUCH A HEAD

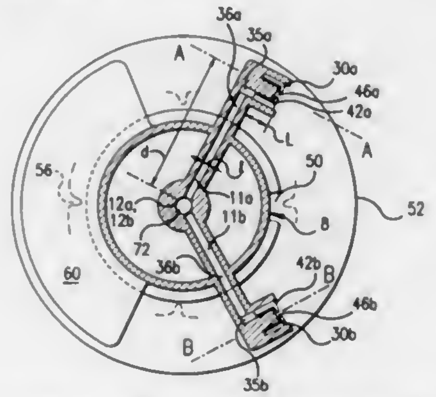
Vincent De Laforcade, Rambouillet, France, assignor to L'Oreal, Paris, France

Filed Jul. 24, 1996, Ser. No. 686,065

Claims priority, application France, Jul. 24, 1995, 9508952

Int. Cl.^{6} B05B *1/34;1/26;7/34*

U.S. Cl. 239—337 **17 Claims**



1. A dispensing head for dispensing a liquid product in the form of an aerosol, the dispensing head comprising:

a push-button having an axis;
at least two ducts in the push-button; and
at least two nozzles provided in the push-button;
wherein:
at least part of each duct is radial and a further part of the duct communicates with the nozzle and is oriented parallel to a nozzle axis of the nozzle so that sprays leaving each nozzle strike each other to provide a single and homogeneous spray.

5,785,251

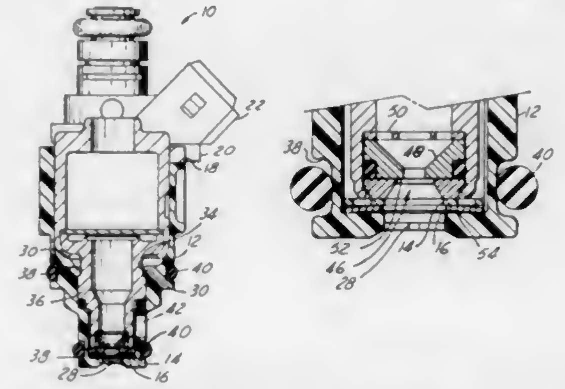
AIR ASSIST FUEL INJECTOR

Ross W. Wood, Yorktown; Debora Nally, Williamsburg, and Lisa Egizi, Newport News, all of Va., assignors to Siemens Automotive Corporation, Auburn Hills, Mich.

Continuation-in-part of Ser. No. 495,387, Jun. 27, 1995, abandoned. This application Jun. 28, 1995, Ser. No. 530,034

Int. Cl.^{6} F02M *51/00*

U.S. Cl. 239—417.3 **4 Claims**



1. An air-assisted fuel injector having a valve body with an outlet end for injecting fuel into an induction air system of an internal combustion engine having

an air assist means fitted onto the valve body for directing assist air to flow axially along the outside of the valve body and then radially inwardly toward the ejected fuel that has just left the outlet end of the injector to assist in atomizing the same, said air assist means being axially loaded onto the valve body;
said air assist means having an end wall extending radially inwardly from the side wall to form an aperture means through which the ejected fuel that has just left the outlet end of the injector passes;
an insert member means including one or more air directing disks sandwiched axially between both the end wall of the air assist means and the outlet end of the injector;
wherein the improvement comprises
a belleville washer interposed in the space between the end wall of the air assist means and the insert member means to provide an axially directed preload force to maintain the insert member means against the outlet end of the injector and to maintain an air tight relationship between said end wall and the insert member means.

5,785,252

TWO-COMPONENT SPRAY NOZZLE, IN PARTICULAR FOR A SPRAY ELEMENT OF A SPRAY TOOL OF A DIE SPRAYING DEVICE AND INTERCHANGEABLE NOZZLE ASSEMBLY FOR TWO-COMPONENT SPRAY NOZZLES

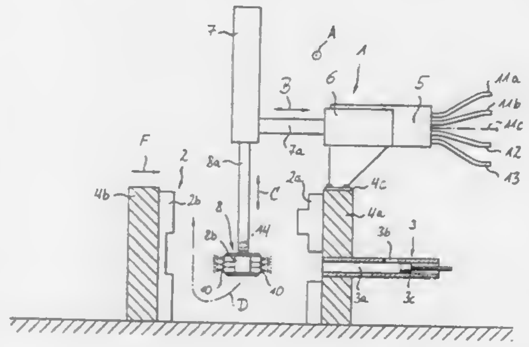
Karl-Heinz Keim, Neu-Ulm, and Rudi Kober, Sussen, both of Germany, assignors to Acheson Industries, Inc., Port Huron, Mich.

Filed Feb. 27, 1996, Ser. No. 607,902

Claims priority, application Germany, Mar. 27, 1995, 195 11 272.5

Int. Cl.^{6} F23D *11/10*

U.S. Cl. 239—418 **33 Claims**



1. Two-component spray nozzle (**40**), in particular for die spraying devices (**1**), comprising:

a nozzle inlet end (**40***c***1**) for working medium and blast air as well as a nozzle outlet end (**44***i*),
a blast air guiding portion (**41**) having at least one blast air supply line (**42**) connectable with supply means (**24**) for blast air, and
a working medium guiding portion (**44**) having at least one working medium supply line (**44***c*/**44***d*) connectable with supply means (**22**) for working medium, .

characterized in that there is provided at least one blast air channel (**45**) between the blast air guiding portion (**41**) and the working medium guiding portion (**44**), which blast air channel is subsequent to the at least one blast air supply line (**42**) and extends from the nozzle inlet end (**40***c***1**) toward the nozzle outlet end (**44***i*) at an increasing distance to a spraying axis (S) defined by these two ends and in that the at least one working medium supply line (**44***c*/**44***d*) extending in the working medium guiding portion (**44**) opens into an end portion (**46**) of the at least one blast air channel (**45**).

5,785,253

APPLICATION UNIT FOR THE DIRECT OR INDIRECT APPLICATION OF A LIQUID OR PASTY MEDIUM ONTO A MOVING MATERIAL WEB

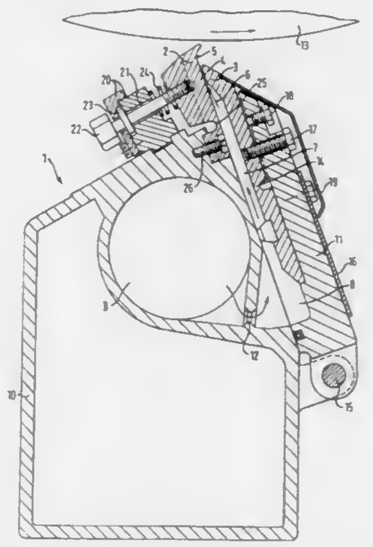
Manfred Ueberschär, Nattheim; Eckard Wozny, and Eckhart Krägeloh, both of Heidenheim, all of Germany, assignors to Voith Sulzer Papiermaschinen GmbH, Heidenheim, Germany

Filed Sep. 6, 1995, Ser. No. 524,030

Claims priority, application Germany, Sep. 9, 1994, 44 32 177.5; Apr. 21, 1995, 195 14 772.3

Int. Cl.^{6} B05B *1/32*

U.S. Cl. 239—455 **11 Claims**



1. An application unit for the direct or indirect application of a liquid or pasty medium (**6**) onto a moving material web, comprising:

a dosing gap (**4**) formed as a free jet nozzle which is formed between a leading lip (**2**) and a trailing lip (**3**) mounted on said unit adjacent said moving material web, and
adjusting means operatively connected to the leading lip (**2**) for selectively adjusting each of a plurality of sections of the leading lip disposed along the length of the application unit (**1**) to vary the of each section from the trailing lip (**3**), wherein the adjusting means has a mechanical adjusting mechanism and wherein the mechanical adjusting mechanism has a lever arm arrangement (**48**) which introduces bending forces in the leading lip (**2**) by means of adjusting members (**31–34**) which are distributed along the length of the application unit (**1**) in order to adjust the dosing gap (**4**) by means of the resulting bending deformations of each section of the leading lip.

5,785,254

FUEL INJECTION VALVE

Georg Zimmermann; Horst Magenau, both of Gerlingen; Juergen Buehring; Gilbert Moersch, both of Stuttgart; Joerg Heyse, Markgroeningen; Harald Koenig, Renningen, and Michael Klaski, Erdmannhausen, all of Germany, assignors to Robert Bosch GmbH, Stuttgart, Germany

PCT No. PCT/DE96/00777, § 371 Date Mar. 12, 1997, § 102(e) Date Mar. 12, 1997, PCT Pub. No. WO97/05378, PCT Pub. Date Feb. 13, 1997

PCT Filed May 4, 1996, Ser. No. 793,886

Claims priority, application Germany, Jul. 28, 1995, 195 27 626.4

Int. Cl.^{6} F02M *61/18*

U.S. Cl. 239—490 **10 Claims**

1. A fuel injection valve, comprising:

a valve needle having a longitudinal valve axis;
a valve seat surface disposed downstream of the valve needle;

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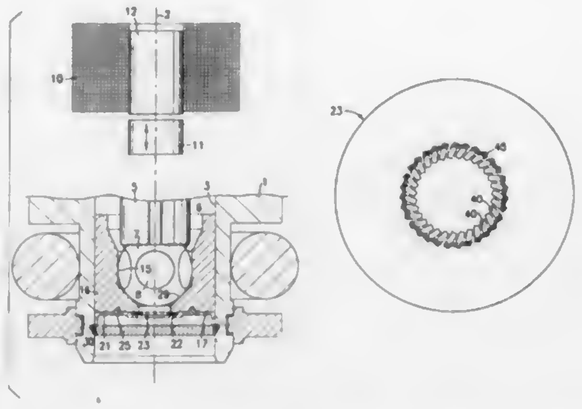


- a valve closing element having at least a first position and a second position, the valve closing element cooperating with the valve seat surface to control a fuel stream flowing through the valve needle; and
- an injector plate disposed downstream of the valve seat surface, the injector plate having an upstream side and a downstream side and having a plurality of swirl-producing depressions on the upstream side, each of the plurality of swirl-producing depressions having a fuel intake area, the injector plate also having at least one uninterrupted annular gap on the downstream side forming a spray geometry, the plurality of swirl-producing depressions and the annular gap being connected to allow the fuel stream to flow through the injector plate.

5,785,255

Patent Not Issued For This Number

5,785,256
STEAM NOZZLE FOR ESPRESSO MACHINES

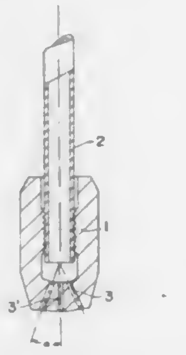
Gotthard Mahlich, Kronberg, Germany, assignor to Eugster/Frismag AG, Romanshorn, Switzerland

Filed Feb. 13, 1996, Ser. No. 600,506

Claims priority, application Germany, Feb. 17, 1995, 295 02 592 U

Int. Cl.^{6} B05B *1/14*

U.S. Cl. 239—552 6 Claims



1. A steam tube assembly for a machine for preparing a hot drink from instant powder, comprising
   (a) a steam tube having a longitudinal axis and an outlet end; and
   (b) a separate nozzle head attached to said steam tube at said outlet end; said nozzle head having a plurality of nozzle bores distributed in a circular array; each said nozzle bore having an inlet being in communication with said outlet end of said steam tube and an outlet through which steam flowing in said steam tube is discharged in a flow path; said assembly being void of any structural obstruction in said flow path downstream of said outlet of each said nozzle bore as viewed in direction of steam flow therethrough; said nozzle bores diverging from one another as viewed from the inlet toward the outlet thereof and forming an acute angle with said longitudinal axis for uniformly exposing the instant powder to steam to effect a lump-free dissolution of the instant powder; said nozzle head having an additional nozzle bore having a nozzle axis defining a direction of flow through said additional nozzle bore; said nozzle axis being coaxial with said longitudinal axis.

5,785,257
SWIRL TYPE FUEL INJECTION VALVE

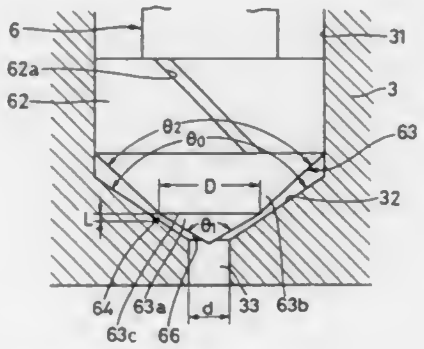
Yuji Furuya; Kenichi Iino, and Hitoshi Okuyama, all of Saitama-ken, Japan, assignors to Zexel Corporation, Tokyo, Japan

Filed Jul. 27, 1995, Ser. No. 507,947

Claims priority, application Japan, Aug. 4, 1994, 6-202775

Int. Cl.^{6} F02M *51/00*

U.S. Cl. 239—585.4 2 Claims



1. A fuel injection valve comprising:
   (a) an elongated valve body having an axially extending guide hole, an injection port, and a valve seat, said injection port and said guide hole, said guide hole, valve seat and injection port being coaxially arranged, a pressurized fuel being introduced into a basal portion of said guide hole;
   (b) a valve element slidably received in said guide hole of said valve body, said valve element having a valve portion placed opposite said valve seat;
   (c) an inclined passage formed in at least one of said valve element and said valve body, on the upstream side of said valve portion and adapted to cause an eddy current in said pressurized fuel;
   (d) a driver for moving said valve element axially, thereby to lift said valve portion from said valve seat or cause said valve portion to sit on said valve seat; and
   (e) an annular gap formed between said valve portion and said valve seat when said valve element is in a fully lifted position, where a sectional area of the annular gap at the fully lifted position of the valve element is smaller than a sectional area of the injection port;
   (f) wherein an orifice provided by the annular gap determines a fuel injection amount per unit time.

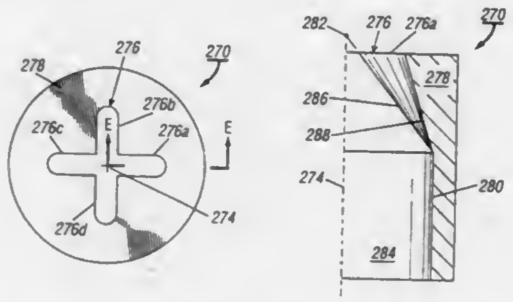
5,785,258
METHOD AND APPARATUS FOR CONDITIONING FLUID FLOW

John E. Akin; Stephen K. Smith, and N. Roland Dove, all of Houston, Tex., assignors to Vortexx Group Incorporated, Bellaire, Tex.

Continuation-in-part of Ser. No. 134,085, Oct. 8, 1993, Pat. No. 5,494,124. This application Dec. 16, 1994, Ser. No. 357,511

Int. Cl.^{6} B05B *1/14*

U.S. Cl. 239—590 38 Claims



1. A method of conditioning a flow of fluid, the method comprising:
   (i) introducing a fluid into a nozzle body having a first opening defining an inlet and a second opening defining an outlet and an inner surface connecting the inlet to the outlet;
   (ii) directing the fluid introduced into the inlet and then over the inner surface, the inner surface being eccentric throughout a longitudinal dimension; and
   (iii) applying a pressure to the fluid to provide a first region outside the nozzle of positive pressure and a second region outside the nozzle of negative pressure, the first and second regions being substantially the same distance from the outlet.

5,785,259
PROCESS FOR REGENERATING LAMINATED THERMOPLASTIC MOLDED RESIN ARTICLES AND APPARATUS FOR REGENERATING THE SAME

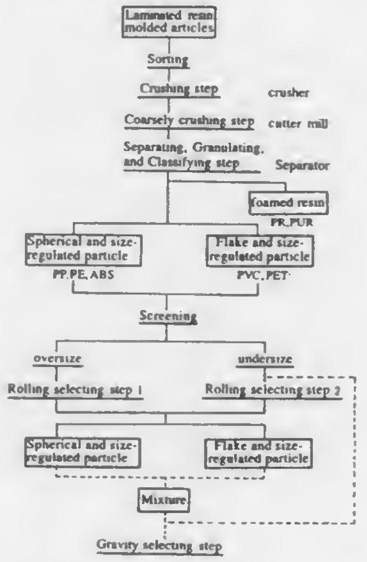
Sadao Nishibori, Tokyo, Japan, assignor to EIN Engineering Co., Ltd., Tokyo, Japan

Filed Sep. 19, 1996, Ser. No. 715,816

Claims priority, application Japan, Mar. 18, 1996, 8-061305

Int. Cl.^{6} B02C *19/12*

U.S. Cl. 241—24.18 15 Claims


Laminated resin molded articles
Sorting
Crushing step
crusher
Coarsely crushing step
cutter mill
Separating, Granulating, and Classifying step
Separator
foamed resin
PR,PUR
Spherical and size-regulated particle
PP,PE,ABS
Flake and size-regulated particle
PVC,PET
Screening
oversize
undersize
Rolling selecting step 1
Rolling selecting step 2
Spherical and size-regulated particle
Flake and size-regulated particle
Mixture
Gravity selecting step

1. A process for regenerating laminated thermoplastic molded resin articles comprising:
   - coarsely crushing thermoplastic molded resin articles composed of a variety of laminating thermoplastic resin materials into a plurality of small pieces to be treated;
   - applying an impact type frictional crushing force to the coarsely crushed small pieces to be treated so that said thermoplastic resin materials are peeled or separated and granulated or size-regulated with classification in terms of type to obtain particle-form thermoplastic resin materials;
   - selecting said particle-form thermoplastic resin materials with classification in terms of
     (i) specific gravity of each thermoplastic resin material composing said particle-form thermoplastic resin materials and/or
     (ii) particle-situation thereof, and
   - recovering according to this selecting action, particle-form thermoplastic resin materials in raw-form with classification in terms of type.

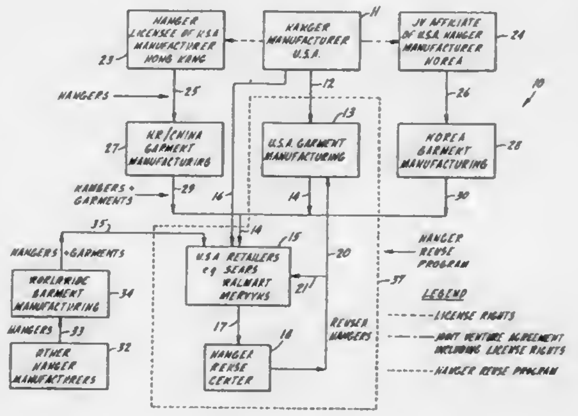
5,785,260
RECYCLING AND REUSING GARMENT HANGERS

Donald F. Morgan, Zeeland, Mich., assignor to Batts, Inc., Zeeland, Mich.

Continuation-in-part of Ser. No. 472,912, Jun. 7, 1995, Pat. No. 5,558,280. This application May 31, 1996, Ser. No. 656,090

Int. Cl.^{6} B02C *19/12*

U.S. Cl. 241—24.28 22 Claims


HANGER LICENSEE OF U.S.A. MANUFACTURER HONG KONG
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HANGER MANUFACTURER U.S.A.
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JV AFFILIATE OF U.S.A. HANGER MANUFACTURER KOREA
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HANGERS
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HK/CHINA GARMENT MANUFACTURING
27
13
U.S.A. GARMENT MANUFACTURING
KOREA GARMENT MANUFACTURING
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HANGERS + GARMENTS
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HANGERS + GARMENTS
U.S.A. RETAILERS e.g. SEARS WALMART MERVYNS
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HANGER REUSE PROGRAM
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HANGER REUSE CENTER
REUSED HANGERS
LEGEND
LICENSE RIGHTS
JOINT VENTURE AGREEMENT INCLUDING LICENSE RIGHTS
HANGER REUSE PROGRAM

1. In a method of re-using and recycling garment hangers, the steps of:
   - collecting a batch of garment hangers at a collecting location;
   - transferring said collected batch of garment hangers to a hanger re-use and recycling facility;
   - sorting said collected batch of garment hangers into a first portion potentially suitable for re-use and a second portion;
   - renovating said first portion;
   - transferring said renovated first portion to a re-use location;
   - conditioning at least a first part of said second portion for recycling;
   - transferring said conditioned first part of said second portion to a recycling location;
   - isolating a second part of said second portion; and
   - scrapping said second part of said second portion, wherein said second portion is manually sorted into a first part suitable for recycling and a second part intended for scrap.

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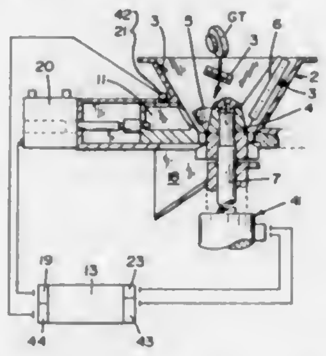
5,785,261
DEVICE FOR REDUCING THE SIZE OF STEEL OR METAL CHIPS

Klaus Lanner, Mühlepfad 39a, D-77971 Kippenheim, Germany
PCT No. PCT/DE94/01052, § 371 Date Apr. 25, 1996, § 102(e) Date Apr. 25, 1996, PCT Pub. No. WO95/07757, PCT Pub. Date Mar. 23, 1995
PCT Filed Sep. 13, 1994, Ser. No. 605,075
Claims priority, application Germany, Sep. 13, 1993, 43 30 882.1
Int. Cl.⁶ B02C *25/00*
U.S. Cl. 241—36 **16 Claims**

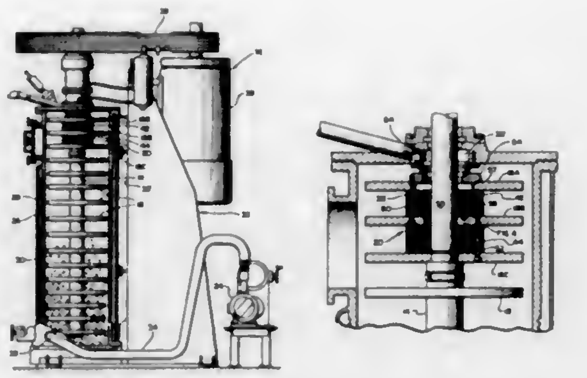


1. A device for reducing the size of steel or metal chips produced by metal-cutting operations, comprising:
- a cutter head shaft defining an axis of rotation;
- a cutter head mounted for rotation on said cutter head shaft;
- a tapered milling hopper surrounding said cutter head and said cutter head shaft and attached to a receiving hopper;
- a plurality of tearing units arranged at various heights around the circumference of said tapered milling hopper, each said tearing unit defining a tearing edge which is inclined at an angle relative to said axis of said cutter head shaft;
- a tearing blade and a plurality of triangular blades mounted to said cutter head for movement past said plurality of tearing units;
- a chip removal chute arranged below said tapered milling hopper, said chip removal chute defining a mouth;
- a milling unit arranged below said tapered milling hopper and adjoining said chip removal chute;
- an ejection opening formed in the wall of said tapered milling hopper for large pieces of tramp metal;
- an ejection channel provided above and opposite to said mouth of said chip removal chute, said ejection channel defining a downward-opening outlet;
- a shearing head defining a circumference on which a plurality of shearing blades are situated; and
- a powered channel slide for opening and closing said downward-opening oulet and providing, in an open position, access to said mouth of said chip removal chute through said ejection opening and said downward-opening outlet, wherein said milling unit includes at least two annular counter-rotatable milling discs arranged one on top of the other, said milling discs defining annular inner surfaces that surround said rotating shearing head, said annular inner surfaces being provided with shearing grooves spaced a certain distance apart from each other.

5,785,262
APPARATUS FPR DISPERSING FINELY DIVIDED SOLID PARTICLES IN A LIQUID VEHICLE

Jerome P. Tippett, 745 Pinellas Bayway #102, Tierra Verde, Fla. 33715
Filed Mar. 13, 1997, Ser. No. 816,548
Int. Cl.⁶ B02C *17/16*
U.S. Cl. 241—74 **11 Claims**

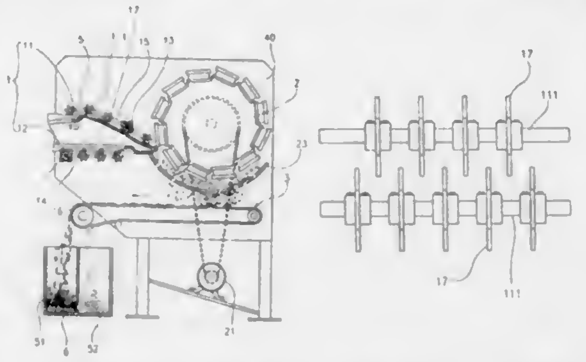
1. Apparatus for deagglomerating and dispersing particles held in agglomerated form and carried in suspension in a liquid vehicle by the action of a dispersing media on the solids comprising:



- a mixing vessel having a fluid inlet at one end thereof and a fluid outlet at the other end thereof, said vessel being adapted to have a charge of dispersing media introduced thereinto, and said inlet being adapted to be operatively connected to a pump means whereby a fluid mixture may be moved by said pump means under pressure through said inlet and through the dispersing media in said vessel to said fluid outlet;
- a rotatable agitator shaft extending into said vessel and adapted to be driven from a power source;
- a rotor separator mounted on said shaft for rotation therewith for separating dispersing media from the fluid mixture, said rotor separator being disposed on said shaft near said fluid outlet and in the path of flow between said vessel inlet and said outlet, said rotor separator including one or more filter assembly means surrounding and spaced from said shaft, each of said filter assembly means comprising:
  - (1) a pair of axially spaced rotor separator agitator discs surrounding said agitator shaft;
  - (2) a plurality of stacked ring discs surrounding said shaft and disposed between and secured to said rotor separator agitator discs;
  - (3) interchangeable spacer means disposed between adjacent ring discs to provide a predetermined spacing therebetween; and
  - (4) securing means for securing said ring discs between said agitator discs in a predetermined position.

5,785,263
WASTE TIRE PULVERIZING AND SEPARATION APPARATUS

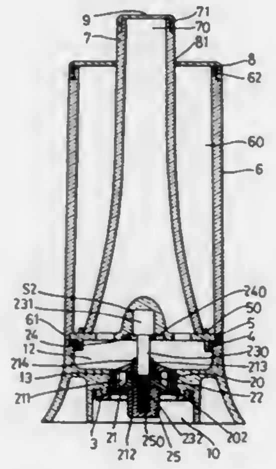
Chun-Feng Wu, and Shih-Hsu Wu, both of No. 148 Hou-pi-liao, Hou-po-tsun, Hou-pi-hsiang, Tainan Hsien, Taiwan
Filed Jun. 9, 1997, Ser. No. 871,886
Int. Cl.⁶ B02C *13/02;23/08*
U.S. Cl. 241—79.1 **2 Claims**



1. A waste tire pulverizing and separation machine, comprising a machine body, and a roll-in mechanism, a pulverizing barrel, and a separation conveyer mounted in said machine body, wherein
- said roll-in mechanism is mounted at an input side at an upper side of said machine body, said roll-in mechanism comprising an upper roller assembly and a lower roller assembly, said upper roller assembly and said lower roller assembly respectively comprising a plurality of rollers arranged in a row, said rollers being driven via respective chains by a motor so that they may synchronously rotate; each of said rollers being provided with a plurality of ratchet wheels such that said ratchet wheels of adjacent rollers are alternately arranged;
- said pulverizing barrel is mounted at a rear side of an output end of said roll-in mechanism and is driven by a motor, said pulverizing barrel having a plurality of cutters that are alternately arranged on a circumferential surface thereof, and a curved sieve being disposed below said pulverizing barrel; and said separation conveyer is mounted below said pulverizing barrel and comprises two frames at both sides, a plurality of rollers mounted between said frames, and a belt running around said rollers; one of said rollers being an output roller located at an output end of said separation conveyer and provided with a magnetic tape.

5,785,264
PEPPER GRINDER

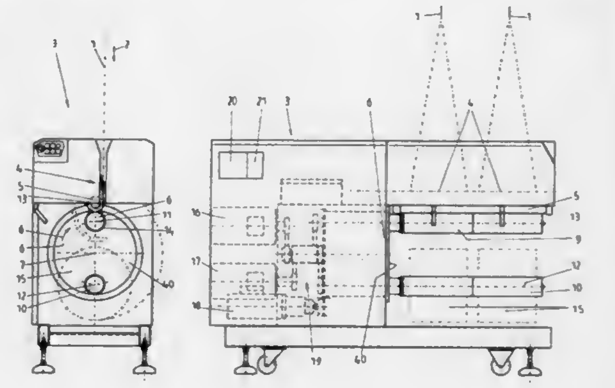
Heng-Te Yang, P.O. Box 90, Tainan City 704, Taiwan
Filed Apr. 21, 1997, Ser. No. 845,164
Int. Cl.⁶ A47J *42/00*
U.S. Cl. 241—169.1 **10 Claims**



1. A pepper grinder comprising:
- a) a base unit unit including a cylindrical chamber formed therein, the chamber having a lower open end and a center hole in an upper flat wall defining the chamber;
- b) a grind unit disposed within the chamber, the grind unit including a grind base having a hollow interior, a grind body disposed within the hollow interior, a spring having a first end engaging the grind body and a second end engaging the grind base unit, a fix disc, a rod shaft inserted through the fix disc, grind body and grind base unit, and an adjust ring threadedly secured to a lower end of the rod shaft;
- c) a fix ring engaging the grind base unit and securing same to the base unit unit;
- d) a gasket disposed on an upper side of the base unit unit;
- e) a bottom disc secured to the fix disc and an upper end of the rod shaft, the bottom disc being engaged on the gasket and including an annular flange and a plurality of spaced holes for the passage of pepper grains therethrough;
- f) an outer cylindrical-shaped housing having an inner space, an upper mouth and a lower end, the lower end being supported on the bottom disc;
- g) an inner housing disposed within the inner space of the outer housing and including an upper mouth extending beyond the upper mouth of the outer housing, an inner space, and a bottom end secured to the bottom disc;
- h) an outer cap releasably closing the upper mouth of the outer housing, the outer cap including a center hole through which the upper end of the inner housing extends and a plurality of secondary holes formed therein for permitting contents stored in the inner space of the outer housing to be passed therethrough when the outer housing is turned upside down; and
- i) an inner cap releasably closing the upper mouth of the inner housing.

5,785,265
WINDING MACHINE FOR A CONTINUOUSLY ARRIVING YARN

Jürgen Rom, Meinhard, and Jörg Bamberg, Eschwege, both of Germany, assignors to Georg Sahm GmbH & Co. KG, Eschwege, Germany
Filed Oct. 15, 1996, Ser. No. 732,551
Claims priority, application Germany, Oct. 16, 1995, 195 38 480.6
Int. Cl.⁶ B65H *63/00*
U.S. Cl. 242—36 **18 Claims**



1. A winding apparatus for continuously winding yarn received from a yarn receiving path on a bobbin, said apparatus comprising:
- a winding drum having a drum face and being rotatable about a central rotation axis that passes through said drum face;
- a winding spindle rotatably mounted to said drum face in a position radially displaced from the central rotation axis of said drum, said winding spindle being alternately positionable in a winding position and a bobbin change position through rotation of said winding drum, wherein said winding spindle is initially positioned in the winding position for receiving the bobbin disposed about said winding spindle;
- a contact roller positioned along the receiving path of the yarn upstream of said winding drum and being in peripheral contact with the bobbin;
- drive means for independently rotating said winding drum and said winding spindle;
- sensing means for sensing the respective rotational speeds of said contact roller and said winding spindle; and
- a regulating device electronically connected to said drive means and said sensing means adapted to continually regulate the rotational speed of said winding drum in response to the sensed rotational speeds of said contact roller and said winding spindle such that said winding drum is continuously rotated about its central rotation axis during the winding process and said winding spindle is continuously moved away from said contact roller as the amount of yarn wound on the bobbin increases so that said contract roller remains in peripheral contact with the bobbin throughout the winding process.

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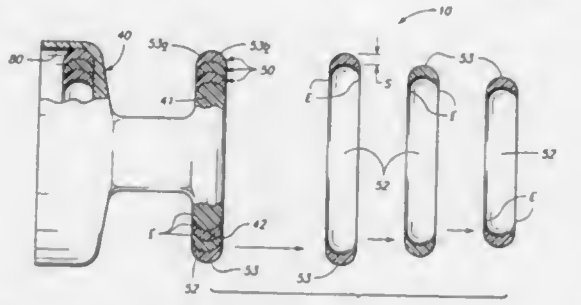
5,785,266
VARIABLE DIAMETER FISHING LINE REEL FLANGE
Ross W. Bowersox, 315 W. Riverside, #607, Spokane, Wash. 99201

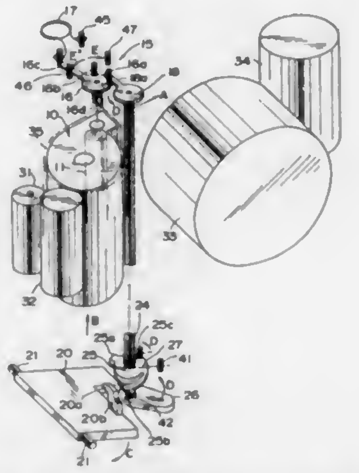
Filed Nov. 8, 1996, Ser. No. 745,785
Int. Cl.⁶ A01K *89/01*
U.S. Cl. 242—323 20 Claims



8. A fishing reel, comprising:
a reel body;
a line receiving spool mounted to the reel body along a spool axis and having a spindle disposed between a forward spool flange and an axially spaced rearward flange;
a spool base mounting the line receiving spool to the reel body along the spool axis;
a winding assembly including a crank and a line take up and release frame for selective operation to respectively take up line onto the spindle and release line from the line receiving spool over the forward spool flange; and
at least one ring removably mounted to the forward spool flange and having least one external annular line bearing surface disposed radially outward of and circumscribing the forward spool flange.

5,785,267
FILM CARTRIDGE LIGHT BLOCKING DOOR OPENING/CLOSING MECHANISM
Akira Funahashi, Sakai, and Junichi Tanii, Izumi, both of Japan, assignors to Minolta Co., Ltd., Osaka, Japan

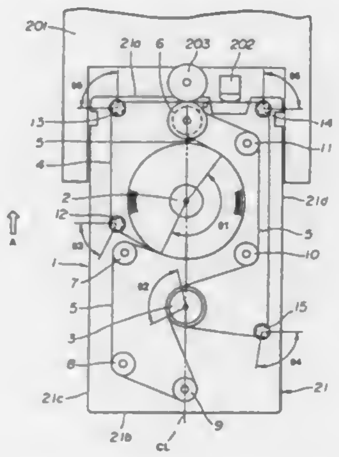
Filed Jan. 2, 1997, Ser. No. 775,627
Claims priority, application Japan, Jan. 12, 1996, 8-004325
Int. Cl.⁶ G03B *1/56*
U.S. Cl. 242—332 14 Claims



1. An opening and closing mechanism for a film cartridge that has a cylindrical part and a film inlet part protruding from the cylindrical part, said inlet part having an inlet opening and light blocking door that opens and closes over the inlet opening, said mechanism comprising:
a cartridge bay for holding the film cartridge and having an opening for inserting the cartridge into the cartridge bay;
a cartridge bay cover that opens and closes over the opening of the cartridge bay;
a coupling member for coupling to the light blocking door of the film cartridge;
a locking means for locking the cartridge bay cover; and
a linking means for linking the coupling member and the locking means, said linking means including a linking member being located in a concave area formed by the cylindrical part of the cartridge and the inlet part protruding from the cylindrical part when the film cartridge is inserted into the cartridge bay.

5,785,268
TAPE CARTRIDGE WITH TAPE TENSION DIFFERENTIAL ATTENUATING TAPE GUIDE ARRANGEMENT
Kengo Saito, and Masanori Sato, both of Miyagi, Japan, assignors to Sony Corporation, Japan

Filed Apr. 3, 1996, Ser. No. 627,005
Claims priority, application Japan, Apr. 7, 1995, 7-082589
Int. Cl.⁶ G03B *23/02*
U.S. Cl. 242—340 7 Claims

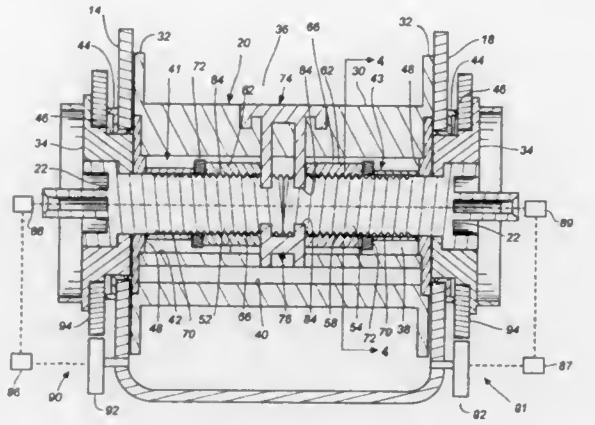


1. A tape cartridge for use in a signal recording and generating apparatus comprising:
first and second hubs aligned in tandem in a direction in which the cartridge is inserted into the signal recording and generating apparatus;
a magnetic tape wound around said first and second hubs;
four tape guides for guiding said magnetic tape between said first and second hubs, said four tape guides being arranged so that a when an amount of tape wound on the first hub is maximized, is the same as that when an amount of tape wound on said second hub is maximized;
a drive roller and a plurality of belt rollers; and
a drive belt, said drive belt being wound around said drive roller, said belt rollers and said first and second hubs for driving said first and second hubs.

5,785,269
DUAL LEVEL RETRACTOR FOR OBLIQUE OR OFFSET IMPACTS
H. John Miller, III, Macomb Township, Mich.; Harjeet Gill, Windsor, Canada, and Niels Dybro, Utica, Mich., assignors to AlliedSignal Inc., Morristown, N.J.

Filed Feb. 6, 1997, Ser. No. 796,426
Int. Cl.⁶ B60R *22/28*
U.S. Cl. 242—379.1 16 Claims

1. A seat belt retractor comprising:
a frame (**12**);

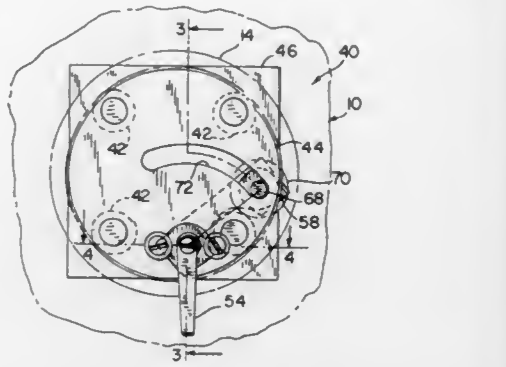


a spool (**20**) rotatably mounted relative to the frame (**12**) for protracting and retracting belt webbing (**24**) wound thereabout;
a spool shaft (**22**) rotatable mounted relative to the frame and operatively associated with the spool, the spool shaft (**22**) first portion (**52**) and a second portion (**54**), the first and second portions being independently rotatable;
a first load limiting mechanism (**41**) in operative position relative to the spool (**20**) and the first portion (**52**) of the spool shaft (**20**), the first load limiting mechanism (**41**) inhibiting relative movement between the spool (**20**) and the spool shaft (**22**) below a first threshold input force; and
a second load limiting mechanism (**43**) in operative position relative to the spool (**20**) and the second portion (**54**) of the spool shaft (**22**), the second load limiting mechanism (**43**) inhibiting relative movement between the spool (**20**) and the spool shaft (**22**) below a second threshold input force;
further comprising a first sensor (**86**) operatively associated with the first load limiting mechanism (**43**), the first sensor (**86**) being operable upon sensing first predetermined dynamic conditions to move the first locking mechanism (**90**) from the unlocked to the locked position and a second sensor (**87**) operatively associated with the second load limiting mechanism (**43**), the second sensor (**87**) operatively upon sensing second predetermined dynamic conditions to move the second locking mechanism (**91**) from the unlocked to the locked position;
wherein the first predetermined dynamic conditions result from a collision involving a frontal impact within a region (B) defined by a first arc covering approximately one hundred twenty degrees and being symmetrical about the longitudinal centerline of the front of the vehicle,
wherein the second predetermined dynamic conditions result from a collision involving a side impact within regions (C) defined by a pair of second arcs, each of the arcs covering approximately one hundred twenty degrees on opposite sides of the vehicle, the second arcs being symmetrical about a transverse centerline of the vehicle.

5,785,270
COMBINED SUPPORT, ADJUSTMENT AND BRAKING MECHANISM FOR USE IN UNWINDING A ROLL OF WEB MATERIAL
Raymond G. Buchko, Appleton, Wis., assignor to Rapidpak, Inc., Appleton, Wis.

Filed Sep. 20, 1995, Ser. No. 531,071
Int. Cl.⁶ B65H *23/06*
U.S. Cl. 242—422.4 18 Claims

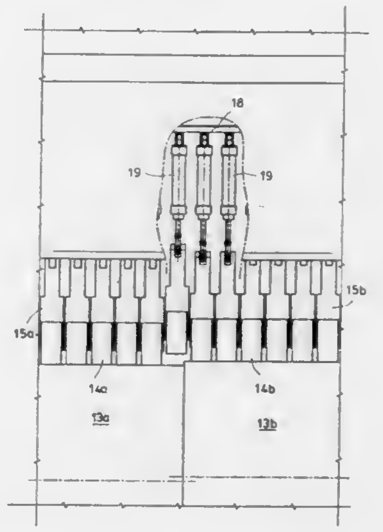
1. A support for a roll having a core defining an internal passage, comprising:
a plurality of fixed position spaced, elongated support rods adapted to extend through the internal passage of the core and to engage the core at spaced locations, wherein the roll is rotatable relative to the support rods;



a brake member movable between an engaged position in which the brake member engages the core and a disengaged position in which the brake member is moved out of engagement with the core; and
a roll position adjustment mechanism for adjusting the longitudinal position of the core on the support rods, including a pair of collars mounted to the brake member such that one collar is located on each side of the core and each collar engages an end of the core; a rotatable shaft extending through the core, the shaft having a threaded portion; and a pair of pivotable arms to which the brake member is mounted for providing movement of the brake member between its engaged and disengaged positions; wherein at least a first one of the arms is threadedly engaged with the threaded portion of the shaft, whereby rotation of the shaft results in longitudinal movement of the first arm, and thereby the brake member, causing longitudinal movement of the core through engagement of the collars with the core ends.

5,785,271
METHOD AND APPARATUS FOR REGULATING WINDING OF A WEB
Arto Leskinen, Nukari, and Pertti Vainio, Helsinki, both of Finland, assignors to Valmet Corporation, Helsinki, Finland

Filed Jun. 9, 1997, Ser. No. 871,810
Claims priority, application Finland, Jun. 10, 1996, 962396
Int. Cl.⁶ B65H *18/26*
U.S. Cl. 242—530.1 8 Claims



1. In a method for regulating winding of a material web in which a plurality of separate rolls are formed around separate roll cores arranged one after another and side by side, each roll being supported by support members and loaded by linear loads produced by truncated rolls in a set of truncated press rolls, a beam

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being provided to load the truncated press rolls, the position of the beam relative to the rolls being adjustable, the method comprising the steps of.

measuring a distance between at least one of the truncated rolls and the beam,

generating a measurement signal based on the measured distance between said at least one truncated roll and the beam,

passing the measurement signal to a regulator,

generating a regulation signal in the regulator for controlling actuators of the beam which are operable to adjust the position of the beam in order to provide a desired distance between the truncated rolls and the beam, and

passing the regulation signal to valves that control the actuators of the beam so as to adjust the distance between the truncated rolls and the beam to the desired distance.

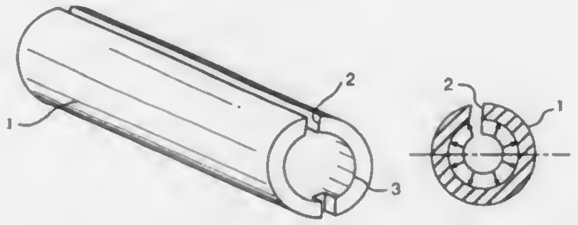
5,785,272
COILER SPOOL WITH BUILT-IN GRIPPER SLOT

Philip J. Slade, and Roland N. Hequet, both of Pittsburgh, Pa., assignors to Kvaerner U.S. Inc., Pittsburgh, Pa.

Filed Nov. 5, 1996, Ser. No. 743,839

Int. Cl.^{6} B65H *75/28*

U.S. Cl. 242—532.5 **12 Claims**



1. A coiler spool comprising an elongated hollow resilient cylinder provided with a slot extending longitudinally of the cylinder, and an expandable mandrel disposed inside the cylinder such that, on expansion of the mandrel, the mandrel exerts radially outwardly directed pressure on an interior surface of the cylinder and the cylinder expands and the slot is opened for reception of a leading edge of a strip to be coiled and, on collapse of the mandrel, the cylinder contracts and closes the slot, thus gripping the leading edge of the strip for coiling.

5,785,273
APPARATUS FOR WINDING OR UNWINDING WEBS, PARTICULARLY PAPER WEBS

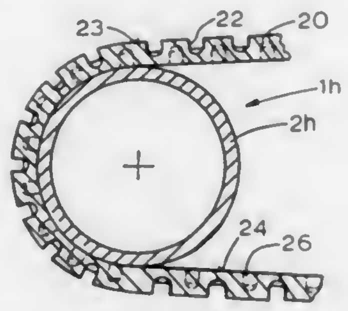
Robert Wolf, Herbrechtingen, and Hans-Joachim Fissmann, Heidenheim, both of Germany, assignors to Voith Sulzer Papiermaschinen GmbH, Heidenheim, Germany

Filed Feb. 20, 1996, Ser. No. 603,459

Claims priority, application Germany, Feb. 21, 1995, 195 05 870.4

Int. Cl.^{6} B65H *18/20;18/22*

U.S. Cl. 242—541.3 **10 Claims**



1. Apparatus for winding or unwinding a web comprising:

a support device comprising at least two king rolls, a winding roll of a web to be wound or unwound connected to the king rolls to form a press gap with at least one of the king rolls, at least one of the two king rolls is looped around by an elastic support belt, the support belt has a layer of soft, elastic material, the soft layer has cavities.

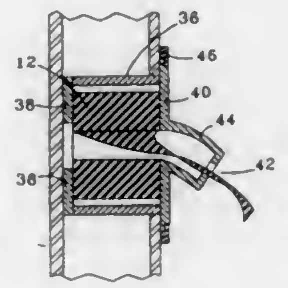
5,785,274
CENTER FEED TOILET PAPER DISPENSER

John R. Johnson, 26653 Cotton Bayon Dr., Orange Beach, Ala. 36561

Continuation-in-part of Ser. No. 414,311, Mar. 31, 1995, Pat. No. 5,582,362. This application Dec. 10, 1996, Ser. No. 763,196

Int. Cl.^{6} B65H *16/02*

U.S. Cl. 242—593 **5 Claims**



1. An apparatus for attachment to a horizontal surface for containing a cylindrical toilet paper roll having opposing planar surfaces, a hollow center, and a loose end in the hollow center, comprising:

a housing attachable to the horizontal surface and defining an interior space for holding the toilet paper roll;

a base attached to said housing for contacting one planar surface of the toilet paper roll; and

an aperture in said base for permitting the loose end of the toilet paper roll to be withdrawn through said base.

5,785,275
MISSILE WEAPONS SYSTEM

Manfred Hiebl, Sauerlach, Germany, assignor to Daimler-Benz Aerospace AG, Ottobrunn, Germany

Filed Nov. 25, 1996, Ser. No. 758,144

Claims priority, application Germany, Dec. 9, 1995, 195 46 017.0

Int. Cl.^{6} F41G *7/20*

U.S. Cl. 244—3.17 **2 Claims**

2. A process for a missile weapons system, comprising:

providing a missile with a homing head zoom optic system and a cardanically suspended homing head sensor providing a homing head image;

providing a sight image having an angle of view which is different from said homing head image;

continuously determining a target by comparing said sight image and said homing head image, which are brought to coincide, by means of a correlation process;

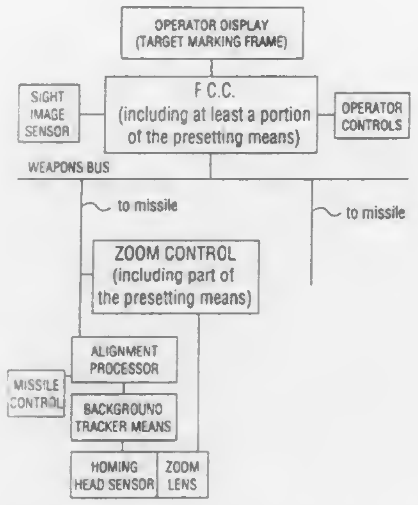
providing a target marking frame in the sight image which is adjusted to the size of the target by reduction or enlargement to reduce the effect of parallax on the correlation, said target marking frame being entered into the homing head zoom optic system in the selected size;

providing a zoom lens with said homing head zoom optic system said zoom lens being provided adapted to the range of the weapons system;

with said zoom lens reducing a visual field of said homing head image until the target is always represented in the coinciding homing head image as a target that at least nearly fills out the image at all distances from the target;

substantially eliminating the vibration levels acting on the homing head sensor or said homing head zoom optic system by switching on an on-board background tracker; and

presetting a value for the size of the correlation for a target handover by adjusting the resolutions of the homing head image sensor and sight image sensor.


OPERATOR DISPLAY (TARGET MARKING FRAME)
SIGHT IMAGE SENSOR
F.C.C. (including at least a portion of the presetting means)
OPERATOR CONTROLS
WEAPONS BUS
to missile
to missile
ZOOM CONTROL (including part of the presetting means)
ALIGNMENT PROCESSOR
MISSILE CONTROL
BACKGROUND TRACKER MEANS
HOMING HEAD SENSOR
ZOOM LENS

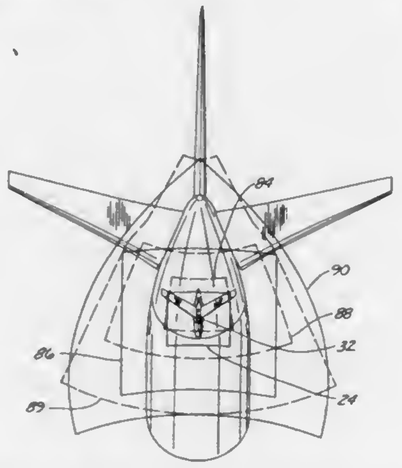
5,785,276
ACTUATED ROLL AXIS AERIAL REFUELING BOOM

Dennis E. Ruzicka, Enumclaw, Wash., assignor to The Boeing Company, Seattle, Wash.

Filed Dec. 22, 1995, Ser. No. 577,034

Int. Cl.^{6} B64D *39/00*

U.S. Cl. 244—135 A **20 Claims**



1. A maneuverable apparatus for interconnecting a fuel supply airplane with a trailing receiver airplane during high speed in-flight fuel transfer, said apparatus comprising:

(a) first pivot means mounted to said supply airplane to provide angular motion about a first axis of rotation oriented essentially normal to the line of flight of said supply airplane at the time of maneuvering said apparatus;

(b) second pivot means attached to and rotating with said first pivot means to permit angular motion in a generally vertical plane about a second axis of rotation perpendicular to said first axis;

(c) third pivot means attached to said second pivot means for producing rotation about a third axis, said third means being aligned along said third axis, said third axis being orthogonal to said second axis;

(d) a boom extending generally aft from said first pivot, said boom being rotatable about its longitudinal axis by said third pivot means, said third pivot means comprising a rotary actuator having an output shaft, said output shaft having its longitudinal and rotational axis aligned with said third axis, said actuator being fixedly attached to said second pivot means and said boom, whereby when a commanded motion relating to rotational output direction and value about said first and said second axis is furnished to said rotary actuator, said rotary actuator produces a corresponding rotation of said boom about said third axis, and

(e) wherein said boom has a substantially elliptical cross-section having a major axis whereby when said boom is rotated about said third axis by said rotary actuator, said major axis is substantially aligned with the local free airstream surrounding said supply airplane.

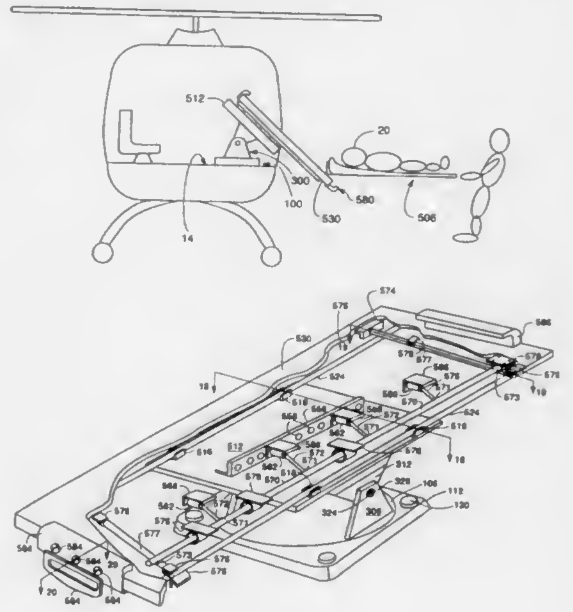
5,785,277
PATIENT LOADING SYSTEM AND TRANSPORT DEVICE FOR AIRCRAFT

Treg Manning, Denver; David M. Boette, Aurora, and Scott B. Williams, Littleton, all of Colo., assignors to Air Methods Corporation, Englewood, Colo.

Filed Oct. 13, 1995, Ser. No. 542,598

Int. Cl.^{6} B64D *9/00;* **A61G** *1/06*

U.S. Cl. 244—137.2 **22 Claims**



1. A patient loading system and transport device for aircraft comprising:

a base assembly mountable to the floor of an aircraft;

a platform assembly for supportably receiving a patient thereupon; and

an interconnecting assembly for supportably interconnecting said platform assembly to said base assembly and for selectively tilting said platform assembly relative to said base assembly, wherein said interconnecting assembly comprises a hinge means interposed between and interconnecting said platform assembly and said base assembly, said hinge means defining a single axis of rotation about which said platform assembly is pivotable relative to said base assembly.

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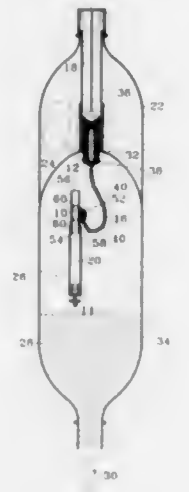
5,785,278
PRESSURE DEPENDENT PARACHUTE RELEASE DEVICE FOR AIR/WATER ROCKETS

Chester Louis Bejtlich, III, 19 Clover Cir., Reading, Mass. 01867

Filed May 29, 1997, Ser. No. 864,835

Int. Cl.^{6} B64D ***17/62***

U.S. Cl. 244—139 **8 Claims**



1. A pressure dependent parachute release device comprising:

a. a primary storage volume

b. a check valve having an inlet and an outlet, the inlet of said check valve being in fluid communication with said primary storage volume

c. a secondary storage volume in fluid communication with the outlet of said check valve

d. a flow restrictor means having an inlet and an outlet

e. a pressure operable valve means having a primary port, a secondary port and an outlet port, said valve means being operable by differential air pressure between the primary port and the secondary port, said valve means being operable through a first position and a second position, the first position of said valve means preventing fluid communication between the secondary port and the outlet of said valve means, the second position of said valve means allowing fluid communication between the secondary port and the outlet port of said valve means, the secondary port of said valve means being in fluid communication with said secondary storage volume, the primary port of said valve means being in fluid communication with said primary storage volume, the outlet port of said valve means being in fluid communication with the inlet of said flow restrictor means

e. an actuator means for converting pressurized air to linear motion, said linear motion enabling release of a parachute, said actuator means having a fixed cylinder with an inlet port in fluid communication with the outlet of said flow restrictor means, said actuator means having a movable piston driven by compressed air

whereby when said valve means is in its first position and a pressure differential between said primary storage volume and said secondary storage volume urges said valve means to its second position compressed air in said secondary storage volume is allowed to flow controllably through said flow restrictor means and into said actuator means thus being converted into linear motion at a predetermined rate thus enabling the release of said parachute.

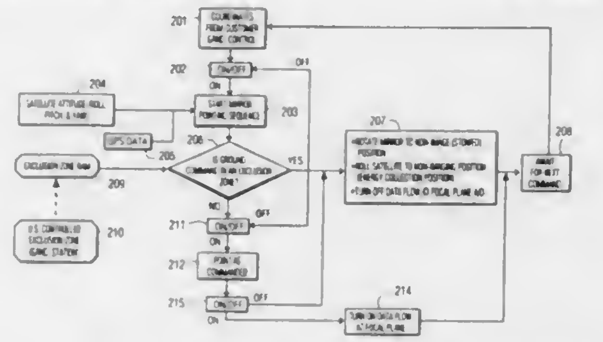
5,785,279
SATELLITE EXCLUSION ZONE VIEWING AND CONTROL SYSTEM

Donald D. Gregory, Fort Wayne, Ind., assignor to ITT Defense, Inc., McLean, Va.

Filed Jan. 19, 1996, Ser. No. 587,733

Int. Cl.^{6} B64G ***1/00***

U.S. Cl. 244—158 R **26 Claims**



1. In a space orbiting remote sensing system of the type having sensing means for sensing any portion of the earth when pointed at said portion, in combination therewith the improvement comprising:

storage means for storing data indicative of at least one exclusion zone defining a region of the earth not to be sensed by said sensing means; and

control means operative in a first mode to recognize said at least one exclusion zone to prevent pointing of said sensing means at said exclusion zone, in response to a request to sense a portion of the earth which includes at least one said exclusion zone, and operative in a second mode independent of said first mode to prevent pointing of said sensing means at any portion of the earth.

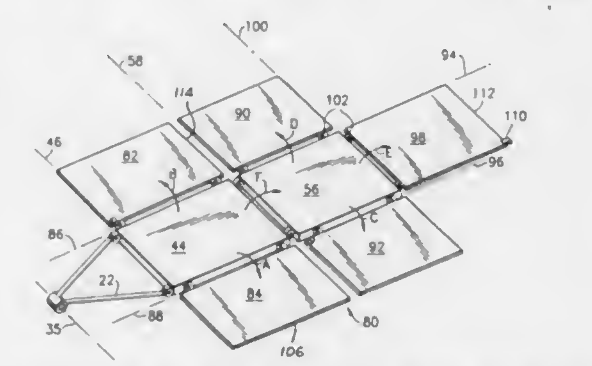
5,785,280
HYBRID SOLAR PANEL ARRAY

Varouj G. Baghdasarian, Cupertino, Calif., assignor to Space Systems/Loral, Inc., Palo Alto, Calif.

Filed Jul. 20, 1995, Ser. No. 504,484

Int. Cl.^{6} B64G ***1/44***

U.S. Cl. 244—173 **16 Claims**



1. A hybrid solar panel array mounted on a satellite sidewall for movement between a stowed position proximate the satellite sidewall and a deployed position extending away from the satellite sidewall, said solar panel array comprising:

a yoke pivotally mounted on the satellite sidewall;

a first rigid solar panel pivotally mounted to said yoke;

a second rigid solar panel pivotally mounted to said first rigid solar panel along an axis distant from said yoke;

a plurality of semi-rigid solar panels pivotally mounted to said first and second rigid solar panels, respectively; and

drive means for moving said solar panel array between the stowed position and the deployed position. ,

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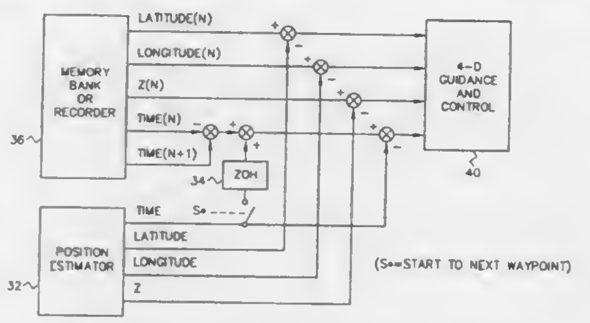
5,785,281
LEARNING AUTOPILOT

Francis E. Peter, and Fred M. Strohacker, both of Albuquerque, N. Mex., assignors to Honeywell Inc., Minneapolis, Minn.

Filed Nov. 1, 1994, Ser. No. 333,162

Int. Cl.^{6} B64C ***13/16***

U.S. Cl. 244—190 **22 Claims**



1. An apparatus for providing automatic control of a vehicle comprising:

means for providing vehicle position information, the vehicle position information comprising time information for the vehicle within a known reference frame, the reference frame having at least three dimensions;

a memory means which stores position information at predetermined intervals while the vehicle is operated during a rehearsal mission in the known reference frame;

means for comparing the stored vehicle position information with actual position information from said means for providing vehicle position information during automatic operation of the vehicle and generating a plurality of error signals, each of the error signals has a magnitude proportional to the difference between the stored vehicle position information and actual vehicle position information; and

vehicle control means which receives the plurality of error signals from said means for comparing and converts the error signals to control signals which control the movements of the vehicle, where the vehicle moves according to the vehicle position information stored in the memory means.

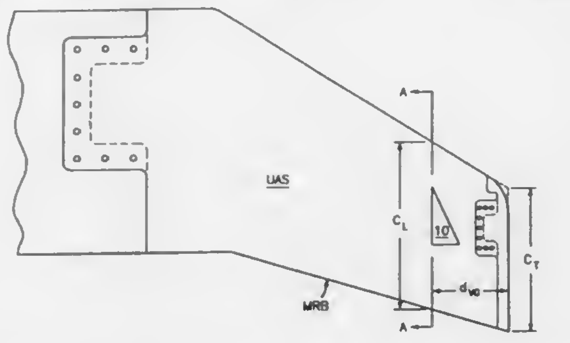
5,785,282
HALF-PLOW VORTEX GENERATORS FOR ROTORCRAFT BLADES FOR REDUCING BLADE-VORTEX INTERACTION NOISE

Brian E. Wake, Portland; Peter F. Lorber, Coventry, and Anton J. Landgrebe, South Windsor, all of Conn., assignors to Sikorsky Aircraft Corporation, Stratford, Conn.

Continuation-in-part of Ser. No. 517,026, Aug. 18, 1995. This application Aug. 7, 1996, Ser. No. 693,579

Int. Cl.^{6} B64C ***23/00***

U.S. Cl. 244—199 **17 Claims**



1. A vortex generator system for use with a rotor blade defined by a tip chord, comprising:

a half-plow vortex generator having a right triangular planform configuration;

said right triangular planform configuration being defined by a length, a width, and an apex angle, and an apex height;

said apex height, in combination with said length, said width, and said apex angle of said right triangular planform configuration defining the three-dimensional configuration of said half-plow vortex generator; and wherein

said half-plow vortex generator is mounted in combination with an aerodynamic surface of the rotor blade at a mounting site defined by a local chord, said mounting site being inboardly from the tip of the rotor blade a predetermined spanwise distance from the tip of the rotor blade, said predetermined spanwise distance being defined in terms of the tip chord length, and wherein said half-plow vortex generator is further mounted inwardly from the leading edge of the rotor blade by a predetermined chordal distance, said predetermined chordal distance being defined in terms of the length of said local chord; and wherein

said length of said mounted half-plow vortex generator is substantially aligned with said local chord;

said apex height of said half-plow vortex generator has a magnitude defined in terms of said local chord;

said length of said half-plow vortex generator has a magnitude defined in terms of said local chord;

said width of said half-plow vortex generator has a magnitude defined in terms of said local chord.

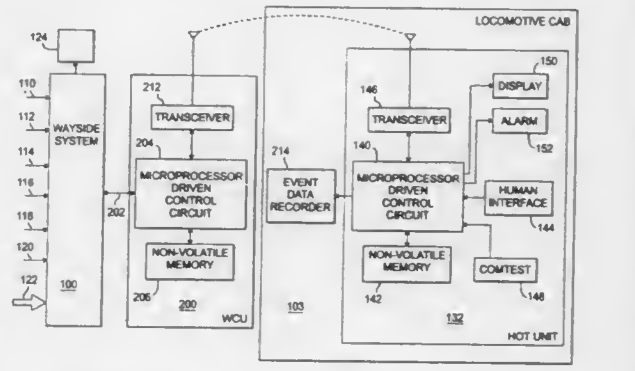
5,785,283
SYSTEM AND METHOD FOR COMMUNICATING OPERATIONAL STATUS OF A RAILWAY WAYSIDE TO A LOCOMOTIVE CAB

Michael J. Ehrenberger, Pittsburgh, Pa.; Randall S. Mecca, Columbia, S.C.; Kenneth Gottschlich; Christopher R. Harper, both of Pittsburgh, Pa., and Jack I. Wilson, Overland Park, Kans., assignors to Union Switch & Signal Inc., Pittsburgh, Pa.

Filed Nov. 25, 1996, Ser. No. 756,322

Int. Cl.^{6} B61L ***23/00***

U.S. Cl. 246—62 **77 Claims**



1. A communication system communicating operational status of a railway wayside to a railway locomotive cab positioned at a head-end of a train, wherein the communication system comprises:

a wayside system located at the railway wayside for sensing a wayside condition of the railway wayside and determining an operational status output signal that characterizes said wayside condition;

a wayside communications unit positioned at said wayside system and electrically coupled to said wayside system, which said wayside communications unit initiates communication with the railway locomotive cab by generating and transmitting a digital transmission signal that is responsive to said operational status output signal, said wayside communications unit comprising first microprocessor means for controlling said wayside communications unit, and transmitting means

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for transmitting said digital transmission signal to initiate communication with the railway locomotive cab; and

a head of train (HOT) unit positioned at the railway locomotive cab, said head of train (HOT) unit comprising first microprocessor means for controlling said HOT unit, receiving means in radio communication with said transmitting means, for receiving said digital transmission signal from said transmitting means, and display means for displaying a message that is responsive to said digital transmission signal, whereby use of voice radio is eliminated for communicating said operational status output signal.

5,785,284

DEVICE FOR FASTENING A TEMPERATURE SENSOR IN A MOTOR VEHICLE HEATING AND/OR AIR CONDITIONING INSTALLATION

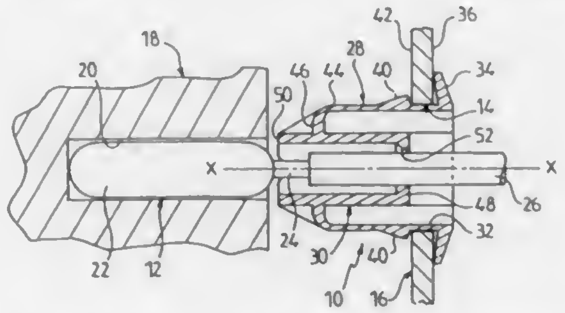
Mario Cesari, Paris; Pascal Cloteaux, Versailles, and Jean-Pierre Collgon, Nogent-Le-Rotrou, all of France, assignors to Valeo Climatisation, La Verriere, France

Filed Apr. 26, 1996, Ser. No. 638,285

Claims priority, application France, Apr. 28, 1995, 95 05167

Int. Cl.⁶ G12B *9/00*

U.S. Cl. 248—27.3 **9 Claims**



1. In combination, a thermoelectric temperature sensing means comprising a housing, a wall, and a fastening device securing the thermoelectric temperature sensing means to said wall, the wall having a through aperture, the temperature sensing means having a thermoelectric temperature sensor, at least two connecting electrical conducting wires extending from said sensor, and a sheath having a cross section surrounding said electrical conducting wires, wherein the fastening device has a tubular body portion adapted to be held fast in said aperture in the wall, and a sleeve portion joined to the inside of the tubular body portion and defining a passage through which said wires and sheath extend, the sleeve portion having a narrow end gripping the sheath and a wide generally oval transverse cross section end facing towards said sensor, said wide, oval end being dimensioned to allow the connecting electrical conducting wires to be displaced laterally to compensate for alignment error between the aperture and the housing.

5,785,285

PIPE SUPPORT ASSEMBLY

Gary G. Gordon, Southfield, Mich., assignor to TRW Inc., Cleveland, Ohio

Filed Feb. 20, 1996, Ser. No. 603,447

Int. Cl.⁶ F16L *3/22*

U.S. Cl. 248—68.1 **18 Claims**

1. Apparatus for securing together a non-linear array of at least three tubes positioned with their longitudinal axes extending parallel, said apparatus attachable to said tubes and comprising:

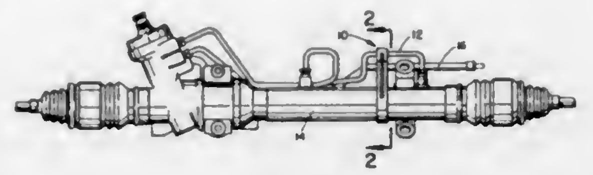
a relatively rigid frame carrying first, second, and third cylindrical tube receiving and retaining recesses, each recess defined by a separate pair of opposed arms with at least one arm of each pair being resilient and deflectable in a radial direction relative to its respective recess, the arms in each pair having spaced end portions defining an entrance opening to the recess defined thereby;

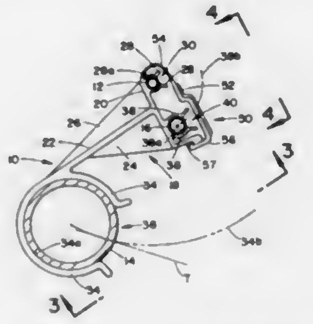
first cylindrical tube receiving and retaining recess, having a center which is used to establish the center of imaginary circles with the centers of the second and third recesses being generally alignable to tangents to the imaginary circles;

said second cylindrical tube receiving and retaining recess, having its entrance opening generally alignable with a tangent to an imaginary circle with its center at the center of the first recess and its radius equal to the distance between the centers of the first and second recesses;

said third cylindrical tube receiving and retaining recess, having its entrance opening generally alignable with a tangent to an imaginary circle with its center at the center of the first recess and its radius equal to the distance between the centers of the first and third recesses;

the positions of the centers of the said first, second and third recesses are arranged so that the apparatus can be installed by rotating the frame about the center of the first recess when a tube is installed in the first recess to engage the second and third recesses with second and third tubes.





5,785,286

APPARATUS FOR THE RELEASABLE CONNECTION OF A PHOTOGRAPHIC OR OPTICAL INSTRUMENT TO A TRIPOD OR THE LIKE

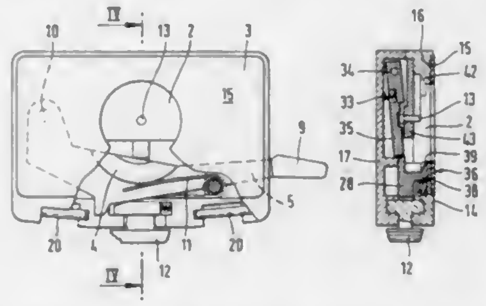
Reinhard Hiesinger, Memminger Str. 41, 87724 Ottobeuren, and Klaus Bothe, Munchner Strasse 1, 82057 Icking, both of Germany

Filed Jul. 21, 1995, Ser. No. 505,394

Claims priority, application Germany, Jul. 23, 1994, 94 11 987 U

Int. Cl.⁶ F16M *11/04*

U.S. Cl. 248—187.1 **1 Claim**



1. An apparatus for the releasable connection of a photographic or optical instrument to a tripod, said apparatus comprising

a screw having a screw head and a threaded shank adapted for connection to the instrument;

a housing having a recess adapted to receive said screw head;

separating means actuable to move said screw head from said recess;

means for securing said housing to said tripod;

a lever pivotally mounted about an axis parallel to the longitudinal axis of said screw when said screw head is received within said recess and said lever being movable from a retracted position, in which said screw head may be inserted into said recess or removed from said recess with the assistance of said separating means, to a first locking position, in which said screw head is rotatable retained within said recess;

biasing means urging said lever into said first locking position and away from said retracted position, said biasing means being overcome to locate said screw head in and to remove said screw head from said recess;

a locking bolt movable from a first position, in which said lever can be moved to said retracted position, to a second position, in which movement of said lever to said retracted position is prevented by said locking bolt, and to a third position in which said locking bolt maintains said lever in a second locking position in which rotation of said screw head within said recess is prevented; and

a spring to bias said locking bolt from said first position to said second position upon movement of said lever from said retracted position to said first locking position.

5,785,287

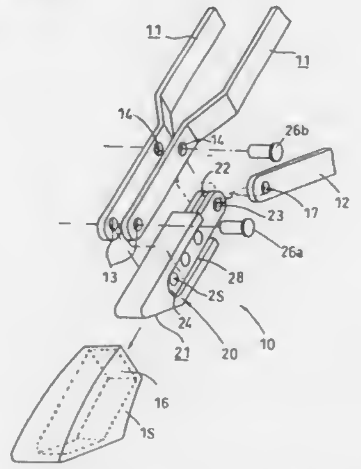
TIP PART OF A SUPPORT LEG FOR A CHAIR, OR THE LIKE

Yoshihiro Hoshino, Nagoya, Japan, assignor to Hoshino Gakki Kabushiki Kaisha, Japan

Filed Jan. 30, 1997, Ser. No. 791,532

Int. Cl.⁶ A47B *91/00*

U.S. Cl. 248—188.9 **6 Claims**



1. A tip structure for a support leg, wherein the support leg is comprised of two leg members which extend alongside each other toward free ends thereof and a stay which is pivotable with respect to the leg members being disposed between the leg members,

the tip structure comprising:

a tip piece including a main body having (i) opposing lateral sides, the end portions of the leg members sandwiching at least a portion of the main body by engaging the opposing lateral sides; (ii) an upper end having an insertion groove extending therein and receiving the stay, the insertion groove being shaped to enable the stay to pivot with respect to the upper end of the main body and including a member journal pivotally supporting the stay with the upper end; (iii) a respective leg receiving installation seat on the opposing lateral sides fixedly receiving the free ends of each of the leg members for supporting a load from the leg members; and (iv) said journal member extending through said leg members, the main body at the groove, and the stay to hold the leg members against opposing lateral sides and in the installation seats; and a bottom;

an end cap having an insertion part with an inside bottom, the insertion part to receiving the tip piece with the support legs so that the bottom of the tip piece operatively engages the inside bottom of the end cap to disperse the load from the leg members.

5,785,288

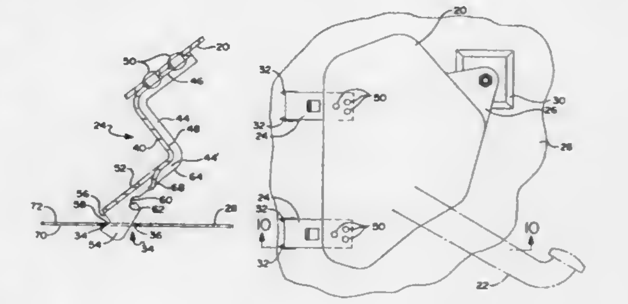
QUICK MOUNT FOR PARKING BRAKE ACTUATOR

Frank Thomas West, Macomb Township, Mich., assignor to Dura Automotive Systems, Rochester Hills, Mich.

Filed Aug. 16, 1996, Ser. No. 698,966

Int. Cl.⁶ B62D *25/14*

U.S. Cl. 248—220.41 **2 Claims**



1. In a vehicle having a panel and a parking brake actuator housing, a parking brake actuator attachment for attaching the parking brake actuator housing to the vehicle panel, comprising

a pair of spaced mounting apertures formed in the vehicle panel, each defined by opposed peripheral edges,

a mounting bracket secured to one end of the housing, comprising

a base attached to the housing and having an arm extending from the base,

a pair of spaced flanges on the arm each having a bearing surface for engaging one side of the panel,

a spring finger depending from the arm between the flanges and extending below the bearing surface for engaging the one side of the panel and being stressed thereby,

a depending leg extending from each flange below the bearing surface, each leg including spaced first and second shoulders opposing the bearing surface and first and second abutments adjacent the first and second shoulders, the first shoulders engaging the other side of the vehicle panel when the legs are inserted through the apertures until the first abutments engage one peripheral edge, and the second shoulders engaging the other side of the panel when the housing is slid on the panel until the second abutments engage the other peripheral edge which depresses the spring finger, and

cooperating fastening means on the vehicle panel and the other end of the housing, which are aligned upon engagement of the second abutments with the other peripheral edges, for receiving a fastener to secure the housing to the vehicle panel.

5,785,289

HOLDER FOR A BICYCLE CABLE LOCK

Jin-Ren Shieh, No. 178 Shih Chia Rd., Taichung, Taiwan

Filed Nov. 19, 1996, Ser. No. 752,063

Int. Cl.⁶ F16B *1/00*

U.S. Cl. 248—230.1 **2 Claims**

1. A cable lock holder assembly for a bicycle, said cable lock holder assembly comprising:

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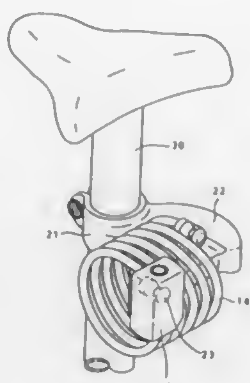


a) a U-shaped bar including a first end having a clamping ring for securing to the bicycle and including a second end having a first button,

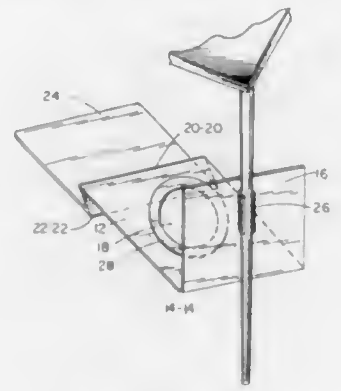
b) a cable including a first end having a lock head secured to said cable and including a second end having a second button, said lock head including a button hole for engaging with said second button of said cable and for allowing said cable to lock the bicycle,

said button hole of said lock head being engaged with said first button, when said second button of said cable is disengaged from said button hole of said lock head, for allowing said lock head and said cable to be secured to said U-shaped bar and for allowing said cable and said lock head to be solidly secured to the bicycle.

5,785,290
BEVERAGE HOLDER ATTACHABLE TO THE LEG OF A TABLE HAVING Z-SHAPED PARALLEL PLATFORMS

Ernestine Harris, 5640 Golf Pointe Dr., #104, Sarasota, Fla. 34243

Filed Oct. 2, 1995, Ser. No. 538,003
Int. Cl.^{6} A47K *1/09*
U.S. Cl. 248—311.2 **7 Claims**



1. A food and beverage container holder for mounting on a game table leg assembly comprising:

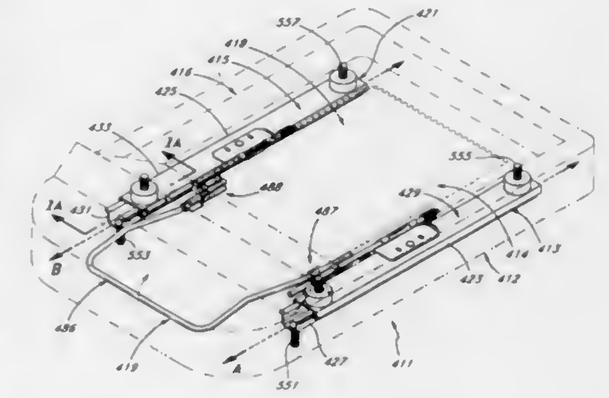
a plurality of vertically adjacent platforms, each having a planar surface and at least one of the adjacent platforms having a hole adapted to receive the beverage container, the adjacent platforms integrally connected at a fixed reverse angle therebetween, the reverse angle configured such that one of the plurality of platforms is an upper platform forming an acute angle with an angled spacer and another of said plurality of platforms is a lower adjacent platform that also forms an acute angle with the spacer to thereby substantially form a Z-shape and such that a portion of the planar surface of the adjacent lower platform is positioned underneath the upper platform, and the reverse angle and all but the upper most platform of the plurality of adjacent platforms being otherwise free of other support structure for displacing the food and beverage container holder from the table leg; and

clamping means for pliably clamping and receiving the game table leg, said clamping means affixed to the upper most platform of the plurality of the vertically adjacent platforms.

5,785,291
SEAT SUPPORT AND SLIDE MECHANISM

Chung L. Chang, 22834 Lazy Trail Rd., Diamond Bar, Calif. 91765

Filed Aug. 29, 1996, Ser. No. 705,384
Int. Cl.^{6} F16M *13/00*
U.S. Cl. 248—429 **20 Claims**



1. A support assembly for a seat, comprising:

a first slide mechanism adapted to be mounted under one side of a seat, said first mechanism having a first end and a second end and comprising:
  an elongate first support defining a first track;
  a first seat bracket slidable along said first track in a direction of relative motion;

a second slide mechanism adapted to be mounted under a seat opposite said first slide mechanism, said second mechanism having a first end and a second end and comprising:
  an elongate second support defining a second track;
  a second seat bracket slidable along said second track in said direction of relative motion;

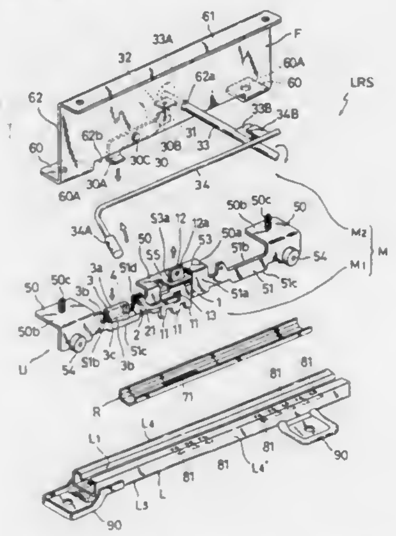
a lock comprising a first interlocking member and a second interlocking member, said first interlocking member and said second interlocking member mechanically co-acting to prevent movement of at least one of said first mechanism and said second mechanism in said direction of relative motion when said lock is in a first position and said first interlocking member and said second interlocking member permitting movement of at least one of said first mechanism and said second mechanism in said direction of relative motion when said lock is in a second position, said first interlocking member being rotatable about a first generally horizontal axis said first generally horizontal axis being unlimited and continuously external said first slide mechanism and said second slide mechanism; and

a handle connected to said lock rotatable about a second generally horizontal axis transverse to said first axis, movement of said handle about said second axis moving said lock between said first position and said second position.

5,785,292
LONG SLIDE RAIL FOR VEHICLE SEAT

Shozo Muraishi, and Tamotsu Shirai, both of Akishima, Japan, assignors to Tachi-s Co., Ltd., Tokyo, Japan

Filed Sep. 6, 1996, Ser. No. 711,294
Int. Cl.^{6} A62B *35/00*
U.S. Cl. 248—429 **12 Claims**



1. A long slide rail for use in a vehicle seat, comprising:

an elongated lower rail means to be fixed on a floor of a vehicle;

an upper rail means to be fixed to the vehicle seat, said upper rail means including a vertical portion slidably fitted in said elongated lower means, said vertical portion having an upper edge;

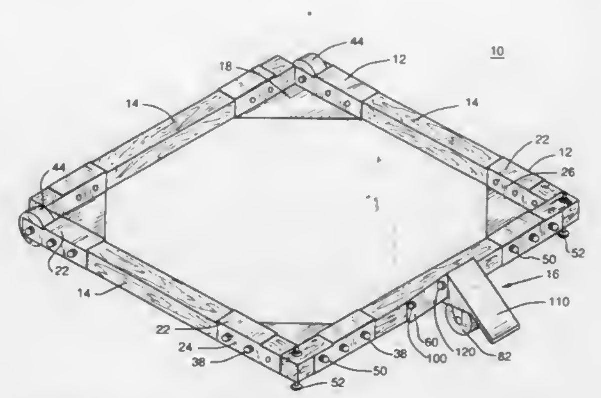
a locking means for locking and unlocking said upper rail means relative to said elongated lower rail means, said locking means including:
  a lock plate means movable vertically in said vertical portion of said upper rail means so as to lockingly engage and disengage from said elongated lower rail means;
  a swing linkage means provided along a longitudinal direction of said upper rail means and alongside of said vertical portion of the same upper rail means;
  said swing linkage means having:
    a center of rotation pivoted to said vertical portion;
    a first end portion engaged to said lock plate means; and
    a second end portion provided with a guide means slidably attached over said vertical portion and upper edge associated with said upper rail means;
    wherein, rotating said second end portion causes said first end portion to swing vertically along a vertical direction of said upper rail means vertical portion, relative to said center of rotation, thereby bringing said lock plate means into and out of a locking engagement with said elongated lower rail means; and
    a lock control means for controlling and actuating said swing linkage means and lock plate means, said lock control means being operatively and releasably connected with said second end portion of said swing linkage means.

5,785,293
MACHINERY BASE

Jerry W. Ford, Plantersville; Delwyn N. Pounders, and Kim D. Stanford, both of Saltillo, all of Miss., assignors to Delta International Machinery Corp., Pittsburgh, Pa.

Filed Dec. 21, 1995, Ser. No. 576,595
Int. Cl.^{6} F16M *3/00*
U.S. Cl. 248—649 **9 Claims**

1. An object support for receiving an object, the object support comprising:



a plurality of oblong beam members;

a plurality of corner brackets, each said corner bracket comprising two beam receiving cavities, an end of a said beam member fixedly disposed within each said beam receiving cavity;

at least one rotatable wheel member connected to a said corner bracket;

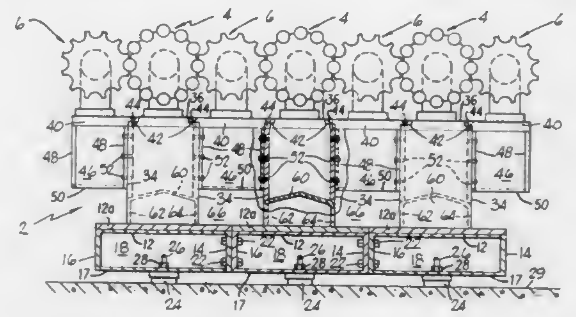
at least one foot member connected to one of a said beam member and a said corner bracket, said foot member for partially supporting the object support; and

a caster assembly disposed on one said beam member intermediate two said corner brackets, the caster assembly comprising:
  a wheel pivot support bracket comprising a first region and a second region, said second region for connecting said wheel pivot support bracket to one said beam member;
  a caster wheel plate having a caster wheel rotatably attached thereto, said caster wheel plate pivotally attached to said first region of said wheel pivot support bracket; and
  a pedal comprising a rounded surface, said pedal being rotatable attached to said first region of said wheel pivot support bracket, said rounded surface contacting said caster wheel plate to selectively position said caster assembly between an engaged configuration, wherein said caster wheel is biased into contact with a floor surface to raise the object support off of said at least one foot member, and a disengaged configuration, wherein the position of said caster wheel allows said at least one foot member to contact the floor surface to thereby inhibit movement of the object support.

5,785,294
NECKING APPARATUS SUPPORT

Robert H. Schultz, Golden, Colo., assignor to Coors Brewing Company, Golden, Colo.

Continuation of Ser. No. 438,894, May 10, 1995, Pat. No. 5,553,826. This application Jul. 23, 1996. Ser. No. 686,209
Int. Cl.^{6} F16M *1/00*
U.S. Cl. 248—678 **31 Claims**



1. A method of supporting at least one necking-in station and at least one transfer station on a modular support, comprising the steps of:

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providing a hollow elongated longitudinally extending base having at least a top wall, opposite sidewalls and opposite end walls;
securing at least two spaced apart support columns to said top wall;
supporting a first elongated longitudinally extending support plate having a longitudinal extent on said at least two spaced apart support columns;
supporting at least one necking-in station on said first elongated longitudinally extending support plate;
providing a second elongated longitudinally extending support plate having a longitudinal extent substantially less than the longitudinal extent of said first elongated longitudinally extending support plate;
supporting said second elongated longitudinally extending support plate on at least a portion of said first elongated longitudinally extending support plate;
supporting at least one transfer station on said second elongated longitudinally extending support plate;
providing support means comprising at least two opposite sidewalls, two opposite end walls and a bottom wall;
securing said support means to said second elongated longitudinally extending support plate such that said support means projects in a direction toward said hollow elongated longitudinally extending base; and
securing at least one of said opposite sidewalls of said support means to at least one of said at least two spaced apart support columns.

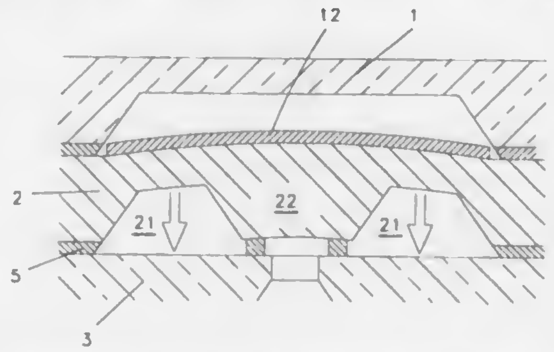
5,785,295
THERMALLY BUCKLING CONTROL MICROVALVE

Ming-Jye Tsai, Chang Hua, Taiwan, assignor to Industrial Technology Research Institute, Hsinchu, Taiwan

Filed Aug. 27, 1996, Ser. No. 703,490

Int. Cl.^{6} F16K *31/00*

U.S. Cl. 251—11 **12 Claims**



1. A thermally buckling control microvalve, comprising:
an upper layer having an inlet for entrance of a fluid;
an electrically conductive intermediate layer lying against a lower rim of said upper layer, a lower rim of one end of said intermediate layer having a pressure distribution chamber;
a lower layer lying against a lower rim of said intermediate layer and having a fluid outlet at one end, said outlet communicating with said pressure distribution chamber via a valve nozzle; and
a pressure chamber disposed between said upper layer and said intermediate layer and having one side communicating with said pressure distribution chamber of said intermediate layer, said pressure chamber communicating with said inlet of said upper layer via a microflow channel and said pressure chamber having a bottom wall region with a part thereof forming a suspension which is located at a region above said valve nozzle, said suspension having at least two sides each being provided with a thin bridge structure, an upper side of said suspension being provided with an electrical thermal membrane which may deflect as a result of thermal buckling when said intermediate layer is supplied with electric currents;
said valve nozzle having a raised continuous valve seat sealing tightly with the bottom rim of said suspension, causing said suspension to always be maintained in an upwardly facing and slightly curved state along its length.

5,785,296
ELECTROMECHANICAL ACTUATOR FOR CONTROLLING A FLOW MODULATOR OF THE VANE TYPE PIVOTING INSIDE PIPE

Jean-Laurent Peube, Naintre, and Jean-Claude Trigeassou, Mignaloux-Beauvoir, both of France, assignors to Centre National de la Recherche Scientifique (CNRS), Paris, France

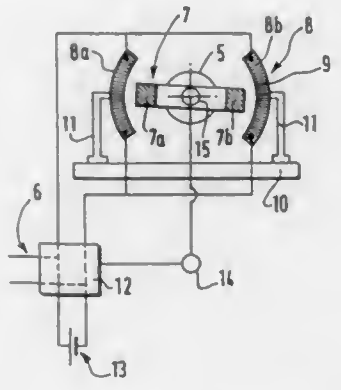
PCT No. PCT/FR93/00643, § 371 Date Jan. 27, 1995, § 102(e) Date Jan. 27, 1995, PCT Pub. No. WO94/00858, PCT Pub. Date Jan. 6, 1994

PCT Filed Jun. 25, 1993, Ser. No. 356,266

Claims priority, application France, Jun. 26, 1992, 92 07899

Int. Cl.^{6} F16K *31/02*

U.S. Cl. 251—129.11 **11 Claims**



1. Electromagnetic actuator for controlling a flow regulator of the vane type which is pivotally mounted inside a pipe and which is designed to create a very rapidly variable head loss in a fluid flowing inside the pipe, the actuator comprising a stator, and a rotor, rotationally secured to a flow regulator, the stator and the rotor being equipped with electromagnetic elements which, when a current passes through them, are in a situation of electromagnetic interaction which generates angular displacements of the rotor solely within a predetermined angular sector, the actuator further comprising a return device which, during oscillations of the rotor about an angular reference position, stores up kinetic energy of the rotor and of the flow regulator during angular decelerations of the rotor and restores at least a part of said kinetic energy to the actuator during angular accelerations of the rotor.

5,785,297
VALVE MECHANISM

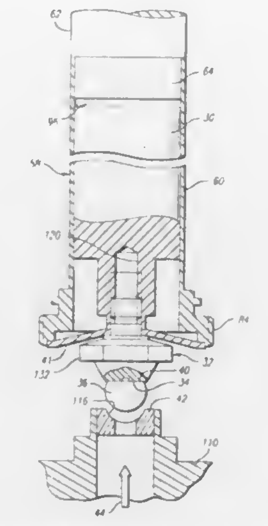
Don Dongcho Ha, Long Beach, Calif., assignor to Millipore Corporation, Bedford, Mass.

Filed Jul. 16, 1996, Ser. No. 682,170

Int. Cl.^{6} F16K *31/02*

U.S. Cl. 251—129.14 **16 Claims**

1. A valve mechanism to control the flow of a fluid, comprising:
pipe structure for carrying the fluid;
a valve seat mounted in said pipe structure;
a movable valve controller;
a valve gate structure having a curved surface facing said valve seat and a substantially flat surface; and
a gate structure mount movable with said controller having a substantially flat mounting surface facing said substantially flat gate structure surface , said substantially flat gate structure surface held abutting said substantially flat mounting surface substantially solely through non-structural force while said valve gate structure is separated from said valve seat during operation.



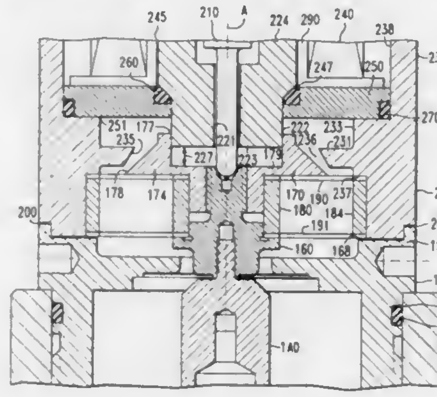
5,785,298
PROPORTIONAL SOLENOID-CONTROLLED FLUID VALVE ASSEMBLY

Viraraghavan S. Kumar, Palm Bay, Fla., assignor to Teknocraft, Inc., West Melbourne, Fla.

Filed Apr. 15, 1996, Ser. No. 632,137

Int. Cl.^{6} F16K *31/02*

U.S. Cl. 251—129.16 **33 Claims**



1. A solenoid-controlled valve assembly comprising:
a proportional solenoid controller including a housing containing a solenoid coil having a longitudinal axis and a bore coaxial therewith, for producing a magnetic field, said housing containing magnetic material for providing a flux path for said magnetic field, and including a projection portion which projects toward an interior portion of said housing, a magnetic pole piece disposed within and protruding from the bore of said solenoid coil, and a movable armature of magnetic material, supported for translation relative to said magnetic pole piece and having a body portion configured to be translatable relative to and be magnetically coupled with said magnetic pole piece, with a low magnetic reluctance radial gap provided between said movable armature and said magnetic pole piece, said movable armature including a rim portion which projects from said body portion toward and is magnetically coupled with said projection portion of said housing, said rim portion of said movable armature and said projection portion of said housing being configured, such that relative axial translation between said movable armature and said magnetic pole piece causes a variation in the geometry of a gap between said rim portion of said movable armature and said projection portion of said housing; and wherein
said body portion of said movable armature is spaced apart from an end portion of said magnetic pole piece by an axial gap that is sufficiently large as to minimize an axial magnetic flux path between said movable armature and said magnetic pole piece and to effectively confine magnetic flux between said movable armature and said magnetic pole piece in said radial magnetic flux shunt path and in said variable geometry gap between said rim portion of said movable armature and said projection portion of said housing; and
a valve unit, mechanically coupled with the movable armature of said proportional solenoid controller and being operative to regulate fluid flow between a fluid input port and a fluid exit port.

5,785,299
DIRECT-COUPLED SOLENOID VALVES

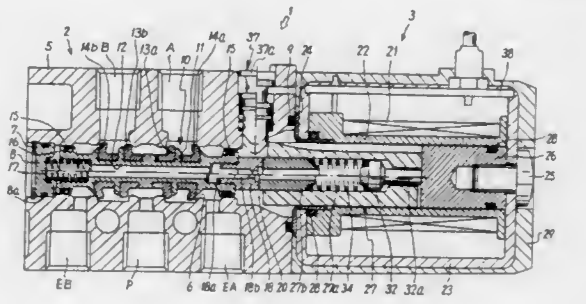
Hiroyuki Katsuta; Takashi Akimoto, and Masamichi Tajima, all of Yawara-mura, Japan, assignors to SMC Corporation, Tokyo, Japan

Filed Sep. 20, 1996, Ser. No. 717,192

Claims priority, application Japan, Sep. 27, 1995, 7-273578

Int. Cl.^{6} F16K *31/12*

U.S. Cl. 251—129.18 **2 Claims**



1. A direct-coupled solenoid valve comprising:
a main valve segment having multiple ports to pass a hydraulic fluid, a valve duct into which the ports open in an axial sequence, and a valve member movably fitted in the valve duct and opening and closing the passages between said ports;
a solenoid control segment having an armature operated by the on-off action of an exciting coil and directly opening and closing the valve member;
an armature in the solenoid control segment, said armature having an iron core having a center hole,
a length setting member fittable in the center hold such that said armature and said length setting member jointly determine the length of the iron core, wherein a tip of said length setting member protrudes from said center hold and comes into contact with one end of the valve member,
a pressing member whose end comes into contact with the stator, movably accommodated in the center hole in the iron core; and
a return spring compressed between the pressing member and the length setting member.

5,785,300
DEVICE FOR PROVIDING A UNIFORMLY-VARIABLE ANNULAR ORIFICE

Hans G. Toews, East Aurora, and James F. van Oss, Buffalo, both of N.Y., assignors to Moog Inc., East Aurora, N.Y.

Filed Mar. 4, 1996, Ser. No. 610,214

Int. Cl.^{6} F16K *31/00*

U.S. Cl. 251—342 **9 Claims**

1. A device for providing a variable orifice, comprising:

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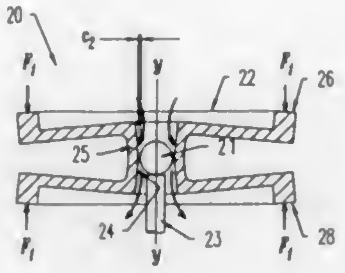
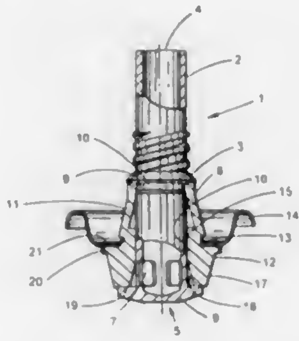


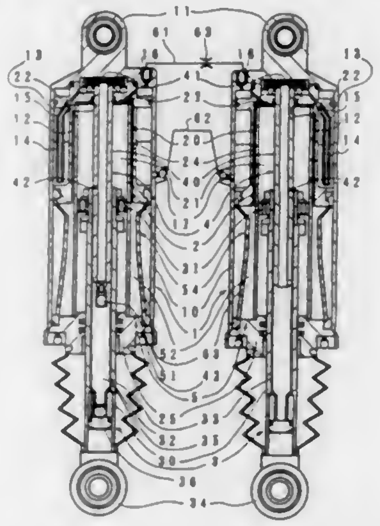
an object having an outer surface symmetrical about an axis, a circular line on said surface being perpendicular to said axis;
a member having a tubular portion generated about said axis and arranged in closely-spaced facing relation to said line to define an annular orifice therebetween, and having at least one flange portion extending away from a marginal end portion of said tubular portion;
means for applying a force to said flange portion at a location spaced radially outwardly from said tubular portion to develop at least one of (a) a circumferential moment tending to roll the marginal end portion of said tubular portion inwardly or outwardly, and (b) a radial force tending to compress or expand the marginal end portion of said tubular portion inwardly or outwardly, so as to selectively vary the radial size of said orifice;
whereby the radial size of said orifice may be varied as a function of said force.

5,785,301
TILT OPENING VALVE ASSEMBLY
Christian T. Scheindel, HCR 67 Box 45, Randolph Center, Vt. 05061
Filed Apr. 23, 1996, Ser. No. 637,940
Int. Cl.^{6} B65D *83/14*
U.S. Cl. 251—354 4 Claims



1. A tilt action valve assembly for a pressurized container comprising a tubular valve assembly, a resilient grommet surrounding a portion of the valve stem and having a lower seal portion in contact with a seat of the stem for sealing engagement therewith, the grommet having a cup seal surface, a cup surrounding the grommet for mounting the assembly in the container, an upper resilient portion of the grommet seal above the cup seal surface having a relatively thin wall thickness to provide a weakened area for collapse in a bow-like fashion when subject to compression an upper inwardly projecting circumferential lip disposed above the upper resilient portion engaged in a corresponding groove in the valve stem for co-movement therewith, the upper portion having a larger diameter than the lip and being resilient to bow in compression and expand in tension to limit displacement of the lower seal portion during movement of the valve stem.

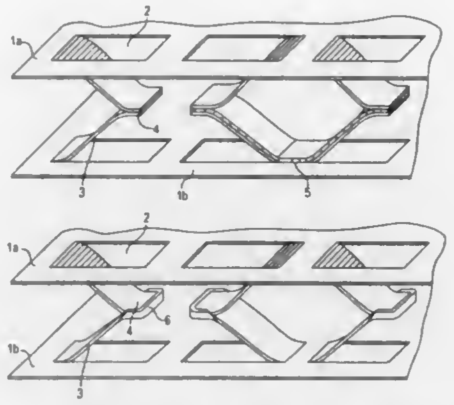
5,785,302
HYDRO-PNEUMATIC SUSPENSION
Katsuyuki Sano, Toyota; Yukihide Kimura, Susono; Kimitoshi Kato, Kariya, and Hiroyuki Terada, Aichi-ken, all of Japan, assignors to Toyota Jidosha Kabushiki Kaisha, Toyota, Japan
Continuation of Ser. No. 340,883, Nov. 15, 1994, abandoned. This application Dec. 6, 1996, Ser. No. 761,559
Claims priority, application Japan, Nov. 19, 1993, 5-314079
Int. Cl.^{6} B60G *5/12*
U.S. Cl. 267—64.17 14 Claims



1. A hydro-pneumatic suspension system adapted to be connected to first and second sides of a vehicle having an axle for leveling the vehicle in a side-to-side direction, the system comprising:
first and second absorbers adapted to be connected between the respective first and second sides of the vehicle and respective first and second axle portions, each of the first and second absorbers including a piston rod provided with a piston for slidingly engaging a cylinder and an actuating chamber containing an actuating liquid formed between the cylinder and the piston;
pump means including a pump positioned between the first and second absorbers and adapted to be connected to the vehicle and the axle of the vehicle with the pump comprising a piston with a piston face slidingly engaged within an internal cylinder having a side wall and an end wall that together with the piston face define a pumping chamber;
reservoir means, the reservoir means and the pump means connected by respective first and second lines to the actuating chamber of each of the first and second absorbers for controlling the flow of the actuating liquid between the first and second absorbers to uniformly control leveling of the vehicle in the side-to-side direction and;
gas spring means comprising a liquid chamber defined between the internal cylinder and an external cylinder surrounding the internal cylinder and a diaphragm for separating a gas under pressure from the actuating liquid within said liquid chamber, wherein the pump means and gas spring means are distant and spaced apart from the first and second absorbers, and the first and second lines do not communicate with each other.

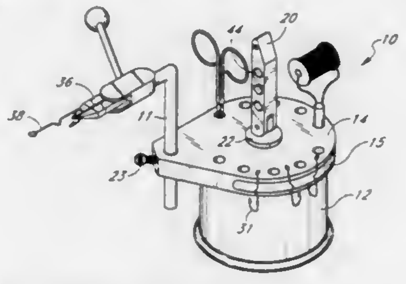
5,785,303
SPRING CORE FOR MATTRESS OR SEAT CUSHION
Franz Kutschi, Sportplatzstrasse 16., D-8580 Koeflach, Austria
Continuation of Ser. No. 398,313, Mar. 3, 1995, abandoned. This application Aug. 9, 1996, Ser. No. 694,751
Int. Cl.^{6} F16F *3/00*; A47C *23/02;7/02*
U.S. Cl. 267—103 22 Claims

1. A spring core for a mattress or seat-cushion consisting of:



two plates, each of said plates having spring elements bent out of a multiplicity of openings, wherein the spring elements of one plate oppose spring elements of an opposite plate.

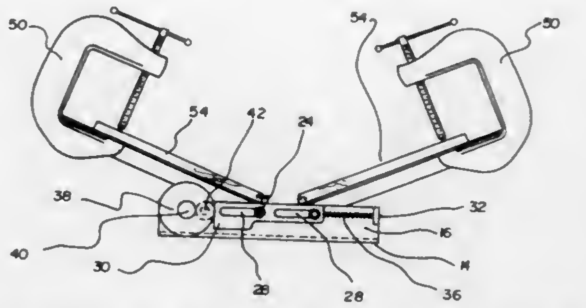
5,785,304
FLY VISE BASE ASSEMBLY
Frank Little, 405 Redstone, Las Vegas, Nev. 89128
Filed Dec. 26, 1995, Ser. No. 578,834
Int. Cl.^{6} B25B *5/16*
U.S. Cl. 269—16 14 Claims



1. A fly vise assembly comprising:
a base member comprising a top and side wall defining an interior cavity, said side wall having a substantially planar bottom edge defining an enlarged opening to said interior cavity, and a fly vise secured thereto;
a resilient elastomeric gas impermeable suction pad and pull means secured thereto for drawing said suction pad from a first, unstressed shape to a second extended shape, said pad having an enlarged bead forming an annular lip extending around the perimeter thereof for forming a releasable suction seal with a gas impermeable surface when said suction pad is drawn to said second extended shape;
an elongated movable lever arm positioned on top of said top wall having a hinge pin adjacent to one end of said arm and offset relative to said one end along the length of said arm, said hinge pin secured to said pull means and whereby said one end of said lever arm cooperates with said top wall for changing the distance between said hinge pin and said top wall when said lever arm is moved, whereby said lever is movable from a first position to a second position for drawing said suction paid to said second extended shape and creating said suction seal.

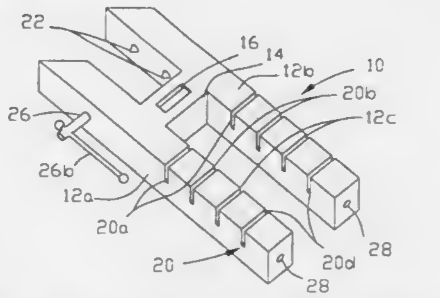
5,785,305
ADJUSTABLE WOODWORKING CLAMP
Kirk T. Stalker, 561 Antigua Crescent, Oshawa, Ontario, Canada, L1J 6B5
Filed Aug. 14, 1997, Ser. No. 911,547
Int. Cl.^{6} B25B *1/20*
U.S. Cl. 269—37 6 Claims

1. An adjustable woodworking clamp comprising:



an elongated base plate having an L-shaped cross-section, the base plate having a lower horizontal segment and an upper vertical segment;
a fixed arm having an L-shaped cross-section, the fixed arm having a lower vertical segment and an upper horizontal segment, the lower vertical segment fixedly secured to the upper vertical segment of the base plate, the fixed arm extending angularly upwardly from the base plate at an angle of 22½ degrees;
a pair of shoulder bolts extending through the upper vertical segment of the elongated base plate;
a sliding plate having a pair of slots therethrough for coupling with the pair of shoulder bolts, the sliding plate having an interior flared end, an outer end of the sliding plate having a rod extending linearly therefrom, the rod extending through a brace plate secured to an end of the upper vertical segment of the base plate, the rod having a compression spring disposed thereon between the outer end of the sliding plate and the brace plate;
an actuator wheel eccentrically coupled with the upper vertical segment of the base plate in an abutting relationship with the interior flared end of the sliding plate, the actuator wheel having a handle extending outwardly therefrom;
a sliding arm having an L-shaped cross-section, the sliding arm having a lower vertical segment and an upper horizontal segment, a lower end of the lower vertical segment secured to the sliding plate, the sliding arm extending angularly upwardly with respect to the base plate at an angle of 22½ degrees; and
a pair of C-clamps coupled with respect to upper ends of the fixed arm and the sliding arm.

5,785,306
APPARATUS FOR USE IN INSTALLING SUSPENDED CEILINGS
Earnest L. Wilson, 5275 Greentree Rd., Lebanon, Ohio 45036, and Robert A. Bailey, 6690 Hans Brinker Dr., Middletown, Ohio 45044
Filed Sep. 27, 1996, Ser. No. 722,535
Int. Cl.^{6} B23P *19/00*
U.S. Cl. 269—41 5 Claims



1. A device to assist in installing sections of gridwork used to support a suspended ceiling from ceiling joists, said device comprising:
a first vertically extending member having a plurality of parallel grooves for holding a section of gridwork;

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a second vertically extending member having a plurality of parallel grooves for holding a section of gridwork;
a third member rigidly affixed between said first member and said second member to secure said first and second members in an essentially parallel relationship with the parallel grooves of said first and second members in alignment, and at a fixed distance between said first and second members to form a channel for receiving a ceiling joist;
and means, adjustably fixed to said first and second members, to secure a ceiling joist within said channel;
whereby said device can be removably affixed to a ceiling joist and a section of gridwork inserted into aligned grooves within said first and second members such that gridwork can be positioned to support a suspended ceiling.

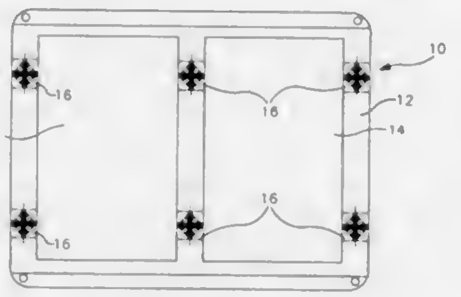
5,785,307
PRINTED CIRCUIT BOARD FIXTURE

Henry Chung, 3478 Del Norte Dr., San Jose, Calif. 95132

Filed Dec. 14, 1995, Ser. No. 572,537

Int. Cl.^{6} B25B *1/00*

U.S. Cl. 269—254 CS **2 Claims**



1. A fixture for supporting a printed circuit board during manufacturing operations which comprises:
a frame having at least one open area and a plurality of frame holes arranged around an edge of said at least one open area;
a plurality of flat fingers, one finger for each one of said frame holes, each finger having a mounting hole located intermediate ends of said each finger;
a plurality of stools, each stool having a stem and a cap on one end of said stem;
one stool for each one of said fingers;
said stem passing through said mounting hole of said each one of said fingers respectively and passing through one of said frame holes;
each stem having a retaining means on an end of said stool distal from said cap for retaining each said stool in said respective frame hole by said cap against said finger on one side of said finger and said frame and by said retaining means against said frame on another side of said finger and said frame whereby each said finger is rotatably mounted on a first surface of said frame;
a helical spring on said stool in said respective frame hole of said finger biasing said finger towards said frame whereby, when said finger is oriented in a first direction with a long dimension of said finger substantially perpendicular to an edge of said open area of said frame, a printed circuit board is enabled to be secured against said first surface of said frame by each one of said plurality of fingers pressing said printed circuit board against said first surface of said frame with an area of said printed circuit board exposable to a burst of heated gas and whereby said printed circuit board is released from said frame when said plurality of figers are rotated about said respective stem to a second orientation perpendicular to said first orientation.

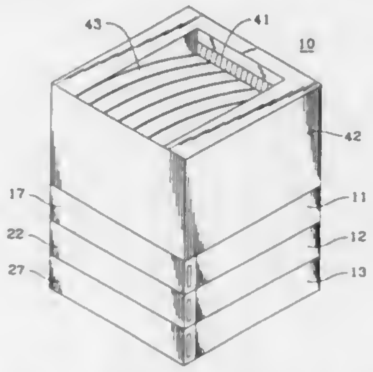
5,785,308
MEDIA PASS THROUGH CONFIGURATION FOR PRINTERS

Armando Villarreal Flores, and Michael Earl Kennedy, both of Lexington, Ky., assignors to Lemark International, Inc., Lexington, Ky.

Filed Nov. 28, 1995, Ser. No. 563,695

Int. Cl.^{6} B65H *3/44*

U.S. Cl. 271—9.11 **12 Claims**



1. A media pass through configuration for printers in which media is fed from removable media tray, through media path to print engine, said configuration comprising:
at least one media carrying, removable tray configured for placement beneath said print engine,
a rack forming part of a frame and dimensioned for receiving said tray,
a door, hinge and latch combination, said hinge connected intermediate said door and frame so that said door opens in a plane substantially that of the plane occupied by said tray beneath said print engine, and outwardly and away from the front of said tray, said latch being positioned remotely from said hinge for movably attaching said door to said printer in position confronting said tray, when said door is in closed or first position, and open for facilitating tray removal when said door is in an open or second position;
and media guide means on the interior of said door for guiding different media in front of said tray, into said media guide path and to said print engine, said media guide means comprising a chute having spaced guide surfaces for guiding said media in the absence of said tray.

5,785,309
AUTOMATIC PLATE FEEDING SYSTEM AND METHOD

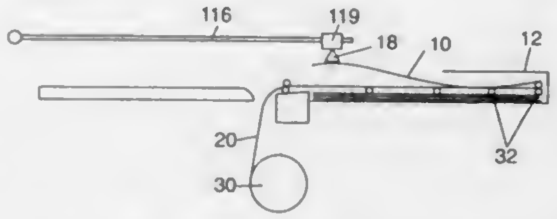
Nir Halup, Tzoran, and Eliyahu Vronsky, Ramat Hasharon, both of Israel, assignors to Scitex Corporation Ltd., Herzlia, Israel

Filed Jul. 13, 1995, Ser. No. 501,839

Claims priority, application Israel, Jul. 26, 1994, 110467

Int. Cl.^{6} B65H *5/08*

U.S. Cl. 271—11 **8 Claims**



1. A plate feeding system for grasping and moving a plate from a stack of plates, comprising:
(a) an arm mechanism, said arm mechanism including a plate grasping member for grasping the plate;
(b) a flexible plate interposing member for interposing between the plate and an adjacent plate; and

(c) a mechanism for rolling and unrolling said plate interposing member, said plate interposing member being unrolled when said plate interposing member is interposed between the plate and said adjacent plate.

5,785,310
DEVICE FOR DECOLLATING STACKS OF FLAT OBJECTS

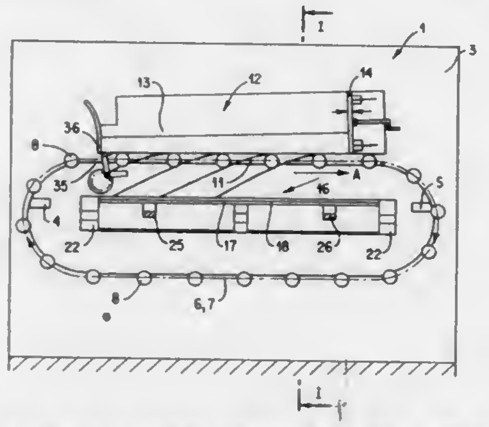
Uwe Köhn, Osnabrück, Germany, assignor to Windmöller & Hölscher, Lengerich/Westf., Germany

Filed Jun. 28, 1996, Ser. No. 671,762

Claims priority, application Germany, Jul. 7, 1995, 195 24 878.3; Oct. 26, 1995, 195 39 935.8

Int. Cl.^{6} B65H *5/08*

U.S. Cl. 271—13 **9 Claims**



1. A device for decollating stacks of flat objects that are processed into bags comprising:
a stack magazine having a base which supports a stack,
revolving rollers that form a continuously moving series of rollers, pass underneath the stack magazine and roll along a lowermost object in the stack,
a conveyor system that is arranged underneath an upper run of the series of rollers and extends at an angle to the series of rollers, the lowermost object being removed from the stack by one passing roller and deposited on said conveyor system, the conveyor system comprising conveyor elements that move in parallel and are driven at different speeds, and
at least one suction device that moves between the rollers in a cycle in which the rollers pass underneath the magazine, said at least one suction device pulling down one lateral edge of the lowermost object between two rollers in such a manner that a leading roller still supports the stack via the lowermost object and a trailing roller passes between the lowermost object and an object situated above the lowermost object so as to cause a secure separation of the lowermost object from the stack,
characterized by the fact that the conveyor system includes a first conveyor belt comprising two suction belt conveyors, one of said suction belt conveyors on which the lateral edge of the object is deposited being driven at a lower speed than the other suction belt conveyor on which a part of the object that is ultimately removed from the stack is deposited.

5,785,311
SHEET SEPARATING AND FEEDING DEVICE

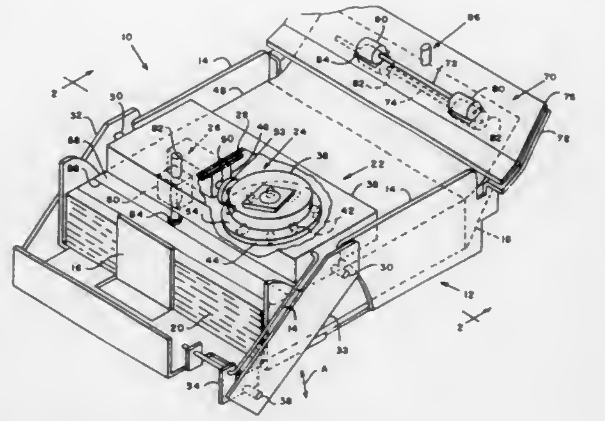
Michael S. Doery, Monroe, Conn., assignor to Pitney Bowes Inc., Stamford, Conn.

Filed Aug. 22, 1996, Ser. No. 703,922

Int. Cl.^{6} B65H *7/08*

U.S. Cl. 271—110 **6 Claims**

1. A sheet separating and feeding device for separating the top sheet from a stack of sheets and feeding it in a desired direction, said device comprising:



A. means for supporting a stack of sheets;
B. first feeding means for feeding said top sheet from said stack to an advanced position in which a trailing edge portion of the next to top sheet is exposed beyond the trailing edge of said top sheet;
C. means mounting said first feeding means in overlying relationship with said stack of sheets so that said first feeding means normally contacts the top sheet;
D. second feeding means disposed adjacent said supporting means for grasping the leading edge of said top sheet and for withdrawing said top sheet from said stack;
E. retaining means for engaging said exposed trailing edge portion of said next to top sheet for imposing a retaining force on said next to top sheet and additional sheets thereunder in said stack and simultaneously for disengaging said first feeding means from said top sheet while said second feeding means withdraws said top sheet from said stack; and
F. control means for controlling the operation of said first and second feeding means and said retaining means such that said first feeding means is operative to feed said top sheet when said retaining means is inoperative, and said first feeding means is inoperative and said retaining means is operative when said top sheet is grasped by said second feeding means for removal from said stack;
whereby said retaining means prevents said second feeding means from withdrawing more than one sheet at a time from said stack; and wherein said control means further comprises:
(i) means for activating said first feeding means upon demand to feed said top sheet toward said second feeding means;
(ii) sensing means for sensing when the leading edge of said top sheet reaches a predetermined position; and
(iii) means responsive to operation of said sensing means for activating said retaining means to move said contact member from said inoperative position to said operative position thereby raising said support means to deactivate said first feeding means.

5,785,312
DUAL MEDIA BUFFER WITH OVER-RUNNING CLUTCH SYSTEM

Libor Krupica, Methuen; Peter Austin, Wilmington, and Edward L. Kelley, Tewksbury, all of Mass., assignors to Bayer-AGFA, Wilmington, Mass.

Continuation of Ser. No. 180,411, Jan. 12, 1994, abandoned.

This application Dec. 8, 1995, Ser. No. 569,378

Int. Cl.^{6} B65H *5/00*

U.S. Cl. 271—264 **20 Claims**

1. A buffer for transporting sheets of media from a first station to a second station, comprising:
a media path leading from the first station to the second station;
transport means for transporting the sheets along said media path comprising input drive means for driving the sheets along said media path from the first end of the buffer to a middle portion of the buffer and output drive means for

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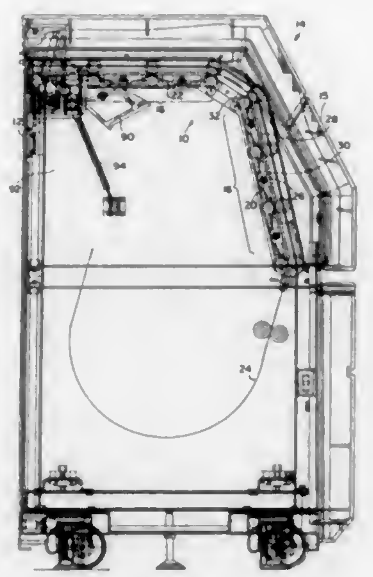


driving the sheets along the media path from the middle portion of the buffer to the second end of the buffer, wherein said input drive means and said output drive means operate independently from one another; and

over-running clutch means integral with said transport means for allowing the sheets to be fed into said media path at a first end of the buffer from the first station at a speed faster than the sheets are transported by said transport means, and for allowing the sheets to be pulled out of said media path at a second end of the buffer by the second station at a speed faster than the sheets are transported by said transport means.

5,785,313

BOWLING GAME BOARD

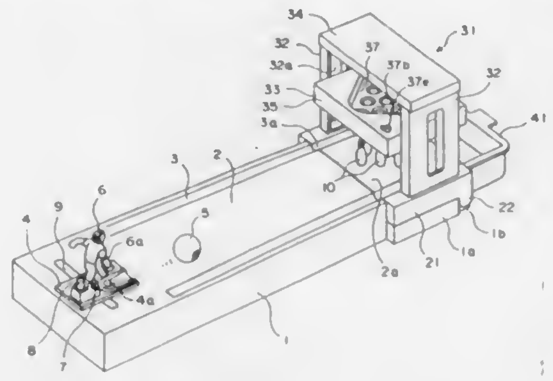
Masami Shiraishi, Chiba, Japan, assignor to Staff Co., Ltd., Tokyo-To, Japan

Filed Apr. 25, 1997, Ser. No. 847,488

Claims priority, application Japan, Sep. 9, 1996, 8-010414

Int. Cl.^{6} A63D ***3/00***

U.S. Cl. 273—108.1 **8 Claims**



1. A bowling game comprising:
a base board on the top surface of which a lane is formed for rolling a ball;
a ball delivery device provided on one end of said base board; and
a pin controller opposite to said ball delivery device and pivotally connected to said base board, said pin controller comprising a pin stand area supporting an at least one guide member and a pin arranging device supported by said at least one guide member and movable relative to said guide member.

5,785,314

MEDAL GAME MACHINE

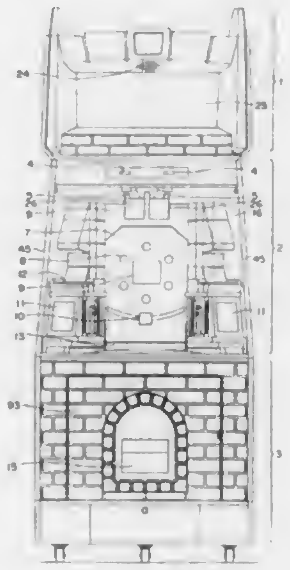
Takashi Hamano, Kawasaki, Japan, assignor to Konami Co., Ltd., Kobe, Japan

Filed Aug. 9, 1996, Ser. No. 693,636

Claims priority, application Japan, Aug. 11, 1995, 7-205746

Int. Cl.^{6} A63F ***7/02***

U.S. Cl. 273—138.3 **16 Claims**



1. A medal game machine, comprising:
a table having an upper surface on which medals are located;
a medal pushing member that relatively slidably moves along the upper surface of said table for pushing the medals located on the upper surface of said table toward an edge of the upper surface of the table;
a guide for guiding medals to the upper surface of said table according to operation by a player;
a vessel accommodating medals;
a first supply mechanism for supplying the medals accommodated in said vessel to the upper surface of said table when a first condition is satisfied; and
a medal increasing mechanism for increasing the number of medals accommodated in said vessel according to a second condition.

5,785,315

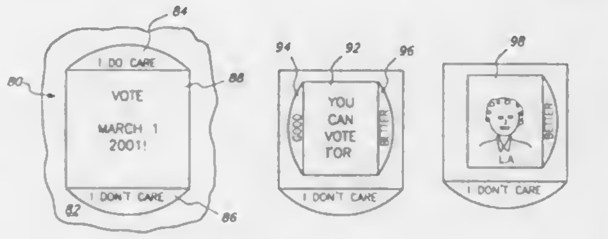
MULTI-LAYERED GAMING DEVICE

Nikolai N. Eiteneer, Novokosinskaya Street 21, Apt. #164, Moscow, Russian Federation, 111672, and Boris N. Eiteneer, 845 Riley Dr., Albany, Calif. 94706

Filed Apr. 22, 1997, Ser. No. 837,839

Int. Cl.^{6} A63F ***3/06***

U.S. Cl. 273—139 **9 Claims**



1. A multi-layered gaming device comprising:
a) a base having a top side;
b) an intermediate planar layer having a top and a bottom side and a first tab secured to the intermediate layer; and

c) at least one top planar layer having a top side and a bottom side and a second tab secured to the top planar layer,
wherein the bottom side of the intermediate layer is removably coupled to the top side of the base and the bottom side of the top planar layer is removably coupled to the top side of the intermediate layer, said first tab and said second tab are simultaneously exposed, wherein a user can selectively pull either the first tab or the second tab, such that when a user pulls the second tab, the top planar layer is removed from the intermediate layer, thereby exposing the top side of the underlying intermediate layer or alternatively, when the user pulls the first tab, the adjoining layer is removed, thereby exposing the underlying base.

5,785,316

MONEY-OPERATED SLOT MACHINE

Ullrich Schulze, Wiesbaden, Germany, assignor to NSM Aktiengesellschaft, Bingen, Germany

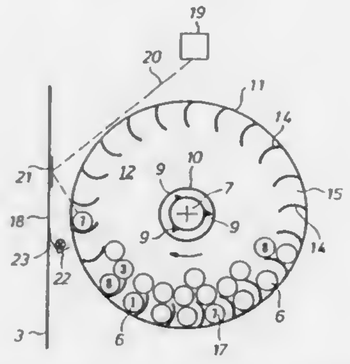
PCT No. PCT/DE94/01457, § 371 Date Jun. 18, 1996, § 102(e) Date Jun. 18, 1996, PCT Pub. No. WO95/16979, PCT Pub. Date Jun. 22, 1995

PCT Filed Dec. 7, 1994, Ser. No. 663,139

Claims priority, application Germany, Dec. 18, 1993, 43 43 347.2

Int. Cl.^{6} A63F ***5/02***

U.S. Cl. 273—142 H **25 Claims**



1. In a money operated slot machine adapted to indicate a score by displaying one of symbols and symbol combinations, the slot machine comprising:
a housing;
a plurality of rotatable drums disposed in the housing and including respective drum casings, each drum casing defining compartments on an inside region thereof;
a plurality of playing bodies disposed in the drum casings and being freely movable therein, the playing bodies having visible symbol identifications thereon and further being adapted to be received in respective compartments of the drum casings;
a viewing plate secured to the housing and including at least one display window disposed such that a playing body in a corresponding drum is visible therethrough;
a plurality of playing body sensors disposed adjacent respective ones of the drums for sensing a value of each playing body visible through the display window;
a computer controlled control unit coupled to the sensors for evaluating symbol identifications sensed by the sensors throughout a game being played on the slot machine;
the improvement wherein:
the drums are disposed adjacent one another such that, at any given time, a portion of their circumferences is disposed behind and faces the viewing plate;
only the casing of each drum comprises, at least in part, a completely transparent material; and
each drum further includes a frame made of one of metal and a material producing a metallic effect, the frame of each drum comprising a vacuum metallized plastic frame.

5,785,317

OPERATION APPARATUS FOR A GAME MACHINE

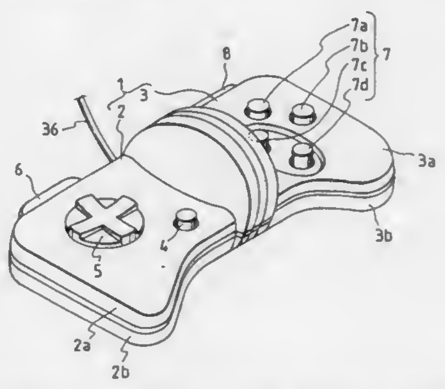
Shinkichi Sasaki, Fukushima-ken, Japan, assignor to Alps Electric Co., Ltd., Tokyo, Japan

Filed Dec. 15, 1995, Ser. No. 572,774

Claims priority, application Japan, Dec. 22, 1994, 6-320578

Int. Cl.^{6} A63F ***9/22***

U.S. Cl. 273—148 B **7 Claims**



1. An operation apparatus for a game machine, comprising:
a housing including a pair of leftwardly and rightwardly separate portions of a left casing and a right casing connected for relative rotation to each other;
first manually operable means including a manually operable key disposed on a face of said left casing and manually operable by an operator of said operation apparatus to provide a first instruction;
second manually operable means including a manually operable key disposed on a face of a said right casing and manually operable by the operator to provide a second instruction; and
third manually operable means including a rotatable electric part accommodated in said housing and manually operable by the operator to provide a third instruction;
said rotatable electric part generating an electric signal when said left casing and said right casing are manually rotated relative to each other,
wherein at least one of said first manually operable means and said second manually operable means includes a rotatable electric part which generates an electric signal when a corresponding one of the manually operable keys is manually depressed, and power of the manually operable key is transmitted to said rotatable electric part by way of a gear mechanism.

5,785,318

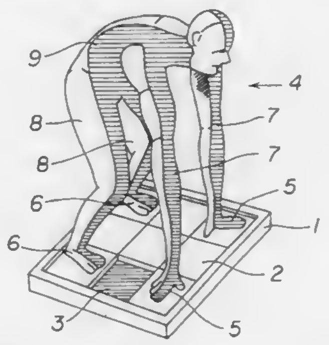
AMUSEMENT DEVICE OF SHIFTING BLOCK TYPE

Dov Nesis, 4 Efter Street, Apt 12, Tel-Aviv 69362, Israel

Filed Jun. 18, 1997, Ser. No. 877,664

Int. Cl.^{6} A63F ***9/08***

U.S. Cl. 273—153 S **12 Claims**



1. An amusement device of a shifting block type comprising a base in which a series of blocks are confined in a two dimensional

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array for sequential movement of selected individual blocks to different stable positions to change the array, the improvement comprising a body including flexible appendages having respective free ends anchored to predetermined respective blocks thereby supporting the body upstanding from the blocks for movement therewith reversibly to one of alter positions of, twist and intertwine appendages.

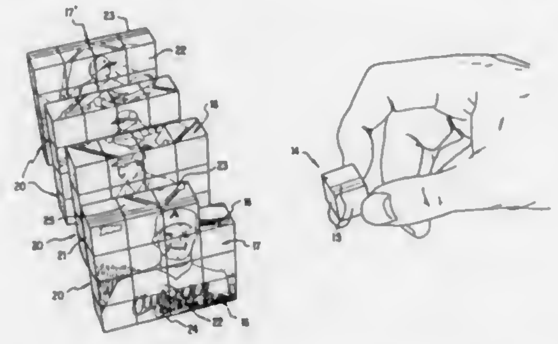
5,785,319
RE-ARRANGABLE THREE-DIMENSIONAL PICTURE DISPLAY INCORPORATING A PICTURE PUZZLE

Robert Frauhiger, 12 Continental Club, Hilton Head Island, S.C. 29928

Filed Mar. 26, 1997, Ser. No. 824,326

Int. Cl.^{6} A63F *9/08*

U.S. Cl. 273—157 R **9 Claims**



1. A three-dimensional displaying device comprising a three-dimensional structure having three pairs of mutually perpendicular external flats and exposing a first predetermined number of respective meaningful and independent pictures thereon,

wherein said three-dimensional structure further has a second predetermined number of internal surfaces thereof each extending substantially in parallel to a respective one of said pairs of external flats, and

wherein said three-dimensional structure is rearrangeable to uncover a desired one of said internal surfaces thereof, each exposing respectively a meaningful and independent picture thereon, and wherein a predetermined arrangement of said structure defines a total number of said meaningful and independent pictures on said external flats and said internal surfaces, said total number corresponding to the sum of said first and second predetermined numbers of said external flats and internal surfaces, respectively.

5,785,320
CUBIC ALIGNMENT GAME

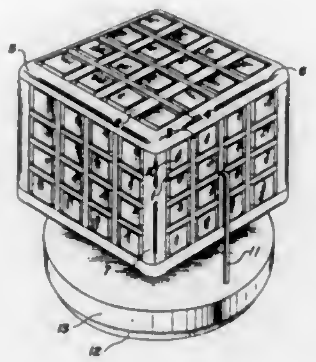
Christopher Borg, 720 14th, Huntington Beach, Calif. 92648

Filed May 2, 1997, Ser. No. 850,342

Int. Cl.^{6} A63F *3/00*

U.S. Cl. 273—241 **6 Claims**

1. A 3-dimensional, token alignment game, playable by 2 or 3 people, comprising: 96 small, individually rotatable, cube shaped game pieces which have 4 different colored sides, that are inset in and attached to the 6 sides of a single large cube which has a rotatable base which is also detachable.



5,785,321
ROULETTE REGISTRATION SYSTEM

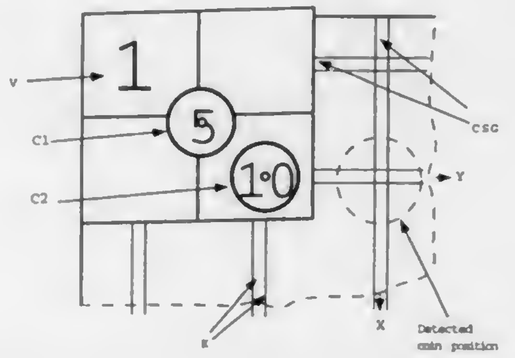
Mauritius Hendrikus Paulus Maria Van Putten, Terrace Apartments #2C-3. 402 E. Buffalo St., Ithaca, N.Y. 14850, and Pascal Ferdinand Antonius Maria Van Putten, Acquariuslaan 62, 5632BD Eindhoven, Netherlands

Filed Jun. 17, 1996, Ser. No. 665,239

Claims priority, application Netherlands, Sep. 25, 1995, 1001280

Int. Cl.^{6} A63F *9/24*

U.S. Cl. 273—309 **12 Claims**



1. A Roulette Registration System (RRS) in which the collective bet in roulette is identified in terms of stacks, said stacks producing their composition (SC) in terms of type and their multiplicity, where said type discriminates coins at least by their monetary value, said stacks transmitting their SC to a central registration and processing system (RPS), said transmission being localized with respect to the table, said localization providing the location (L) of the SC for a complete stack composition and location (SCL).

5,785,322
GASKET FOR FLANGE CONNECTIONS

Steven M. Suggs, and Reid M. Meyer, both of Atlanta, Ga., assignors to Acadia Elastomers, Nacogoloches, Tex.

Continuation of Ser. No. 409,309, Mar. 23, 1995, abandoned, which is a continuation-in-part of Ser. No. 387,369, Feb. 13, 1995, abandoned, which is a division of Ser. No. 85,549, Jun. 30, 1993, abandoned. This application Nov. 15, 1996, Ser. No. 746,744

Int. Cl.^{6} F16J *9/00*

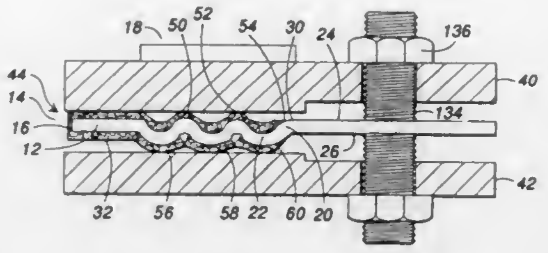
U.S. Cl. 277—207 A **18 Claims**

1. A gasket for sealing a flange joint having two substantially parallel surfaces for connecting two pipes together, comprising:

a plate formed with an annular opening;

an annular corrugated region between the opening and a peripheral edge of the plate defined by a plurality of concentric deformable ridges that each define a peak and opposite facing grooves that each define a valley, on respective opposing sides of the plate;

a plurality of intercalated graphite vermiform compressed around the annular region to form an integrally molded seamless jacket having uniform stability in all directions overlying at least the annular region, the density of the blanket increasingly changing from a first density in the valleys of the grooves to a second density at the peaks of the ridges, said second density greater than said first density, and the thickness of the blanket decreasingly changing from a first thickness in the valleys of the grooves to second thickness at the peaks of the ridges, said second thickness being thinner than said first thickness.



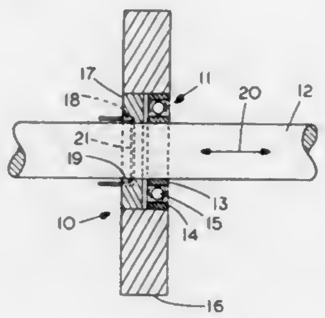
5,785,323
SEAL WITH ELECTRICAL CONDUCTOR WEAR INDICATOR

Ralph Heinzen, Box 728, Garrison, N. Dak. 58540

Continuation-in-part of Ser. No. 114,507, Nov. 2, 1993, Pat. No. 5,540,448, which is a continuation-in-part of Ser. No. 841,388, Feb. 25, 1992, Pat. No. 5,246,235. This application Jul. 25, 1996, Ser. No. 686,315

Int. Cl.^{6} F16J *15/16*

U.S. Cl. 277—582 **8 Claims**



1. A seal for preventing leakage of fluid from between a first member and a second member, the second member moving in a reciprocal direction with respect to the first member, said seal comprising:

sealing means for engaged contact with the first member and the second member so as to prevent leakage of fluid between the first member and the sealing means and between the second member and the sealing means, said sealing means being softer than the second member such that friction between the sealing means and the second member wears the sealing means faster than the second member, said sealing means being adapted to retain a tight seal against the second member as long as said sealing means has not worn beyond a specified depth; and

a conductor for placement about the second member, said conductor being attached to the sealing means at said specified depth so as to contact the second member when the sealing means has worn to said specified depth, such that the existence of electrical continuity between the conductor and the second member indicates that the seal requires replacement;

wherein the conductor is positionally associated to the sealing means such that wear of the sealing means corresponds with movement of the conductor toward the second member; and

wherein electrical continuity indicates whether the seal requires replacement.

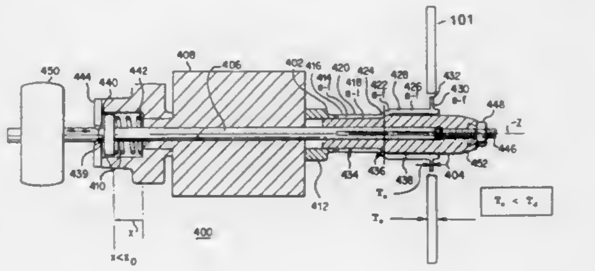
5,785,324
FULL SURFACE TEXTURE COLLET SYSTEM

Roger O. Williams, Fremont; Jon A. Hoshizaki, Cupertino, and Kevin C. Hursh, San Jose, all of Calif., assignors to Exclusive Design Company, Fremont, Calif.

Continuation-in-part of Ser. No. 300,277, Sep. 2, 1994, Pat. No. 5,560,624. This application Aug. 12, 1996, Ser. No. 694,438

Int. Cl.^{6} B23B *31/40*

U.S. Cl. 279—2.03 **16 Claims**



1. A disk clamping collet system for mounting, holding, and rotating a disk, the disk having a first thickness, said collet system comprising:

an expanding collet, including a base portion and a plurality of fingers extending a predetermined length from the base portion arranged for unrestrained cantilevered expansion, said fingers having a disk contact ring opposite the base portion for radially contacting an inner surface of the disk, said disk contact ring having a second thickness; and

an expander disposed within said collet and acting on the fingers at a radial expansion contact locus to forcibly urge said fingers to radially expand such that said disk contact ring expands to radially contact the inner surface of the disk and exert an outward force thereon;

wherein the predetermined length of the fingers is sufficient to offset said disk contact ring from the radial expansion contact locus by an offset distance sufficient to ensure substantially uniform and repeatable outward forces around said disk contact portion regardless of minor surface variations along said radial expansion contact locus, and wherein the second thickness of said disk contact ring is less than the first thickness of the disk to allow for full surface texturization of the disk when mounted.

5,785,325
SHAFT BEARING ON A MACHINE TOOL

Max Daetwyler, Bleienbach, Switzerland, assignor to MDC Max Datwyler Bleienbach AG, Bleienbach, Switzerland

Filed Apr. 25, 1996, Ser. No. 638,891

Claims priority, application Switzerland, Apr. 25, 1995, 01 180/95

Int. Cl.^{6} B23B *31/171;31/30;33/00*

U.S. Cl. 279—33 **14 Claims**

1. A shaft bearing on a machine tool for mounting a shaft end of a rotating workpiece to be machined, said shaft bearing comprising a rotatably mounted clamping chuck for clamping the shaft end

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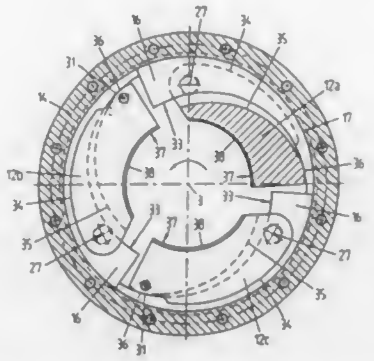


and having a plurality of gripping parts which are mounted in a hollow clamping head so as to be radially adjustable relative to a longitudinal axis of the machine tool, wherein each of said plurality of gripping parts is mounted rotatably about a pivot axis extending parallel to a longitudinal axis of the clamping head and is guided, in a region distant from the pivot axis, along a guide track formed on a guide element and is movable relative to the associated guide track for clamping said shaft end of said workpiece, wherein the guide tracks are arcuately curved and extend about the longitudinal axis of the clamping head at a decreasing distance from the longitudinal axis of the clamping head, and wherein each gripping part is guided by a pin which engages a guide groove extending laterally relative to the gripping parts and approximately parallel to the guide track and which is arranged parallel to the pivot axis of the gripping part.

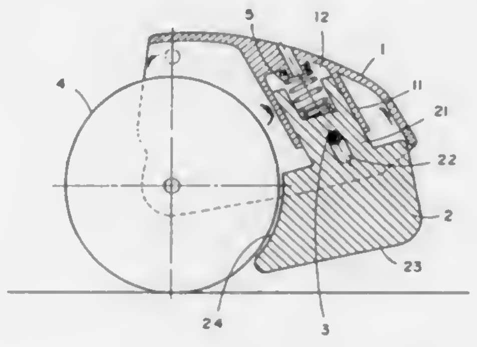
5,785,326
STRUCTURE FOR BRAKE ON ROLLER SKATES

Sheng-Tai Chang, No.510, Sec.5, Chung-shin Road, San-chung, Taipei, Taiwan

Filed May 1, 1996, Ser. No. 639,522

Int. Cl.^{6} A63C *17/14*

U.S. Cl. 280—11.2 **2 Claims**



1. A brake for a roller skate having at least one roller configured to roll upon a support surface, the brake comprising:
- a braking set seat connecting at a front end with a roller of said roller skate, the braking set seat having a guide member with a receiving space extending downwardly therefrom toward the support surface, the receiving space having a longitudinal axis extending at an oblique angle relative to the support surface;
- a braking pad having a block extending upwardly therefrom and slidably received in said receiving space, the braking pad having a bottom surface and a concavely arcuate contacting surface facing the at least one roller of the roller skate;
- a positioning slot formed in the braking pad; and
- a positioning rod engaging the positioning slot whereby the braking pad is translationally movable relative to the braking set seat along a linear path, such that movement of the braking set seat towards the support surface brings the bottom surface of the braking pad into contact with the support surface to provide a first braking effect and further movement of the braking set seat causes translational movement of the braking pad along the oblique axis of the receiving space whereby the braking pad moves toward the at least one roller until the arcuate contacting surface contacts the at least one roller to provide a second braking effect.

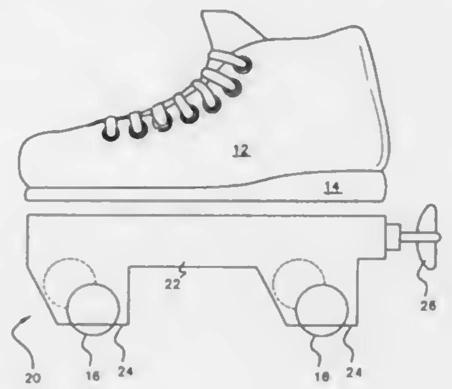
5,785,327
SKATES HAVING RETRACTABLE ROLLERS

Raymond J. Gallant, 443 Kawaihae St., Honolulu, Hi. 96825

Filed Jun. 20, 1997, Ser. No. 878,674

Int. Cl.^{6} A63C *17/00*

U.S. Cl. 280—11.27 **9 Claims**



1. A skate comprising:
- a shoe having a sole;
- a plurality of retractable wheels retractably mounted to said shoe;
- a retraction mechanism mounted to said shoe having a housing for supporting said retractable wheels where said housing has a bottom surface, and where said retraction mechanism includes a linkage member operably connected to all of said retractable wheels and where retraction mechanism comprises a ramp fixed in relation to said shoe and disposed to guide said retractable wheels along an inclined path having a vertical component and a horizontal component of travel; whereby

said retractable wheels are simultaneously moved by said linkage member into a deployed position extending below said bottom surface of said housing and, when desired, said linkage member moves said retractable wheels simultaneously into a stowed position above said bottom surface of said housing.

5,785,328
STACKABLE CART ASSEMBLY

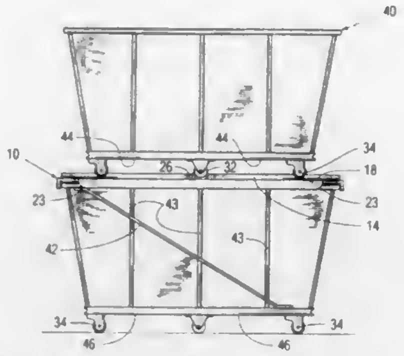
Donald Eckloff, Cranford, N.J., assignor to Star Metal Products, Inc., Linden, N.J.

Filed May 3, 1996, Ser. No. 643,166

Int. Cl.^{6} B65D *21/036*

U.S. Cl. 280—33.998 **20 Claims**

1. An assembly in combination comprising:
- a supporting wheeled cart having a generally rectangular upper frame with two upper frame sides and two upper frame ends,
- a stacked wheeled cart having a generally rectangular bottom frame having two bottom sides and two bottom frame ends, swivel corner caster wheels mounted at the corners of said bottom frame, and two fixed axis caster wheels mounted to the mid-length of said bottom frame sides, and
- a unitary stacking member releasably supported by said upper frame for releasably supporting said two fixed axis caster wheels and at least two of said swivel caster wheels and for gripping said two fixed axis caster wheels to prevent longitudinal and lateral movement of said stacked cart during transport and storage of the combination.



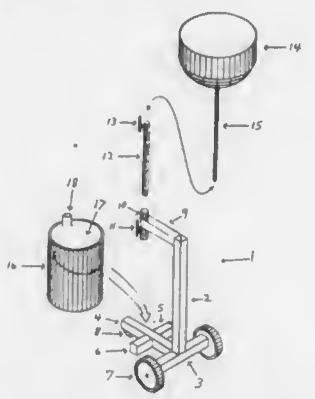
5,785,329
CART FOR DRAINING OIL AND OTHER LIQUIDS FROM A VEHICLE

Douglas G. Stanley, 507 Timberline Rd., Bulland, Tex. 75757

Filed Jul. 28, 1997, Ser. No. 901,159

Int. Cl.^{6} B62B *3/02*

U.S. Cl. 280—79.5 **9 Claims**



1. An apparatus for draining liquids from a vehicle comprising a receiver means for receiving liquid from the vehicle, a tube attached to said receiver means, a hollow shaft surrounding said tube, said tube being slidable within said shaft and a means on said shaft for holding said tube in a fixed position, a hollow conduit surrounding said shaft, said shaft being slidable in said conduit, means on said conduit for holding said shaft in a fixed position in relation to said conduit, said conduit being attached to a movable cart means; whereby said receiver may be raised to fit close to said vehicle and said shaft may be lowered into a closed container.

5,785,330
TRAILER SUPPORT WHEEL ASSEMBLY

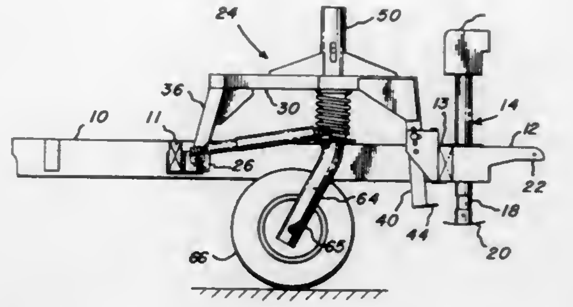
William A. Shoquist, 14815 Oakland Beach Ave., Prior Lake, Minn. 55372

Filed Oct. 29, 1996, Ser. No. 741,188

Int. Cl.^{6} B62D *13/00*

U.S. Cl. 280—81.6 **19 Claims**

1. A trailer support wheel assembly for attachment to cross frame struts of a trailer comprising:
- a) a wishbone-shaped frame having two rearward frame sections pivotally connectable to a first cross frame strut, and having a single forward frame section with a plurality of mounting points;
- b) a forward mounting bracket connectable to a second cross frame strut at a position which permits engagement of said forward mounting bracket with said plurality of mounting points;



- c) means for connecting said forward mounting bracket to said forward frame section at any of said plurality of mounting points;
- d) a spindle rotatably connected to said wishbone-shaped frame about a proximate vertical axis, and at least one wheel rotatably connected to said spindle;
- e) at least one steering dampener connected between said spindle and one of said cross frame struts; and
- f) a resilient suspension mounted between said wishbone-shaped frame and said spindle.

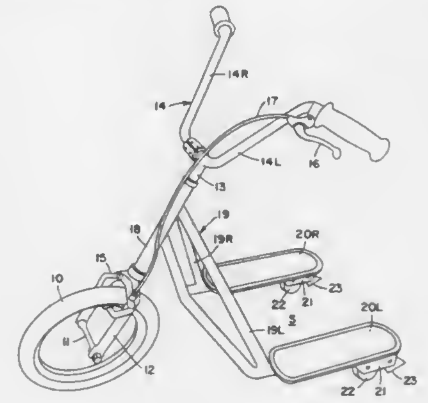
5,785,331
DUAL-FOOTBOARD SCOOTER

Mark Rappaport, 2244 Carmel Valley Rd., Del Mar, Calif. 92014

Filed Jan. 29, 1996, Ser. No. 593,437

Int. Cl.^{6} B62M *1/00*

U.S. Cl. 280—87.041 **8 Claims**



8. A foot propelled scooter comprising:
- A. a rigid frame extending rearwardly from a steering column through which passes a steering post operatively coupled to a front wheel; said frame being bifurcated to define separate branches having a free space therebetween; a pair of parallel footboards attached to said branches and extending rearwardly therefrom, said footboards having a free space therebetween which merges with the free space between the branches to create an extended space whereby regardless of where the rider stands with one foot on either footboard, he is provided with an extended free space between the footboards in which to swing his other foot to propel the scooter; and
- B. a rear end wheel mounted on each footboard whereby the scooter normally runs on three wheels.

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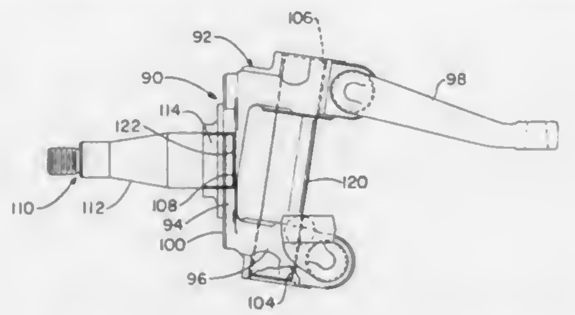
5,785,332
MOTOR VEHICLE STEERING KNUCKLE ASSEMBLY

Paul R. Pollock; Dennis Timothy Mahoney, and Richard Ryan, all of Fort Wayne, Ind., assignors to Dana Corporation, Toledo, Ohio

Filed Aug. 1, 1996, Ser. No. 695,186
Int. Cl.^{6} B60G *3/00*
U.S. Cl. 280—96.1 **30 Claims**



1. An integrally joined two-piece motor vehicle steering knuckle assembly, comprising:

a first component including a flanged body portion having a first surface and a second surface, said first component also including a brake spider and a tie rod arm extending outwardly from said first surface of said flanged body portion;

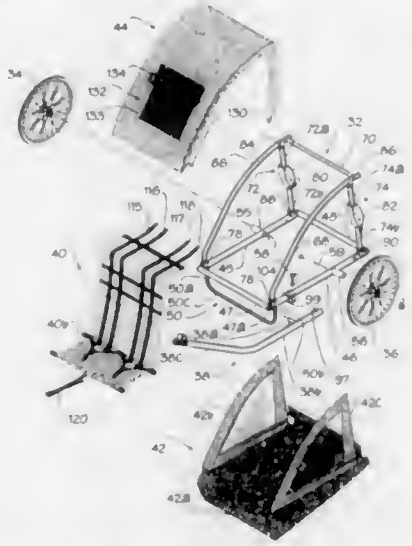
a second component having a first surface and a second surface, said second component including a wheel spindle extending outwardly from said first surface of said second component; and

said second surface of said flanged body portion of said first component and said second surface of said second component are integrally joined together by an interference fit.

5,785,333
COLLAPSIBLE BICYCLE TRAILER FOR A TODDLER

Paul Hinkston, 6 Flintlock La., Bell Canyon, Calif. 91307, and Richard C. Everett, 225 Sunshine La., West Linn, Oreg. 97068

Filed Jan. 27, 1995, Ser. No. 380,004
Int. Cl.^{6} B62B *3/02*
U.S. Cl. 280—204 **10 Claims**



1. A trailer for towing behind a bicycle with a toddler therein, said trailer comprising:

a pair of demountable wheels;

a collapsible frame assembly, including;

a) a structural frame assembly formed of a pair of generally parallel side rails, a front rail and a rear rail;

b) first and second stub members secured to the outside of said side rails in generally aligned relation for supporting said demountable wheels with the axles thereof canted so that the wheels are downwardly divergent relative to a supporting surface;

c) a generally U-shaped support having a pair of generally parallel arms and an interconnecting bight portion, said support having the distal ends of said arms thereof hingedly coupled to said frame assembly in proximate relation to said front rail;

d) a pair of articulated tube assemblies, each having first ends thereof hingedly connected to opposite sides of said bight portion and second ends connected in proximate relation to the rear of said side rails for enabling retention of said support in a first position contiguous to said structural frame assembly and a second position with said bight portion spaced from said structural frame assembly, each of said articulated tube assemblies including a pair of tubes and an interconnector which is elongate and saddle shaped for fixedly interconnecting said tubes within said saddle shaped interconnector with said assembly in said second position, said interconnector having one of the tubes fixedly coupled within the saddle thereof, with the other of the tubes being pivotally coupled to the interconnector adjacent an end within the saddle;

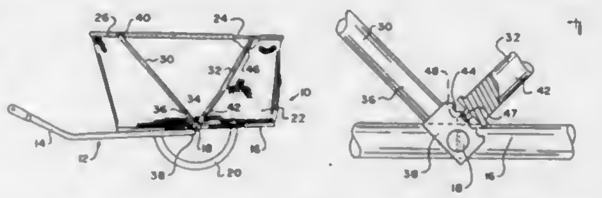
a tow arm;

means on said tow arm and on said frame assembly for releasable attachment of said tow arm to said frame assembly.

5,785,334
BICYCLE TOWABLE COLLAPSIBLE CART

Russell S. Robinson, 3330 Webster Pl., Tucson, Ariz. 85715

Filed Nov. 22, 1995, Ser. No. 562,201
Int. Cl.^{6} B62K *27/00*
U.S. Cl. 280—204 **3 Claims**



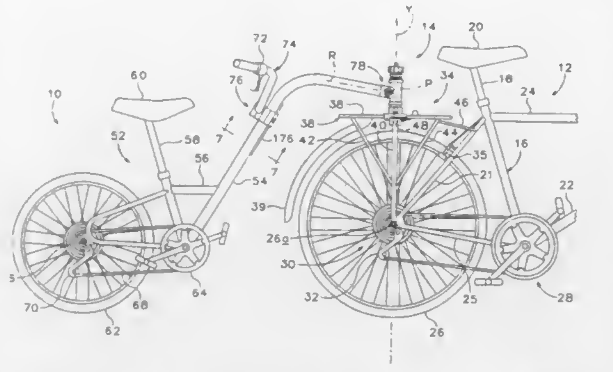
1. A bike towable collapsible cart comprising a wheeled framework which is engageable to a rear wheel hub of a bike, said framework supporting a fabric basket which is upwardly extendable from the framework to form a transportable container; said framework further engaging an axle extending side to side across said framework, said axle having opposite ends and wherein a wheel is removably engaged to each end of said axle; said fabric basket including an open top and wherein a top edge of the basket forms a sleeve within which a rim forming member is engaged; a pair of struts comprising a first strut and a second strut and being engaged between said framework and said rim member to elevate the top edge of the basket a predetermined distance above the framework; a first end of each of said struts being pivotably engaged to said rim forming member and a second end of said first strut being engaged about the axle and including a stepped connector thereon.

5,785,335
TRAILER CYCLE

Donald A. George, Eugene, Oreg., assignor to Burley Design Cooperative, Eugene, Oreg.

Continuation of Ser. No. 525,366, Sep. 7, 1995, abandoned. This application Sep. 10, 1996, Ser. No. 710,083
Int. Cl.^{6} B62K *27/00*
U.S. Cl. 280—204 **19 Claims**

1. In a human powered vehicle, the combination comprising:



a lead cycle (**12**), having a front wheel, a rear wheel (**26**) and a frame (**16**);

a trailer cycle (**10**) including a frame (**52**) having a main tube (**54**) extending towards said lead cycle (**12**); and

a hitch mechanism (**14**) including:

a lead-cycle hitch portion (**34**) joined to said lead cycle (**12**) including a crossbar (**48**, **220**) extending parallel to and located substantially vertically above the rear axle (**26***a*) of the lead cycle (**12**); and

a flexible hitch portion (**82**, **160**, **184**) interposed said trailer cycle frame (**52**) and said lead cycle (**12**), including:

an orthogonal member (**84**, **186**) having a vertical pivot mechanism (**86**) and a yaw pivot mechanism (**88**, **188**) located therein, which orthogonal member (**84**, **186**) is constructed and arranged to prevent roll motion of the trailer cycle (**10**) relative to the lead cycle (**12**),

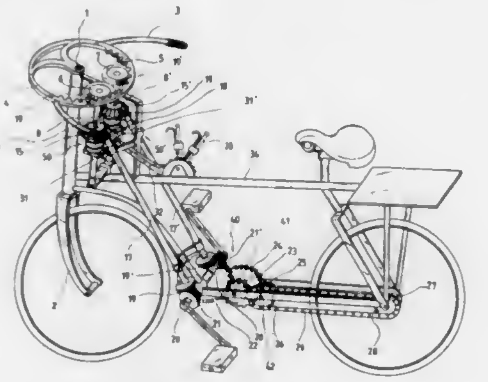
wherein said yaw pivot mechanism (**88**, **188**) includes a lead-cycle-hitch-engaging member (**126**, **206**) located thereon for selectably engaging and releasing said lead-cycle hitch portion (**34**), wherein said lead-cycle-hitch-engaging member (**126**) includes a bayonet portion (**128**) having a vertically disposed, cylindrical shaft with opposed, horizontally disposed over-center cutouts (**132**, **134**) which are conformal with said crossbar (**48**) and which is constructed and arranged to releasably engage said crossbar (**48**); and

a trailer-cycle hitch portion (**78**) fixed on said main tube (**54**) and connected to said vertical pivot mechanism (**86**).

5,785,336
BICYCLE WITH ARM POWERED AND SPEED ENHANCING APPARATUS

Ik-Byong Jang, Sangshin Apt. 10-101 #1000-2, Sadang 4-dong, Dongjak-Gu, Seoul, Rep. of Korea

Filed Jan. 7, 1997, Ser. No. 779,720
Claims priority, application Rep. of Korea, May 17, 1996, 96-16597
Int. Cl.^{6} B62H *1/00*
U.S. Cl. 280—234 **4 Claims**



1. An arm powered and speed enhancing assembly for a bicycle, comprising a bicycle frame rotatably supporting a front wheel and a rear wheel characterized in that said bicycle further includes:

a handle shaft (**1**) with an upper end and a bottom end secured to a fork (**2**) having a pair of prongs to rotatably support the front wheel;

a circular rim (**4**), secured to said upper end of said handle shaft (**1**) and including a pair of arms, defining a U-shaped handle (**3**), extending therefrom to enable steering of the bicycle by the cyclist, with said circular rim (**4**) further including a plurality of notches formed therein to define a rack (**5**);

a pair of vertical shafts (**8**,**8'**) operatively secured to said bicycle frame proximate said U-shaped handle (**3**);

a first pair of pinion gears (**6**,**7**) with each being secured to said vertical shaft (**8**,**8'**), respectively, and operatively positioned to mesh with said rack (**5**);

a rachet means (**30**,**30'**) provided for each of the said first pair of pinon gears (**6**,**7**) to enable each of the said first pair of pinion gears (**6**,**7**) to rotate said vertical shafts (**8**,**8'**), in only one direction, respectively;

a first pair of bevel gears (**15**,**15'**) secured to each said vertical shaft (**8**,**8'**) respectively, to enable simultaneous rotation therewith;

a second pair of bevel gears (**18**,**18'**) with each being secured to an upper end of an inclined shaft (**17**,**17'**), respectively, and in mechanical engagement with said bevel gears (**15**,**15'**), respectively;

a third pair of bevel gears (**19**,**19'**) with each being secured to a bottom end of said inclined shaft (**17**,**17'**), respectively;

a pair of inward bevel gears (**21**,**21'**) with each being secured to opposite ends of a pedal shaft (**20**), respectively, with said inward bevel gears (**21**,**21'**) in mechanical communication with said third pair of bevel gears (**19**,**19'**), respectively; such that in use upon pivoting said U-shaped handle (**3**) about said handle shaft (**1**) in a back-and-forth motion, said rack (**5**) of said circular rim (**4**) operatively rotates said first pinion gears (**6**,**7**), said vertical shafts (**8**,**8'**) , said first pair of bevel gears (**15**,**15'**), said second pair of bevel gears (**18**,**18'**), said inclined shafts (**17**,**17'**), said third pair of bevel gears (**19**,**19'**), and said inward bevel gears (**21**,**21'**), respectively, thereby mechanically transforming said back-and-forth motion of said U-shaped handle (**3**) into rotation of said pedal shaft (**20**);

a pedal gear (**22**) secured to said pedal shaft (**20**);

a second pinion gear (**23**) secured to a mid-shaft (**41**), with said second pinion gear (**23**) meshed with said pedal shaft gear (**22**);

a mid-shaft gear (**24**) secured to said mid-shaft (**41**);

a third pinion gear (**25**) secured to an end-shaft (**42**), with said third pinion gear (**25**) meshed with said mid-shaft gear (**24**);

a chain sprocket gear (**26**) secured to said end-shaft (**42**) to enable simultaneous rotation with said end shaft and said third pinion gear (**25**); and

a chain gear (**28**) having a rachet wheel (**43**) secured to a rear wheel shaft (**27**), with said chain sprocket gear (**26**) and said chain gear (**28**) being in mechanical communication.

5,785,337
PROPULSION SYSTEM FOR A BICYCLE

Kuan Shang Ming, Flat F, 19/F, Blk, 9 Hoi Kwun Mansion, Rivera Garden Tsuen Wan, N.T., Hong Kong

Filed Jul. 15, 1996, Ser. No. 679,855
Int. Cl.^{6} B62M *1/04*
U.S. Cl. 280—255 **12 Claims**

1. A bicycle having a frame, first and second axles mounted on said frame, front and rear wheels mounted on said first and second axles, and propulsion means for rotating said rear wheel, said propulsion means comprising:

a first lever extending along one side of said frame and having a first end, a second end, and a mid-portion;

a second lever extending along the other side of said frame and having a first end, a second end, and a mid-portion;

pivot means generally secured to the mid-portions of said first and second levers for pivotally mounting said first and second

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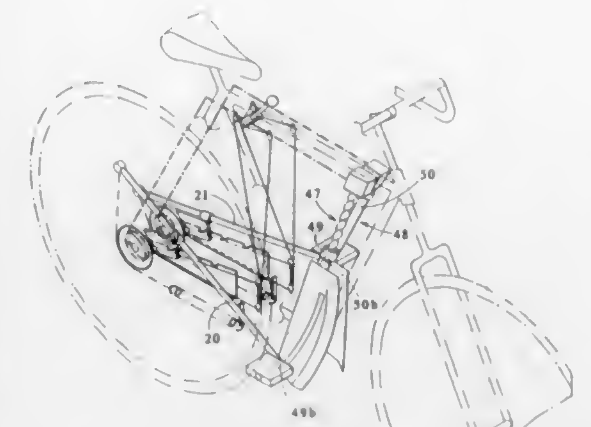
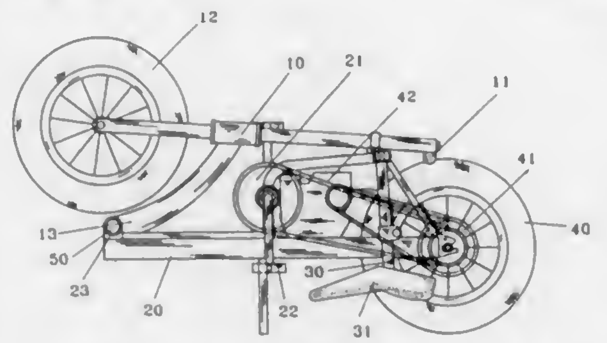


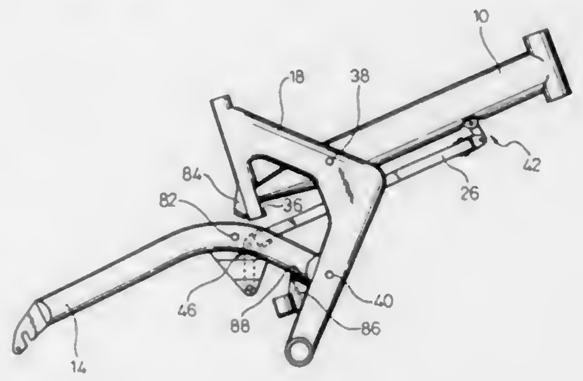
levers on said frame so that the first and second ends of said levers are moveable in vertical directions about said pivot means;
first and second pedals mounted on said first ends of said first and second levers, respectively;
translation means for translating vertical movement of said levers about said pivot means into rotational movement of said rear wheel, whereby when a cyclist pushes up and down on said first and second pedals, said rear wheel is rotated to drive the bicycle; and
adjustment means for moving the pivot means along the lengths of said first and second levers.

5,785,338
COLLAPSIBLE BICYCLE
Teng-Shou Chang, No. 122 Chang-Sheng Road, Wai-Pu Hsiang, Taichung Hsien, Taiwan
Filed Apr. 11, 1997, Ser. No. 833,998
Int. Cl.^{6} B62K *1/00*
U.S. Cl. 280—278 **5 Claims**



1. A collapsible bicycle frame including a main frame having a front frame having a rear end and a rear frame having a front end pivotally connected to the rear end of the front frame, the rear end of the front frame including a first engaging means while the front end of the rear frame including a second engaging means for securely engaging with the first engaging means when the front frame and the rear frame are in an extended status, and the first engaging means and the second engaging means disengages from each other when collapsing the bicycle,
the second engaging means including:
at least one guiding rod extending in a vertical direction,
a sliding block mounted around the guiding rod and slidable along a longitudinal direction of the main frame, the sliding block having an elongate hole through which the guiding rod extends, the sliding block having a first end for releasably engaging with the first engaging means and a second end,
a push rod attached to the second end of the sliding block at an end thereof,
a push seat mounted to the other end of the push rod such that longitudinal movement of the push seat causes longitudinal movements of the push rod and the sliding block, and
a foot peg means having a shaft pivotally connected to the rear frame, and the push seat being securely attached to the shaft to move therewith, the foot peg means including at least one foot extending from an end of the shaft,
whereby when the foot of the foot peg means extends in a horizontal position, the sliding block engages with the first engaging means such that the front frame and the rear frame are not pivotable, and
the foot provides a support for the bicycle when the foot is in a vertical position on the ground in which the sliding block disengages from the first engaging means and thus allows pivotal movement of the front frame relative to the rear frame to a collapsed status.

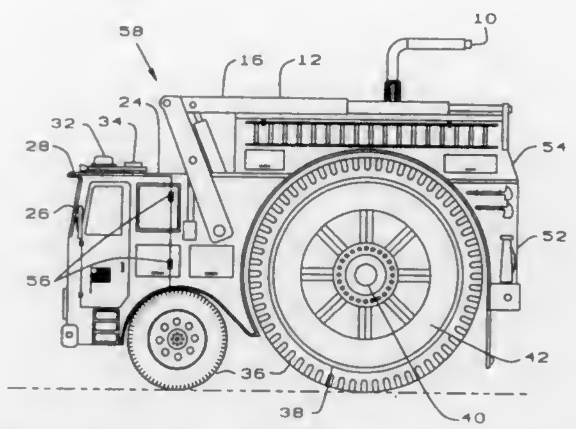
5,785,339
SUSPENSION DEVICE FOR A BICYCLE
Atsushi Mamiya, and Naoki Tsuji, both of Atsugi, Japan, assignors to Itochu Corporation, Osaka, and Tokyo R&D Co., Ltd., Tokyo, both of Japan
Filed Oct. 21, 1996, Ser. No. 729,647
Claims priority, application Japan, Oct. 23, 1995, 7-274450
Int. Cl.^{6} B62K *3/02*
U.S. Cl. 280—283 **7 Claims**



1. A suspension device for a bicycle, comprising;
a center frame for supporting a saddle;
a front frame for supporting a front wheel at a first end of said front frame, said front frame being secured to said center frame at a second end of said front frame so as to pivot about a first pivot axis;
a rear frame for supporting a rear wheel at a first end of said rear frame, said rear frame being secured to said center frame at a second end of said rear frame so as to pivot about a second pivot axis different from and spaced from said first pivot axis; and
a plate spring which is secured to said front frame at a first end of said plate spring, is secured to said rear frame at a second end of said plate spring, and is fixed to said center frame at an intermediate portion of said plate spring, whereby said front and rear frames are resiliently supported relative to said center frame by means of said plate spring.

5,785,340
DECORATIVE BODY SHELL FOR WHEELCHAIRS
Stephen F. Dias, 15553 E. Palisades, Fountain Hills, Ariz. 85268
Filed Mar. 3, 1997, Ser. No. 808,022
Int. Cl.^{6} A63G *31/00*
U.S. Cl. 280—304.1 **9 Claims**

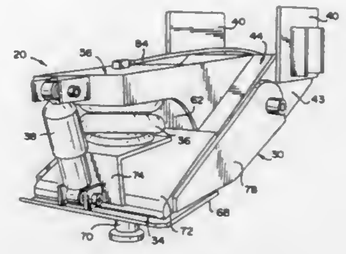
1. In combination with a wheelchair including a frame having a front, two sides and a rear, a seat mounted on said frame, a footrest mounted on the front of said frame, and wheels of which there is at least one drive wheel, wherein the wheels support said frame; a device comprising:

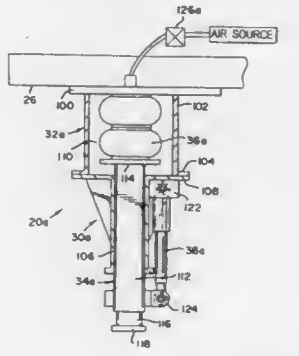


a body shell mounted on said frame and having two side portions enclosing the two sides and rear of said wheelchair, wherein each side portions has a side outer surface and a pair of extension portions each vertically hinged to a respective one of said side portions and moveable between a first position lying substantially parallel to said side portions and a second position projecting forwardly from said side portions, and at least one horizontal portion hinged to one of said extension portions and moveable between a first position lying substantially parallel to said extension portion and a second position lying across said extension portions, whereby the extension portions and horizontal portion form a collapsible enclosure forward of the at least one rear drive wheel that encloses a substantial portion of the front of the wheelchair and whereby the collapsible enclosure opens to allow uninhibited access to the seat of the wheelchair and closes to enclose the forward portion of the wheelchair while still allowing access by a user sitting in the seat to each side outer surface of the wheelchair.

5,785,341
PNEUMATIC ISOLATOR STABILIZING ASSEMBLY
E. Dale Fenton, Columbia, Mo., assignor to Advance Designed Systems, Inc., Fulton, Mo.
Filed Jan. 27, 1997, Ser. No. 789,646
Int. Cl.^{6} B62D *53/06*
U.S. Cl. 280—441 **9 Claims**

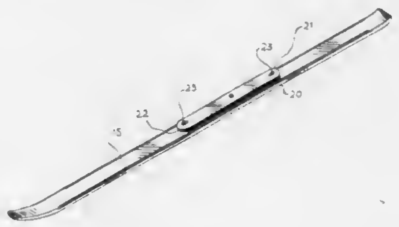
1. An assembly for providing a connection between a tow vehicle and a trailer such that the trailer can be towed by the tow vehicle using the assembly as the connection and said assembly for compensating for various load conditions when towing a heavy trailer or an empty trailer over a road, said assembly comprising: a frame including a vertical housing dated to be fixed relative to one of the tow vehicle or the trailer and a piston member adapted to be fixed relative to the other of the tow vehicle or the trailer, said piston member being disposed within said housing and axially slidably therein; first mounting means for mounting said frame on the tow vehicle; second mounting means for modulating said frame on the trailer; and cushion means mounted within said housing and between said piston member and one of said mounting means for resiliently, yieldably permitting said piston member to axially slide within said housing and for providing a cushion between the tow

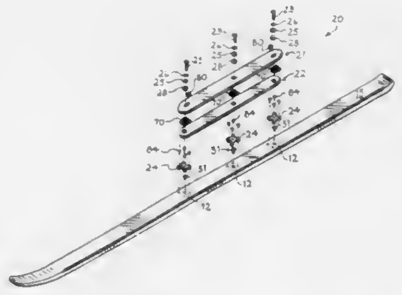




vehicle and the trailer when the tow vehicle and the trailer are traveling over the road.

5,785,342
SKI BINDING DAMPENING ASSEMBLY
Henry D. Bronson, 904 St. Stephens Green, Oakbrook, Ill. 60521
Filed Jul. 30, 1996, Ser. No. 685,423
Int. Cl.^{6} A63C *5/075*
U.S. Cl. 280—602 **19 Claims**





1. A dampening assembly for a ski, said assembly comprising:
a ski;
an elongated plate defining a plurality of slots along a centerline of said plate, each of said slots having a front end and a rear end;
an elastomeric pad positioned within the width of said plate and disposed between said plate and said ski, said pad defining at least one opening adjacent each end of said pad;
a rigid spacer having a base portion and a raised portion, said base portion disposed within one of said openings in said pad;

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- an opening defined in said raised portion through said base portion, said opening sized to receive one of a plurality of mounting bolts;
- said raised portion of said rigid spacer disposed within said slot in said plate when said plate is positioned over said pad, said raised portion freely slidable within said slot between said front end and said rear end;
- an elastomeric insert disposed between said raised portion of said rigid spacer and said rear end of said slot;
- a cover washer held against said plate by said mounting bolt, said cover washer sized to retain said insert within said slot;
- a plurality of mounting bolts positioned along a centerline of said plate for securing said plate and pad to said ski; and
- a plurality of clamps mounted to said ski along a centerline of said ski, said clamps receiving said mounting bolts to retain said pad and plate against said ski.

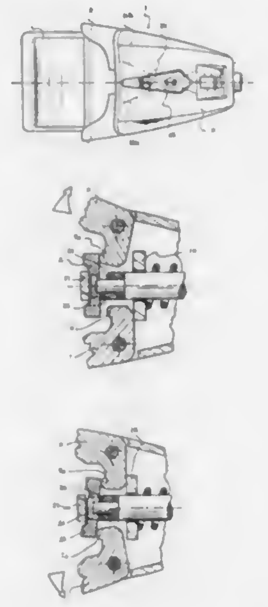
5,785,343
APPARATUS FOR RETAINING BOOTS ON A GLIDING BOARD
Christian Challande, Cruseilles; Pierre Desarmaux, Evires, both of France, and Hans Horn, Lysse, Switzerland, assignors to Salomon S.A., Metz-Tessy, France

Filed Nov. 17, 1995, Ser. No. 559,140

Claims priority, application France, Nov. 21, 1994, 94 14072

Int. Cl.⁶ A63C *9/085*

U.S. Cl. 280—634 **22 Claims**



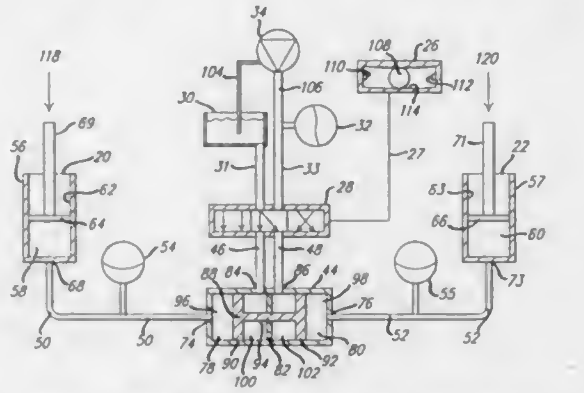
20. An apparatus for retaining a boot upon a gliding board, said apparatus comprising:
- a retention jaw adapted to retain an end of the boot, said jaw having at least a horizontal component of movement from a central position aligned with a longitudinal median plane to either respective side of said longitudinal median plane;
- a return spring effective to define a release threshold of the jaw with respect to release movement of said jaw from said central position;
- a transmission linkage between said retention jaw and said spring to compress said spring in response to movement of said jaw from said central position to either respective side of said longitudinal median plane, said spring exerting an elastic return force to said jaw toward said central position;
- said jaw and said spring being adapted to free the end of the boot beyond a predetermined release threshold force corresponding to a predetermined amplitude of displacement of said jaw and to a predetermined extent of compression of said spring;
- means connected to said transmission linkage for selectively enabling said release threshold, defined by said return spring: (1) to be maintained and (2) to be set differently dependent upon a direction of movement of said jaw from said central position; and
- a single manipulation element operatively connected to said means.

5,785,344
ACTIVE ROLL CONTROL
Bart Vandewal, Alken, and Hans Moors, Tongeren, both of Belgium, assignors to Tenneco Automotive Inc., Lake Forest, Ill.

Filed Jan. 22, 1996, Ser. No. 589,325

Int. Cl.⁶ B60G *11/26*

U.S. Cl. 280—714 **23 Claims**



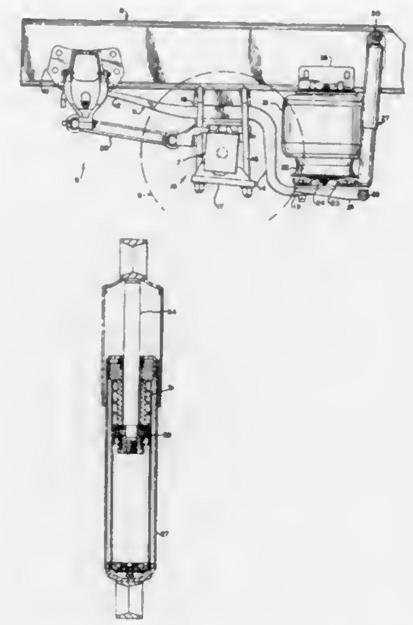
1. An active anti-roll control system for a vehicle having a sprung portion and an unsprung portion, said system comprising:
- a plurality of damping means, each of said damping means having first and second ends, the first end of each of said plurality of damping means connected to said sprung portion and the second end connected to said unsprung portion;
- pressure delivery means for supplying fluid at a first hydraulic pressure and fluid at a second hydraulic pressure to said plurality of damping means;
- control means disposed between said plurality of damping means and said pressure delivery means for controlling the output of said fluid at one or more hydraulic pressures from said pressure delivery means;
- sensing means connected to said control means for sensing a roll condition induced on said vehicle and producing a signal representative thereof; and
- pressure distribution means disposed between said control means and said damping means for actively introducing said fluid at said first pressure to one of said damping means and actively introducing said fluid at said second pressure to another of said damping means based on said signal.

5,785,345
MEANS FOR AND METHOD OF CONTROLLING FRAME RISE IN VEHICLE SUSPENSIONS
Serge Alexander Barlas, St. Charles; Michael Brannigan, Chicago; Jonathan Mark Bunne, Aurora; David Harry Hillman, Darien, and Tjong Thiam Lie, Naperville, all of Ill., assignors to The Boler Company, Itasca, Ill.

Filed Oct. 16, 1995, Ser. No. 543,264

Int. Cl.⁶ B60G *11/28*

U.S. Cl. 280—715 **18 Claims**



1. In a vehicle having a frame supported at least in part on ground wheels by a torque reactive suspension incorporating a drive axle operatively connected to said ground wheels, driveline means connected in power transmitting relationship between the vehicle engine and said drive axle and shock absorber means operatively interconnected between said frame and said drive axle, the improvement comprising frame rise control means operative between said drive axle and said vehicle frame which functions in rebound to limit frame rise due to engine torque and thereby suppresses driveline vibration and wheel hop due to engine produced torque.

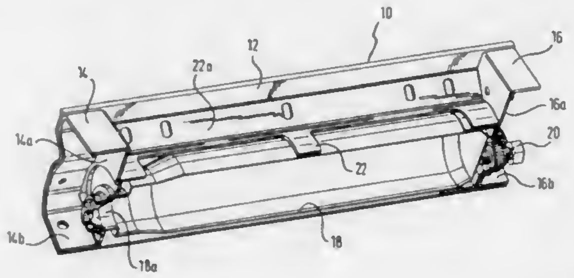
5,785,346
ASSEMBLY CONSISTING OF AN ELONGATE HOUSING AND A GAS GENERATOR ACCOMMODATED THEREIN
Gerhard Benz, Essingen, and Thomas Grupp, Welzheim, both of Germany, assignors to TRW Occupant Restraint Systems GmbH, Alfdorf, Germany

Filed Aug. 23, 1996, Ser. No. 709,198

Claims priority, application Germany, Aug. 23, 1995, 295 13 565 U

Int. Cl.⁶ B60R *21/26*

U.S. Cl. 280—728.2 **7 Claims**



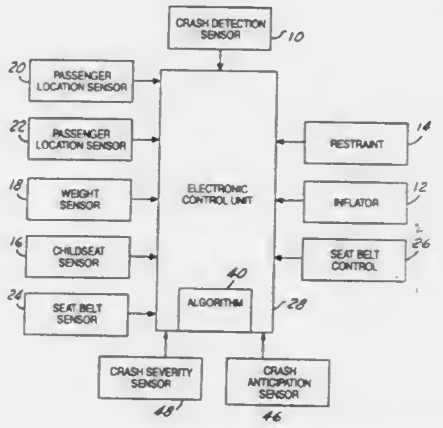
1. An assembly for a gas bag restraint system, comprising an elongate housing provided with surface means extending substantially parallel to a longitudinal axis of said housing and open axial ends, said housing being formed of a first piece of material, and a gas generator accommodated within said housing and held axially between two covers closing said open ends of said housing, said two covers extending transverse to the longitudinal axis of said housing and being formed of third and fourth pieces of material.

5,785,347
OCCUPANT SENSING AND CRASH BEHAVIOR SYSTEM
Eudora F. Adolph, Commerce Township; Paul A. Witt, Farmington Hills; Emmanuel Garcia, Bloomfield; John A. Musiol, Southfield; Raymond J. Vivacqua, Northville; James C. Lotito, Warren, all of Mich., and Robert Alden Lewis, Sunnyvale, Calif., assignors to Siemens Automotive Corporation, Auburn Hills, and AlliedSignal Inc., Sterling Heights, both of Mich.

Filed Oct. 21, 1996, Ser. No. 734,768

Int. Cl.⁶ B60R *21/32*

U.S. Cl. 280—735 **27 Claims**



1. An occupant sensing and crash behavior system in a motor vehicle, the system comprising:
- a crash sensor for determining the presence of a crash condition of the vehicle and generating a crash signal;
- inflator means responding to a firing signal and operable to release an inflatable gas;
- restraint means responding to said inflatable gas and operable to restrain the occupant movement as a result of the crash; and
- child seat sensor means for detecting the presence and front facing orientation of child seat on the vehicle seat, said means operable to generate a child seat electrical signal indicating both the presence and the orientation of the child seat;
- weight sensing means responding to the weight on the vehicle seat and generating a weight sensing signal as one of a plurality of vehicle parameter signals;
- a presence and location sensor for generating an electrical signal indicating the presence of an occupant in the vehicle seat and the location of the occupant relative to said presence and locating sensor and supplying said presence and location signal to said electronic control means as another of said vehicle parameters signals; and
- an electronic control unit responding to said crash signal, said child seat electrical signal and said other vehicle parameter signals for generating an electrical firing signal to said inflator means thereby releasing said inflatable gas to controllably inflate said restraint means.

5,785,348
DIFFUSOR CUP FOR AN INFLATOR DEVICE WHICH IS USED TO INFLATE AN AIRBAG IN AN AIRBAG SYSTEM
Steven P. Donovan, Roscoe, and David C. Goss, Rockford, both of Ill., assignors to Textron Inc., Providence, R.I.

Continuation of Ser. No. 806,917, Feb. 26, 1997, abandoned. This application May 8, 1997, Ser. No. 852,965

Int. Cl.⁶ B60R *21/28*

U.S. Cl. 280—740 **18 Claims**

1. A diffusor cup for use with an inflator device in an airbag system, the inflator device preferably having a bottle housing a gas attached to said diffusor cup, said inflator device being enclosed within a housing module having opposite end plates, said diffusor cup comprising:

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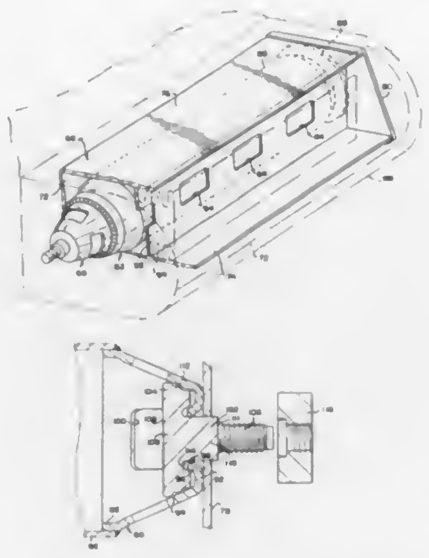


a first wall for bearing against one of the end plates of the housing module, a second wall which depends from said first wall and joins with the bottle, said second wall being formed from a truncated cone such that said second wall tapers from said first wall to the bottle; and a stud mounted within said first and second walls, said stud being mechanically secured to said first and second walls and having structure thereon capable of securing said stud to the end plate.

5,785,349

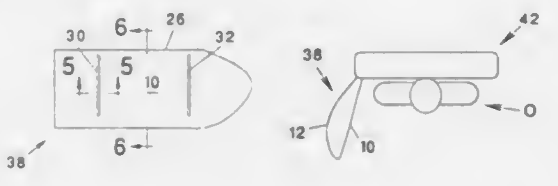
ELONGATED ASYMMETRICAL AUTOMOTIVE AIRBAG

J. Kirk Storey, Farmington; Brent K. Olson, Clearfield, and Davin G. Saderholm, Salt Lake City, all of Utah, assignors to Morton International, Inc., Chicago, Ill.

Filed Dec. 3, 1996, Ser. No. 759,863

Int. Cl.⁶ B60R *21/16*

U.S. Cl. 280—743.1 **18 Claims**



9. An automotive airbag comprising:

first and second elongated panels formed from a single sheet of airbag material in mirror imagery about a common longitudinal edge, each panel having a first end, a second end, and a free longitudinal edge;

means non-rupturably securing together the second ends of both panels;

means non-rupturably securing together the free longitudinal edges of both panels to form a tubular bag having a mouth defined by the first ends of said first and second panels;

at least one pleat formed in said first panel substantially perpendicular to said common longitudinal edge; and

means non-rupturably securing each of said at least one pleat, whereby said first panel is shortened relative to said second panel to form an asymmetrical tubular airbag upon inflation through said mouth.

5,785,350

METHOD OF PREPARING A SIDE COLLISION AIR BAG

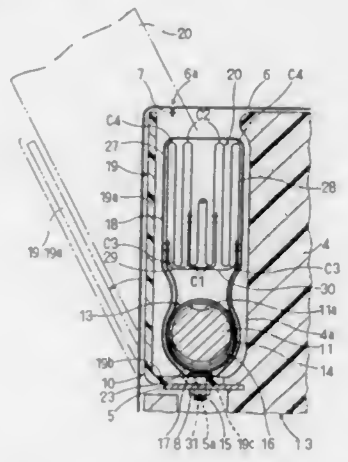
Michio Inoue, Kagamigahara; Mariko Kawashima, Inazawa; Hisaaki Kato, Anjo, and Makoto Shiota, Toyota, all of Japan, assignors to Toyota Jidosha Kabushiki Kaisha, Japan

Filed Jan. 15, 1997, Ser. No. 782,680

Claims priority, application Japan, Feb. 7, 1996, 8-021095

Int. Cl.⁶ B60R *21/16*

U.S. Cl. 280—743.2 **8 Claims**



1. A method of preparing a side-collision air bag in readiness for expansion wherein the air bag is substantially rectangular with two opposing walls having opposing surfaces and terminating at a rear edge for securing to a vehicle and terminating at a front edge opposite the rear edge, and having two side edges extending substantially in parallel from the rear edge to the front edge, and having provision adjacent the rear edge for supplying a gas for expansion of the air bag, said method comprising:

securing at least one tether in the shape of a strip to opposing surfaces of the opposing walls, said at least one tether having a selected length and limiting separation of the opposing walls upon expansion by a distance substantially corresponding to the selected length of the at least one tether;

folding the air bag by folding in the front edge, side edges, and opposing walls into foldings constituting a cactus fold, and approaching the rear edge with the foldings of the cactus fold along the opposing surfaces of the opposing walls;

positioning said at least one tether during the securing step in a width direction that becomes parallel to the foldings during the folding step; and

bringing during the folding step the foldings into contact with the at least one tether to extend the at least one tether in a length direction and cause the opposing walls to be drawn in.

5,785,351

TRACTION DEVICE FOR WHEELED VEHICLE

Keun Ik Chang, 12171 NW. Sunningdale Dr., and Euiri Chang, 1899 NW. 143rd Ave., #K13, both of Portland, Oreg. 97229

Filed Jun. 1, 1995, Ser. No. 459,741

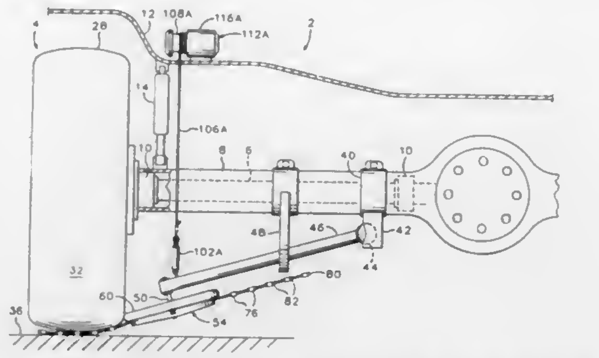
Int. Cl.⁶ B60S *9/00*

U.S. Cl. 280—757 **17 Claims**

1. A wheeled vehicle having a vehicle body, a driven, ground engaging wheel supporting the vehicle body and including a tire, and a traction device comprising:

a rotor having an axis of rotation,

an attachment means mounting the rotor to the vehicle body and allowing the rotor to be displaced relative to the wheel between a deployed position, in which the rotor is in contact with a lower portion of the tire so that when the tire rotates, the rotor rotates about its axis of rotation through frictional engagement with the tire, and a stowed position, in which the rotor is above said lower portion of the tire and is spaced from the wheel, the attachment means comprising a pivot arm having a first end at which it is attached to the vehicle body in a manner allowing pivotal movement of the pivot arm relative to the vehicle body and a second end to which the rotor is attached,



at least one elongate traction element attached to the rotor and having an inner portion that is disposed substantially radially with respect to the rotor and an outer portion that projects radially beyond the rotor, so that when the rotor rotates due to frictional engagement with the rotating tire, the traction element is subject to centrifugal force and the outer portion of the traction element is extended from the rotor and passes beneath the tire, and

a displacement mechanism connected between the attachment means and the vehicle body for displacing the rotor between the deployed Position and the stowed position, the displacement mechanism comprising a cable, a winch having a retracting condition in which it drives a winch capstan to rotate in a first direction for winding the cable onto the capstan and a coasting condition in which it allows the capstan to rotate in the opposite direction, and a buffer spring mechanism connected between the cable and the pivot arm for protecting the winch from an overload condition, said buffer spring mechanism comprising a cylindrical housing and a helical compression spring fitted in the housing.

5,785,352

Patent Not Issued For This Number

5,785,353

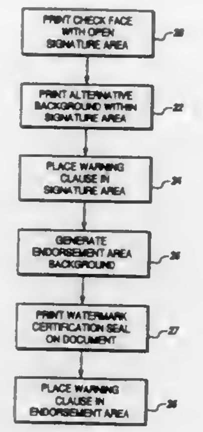
NEGOTIABLE DOCUMENT HAVING ENHANCED SECURITY FOR DETERRING GENERATION OF COPIES OF THE NEGOTIABLE DOCUMENT

Robert I. Diamond, Alpine, Utah, assignor to Diamond Security, Inc., Alpine, Utah

Continuation-in-part of Ser. No. 333,542, Nov. 2, 1994, Pat. No. 5,575,508, which is a continuation-in-part of Ser. No. 241,798, May 12, 1994, Pat. No. 5,538,290, which is a continuation-in-part of Ser. No. 57,614, May 5, 1993, abandoned. This application Oct. 9, 1996, Ser. No. 731,055

Int. Cl.⁶ B42D *15/00*

U.S. Cl. 283—67 **23 Claims**


PRINT CHECK FACE WITH OPEN SIGNATURE AREA
20
PRINT ALTERNATIVE BACKGROUND WITHIN SIGNATURE AREA
22
PLACE WARNING CLAUSE IN SIGNATURE AREA
24
GENERATE ENDORSEMENT AREA BACKGROUND
26
PRINT WATERMARK CERTIFICATION SEAL ON DOCUMENT
27
PLACE WARNING CLAUSE IN ENDORSEMENT AREA
28

20. A method for enhancing security of a negotiable document and deterring copying of the negotiable document, comprising the steps of:

generating a first warning mark for printing on a first side of a negotiable document, said first warning mark comprised of a first dot size pattern reproducible by various copier systems;

generating a second warning mark for printing on a first side of the negotiable document, said second warning mark comprised of a second dot size pattern reproducible by various copier systems;

generating a first pantographic background pattern around the first warning mark, said first background pattern comprised of a pattern reproducible by various copy systems; and

generating a second pantographic background pattern around the second warning mark, said first background pattern comprised of a pattern reproducible by various copy systems.

5,785,354

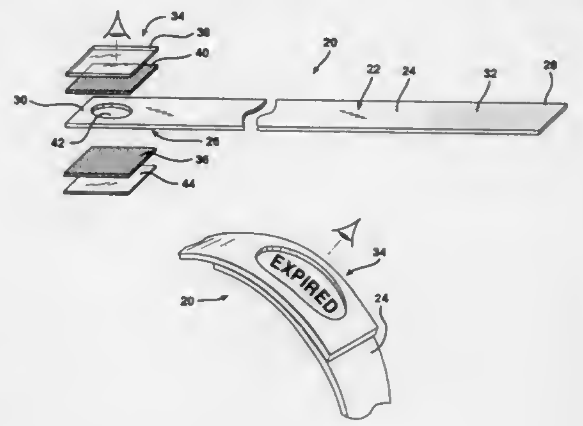
SELF-EXPIRING IDENTIFICATION BAND

David J. Haas, Suffern, N.Y., assignor to Temtec, Inc., Suffern, N.Y.

Filed May 6, 1996, Ser. No. 643,316

Int. Cl.⁶ B42D *15/00*

U.S. Cl. 283—74 **10 Claims**



1. An identification band comprising:

an elongated band having an outer surface and an inner surface and first and second ends;

a first chemical composition on the outer surface of the band proximate the first end;

a display region associated with the band proximate the second end, the display region including an opening therethrough;

a second chemical composition on the inner surface of the band on a layer overlying the opening through display region proximate the second end;

wherein when the band is wrapped around an object with the outer surface exposed, the outer surface of the first end and the inner surface of the second end overlay and are in contact with each other, the first and second chemical compositions coacting to cause a visually perceptible change in the display region after a predetermined time interval, such visually perceptible change viewable through the opening from the outer surface.

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5,785,355

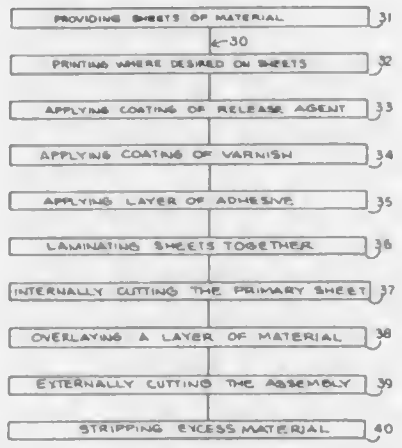
SINGLE UNIT PHONE CARD ASSEMBLY AND METHOD OF PRODUCING SAME

George W. Main, Essex Junction, Vt., assignor to KoBel, Inc., Milton, Vt.

Filed Nov. 19, 1996, Ser. No. 752,655

Int. Cl.^{6} B42D *15/00;* **A61F** *13/02*

U.S. Cl. 283—108 **7 Claims**


PROVIDING SHEETS OF MATERIAL
31
30
PRINTING WHERE DESIRED ON SHEETS
32
APPLYING COATING OF RELEASE AGENT
33
APPLYING COATING OF VARNISH
34
APPLYING LAYER OF ADHESIVE
35
LAMINATING SHEETS TOGETHER
36
INTERNALLY CUTTING THE PRIMARY SHEET
37
OVERLAYING A LAYER OF MATERIAL
38
EXTERNALLY CUTTING THE ASSEMBLY
39
STRIPPING EXCESS MATERIAL
40

1. A single unit phone card assembly, for use in situations that require the use of a card that can be peeled apart to reveal additional information to the user without using additional materials to deliver the single unit phone card assembly to the user, comprising:

multiple sheets of material;

said multiple sheets of material having a primary sheet containing a face side and a rear side, said face side and said rear side having a plurality of printable areas for variable image printing of any desired information such as dialing information and code numbers or the like;

said multiple sheets of material further having a secondary sheet containing a face side and a rear side, the face side and the rear side having a plurality of printable areas for variable image printing of any desired information such as dialing information and code numbers or the like;

release agent means positioned in predetermined areas on said face side of said primary sheet as desired;

a pattern of varnish positioned on said rear side of said primary sheet as desired;

attaching means positioned in predetermined areas on said face side of said secondary sheet;

said primary sheet having slits cut thereon;

said primary sheet and said secondary sheet comprising a single entity by being laminated together and transferring said attaching means of said secondary sheet to said primary sheet; and

a covering layer of material positioned over said single unit phone card assembly and laminated thereon.

5,785,356

Patent Not Issued For This Number

5,785,357

LOCKING JOINT

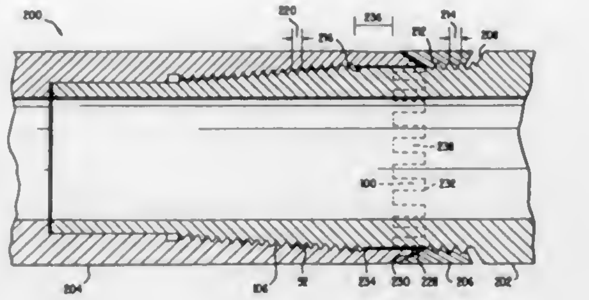
Eugene L. Foster, Alton Bay, N.H., and K. Douglass Lum, McLean, Va., assignors to UTD, Inc., Newington, Va.

Continuation-in-part of Ser. No. 532,502, Sep. 22, 1995, abandoned. This application Jun. 21, 1996, Ser. No. 668,279

Int. Cl.^{6} F16L *15/08*

U.S. Cl. 285—92 **12 Claims**

1. A locking joint, comprising:



a first adapter having a first portion, a second threaded portion and a first knurled contact portion;

a second adapter having a threaded portion and a second contact portion;

said second threaded portion of said first adapter being engageable with said threaded portion of said second adapter; and

a clamp ring coupled to the first adapter and movable axially along said first adapter from a first position to a second position to move said second contact portion into engagement with said first knurled contact portion to prevent relative rotation between said first adapter and said second adapter.

5,785,358

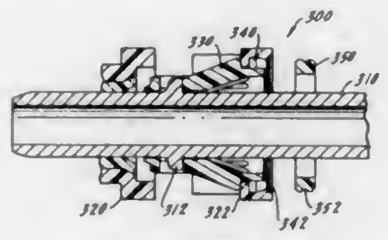
CONNECTION VERIFIER FOR A QUICK CONNECTOR COUPLING

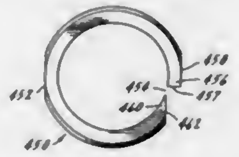
Rick A. Kujawski, Macomb, Mich., and Stephen H. Gunderson, Marine City, Mich., assignors to Bundy Corporation, Warren, Mich.

Continuation-in-part of Ser. No. 312,457, Sep. 26, 1994, Pat. No. 5,499,848. This application Mar. 12, 1996, Ser. No. 614,364

Int. Cl.^{6} F16L *35/00*

U.S. Cl. 285—93 **9 Claims**





1. A quick connector coupling comprising a connector body defining a first bearing surface; a male member insertable into said connector body and defining a second bearing surface; a retainer extending between said first and second bearing surfaces to secure said male member in said connector body after said male member has been inserted into said connector body to a predetermined position; and a connector verifier connected to said connector body and movable relative to said connector body on movement of said second bearing surface toward said first bearing surface only after said male member has reached said predetermined position.

5,785,359

JOINT MECHANISM FOR STRUCTURAL MEMBERS

Shigekazu Nagai; Koji Sugano; Hiroyuki Shiomi, all of Ibaraki-ken, and Takeshi Nagai, Tokyo, all of Japan, assignors to SMC Kabushiki Kaisha, Tokyo, Japan

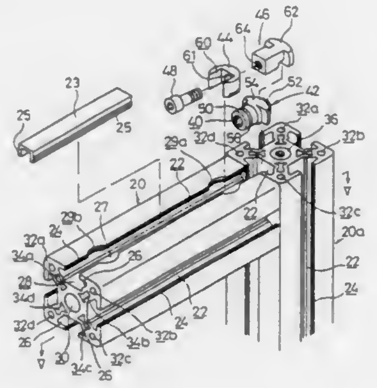
PCT No. PCT/JP94/01098, § 371 Date Jan. 11, 1996, § 102(e) Date Jan. 11, 1996, PCT Pub. No. WO95/02128, PCT Pub. Date Jan. 19, 1995

Continuation of Ser. No. 569,129, Jan. 11, 1996, abandoned. This PCT application Jul. 6, 1994, Ser. No. 964,314

Claims priority, application Japan, Jul. 7, 1993, 5-168232; Jul. 7, 1993, 5-168233; Jul. 7, 1993, 5-168235

Int. Cl.^{6} F16L *5/02*

U.S. Cl. 285—191 **8 Claims**



1. A joint mechanism for joining together two structural members in abutting relationship to each other, each of said structural members having a slot defined in at least one side surface thereof and a longitudinally extending passage defined therein, comprising:

a passage communication member;

said passage communication member comprising a tubular body mounted in one passage defined in one of the structural members thereby retaining said tubular body in said one passage, and a head retained in the slot defined in the other of the structural members, said passage communication member further comprising a through hole defined therein extending through said tubular body and said head, said through hole keeping said one passage defined in one of the structural members and another passage defined in the other of the structural members in communication with each other, said passage communication member having dimensions such that said structural members abut each other when the passage communication member is fitted to both said structural members; and

means for holding said structural members in abutment.

5,785,360

THREAD COUPLING FOR DRILL STRING ELEMENTS FOR PERCUSSIVE DRILLING

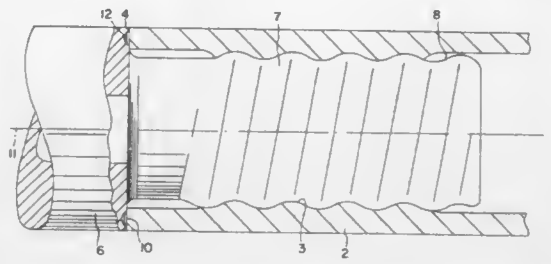
Leif Nordfeldt, Söderbärke, and Karl-Axel Stjernström, Fagersta, both of Sweden, assignors to Uniroc AB, Fagersta, Sweden

PCT No. PCT/SE95/01381, § 371 Date May 20, 1997, § 102(e) Date May 20, 1997, PCT Pub. No. WO96/16246, PCT Pub. Date May 30, 1996

PCT Filed Nov. 21, 1995, Ser. No. 849,322

Int. Cl.^{6} F16L *25/00*

U.S. Cl. 285—328 **16 Claims**



1. Thread coupling for percussive drilling comprising a first drill string element (**2**) provided with an internal thread (**3**) at a free end (**4**) and a second drill string element (**6**) provided with a spigot (**7**) which is provided with an external thread (**8**) for cooperation with the internal thread (**3**) on the first drill string element (**2**), whereby said second drill string element (**6**) is provided with a contact surface (**10**) for cooperation with said free end (**4**) on said first drill string element (**2**), characterized in that said contact surface (**10**) or said free end (**4**) is provided with a lining (**12**) of a wear resistant additional material which has been applied by means of welding or soldering, that said wear resistant additional material covers 50–100% of said contact surface (**10**) and has a depth of 0.5–5 mm.

5,785,361

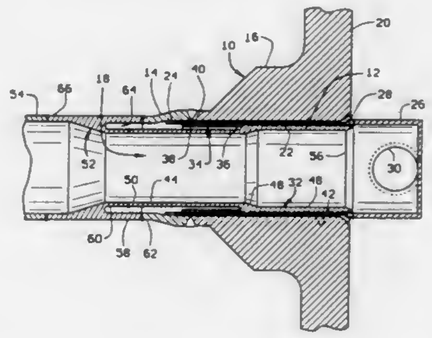
FEEDWATER NOZZLE THERMAL SLEEVE

Siamak Bourbour, and Gerald Alan Deaver, both of San Jose, Calif., assignors to General Electric Company, Schenectady, N.Y.

Filed Mar. 21, 1996, Ser. No. 620,109

Int. Cl.^{6} G21C *13/032*

U.S. Cl. 285—382 **14 Claims**



1. A thermal sleeve for insertion into a feedwater nozzle bore of a reactor pressure vessel for a nuclear reactor, said sleeve comprising:

a substantially cylindrical main body; and

a substantially cylindrical interference ring having a first secured end and a second free end, said ring connected at said first secured end to an exterior surface of said substantially cylindrical main body, an interference surface located at said second free end of said ring, said main body and said interference ring being integral.

5,785,362

CAM-OPERATED HATCH COVER LOCK

Rudolph E. Nadherny, Golden, Mo., assignor to Ireco, Inc., Chicago, Ill.

Filed Feb. 4, 1997, Ser. No. 794,847

Int. Cl.^{6} B61D *39/00;* **E05C** *3/30*

U.S. Cl. 292—98 **25 Claims**

1. A cam-operated hatch cover lock for securing an openable roof member of a railway hopper car, the hatch cover lock comprising:

a housing member, said housing member being adapted to secure the hatch cover lock to a railway hopper car at a location therealong for engaging and receiving a hopper cover narrow member of an openable roof member;

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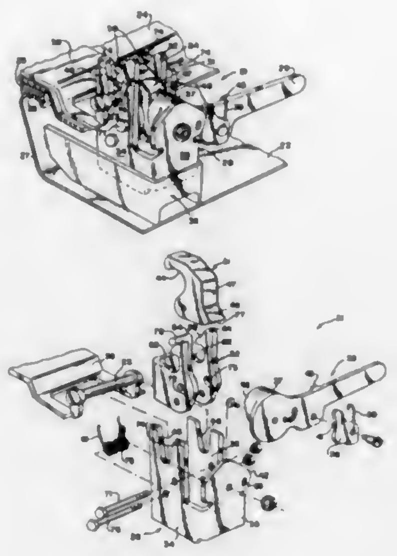


- a receptor location associated with said housing member, said receptor location being adapted to receive the narrow member;
- a retainer hook member adapted to automatically provide access of the narrow member to said receptor location and to automatically retain the narrow member within said receptor location;
- a handle member pivotally mounted to the housing member, said handle member having a pivot axis and a camming surface; and
- a keeper member, a cam follower surface of the keeper member, said keeper member being adapted to lock the narrow member within said receptor location upon camming engagement of its said cam follower surface by said camming surface of the handle member, said keeper member having a locking surface adapted to engage and lock down the narrow member when the hatch cover lock is in a locked orientation, said keeper member being pivotable about an axis generally perpendicular to said pivot axis of the handle member, and said locking surface faces away from said handle member.

5,785,363
LATCHING MECHANISM FOR CUPBOARD DOORS AND DRAWERS

Joachim Stopfer, Albert-Schweitzer-Strasse 32, D-63179 Oberthausen, and Hermann Kraner, Geleitstrasse 60, D-63456 Hanau, both of Germany

PCT No. PCT/DE95/01054, § 371 Date Feb. 11, 1997, § 102(e) Date Feb. 11, 1997, PCT Pub. No. WO96/05393, PCT Pub. Date Feb. 22, 1996

PCT Filed Aug. 9, 1995, Ser. No. 793,628

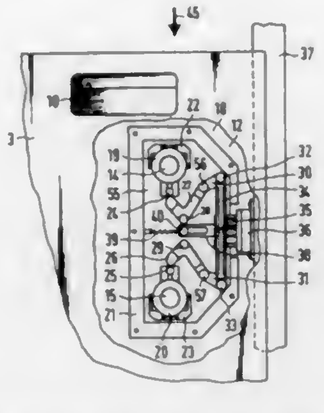
Claims priority, application Germany, Aug. 11, 1994, 44 28 445.4

Int. Cl.^{6} E05C *1/12*

U.S. Cl. 292—165 **17 Claims**

1. A closure device for cabinet doors and drawers having two unlocking elements on each cabinet door or drawer, wherein both unlocking elements can be actuated simultaneously with two fingers of a hand of an adult, comprising:

- push-buttons as unlocking elements,
- slide bars each connected with a push-button, wherein said slide bars deflect a force acting upon the push-buttons,



- angled levers, wherein each lever is functionally connected with one slide bar, and
- a locking bar actuated by the angled levers.

5,785,364
SERVO-TIGHTENING MOTOR-VEHICLE DOOR LATCH

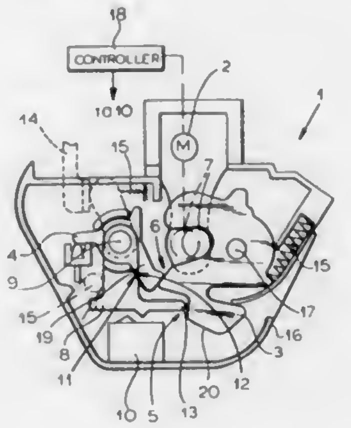
Frank Kleefeldt, Heiligenhaus; Damien Labonde, Essen; Johannes-Theodor Menke, Velbert; Stefan Armbruster, Heiligenhaus, and Thomas Schönenberg, Leverkusen, all of Germany, assignors to Kiekert AG, Heiligenhaus, Germany

Filed Apr. 2, 1997, Ser. No. 831,979

Claims priority, application Germany, Apr. 2, 1996, 196 13 114.6; Jun. 1, 1996, 296 09 770.5

Int. Cl.^{6} E05C *3/06*

U.S. Cl. 292—201 **3 Claims**



1. A motor-vehicle door latch comprising:

- a fork displaceable between an open and a fully latched position and through an intermediate semilatched position;
- a bolt engageable with the fork and retainable thereby only in the semilatched and fully latched positions;
- a pawl pivotal about a pawl axis between a holding position engaging and retaining the fork in the fully latched and semilatched positions and a freeing position permitting the fork to move freely between its positions;
- control means including a servomotor coupled to the bolt for displacing same between an outer and an inner position, whereby, when the bolt is engaged with the fork in the fully latched position, and whereby, when the latch is mounted on a door, movement of the bolt into the inner position pulls the door tightly closed;
- a switch lever pivotal about the pawl axis;
- means including interengaging formations on the switch lever, on the pawl, and on the fork for displacing the switch lever into a first position with the fork in the semilatched and open positions and with the pawl in the open position and for displacing the switch into a second position with the fork in the fully latched position; and
- switch means between the control means and the switch lever for preventing operation of the servomotor except in the second position of the switch lever.

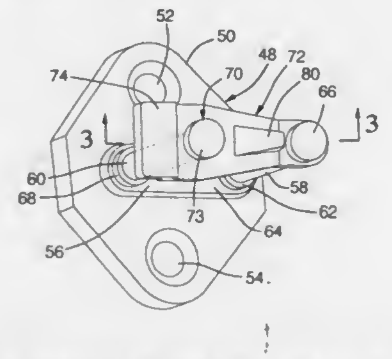
5,785,365
ANTI-SNAGGING STRIKER

Mark Edward Lorey, Westland, Mich., assignor to General Motors Corporation, Detroit, Mich.

Filed Feb. 28, 1997, Ser. No. 808,409

Int. Cl.^{6} E05C *3/06*

U.S. Cl. 292—216 **4 Claims**



1. In a loop striker for use with a door latch for securing a door in a closed position on a vehicle, said latch having (1) a mouth for receiving a crossbar and a leading leg of said striker, and (2) a rotatable fork-bolt having a throat that traps said leading leg therein when the fork-bolt is in a latched position, said loop striker having (a) a base for mounting to a doorframe, (b) a leading leg mounted to said base, (c) a trailing leg carried by said base and spaced laterally from said leading leg, (d) a crossbar having an external face confronting said door, (e) a first end on each of said legs adjacent said base, (f) a distal end on each of said legs remote from said first end and riveted to said crossbar so as to provide leading and trailing heads protruding from said external face, said heads being spaced apart one from the other by a gap, the improvement comprising: a ramp integral with said crossbar in said gap, said ramp having a lower end adjacent said trailing head and an elevated end adjacent said leading head to prevent said door from catching on said leading head and impeding opening of said door.

5,785,366
DOOR LOCK DEVICE

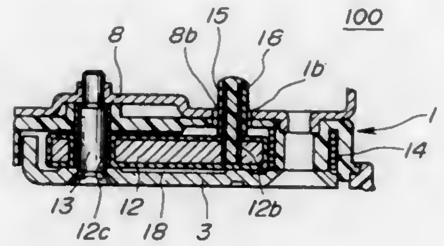
Tatsuyuki Takaishi, and Masazumi Miyagawa, both of Yokohama, Japan, assignors to Ohi Seisakusho Co., Ltd., Yokohama, Japan

Continuation of Ser. No. 291,472, Aug. 17, 1994, abandoned. This application Apr. 30, 1996, Ser. No. 639,998

Claims priority, application Japan, Nov. 30, 1993, 5-299549

Int. Cl.^{6} E05B *15/02*

U.S. Cl. 292—341.12 **10 Claims**



1. A door lock device comprising:

- a recessed body having an outside surface, said recessed body having an opening extending from the interior of said recessed body to said outside surface;
- a metal latch lever pivotally mounted to said recessed body, said latch lever being engageable with a striker inserted into said recessed body;
- a metal locking lever pivotally mounted to said recessed body and engageable with said latch lever;
- an extra lever pivotally mounted to said outside surface of said recessed body;
- a metal pin having one end secured to one of said latch lever and said locking lever, said metal pin projecting to the outside of said recessed body through said opening of said recessed body thereby to engage the other end thereof with said extra lever; and
- a plastic layer covering both said metal pin and the selected one of said latch lever and said locking lever in a manner to increase a mechanical connection therebetween, said plastic layer continuously extending from at least the other end of said metal pin to said selected one of said latch lever and said locking lever.

5,785,367
BUMPER

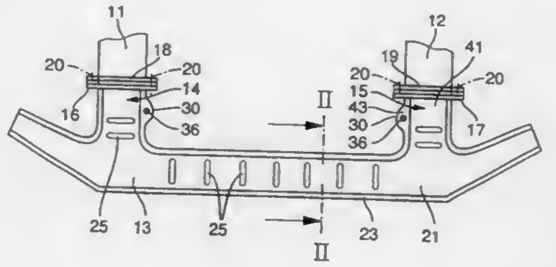
Karl-Heinz Baumann, Bondorf; Andreas Otto, Heimsheim, and Klaus Rathje, Boeblingen, all of Germany, assignors to Mercedes-Benz AG, Stuttgart, Germany

Filed Apr. 1, 1996, Ser. No. 625,896

Claims priority, application Germany, Mar. 31, 1995, 195 11 868.5

Int. Cl.^{6} B62D *27/04*

U.S. Cl. 293—133 **28 Claims**



1. A bumper for a vehicle body having two side members, said bumper having a bumper bracket extending over the width of the vehicle body and two deformation members mounted at a distance from one another on a back side of the bumper bracket facing the vehicle body, said deformation members being made more resistant to deformation than the bumper bracket so that they deform only after the bumper bracket has deformed,

wherein the bumper bracket is assembled from half shells which abut one another within a separating plane that extends essentially horizontally in a mounted position and which are connected to one another by flanges, and wherein the half shells each have half shell wall parts facing the vehicle body which form the two deformation members, said half shell wall parts being made in one piece with the half shells and projecting transversely therefrom, and said half shell wall parts forming hollow bodies integral with the bumper bracket and resistant to deformation when in the mounted position.

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5,785,368
VEHICLE WITH IMPACT PROTECTION UNIT

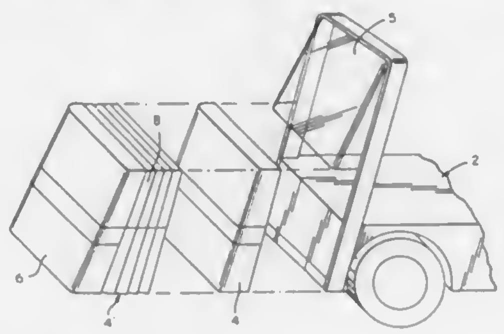
Albrecht Hartmann, Schneeglöckchenstr. 85a, D-80992 München, and Jörg R. Bauer, Gablerstr. 4, D-88250 Weingarten, both of Germany

Filed Apr. 5, 1996, Ser. No. 628,387

Claims priority, application Germany, Apr. 4, 1995, 195 12 600.9

Int. Cl.⁶ B60R *19/20*

U.S. Cl. 293—134 **17 Claims**



1. A vehicle comprising:
a frame enclosing usable space of said vehicle;
an extendable impact protection unit connected to said frame;
said extendable impact protection unit comprising an extendable member and a telescopic device for extending and retracting said extendable member relative to said frame, wherein said extendable impact protection unit when extended enlarges an outer contour of said vehicle and provides a deformation zone for absorbing impact forces in order to protect said usable space;
said telescopic device comprising at least two extendable components engaging different locations of said extendable member and having a travel stroke from a retracted position into an extended position;
said at least two extendable components having an impact compensation capacity; and
means for adjusting at least one of said impact compensation capacity and said travel stroke independently for each one of said at least two extendable components.

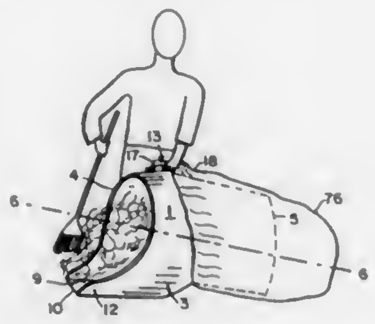
5,785,369
APPARATUS FOR THE COLLECTION OF DEBRIS

Andre Ridley, Sr.; Andre Ridley, Jr., and Andrea D. Ridley, all of Newton, Mass., assignors to Inventions Unlimited, LLC, Newton, Mass.

Continuation-in-part of Ser. No. 234,428, Apr. 28, 1994, Pat. No. 5,498,046. This application Mar. 11, 1996, Ser. No. 615,545

Int. Cl.⁶ B65B *67/04*

U.S. Cl. 294—1.1 **8 Claims**



1. An apparatus for collecting debris, the apparatus comprising:
a casing having an inner surface, an outer surface, a front perimeter and a back perimeter shorter than the front and back perimeters defining a channel having a front opening and back opening opposite to the front opening; and
a substantially planar member for scooping or guiding debris into the channel, the member projecting forward from a portion of the front perimeter, the member having a front edge and two side curved edges located opposite to each other and perpendicular to the front edge; and
a handle mounted to the outer surface of the casing, opposite to the forward-projecting member, the mounted handle having inner and outer surfaces, the inner and outer surfaces having:
a first end mounted to the outer surface of the casing; and
a second end opposite to the first end, the first and second ends of the mounted handle being mounted to the outer surface of the casing along a longitudinal axis intersecting the front and back perimeters of the casing, the inner surface of the mounted handle and the outer surface of the casing defining the aperture therethrough, further comprising a lid having a perimeter, the lid being capable of attaching to the back perimeter of the apparatus, so that debris may be contained within the channel of the apparatus.

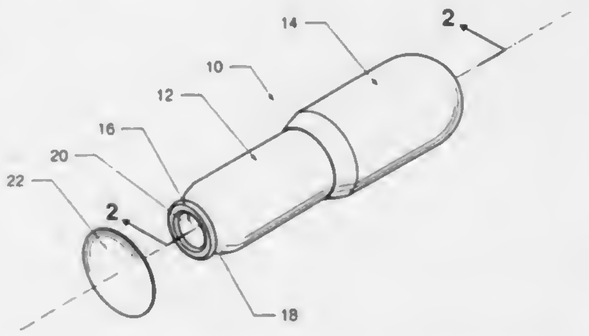
5,785,370
SOFT CONTACT LENS MANIPULATING DEVICE

Joseph T. Pomerantz, 405 Queen Anne Club Dr., Stevensville, Md. 21666

Filed Sep. 3, 1997, Ser. No. 922,516

Int. Cl.⁶ A61F *9/00*

U.S. Cl. 294—1.2 **5 Claims**



1. A soft contact lens manipulating device for engaging and inserting a soft contact lens having a concave side and a convex side upon the cornea of a user's eye, comprising the combination of:
(a) a flat, annular terminus representing an improved lens seat of said device for engaging and holding said contact lens
(b) a hollow shank connected to said annular terminus by an incurvate shoulder
(c) a pliable, vacuum actuating bulb possessing an internal cavity attached to an opposite end of said hollow shank with the attachment accomplished by said vacuum actuating bulb enveloping in snap lock manner over an outward, annular shoulder of said hollow shank
(d) the hollowness of said hollow shank providing a passageway for air to move through both ends thereof with said air communicated into or out of said vacuum actuating bulb at the one end of said hollow shank and said air entering or exiting said annular terminus at the opposite end of said hollow shank and wherein
(e) said air is actuated by compressing or releasing said vacuum actuating bulb whereby a negative or positive, respectively, vacuum is established and communicated through the entirety of said device, therefore culminating at said annular terminus with said vacuum providing a mode for engaging or releasing said contact lens.

5,785,371

Patent Not Issued For This Number

5,785,372
SELF-SUPPORTING BOX STRUCTURE FOR UTILITY VEHICLES PARTICULARLY FIRE-FIGHTING VEHICLES

Alfred Glatzmeier, Linz, and Franz Hochdaninger, Lauffen, both of Austria, assignors to Rosenbauer International Aktiengesellschaft, Austria

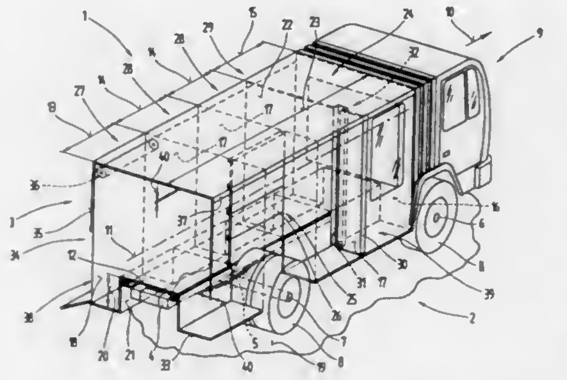
PCT No. PCT/AT95/00074, § 371 Date Jan. 6, 1997, § 102(e) Date Jan. 6, 1997, PCT Pub. No. WO95/28203, PCT Pub. Date Oct. 26, 1995

PCT Filed Apr. 13, 1995, Ser. No. 727,592

Claims priority, application Austria, Apr. 13, 1994, A768/94

Int. Cl.⁶ B60P *3/05*

U.S. Cl. 296—24.1 **60 Claims**



1. Self-supporting box structure for utility vehicles, particularly firefighting vehicles, for accommodating life-saving and/or extinguishing devices and if necessary extinguishing substances and/or pumps for extinguishing substances in a plurality of equipment boxes or compartments accessible from the outside via various door arrangements, characterized in that the self-supporting box structure (3) has a horizontal support element (12), which is designed in a plane perpendicular to a vehicle longitudinal axis (11) with a substantially U- or hat-shaped profiled cross-section, and on which are arranged in the direction of the vehicle longitudinal axis (11) at a spacing (13 to 15) from one another and perpendicular thereto at least three transverse support elements (16 to 18), which from a base (54) of the horizontal support element (12) project in the direction of a support surface (19) by a length (20) over the base (54) of the horizontal support element (12).

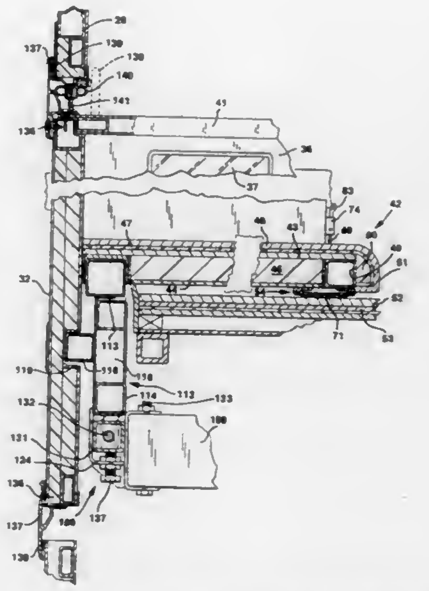
5,785,373
RECREATIONAL VEHICLE WITH SLIDE-OUT ROOM

Steven D. Futrell, and Jack M. Decker, both of Forest City, Iowa, assignors to Winnebago Industries, Forest City, Iowa

Filed May 30, 1996, Ser. No. 656,891

Int. Cl.⁶ B60P *3/34*

U.S. Cl. 296—26.01 **22 Claims**



1. A slide-out room for a vehicle having an interior space, a wall with an opening in communication with the interior space, and a floor adjacent the opening comprising: room means having an outside wall, end walls, a floor, a roof, and an inside portion having an opening for providing an interior space, said floor of the room means having a longitudinal inside portion located above the floor of the vehicle, first means connected to the vehicle for supporting the room means on the vehicle with the end walls, floor, and roof of the room means located in the opening, and the open portion open to the interior space of the vehicle; second means connected to the first means for selectively moving the first means and room means between an extended position to increase the useable space inside the vehicle, and a retracted position to store the room means within the interior space of the vehicle, and a skid pad 54 assembly secured to the longitudinal inside portion of the floor of the room means adjacent the open position of the room means for closing the space between the floor of the vehicle and floor of the room means and supporting the inside portion of the room means on the floor of the vehicle, said skid pad assembly having an elongated longitudinal means extended alone the longitudinal inside portion of the floor of the room means with a bearing area to reduce the force per unit of area on the floor of the vehicle and reduce wear of the floor of the vehicle.

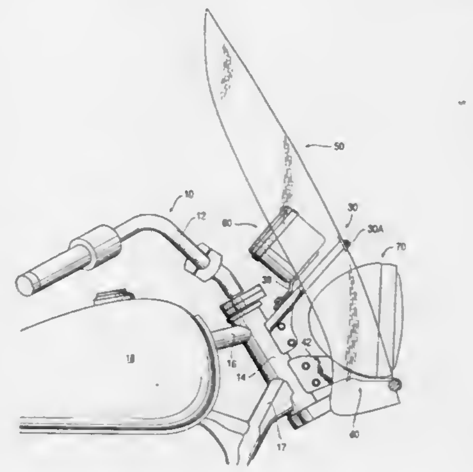
5,785,374
WINDSCREEN BRACKET FOR A MOTORCYCLE

Hiroyuki Aoki, Rancho Palos Verdes; Martin Manchester, Long Beach; Timothy Prentice, Hermosa Beach, and Masanori Aoki, Rancho Palos Verdes, all of Calif., assignors to Honda Giken Kogyo Kabushiki Kaisha, Tokyo, Japan

Filed Mar. 12, 1996, Ser. No. 613,587

Int. Cl.⁶ B62J *17/00*

U.S. Cl. 296—78.1 **24 Claims**



1. A windscreen support structure for a motorcycle comprising:
a windscreen bracket having a first end and a distal end, said first end being adapted to be connected to a portion of a frame of a motorcycle;
a first windscreen plate having a middle portion affixed to said distal end of said windscreen bracket, said first windscreen

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plate extends in a traverse direction relative to said windscreen bracket and includes first and second support projections displaced relative to each other and being substantially orthogonally mounted relative to said first windscreen plate; and

a second windscreen plate is secured to said first windscreen plate for mounting a windscreen therebetween said second windscreen plate extends in a traverse direction relative to said windscreen bracket and includes first and second support projections displaced relative to each other and being aligned relative to said first windscreen plate.

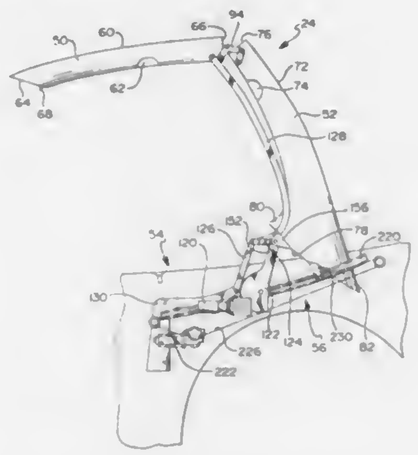
5,785,375
RETRACTABLE HARD-TOP FOR AN AUTOMOTIVE VEHICLE

Michael P. Alexander, Gross Ile; Albert W. Harrison, III, W. Bloomfield; Christopher I. Ito, Canton, all of Mich., and Darin Kirschner, Stevenson Ranch, Calif., assignors to ASC Incorporated, Southgate, Mich.

Continuation of Ser. No. 521,276, Aug. 30, 1995, abandoned, which is a continuation of Ser. No. 175,150, Dec. 29, 1993, abandoned. This application Mar. 24, 1997, Ser. No. 826,067

Int. Cl.^{6} B60J *7/14*

U.S. Cl. 296—108 **63 Claims**



1. A retractable hard-top roof for an automotive vehicle, said automotive vehicle having a body within which is a passenger compartment, said body further having a front windshield, said retractable hard-top roof comprising:

a front roof section disposed above said passenger compartment when in an extended position, said front roof section being substantially rigid;

a rear roof section at least partially disposed above said passenger compartment substantially behind said front roof section when in said extended position, said rear roof section being substantially rigid, said rear roof section substantially extending between said front roof section and said body of said automotive vehicle, said rear roof section being mechanically coupled for relative angular movement to said front roof section; and

a retracting mechanism coupling said rear roof section to said body of said automotive vehicle, said retracting mechanism being operable to extend said front roof section toward said front windshield and said rear roof section between said front roof section and said body, said retracting mechanism being further operable to collapse said front roof section in a rearward direction away from said front windshield while moving said rear roof section away from said extended position and collapsing said front roof section thereby defining a retracted position positioned at least partially within said passenger compartment, said front roof section being substantially horizontal when in said retracted position;

said rear roof section including a pivot about which said rear roof section is rotatable when moved from said extended position to said retracted position, said pivot being located near a bottom edge of said rear roof section;

said retraction mechanism lifting said pivot of said rear roof section in a substantially vertical upward direction during retraction of said rear roof section.

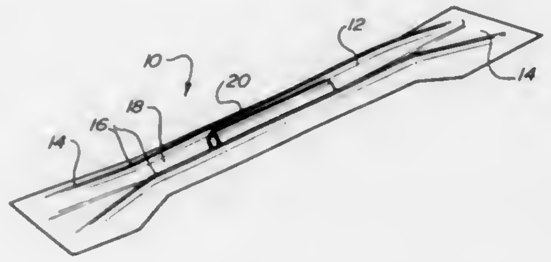
5,785,376
VEHICLE DOOR BEAM

Rainer Bruno Nees, and Clark Edwin Alatalo, both of Brighton, Mich., assignors to Mascotech Tubular Products, Inc., Canton, Mich.

Filed Apr. 24, 1996, Ser. No. 639,012

Int. Cl.^{6} B60J *5/04*

U.S. Cl. 296—146.6 **4 Claims**



1. An impact absorption beam adapted to be mounted within a door of a vehicle, said beam comprising:

an elongated beam body with end mounting flanges integrally formed therewith for securing said beam to the vehicle door, said beam body having a substantially sinusoidal cross-sectional configuration with a central longitudinal channel extending the length of said beam body, said sinusoidal configuration of said beam body tapering in height to said integral mounting flanges; and

a tubular member mounted within said central longitudinal channel of said beam body to reinforce said beam, said tubular member having predetermined dimensions according to the desired impact absorption characteristics of said beam.

5,785,377
ARTICLE FIXTURE AND METHOD OF FITTING ARTICLE BY USING THE FIXTURE

Akira Itoh, Sagamihara, Japan, assignor to Minnesota Mining and Manufacturing Company, St. Paul, Minn.

Filed Jun. 14, 1996, Ser. No. 663,950

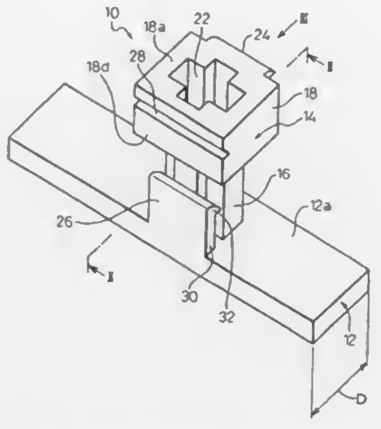
Claims priority, application Japan, Jun. 19, 1995, 7-151857

Int. Cl.^{6} B60J *1/10*

U.S. Cl. 296—146.15 **9 Claims**

1. An article fixture having a base portion adapted to be fixed to an article and a projecting portion projecting from the base portion up to a first height and being displaceable from the first height to a second height lower than the first height by a predetermined force; the article fixture being used for positioning the article at a predetermined position on an objective body by abutting the projecting portion on the objective body when the projecting portion is put at the first height, and for fixedly connecting the article to the objective body while keeping a predetermined space therebetween when the projecting portion is put at the second height, characterized in that said article fixture comprises:

a lock means for mechanically locking said projecting portion onto a predetermined position on the objective body; and



a holding means for mechanically holding said projecting portion at said second height.

5,785,378
MOTOR VEHICLE SELF-SUPPORTING BODY SHELL STRUCTURE AND PROCESS FOR MANUFACTURE THEREOF

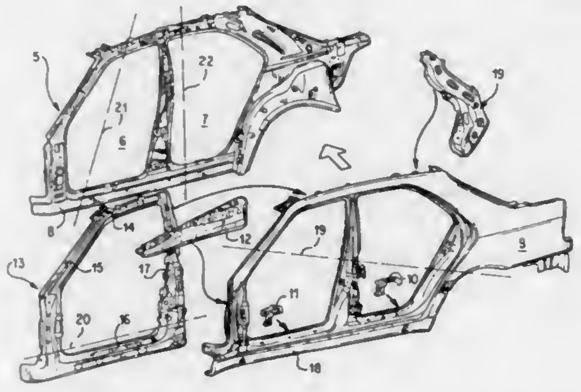
Johann Seefried, Eutingen, and Roland Wendler, Boeblingen, both of Germany, assignors to Mercedes-Benz AG, Germany

Filed Jun. 19, 1996, Ser. No. 665,858

Claims priority, application Germany, Jun. 22, 1995, 195 22 680.1

Int. Cl.^{6} B60J *7/00*

U.S. Cl. 296—187 **4 Claims**



1. A self-supporting body shell structure for a motor vehicle, comprising a chassis and two side panels which laterally flank the chassis and which are provided with reinforcements, each of the reinforcements constituting an integral component constructed in one piece in a prefabricated state and insertable in each side panel between an outer shell and an inner shell of each side panel, wherein the integral component is configured in the prefabricated state to surround a door opening of the side panel halves in a ring-like manner.

5,785,379
MODULAR INDIVIDUAL SEAT PICNIC TABLE

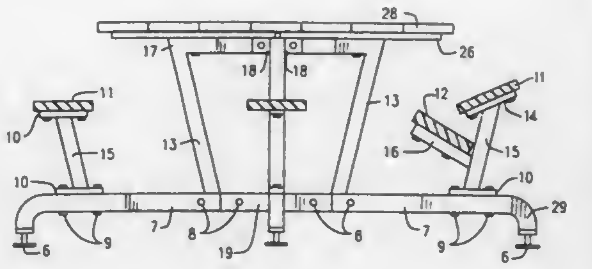
Mead Timothy Pelletier, 16 Railroad Ave., Pearle River, N.Y. 10965

Filed Jul. 31, 1996, Ser. No. 695,066

Int. Cl.^{6} A47B *39/00*

U.S. Cl. 297—158.5 **1 Claim**

1. A picnic table with attached interchangeable individual seats on an expandable modular frame, said frame having a plurality of interchanging modular components comprising:



a table leg and seat leg assembly having a plurality of square extruded hollow members fused in a linear arrangement including a horizontal beam, the beam comprising an elongated square extrusion, said beam turned down on opposing ends perpendicular to its longitudinal axis, a hollow end of said turned down end providing means for receiving an adjustable leveler leg component, a plurality of fastener holes placed midway on a vertical surface of said beam, a plurality of fastener holes on a top surface of said beam, said top surface fastener holes being positioned on opposing ends of said beam and corresponding to a spacing of fastener holes on a fastener plate of attached seat post components, two elongated hollow square extrusion members fused to said beam, each at an angle of ten degrees relative to its respective longitudinal axis in an opposing upward configuration, an upper connector member having an elongated hollow extrusion joined to said opposing upward members at upper ends of said members, said upper connector member having a plurality of fastener holes on its top and bottom surfaces, said holes corresponding to a spacing of fastening holes of an attached table top component member, a pair of connector beam components having an elongated hollow square extrusion joined on opposite ends perpendicularly to fastener plates, said fastener plates having fastening holes corresponding to a spacing of said fastener holes on said vertical surface of said horizontal beam, said connector beam component joining plural table leg and seat leg assemblies in parallel, said seat post component having an elongated hollow extrusion fused to said fastener plate and extending at an angle of ten degrees relative to its longitudinal axis, an upper fastening plate fused to said seat post component, said upper fastening plate joined to a level plastic seat in a non-rotational arrangement, an angled ergo seat and knee rest frame post component, said component made up of a plurality of hollow square extruded members fused in a linear arrangement including an elongated post member, said post member fused to a bottom fastener plate with bottom fastener plate holes corresponding to fastener holes of top and bottom surfaces of an attached horizontal beam member of a table end seat frame component, an upper seat post fastener plate, said plate joined to said post member at an acute angle of more than ten degrees, a single seat pad affixed to said upper seat post fastener plate, a knee rest frame member, said member rigidly fused to said elongated post member at an angle of twenty degrees, said knee rest frame member joined to an ergo seat knee support pad member, said table end seat frame component made of a plurality of hollow square extruded members fused and bent into a linear arrangement, said component bent down ninety degrees relative to its longitudinal axis on only one end, said bent down end providing a cavity for receiving a premanufactured leveler leg, a fastening plate joined perpendicularly to the other end, said fastening plate being attached to a vertical surface of said horizontal beam of said table leg and seat leg assembly, a single table leg support member fused to a top surface of said table leg and seat leg component, a fastening plated fused perpendicularly to an end of an upper horizontal beam member of said single table leg support member, said fastening plate being attached to a vertical surface of said upper connector member.

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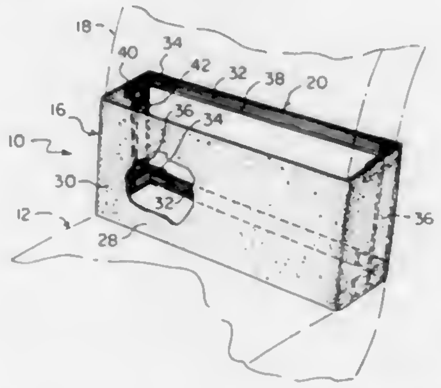
5,785,380

Patent Not Issued For This Number

5,785,381
SEAT PROTECTOR

Delcher Carter, 131 1st Ave. North, Jacksonville Beach, Fla. 32250-6912

Filed Apr. 2, 1997, Ser. No. 829,361
Int. Cl.⁶ A47C *31/11*
U.S. Cl. 297—219.1 **4 Claims**



1. A seat protector for, and in combination with, a driver's seat in a motor vehicle comprising:

a) a flexible sheet mounted against a lower portion of a backrest of the driver's seat in the motor vehicle, said flexible sheet consisting of a solid flexible member on the front of said seat with a lower edge of said sheet along the bottom of said backrest and wrapped around the sides of said backrest with a pair of side edges aligned with the rear of said backrest and said flexible sheet being a rectangular shaped piece of pliable material having approximately the same area as the lower portion of the backrest to which it is to be applied to protect; and

b) means for installing and adjusting said flexible sheet against the lower portion of the backrest of the driver's seat comprising hook or loop fasteners along and inside the top and bottom edges of said flexible sheet adjacent the side edges of said flexible sheet, a pair of straps extending along the back of said backrest joining the top and bottom side edges of said flexible sheet, said straps having hook or loop fasteners on the side away from said backrest engaged with the matching hook or loop fasteners on the inside of said flexible sheet, so as to protect the backrest from excessive use and wear by a person wearing a utility belt with specialized equipment sitting in the driver's seat.

5,785,382
INFANT CAR SEATS

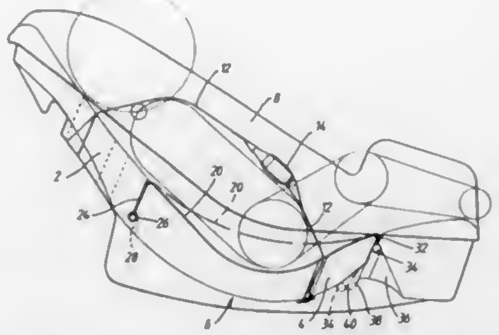
Derrick John Martin Barker, West Midlands, England, assignor to Bettacare Limited, Surrey, England

PCT No. PCT/GB95/00100, § 371 Date Aug. 16, 1996, § 102(e) Date Aug. 16, 1996, PCT Pub. No. WO95/22471, PCT Pub. Date Aug. 24, 1996
PCT Filed Jan. 19, 1995, Ser. No. 693,265
Claims priority, application United Kingdom, Feb. 16, 1994, 9402923
Int. Cl.⁶ A47C *1/08*
U.S. Cl. 297—250.1 **18 Claims**

1. An infant car seat comprising:

a back support portion and a leg support portion;

said back support and leg support portions having respective retaining means and merging together at a junction region;



a flexible contour modifying member having two opposed sides and further having respective engagement means adjacent each of said opposed sides;

said engagement means being engageable with respective ones of said retaining means to position said contour modifying member in an extended position in which it adopts a curved configuration extending between said two retaining means and is spaced from the junction region of said back support and leg support regions;

said contour modifying member, when in said extended position, having a radius of curvature greater than that of said junction region;

said seat having a rear surface;

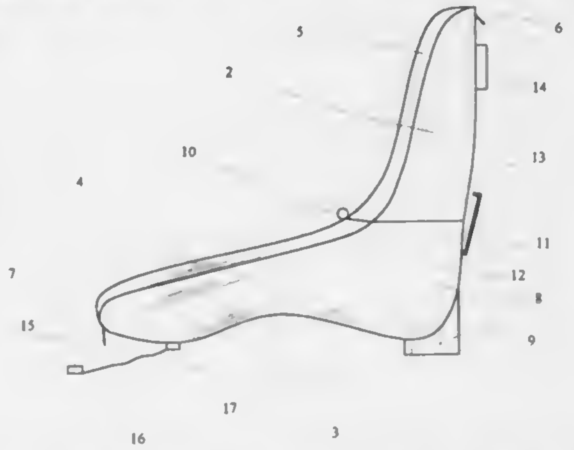
said back support and leg support portions each have at least one respective slot formed therein through which respective portions of said contour modifying member extend; and

said retaining means and said engagement means being situated at the rear surface of said seat.

5,785,383
PORTABLE FOLDABLE BABY CHAIR

Armando Otero, 714 W. Virginia Ave., Tampa, Fla. 33603

Filed Jun. 18, 1997, Ser. No. 878,365
Int. Cl.⁶ A47C *1/08*
U.S. Cl. 297—255 **1 Claim**



1. A chair for seating children and securing to the seat of a vehicle comprising:

(a) an upper back support, said back support having a top edge, a bottom edge, a pair of lateral edges, and a back side, said back support having a groove affixed along edges of said lateral edges, a hook is affixed to the back side in close proximity to said top edge,

(b) a seat pivotally affixed to said upper back support via a hinge, said seat having a bottom edge, a top edge and a pair of lateral edges, said top edge having a negative edge for accepting a positive edge of said bottom edge of said back support, said seat having a back side, said seat having a groove affixed along edges of said lateral edges,

(c) a means of locking said back support and said seat together in a folded position,

(d) a floor supporting member affixed to said bottom edge of said seat,

(e) a means of locking said back support and said seat in a fully open position,

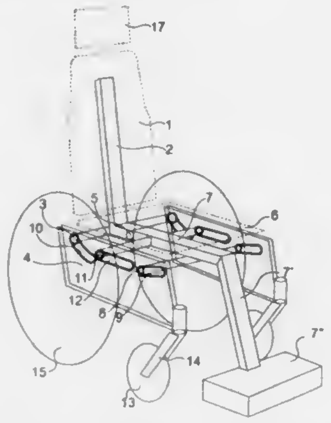
(f) a storage cavity formed between said back support and said seat when said chair is in a folded position, said storage cavity having a given internal spatial dimension,

(g) a storage bag having external spatial dimensions generally matching the internal spatial dimensions of said storage cavity thereby allowing said storage bag to be inserted into said storage cavity, said storage bag being removably affixed to said storage cavity, said storage bag having a sealable opening for allowing accessories to be inserted and removed.

5,785,384
ARRANGEMENT IN AN ADJUSTABLE CHAIR

Morten Sagstuen, Lillehammer, Norway, assignor to Handicare Industri A/S, Lillehammer, Norway

PCT No. PCT/NO95/00186, § 371 Date Apr. 8, 1996, § 102(e) Date Apr. 8, 1996, PCT Pub. No. WO96/11610, PCT Pub. Date Apr. 25, 1996
PCT Filed Oct. 10, 1995, Ser. No. 817,116
Claims priority, application Norway, Oct. 14, 1994, 943892
Int. Cl.⁶ A47C *1/02*
U.S. Cl. 297—317 **7 Claims**

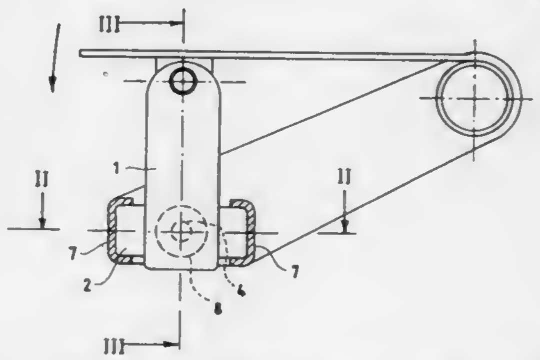


1. A device for an adjustable chair, where the back of said adjustable chair, at a first mounting site on each side thereof, is pivotally connected to respective side members of the chair, and at a second mounting site forms a hinged connection with a rear part of a chair seat frame, where the chair seat frame, at a front mounting site on each side thereof, is slidably connected to one of the respective side members along a front guide which forms a part of the side member, wherein said first mounting site on the chair back is designed to slide along a rear, forward and downward inclined guide in the side member, and wherein the seat frame on each side has a rear mounting site between said front mounting site and said second mounting site for the chair back, said rear mounting site forming a slidable connection with a central guide in each respective side member, which is located between the front guide and the rear guide when seen in the longitudinal direction of the side member, characterized in that the front guide is inclined forward and upward and forms an angle with the horizontal in the range of 10°–45°, that the central guide forms an angle with the horizontal in the range of 0°–15°, and that the rear, forward and downwardly inclined guide is slightly curved, and forms an angle with the horizontal in the range of 15°–45°.

5,785,385
LOCKING DEVICE FOR CHAIR SEATS

Tore Lie, N-2391, Moelv, Norway, and Lars Holstensson, S. Koltorpsgatan 37, S-571 39 Nassjö , Sweden

Continuation of Ser. No. 993,528, Dec. 18, 1992, abandoned, which is a continuation of Ser. No. 640,311, Mar. 27, 1991, abandoned. This application Nov. 21, 1995, Ser. No. 561,098
Claims priority, application Norway, Jul. 27, 1988, 883319
Int. Cl.⁶ A47C *1/02*
U.S. Cl. 297—328 **2 Claims**

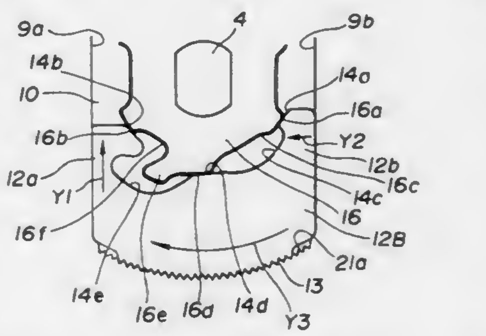


1. A device for locking a chair base of a chair seat in a desired angular position comprising a plurality of first lamellae adapted to be connected to the chair base, a retainer having side edges adapted to be secured to the chair base containing a plurality of second lamellae interspersed with the first lamellae, the first and second lamellae defining adjacent contacting surfaces containing no openings or slots, adjustable clamping means comprising adjustable clamping shoes affixed to bolt means that extend through and are threadably connected to said retainer for clamping together the adjacent contacting surfaces of said first and second lamellae for locking the chair seat at the desired angle relative to the chair base.

5,785,386
ROTARY-CAM TYPE RECLINING DEVICE

Tomonori Yoshida, Yokohama, Japan, assignor to Ikeda Bussan Co., Ltd., Ayase, Japan

Filed Nov. 8, 1996, Ser. No. 746,343
Claims priority, application Japan, Nov. 8, 1995, 7-314702
Int. Cl.⁶ B60N *2/22*
U.S. Cl. 297—367 **6 Claims**



1. A rotary-cam type reclining device comprising:

a base (1A; 1B) fixedly connected to a seat cushion, and defining therein a recessed toothed-block guide (**10**), said recessed toothed-block guide having a pair of parallel side walls (**9***a*, **9***b*);

an arm (2A; 2B) fixedly connected to a seat back and rotatably supported on said base, said arm having an inner toothed portion (**21***a*; **21***a*);

a toothed block (12A; 12B) slidably disposed between said base (1A; 1B) and said arm (2A; 2B), and having an outer toothed portion (**13**; **13**) on an outer periphery thereof and a cam-contour surface (**14***a*, **14***b*, **14***c*, **14***d*, **14***e*) on an inner periph-

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ery thereof, and being slidably guided by said side walls (**9***a*, **9***b*) of said recessed toothed-block guide (**10**);

a rotary cam (**16**) for producing an outward sliding motion of said toothed block (**12**A; **12**B) to mesh said outer toothed portion (**13**; **13**) with said inner toothed portion (**21***a*; **21***a*) by a rotary motion of said cam (**16**) in a first rotational direction and for producing an inward sliding motion of said toothed block (**12**A; **12**B) to unmesh said outer toothed portion (**13**; **13**) from said inner toothed portion (**21***a*; **21***a*) by a rotary motion of said cam (**16**) in a second rotational direction opposing said first rotational direction, said cam having a cam-profile surface (**16***a*, **16***b*, **16***c*, **16***d*, **16***e*, **16***f*) facing said cam-contour surface of said toothed block (**12**A; **12**B); and

an operating lever (**3**) mechanically linked to said cam (**16**) for producing said rotary motion of said cam (**16**);

wherein said cam (**16**) and said toothed block (**12**A; **12**B) have at least three cam-connection points in said cam-profile surface and said cam-contour surface for restricting a sliding motion of said toothed block (**12**A; **12**B) in a direction parallel to said side walls and for restricting a movement of said toothed block (**12**A; **12**B) in a direction perpendicular to said side walls, when said toothed block (**12**A; **12**B) is held at an outermost sliding position at which said outer toothed portion (**13**; **13**) is completely meshed with said inner toothed portion (**21***a*; **21***a*).

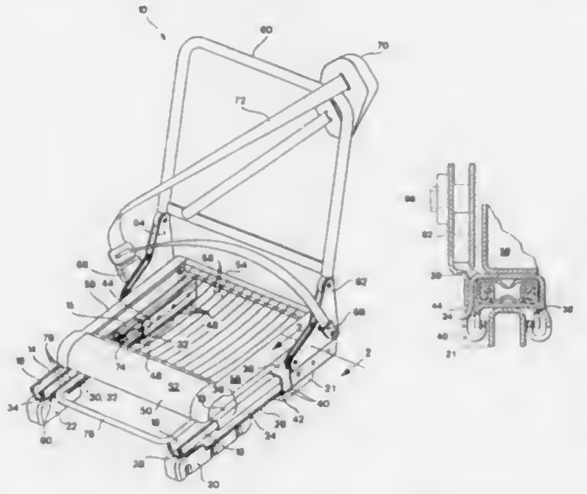
5,785,387
VEHICLE SEAT ASSEMBLY WITH POSITION-FIXING MEANS

Ruben Hernandez, Belvedere; John D. Lindman, Rockford, and Roger L. Brock, Roscoe, all of Ill., assignors to Excel Industries, Inc., Elkhart, Ind.

Filed Sep. 23, 1996, Ser. No. 718,649

Int. Cl.⁶ B60N *2/42*

U.S. Cl. 297—473 **21 Claims**



1. A vehicle seat assembly comprising, in combination:

first and second fore-and-aft extending lower track sub-assemblies for mounting to a vehicle generally horizontally and laterally spaced from each other, the first lower track sub-assembly comprising a generally fore-and-aft extending first lower track, and the second lower track assembly comprising a generally fore-and-aft extending second lower track;

a generally fore-and-aft extending first downward flange external of the first and second lower track, having a toothed free edge; and

first and second upper track sub-assemblies carried by the first and second lower track sub-assemblies respectively, the first upper track sub-assembly comprising a first upper track slidingly coupled with the first lower track and an upwardly open, first upper J-hook external of the first upper track and first lower track, and terminating below a bottom-most surface of the first lower track and the second upper track sub-assembly comprising a second upper track slidingly coupled with the second lower track;

wherein the first downward flange is received by the first upper J-hook below the bottom-most surface of the first lower track permitting fore-and-aft travel in a normal operating condition, and limiting vertical dislocation of the first upper track sub-assembly relative the first lower track sub-assembly, the first downward flange and first upper J-hook cooperatively providing dislocation position-fixing means for resisting fore-and-aft movement of the first upper J-hook relative the first downward flange upon upward dislocation of the first upper track sub-assembly relative the first lower track sub-assembly.

5,785,388
SEAT BELT PILLOW

Phillip Curtis, 15 Beaufort La., Clayfield, Queensland, 4011, Australia

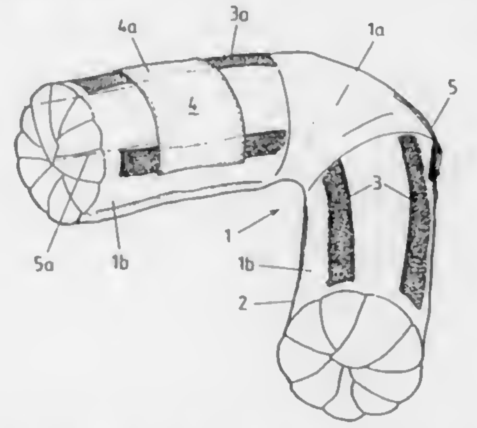
PCT No. PCT/AU95/00657, § 371 Date Apr. 25, 1997, § 102(e) Date Apr. 25, 1997, PCT Pub. No. WO96/13401, PCT Pub. Date May 9, 1996

PCT Filed Oct. 12, 1995, Ser. No. 817,986

Claims priority, application Australia, Oct. 26, 1994, PM9014

Int. Cl.⁶ A47C *31/00*

U.S. Cl. 297—482 **18 Claims**



1. A seat belt pillow having a web and two arms to provide the pillow with a channel shape having substantially a uniform thickness in a non-compressed state, each of said arms on an external surface thereof having a pair of spaced attachment zones for insertion of a vehicle seat belt therebetween, there also being provided at least one attachment patch for attachment to respective zones on an associated arm whereby the combination of spaced attachment zones and the adjacent attachment patch provides a passage for the vehicle seat belt which moves freely through said passage in use relative to the pillow.

5,785,389
AUTOMOTIVE WHEEL AND WHEEL COVER SHIELD

Wendell R. Bradford, P.O. Box 968, Mont. Belvieu, Tex. 77580

Filed Dec. 20, 1996, Ser. No. 771,225

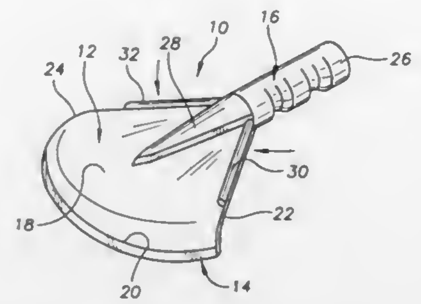
Int. Cl.⁶ B60B *7/06*

U.S. Cl. 301—37.42 **7 Claims**

1. An automotive wheel and wheel cover shield comprising:

a resilient shield member having a shielding surface defined partially by a curved shield edge and a shield surface area less than the surface area of the wheel or wheel cover to be protected, said shield edge having a deformable edge contact band secured there along and extending past the shield edge along the entire length of said curved shield edge; and

a handle assembly extending from said shield member including a hand grip, a rigid central support rib in fixed connection with a central portion of an outwardly facing surface of said shield member, a first deflectable support rib in fixed connection with a first side edge portion of said outwardly facing surface of said shield member, and a second deflectable support rib in fixed connection with a second side edge portion of said outwardly facing surface of said shield member, said first and second deflectable support ribs being deflectable from a normal outwardly extending position in a manner to change the curvature of said shield edge to a deflected radius of curvature having a radius measurement between a first and a second predetermined radius value.



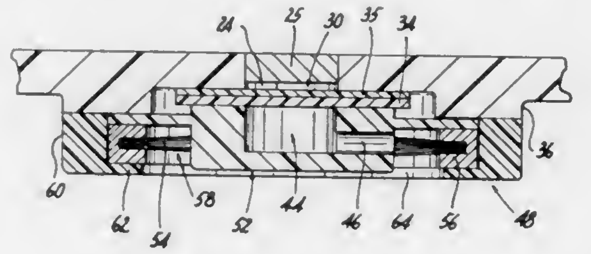
5,785,390
VENTED HUBCAP

Mark N. Gold, Hallsville; Barry E. Braun, and Paul S. Perry, both of Longview, all of Tex., assignors to Stemeo Inc., Longview, Tex.

Filed Jan. 31, 1995, Ser. No. 381,699

Int. Cl.⁶ B60B *7/00*

U.S. Cl. 301—108.1 **13 Claims**



1. A hubcap for covering lubricated wheel bearings in a wheel hub comprising:

a hubcap body member attachable to the wheel hub for enclosing the wheel bearings, said hubcap member defining a closed chamber between said hubcap body member and the wheel hub for housing a fluid for lubricating the wheel bearings;

a vent means for permitting gases to flow from said chamber, said vent means including a vent passage extending through said hubcap body member and a thin sheet of porous material supported on said hubcap body member for allowing a flow of gases to enter and exit said chamber through said vent passage while preventing liquids and other contaminants from flowing into said chamber and lubricant from flowing out of said chamber; and

a fastening means attached to said hubcap body member and covering said sheet of porous material, said fastening means including means for securing said sheet of porous material in position over said vent passage, said sheet of porous material being positioned between said fastening means and said vent passage, said fastening means defining a central cavity located adjacent said sheet of porous material and at least one port extending from said central cavity to connect said central cavity to the atmosphere.

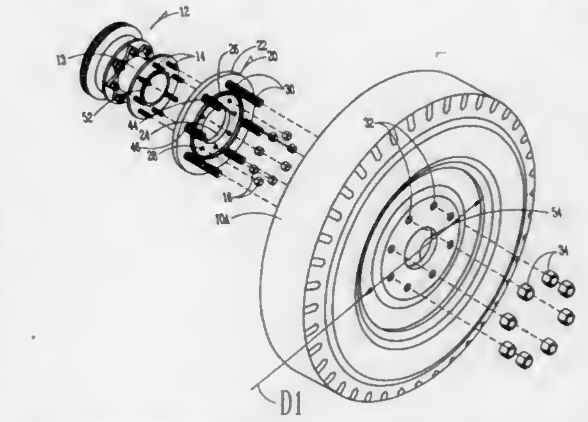
5,785,391
WHEEL ADAPTER

Alan C. Parry, 1974 365th St., Earlham, Iowa 50072, and John H. Kite, Urbandale, Iowa, assignors to Alan C. Parry, Earlham, Iowa

Filed Dec. 10, 1996, Ser. No. 761,322

Int. Cl.⁶ B60B *27/00*

U.S. Cl. 301—111 **16 Claims**



1. A wheel adapter for mounting a wheel on a vehicle having a plurality of wheel mounting studs arranged in a bolt circle of a given diameter on a wheel hub, the wheel having a plurality of holes arranged in a bolt circle of a diameter substantially different from the given diameter, comprising:

an adapter plate having a plurality of holes therethrough in a bolt circle, the holes through the adapter plate being adapted to respectively receive the wheel mounting studs;

a plurality of studs protruding from the adapter plate and arranged so as to extend respectively through at least some of the holes in the wheel, the studs on the adapter plate being arranged in a bolt circle having a substantially different diameter than the bolt circle of holes in the adapter plate;

a raised circular flange protruding outwardly from the adapter plate substantially parallel to the studs protruding from the adapter, the flange being concentrically interposed between the holes and the studs in the adapter plate; and

the flange having a top face which is raised so as to accommodate a lug nut between the top face of the flange and the adapter plate.

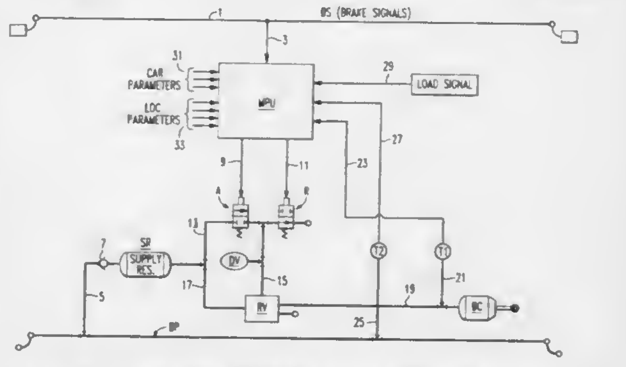
5,785,392
SELECTABLE GRADE AND UNIFORM NET SHOE FORCE BRAKING FOR RAILWAY FREIGHT VEHICLE

James E. Hart, Westmoreland County, Pa., assignor to Westinghouse Air Brake Company, Wilmerding, Pa.

Continuation-in-part of Ser. No. 597,277, Feb. 6, 1996. This application Apr. 15, 1996, Ser. No. 630,075

Int. Cl.⁶ B60T *13/00*

U.S. Cl. 303—7 **23 Claims**



1. Railway freight brake apparatus for operation on-board of rail vehicles in a train, such vehicles having a mechanical brake with

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friction brake shoes actuated by a pneumatic brake cylinder, and having a reservoir as a storage source of pressurized fluid, such apparatus comprising:

(a) brake signal receiver on-board such vehicle to receive a brake signal indicative of a desired braking level of such train;
(b) grade signal receiver on-board such vehicle to receive a grade signal indicative of operation in a grade mode on a descending grade;
(c) at least one valve to control the pressurization of such brake cylinder from such reservoir and the depressurization of such brake cylinder;
(d) processor to control said valve to supply such brake cylinder with pneumatic fluid from such reservoir and to exhaust such fluid to apply and release such mechanical brake in response to said brake signal; and
(e) said processor controlling said valve to supply such brake cylinder with pneumatic fluid from such reservoir in response to said grade signal so as to produce generally equal net shoe forces on such brake shoes among such vehicles.

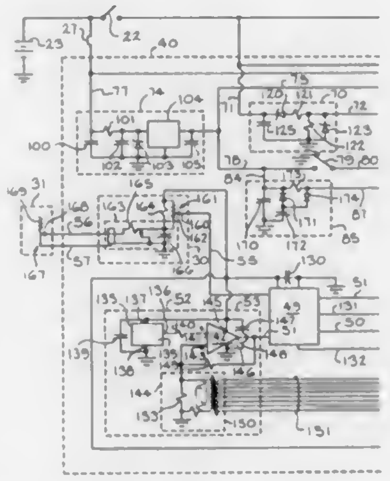
5,785,393
ELECTRONIC TRAILER BRAKE CONTROLLER WITH PENDULUM ZERO ADJUST

Michael C. McGrath, Farmington Hills; Wayne M. Groleau, Novi; Michael A. Hedding, Canton; Brian J. Stockford, Ann Arbor, and David Sullivan, Brighton, all of Mich., assignors to Hayes Wheels International, Inc., Romulus, Mich.

Division of Ser. No. 313,703, Sep. 27, 1994, Pat. No. 5,620,236. This application Feb. 19, 1997, Ser. No. 802,379

Int. Cl.^{6} B60T *13/00*

U.S. Cl. 303—7 **16 Claims**



1. An electronic brake controller for actuating electric wheel brakes of a towed vehicle, the towed vehicle being associated with a towing vehicle having a set of wheel brakes, the electronic brake controller comprising:

a sensor for producing a brake control signal which is representative of the desired braking of the towed vehicle said brake control signal including a sensor bias component; and
a control device responsive to said brake control signal for generating an output signal for actuating the electric wheel brakes of the towed vehicle, said control device responsive to the actuation of a zero adjust switch for measuring the voltage level of said brake control signal and for generating a zero adjust signal in response thereto, said control device further responsive to actuation of said zero adjust switch to subtract said zero adjust signal from said brake control signal whereby zero adjust signal cancels said bias component of said brake control signal.

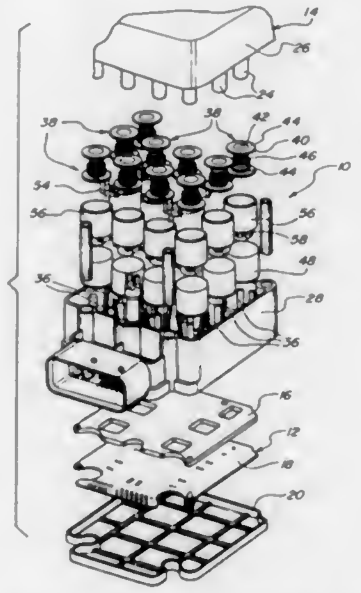
5,785,394
SOLENOID ASSEMBLY FOR ANTI-LOCK BRAKING SYSTEM

Frank W. Volpe, Novi, and Anthony M. Strano, Canton, both of Mich., assignors to Ford Global Technologies, Inc., Dearborn, Mich.

Filed May 24, 1996, Ser. No. 653,536

Int. Cl.^{6} B60T *13/66;8/32*

U.S. Cl. 303—119.2 **17 Claims**



1. A solenoid assembly for an anti-lock braking system comprising:

a housing having a cavity;
a plurality of solenoids, each of said solenoids comprising a bobbin, a coil wrapped about said bobbin and a can for receiving said bobbin and being received within said cavity; and
an overmold binding said bobbin, said coil and said can together and being disposed between said can and said housing for each of the solenoids to provide a resilient force for each of the solenoids.

5,785,395
CUSHIONED ROLLER FOR A BELTED UNDERCARRIAGE

Elmer R. Crabb, Granbury, Tex., assignor to Caterpillar Inc., Peoria, Ill.

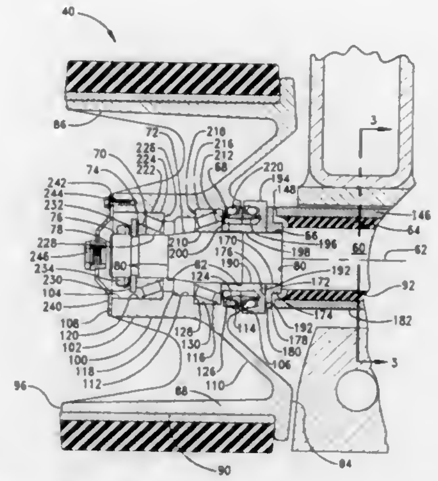
Filed Aug. 23, 1996, Ser. No. 702,827

Int. Cl.^{6} B62D *55/104*

U.S. Cl. 305—138 **16 Claims**

1. A work machine having a rubber belted track system, said rubber belted track system being attached to a chassis of said work machine and said rubber belted track system having a pair of endless belts defining an inner surface having an inner portion and an outer portion, said pair of endless belts being driven by a drive wheel and an idler wheel being connected to said chassis, said pair of endless belts being tensioned between said drive wheel and said idler wheel by a tensioning means, said work vehicle comprising:

a plurality of cushioned rollers being attached to said chassis and rotatably contacting the inner surface of said pair of endless belts;
said plurality of cushioned rollers including a shaft defining an axis, a pair of ends being spaced along said axis and a cylindrical surface being axially centered on said shaft;
said plurality of cushioned rollers including a pair of individual shell portions rotatably attached near each of the ends of the shaft and being separated by said cylindrical surface, individual ones of said pair of individual shell portion being in contacting relationship with at least one of said inner portion and said outer portion of the inner surface of the pair of endless belts;
a collar being positioned about said cylindrical surface and being attached to said chassis; and
a cushioning member being interposed said collar and said cylindrical surface of said shaft.



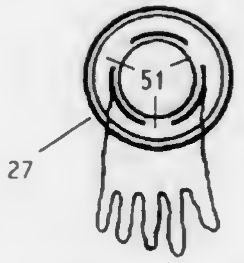
5,785,396
GLOVE BAG

Hal C. Israel, 2200 Station Dr. Suite #2, Camden, N.J. 08104

Filed Apr. 3, 1997, Ser. No. 832,226

Int. Cl.^{6} A61G *11/00*

U.S. Cl. 312—1 **6 Claims**



1. A glove bag for containment and removal of hazardous materials from a structure that form-fits around and conforms to the structure which comprises

at least two separable compartments in said bag in contact with and encircling said structure;
at least one glove in each of said compartments to receive a hand of a worker;
said glove having breakable connector tab means to hold the glove in place for easy retrieval;
water entry means to permit water to be introduced into said compartments;
means to retain said compartments together along their meeting edges and;
means for sealing off said compartments in contact with said structure.

5,785,397
MODULE CONNECTION MECHANISM

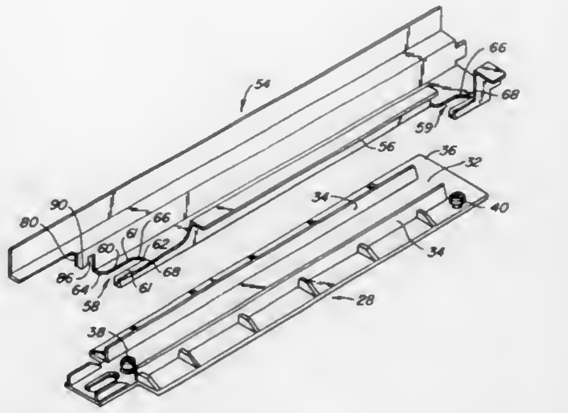
John Pavelski, Austin, Tex., assignor to Tandem Computers Incorporated, Cupertino, Calif.

Filed Dec. 21, 1995, Ser. No. 576,750

Int. Cl.^{6} F16B *12/00*

U.S. Cl. 312—111 **12 Claims**

1. An apparatus for removably connecting a first and a second modules comprising:



a first and a second modules,
a pin, having a generally round shank and a head, attached to said first module, the portion of said shank nearest said head being tapered;
an elongate slot formed on a surface of said second module to operably engage said pin, said slot having open and closed ends and a straight tapered surface extending across only a portion of said closed end;
wherein said pin and elongate slot engage one another through entry of said pin shank into the open end of said slot so that a portion of said second module surface adjacent to said slot is captured between said pin head and first module.

5,785,398
DEVICE FOR FASTENING COMPUTER CASE

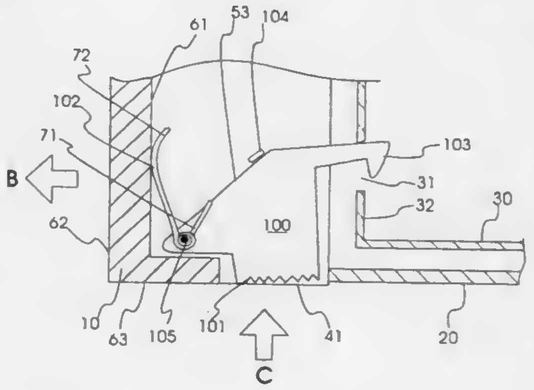
Sang-Seok Park, Suwon, Rep. of Korea, assignor to Samsung Electronics Co., Ltd., Kyungki-do, Rep. of Korea

Filed Mar. 11, 1996, Ser. No. 612,790

Claims priority, application Rep. of Korea, Mar. 10, 1995, 1995/4184

Int. Cl.^{6} H05K *5/00*

U.S. Cl. 312—223.2 **24 Claims**



16. A computer housing, comprising:

a computer case having left and right opposing sides and a front end extending between said left and right opposing sides, and having a first aperture perforating a first one of said opposing sides;
a main chassis having a first end and a second aperture perforating said first end, said second aperture being separate and discrete from said first aperture;
a fastener rotatably mounted within said computer housing between said computer case and said main chassis, enabling fastening and unfastening of said computer case to and from said main chassis, said fastener comprised of:
  a push button positioned within said first aperture and exposed by said first aperture to accommodate manual depression towards a second one of said opposing sides, and

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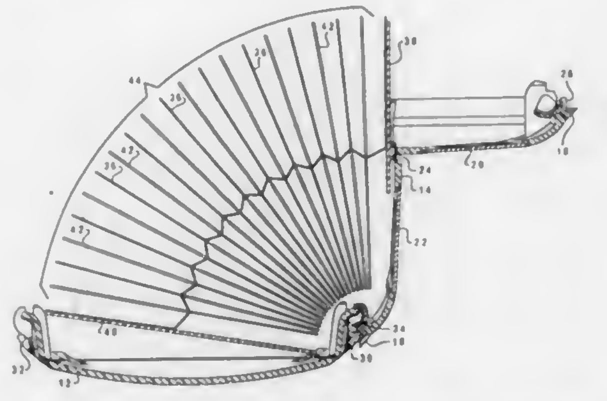
- a hook integral with said push button extending through said second aperture and when latching onto a wall of said first end, fastening said computer case to said main chassis, and unlatching and withdrawing from said second aperture to unfasten said computer case from said main chassis in response to said manual depression while said front panel is pulled away from said main chassis; and

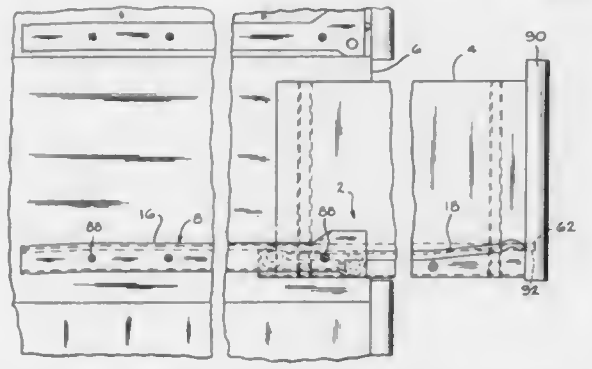
spring pivotably biasing said fastener in a direction to fasten said computer case to said main chassis.

5,785,399
BILATERAL MEDIA STORAGE UNIT
Richard F. Frankeny, Rte. 4, Box 285, Elgin, Tex. 78621; Verlon E. Whitehead, 8815 Mesa Dr., Austin, Tex. 78759, and Ronald E. Hunt, 211 Buck Bend, Georgetown, Tex. 78628
Filed Nov. 13, 1996, Ser. No. 748,564
Int. Cl.^{6} A47B *81/06*
U.S. Cl. 312—324 15 Claims



1. An apparatus for storing and carrying multiple substantially planar storage media, said apparatus comprising:
- a portable housing including a lower base component and an upper cover component;
- a first selectively releasable hinge means disposed between said lower base component and said upper cover component at a first point for pivotally coupling said lower base component and said upper cover component at said first point and for releasing said upper cover component from said lower base component in response to a release thereof;
- a second selectively releasable hinge means disposed between said lower base component and said upper cover component at a second point which is diametrically opposed to said first point, for pivotally coupling said lower base component and said upper cover component at said second point and for releasing said upper cover component from said lower base component in response to a release thereof; and
- a slotted receptacle disposed within said portable housing having a first plurality of extensible slots adapted to receive a first plurality of substantially planar storage media and a second plurality of extensible slots adapted to receive a second plurality of substantially planar storage media wherein said first plurality of extensible slots are extended in response to a pivoting of said upper cover component away from said lower base component at said first point while said upper cover component is pivotally coupled to said lower base component at said second point and wherein said second plurality of extensible slots are extended in response to a pivoting of said upper cover component away from said lower base component at said second point while said upper cover component is pivotally coupled to said lower base component at said first point.

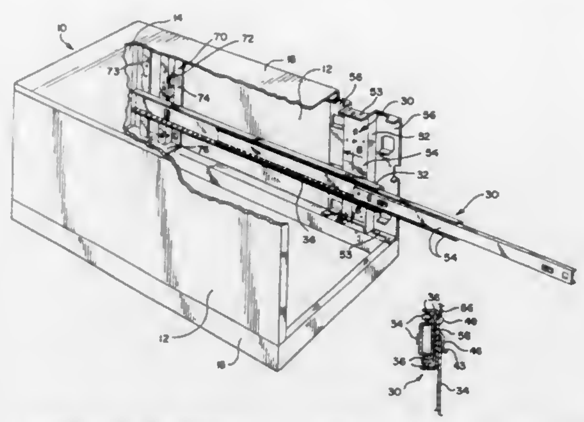
5,785,400
DUAL DRAWER SLIDE ASSEMBLY
Jerry D. Grieser, Archbold; Richard A. Nelson, Napoleon; Gordon D. Schumacher; Thomas B. Warner, both of Archbold, and David M. Dietrich, Napoleon, all of Ohio, assignors to Sauder Woodworking Co., Archbold, Ohio
Continuation-in-part of Ser. No. 551,452, Nov. 1, 1995, abandoned. This application Jan. 16, 1997, Ser. No. 784,412
Int. Cl.^{6} A47B *88/00*
U.S. Cl. 312—334.12 17 Claims



1. A dual drawer slide assembly for a cabinet having at least one drawer including a drawer front defining a slot comprising:
- a first drawer slide and an opposed second drawer slide each including:
  - (a) a drawer rail having a front end and a back end, a wall member extending between said front and back ends, a top member projecting inwardly substantially perpendicular to said wall member, a rail lip projecting downwardly substantially perpendicular to said top member and substantially parallel to said wall member, a bottom member projecting inwardly substantially perpendicular to said wall member and substantially parallel to said top member;
  - (b) a drawer glide having a first end adjacent said front end and a second end adjacent said back end, a side member extending between said first and second ends, an upper track projecting inwardly substantially perpendicular to said side member, said upper track being adjacent said rail lip, a track lip projecting downwardly substantially perpendicular to said upper track and substantially parallel to said side member, said track lip being adjacent said wall member, said upper track including a tab insert for insertion in said slot defined by said drawer front to connect said drawer glide to said drawer front;
  - (c) a rail wheel mounted adjacent said front end, said rail wheel being adjacent said side member, said upper track and said track lip of said drawer glide; and
  - (d) a glide wheel mounted adjacent said second end, said glide wheel being adjacent said wall member, said top member, said rail lip and said bottom member of said drawer rail.

5,785,401
VERTICAL SUPPORT FOR A SLIDE MECHANISM IN A CABINET
Steve Bowyer, Fruitport; Herman Smeetz, Holland, and Alan Wright, Wyoming, all of Mich., assignors to Herman Miller, Inc., Zeeland, Mich.
Filed Jun. 21, 1996, Ser. No. 667,437
Int. Cl.^{6} A47B *88/04*
U.S. Cl. 312—350 16 Claims

1. A cabinet having a drawer comprising:
- a housing;
- a slide mechanism adapted to support the drawer, said slide mechanism comprising a forward portion, a rear portion and a side surface, wherein said forward portion comprises a first and second mounting member disposed on said side surface;

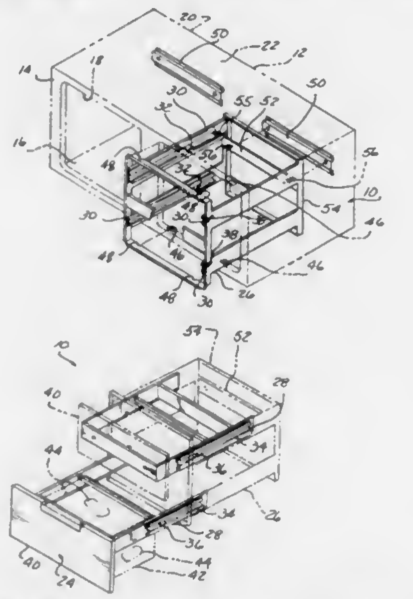


- a forward vertical support member attached to said housing, said support member comprising a channel having a base section and an opening positioned in said base section, said opening adapted to receive said first and second mounting members of said slide mechanism;
- a resilient tab member extending from said base section into said opening,

wherein said first mounting member releasably engages an edge of said opening and said second mounting member releasably engages said resilient tab member,

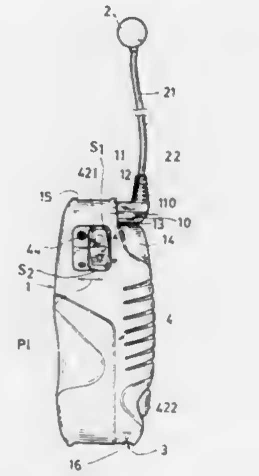
whereby said forward portion of said slide mechanism is mounted to said forward vertical support in said housing.

5,785,402
REMOVABLE DRAWER CARTRIDGE
Orindo A. DeLorenzo, Mt. Pleasant, Mich., assignor to Randell Manufacturing, Inc., Weidman, Mich.
Filed Nov. 8, 1996, Ser. No. 747,037
Int. Cl.^{6} A47B *88/00*
U.S. Cl. 312—350 14 Claims



1. A cabinet having a front face, a hollow interior, a back wall having an inner surface, an opening defined in the front face, and a removable drawer cartridge, the drawer cartridge comprising:
- means, removably receivable through the cabinet opening and within the hollow interior, for housing at least one drawer, wherein the housing means comprises:
  - an outer track assembly including a frame having a back surface, the outer track assembly being quickly and releasably attached to the cabinet; and
  - an inner track carriage slidably receivable within the outer track assembly, the inner track carriage adapted to slidably receive the at least one drawer;
- means for locating the housing means accurately within the hollow interior; and
- means for quickly and releasably attaching the housing means to the cabinet, wherein the quick and releasable attaching means comprises:
  - a mounting surface mounted on the back wall inner surface;
  - a complementarily shaped retaining bracket disposed on the frame back surface; and
  - a fastener for attaching the retaining bracket to the mounting surface, wherein the fastener is a quick release hand tightened bolt.

5,785,403
PORTABLE AUDIO-VISUAL APPARATUS OF WIRELESS MICROPHONE COMBINED WITH LASER INDICATOR
Sheng-Hsiung Chang, C/O Hung Hsiug Patent Service Center P.O. Box 55-1670, Taipei, Taiwan
Filed Jan. 13, 1997, Ser. No. 782,276
Int. Cl.^{6} G03B *21/14*
U.S. Cl. 353—42 7 Claims



1. A portable audio-visual apparatus for transmitting radio-frequency sound waves from a wireless microphone to be received and amplified by a receiving amplifier comprising:
- a casing having a jack formed on a first portion of said casing for connecting a microphone into said jack, and having means formed on said casing for smoothly winding a cable of the microphone on said casing without bending, twisting and breaking said cable on said casing;
- a laser indicator mounted in said casing for emitting a laser light outwardly from said casing; and
- a transmitting control means electrically connected with said microphone and said laser indicator for controlling an output of said microphone and said laser indicator through a switch means formed on said casing.

5,785,404
LOCALIZED ILLUMINATION DEVICE
Lynn Wiese, Santa Clara, Calif., assignor to Siemens Microelectronics, Inc., Cupertino, Calif.
Filed Jun. 29, 1995, Ser. No. 496,821
Int. Cl.^{6} F21V *7/04*
U.S. Cl. 362—32 32 Claims

1. Illumination apparatus, comprising:
- (a) a light source at least partially disposed in a first plane;
- (b) a total internal reflection optical element disposed over the light source; and
- (c) a light pipe disposed over the light source and the total internal reflection optical element and extending to a second plane different from the first plane.

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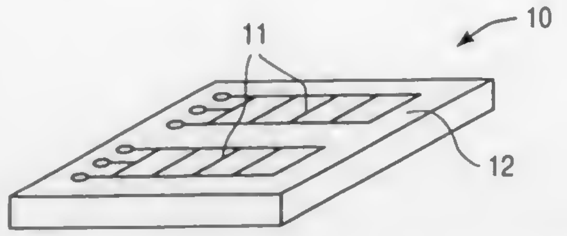


wherein light emitted from the light source is collected by the total internal reflection optical element and directed in a single direction through the light pipe, which channels the light to the second plane so that the light emitted by the light source is maximized at the second plane.

5,785,405

DEVICE FOR ADJUSTING A PRESETTABLE LIGHTING LEVEL OF A HEADLIGHT IN MOTOR VEHICLES

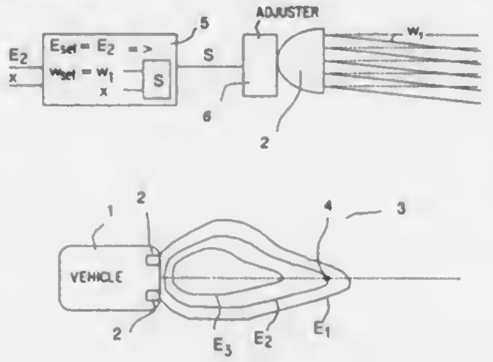
Wolfgang Huhn, Schwabhausen, Germany, assignor to Bayerische Motoren Werke, Munich, Germany

Filed Jul. 17, 1996, Ser. No. 682,374

Claims priority, application Germany, Jul. 17, 1995, 195 25 981.5

Int. Cl.⁶ B60Q *2/06*

U.S. Cl. 362—66 **2 Claims**



1. A device for setting a headlight to different presettable lighting levels in a motor vehicle, said presettable lighting levels being defined by a specified light level at a predetermined measurement point in front of the headlight in the motor vehicle, comprising:
- a control device which assigns to each of said different presettable lighting levels a corresponding tilt angle of the headlight relative to a longitudinal axis of the motor vehicle; and
- wherein said control device adjusts the tilt angle of the headlight upward or downward relative to the longitudinal axis of the motor vehicle in accordance with a desired one of said different presettable lighting levels.

5,785,406

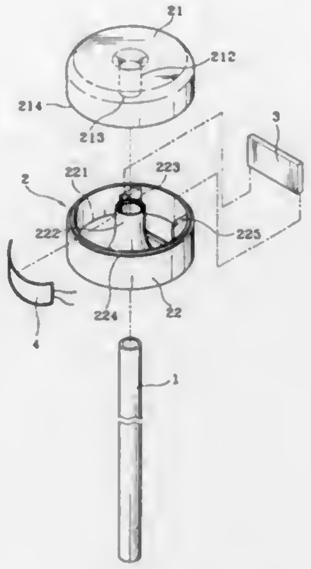
STRAW WITH SOUND/LIGHTING EFFECT PRODUCING MEANS

Jen-Wang Lee, 7Fl., No.768, Chung Cheng Rd., Chung Ho, Taipei Hsien, Taiwan

Filed Jul. 16, 1997, Ser. No. 895,026

Int. Cl.⁶ F21V *33/00*

U.S. Cl. 362—96 **6 Claims**



1. A straw comprising:
- a straw body;
- a container fixedly mounted around said straw body;
- a sound and lighting effect generating control circuit board mounted within said container; and
- a sensor pad mounted between said straw body and said container to detect the presence of a liquid passing through said straw body and to provide a signal to said control circuit board upon the detection of the presence of a liquid passing through said straw body causing said control circuit board to provide sound and lighting effects.

5,785,407

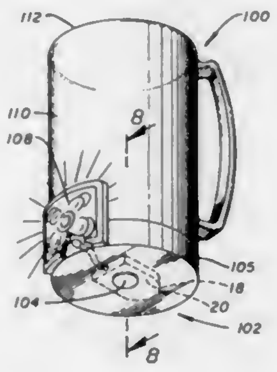
ILLUMINABLE CONTAINER

William R. Ratcliffe, Thousand Oaks, Calif., and William Blake Ratcliffe, Berwick, Canada, assignors to Marpole International Inc., Central Hong Kong, Hong Kong

Filed Nov. 18, 1996, Ser. No. 751,234

Int. Cl.⁶ F21V *33/00*

U.S. Cl. 362—101 **19 Claims**



1. In combination,
- an illuminable container having a bottom wall and a side wall and constructed to hold a fluid within the container,
- an enclosure disposed at a bottom of the container, the enclosure including an energy source and a switch having open and closed states of operation,
- a button disposed externally of the container at the bottom of the container and extending from the bottom wall of the container for depression when the bottom of the container is disposed on a support surface,
- a light emitting member disposed externally of the enclosure and connected in an electrical circuit with the energy source and a switch to become illuminated in accordance with the opening and closing of the switch, and
- an emblem disposed on the container to become illuminated in accordance with the illumination of the light emitting member.

5,785,408

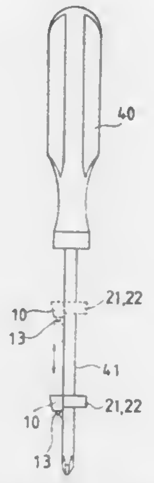
ILLUMINATING DEVICE FOR TOOL

Kuo Hwa Tseng, No. 355-1, Ruen Mei Road, Nan Mei Li, Changhwa, Taiwan

Filed Apr. 18, 1997, Ser. No. 844,508

Int. Cl.⁶ B25B *23/18*

U.S. Cl. 362—119 **4 Claims**



1. An illuminating device for a tool comprising:
- a housing including an orifice,
- at least one light bulb secured in said housing,
- means for energizing said light bulb,
- means for attaching said housing to the tool,
- at least one switch electrically coupled between said energizing means and said light bulb, and
- means for actuating said at least one switch, said actuating means including a blade extended in said orifice for engaging with said at least one switch, said blade including a projection for engaging with the tool and for allowing said blade to actuate said at least one switch when said projection is engaged with the tool.

5,785,409

HEIGHT AND AZIMUTH ADJUSTABLE CONTAINERS

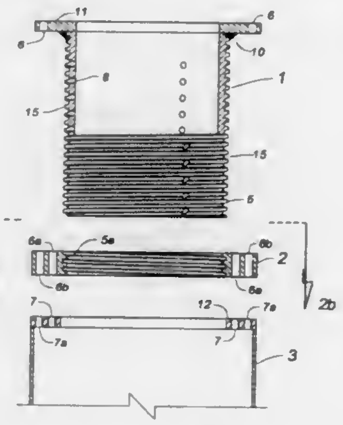
Gary L. Reinert, Sr., 4319 Middle Rd., Allison Park, Pa. 15101

PCT No. PCT/US93/12640, § 371 Date Jun. 29, 1995, § 102(e) Date Jun. 29, 1995, PCT Pub. No. WO94/15833, PCT Pub. Date Jul. 21, 1994

PCT Filed Dec. 29, 1993, Ser. No. 464,736

Int. Cl.⁶ E01F *9/00*

U.S. Cl. 362—153.1 **20 Claims**



1. An airport inset light adjustable alignment container set apparatus, comprising:
- (a) a light fixture support having a non-threaded vertical wall container base for placement as a partially embedded support for a light fixture in an airport runway, taxiway, or other aircraft ground traffic area;
- (b) means on said light fixture support for holding an airport inset light; and
- (c) means for providing variable length extension of said light fixture support and for rotatably adjusting the azimuth alignment of said airport inset light by about plus or minus one degree or more and for rotatably adjusting the height of said airport inset light by about plus or minus 1/64 of one inch or more.

5,785,410

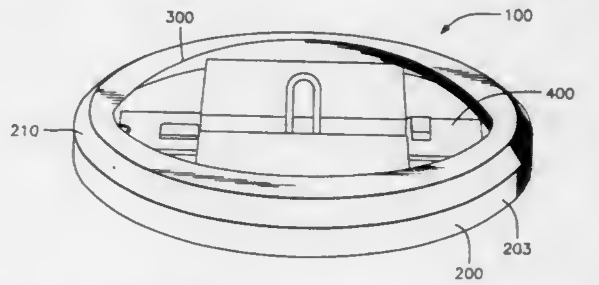
ELECTRONIC ROAD BEACON

Michael Del Branson, Sr., 13500 Duggan Rd., Central Point, Oreg. 97502

Filed May 28, 1996, Ser. No. 654,266

Int. Cl.⁶ E01F *9/00;* **F21S** *1/02;* **F21L** *7/00;15/06*

U.S. Cl. 362—153.1 **39 Claims**



1. An electronic road beacon for use as a traffic alert, the electronic road beacon comprising:
- a spherical lens having an interior surface and an engaging lip with a top outer surface;
- a one-piece solid core base plate having a bottom portion and a raised annulus around the outer periphery of said bottom portion which engages said lip of said lens, said base plate and said lens defining an interior space said annulus has a top outer surface that lies substantially flush with the top outer surface of the lip of said lens when the lip fully engages the annulus, an inside shoulder for structurally supporting said lens, and an exterior beveled edge surface;
- said base plate and said lens fitted together to form a movable, free-standing body for said beacon;
- a light-emitting bulb and at least one battery mounted to the bottom portion of said base plate in said interior space; and
- a plurality of concentric radial freznel positioned on the interior surface of said lens to focus light emitted from said bulb.

5,785,411

TRACK LIGHTING SYSTEM

Neil M. Komai, Temple City, and Thomas T. Nagano, Cerritos, both of Calif., assignors to Tivoli Industries, Inc., Santa Ana, Calif.

Filed Oct. 29, 1996, Ser. No. 738,775

Int. Cl.⁶ F21S *3/00*

U.S. Cl. 362—219 **15 Claims**

1. The improved lighting apparatus comprising:
- an elongated track of electrically insulating material comprising a top surface, first and second side surfaces on respective sides of said top surface having laterally protruding fingers spaced apart and first and second channels formed, respectively, in said first and second side surfaces and extending longitudinally along said track, said elongated track further comprising a first longitudinal groove formed in said top surface between said first and second side surfaces and extending generally a length of said track along the top surface;

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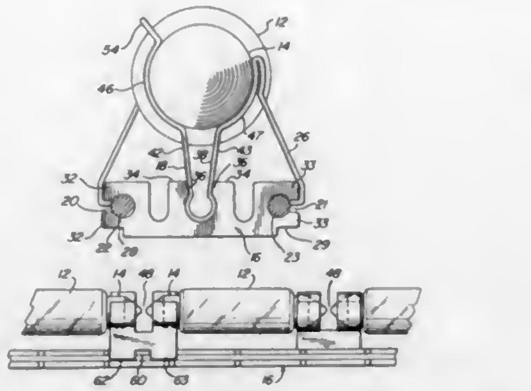
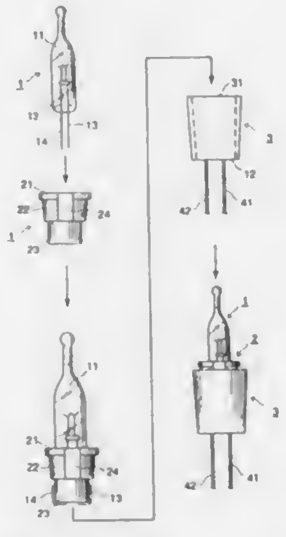


- first and second electrically conductive members disposed within said first and second channels, respectively, and extending generally the length of said track; and
- at least a pair of connectors of generally identical construction, each said connector comprising an elongated sheet member comprising:
  - means insertable into said longitudinal groove for mounting said connector to said track along said longitudinal groove;
  - means for releasably securing an electrically conductive end of an illumination means; and
  - means for communicating an electric current from one of said electrically conductive members to said end of said illumination means.

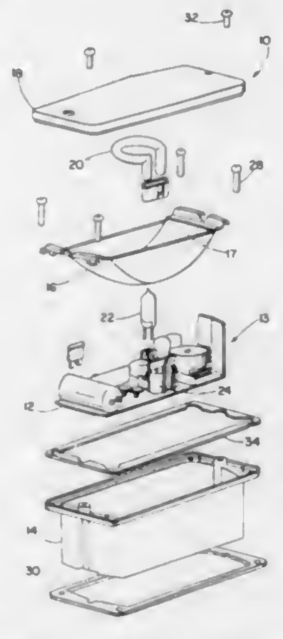
5,785,412
LAMP SOCKET UNIT
Jeng-shyong Wu, Fl. 4, No. 5, Hsing Shyue Rd., Hsin-Chu City, Taiwan, and Jeou-Nan Tzeng, No. 52-1, Alley 100, Lane 311, Nan Yea Street, Hsin-Chu City, Taiwan
Filed Oct. 25, 1995, Ser. No. 548,058
Claims priority, application Switzerland, Mar. 20, 1995, 95 2 05137.0
Int. Cl.⁶ H01R *33/00*
U.S. Cl. 362—226 **11 Claims**



1. A lamp socket unit comprising:

- a lamp holder defining a front end opening on one end of said lamp holder, said lamp holder including a pair of terminals positioned in said front end opening, said lamp holder including holder conductors electrically connected to said terminal and extending outward from said lamp holder;
- a lamp base defining a bulb opening on one end of said lamp base, said lamp base having a base end defining a pair of conductor holes, said lamp base including a neck positioned between said base end and said bulb opening, a diameter of said neck being larger than a diameter of said front end opening;
- elastic deformation means positioned in said neck of said lamp base and for elastically deforming to reduce said diameter of said neck when said lamp base is inserted into said front end opening of said lamp holder, said elastic deformation means biasing said neck in a direction to fix said lamp base in said lamp holders said deformation means being a strip that extends along an axial length of said neck and has a radial thickness, said radial thickness of said deformation means being thinner than a radial thickness of said neck;
- a lamp bulb having a pair of bulb conductors extending from an end of said lamp bulb, said lamp bulb being insertable into said bulb opening of said lamp base, said bulb conductors being insertable into said conductor holes of said lamp base and bendable around said base end of said lamp base to contact said terminals of said lamp holder when said lamp bulb is inserted into said lamp base and said lamp base is inserted into said lamp holder.

5,785,413
DUAL LAMP FIXTURE WITH INTEGRAL CONTROL
Sean P. Tillinghast, Bexley; Daryl A. Popig, Columbus, and Terry Dawson, Westerville, all of Ohio, assignors to Weldon Technologies, Inc., Hilliard, Ohio
Continuation-in-part of Ser. No. 623,250, Mar. 28, 1996, abandoned. This application Mar. 27, 1997, Ser. No. 826,005
Int. Cl.⁶ F21M *15/00;33/00;* **B60Q** *1/00*
U.S. Cl. 362—228 **18 Claims**

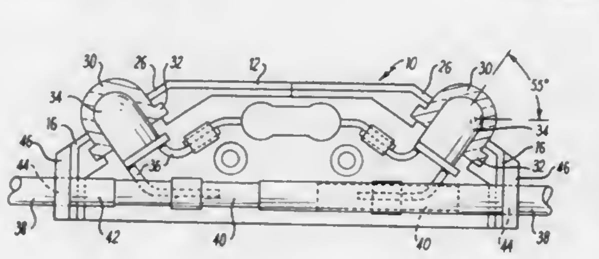


1. An addressable dual lamp fixture connectable to a communication bus for receiving address-specific command signals from an external source comprising:

- a housing;
- a reflector within said housing, said reflector having a concave surface and a focal point;
- a lens offset from said concave surface and mounted to cover an opening of said housing;
- a first lamp of high intensity positioned between said concave surface and said lens;
- a second lamp of lower intensity positioned between said concave surface and said lens;
- a high intensity lamp drive circuit mounted within said housing in communication with said first lamp, wherein said high intensity lamp drive circuit comprises energizable pulse voltage and trigger voltage networks;

- a switching means in communication with said second lamp; and
- an internal control circuit having an address selection switch for setting an address for said dual lamp fixture mounted within said housing and being in communication with an external control circuit, said high intensity lamp drive circuit and said switching means for respectively actuating said high intensity and lower intensity lamps in a predetermined manner in response to said address-specific command signals generated by said external control circuit.

5,785,414
LIGHTING SYSTEM
Paul William Baker, Congleton, and Bernard Lawrence Phillip Ackers, Middlewich, both of United Kingdom, assignors to Gradus Limited, Chesire, England
Filed Jun. 14, 1996, Ser. No. 664,937
Claims priority, application United Kingdom, Jun. 15, 1995, 9512205
Int. Cl.⁶ F21V *3/00*
U.S. Cl. 362—240 **8 Claims**

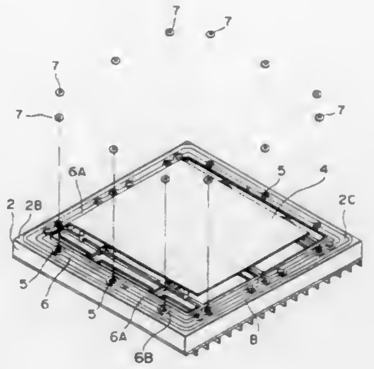


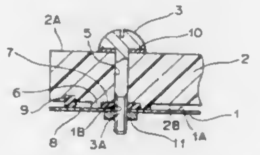
1. A lighting system comprising at least on housing, illumination means located in the housing, and electrical connections to the illumination means, wherein the improvement comprises a transparent or translucent cap holding the illumination means in a fixed disposition relative to the housing, and said electrical connections being encapsulated by said housing.

5,785,415
LED DISPLAY DEVICE AND ITS ASSEMBLED STRUCTURE
Kazuhiko Matsumura, Kashihara; Kazunori Hoshi, Sirone, and Katsushi Watanabe, Tubame, all of Japan, assignors to Sharp Kabushiki Kaisha, Osaka, Japan
Filed Mar. 12, 1996, Ser. No. 614,014
Claims priority, application Japan, Mar. 14, 1995, 7-054253; Jan. 30, 1996, 8-013777
Int. Cl.⁶ F21V *21/00*
U.S. Cl. 362—249 **12 Claims**

1. An LED display device comprising:

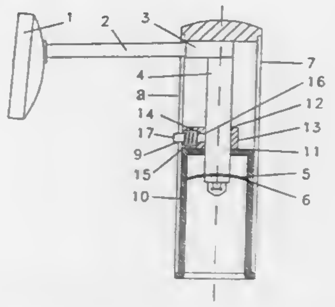
- a base plate having a plurality of holes through which screws may be inserted so as to pass through the base plate from a front surface to a rear surface, and a projecting portion provided at least around the holes on the rear surface and extending from said rear portion;
- a plurality of LED devices arrayed in a matrix shape on the front surface of the base plate; and
- ring-shaped elastic members place on the rear surface so as to be positioned between the projecting portion and the holes, and to surround the holes;





wherein a height of the ring-shaped elastic members in a non-compressed state is higher than a height of the projecting portion from the rear surface.

5,785,416
LAMP WITH ADJUSTABLE SHADE FOR REGULATION OF BEAM
Ivar Hansen, Grinibraten 51, N-1313 Vøyenenga, Norway
PCT No. PCT/NO95/00097, § 371 Date Dec. 6, 1996, § 102(e) Date Dec. 6, 1996, PCT Pub. No. WO95/34782, PCT Pub. Date Dec. 21, 1995
PCT Filed Jun. 9, 1995, Ser. No. 750,451
Claims priority, application Norway, Jun. 10, 1994, 942182
Int. Cl.⁶ F21V *1/00*
U.S. Cl. 362—280 **2 Claims**



1. A lamp for regulating the dispersion of a light beam, comprising:

- a first tube having a rear edge for mounting on to a fitting, and a front edge;
- a connecting piece having a first end mounted on to the front edge, and a second end;
- a second tube having a rear end connected to the second end, and a front end;
- a light source holder and a reflector mounted on to the front end;
- an adjustable shade movable in relation to the second tube, the light source, and the reflector;
- said shade being comprised of an external part which encloses an internal part, the external part having a longer axial extension than the internal part;
- said external part having along one section a longitudinal slot for moving the shade along the length of the slot in slidable engagement with the second tube;
- said internal part having a rear end wall with a hole for passing the second tube therethrough;
- a slide block constituting a part and an extension of the end wall;

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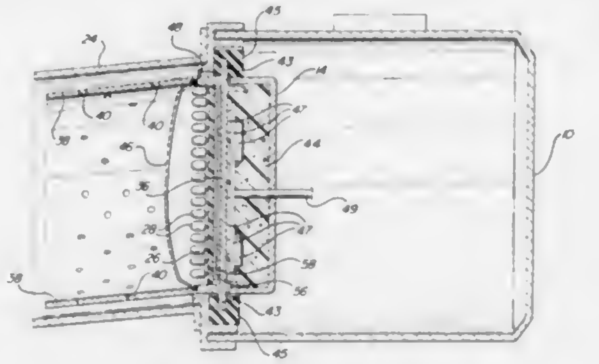
whereby through the hole in the end wall the shade can slide along the length of the slot.

5,785,417

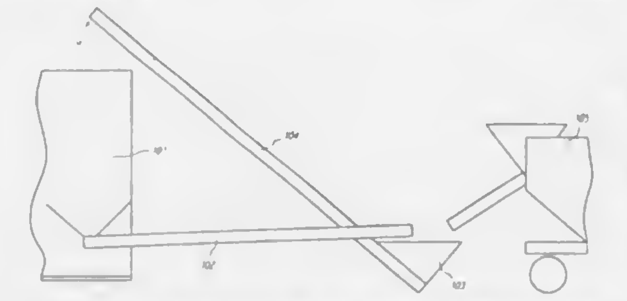
Patent Not Issued For This Number

5,785,418
THERMALLY PROTECTED LED ARRAY
Peter A. Hochstein, 2966 River Valley Dr., Troy, Mich. 48098
Continuation-in-part of Ser. No. 671,249, Jun. 27, 1996. This application Oct. 20, 1997, Ser. No. 953,924
Int. Cl.^{6} F21Y *29/00*
U.S. Cl. 362—373 **11 Claims**



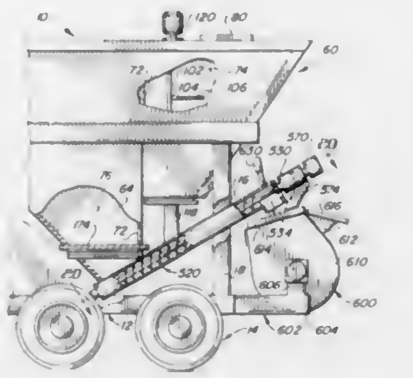
1. An electrically driven L.E.D. lamp assembly comprising;
a heat sink having first and second faces,
an array of light emitting diodes disposed over said first face of said heat sink,
each of said light emitting diodes having positive and negative leads,
an electrically conductive circuit interconnecting said leads,
electrically insulating means for electrically insulating said conductive circuit and said light emitting diodes from said first face of said heat sink,
said assembly characterized by a thermally insulating material disposed over said second face of said heat sink for limiting heat transfer to said heat sink from sources other than said light emitting diodes.

5,785,419
LIGHTWEIGHT BUILDING MATERIAL AND METHOD OF CONSTRUCTION OF CAST-IN-PLACE STRUCTURES
Paul A. McKelvey, 1906 Canyon Rd., Redlands, Calif. 92373
Filed Oct. 10, 1995, Ser. No. 541,608
Int. Cl.^{6} B28C *5/34*
U.S. Cl. 366—6 **4 Claims**



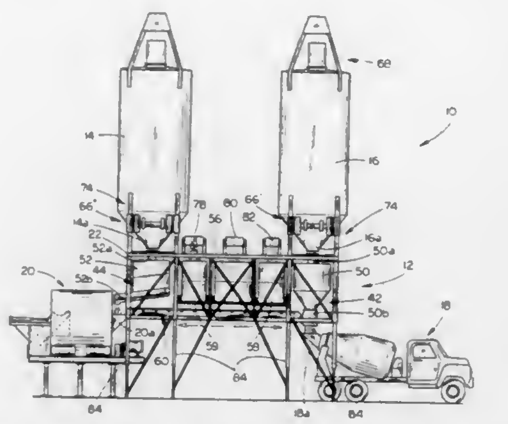
3. A method of manufacturing a lightweight aggregate material comprising the following steps:
(a) providing a first quantity of lightweight aggregate material,
(b) transferring all or a portion of said quantity of lightweight aggregate material to a hopper,
(c) adding a quantity of lightweight building material in a wet pulp form to the hopper to obtain a mixture,
(d) transferring the mixture obtained in step (c) to a storage while mixing and agitating the mixture.

5,785,420
APPARATUS FOR METERING AND MIXING AGGREGATE AND CEMENT
David A. Schuff, 420 S. 19th Ave., Phoenix, Ariz. 85009
Continuation-in-part of Ser. No. 422,858, Apr. 17, 1995, Pat. No. 5,624,183, which is a continuation-in-part of Ser. No. 234,934, Apr. 28, 1994, abandoned, which is a continuation of Ser. No. 38,238, Mar. 29, 1993, abandoned. This application Apr. 28, 1997, Ser. No. 848,143
Int. Cl.^{6} B28C *5/10;7/10*
U.S. Cl. 366—20 **6 Claims**



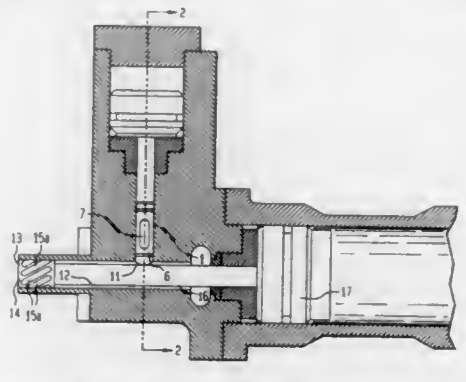
1. Mixing apparatus, comprising, in combination:
a first chamber for holding first material to be mixed;
a second chamber for holding second material to be mixed;
a partition between the first and second chambers;
mixer means for mixing the first and second materials;
means for conveying the first and second materials to the mixer means; and
vane feeder means in the second chamber for metering the second material to the means for conveying the first and second materials to the mixer means, including
a vane feeder having a rotatable shaft and a rotor secured to the shaft and openings in the rotor through which the second material moves as the shaft and the rotor rotate, and
a plurality of arms secured to the shaft and spring ends secured to and rotatable with the arms remote from the shaft which bend as the spring ends contact the partition and straighten as the arms rotate away from the partition to provide a maximum length for the arms for agitating the second material.

5,785,421
MOBILE MODULAR CONCRETE BATCH PLANT
Robert C. Milek, 6560 Stones Throw Dr., Omaha, Nebr. 68152
Filed Oct. 22, 1996, Ser. No. 734,876
Int. Cl.^{6} B28C *7/04*
U.S. Cl. 366—33 **16 Claims**



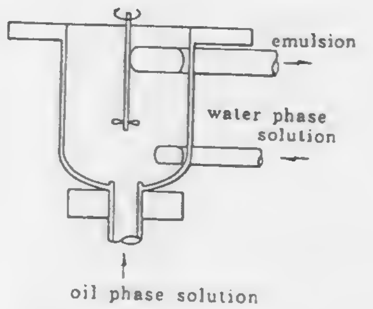
1. A batching module for a mobile batching plant, comprising:
an open three-dimensional frame having first and second longitudinal ends;
said frame having a plurality of cells defined within an interior thereof, each cell having means for securing one of a plurality of batching apparatus therein, each of said plurality of batching apparatus being interchangeable on said frame;
said frame cells including a first cell located at the frame first end, a second cell located at the frame second end, and a third cell intermediate the first and second cells;
a reversible conveyor mounted within the frame and extending from the first end to the second end, operable to convey material to the first and second ends of the frame;
a plurality of support legs mounted on the frame to support the frame at a predetermined height above the ground;
said legs being length extensible for selective height adjustment of the frame above the ground;
said frame including a plurality of vertically oriented hollow posts, with said legs telescopically mounted within the posts;
a first batcher removably mounted in the first cell of the frame, having a dispenser chute at a lower end thereof for dispensing contents therefrom; and
a first mixer positioned under the first end of the frame;
said first mixer including a receiving hopper located beneath a first end of the conveyor for receiving material therefrom, and also located under the dispenser chute of the first batcher for receiving material therefrom.

5,785,422
PISTON ARRANGEMENT FOR REMOVING A REACTIVE PLASTIC MIXTURE FROM A STABILIZING CHAMBER OF A MIXING DEVICE
Siegfried Eidenmüller, Ramelsbach, Germany, assignor to Krauss-Maffei AG, Munich, Germany
PCT No. PCT/EP96/00988, § 371 Date Dec. 17, 1996, § 102(e) Date Dec. 17, 1996, PCT Pub. No. WO96/33852, PCT Pub. Date Oct. 31, 1996
PCT Filed Mar. 8, 1996, Ser. No. 750,686
Claims priority, application Germany, Apr. 24, 1995, 195 15 039.2
Int. Cl.^{6} B01F *5/04;* B29B *7/76*
U.S. Cl. 366—162.5 **11 Claims**



1. A device for mixing chemically reactive plastic components under high pressure, comprising:
a mixing chamber receiving at least two chemically reactive plastic components for providing a plastic mixture;
a piston means reciprocating in the mixing chamber for effecting a discharge of remaining plastic mixture;
a stabilizing chamber communicating with the mixing chamber for receiving plastic mixture from the mixing chamber, said stabilizing chamber defining an axis and being so positioned as to adjoin the mixing chamber at an angle; and
a cleaning piston reciprocating in the stabilizing chamber for ejection of reactive plastic mixture from the stabilizing chamber, said cleaning piston having an outer surface area formed with indentations which are filled with spacer material and so arranged as to induce a rotational motion of the cleaning piston when the cleaning piston is moved in direction of the axis.

5,785,423
CONTINUOUS EMULSIFICATION TANK AND PROCESS
Nozomu Chikami, Shizuoka, Japan, assignor to Fuji Photo Film Co., Ltd., Kanagawa, Japan
Filed Jul. 19, 1996, Ser. No. 684,141
Claims priority, application Japan, Jul. 20, 1995, 7-183853
Int. Cl.^{6} B01F *15/02*
U.S. Cl. 366—165.3 **8 Claims**



1. A continuous emulsification process which comprises feeding an oil phase solution containing a polyvalent isocyanate continuously from the bottom of an emulsification tank, feeding a water phase solution continuously from the lower side of the emulsification tank in the liquid flow direction generated by rotation of a stirrer, and discharging an emulsion from the emulsion tank continuously.

5,785,424
AGITATOR BLADE HAVING AGITATORS WITH OPEN FIRST AND SECOND ENDS AND INNER FABRICS THEREIN
Yasuo Noda; Hideo Noda, both of Amagasaki, and Takaya Inoue, Takatsuki, all of Japan, assignors to Kansai Chemical Engineering Co. Ltd., Amagasaki, Japan
Continuation-in-part of Ser. No. 399,178, Mar. 6, 1995, abandoned, which is a division of Ser. No. 233,047, Apr. 25, 1994, abandoned. This application Dec. 22, 1995, Ser. No. 577,974
Claims priority, application Japan, Apr. 30, 1993, 5-124843; Oct. 21, 1993, 5-285653
Int. Cl.^{6} B01F *7/26*
U.S. Cl. 366—317 **9 Claims**

1. An agitator blade comprising:
(1) a disk shaped mounting frame having opposing sides secured to a rotable agitator shaft,
(2) at least one local agitator having a cylinder mounted one of said sides of said mounting frame,
(3) said at least one local agitator containing inner fabrics in its cylinder,
(4) said at least one local agitator being arranged radially in relation to said agitator shaft,
(5) said at least one local agitator having first and second axial ends,

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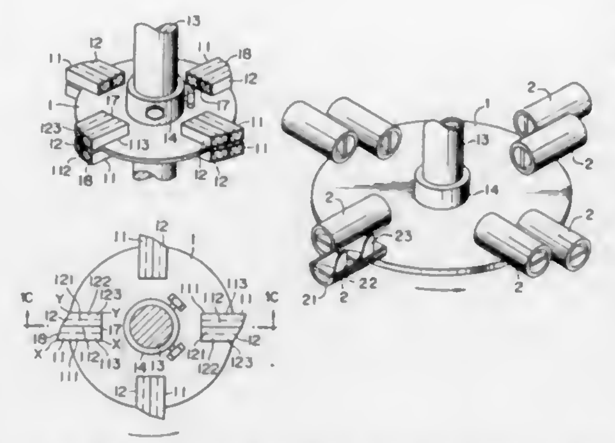


(6) the first and second ends both open with respect to said mounting frame and spaced from said agitator shaft,

(7) said at least one local agitator having the first axial end disposed closer to the agitator shaft and the second axial end disposed more remote from the agitator shaft,

(8) each of the first and second axial ends having a leading edge and a trailing edge in relation to the direction of rotation, and

(9) the radial distance from said leading edge of the second axial end to said agitator shaft being greater than the radial distance from said trailing edge of the second axial end to said agitator shaft.

5,785,425
FLUID BOILING-POINT SENSING DEVICE

Nigel Alexander Buchanan, Beechtree Cottage, New Gilston, by Leven, Fife, KY8 51F, United Kingdom

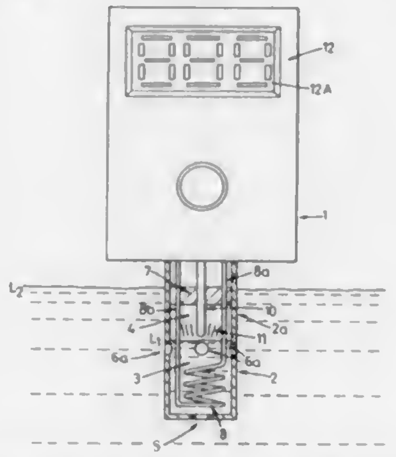
PCT No. PCT/GB95/00543, § 371 Date Dec. 9, 1996, § 102(e) Date Dec. 9, 1996, PCT Pub. No. WO95/24646, PCT Pub. Date Sep. 14, 1995

PCT Filed Mar. 13, 1995, Ser. No. 704,532

Claims priority, application United Kingdom, Mar. 11, 1994, 9404701

Int. Cl.^{6} G01N *25/08*

U.S. Cl. 374—16 **20 Claims**



1. A fluid boiling point sensing device for indicating the boiling point of fluid, especially a hygroscopic fluid such as hydrauling fluid, comprising a meter including a probe for insertion into fluid in a fluid reservoir, heating means being provided in the probe for heating fluid within the probe when the probe is immersed, said meter additionally including monitoring means for monitoring the temperature rise of fluid heated by said heating means so as to indicate the boiling point temperature of the fluid, said probe including a casing defining a housing having a top end and a bottom end, said top end being closed, first aperture means on the casing spaced from the level of the top end of the housing whereby when the probe is inserted in fluid with said first aperture means below the surface of said fluid, an air/fluid boundary is formed in the housing adjacent the level of said first aperture means and demarcating lower and upper housing portions such that in said lower housing portion fluid to be tested is retained and in said upper housing portion above said lower housing portion air is retained, said upper housing portion being in fluid communication with said lower housing portion, said temperature monitoring means sensing the temperature of fluid in said lower housing portion heated by the heating means, and fluid inlet means permitting fluid flows to and from the housing.

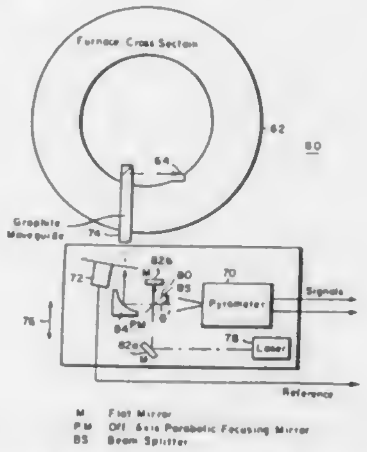
5,785,426
SELF-CALIBRATED ACTIVE PYROMETER FOR FURNACE TEMPERATURE MEASUREMENTS

Paul P. Woskov, Bedford; Daniel R. Cohn, Chestnuthill, both of Mass.; Charles H. Titus, Newtown Square, Pa., and Jeffrey E. Surma, Kennewick, Wash., assignors to Massachusetts Institute of Technology, Cambridge, Mass., and Battelle Memorial Institute, Richland, Wash.

Continuation-in-part of Ser. No. 181,706, Jan. 14, 1994, Pat. No. 5,573,339. This application Oct. 6, 1995, Ser. No. 539,818

Int. Cl.^{6} G01J *5/08;5/62*

U.S. Cl. 374—126 **23 Claims**



1. Pyrometer for temperature measurement comprising:

a heterodyne millimeter/sub-millimeter-wave or microwave receiver, the receiver adapted to receive radiation from a surface whose temperature is to be measured, wherein a path of the radiation received by the receiver is a field-of-view of the pyrometer;

a millimeter/sub-millimeter-wave or microwave probe beam source, which emits a probe beam which is reflected from the surface into the receiver; and

apparatus for mapping out interference patterns associated with the probe beam source and obtaining peak values therefor for emissivity calculation,

wherein the radiation from the surface includes a surface emission portion and a surface reflection portion including the reflected probe beam, the surface emission portion being related to the surface temperature and the surface reflection portion being related to the emissivity of the surface.

5,785,427
CONVERTIBLE SEAT AND TOTE BAG

Donald Godshaw, Evanston, Ill., assignor to High Sierra Sport Company, Vernon Hills, Ill.

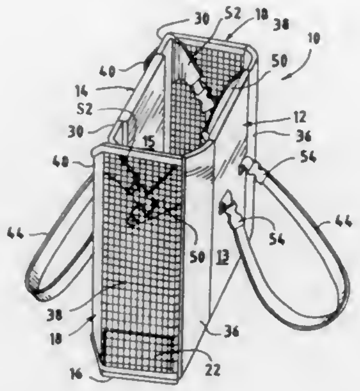
Filed Mar. 28, 1996, Ser. No. 623,189

Int. Cl.^{6} B65D *33/06*

U.S. Cl. 383—4 **30 Claims**

1. A convertible seat and tote bag apparatus, comprising:

a first panel;



a second panel, the first panel being foldable relative to the second panel;

a pair of connectors having releasable connectable elements, said connectors projecting from opposite side edges of said first panel and configured to be releasably attached to corresponding side edges of said second panel to allow said apparatus to be assembled in a tote bag configuration; and

a support member configured to interconnect the first panel and second panel in a seat-like configuration after the connectors have been detached from said second panel to allow a person to sit on one of said panels with said support member restraining rearward movement of the other of said panels.

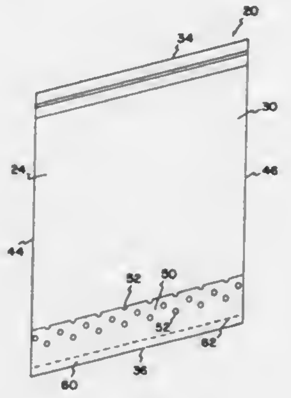
5,785,428
BAG FOR STORING AND WASHING PRODUCE

Randolph A. Mazzocchi, Greenville, Wis., assignor to Reynolds Consumer Products, Inc., Appleton, Wis.

Filed Dec. 13, 1996, Ser. No. 766,255

Int. Cl.^{6} B65D *33/01*

U.S. Cl. 383—103 **10 Claims**



1. A disposable bag for storage and cleaning of produce, the disposable bag comprising:

at least one side wall, a top, and a bottom;

an opening proximate the top of the bag to provide an entry for produce to be stored or cleaned;

a zipper profile to provide a recloseable seal for the opening;

a gusset located at the bottom of the bag to support the bag in an upright position, and having drainage holes sized to permit the passage of water through the gusset while substantially preventing the passage of produce; a removable seal, integrally secured to the bag, to impede the passage of water through the drainage holes in the gusset while the seal is secured to the bag and

perforations positioned proximate the bottom of the side wall to promote removal of the removable seal.

5,785,429
SINTERED OILLESS BEARING

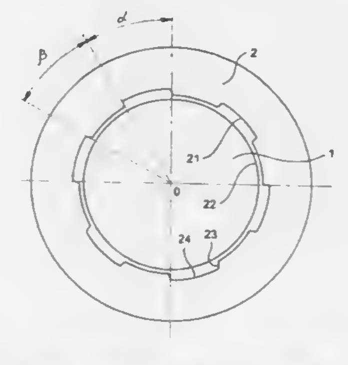
Dae Hyun Jeong, Kyunggi-do, Rep. of Korea, assignor to Samsung Electro-Mechanics Co., Ltd., Suwon, Rep. of Korea

Filed Apr. 9, 1997, Ser. No. 838,642

Claims priority, application Rep. of Korea, Aug. 19, 1996, 96-34169

Int. Cl.^{6} F16C *17/02*

U.S. Cl. 384—397 **10 Claims**



1. A sintered oilless bearing in a cylindrical sintered oilless bearing comprising a plurality of grooves along the inner periphery plane thereof in the lengthwise direction of a shaft,

a plurality of inner peripheral portions each having an interval between two adjacent grooves, and said grooves and inner periphery portions are partitioned by side planes,

whereby the following expression is satisfied:

$$\frac{\alpha}{\alpha+\beta}=0.56\text{–}0.78$$

where an angle of said groove is denoted by α, that of said inner periphery portion corresponding to said interval between said two adjacent grooves is denoted by β.

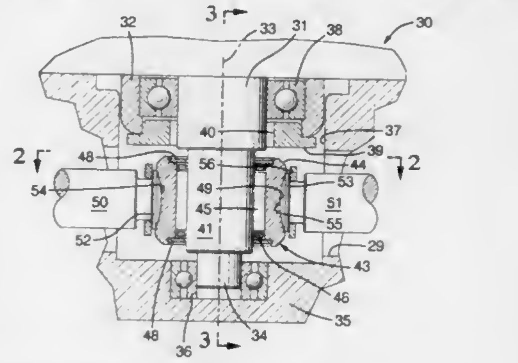
5,785,430
ECCENTRIC BEARING ASSEMBLY

James Arthur Bright, and Huang-Tsang Chang, both of Dayton, Ohio, assignors to General Motors Corporation, Detroit, Mich.

Filed Dec. 16, 1996, Ser. No. 766,078

Int. Cl.^{6} F16C *33/58;* F04B *1/04*

U.S. Cl. 384—447 **8 Claims**



1. An eccentric bearing assembly comprising:

a shaft rotatable about a first center and including an eccentric on the shaft that rotates about a second center that is offset from the first center;

first and second opposed pistons disposed so that the shaft extends perpendicularly between the pistons, with the eccentric aligned between the pistons;

an annular bearing assembly encircling the eccentric and including a plurality of rollers engaging the eccentric that are carried

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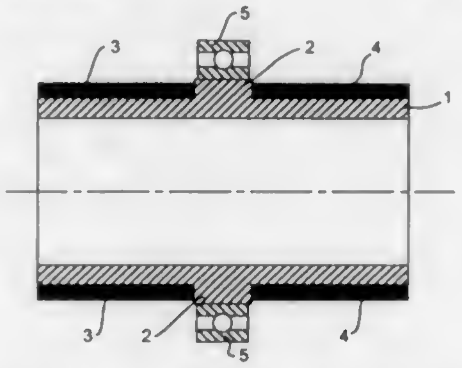
in a race, wherein the race includes a radially outer perimeter with an annular groove;
wherein the pistons each include a face that is shape conformed to the groove; and
a clip that reaches around the bearing and engages each of the pistons maintaining the piston faces in the groove and in engagement with the race;
wherein, as the shaft rotates, the eccentric turns within the bearing and effects reciprocating linear movement of the pistons with a point contact being maintained between the piston ends and the race, maintaining a centered load on the race.

5,785,431
METHOD AND ARRANGEMENT FOR TEMPERATURE-INDEPENDENT MOUNTING IN A BEARING

Anders Nilsson, Karlskoga, and Stefan Olsson, Monsteras, both of Sweden, assignors to Bofors AB, Karlskoga, Sweden
PCT No. PCT/SE94/00515, § 371 Date Apr. 9, 1996, § 102(e) Date Apr. 9, 1996, PCT Pub. No. WO94/29608, PCT Pub. Date Dec. 22, 1994
PCT Filed May 30, 1994, Ser. No. 556,939
Claims priority, application Sweden, Jun. 4, 1993, 9301910
Int. Cl.⁶ F16C *17/22*
U.S. Cl. 384—493 **8 Claims**

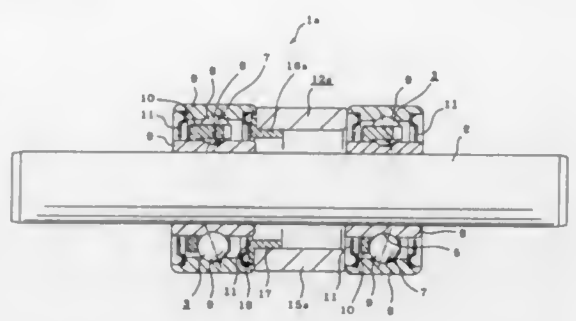


1. A method for obtaining temperature-independent mounting of a shaft made of a first material, having a first coefficient of thermal expansion, in a bearing which interacts with the shaft and which is made of a second material having a second coefficient of thermal expansion, said first coefficient of thermal expansion having a higher value than the second coefficient of thermal expansion, said method comprising the steps of:
arranging on the shaft made of the first material having the first, higher coefficient of thermal expansion, an outer shell, the outer shell being made of a third material having a third coefficient of thermal expansion which has a lower value than the second coefficient of thermal expansion;
surrounding at least the greater part of circumferential surface of said shaft with said outer shell; and
at least partly locating said outer shell outside the area in which the bearing is supported.

5,785,432
OUTER RING SPACER FOR DOUBLE ROW ROLLING BEARING UNIT

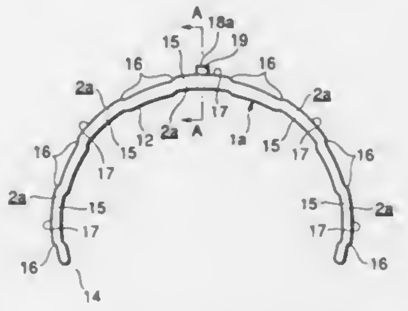
Seizo Miyazaki, Fujisawa, Japan, assignor to NSK Ltd., Tokyo, Japan
Filed Feb. 26, 1997, Ser. No. 805,824
Claims priority, application Japan, Feb. 26, 1996, 8-038430
Int. Cl.⁶ F16C *19/08*
U.S. Cl. 384—520 **5 Claims**

1. An outer ring spacer for use in a double row rolling bearing unit fitted to a shaft and comprising a pair of spaced apart inner rings provided around the shaft and each formed with an inner ring raceway on an outer peripheral surface thereof, a pair of outer rings with end portions having an inner peripheral surface formed with outer ring raceways thereon, the outer ring raceways fading respective inner ring raceways, and a plurality of rolling elements provided so as to be freely rotatable between the respective inner ring raceways and outer ring raceways, the outer ring spacer fitted and held in propping the outer rings, the outer ring spacer comprising a radially outer cylindrical body having axially opposite parallel end faces abutted against the end portions of the pair of outer rings which are opposed to each other, and a radially inner cylindrical body internally secured to at least part of the radially outer cylindrical body so as to protrude from at least one of the axially opposite parallel end faces of the radially outer cylindrical body so as to be engaged with the inner peripheral surface at one of the end portions of the outer rings to thereby prevent the spacer body from being displaced radially.



5,785,433
ROLLING BEARING CREEP PREVENTION DEVICE

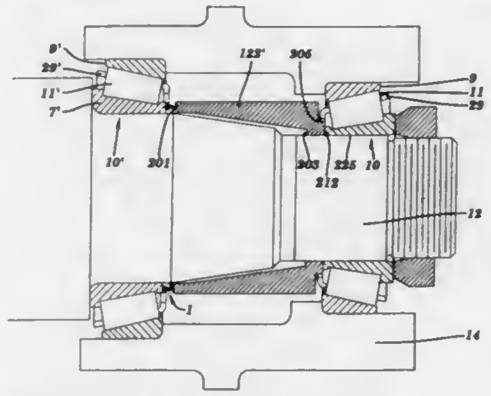
Masahiro Takahashi, and Koichi Goto, both of Kanagawa, Japan, assignors to NSK Ltd., Tokyo, Japan
Filed Jul. 7, 1997, Ser. No. 895,892
Claims priority, application Japan, Jul. 17, 1996, 8-187768; Jun. 25, 1997, 9-169066
Int. Cl.⁶ F16C *19/00*
U.S. Cl. 384—539 **11 Claims**



1. A rolling bearing creep prevention device for a rolling bearing (**4**, **4***a*) built in a cylindrical inner peripheral surface of a housing (**3**) and provided with an outer ring (**5**, **5***a*) having an outer peripheral surface on which an eccentric groove (**10**, **10***a*) is formed in such a manner that said eccentric groove is recessed from the outer peripheral surface and that a center axis of a bottom face of said eccentric groove is made eccentric with respect to a center axis of said outer ring, comprising:
a C-shaped eccentric ring (**1**, **1***a*) fitted to an inside of said eccentric groove (**10**, **10***a*) and fittingly inserted to the inner peripheral surface of said housing (**3**), the center axes of an inner peripheral surface and an outer peripheral surface of said eccentric ring being made eccentric with each other,
wherein an elastic deformation part (**2**, **2***a*) projecting outward in a diameter direction of said eccentric ring is formed in a part of said eccentric ring.

5,785,434
ADJUSTABLE BEARING ASSEMBLY AND ADAPTER SLEEVE THEREFOR

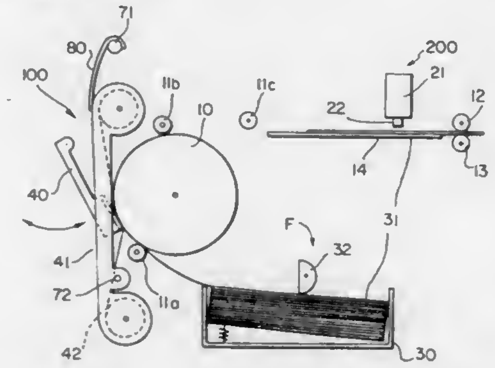
John E. Rode, Fonda, N.Y., assignor to Temper Corporation, Fonda, N.Y.
Division of Ser. No. 191,551, Feb. 3, 1994, Pat. No. 5,549,397. This application Jun. 14, 1996, Ser. No. 661,349
Int. Cl.⁶ F16C *19/38*
U.S. Cl. 384—551 **34 Claims**



1. An adjustable bearing assembly comprising:
a pair of oppositely faced tapered roller bearings mounted on a multi-diameter axle or spindle;
an adapter sleeve located around a first diameter of said multi-diameter axle or spindle and disposed between said oppositely faced tapered roller bearings;
an adjustable spacer ring having a compressible area therein located around a second diameter of said multi-diameter axle or spindle and disposed between one of said tapered roller bearings and said adapter sleeve.

5,785,435
PRINTER FOR ONE TIME PRINTING A PICTURE AND TEXT

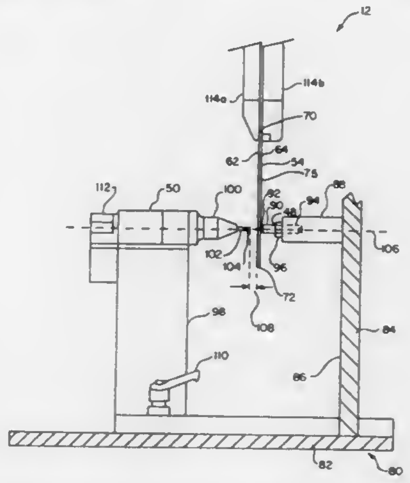
Sang-heon Koo, Seoul, Rep. of Korea, assignor to Samsung Electronics Co., Ltd., Kyungki-do, Rep. of Korea
Division of Ser. No. 699,065, Aug. 15, 1996, Pat. No. 5,718,521. This application Sep. 3, 1997, Ser. No. 922,472
Claims priority, application Rep. of Korea, Dec. 30, 1995, 95-69761
Int. Cl.⁶ B41J *11/00;2/315*
U.S. Cl. 400—120.02 **5 Claims**



1. A printer operative to continuously and sequentially print a picture and a text, comprising: picture printing means for printing a picture image, including
a cylindrical platen drum,
a cartridge installed at one side of said platen drum and containing an ink sheet on which inks of various colors are surface-sequentially coated,
paper feeding means for feeding a paper between said platen drum and the ink sheet, and
a recording head for subliming the inks of the ink sheet onto a portion of the paper by heat-pressing the ink sheet according to a predetermined recording signal; said printer further comprising: text printing means for printing a text, including
a reservoir for containing an ink, and
a recording head having an ink ejection device including a plurality of nozzles for ejecting the ink supplied from said reservoir according to a predetermined recording signal.

5,785,436
DATA PLATEMARKING SYSTEM

Michael E. Harrison, 55 Mead Dr., Chillicothe, Ohio 45601; Roger L. Sieling, 367 Glenmont Ave., Columbus, Ohio 43214, and Robert N. French, 172 Rosewood Ct., Chillicothe, Ohio 45601
Filed Apr. 9, 1997, Ser. No. 838,716
Int. Cl.⁶ B41J *2/22*
U.S. Cl. 400—124.01 **20 Claims**



1. An apparatus for marking a generally planar object at a first surface thereof with one or more indentation-defined pixels, the object having a second surface opposing the first surface and an outer margin which extends along a lengthwise dimension between an upper and a lower end edge, and along a widthwise dimension between a first side edge and a second side edge, the object being presented to said apparatus in a generally upstanding relationship as aligned co-planarly with a coordinate plane defined by the intersection of a first coordinate axis and an orthogonal second coordinate axis, said apparatus comprising:
an anvil member having an impact surface fixably mounted at a predetermined position within said coordinate plane, said impact surface being configured for supporting at least a portion of the second surface of said object when the object is moved into a bearing, force transferring adjacency therewith;
a marking head positionable in a fixed relationship with respect to said anvil member, said head including a confronting portion opposing said impact surface of said anvil member at a space-apart distance therefrom, and a marker pin having a distal impacting tip issuable from said confronting surface, said tip being reciprocatably movable along a marking axis disposed generally perpendicular to said plane from a retracted position spaced-apart from said plane to an extended position within said plane defining a stroke length of said pin; and
a gripper being actuable in a first position to grip the object along an edge thereof, and being movable with the object along said first and said second coordinate axis to a second position disposing the object intermediate said marking head assembly and said anvil member in bearing adjacency therewith, said gripper being further movable with the object in said second position along said first and said second coordinate axis to define a marking locus between the edges of the object wherein the first surface of the object is disposed at one

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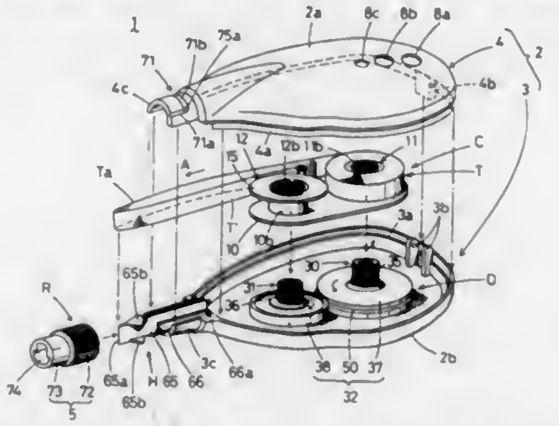
or more predefined pixel locations for indentation contact with said impact tip when said tip is moved to said extended position.

5,785,437
TAPE CARTRIDGE FOR COATING FILM TRANSFER TOOL AND COATING FILM TRANSFER TOOL
Kouhei Koyama; Shigeru Tamai, both of Osaka, and Masatoshi Shintani, Sanda, all of Japan, assignors to Seed Rubber Company Limited, Osaka, Japan
Filed Jun. 2, 1995, Ser. No. 458,113
Claims priority, application Japan, Dec. 12, 1994, 6-322458
Int. Cl.⁶ B41J *35/02*
U.S. Cl. 400—193 **21 Claims**



1. A tape cartridge for use in a coating film transfer tool, the coating film transfer tool is for transferring a coating film disposed on a coating film transfer tape to a sheet surface and the like, the coating film transfer tool including a case, said tape cartridge, a coating film transfer head attached to said case, a pay-out driving means and a winding driving means, said tape cartridge replaceably placed in the case of the coating film transfer tool, said tape cartridge comprising:

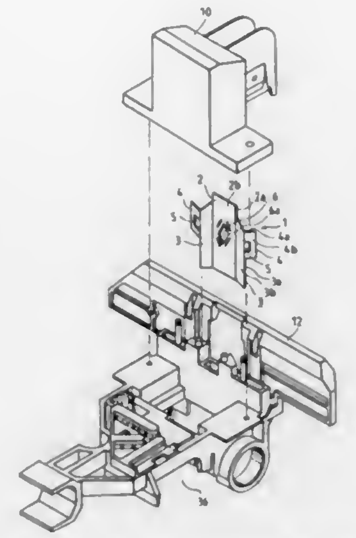
a thin and flat support means having a geometric shape and dimensions sufficient for allowing accommodation in the case of the coating film transfer tool;

tape feeding means, provided on said thin and flat support means for paying out and feeding the coating film transfer tape; and

tape collecting means, provided on said thin and flat support means for collecting the coating film transfer tape after use,

wherein the tape feeding means and tape collecting means are constructed for detachable and interlocking engagement with the pay-out driving means and the winding driving means that are provided in the case of the coating film transfer tool, respectively.

5,785,438
RIBBON MASK FOR IMPACT DOT MATRIX PRINTED
Naoto Yamaguchi; Hiroshi Ishida; Masayuki Kumazaki; Kazuhiko Yamaguchi, and Yukihiro Uchiyama, all of Nagano, Japan, assignors to Seiko Epson Corporation, Tokyo, Japan
Filed Aug. 30, 1996, Ser. No. 706,094
Claims priority, application Japan, Aug. 30, 1995, 7-245310; Jun. 27, 1996, 8-186659
Int. Cl.⁶ B41J *35/04*
U.S. Cl. 400—248 **9 Claims**



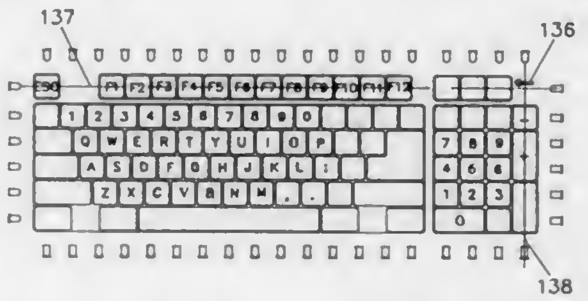
1. A ribbon mask for use with an impact dot matrix printer, comprising:

a flat head confronting surface having a front surface and a back surface and lying in a plane;

a pair of opposed side plates, each having a front surface and a back surface, each positioned on an opposite side of said head confronting surface, an obtuse angle being formed between said back surfaces of said opposed side plates and said back surface of said head confronting surface, and wherein an imaginary straight line parallel to said head confronting surface and intersecting said pair of opposed side plates substantially forms a trapezoid with said side plates and said head confronting surface when viewed in plan;

a pair of fitting tabs, each having a front surface and a back surface and an end surface, each positioned on a respective one of said pair of opposed side plates, an obtuse angle being formed between said front surfaces of said opposed side plates and said front surfaces of said pair of fitting tabs, wherein said front surfaces of said pair of fitting tabs are bent to extend in a direction towards the plates of said back surface of said head confronting surface, an acute angle being formed between each of said front surfaces of said fitting tabs and a plane parallel to said plane in which said head confronting surface lies.

5,785,439
ENVIRONMENTALLY SAFE MACHINE CONTROL SECURITY SWITCH
James H. Bowen, Catharpin, Va., assignor to Product Engineering & Manufacturing, Inc., Linden, Va.
Continuation of Ser. No. 725,923, Oct. 4, 1996, Pat. No. 5,707,160, which is a continuation of Ser. No. 343,892, Nov. 17, 1994, Pat. No. 5,605,406, which is a continuation-in-part of Ser. No. 311,256, Sep. 23, 1994, Pat. No. 5,577,848, which is a continuation-in-part of Ser. No. 933,749, Aug. 24, 1992, abandoned. This application May 19, 1997, Ser. No. 858,919
Int. Cl.⁶ B41J *5/00*
U.S. Cl. 400—472 **11 Claims**



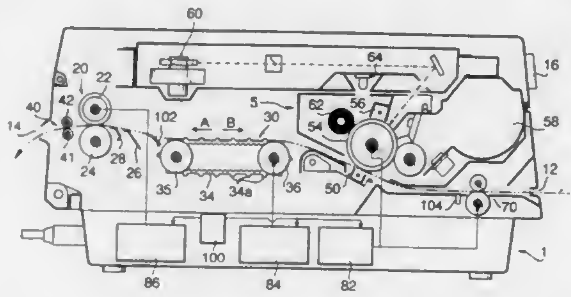
1. A data input panel with a non-penetrating security switch, comprising:

a housing having a unilocular area formed on one side, said unilocular area having a bottom surface and sidewalls surrounding a perimeter of said bottom surface which extend above said bottom surface, said unilocular area having a centrally located data input region and at least one border region adjacent a sidewall of said unilocular area;

a light emitter and a light detector positioned within said sidewalls of said unilocular area and defining a first light path which extends across said border region; and

a security key connected or connectable to said housing, said security key being moveable between a first position in said first light path which blocks light transmitted from said light detector from being detected by said light detector, and a second position which is outside of said first light path, thereby allowing light transmitted from said light detector to be detected by said light detector.

5,785,440
FORM FEEDING ASTABILIZATION DEVICE
Tomoyuki Nishikawa, Tokyo, and Yoshimi Saito, Niigata-ken, both of Japan, assignors to Asahi Kogaku Kogyo Kabushiki Kaisha, Tokyo, Japan
Filed Mar. 22, 1996, Ser. No. 620,305
Claims priority, application Japan, Mar. 25, 1995, 7-091258
Int. Cl.⁶ B41J *11/42;* **G03G** *15/20*
U.S. Cl. 400—618 **34 Claims**



1. A form feeding stabilization device for a continuous form electrophotographic printer, said device comprising:

a first form feeder for feeding the continuous form at a constant speed along a form feeding path;

an image transfer station along said form feeding path, for transferring a toner image to the continuous form;

fixing rollers along said form feeding path, for fixing the toner image by applying heat and pressure to the toner image, at least one of said fixing rollers being a movable roller movable into and out of contact with the continuous form along said form feeding path downstream of said first form feeder;

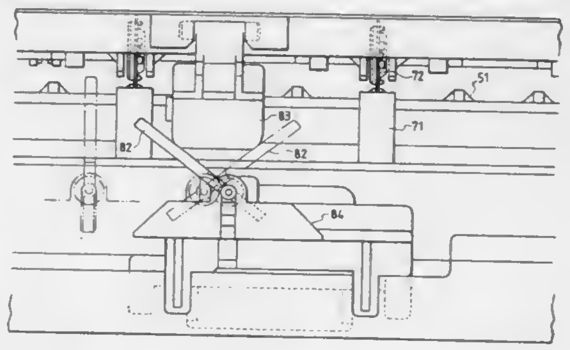
a roller moving mechanism for moving said movable roller into and out of contact with the continuous form;

means for forming a motion-absorbing region in the continuous form to absorb a difference in relative motion between said moving roller and the continuous form; and

tensioning means for applying tension to the continuous form in said motion-absorbing region, said tensioning means including a pair of discharge rollers for feeding the continuous form, said discharge rollers being downstream of said fixing rollers along said feeding path;

said forming means comprising control means for controlling said tensioning means to apply tension to the continuous form after said first form feeder feeds the continuous form at a constant speed and after said roller moving mechanism moves said movable roller into contact with the continuous form.

5,785,441
INK JET PRINTER HAVING PAPER SUPPORTS AND GUIDES
Yoichi Kobayashi; Takashi Akahane; Tsuyoshi Tomii; Masaki Shimomura; Koichiro Yokoyama; Toshikazu Kotaka; Kazutoshi Kashiwabara, and Takuya Yasue, all of Nagano, Japan, assignors to Seiko Epson Corporation, Tokyo, Japan
Filed Feb. 7, 1996, Ser. No. 597,749
Claims priority, application Japan, Feb. 7, 1995, 7-042433; Feb. 7, 1995, 7-042434; Feb. 7, 1995, 7-042435; Feb. 20, 1995, 7-054987
Int. Cl.⁶ B41J *13/10*
U.S. Cl. 400—633 **20 Claims**



1. A printer comprising:

a printer body including a print section therein;

a paper supply apparatus operatively mounted to said printer body and adapted to receive at least one sheet of paper on a surface thereof, said paper supply apparatus having a first edge guide for guiding a first side edge of a sheet of paper and a second edge guide spaced from said first edge guide for guiding a second side edge of a sheet of paper, at least one of said first and second edge guides being a slidable edge guide slidable in at least one of a first direction towards the other edge guide and a second direction away from the other edge guide to accommodate a width of a sheet of paper received in said paper supply apparatus;

a paper discharge section, said discharge section comprising a first support portion mounted on said printer body and a second support portion mounted on said printer body and spaced apart from said first support portion, said first support portion supporting a respective first bottom side portion of a sheet of paper discharged from said print body and said second support portion supporting a respective second bottom side portion of a sheet of paper, at least said first support portion being a slidable support portion slidable in a first direction towards said second support portion and a second direction away from said second support portion said paper supply and said discharge section being seperately provided; and

a linkage mechanism linking said slidable edge guide to at least said first support portion, said linkage mechanism sliding at least said slidable edge guide and at least said first support portion in unison.

5,785,442
PRINTER HOUSING STRUCTURE
Paul H. Hamisch, Jr., Franklin, and John D. Mistyurik, Troy, both of Ohio, assignors to Monarch Marking Systems, Inc., Dayton, Ohio
Division of Ser. No. 137,660, Oct. 15, 1993, abandoned. This application May 1, 1995, Ser. No. 431,999
Int. Cl.⁶ B41J *29/02*
U.S. Cl. 400—693 **13 Claims**

1. A printer, comprising: a housing, a mounting assembly mounted in the housing for movement between an operating position and an open position, wherein the mounting assembly includes a first section pivotally mounted on the housing and a second

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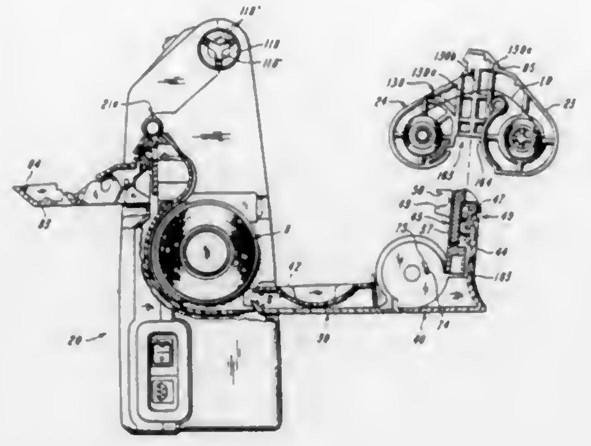
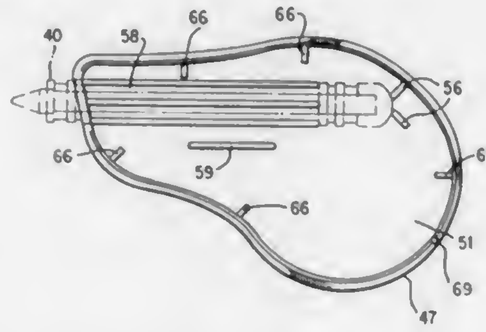


section pivotally connected to the first section, a print head mounted on the second section, an ink ribbon cartridge mounted on the second section, the cartridge having means for defining an open space for receipt of the print head, and a platen mounted in the housing and cooperable with the print head in the operating position.

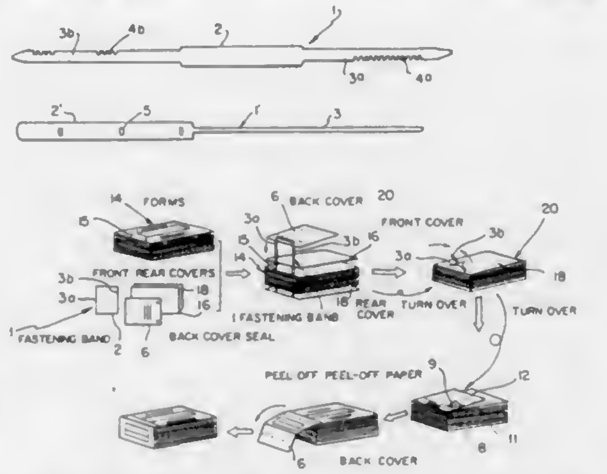
5,785,443
ERGONOMIC SNAP-FIT CARTRIDGE PEN
Burton S. Rubin, New York, N.Y., assignor to Evo Pen Inc., New York, N.Y.
Filed Apr. 20, 1993, Ser. No. 49,408
Int. Cl.⁶ B43K *23/00*
U.S. Cl. 401—6 **21 Claims**



1. A hand-held implement comprising:
- a first curved body panel having an inner surface and an outer surface;
- an elongated snap-fit post extending from said inner surface of said first panel, having a first end attached to said inner surface of said first curved body panel and having a free second end;
- a second curved body panel, having an inner surface and an outer surface, attached to said first body panel so as to define a receptacle for an elongated snap-fit cartridge housing; and
- an elongated snap-fit cartridge housing having a first coaxial recessed groove, said cartridge housing being removably located within said elongated snap-fit cartridge housing receptacle by said elongated snap-fit post resiliently extending into said first coaxial recessed groove, said cartridge housing being substantially perpendicular to and non-coplanar with said elongated snap-fit post, said elongated snap-fit post extending beside said cartridge housing,

wherein said elongated snap-fit post is enclosed within an assembled body of the hand-held implement, said assembled body being defined by said first curved body panel and said second curved body panel.

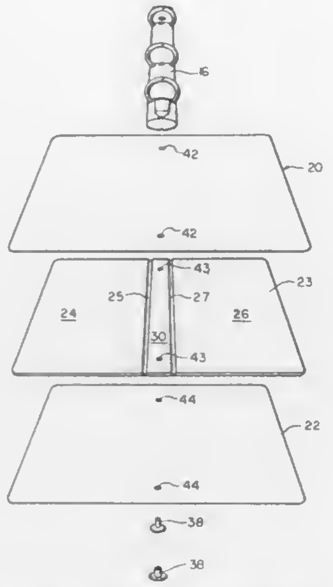
5,785,444
FASTENER
Toyoki Matsuura, No. 103 Ohtani, 7-chome Kasuga City, Fukuoka-ken, Japan
Filed Jul. 24, 1996, Ser. No. 685,511
Int. Cl.⁶ B42F *13/06; 13/08*
U.S. Cl. 402—8 **11 Claims**



1. A fastener for assembling a stack of forms, said forms having a plurality of forms binding holes therein, comprising:
- a back cover;
- a plurality of cover binding holes in said back cover alignable with said forms binding holes;
- at least one fastening band;
- said at least one fastening band including means for passing through at least two of said cover binding holes and said forms binding holes to align said stack of forms and a portion of said back cover;
- means for securing said fastening band to hold said forms in said stack;
- a layer of pressure-sensitive adhesive on a surface of said back cover;
- a peel-off paper covering said layer of adhesive;
- means for permitting said back cover to be folded over a front portion of said stack, a spine of said stack, and over a rear portion of said stack, with said layer of adhesive in contact with said spine and said rear, whereby said stack is retained; and
- said front portion and said rear portion including said fastening band, whereby said fastening band is covered and retained in place by said back cover.

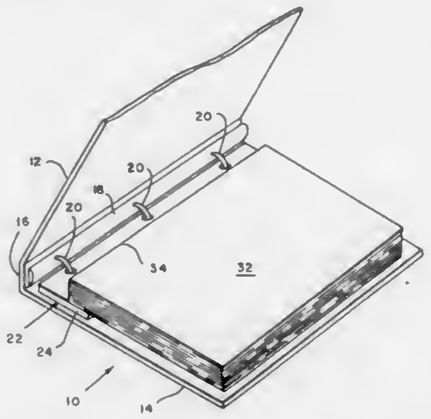
5,785,445
RING BINDER COVER
Edward Podosek, Wilbraham, and Vytautas Kazimeras Beleckis, East Longmeadow, both of Mass., assignors to Avery Dennison Corporation, Pasadena, Calif.
Continuation of Ser. No. 377,536, Jan. 23, 1995, abandoned, which is a continuation of Ser. No. 140,625, Oct. 21, 1993, abandoned, which is a continuation of Ser. No. 66,630, May 24, 1993, abandnned, which is a continuation of Ser. No. 871,909, Apr. 21, 1992, abandoned. This application Aug. 12, 1996, Ser. No. 698,275
Int. Cl.⁶ B42C *7/00;* **B42F** *13/00*
U.S. Cl. 402—73 **7 Claims**

1. A ring binder comprising:
- (a) an insert, said insert having a pair of parallel flexible webs spaced apart a predetermined distance to divide said insert into three rigid zones, hingedly connected by said pair of parallel flexible webs, said zones being dimensioned to define a front cover panel, a back cover panel and a spine panel,
- (b) a matching pair of thermoplastic heat-sealable sheets disposed on opposite sides of said insert and heat-sealed together only about their peripheral edges, and



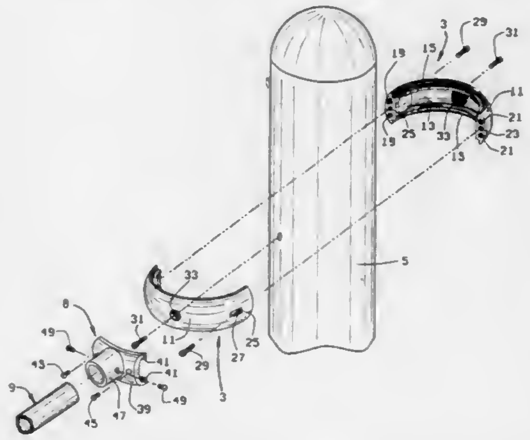
- (c) a ring mechanism fixed to said spine panel.

5,785,446
BINDING DEVICE FOR SECURING BOOKLETS INTO BINDERS
Daniel F. Dlugos, Shelton, Conn., assignor to Pitney Bowes Inc., Stamford, Conn.
Filed Nov. 18, 1996, Ser. No. 751,593
Int. Cl.⁶ B42F *13/00*
U.S. Cl. 402—79 **9 Claims**



1. A binding device for removably securing bound booklets into a storage binder for storage therein and periodic removal therefrom, said device comprising:
- (a) a strip of binding material, wherein said strip of binding material is:
  - (i) rectangular and is elongate in an axial direction and relatively narrow in the lateral direction; and
  - (ii) formed of a durable, semi-rigid material;
- (b) means disposed on said strip of binding material for securing a portion of a bound booklet to said strip of binding material;
  - (i) said means applied to said strip of binding material for securing a portion of said bound booklet adjacent the bound edge thereof to said strip of binding material is disposed along one longitudinal edge of said strip of binding material; and, wherein
  - (ii) said means applied to said strip of binding material for securing a portion of said bound booklet adjacent the bound edge thereof to said strip of binding material comprises a string attached to a surface portion of said strip of binding material and having a length sufficient for said string to extend along the opposite surface of said strip of binding material in the longitudinal direction thereof and be disposed within said bound booklet and be attached to said one surface of said strip of binding material; and
- (c) means operatively associated with said strip of binding material for removably securing said strip of binding material into said storage binder, whereby said booklet is removably secured into said storage binder for storage and periodic removal therefrom; and wherein said means operatively associated with said strip of binding material is disposed along the same longitudinal edge of said strip of binding material.

5,785,447
CONNECTOR FOR STRUCTURAL APPARATUS
Michael A. Fonti, Springfield, and Jack E. Gonzenbach, Nixa, both of Mo., assignors to Miracle Recreation Equipment Co., Monett, Mo.
Filed Nov. 21, 1996, Ser. No. 754,700
Int. Cl.⁶ E04G *7/00*
U.S. Cl. 403—49 **14 Claims**



1. A connector for structural apparatus in which the connector is adapted to be secured to a post and comprising:
- a pair of oppositely disposed C-shaped connectors adapted to surround a post and being detachably connected to one another, said connectors being positioned in a first movable position allowing movement of the connectors relative to each other as well as to the post and a second fixed position where the connectors are adapted to be secured to the post;
- each C-shaped connector having complementary interfitting end elements for assembling the pair of C-shaped connectors together to surround the post;
- the C-shaped connectors being secured to each other by complementary first fastening elements that extend in the same direction as and cooperate with the complementary interfitting end elements; and
- each of the C-shaped connectors adapted to be secured to the post by a second self-threading fastening element independent of the first fastening element, each second self-threading fastening element received in a through channel of each C-shaped connector that extends between each C-shaped connector and the post, and each through channel having an adjacent series of surrounding stepped surfaces adapted to trap metal filings resulting from the threading of the second self-threading fastening elements.

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5,785,448
DEVICE FOR COUPLING TWO SHAFTS

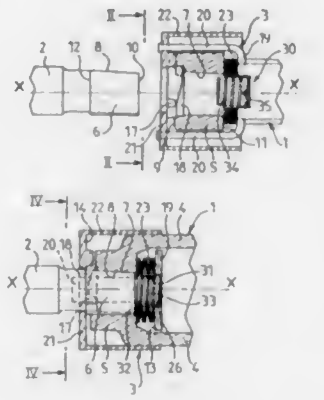
Jean-Claude Courgeon, Vendome; Jacky Auriau, Meslay, and Amar Bouguerra, Blois, all of France, assignors to Lemforder Nacam, Vendome, France

Filed Apr. 29, 1997, Ser. No. 848,653

Claims priority, application France, May 2, 1996, 96 05605

Int. Cl.⁶ F16B *2/00*

U.S. Cl. 403—325 **23 Claims**



1. A coupling device for coupling ends of two shafts adapted to turn about a common axis, comprising:
- rotational coupling means comprising conjugate raised and hollow profiles respectively at male and female ends of said shafts in a plane substantially perpendicular to said common axis, with flanks inclined relative to said plane,
- an axial retention system comprising a sleeve and spring means for pressing together and holding in place said male and female shaft ends, and
- an arming system for said spring means;
- said sleeve being axially coupled to one of said shafts and surrounding said male and female shaft ends and said sleeve having two parts which are assembled together around said female shaft end having said hollow conjugate profile, and which provide first and second bearing end faces substantially perpendicular to said common axis,
- said spring means being disposed inside said sleeve between said first bearing end face of said sleeve and an external bearing face of said female shaft end substantially perpendicular to said common axis,
- said spring means operating through the intermediary of said second bearing end face of said sleeve on an external bearing face of said male shaft end having said raised conjugate profile and substantially perpendicular to said common axis, after interengagement of said conjugate profiles and releasing said spring means arming system, and
- said spring means arming system comprising studs located on said second bearing end face of said sleeve, and cams located on an internal bearing face of said female shaft end in a plane substantially perpendicular to said common axis and cooperating with said studs.

5,785,449
HIGH PRESSURE JACKSCREW CONNECTOR

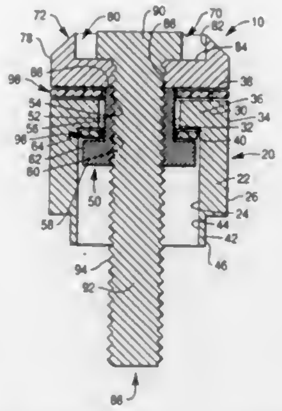
Joseph T. DiBene, Oceanside, Calif., assignor to NCR Corporation, Dayton, Ohio

Continuation of Ser. No. 173,811, Dec. 22, 1993, abandoned. This application Jul. 15, 1996, Ser. No. 680,422

Int. Cl.⁶ F16B *39/00*

U.S. Cl. 403—343 **21 Claims**

1. A high pressure jackscrew connector for removably attaching a first component to a second component having an internally threaded member, said high pressure jackscrew connector comprising:



- a panel mount member having a longitudinal opening, an inwardly projecting portion within said longitudinal opening, and means for attaching said panel mount member to the first component;
- an ejector member retained within said longitudinal opening of said panel mount member, said ejector member having an internally threaded longitudinal opening and an outwardly extending portion which extends beyond said inwardly projecting portion of said panel mount member, thereby prohibiting removal of said ejector member from said panel mount member once said panel mount member is attached to the first component; and
- a pressure inserter member having a head member and a longitudinally extending externally threaded member, said longitudinally extending externally threaded member being contained within said longitudinal opening of said panel mount member in a coaxial relationship therewith and having a length greater than the length of said longitudinal opening of said panel mount member said longitudinally extending externally threaded member being in fixed engagement with said internally threaded longitudinal opening of said ejector member, said longitudinally extending externally threaded member further engaging with the internally threaded member of the second component;
- whereby rotation of said pressure inserter member in a first direction will draw said longitudinally extending externally threaded member into said internally threaded member of the second component and cause said head portion to push the first component towards the second component; and
- whereby rotation of said pressure inserter member in a second direction will withdraw said longitudinally extending externally threaded member from said internally threaded member of the second component and cause said ejector portion to push the first component away from the second component.

5,785,450
STRUCTURE FOR COUPLING STEERING WHEEL AND ROTARY CONNECTOR OF VEHICLE

Hidehiro Ichikawa; Nobuhiko Suzuki, and Satoshi Ishikawa, all of Shizuoka-ken, Japan, assignors to Yazaki Corporation, Tokyo, Japan

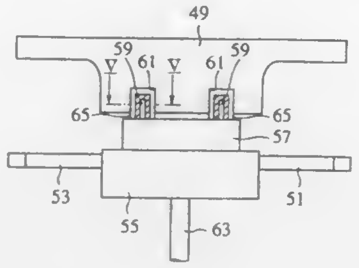
Filed May 1, 1996, Ser. No. 640,659

Claims priority, application Japan, May 2, 1995, 7-108453

Int. Cl.⁶ B25G *3/20*

U.S. Cl. 403—368 **3 Claims**

1. A steering assembly for a vehicle comprising:
- a steering wheel having a coupling hole;
- a rotary connector having a rotary case rotatable with said steering wheel and a projection projecting into said coupling hole; and
- an elastic cap insertable on said projection, said elastic cap having a cylindrical main body for receiving said projection, said cylindrical main body having a longitudinal axis, and a plurality of elastic members formed integrally with the main body and projecting from a circumference of the main body to define a generally star-shaped pattern, said projecting elastic members each defining a space between a distal end of the projecting elastic member and the circumference of said main body, said main body having a tapered profile along the longitudinal axis.



5,785,451
CONNECTING FITTING

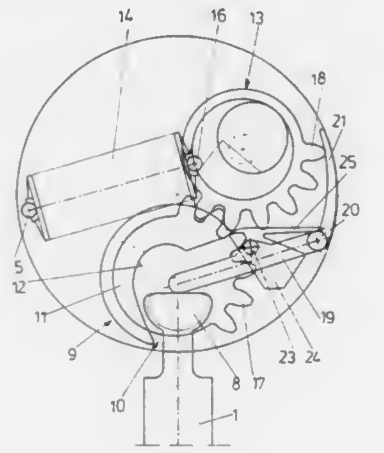
Horst Hörger, Sontheim, Germany, and Erich Röck, Höchst, Austria, assignors to Julius Blum Gesellschaft m.b.H., Höchst, Austria

Filed Aug. 19, 1996, Ser. No. 699,637

Claims priority, application Austria, Aug. 21, 1995, 1411/95

Int. Cl.⁶ F16B *12/20*

U.S. Cl. 403—408.1 **19 Claims**



1. A connecting fitting for releasably connecting two furniture parts, said fitting comprising:
- a first connecting member to be secured to a first furniture part, said first connecting member being pin-shaped and including a shank and a head;
- a second connecting member to be secured to a second furniture part, said second connecting member being a casing having therein an opening into which is insertable said head of said first connecting member;
- a rotary wedge mounted in said casing for rotation in a first rotation direction to a retaining position engaging said head when said head is inserted into said opening;
- a tightening element rotatably mounted in said casing, said tightening element being separate from said rotary wedge;
- said rotary wedge and said tightening element being engaged such that rotation of said rotary wedge causes rotation of said tightening element and such that rotation of said tightening element causes rotation of said rotary wedge; and
- a spring mounted in said casing and operable on said tightening element to urge said tightening element to rotate.

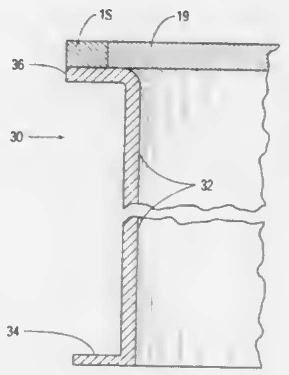
5,785,452
MANHOLE

Joseph V. Milo, Rockaway Boro, and Martin C. Pettesch, Cronford, both of N.J., assignors to Universal Valve Co., Inc., Elizabeth, N.J.

Continuation-in-part of Ser. No. 320,294, Oct. 11, 1994, abandoned. This application Apr. 10, 1996, Ser. No. 630,741

Int. Cl.⁶ E02D *29/14*

U.S. Cl. 404—25 **7 Claims**



2. A manhole comprising:
- a top ring for containing a manhole cover,
- a manhole cover for being releasably contained in said top ring,
- a skirt made of flexible sheet steel material forming a partially closed chamber and having upper and lower portions forming major openings to said chamber,
- said top ring connected to said upper portion,
- said skirt sheet steel material and top ring being deformable when said lower portion is subjected to a lateral force greater than a predetermined lateral force,
- a member connected to said lower portion of said skirt for providing said skirt lateral strength and stiffness to prevent said skirt and top ring deformation resulting from said predetermined lateral force, said member comprising a laterally extending flange,
- said lower portion comprising a skirt bottom and said flange being positioned at the bottom of said skirt for providing a footing for said manhole, and wherein said flange is formed integrally with and of the same sheet steel material as said skirt as a single unitary piece,
- said skirt comprising an outwardly extending lip at its top portion, said lip having a top surface for supporting the manhole cover,
- said top ring being made of one of rolled steel and cast metal and having a predetermined height, and
- said top ring being rigidly connected to said lip and extending above said top surface, and wherein said lip is located at the top of said skirt and being formed by rolling the skirt sheet steel material to form a single unitary piece.

5,785,453
CHARIOT FOR DEPRESSING PAVEMENT MARKING TAPE

John L. Marty, White Bear Lake, and James P. McAuley, Shoreview, both of Minn., assignors to Minnesota Mining and Manufacturing Company, St. Paul, Minn.

Filed Jun. 25, 1996, Ser. No. 670,073

Int. Cl.⁶ E01C *23/16*; B62D *63/00*

U.S. Cl. 404—94 **7 Claims**

1. An apparatus for applying pavement marking tape and tamping it against a surface, comprising:
- (a) a self-propelled applicator for carrying a supply of pavement marking tape and applying it to the surface; and
- (b) a chariot coupled to the applicator to roll over the applied tape, the chariot including structure for supporting an opera-

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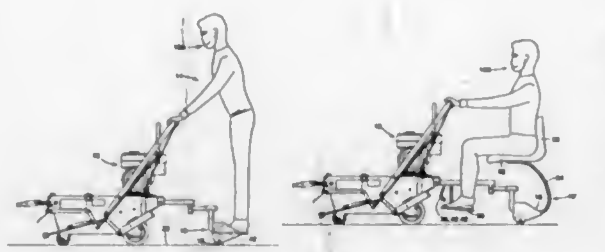


tor, and at least one roller disposed beneath the support structure for tamping the applied marking tape against the surface with the weight of the operator.

5,785,454
PROTECTIVE BODY/COVER TO BE PLACED OVER DISCHARGE OPENINGS ON PIPES FOR THE UNDERGROUND SUPPLY OF WATER AND AIR

Anne-Lise Ringdal, Madeira, Portugal, and Turid Ringdal Gogstad, Oslo, Norway, assignors to Madeira Invest AS, Oslo, Norway

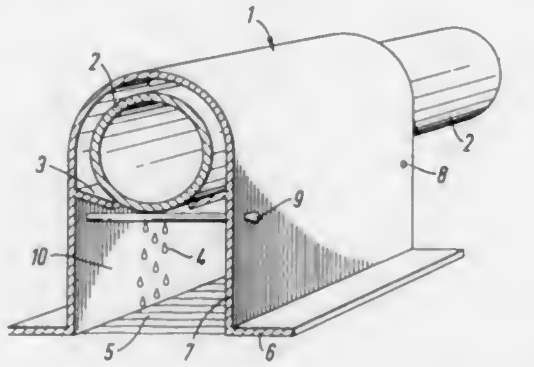
PCT No. PCT/NO94/00181, § 371 Date May 13, 1996, § 102(e) Date May 13, 1996, PCT Pub. No. WO95/13694, PCT Pub. Date May 26, 1995

PCT Filed Nov. 11, 1994, Ser. No. 646,324

Claims priority, application Norway, Nov. 15, 1993, 934108

Int. Cl.^{6} E02B *13/00*

U.S. Cl. 405—45 **2 Claims**



1. A protective body cover (1) to be placed over underground pipes (2) having discharge openings for supplying aerated water (4) to soil, the cover comprising:

- a wall including an upper curved part spaced apart from the pipe and two legs (7) which extend downward, on either side of the pipe, to a distance from the upper curved part of approximately twice a diameter of the pipe, whereby an air pocket (10) is formed under the pipe;
- the wall including, on either side of the pipe and in an area near a lower part of the pipe, a pair of projections (3) sloping inwardly and downwardly under the pipe, the projections conveying the water in drips through the air pocket to the soil approximately directly under the pipe;
- wherein the pipe is supported in a correct position in relation to the cover by support elements (9) disposed through slots or holes in the wall on either side of the pipe.

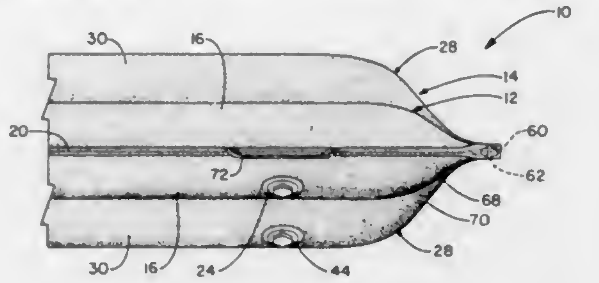
5,785,455
SHORE SEAL TIDAL BARRIER CONTAINMENT BOOM

Andrew B. Eaker, Kennesaw, Ga., assignor to Engineered Fabrics Corporation, Rockmart, Ga.

Filed Sep. 12, 1996, Ser. No. 713,146

Int. Cl.^{6} C02F *1/24;* **E02B** *15/06*

U.S. Cl. 405—63 **15 Claims**



1. A shore seal boom, comprising:

- a buoyancy chamber;
- a ballast chamber having a bottom surface opposite said buoyancy chamber and at least one tapered surface extending from said bottom surface; and
- an end connector bar connecting at least one end of said buoyancy chamber to a respective end of said ballast chamber, said at least one tapered surface extending from said end connector bar to said bottom surface to maintain said end connector bar in a substantially perpendicular relationship with said buoyancy chamber and said ballast chamber when expanded.

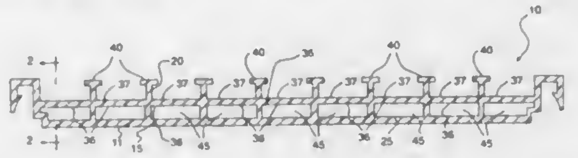
5,785,456
MATERIAL AND METHOD FOR LINING PIPES

George McAlpine, Cary, N.C., assignor to Danby of North America, Cary, N.C.

Filed Sep. 11, 1996, Ser. No. 712,408

Int. Cl.^{6} F16L *1/00*

U.S. Cl. 405—154 **33 Claims**



1. A structure for lining an interior surface of a pipe, comprising:

- an elongated panel having an inner wall, an outer wall, an anterior end, a posterior end and first and second longitudinal edges, said panel being spirally-wound along the interior surface of said pipe such said panel forms a plurality of adjacent spiral portions extending through said pipe; and
- means for lockingly connecting opposing first and second longitudinal edges of said adjacent spiral portions, wherein said panel includes a plurality of channels defined between said inner wall and said outer wall and extending longitudinally within said panel such that said plurality of channels are spirally-wound as said panel is spirally-wound.

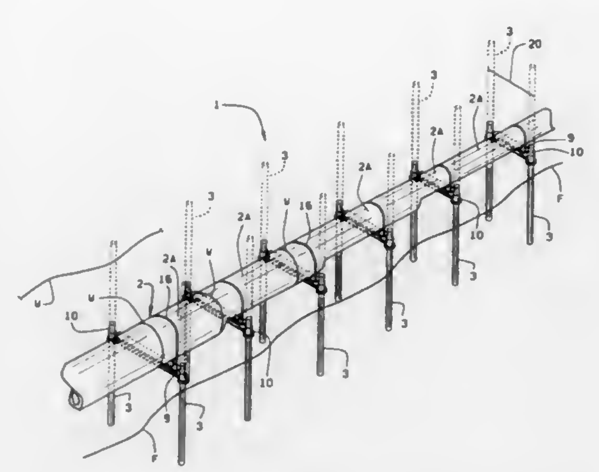
5,785,457
PIPE PLACEMENT AND SUPPORT SYSTEM

Thomas G. Thompson, Belleville, Ill., and Albert B. Becker, Jr., Hot Springs, Ark., assignors to Horner & Shifrin, Inc., St. Louis, Mo.

Filed Oct. 24, 1996, Ser. No. 736,420

Int. Cl.^{6} J16L *1/06*

U.S. Cl. 405—172 **10 Claims**



1. A placement and support system for the installation of a length of pipe over an expanse comprising:

- a plurality of pairs of spaced apart piles, each said pair of piles positioned in a substantially aligned arrangement to form a piling;
- a seat on a lower end of each pile; and
- a pipe saddle assembly slidingly engaged between each pair of spaced apart piles, said pipe saddle further comprising a support beam, a first substantially circular sleeve for slidingly engaging a pile at a first end of the support beam and a second substantially circular sleeve for slidingly engaging a pile at a second end of the support beam and a raised pipe saddle for cradling the pipe section positioned on said beam approximately midway between said first and second ends.

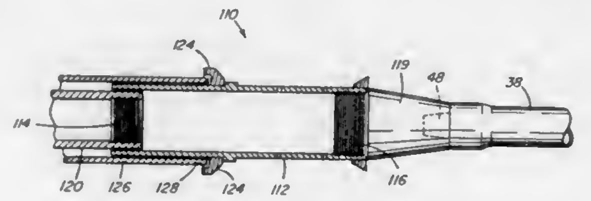
5,785,458
TRENCHLESS PIPELINE REPLACEMENT

Reginald G. Handford, Calgary, Canada, assignor to Trenchless Replacement Services Ltd., Alberta, Canada

Division of Ser. No. 383,164, Feb. 3, 1995, abandoned, which is a continuation of Ser. No. 181,360, Jan. 13, 1994, abandoned, which is a continuation of Ser. No. 986,382, Dec. 7, 1992, abandoned, which is a division of Ser. No. 791,513, Nov. 14, 1991, Pat. No. 5,205,371. This application Jun. 7, 1995, Ser. No. 478,219

Int. Cl.^{6} F16L *1/00*

U.S. Cl. 405—184 **4 Claims**



1. A pipe removing tool comprising a substantially cylindrical member having a first end for insertion into an existing underground pipe which is to be removed and a circumferential flange spaced from said first end for abutment against the end of said existing pipe, wherein said first end comprises a cylindrical member for engaging with the circumferential inner surface of the pipe being removed, and said flange forms a shoulder extending transversely of said cylindrical member for effecting said abutment against the end of the existing pipe; and the tool having a second end for connection to a stem for attachment to a hydraulic unit for effecting successive longitudinal pushing forces on said tool.

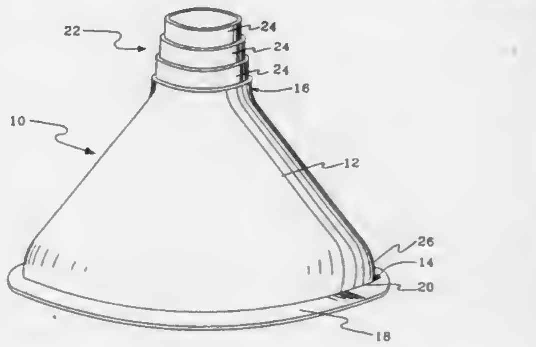
5,785,459
PREFABRICATED FORM FOR MOLDING A FOOTING OF A SETTABLE STRUCTURAL MATERIAL

Kirk Swinimer, R.R. #1, Chester Basin, Nova Scotia, Canada, B0J 1K0

Filed Jul. 17, 1996, Ser. No. 682,269

Int. Cl.^{6} E02D *5/66*

U.S. Cl. 405—237 **16 Claims**



1. A prefabricated form for molding a footing of a settable structural material at a bottom end of a tubular form for a structural pillar, comprising:

- a substantially frusto-conically shaped rigid hollow body having a circular top end and a circular bottom end spaced below and concentric with the top end, and an integral sidewall that extends between the top end and the bottom end, the sidewall being inclined at an angle in the range of about 45° to about 65° with respect to a plane of a bottom edge of the bottom end;
- a bottom flange that extends radially from the bottom edge of the bottom end;
- a top flange that extends axially from the top end, the top flange being adapted for the connection of at least one diameter of the tubular form, whereby the prefabricated form is positioned on a suitable substrate in a location where a structural pillar is required, a tubular form is frictionally engaged with the top flange and both forms are filled with the settable material from a top end of the tubular form to construct the structural pillar either before or after earth is backfilled around the forms.

5,785,460
ROTATABLE BRACKET FOR CONNECTING TUBES OF DIFFERING CROSS SECTION

James Thomas Noonan, Johnston, and Terry Lee Lowe, Ankeny, both of Iowa, assignors to Deere & Company, Moline, Ill.

Filed Jun. 27, 1996, Ser. No. 671,038

Int. Cl.^{6} B25G *3/36*

U.S. Cl. 403—388 **13 Claims**

1. In an implement including first and second tubes, the first tube having a rectangular cross section, with opposed parallel faces spaced apart a preselected distance, the second tube having opposite sides spaced either a first distance or a second distance apart, the second distance being greater than the first distance, bracket structure adapted for mounting one face of the second tube adjacent one of the faces of the first tube regardless of the spacing between the opposite sides of the second tube, the bracket structure comprising:

- a bracket rotatable relative to the first tube between first and second mounting positions, wherein the first position is rotated 90 degrees from the second position, the bracket having a first surface abutting the one face of the first tube and a second surface abutting the one face of the second tube, first and second pairs of primary clamping lugs projecting from the first surface, the primary clamping lugs defining two sets of embracing surfaces located at right angles with respect to each other, the sets of embracing surfaces spaced equal dis-

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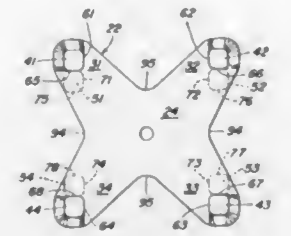
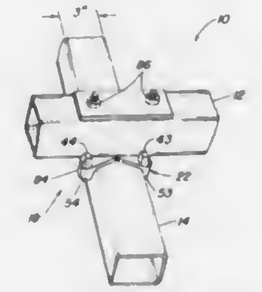




tances apart so that the first set of embracing surfaces embrace the faces of the first tube when the bracket is in the first mounting position and the second set of embracing surfaces embrace the faces of the first tube when the bracket is in the second mounting position; and

wherein the bracket further comprises third and fourth pairs of secondary clamping lugs projecting from the second surface, the third and fourth pairs of secondary clamping lugs defining first embracing surfaces spaced apart a distance approximately equal to the first distance to facilitate mounting of a second tube with sides spaced the first distance apart, the third and fourth pairs of secondary clamping lugs defining second embracing surfaces located at right angles with respect to the first embracing surfaces and spaced apart a distance approximately equal to the second distance to facilitate mounting of the second tube with sides spaced the second distance apart; and

bolt structure for securing the first and second tubes in the bracket.

5,785,461
WEDGE TENSIONING DEVICE

Gene F. Lambert, 2023 Cochran Rd., Maryville, Tenn. 37801
Filed Jan. 18, 1996, Ser. No. 588,127
Int. Cl.^{6} B07B *1/49;* **B02C** *17/08*
U.S. Cl. 403—405.1 **4 Claims**

1. A wedge tensioning device, in combination with a screening apparatus and screen for selectively tensioning the screen thereby, said device comprising:

an elongated member having a shank extending through aligned apertures in the screening apparatus;

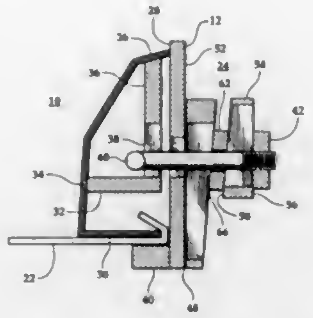
a head on one end of said shank seated against the screening apparatus;

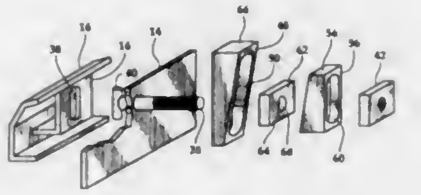
a nut member having a bearing surface;

means on said shank remote from said head for removably receiving said nut member with the bearing surface thereof facing the screening apparatus;

a first tapered wedge member having a pair of inclined bearing surfaces with said shank extending through an elongated aperture in said wedge member whereby one of said bearing surfaces of said first tapered wedge member is seated against said screening apparatus;

a spacer with an aperture and two parallel bearing surfaces, one surface of which is seated against the second bearing surface of said first tapered wedge member; and

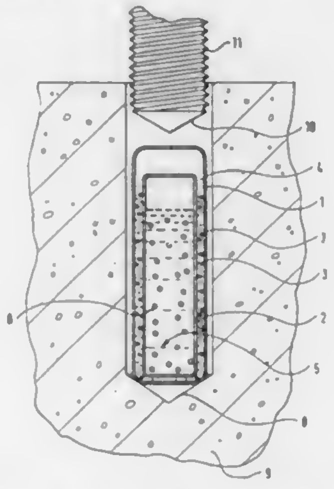




a second tapered wedge member having a pair of inclined bearing surfaces with said shank extending through an elongated aperture in said second wedge member whereby one of said bearing surfaces of said second tapered wedge member is seated against said nut member; and the second bearing surface of said second tapered wedge member is seated against the second bearing surface on said spacer whereby said shank is drawn outwardly from the screening apparatus by selectively applying tension to either the first or second wedge members.

5,785,462
ANCHORING CARTRIDGE FOR HARDENING MULTI-COMPONENT COMPOSITION

Bernd Heln, Freudenstadt, and Willi Haug, Freudenstadt-Musbach, both of Germany, assignors to Fischerwerke Artur Fischer GmbH & Co., KG, Waldachtal, Germany
Filed May 13, 1996, Ser. No. 645,480
Int. Cl.^{6} E21D *20/02*
U.S. Cl. 405—259.6 **14 Claims**



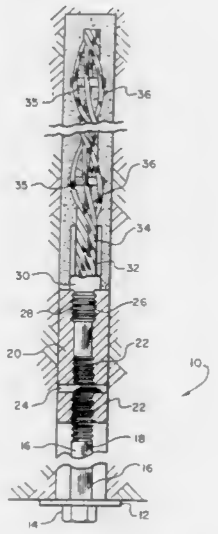
1. An anchoring cartridge for a hardening multi-component composition based on a resin hardening by a reaction of radicals, the cartridge comprising an inner cartridge element; an outer cartridge element forming with said inner cartridge element an annular space, said inner cartridge element containing a resin component with fillers, said annular space between said inner cartridge element and said outer cartridge element containing a hardener component, both said components being activatable by driving an anchoring rod into a hole drilled in a building component receiving the anchoring cartridge, said resin containing a thixotropic agent which increases a viscosity of said resin to such an extent that filler parts are suspended in said resin, said hardner component being present with a liquid and a thixotropic agent as a

pasty mixture which completely fills said annular space between said inner and outer cartridge elements, proportions by weight of said resin component related to a content of said inner cartridge element being

a)	resin	60–64% by weight
b)	mineral bonding agent	34–37% by weight
c)	hydrophobic pyrogenic silic acid	2–3% by weight
	and proportions by weight of said hardener component related to a content of . said cartridge element are	
d)	hardener (50% hardener proportion/50inert additive)	16–18% by weight
e)	glass beads	32–38% by weight
f)	pyrogenic silic acid	2–3% by weight
g)	water	42–48% by weight

5,785,463
COMBINATION CABLE BOLT SYSTEM

Jack R. Eaton, Oakmont; Frank Calandra, Jr., Pittsburgh, and John G. Oldsen, Butler, all of Pa., assignors to Jennmar Corporation, Pittsburgh, Pa.
Filed Jan. 11, 1996, Ser. No. 584,977
Int. Cl.^{6} E21D *20/00;20/02*
U.S. Cl. 405—302.2 **17 Claims**



1. A tensionable combination cable mine roof bolt comprising:

a rod member having a rotatable bolt head at a first end thereof for rotating said rod member and adapted to support a bearing plate thereon, and a threaded second end;

a coupling with internal threads adapted to receive said rod member;

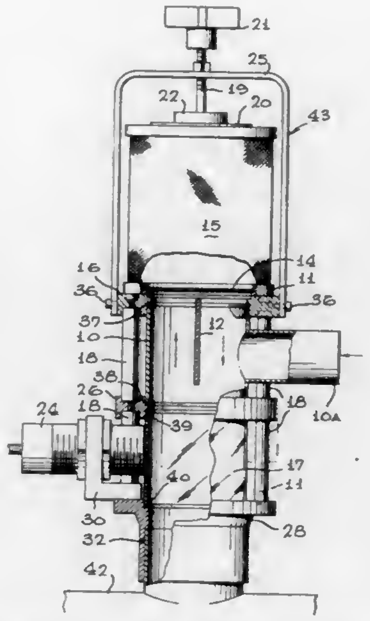
a shearable stop means within said coupling adapted to stop said rod member for rotation of said bolt, and adapted to subsequently be sheared by said rod member to tension said bolt; and

a flexible multi-strand cable coupled to said coupling.

5,785,464
SMALL MATERIAL TRANSFER SYSTEM

Peter May, III, and Daniel T. Harnish, both of 104 James St., Smithville, Mo. 64089
Filed Jun. 4, 1996, Ser. No. 657,957
Int. Cl.^{6} B65G *53/60*
U.S. Cl. 406—163 **17 Claims**

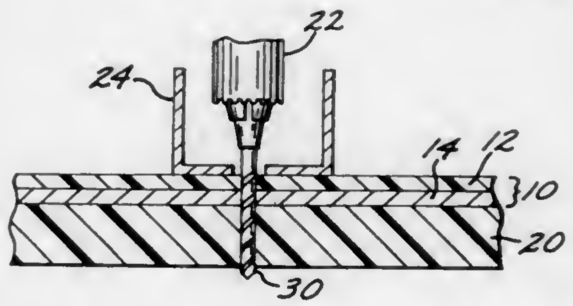
1. A loading device for a processing machine having an inlet chamber for receiving measured quantities of granular materials from a source of said materials;



said loading device comprising an inlet conduit connected to said source, a tee member having an internal chamber connected to said inlet conduit, a top plate secured to said tee member, a filter and a screen secured to said top plate in communication with said tee chamber, a middle plate connected to said tee member and a sight glass communicating with said tee chamber through said middle plate, a baffle in said tee chamber for directing said materials toward said sight glass, an end bell including a lower plate connected to said sight glass, an outlet conduit connecting said sight glass to said inlet chamber, a level sensor for sensing a level of said materials in said sight glass, and a plurality of support rods and threaded members securing said top plate to said middle plate and said middle plate to said lower plate.

5,785,465
ENTRY OVERLAY SHEET AND METHOD FOR DRILLING HOLES

John A. Korbonski, San Juan Capistrano, Calif., assignor to Systems Division Incorporated, Irvine, Calif.
Filed Jul. 30, 1996, Ser. No. 688,362
Int. Cl.^{6} B23B *35/00;41/00*
U.S. Cl. 408—1 R **24 Claims**



1. A method for drilling a printed circuit board, comprising the steps of:

placing an entry overlay sheet on a surface of the printed circuit board, wherein the entry overlay sheet comprises a first thin layer comprising a polymer material having a thickness of about ten thousandths of an inch or smaller and a second thin layer of a hard material, with the second layer applied against the surface of the printed circuit board so that the first thin layer and the printed circuit board sandwich the second thin layer; and

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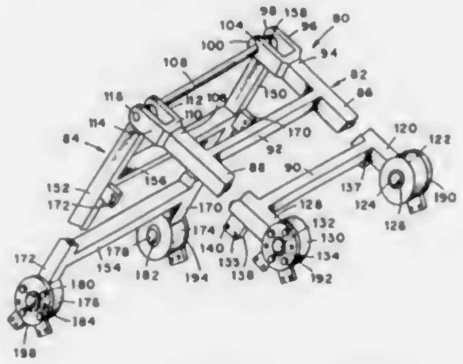
drilling through the first thin layer, the second thin layer and the printed circuit board in succession with a drilling tool.

5,785,466

TOOL FOR ALIGNING A PORTABLE BORING BAR FOR REBORING OF A BORE AT A LOCATION RELATIVE TO A FURTHER BORE

George C. Haynes, 8724 Rutledge Pike, Knoxville, Tenn. 37924
Filed Sep. 26, 1996, Ser. No. 721,284
Int. Cl.⁶ B23B *41/00*
U.S. Cl. 408—80 **7 Claims**

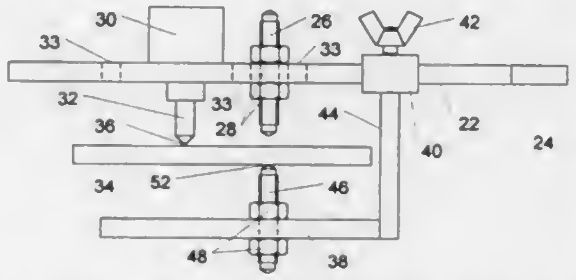


1. An alignment tool for aligning a portable boring bar for reboring of a first bore at a location relative to a further bore in an equipment component comprising
- a first guide member of generally "H"-shape including first and second preferably rigid elongated side members, each of said side members including an inboard end and an outboard end,
  - each of said outboard ends of said first and second side members defining a mounting hub having a through bore defined therein, said bore including a longitudinal axis which is aligned substantially perpendicular to the length dimension of its respective side member,
  - each of said inboard ends of said first and second side members defining a first portion of a hinged connection between said first and second side members,
- a second guide member of generally "H"-shape including first and second preferably rigid elongated side members, each of said side members including an inboard end and an outboard end,
  - each of said outboard ends of said first and second side members defining a mounting hub having a through bore defined therein, said bore including a longitudinal axis which is aligned substantially perpendicular to the length dimension of its respective side member,
  - each of said inboard ends of said first and second side members defining a further portion of a hinged connection between said first and second side members,
- a rigid cross member extending between said side members of said first guide means and maintaining said side members of said first guide means in a spaced apart and parallel relationship such that said side members and said cross member associated therewith lie in a substantially common plane,
- a further rigid cross member extending between said side members of said second guide means and maintaining said side members of said second guide means in a spaced apart and parallel relationship such that said side members and said cross member associated therewith lie in a substantially common plane,
- means for hingedly connecting said first and second guide members at their inboard ends along an axis of rotation which is substantially parallel to an intersection of said planes of said first and second guide members such that through selection of the angular relationship of the planes of said first and second guide members, said outboard ends of said first guide member may be spaced apart from said outboard ends of said second guide member by a distance which is representative of the desired lineal distance between the first bore and the further bore.

5,785,467

LEVER BAR MACHINING APPARATUS

Dale W. Gardner, 12680 Herring Rd., Colorado Springs, Colo. 80908
Filed Jul. 2, 1996, Ser. No. 675,340
Int. Cl.⁶ B23B *45/00*
U.S. Cl. 408—87 **6 Claims**

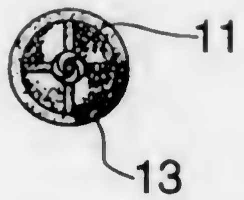


1. A portable machining apparatus for cutting a hole in a sheet workpiece, comprising a lever bar having an attached cutting tool drive mechanism and a handle, a fulcrum arm adjustably secured to said lever bar, said fulcrum arm having at least one fulcrum point about which said fulcrum arm pivots, said at least one fulcrum point being positioned on a surface of the workpiece such that pivoting said lever arm and said fulcrum arm about said at least one fulcrum point advances or retracts the cutting tool relative to the workpiece.

5,785,468

DRILL FOR INTERCHANGEABLE USE ON A SCREW DRIVER

Mark Peritz, P.O. Box 503, Woodstock, N.Y. 12498
Filed Apr. 22, 1996, Ser. No. 635,636
Int. Cl.⁶ B23B *51/10*
U.S. Cl. 408—226 **9 Claims**

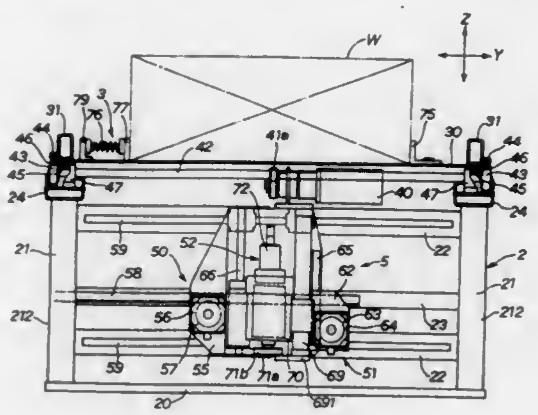


1. A countersink and drill for interchangeable use on a screw driver bit secured in the chuck of a powered drill, the countersink and drill comprising:
- a shank which is cylindrical and elongated having a working end and a mounting end, said shank having a longitudinal axis extending from the working end to the mounting end and having an opening at the mounting end and extending from the mounting end along the longitudinal axis, the opening having a multisided cross section;
- a countersink mounted on the working end of the shank;
- a drill mounted concentrically in the countersink;
- a set screw mounted in the countersink to retain the drill in place; and
- a screw driver bit having a multisided cross section for insertion into the opening at the mounting end of the shank whereby the shank with the countersink and drill may be removed from the screwdriver bit to permit use of the screwdriver bit and whereby the shank may be placed on the screw driver bit to use the drill and countersink, the screw driver bit including means for retaining the shank on the screw driver bit.

5,785,469

WORKING APPARATUS

Teruo Kamada, and Takashi Ichizawa, both of Saitama-ken, Japan, assignors to Honda Giken Kogyo Kabushiki Kaisha, Tokyo, Japan
Filed Mar. 2, 1995, Ser. No. 396,471
Claims priority, application Japan, Nov. 22, 1994, 6-288362
Int. Cl.⁶ B23C *1/06*
U.S. Cl. 409—191 **28 Claims**



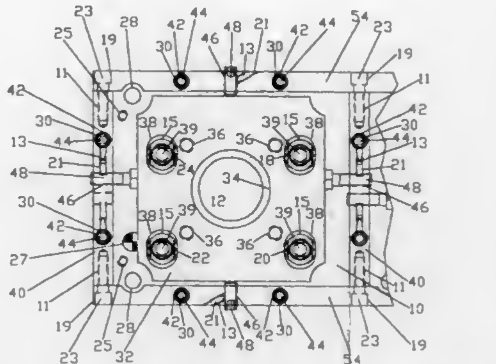
1. A working apparatus comprising:
- a horizontally movable work supporting table for supporting a three-dimensional work thereon;
- means for moving said table in one direction in a horizontal plane;
- means disposed below said table in an upward orientation and movable in another direction for working on the work as supported on said table from below;
- means for moving said working means in said another direction;
- a tool held by said working means and movable in a different direction for working directly on the work;
- means for moving said tool in said different direction;
- said means for moving said table, said means for moving said working means, and said means for moving said tool are actuable being actuatable for causing said tool to cut a three-dimensional pattern into the work;
- said tool being supported on a driving device mounted on a base for said working means, and on an indirect base which is vertically movable by said driving device:
- said tool comprises a spindle provided with a cutting device at its end and supported by said indirect base to be driven by another driving device on said indirect base for performing a cutting job: and
- said another driving device for said tool and said spindle are provided with a balancer for their movement in the vertical direction, and said balancer comprises a rodless cylinder.

5,785,470

ADJUSTABLE RETRIEVER

Richard Scheufler, 3209 Hartland Center Rd., Collins, Ohio 44826
Filed Mar. 11, 1996, Ser. No. 613,317
Int. Cl.⁶ B23D *37/00*
U.S. Cl. 409—287 **14 Claims**

1. An adjustable mechanism for aligning a broach tool for a broach machine comprising:
- a. a plate; and,
- b. a first attachment means for attaching the plate to the broach machine; and,

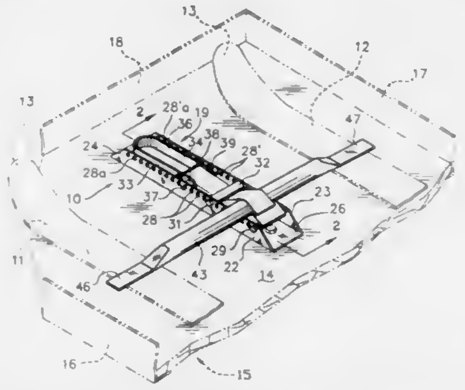


- c. a second attachment means for attaching the plate to the broach tool such that when the plate is moved for adjustment the broach tool moves for adjustment; and,
- d. rails attached to the broach machine around the plate; and,
- e. a protrusion means that protrudes from the rails and that makes contact with the plate and can move the plate in a plane perpendicular to the center line of the broach tool.

5,785,471

SKI BAR TIE DOWN DEVICE FOR A SNOWMOBILE TRAILER

Byron L. Godbersen, Lake LaJune Estates, Ida Grove, Iowa 51445
Filed Jan. 28, 1997, Ser. No. 790,059
Int. Cl.⁶ B60P *7/08*
U.S. Cl. 410—3 **7 Claims**



1. A device for holding down the two skis of a snowmobile onto the floor of a snowmobile trailer comprising:
- an elongated U-shaped channel having a base and a pair of upright sides, said channel having opposed ends, said base having one or more openings formed therein for the insertion of fasteners therethrough;
- a first member connected transversely between said sides adjacent one said channel end;
- a second member connected transversely between said sides and spaced toward the opposite said channel end from said first member;
- a third member connected to said sides, extended transversely thereof and spaced toward said opposite end from said first member;
- an elongated handle having opposed ends, one said handle end thereof pivotally connected at said third member for pivotal movement longitudinally of said channel and arcuately toward and away from said base, said handle having a fourth member connected thereto and extended transversely between laterally spaced elements of said one handle end;
- an elongated tube having opposed ends placeable at its approximate center on said sides and extended transversely of said channel with its tube ends each disposed above a respective ski; and

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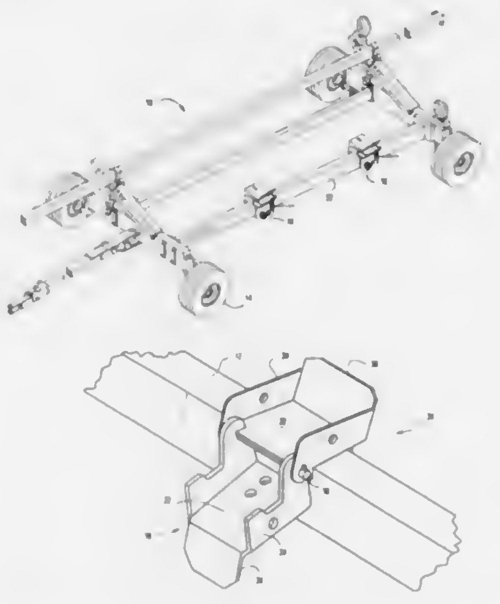
- a strap having opposed ends, one said strap end connected to said fourth member, said strap adapted to extend from said fourth member past said third member, beneath said second member, over said tube center and with said opposite strap end connected to said first member, said handle pivotally movable downwardly from a raised first position with said fourth member spaced above an imaginary line between the underside of said second member and the center of said third member to a lowered second position with said fourth member spaced slightly below said imaginary line, said handle engaging said channel base in said second position, thereby preventing further pivotal downward movement of said handle.

5,785,472
CONVERTIBLE SUPPORT FOR A HEADER TRANSPORT WAGON

David R. Smith, Fort Jennings; William C. Maenle, Ottoville, and Dennis J. Turnwald, Kalida, all of Ohio, assignors to Unverferth Manufacturing Co., Inc., Kalida, Ohio

Filed Feb. 12, 1996, Ser. No. 600,181
Int. Cl.^{6} B60P *3/00*
U.S. Cl. 410—77 **15 Claims**

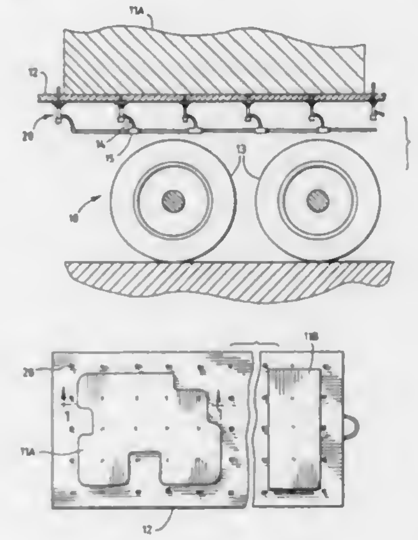


1. A convertible support bracket for a transport wagon having a frame with a top surface, opposed frame side surfaces and a frame bottom, comprising:
   - a first support member having a first support surface for supporting a portion of a first article to be transported;
   - a second support member having a second support surface for supporting a portion of a second article to be transported and for mounting to the frame of the transport wagon;
   - the first support member pivotally connected to the second support member for movement between a lower position wherein the second support surface is positioned for supporting said portion of said second article to be transported and an upper position wherein the first support member overlies the second support member, and wherein the first support surface is positioned for supporting said portion of said first article to be transported;
   - the second support surface including a base and two plates connected to the base on opposite sides of the base and extending downwardly from the base, so as to be mountable on said frame with said base resting on the top surface of said frame, and said two plates extending adjacent said frame side surfaces; and
   - a quick release device comprising a bolt extendible below the frame bottom for mounting said bracket on said frame, with said bolt connected to both said plates below the frame bottom, said bolt having one end connected to a cam member with a handle attached to the cam member, the handle being movable from an unlocked position wherein the bracket is slidable on the frame to a locked position wherein the cam member engages a respective one of said plates so that both said plates are pulled toward each other for frictionally engaging said frame.

5,785,473
CARGO RESTRAINT SYSTEM

Bruce E. Stark, 603 W. Center St., LeRoy, Ill. 61752

Filed Apr. 27, 1995, Ser. No. 429,806
Int. Cl.^{6} B60P *7/135*
U.S. Cl. 410—94 **8 Claims**



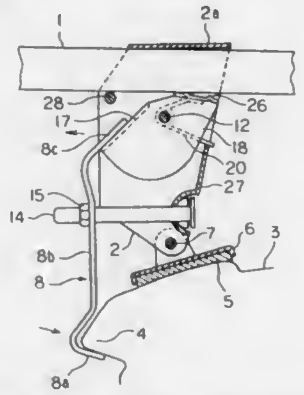
1. A system for restraining the movement of cargo exerting a gravitational force on a floor of an engine-powered carrier during transport, the system comprising:
   - (a) a source of fluid;
   - (b) a pressurizer for changing the pressure of the fluid from a first pressure to a second pressure, which second pressure is greater than the first pressure but less than the gravitational force exerted upon the floor by the cargo;
   - (c) a means for maintaining the fluid at the first pressure when the carrier engine is off and the cargo is being loaded, and for maintaining the fluid at the second pressure when the engine is on and the carrier is transported; and
   - (d) a plurality of vertically-movable rods communicating with the fluid source and distributed throughout the floor, each rod positioned so that it is flush with the topside of the floor when the fluid source is at the first pressure and so that it is risen above the topside of the floor when the fluid source is at the second pressure, provided the rising of the rod is not prevented by the presence of the cargo on top of the rod;

such that, when the system is in place on a carrier and the carrier engine is off, the fluid source is at the first pressure and cargo is loaded without contact with the rods; and such that, when the carrier engine is on and the carrier is transported, the fluid source is at the second pressure and the cargo is restrained by the raised rods adjacent to the cargo.

5,785,474
APPARATUS FOR FIXING VEHICLE CARRYING PLATFORMS

Toyohisa Kinouchi; Noriyuki Okutsu, and Seiji Nomoto, all of Tokyo, Japan, assignors to Car Mate Mfg. Co., Ltd., Tokyo, Japan

Filed Jan. 19, 1996, Ser. No. 589,052
Claims priority, application Japan, Jan. 20, 1995, 7-024603
Int. Cl.^{6} B60R *9/00*
U.S. Cl. 410—96 **11 Claims**

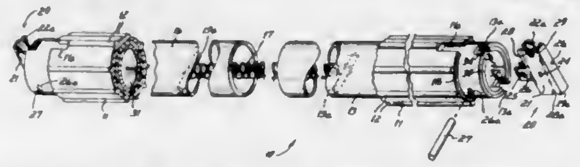


2. An apparatus for fixing a vehicle carrying platform, the apparatus comprising a stay having in its upper part a surface that engages an upper surface of a carrier bar and a lower part of which attaches to the vehicle; a hook a lower part of which is hooked to the vehicle; a pressing plate having on its upper surface a pressing section that engages a lower surface of the carrier bar, the upper part of which is connected to an intermediate portion of said stay via a pin and the lower part of which is connected to an intermediate portion of said hook via a tightening member; a hook-holding member having a free-sliding slide section that engages an upper part of said hook, the upper part of which is connected to the intermediate portion of said stay via said pin and the intermediate portion of which is rotatably connected to the intermediate portion of said pressing plate via a pivotal pin; and an elastic means for biasing the hook-holding member away from said pressing plate whereby when said pressing section is shifted in a direction in which tightening force on said hook is decreased, the tightening force on said hook is increased via said hook holding member.

5,785,475
CARGO RESTRAINER

Terry C. Winstel, Cincinnati, Ohio, and Gerald D. Martin, 8780 Ashbrook Dr., West Chester, Ohio 45069, assignors to Gerald D. Martin, Westchester, Ohio

Continuation-in-part of Ser. No. 977,767, Nov. 19, 1992, abandoned. This application Feb. 19, 1993, Ser. No. 21,161
Int. Cl.^{6} B60P *7/15;* **B61D** *45/00*
U.S. Cl. 410—146 **20 Claims.**

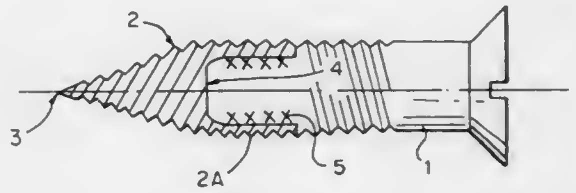


1. In a cargo-shoring assembly adapted to releasably engage opposing mounting members secured to a freight transport vehicle, said cargo-shoring assembly being provided with (a) an elongated hollow-form cargo-engaging member having opposing first and second ends; (b) first and second extenders slidably carried in the cargo-engaging member and respectively located at the first and second cargo-engaging member ends, each of said extenders having an outer end; and (c) first and second latch clips pivotally mounted, respectively, on the first and second extenders a fixed distance inwardly of the outer ends thereof, each of said latch clips having a body extending transversely to the cargo-engaging member and adapted to releasably engage one of the mounting members secured to the freight transport vehicle, that improvement which comprises;
   - i) at least one latch clip-receiving slot projecting inwardly from each of the first and second ends of the cargo-engaging member a distance sufficient to permit the body of the respective latch clip to be removably and substantially fully received within the cargo-engaging member with no portion of said latch clip body extending axially beyond the respective end of said cargo-engaging member; and
   - ii) at least one latch clip-receiving notch projecting inwardly from the outer end of each of the extenders a distance sufficient to permit a portion of the body of the respective latch clip to be housed within the respective extender and to permit pivotal movement of said latch clip relative to said extender.

5,785,476
FASTENER WITH SOFT TIP

Robert L. McDonnell, 10397 Overland Trail, Cherry Valley, Calif. 92223

Filed Oct. 30, 1996, Ser. No. 741,287
Int. Cl.^{6} F16B *15/00;35/02*
U.S. Cl. 411—383 **4 Claims**

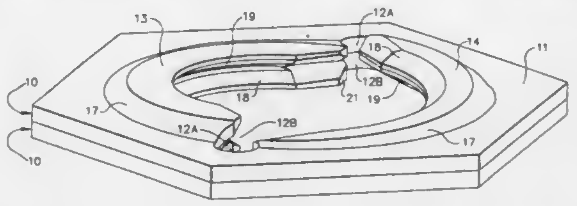


1. A fastener having a shank portion with a pointed penetrating end, and a predetermined outside diameter with a PVC material at its penetrating end, the fastener shank having a reduced diameter cylindrical front portion;
   - said PVC penetrating end having a tubular cylindrical portion and a conical extension with a pointed tip, the tubular cylindrical portion being bonded to the cylindrical front portion of the fastener shank portion, said tubular cylindrical portion having an outside dimension corresponding to the outside dimension of the fastener.

5,785,477
LAMINATED INTERNALLY THREADED FASTENER

Arnold L. McGuffey, and David L. Remerowski, both of Cincinnati, Ohio, assignors to Senco Products, Inc., Cincinnati, Ohio

Filed Nov. 7, 1996, Ser. No. 745,039
Int. Cl.^{6} F16B *37/08;21/18*
U.S. Cl. 411—432 **6 Claims**



1. An internally threaded fastener comprising a plurality of joined laminae, each lamina having an internal bore surface forming less than one full thread form in a plane through the helix of the tread with the internal bore surfaces of at least two adjacent laminae forming a full thread form in the helix plane, and with each lamina having a periphery accommodating a wrenching tool.

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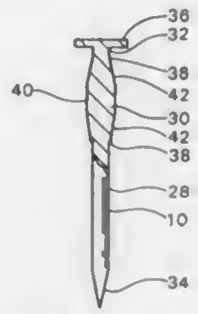
5,785,478
FASTENER

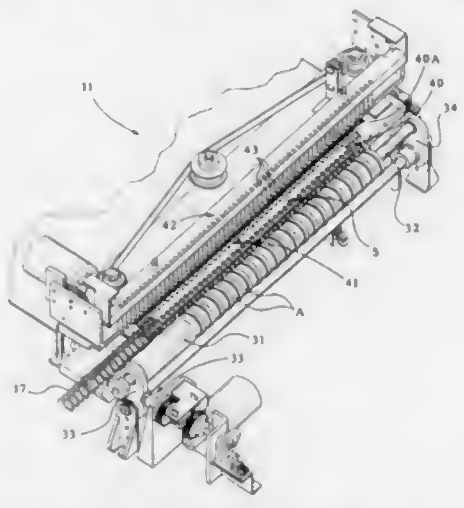
Martin J. Rotter, 115 Lismore Ave., Glenside, Pa. 19038
Continuation of Ser. No. 536,873, Sep. 29, 1995, abandoned, Continuation-in-part of Ser. No. 233,564, Apr. 26, 1994, Pat. No. 5,511,918. This application Mar. 7, 1997, Ser. No. 814,768
Int. Cl.^{6} F16B *15/00*
U.S. Cl. 411—487 **13 Claims**



1. A fastener comprising:
a shaft having a preselected length,
a head extending radially around the shaft at one end; and
an enlarged shaft portion to control penetration depth located in proximity to the head formed as a single piece with the shaft, the enlarged shaft portion having a pair of opposite ends, a center portion and a frusto-conical tapered portion extending from the center portion toward the end of the enlarged shaft portion opposite to the head which terminates in a shoulder having a larger diameter than the shaft, the enlarged shaft portion having a length less than the length of the shaft.

5,785,479
AUTOMATED SPIRAL BINDING MACHINE

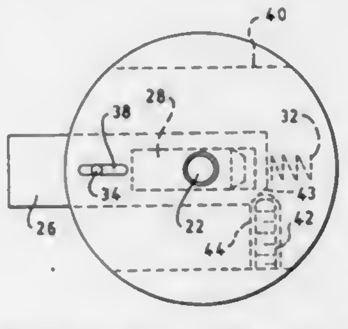
Thomas Battisti, Buffalo Grove; Adam Horwitz, Chicago, and Robert E. Slater, Cary, all of Ill., assignors to General Binding Corporation, Northbrook, Ill.
Filed Mar. 26, 1996, Ser. No. 620,677
Int. Cl.^{6} B42B *5/10*
U.S. Cl. 412—39 **30 Claims**



1. An automated machine for spirally binding a stack of sheets having prepunched holes along a side edge thereof, said machine comprising:
a coil guide defining a lengthwise series of slots for positioning the spirals of a coil,
a rotatable drive roller for engaging said coil and spirally feeding said coil lengthwise through said coil guide;
a stack positioner movable relative to said coil guide while holding the stack of sheets, wherein said stack positioner accurately locates said stack of sheets with its prepunched holes lengthwise aligned with said coil guide, such that the spirals of said coil sequentially pass through the prepunched holes as said coil is fed along said coil guide;
a pair of coil crimpers, one for deforming the lead end of said coil after it has passed through the prepunched holes of said stack of sheets and the other for deforming the tail end of said coil; and
a drive system for operating movements in said machine.

5,785,480
ADJUSTABLE NUT

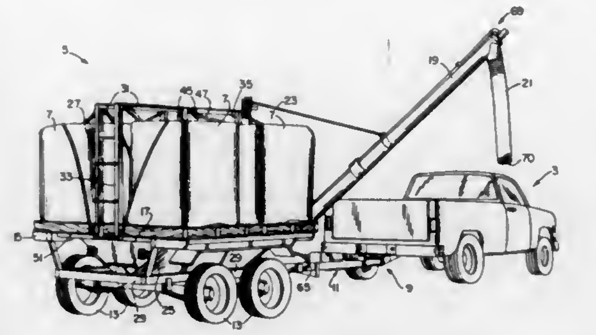
Mark J. Difeo, P.O. Box 2, East Hamstead, N.H. 03826
Filed Mar. 16, 1995, Ser. No. 404,999
Int. Cl.^{6} F16B *37/08*
U.S. Cl. 411—433 **4 Claims**



1. An adjustable nut for use with a bolt having a threaded shaft, said adjustable nut comprising:
a body having a top surface, a bottom surface and a lateral surface integral with said top and bottom surfaces, said body having an axial passageway bored axially therethrough for permitting said threaded shaft to pass through the axial passageway, said body farther having a transverse bore extending radially from the lateral surface into the body such that the transverse bore intersects with said axial passageway;
a button disposed in said transverse bore having an elongate aperture passing radially therethrough which intersects with said axial passageway; said button having an operative position and an inoperative position, said operative position for mechanically interconnecting threads on said threaded shaft with mating threads disposed on a distal end of the elongate aperture, said inoperative position for disengaging the threads on the threaded shaft from the mating threads in the elongate aperture;
biasing means disposal in said transverse bore for urging the button into said operative position; and
restrictive means for mechanically restricting a range of motion of the button thereby confining the button to the transverse bore, the restrictive means including a slot in the body and a pin extending radially outward from said button for mechanically restricting a range of motion of the button and through said slot in the bore and a set screw extending through the body and abutting a surface of said button whereby said mating threads in the elongate aperture of the button can be forced into engagement with a threaded shaft.

5,785,481
TRAILER FOR DISPENSING BULK SEED INTO PLANTING EQUIPMENT

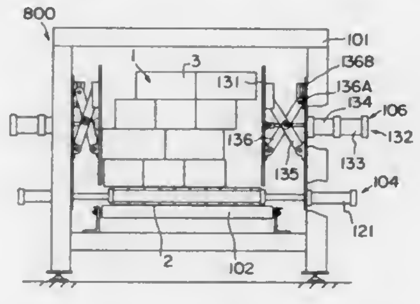
Gary C. Ockels, Milton, Del., assignor to Ockels Equipment Co., L.L.C., Milton, Del.
Filed Apr. 8, 1996, Ser. No. 629,070
Int. Cl.^{6} B65G *67/24*
U.S. Cl. 414—523 **7 Claims**



1. A seed dispensing trailer for transporting bulk seed and capable of dispensing the seed into planting equipment from any point in an arc transcribed between one side of said trailer and the other side, the seed dispensing trailer comprising:
structural frame members defining a first and second side of said trailer connected to a wheeled suspension system extending between said first and said second side of said trailer;
at least one planar platform for supporting a plurality of bulk seed bags thereon, said platform being connected to said structural frame members;
a walled bin disposed beneath said platform and so located with respect to said platform as to allow seed from said bags on said platform to fall by gravity into said walled bin;
a first auger system located in said walled bin, said first auger system including a first auger capable of conveying said seed in said walled bin to a seed hopper located at one end of said trailer;
a pivotal second auger system located in seed engaging relationship with said seed hopper, said second auger system including a dispensing tube and a second auger located within said dispensing tube capable of dispensing seed from said hopper through said tube to said planting equipment;
said dispensing tube being comprised of an elongated tubular portion having an intake end locatable proximal said hopper and an exit end for dispensing seed therefrom; and
a pivot system for pivotally connecting said second auger system to said trailer, so constructed as to permit said second auger system to be rotated in an arc transcribed between said first side of said trailer and said second side of said trailer thereby to enable said seed to be dispensed from any point along said arc.

5,785,482
APPARATUS FOR CORRECTING LOAD APPEARANCE

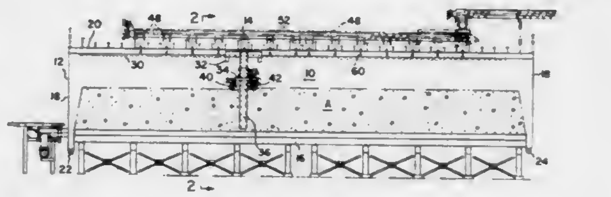
Nobuhiro Tanaka, Saitama, Japan, assignor to Kao Corporation, Tokyo, Japan
Division of Ser. No. 178,285, Jan. 10, 1994, Pat. No. 5,567,102. This application Apr. 17, 1996, Ser. No. 634,027
Claims priority, application Japan, May 13, 1992, 4-146906; May 13, 1992, 4-146907; May 13, 1992, 4-146908; May 13, 1992, 4-146909
Int. Cl.^{6} B65G *1/00*
U.S. Cl. 414—270 **2 Claims**



1. An automated warehousing apparatus for receiving a plurality of individual, vertically stacked load stages, each of said stages comprising a load placed on a pallet, wherein each of said individual load stages is imputed with a load kind, the apparatus comprising:
load appearance correcting means for correcting the appearance of the individual load stages one at a time;
load kind discriminator means for discriminating the kind of each stage load; and
warehousing process controller means for warehousing said loads, said warehousing process controller means operatively connected to said discriminator means such that when said discriminator means determines that the loads in the individual load stages are of the same kind, the process controller means allows the individual load stages to be warehoused in the form of a stack, and when said discriminator means determines that the loads in the individual load stages are of different kinds, said process controller means allows warehousing of the loads after disassembling the stack into respective loads of different kinds.

5,785,483
BULK STORAGE RECLAMATION SYSTEM AND METHOD

Theodore Perry Smyre, Marietta, Ga., assignor to Jervis B. Webb Company, Farmington Hills, Mich.
Filed May 22, 1996, Ser. No. 651,765
Int. Cl.^{6} B65G *65/34*
U.S. Cl. 414—300 **4 Claims**



1. A system for storing and reclaiming material comprising:
a housing substantially enclosing said material having at least one side wall and a floor, wherein said housing is equipped with at least one conveyor on or in said floor positioned adjacent to a free standing pile of said material supported by said floor and said wall;
a feed system for forming said pile in said housing, wherein said pile is spaced apart from said side wall; and
a reclaimer for removing a portion of said material from an upper surface of said pile and moving said material to at least one edge of said upper surface where said material freely falls to said conveyor wherein said reclaimer comprises:
a horizontal support arm having first and second ends and mounted for linear movement in a horizontal direction;
first and second masts depending from said first and second ends; and
at least one conveyor connected between said first and second masts for vertical movement with respect to the support arm.

5,785,484
METHOD AND APPARATUS FOR ORIENTING MINIATURE COMPONENTS

Douglas J. Garcia, Valley Center, Calif., assignor to Electro Scientific Industries, Inc., Portland, Oreg.
Filed Aug. 23, 1996, Ser. No. 701,326
Int. Cl.^{6} B65G *65/00*
U.S. Cl. 414—417 **25 Claims**

1. In a system for manipulating components in preparation for subsequent processing, a method of controllably orienting a component as it is transferred from a load plate to a carrier plate, comprising:
positioning a load plate having at least one loading aperture adjacent a carrier plate having at least one component pas-

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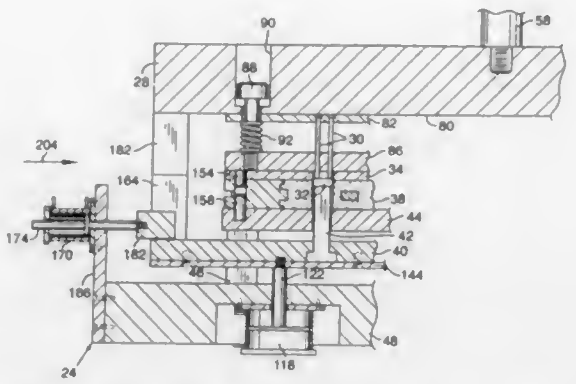


sageway in a spatial alignment that permits transfer of a component from the loading aperture to the component passageway;

placing a component in the loading aperture, the component having first and second end surfaces;

positioning an orienting pin having an orienting surface such that the orienting surface is nominally generally adjacent to the first end surface of the component placed in the loading aperture;

positioning a press pin against the second end surface of the component;

causing relative motion between the press pin and the load plate so as to transfer the component along a travel path from the loading aperture to the component passageway; and

coordinating the positions of the press pin and the orienting pin during transfer of the component so that the orienting surface guides the component to controllably orient its end surface in a plane generally perpendicular to the travel path as the component is transferred from the loading aperture to the component passageway.

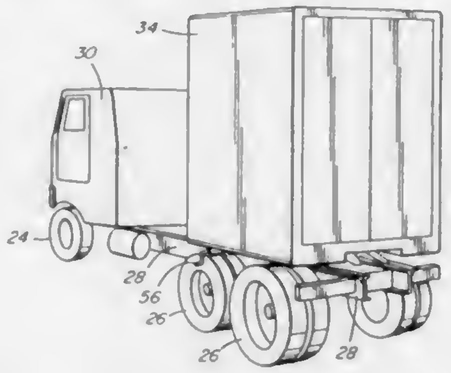
5,785,485
SHIFTABLE CARGO CONTAINER FOR TRUCK TRACTOR

Larry J. Hall, Site #10, Comp. 63, R.R. 2, Kamloops, British Columbia, Canada, V2C 2J3

Filed Feb. 21, 1996, Ser. No. 604,467

Int. Cl.⁶ B60P *1/04*

U.S. Cl. 414—498 11 Claims



1. A truck tractor comprising:

a chassis;

a driver cab mounted on said chassis;

a fifth wheel mounted on said chassis behind said driver cab for connecting a trailer to truck tractor;

a cargo container mounted on said chassis behind said driver cab;

container supports mounted on said chassis and permitting displacement of said cargo container longitudinally of said chassis on said supports between a forward position, in which said cargo container is located adjacent said driver cab and forward from said fifth wheel, and a rearward position, in which said cargo container overlies said fifth wheel;

said cargo container having rear doors to permit loading and unloading of said cargo container through said rear doors;

a drive operable to shift said cargo container to and fro, longitudinally of said chassis, between said forward and rearward positions; and

a locking device operable to lock said cargo container in position relative to said chassis.

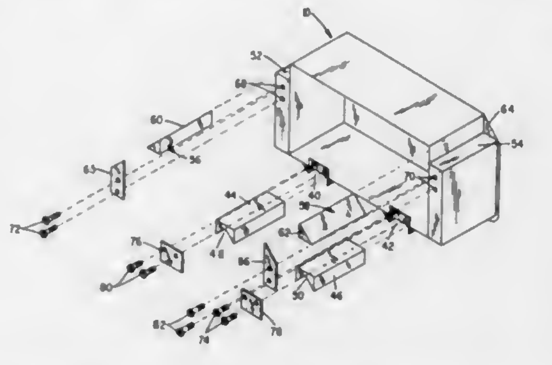
5,785,486
REPLACEABLE WEAR SYSTEM

Garwin B. McNeilus, Dodge Center; Wilbur R. Harris, Rochester, and Francis Oliver, Kasson, all of Minn., assignors to McNeilus Truck and Manufacturing, Inc., Dodge Center, Minn.

Continuation-in-part of Ser. No. 717,485, Sep. 20, 1996, abandoned. This application Jan. 28, 1997, Ser. No. 790,004

Int. Cl.⁶ B60P *1/32*

U.S. Cl. 414—513 21 Claims



10. In a vehicle mounted reciprocating refuse packing or ejecting mechanism designed to operate along and carried by spaced parallel rails:

(a) a vehicle body;

(b) a pair of spaced parallel closed bottom rails having a diverging upper cross section mounted in the floor of said vehicle body;

(c) a packer or ejection mechanism designed to be carried by said rails in said body;

(d) a pair of spaced parallel lower recesses in said packer or ejector mechanism configured to accommodate an upper cross section of corresponding wear shoes;

(e) a pair of elongated wear shoes disposed to be partially accommodated in said lower recesses in said mechanism and having lower recesses configured to conform to the upper cross section of said bottom rails so that said mechanism is supported on said wear shoes; and

(f) wherein said wear shoes are free to move relative to said mechanism.

5,785,487
PUSH OUT EJECTION SYSTEMS FOR REFUSE TRUCK

Garwin B. McNeilus, Dodge Center, Minn.; Ronald E. Christenson, Parsons, Tenn.; Wilbur R. Harris, Rochester, and Francis Oliver, Kasson, both of Minn., assignors to McNeilus Truck and Manufacturing, Inc., Dodge Center, Minn.

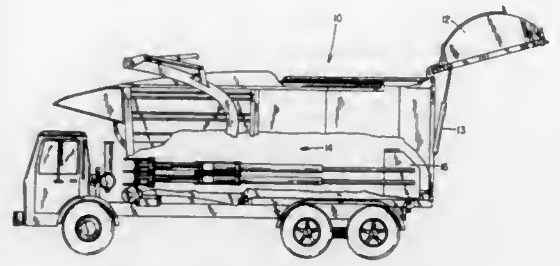
Filed Jan. 27, 1997, Ser. No. 788,212

Int. Cl.⁶ B65F *3/28*

U.S. Cl. 414—517 9 Claims

1. A mechanized, self-containing vehicle mounted handling system for packing and ejecting refuse comprising:

(a) vehicle chassis for supporting a truck body;



(b) a rear-discharging refuse storage body, said storage body defining a closed hollow storage compartment;

(c) a charging hopper having sidewalls and a floor and defining a refuse material receiving compartment forward of said refuse storage body and open thereto; and

(d) a packing and ejecting mechanism for handling refuse deposited in said material receiving compartment of said charging hopper, said mechanism comprising:

  (1) a transversely disposed packer panel having a material pushing face positioned within said charging hopper and linearly displaceable parallel to the length of the vehicle between stowed and ejecting positions for respectively receiving materials, packing materials into the storage body and ejecting materials from the rear of the storage body;

  (2) a pair of linkage members each having a free end and a fixed end, wherein the fixed end is pivotally attached to a base member toward the front of the charging hopper at a location behind the pushing face of the packer panel;

  (3) a pair of packing cylinders each having a first end pivotally attached to the free end of an associated linkage member and a second end pivotally attached to the packer panel behind the pusher face thereof for linearly reciprocally displacing the packer panel through a first longitudinal portion of the storage body between a stowed and a packing position; and

  (4) a pair of ejecting cylinders each having a first end pivotally attached to the base member of the charging hopper offset a distance from the attachment location of a corresponding linkage member and a second end pivotally attached to the linkage member at a point closer to the free end thereof whereby extension and retraction of the ejecting cylinders pivots said linkage members, and together with the extension of the packing cylinders, displaces the packer panel reciprocally through the remainder of the storage body.

5,785,488
APPARATUS FOR SORTING MAIL AND THE LIKE

Josef Raschke, Pliening, and Rudolf Schuster, Kirchheim, both of Germany, assignors to Siemens Aktiengesellschaft, Munich, Germany

PCT No. PCT/DE95/00908, § 371 Date Jan. 14, 1997, § 102(e) Date Jan. 14, 1997, PCT Pub. No. WO96/02448, PCT Pub. Date Feb. 1, 1996

PCT Filed Jul. 11, 1995, Ser. No. 765,797

Claims priority, application Germany, Jul. 14, 1994, 44 24 944.6

Int. Cl.⁶ B65H *3/08*

U.S. Cl. 414—798.9 29 Claims

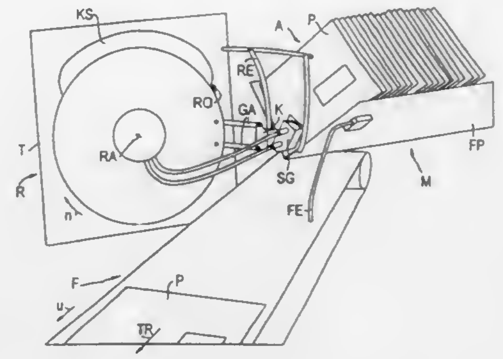
18. An apparatus for separating and distributing unit loads onto a conveyor, the apparatus comprising:

a magazine adapted for storing and guiding a stack of unit loads such that an endmost unit load of said stack in said magazine is in an upper fetching position, the magazine having a generally L-shaped guide profile and which is fixed in an inclined manner such that the stack lies against two sides of the L-shaped guide profile;

a rotor which carries at least one suction grab and which is rotatably moveable on an axis, the axis being aligned obliquely to a conveying direction of the conveyor, the suction grab being radially displaceable and swivellably mounted relative to the rotor, the suction grab being adapted for suctionally grasping said unit load from the fetching position; and

a moveable conveyor located near said magazine onto which said suction grab releases said grasped unit load;

the magazine, rotor and conveyor being positioned relative to one another such that the suction grab can seize the unit load in the fetching position of the magazine and transfer it to the conveyor during a rotation of the rotor.



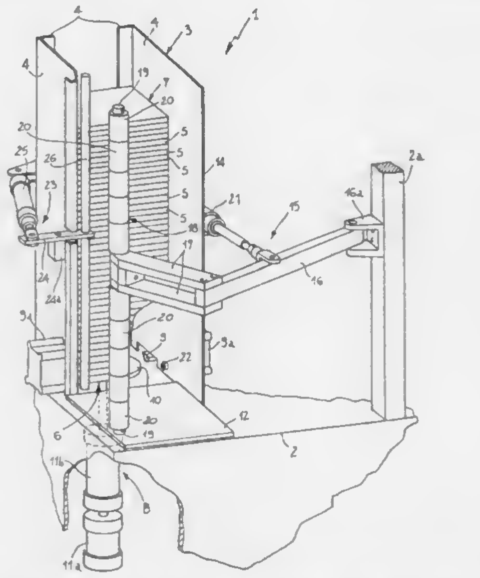
5,785,489
CASE-FEEDING UNIT IN AN AUTOMATIC APPARATUS FOR PACKAGING MANUFACTURED ARTICLES INTO CASES AND AUTOMATIC CASE-FEEDING METHOD RELATING TO SAME

Luciano Perego, Milan, Italy, assignor to Tapematic U.S.A., Inc., Orlando, Fla.

Filed Jan. 23, 1996, Ser. No. 589,947

Int. Cl.⁶ B65G *59/06*

U.S. Cl. 414—795.8 17 Claims



1. A case-feeding unit for use in conjunction with an automatic apparatus for packaging manufactured articles into cases, the case feeding unit comprising:

a feeding magazine having vertical holding walls and arranged to house a plurality of cases disposed vertically in the form of a stack;

case separation means positioned adjacent to a lower end of the feeding magazine for removing a single case from said stack;

a base platform adapted to receive a new case stack of a predetermined height;

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transferring means operating adjacent to said base platform for introducing the new case stack into the feeding magazine by engaging only one side of the new case stack and horizontally moving in a sliding motion said new case stack through an entrance side of said magazine defined between said holding walls; and

sensor means associated with said feeding magazine for actuating said transferring means when the height of said stack in said magazine falls below a predetermined level.

5,785,490

FLUID PUMP

Klaus Dobler; Michael Huebel, both of Gerlingen, and Willi Strohl, Beilstein, all of Germany, assignors to Robert Bosch GmbH, Stuttgart, Germany

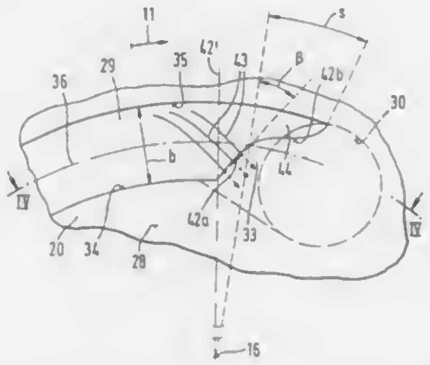
PCT No. PCT/DE96/00028, § 371 Date Oct. 11, 1996, § 102(e) Date Oct. 11, 1996, PCT Pub. No. WO96/24770, PCT Pub. Date Aug. 15, 1996

PCT Filed Jan. 11, 1996, Ser. No. 722,235

Claims priority, application Germany, Feb. 11, 1995, 195 04 564.5

Int. Cl.^{6} F04D *5/00*

U.S. Cl. 415—55.1 **20 Claims**



1. A fluid pump, for pumping fuel, comprising a housing including first and second fixed wall portions (**19**, **20**) including inner wall end faces (**24** and **28**) that form a chamber (**17**) between an intake opening and an outlet opening, a pump impeller (**10**) driven to revolve in said chamber (**17**), said pump impeller includes vanes (**12**), disposed in said pump chamber (**17**) that is defined in a direction of a rotary axis (**16**) of the pump impeller by said first and second fixed wall portions (**19**, **20**), said first and second fixed wall portions having the intake opening (**26**) in said first fixed wall portion (**19**) and the outlet opening (**30**) in the second fixed wall portion (**20**); one annular supply conduit (**25**, **29**) extending in the wall end faces (**24**, **28**), toward the pump impeller (**10**), of the first and second fixed wall portions (**19**, **20**) and extending from the intake opening (**26**) to the outlet opening (**30**); the intake opening (**26**) discharges into a beginning of the annular supply conduit in said first fixed wall portion (**19**), and the outlet opening (**30**) discharges in a region of an end of the supply conduit of said second fixed wall portion (**20**); and the outlet opening (**30**) has a wall (**40**), which defines the supply conduit (**29**) into which the outlet opening discharges in a rotational direction (**11**) of the pump impeller (**10**) and which terminates, on the end face (**28**) toward the pump impeller (**10**), in an edge (**42**), the edge (**42**) viewed in the radial direction of the rotary axis (**16**) of the pump impeller (**10**) has an inner edge portion (**42***a*), beginning at an inner edge (**34**) radially defining the supply conduit (**29**) relative to the rotary axis (**16**), and extends in an inclined fashion relative to a middle region (**36**) of the supply conduit (**29**), viewed in the radial direction relative to the rotary axis (**16**), with respect to an imaginary radial arrangement (**42'**) in the rotational direction (**11**) of the pump impeller (**10**).

5,785,491

LIQUID PUMP HAVING A DRIVING UNIT AND A DRIVEN UNIT WITH A RESILIENT SEAL THEREBETWEEN

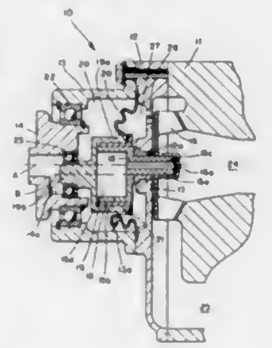
Yasuo Ozawa, Kariya; Mitsutoshi Hagiwara, Anjyo, and Itsuro Hashiguchi, Toyota, all of Japan, assignors to Aisin Seiki Kabushiki Kaisha, Aichi-pref, Japan

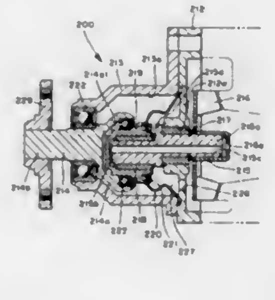
Filed Jul. 1, 1996, Ser. No. 673,112

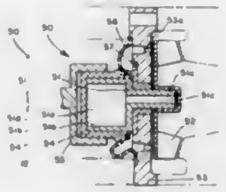
Claims priority, application Japan, Jun. 29, 1995, 7-164152; Feb. 29, 1996, 8-042849

Int. Cl.^{6} F01D *23/00*

U.S. Cl. 415—70 **28 Claims**







1. A liquid pump comprising:
- a housing adapted to be secured on a stationary member and having a flange with a hole;
- a pump shaft rotatably supported on the flange and having an impeller at one end and an eccentric cam portion at the other end, the axis of the cam portion is being eccentric with respect to the pump shaft;
- a cap having a cylindrical portion surrounding the cam portion and a shaft portion of which axis is coaxial with an axis of the cam portion and eccentric with respect to the axis of the pump shaft;
- a driving member having an axis coaxial with the axis of the pump shaft and an eccentric cavity for rotatably receiving the shaft portion; and
- a resilient member disposed between the cylindrical portion and the housing.

5,785,492

METHOD AND APPARATUS FOR SEALING A GAS TURBINE STATOR VANE ASSEMBLY

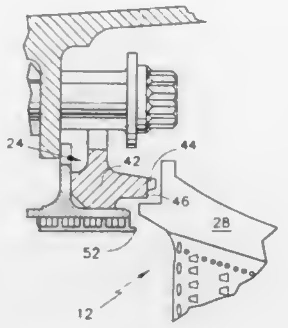
Keith C. Belsom, Stuart, Fla., and M. Stefan Maier, Cape Neddick, Me., assignors to United Technologies Corporation, Hartford, Conn.

Filed Mar. 24, 1997, Ser. No. 822,895

Int. Cl.^{6} F04D *29/18*

U.S. Cl. 415—173.7 **10 Claims**

1. A stator vane assembly for a gas turbine engine, comprising:
- a plurality of stator vane segments, each said segment having an outer platform, an inner platform, and an airfoil extending between said platforms, said vane segments collectively forming an annular structure; and
- a seal ring, attached to a non-rotating member within the gas turbine engine, having a body and an abradable bearing pad, said abradable bearing pad extending out from an axial surface of said seal ring, positioned in close proximity to said stator vane segments;



- wherein contact and consequent friction between each said stator vane segment and said abradable bearing pad causes said abradable bearing pad to abrade, thereby creating a sealing surface reflective of each said stator vane segment in contact with said abradable bearing pad.

5,785,493

TURBOCHARGER FOR INTERNAL COMBUSTION ENGINE

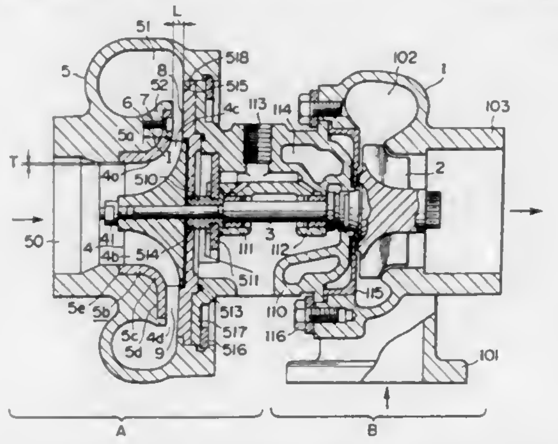
Kazuo Ojima, and Tatsuhiko Oshino, both of Hitachinaka, Japan, assignors to Hitachi, Ltd. and Hitachi Car Engineering Co., Ltd., Germany

Filed Dec. 20, 1996, Ser. No. 771,147

Claims priority, application Japan, Dec. 20, 1995, 7-331490

Int. Cl.^{6} F04D *29/18*

U.S. Cl. 415—174.1 **13 Claims**



1. A turbocharger for an internal combustion engine, in which a compressor housing has at least a wall portion attached and secured thereto so as to face a compressor impeller and separately formed of a material softer than a material for said compressor impeller, wherein said compressor housing and said wall member are partially closely in contact at the attachment surface such that gaps for allowing thermal expansion of said wall member are provided between said wall member and said compressor housing except at said attachment surface.

5,785,494

MOLTEN METAL IMPELLER

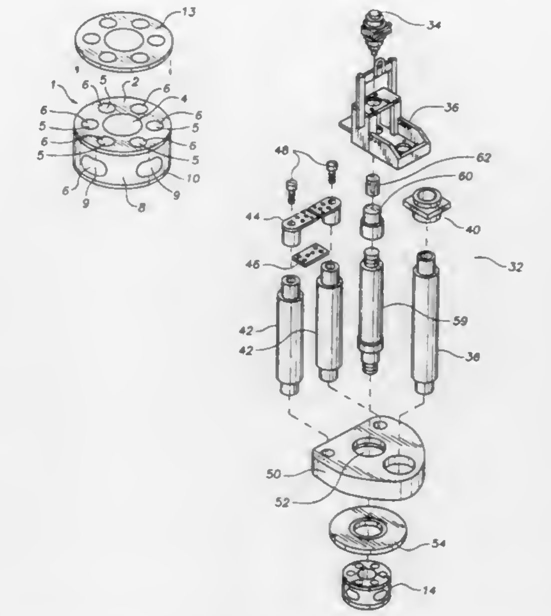
Chris T. Vild, Cleveland Heights, and Mark A. Bright, Maple Heights, both of Ohio, assignors to Metaullics Systems Co., L.P., Solon, Ohio

Filed Apr. 23, 1997, Ser. No. 842,004

Int. Cl.^{6} F04D *7/06*

U.S. Cl. 415—200 **17 Claims**

15. A molten metal pump comprising:
(a) an elongated shaft having first and second ends;



(b) a means for rotating said shaft about an axis in communication with said first end of said shaft;
(c) an impeller disposed adjacent said second end of said shaft;
(d) a pumping chamber housing said impeller, said pumping chamber having an inlet opening through which molten metal can be drawn and a outlet opening through which molten metal can be discharged; and
(e) said impeller comprised of a cylindrical body of a refractory material, said cylindrical body including generally coplanar top and bottom surfaces, a first central bore being provided in said top surface for mating with said elongated shaft, a plurality of circumferentially spaced passages extending from said top surface to a substantially contiguous sidewall of said impeller, each of said passages being separate and having an inlet at said top surface and an outlet at said side wall.

5,785,495

FIBER-REPELLANT CENTRIFUGAL PUMP

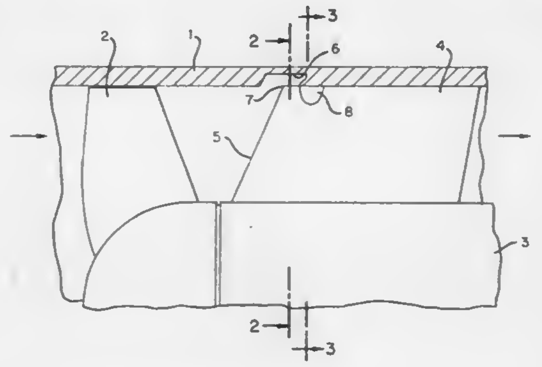
Peer Springer, Neuhofen, and Roland Wellmeier, Bobenheim Roxheim, both of Germany, assignors to KSB Aktiengesellschaft, Frankenthal, Germany

Filed Mar. 25, 1996, Ser. No. 624,694

Claims priority, application Germany, Mar. 24, 1995, 195 10 811.6

Int. Cl.^{6} F04D *29/34*

U.S. Cl. 415—221 **8 Claims**



1. A centrifugal pump comprising:
a housing;
an impeller mounted in the housing;
a hub;

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at least one guide vane mounted between the hub and the housing and in-line with the impeller, the at least one guide vane having a leading guide vane edge, a recess is disposed in at least one of the housing and the hub in proximity to the leading guide-vane edge such that the recess provides a fluid connection between a space located on both sides of the at least one guide vane.

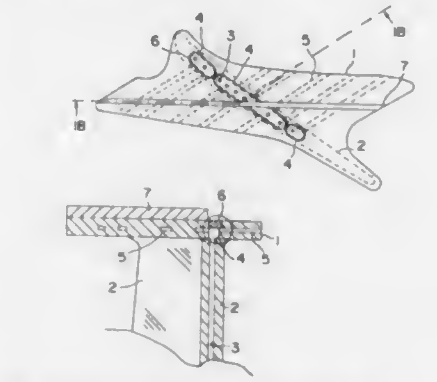
5,785,496
GAS TURBINE ROTOR

Yasuoki Tomita, Takasago, Japan, assignor to Mitsubishi Heavy Industries, Ltd., Tokyo, Japan

Filed Feb. 24, 1997, Ser. No. 803,771

Int. Cl.^{6} F01D *5/18*

U.S. Cl. 416—97 R **6 Claims**



1. A gas turbine blade assembly comprising:

a blade having a tip portion;

a plurality of first cooling holes bored in said blade along a longitudinal direction of said blade for passing cooling gas therethrough;

a shroud connected to said tip portion of said blade;

a two-step groove formed in a radially outer peripheral surface of said shroud, said two-step groove being generally aligned with said tip portion of said blade;

a plurality of second cooling holes bored in said shroud along a plane of said shroud, said second cooling holes fluidly communicating with said first cooling holes via said two-step groove; and

a plug disposed in an upper portion of said two-step groove.

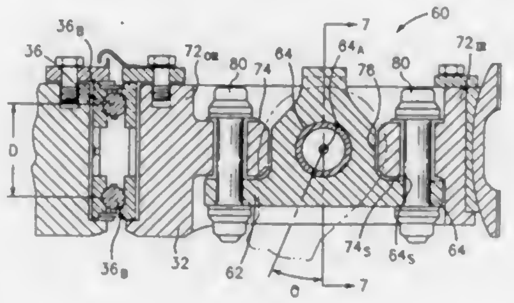
5,785,497
CONTROL ROD MOUNTING ARRANGEMENT FOR HELICOPTER SWASHPLATES

Kevin A. White, Shelton; David H. Hunter, Cheshire; Robert J. Milne, Litchfield; Stephen V. Poulin, Shelton, and Robert J. Trembicki, Milford, all of Conn., assignors to Sikorsky Aircraft Corporation, Stratford, Conn.

Filed Mar. 11, 1997, Ser. No. 814,373

Int. Cl.^{6} B64C *27/605*

U.S. Cl. 416—114 **18 Claims**



1. A mounting arrangement (**60**) for securing a control rod (**38**) to a stationary swashplate member (**32**) of a helicopter swashplate assembly (**30**), said mounting arrangement (**60**) being characterized by:

said stationary swashplate member (**32**) having a horizontal web (**74**) disposed between an inner ring segment (72_{IR}) and an outer ring segment (72_{OR}), said horizontal web (**74**) having an aperture (**78**) and defining a mounting surface (74_S);

a trunnion fitting (**62**) having a base (**64**) defining a mounting surface (64_S) and a pair of mounting ears (**66**) having aligned apertures (66_O), said mounting surface (64_S) engaging said mounting surface (74_S) of said horizontal web (**74**) such that said mounting ears (**66**) are disposed through said aperture (**78**) of said horizontal web (**74**);

mounting means (**80**) for demountably affixing said trunnion fitting (**62**) in combination with said horizontal web (**74**); and

coupling means (**84**), disposed in combination with said aligned apertures (66_O), for coupling the control rod (**38**) in combination with said trunnion fitting (**62**).

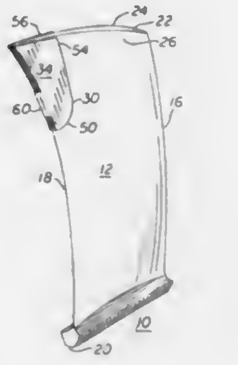
5,785,498
COMPOSITE FAN BLADE TRAILING EDGE REINFORCEMENT

Kerry W. Quinn, Cincinnati; Bruce C. Busbey, Loveland; Stephen J. Szpunar, West Chester; Sidney B. Elston, III, and James W. Tucker, both of Cincinnati, all of Ohio, assignors to General Electric Company, Cincinnati, Ohio

Continuation of Ser. No. 316,196, Sep. 30, 1994, abandoned. This application Jan. 29, 1996, Ser. No. 593,186

Int. Cl.^{6} F04D *29/18*

U.S. Cl. 416—224 **4 Claims**



1. A composite blade comprising:

an airfoil having a pressure side and a suction side made from a composite material and extending chordwise from a leading edge to a trailing edge and spanwise from a root to a tip, and

a reinforced surface region covered with a metallic sheathing wherein said region extends over only a portion of said airfoil spanwise from said tip towards said root, and said metallic sheathing further comprising a one-piece thin metallic sheet with a first section and a second section each having a section height in the spanwise direction connected by a bridge having a bridge height in the spanwise direction substantially shorter than the section height of either section wherein said bridge is wrapped around said trailing edge, and the first section is bonded to the airfoil pressure side and the second section is bonded to the airfoil suction side.

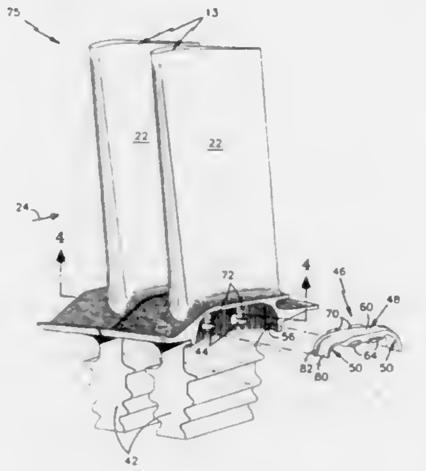
5,785,499
TURBINE BLADE DAMPER AND SEAL

David P. Houston, Glastonbury; Natalie A. Pelland, Tolland; Michael Gonsor, Hebron, all of Conn., and David Airey, Pelham, N.H., assignors to United Technologies Corporation, Hartford, Conn.

Filed Dec. 24, 1996, Ser. No. 773,017

Int. Cl.^{6} F04D *29/18*

U.S. Cl. 416—248 **18 Claims**



1. An integral damper and seal for a turbine rotor blade in a gas turbine engine, the engine having a longitudinal axis, each blade having a platform with an upstream side and a downstream side, the radially inner surface of said platform having a damping portion, a sealing portion, and a transition portion located between them, the sealing portion extending generally radially inward from the damping portion, the integral damper and seal being characterized by:

a substantially rigid damper portion, having a damping surface in contact with the damping portion of the radially inner surfaces, said damper portion being generally disposed in a plane; and

at least one sealing portion having a proximal end joined to said damper, and a distal end which is free, said sealing portion extending generally radially inward from said damper portion at an angle from said general plane, said sealing portion making contact and sealing in combination with the associated sealing portion of the adjacent blade platform radially inner surfaces.

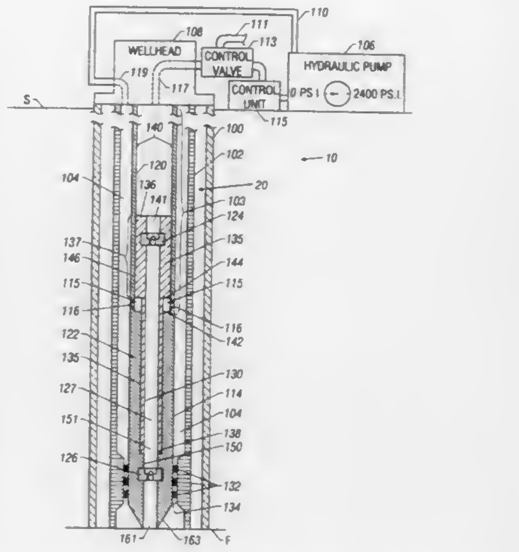
5,785,500
WELL PUMP HAVING A PLUNGER IN CONTACT WITH WELL AND PUMP FLUID

Humberto F. Leniek, Houston, Tex., assignor to Quality Tubing, Inc., Houston, Tex.

Filed May 2, 1996, Ser. No. 643,055

Int. Cl.^{6} F04B *49/00;47/12*

U.S. Cl. 417—46 **14 Claims**



1. A pump apparatus for use in a pump system of a well capable of exerting and releasing pressure on a pump fluid supplied to the pump apparatus, the pump apparatus comprising:

a tubular body having a pump fluid space for communicating with the pump fluid and a chamber for receiving well fluid from a producing formation and for furnishing the well fluid to a wellhead of the well, wherein the pump fluid and the well fluid remain separated inside the tubular body; and

a plunger located inside the tubular body and in contact with the pump fluid in the pump fluid space and the well fluid in the chamber, the plunger configured to displace the well fluid from the chamber to the wellhead in response to the pump system exerting pressure on the pump fluid and to deliver the well fluid from the formation to the chamber in response to the pump system releasing pressure on the pump fluid.

5,785,501
LIQUID PUMP WITH DEGASSER AND INTEGRATED VAPOR RECOVERY OPTION

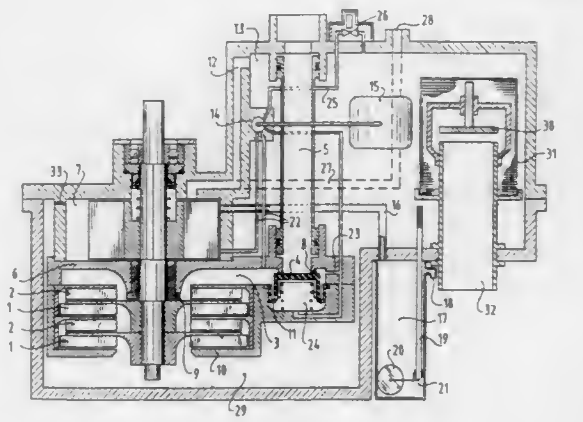
André Sylvere Joseph Van Coillie, Rue du Château 47A, B-1480 Clabecq, Belgium, and Johannes Hendrikus Cornelis Marie Bultman, Christinestraat 9, NL-5401 CZ Uden, Netherlands

Filed Sep. 6, 1995, Ser. No. 524,455

Claims priority, application Netherlands, Sep. 7, 1994, 9401455

Int. Cl.^{6} F04C *19/00*

U.S. Cl. 417—69 **14 Claims**



1. Pumping device for volatile liquids, comprising a closed pump housing having an intake connected to a supply reservoir and at least one discharge connected to a delivery means, a liquid pump with a liquid inlet drawing fuel into the interior of the pump housing and a pressure outlet connected to the discharge, a gas pump with a gas inlet drawing gas from the pump housing at an upper wall thereof and a gas outlet debouching gas outside the pump housing, and wherein the liquid pump is a hydrodynamic pump such as a centrifugal pump.

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5,785,502
CONTROL APPARATUS FOR VARIABLE DISPLACEMENT COMPRESSOR

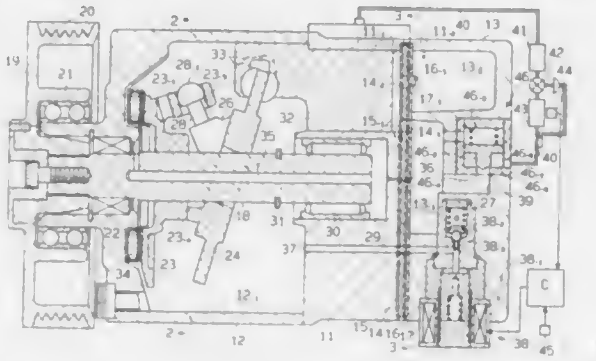
Masaki Ota; Sokichi Hibino; Hisakazu Kobayashi; Masahiro Kawaguchi; Ken Suitou; Koji Kawamura, and Takuya Okuno, all of Kariya, Japan, assignors to Kabushiki Kaisha Toyoda Jidoshokki Seisakusho, Kariya, Japan

Filed Oct. 6, 1995, Ser. No. 540,556

Claims priority, application Japan, Oct. 11, 1994, 6-245625

Int. Cl.^{6} F04B *1/26*

U.S. Cl. 417—222.2 **16 Claims**



1. A displacable compressor including a swash plate tiltably mounted on a rotary shaft in a crank chamber to reciprocally drive a piston in a cylinder bore, said piston compressing fluid supplied to the cylinder bore from a fluid passage through a suction passage and discharging the compressed fluid to the fluid passage through a discharge passage, wherein the difference between the pressures in the crank chamber and the cylinder bore is selectively increased and decreased in accordance with pressure in the crank chamber to tilt the swash plate between minimum and maximum angles, said compressor comprising:

means for determining an amount of the fluid passing through one of the suction passage and the discharge passage to be minimum based on the compression load of said compressor;

means for forcibly tilting the swash plate toward the minimum angle in response to an instruction from the determining means;

means for regulating the tilting movement of the swash plate as it tilts to the minimum angle, said swash plate at the minimum angle being inclined toward the maximum angle with respect to a plane perpendicular to said rotary shaft to allow the passage of the minimum amount of the fluid in one of the passages; and

means disposed in one of said suction passage and said discharge passage to close said one of the passages upon the passage of the minimum amount of the fluid therein.

5,785,503
VARIABLE DISPLACEMENT COMPRESSOR

Masaki Ota; Hisakazu Kobayashi; Youichi Okadome, and Masaru Hamasaki, all of Kariya, Japan, assignors to Kabushiki Kaisha Toyoda Jidoshokki Seisakusho, Kariya, Japan

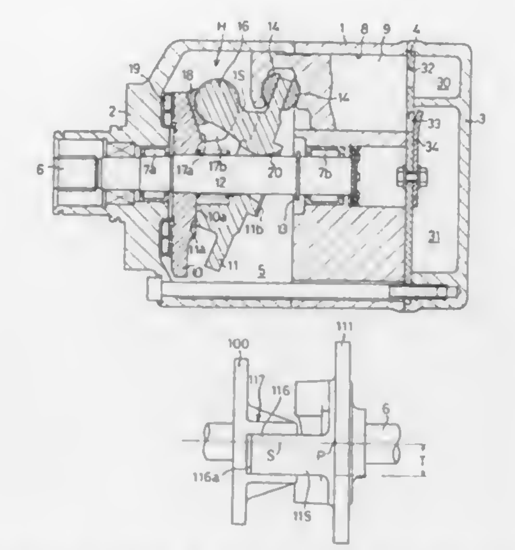
Filed Nov. 22, 1996, Ser. No. 755,416

Claims priority, application Japan, Nov. 24, 1995, 7-305797; Sep. 13, 1996, 8-243312

Int. Cl.^{6} F04B *1/12*

U.S. Cl. 417—269 **18 Claims**

1. A compressor having a rotating plate mounted on a drive shaft for integral rotation therewith, wherein rotation of the rotating plate is converted to linear reciprocal movement of a piston between a top dead center position and a bottom dead center position to compress gas, said rotating plate having a first point and a second point corresponding to the top dead center position and the bottom dead center position, respectively, said compressor comprising:



a lug plate mounted on the drive shaft for integral rotation therewith;

one of said lug plate and said rotating plate including a receptacle, and the other one of said lug plate and said rotating plate including an arm that is guided within the receptacle;

said receptacle being defined at least in part by a pair of side walls extending from said one of said lug plate and said rotating plate in a direction that is normal to the rotating plate, said side walls being spaced from each other by a predetermined distance; and

said arm having a head portion with a width substantially equal to the distance separating the side walls, said head being received within said receptacle:

wherein said rotating plate receives a maximum reaction force of the compressed gas in a predetermined area that is laterally offset from a lane in which the first point, second point and axis of the drive shaft lie, and wherein said width of said head portion is such that at least part of said head portion is aligned with the predetermined area.

5,785,504
PUMP WITH SEPARATE PUMPING STAGES FOR PUMPING A PLURALITY OF LIQUIDS

Denis Cote, Ham-Nord, Canada, assignor to Les Entreprises Denis Darveau Inc., Canada

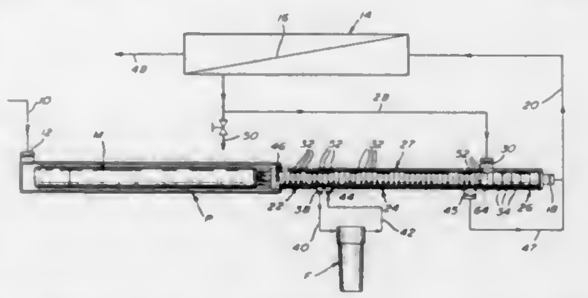
PCT No. PCT/CA94/00547, § 371 Date Jun. 27, 1996, § 102(e) Date Jun. 27, 1996, PCT Pub. No. WO95/09983, PCT Pub. Date Apr. 13, 1995

PCT Filed Oct. 6, 1994, Ser. No. 624,436

Claims priority, application Canada, Oct. 7, 1993, 2107933

Int. Cl.^{6} F04B *21/00;23/04*

U.S. Cl. 417—313 **4 Claims**



1. Installation for the concentration of a solution by reverse osmosis or other process using a semi-permeable membrane, said installation comprising a housing enclosing a semi-permeable membrane responsible for the concentration of said solution; a multistage centrifugal pump allowing for the introduction of said solution under pressure in said housing; as well as means for ensuring the recirculation of part of said solution, characterized in that said centrifugal pump comprises first and second pumping means adapted to be driven by a single motor, said first pumping means consisting of a first series of pumping stages for untreated liquid; said second pumping means consisting of a second series of pumping stages for recirculated liquid; said first and second pumping stages being hydraulically separated in said centrifugal pump by separation means, said first pumping means including an inlet and outlet for the untreated liquid, said second pumping means including an inlet and an outlet for the recirculated liquid such that a liquid reaching said centrifugal pump through said inlet for untreated liquid is pumped by said first pumping stages and is removed from said pump through said outlet for the untreated liquid, whereas a concentrated liquid from said housing reaches said second pumping stages through said inlet for the recirculated liquid and is removed from said centrifugal pump through said outlet for the recirculated liquid, the liquid and the recirculated liquid being mixed together downstream of said first and second pumping means and upstream of an inlet of said housing.

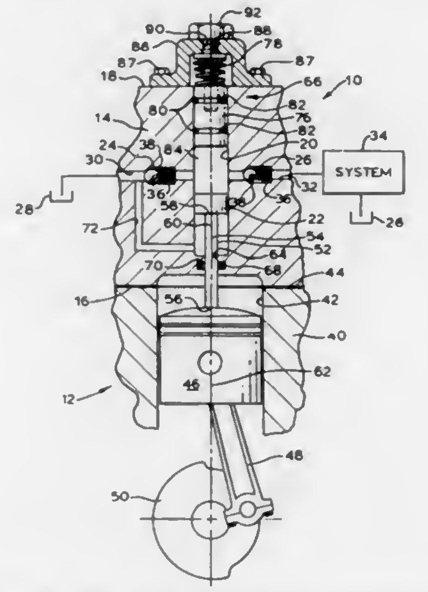
5,785,505
INTEGRAL FLUID PUMP AND INTERNAL COMBUSTION ENGINE

Robert J. Price, Dunlap, Ill., assignor to Caterpillar Inc., Peoria, Ill.

Filed Oct. 21, 1996, Ser. No. 729,662

Int. Cl.^{6} F02B *33/10*

U.S. Cl. 417—364 **3 Claims**



1. An integral fluid pump and internal combustion engine arrangement, comprising:

a cylinder head having first and second spaced sides and a fluid pumping piston receiving bore disposed in the cylinder head;

a fluid pumping piston disposed in and reciprocally movable in said fluid pumping piston receiving bore;

a first and a second check valve connected in fluid communication with said fluid pumping piston receiving bore, one of the first and second check valves passing fluid flow to said fluid pumping piston receiving bore and the other of said first and second fluid check valves passing fluid flow from said fluid pumping piston receiving bore;

a cylinder block having a cylinder bore is connected to and engageable with the first side of the cylinder head, said cylinder bore being open to the cylinder head;

an engine piston is disposed in and reciprocally movable in the cylinder bore;

a drive member disposed between said fluid pumping and engine pistons and reciprocally movable in response to reciprocal movement of said engine piston to reciprocally move said fluid pumping piston, said fluid pumping piston pumping fluid from said fluid pumping piston bore past said second check valve; and

means for maintaining the fluid in said fluid pumping piston receiving bore at a predetermined pressure during pumping thereof by said fluid pumping piston, said maintaining means including a spool slidably movably disposed in the fluid pumping piston receiving bore, and a spring engageable with the spool and biasing the spool in a direction toward said fluid pumping piston.

5,785,506
LIQUID FEEDING PUMP

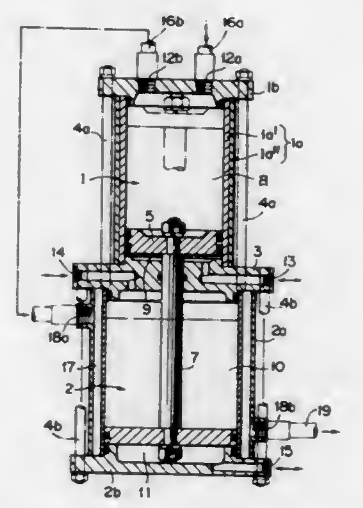
Kiyozumi Takahashi, Kanagawa-ken, and Shigeyoshi Komaki, Tokyo, both of Japan, assignors to Ahresty Corporation, Tokyo, Japan

Filed Dec. 20, 1995, Ser. No. 575,394

Claims priority, application Japan, Dec. 21, 1994, 6-318209

Int. Cl.^{6} F04B *17/00;39/06*

U.S. Cl. 417—366 **6 Claims**



1. A liquid feeding pump which comprises:

first and second cylinders which are coaxially arranged and separated by a partition, said first cylinder including a head end wall opposite said partition and said second cylinder including a bottom end wall opposite said partition,

a first piston movably positioned in said first cylinder to define a liquid chamber between said first piston and said head end wall and a first air chamber between said first piston and said partition,

a second piston movably positioned in said second cylinder to define a second air chamber between said second piston and said partition and a third air chamber between said second piston and said bottom end wall,

a rod extending through said partition and connecting said first and second pistons,

first inlet and outlet means communicating with said first chamber for liquid,

second inlet and outlet means communicating with said first air chamber,

third inlet and outlet means communicating with said second air chamber,

fourth inlet and outlet means communicating with said third air chamber, and

means for passing liquid flowing to or from said first inlet and outlet means around an outer side of said second cylinder to cool said liquid,

wherein when said liquid chamber contains liquid and said second air chamber is vented, supplying high pressure air to said first and third air chambers will cause said first and second pistons to move such that the first piston will dis-

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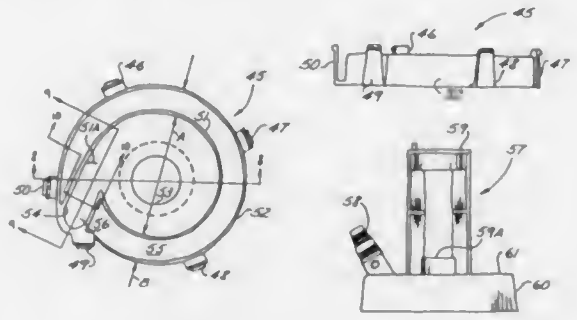
charge liquid from said liquid chamber through said first outlet means, while venting of said first and third air chambers and supplying high pressure air to said second air chamber will cause said first and second pistons to move such that the first piston will allow liquid to enter said liquid chamber through said first inlet means.

5,785,507
EVAPORATIVE COOLER PUMP

John B. Hanneken, Tempe, Ariz., assignor to Dial Manufacturing, Inc., Phoenix, Ariz.

Filed Sep. 19, 1994, Ser. No. 308,145
Int. Cl.⁶ F04B *17/03;* **F01D** *25/24*
U.S. Cl. 417—423.14 **12 Claims**



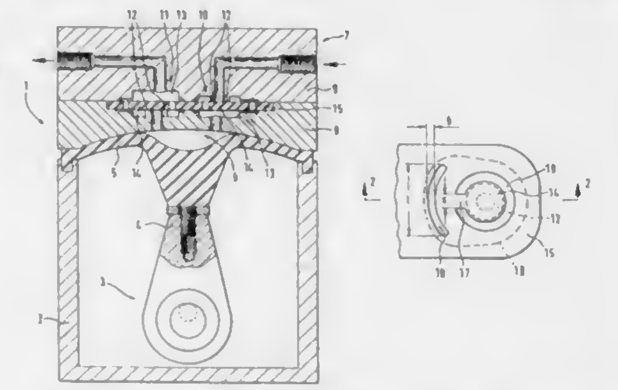
1. A water pump for an evaporative cooler including a sump, said pump including

(a) a hollow base including a side wall;
(b) a first impeller volute housing including a volute outlet and a volute wall (**51**);
(c) a second impeller volute housing including a volute outlet and a volute wall (**51**), said second volute housing being larger than said first volute housing, said first and second housings each being shaped and dimensioned to be removably mounted inside said base, said volute wall of said first housing being circumscribed by and spaced away from said side wall when said first housing is mounted in said base, said volute wall of said second housing being circumscribed by and spaced away from said side wall when said second housing is mounted in said base, said housing each being interchangeable with the other of said housing on said base and when mounted on said base being normally submerged in water in the sump of the evaporative cooler when mounted in said base, said volute wall of said first impeller volute housing having a shape and dimension different from that of said volute wall of said second impeller housing;
(d) a first impeller having a height and sized to fit inside and be circumscribed and enclosed by said volute wall of said first housing and including a first drive shaft extending out of said first housing, said impeller including arcuate volute blades;
(e) a second impeller having a height and sized to fit inside said second housing and be circumscribed and enclosed by said volute wall of said second housing and including a second drive shaft extending upwardly out of said second housing, said second impeller including arcuate volute blades, said second impeller being larger than said first impeller, said first and second impellers each being shaped and dimensioned to be mounted on said base and being interchangeable with the other of said impellers on said base;
(f) a motor mounted on said base spaced apart from said impeller adapted to connect to and turn
  (i) said first drive shaft when said first impeller is mounted on said base, and
  (ii) said second drive shaft when said second impeller is mounted on said base.

5,785,508
PUMP WITH REDUCED CLAMPING PRESSURE EFFECT ON FLAP VALVE

Erwin Bolt, Brugg, Switzerland, assignor to KNF Flodos AG, Sursee, Switzerland

PCT No. PCT/EP95/01317, § 371 Date Oct. 21, 1996, § 102(e) Date Oct. 21, 1996, PCT Pub. No. WO95/28569, PCT Pub. Date Oct. 26, 1995
PCT Filed Apr. 11, 1995, Ser. No. 722,239
Claims priority, application Germany, Apr. 13, 1994, 44 12 668.9
Int. Cl.⁶ F04B *39/10*
U.S. Cl. 417—560 **9 Claims**



1. A pump comprising flow medium-controlled intake and output valves, a pump head having a cover plate and an intermediate plate, a valve disk made of a rubber or rubber-like material clamped between the cover plate and the intermediate plate, valve flaps being located in the valve disk, the valve flaps lie on valve sealing surfaces in a closed position and recede into recesses located in the pump head for opening movement, at least one valve flap being formed by a partial ring-shaped opening in the valve disk and being flexibly connected to the valve disk by a web, the valve disk having a clamped area circumscribing the valve flaps, the clamped area being clamped in the pump head, wherein the valve disk (**15**) is provided with an opening (**19**) located in a connecting area between the web (**17**) and an outer periphery of the clamped area (**18**) of the valve disk (**15**), said opening being in a recessed area of the pump head adjacent to the web, and having a width (b) which is at least equal to a width of material displaced to prevent material deformation from the clamped area to the valve flap.

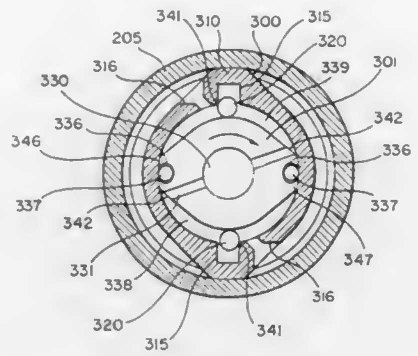
5,785,509
WELLBORE MOTOR SYSTEM

Gary L. Harris, 5902 Bent Tree Ct., Humble, Tex. 77346, and Hector D. Susman, 9 Graigston Gardens, Westhill, Aberdeen, Scotland, AB3L-6NL

Continuation-in-part of Ser. No. 456,790, Jun. 1, 1995, Pat. No. 5,518,379, which is a continuation-in-part of Ser. No. 181,693, Jan. 13, 1994, abandoned. This application May 20, 1996, Ser. No. 650,284
Int. Cl.⁶ F01C *1/356;19/04;* **E21B** *4/02;21/00*
U.S. Cl. 418—11 **15 Claims**

1. A motor for rotating a tool attached thereto, the motor comprising

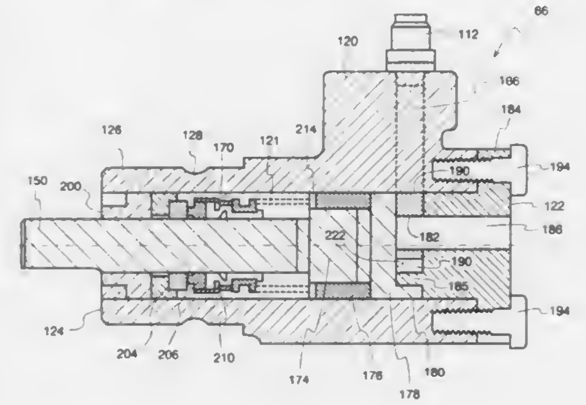
a housing,
a hollow tubular stator secured in the housing having at least two stator recesses therein and at least two intake ports therethrough,
a rolling stator rod seal movably disposed in each stator recess and freely movable therein and therefrom,
a tubular rotor movably disposed within the stator for rotation therein, the tubular rotor having an interior exhaust fluid flow channel therethrough and extending along the length of the tubular rotor, the tubular rotor having at least two continuously open radial exhaust channels therethrough in fluid communication with the interior exhaust fluid flow channel,
the tubular rotor having at least two rotor recesses and solid rolling rotor rod seals in each rotor recess, each rolling rotor rod seal freely movable from the rod recesses by force of the motive fluid to sealingly contact the stator,
at least two action chambers between the hollow tubular stator and tubular rotor, each action chamber defined by an interior surface of the hollow tubular stator and an exterior surface of the tubular rotor, each action chamber sealed at one end by one of the rolling stator rod seals and at another end by one of the rolling rotor rod seals, said motive fluid flowable through the intake ports of the hollow tubular stator, into the interior stator space and the at least two action chambers, through the at least two continuously open radial exhaust channels of the tubular rotor, and into the interior exhaust fluid flow channel of the tubular rotor, and
the rolling stator rod seals and the rolling rotor rod seals movable in and from their respective recesses by the motive fluid, the rolling stator rods movable by the motive fluid to sealingly contact the rotor and roll along an exterior surface of the rotor, and the rolling rotor rod seals movable by the motive fluid to sealingly contact the stator and to roll along an interior surface of the stator.



5,785,510
GEAR PUMP HAVING MEMBERS WITH DIFFERENT HARDNESSES

Anthony Altieri, Jr., Wheeling; John Lewis Fortin, Gurnee; Richard David Bothmann, Palatine, all of Ill.; Sandra Jean Liakus, Fort Wayne, Ind.; Philip DiGangi, Schaumburg, and Dietrich M. E. Heyde, Naperville, both of Ill., assignors to Fluid Management Limited Partnership, Wheeling, Ill.

Division of Ser. No. 681,320, Jul. 22, 1996, Pat. No. 5,697,527, which is a continuation of Ser. No. 299,610, Sep. 1, 1994, abandoned. This application Jan. 7, 1997, Ser. No. 779,481
Int. Cl.⁶ F04C *2/10*
U.S. Cl. 418—104 **8 Claims**



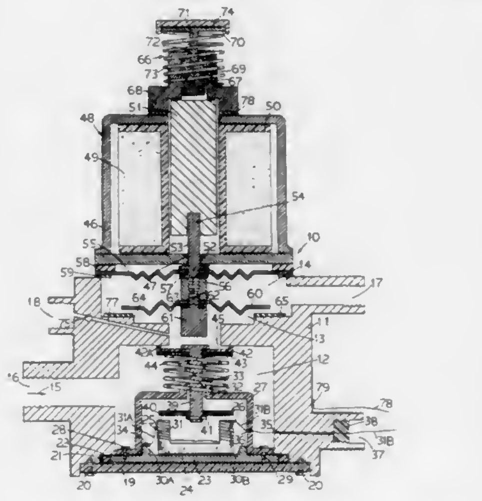
1. An improved gear pump, comprising:

a housing having first and second ends and defining an internal bore, an inlet passageway, and an outlet passageway;
a drive member within the internal bore including a rotor having rotor teeth and a drive shaft extending from the rotor toward the first end of the housing;
a head member at the second end of the housing including a wall between the inlet passageway and the outlet passageway and extending toward the rotor;
an idler gear located within the internal bore having gear teeth interengaging with the rotor teeth to pump fluid from the inlet passageway to the outlet passageway;
mounting means for rotationally mounting the idler gear to the head member;
the head member and idler gear having a preselected hardness greater than that of the rotor.

5,785,511
CONTROL DEVICE FOR GAS SUPPLY TO MAIN BURNER AND PILOT BURNER OF A GAS EQUIPMENT

Reza H. Shah, 21 Park Avenue, Acton, Ontario, Canada, L7J 1Y3

Filed Jul. 5, 1996, Ser. No. 675,864
Int. Cl.⁶ F23Q *9/08*
U.S. Cl. 431—42 **20 Claims**



1. A control device for controlling gas supply to a main burner and a pilot burner of a combustion gas burning equipment, comprising

a unit body having a main chamber, a pilot chamber and an outlet chamber, said main chamber having an inlet port operative to admit the combustion gas therein, said pilot chamber having a pilot outlet port operative to supply said gas to said pilot burner, said outlet chamber having a main outlet port operative to supply said gas to said main burner,
a passage opening located between said pilot chamber and said main chamber,
a sealing plate member mounted on a retaining pin disposed in said main chamber, said sealing plate member being biassed by a spring means to press normally against said passage opening,
a magnetic plate member mounted on another end of said retaining pin,
a magnetic core member disposed in said main chamber, said magnetic core member having electrical windings provided thereon, and said electrical windings being electrically connected to a thermocouple located at said pilot burner, said magnetic plate member being normally located in a spaced manner from said magnetic core member,
a sealing diaphragm member located in said outlet chamber, and operative to close the communication between said pilot chamber and said outlet chamber,

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a solenoid means disposed on said unit body, said solenoid means having a plunger member slidably mounted therein, said solenoid being operative to move said plunger member slidably to an upper position and a lower position selectively within said solenoid means,

a spacer member coupled to said plunger member, said spacer member having a free end extending into said outlet chamber, said sealing diaphragm member being mounted on said spacer member,

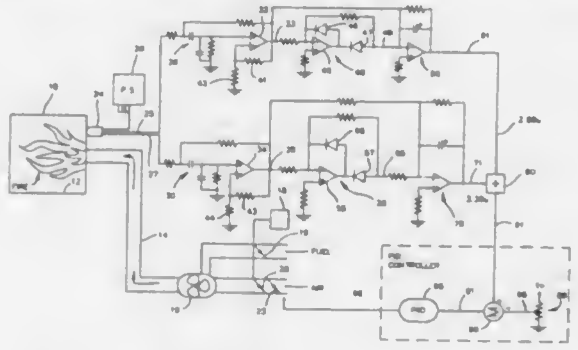
a pilot gas passage formed in said unit body, said pilot gas passage extending from said pilot chamber to said pilot outlet port,

an adjustment bolt member disposed in said unit body, said adjustment bolt member having a transverse through opening formed therein, said adjustment bolt member being operative to align said transverse through opening selectively with said pilot gas passage.

5,785,512
INFRARED EMITTANCE COMBUSTION ANALYZER

Kenneth C. Cormier, Dallas, Tex., assignor to Fireye, Inc., Derry, N.H.

Filed Dec. 17, 1996, Ser. No. 768,199
Int. Cl.⁶ F23N *5/08*
U.S. Cl. 431—79 **5 Claims**



1. An infrared emittance combustion analyzer for monitoring a flame of a burner and thereby controlling the combustion efficiency by adjusting the fuel/air mixture into the burner, comprising:

a) a pair of optical sensors mounted in a position to monitor said burner flame, each of said optical sensors being responsive to radiation signals at a predetermined wavelength;

b) a high pass filter connected to each of said optical sensors, each said high pass filter having means for blocking DC radiation signal components;

c) a rectifier and filter circuit connected to each of said high pass filters, each said rectifier and filter circuit having means for providing a DC signal representative of the respective signals received from each said high pass filters;

d) means for forming the ratio of said respective DC signals;

e) a manually operated DC setpoint circuit having means for providing a DC setpoint signal;

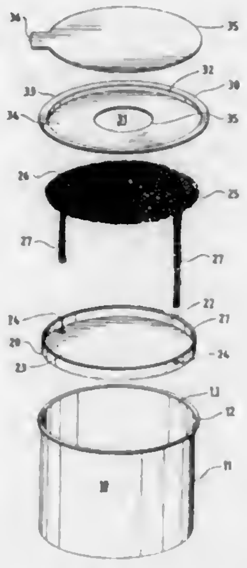
f) a difference circuit connected to said manually operated DC setpoint circuit and to said means for forming the ratio, said difference circuit having an output for providing an error signal and means for generating said error signal as representative of the difference between said ratio and said DC setpoint signal; and

g) a controller connected to receive said error signal and having means for adjusting the fuel/air mixture into the burner in response thereto.

5,785,513
COOKING FUEL CONTAINER AND BURNER

Natalie Robin Kiefer, Boonton Township; Francis T. Barbato, Milford, both of N.J.; Larry Hinderer, Texarkana, Tex., and Neale A. Messina, Ewing, N.J., assignors to Candle Corporation of America, Greenwich, Conn.

Continuation of Ser. No. 201,523, Feb. 25, 1994, which is a continuation of Ser. No. 953,422, Sep. 29, 1992, Pat. No. 5,302,114, which is a continuation-in-part of Ser. No. 785,960, Oct. 31, 1991, abandoned. This application May 22, 1995, Ser. No. 445,912
Int. Cl.⁶ F23D *3/24*
U.S. Cl. 431—320 **17 Claims**



1. A cooking fuel wick for use in a cooling fuel container and burner comprising a pile fabric having a pile fabric burning surface portion and a fuel feed portion to deliver fuel to the burning surface portion, said pile fabric having a cut or loop pile that wicks fuel to the upper ends of said pile, said pile extending upwardly a distance of about 1 mm to 10 mm, said fuel feed portion comprising at least one feed segment adapted to extend into said fuel container whereby during a burning fuel is delivered to said pile fabric to produce heat during a period of fuel ignition.

5,785,514

Patent Not Issued For This Number

5,785,515

Patent Not Issued For This Number

5,785,516
CONVEYABLE HEATING APPARATUS

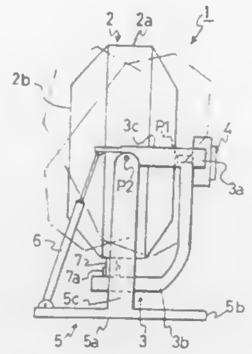
Shigehiro Tanaka, Kyoto, Japan, assignor to Tanaka Giken Co., Ltd., Kyoto, Japan

Division of Ser. No. 418,117, Apr. 6, 1995, Pat. No. 5,607,298. This application Dec. 6, 1996, Ser. No. 761,774
Int. Cl.⁶ F27B *7/14*
U.S. Cl. 432—118 **5 Claims**

1. A conveyable heating apparatus comprising;

a combustion chamber having an open top,

a holding frame consisting of a rear frame disposed behind the combustion chamber in such a manner as to traverse the center of the back surface of the combustion chamber and a pair of lateral frames formed integrally with the rear frame and extending respectively toward both lateral sides of the combustion chamber,



a rotatable shaft extending from the bottom of the combustion chamber for revolving the combustion chamber, the rotatable shaft being adapted to be rotated by a driving device,

a stand pivotally supporting the lateral frames of the holding frame, and

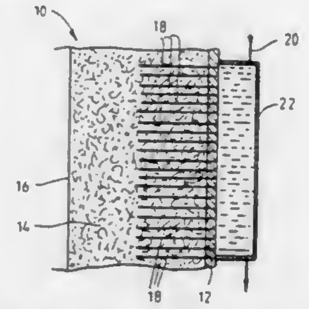
an inclining means disposed between the stand and the holding frame for inclining the combustion chamber upward or downward,

said holding frame comprising an integral body comprising a rear frame disposed behind the combustion chamber so as to traverse the center of the back surface of the combustion chamber, a lower frame extending downward from the both ends of the rear frame to below the combustion chamber, and a pair of lateral frames horizontally extending respectively from the both ends of the rear frame toward both lateral sides of the combustion chamber, said lower frame being provided thereon with a guide roller contacting with the peripheral wall of the combustion chamber so as to uphold the combustion chamber.

5,785,517
COOLING ARRANGEMENTS FOR REFRACTORY WALL LININGS

Neil Boon Gray, North Balwyn; Jonathan Alan Harris, Townsville; Anthony Regnar Leggett, East Brunswick, and Barry John Elliott, Kalgoorlie, all of Australia, assignors to The University of Melbourne, and WMC Resources Ltd., both of Australia

PCT No. PCT/AU95/00074, § 371 Date Nov. 14, 1996, § 102(e) Date Nov. 14, 1996, PCT Pub. No. WO95/22732, PCT Pub. Date Aug. 24, 1995
PCT Filed Feb. 16, 1995, Ser. No. 693,153
Claims priority, application Australia, Feb. 16, 1994, PM 3930
Int. Cl.⁶ F27D *1/12*
U.S. Cl. 432—252 **20 Claims**

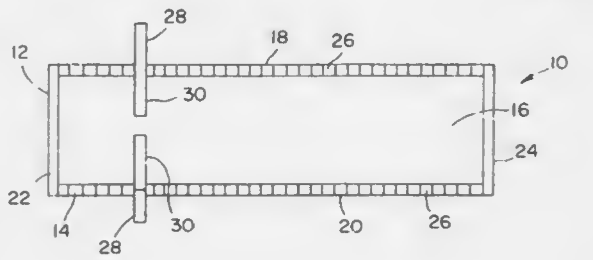


1. A wall lining for a furnace, the furnace having a hot face exposed to high temperatures during operation of the furnace, the operation of the furnace creating hot spots and cooler portions in the furnace, the furnace having an outer shell and a heat removal means in conjunction with the shell, the heat removal means containing an external coolant, said wall lining providing substantially uniform temperature across the hot face of the furnace in the vicinity of said wall lining, said wall lining comprising a refractory lining adjacent an inner surface of the outer shell, said refractory lining having an inner surface forming the hot face of the furnace, said refractory lining including a plurality of solid elements of a high thermal conductivity material, the elements extending into the refractory lining toward the inner surface thereof, each of the elements providing a continuous heat conduction path between a first end of the element located closer to the inner surface of said refractory lining and a second end located closer to the outer shell of the furnace, the second ends of said solid elements providing a thermal conduction heat transfer path to said heat removal means, the plurality of elements being dispersed and spaced in the refractory lining such that said elements are relatively concentrated in the hot spots in the furnace and a relatively lesser number of elements are located in the cooler parts of the furnace, so that thermal gradients in said wall lining are avoided and a substantially uniform temperature across the hot face of the furnace is provided in the vicinity of said wall lining during operation of the furnace.

5,785,518
MASKING ELEMENT FIXTURE

Daniel R. Koshak, South Nyack, N.Y., assignor to Sony Corporation, Tokyo, Japan, and Materials Research Corporation, Orangeburg, N.Y.

Filed Sep. 30, 1994, Ser. No. 316,269
Int. Cl.⁶ F27D *5/00*
U.S. Cl. 432—253 **13 Claims**



1. A fixture for holding a plurality of masking elements used in the manufacture of sputtering targets, wherein each of said masking elements are baked to remove impurities and each of said masking elements include a peripheral edge, comprising:

a housing having first and second end walls connected between first and second side walls, said first and second end and side walls forming an interior aperture for providing air circulation within said aperture for subjecting each of said masking elements to a predetermined temperature for removing said impurities, wherein said first and second side walls include first and second top surfaces, respectively;

a plurality of slots formed in said first and second side walls, each of said slots extending vertically through said first and second top surfaces and extending partially into said first and second side walls, respectively, wherein each of said slots is adapted to independently hold a portion of a peripheral edge of a single masking element such that each of said masking elements extends through a respective top surface thereby maximizing an amount of surface area of each of said masking elements which is exposed to suitable air circulation between each of said masking elements for subjecting said masking elements to said predetermined temperature; and

openings formed in said end walls to enable handling of said fixture and for providing said air circulation within said aperture.

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5,785,519

STRUCTURE FOR A FIRING TABLE

Friedherz Becker, Wendelstein; Andreas Böttcher, Nürnberg; Johannes Figel, Schwaig; Hans-Georg Hartmann; Volker Rieck, both of Nürnberg, and Bernd Stender, Fürth, all of Germany, assignors to Riedhammer GmbH, Nuremberg, Germany

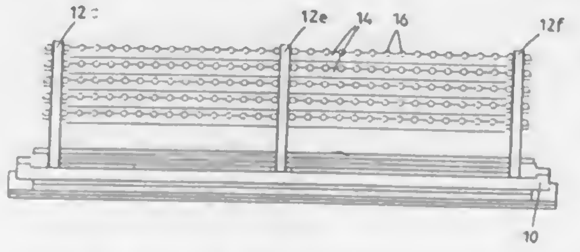
PCT No. PCT/DE95/00189, § 371 Date Aug. 16, 1996, § 102(e) Date Aug. 16, 1996, PCT Pub. No. WO95/22733, PCT Pub. Date Aug. 24, 1995

PCT Filed Feb. 16, 1995, Ser. No. 696,925

Claims priority, application Germany, Feb. 18, 1994, 44 05 269.3

Int. Cl.^{6} F27D *5/00*

U.S. Cl. 432—258 **2 Claims**



1. A firing table structure (**10**) for accepting ceramic items to be fired on a plurality of loading planes extending at vertically spaced locations from one another, having:

1.1. at least four props (**12**) located at spaced locations from one another, said props extending upwardly from said firing table (**10**),

1.2. at least two pair of said props (**12**) being connected by a plurality of rails (**14**) which are located one on top of another and are arranged at vertically-spaced locations from one another,

1.3. at least two of said rails (**14**) being arranged in a common horizontal plane, said rails extending parallel to and at horizontally-opposed spaced locations from one another,

1.4. said horizontally-opposed rails (**14**) being provided with a plurality of bearings (**14***v*), each bearing being aligned with a bearing on the opposed rail,

1.5. a drivable support roller extending between and supported by said at least one pair of aligned bearings (**14***v*),

1.6. said props (**12**), said rails (**14**), and said support rollers (**16**) consist of a refractory ceramic material.

5,785,520

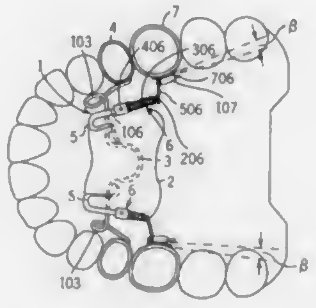
ORTHODONTIC DISTALIZING APPARATUS

Aldo Carano, Taranto, and Mauro Testa, Avigliana, both of Italy, assignors to Micerium S.R.L., Avegno, Italy

Filed May 7, 1996, Ser. No. 643,921

Int. Cl.^{6} A61C *3/00*

U.S. Cl. 433—7 **17 Claims**



1. Orthodontic distalizing apparatus of a type applicable removably to a dental arch for correcting the relative position of teeth of the dental arch, the apparatus comprising:

a supporting framework equipped with anatomical support means for supporting the framework on a part of basal gingiva and underlying bony support of the arch;

means for anchoring the framework to at least one anchoring tooth; and

pusher means interposed between the framework and means for fastening to a further tooth of at least one side of the arch for exerting a distalizing force in a region of the further tooth being distalized, wherein the force is exerted in a direction of a longitudinal axis of the arch at a level of the basal gingiva, and wherein the pusher means is provided on a lingual side of the dental arch.

5,785,521

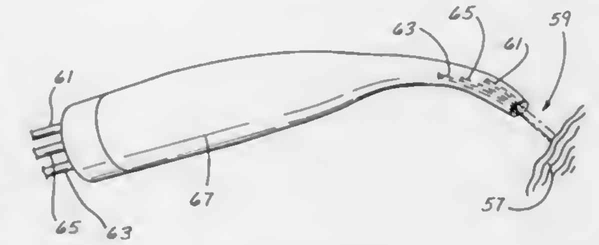
FLUID CONDITIONING SYSTEM

Ioana M. Rizoiu, Capistrano Beach, and Andrew I. Kimmel, San Clemente, both of Calif., assignors to BioLase Technology, Inc., San Clemente, Calif.

Continuation-in-part of Ser. No. 522,503, Aug. 31, 1995. This application Dec. 20, 1995, Ser. No. 575,775

Int. Cl.^{6} A61C *3/02*

U.S. Cl. 433—29 **38 Claims**



1. An apparatus for implementing a medical procedure, comprising:

a medical instrument comprising an electromagnetic energy source, the medical instrument being adapted to perform a medical-treatment function on an operating site located inside of or connected to a human body;

a fluid router for routing atomized flavored fluid particles in a direction of the operating site;

wherein the fluid router routes the atomized flavored fluid particles into a volume of air above the operating site; and

wherein the electromagnetic energy source focuses electromagnetic energy into the volume of air, the electromagnetic energy having a wavelength which is substantially absorbed by the atomized flavored fluid particles in the volume of air, the absorption of the electromagnetic energy by the atomized flavored fluid particles causing the atomized flavored fluid particles to explode and impart disruptive mechanical forces onto the operating site.

5,785,522

METHOD OF TREATING SURGICAL DRILL, SURGICAL DRILL AND USE OF SURGICAL DRILL

Nils Gustav Bergström, Vagnhärad, and Anders Holmén, Billdal, both of Sweden, assignors to Astra Aktiebolag, Sodertalje, Sweden

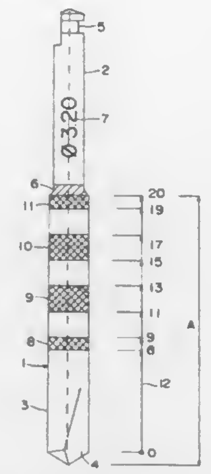
Filed Feb. 7, 1995, Ser. No. 338,628

Claims priority, application Sweden, May 27, 1992, 9201670

Int. Cl.^{6} A61B *17/56*

U.S. Cl. 433—72 **9 Claims**

1. A metallic surgical drill adapted in use to drill a bore into a bone tissue structure for implantation of a cylindrical implant selected from a set of cylindrical implants of different predetermined insertion lengths in the bone tissue structure, the drill having a body with an insertion end which presents a drill tip and an outer surface which is provided with a thin titanium nitride coating on which there is presented a series of spaced apart circumferential bands of contrasting color and predetermined width wherein the boundary lines of the circumferential bands are disposed at different predetermined distances from a predetermined datum point at the insertion end of the body corresponding to the different predetermined insertion lengths of the implants in the set whereby the surgical drill is able to drill a bore of correct depth for any implant selected from the set for implantation in the bone tissue structure by drilling into the bone tissue structure up to the boundary line corresponding to the predetermined insertion length of the selected implant.



5,785,523

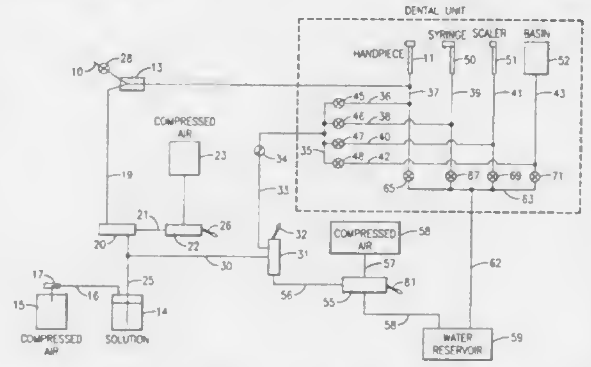
DENTAL WATER LINE FLUSHING AND DISINFECTING SYSTEM

Thad J. Overmyer, 132 N. Second St., Danville, Ky. 40422

Filed Aug. 15, 1997, Ser. No. 911,620

Int. Cl.^{6} A61C *19/00;* **A61L** *2/00*

U.S. Cl. 433—82 **5 Claims**



1. In combination with a dental unit having a plurality of devices, including a handpiece, through which devices water passes during operation, the water coming from a pressurized water source through water lines, and wherein a pressurized disinfectant solution can be selectively delivered through a handpiece solution line directly to the handpiece through its water line, a water line flushing and disinfecting system comprising

a) a branch solution line extending from the handpiece solution line;

b) a double outlet two-way valve having a single inlet to which said branch solution line is connected and having one of its two outlets connected during normal operation of the dental unit to a solution feed line leading to the respective devices; and

c) a double inlet two-way valve having one of its inlets connected to the other of the two outlets of the double outlet two-way valve and the other of its inlets connected to a pressurized air source and having a single outlet connected to said water source;

d) whereby the water lines can be flushed and disinfected by first ceasing delivery of the solution to the devices, including delivery from said double outlet valve through the solution feed line, second releasing air from the pressurized air source through the double inlet valve to expel all water from the water source through the water lines and out of the respective devices, third after ceasing such air flow releasing pressurized solution from the double outlet valve through the double inlet valve and the water source and the water lines and out of the respective devices, and finally releasing air from the pressurized air source through the double inlet valve to expel all remaining solution from the water lines and out the respective devices.

5,785,524

SECURING DEVICE FOR TOOTH IMPLANTS

Manfred Wolf, Leinfelden-Echterdingen, Germany, assignor to Metaux Precieux SA Metalor, Switzerland

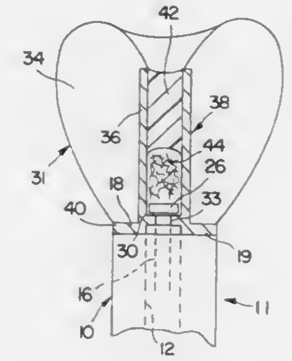
PCT No. PCT/EP95/03839, § 371 Date Mar. 27, 1997, § 102(e) Date Mar. 27, 1997, PCT Pub. No. WO96/10964, PCT Pub. Date Apr. 18, 1996

PCT Filed Sep. 28, 1995, Ser. No. 817,716

Claims priority, application Germany, Oct. 6, 1994, 44 35 694.3; Sep. 14, 1995, 195 34 169.4

Int. Cl.^{6} A61C *8/00*

U.S. Cl. 433—173 **18 Claims**



1. A securing device for dental implants, with a securing screw (**16**) having a threaded shaft (**24**); and a post-like implant body (**10**) that can be inserted into a prepared drilling in the jawbone, the implant body having an axial blind hole thread (**14**) for inserting the threaded shaft (**24**) of the securing screw (**16**) to mount a crown or a bridge (**31**), which crown or bridge (**31**) is provided with an inside ring-shaped shoulder (**33**), and for securing the crown or bridge (**31**) on the implant body (**10**) the implant body further having a ring-shaped face (**18**), with a first ring-shaped sealing edge (**19**) provided on the ring-shaped face (**18**) facing the crown or the bridge (**31**); the securing screw (**16**) having a screw head (**26**) having a ring-shaped face **28** that engages the inside ring-shaped shoulder (**33**) of the crown or the bridge (**31**) characterized in that a second, opposing ring-shaped sealing edge (**30**) provided on the ring-shaped face (**28**) of the screw head (**26**) of the securing screw (**16**), and the ring-shaped sealing edges (**19**, **30**) each directly engage the ring-shaped shoulder (**33**) on the structure (**38**) of the crown or bridge (**31**),

the material of at least the implant body and the screw being harder than the material of the inside ring-shaped shoulder of the crown or bridge,

each of the sealing edges extending from its respective face, so that upon positioning of the crown or bridge on the structure (**38**) and tightening down of the screw, the inside ring-shaped shoulder of the crown or bridge becomes axially engaged between the sealing edges, and the sealing edges press into opposed surfaces of the inside ring-shaped shoulder, causing plastic deformation thereof to form a seal.

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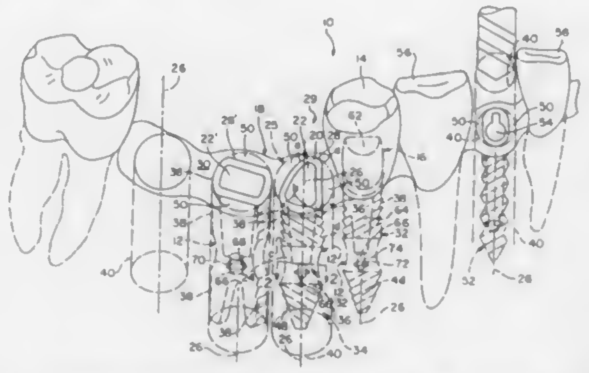
DENTAL IMPLANT SYSTEM

Bernard Weissman, 225 E. 48th St., New York, N.Y. 10017
Filed May 17, 1996, Ser. No. 649,410
Int. Cl.^{6} A61C *8/00*
U.S. Cl. 433—174 **14 Claims**



1. A dental implant system for connection in the jawbone of a patient, comprising:

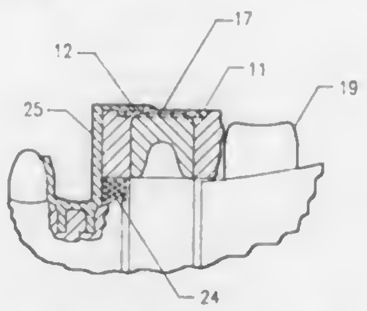
an implant having an elongated body, said body having a longitudinal axis and a proximal surface generally transverse to said longitudinal axis, said proximal surface having a non-round peripheral edge as viewed along said axis, and an opening having a non-round cross-section extending from said proximal surface axially into said body, said elongated body having a non-round cross section extending the entire length thereof and having a major axis and a minor axis orthogonally positioned,

said non-round cross section being one of ovoid and generally rectangular, and including two opposed first portions on said major axis that are surfaces of a circular cylinder, said first portions being threaded for engagement in a circular hole formed in a jawbone, said non-round cross section also including two opposed substantially continuous non-threaded second portions located between said first portions, said two first portions and said two second portions together defining said non-round cross section of said body, a first distance between said opposed second portions on said minor axis being less than a second distance between said opposed first portions on said major axis, whereby adjacent implants may be placed closer together in said jawbone by having said adjacent implants with second portions opposed.

5,785,526

METHOD FOR ADAPTING A CROWN TO AN EXISTING PARTIAL DENTURE

Alan D. Barnes, Highland, Mich., assignor to Coaching For Service, Inc., Highland, Mich.
Filed May 29, 1997, Ser. No. 865,293
Int. Cl.^{6} A61C *13/12;13/225*
U.S. Cl. 433—178 **9 Claims**



9. A method for adapting a crown to a clasp and rest of an existing partial denture without depriving a patient of said partial denture during the time said crown is being fabricated at a dental laboratory, comprising the steps of: fabricating an accurate pick-up impression of said clasp and rest of said patient's partial denture in a dentist's office; using said pick-up impression to fabricate an accurate model of said clasp and rest in a dental laboratory; and incorporating said clasp and rest model at said dental laboratory in a second model which is used for fabricating said crown.

5,785,527

STABLE LIGHT OR HEAT ACTIVATED DENTAL BLEACHING COMPOSITIONS

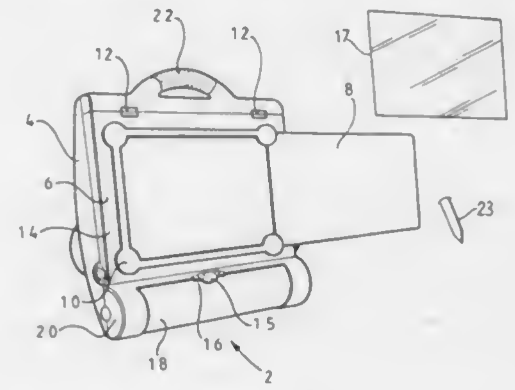
Steven D. Jensen, Midvale, and Dan E. Fischer, Sandy, both of Utah, assignors to Ultradent Products, Inc., South Jordan, Utah
Filed Jan. 10, 1997, Ser. No. 781,662
Int. Cl.^{6} A61C *5/00*
U.S. Cl. 433—215 **40 Claims**

1. A radiant-energy or heat-energy activated dental bleaching composition for bleaching a person's teeth comprising a bleaching agent and a bleaching agent activator, wherein the bleaching composition maintains a substantial portion of its original bleaching strength over time before being used to bleach the person's teeth but which releases substantially increased amounts of active oxygen upon irradiating the dental bleaching composition with radiant energy.

5,785,528

EDUCATIONAL KIT

Leigh Melaine Jones-Fenleigh; Shelley Louise Jones-Fenleigh, both of Oadby, and James Dorian Gibson, leicester, all of Great Britain, assignors to Invicta Toys & Games Limited, Oadby, England
Filed Jul. 10, 1996, Ser. No. 677,538
Int. Cl.^{6} G09B *11/04*
U.S. Cl. 434—88 **7 Claims**



1. An educational kit comprising:

a housing molded from plastic material, said housing having a part providing a flat surface;

a mirror;

a frame for holding the mirror on said flat surface, said frame having an open side to allow a user to slide the mirror into and out of the frame;

a transparent or translucent sheet removably positionable over said mirror;

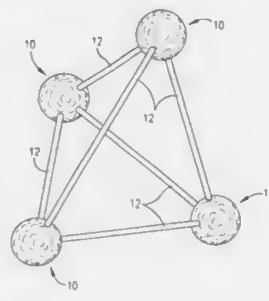
a marking implement to enable the user to apply marks to his or her own reflection in the mirror; and

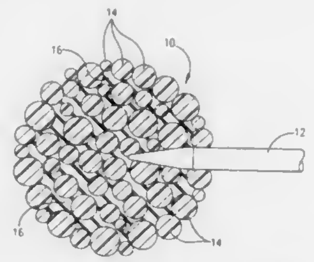
a protrusion molded integrally with said housing and extending from said housing, away from said part providing a flat surface, said protrusion being located to allow said housing to be positioned in more than one stable orientation, such that in different orientations, the normal to the mirror forms different angles relative to the horizontal.

5,785,529

CONNECTOR FOR MODELING KITS

S. A. Hearn, and Hume A. Feldman, both of 1209 Tennessee St., Lawrence, Kans. 66044
Filed Jul. 9, 1997, Ser. No. 890,131
Int. Cl.^{6} G09B *23/26;23/04;* **A63H** *33/06*
U.S. Cl. 434—211 **12 Claims**





1. A connector for connecting elongated objects having pointed ends comprising:

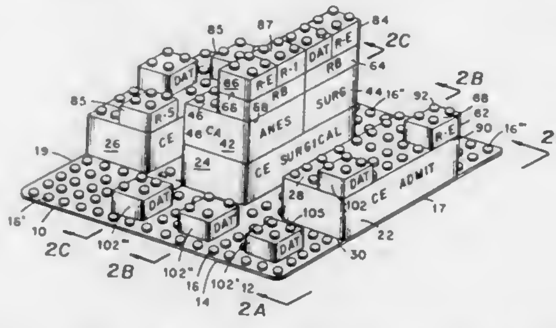
a plurality of resilient particles; and

cohering means for cohering said particles to form a crush-resistant body having a substantially aperture-free outer surface that is highly resilient and easily penetratable by the pointed ends of the objects and that substantially regains its aperture-free configuration when the pointed ends of the objects are removed therefrom.

5,785,530

METHOD AND APPARATUS FOR VISUALLY DEPICTING IN THREE DIMENSIONS A HEALTH CARE TREATMENT REGIMEN FOR A GIVEN MEDICAL DIAGNOSIS

Joe Lowell Smith, Powell, Tenn., assignor to DeRoyal Industries, Inc., Powell, Tenn.
Filed Apr. 9, 1996, Ser. No. 629,436
Int. Cl.^{6} G09B *25/00;1/06*
U.S. Cl. 434—219 **10 Claims**



1. A method for the visual depiction of a clinical pathway representing the treatment of a clinical condition comprising the steps of:

providing a diagnosis element comprising a structural element having indicia representative of the diagnosis, the diagnosis element being adapted to allow the attachment of other structural elements on a surface thereof;

providing a care event element for each care event associated with the clinical pathway related to the diagnosis, each care event element comprising a structural element having indicia representative of a care event related to the diagnosis, the care event element having at least a top surface and a bottom surface, the bottom surface of the care event element adapted to be attached to the diagnosis element and the top surface of the care event element adapted to allow the attachment of other structural elements thereto;

providing a resource element for each resource to be used in a care event related to the clinical pathway, each resource element comprising a structural element having indicia representative of the resource to be utilized in the clinical pathway, each resource element being adapted to attach to the diagnosis element or a care event element; and

identifying each care event in the clinical pathway to be performed relative to the diagnosis;

selecting a care event element to associate with each identified care event;

attaching the selected care event elements to the diagnosis element in an order that the care events will be carried out in the clinical pathway;

identifying resources associated with the performance of each care event;

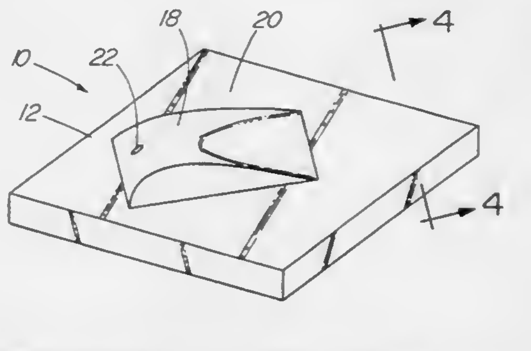
selecting a resource element to associate with each identified resource; and

attaching the selected resource elements proximal to the care event elements with which they are associated; wherein the clinical pathway associated with the diagnosis is represented by the assembly of diagnosis, care event and resource elements.

5,785,531

CUTTABLE PAPILLA AND SPHINCTEROTOMY TRAINING APPARATUS

Joseph Wing-Cheong Leung, Davis, Calif., assignor to Wilson-Cook Medical Incorporated, Winston-Salem, N.C.
Filed Jun. 6, 1996, Ser. No. 660,037
Int. Cl.^{6} G09B *23/28*
U.S. Cl. 434—262 **15 Claims**



1. A surgical training apparatus (**10**), comprising:

a porous, nonconductive form (**12**) having mechanical properties comparable to the mechanical properties of human or animal tissue in which a sphincter is located, and having a plurality of pores (**14**); and

an electroconductive gel (**16**) disposed in the pores (**14**) of the porous form (**12**) in an amount adequate to permit cutting of the form (**12**) by an electrosurgical tool (**28**).

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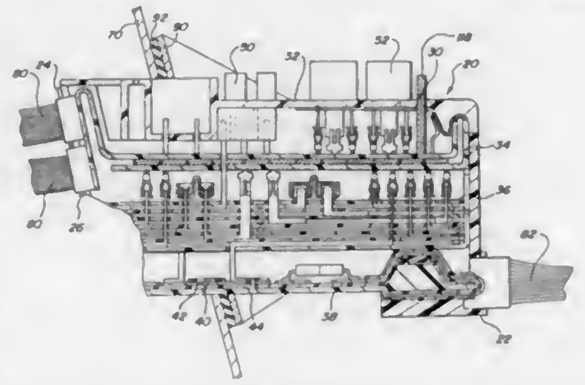
5,785,532
POWER DISTRIBUTION BOX AND SYSTEM

H. Winston Maue, Farmington Hills; Mohamad H. Zeiden, Dearborn, both of Mich., and Luke P. Steigerwald, Manlius, N.Y., assignors to United Technologies Automotive, Inc., Dearborn, Mich.

Continuation of Ser. No. 264,796, Jun. 23, 1994, abandoned, which is a continuation-in-part of Ser. No. 73,899, Jun. 9, 1993, abandoned. This application Jul. 24, 1996, Ser. No. 687,132

Int. Cl.^{6} H01R *9/24*

U.S. Cl. 439—34 **30 Claims**



1. In combination, a power distribution box and an automotive vehicle, said combination comprising:
- a substantially nonconductive housing of said power distribution box having a substantially box-like configuration with a bottom wall and side walls;
- at least partially flat, alternating busbar and insulator layers located in said power distribution box for distributing electrical power;
- a bulkhead separating an engine compartment and a passenger compartment within said automotive vehicle, said housing being mountable to said bulkhead solely from one of said compartments;
- an edge of said bulkhead defining an aperture; and
- unbroken and continuous portions of said housing and said alternating busbar and insulator layers at least partially disposed through said aperture of said bulkhead, said alternating busbar and insulator layers extending substantially transversely through said bulkhead aperture, first portions of said housing and said electrical conductive means being accessible from said engine compartment and second portions of said housing and said electrical conductive means being accessible from said passenger compartment, said alternating busbar and insulator layers including branched circuits.

5,785,533
TERMINATION PANEL FOR CONTROL UNIT

Günter Baitz, and Hartmut Kamin, both of Berlin, Germany, assignors to Siemens Nixdorf Informationssysteme Aktiengesellschaft, Paderborn, Germany

PCT No. PCT/DE94/01304, § 371 Date May 15, 1996, § 102(e) Date May 15, 1996, PCT Pub. No. WO95/14367, PCT Pub. Date May 26, 1995

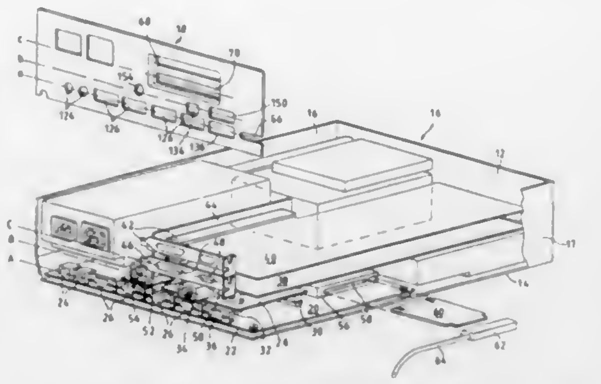
PCT Filed Nov. 4, 1994, Ser. No. 646,346

Claims priority, application Germany, Nov. 15, 1993, 43 38 987.2

Int. Cl.^{6} H05K *1/14*

U.S. Cl. 439—61 **10 Claims**

1. An electronic control unit comprising:
- a housing having a rear wall;
- a mother board arranged in the housing and having connection plugs in a row at one edge;
- at least one additional printed circuit board arranged in the housing parallel to the motherboard and having a standard frontplate, the connection plugs of the mother board being accessible through apertures arranged in the rear wall in a first row (a) and the frontplate being accessible through an aperture in the rear wall, parallel to said first row;
- a second row (b) of apertures arranged between and parallel to the first row of apertures and the aperture for the frontplate;
- a daughter board with connection plugs is pluggable onto one of the mother board or the additional printed circuit board, the connection plugs of the daughter board being accessible through apertures of at least one of said rows.



5,785,534
ELECTRICAL CONNECTOR

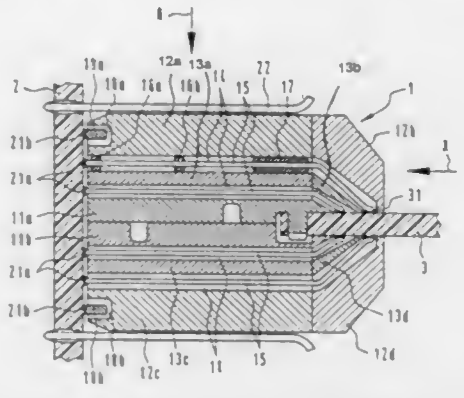
Jacques Longueville, Oostkamp, Belgium, and Peter Pagnin, Munich, Germany, assignors to Siemens Aktiengesellschaft, Munich, Germany

Filed Mar. 29, 1996, Ser. No. 625,635

Claims priority, application Germany, Mar. 29, 1995, 195 11 507.4

Int. Cl.^{6} H01R *23/72*

U.S. Cl. 439—65 **15 Claims**



1. An electrical connector assembly for establishing an electrical contact with contacting devices of external terminals, comprising:
- an electrical connector, said electrical connector having channels formed therein and said channels each having an end;
- connecting devices each having an elastic element and contact faces formed thereon being disposed in said channels;
- said contact faces having a shape enabling a substantially overlap-free connection thereof with contact faces defined on the contacting devices of the external terminals;
- said connecting devices protruding beyond said end of said channels when said electrical connector is not engaging the external terminals;
- said connecting devices being deflected out of a position of repose and back into said channels and exerting a contact pressure force via said contact faces upon the contact faces of the contacting devices of the external terminals when said electrical connector engages the external terminals;
- said channels each having impedance-determining walls, and said connecting devices being fixed in said channels such that a spacing of said contacting devices from said impedance-determining walls of said channels is kept substantially constant at all times such that the connecting devices do not touch said walls.

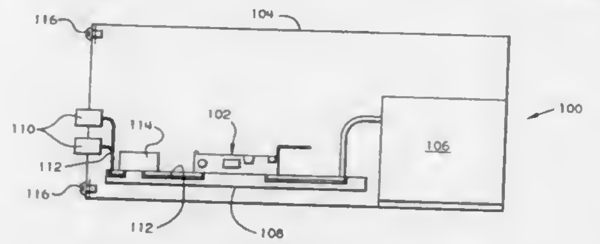
5,785,535
COMPUTER SYSTEM WITH SURFACE MOUNT SOCKET

William Louis Brodsky, Binghamton; Benson Chan, Vestal; Glenn Edward Myrto, Binghamton, and John Henry Sherman, Lisle, all of N.Y., assignors to International Business Machines Corporation, Armonk, N.Y.

Filed Jan. 17, 1996, Ser. No. 591,206

Int. Cl.^{6} H01R *9/09*

U.S. Cl. 439—73 **9 Claims**



1. An interconnect structure which permits replacing a surface mount component, comprising:
- a substrate with an area array site having an area array component positioned thereon;
- a connector for providing electrical power to said interconnect structure;
- connectors for providing signals to said interconnect structure;
- a base devoid of contacts positioned adjacent to said area array site;
- at least one base coupler for connecting said base to said substrate;
- a spring with a first end and a second end, said first end hinged to said base to close over said area array site and to reopen for access to said base;
- an anisotropic electrically conductive interposer positioned across said area array site;
- said area array component mounted on said interposer in a position over said area array site;
- a pressure distribution member for distributing force from said spring evenly across said component; and
- at least one coupler to selectively mechanically hold down said second end of said spring and which may be selectively uncoupled or broken to allow replacing said area array component and reusing said base and said spring.

5,785,536
CONNECTOR HAVING PRESS FIT MATING SHROUDS

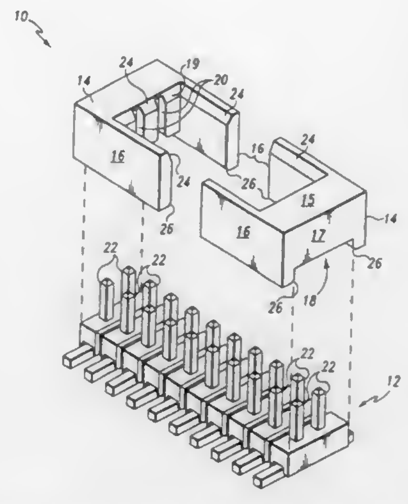
Doug E. McCartin, Henryville, Ind.; John K. Hynes, Louisville, Ky., and Brian A. Striegel, New Albany, Ind., assignors to Santec, Inc., New Albany, Ind.

Continuation-in-part of Ser. No. 479,127, Jun. 7, 1995, Pat. No. 5,655,914. This application May 6, 1996, Ser. No. 642,915

Int. Cl.^{6} H01R *23/72*

U.S. Cl. 439—78 **9 Claims**

1. An electrical connector, comprising:
- a pin header comprising a body and a plurality of pins, wherein the pin header body extends from a first end to a second end in a longitudinal direction perpendicular to an axis of each of the pins, the pin header body having periodically repeating first engagement features between the first and second ends;
- wherein the pins are arranged in a grid of longitudinal rows and transverse rows;
- wherein there is at least one first engagement feature for every transverse row;
- a first shroud having a first end wall and first and second side walls arranged in substantially a C-configuration, wherein the first shroud is coupled to the first end of the pin header body and engages at least one of the periodically repeating first engagement features; and
- a second shroud having a second end wall and third and fourth side walls arranged in substantially a C-configuration, wherein the second shroud is coupled to the second end of the pin header body and engages at least one of the periodically repeating first engagement features.



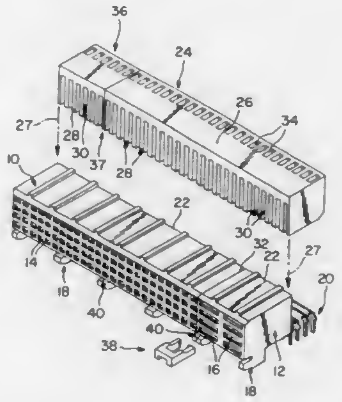
5,785,537
ELECTRICAL CONNECTOR INTERLOCKING APPARATUS

F. Todd Donahue, Jeffersonville, Ind., and Jose L. Ortega, Louisville, Ky., assignors to Robinson Nugent, Inc., New Albany, Ind.

Filed Jun. 26, 1996, Ser. No. 670,643

Int. Cl.^{6} H01R *9/09*

U.S. Cl. 439—79 **16 Claims**



1. An apparatus for locking first and second adjacent electrical connector modules which are stacked end-to-end, the first and second modules each being formed to include an insulative housing, a plurality of windows in communication with a plurality of contacts coupled to the housing, and a foot section formed to include a coding slot, the contacts having contact terminals extending beyond a rear wall of the housing in a plurality of rows, the apparatus comprising:
- a cap having an insulative body including a plurality of spaced apart divider walls configured to define a plurality of slots, each slot being configured to receive a row of the contact terminals, the insulative body of the cap extending across abutting ends of the first and second connector modules to lock the first and second adjacent electrical connector modules together along an axis; and

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a locking clip configured to engage adjacent abutting foot sections of the first and second connector modules to lock the abutting foot sections together, the locking clip including first and second substantially parallel spring arms which are configured to extend away from a web portion and engage the abutting foot sections of the first and second connector modules, respectively, the first and second spring arms each being formed to include a barbed portion adjacent a distal end spaced a part from the web portion.

5,785,538

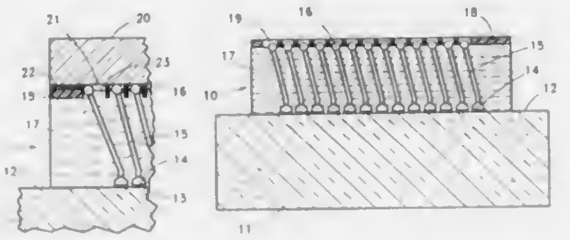
HIGH DENSITY TEST PROBE WITH RIGID SURFACE STRUCTURE

Brian Samuel Beaman, Hyde Park; Keith Edward Fogel, Mohegan Lake; Paul Alfred Lauro, Nanuet; Maurice Heathcote Norcott, Fishkill, and Da-Yuan Shih, Poughkeepsie, all of N.Y., assignors to International Business Machines Corporation, Armonk, N.Y.

Filed May 1, 1996, Ser. No. 641,667

Int. Cl.⁶ H01R *4/04*

U.S. Cl. 439—91 **17 Claims**



1. A structure for probing an electronic device comprising:
a dielectric substrate having a plurality of first electrically conductive contact locations;
a layer of elastomeric material having a first side and a second side;
a plurality of electrical conductors extending from said first side to said second side;
each of said electrical conductors has a first end and a second end, said first end extends to said first side, said second end extends to said second side;
said second end of each of said electrical conductors is physically attached to at least one of the first contact locations;
a layer of dielectric material disposed on said first side;
said layer of dielectric material being free to move with respect to said dielectric substrate when said structure is moved towards said electronic device;
said first end of said plurality of electrical conductors extends into openings in said layer of dielectric material.

5,785,539

PROTECTOR FOR CRT LEAD PIN

Sung-woo Ham, Seoul, and Sung-soo Kim, Suwon, both of Rep. of Korea, assignors to Samsung Display Devices Co., Ltd., Kyungki-do, Rep. of Korea

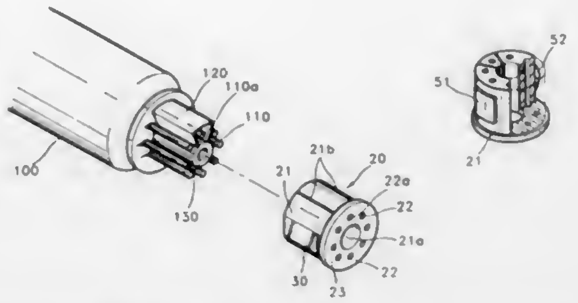
Filed Nov. 22, 1996, Ser. No. 755,221

Claims priority, application Rep. of Korea, Feb. 24, 1996, 96-4408

Int. Cl.⁶ H01R *13/44*

U.S. Cl. 439—150 **8 Claims**

1. A protector for cathode ray tube (CRT) lead pins comprising a substantially cylindrical body having a central tube with an inside surface, an outside surface surrounding the inside surface, a plurality of pin inserting holes arranged concentrically around the central tube between the inside and outside surfaces for receiving respective lead pins mounted on a neck portion of a CRT, and a flange located at and extending circumferentially from one end of said body, wherein said body comprises first and second concave portions in the outside surface of said body.



5,785,540

ELECTRICAL CONNECTOR WITH AN ACTUATING SLIDE

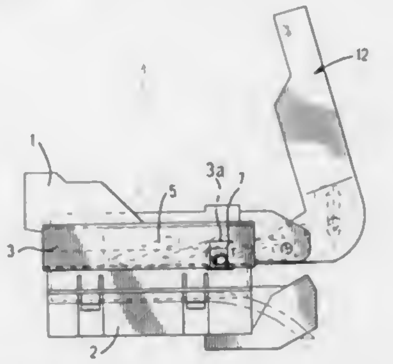
Ralf Jaklin, Liederbach, Germany, assignor to The Whitaker Corporation, Wilmington, Del.

Filed Oct. 7, 1996, Ser. No. 726,730

Claims priority, application Germany, Nov. 10, 1995, 195 37 886.5

Int. Cl.⁶ H01R *13/62*

U.S. Cl. 439—157 **7 Claims**



1. An electrical connector comprising a housing and an actuating slide which can be connected to a second complementary connector, the actuating slide being inserted into the housing of the electrical connector and interacting with the second connector in order to plug the connector pair one into the other, a lug on the second connector being moved through a slot on the actuating slide during the actuation of the actuating slide for the purpose of connecting and separating the connectors, a latching arm having a latching hook is provided on the housing of the electrical connector, in such a way that the second connector latches with the first connector in a prelatching position before the connectors can be connected to one another using the actuating slide, and that the latching of the electrical connector and the second connector in the prelatching position is released by actuating the actuating slide.

5,785,541

CLOCKSPRING TAMPER PREVENTION AND DETECTION SEAL AND METHOD

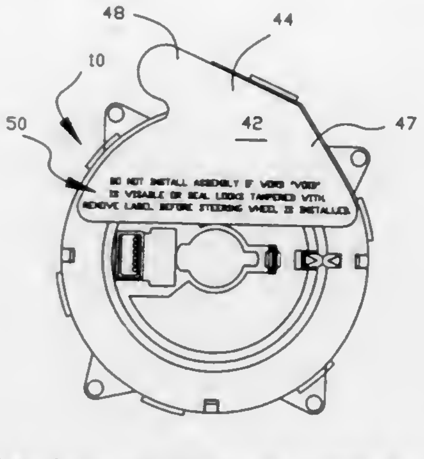
Gary R. Best, Hamilton, and Patrick A. Bolen, Carthage, both of Ill., assignors to Methode Electronics, Inc., Chicago, Ill.

Filed Jan. 31, 1996, Ser. No. 594,697

Int. Cl.⁶ H01R *3/00*

U.S. Cl. 439—164 **12 Claims**

1. An apparatus comprising:
a) a clockspring comprising:
  i) a housing
  ii) a hub rotatably mounted to said housing;
  iii) a ribbon cable connected to said housing and said hub; and
b) a seal attached to said hub and said housing for indicating whether said clockspring has been tampered with.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DO NOT INSTALL ASSEMBLY IF VOID "VOID"
IS VISABLE OR SEAL LOOKS TAMPERED WITH.
REMOVE LABEL BEFORE STEERING WHEEL IS INSTALLED

5,785,542

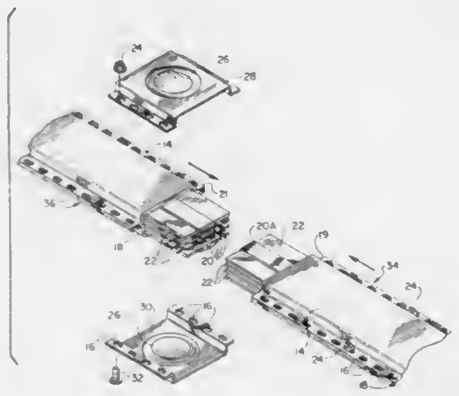
ELECTRICAL DISTRIBUTION SYSTEM HAVING AN IMPROVED BUS COUPLER

Terry M. Johnson, Minneapolis, Minn., assignor to QBC, Inc., Minneapolis, Minn.

Continuation of Ser. No. 601,735, Feb. 15, 1996, abandoned. This application Nov. 3, 1997, Ser. No. 963,684

Int. Cl.⁶ H01R *4/60*

U.S. Cl. 439—213 **10 Claims**



1. An electrical bus assembly, comprising:
a) an upper elongated metal bus conductor and a lower elongated metal bus conductor, forming a pair of similar elongated metal bus conductors of essentially equal length in staggered layered position relative to each other, in contact with each other when in use;
b) a two-piece metal housing, essentially of equal length to said bus conductors, for enclosing said pair of elongated metal bus conductors, the housing having opposing first and second ends and having fastening means receiving apertures spaced along longitudinal edges of each housing piece;
c) insulation means for isolating said pair of elongated metal bus conductors from said housing; and
d) fastening means for securing only edges of said two-piece housing together through the apertures, said two-piece housing enclosing said pair of elongated metal bus conductors, such that, because of the staggered layered position of the upper and lower bus conductors, the upper bus conductor extends from the first end of the metal housing and the lower bus conductor extends from the second opposing end of the metal housing.

5,785,543

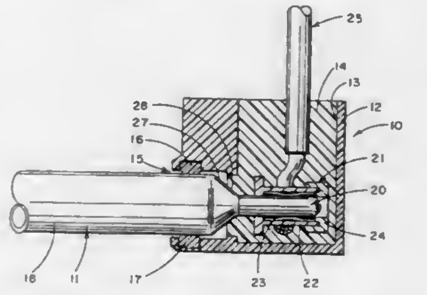
HIGH VOLTAGE FLASHLAMP CONNECTOR METHOD AND APPARATUS

Mark C. Dietrich, Longwood, Fla., assignor to Litton Systems, Inc., Woodland Hills, Calif.

Filed Dec. 4, 1995, Ser. No. 566,685

Int. Cl.⁶ H01R *13/52*

U.S. Cl. 439—271 **4 Claims**



4. A high voltage flashlamp connector comprising:
a polyphenylene oxide and glass composite housing having a well with a well opening formed therein and an intersecting flashlamp supporting opening for removably supporting one end of a flashlamp;
a female connector positioned in said well and aligned to removably receive a flashlamp electrode through said housing flashlamp intersecting opening;
an electrical conductor attached through said well to said female connector;
a silicone encapsulant filling said well and having a shaped surface in said housing flashlamp intersecting opening; and
said housing having an annular groove formed on the interior of said intersecting flashlamp supporting opening and having an O-ring seal mounted therein; whereby a high voltage flashlamp can be supported in a high voltage connector.

5,785,544

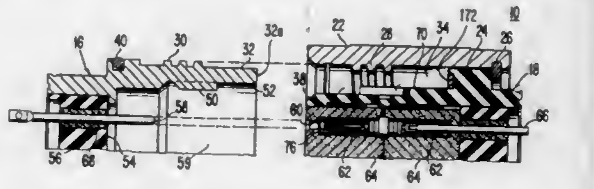
HERMETICALLY SEALED CONNECTOR DEVICE

Michael J. Linden, Wethersfield, and Richard W. Morris, East Granby, both of Conn., assignors to Combustion Engineering, Inc., Windsor, Conn.

Continuation of Ser. No. 542,457, Oct. 12, 1995, abandoned. This application Apr. 1, 1997, Ser. No. 825,588

Int. Cl.⁶ H01R *13/52*

U.S. Cl. 439—278 **3 Claims**



1. A connector device comprising:
a male plug comprising:
  a first single piece metallic housing;
  a first electrically insulative elastomeric member disposed in said first single piece metallic housing;
  a plurality of spaced connector pins supported by a first thermally insulative core member which is disposed in said first elastomeric member, said connector pins being arranged to project from a front end of said first elastomeric member; and
  a first sleeve which forms a part of said first single piece metallic housing and which encloses said pins; and
a female receptacle comprising;
  a second elastomeric housing;
  a plurality of spaced, connector pin-receiving passageways which are supported in said second elastomeric housing by

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thermally insulative core means, said passageways being arranged to receive said plug pins and establish an electrical connection therewith;
a second sleeve which is rotatahle supported on said second elastomeric housing so as to be concentric with and peripheral of said second elastomeric housing, said second sleeve being adapted to telescopically receive said first sleeve;
locking means for releasably locking said first sleeve in said second sleeve, said locking means including an internal thread formed on an inner diameter of said second sleeve which engages an external thread formed on said second sleeve of said male plug member; and
sealing means, which is free of O-rings and which comprises a single seal element which is supported on a radially extending face of said second elastomeric member, for engaging a leading annular edge of said first sleeve and for exclusively establishing a sole hermetic seal between said male plug and said female receptacle.

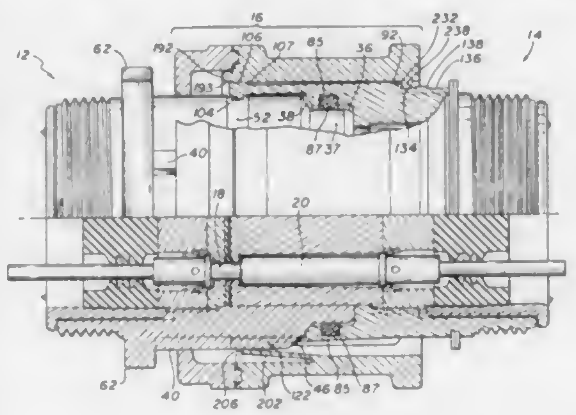
5,785,545
CONNECTOR FOR JOINING TWO ELECTRICAL CONNECTION ASSEMBLIES

Timothy Lee Holt, La Quinta, Calif., assignor to The Deutsch Company, Santa Monica, Calif.

Filed Jul. 2, 1996, Ser. No. 677,460

Int. Cl.⁶ H01R *13/627*

U.S. Cl. 439—352 **20 Claims**



1. A connector for joining two electrical connection assemblies, comprising:
a first assembly housing having a generally tubular wall open at one end and a cam;
a second assembly housing having a generally tubular wall open at one end;
a collar, slidably attached to the exterior of the tubular wall of the second assembly housing;
a movable tab on one of the second assembly housing and the collar, the tab in axial alignment with the cam of the first assembly housing; and
a stop ridge on the other of the second assembly housing and the collar, the tab and the stop ridge aligned so that the tab contacts the stop ridge at a predetermined point, thus restricting axial movement of the collar relative to the second assembly housing;
wherein upon assembly of the first assembly housing and the second assembly housing, at a predetermined point of axial motion of the one with respect to the other, the cam of the first assembly housing pushes the movable tab, disengaging the tab from the stop ridge, so that the collar is no longer so restricted, by contact of the tab and the stop ridge, from axial movement relative to the second assembly housing and wherein the collar is permitted to move axially toward the first housing when the tab is disengaged from the stop ridge by the cam.

5,785,546
CONNECTOR LOCKING STRUCTURE

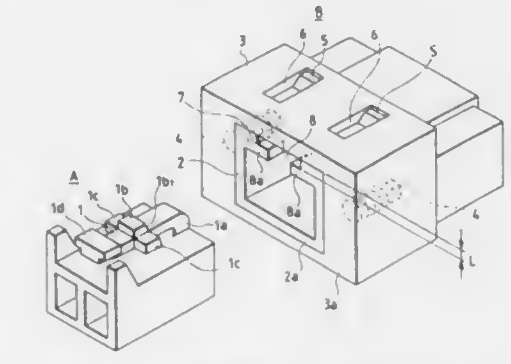
Tsuyoshi Hamai; Takashi Ishii, and Toshiharu Kudo, all of Shizuoka, Japan, assignors to Yazaki Corporation, Tokyo, Japan

Filed Nov. 27, 1996, Ser. No. 758,089

Claims priority, application Japan, Nov. 27, 1995, 7-307366

Int. Cl.⁶ H01R *13/62*

U.S. Cl. 439—354 **6 Claims**



1. A connector locking structure comprising:
a male connector having a locking protrusion formed on the upper surface of a flexible locking arm of said male connector, and insufficient engagement preventing protrusions extended from at least one side of said locking protrusion;
a female connector having displacement preventing stoppers which support said insufficient engagement preventing protrusions; and
a locking confirming slider provided in such a manner that said locking confirming slider is movable back and forth, being kept urged forwardly by springs,
wherein during engagement of said male connector and said female connector with each other, said locking protrusion is contacted with said locking confirming slider to move said locking confirming slider backwardly, when said male connector and said female connector have been completely engaged, said insufficient engagement preventing protrusions are disengaged from said displacement preventing stoppers,
whereby the elastic forces of said springs displace said flexible locking arm through said locking confirming slider, while said locking confirming slider is moved forwardly being disengaged from said locking protrusion, and
in response to the movement of said locking confirming slider, said flexible locking arm is restored, and said locking protrusion is engaged with a locking portion of said locking confirming slider.

5,785,547
ELECTRICAL PLUG AND CORD STRAIN RELIEF AND COUPLING DEVICE

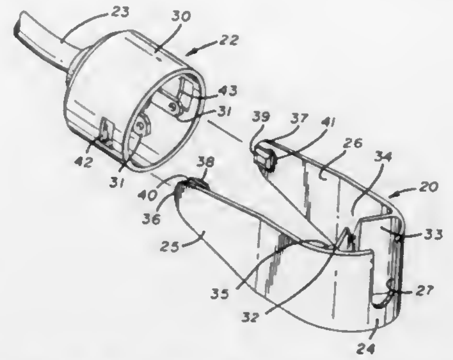
Andrew L. Cross, Mantua, and Thomas J. Luby, Akron, both of Ohio, assignors to The Dzyne Group, Ltd., Akron, Ohio

Filed Apr. 19, 1996, Ser. No. 634,143

Int. Cl.⁶ H01R *13/62*

U.S. Cl. 439—369 **10 Claims**

1. Apparatus for holding a cord-like member comprising a retention device adapted to engage an electrical connector, said retention device including spaced arms and a grip slot between said arms to engage the cord-like member, one of either the connector or both said arms having non-circular shaped lugs positioned thereon and the other of either the connector or both said arms having non-circular shaped apertures therein, said lugs and apertures being of generally the same predetermined shape configuration so that when aligned said non-circular shaped lugs can pass through said non-circular shaped apertures at a first position, and can be rotated to a second position at least approximately 30 degrees of the first position where said non-circular lugs are



misaligned in said non-circular apertures so that said device is attached to the connector.

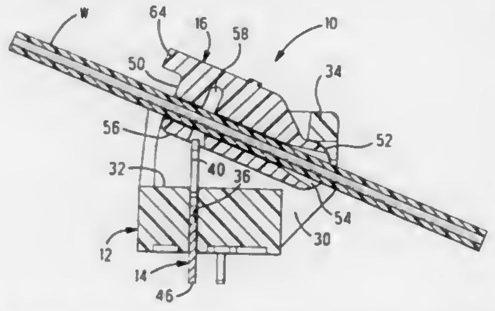
5,785,548
POWER TAP NETWORK CONNECTOR

Harry Milton Capper; Sam Denovich, and William Joseph Garver, all of Harrisburg, Pa., assignors to The Whitaker Corporation, Wilmington, Del.

Continuation of Ser. No. 615,572, Mar. 12, 1996, abandoned, which is a continuation-in-part of Ser. No. 573,175, Dec. 15, 1995, Pat. No. 5,667,402. This application Nov. 13, 1997, Ser. No. 968,832

Int. Cl.⁶ H01R *4/24*

U.S. Cl. 439—409 **11 Claims**



1. In an electrical connector of the type for terminating a conductor by insulation displacement, the connector including a housing for receiving at least one upstanding IDC terminal, said housing having rear and front wall segments with openings formed therein, a pivotally mounted wire carrier having front and rear faces arranged on said housing, said wire carrier being pivotal from a first conductor unterminated position to a second conductor terminated position, said wire carrier having a conductor receiving opening extending from said front face to said rear face, said conductor receiving opening being in communication with said front and rear wall openings throughout a motion of the wire carrier between said unterminated and terminated positions, and an IDC terminal receiving slot in communication with each said opening, whereby an insulated conductor may be positioned for termination to the IDC terminal within said opening by entry thereto through either said front face or said rear face.

5,785,549
FLEXIBLE BOARD ELECTRICAL CONNECTOR

Ryuichi Takayasu, Tokyo, Japan, assignor to Hirose Electric Co., Ltd., Tokyo, Japan

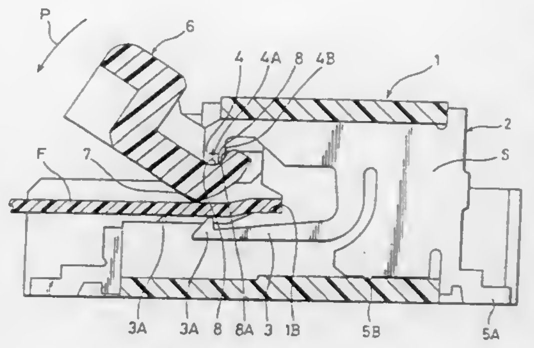
Filed Nov. 5, 1996, Ser. No. 740,950

Claims priority, application Japan, Nov. 9, 1995, 7-314878; Apr. 9, 1996, 8-111128

Int. Cl.⁶ H01R *9/07*

U.S. Cl. 439—495 **3 Claims**

1. A flexible board electrical connector, comprising:



an insulating housing having an opening and a pair of holding sections on opposite sides of said opening;
a plurality of contact elements having fulcrum sections and spring contact sections disposed in said opening, said fulcrum sections extending downwardly to such an extent that a center of rotation is protruded to form deep hook portions;
a pressure member attached to said holding sections for rotation between a closed position where it is close to said contact elements and an open position where it is spaced apart from said closed position;
said insulating housing having receiving means for supporting a leading portion of a flexible board;
said pressure member having a pressure edge and bearing means with a hook portion extending beyond said center of rotation such that when said pressure member is turned to said closed position, said pressure edge depresses said flexible board at a point between said spring contact sections and said receiving means while said hook portion of said bearing means engages said deep hook portions of said fulcrum sections of said contact elements thereby preventing separation between said pressure member and said contact elements.

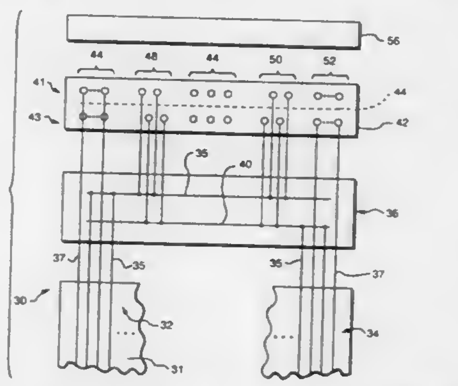
5,785,550
TWO-CHANNEL CONNECTOR AND CONNECTION METHOD

Eli Leshem, 90 Rawson Rd., Brookline, Mass. 02146, and Daniel Castel, 18 Landwood Ave., Framingham, Mass. 01701

Filed Jul. 25, 1994, Ser. No. 279,788

Int. Cl.⁶ H01R *9/07*

U.S. Cl. 439—497 **8 Claims**



1. An interconnection system, for increasing the channel carrying capacity of an interconnection board, comprising:
a first data communication cable carrying at least one data communication channel and having a plurality of pairs of adjacent wires, each pair of adjacent wires alternatively providing a ground signal and one of a data and control signal;
a second data communication cable carrying at least one data communication channel and having a plurality of pairs of adjacent wires, each pair of adjacent wires alternatingly providing a ground signal and one of a data and control signal;

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at least one dual communication channel connector header, coupled to an end of each of said first and second data communication cables, said at least one dual communication channel connector header including first and second signal ground buses, wherein said ground signal wires of said first data communication cable are coupled to said first signal ground bus, and said ground signal wires of said second data communication cable are coupled to said second signal ground bus; and

at least one dual data communication channel connector element, coupled to said at least one dual communication channel connector header, including first and second signal data communication channel ports, each of said first and second signal data communication channel ports including a plurality of connector positions, wherein each one of said data and control signals of said first signal data communication channel is coupled to a corresponding connector position of said first signal data communication channel port positions, and at least one of said first signal data communication port connector positions is coupled to said first signal ground bus, while each one of said one of data and control signals of said second signal data communication channel are coupled to a corresponding connector position of said second signal data communication channel port positions and at least one of said second signal communication channel port positions is coupled to said second signal ground bus.

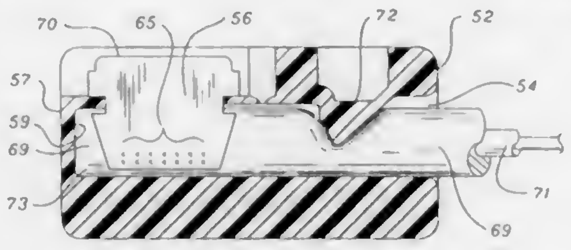
5,785,551
QUICK CONNECT ELECTRICAL BOX

Robert A. Libby, 412 Oakland Ave., Williamsport, Pa. 17701

Filed Mar. 28, 1995, Ser. No. 411,950

Int. Cl.⁶ H01R *13/66*

U.S. Cl. 439—535 **18 Claims**



1. A means for wiring a branch circuit comprising:

an electrical box which is pre-wired with a terminal element forming at least one of a junction, an outlet operable to receive a standard AC line plug and a switch, the electrical box having an outer surface with at least one connector having at least one of a male or female contact, wherein the contact and at least one of the outlet, switch and junction are electrically coupled,

an insulated electrical cable having at least one end and at least two individually insulated conductors which are encased in an outer sheath, the at least one end being unstripped, the insulated conductors and the outer sheath fully extending to the end of the electrical cable,

a female or male plug complementary to said at least one of a male or female contact, the plug being connectable to the unstripped end of the electrical cable, wherein the plug has at least one terminal that is electrically coupled to the conductor, the plug being operable to mate with the connector, the terminal making an electrical connection with the contact, thereby electrically connecting the conductor to at least one of the junction, the outlet and the switch.

5,785,552
PANEL FIXING CONNECTOR

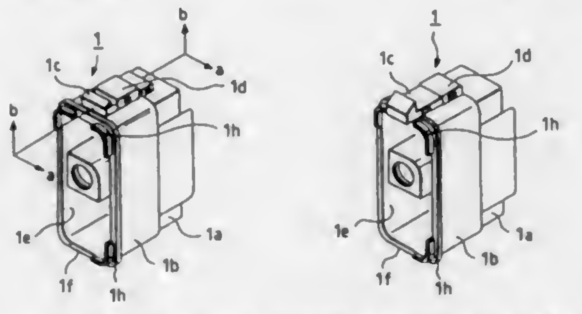
Katsura Uchida, Shizuoka, Japan, assignor to Yazaki Corporation, Tokyo, Japan

Filed Nov. 5, 1996, Ser. No. 740,954

Claims priority, application Japan, Nov. 13, 1995, 7-294073

Int. Cl.⁶ H03R *13/74*

U.S. Cl. 439—557 **4 Claims**



1. A panel fixing connector including a housing portion and a terminal receiving portion, said connector comprising:

retaining means disposed on said housing portion for retaining said connector to a panel, said retaining means being slidable with respect to said housing portion between a retaining position wherein said connector is attached to the panel, and a stand-by position wherein said connector is free from attachment to the panel; and

a protective member disposed on said housing portion for at least partially covering said retaining means so as to protect said retaining means at said stand-by position.

5,785,553
ELECTRICAL CONNECTOR

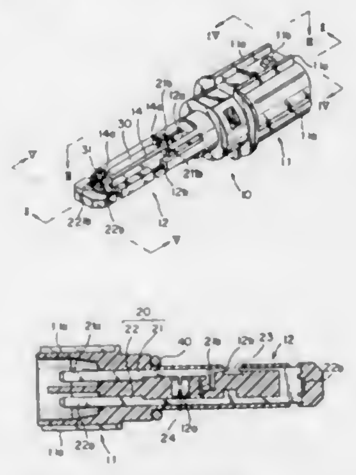
Hisashi Sawada, Yokkaichi, Japan, assignor to Sumitomo Wiring Systems, Ltd., Japan

Continuation of Ser. No. 367,099, Dec. 30, 1994, abandoned. This application Feb. 27, 1997, Ser. No. 807,761

Claims priority, application Japan, Feb. 7, 1994, 6-035488

Int. Cl.⁶ H01R *13/70*

U.S. Cl. 439—516 **5 Claims**



1. An electrical connector comprising:

a connector portion adapted to be coupled to a mating connector;

an insulative fixture cover joined to a rear end opposite an inlet port of said connector portion;

a first conductive fixture inserted in a holding aperture in said connector portion and embedded in said cover, said first fixture extending into said inlet port at a distal end and electrically coupled to a second conductive fixture in said mating connector, said first fixture including at least one electrode having a first joint point at which said electrode is to be cut off, and a second joint point at which said electrode is to be cut off, said first fixture embedded in said cover so that said first joint point and said second joint point are exposed and can be cut off after molding, and

an electrical element in a groove in said cover electrically connected to said first fixture, said cover having a reed switch on its upper face, said switch being encased by a rib;

whereby said first joint point and said second joint point are adapted to make electrical contact with corresponding leads extending from said reed switch.

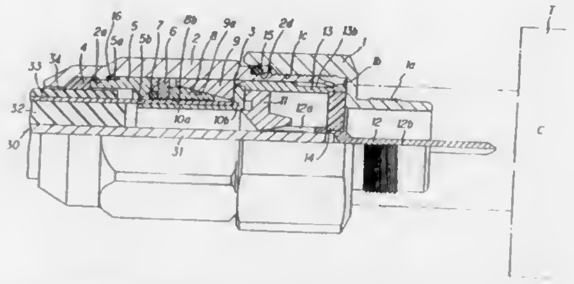
5,785,554
COAXIAL CONNECTOR

Yoshio Ohshiro, 1-40-13 Nishigaoka, Kita-ku, Tokyo 115, Japan

Filed Apr. 2, 1996, Ser. No. 626,456

Int. Cl.⁶ H01R *17/04*

U.S. Cl. 439—584 **4 Claims**



1. A coaxial connector, comprising: a shell including an inside portion which is integrally formed with a connection portion of a transmitting device, said shell being provided with a ring-shaped abutment wall formed at said inside portion of said shell;

a fastening member which can be screwed together with said shell to connect said fastening member to said shell, and a set of water-tight clamping components which are housed inside said fastening member, said water-tight clamping components being adapted to apply pressure to an outer casing, an outer conductor, and an inner conductor of a terminal treated coaxial cable to connect said coaxial connector when said fastening member is screwed together with said shell; and said set of water-tight clamping components having an end surface with a central conductor at the center of said end surface, and said set of water-tight clamping components abuts said ring shaped abutment wall of said shell, and different portions of said set of water-tight clamping components tightly grip said inner conductor, said outer conductor and said outer casing of said coaxial cable to hold in place said inner conductor, said outer conductor and said outer casing; and

said set of water-tight clamping components includes a gasket which is arranged at one end portion inside said fastening member for applying pressure to said outer casing of said coaxial cable;

a first collar having one end which abuts said gasket and another which abuts a washer, said first collar being equipped with a step portion formed on the outer circumferential surface of said first collar for abutment with a ring-shaped protrusion formed in said fastening member, and a constriction opening which allows said outer conductor of said terminal treated coaxial cable to pass therethrough;

a pressure-ring arranged between said washer and a tapered portion formed on an inner circumferential surface of said first collar, when said outer conductor of said terminal treated coaxial cable is held by pressure, said pressure ring serves as a water sealing means to prevent water from entering from the outside of said fastening member;

a split clamp is provided so that one end of said split clamp abuts said washer, with the other end portion of said split clamp having a tapered portion formed on said outer circumferential surface of said split clamp to make slidable contact with a tapered clamp, said split clamp is split in said axial direction of said coaxial cable to enable the inner surface of said split clamp to apply a high degree of pressure to said outer conductor of said terminal treated coaxial cable;

a tapered clamp which is arranged inside said fastening member so as to be movable in the axial direction of said coaxial cable, said tapered clamp including an inner circumferential surface tapered portion which makes sliding contact with said split clamp;

a flange-equipped sleeve which faces said split clamp and which is adapted to fit inside and support said outer conductor of said terminal treated coaxial cable, said flange-equipped sleeve including a flange portion which abuts an end surface of said tapered clamp;

a backup ring which is made from an electrically insulating synthetic resin and which includes two leg portions which abut said end surface of said tapered clamp and between which said flange portion said flange-equipped sleeve is inserted, said backup-ring further including a constriction opening adapted to allow only said inner conductor of said terminal treated coaxial cable to be inserted therethrough and a constricting tapered portion which holds a conductor receiving portion of a central contact, whereby said inner conductor of said said coaxial cable is held in an inserted state by said conductor receiving portion; and

a second collar which houses said backup ring in a manner that allows said backup ring to be slidable in the axial direction of said coaxial cable, said second collar fixing said flange portion of said flange-equipped sleeve at an end portion of said second collar, said second collar fixing an insulating body which centrally supports said central contact, said insulating body being fixed at an end portion of the second collar, and said second collar being slidable in said axial direction of said coaxial cable inside said fastening member and provided with a stopper means to prevent said second collar from being pulled out of said fastening member.

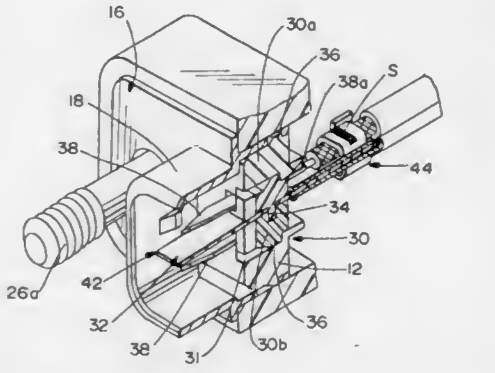
5,785,555
SYSTEM FOR TERMINATING THE SHIELD OF A HIGH SPEED CABLE

Michael O'Sullivan, Willowbrook, and Paul Murphy, Naperville, both of Ill., assignors to Molex Incorporated, Lisle, Ill.

Filed Mar. 1, 1996, Ser. No. 609,666

Int. Cl.⁶ H01R *13/648*

U.S. Cl. 439—610 **9 Claims**



1. A termination assembly comprising:

a pair of cables, each of said cables having an inner conductor, an inner dielectric surrounding at least a part of said inner conductor, a metallic shield surrounding at least a portion of said inner dielectric and an outer insulating jacket surrounding at least a portion of said metallic shield, a portion of said outer jacket being removed to expose an exposed portion of said metallic shield;

a terminal to which said metallic shield is to be terminated, said terminal extending from a mating end towards a rear end with

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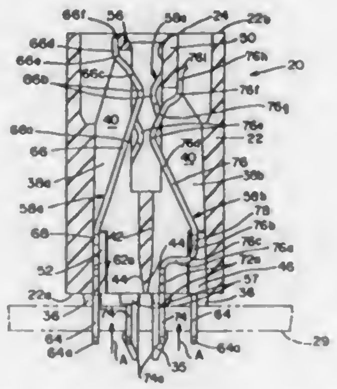
said mating end being adapted to mate with a complementary terminal, said terminal being at least partially disposed in a dielectric housing of an electrical connector and said terminal having a ground portion;

a discrete cable retaining member separate from said terminal and having a pair of gripping arms, each of said gripping arms having an elongated slot and being configured to be disposed about said exposed portion of said metallic shield of one of said cables so as to encircle a portion of said exposed portion of said metallic shield of said cable in order to grip said exposed portion of said metallic shield without deformation of said inner dielectric; and

interengaging means for mounting said cable retaining member on said ground portion of said terminal spaced apart from said mating end.

5,785,556
EDGE CONNECTOR FOR A PRINTED CIRCUIT BOARD

Gregory R. Pratt, Naperville, and Kent E. Regnier, Lombard, both of Ill., assignors to Molex Incorporated, Lisle, Ill.
Filed Jul. 16, 1996, Ser. No. 683,552
Int. Cl.⁶ H01R *23/70*
U.S. Cl. 439—637 **10 Claims**



1. A push-pull edge card electrical connector for receiving an edge of a printed circuit board having conductive contact pads on at least one side of the board adjacent the edge, comprising:

an elongated dielectric housing including

a board-receiving face,

an elongated slot disposed in the board-receiving face generally along a longitudinal axis of the housing for receiving said edge of the printed circuit board, and

a plurality of terminal-receiving cavities spaced along at least said one side of the slot separated by transverse walls extending generally perpendicular to the longitudinal axis of the housing, each cavity having a preload rib extending across said cavity between a pair of said transverse walls generally adjacent said board receiving face and immediately adjacent said slot, said cavities being disposed between longitudinal side walls of the housing; and

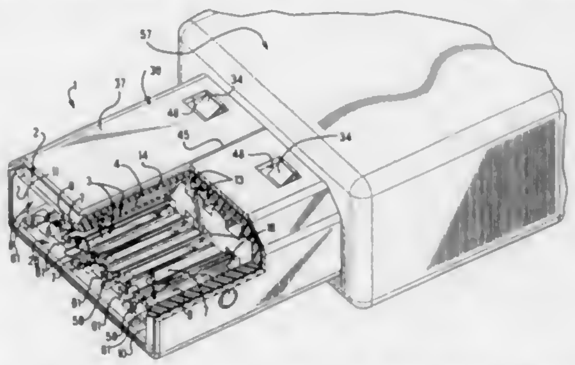
a plurality of first and second terminals, each terminal being received in one of said terminal-receiving cavities,

each of said first terminals including a generally planar base portion having a retention section press-fit between the transverse walls of its respective cavity, a tail portion projecting from one end of the base portion and a resilient spring arm extending from an opposite end of the base portion, the resilient spring arm having a first elongated section extending upward from said base portion at an acute angle thereto, a second curved contact section extending from said first section and within said slot, a third section extending from said second contact section and at an obtuse angle relative to said first section, a distal end including a preload arm positioned against one of said preload ribs and above said contact section; and

each of said second terminals including a generally planar base portion having a retention section press-fit between the transverse walls of its respective cavity, a tail portion projecting from one end of the base portion and a resilient spring arm extending from an opposite end of the base portion, the resilient spring arm having a first generally horizontal section extending generally perpendicularly from said base portion, a second generally vertical section extending generally perpendicularly from said first section and offset from the plane of said base portion, a third elongated section extending upward from said second section at an acute angle thereto, a fourth curved contact section extending from said third section and within said slot, a fifth section extending from said fourth contact section and at an obtuse angle relative to said third section, and a distal end including a preload arm positioned against one of said preload ribs and above said contact section.

5,785,557
ELECTRICAL CONNECTOR WITH PROTECTION FOR ELECTRICAL CONTACTS

Wayne Samuel Davis, Harrisburg, Pa., assignor to The Whitaker Corporation, Wilmington, Del.
Continuation-in-part of Ser. No. 5,690, Jan. 19, 1993, Pat. No. 5,295,843. This application Feb. 8, 1993, Ser. No. 14,911
Int. Cl.⁶ H01R *17/00*
U.S. Cl. 439—660 **18 Claims**



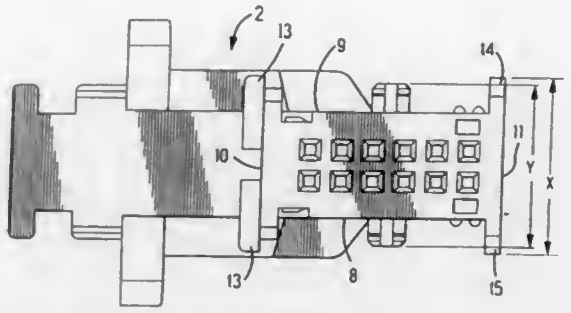
1. An electrical connector comprising: an insulative housing, conductive contacts within an interior of the housing, wiping surfaces on a mating end of the housing, conductive surfaces on the contacts being rearward of the wiping surfaces and offset laterally of the wiping surfaces to engage unwiped surface areas of mating contacts of another, mating connector, which mating contacts wipe against the wiping surfaces prior to engagement of the unwiped surface areas of the mating contacts with the conductive surface areas of the contacts, the wiping surfaces projecting along paths of mating insertion of the contacts, and being interposed between the contacts and a front edge of the housing.

5,785,558
ELECTRICAL CONNECTOR ASSEMBLY

Lothar Andreas Post, Offenbach; Dieter Lietz, Frankfurt; Jörg Kunze, Rüsselsheim; Lukas Pniak-Pawlik, Frankfurt, all of Germany; Jean-Pierre Picaud, Eaubonne, and Thierry Mezin, Houilles, both of France, assignors to The Whitaker Corporation, Wilmington, Del.
Filed Nov. 7, 1996, Ser. No. 745,195
Claims priority, application Germany, Nov. 21, 1995, 195 43 423.4; European Pat. Off., Sep. 30, 1996, 96402085
Int. Cl.⁶ H01R *13/502*
U.S. Cl. 439—680 **5 Claims**

1. A connector assembly comprising a trough-shaped accommodating part and a plug part which can be plugged into the latter, where:

the accommodating part has an elongate plug channel which is bounded by relatively long longitudinal side walls and relatively short transverse side walls,



the plug part has an essentially rectangular cross-section with longitudinal side surfaces and transverse side surfaces,

the plug part consists of a surrounding housing having an opening corresponding to one of the transverse side surfaces and having at least one safety rib thereon, and a socket housing, where

the socket housing can be pushed into the surrounding housing through the opening on a transverse side surface,

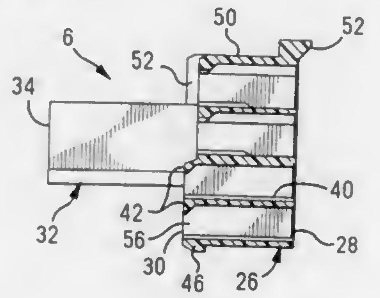
complementary latching elements are provided in the surrounding housing and on the socket housing, for the purpose of latching the socket housing in the surrounding housing once received therein,

in the vicinity of the transverse side surfaces, a safety rib extending in the plugging direction is situated on longitudinal side surfaces of the socket housing, in such a way that the width of the plug part with the safety ribs is greater than the central width of the plug channel;

complementary safety grooves for accommodating all of the safety ribs are formed in the longitudinal side walls of the accommodating part.

5,785,559
CONNECTOR ASSEMBLY WITH CODED SECONDARY LOCKING MECHANISM

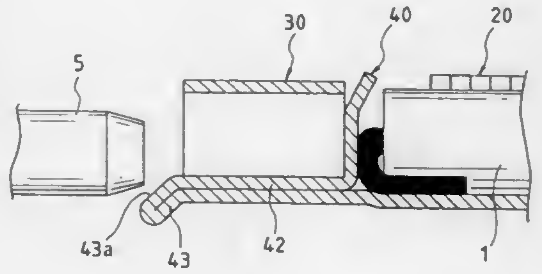
Jürgen Meyer, Pfaffenhofen; Hans-Joachim Zander, Schifferstadt; Dirk Duenkel, Bensheim, and Franz-Josef Thiel, Weiterstadt, all of Germany, assignors to The Whitaker Corporation, Wilmington, Del.
Continuation of Ser. No. 522,043, Aug. 31, 1995, abandoned. This application Oct. 23, 1997, Ser. No. 959,103
Int. Cl.⁶ H01R *13/64*
U.S. Cl. 439—680 **15 Claims**



1. A connector assembly comprising an insulative housing and a secondary locking member mountable securely thereto in a first pre-assembly position for insertion of terminals into cavities of the housing, said secondary locking member having locking wall projections at a front end thereof, the cavities extending in an axial direction between a mating face and a terminal receiving face of a terminal section of the housing, the secondary locking member movable in a direction D transverse to the axial direction to a second fully assembled position whereby said locking wall projections of the secondary locking member project over edges of the cavities thereby projecting behind shoulders of said terminals when said secondary locking member is in the second fully assembled position for locking the terminals in the housing cavities, wherein the secondary locking member comprises a coding bar extending axially from a locking end face thereof to a mating end, said locking end face neighboring said locking wall projections and mounted adjacent the terminal receiving face of the terminal section, and wherein the coding bar is insertable in a coding bar receiving cavity of the housing extending axially through the terminal section from said terminal receiving face to said mating face, the coding bar being interleavable with a complementary coding bar of a complementary connector assembly to allow coupling of specific matching coded connector assemblies when the secondary locking member is fully assembled to the housing.

5,785,560
IGNITION CABLE CONNECTION TERMINAL

Kunihiko Akamatsu, Shizuoka, Japan, assignor to Yazaki Corporation, Tokyo, Japan
Filed Oct. 9, 1996, Ser. No. 728,046
Claims priority, application Japan, Oct. 13, 1995, 7-265671
Int. Cl.⁶ H01R *11/22*
U.S. Cl. 439—851 **16 Claims**



1. An ignition cable connection terminal formed by bending a metal sheet blank stamped into a predetermined shape, the connection terminal comprising:

a fixing portion for a clamping connection to an ignition cable;

a tubular fitting portion for coupling with a mating terminal;

a stopper piece portion which is provided between the fixing portion and the fitting portion, and has a body portion for abutment against a distal end of the ignition cable;

wherein the stopper piece portion has a connection portion which extends in a direction of an axis of the connection terminal from an edge of the fitting portion remote from the fixing portion in an initial condition of the metal sheet blank, wherein the axis comprises a central axis of each of the stopper portion, the connection portion, the fitting portion, and the fixing portion, in succession, in the initial condition of the metal sheet blank and the body portion is formed at a distal end of the connection portion;

wherein the connection portion is folded back at its proximal end, disposed at the edge of the fitting portion, on an inner surface of the fitting portion bent into a cylindrical shape, and extends toward the fixing portion;

wherein a surface of the connection portion disposed within the fitting portion is formed into a curved surface for intimate contact with a peripheral surface of the mating terminal;

wherein a downwardly-slanting tongue-like guide portion for guiding insertion of the mating terminal into the fitting portion is formed at a folded portion of the connection portion; and

wherein contact beads are formed only on the fixing portion.

5,785,561

Patent Not Issued For This Number

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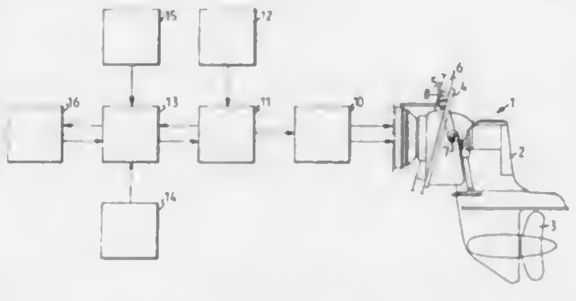
METHOD FOR TRIMMING OF A BOAT PROPELLER DRIVE AND DRIVE UNIT WITH MEANS FOR PERFORMING THE METHOD

Per Nestvall, Mölndal, Sweden, assignor to AB Volvo Penta, Gothenburg, Sweden
Filed Jan. 29, 1997, Ser. No. 790,456
Claims priority, application Sweden, Jan. 29, 1996, 9600305
Int. Cl.^{6} B63H *21/22*
U.S. Cl. 440—1 **3 Claims**

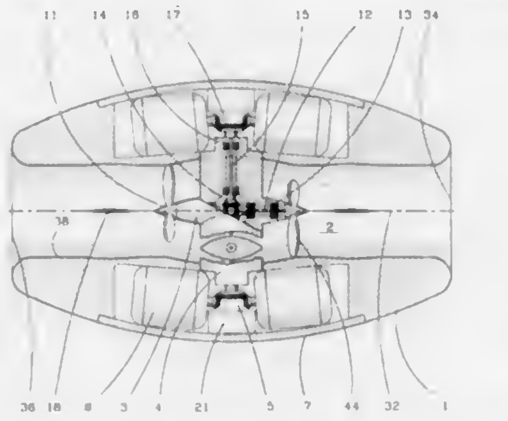


1. In a method of setting the trim angle of a boat propeller drive, which is mounted in bearings for rotation around a horizontal trim axis and which is drivably connected to an engine with an engine control unit, which holds the engine speed constant at a set speed determined by means of a throttle opening independently of the load on the engine, the improvement which comprises: continually measuring the instantaneous fuel consumption of the engine, and setting the trim angle of the propeller drive at an angle which gives the lowest value of fuel consumption at the set engine speed.

5,785,563

SCUBALL

Thomas Mark Peaslee, P.O. Box 64091, Sunnyvale, Calif. 94088
Filed Jan. 13, 1997, Ser. No. 782,789
Int. Cl.^{6} B60L *11/02*
U.S. Cl. 440—6 **12 Claims**

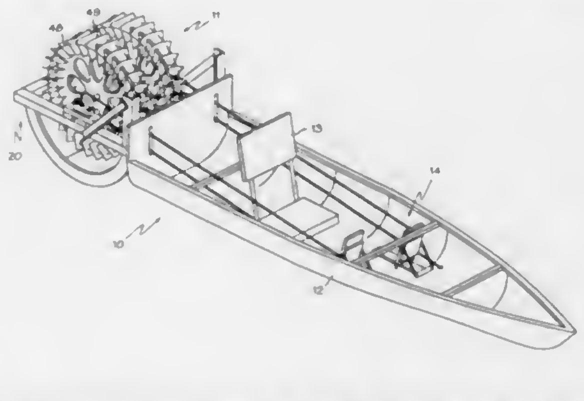


1. A self-contained, underwater ball ("SCUBall") sporting device adapted for self-propulsion through water, the SCUBall comprising:
- a body adapted for weight adjustment so that upon immersion of the SCUBall into water the SCUBall has neutral buoyancy;
- a propulsion unit supported from said body which upon energizing said propulsion unit urges the SCUBall to move through water in which the SCUBall is immersed; and
- power system means adapted for energizing said propulsion unit, said power system means including:
  - a switch accessible from outside said body which upon activation causes said propulsion unit to be energized; and
  - a timer that de-energizes said propulsion unit a pre-established time interval after activation of said switch.

5,785,564

WATER CRAFT WITH A HYDROFOIL-BLADED WHEEL ASSEMBLY

Hans J. Von Ohain, 3305 Nan Pablo Dr., Melbourne, Fla. 32934, and Christopher H. Von Ohain, 31 Carpenters Run, Cincinnati, Ohio 45241
Filed Jun. 23, 1997, Ser. No. 880,788
Int. Cl.^{6} B63H *1/04*
U.S. Cl. 440—90 **28 Claims**

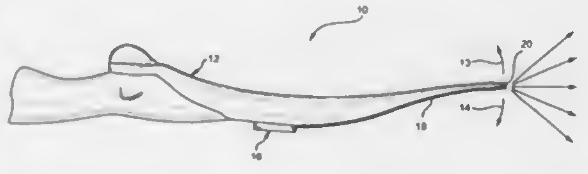


1. A hydrofoil-bladed wheel assembly for attachment to a boat hull of a self-propelled water craft to effect efficient transfer of power from an individual in the water craft to propel the water craft through water at a relatively fast speed, said assembly comprising:
- (a) an open frame with attachment means for securing said open frame to a stern of the boat hull;
- (b) a drive shaft rotatably mounted on the open frame to extend transversely across the frame and transversely to a longitudinal axis of the boat;
- (c) at least one wheel having a center axis and immovably mounted at its center axis to the drive shaft so as to rotate with said shaft, further each said wheel having a set of curved blades mounted on the wheel's periphery so as to move through the water during use, each said blade angled backwardly away from the boat hull; and
- (d) a hydrofoil mounted on the open frame so as to extend transversely across the open frame directly below each wheel and in operable association with the blades of each wheel whereby rotation of each wheel causes each blade to create a water flow guided by the hydrofoil to provide a forward propulsion force and to effect a lifting action of the boat hull in the water and allow said boat hull to move more quickly through the water.

5,785,565

ILLUMINATED SWIMMING FLIPPER AND ASSOCIATED METHOD MANUFACTURE

Aaron Forman, 3008 Bedminster Rd., Perkasie, Pa. 18944
Filed Jul. 25, 1997, Ser. No. 900,723
Int. Cl.^{6} A63B *31/10*
U.S. Cl. 441—64 **19 Claims**

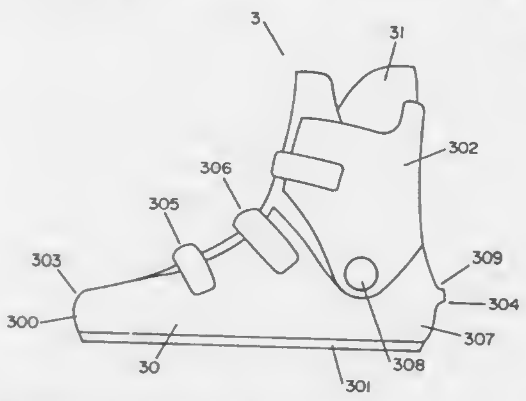


1. A flipper device, for use on the foot when swimming, having an exterior surface and at least one source of light coupled to said exterior surface.

5,785,566

EQUIPMENT FOR BINDING A SKIER TO A WATER SKI OR SKIBOARD

Pierre Blanger, 5, Carer Mayor, Pas-de-la-Case, Andorra
PCT No. PCT/FR94/00734, § 371 Date Jun. 17, 1996, § 102(e) Date Jun. 17, 1996, PCT Pub. No. WO95/00387, PCT Pub. Date Jan. 5, 1995
PCT Filed Jun. 17, 1994, Ser. No. 571,850
Claims priority, application France, Jun. 28, 1993, 93 08157
Int. Cl.^{6} B63B *35/85*
U.S. Cl. 441—70 **9 Claims**

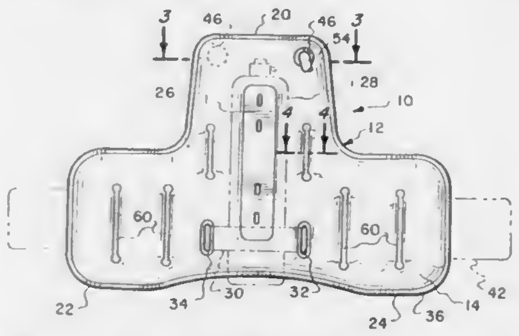


1. Equipment to enable a skier to engage in waterskiing on a water ski, said equipment comprising:
- a first and a second item of footwear placeable one behind the other on the ski; each item of footwear comprising:
  - a flexible liner completely enveloping a skier's foot, ankle, and the lower portion of the skier's leg, and
  - a rigid, lockable retaining structure completely enveloping said liner and having at least one sole equipped with a heel and a rear section with a part above said heel, a metatarsal strap, an instep strap, and a leg section, and
- a rear safety stop mountable on the water ski for releasably holding the skier on the ski, said releasable rear safety stop comprising means for engaging said part above said heel of said rear section, for abutting said rigid lockable retaining structure and for enabling the positioning of the said first and second item of footwear, one behind the other.

5,785,567

BUOYANCY JACKET

John L. Modugno, 1571 W. 211th St., Torrance, Calif. 90501
Filed Dec. 17, 1996, Ser. No. 768,326
Int. Cl.^{6} B63C *9/16*
U.S. Cl. 441—88 **1 Claim**

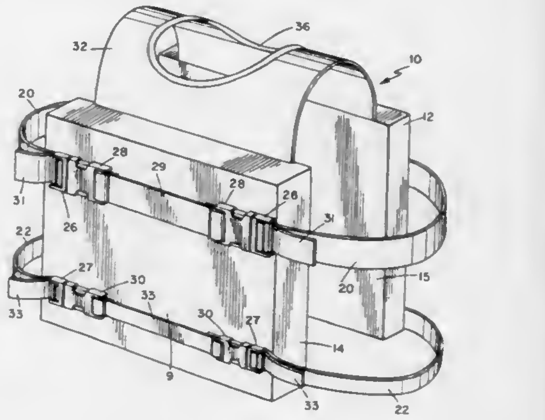


1. A buoyancy jacket comprising:
- a body adapted to be wrapped around the torso of a human, said body being constructed of a plurality of layers defined as an inner layer and an outer layer, an intermediate layer located between said inner layer and said outer layer with said intermediate layer comprising a single strip of material, said layers are to be flexible, said layers being impervious to fluid, said inner layer adapted to be located directly adjacent the skin of the wearer, said outer layer to be directly exposed to the ambient;
- an inner buoyancy compartment formed between said inner layer and said intermediate layer;
- an outer buoyancy compartment formed between said outer layer and said intermediate layer, said outer buoyancy compartment being separate from said inner buoyancy compartment;
- a first inflation valve connecting with said outer buoyancy compartment, a second inflation valve connecting with said inner buoyancy compartment, whereby said first and second inflation valves are to be separately manually used to inflate and deflate said compartments;
- said body including a plurality of baffles, each said baffle limiting the expansion of said inner buoyancy compartment and said outer buoyancy compartment when such are inflated; and
- each said baffle including a small loop of sheet material connected between said inner layer to said intermediate layer and a small loop of sheet material connected between said outer layer and said intermediate layer, whereby said small loops of sheet material limit the expansion of said inner buoyancy compartment and said outer buoyancy compartment during inflation of said compartments.

5,785,568

LIFE PRESERVER/CUSHION

Randy Lake, 9285 Virginian La., La Mesa, Calif. 91941
Filed Apr. 21, 1997, Ser. No. 845,195
Int. Cl.^{6} A45C *9/00*
U.S. Cl. 441—127 **7 Claims**



1. A life preserver/cushion comprising:
- a first flotation panel having a generally planar seating surface, a second generally planar flotation panel connected to the first flotation panel by an interconnecting web; said second flotation panel being sized to be substantially co-extensive with said first flotation panel when positioned to overlie said first flotation panel,
- at least one strap and strap fastener secured to the first and second flotation panels and forming a continuous strap when said strap and strap fastener are connected for encircling a user when the first flotation panel is positioned on the user's chest and the second flotation panel is positioned on the user's back, and
- said interconnecting web being secured proximate an edge on each of said panels, and having shoulder strap portions and at least one opening sized to accommodate user's head, said interconnecting web being adapted to be folded and stored between said panels when the panels are in an overlying relationship.

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5,785,569

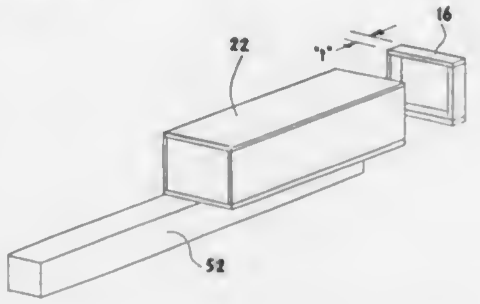
METHOD FOR MANUFACTURING HOLLOW SPACERS

Darryl M. Stansbury; Jim Hofmann, and Charles M. Watkins, all of Boise, Id., assignors to Micron Technology, Inc., Boise, Id.

Filed Mar. 25, 1996, Ser. No. 621,490

Int. Cl.⁶ H01J *9/26*

U.S. Cl. 445—25 **29 Claims**



1. A method for manufacturing an interelectrode spacer for a field emission display package comprising the steps of:

providing a plurality of flat sheets of a material;

assembling a hollow tube by attaching the flat sheets to one another using an adhesive, said hollow tube including a longitudinal axis; and

separating a segment of a desired thickness from the tube wherein said thickness corresponds to a desired interelectrode spacing.

5,785,570

ANODE FOR A FLAT DISPLAY SCREEN

Marie-Dominique Bruni, La Tronche, France, assignor to Pixtech S.A., Rousset, France

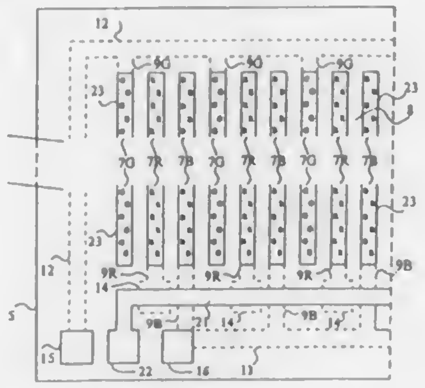
PCT No. PCT/FR95/00997, § 371 Date Jun. 24, 1996, § 102(e) Date Jun. 24, 1996, PCT Pub. No. WO96/03765, PCT Pub. Date Feb. 8, 1996

PCT Filed Jul. 25, 1995, Ser. No. 619,572

Claims priority, application France, Jul. 26, 1994, 94 09491

Int. Cl.⁶ H01J *9/20;9/227*

U.S. Cl. 445—52 **8 Claims**



1. A fabrication method of an anode (5) of a flat display screen, including the following phases:

1) forming, on a substrate (**6**), three series of anode conductors (**9**) in alternated parallel strips (**9***g*, **9***b*, **9***r*), two first interconnection paths (**12**, **13**) of the first two series of anode conductors (**9***g*, **9***b*), first two connection pads (**15**,**16**) to the first two paths, and pads (**14**) of a third series of anode conductors (**9***r*);

2) depositing an insulating layer (**8**) over said substrate (**6**), conductors (**9**), paths (**12**, **13**) and pads (**15**, **16**, **14**), and etching, in said insulating layer (**8**), holes (**23**) to receive phosphor elements (**7**) in register with the anode conductors (**9**), and windows (**25**, **26**, **27**) in register with the pads (**15**, **16**, **14**);

3) forming a third interconnection path (**21**) of the third series of anode conductors (**9***r*) and a third connection pad (**22**) over said insulating layer;

4) electrically coupling said third connection pad (**22**) to said pads (**14**) of said third series of anode conductors (**9***r*); and,

5) depositing phosphors (**7**) over the anode conductors (**9**) in the holes (**23**) of the insulating layer (**8**).

5,785,571

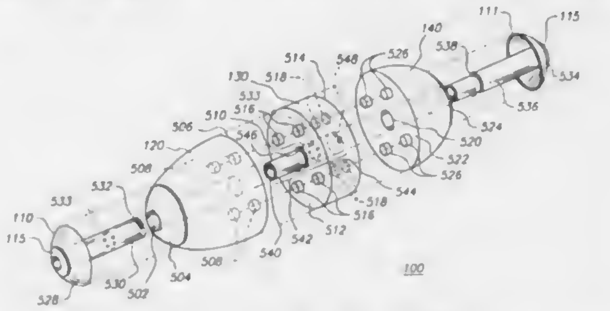
MULTI-CONFIGURATION AMUSEMENT DEVICE

Richard S. Camp, P.O. Box 413, Corte Madera, Calif. 94925

Filed Sep. 16, 1996, Ser. No. 710,313

Int. Cl.⁶ A63H *33/04;* **B25G** *3/16;* **A63B** *43/00*

U.S. Cl. 446—124 **4 Claims**



1. A multi-configuration projectile ball comprising:

a first mass component having a first and a second side and a first cylindrical bore extending between the sides;

a second mass component having a first and a second side and a second cylindrical bore extending between the sides;

a third mass component for insertion between the first mass component and the second mass component, the third mass component having a first and a second side and a third cylindrical bore extending between the first side and the second side;

a first lock fastener portion comprising an end portion coupled to an end of a hollow cylindrical sleeve having a first length and having a smaller diameter than the first cylindrical bore, the hollow cylindrical sleeve for insertion through the first cylindrical bore and into the third cylindrical bore; and

a second lock fastener portion comprising an end portion coupled to an end of a cylindrical shaft having a diameter smaller than the hollow cylindrical sleeve and having a second length, the cylindrical shaft for insertion through the second cylindrical bore and the into the third cylindrical bore, the cylindrical shaft including a first projection and the hollow cylindrical sleeve including a first notch; and

a hollow cylindrical tube for insertion in the third cylindrical bore, the hollow cylindrical tube including

- a first section having a diameter less than the hollow cylindrical sleeve and having a second projection for insertion into the first notch, and a second section having a diameter greater than the cylindrical shaft and having a second notch for receiving the first projection, for releasably coupling the mass components by applying oppositely directed forces to the first lock fastener portion and the second lock fastener portion.

5,785,572

TRANSFORMABLE POWER WRENCH AND ENGINE FOR TOY VEHICLE

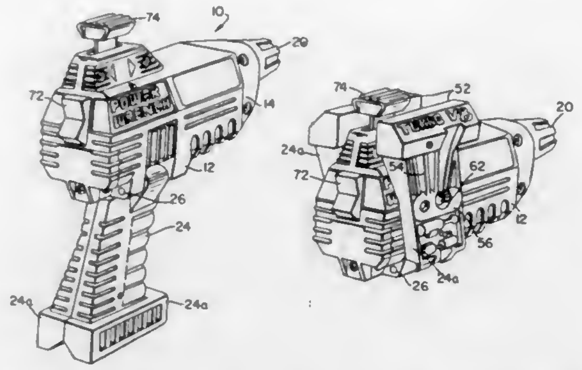
Richard C. Levy, P.O. Box 34828, Bethesda, Md. 20827; Richard J. Maddocks, 302 Lexington Dr., Silver Spring, Md. 20901, and Dudley J. Reynolds, 9 Calshot Way, Enfield, Middlesex EN27BQ, England

Filed Feb. 9, 1996, Ser. No. 599,174

Int. Cl.⁶ A63H *33/30;27/00;29/02;17/28*

U.S. Cl. 446—144 **16 Claims**

1. A power tool transformable to an engine for a toy, the engine being simulative of a full-scale vehicle engine, comprising:



a body including a housing, a motor within said housing, a tool holder for holding a tool and carried by said housing for rotation about an axis and a drive between said motor and said tool holder for rotating said tool holder;

a handle carried by said body including a first section pivotal between a first position projecting from said body and forming a handle grip for said housing thereby forming a handheld power tool and a second position extending along at least one side of said housing and having portions of said section simulative of at least a portion of an engine whereby the body forms an engine for a toy, said section being pivotal between said first and second positions about a discrete axis generally parallel to the rotatable axis of said tool holder.

5,785,573

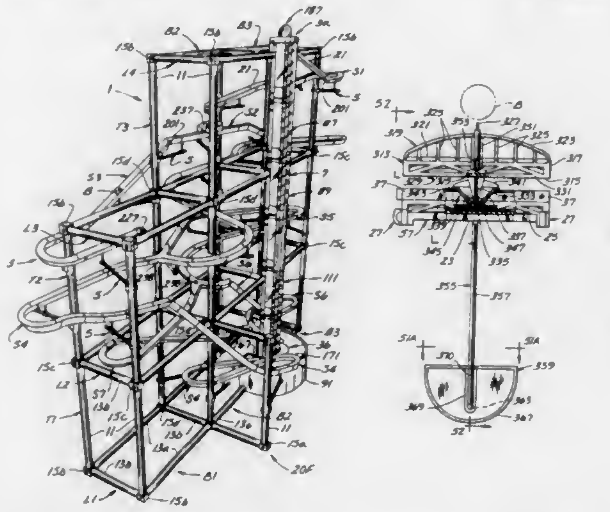
KINETIC TOY

James N. Rothbarth, St. Louis, Mo., and Alex Kinming Lee, Hong Kong, Hong Kong, assignors to Chaos, L.L.C., St. Louis, Mo.

Continuation-in-part of Ser. No. 719,951, Sep. 24, 1996, Pat. No. 5,709,581. This application Jan. 28, 1997, Ser. No. 789,248

Int. Cl.⁶ A63H *29/08*

U.S. Cl. 446—171 **21 Claims**



1. A kinetic toy of the rolling-ball type constructed of a plurality of individual parts comprising:

a frame comprising a plurality of frame members and connectors interconnecting ends of the frame members, said frame members and connectors being constructed for quick assembly thereof, said frame being adapted to stand upright on a generally horizontal supporting surface;

a trackway for the ball supported by the frame for travel of the ball by rolling down the trackway from an elevated position at an upper level with respect to the frame to a terminal position at a lower level with respect to the frame, said trackway comprising a plurality of individual track members assembled end-to-end and constructed for quick assembly end-to-end;

means supported by selected frame members for supporting the trackway for the travel of the ball, said means being constructed for quick assembly with said selected frame members, and said track members being constructed for quick assembly of selected track members with said trackway supporting means; and

an accessory mounted on one of said track members by quick-connection means.

5,785,574

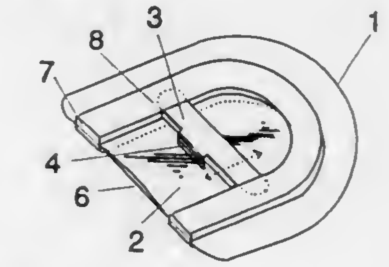
ADJUSTABLE DIAPHRAGM GAME CALLS

Joseph R. Sears, P.O. Box 154, Spencer, N.Y. 14883

Filed Feb. 16, 1996, Ser. No. 602,304

Int. Cl.⁶ A63H *5/00*

U.S. Cl. 446—208. **10 Claims**



1. A variable-sound diaphragm game call comprising:

a) a frame;

b) at least one diaphragm having a plurality of fixed edges mounted to the frame, and having only one edge free to vibrate in response to airflow over the diaphragm;

c) a covering over a top of the frame having two parallel lengthwise slots formed between the covering and two opposing sides of the frame; and

d) a tuning bar slidably mounted to the frame extending widthwise between the two parallel slots adjacent to the diaphragm, such that the tuning bar can be slid toward or away from the free edge of the diaphragm, modifying the sound produced by the vibrating diaphragm.

5,785,575

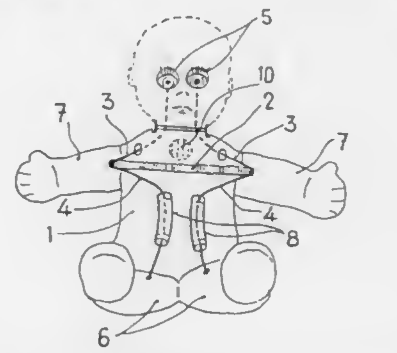
DOLL WITH SIMULTANEOUS RAISING OF THE ARMS AND LEGS AND OPENING OF THE EYES

Ferri Jaime Llorens, Alicante, Spain, assignor to Innovacion S.A., Alicante, Sweden

Filed Dec. 20, 1996, Ser. No. 771,293

Int. Cl.⁶ A63H *3/20;3/40;* **A63J** *19/00*

U.S. Cl. 446—340 **3 Claims**



1. A doll having a front, back, two sides and two arms, two legs and two eyes, wherein one arm, leg and eye is located on each of said sides, and which simultaneously raises its arms and legs and opens its eyes wherein that between the arms of the doll itself is attached an elastic element which tends to keep the arms in a

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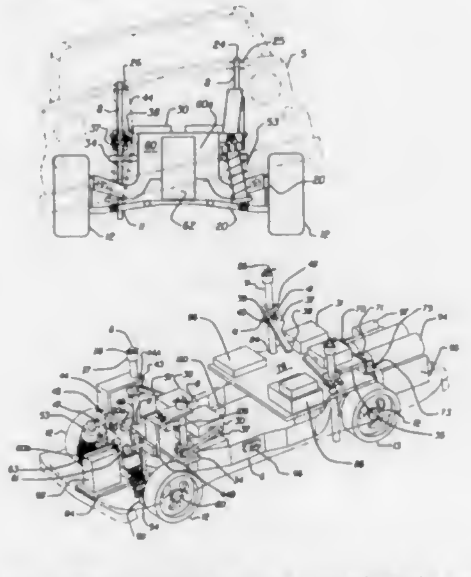
folded resting position over the front; with a feature that to each end of said elastic element two extensible braces are attached which are duly guided inside the doll's body, one of said braces being associated to the eye on that side, while the other brace is associated to the leg on that same side, in such a manner that from said resting position the raising of one of the arms causes the simultaneous raising of the leg on that side and the opening of the eye on that same side, being liable to have one arm or the other or both arms raised at the same time.

5,785,576
RADIO CONTROLLED VEHICLE WITH SELECTABLE VEHICLE SUSPENSION SYSTEM

Wyatt H. Belton, Richmond, Va., assignor to Sports Wheels, Inc., Richmond, Va.

Filed Dec. 23, 1996, Ser. No. 771,510
Int. Cl.^{6} A63H ***30/04;17/26***
U.S. Cl. 446—456 **9 Claims**



1. A toy wheeled vehicle having a chassis and a selectable vehicle suspension system, comprising:
(a) a vehicle frame having a longitudinal axis, said chassis attached to said frame;
(b) longitudinally spaced front and rear axles supported on said frame, said front and rear axles extending in a transverse direction to said longitudinal axis;
(c) a first and second set of wheels attached to said front and rear axles, respectively;
(d) at least one lifting motor mounted on said frame and providing a first rotational output to a first arm, said first arm angularly displaced by said lifting motor in response to said first rotational output and having proximal and distal ends, said first arm connected to said first rotational output at said proximal end and connected to a vertically extending guide post at said distal end, whereby pivoting of said first arm moves said guide post vertically with respect to said frame, said guide post having attachment means to said chassis, whereby said vertical movement of said guide post moves said chassis vertically with respect to said frame;
(e) at least one driving motor mounted on said frame and providing a second rotational output to a shaft connected to said rear axle, said shaft rotated by said driving motor in response to said second rotational output and having first and second ends, said shaft connected to said second rotational output at said first end and connected to said rear axle at said second end, whereby rotating of said shaft rotates said rear axle;
(f) at least one hopping actuating motor mounted on said frame and providing a third rotational output to an offset cam, said offset cam rotated by said hopping actuating motor in response to said third rotational output and having third and fourth ends, said offset cam connected to said third rotational output at said third end and in contact with a rotatable pin connected to said front axle at said fourth end, whereby rotating said offset cam angularly displaces said rotatable pin and vertically moves said frame with respect to said front axle;
(g) at least one power supply mounted on said frame, said power supply having electrical connections with said lifting motor, said driving motor and said hopping actuating motor, and at least one switch for selectively energizing said lifting motor, said driving motor and said hopping actuating motor;
(h) a control circuit mounted on said frame and having electrical connection means with said power supply through said switch and said lifting motor, said driving motor and said hopping actuating motor; and
(i) a radio controller having means for transmitting control signals to said control circuit, said control circuit having means for selectively controlling the movement of said first, second and third rotational outputs, respectively, of said lifting motor, said hopping actuating motor and said driving motor, respectively, in response to said control signals, whereby vehicle, chassis and frame movement is individually or in unison controlled.

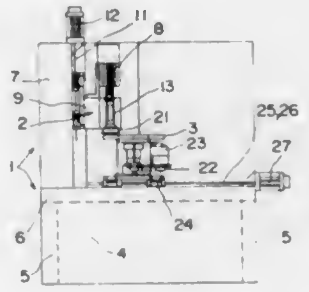
5,785,577

Patent Not Issued For This Number

5,785,578
EQUIPMENT FOR THE GRINDING OF MATERIAL SAMPLES

Bjørn Thoresen, Oslo, and Geir Thorkilsen, Erdal, both of Norway, assignors to Norsk Hydro a.s., Oslo, Norway

PCT No. PCT/NO95/00101, § 371 Date Feb. 7, 1996, § 102(e) Date Feb. 7, 1996, PCT Pub. No. WO95/34802, PCT Pub. Date Dec. 21, 1995
PCT Filed Jun. 14, 1995, Ser. No. 592,343
Claims priority, application Norway, Jun. 15, 1994, 942242
Int. Cl.^{6} B24B ***49/00;51/00***
U.S. Cl. 451—14 **13 Claims**



1. Equipment for grinding material samples, comprising:
a console and frame structure;
a turntable having a material sample holding portion, said turntable being rotatably mounted and movably mounted on said console and frame structure for rotation and for movement laterally in a direction parallel to said material sample holding portion;
a reciprocatory movement mechanism and a rotation mechanism connected to said turntable, said reciprocatory movement mechanism comprising a first motor and a transmission connected between said motor and said turntable capable of linearly moving said turntable on said console and frame structure, and said rotation mechanism comprising a second motor connected to said turntable capable of rotating said turntable;

at least one vertically moveable grinding spindle arranged above said turntable, each of said at least one vertically moveable grinding spindle comprising a grinding disk that is vertically moveable toward said material sample holding portion, a third motor connected to each of said at least one vertically moveable grinding spindle capable of rotating said grinding disk, and a fourth motor capable of vertically moving said grinding spindle; and
a programmable control unit connected with each of said first through fourth motors so as to be capable of controlling reciprocation and rotation of said turntable and rotation and vertical movement of said at least one grinding spindle.

5,785,579
GLASS MATERIAL FOR TREATING HARD SURFACES

Roger Grondin, 823 West, 7e rue, Dégelis, Canada, G5T 1Z3

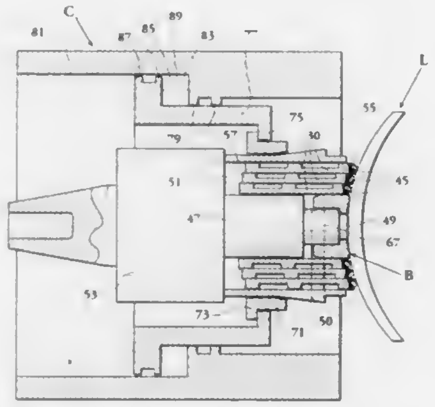
Continuation-in-part of Ser. No. 846,074, Mar. 5, 1992, abandoned. This application Nov. 20, 1996, Ser. No. 749,764
Int. Cl.^{6} B24B ***1/00;*** **C09C** ***1/68***
U.S. Cl. 451—38 **7 Claims**

1. A glass material for treating hard surfaces by continually hurling said glass material at high velocity against said surfaces, comprising particles of broken glass provided from glass parts having a thickness greater than $^{75}/_{1000}$ of an inch, the particles having sized as selected with mesh sieve sizes of grade 5 to grade 60, having sharp edges and having a hardness greater than 5.5 Mohs and the particles having an equi-granular shape.

5,785,580
COMPRESSION SLEEVE OPTHALMIC LENS CHUCK

Merritt S. Cook, Muskogee, Okla., assignor to Coburn Optical Industries, Inc., Tulsa, Okla.

Division of Ser. No. 341,525, Nov. 17, 1994, Pat. No. 5,567,198. This application Oct. 21, 1996, Ser. No. 729,650
Int. Cl.^{6} B24B ***13/005***
U.S. Cl. 451—42 **7 Claims**

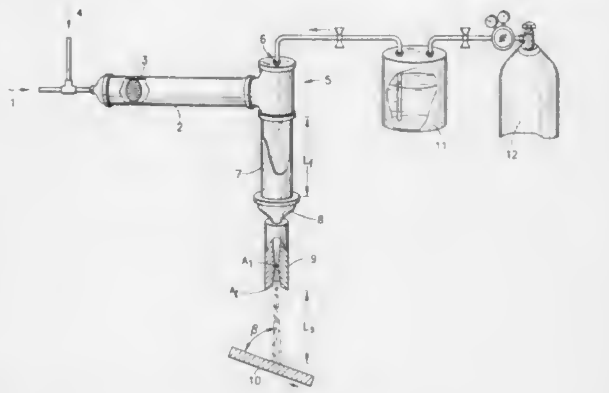


1. A method of making an ophthalmic lens from a lens blank comprising the steps of:
applying a spot of tape adhesively to a small center portion of a front face of said lens blank;
adhering a block of diameter substantially less than a diameter of said lens blank to said tape;
mounting said block with said lens blank thereon for rotation on a chuck of a lens generating machine; and
driving a sleeve of said chuck over said block, said sleeve providing support against said front face of said lens blank outwardly of said block to counter forces applied to a rear face of said lens blank during operation of said lens generating machine.

5,785,581
SUPERSONIC ABRASIVE ICEBLASTING APPARATUS

Gary S. Settles, Bellefonte, Pa., assignor to The Penn State Research Foundation, University Park, Pa.

Filed Oct. 17, 1996, Ser. No. 734,444
Int. Cl.^{6} B24C ***1/00;7/00;9/00***
U.S. Cl. 451—99 **8 Claims**

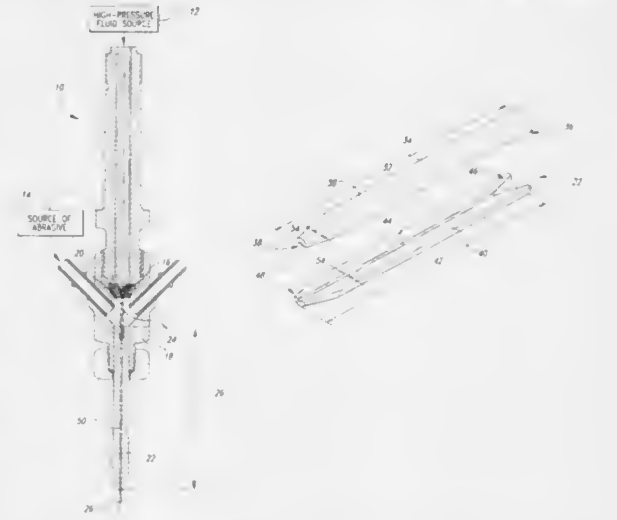


1. An abrasive cleaning device, comprising:
a) a mixing chamber having a length, diameter and first and second ends;
b) a cryogenic fluid inlet connected to said first end of said mixing chamber;
c) an air inlet connected to said first end of said mixing chamber;
d) a water atomizer connected to said second end of said mixing chamber;
e) a freezing chamber in fluidic communication with said mixing chamber; and
f) a blast nozzle in fluidic communication with said freezing chamber.

5,785,582
SPLIT ABRASIVE FLUID JET MIXING TUBE AND SYSTEM

Thomas J. Stefanik, Maple Valley; Edmund Y. Ting, and Chidambaram Raghavan, both of Kent, all of Wash., assignors to Flow International Corporation, Kent, Wash.

Filed Dec. 22, 1995, Ser. No. 577,271
Int. Cl.^{6} B23P ***11/02;*** **B24C** ***3/02;5/04***
U.S. Cl. 451—102 **20 Claims**



1. A mixing tube for use in a high pressure system for generating high pressure abrasive fluid jets, the mixing tube comprising:
a first longitudinal piece having a first groove extending from a first end to a second end of the first piece;

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a second longitudinal piece having a second groove extending from a first end to a second end of the second piece;

outer securing means coupled to an outer surface of the first piece and an outer surface of the second piece to couple the first and second pieces together; and

wherein the first piece and the second piece together form the mixing tube such that the first groove and the second groove meet to form a bore extending longitudinally through the mixing tube.

5,785,583

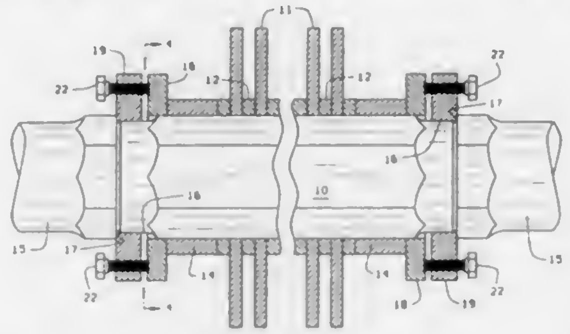
MATERIAL CUTTING ROTOR ASSEMBLY

Robert M. Williams, Jr., Ladue, and Paul H. Becherer, Festus, both of Mo., assignors to Williams Patent Crusher & Pulverizer, St. Louis, Mo.

Filed Mar. 10, 1997, Ser. No. 814,294

Int. Cl.^{6} B24B *7/00;9/00*

U.S. Cl. 451—178 **5 Claims**



1. A material cutting rotor assembly comprising:

(a) an elongated hexagonally shaped shaft having seat surfaces formed into the hexagonal configurations adjacent opposite ends of said shaft;

(b) material cutter discs having hexagonal bores sized to fit said hexagonally shaped shaft, said discs passing over said seat surfaces;

(c) sleeve means fitted to said shaft ends in position to abut said adjacent cutter discs;

(d) a first disc at each end of said shaft having a hexagonal bore slid over said shaft ends to abut said sleeve means;

(e) a second disc at each end of said shaft having a hexagonal bore slid over said shaft ends to seat in said seat surfaces adjacent said first disc and said second discs are turned to place said hexagonal bores out of alignment with said shaft hexagonal shape; and

(f) thrust elements carried by each of said second disc in position to engage on said adjacent first disc and retain said sleeve means in abutment on said adjacent cutter discs.

5,785,584

PLANARIZING APPARATUS WITH DEFLECTABLE POLISHING PAD

Patricia E. Marmillion, Colchester, and Anthony M. Palagonia, Underhill, both of Vt., assignors to International Business Machines Corporation, Armonk, N.Y.

Filed Aug. 30, 1996, Ser. No. 706,155

Int. Cl.^{6} B24B *5/00*

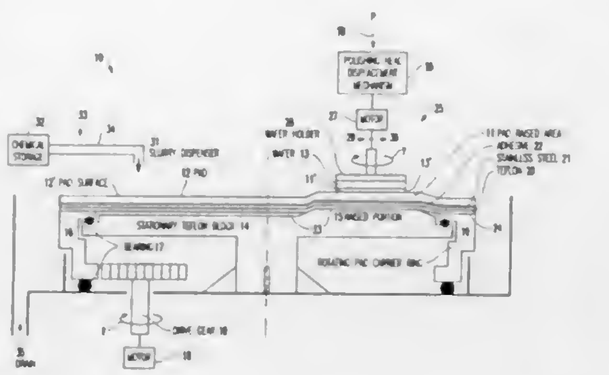
U.S. Cl. 451—283 **18 Claims**

1. A planarizing apparatus for planarizing a workpiece having an inner radial portion and an outer radial portion, comprising:

a polishing pad having an upper surface;

drive means for rotating said polishing pad in a rotational direction;

uplifting means for raising a portion of said upper surface of said polishing pad to contact an inner radial portion of the workpiece, said raised pad portion having a leading edge facing said rotational direction, wherein said uplifting means comprises a circular stationary block including a block top surface and a circular periphery, said block top surface including an integral upward raised projection capable of deflecting upward said portion of said upper surface of said polishing pad; and



adjustment means to position an outer radial portion of said workpiece to overhang said leading edge of said raised pad portion.

5,785,585

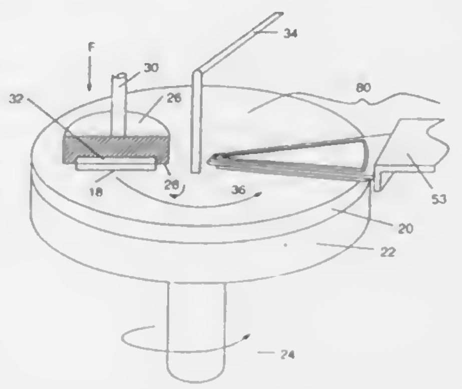
POLISH PAD CONDITIONER WITH RADIAL COMPENSATION

Paul Anthony Manfredi, Waterbury, Vt.; Richard Alan Bartley, Newburgh, N.Y.; Raymond George Morris, Essex Junction, and Timothy Scott Chamberlin, Fairfax, both of Vt., assignors to International Business Machines Corporation, Armonk, N.Y.

Filed Sep. 18, 1995, Ser. No. 529,823

Int. Cl.^{6} B24B *5/00*

U.S. Cl. 451—288 **21 Claims**



1. A method of continuously conditioning the top surface of a polishing pad in a polishing process for planarizing a substrate, conprising:

(a) placing the bottom surface of a wedge-shaped plate in contact with the top surface of said polishing pad, said plate being at least as wide as the path traversed by the substrate over said polishing pad during the polishing process, the bottom surface of said plate being designed to compensate for radial variations in the polishing process that impact the polishing of the substrate and being roughened;

(b) applying said plate to said polishing pad;

(c) holding said plate stationary with respect to said polishing pad; and

(d) rotating said polishing pad relative to said plate.

5,785,586

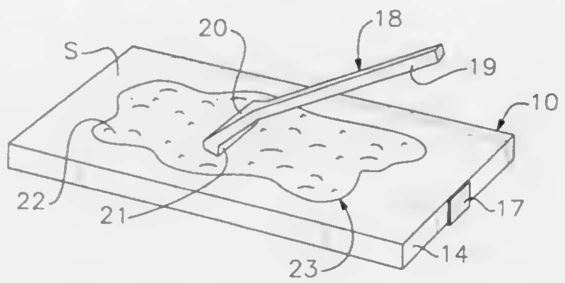
SHARPENING METHOD AND APPARATUS

Joseph Delsignore, 76 Woodland, Campbell, Ohio 44405

Filed Nov. 5, 1996, Ser. No. 744,093

Int. Cl.^{6} B24B *3/00*

U.S. Cl. 451—556 **4 Claims**



1. A sharpening system for sharpening the cutting edge of a disposable safety razor comprising: a base sharpening element having a substantially flat upper and lower surfaces, said base sharpening element formed of an alumina ceramic material having an aluminum oxide AL_2O_3 content, a sharpening slurry disposed on said base sharpening element to be engaged by the cutting edge of said razor blade during movement of said razor blade in spaced relation along said base sharpening element, said sharpening slurry comprised of soap products, entrained micro-abrasives, formed from the soap product's reaction with said aluminum oxide material, a spacer strip on one of said base elements substantially flat surfaces.

5,785,587

Patent Not Issued For This Number

5,785,588

DEVICE FOR REMOVING THE LAYER OF ABDOMINAL FAT OR LEAF FAT FROM A SLAUGHTERED ANIMAL

Thomas Gerardus Maria Jacobs, Doetinchem; Bernhard Antonius Maria Van Kippersluis, Winterswijk; Sander Antonie Van Ochten, Lichtenvoorde, and Leonardus Jozephus Antonius Tiggeloven, Groenlo, all of Netherlands, assignors to Stork R.M.S. B.V., Netherlands

Filed Oct. 13, 1995, Ser. No. 542,978

Int. Cl.^{6} A22C *17/16*

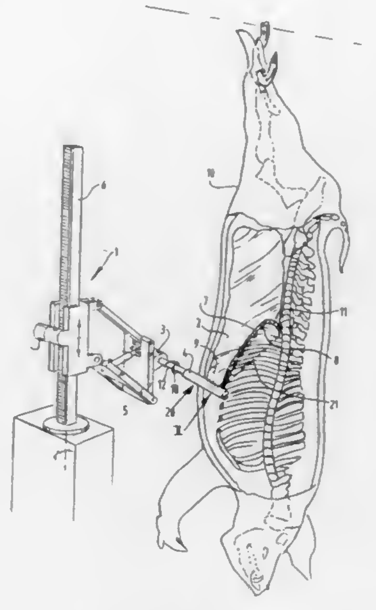
U.S. Cl. 452—134 **28 Claims**

1. A device for removing a layer of fat from at least a part of a slaughtered animal, which device comprises:

gripping means for gripping the layer of fat; and

pulling means for pulling loose the layer of fat from an abdominal wall,

wherein the gripping means comprises at least one suction aperture and wherein the gripping means is located on the pulling means.



5,785,589

METHOD FOR TREATMENT OF MEAT PIECES BY HAMMER AND A MACHINE FOR ITS EXECUTION

Narcís Lagares-Corominas, Girona, Spain, assignor to Metalquimia, S.A., Girona, Spain

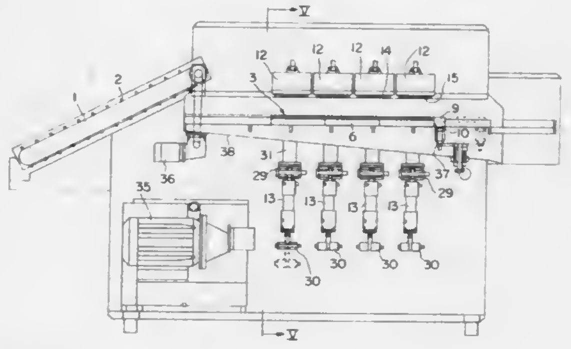
Filed May 16, 1996, Ser. No. 648,591

Claims priority, application Spain, May 16, 1995, 9500934

Int. Cl.^{6} A22C *9/00*

U.S. Cl. 452—141 **14 Claims**

1. A method for the treatment of meat pieces by hammering, in particular of boned or unboned meat pieces, comprising the following steps:



feeding meat pieces on a longitudinal deck;

moving in advance said meat pieces along said longitudinal deck with stopping stages of its travel on said deck;

submitting each meat piece in said stopping stages, to the action of a respective hammering member of a set arranged in an aligned array above said deck, said hammering members being independent and different among them; and

adjusting the strength with which each of said independent hammering members is to actuate; and

selecting the number of said independent hammering members intervening during a treatment and the number of blows to be dealt by each of said hammering members depending on the characteristics of said meat pieces to be treated;

thereby bringing about a tendering of said meat pieces, an accelerated stretching of their muscular fibers, increasing intramuscular spaces and producing a weakening of intramuscular connections thereof.

5,785,590

COIN DELIVERING APPARATUS AND HOPPER FOR USE IN SAME

Tamotsu Tsuchida, Saitama, Japan, assignor to Asahi Seiko Kabushiki Kaisha, Tokyo, Japan

Continuation of Ser. No. 495,017, Jun. 27, 1995, abandoned.

This application Apr. 18, 1997, Ser. No. 839,347

Claims priority, application Japan, Jun. 27, 1994, 6-177378

Int. Cl.^{6} G07D *1/00*

U.S. Cl. 453—57 **30 Claims**

16. A stationary hopper mounted to a coin delivering apparatus having agitating means for agitating coins at random, said hopper accommodating therein said agitating means and said coins, said hopper comprising a passive charge-removing means provided on

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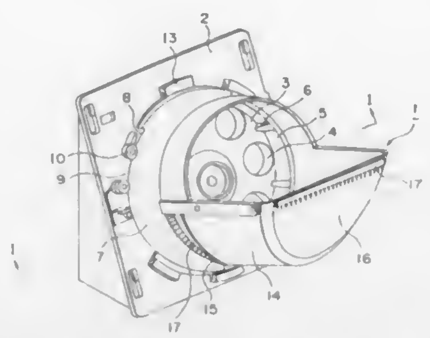
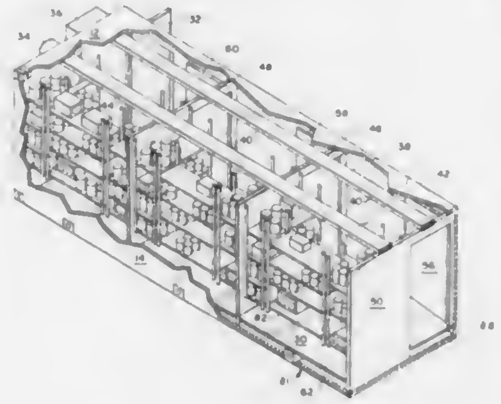


a surface of or near said hopper for supplying, to charges generated on the hopper due to the agitation of the coins caused by said agitating means, charges having a polarity reverse to that of the generated charges so as to neutralize and remove the generated charges.

5,785,591
MOBILE SAFETY STRUCTURE WITH SEPARATE COMPARTMENTS FOR CONTAINMENT AND HANDLING OF HAZARDOUS MATERIALS

Edward Payne, Fairfax, Va., assignor to The United States of America as represented by the Secretary of the Navy, Washington, D.C.

Filed Jan. 7, 1997, Ser. No. 813,266
Int. Cl.^{6} B65D *81/18*
U.S. Cl. 454—118 **20 Claims**



1. A mobile safety structure for storing containers of hazardous materials and providing for a containment of any spills and leaks of said hazardous materials from said containers, said mobile safety structure comprising:

a rectangular base assembly;

first and second side walls extending perpendicularly upward from said base assembly;

a rear wall extending perpendicularly upward from said base assembly;

a front wall extending perpendicularly upward from said base assembly, one of each of said side walls being secured to a separate one of the opposed ends of said front wall and the other end of each of said side walls being secured to a separate one of the opposed ends of said rear wall to form a rectangular shaped assembly of upstanding walls;

a rectangular shaped roof assembly mounted atop said rectangular shaped assembly of upstanding walls and extending horizontally over an interior portion that is defined between said front and rear walls and between said first and second side walls;

said front wall having at least one front door to allow access to the interior portion of said mobile safety structure;

one of said first and second side walls having a pair of side doors to allow access to the interior portion of said mobile safety structure, a first of said pair of side doors being located at a rear portion of said one of said first and second side walls and a second of said pair of side doors being located at a front portion of said one of said first and second side walls;

said base assembly including a substantially rectangular open secondary containment pan that is leakproof, said secondary containment pan receiving spillage and leakage of said hazardous materials from said containers that are housed within said mobile safety structure;

a plurality of interior walls extending perpendicularly upward from a base plate of said base assembly to said roof assembly to form a plurality of interior compartments within the interior portion of said mobile safety structure;

each of said plurality of interior walls having a door to allow access between adjacent compartments of said plurality of interior compartments;

each of said plurality of interior compartments having a plurality of secondary containment shelves for storing said containers of hazardous materials, said secondary containment shelves including a plurality of support rods suspended from said roof assembly above said secondary containment pan, said plurality of support rods providing support for said secondary containment shelves free of engagement with said side, rear and front walls and said plurality of interior walls so as to facilitate retention of said containers on said secondary containment shelves;

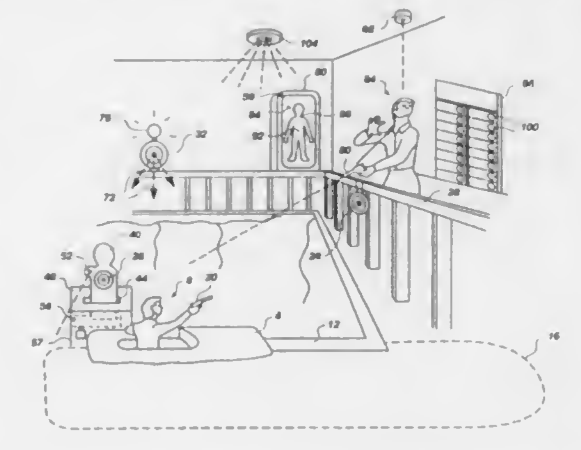
said plurality of interior walls partitioning said secondary containment pan into a plurality of sub-secondary containment pans, each of said plurality of sub-secondary containment pans being positioned below an associated one of said plurality of interior compartments to receive spillage and leakage of said hazardous materials from said containers that are housed within said mobile safety structure; and

a removable grating type floor supported by said base assembly and resting upon said base assembly, said removable grating type floor extending substantially horizontally atop each of said plurality of sub-secondary containment pans of said secondary containment pan.

5,785,592
INTERACTIVE TARGET GAME SYSTEM

Stephen C. Jacobsen, Salt Lake City, Utah, assignor to Sarcos, Inc., Salt Lake City, Utah

Filed Aug. 12, 1996, Ser. No. 695,788
Int. Cl.^{6} F41J *5/00;* **A63B** *67/00;* **A63F** *9/24*
U.S. Cl. 463—7 **72 Claims**



1. An interactive target game system for one or more players comprising

at least one target means for viewing by a player;

at least one designator means for holding by the player, for aiming at the at least one target means, and for operating to simulate shooting at the at least one target means;

electromagnetic beam producing means for producing an electromagnetic beam for exchange between the designator means and the at least one target means when the at least one designator means is accurately aimed at the at least one target means and operated;

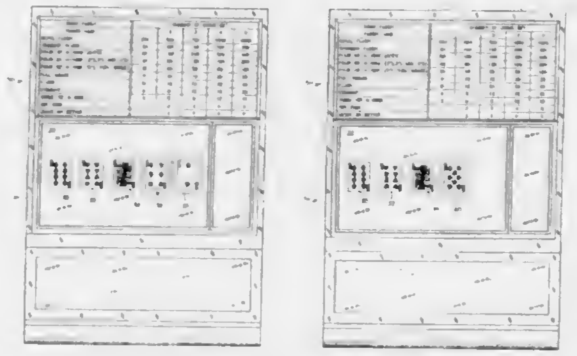
indicator means for producing an indication of a hit when the electromagnetic beam is exchanged between the at least one designator means and at least one target means; and

receptacle means for receiving and holding said at least one designator means, and for receiving and storing information transmitted by said at least one designator means.

5,785,593
METHOD OF PLAYING A POKER GAME

Michael W. Wood, and Terry L. Wilson, both of 11831 Wentling Ave., Suite #C, Baton Rouge, La. 70816

Filed Jul. 23, 1997, Ser. No. 899,078
Int. Cl.^{6} A63F *1/00*
U.S. Cl. 463—13 **16 Claims**



1. A method of playing a draw poker game comprising:

a) dealing a player an initial five card hand from a pool of playing cards;

b) if the initial five card hand includes a pair of cards having a numerical rank from Deuce through Ten and if two of the remaining cards add up in numerical rank to the same rank as the pair of cards, offering the player the opportunity to obtain a third card to form a three-of-a-kind by swapping the two of the remaining cards that add up in numerical rank to the pair of cards;

c) if the player accepts the swap offer, replacing the two swapped cards with a third card from the pool of cards to form a three-of-a-kind;

d) the player discarding one or more cards from the remaining cards of the initial hand;

e) dealing the player replacement cards from the pool of playing cards for the discarded cards, if any;

f) determining a value for the player's selected hand based on poker hand ranking; and

g) awarding the player a predetermined amount based on the value of the player's selected hand.

5,785,594
SPINNING WHEEL AMUSEMENT DEVICE

William E. Seibert, Jr., Beachwood, and Robert C. Betti, Upper Saddle River, both of N.J., assignors to H. Betti Industries, Inc., Carlstadt, N.J.

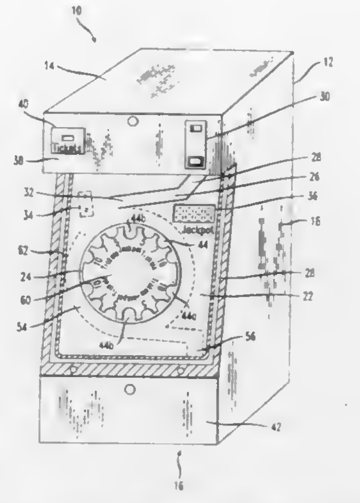
Filed Dec. 3, 1996, Ser. No. 759,972
Int. Cl.^{6} A63F *5/02;7/02*
U.S. Cl. 463—17 **25 Claims**

20. A spinning wheel amusement device, comprising:

a token guide for receiving tokens;

a spinning wheel having an external periphery configured to receive a token from said token guide, said spinning wheel having a plurality of openings spaced circumferentially around said periphery of said spinning wheel for receiving said token therein wherein said openings comprise semicircular receptacles having various sizes for receiving said token therein, wherein a predetermined award is allocated to each one of said openings; and

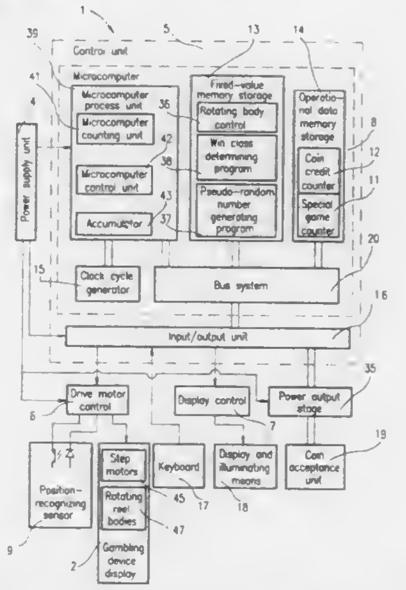
a calculator adapted to generate a corresponding allocated award when a token is sensed in one of said openings.



5,785,595
METHOD FOR THE DETERMINATION OF STOP POSITIONS OF ROTATING REEL BODIES OF A GAME DISPLAY DEVICE OF A GAMBLING MACHINE

Michael Gauselmann, Espelkamp, Germany, assignor to Atronic CASINO Technology Distribution GmbH, Espelkamp, Germany

Filed Sep. 21, 1995, Ser. No. 531,497
Claims priority, application Germany, Sep. 23, 1994, 44 34 129.6
Int. Cl.^{6} G07F *17/34*
U.S. Cl. 463—20 **16 Claims**



1. A method for determining stop positions of displayed rotating reels comprising the steps

initiating a game;

determining a pseudo-random number with a pseudo-random number generating means;

comparing the pseudo-random number with numbers in subsets of a set of numbers generatable by the pseudo-random number generating means;

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determining the subset associated with the pseudo-random number and a win class associated with the subset;

determining a symbol combination associated with the win class;

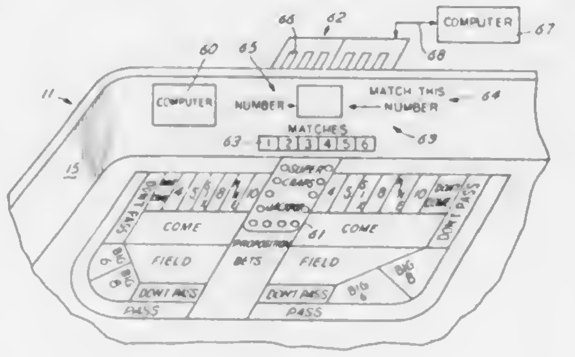
determining in the control unit if the symbol combination is displayable based on conditions imposed relating to a starting position of the displayed rotating reels and relating to the time period of rotation permissible for the displayed rotating reels;

rejecting a symbol combination which is not displayable, and repeating the above steps by and upon determining a next following pseudo-random number with the pseudo-random number generating means.

5,785,596

CRAPS LAYOUT ARRANGEMENT WITH JACKPOT WAGERING AREA AND MECHANICALLY GENERATED RANDOMIZED JACKPOT SEQUENCES

Marcus V. Hobert, 3318 Kenwood Ave., Davenport, Iowa 52807
Division of Ser. No. 389,537, Feb. 16, 1995, Pat. No. 5,490,670, which is a continuation-in-part of Ser. No. 305,178, Sep. 13, 1994, Pat. No. 5,487,547. This application Sep. 12, 1995, Ser. No. 527,274
Int. Cl.^{6} A63F *9/04*
U.S. Cl. 463—22 **4 Claims**



1. An amusement device including:

a pair of dice each having six faces bearing a visual representation of the numbers one through six, said dice being of a size for manually rolling to present one of eleven different numbers which define a plurality of point numbers, at least one natural number, and at least one craps number;

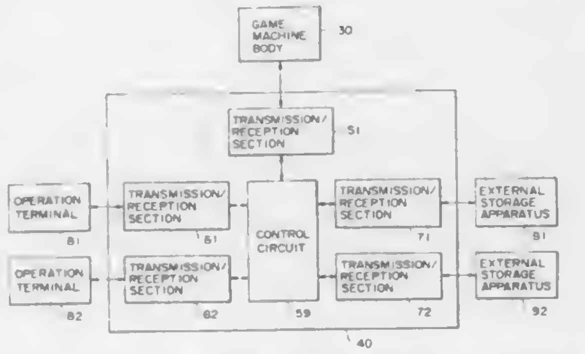
a gaming layout to provide a flat surface upon which said dice may be rolled and upon which bets may be laid by physical placement of wagers, said flat surface including indicia thereon representing a plurality of wager areas, said wager areas including:

(a) a pass line area for receiving a wager betting both
  (i) that one or more rolls of dice will yield an established first point number without rolling the number "7"; and
  (ii) that a natural number is rolled prior to establishing the first point number or prior to rolling a craps number;
(b) a don't pass area for receiving a wager betting both
  (i) that one or more rolls of the dice will yield the number "7" prior to the rolling of an established first point number; and
  (ii) that a craps number is rolled prior to establishing the first point number or prior to rolling a natural number;
(c) a jackpot area for receiving a wager that a set of a plurality of dice outcomes are rolled, said set having a remote probability of occurrence; and
(d) mechanical random generation means for randomly generating said set of plurality of dice outcomes.

5,785,597

GAME MACHINE AND REPEATER THEREFOR

Satoshi Shinohara, Kanagawa, Japan, assignor to Sony Corporation, Tokyo, Japan
Filed Jan. 5, 1996, Ser. No. 583,623
Claims priority, application Japan, Jan. 17, 1995, 7-022227
Int. Cl.^{6} G06F *13/14*
U.S. Cl. 463—43 **19 Claims**


GAME MACHINE BODY
30
TRANSMISSION/RECEPTION SECTION
51
OPERATION TERMINAL
81
TRANSMISSION/RECEPTION SECTION
61
CONTROL CIRCUIT
TRANSMISSION/RECEPTION SECTION
71
EXTERNAL STORAGE APPARATUS
91
OPERATION TERMINAL
82
TRANSMISSION/RECEPTION SECTION
62
59
TRANSMISSION/RECEPTION SECTION
72
EXTERNAL STORAGE APPARATUS
92
40

1. A repeater for a game machine including a plurality of operation terminals for controlling a game, a plurality of external storage devices for storing data associated with said game, and a video/audio output device generating a plurality of vertical synchronization pulses for displaying said game, said repeater comprising:

an operation terminal section for providing transmission/reception of said data to/from the operation terminals;

an external storage section for providing transmission/reception of said data to/from the external storage devices corresponding to the operation terminals;

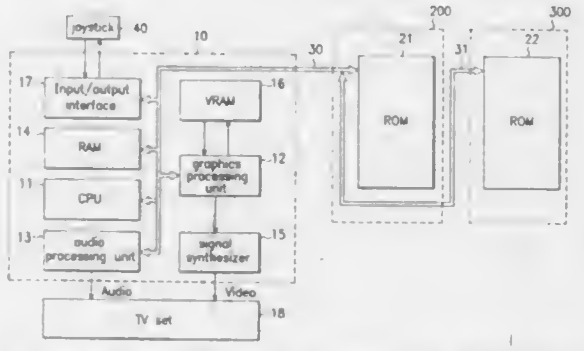
a game machine section for providing a serial transmission/reception of said data to/from said game machine; and

a control circuit for selectively providing communication for transferring said data between said game machine section and one of said operation terminal section and external storage section such that said data is selectively transferred between said game machine and one of said plurality of operation terminals and external storage devices, said data being transferred between said game machine and each of the operation terminals between two successive vertical synchronization pulses.

5,785,598

SOFTWARE CARTRIDGE BEING EXTENSIBLE WITH ADDITIONAL PROGRAMS AND/OR DATA AND THE METHOD OF FABRICATING THE SAME

Jerry Hsu, Yunlin Hsien, Taiwan, assignor to United Microelectronics Corporation, Hsinchu, Taiwan
Filed Jun. 18, 1996, Ser. No. 666,640
Int. Cl.^{6} A63F *9/00*
U.S. Cl. 463—44 **18 Claims**



1. A software cartridge being extensible with additional data and/or programs, which can connect to a game console, said software cartridge comprising:

at least one memory for storing game data and a control program to control the execution of a game;

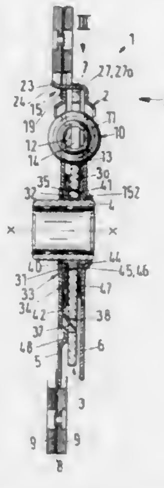
a first connector for connecting said software cartridge to the game console, so that the game console can retrieve the game data to execute the game by the control program;

a second connector for connecting said software cartridge with an add-on cartridge, wherein the add-on cartridge is stored with game data and/or programs supporting the game of said software cartridge, said software cartridge being able to identify and retrieve the game data and/or programs stored in the add-on cartridge under control of the control program, so as to execute the codes in the add-on cartridge.

5,785,599

COMPOSITE DAMPERS FOR TORSIONAL VIBRATION DAMPING APPARATUS

Wolfgang Reik, Bühl, Germany, assignor to LUK Lamellen und Kupplungsbau GmbH, Bühl, Germany
Filed Nov. 7, 1994, Ser. No. 335,577
Claims priority, application Germany, Nov. 5, 1993, 43 37 762.9
Int. Cl.^{6} F16D *3/14*
U.S. Cl. 464—68 **39 Claims**



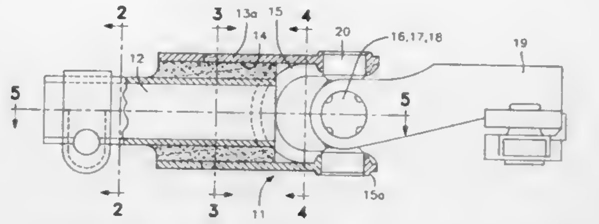
1. A torsional vibration damping apparatus comprising at least one damper including input and output components rotatable with and relative to each other about a common axis; and energy storing means interposed between and yieldably opposing rotation of said components relative to each other, at least one of said components including a plurality of substantially disc-shaped torque transmitting members of sheet material, at least one of said members being of one piece with projections extending in a general direction of said common axis toward another of said members and said at least one component further including means for self-lockingly coupling said at least one member with said other member in response to positioning of said members at a selected axial distance from each other, said coupling means comprising a first detent provided on at least one of said projections and a complementary second detent on said other member.

5,785,600

CARDAN JOINT FOR STEERING COLUMN MADE OF DIFFERENT CROSS-SECTIONAL SHAPED ELEMENTS

Melchor Daumal Castellon, Diputacion, 455, 08013 Barcelona, Spain
Filed Jun. 17, 1996, Ser. No. 665,356
Claims priority, application Spain, Jun. 16, 1995, 9501211
Int. Cl.^{6} F16D *3/52*
U.S. Cl. 464—89 **3 Claims**

1. A Cardan Joint comprising



a longitudinal tubular male element having one end received within one end of a longitudinal tubular female element in a coextensive region, the female element having an opposite end formed as a yoke with circular recesses for coupling to a universal joint,

a sleeve of shock absorbing material interposed between the tubular elements to reduce vibration,

the male and female elements each having different cross-sectionally distorted portions throughout the coextensive region for coupling of said one end of the male element in the female element in only a single position and for compensating for axial forces,

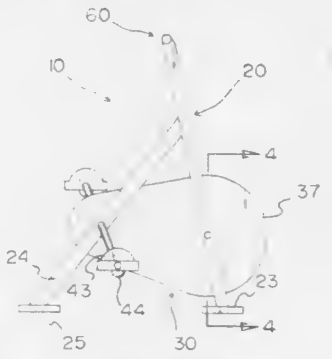
each of said male tubular element and said female tubular element include peripheral indentations adjacent the yoke, and

said male tubular element includes outwardly bent projections in the form of flanges together with said peripheral indentations providing a mechanical catch for rotation of said male tubular element together with said female tubular element and for ensuring axial retention of said male tubular element and said female tubular element against both forces of extraction of said male tubular element from said female tubular element and collapse of said male tubular element through said female tubular element.

5,785,601

TWO PERSON ROTATING AMUSEMENT APPARATUS

John T. Kubesheski, and Lenore C. Kubesheski, both of 229 N. Booth St., Dubuque, Iowa 52001
Filed Dec. 23, 1996, Ser. No. 770,271
Int. Cl.^{6} A36G *23/00*
U.S. Cl. 472—135 **13 Claims**



1. An amusement apparatus comprising:

a support frame;

handle bar means attached to the frame for grasping by the hands of a plurality of individuals;

a flywheel rotationally supported by the frame;

a drive sprocket rotationally supported by the frame and in driving connection with the flywheel;

a pedal means connected to the drive sprocket for rotationally driving the drive sprocket, said pedal means comprising crank arms attached to the drive sprocket and platforms secured to the ends of the crank arms;

each platform further including a pedal cover means placed over a pedal, each pedal sized to permit an individual to stand thereon with his or her two feet supported thereby; and

wherein each said pedal cover means comprises a pedal cover having a recess in a bottom surface thereof sized to receive

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the pedal therein, and a securement plate disposed over the recess and secured to the bottom surface of the pedal cover.

5,785,602
CUE PUTTER

Christopher J. Morabito, 79 S. Regent St., Port Chester, N.Y. 10573, assignor to Christopher J. Morabito, Cortlandt Manor, N.Y.

Filed Oct. 15, 1996, Ser. No. 729,877

Int. Cl.^{6} A63B *53/08;53/10*

U.S. Cl. 473—2 **1 Claim**

1. A golf putter used parallel to the putting green surface consisting of a wooden guide block, an elongated shaft, adjustable rubber "O" rings on the shaft, and a transparent clubface whereby:
the rubber adjustable "O" rings are slidable along the wooden club shaft to precisely indicate the amount of force necessary for each putt;
the wooden guide block is placeable on a green and has a hole substantially parallel to the ground in which the shaft can slide freely through and strike a ball; and
the transparent clubface can be viewed through and has a sight line on the face for aligning the putter.

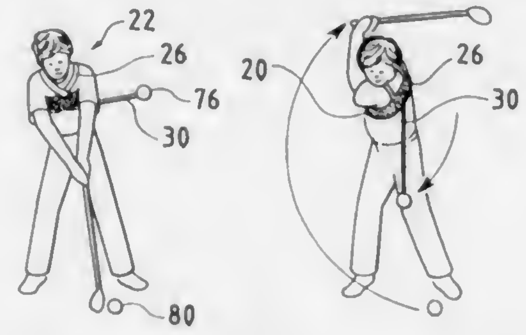
5,785,603
GOLF SWING TEACHING AID

Murney M. Lazier, 5140 Fair Elms, Western Springs, Ill. 60558

Filed Apr. 8, 1997, Ser. No. 826,839

Int. Cl.^{6} A63B *69/36*

U.S. Cl. 473—215 **18 Claims**



1. A golf swing teaching aid for a golfer, comprising, in combination:
a harness to be worn by the golfer having a back portion thereof that covers at least a portion of the golfer's back when the harness is worn by the golfer, including the mid-scapula portion of the golfer's back; and
an elongate, straight wand having a first end and a second end, said first end of said wand comprising means for removably attaching said first end of said wand to said back portion of said harness in a location covering said mid-scapula portion of the golfer's back and to the side of the center line of the back in a manner such that, when said first end of said wand is so attached to said back portion and said harness is worn by the golfer, said wand extends laterally outward from said back portion of said harness substantially to the side of the golfer and generally parallel to a plane containing said golfer's back;
whereby said second end of said wand comes into visual alignment with a golf ball positioned in front of the golfer when the golfer wears said harness with said wand attached thereto and executes a back swing for striking said golf ball in accordance with a desired golf swing form, thereby indicating that the proper amount of shoulder rotation has occurred for said back swing.

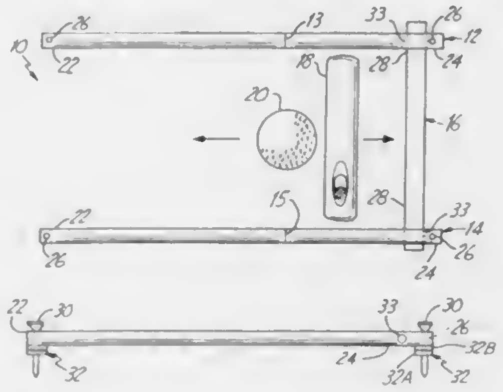
5,785,604
PUTTING GUIDE

Christopher J. Johnson, 19815 Gary St. NW., Elk River, Minn. 55330

Filed Jun. 20, 1997, Ser. No. 879,919

Int. Cl.^{6} A63B *69/36*

U.S. Cl. 473—265 **16 Claims**



1. A putter guide for guiding a putter blade during a putting stroke, comprising:
a first extruded flexible cellular polyethylene elongate member having a first end and a second end, the second end having an aperture extending into the second end;
a second extruded flexible cellular polyethylene elongate member having a first end and a second end, the second end having an aperture extending into the second end; and
a unitary extruded flexible cellular polyethylene cross-member having a first end and a second end, each end having an outer dimension sized to be frictionally fit into the apertures of the second ends of the first and second elongate members, the cross-member being slidable within the apertures in the second ends of the first and second elongate members to vary the distance between the second ends of the first and second elongate members.

5,785,605
HOLLOW, METALLIC GOLF CLUB HEAD WITH CONFIGURED MEDIAL RIDGE

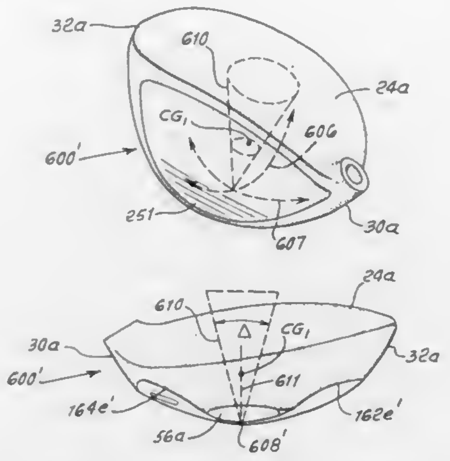
Richard C. Helmstetter, Carlsbad, Calif., assignor to Callaway Golf Company, Carlsbad, Calif.

Filed Jan. 11, 1996, Ser. No. 548,816

Int. Cl.^{6} A63B *53/04*

U.S. Cl. 473—291 **53 Claims**

18. A set of golf club heads, each golf club head comprising a shell having toe and heel portions, a front wall defining a forward facing ball-striking face, and top and bottom walls, said bottom wall characterized as having a medial ridge, and as forming two shallow recesses, one recess between the ridge and the toe portion, said recesses everywhere spaced rearwardly from said front wall, the improvement comprising said medial ridge having a lower surface defining a first shallow downward convexity in a first upright plane extending longitudinally forwardly and intersecting the ridge, said lower surface defining a second downward convexity in a second upright plane extending laterally in a toe-to-heel direction, said ridge having a lowermost local zone, said lowermost local zone located proximate an intersection of said first and second downward convexities, and the head having a center of gravity located in substantially vertical alignment with said local zone, wherein each recess has a downward facing surface, and is further characterized in that the rearwardmost extent of said downwardly facing surface is inclined forwardly and upwardly relative to the head forward swing path as the head bottom wall engages the turf, said rearwardmost extent of said downwardly facing surface being offset from said ridge first downward convexity.



5,785,606
METHOD OF PLAYING MULTIPLE HAND CARD GAME

Ruben L. Marquez, 5134 Pattijo Dr., Carmichael, Calif. 95608

Filed May 2, 1997, Ser. No. 850,522

Int. Cl.^{6} A63F *1/00*

U.S. Cl. 273—292 **6 Claims**

1. A method of playing a card game, comprising the steps of:
(a) providing at least one deck of playing cards;
(b) establishing numerical values for each card in said deck;
(c) dealing a plurality of cards to a player and a bank player, said player and said bank player being dealt the same number of cards;
(d) said player and said bank player each arranging the cards dealt thereto, respectively, into a first hand and a second hand, said first hand containing one less card than said second hand, each said hand having a numerical sum;
(e) said player and said bank player each arranging the cards in their respective hands to produce at least one hand having a numerical sum that is closest to, without going over, twenty-two;
(f) said player and said bank player each designating as a front hand that player's hand having a numerical value closest to twenty-two without exceeding twenty-two than that player's remaining hand and further designating as a back hand that player's remaining hand;
(g) subtracting ten points from the numerical value of said back hand in the event that the numerical value of said back hand exceeds twenty-two;
(h) comparing the numerical sum of said player's front hand with the numerical sum of said bank player's front hand, with the highest numerical sum not exceeding twenty-two winning said front hand; and
(i) comparing the numerical sum of said player's back hand with the numerical sum of said bank player's back hand, with the highest numerical sum not exceeding twenty-two winning said back hand.

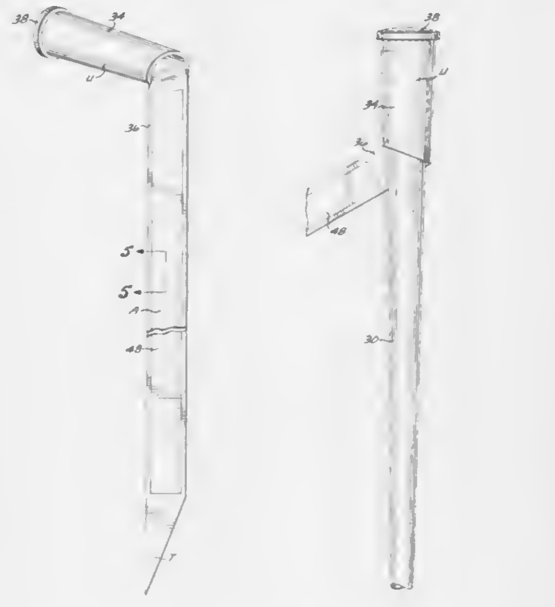
5,785,607
SPIRAL CUT SLEEVE-TYPE GOLF CLUB GRIP

Ben Huang, 19472 Woodlands La., Huntington Beach, Calif. 92648

Continuation-in-part of Ser. No. 637,931, Jan. 14, 1991, abandoned, Ser. No. 890,383, May 26, 1992, abandoned, Ser. No. 953,190, Sep. 29, 1992, Ser. No. 58,313, May 3, 1993, Ser. No. 542,009, Nov. 13, 1995, Pat. No. 5,645,501, Ser. No. 567,339, Dec. 28, 1995, abandoned, Ser. No. 595,445, Feb. 26, 1996, and Ser. No. 656,942, Jun. 14, 1996. This application Jul. 25, 1996, Ser. No. 687,244

Int. Cl.^{6} A63B *49/08*

U.S. Cl. 473—301 **12 Claims**



1. A golf club grip to be positioned upon and adhered to the grip-receiving portion of a golf club shaft, said grip comprising:
a resilient sleeve having a tubular butt portion and a spirally-cut main portion integral with and depending from the butt portion;
said butt portion being telescopically received by a: upper end of the golf club shaft and the main portion being spirally wrapped about the golf club shaft below the butt portion with the edges of such main portion being in tight abutment; and
an elongated strip that spirally encompasses the exterior of the sleeve with the edges of the strip being in tight abutment, the strip including a felt layer having an inner surface abutting the sleeve and a closed-pore polyurethane layer having its inner surface bonded to the outer surface of the felt layer remote from the sleeve.

5,785,608
PUTTER GOLF CLUB WITH REARWARDLY POSITIONED SHAFT

Clark E. Collins, 896 Sandalwood Place, Jensen Beach, Fla. 34857

Continuation-in-part of Ser. No. 692,453, Aug. 5, 1996, which is a continuation-in-part of Ser. No. 488,809, Jun. 9, 1995, Pat. No. 5,544,879. This application Oct. 24, 1996, Ser. No. 738,036

Int. Cl.^{6} A63B *53/04;53/12*

U.S. Cl. 473—313 **19 Claims**

1. A putter golf club comprising a head and a shaft which is inserted into said head.
said head having a front face having a height and a maximum width, a back edge, a top surface and a bottom surface,

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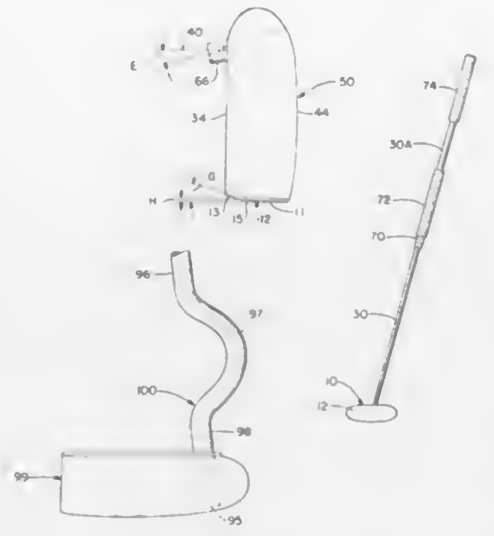


said head comprising a mallet shape and having a maximum length between said back edge and said front face, said maximum length being slightly less than said maximum width,

said shaft being positioned in a rearward position closer to the back edge than the front face and entering the head at a compound angle wherein the shaft is angled slightly toward the front face of the head and slightly toward the user of the putter,

said shaft having a longitudinal centerline, the portion of said centerline positioned within said head having a midpoint positioned equidistant from said top surface of said head and a shaft bottom surface positioned within said head, and

said midpoint being positioned a distance less than about 10% of the maximum width of said front face from a vertical plane extending through a center point of said front face.

5,785,609

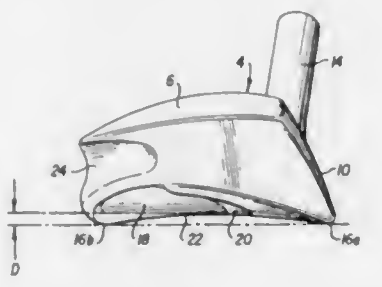
GOLF CLUB HEAD

Jeffrey D. Sheets, Wilbraham; Tom Greene, Monson, both of Mass., and Lee Trevino, Dallas, Tex., assignors to Lisco, Inc., Tampa, Fla.

Filed Jun. 9, 1997, Ser. No. 868,836

Int. Cl.^{6} A63B *53/04*

U.S. Cl. 473—327 **7 Claims**



1. A golf club head, comprising

a metal body including an upper surface, a lower surface, a front ball striking face, and a curved rear surface, said lower surface including a lateral projection extending downwardly therefrom between said face and said rear surface, said projection having a concave configuration, whereby said club head is prevented from becoming buried in the ground when striking a golf ball.

5,785,610

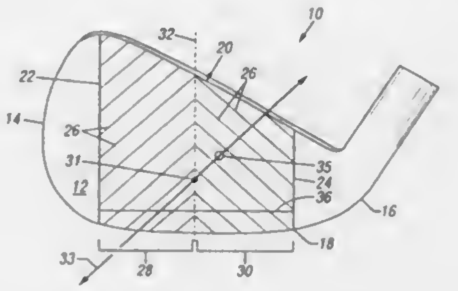
CLUBHEAD FOR GOLF CLUB

John Birmingham, Houston, Tex., assignor to Premier Golf, Inc., Houston, Tex.

Filed Nov. 21, 1995, Ser. No. 561,294

Int. Cl.^{6} A63B *53/04*

U.S. Cl. 473—331 **14 Claims**



1. A clubhead for a golf club, which comprises:

a toe portion;

a heel portion;

a sole portion; and

a face surface having a grooved area disposed between a first boundary adjacent said toe portion and a second boundary adjacent said heel portion, each boundary being oriented on either side of a center of a sweet spot, said grooved area being traversed by a first group of parallel grooves equidistantly spaced apart from each other and extending from said first boundary and at least a part of said sole portion in a generally upward direction from said sole portion, and being traversed by a second group of parallel equidistantly spaced apart grooves extending from said second boundary and at least a part of said sole portion in a generally upward direction from said sole portion, the grooves of the first group and second group aligned to intersect with each other at a vertical boundary that passes through the center of the sweet spot.

5,785,611

Patent Not Issued For This Number

5,785,612

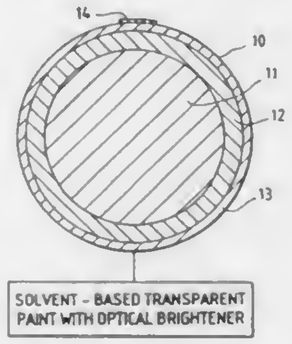
GOLF BALL

Neil A. Shapiro, Jackson; Marc E. Welch, and Dwaine Phillips, both of Humboldt, all of Tenn., assignors to Wilson Sporting Goods Co., Chicago, Ill.

Filed Apr. 16, 1996, Ser. No. 632,891

Int. Cl.^{6} A63B *37/14*

U.S. Cl. 473—377 **1 Claim**



1. A golf ball consisting of a core, a cover, and a single coat of solvent-based transparent paint in contact with the cover, the coat of paint being the outermost coat of the golf ball and including an optical brightener, and indicia on the single coat of paint, the indicia comprising UV cured ink, which is chemically bonded to the coat of paint, the indicia being free of any protective coating.

5,785,613

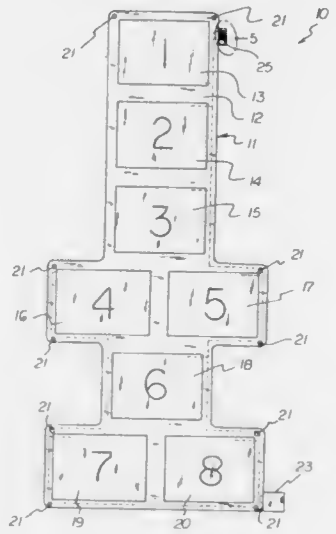
HOPSCOTCH GAME

Elizabeth Francis, 1138 E. 103rd St., Brooklyn, N.Y. 11236

Filed Apr. 9, 1996, Ser. No. 629,849

Int. Cl.^{6} A63B *67/00*

U.S. Cl. 473—414 **3 Claims**



1. A hopscotch game, comprising,

a playing board, the playing board having a top wall spaced from a bottom wall, and the top wall having a first end spaced from a second end and a continuous side wall, wherein a plurality of spaces project from the top wall, wherein the spaces are arranged in a coplanar relationship relative to one another and include a plurality of initial spaces arranged in a predetermined linear alignment extending from the first end along the top wall, a plurality of further spaces extend laterally of the initial spaces, the further spaces being medially bisected by the linear alignment of the initial spaces, with at least a yet further space positioned in linear alignment with the initial spaces and positioned on an opposed side of the further spaces,

a plurality of final spaces extending laterally of the initial and yet further spaces, the final spaces being medially bisected by the linear alignment of the initial and yet further spaces, and

illumination means positioned about a peripheral portion of the playing board to indicate an illuminated outline of the slaying board.

5,785,614

FULL BARREL BALL BAT WITH END CAP

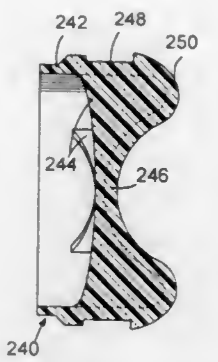
Jack W. MacKay, Jr., Mt. Pleasant, Tex., assignor to Hillerich & Bradsby Co., Louisville, Ky.

Division of Ser. No. 396,225, Feb. 28, 1995, abandoned, which is a continuation-in-part of Ser. No. 99,348, Jul. 30, 1993, Pat. No. 5,421,572, Ser. No. 105,924, Aug. 13, 1993, Pat. No. 5,393,055, and Ser. No. 358,549, Dec. 14, 1994, Pat. No. 5,494,280, which is a continuation-in-part of Ser. No. 99,348.

This application Mar. 3, 1997, Ser. No. 810,669

Int. Cl.^{6} A63B *59/06*

U.S. Cl. 473—566 **6 Claims**



1. A metal ball bat comprising a tubular barrel having a handle at one end and a full length hitting zone of substantially constant diameter at an apposite end, said hitting zone having a substantially constant external diameter and being substantially longitudinally straight and including continuous exterior and interior surfaces extending to the end of the bat barrel remote from said handle, and an end cap in an end of said bat barrel remote from the handle and including a short peripheral portion having an external diameter substantially equal to that of the internal surface of the bat barrel, the interior surface of said barrel including a circular internal groove and a circular internal rib, said end cap including a circular internal groove and a circular external ridge receiving said rib on the bat barrel and extending into the bat barrel, wherein said end cap includes an end wall, said end wall being convex on its inner surface and concave on its outer surface to orient the center of the weight of the end cap inwardly of the end of the bat barrel toward the handle portion thereof and adjacent an optimum hitting area of the bat barrel.

5,785,615

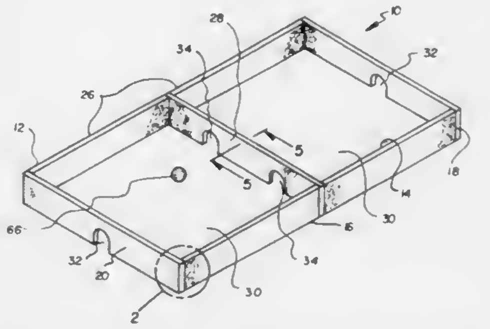
HOCKEY GAME APPARATUS

Richard L. Kosmalski, 601 Baldwin La., Wilmington, Del. 19803

Filed Mar. 24, 1997, Ser. No. 823,339

Int. Cl.^{6} A63B *67/00*

U.S. Cl. 473—471 **2 Claims**



1. A hockey game apparatus for playing a hockey game in an enclosed area comprising, in combination:

a playing surface defined by a rectangular enclosure, the rectangular enclosure having an open top end, an open bottom end and a peripheral boundary disposed therebetween, the peripheral boundary further defined by opposed elongated side walls and opposed shorter end walls removably secured together at ends thereof, each of the elongated side walls being further defined by a pair of segments of equal lengths, the rectangular enclosure having a central divider extending between the pair of segments of the opposed elongated side walls to divide the rectangular enclosure into two equally dimensioned playing zones, each of the opposed shorter end walls having an inverted U-shaped opening through a central portion thereof, the central divider having a pair of inverted U-shaped openings, the central divider having a recess formed in an upper edge thereof intermediately disposed between the pair of inverted U-shaped openings;

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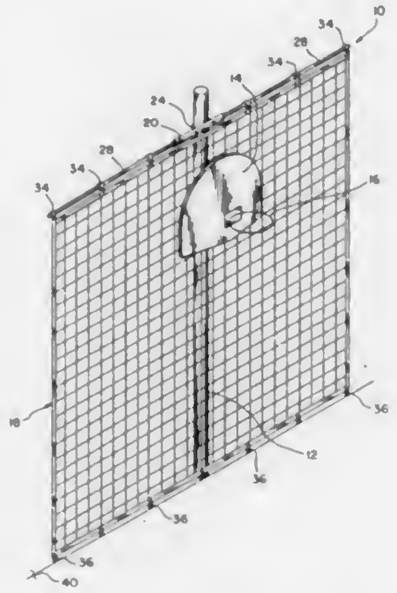
- a pair of adjustably sized hockey sticks, each of the hockey sticks having a linear upper portion, a generally L-shaped lower portion and a linear intermediate portion removably positioned therebetween, a lower end of the upper portion having a tab extending outwardly therefrom, the tab having an aperture therethrough, an upper end of the intermediate portion having a recess formed inwardly thereof for selectively receiving the tab therein, a locking screw extending inwardly of the recess from an upper surface of the intermediate portion to engage the aperture in the tab, a lower end of the intermediate portion having a tab extending outwardly therefrom, the tab having an aperture therethrough, an upper end of the lower portion having a recess formed inwardly thereof for receiving one of the tabs therein, a locking screw extending inwardly of the recess from an upper surface of the lower portion to engage the aperture in one of the tabs; and
- a ball dimensioned for being received through the inverted U-shaped openings of the rectangular enclosure.

5,785,616
BARRIER SYSTEM FOR A BASKETBALL GOAL

Richard C. Dodge, 10816 Brandy Oak Run, Fort Wayne, Ind. 46845

Filed May 10, 1995, Ser. No. 438,521
Int. Cl.^{6} A63B *63/08*
U.S. Cl. 473—479 12 Claims

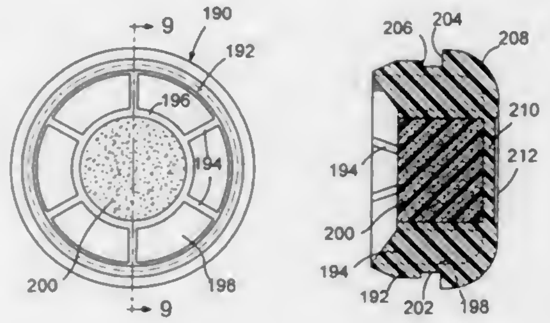


1. A barrier system for outdoor basketball systems having a ground mounted pole with an attached basketball backboard, said barrier system comprising:
- a horizontal pole separate from the backboard and detachably connected to the pole at a location above the backboard; and
- a net connected to the horizontal pole at a plurality of locations above the backboard, said net extending above and below the backboard, whereby areas behind the backboard are shielded from errant basketballs.

5,785,617
FULL BARREL BALL BAT WITH END CAP

Jack W. MacKay, Jr., Mt. Pleasant, Tex., assignor to Hillerich & Bradsby Co., Louisville, Ky.

Continuation of Ser. No. 396,225, Feb. 28, 1995, abandoned, which is a continuation-in-part of Ser. No. 99,348, Jul. 30, 1993, Pat. No. 5,421,572, Ser. No. 105,924, Aug. 13, 1993, Pat. No. 5,393,055, and Ser. No. 358,549, Dec. 14, 1994, Pat. No. 5,494,280. This application Mar. 3, 1997, Ser. No. 811,456
Int. Cl.^{6} A63B *59/06*
U.S. Cl. 473—566 11 Claims

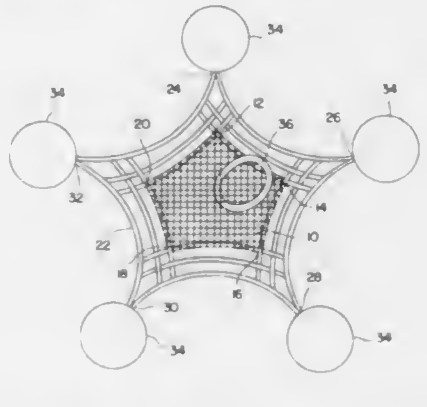


3. A metal ball bat comprising a generally tubular barrel having a handle at one end and a hitting zone at the other end, and an end cap in an end of said bat barrel remote from the handle and forming a closure for the end of the barrel remote from the handle, said end cap including an outer wall and an inner wall of cylindrical configuration, said inner wall defining a central cavity in the end cap, and hardenable material in said cavity forming a concentrated weight load at the end of the bat barrel, said inner wall of the end cap being concentrically spaced from the outer wall, and a plurality of radially extending, circumferentially spaced reinforcing ribs interconnecting the inner and outer walls.

5,785,618
WEBBING USED FOR A TOSSING GAME BETWEEN PLAYER

Thomas J. Coleman, 19170 Paddock Pl., Abingdon, Va. 24211; William K. Schlotter, IV, 117 Wateredge La., Fredericksburg, Va. 22406; Princess Ann Coleman, 19170 Paddock Pl., Abingdon, Va. 24211, and Ann M. Schlotter, 117 Wateredge La., Fredericksburg, Va. 22406

Filed May 22, 1997, Ser. No. 862,182
Int. Cl.^{6} A62B *67/00*
U.S. Cl. 473—576 6 Claims



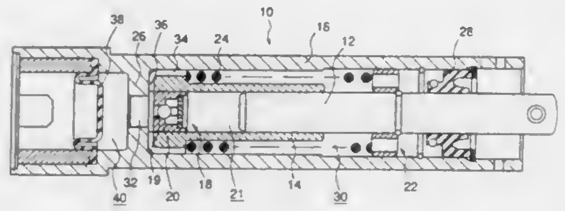
1. A web slinger device, which comprises, a netting material which extends from a central area to an outer netting area formed with a plurality of first corners,

- a plurality of flexible spaced cords (**22**) secured outwardly of said first corners and which form second corners outward of said first corners,
- weight means secured to each of said second corners, and
- a finger loop gripper is secured to an area of said netting by which said web slinger device can be thrown by a person.

5,785,619
HYDRAULIC TENSIONER

Katsuya Nakakubo, and Sumio Watanabe, both of Saitama-ken, Japan, assignors to Tsubakimoto Chain Co., Osaka-fu, Japan

Filed Apr. 26, 1996, Ser. No. 638,242
Claims priority, application Japan, Apr. 28, 1995, 7-127367
Int. Cl.^{6} F16H *7/08;7/22;7/12*
U.S. Cl. 474—109 6 Claims



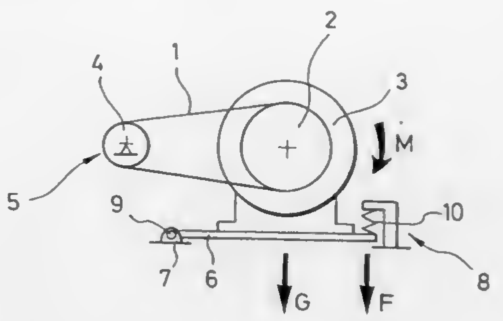
1. A hydraulic tensioner including a hollow cylinder having a cylindrical bore of uniform diameter through its length, a piston rod having an internal end slidably fitted in said cylindrical bore with a clearance therebetween so as to define within said cylinder a piston chamber for oil normally at a given pressure, sliding movement of said piston rod expanding and contracting said piston chamber, a housing containing said cylinder and defining therebetween a housing chamber for oil at a pressure below said given pressure extending around said cylinder and said piston rod, and a check valve provided in said bore beyond said internal end of the piston rod at a bottom portion of said cylinder for permitting flow of oil in a single direction from said housing chamber to said piston chamber when said piston chamber is expanded by sliding movement of said piston rod, characterized in that said check valve is structurally independent from said cylinder and has a ball seat with a cylindrical outer surface conforming to said uniform diameter of said bore and fitted in said bore at said bottom portion of said cylinder, and having an end disposed in abutment with said housing.

5,785,620
DRIVE ASSEMBLY

Wolfgang Beutel, Lage, and Julius Ewertowski, Enger, both of Germany, assignors to Boge Kompressoren Otto Boge GmbH & Co. KG, Bielefeld, Germany

PCT No. PCT/EP95/01443, § 371 Date Apr. 29, 1995, § 102(e) Date Apr. 29, 1995, PCT Pub. No. WO95/28570, PCT Pub. Date Oct. 26, 1995
PCT Filed Apr. 18, 1995, Ser. No. 571,904
Claims priority, application Germany, Apr. 18, 1994, 44 13 422.3
Int. Cl.^{6} F16H *7/12*
U.S. Cl. 474—132 15 Claims

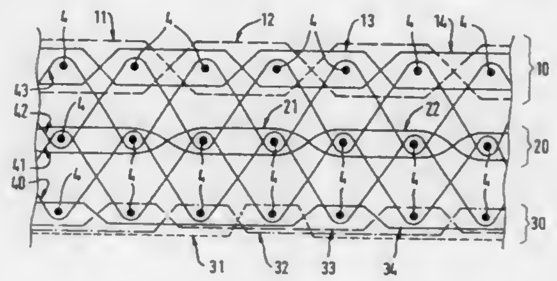
1. A drive assembly comprising an endless rotating drive element which runs over a driving gear of a motor and a driven gear of a machine, and a tensioning device for said drive element, wherein said motor is arranged on a support which is supported in a positionally variable manner on a frame that carries said machine, and which is pretensioned vertically downward by both the weight of said motor and a pretensioning force of a compression spring which acts substantially in parallel with the weight of said motor, said compression spring resting with one side on said frame and with its other side on a pressure plate which is connected to said support the position of said pressure plate being adjustable for pretensioning said compression spring and for adjusting said pretensioning force.



5,785,621
WOVEN BELT FOR A CORRUGATED CARDBOARD MACHINE

Armin Birzele, Ulm, Germany, assignor to Mühlen Sohn GmbH & Co., Blaustein, Germany

PCT No. PCT/EP94/03603, § 371 Date Mar. 3, 1997, § 102(e) Date Mar. 3, 1997, PCT Pub. No. WO96/07788, PCT Pub. Date Mar. 14, 1996
PCT Filed Nov. 2, 1994, Ser. No. 809,166
Claims priority, application Germany, Sep. 3, 1994, 9414344 U
Int. Cl.^{6} F16G *1/00*
U.S. Cl. 474—267 17 Claims



1. A woven belt for a corrugated cardboard machine, said woven belt comprising:
- a central woven layer for absorbing tensile stress, wherein said central woven layer is comprised of first warp threads and first weft threads, wherein a weave pattern of said central woven layer is such that said first warp threads cross at least two of said first weft threads on one side of said central woven layer before crossing over to the other side of said central woven layer;
- a woven top layer connected to the upper side of said central woven layer and a woven bottom layer connected to the bottom side of said central woven layer;
- said woven top layer providing a support surface for the cardboard;
- said woven top layer comprised of second warp threads and second weft threads, wherein a weave pattern of said woven top layer is such that said second warp threads cross at least two of said second weft threads on one side of said woven top layer before crossing over to the other side of said woven top layer;
- said woven bottom layer comprised of third warp threads and third weft threads, wherein a weave pattern of said woven bottom layer is such that said third warp threads cross one of said third weft threads on an inner side of said woven bottom layer facing said central woven layer before crossing over to the outer side of said woven bottom layer and wherein said third warp threads cross at least three of said third weft

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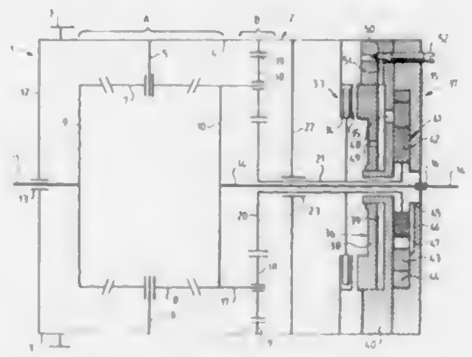
threads on the outer side of said woven bottom layer before crossing over to the inner side of said woven bottom layer;
said second warp threads arranged in first thread groups and said second warp threads within each one of said first thread groups staggered relative to one another;
said third warp threads arranged in second thread groups and said third warp threads within each one of said second thread groups staggered relative to one another;
first binding threads for weaving together said woven top layer and said central woven layer;
second binding threads for weaving together said woven bottom layer and said central woven layer;
said first, second, and third weft threads tied off within said woven top layer, said central woven layer, and said woven bottom layer, respectively;
said woven belt in a longitudinal direction thereof having longitudinal edge portions and a longitudinal center portion between said edge portions;
said second warp threads include at least one outer warp thread positioned within said edge portions and inner warp threads positioned within said center portion;
said at least one outer warp thread extending in a longitudinal direction of said woven belt and consisting of a material having at least one of a greater wear resistance and a greater temperature resistance than said inner warp threads.

5,785,622
DIFFERENTIAL GEAR

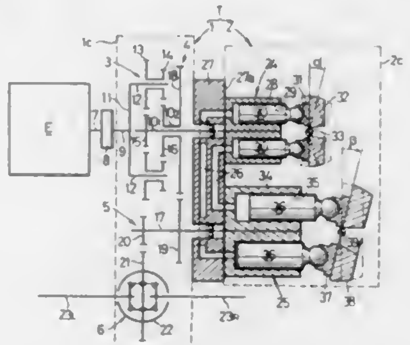
Forbes George de Brie Perry, Charlbury, Great Britain, assignor to Slim Borgudd, Coventry, Great Britain
PCT No. PCT/SE95/00101, § 371 Date Aug. 2, 1996, § 102(e) Date Aug. 2, 1996, PCT Pub. No. WO95/21342, PCT Pub. Date Aug. 10, 1995
PCT Filed Feb. 2, 1995, Ser. No. 687,405
Claims priority, application Sweden, Feb. 2, 1994, 9400336
Int. Cl.⁶ F16H *48/20*
U.S. Cl. 475—84 7 Claims



1. A differential gear comprising a differential gear housing driveable for rotation, a first output shaft operatively connected to a first gear element and a second output shaft operatively connected to a second gear element of a differential planet gear train disposed within the differential gear housing, said differential planet gear train having further gear elements attached to the differential gear housing, and a planet gear train disposed within the differential gear housing and having a ring gear attached to the differential gear housing, at least one planet wheel carried by said second gear element and being operatively connected to the ring gear and to a sun wheel operatively connected to the planet wheel, said sun wheel being connected to a hollow shaft having the second output shaft disposed therein, brake means being disposed between the differential gear housing and said hollow shaft for braking relative rotation between the differential gear housing and the hollow shaft and being operable in response to a difference in rotational speed between the first and the second output shaft, said brake means includes a brake mechanism and a fluid pump having a first member rotating with the hollow shaft and a second member rotatable relative to the first member, relative rotation between said first and second members depending on relative rotation between the hollow shaft and the housing, and an outlet of the pump being connected to flow restricting means including fixed orifice means and externally adjustable valve means for controlling output of the pump, said output controlling brake action of said brake means.

5,785,623
HYDRAULIC/MECHANICAL TRANSMISSION

Takashi Iino; Mikihiro Takano, and Akihito Okuda, all of Saitama, Japan, assignors to Honda Giken Kogyo Kabushiki Kaisha, Tokyo, Japan
Filed Aug. 28, 1995, Ser. No. 520,342
Claims priority, application Japan, Aug. 31, 1994, 6-206649
Int. Cl.⁶ F16H *3/72*
U.S. Cl. 475—72 6 Claims

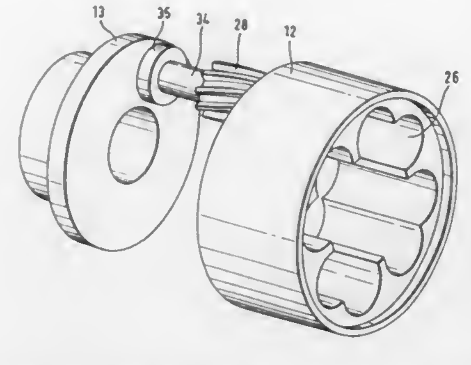


1. A hydraulic/mechanical transmission device, comprising;
a power dividing device including an input shaft and first and second output shafts for dividing a power supplied from a prime mover to said input shaft so as to transmit the power to both said output shafts;
a hydrostatic continuously variable transmission including a hydraulic pump driven by power delivered from said first output shaft, a hydraulic motor which is in communication with said hydraulic pump through a hydraulic closed circuit, and a control plate in which said hydraulic closed circuit is formed, at least one of said hydraulic pump and said hydraulic motor being of a variable displacement type;
a mechanical transmission device connected to said second output shaft; and
a power collecting shaft for collecting power delivered from said mechanical transmission device and said hydraulic motor to supply the power to a load, wherein
said input shaft and said first and second output shafts of said power dividing device are coaxially disposed, said first output shaft being coaxially connected to a pump cylinder block of said hydraulic pump, and said power collecting shaft being disposed parallel to said first and second output shafts and coaxially connected to a motor cylinder block of said hydraulic motor, and
wherein a differential is connected to said power collecting shaft, said differential being disposed parallel to said power collecting shaft such that one of left and right wheel driving shafts extending from said differential passes along an outer periphery of said continuously variable transmission.

5,785,624
DIFFERENTIAL DRIVE WITH SUPPORTING MEANS FOR DIFFERENTIAL GEARS

Nikolaus Mayr, Reischacherstrasse 2a, I-39031 Reischach/Bruneck, Italy
Filed Apr. 19, 1996, Ser. No. 634,819
Claims priority, application Italy, Jul. 21, 1995, MI95A1584
Int. Cl.⁶ F16H *48/06*
U.S. Cl. 475—252 14 Claims

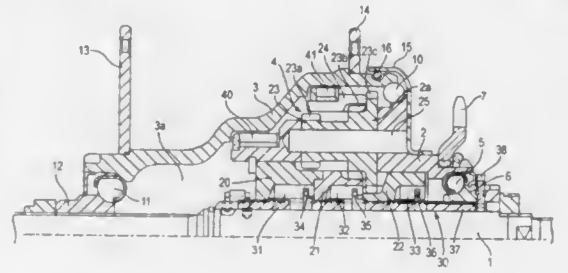
1. A differential drive with a differential carrier rotatably drivably supported in a differential housing, consisting of:



a carrier portion and two cover parts closing same at both ends, with two axle shaft gears which are coaxially rotatably supported in the differential carrier, which are received in coaxial bores in the carrier portion and are each connectable to an axle shaft, and with two sets of differential gears, which on their tooth heads, are slidingly received in axis-parallel recesses in the carrier portion which recesses intersect each other and the bores, with the teeth of the differential gears of each of the two sets engaging the teeth of one of the axle shaft gears and of at least one differential gear of the other set;
the axis-parallel recesses being designed to be axially continuous in the carrier portion and with the differential gears comprising toothed regions and spacing journals adjoining the latter, with the differential gears being axially supported on the cover parts by means of the spacing journals;
wherein the differential gears at one end of the toothed regions comprise spacing journals whose ends are provided with supporting discs whose greatest diameter corresponds to a major diameter of the toothed regions and that the differential gears at the other end of the toothed regions, comprise second spacing journals whose length approximately corresponds to that of the supporting discs with the supporting discs being slidingly supported inside the recesses in the carrier portion.

5,785,625
INTERNALLY MOUNTED BICYCLE TRANSMISSION USING ROLLER CLUTCHES

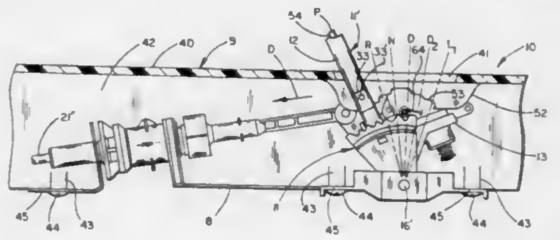
Nobuyuki Matsuo, and Hiroyuki Okochi, both of Shimonoseki, Japan, assignors to Shimano, Inc., Osaka, Japan
Filed Apr. 28, 1995, Ser. No. 430,835
Claims priority, application Japan, Apr. 28, 1994, 6-092456
Int. Cl.⁶ F16H *3/44*
U.S. Cl. 475—297 70 Claims



1. A bicycle transmission for transmitting a motive force comprising:
a shaft;
a driving part supported about the shaft for applying the motive force;
a driven part supported about the shaft for receiving the motive force from the driving part:
a planetary gear mechanism disposed between the driving part and the driven part for changing the transmission ratio of the motive force applied from the driving part to the driven part;
a first clutch comprising a roller disposed at an intermediate point along the transmission path between the driving part and the driven part for transmitting the motive force from the driving part to the driven part in one direction only;
a second clutch comprising a roller is disposed between the frame part and the driven part to transmit motive force to the driven part in the one direction
wherein the planetary gear mechanism comprises:
(i) a sun gear installed about the shaft;
(ii) an output gear for transmitting motive force to the driven part;
(iii) a frame part installed about the shaft and coupled to the driving part; and
(iv) a planetary gear rotatably coupled to the frame part and disposed between the sun gear and the output gear for engaging the sun gear and the output gear; and wherein the first clutch is disposed between the output gear and the driven part.

5,785,626
SHIFTER WITH CABLE ADJUSTABLE MECHANISM

Charles Osborn, Spring Lake; Robert M. Medema, Muskegon, and Andrew K. Ruiter, Spring Lake, all of Mich., assignors to Grand Haven Stamped Products Division of JSJ Corporation, Grand Haven, Mich.
Filed Mar. 5, 1997, Ser. No. 811,607
Int. Cl.⁶ F16H *59/02*
U.S. Cl. 477—99 39 Claims



1. A shifter assembly for shifting a vehicle transmission via a transmission shift cable, comprising:
a shift lever;
a support pivotally supporting the shift lever;
a cable-actuating arm movably attached to the shift lever and adapted for operative connection to the transmission shift cable;
a coupler for securing the cable-actuating arm to the shift lever in an adjusted position, the coupler being movable between an adjustment-permitting position where the cable-actuating arm can be adjusted, and an interlocked position where the cable-actuating arm is secured to the shift lever; and
an actuator on one of the support and the shift lever for engaging the coupler to move the coupler from the adjustment-permitting position to the interlocked position when the cable-actuating arm is at a desired position with respect to the shift lever.

5,785,627
TORQUE FEEDBACK SHIFT CONTROL DEVICE AND METHOD

Shigeo Uno, Tokyo; Masahiko Ibamoto, Ibaraki; Mitsuhiro Masuda, Ibaraki; Kazuhiko Sato, Ibaraki; Susumu Sato, Ibaraki; Hiroshi Kuroiwa, Ibaraki, and Mitsuyoshi Okada, Ibaraki, all of Japan, assignors to Hitachi, Ltd., and Hitachi Automotive Engineering Co., Ltd., both of Japan
Continuation of Ser. No. 388,578, Feb. 14, 1995, Pat. No. 5,613,920. This application Nov. 18, 1996, Ser. No. 752,181
Claims priority, application Japan, Feb. 14, 1994, 6-017255
Int. Cl.⁶ F16H *59/00*
U.S. Cl. 477—109 10 Claims

5. A torque feedback shift control device for use in a vehicle having an engine for generating an engine torque, an automatic

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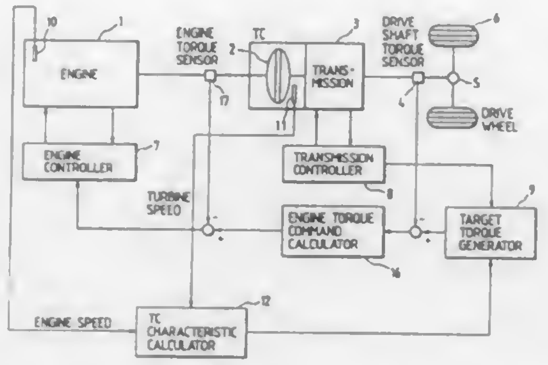


transmission for changing an output speed of said engine and for generating an output torque, and a transmission controller for controlling shifting of gears in said automatic transmission and for generating a shifting signal, said torque feedback shift control device comprising:

- an engine torque detector for detecting said output torque of said engine;
- a target torque generator for generating a signal of a target torque pattern for shifting of said automatic transmission, in response to a shifting signal from said transmission controller;
- an engine torque command value calculator for calculating an engine torque command value for controlling said engine in accordance with said target torque pattern; and
- an engine controller for performing feedback control of said engine torque so that said output torque of said engine approaches said torque command value in downshifting operation of said automatic transmission.

5,785,628

AUTOMATIC TRANSMISSION CONTROL SYSTEM

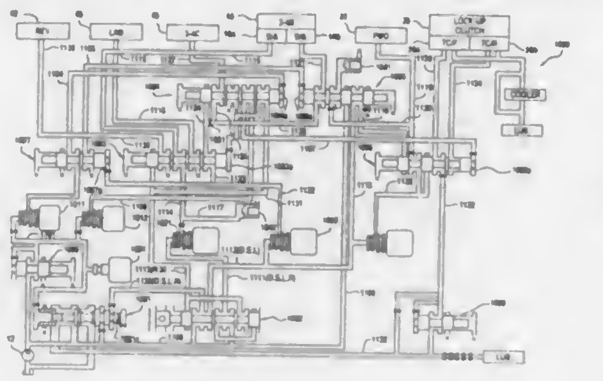
Shinya Kamada; Kenji Sawa; Hiroshi Shinozuka, all of Hiroshima; Tomoo Sawazaki, Higashihiroshima; Koichi Yamamoto, Hiroshima; Kazushi Kurokawa, Hiroshima; Takamichi Teraoka, Hiroshima; Masakazu Hombo, Hiroshima; Naotaka Hirami, Hiroshima; Yasunori Kanda, Higashihiroshima; Akinobu Aoki, Higashihiroshima; Tatsuhiko Iwasaki, Hiroshiman, and Takeyoshi Kawa, Hiroshima, all of Japan, assignors to Mazda Motor Corporation, Hiroshima-ken, Japan

Filed Jan. 30, 1996, Ser. No. 594,836

Claims priority, application Japan, Jan. 31, 1995, 7-036256; Mar. 7, 1995, 7-047267; Mar. 31, 1995, 7-100005; Dec. 29, 1995, 7-354276

Int. Cl.⁶ F16H *61/00*

U.S. Cl. 477—130 **25 Claims**



1. A hydraulic pressure control system for an automatic transmission of a type having a plurality of friction coupling elements which are selectively operated with operating pressure for placing the automatic transmission having first and second gears for a low speed gear range and at least third and fourth gears for a high speed gear range into desired gears, a specific one of said friction coupling elements being differed in operated condition between said high speed gear range and said low speed gear range, said hydraulic pressure control system comprising:

- operating pressure supply means for supplying operating pressure to said friction coupling elements;
- a first switching valve capable of switching over between two operative conditions of transmission of said operating pressure to one of said friction coupling element in said high speed gear range;
- a second switching valve capable of switching over between two operative conditions of transmission of said operating pressure to another one of said friction coupling elements in said low speed gear range;
- solenoid valve means for providing control pressure with which each of said first switching valve and said second switching valve is switched over from one of said operative conditions to another of said operative conditions; and
- pressure connecting means for selectively connecting and disconnecting alternatively transmission of said control pressure to said first switching valve and said second switching valve; respectively-according to and during a rise of said operating pressure to said specific friction coupling element.

5,785,629

PROCESS FOR CONTROLLING AN AUTOMATIC GEARBOX

Georg Gierer, Kressbronn, and Wolfgang Wiest, Biberach, both of Germany, assignors to ZF Friedrichshafen AG, Friedrichshafen, Germany

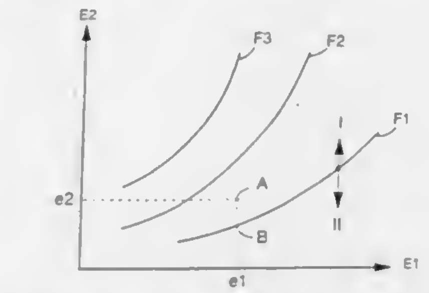
PCT No. PCT/EP95/01794, § 371 Date Nov. 15, 1996, § 102(e) Date Nov. 15, 1996, PCT Pub. No. WO95/32375, PCT Pub. Date Nov. 30, 1995

PCT Filed May 12, 1995, Ser. No. 737,462

Claims priority, application Germany, May 19, 1994, 44 17 477.2

Int. Cl.⁶ F16H *61/02*

U.S. Cl. 477—138 **3 Claims**



1. A process for controlling an automatic transmission with clutches in which an electronic control device maintains control wherein a shifting state and pressure curve being determined by electromagnetic adjusting members of said electronic control device, said electronic control device detecting, on a basis of presettable quantities, input by a driver, a speed-change demand for one of an upshift and a downshift thereby ensuring smooth shifts;

- wherein said electronic control device, on the basis of the speed-change demand, determines a changing mode, in which a first changing mode corresponds to an upshift by one gear, a second changing mode corresponds to a downshift by one gear and a third changing mode corresponds to a downshift by more than one gear;
- said electronic control device determines, from a parameter (E2) representative of a desired performance of the driver and one of a speed of an internal combustion machine and an output speed of said automatic transmission (E1), an existing operation point which is selected from several characteristic lines (F1, F2, F3), depending on the mode of changing, a first range above the selected characteristic line representing a pull range and a second range below the characteristic line representing a thrust range, the electronic control device selecting one of the first and second ranges from the position of the operation point and the pressure curve of the clutches, taking part in the speed change resulting in accordance with the pull or thrust calculation.

5,785,630

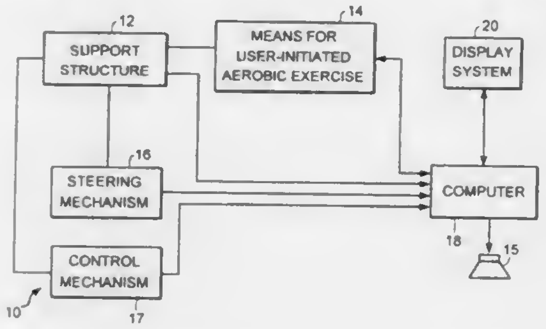
INTERACTIVE EXERCISE APPARATUS

Aaron F. Bobick, Newton; W. Thatcher Ulrich, Boston, both of Mass.; J. Bryan Lewis, Portland, Me.; Eliot Shepard, Boston, and Peter Lehman, Arlington, both of Mass., assignors to Tectrix Fitness Equipment, Inc., Irvine, Calif.

Continuation-in-part of Ser. No. 457,242, Jun. 1, 1995, Pat. No. 5,690,582, which is a continuation-in-part of Ser. No. 189,896, Feb. 1, 1994, Pat. No. 5,466,200, which is a continuation-in-part of Ser. No. 12,305, Feb. 2, 1993, abandoned. This application Nov. 6, 1996, Ser. No. 743,715

Int. Cl.⁶ A63B *21/00*

U.S. Cl. 482—4 **8 Claims**



1. A method for computerized networked exercising, comprising the steps of:

- (a) providing a first networkable exercise apparatus and a second networkable exercise apparatus, each comprising:
  - (i) an exercise mechanism which a user manipulates to achieve exercise;
  - (ii) a steering mechanism disposed proximate the exercise mechanism which the user manipulates to indicate direction of motion;
  - (iii) a control mechanism disposed proximate the exercise mechanism which the user manipulates to interact with virtual objects in a simulated environment;
  - (iv) a computer for generating the simulated environment and for monitoring user manipulation of the exercise, steering and control mechanisms to determine the user's position in the simulated environment and the user's interaction with virtual objects in the simulated environment, the computer including a network interface to allow communication over a communication channel, the computer being configured to enable the user to travel throughout the simulated environment by manipulating the exercise mechanism and the steering mechanism; and
  - (v) a display system coupled to the computer for providing a visual display of at least the user's position in the simulated environment;
- (b) associating, in the computer of the first networkable exercise apparatus, a time delay with a predetermined event which the first networkable exercise apparatus causes to occur in the simulated environment;
- (c) after the predetermined event occurs in the first networkable exercise apparatus, delaying the generation of the simulated environment for the associated time delay in the first apparatus' computer;
- (d) sending data from the first networkable exercise apparatus to the second networkable exercise apparatus via the network interfaces, the data including an indication that the predetermined event occurred in the first networkable exercise apparatus and a timestamp indicating when the predetermined event occurred;
- (e) processing, in the second apparatus' computer, the data received from the first apparatus to determine results of the predetermined event in the simulated environment; and
- (f) after the time delay associated with the predetermined event, displaying on the display system of each networkable exercise apparatus, the results of the predetermined event in the simulated environment.

5,785,631

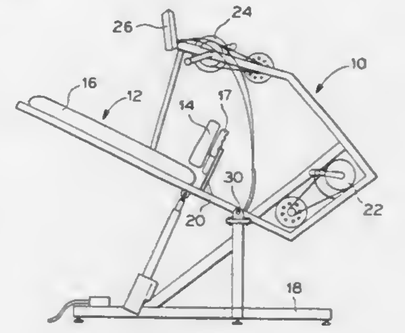
EXERCISE DEVICE

Steven Heidecke, Elmhurst, Ill., assignor to W.A.Y.S.S. Inc., Oak Brook, Ill.

Continuation-in-part of Ser. No. 298,129, Aug. 30, 1994, abandoned. This application Oct. 31, 1994, Ser. No. 332,333

Int. Cl.⁶ A63B *22/00*

U.S. Cl. 482—5 **21 Claims**



1. An exercise device comprising:

- a surface for supporting a body of a user;
- a frame for supporting said surface above a floor;
- means for changing an orientation of said surface relative to said floor during an exercise routine comprising a powered actuating device;
- means, engageable by said user and associated with said frame, for providing resistance to movement of said user;
- means for changing an amount of resistance provided by said means for providing resistance;
- means for displaying selected information relating to use of said device by said user;
- a computer control connected to operate said means for changing an orientation and an amount of resistance provided by said means for providing resistance;
  - said computer control having means for inputting and accepting instructions for operating said means for changing an orientation and an amount of resistance and means for storing said instructions;

whereby, said computer control is operable to change the orientation of said surface and for amount of resistance during an exercise routine.

5,785,632

FITNESS FEEDBACK SYSTEM FOR WEIGHT STACK MACHINES

Andrew D. Greenberg, and Keith E. Camhi, both of Stamford, Conn., assignors to Integrated Fitness Corporation, Stamford, Conn.

Division of Ser. No. 271,183, Jul. 7, 1994, Pat. No. 5,655,997. This application Mar. 7, 1997, Ser. No. 812,522

Int. Cl.⁶ A63B *21/005*

U.S. Cl. 482—5 **5 Claims**

1. An apparatus for providing feedback to a user of a weight stack machine having a stack of weight plates for lifting and a

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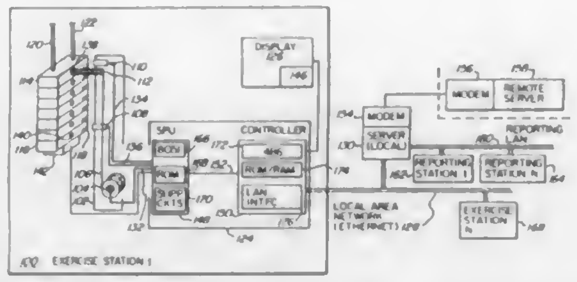
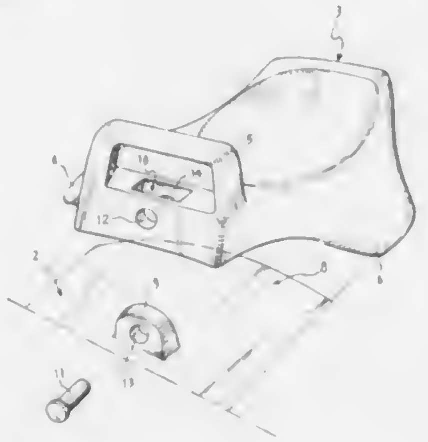


frame, said user lifting one or more of said plates from said stack during each of said lifts, said apparatus comprising:
- one or more load cells for determining the weight of said weight plates on said stack prior to said lift and for determining the weight of said weight plates remaining on said stack after said user has lifted said one or more plates during said lift;
- electronic detection means operatively coupled to said load cells for computing difference data describing the weight of said one or more weight plates lifted from said stack; and
- interface means for transmitting said data from said electronic detection means to a storage means.

5,785,633
PLAY APPARATUS WITH A BALL-LIKE BODY AND A SADDLE

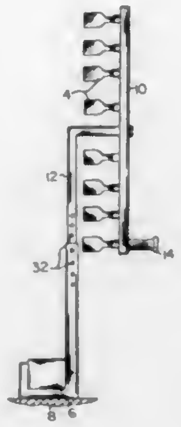
Finrindo Stroppiana, Gallo D'Alba, Italy, assignor to Mondo S.P.A., Gallo D'Alba, Italy
Filed Feb. 11, 1997, Ser. No. 799,393
Claims priority, application Italy, Nov. 27, 1996, TO96A0963
Int. Cl.⁶ A63B *26/00*
U.S. Cl. 482—77 **14 Claims**



1. A play apparatus comprising
- a ball member, and
- a saddle member attached to the ball member and astride which a user sits, the saddle member having a handle which the user grips and being attached to the ball member at an anchoring region of the saddle member, the anchoring region being in the vicinity of the handle.

5,785,634
WHEELED UPPER BODY EXERCISE DEVICE

Joseph S. Lavore, 6492 Sugar Tree Dr., Spring Hill, Fla. 34607
Filed Feb. 28, 1997, Ser. No. 808,874
Int. Cl.⁶ A63B *23/04*
U.S. Cl. 482—111 **14 Claims**

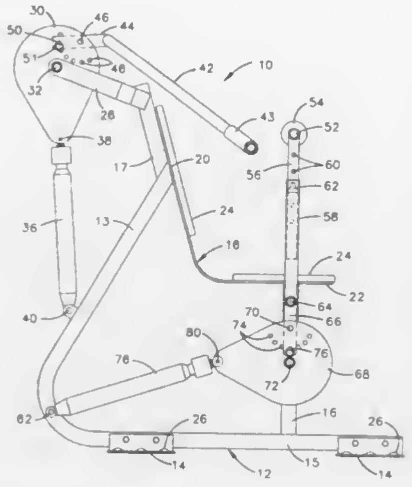


1. An exercise device for use under water to exercise muscles associated with an operator's upper extremities, said device comprising a wheel support member; a wheel having a central axis and opposite sides, said central axis of said wheel being connected to said wheel support member so that said wheel near the wheel's perimeter and coaxial with said central axis can move in both clockwise and counterclockwise directions; a plurality of paddles, each of said paddles being removably connected to said wheel; a first connection means to position each of said paddles into a variety of fixed orientations between a first position of maximum resistance and a second position rotated ninety degrees therefrom and creating minimum resistance during movement through water; a handle connected to the one of said opposite sides of said wheel adjacent to an operator; a second connection means to adjustably attach said handle to said wheel in different positions on said wheel relative to said central axis to provide an operator with differing amounts of upper extremity extension and motion during rotation of said wheel; and weighted means positioned against said wheel support member to anchor said wheel support member in place under water so that at least a portion of said paddles are positioned under water at any given time during use of said device and said device provides water resistance to muscles associated with the upper extremities of an operator when said operator is positioned adjacent to said wheel and uses a hand to grip said handle and while gripping said handle causes rotation of said wheel.

5,785,635
MULTIPLE FUNCTION EXERCISE APPARATUS

Kevin Gerschefske; Rick Byrd, both of Springfield, and William C. Brazeal, Mansfield, all of Mo., assignors to Stamina Products, Inc., Springfield, Mo.
Continuation of Ser. No. 150,469, Nov. 10, 1993, abandoned, which is a continuation-in-part of Ser. No. 14,495, Oct. 22, 1993, Pat. No. Des. 359,325, and a continuation-in-part of Ser. No. 145,202, Oct. 28, 1993, Pat. No. 5,419,751, which is a continuation-in-part of Ser. No. 5,544, Mar. 5, 1993, Pat. No. Des. 352,536. This application Jun. 21, 1995, Ser. No. 492,952
Int. Cl.⁶ A63B *21/04;21/008*
U.S. Cl. 482—133 **26 Claims**

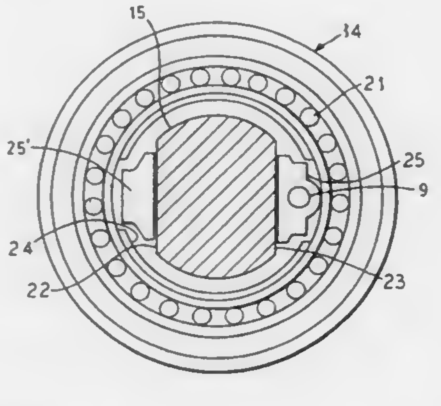
1. An exercise apparatus comprising.
- a frame;
- extendable resistance means coupled between said cam and said frame for applying a desired force against extension of said resistance means;
- a cam pivotally mounted with respect to said frame at a first location on said cam;
- a movable member, for engagement by the user while exercising, pivotally mounted to said cam at a second location on said cam; and
- means for releasably attaching said movable member with said cam in one of a plurality of fixed resting positions, whereby movement of said movable member from a fixed resting position causes said cam to pivot thereby actuating said resistance means;



- wherein said resistance means is operably connected with said cam to resist movement of said movable member in either direction from the resting position thereof.

5,785,636
COMPOSITE ROLL SHELL

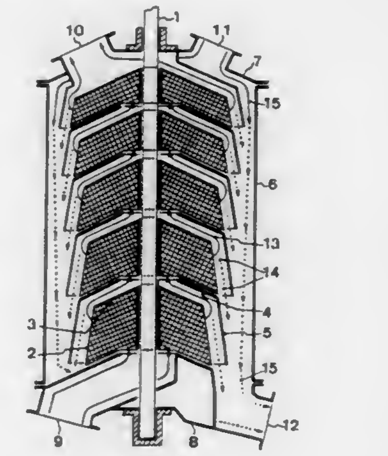
James Bonander, Clarks Summit, Pa.; Richard Russell Hergert, Rockton, Ill., and Gregory Lynn Wedel, Beloit, Wis., assignors to Beloit Technologies, Inc., Wilmington, Del.
Filed Oct. 12, 1995, Ser. No. 542,368
Int. Cl.⁶ B23P *15/00*
U.S. Cl. 492—7 **12 Claims**



1. A controlled deflection roll for forming a press nip with a mating roll, the controlled deflection roll comprising, in combination:
- an elongate tubular roll shell;
- an elongate support shaft extending longitudinally through the roll shell;
- and a fluid operated controllable load support means on the shaft and extending between the shaft and the shell for transmitting load forces from the shaft to the nip;
- said roll shell comprising a plurality of annular layers, with an outer layer comprising a composite of fibers embedded randomly in a matrix, the outer layer in supporting relationship opposite the nip, an inner layer comprising a composite of fibers embedded in a matrix, the inner layer having an inner surface comprising at least a matrix in contact with said load support means, and a layer intermediate the inner and outer layers, the intermediate layer comprising a composite of a matrix and embedded strengthening fibers.

5,785,637
CENTRIFUGE WITH SUCCESSIVE CENTRIFUGATION MODULES

Fernando A. Baptista, Rua Pádua Correia, 30, P-4400 Vila Nova de Gaia, and João M. Pereira Dias Baptista, Avenida Padre Sá Pereira, P-4740 Espozende, both of Portugal
PCT No. PCT/PT95/00005, § 371 Date Oct. 30, 1996, § 102(e) Date Oct. 30, 1996, PCT Pub. No. WO95/30487, PCT Pub. Date Nov. 16, 1995
PCT Filed May 4, 1995, Ser. No. 732,469
Claims priority, application Portugal, May 5, 1994, 101512
Int. Cl.⁶ B04B *5/12*
U.S. Cl. 494—27 **8 Claims**



1. A device for the centrifugation of a fluid comprising:
- an outer casing, having a fluid inlet, a fluid outlet and a rotatable shaft and a series of centrifugation modules along the rotatable shaft, each module comprising;
- a rotor having rotor blades attached to the rotatable shaft; the rotor having a top surface having an angle of inclination to the shaft;
- a campanula, the campanula axially spaced from the rotor and having a top surface having an angle of inclination to the shaft, the angle of inclination of the rotor top surface being substantially equal to the angle of inclination of the campanula top surface;
- each module being spaced from the outer casing.

5,785,638
MAILPIECE HANDLING APPARATUS

Mark S. Bristo, Harlow, and David J. Ricketts, Chelmsford, both of United Kingdom, assignors to Pitney Bowes Inc., Stamford, Conn.
Filed Sep. 11, 1995, Ser. No. 526,815
Claims priority, application United Kingdom, Sep. 12, 1994, 9418333
Int. Cl.⁶ B65H *45/14*
U.S. Cl. 493—420 **14 Claims**

1. A handling apparatus for laminar items comprising, a first electric actuator operatively connected to drive a first set of driveable components of the apparatus; and at least another electric actuator operatively connected to drive at least another set of driveable components of the apparatus, wherein:
- i) the first electric actuator is an AC device and the at least another electric actuator is a DC device; and

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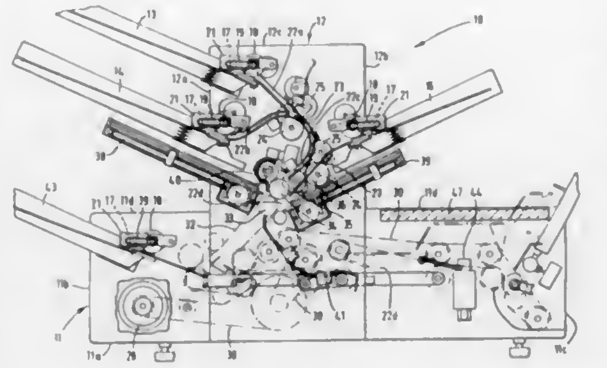


ii) arrestation and/or collation of laminar items in the apparatus occurs by virtue of the activation or deactivation of components additional to the first set of driveable components.

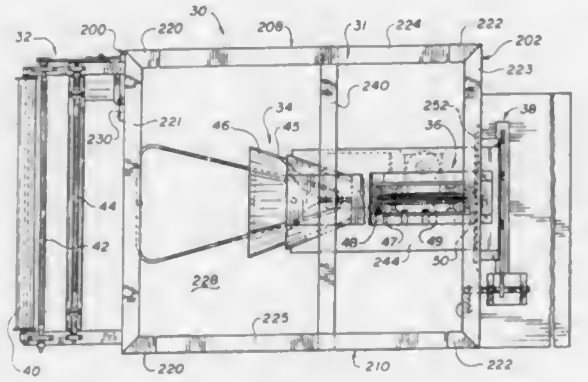
5,785,639
CUSHIONING CONVERSION MACHINE FOR MAKING A CUSHIONING PRODUCT HAVING A SHELL AND STUFFING FORMED FROM SEPARATE PLIES

James A. Simmons, Painesville Township, Ohio, assignor to Ranpak Corp., Concord Township, Ohio

Continuation of Ser. No. 482,649, Jun. 7, 1995, Pat. No. 5,643,167, which is a continuation-in-part of Ser. No. 221,624, Apr. 1, 1994. This application Jun. 7, 1995, Ser. No. 482,648 The portion of the term of this patent subsequent to Jun. 7, 2015, has been disclaimed.

Int. Cl.^{6} B31F *1/10*

U.S. Cl. 493—464 **21 Claims**



1. A cushioning conversion machine for converting multiple plies of stock material into a pillow-shaped cushioning product having a stuffing and a shell surrounding the stuffing, the machine comprising:

a frame;

conversion assemblies, mounted to the frame, which convert the stock material into the cushioning product;

a stock supply assembly, positioned upstream of the conversion assemblies, which supplies the multiple plies of stock material to the conversion assemblies, said multiple plies of stock material comprising at least one shell ply for forming the shell and at least one stuffing ply for forming the stuffing; and

a feed assembly, positioned downstream of the stock supply assembly, which advances the stock material through the conversion assemblies;

wherein the conversion assemblies include a stock-shaping assembly which includes a first shaping device which forms the shell from the at least one shell ply into the shell and a second shaping device which forms by crumpling the at least one stuffing ply into the stuffing separate from said at least one outer shell ply.

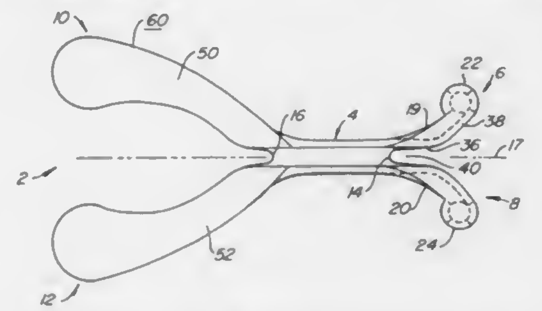
5,785,640
METHOD FOR TREATING FEMALE INCONTINENCE

Arnold J. Kresch, 780 Welch Rd., Suite 206, Palo Alto, Calif. 94304, and Tim J. Kovac, 33 Ashler Ave., Los Gatos, Calif. 95030

Filed May 23, 1996, Ser. No. 652,887

Int. Cl.^{6} A61F *2/00*

U.S. Cl. 600—29 **9 Claims**



1. A method for treating female incontinence comprising:

providing an elongate body having proximal and distal ends and a longitudinal axis therebetween and first and second anterior support members extending from the proximal end of the body;

collapsing the first and second anterior support members into a substantially longitudinal configuration in close proximity with each other;

inserting the anterior support members into the vagina of a patient;

allowing the anterior support members to move into an expanded position spaced apart from each other; and

positioning the first and second anterior support members on each side of the urethra to support the anterior vaginal tissue on either side of the bladder neck so that continence is preserved.

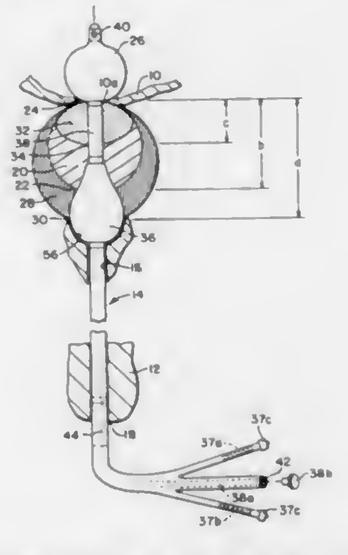
5,785,641
MALE INDWELLING URETHRAL CATHETER SIZING SYSTEM AND INSERTION METHOD

Richard C. Davis, Tampa, Fla., assignor to Urocath Corporation, Tampa, Fla.

Filed May 8, 1996, Ser. No. 646,925

Int. Cl.^{6} A61F *2/02*

U.S. Cl. 600—30 **13 Claims**



1. A method of determining a clinical length of an indwelling urethral catheter of a type for extending from a male's bladder to close to his penile meatus without extending outside his body, said method comprising the steps of:

determining the male's urethral segment length, from his bladder to a bulbous urethra immediately downstream of what remains of his prostate gland;

choosing an elongated urethral sizing catheter having a bladder expandable retainer at an upstream end thereof and a urethral expandable retainer spaced along the urethral sizing catheter in a downstream direction from the bladder expandable retainer an expandable-retainer spacing which corresponds to the patient's urethral segment length, said urethral sizing catheter having an overall length substantially greater than an overall length of the patient's urethral tract with graduation indicia thereon;

inserting the urethral sizing catheter into the patient's urethral tract and expanding the bladder expandable retainer in the patient's bladder and the urethral (anchoring cuff balloon) expandable retainer in the patient's bulbous urethra so that the urethral sizing catheter extends outside of the patient's penile meatus;

noting the position of the penile meatus on the urethral sizing catheter relative to the graduation indicia and thereby determining a desired length for an indwelling urethral catheter; and,

choosing an indwelling urethral catheter having a desired length and having an expandable-retainer spacing corresponding to the urethral segment length of the male and having a clinical length which is less than the length of the male's urinary tract.

5,785,642
METHODS FOR TREATING URINARY INCONTINENCE IN MAMMALS

George Wallace, Coto de Caza, Calif., and Richard J. Greff, St. Pete Beach, Fla., assignors to Micro Therapeutics, Inc., San Clemente, Calif.

Filed Oct. 18, 1996, Ser. No. 734,016

Int. Cl.^{6} A61F *2/02*

U.S. Cl. 600—30 **13 Claims**

11. A method for the delivery of a composition comprising a biocompatible polymer, a biocompatible solvent, and a water insoluble contrast agent to the periurethral tissue of the mammal which tissue already has deposited therein with an initial amount of this composition which method comprises

visualizing the position of the deposited composition in the periurethral tissue

delivering a composition comprising a biocompatible polymer, a biocompatible solvent, and a contrast agent to the periurethral tissue of the mammal containing said deposited composition

wherein said biocompatible polymer has an equilibrium water content of less than about 15% water

and further wherein said delivery is conducted under conditions such that additional coherent polymeric mass forms in situ in the periurethral tissue thereby further reducing urinary incontinence in the mammal.

5,785,643
LAPAROSCOPIC SCOPE MANIPULATOR

Jim Lynn, 109 W. Paseo de Cristobal, San Clemente, Calif. 92672, assignor to Jim Lynn, San Clemente, Calif.

Filed Jul. 26, 1995, Ser. No. 507,771

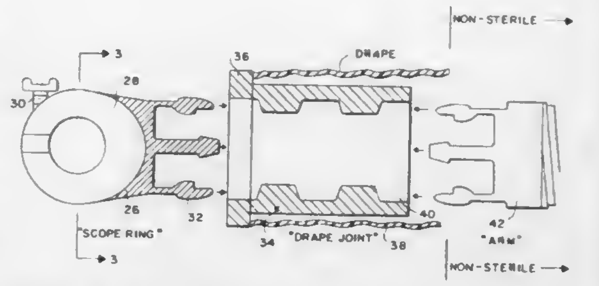
Int. Cl.^{6} A61B *1/00*

U.S. Cl. 600—125 **13 Claims**

1. A drape assembly for attaching a flexible arm to an instrument holder comprising:

a drape joint releasably attachable to the arm; and

a drape unitary to said drape joint;



wherein said drape assembly being discardable after use, and the flexible arm being attachable to the instrument holder only when the drape is present.

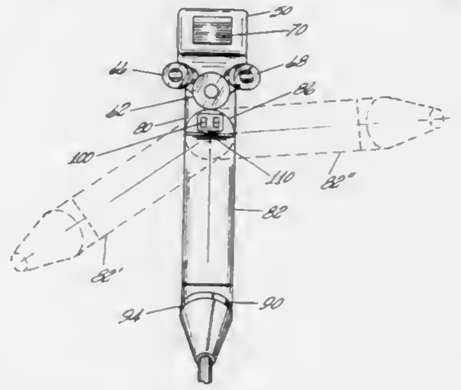
5,785,644
PIVOTAL HANDLE ASSEMBLY FOR A VIDEO OPERATING LAPAROSCOPE

Edward Grabover, Brookfield, Conn., and Frank D. D'Amelio, Los Olivos, Calif., assignors to Circon Corporation, Santa Barbara, Calif.

Filed Jul. 12, 1996, Ser. No. 683,040

Int. Cl.^{6} A61B *1/04;1/22*

U.S. Cl. 600—131 **36 Claims**



1. A pivotal handle assembly for an endoscope having a proximal end comprising:

a handle support having an opening extending therethrough for enclosing a light carrier and electrical conductors, said handle support being operatively connected to the proximal end of an endoscope;

a handle having an opening extending therethrough for enclosing a light carrier and electrical conductors, said handle support being including a mounting end; and

means operatively coupled to said handle support and said mounting end for pivotally attaching said handle to said handle support and for passing therethrough said light carrier and electrical conductors wherein said light carrier and said electrical conductors are enclosed by said handle support, said handle and said pivoting means.

5,785,645
BEVELED TIP ILLUMINATOR FOR MICROSURGERY

Gregg D. Scheller, Chesterfield, Mo., assignor to Synergetics, Inc., Chesterfield, Mo.

Filed Apr. 16, 1996, Ser. No. 633,031

Int. Cl.^{6} A61B *1/06*

U.S. Cl. 600—171 **18 Claims**

1. In a microsurgical illuminator dimensioned to be inserted through an incision in an eye to provide illumination to the eye interior, the illuminator comprising a handle having opposite proximal and distal ends and a bore with a center axis extending through the handle between its ends, an optic fiber passing through the

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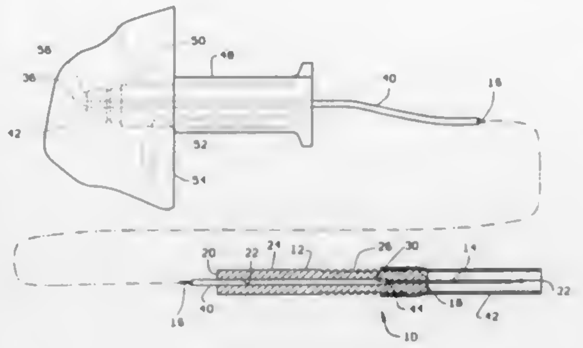
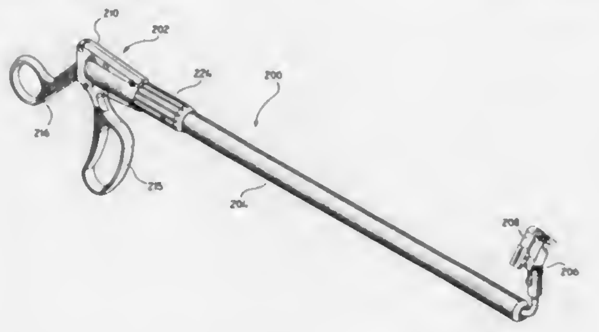


handle bore, the optic fiber having a portion that projects from the handle distal end and terminates at an end surface, an improvement comprising the portion of the optic fiber having a center axis that is parallel to the bore center axis and that intersects the end surface obliquely.

5,785,646

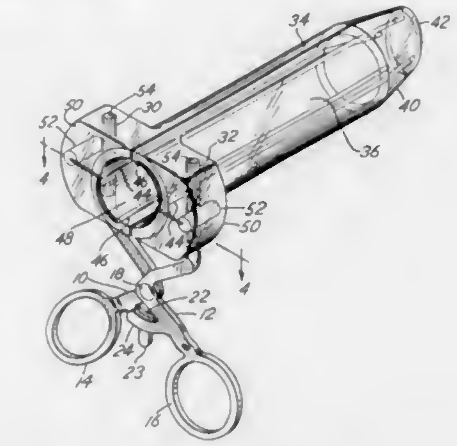
Patent Not Issued For This Number

5,785,647
SURGICAL INSTRUMENTS USEFUL FOR SPINAL SURGERY
Christine M. Tompkins, Fairfield; Peter W. J. Hinchliffe, New Haven; Scott W. Larsen, and Christopher McDonnell, both of Newtown, all of Conn., assignors to United States Surgical Corporation, Norwalk, Conn.
Filed Jul. 31, 1996, Ser. No. 690,689
Int. Cl.⁶ A61B *1/22*
U.S. Cl. 600—201 **42 Claims**



1. A surgical apparatus, which comprises:
a) an elongated portion defining a generally longitudinal axis and having proximal and distal end portions;
b) first and second retractor members disposed at the distal end of the elongated portion for engaging and spreading tissue, the retractor members adapted for relative movement between a first generally approximated position and a second generally open position, the retractor members being spring biased to the open position;
c) an articulating mechanism operatively connected to the retractor members, the articulating mechanism actuable to selectively articulate the retractor members; and
d) an actuator mechanism operatively connected to the retractor members, the actuator mechanism actuable to cause relative movement between the retractor members.

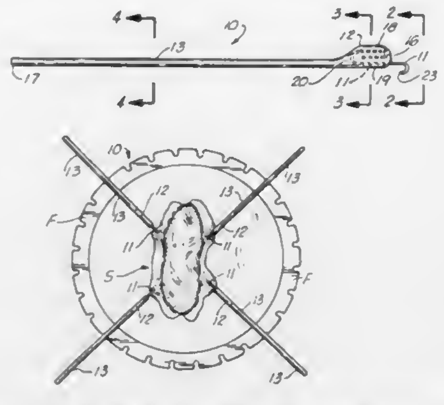
5,785,648
SPECULUM
David Min, Munster, Ind., assignor to David Min, M.D., Inc., Munster, Ind.
Filed Oct. 9, 1996, Ser. No. 728,084
Int. Cl.⁶ A61B *1/00*
U.S. Cl. 600—206 **13 Claims**



1. A speculum comprising, in combination:
a first scissors arm, including a manual gripping end and a support shaft end with a pivot connection intermediate the ends;
a second scissors arm, said second scissors arm including a manual gripping end aligned with the manual gripping end of the first arm, a support shaft end and a pivot connection intermediate the ends, said scissors arms pivotally attached at the pivot connection whereby as the gripping ends move together, the support shaft ends move apart and vice versa;
a first keyed support shaft extending from the support shaft end of the first arm;
a second keyed support shaft extending from the support shaft end of the second arm, said first and second shafts being generally parallel;
a first speculum member having a mounting end and an insertion end, said mounting end including a mounting bracket with a keyed bore for receipt of the first support shaft; and
a second speculum member having a mounting end and an insertion end, said mounting end including a mounting bracket with a keyed bore for receipt of the second support shaft whereby the speculum members are in opposed relation and spread when the gripping ends of the scissors arms approach each other, at least one of said keyed bores being shaped to receive one of said support shafts in more than one orientation.

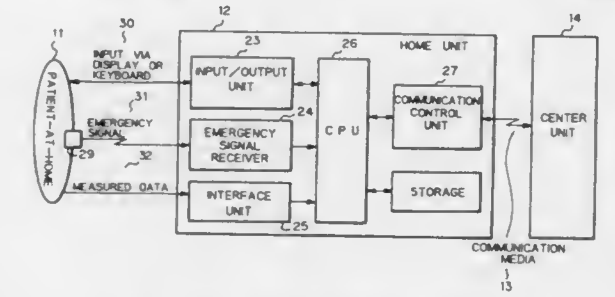
5,785,649
SURGICAL RETRACTOR STAY APPARATUS
James M. Fowler, Jr., Houston, Tex., assignor to Lone Star Medical Products,Inc., Houston, Tex.
Filed Mar. 31, 1997, Ser. No. 829,011
Int. Cl.⁶ A61B *17/02*
U.S. Cl. 600—233 **28 Claims**

1. A surgical stay apparatus comprising:
a) frame that conforms to a patient's body at a surgical site;
b) a one-piece stay that includes a handle body having proximal and distal ends;
c) a hook member having proximal and distal end portions, the proximal end portion being encapsulated by the handle body, the handle body being molded about a portion of to the hook proximal end portion;
d) the one-piece stay including an elastic member that extends integrally from the handle, the elastic member having an elongated portion that extends from the distal end of the handle body so that there no detatchable connection at the



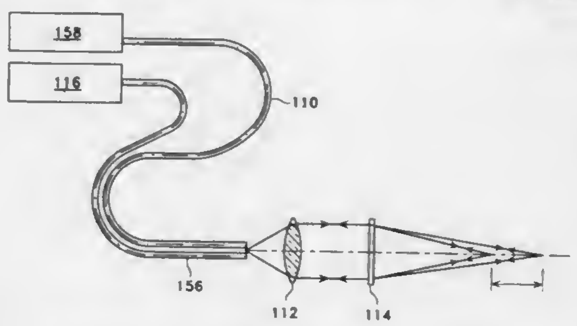
interface of the handle and elastic member, the elastic member including a proximal end that is connectable to the frame;
e) the hook member having an exposed curved hook portion extending from the distal end portion of the handle body; and
f) wherein the hook is of a configuration and the handle and elastic member of a material that enables the handle and elastic member to hold the hook without pull-out or disconnection during use.

5,785,650
MEDICAL SYSTEM FOR AT-HOME PATIENTS
Noboru Akasaka, 1-22-4-305, Nakaikegami, Ohta-ku, Tokyo, Japan; Masanori Kurosawa, 15-6,Nakagome 3-chome, Saku-shi, Nagano-ken, Japan, and Koji Akai, 1-20-20, Shichirigahama, Kamakura-shi, Kanagawa-ken, Japan
Filed Aug. 9, 1996, Ser. No. 694,689
Claims priority, application Japan, Aug. 9, 1995, 7-203369
Int. Cl.⁶ A61N *5/00*
U.S. Cl. 600—300 **12 Claims**



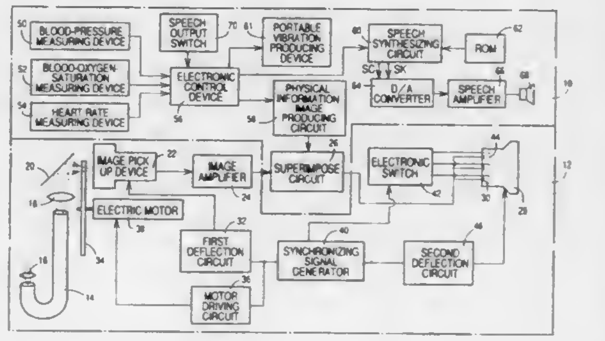
1. A medical system for at-home patients comprising:
a home unit which is located at a home of an at-home patient and which includes a computer with a communication capability;
a center unit which is located at a medical organization and which includes a computer with a communication capability;
a network interconnecting said home unit and said center unit;
medical data detection means for detecting a plurality of medical data from the at-home patient;
an interface unit, in said home unit, which corresponds to said medical data detection means;
home unit transmitting means, in said home unit, for transmitting the plurality of medical data, detected by said medical data detection means, to said center unit, via said interface unit;
center unit transmitting means, in said center unit, for transmitting to said home unit instructions based on the plurality of medical data transmitted by said home unit transmitting means; and
means, in said home unit, for detecting emergency condition information, separate from said medical data, of the patient and for transmitting to said center unit an emergency signal based on said emergency condition information, said emergency signal being separate from the medical data.

5,785,651
DISTANCE MEASURING CONFOCAL MICROSCOPE
William P. Kuhn, Tucson, Ariz., and Phillip C. Baker, Orinda, Calif., assignors to KeraVision, Inc., Fremont, Calif.
Filed Jun. 7, 1995, Ser. No. 484,204
Int. Cl.⁶ A61B *3/10;3/107*
U.S. Cl. 600—310 **12 Claims**



12. An apparatus for measuring the distance of a set of points on an object from said apparatus, said apparatus comprising:
polychromatic light source;
means for focusing light from said source onto said set of points, said means comprising a known amount of longitudinal chromatic aberration such that different wavelengths emitted from said polychromatic light source have different focal lengths in said object, wherein said means for focusing light further comprises a first fiber optic cable;
means for filtering the spectrum of light reflected from said set of points wherein said means for filtering further comprises a second fiber optic cable; and
means for measuring the spectrum of the light reflected from said object; and
a collimator lens wherein said first fiber optic cable and said second fiber optic cable are positioned slightly off-axis from said collimator lens.

5,785,652
PHYSICAL-INFORMATION ABNORMALITY INFORMING ENDOSCOPE
Tohru Oka, Ichinomiya, Japan, assignor to Colin Corporation, Komaki, Japan
Filed Sep. 13, 1996, Ser. No. 710,139
Int. Cl.⁶ A61B *5/00*
U.S. Cl. 600—342 **18 Claims**


BLOOD-PRESSURE MEASURING DEVICE
SPEECH OUTPUT SWITCH
PORTABLE VIBRATION PRODUCING DEVICE
SPEECH SYNTHESIZING CIRCUIT
ROM
BLOOD-OXYGEN SATURATION MEASURING DEVICE
ELECTRONIC CONTROL DEVICE
SC
SK
D/A CONVERTER
SPEECH AMPLIFIER
HEART RATE MEASURING DEVICE
PHYSICAL INFORMATION IMAGE PRODUCING CIRCUIT
IMAGE PICK UP DEVICE
IMAGE AMPLIFIER
SUPERIMPOSE CIRCUIT
ELECTRONIC SWITCH
ELECTRIC MOTOR
FIRST DEFLECTION CIRCUIT
SYNCHRONIZING SIGNAL GENERATOR
SECOND DEFLECTION CIRCUIT
MOTOR DRIVING CIRCUIT

1. An apparatus for informing an operator of an abnormality of a physical information obtained from a living subject, comprising:
an endoscope which is operable by the operator for carrying out an endoscopy on the subject;
a physical-information obtaining device which obtains said physical information from the subject under said endoscopy and outputs a physical-information signal representing the obtained physical information;
a signal converting device which converts said physical-information signal into an analog speech signal having a

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waveform representing a speech corresponding to said obtained physical information;

a speech-signal storing device which prestores a plurality of digital speech signals, wherein the signal converting device converts one of the digital speech signals which corresponds to said physical-information signal, into said analog speech signal having said waveform representing said speech corresponding to said obtained physical information;

a speech outputting device which outputs said speech represented by said analog speech signal;

judging means for judging whether said obtained physical information represented by said physical-information signal is abnormal; and

a frequency shifting device which shifts, when said judging means makes a positive judgment, frequencies of said speech output by said speech outputting device, so that the operator is informed of the abnormality of the physical information obtained from the subject.

5,785,653

SYSTEM AND METHOD FOR PREDICTING INTERNAL CONDITION OF LIVE BODY

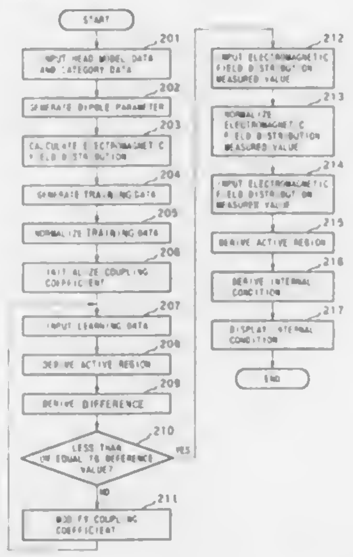
Tomoharu Kiyuna; Tetsuji Tanigawa, and Toshimasa Yamazaki, all of Tokyo, Japan, assignors to NEC Corporation, Tokyo, Japan

Filed Jul. 24, 1995, Ser. No. 506,202

Claims priority, application Japan, Jul. 22, 1994, 6-170979; Nov. 8, 1994, 6-273818

Int. Cl.^{6} A61B *5/00*

U.S. Cl. 600—408 **19 Claims**


START
201
INPUT HEAD MODEL DATA AND CATEGORY DATA
202
GENERATE DIPOLE PARAMETER
203
CALCULATE ELECTROMAGNETIC FIELD DISTRIBUTION
204
GENERATE TRAINING DATA
205
NORMALIZE TRAINING DATA
206
INITIALIZE COUPLING COEFFICIENT
207
INPUT LEARNING DATA
208
DERIVE ACTIVE REGION
209
DERIVE DIFFERENCE
210
LESS THAN OR EQUAL TO REFERENCE VALUE?
YES
NO
211
MODIFY COUPLING COEFFICIENT
212
INPUT ELECTROMAGNETIC FIELD DISTRIBUTION MEASURED VALUE
213
NORMALIZE ELECTROMAGNETIC FIELD DISTRIBUTION MEASURED VALUE
214
215
DERIVE ACTIVE REGION
216
DERIVE INTERNAL CONDITION
217
DISPLAY INTERNAL CONDITION
END

1. A system for expressing an internal condition of a live body which predicts the internal condition of the live body on the basis of an electromagnetic field distribution measured on a scalp of the live body, the system comprising:

electromagnetic field distribution measuring means for measuring electromagnetic field distribution caused on the scalp of the live body;

training data generating means for generating training data on the basis of an electromagnetic field distribution derived from head model data designating a head model, a predetermined dipole parameter, and internal condition category data describing a relationship between an active region of a brain of the live body and the internal condition of the live body, said brain being divided into a plurality of regions;

inferencing means for deriving a numeric value representative of the active region of the brain from the electromagnetic field distribution in the training data by employing a neural network comprising an input layer, an output layer and at least one hidden layer and having predetermined coupling coefficients representative of a coupling condition between each unit forming each layer; and

transforming means for transforming the numeric value representative of the active region in the brain into an expression indicating of the internal condition of the live body;

said training data generating means generating 1 or −1 for each of said plurality of regions of said brain, based on the existence of the dipole in the region, as a correct numeric value representative of the correct active region of the brain described in said training data

said inferencing means having a coupling coefficient modifying means for modifying said coupling coefficient of said neural network to reduce an error between (1) said correct numeric value representative of the correct active region of the brain described in said training data and (2) the numeric value derived by said neural network and indicative of the active region of the brain so that a numeric value indicative of the active region in the brain is derived by said neural network from the electromagnetic field distribution measured by said electromagnetic field distribution measuring means when said error becomes smaller than a predetermined reference value.

5,785,654

ULTRASOUND DIAGNOSTIC APPARATUS

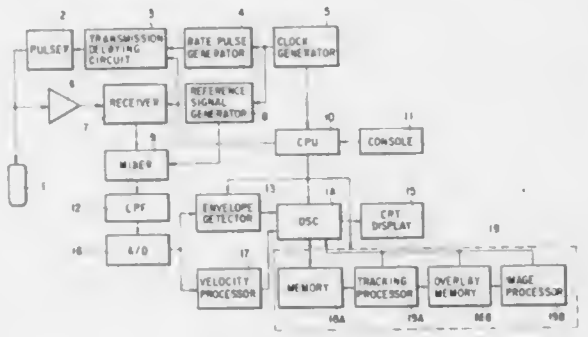
Kazuhiro Iinuma, Tochigi-ken; Tetsuya Kawagishi, and Yasuhiko Abe, both of Otawara, all of Japan, assignors to Kabushiki Kaisha Toshiba, Kawasaki, Japan

Filed Nov. 20, 1996, Ser. No. 752,525

Claims priority, application Japan, Nov. 21, 1995, 7-302902; Nov. 15, 1996, 8-304757

Int. Cl.^{6} A61B *8/00*

U.S. Cl. 600—441 **31 Claims**



1. An ultrasound diagnostic apparatus comprising:

means for repeatedly transmitting and receiving an ultrasound beam to and from an object of interest to repeatedly obtain an echo signal;

velocity calculating means for calculating a motion velocity for each time phase of a plurality of portions of said object on said ultrasound beam based on said echo signal;

tracking means based on said velocity for tracking a position of at least one specific portion of said plurality of portions as that position changes with the passage of time to obtain a path showing the movement over time of the position of said specific portion; and

display means for displaying said path or said position of the specific portion after movement.

5,785,655

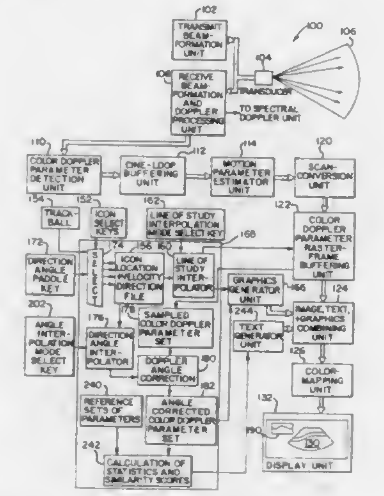
TWO-DIMENSIONAL ULTRASOUND DISPLAY SYSTEM

Leonard James Goodsell, Jr., Palo Alto; Janice L. Marshall, Sunnyvale; Ismayil M. Guracar, Redwood City; Matthew I. Haller, San Francisco, and Christopher R. Cole, Cupertino, all of Calif., assignors to Acuson Corporation, Mountain View, Calif.

Division of Ser. No. 620,283, Mar. 22, 1996, Pat. No. 5,724,974. This application Mar. 24, 1997, Ser. No. 822,064

Int. Cl.^{6} A61B *8/06*

U.S. Cl. 600—441 **72 Claims**


102
TRANSMIT BEAMFORMATION UNIT
100
106
104
108
RECEIVE BEAMFORMATION AND DOPPLER PROCESSING UNIT
TRANSDUCER
TO SPECTRAL DOPPLER UNIT
110
COLOR DOPPLER PARAMETER DETECTION UNIT
112
ONE-LOOP BUFFERING UNIT
114
MOTION PARAMETER ESTIMATOR UNIT
120
SCAN-CONVERSION UNIT
TRACK BALL
ICON SELECT KEYS
LINE OF STUDY INTERPOLATION MODE SELECT KEY
COLOR DOPPLER PARAMETER RASTER-FRAME BUFFERING UNIT
DIRECTION ANGLE PADDLE KEY
ICON LOCATION VELOCITY DIRECTION FILE
LINE OF STUDY INTERPOLATOR
GRAPHICS GENERATOR UNIT
SAMPLED COLOR DOPPLER PARAMETER SET
TEXT GENERATOR UNIT
IMAGE, TEXT, GRAPHICS COMBINING UNIT
ANGLE INTERPOLATION MODE SELECT KEY
DIRECTION ANGLE INTERPOLATOR
DOPPLER ANGLE CORRECTION
COLOR-MAPPING UNIT
240
REFERENCE SETS OF PARAMETERS
182
ANGLE CORRECTED COLOR DOPPLER PARAMETER SET
132
190
130
242
CALCULATION OF STATISTICS AND SIMILARITY SCORES
DISPLAY UNIT

1. A display method for use in an ultrasound system comprising the steps of:

defining a line of study on a two-dimensional ultrasound image;

displaying information related to said ultrasound image for at least three points on said line of study; and

displaying spectral information related to at least one of said at least three points, said display of spectral information comprising a graph of at least energy, velocity and variance of velocity information at each point along one dimension of the graph.

5,785,656

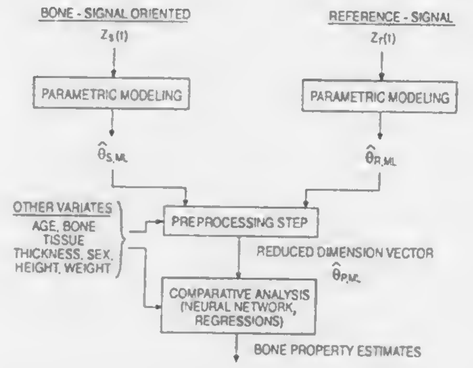
ULTRASONIC BONE ASSESSMENT METHOD AND APPARATUS

Alessandro Chiabrera, Genoa, Italy, and Jonathan J. Kaufman, Brooklyn, N.Y., assignors to OrthoLogic Corp., Tempe, Ariz.

Continuation-in-part of Ser. No. 602,410, Feb. 16, 1996, Pat. No. 5,651,363. This application Sep. 6, 1996, Ser. No. 711,336

Int. Cl.^{6} A61B *8/00*

U.S. Cl. 600—449 **40 Claims**



1. A method of non-invasive and quantitative assessment of the status of bone tissue in vivo for one or more of the quantities, bone-mineral density, bone strength, bone fracture risk, bone architecture and bone quality, comprising the steps of:

(a) acoustically coupling a pair of multi-element, array transducers to nearby skin on opposite sides of said bone tissue;

(b) generating an ultrasound signal and directing said ultrasound signal from an element of one array transducer of said pair of transducers to an element of another array transducer of said pair of transducers through said bone tissue thereby producing a bone oriented electrical output signal of the form $z_s(t)=p_s(t)+n_s(t)$, where $p_s(t)$ is said bone-oriented output signal per se and $n_s(t)$ is an additive, uncorrelated Gaussian measurement noise associated with said bone-oriented signal, said ultrasound signal being a finite-duration signal repeated substantially in a range from 1 to 1000 Hz and consisting of plural frequencies spaced in an ultrasonic spectral region up to about 2 MHz;

(c) independently directing said ultrasound signal from said element of said one array transducer to said element of said another array transducer through a medium with known acoustic properties and path length and free of said bone tissue, thereby producing a reference electrical output signal of the form of $z_r(t)=p_r(t)+n_r(t)$, where $p_r(t)$ is said reference output signal per se and $n_r(t)$ is an additive, uncorrelated Gaussian measurement noise associated with said reference signal;

(d) parametric modeling said bone-oriented signal and said reference signal, by obtaining two parametric models thereof, $p_s(t)$ and $p_r(t)$, respectively, to thereby establish a set Θ_s of bone-oriented parameters and a set Θ_r of reference parameters correspondingly associated with said models; and,

(e) subjecting said two sets of parameters to comparative analysis, whereby an estimate of said one or more quantities is obtained.

5,785,657

BLOOD FLOW MEASUREMENT DEVICE

Branko Breyer, and Bozidar Ferek-Petric, both of Zagres, Croatia, assignors to Pacesetter AB, Solna, Sweden

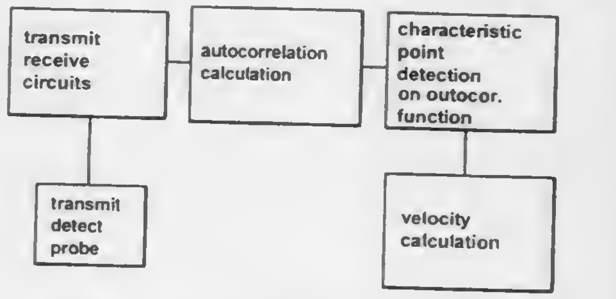
PCT No. PCT/EP95/00134, § 371 Date Nov. 4, 1996, § 102(e) Date Nov. 4, 1996, PCT Pub. No. WO95/19138, PCT Pub. Date Jul. 20, 1995

PCT Filed Jan. 13, 1995, Ser. No. 669,473

Claims priority, application Croatia, Jan. 14, 1994, P940025A

Int. Cl.^{6} A61B *8/06*

U.S. Cl. 600—454 **18 Claims**


transmit receive circuits
autocorrelation calculation
characteristic point detection on outocor. function
transmit detect probe
velocity calculation

1. A blood flow measurement device for measuring a flow perpendicular to a probe beam, comprising:

a catheter insertable into a blood vessel in the body of a subject, said catheter having a distal end and a proximal end and a length extending therebetween;

at least one detecting device means mounted onto said catheter at a position along said length without impeding insertion of the catheter into the blood vessel, for emitting a probe beam having a directivity characteristic which defines a sensitivity volume for detecting entities flowing through said sensitivity volume and for generating detection signals corresponding to detection of said entities;

electronic circuitry means for measuring and performing calculations on the signals generated by said detecting device means to obtain calculation data signals; and

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evaluation means responsive to said calculation data signals for determining a velocity of flow of said entities therefrom, said electronic circuitry means comprising means for performing time autocorrelation calculations and said evaluation means comprising means for detecting a signal characteristic in said calculation data signals for obtaining a characteristic delay time within an autocorrelation function and for dividing the sensitivity volume in a direction of said flow with said characteristic delay time for identifying a velocity component of the blood flow in said direction.

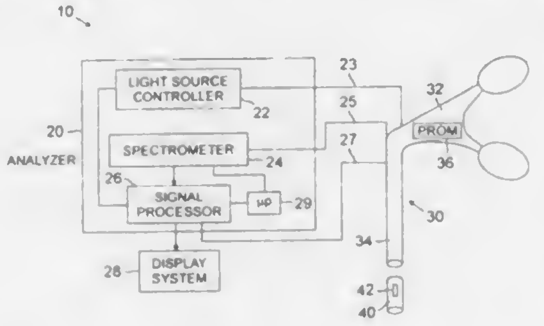
5,785,658
IN VIVO TISSUE ANALYSIS METHODS AND APPARATUS

David A. Benaron, Redwood City, Calif., and Daniel S. Goldberger, Boulder, Colo., assignors to Sexant Medical Corporation, Boulder, Colo.

Continuation of Ser. No. 437,327, May 9, 1995, which is a continuation-in-part of Ser. No. 944,516, Sep. 14, 1992, Pat. No. 5,460,182, and a continuation-in-part of Ser. No. 24,278, Feb. 26, 1993. This application Jun. 7, 1995, Ser. No. 473,004

Int. Cl.^{6} A61B *6/00*

U.S. Cl. 600—473 **43 Claims**



1. An analyzer for characterizing tissue in vivo comprising:

a source of electromagnetic radiation to emit electromagnetic radiation into a tissue to be characterized;

a spectrometer adapted to be optically coupled to said tissue to detect electromagnetic radiation, having a detection spectra output corresponding to at least one preselected wavelength of the detected radiation in response to at least a portion of said electromagnetic radiation having passed through the tissue to be characterized; and

a signal processor connected to the spectrometer output, having a library of known spectra records corresponding to a plurality of known tissue types, wherein said processor is operable to relate said detection spectra to said library to identify the detection spectra as corresponding to one of one of said plurality of known tissue types in said library and none of said plurality of known tissue types, and generate a first output signal characterizing the identified tissue type.

5,785,659
AUTOMATICALLY ACTIVATED BLOOD PRESSURE MEASUREMENT DEVICE

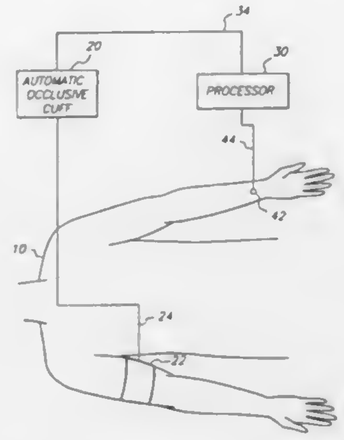
Richard G. Caro; Mark H. Sher, both of San Fracisco, and Bryan P. Flaherty, Half Moon Bay, all of Calif., assignors to Vital Insite, Inc., South San Francisco, Calif.

Continuation of Ser. No. 322,261, Oct. 13, 1994, abandoned, which is a continuation-in-part of Ser. No. 228,213, Apr. 15, 1994, Pat. No. 5,590,649. This application May 17, 1996, Ser. No. 651,201

Int. Cl.^{6} A61B *5/00*

U.S. Cl. 600—485 **36 Claims**

1. A monitor for indicating a change in a patient's blood pressure, comprising:



a first sensor adapted to be positioned on the patient and configured to generate a first signal representative of a physiological parameter of the patient;

a reference configured to provide a temporal reference signal;

a sphygmomanometer adapted to be attached to the patient; and

a processor coupled to said first sensor, said reference and said sphygmomanometer and configured to process said first signal and said reference signal and to generate a trigger signal indicating a change in the patient's blood pressure when said first signal and said reference signal meet predetermined temporal criteria, and to activate said sphygmomanometer in response to said trigger signal.

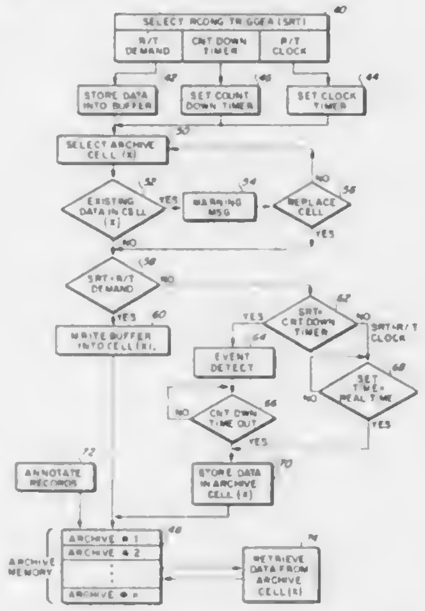
5,785,660
METHODS AND APPARATUS FOR STORING INTRACARDIAC ELECTROGRAMS

Paul van Lake, Scottsdale, Ariz., and David W. Adinnlfi, Valencia, Calif., assignors to Pacesetter, Inc., Sylmar, Calif.

Filed Mar. 28, 1996, Ser. No. 625,446

Int. Cl.^{6} A61N *1/362*

U.S. Cl. 600—523 **35 Claims**



1. An implantable cardiac device for measuring a plurality of intracardiac electrogram segments, generating a plurality of user selectable cardiac data records each of which contains an intracardiac electrogram segment, and receiving telemetric commands from a programmer, the implantable cardiac device comprising:

a memory containing a plurality of archive cells;

a control unit;

sensing circuitry, connected to the control unit, for measuring the plurality of intracardiac electrogram segments; and

receiving circuitry for receiving a plurality of storage commands from the programmer, wherein:

the control unit stores user selectable cardiac data records, each of which contains a respective one of the plurality of intracardiac electrogram segments in respective ones of the plurality of archive cells in response to respective storage commands;

the control unit further comprising selecting circuitry for providing user selection of a specific one of the archive cells into which a given one of the cardiac data records is stored;

a predetermined cardiac event detector for initiating a delay time countdown following detection of the predetermined cardiac event; wherein:

the memory contains a first additional archive cell;

when the delay time countdown is finished the sensing circuitry measures a first additional intracardiac electrogram segment; and

the control unit stores a first additional cardiac data record containing the first additional intracardiac electrogram segment in the first additional archive cell.

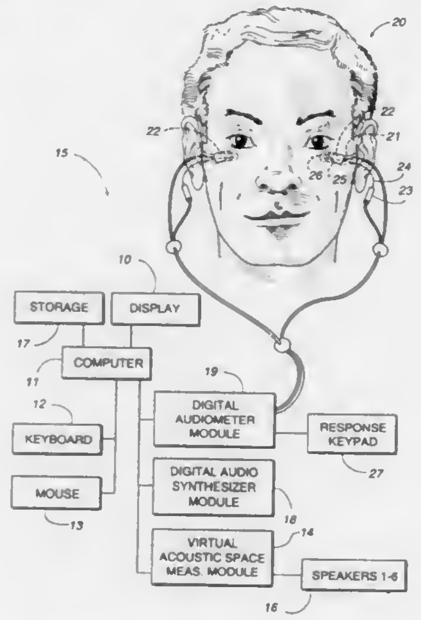
5,785,661
HIGHLY CONFIGURABLE HEARING AID

Adnan Shennib, Fremont, Calif., assignor to Decibel Instruments, Inc., Fremont, Calif.

Filed Aug. 17, 1994, Ser. No. 292,072

Int. Cl.^{6} A61B *10/00*

U.S. Cl. 600—559 **49 Claims**



1. A hearing aid system, comprising:

a hearing aid having specifications based on an individual's hearing profile, and on subjective response_and in situ measured response to individualized signal models that are spatialized according to spatialization parameters and according to an individual's transfer functions.

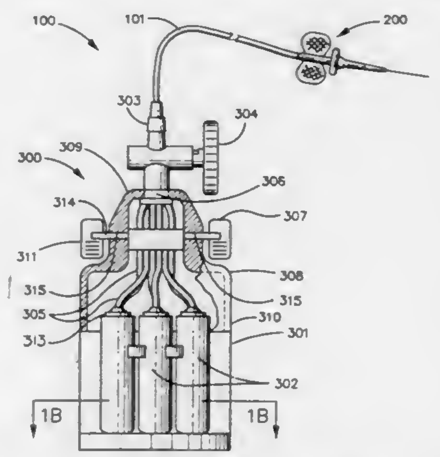
5,785,662
BLOOD COLLECTION ASSEMBLY WITH PLURALITY OF VIALS

Gary E. Alexander, Baton Rouge, La., assignor to Medisys Technologies, Inc., Baton Rouge, La.

Filed May 30, 1996, Ser. No. 656,848

Int. Cl.^{6} A61B *5/00*

U.S. Cl. 600—575 **15 Claims**



1. A blood collection vial assembly comprising:

(1) a main coupling for connecting said vial assembly to a connection tube;

(2) a storage valve means for sealing off said vial assembly;

(3) a vial holder having a plurality of vials, each said vial being fluidly connected lo a pliable vial supply tube;

(4) a manifold fluidly connecting said main coupling and said vial supply tubes;

(5) a housing having a top section and a bottom section, said top section being fixably attached to said manifold, said bottom section being detachably connected to said vial holder; and

(6) a vial supply tube shutoff for sealing off said vial supply tubes, said vial supply tube shutoff comprising:

(i) a shaft extending through said housing, said shaft being substantially perpendicular to a portion of said vial supply tubes, said portion of said vial supply tubes being aligned in a plane immediately adjacent to said shaft;

(ii) two shaft apertures in said housing, said shaft apertures being sized so as to rotatably hold said shaft;

(iii) a cam disposed in said housing and fixably attached to said shaft, said cam being adapted so that as said shaft is rotated said cam will close off said vial supply tubes; and

(iv) at least one handle disposed outside of said housing and fixably attached to said shaft.

5,785,663
METHOD AND DEVICE FOR MECHANICAL IMAGING OF PROSTATE

Armen Paruir Sarvazyan, East Brunswick, N.J., assignor to Artann Corporation, Lambertville, N.J.

Continuation-in-part of Ser. No. 994,109, Dec. 21, 1992, Pat. No. 5,524,636. This application Feb. 27, 1996, Ser. No. 607,645

Int. Cl.^{6} A61B *8/00*

U.S. Cl. 600—587 **11 Claims**

1. A method of identifying a region within a tissue portion accessible from a tubular body conduit having a different elasticity than the surrounding tissue, said method comprising the steps of:

causing a deformation of the tissue portion for causing stress and strain in the tissue portion, said deformation caused by applying pressure with a pressure applying means over a plurality of locations over the examined tissue portion in a manner similar to the pressure applied by a human finger; measuring a localized pressure distribution in a plurality of regions of tissue;

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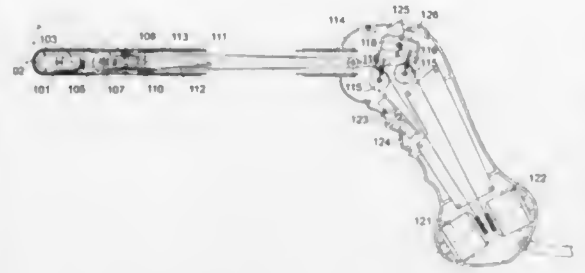


determining positions of said pressure applying means corresponding to each said measured localized pressure distribution;

calculating a virtual pattern of at least one property taken from the group of properties consisting of stress and strain using said localized pressure distributions and said corresponding positions;

defining a geometrical model of the tissue portion having homogeneous tissue and given boundary conditions for the tissue portion;

evaluating a theoretical pattern of said at least one property of stress and strain for said geometrical model;

comparing said theoretical pattern and said virtual pattern to obtain the difference between said patterns, this difference indicating the presence and location of a differing elasticity region of the tissue within the tissue portion; and

adjusting said geometrical model by varying a spatial distribution of elasticity in said geometrical model to minimize differences between the virtual pattern of at least one property taken from the group of properties consisting of stress and strain and the respective theoretical pattern for said adjusted geometrical model, thereby obtaining a spatial distribution of elasticity modulus in the tissue portion.

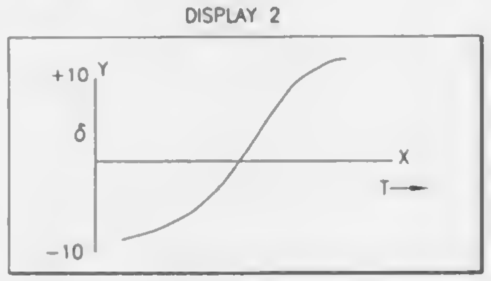
5,785,664
APPARATUS AND METHOD FOR THE DIAGNOSIS OF TRUE LABOR

Ethan Rosenberg, Monsey, N.Y., assignor to Hygeia Biomedical Research Inc., Monsey, N.Y.

Filed Jan. 16, 1996, Ser. No. 585,790

Int. Cl.^{6} A61B *5/103*

U.S. Cl. 600—588 **30 Claims**



1. A method for detecting an onset of true labor in a pregnant mammal, comprising the steps of:

detecting electrical signals from a succession of muscular contractions associated with labor;

determining a spectral content of the electrical signals for each contraction;

determining a discriminant (δ) from the determined spectral content for each contraction so as to provide a set of discriminants, individual ones of the set of discriminants being associated with an individual one of the contractions; and

indicating a beginning of true labor when a slope of at least two discriminants of the set of discriminants exceeds a first threshold value and when a magnitude of a last determined discriminant exceeds a second threshold value.

5,785,665
BODY AXES MEASURING DEVICE AND METHOD FOR CONTROLLING DEVIATION OF BODY AXIS

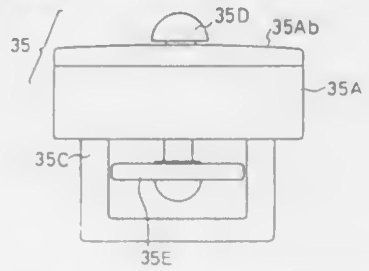
Noboru Soejima, 1-11-305, Takanawa 1-chome, Minato-ku, Tokyo 108, Japan

PCT No. PCT/JP94/00726, § 371 Date Dec. 20, 1995, § 102(e) Date Dec. 20, 1995, PCT Pub. No. WO95/29631, PCT Pub. Date Nov. 9, 1995

PCT Filed Apr. 28, 1994, Ser. No. 564,245

Int. Cl.^{6} A61B *5/103;5/11*

U.S. Cl. 600—594 **8 Claims**



1. A body axes measuring device comprising a frame, a body fixing means for regionally fixing a user's body and a measuring means for detecting and measuring flexion limits around a horizontal axis and along an arc above the user's body while regionally fixing the user's body as a fulcrum,

said frame including adjustable supports attached to a base and having a bottom portion extending horizontally and a top portion forming an arc structure, and a circular frame extending horizontally and arranged between said top and bottom portions of said adjustable supports, whereby the arc structure facilitates the measuring along the arc above the user's body.

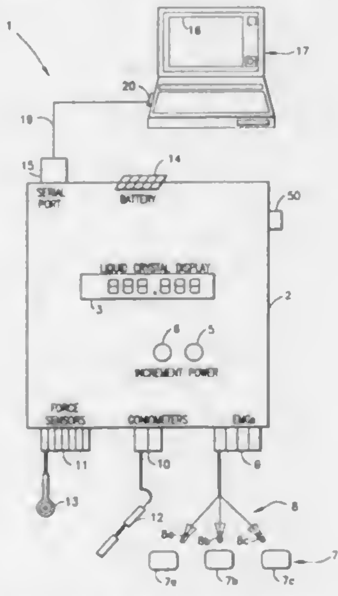
5,785,666
PORTABLE ELECTRONIC DATA COLLECTION APPARATUS FOR MONITORING MUSCULOSKELETAL STRESSES

Kevin J. Costello, Sea Cliff; Chandra Nair, Glen Cove; Cynthia Roth, Massapequa, and Dennis A. Mitchell, Huntington, all of N.Y., assignors to Ergonomic Technologies Corporation, Oyster Bay, N.Y.

Filed Oct. 31, 1995, Ser. No. 550,676

Int. Cl.^{6} A61B *5/103;5/117;5/04;5/0265*

U.S. Cl. 600—595 **11 Claims**



1. A portable electronic data collection apparatus for monitoring musculoskeletal stresses comprising:

a plurality of dissimilar sensors for converting a plurality of musculoskeletal activities into electrical signals, each of the plurality of sensors being an input to a channel, said plurality of dissimilar sensors including

a passive surface electrode placed on a person's skin above a muscle in which activity is to be measured and in communication with a first analog-to-digital converter for measuring electromyographic signals associated with activity of the muscle,

a second sensor in communication with the first analog-to-digital converter for measuring force signals associated with a portion of a human body contacting an object,

a third sensor in communication with a second analog-to-digital converter for measuring angular position signals associated with the position of a body joint:

an analog-to-digital converter for sampling the electrical signals from a user-selected channel at a predetermined rate such that digital values of the electrical signals are obtained at discrete points in time;

a processor in communication with said analog-to-digital converter, for collecting the digital values of the electrical signals;

a memory in communication with said processor, said memory receiving and storing the digital values; and

a first visual display in communication with said processor, said first visual display simultaneously and in real-time graphically portraying magnitudes of the digital values of the user-selected channel as a function of time.

5,785,667
GYMNASTIC IMPLEMENT

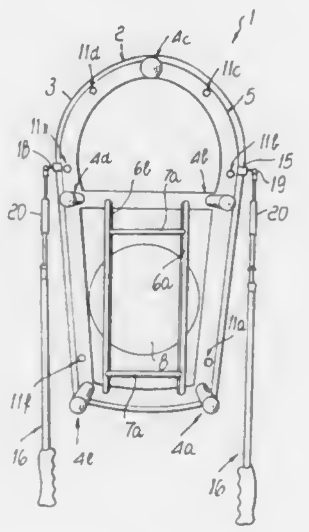
Flavio Forner, Via E. Dartora, 10, 31030 Pederobba (Prov. of Treviso), Italy

Continuation-in-part of Ser. No. 398,821, Mar. 6, 1995, abandoned. This application Mar. 6, 1997, Ser. No. 812,471

Claims priority, application Italy, Mar. 11, 1994, TV94A0032

Int. Cl.^{6} A61H *1/00*

U.S. Cl. 601—23 **15 Claims**



1. Improved gymnastic implement, particularly for physical reeducation, comprising:

a platform structure having, in a downward region, first supporting means and second flexible rocking means and, in an upward region, first seats for a user's feet and at least one second seat for one or more games of skill operationally dependent upon a rocking motion imparted to said platform structure by a user;

a pair of user grip rods each fitted with a shock absorber;

a pair of supports each for a respective user grip rod of said pair of user grip rods;

a pair of rotatable connections each for rotatably connecting an end of a respective user grip rod to a respective support of said pair of supports; and

a plurality of lateral couplings provided perimetrically about said platform structure for detachably and selectively coupling said pair of supports to said platform structure;

wherein said platform structure comprises a front portion at which said at least one second seat is provided and a rear portion at which said first seats are provided, said rear portion having an essentially rectangular planar shape;

and wherein said plurality of lateral couplings comprise four lateral couplings each arranged in proximity to a respective corner of said rear portion of said platform structure.

5,785,668
FOOT VIBRATOR-TYPE MASSAGING DEVICE WITH KNEADING BALLS AND VIBRATING PLATE

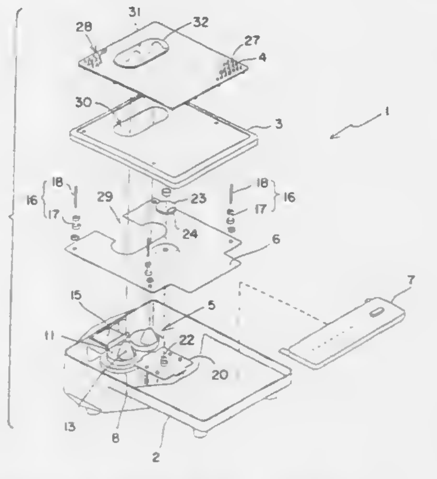
Nobuzo Shimizu, Higashi-Osaka, Japan, assignor to Daito Electric Machine Industry Company Limited, Osaka, Japan

Continuation of Ser. No. 505,279, Aug. 25, 1995, abandoned. This application Feb. 28, 1997, Ser. No. 808,674

Claims priority, application Japan, Dec. 28, 1993, 5-338449

Int. Cl.^{6} A61H *1/00*

U.S. Cl. 601—50 **6 Claims**



1. A vibrator-type massaging device comprising:

a stationary-type casing having an open top;

a base plate fixed to the casing so as to substantially cover the open top of the casing, the base plate defining a first opening in a central portion thereof;

a vibrating plate disposed above the base plate in parallel, spaced-apart relation with each other, the vibrating plate defining a second opening at a location corresponding to the first opening in the base plate;

buffer legs interconnecting the vibrating plate and the base plate such that the vibrating plate is movable relative to the base plate in a plane in which the vibrating plate lies;

a vibration drive motor fixedly mounted on the underside of the base plate and having a drive shaft protruding upwardly from the base plate;

an eccentric shaft having a lower end eccentrically connected to the drive shaft and an upper end rotatably connected to the underside of the vibrating plate;

a pair of kneading balls disposed within the first and second openings so as not to come into contact with the peripheries of the first and second openings wherein an upper portion of the kneading balls protrudes from the upper surface of the vibrating plate; and

kneading means disposed within the casing for causing the kneading balls to perform a kneading operation within the first and second openings without being influenced by vibration of the vibrating plate.

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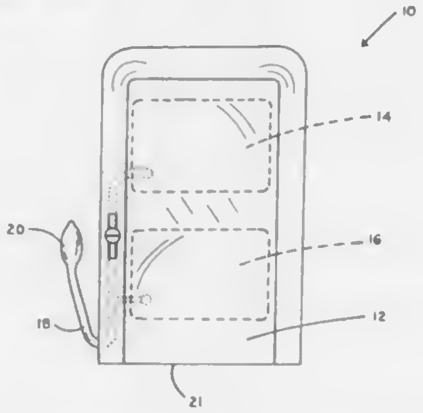
5,785,669
BACK SUPPORTING AND EXERCISING CUSHION

Richard I. Proctor, 2175 Danberry, San Rafael, Calif. 94903, and Robert E. Fuller, 885 Gravenstein Hwy. North, Sebastopol, Calif. 95472

Filed Apr. 12, 1995, Ser. No. 421,501
Int. Cl.^{6} A61H *7/00*

U.S. Cl. 601—148 **1 Claim**



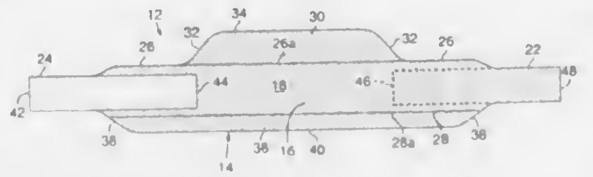
1. A method for exercising a user's back muscles and abdominal muscles comprising the steps of:
providing a back support device having upper and lower pneumatic bladders holding a gas, the upper and lower bladders being vertically separated a distance which approximates the vertical separation between the lumbar region and the mid- to upper-thoracic region of the user's spine, a fluid conduit connected in fluid communication with the upper and lower bladders to allow movement of gas between the bladders, and a housing means connecting the upper and lower bladders to form a unitary device;
placing the back support device against a seat back of a chair or seat;
contacting the back support device with the user's lower and upper back, from the lumbar spine region to the mid-thoracic spine region, the lower bladder being in contact with the user's lumbar spine region and the upper bladder being in contact with the user's mid-thoracic spine region;
pressing against the upper bladder with the user's mid-thoracic spine region and contracting the lower back muscles, until air has exchanged from the upper bladder into the lower bladder via the fluid conduit;
then pressing against the lower bladder with the user's lumbar spine region and contracting the abdominal muscles until air has exchanged from the lower bladder into the upper bladder via the fluid conduit; and
repeating in alternate fashion the last two steps until a desired amount of exercise is achieved.

5,785,670
ADJUSTABLE CERVICAL COLLAR

Eugene Lloyd Hiebert, 3871 Concomly Dr., S.E., Salem, Oreg. 97306

Filed Sep. 3, 1997, Ser. No. 922,346
Int. Cl.^{6} A61F *5/00*

U.S. Cl. 602—18 **6 Claims**



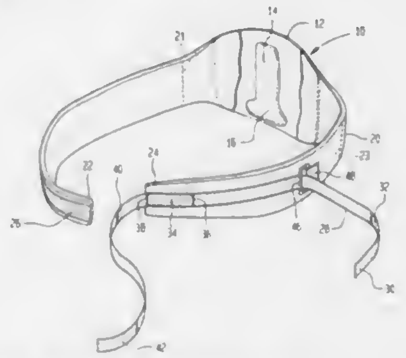
1. An adjustable cervical collar, comprising:
a laterally extending center portion for wrapping around a patient's neck, the center portion having an inside surface for placement against the patient's neck and an outside surface opposite thereto, the center portion having a width sufficient to support the patient's chin in a neutral position and avoid pressure against the patient's carotid arteries, the center portion having first and second lateral edges;
a first foldable portion attached to the first lateral edge of the center portion, the first foldable portion having a width sufficient to extend vertically above the patient's occiput and a length substantially shorter than the laterally extending center portion yet sufficient to extend laterally to the patient's mastoid processes, the first foldable portion being adapted optionally to be folded away from the patient's neck and toward the outside surface of the center portion;
a second foldable portion attached to the second lateral edge of the center portion, the second foldable portion being substantially longer and narrower than the first foldable portion, the second foldable portion being adapted to be folded away from the patient's neck and toward the outside surface of the center portion;
first releasable fastening means attached to the inside surface of one end of the center portion; and
second releasable fastening means attached to the outside surface of the other end of the center portion,
whereby fastening the first releasable fastening means to the second releasable fastening means fastens the collar securely around the patient's neck.

5,785,671
LUMBAR SPINE SUPPORT

James S. Striano, 128 Brook Farm Rd., Bedford, N.Y. 10506

Filed Jul. 16, 1996, Ser. No. 683,033
Int. Cl.^{6} A61F *5/00*

U.S. Cl. 602—14 **2 Claims**



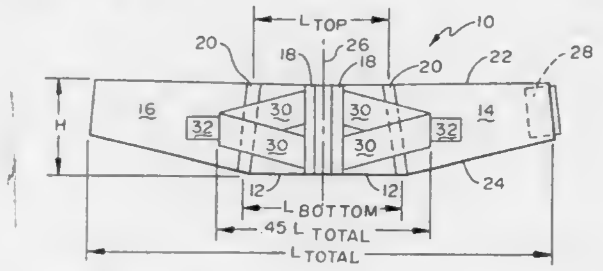
1. A lumbar spine support comprising:
a substantially rigid, body contoured, continuous posterior panel having right and left lateral edges which are sized and positionable to terminate near the right and left posterolateral regions, respectively, of a torso of a patient;
a flexible support belt connected to said posterior panel and sized to extend forwardly from said posterior panel around the torso;
a right and a left end of said support belt overlapping and connectable against one another for providing a first stage of adjustably tightening said posterior panel against the torso;
a flexible tightening strap connected at a mid region thereof adjacent to one said end of said support belt and extending in either direction along said support belt;
a pull ring connected to said support belt adjacent each said right and left lateral edges of said posterior panel;
said tightening strap sized in length for each end thereof to pass through one said pull ring, each said tightening strap end doubling back for releasible connection against itself;
said tightening strap providing a second stage for increasably tightening said posterior panel against the torso; a separate anterior panel embedded within and generally coextensive with an end portion of one said support belt whereby said anterior panel is positionable over, and supports, an abdominal musculature of the torso.

5,785,672
LUMBOSACRAL SUPPORT BELTS AND METHOD

Philip H. Mattison, and Douglas W. Mattison, both of Forest Lake, Minn., assignors to Core Products International, Inc., Osceola, Wis.

Filed May 20, 1997, Ser. No. 859,071
Int. Cl.^{6} A61F *5/00*

U.S. Cl. 602—19 **17 Claims**



1. A series of improved orthopedic devices for protecting and supporting a body portion wherein the device comprises a trapezoidal back panel having parallel top and bottom edges and first and second side panels extending from the side edges thereof, wherein each of the devices in the series has a total length L_{totol} and comprises:
a. a back panel comprising a resilient stretchable material with support members attached thereto for stiffening selected regions of the panel, said back panel having a length along its top edge of L_{top} and a length along its bottom edge of L_{bottom} that is a selected percentage of the total length L_{total} of the device, said back panel having a height H between its bottom edge and its top edge wherein H in inches is equal to a fixed minimum width plus a distance substantially equal to the difference between L_{bottom} and L_{top} multiplied by a fixed multiplier where the multiplier is the same for each of the devices in the series; and
b. first and second side panels, each of which is attached at one end thereof to a side edge of the back panel, the other end of each of said side panels also comprising fastening means for securing the device with the support members of the back panel supporting the lumbosacral area of the wearer with the top edge of the back panel adjacent the waist of the wearer and the lower edge of the back portion adjacent to the hips of the wearer.

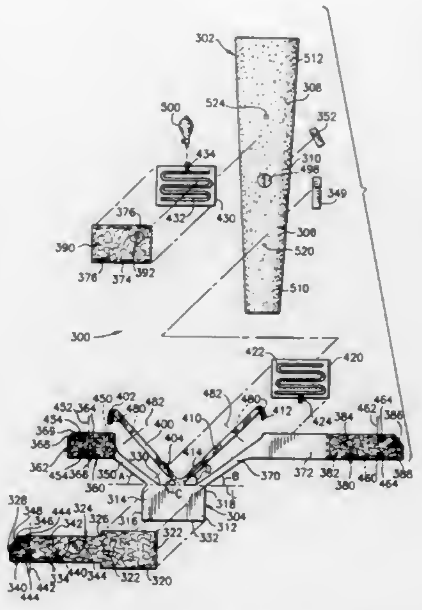
5,785,673
KNEE BRACE WITH SECURE ATTACHMENT

Joseph D. Billotti, 18 Powder Hill, Saddle River, N.J. 07458

Continuation-in-part of Ser. No. 587,846, Jan. 11, 1996, Pat. No. 5,582,584. This application Dec. 10, 1996, Ser. No. 762,749
Int. Cl.^{6} A61F *5/00*

U.S. Cl. 602—26 **15 Claims**

1. A brace to be attached to an upper leg and a lower leg of a body for supporting a weakened knee joint located between the upper leg and the lower leg, the brace comprising:
a sleeve of resilient material for fitting over the knee joint, the sleeve having a lower tubular portion for extending over the lower leg adjacent the knee joint, an upper tubular portion for extending over the upper leg adjacent the knee joint, and an intermediate tubular portion for extending over the knee joint when the sleeve is fitted over the knee joint;
a lower securing element attached to the lower tubular portion of the sleeve;



a lower anchor band attached to the lower tubular portion of the sleeve and extending in a lateral direction between opposite band ends for being located at a location along the lower tubular portion of the sleeve, the lower anchor band including lower band securing means for securing the lower anchor band to the lower securing element in the location along the lower tubular portion of the sleeve;
a lower front support attached to the lower tubular portion of the sleeve, the lower front support extending in the lateral direction between opposite support ends and having a laterally extending upper edge and an opposite laterally extending lower edge spaced altitudinally from the upper edge;
a first strap integral with the lower front support adjacent the upper edge, the first strap projecting from the lower front support upwardly at an acute angle to the lateral direction to extend generally toward the upper tubular portion of the sleeve;
a first guide band attached to the sleeve and guiding the first strap along a first helical path around the sleeve;
an upper securing element attached to the upper tubular portion of the sleeve;
a first upper anchor band integral with the first strap and spaced away from the upper edge of the lower front support, the first upper anchor band extending laterally for being located at a first location along the upper tubular portion of the sleeve, adjacent the intermediate portion of the sleeve, and including first upper anchor band securing means for securing the first upper anchor band to the upper securing element in the first location along the upper tubular portion of the sleeve, with the first strap following the first helical path;
a second strap integral with the lower front support adjacent the upper edge and projecting from the lower front support upwardly at an acute angle to the lateral direction to extend generally toward the upper tubular portion of the sleeve;
a second guide band attached to the sleeve and guiding the second strap along a second helical path around the sleeve, the second helical path being opposite to the first helical path;
a second upper anchor band integral with the second strap and spaced away from the upper edge of the lower front support, the second upper anchor band extending laterally for being located at a second location along the upper tubular portion of the sleeve, adjacent the intermediate portion of the sleeve, and including second upper band securing means for securing the second upper anchor band to the upper securing element at the second location along the upper tubular portion of the sleeve, with the second strap following the second helical path;
lower inflatable means attached to the lower tubular portion of the sleeve in position for being overlapped by the lower anchor band when the lower anchor band is secured to the lower securing element in the location along the lower tubular

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portion of the sleeve, the lower inflatable means being selectively inflatable when the lower tubular portion of the sleeve and the lower anchor band are located over the lower leg to grip the lower leg and anchor the lower anchor band to the lower leg; and

upper inflatable means attached to the upper tubular portion of the sleeve in position to be overlapped by the first and second upper anchor bands when the first and second upper anchor bands are secured to the upper securing element in the respective first and second locations along the upper tubular portion of the sleeve, the upper inflatable means being selectively inflatable when the upper tubular portion of the sleeve and the first and second upper anchor bands are located over the upper leg to grip the upper leg and anchor the first and second upper anchor bands to the upper leg;

the first and second straps being essentially inextensible such that upon anchoring the lower anchor band to the lower leg, the first upper anchor band to the upper leg and the second upper anchor band to the upper leg, with the first and second straps following the respective first and second helical paths, the first and second straps support the weakened knee joint.

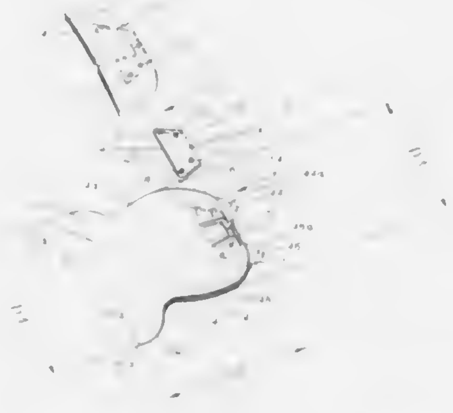
5,785,674
DEVICE AND METHOD FOR TREATING GLAUCOMA

Ahmed Abdul Mateen, 928 E. Juanita Ave., La Verne, Calif. 91750

Continuation-in-part of Ser. No. 269,839, Jul. 1, 1994, Pat. No. 5,616,118, which is a continuation-in-part of Ser. No. 786,734, Oct. 1, 1991, Pat. No. 5,441,473, which is a division of Ser. No. 478,655, Feb. 12, 1990, Pat. No. 5,071,408, which is a continuation-in-part of Ser. No. 255,070, Oct. 7, 1988, abandoned. This application Dec. 20, 1996, Ser. No. 771,446

Int. Cl.^{6} A61M *5/00*

U.S. Cl. 604—9 **20 Claims**



1. A medical device for treating a patient suffering from glaucoma and adapted to be attached to the globe of the eye of a patient, including

a distribution plate having an anterior end, a posterior end, opposed sides extending between said anterior and posterior ends, a curved configuration so that said plate conforms essentially with the spherical shape of the globe of the eye ball, and opposed tab elements that extend outward from each side at said posterior end,

said plate upon being attached to the globe one tab element being seated beneath one rectus muscle nearby the point where said one rectus muscle is attached to the globe and the other tab element being seated beneath the other rectus muscle nearby the point where said other rectus muscle is attached to the globe, and

a one-way flow valve attached to the anterior end of the distribution plate adapted to be placed in communication with fluid to be drained from the intraocular chamber of the eye.

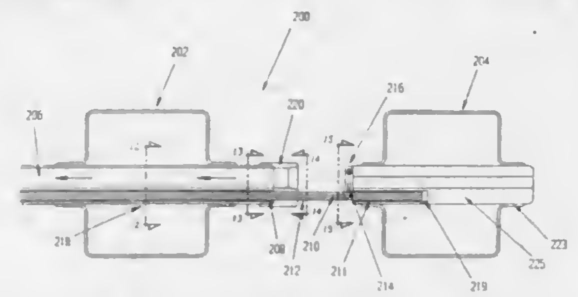
5,785,675
THROMBECTOMY DEVICE

William J. Drasler, Minnetonka; Robert G. Dutcher, Maple Grove; Mark L. Jenson, Greenfield; Joseph M. Thielen, Buffalo, and Emmanuil I. Protonotarios, Brooklyn Park, all of Minn., assignors to Possis Medical, Inc., Coon Rapids, Minn.

Division of Ser. No. 6,076, Jan. 15, 1993, Pat. No. 5,370,609, which is a continuation of Ser. No. 563,313, Aug. 6, 1990, abandoned. This application Dec. 5, 1994, Ser. No. 349,664

Int. Cl.^{6} A61B *17/20*

U.S. Cl. 604—22 **23 Claims**



1. A device for removing thrombus or other tissue from an occluded or obstructed biological or synthetic body vessel comprising:

a. a tubular member having a proximal end and a distal end, having a first passage and a second passage and a third passage extended along the length thereof, each passage with a proximal and distal end;

b. said first passage comprising tubular means which comprises one or more orifices forming one or more liquid jets emanating from said distal end of said first passage;

c. said second passage comprising tubular means for carrying a flow of fluid and emulsified tissue from said distal end to said proximal end, said distal end of said second passage being open;

d. said one or more liquid jets emanating from said distal end of said first passage impinges on said open distal end of said second passage with a component in the direction of the flow of fluid and emulsified tissue in said second passage, said liquid jet(s) providing sufficient stagnation pressure without any suction means required to drive the flow of fluid and emulsified tissue from said distal end of said second passage towards said proximal end of said second passage;

e. said proximal end of said first passage is connected to a high pressure liquid source, said high pressure liquid source provides a flow of high pressure liquid to said proximal end of said first passage;

f. said proximal end of said second passage provides removal of the flow of fluid and emulsified tissue said proximal end of said second passage being open; and,

g. said third passage comprising tubular means for providing communication between said proximal and distal ends of said tubular member.

5,785,676

Patent Not Issued For This Number

5,785,677
LAPAROSCOPY BAG

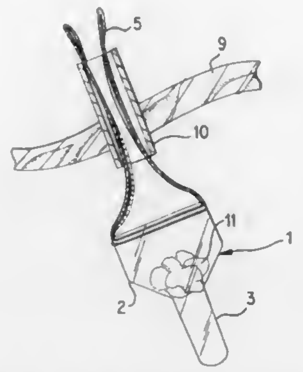
Udo Auweiler, Max-Baermann-Str, 19, 5060 Bergisch-Gladbach 1, Germany

Division of Ser. No. 81,417, Jun. 22, 1993, abandoned. This application Nov. 21, 1995, Ser. No. 561,305

Int. Cl.^{6} A61M *1/00*; A61F *13/00*

U.S. Cl. 604—28 **1 Claim**

1. A method of excising tissue from an abdominal cavity, comprising the steps of:



(a) inserting through an abdominal wall a trocar having an internal diameter and communicating with an abdominal cavity;

(b) introducing into said abdominal cavity in a collapsed state a laparoscopy bag, said laparoscopy bag being composed of flexible material and consisting essentially of:

a relatively large diameter working section having a circular cross section and an open mouth and adapted to receive resected tissue and instruments for dissecting resected tissue in said working section,

a hose-shaped extension closed at a free end and connected with said working section centrally opposite said mouth and extending away from said working section, said hose-shaped extension being of a smaller diameter than said mouth and so dimensioned that said hose-shaped extension, when filled with resected tissue, can be withdrawn from said cavity through said trocar,

a tapered, funnel-shaped portion connecting said working section with said extension, and

drawstrings at said mouth for closing same prior to withdrawal of said bag through said trocar;

(c) opening said bag within said cavity;

(d) resecting tissue within said abdominal cavity;

(e) introducing resected tissue into said bag through said mouth in said cavity;

(f) drawing said mouth closed with said drawstrings;

(g) drawing the bag against the trocar to squeeze the bag and force resected tissue from the working section of the bag into the hose-shaped extension; and

(h) pulling said bag with said hose-shaped extension filled with resected tissue out of said cavity through said trocar with said drawstrings.

5,785,678
DRAINAGE CATHETER AND METHOD OF USING

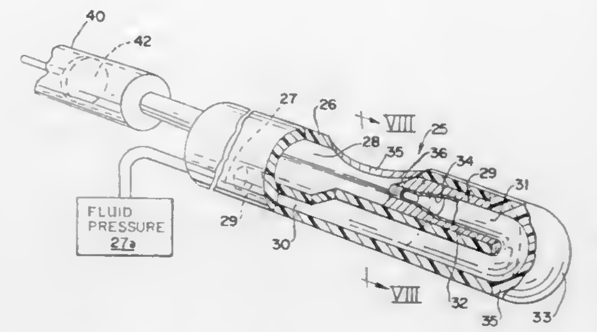
Wilhelmus Antonius Maria Griep, Roden, and Cornelis Philippus Nap, Zevenhuizen, both of Netherlands, assignors to Cordis Corporation, Miami Lakes, Fla.

Continuation of Ser. No. 395,675, Feb. 28, 1995, abandoned, which is a division of Ser. No. 182,717, Jan. 18, 1994, Pat. No. 5,395,315, which is a division of Ser. No. 894,174, Jun. 9, 1992, Pat. No. 5,320,599, which is a continuation of Ser. No. 654,061, Feb. 11, 1991, abandoned. This application Nov. 4, 1996, Ser. No. 743,324

Claims priority, application Netherlands, Feb. 14, 1990, 90.00356

Int. Cl.^{6} A61M *1/00*

U.S. Cl. 604—28 **16 Claims**



1. A method of operating a blood vessel suction catheter which comprises a tubular catheter body having a distal end, a pair of separate lumens defining a pressure channel and a discharge channel, and having an inlet opening positioned adjacent the distal end of said blood vessel suction catheter, which inlet opening communicates with said discharge channel, said pressure channel extending distally of said inlet opening and curving rearwardly again to define a spray nozzle positioned adjacent said inlet opening to direct fluid from said pressure channel across said inlet opening into said discharge channel, including the steps of: inserting said drainage catheter into the body of a patient; applying pressurized fluid to said pressure channel to cause pressurized fluid to pass through said spray nozzle across said inlet opening and into said discharge channel; and operating an expansible chamber connected to the proximal end of said discharge channel to control the degree of suction through said inlet opening, to sequentially generate said suction by expanding the volume used within said expansible chamber to cause debris to be sucked into the catheter through said inlet opening, and also to prevent expansion of the volume of said expansible chamber to reduce said suction and to cause fluid from said pressure channel to pass outwardly through said inlet opening into tissues external to said distal catheter end.

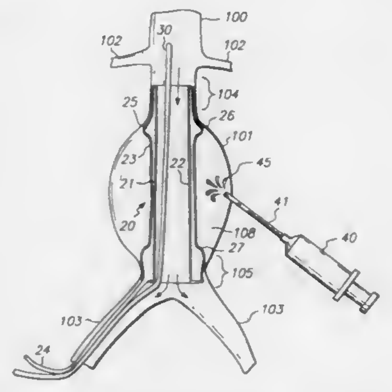
5,785,679
METHODS AND APPARATUS FOR TREATING ANEURYSMS AND ARTERIO-VENOUS FISTULAS

Amir Abolfathi; Michael Hogendijk, both of Palo Alto, and Farhad Khosravi, San Mateo, all of Calif., assignors to Endotex Interventional Systems, Inc., Menlo Park, Calif.

Filed Jul. 19, 1995, Ser. No. 504,293

Int. Cl.^{6} A61M *31/00*

U.S. Cl. 604—51 **9 Claims**



1. A method of treating an aneurysm in a hollow-body organ or vessel defining a flow path, the method comprising steps of:

providing a tubular member having an exterior surface and first and second ends, a portion of the tubular member defining a lumen having an inlet for the flow path at the first end and an outlet for the flow path at the second end, each of the first and second ends including an inflatable cuff, the tubular member having a contracted state permitting transluminal delivery, wherein the lumen has a first diameter and the inflatable cuffs are deflated, and a deployed state, wherein the lumen has a second diameter, larger than the first diameter, to provide continuity of the flow path and the inflatable cuffs are inflated so that the exterior surface and inflatable cuffs exclude the aneurysm from the flow path;

transluminally delivering the tubular member to a position extending across the aneurysm;

inflating the inflatable cuffs so that the tubular member assumes its deployed state to exclude the aneurysm from communicat-

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ing with the flow path and to create a cavity defined by the aneurysm, the inflatable cuffs and the exterior surface, the cavity containing biological material isolated from the flow path,

injecting a substance into the cavity to cause solidification of the biological material into a mass;

deflating the inflatable cuffs so that the tubular member returns to its contracted state; and

withdrawing the tubular member from the aneurysm to create a first passageway through the mass, the first passageway being incorporated into the flow path.

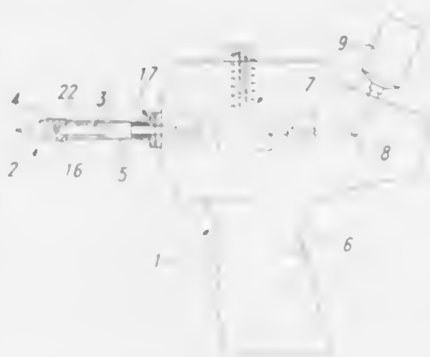
5,785,680
INJECTOR AND OBJECT TO BE INJECTED BY THE INJECTOR

Herman Niezink, GP Wierden; Franciscus H. C. Benning, JS Almelo, and Leo K. Kruit, MD Maarssenbroek, all of Netherlands, assignors to Texas Instruments Incorporated, Dallas, Tex.

Continuation of Ser. No. 259,232, Jun. 13, 1994, abandoned. This application Aug. 8, 1996, Ser. No. 689,532

Int. Cl.⁶ A61M *31/00*

U.S. Cl. 604—57 **20 Claims**



1. Apparatus for injecting objects into a living being comprising:

an injector comprising a support housing and an injector tube having a selected inside diameter for receiving and guiding said objects being injected, said injector tube having a first end connected to and supported by said support housing and a further end extending away from said housing, said further end defining a blunt circumferential edge;

an elongated object to be injected and having a front end and a back end and a circumference able to be at least partially inserted into and supported by said injector tube, and

a tip member having a sharpened end and a rear portion wherein said rear portion has an outer circumference and an inner circumference cut from said rear portion and is secured to one end of said elongated object, said sharpened end suitable for penetrating the skin of said living being, and

wherein a transition area is provided between the rear portion of the tip member and the front end of the object to be injected, wherein the outer circumference of the tip member at its rear portion extends beyond the circumference of the front end of the object to be inserted and further, the front end of said object fits conformably within said inner circumference cut from said rear portion of said tip member.

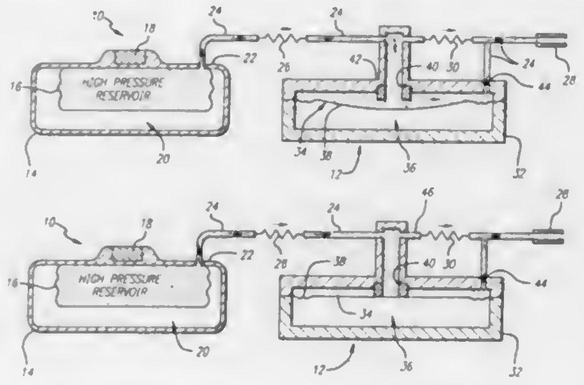
5,785,681
FLOW RATE CONTROLLER FOR A MEDICATION INFUSION PUMP

Virote Indravudh, Saugus, Calif., assignor to MiniMed Inc., Sylmar, Calif.

Filed Feb. 25, 1997, Ser. No. 804,629

Int. Cl.⁶ A61M *31/00*

U.S. Cl. 604—65 **12 Claims**



1. In a medication infusion pump having a medication reservoir with a selected medication therein subjected to a predetermined positive pressure, and means forming a baseline flow path including a primary restrictor for passage of the medication from the medication reservoir to a patient, the improvement comprising:

a flow rate controller including pressure control means for detecting an increased pressure drop along the baseline flow path at a location downstream from the primary restrictor, and further including means for connecting a secondary restrictor in series with the primary restrictor when said detected increased pressure drop exceeds a predetermined threshold.

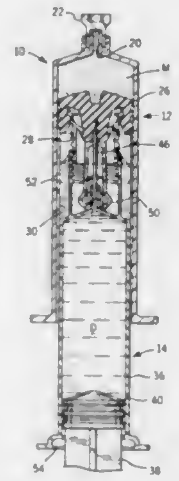
5,785,682
PRE-FILLED SYRINGE DRUG DELIVERY SYSTEM

Richard E. Grabenkort, Barrington, Ill., assignor to Abbott Laboratories, Abbott Park, Ill.

Continuation-in-part of Ser. No. 408,436, Mar. 22, 1995, abandoned. This application Mar. 15, 1996, Ser. No. 616,798

Int. Cl.⁶ A61M *37/00*

U.S. Cl. 604—82 **15 Claims**



1. A drug delivery system, comprising:

a first pre-filled syringe assembly comprising:

a first syringe barrel having an interior surface, an open end, and an opposite delivery end which defines a drug delivery passage;

a reciprocable stopper slidably disposed within said first syringe barrel in sealing engagement therewith for defining an internal mixing chamber within said first syringe barrel in communication with said delivery passage; and

a sterility maintenance sleeve extending from said reciprocable stopper toward said open end of said first syringe barrel, said sterility maintenance sleeve maintaining the sterility of the interior surface of said first syringe barrel;

a second pre-filled syringe assembly comprising

a second syringe barrel having a fluid discharge passage at one end thereof, said second syringe barrel being sized to be disposed within the sterility maintenance sleeve of said first syringe assembly

a movable piston plunger positionable within said second syringe barrel to define a fluid chamber therewith in communication with said fluid discharge passage; and

a liquid in the fluid chamber of said second syringe barrel; and

said system further including fluid transfer connector means for providing fluid communication from the fluid chamber of said second syringe assembly to said internal mixing chamber of said first syringe assembly when said second syringe assembly is disposed within said sterility maintenance sleeve so that the liquid within said fluid chamber can be caused to flow through said fluid transfer connector means into said internal mixing chamber of said first syringe assembly by movement of said piston plunger toward said fluid discharge passage of said second syringe assembly and thereafter caused to flow from said mixing chamber of said first syringe assembly through said drug delivery passage by movement of said second syringe assembly together with said reciprocable stopper and said sterility maintenance sleeve toward the drug delivery passage of said first syringe assembly,

said fluid transfer connector means includes means for regulating the flow of fluid through said reciprocable stopper,

said reciprocable stopper has an outer side facing toward said open end of said first syringe barrel and an inner side facing toward said drug delivery passage,

said means for regulating the flow of fluid through said reciprocable stopper comprises said reciprocable stopper having a resilient body with a longitudinal slit through the resilient body defining two normally closed resilient lips, and

the resilient body of said reciprocable stopper is substantially hollow and includes an enlarged cavity and a smaller entrance passage; and

said sterility maintenance sleeve further includes:

an enlarged head for being received in said enlarged cavity un said enlarged cavity of said resilient body,

a smaller neck for being received in said smaller entrance passage of said resilient body, and

a radially extending support flange adjacent said smaller neck for axially supporting said reciprocable stopper outer side.

5,785,683
DISPOSABLE SYRINGE WITH TWO VARIABLE VOLUME CHAMBERS

Jaime Luis Szapiro; Leonardo Szames, and Saul Moreno, all of Tabaré 1641, Buenos Aires, Argentina

Filed Mar. 6, 1996, Ser. No. 611,407

Claims priority, application Argentina, Jul. 17, 1995, 332787

Int. Cl.⁶ A61M *37/00*

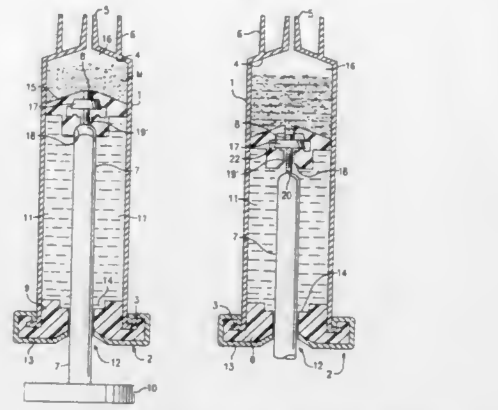
U.S. Cl. 604—89 **5 Claims**

1. A disposable syringe comprising;

an elongated housing means defining a chamber;

a plunger means reciprocally mounted in said housing, said plunger means having a plunger portion, an active head portion and a short portion connecting said plunger portion to said active head portion;

head means sealingly mounted within said chamber for dividing said chamber into a first variable volume chamber and a second variable volume chamber having an outlet means, said head means defining (1) an inner cavity for receiving said active head portion for reciprocal movement of said active head portion within said inner cavity, (2) a first conduit about



said short portion for communicating said first variable volume chamber with said inner cavity, and (3) a second conduit for communicating said inner cavity with said second variable volume chamber; and

means for reciprocating said plunger means in said housing in (1) a first direction for increasing the volume of the second variable volume chamber wherein a fluid in the first variable volume chamber is communicated from the first variable volume chamber through said first conduit, said inner cavity and said second conduit into said second variable volume chamber, and (2) a second direction for increasing the volume of the first variable volume chamber and decreasing the volume of the second variable volume chamber wherein a fluid in the second variable volume chamber communicates with the outlet means.

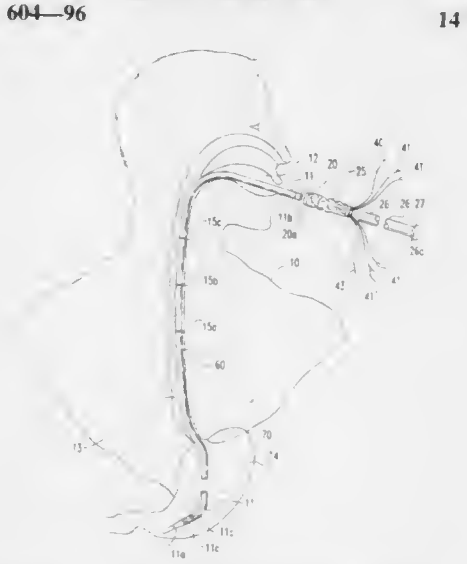
5,785,684
APPARATUS AND METHOD FOR THE DEPLOYMENT OF AN ESOPHAGASTRIC BALLOON TAMPONADE DEVICE

David S. Zimmon, Port Washington, N.Y., assignor to Zimmon Science Corporation, Port Washington, N.Y.

Filed Feb. 6, 1996, Ser. No. 597,224

Int. Cl.⁶ A61M *29/00*

U.S. Cl. 604—96 **14 Claims**



1. An apparatus for controlling esophagastric bleeding within a patient, comprising:

an elongated flexible member, a portion of said elongated member passable in the oral-gastric tract of the patient;

a tamponade device disposed on and slidable along an outer surface of said elongated flexible member; and

a pushing member disposed adjacent said tamponade for moving said tamponade along said flexible member, wherein the push-

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ing member is a tube having a passageway extending therethtough and is slidably disposed about at least a portion of said elongated flexible member.

5,785,685

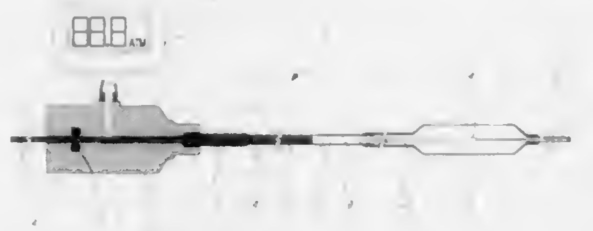
BALLOON CATHETER WITH IMPROVED PRESSURE SOURCE

Chad J. Kugler, Spring Lake Park, and Daniel M. LaFontaine, Plymouth, both of Minn., assignors to Scimed Life Systems, Inc., Maple Grove, Minn.

Continuation-in-part of Ser. No. 586,514, Jan. 16, 1996, Pat. No. 5,695,468, which is a continuation-in-part of Ser. No. 308,025, Sep. 16, 1994, Pat. No. 5,545,133. This application Mar. 5, 1997, Ser. No. 812,390

Int. Cl.^{6} A61M *29/00*

U.S. Cl. 604—96 **16 Claims**



1. A balloon catheter, comprising:

a. an elongate tubular member having a proximal end and a distal end;

b. a balloon connected to the distal end of the elongate tubular member, the balloon having an interior in fluid communication with the inside of the elongate tubular member;

c. a contrast displacement rod having a portion thereof slidably disposed in the tubular member such that the balloon may be expanded upon longitudinal actuation of the rod, the rod including a stop mechanism to inhibit removal of the rod from the tubular member; and

d. a seal connected to the proximal end of the tubular member and disposed about the displacement rod to create a liquid seal between the inside of the tubular member and the displacement rod.

5,785,686

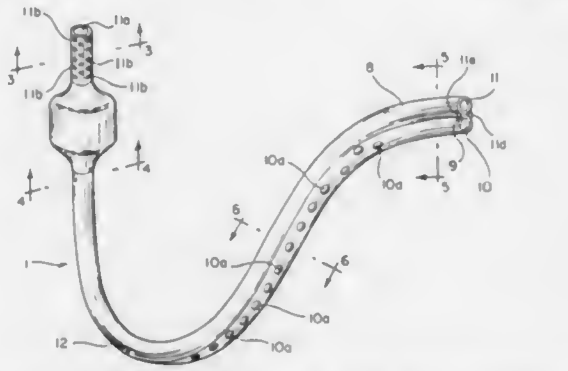
CANNULA SYSTEM FOR A BIVENTRICULAR CARDIAC SUPPORT SYSTEM OR A CARDIOPULMONARY BYPASS SYSTEM

Thomas M. Runge, P.O.Box 50045, Austin, Tex. 78763

Division of Ser. No. 641,756, May 2, 1996, Pat. No. 5,688,245. This application Jul. 15, 1997, Ser. No. 892,910

Int. Cl.^{6} A61M *29/00*

U.S. Cl. 604—96 **2 Claims**



1. A cannula for use in a biventricular cardiac support system or a cardiopulmonary bypass system comprising an elongated tube having a side wall and a proximate end and a distal end, a transverse, axially extending wall having a distal end, mounted within said tube for dividing the tube into a pair of side-by-side lumens, tile distal end of the transverse wall merging with the side wall of the tube substantially intermediate the ends thereof, to thereby terminate and close the distal end of one of said pair of lumens, a plurality of aspiration orifices in the side wall of tube communicating with said one of said pair of lumen, the other lumen of said pair of lumens extending the full length of said tube, a large end orifice at the distal end of said other lumen, a plurality of smaller orifices in the side wall of the tube communicating with said other lumen adjacent the distal end thereof, an inflatable balloon connected to the distal end of said other lumen, said balloon being positioned below and adjacent to said plurality of smaller orifices, and an axially extending inflation bore provided in the side wall of the tube communicating with the interior of the balloon.

5,785,687

SYRINGE ASSEMBLY

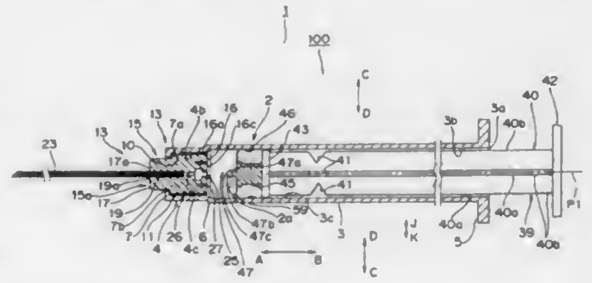
Yoshikuni Saito, Ooaza Kitanogami 1930, Kurobanemachi, Nasu-gun, Tochigi-ken, Japan

Filed Mar. 11, 1997, Ser. No. 814,554

Claims priority, application Japan, Mar. 13, 1996, 8-084682

Int. Cl.^{6} A61M *5/00*

U.S. Cl. 604—110 **32 Claims**



1. A syringe assembly, comprising:

a syringe body;

a piston installed in said syringe body slidable in an axial center direction of said syringe body;

a holding member installation space cylindrically formed at a top end of said syringe body;

a penetrating hole formed at a top end of said holding member installation space communicating said holding member installation space and an outside of said syringe body with each other;

a liquid flow thin tube holding member capable of connecting with a liquid flow thin tube member attachably and detachably connected with said holding member installation space, said syringe assembly further comprising:

a projecting body for holding having a first width in said axial center direction of said syringe body, annularly formed along a plane perpendicular to said axial center direction of said syringe body at an inner peripheral portion of said holding member installation space;

a stopper for holding formed in said holding member installation space on said top end side of said syringe body rather than said projecting body for holding;

said liquid flow thin tube holding member having a member main body which can be linearly inserted in said holding member installation space in said axial center direction of said syringe body and can be linearly pulled out of said holding member installation space into said syringe body in said axial center direction of said syringe body;

a stopper abutting portion formed at said member main body so as to abut the stopper abutting portion on said stopper for holding, facing said top end direction of said syringe body;

a projection for holding having a second width in said axial center direction of said member main body, annularly

formed along a plane perpendicular to said axial center direction of said member main body at an outer peripheral portion of said member main body;

a member side engagement means provided with said member main body so as to be free to engage with said piston; and

said syringe assembly wherein said projection for holding can be abutted on and engaged with said projecting body for holding and said stopper abutting portion can be abutted on and engaged with said stopper for holding respectively such that said member main body between said projection for holding and said stopper abutting portion receives a predetermined compressive stress from the projecting body for holding and said stopper for holding, and a seal portion formed between said projection for holding and said projecting body for holding is formed with a third width smaller than any of said second width of said projection for holding and said first width of said projecting body for holding in said axial center direction of said syringe body when said member main body is installed in said holding member installation space.

5,785,688

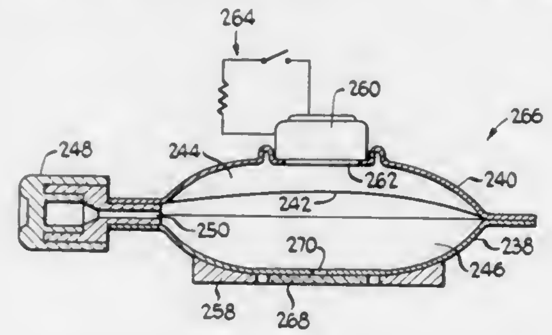
FLUID DELIVERY APPARATUS AND METHOD

Ashok V. Joshi, Salt Lake City; James O. Davis, Sandy; Truman Wold, Salt Lake City, and Giorgio di Palma, Draper, all of Utah, assignors to Ceramatec, Inc., Salt Lake City, Utah

Filed May 7, 1996, Ser. No. 646,069

Int. Cl.^{6} A61M *37/00*

U.S. Cl. 604—141 **21 Claims**



1. An apparatus for delivering a fluid, said apparatus comprising:

a housing;

a displaceable membrane disposed within said housing, dividing a portion of said housing into a first chamber and a second chamber, said first chamber formed in part, of said housing, said first chamber for containing fluid for delivery and having a port in fluid communication with said first chamber, and said second chamber for containing a driving gas, said displaceable membrane being impermeable to the driving gas;

a pump for pressurizing driving gas in said second chamber, thereby exerting a force on said displaceable membrane, thus expelling fluid contained within said first member from said port, said pump comprising an electrochemical gas generation cell; and

means for delivering fluid from said port to a desired location.

5,785,689

ENDOSCOPIC CATHETER SHEATH POSITION CONTROL

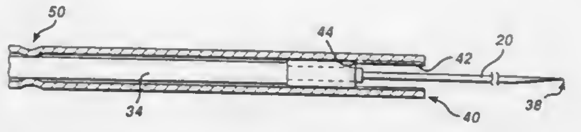
Fernando Alvarez de Toledo, Concord, and Thomas H. Doucette, Stow, both of Mass., assignors to ACT Medical, Inc., Newton, Mass.

Filed Jul. 18, 1996, Ser. No. 683,189

Int. Cl.^{6} A61M *5/178*

U.S. Cl. 604—165 **17 Claims**

1. A catheter assembly comprising:



an elongated, flexible, tubular sheath having a distal end and a proximal end;

a distal end member internal to the sheath and reciprocally axially moveable relative to the sheath distal end between a retracted position proximal of the sheath distal end and an extended position in which the end member protrudes beyond the sheath distal end;

an elongated end member interconnector having a distal end and a proximal end, the interconnector distal end being connected to the end member and the interconnector proximal end being connected to a position actuator for axially reciprocating the end member relative to the sheath distal end;

a self acting distal end position controller located at a point along the sheath to self-actively cooperate with the end member interconnector in limiting the extent of axial retraction of the end member relative to the sheath distal end; and

a flow channel internal to the sheath and external to the end member interconnector, the flow channel extending axially through the distal end position controller.

5,785,690

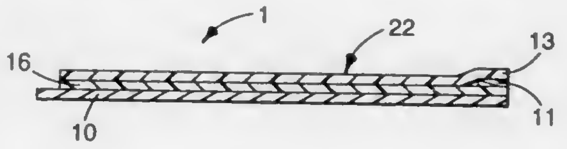
REFASTENABLE TUBE AND CABLE RESTRAINT FOR SURGICAL USE

Charles L. Newman, West Lakeland Township, Washington County, Minn., and Winfried Kipp, Borken, Germany, assignors to Minnesota Mining and Manufacturing Company, St. Paul, Minn.

Continuation of Ser. No. 245,012, May 18, 1994, Pat. No. 5,463,231, which is a continuation-in-part of Ser. No. 208,990, Mar. 10, 1994, abandoned. This application Jun. 6, 1995, Ser. No. 472,714

Int. Cl.^{6} A61M *5/32*

U.S. Cl. 604—180 **19 Claims**



1. A tube restraint, comprising:

an attachment strip of flexible material having on its underside a coating of adhesive suitable for adhering to a surface;

a holding strip of flexible material having a fixed end, a repositionable end and a bridging strip there between, wherein said holding strip is die cut through its top surface in a manner so as to retard peel at the fixed end by providing integral peel stops comprising unpeeled regions of the holding strip behind a hinge line of the tube restraint at the fixed end, wherein the bridging strip is narrower than the holding strip at the fixed end; and

an adhesive layer between the bottom surface of said holding strip and the top surface of said attachment strip at least near each end of said restraint.

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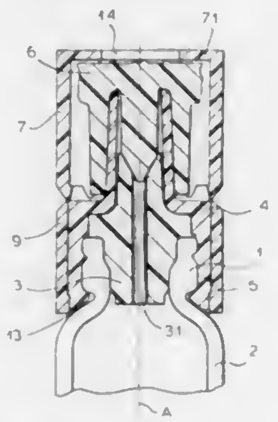
5,785,691
SYRINGE CAP ASSEMBLY

Helmut Vetter, Ravensburg, and Thomas Otto, Weingarten, both of Germany, assignors to Arzneimittel GmbH Apotheker Vetter & Co. Raversburg, Ravensburg, Germany
Filed Sep. 30, 1996, Ser. No. 724,075
Claims priority, application Germany, Oct. 6, 1995, 195 37 163.1
Int. Cl.⁶ A61M *5/50*
U.S. Cl. 604—187 **12 Claims**

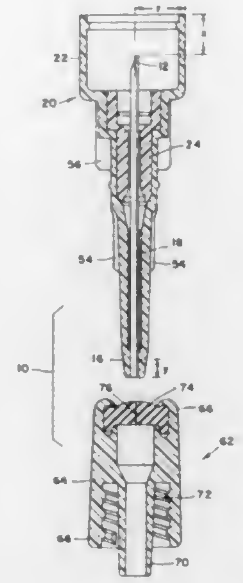


1. A syringe assembly comprising:
- a syringe body adapted to be filled with an injectable liquid and having an annular neck defining an axis forming an axially outwardly open outlet;
- a needle insert fitting in and blocking the outlet and formed with an axially throughgoing passage, whereby a needle can be inserted axially through the passage of the insert into the body;
- a retaining collar engaged around the neck and holding the insert in the outlet;
- a plug engaged in the passage and fitting over the retaining collar;
- a retaining ring fixed around the collar at the neck, holding the collar on the neck, and having an annular and axially outwardly directed end edge;
- a cup-shaped safety cap bearing axially inward on the plug and having an annular and axially inwardly directed end edge confronting the retaining-ring edge and spaced axially therefrom by a gap;
- a plurality of angularly spaced frangible webs unitarily formed with the ring and with the cap and extending from the cap edge to the ring edge; and
- a plurality of angularly spaced spacer blocks formed on one of the edges, alternating with the webs, and projecting at least partially across the gap toward the other edge.

5,785,692
SAFETY CANNULA

Kurt Attermeier, Spring Grove; Thomas E. Dudar, Palatine, both of Ill.; Mark A. Stiehl, Rochester, N.Y., and Joseph M. Tartaglia, Los Altos, Calif., assignors to Abbott Laboratories, Abbott Park, and Baxter International, Inc., Deerfield, both of Ill.
Continuation of Ser. No. 376,727, Jan. 23, 1995, Pat. No. 5,531,711, which is a continuation of Ser. No. 909,546, Jul. 6, 1992, Pat. No. 5,389,086. This application Apr. 24, 1996, Ser. No. 639,301
Int. Cl.⁶ A61M *5/00;5/31*
U.S. Cl. 604—242 **21 Claims**

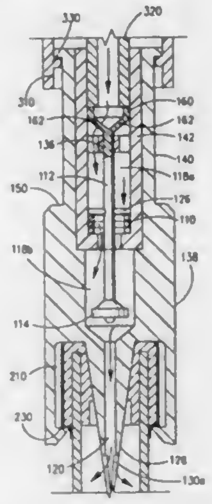
6. A coupling system-cartridge assembly comprising in combination,
- (1) a cartridge comprising a hollow body filled with a medication, and a piston axially and reciprocally slidable through the interior of said body; and



- (2) a coupling system for transferring fluids from said cartridge to an injection site, said coupling system comprising:
  - a fluid flow channel having proximal and distal ends; a stainless steel needle cannula defining the proximal end of said fluid flow channel;
  - a hub attached to the distal end of said cartridge comprising a blunt cannula portion defining the distal end of said fluid flow channel and a sleeve portion wherein the distal end of said stainless steel needle cannula is approximately flush with the distal end of said blunt cannula and;
  - wherein said piston can be actuated through said cartridge to expulse the medication in said cartridge through said fluid flow channel into an injection site.

5,785,693
MEDICAL CONNECTOR

Michael L. Haining, 6731 Ashmore, Houston, Tex. 77069
Continuation of Ser. No. 562,423, Nov. 24, 1995, abandoned, which is a division of Ser. No. 350,418, Dec. 6, 1994, Pat. No. 5,533,983, which is a continuation-in-part of Ser. No. 218,380, Mar. 28, 1994, abandoned, which is a continuation-in-part of Ser. No. 157,306, Nov. 25, 1993, Pat. No. 5,401,245. This application Mar. 28, 1997, Ser. No. 826,038
Int. Cl.⁶ A61M *5/00*
U.S. Cl. 604—249 **3 Claims**

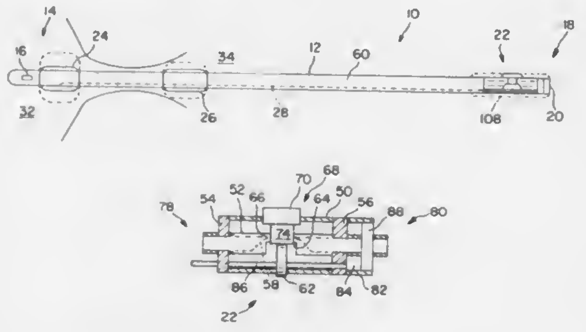


1. A connector for adding medication from a syringe to an intravenous fluid from an IV bag, comprising:

- (a) a hollow cylindrical body having
  - (i) a first port on one end for adding medication to the intravenous fluid flowing from said IV bag,
  - (ii) a second port on the other end for connection to a catheter which is inserted into the vein of a patient, and
  - (iii) a third port intermediate said first and second ports for attachment to an intravenous fluid source;
  - (iv) said ports configured as a Y;
- (b) a luer connection on the open end of said first port;
- (c) a valve including a valve housing secured within said first port and having a seat at one end;
- (d) a valve stem slidably mounted within said housing having a plug on one end to sealably fit into said seat;
- (e) a spring means mounted about said stem to bias said plug against said seat thereby closing said valve;
- (f) an actuator means on said stem at the end opposite said plug for moving said stem against said spring bias to move said plug away from said seat thereby opening said valve when a syringe is threadedly connected to said luer connection;
- (h) a rubber cover over said first port; and
- (i) a self reclosing slit in the end of said rubber cover.

5,785,694
INTERNAL URINARY CATHETER

Kenneth L. Cohen, 9 Bishop Dr., Woodbridge, Conn. 06525, and Dennis J. Hanlon, 15 Morris Rd., East Haven, Conn. 06512
Filed Dec. 1, 1995, Ser. No. 566,356
Int. Cl.⁶ A61M *5/00*
U.S. Cl. 604—250 **24 Claims**

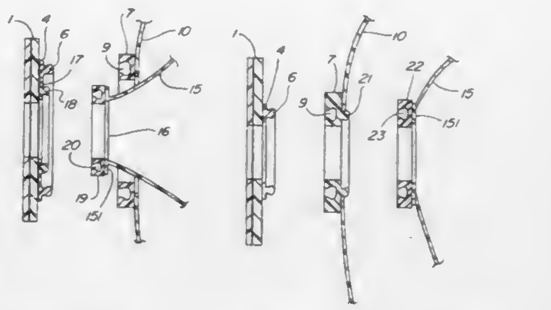


1. An internal urinary catheter, comprising:
- a cannula having an external diameter, a urine passage, a urine inlet and a urine outlet; and
- valve means positioned along said urine passage between said inlet and said outlet and comprising a compressible tube, and means for releasably compressing said tube, said valve means having an external diameter substantially the same as said external diameter of said cannula, said means for releasably compressing being biased toward a compressing position wherein said tube is compressed and flow through said tube is substantially blocked, and said means for releasably compressing being positionable to a released position at least partially releasing compression of said tube wherein flow through said tube is allowed.

5,785,695
BODY WASTES RECEIVING APPLIANCE

Makoto Sato, and Kouji Usukura, both of Saitama, Japan, assignors to Alcare Co., Ltd., Tokyo, Japan
Filed Nov. 8, 1996, Ser. No. 745,875
Claims priority, application Japan, Nov. 10, 1995, 7-317383
Int. Cl.⁶ A61F *5/44*
U.S. Cl. 604—339 **12 Claims**

1. A body wastes receiving appliance comprising:



- an adhesive plate having an adhesive side, a non-adhesive side, and an opening therethrough corresponding to a wastes discharge hole or opening formed on the surface of a human body,
- a first flange secured to the non-adhesive side of said adhesive plate and having an opening corresponding to the opening of said adhesive plate and a ring-form fitting portion,
- a second flange detachably mounted at the opposite side, with reference to said adhesive plate, of said first flange and having an opening corresponding to the opening of said first flange and a ring-form fitting z portion at the side of the second flange closer to said adhesive plate which is detachably fitted to the fitting portion of said first flange,
- a third flange secured to the inner side of said first flange at the non-adhesive side of said adhesive plate and having an opening corresponding to the respective openings of said adhesive plate and said first flange, and a ring-form fitting portion,
- a fourth flange detachable mounted at said third flange and having an opening corresponding to the opening of said third flange and a ring-form fitting portion at the side of the fourth flange closer to said adhesive plate which is detachably fitted to or engaged with the fitting portion of said third flange,
- an outer pouch secured at the opposite side, with reference to the adhesive plate, of said second flange and having an opening corresponding to the respective openings of said adhesive plate, said first flange, said second flange, said third flange and said fourth flange, and
- an inner pouch for receiving the body wastes discharged through the respective openings of said adhesive plate, said first flange, said third flange and said fourth flange, said inner pouch being mounted to an opposite side, with reference to the adhesive plate, of said fourth flange and housed inside said outer pouch in such a manner as to be separable therefrom,
- said outer pouch being formed of a water insoluble film, while said inner pouch being formed of a water-soluble film which is dissolved or disintegrated in water, said inner pouch being replaceable.

5,785,696
DISPOSABLE DIAPER

Yasushi Inoue, Kagawa-ken, and Tsutomu Kido, Ehime-ken, both of Japan, assignors to Uni-Charm Corporation, Ehime-ken, Japan
Filed Jan. 29, 1996, Ser. No. 592,954
Claims priority, application Japan, Jan. 31, 1995, 7-013836
Int. Cl.⁶ A61F *13/05*
U.S. Cl. 604—378 **11 Claims**

1. A disposable diaper comprising a liquid-permeable topsheet, a liquid-impermeable backsheet and a liquid-absorbent core disposed between said topsheet and backsheet, said liquid-absorbent core including a liquid holding layer containing fluff pulp and superabsorbent polymer particles and an isolating fibrous layer overlying said liquid holding layer, wherein:
- said liquid-absorbent core further includes a liquid-permeable covering layer wrapped around to cover said liquid holding layer and said isolating fibrous layer; and wherein said liquid holding layer, said isolating fibrous layer and said liquid-permeable covering layer are intermittently bonded together

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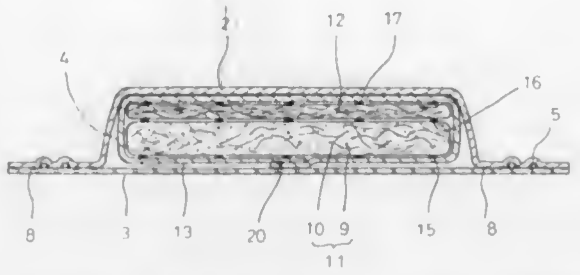
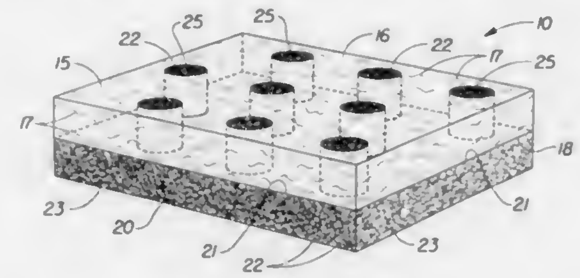


substantially over an entire extent of respective laminating surfaces thereof to thereby jointly constitute a laminated structure.

5,785,697
ABSORBENT COMPOSITE WEB

Liberatore A. Trombetta, Silvi, and Dennis A. Darby, Pescara, both of Italy, assignors to The Procter & Gamble Company, Cincinnati, Ohio

Filed Jun. 2, 1997, Ser. No. 867,094
Int. Cl.^{6} A61F *13/15*
U.S. Cl. 604—378 **14 Claims**



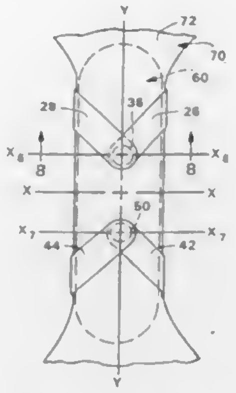
1. A disposable absorbent article, comprising:
a chassis having an upper surface and a bottom surface, a front portion, a back portion positioned opposite to said front portion, a crotch portion positioned between said front portion and said back portion, a longitudinal axis, a transverse axis, a pair of end edges and a pair of longitudinal edges, said chassis comprising:
  a liquid permeable topsheet;
  a backsheet joined to said topsheet, said backsheet having an inner surface and an outer surface; and
  a fluid handling member positioned between said topsheet and said backsheet, said fluid handling member comprising
    a primary material having a top surface, a bottom surface, and a plurality of apertures extending from said top surface to said bottom surface; and
    a secondary material having an upper surface and a lower surface, said secondary material upper surface being positioned adjacent to said primary material bottom surface, said secondary material extending into said plurality of apertures in said primary material,
  wherein said primary material is located between said topsheet and said secondary material.

5,785,698
PANTY SHIELD

Thomas Peter Van Iten, Neenah, Wis., assignor to Kimberly-Clark Corporation, Neenah, Wis.

Continuation of Ser. No. 230,938, Apr. 20, 1994, abandoned. This application Dec. 20, 1996, Ser. No. 772,193
Int. Cl.^{6} A61F *13/15*
U.S. Cl. 604—387 **14 Claims**

1. A combination undergarment and panty shield comprising:
a) an undergarment;

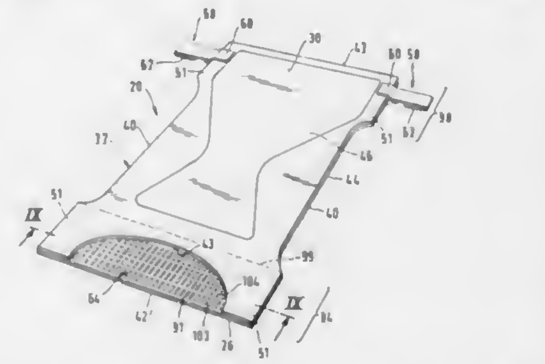


b) a baffle having a central portion with first and second longitudinal side edges, and first and second appendages extending laterally outward from said first and second longitudinal side edges respectively, each of said first and second appendages having a sufficient length to be folded inward around said undergarment and overlap one another; and
c) means for holding said panty shield to said undergarment, said means including a first attachment member designed to mate with a second attachment member, said first attachment member being secured to said central portion of said baffle and said second attachment member being secured to one of said appendages, one of said attachment members being a magnet and said other attachment member being a receiver member, said receiver member being said other of said appendages being folded inward around the undergarment, said one of said appendages being folded inward around the undergarment to overlap the said other of said appendages and so that said receiver member is superimposed with and attracted to said magnet to hold said panty shield to said undergarment.

5,785,699
DISPOSABLE ABSORBENT ARTICLE HAVING A BACKSHEET AND AN INNER LAYER PROJECTING BEYOND THE FRONT TRANSVERSE EDGE OF THE BACKSHEET FOR ENGAGING WITH A MECHANICAL FASTENING MEMBER

Christoph Johann Schmitz, Euskirchen-Stotzheim, Germany, assignor to The Proctor & Gamble Company, Cincinnati, Ohio

PCT No. PCT/US95/16668, § 371 Date Jun. 30, 1997, § 102(e) Date Jun. 30, 1997, PCT Pub. No. WO96/20675, PCT Pub. Date Jul. 11, 1996
PCT Filed Dec. 13, 1995, Ser. No. 860,126
Claims priority, application European Pat. Off., Dec. 29, 1994, 94120877
Int. Cl.^{6} A61F *13/15*
U.S. Cl. 604—391 **9 Claims**

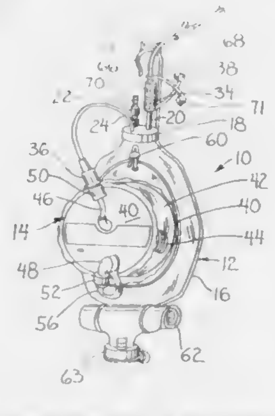


1. Absorbent article (20) having two longitudinal sides (40), a front transverse side (42'), a front waist region (94) located along the front transverse edge (42'), and a back transverse edge (42), a back waist region (98) located along the back transverse edge (42), the article comprising
  a garment facing backsheet (30) having a front peripheral edge (43) and a user facing side (44),
  a mechanical closing system (24) comprising
    at least two hook-type fastening members (58) located in the back waist region (98) and extending transversely beyond each longitudinal side (40), and
    a landing member (64) located in the front waist region (94) for mechanically engaging with the hook-type fastening members (58);
  an inner layer (26,91,97) covering at least a part of the backsheet (30) on the user-facing side (44) thereof, wherein the inner layer (26, 91, 97) extends beyond the front peripheral edge (43) of the backsheet (30) and forms at least a part of the landing member (64); and
  an absorbent located at least partially between the inner layer and the backsheet.

5,785,700
AUTOTRANSFUSION SYSTEM WITH PORTABLE DETACHABLE VACUUM SOURCE

Daniel Henry Olson, Louisville, Ohio, assignor to Zimmer Patient Care, a Division of Zimmer, Inc., Dover, Ohio

Continuation of Ser. No. 896,078, Jun. 3, 1992, Pat. No. 5,275,585. This application Aug. 26, 1993, Ser. No. 112,151
Int. Cl.^{6} A61M *5/14*
U.S. Cl. 604—408 **3 Claims**

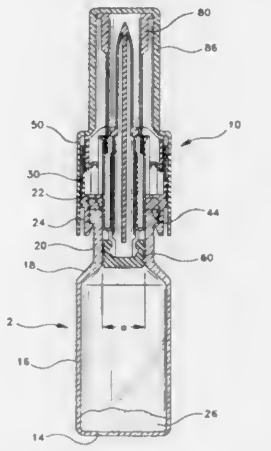


1. A system for collecting blood and other liquids from the wound of a patient and for reinfusing blood collected into the patient, said system comprising; a collecting means for collecting blood and being adapted to be connected in flow communication with the patient's wound, said collecting means including an outer rigid receptacle and an inner flexible bag, the rigid receptacle and the flexible bag forming an interstitial space therebetween, the flexible bag including a blood inlet port and a blood outlet port held in flow communication with an interior of the flexible bag, the inlet port being adapted for connection to drainage tubing leading to the wound, said outlet port being adapted for connection to a transfusion tube; a manually operable portable vacuum source removably carried by said collecting means by a fastener device, the manually operable portable vacuum source having an inlet being connectable to tubing in flow communication with the interstitial space of the collecting means, such that the manually operable portable vacuum source, when activated, causes a negative pressure within the interstitial space to cause said collecting bag to expand, thereby drawing blood from the wound: the system being connectable in a first mode wherein the manually operable vacuum source is carried by said collecting means and is in flow communication with the interstitial space to cause a negative pressure therein; said system being connectable in a second mode wherein said manually operable vacuum source is disconnected and dissociated from the collecting means, the interstitial space being in flow communication with ambient atmosphere and said outlet port adapted for connection to transfusion tubing, in the second mode the manually operable vacuum source is adapted for direct connection to said drainage tubing and is activated to draw fluid from said wound into the manually operable vacuum source.

5,785,701
STERILE VIAL CONNECTOR ASSEMBLY FOR EFFICIENT TRANSFER OF LIQUID

Bernard Sams, London; Colin James Matthews, Hertfordshire, both of United Kingdom; Jean Claude Thibault, Saint Egreve, and Hubert Jansen, Haute Jarrie, both of France, assignors to Becton Dickinson and Company, Franklin Lakes, N.J.

Filed Sep. 17, 1996, Ser. No. 714,873
Int. Cl.^{6} A61J *1/00*
U.S. Cl. 604—411 **7 Claims**



1. A connector assembly for a vial, said vial having a tubular neck, said connector assembly comprising:
  a stopper slidably mounted in said tubular neck of said vial;
  a transfer tube having a spike and a proximal end functionally engaged with said stopper, and said spike having a pointed distal end disposed externally of said vial and at least one fluid passage extending axially from said distal end to a location in said vial distally of said stopper, said transfer tube being slidably moveable between a distal position where said stopper is in said neck and a proximal position where said stopper is at a location in said vial spaced from said neck, wherein the functional engagement of said transfer tube with said stopper comprises a stopper sleeve in sliding telescoping engagement with said spike, said stopper sleeve defining said proximal end of said transfer tube, such that said stopper is securely engaged with said stopper sleeve; and
  a spring disposed between said vial and portions of said transfer tube external of said vial for urging said transfer tube distally from said proximal position of said transfer tube in said vial, whereby said movement of said transfer tube varies pressure sufficiently to permit efficient flow of fluid into said vial.

5,785,702
METHOD FOR NON-SYNCHRONOUS LASER-ASSISTED TRANSMYOCARDIAL REVASCULARIZATION

Douglas R. Murphy-Chutorian, and Stuart D. Harman, both of Sunnyvale, Calif., assignors to Eclipse Surgical Technologies, Inc., Sunnyvale, Calif.

Filed Oct. 15, 1996, Ser. No. 729,325
Int. Cl.^{6} A61B *17/36*
U.S. Cl. 606—7 **28 Claims**

1. A method for performing transmyocardial revascularization (TMR) with laser energy having parameters selected to avoid cardiac arrhythmia, the method comprising the following steps, in combination:

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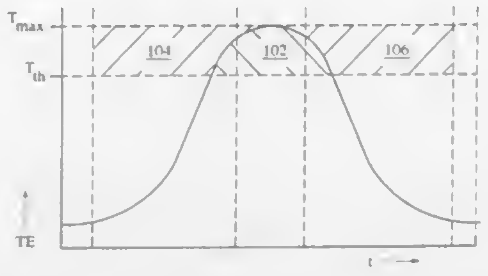


- determining a wavelength of the laser energy from a laser selected to perform transmyocardial revascularization;
- using the wavelength determination to select parameters for the laser energy to produce a non-square wave shape;
- generating the laser energy at the determined wavelength with the selected parameters to produce the non-square wave shape; and
- delivering the generated laser energy in one or more pulses to selected portions of heart tissue to perform transmyocardial revascularization in myocardium to avoid cardiac arrhythmia and need for synchronizing delivery of the laser energy to a cardiac cycle.

5,785,703

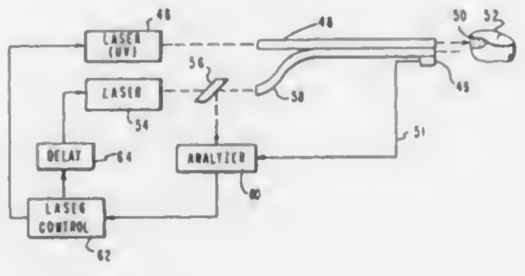
DENTAL PROCEDURES AND APPARATUS USING ULTRAVIOLET RADIATION

Barry Dean Goodman, Baldwin; James Jeffrey Wynne, Mount Kisco; Hershall William Kaufman, Setauket, and Jason Matthew Jacobs, Baldwin, all of N.Y., assignors to International Business Machines Corporation, Armonk, N.Y.

Division of Ser. No. 271,385, Jul. 6, 1994, Pat. No. 5,435,724, which is a continuation of Ser. No. 26,333, Mar. 4, 1993, abandoned. This application Jul. 24, 1995, Ser. No. 506,410

Int. Cl.^{6} A61B *17/36*

U.S. Cl. 606—10 **11 Claims**



1. An apparatus for performing laser dentistry, comprising in combination:
- a first laser producing ultraviolet radiation,
- means for establishing the energy fluence of said ultraviolet radiation of said fist laser at an amount sufficient to ablate tooth material,
- means for establishing the energy fluence of said ultraviolet radiation at an amount less than that which is sufficient to ablate enamel but greater than the threshold amount necessary to ablate carious material,
- means for sending a beam of said ultraviolet radiation to a selected region of said tooth to selectively ablate material therefrom and generate a plume adjacent to said selected region, and
- a second laser producing output radiation and including means for directing the radiation at the plume.

5,785,704

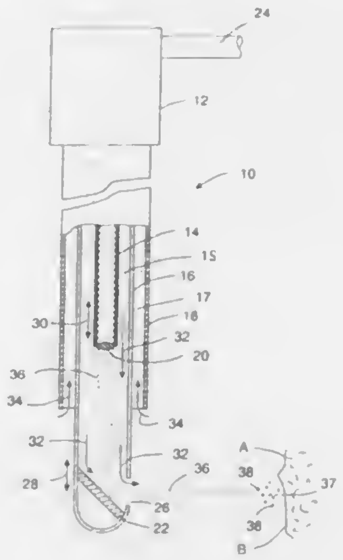
METHOD FOR PERFORMING STEREOTACTIC LASER SURGERY

Joseph F. Bille; Marcus H. Goetz, both of Heidelberg, and Volker Sturm, Wiesloch-Schatthausen, all of Germany, assignors to MRC Systems GmbH, Heidelberg, Germany

Filed Jul. 29, 1996, Ser. No. 688,039

Int. Cl.^{6} A61B *17/36*

U.S. Cl. 606—17 **38 Claims**



1. A method for using a laser beam in stereotactic laser neurosurgery for the photodisruption of malignant tissue which comprises the steps of:
- locating a hollow probe to establish extracorporeal access to the tissue to be photodisrupted, said hollow probe having a proximal end and a distal end and being formed with a channel;
- selectively placing a light reflector near said distal end of said probe;
- directing said laser beam on a beam path through said channel of said probe for reflection from said light reflector in a direction away from said beam path;
- positioning a lens in said channel proximal to said light reflector to focus said laser beam at a desired focal point;
- moving said light reflector, in concert with movement of said lens, to move said focal point in a predetermined manner for photodisruption of the tissue;
- rinsing said light reflector with a solution; and
- aspirating said solution together with photodisrupted debris from around said tissue.

5,785,705

RF METHOD FOR CONTROLLED DEPTH ABLATION OF SOFT TISSUE

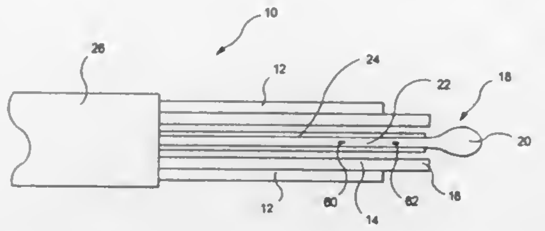
James Baker, Palo Alto, Calif., assignor to Oratec Interventions, Inc., Menlo Park, Calif.

Division of Ser. No. 320,304, Oct. 11, 1994, Pat. No. 5,514,130. This application Oct. 24, 1995, Ser. No. 547,510

Int. Cl.^{6} A61B *17/39*

U.S. Cl. 606—32 **10 Claims**

1. A method of ablating a tissue surface, comprising:
- providing an RF ablation device including, a delivery catheter, a first RF electrode at least partially positioned in a lumen of the delivery catheter, and a second RF electrode positioned at least partially in the first RF electrode, a distal end of the second RF electrode having a distal end that is substantially a groundpad; and
- moving a distal end of the first RF electrode in a direction away from the distal end of the second RF electrode to create an ablation line along a selected tissue site between the second RF electrode distal end and the first electrode distal end.



5,785,706

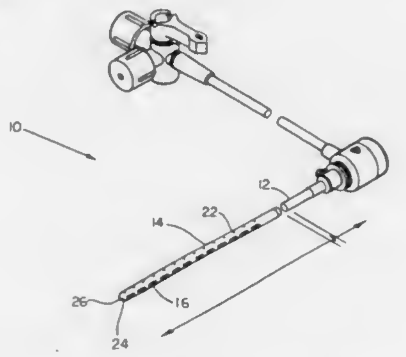
NONSURGICAL MAPPING AND TREATMENT OF CARDIAC ARRHYTHMIA USING A CATHETER CONTAINED WITHIN A GUIDING INTRODUCER CONTAINING OPENINGS

Michael C. Bednarek, Minnetonka, Minn., assignor to Daig Corporation, Minnetonka, Minn.

Filed Nov. 18, 1996, Ser. No. 751,303

Int. Cl.^{6} A61B *17/39*

U.S. Cl. 606—41 **19 Claims**



1. A system for linear ablation comprising a guiding introducer containing openings and an ablation catheter with electrodes, wherein the guiding introducer comprises a first proximal and a second distal section, wherein the first proximal section comprises an elongated section containing a lumen, wherein the second distal section comprises an introducer section containing a plurality of openings, wherein the openings are of sufficient size to permit ablation of cardiac tissue through the openings by the electrodes of the ablation catheter, wherein the openings feature a width and a length, and wherein the ablation catheter features a diameter which is greater than the width or length of the openings, such that the ablation catheter remains inside the lumens of the first and second sections of the guiding introducer during the ablation of cardiac tissue.

5,785,707

TEMPLATE FOR POSITIONING INTERBODY FUSION DEVICES

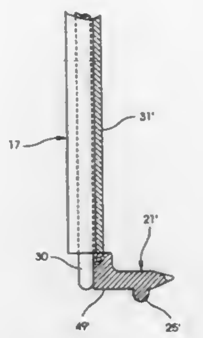
Lawrence M. Boyd, Memphis, and Eddie Ray, III, Cordova, both of Tenn., assignors to SDGI Holdings, Inc., Wilmington, Del.

Division of Ser. No. 427,432, Apr. 24, 1995, Pat. No. 5,645,549. This application Jul. 8, 1997, Ser. No. 889,473

Int. Cl.^{6} A61B *17/36;17/58;* **A61F** *2/00*

U.S. Cl. 606—41 **6 Claims**

1. A template assembly to facilitate the placement of an implant or instrument at a portion of the spine, such as the disc space between adjacent vertebrae, comprising:
- a tubular body sized for introduction into a patient for advancement to the portion of the spine, said tubular body having a longitudinal axis, and a proximal end disposed outside the patient and a distal end disposed adjacent the portion of the spine when said body is within the patient;
- an elongated guide foot having an axis, said guide foot being pivotably connected to said tubular body at a hinge disposed at said distal end, whereby said guide foot is pivotable between a first position in which said axis is parallel to said longitudinal axis of said tubular body for introduction into the patient, and a second position in which said axis is oriented at an angle relative to said longitudinal axis of said tubular body; and
- deployment means extending through said tubular body and operating on said guide foot for causing said guide foot to pivot about said hinge between said first position and said second position,
- wherein said guide foot includes marking means associated therewith for creating a mark on the disc annulus identifying a location on the annulus, said marking means including;
  - a projection defined on a surface of said guide foot oriented adjacent the disc annulus when said guide foot is in said second position; and
  - means for providing electrical energy to said projection to heat said projection for cauterizing the disc annulus.



5,785,708

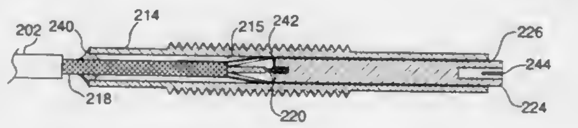
EPILATOR PROBEHOLDER

Harry Edwards Betsill, Parkton, and Michael Joseph Kovacevich, White Marsh, both of Md., assignors to LP Systems Corporation, Richmond Hill, N.Y.

Filed Sep. 19, 1995, Ser. No. 531,189

Int. Cl.^{6} A61B *17/41*

U.S. Cl. 606—43 **31 Claims**



1. An epilator probeholder for a replaceable, flexible, insulated epilator probe comprising:
- a length of coaxial cable having an inner conductor and an outer conductor;
- a coaxial capacitor structure for holding said replaceable, flexible, insulated epilator probe comprising an inner female connector and an outer conductive shell;
- means connecting said coaxial cable inner conductor to said inner female connector for holding said flexible probe, and means for connecting said outer conductor to said outer conductive shell;
- means for insulating said inner female connector from said outer conductive shell;
- means for connecting an end of said coaxial cable to a standard coaxial connector; and
- a connector housing for housing said standard coaxial connector, said housing including means for standardizing the impedance seen at the input of said standard coaxial connector.

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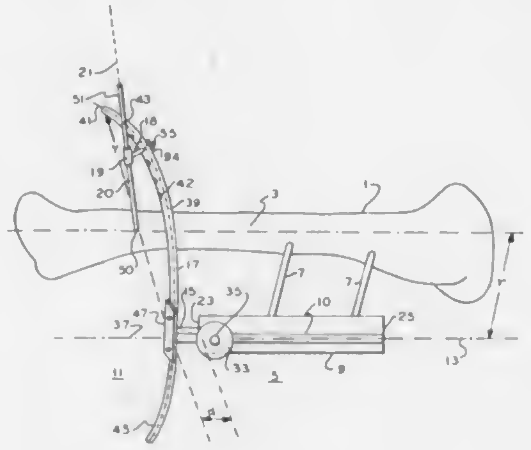
5,785,709
APPARATUS AND METHOD FOR PERFORMING A SURGICAL PROCEDURE ON BONE LESIONS

Frederick Kummer, and Steven Shankman, both of New York, N.Y., assignors to Hospital for Joint Diseases Orthopaedic Institute, New York, N.Y.

Continuation-in-part of Ser. No. 58,171, May 10, 1993, abandoned. This application Sep. 11, 1995, Ser. No. 526,305

Int. Cl.^{6} A61B *17/56*

U.S. Cl. 606—56 **13 Claims**



1 An apparatus for performing a surgical procedure on bone lesions comprising:

(a) a generally planar support means having an upper face and a lower face, said upper face having a central groove formed therein intermediate the ends of said support means;

(b) spaced apart, elongated spacer means secured to the lower face of said support means, said spacer means being capable of being secured to a bone upon which a surgical procedure is to be performed such that the longitudinal axis of said support means is maintained substantially parallel to the longitudinal axis of a bone to which said spacer means are secured;

(c) an elongated, tubular, arcuate positioning member having a plurality of spaced apertures formed therein along its arcuate length intermediate its ends, said apertures extending through said arcuate positioning member, each of said apertures having an entrance port and an exit port;

(d) means to mount said arcuate positioning member in sliding engagement within the groove of said support means enabling said arcuate positioning member to be moved linearly along said groove;

(e) a lock means on said support means to secure said arcuate positioning member at pre-determined positions along the groove of said support means;

(f) a generally T-shaped support member the short leg of which is tubular and the long leg of which is in the form of a rod having an end portion and a shoulder portion, said long leg being capable of being inserted into and through an aperture in said arcuate positioning member; and,

(g) an elongated, tubular guide member secured within the short leg of said T-shaped support member such that the longitudinal axis of said guide member is disposed perpendicular to a bone upon which a surgical procedure is to be performed with the lower end of said guide member closely oriented to the surface of said bone.

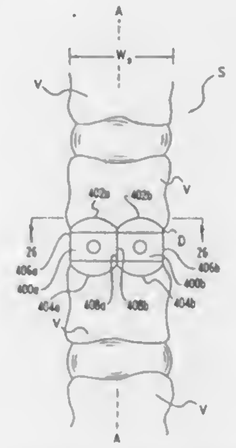
5,785,710
INTERBODY SPINAL FUSION IMPLANTS

Gary Karlin Michelson, Venice, Calif., assignor to Sofamor Danek Group, Inc., Memphis, Tenn.

Division of Ser. No. 390,131, Feb. 17, 1995, Pat. No. 5,593,409, which is a continuation-in-part of Ser. No. 968,240, Oct. 29, 1992, which is a continuation of Ser. No. 698,674, May 10, 1991, abandoned, which is a division of Ser. No. 205,935, Jun. 13, 1988, Pat. No. 5,015,247, and a continuation-in-part of Ser. No. 23,926, Jun. 3, 1994, Pat. No. Des. 377,096. This application Jun. 7, 1995, Ser. No. 474,478

Int. Cl.^{6} A61B *17/56*

U.S. Cl. 606—61 **13 Claims**



3. A partially cylindrical spinal fusion implant made of a material appropriate for human implantation, said spinal fusion implant comprising a partially cylindrical non-threaded body portion having an exterior surface formed by opposite cylindrical portions defining a maximum diameter and intermediate opposite non-cylindrical portions defining a width therebetween configured to be placed in close proximity to a second partially cylindrical non-threaded spinal fusion implant, whereby said first and second implants when placed together said non-cylindrical portions in proximity have a combined overall width that is less that than the sum of the individual maximum diameters of each of said first and second implant implants.

5,785,711
POLYAXIAL PEDICLE SCREW HAVING A THROUGH BAR CLAMP LOCKING MECHANISM

Joseph P. Errico, Far Hills; Thomas J. Errico, Summit; James D. Ralph, Oakland, and Stephen Tatar, Montville, all of N.J., assignors to Third Millennium Engineering, LLC, Summit, N.J.

Filed May 15, 1997, Ser. No. 856,773

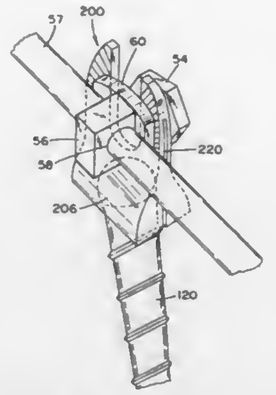
Int. Cl.^{6} A61B *17/70*

U.S. Cl. 606—61 **11 Claims**

1. A polyaxial screw assembly for use with orthopedic rod implantation apparatus, comprising:

a screw having a curvate head;

a cross bar mounting element having upper and lower portions, said lower portion including an interior socket, said interior socket being capable of polyaxially receiving therein said curvate head, and said upper portion including a pair of upwardly extending members defining therebetween a trough, said cross bar mounting element further including at least one vertical slot extending from said lower portion and into said pair of upwardly extending members of said upper portion, said at least one slot rendering said interior socket contractible by the application of a compression force applied to said at least one slot which causes said at least one slot to narrow; and



a cross bar assembly having a first end, a second end, an elongate medial portion, and an annular member positioned about said elongate medial portion adjacent to said first end, said annular member having a diameter which is greater than a separation between the upwardly extending members of the cross bar mounting element, said elongate medial portion being positionable in said trough of said cross bar mounting element such that said annular member contacts a front face of said upper portion of said cross bar mounting element, said first end including means for securely coupling to a rod; and

a selectively advanceable means, which is selectively advanceable along said cross bar assembly, from said second end toward said first end, said selectively means having a diameter which is greater than the separation between the upwardly extending members of the cross bar mounting element and which selective advancement into contact with a rear face of said cross bar mounting element applies a compressive force to said cross bar mounting element which in turn causes the at least one slot to narrow and the interior socket to be compressed and thereby compression lock to the curvate head of the screw, securing the screw in the selected position relative to the cross bar mounting element.

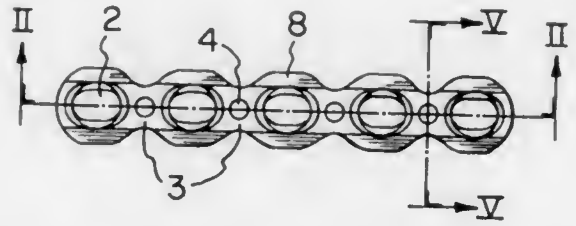
5,785,712
RECONSTRUCTION BONE PLATE

Robert John Runciman, Renfrew, Canada, and Randall N. Allard, Plymouth, Ind., assignors to Terray Corporation, Ontario, Canada, and Bristol-Myers Squibb Company, New York, N.Y.

Filed Apr. 16, 1996, Ser. No. 633,399

Int. Cl.^{6} A61B *17/80*

U.S. Cl. 606—69 **16 Claims**



1. An elongated metallic bone plate having an upper surface, a lower surface, and side surfaces, provided along its length with at least a pair of spaced apart screw holes extending therethrough from the upper to the lower surface, wherein said plate is provided, on at least a selected one of its upper or lower surfaces between at least one pair of said screw holes, with an indentation extending into but not through said plate, whereby said indentation substantially reduces the bending rigidity of said plate in the direction normal to the longitudinal axis and normal to the upper and lower surfaces thereof, but said indentation does not substantially affect the arcing rigidity of said plate in the direction normal to the longitudinal axis and parallel to the upper and lower surfaces, said indentation having a perimeter non-intersecting with adjacent screw holes and non-intersecting with said side surfaces.

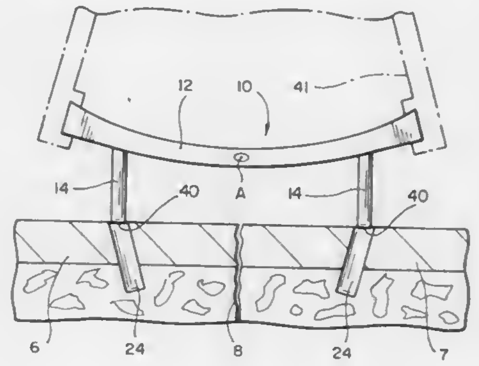
5,785,713
SURGICAL FIXATION APPARATUS

Richard P. Jobe, 26985 Orchard Hill La., Los Altos Hills, Calif. 94022

Continuation-in-part of Ser. No. 428,913, Apr. 25, 1995, Pat. No. 5,634,926. This application May 6, 1997, Ser. No. 852,012

Int. Cl.^{6} A61B *17/58*

U.S. Cl. 606—69 **14 Claims**



1. A fixation apparatus comprising:

a body portion,

a plurality of leg portions unitary with said body portion, and extending from said body portion at an angle relative to the opposite leg portion in an initial orientation;

said body portion being deformable about a middle portion between said leg portions to move said leg portions from the initial orientation to an insertion orientation in which said leg portions are substantially parallel for insertion of said leg portions into tissue or bone, said leg portions at least partially returning to the initial orientation when the force applied to said body portion is released such that said leg portions anchor said fixation apparatus to the tissue or bone.

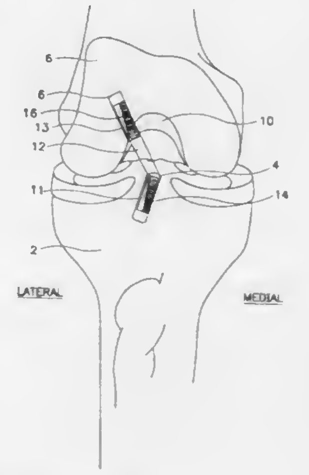
5,785,714
METHOD OF ACL RECONSTRUCTION USING DOUBLE SOCKET GRAFT PLACEMENT AND FIXATION

Craig D. Morgan, Greenville, Del., and Reinhold Schmieding, Naples, Fla., assignors to Arthrex, Inc., Naples, Fla.

Filed Feb. 18, 1997, Ser. No. 801,635

Int. Cl.^{6} A61B *17/58*

U.S. Cl. 606—86 **12 Claims**



1. A surgical method for arthroscopic knee repair, comprising the steps of:

(a) forming a portal in the knee;

(b) forming a first closed-ended socket in the knee by inserting a bone harvester through the portal and driving the bone har-

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vester into a bone in the knee, the bone harvester collecting bone material forming a bone core as the harvester is driven into the bone;

(c) removing the bone harvester and the bone core contained therein;

(d) forming a second closed-ended socket in the knee so as to produce a second bone core; and

(e) inserting into at least one of the sockets at least a portion of one of the harvested bone cores.

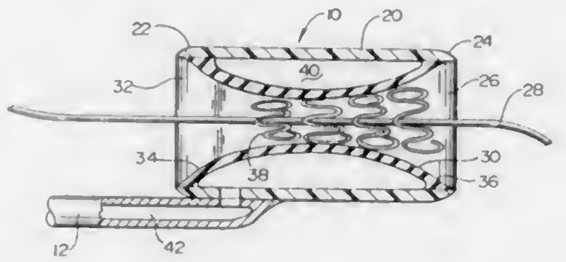
5,785,715
RETRIEVAL SHUTTLE

Richard A. Schatz, P.O. Box 8517, Rancho Santa Fe, Calif. 92067

Filed Dec. 7, 1995, Ser. No. 569,724

Int. Cl.^{6} A61F *11/00*

U.S. Cl. 606—108 **7 Claims**



1. A device for retrieval of a foreign object from the vessel of a patient, said device comprising:

a positioning catheter formed with a lumen, said positioning catheter having a distal end and a proximal end;

a shuttle body attached to said distal end of said positioning catheter for movement therewith, said shuttle body formed from a substantially rigid material to surround a lumen;

inflatable means positioned in said lumen of said shuttle body and attached in fluid communication with said lumen of said positioning catheter for selective inflation thereof to hold said foreign object in said lumen of said shuttle body; wherein said inflatable means comprises a flexible bladder, said flexible bladder having a proximal end and a distal end, wherein said proximal end of said flexible bladder is circumferentially sealed to said proximal end of said shuttle body and said distal end of said flexible bladder is circumferentially sealed to said distal end of said shuttle body to form a chamber between said flexible bladder and said shuttle body, said chamber pressurizable to selective expand said flexible bladder to surroundingly hold said foreign object.

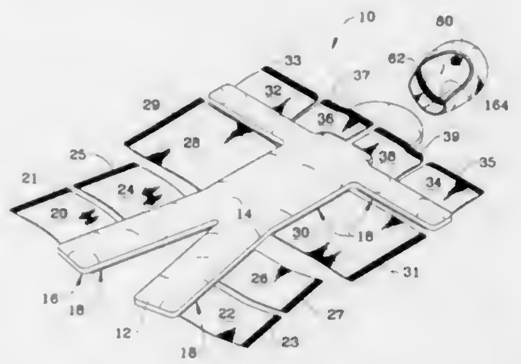
5,785,716
TEMPERATURE CONTROL PAD FOR USE DURING MEDICAL AND SURGICAL PROCEDURES

Harry Bayron, 7439 Pioneer Rd., West Palm Beach, Fla. 33413, and Neil Winthrop, 12A Amherst Ct., Royal Palm Beach, Fla. 33411

Filed May 9, 1996, Ser. No. 647,226

Int. Cl.^{6} A61F *7/00*

U.S. Cl. 607—108 **20 Claims**



1. A patient body temperature regulation device for use in surgical operations and medical procedures comprising:

a pad having an upper and lower surface, said pad shaped to conform to a human form;

means for generating and evenly distributing thermal energy throughout said pad;

a plurality of insulated material sections individually releasible attached to the periphery of said pad;

attachment means for securing said pad in a fixed position;

wherein the patient lies upon said pad and thermal energy radiates upwards to be trapped by said insulated sections which securely wrap around and insulate various body parts of a patient.

5,785,717
COMPOSITION FOR THE OXIDATION DYEING OF KERATIN FIBERS, COMPRISING A DIAMINOPYRAZOLE DERIVATIVE AND A HETEROCYCLIC COUPLER, AND DYEING PROCESS

Mireille Maubru, Chatou, and Marie-Pascale Audousset, Asnieres, both of France, assignors to L'Oreal, Paris, France

Filed Feb. 27, 1996, Ser. No. 606,749

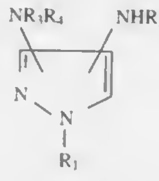
Claims priority, application France, Feb. 27, 1995, 95 02271

Int. Cl.^{6} A61K *7/13*

U.S. Cl. 8—409 **24 Claims**

1. A composition for the oxidation dyeing of keratin fibers, said composition comprising, in a medium which is suitable for dyeing:

at least one oxidation base selected from the diaminopyrazole derivatives of following formula (I), and the acid addition salts thereof:



(I)

in which:

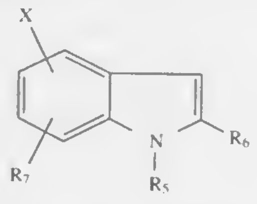
R_1 represents a hydrogen atom, a C_1–C_6 alkyl, C_2–C_4 hydroxyalkyl, benzyl or phenyl radical, a benzyl radical substituted with a halogen atom or with a C_1–C_4 alkyl or C_1–C_4 alkoxy group, or forms, with the nitrogen atom of NR_3R_4 in the 5-position, a hexahydropyrimidine or tetrahydroimidazole heterocycle optionally monosubstituted with a C_1–C_4 alkyl group;

R_2 and R_3, which may be identical or different, represent a hydrogen atom or a C_1–C_4 alkyl, C_2–C_4 hydroxyalkyl, benzyl or phenyl radical;

R_4 represents a hydrogen atom or a C_1–C_6 alkyl or C_2–C_4 hydroxyalkyl radical; with the proviso that R_2 represents a hydrogen atom when R_1 represents a substituted benzyl radical or forms a heterocycle with the nitrogen atom of NR_3R_4 in the 5-position;

at least one heterocyclic coupler selected from:

(i) indole derivatives of following formula (II), and the acid addition salts thereof:



(II)

in which:

R_5 and R_6, which may be identical or different, represent a hydrogen atom or a C_1–C_4 alkyl radical;

R_7 represents a hydrogen atom or a C_1–C_4 alkyl or hydroxyl radical;

X represents a hydroxyl radical or a radical NHR_8 in which R_8 represents a hydrogen atom or a C_1–C_4 alkyl or C_1–C_4 hydroxyalkyl radical;

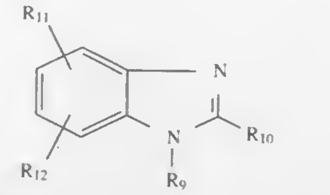
with the proviso that:

when R_7 denotes hydroxyl, it occupies the 6-position and X denotes hydroxyl and occupies the 5-position and R_5 and R_6 represent a hydrogen atom,

when X denotes hydroxyl and occupies the 4-position, at least one of the radicals R_5, R_6 and R_7 is other than a hydrogen atom,

when X is in the 5-position, at least one of the radical R_5, R_6 and R_7 is other than a hydrogen atom;

(ii) the benzimidazole derivatives of following formula (III), and the acid addition salts thereof:



(III)

in which:

R_9 represents a hydrogen atom or a C_1–C_4 alkyl radical,

R_{10} represents a hydrogen atom or a C_1–C_4 alkyl or phenyl radical,

R_{11} represents a hydroxyl, amino or methoxy radical, or C_1–C_4 alkyl radical;

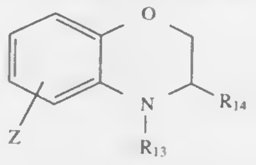
with the proviso that:

when R_{11} denotes an amino radical, it occupies the 4-position,

when R_{11} occupies the 4-position, R_{12} occupies the 7-position,

when R_{11} occupies the 5-position, R_{12} occupies the 6-position;

(iii) the benzomorpholine derivatives of following formula (IV), and the acid addition salts thereof:



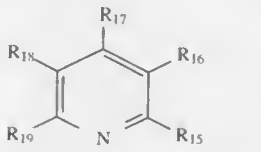
(IV)

in which:

R_{13} and R_{14}, which may be identical or different, represent a hydrogen atom or a C_1–C_4 alkyl radical,

Z represents a hydroxyl or amino radical;

(iv) the pyridine derivatives of following formula (V), and the acid addition salts thereof:



(V)

in which:

R_{15} represents a hydrogen atom or a hydroxyl, amino or—$OCH_2CH_2COCH_2CH_2OH$ radical,

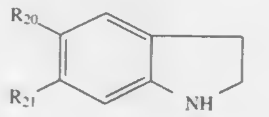
R_{16} and R_{18}, which may be identical or different, represent a hydrogen atom or a hydroxyl, amino or C_1–C_4 alkyl radical,

R_{17} represents a hydrogen atom or a C_1–C_4 alkyl radical,

R_{19} represents a hydrogen atom or a hydroxyl or amino radical,

with the proviso that said compounds of formula (V) contain not more substituted or unsubstituted amino groups, not more than two hydroxyl groups, or not more than one amino group and one hydroxyl group per molecule, said amino, hydroxyl, or amino and hydroxyl groups necessarily being in a meta position relative to each other;

(v) indoline derivatives of following formula (VI), and the acid addition salts thereof:



(VI)

in which:

R_{20} denotes a hydrogen atom or a hydroxyl radical,

R_{21}, denotes a hydroxyl or amino radical;

(vi) the quinoline derivatives of following formula (VII), and the acid addition salts thereof:

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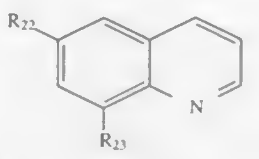


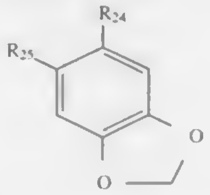
(VII)

in which:

R_{22} denotes a hydroxyl or C_1–C_4 alkoxy radical,

R_{23} denotes a hydrogen atom or amino radical;

(vii) the sesamol derivatives of following formula (VIII), and the acid addition salts thereof:



(VIII)

in which:

R_{24} denotes a hydroxyl or amino radical,

R_{25} denotes a halogen atom or a C_1–C_4 alkoxy radical,

with the proviso that:

when R_{24} denotes an amino radical, R_{25} denotes a C_1–C_4 alkoxy radical,

when R_{24} denotes a hydroxyl radical, R_{25} denotes a halogen atom;

with the proviso that when said composition comprises a compound of formula (I) which is 4,5-diamino-1-methylpyrazole, it does not contain any indole derivative of formula (II) which is 5,6-dihydroxyindole,

and wherein said at least one oxidation base and said at least one heterocyclic coupler are present in an amount effective to dye said keratin fibres.

5,785,718

SUBSTANTIVE STILBENE-AZO DYESTUFFS

Horst Berneth, and Uwe Claussen, both of Leverkusen, Germany, assignors to Bayer Aktiengesellschaft, Leverkusen, Germany

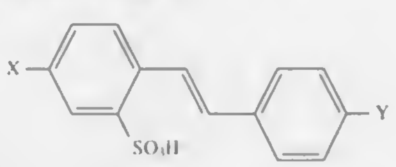
Filed May 27, 1997, Ser. No. 863,316

Claims priority, application Germany, May 31, 1996, 196 21 865.9

Int. Cl.⁶ D06P *3/32;3/62*

U.S. Cl. 8—437 **6 Claims**

1. A process for dyeing or printing materials containing cellulose or amide groups, or containing cellulose and amide groups, in which the improvement comprises employing as the dyestuff at least one stilbene-azo dyestuff which, in the form of the free acid, corresponds to the formula (I)

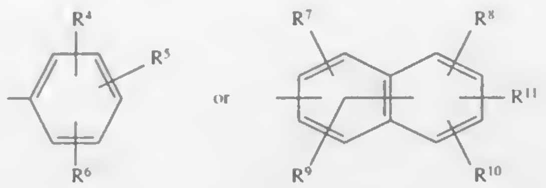


(I)

in which

X and Y independently of one another represent —N=N—R, and

R represents a radical of the formula



in which

R^4, R^5, R^6, R^7, R^8, R^9, R^{10} and R^{11} independently of one another represent H, halogen, —OH, —OR^3, —NR^1R^2, R^3, —SO_3H, —$SO_2NR^1R^2$, —O—COR^3 or —$NHCOR^3$ and

R^1 and R^2 independently of one another represent hydrogen, or represent formyl, or represent in each case optionally C_1–C_4-alkyl-, hydroxyl-, C_1- to C_4-alkoxy-, amino-, C_1- to C_4-mono- or -dialkylamino-, morpholino-, piperidino-, N—R^{12}-piperazino-, halogen-, cyano-, nitro-, phenyl-, carboxyl-, C_1- to C_4-alkoxycarbonyl-, aminocarbonyl-, C_1- to C_4-mono- or -dialkylaminocarbonyl-, sulfo- or OSO_3H-substituted C_1- to C_6-alkyl, C_1- to C_6-alkylcarbonyl, C_1- to C_6 -alkylsulfonyl, C_1- to C_6-alkoxycarbonyl, C_1- to C_6 -mono- or -dialkylaminocarbonyl, C_5- to C_7-cycloalkyl, C_6- to C_{10}-aryl, C_6- to C_{10}-arylcarbonyl or C_6- to C_{10}-arylsulfonyl, or

R^1 and R^2, together with the N atom to which they are bonded, represent a 5- to 7-membered saturated heterocyclic ring, which can contain further heteroatoms from the series consisting of O, S, SO_2 and NR^{12}, wherein

R^{12} has the meaning of R^1 or R^2, and

R^3 represents in each case optionally C_1–C_4-alkyl-, hydroxyl-, C_1–C_4-alkoxy-, halogen-, cyano- or nitro-substituted C_1- to C_6-alkyl, C_6- to C_{10}-aryl or C_6- to C_{10}-aryl-C_1–C_6-alkyl.

5,785,719

METHINE AND AZO DYE-CONTAINING DYE MIXTURES

Karl-Heinz Etzbach, Frankenthal, and Rüdiger Sens, Mannheim, both of Germany, assignors to BASF Aktiengesellschaft, Ludwigshafen, Germany

PCT No. PCT/EP95/03947, § 371 Date Apr. 18, 1997, § 102(e) Date Apr. 18, 1997, PCT Pub. No. WO96/11987, PCT Pub. Date Apr. 25, 1996

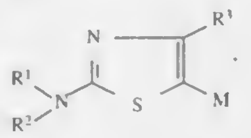
PCT Filed Oct. 6, 1995, Ser. No. 793,341

Claims priority, application Germany, Oct. 18, 1994, P4437166.7

Int. Cl.⁶ C09B *67/22;* **B41M** *5/38*

U.S. Cl. 8—471 **12 Claims**

1. Dye mixtures including one or more pyridone dyes of the formula I



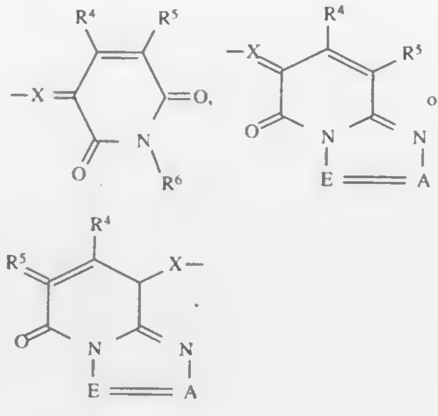
(I)

where

R^1 and R^2 are independently of each other C_1–C_{10}-alkyl with or without substitution by C_1–C_4-alkoxycarbonyl, C_1–C_4-alkoxycarbonyloxy, whose alkyl chain may in each case be interrupted by an oxygen atom in ether function, or phenyl and with or without interruption by from 1 to 4 oxygen atoms in ether function, C_5–C_7-cycloalkyl, C_3–C_4-alkenyl, unsubstituted or C_1–C_4-alkyl-, C_1–C_4-alkoxy-, halogen- or or nitro-substituted phenyl, or R^1 and R^2 are together with the nitrogen atom joining them together a 5- or 6-membered saturated heterocyclic radical with or without further hetero atoms,

R^3 is C_3–C_{10}-alkyl, unsubstituted or C_1–C_4-alkyl-, C_1–C_4-alkoxy-, halogen- or nitro-substituted phenyl or thienyl, C_5–C_7-cycloalkyl, and

M is a radical of the formula



where

X is CH,

R^4 is hydrogen, C_1–C_6-alkyl or unsubstituted or C_1–C_4-alkyl-, C_1–C_4-alkoxy-, halogen- or nitro-substituted phenyl,

R^5 is cyano, carbamoyl, mono- or di(C_1–C_8-alkyl)carbamoyl, carboxyl, C_1–C_8-alkoxycarbonyl or benzimidazolyl,

R^6 is hydrogen, C_1–C_{10}-alkyl with or without substitution by phenyl, phenoxy, cyclohexyloxy or pyrazolyl and with or without interruption by from 1 to 4 oxygen atoms in ether function, C_5–C_7-cycloalkyl or unsubstituted or C_1–C_4-alkyl-, C_1–C_4-alkoxy-, halogen- or nitro-substituted phenyl, or a radical of the formula NB^1B^2 where B^1 and B^2 are independently of each other hydrogen, C_1–C_{10}-alkyl, unsubstituted or C_1–C_4-alkyl-, C_1–C_4-alkoxy-, halogen- or nitro-substituted phenyl, C_1–C_9-alkanoyl, C_1–C_8-alkylsulfonyl, unsubstituted or C_1–C_4-alkyl-, C_1–C_4-alkoxy-, halogen- or nitro-substituted phenylsulfonyl, pyridylsulfonyl, unsubstituted or C_1–C_4-alkyl-, C_1–C_4-alkoxy-, halogen- or nitro-substituted benzoyl, pyridylcarbonyl or thienylcarbonyl, and

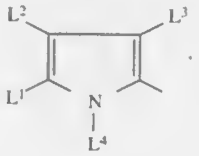
one of the two radicals A and E is nitrogen and the other is a radical of the formula C—R^7, where R^7 has the meaning of $C_{1\text{-}10}$-alkyl, with or without phenyl, phenoxy, cyclohexyloxy or pyrazolyl substitution and with or without interruption by from 1 to 4 oxygen atoms in ether function, of C_5–C_7-cycloalkyl or of unsubstituted or C_1–C_4-alkyl-, C_1–C_4-alkoxy-, halogen- or nitro-substituted phenyl,

and one or more azo dyes of the formula II

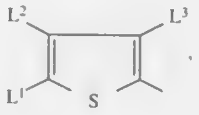
$$D—N{=}N—K, \qquad (II)$$

where

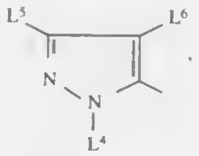
D is a radical of the formula



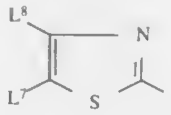
(IIIa)



(IIIb)



(IIIc)



(IIId)

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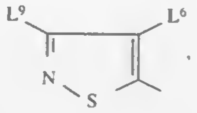
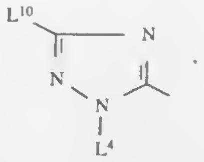
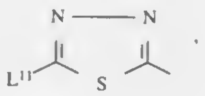


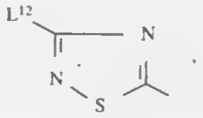
(IIIe)



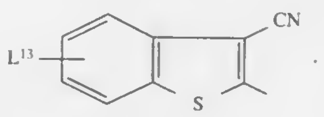
(IIIf)



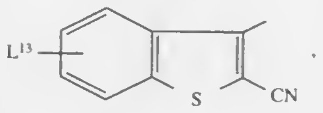
(IIIg)



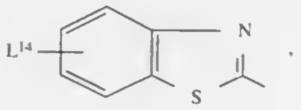
(IIIh)



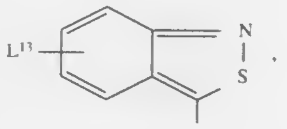
(IIIi)



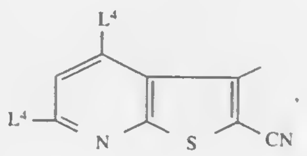
(IIIj)



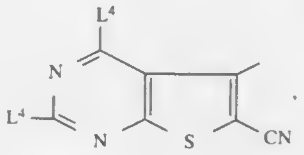
(IIIk)



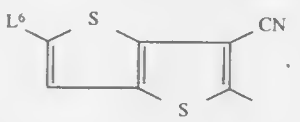
(IIIl)



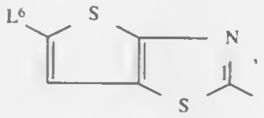
(IIIm)



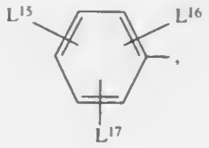
(IIIn)



(IIIo)



(IIIp)



(IIIq)

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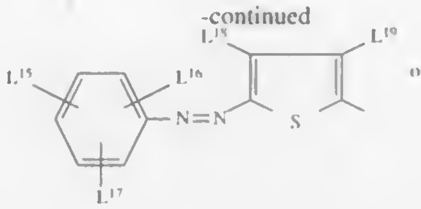
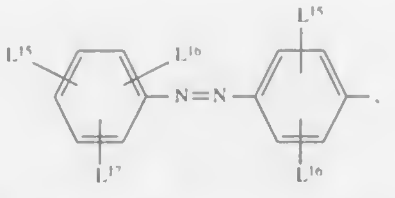


(IIIr)

or



(IIIs)

where

L^1 is nitro, cyano, C_1–C_6-alkanoyl, benzoyl, C_1–C_8-alkoxycarbonyl, C_1–C_8-alkylsulfonyl, unsubstituted or C_1–C_4-alkyl-, C_1–C_4-alkoxy-, halogen- or nitro-substituted phenylsulfonyl or a radical of the formula —CH=T, where T is hydroxyimino, C_1–C_4-alkoxyimino or a radical of an acidic-CH compound H_2T,

L^2 is hydrogen, C_1–C_6-alkyl, unsubstituted or C_1-C_4-alkyl-, C_1-C_4-alkoxy-, halogen- or nitro-substituted phenyl, halogen, hydroxyl, mercapto, unsubstituted or phenyl- or C_1–C_4-alkoxy-substituted C_1–C_6-alkoxy, unsubstituted or C_1–C_4-alkyl-, C_1–C_4-alkoxy-, halogen- or nitro-substituted phenoxy, unsubstituted or phenyl-substituted C_1–C_8-alkylthio, unsubstituted or C_1–C_4-alkyl-, C_1–C_4-alkoxy-, halogen- or nitro-substituted phenylthio, C_1–C_8-alkylsulfonyl or unsubstituted or C_1–C_4-alkyl-, C_1–C_4-alkoxy-, halogen- or nitro-substituted phenylsulfonyl,

L^3 is cyano, C_1–C_8-alkoxycarbonyl or nitro,

L^4 is hydrogen, C_1–C_6-alkyl, phenyl or tolyl,

L^5 is C_1–C_6-alkyl, phenyl or tolyl,

L^6 is hydrogen, cyano, C_1–C_8-alkoxycarbonyl, C_1–C_6-alkanoyl, thiocyanato, halogen or nitro,

L^7 is nitro, cyano, C_1–C_6-alkanoyl, benzoyl, C_1–C_8-alkoxycarbonyl, C_1–C_8-alkylsulfonyl, unsubstituted or C_1-C_4-alkyl-, C_1–C_4-alkoxy-, halogen- or nitro-substituted phenylsulfonyl or a radical of the formula —CH=T, where T is as defined above,

L^8 is hydrogen, C_1–C_6-alkyl, unsubstituted or C_1–C_4-alkyl-, C_1–C_4-alkoxy-, halogen- or nitro-substituted phenyl, cyano, halogen, unsubstituted or phenyl- or C_1–C_4-alkoxy-substituted C_1–C_6-alkoxy, unsubstituted or phenyl-substituted C_1–C_8-alkylthio, unsubstituted or C_1–C_4-alkyl-, C_1–C_4-alkoxy-, halogen- or nitro-substituted phenylthio, C_1–C_8-alkylsulfonyl, unsubstituted or C_1–C_4-alkyl-, C_1–C_4-alkoxy-, halogen- or nitro-substituted phenylsulfonyl or C_1–C_8-alkoxycarbonyl,

L^9 is cyano, unsubstituted or phenyl-substituted C_1–C_6-alkyl, unsubstituted or phenyl-substituted C_1–C_8-alkoxy, unsubstituted or phenyl-substituted C_1–C_8-alkylthio, unsubstituted or C_1–C_4-alkyl-, C_1–C_4-alkoxy-, halogen- or nitro-substituted phenyl, thienyl, C_1–C_4-alkylthienyl, pyridyl or C_1–C_4 alkylpyridyl,

L^{10} is phenyl, tolyl or pyridyl,

L^{11} is trifluoromethyl, nitro, C_1–C_6-alkyl, phenyl, unsubstituted or phenyl-substituted C_1–C_8-alkylthio or C_1–C_6-dialkylamino,

L^{12} is C_1–C_6-alkyl, phenyl, unsubstituted or phenyl-substituted C_1–C_8-alkylthio, 2-cyanoethylthio or 2-(C_1–C_6-alkoxycarbonyl)ethylthio,

L^{13} is hydrogen, nitro or halogen,

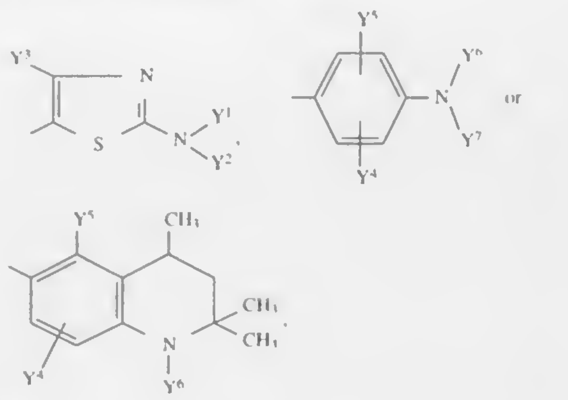
L^{14} is hydrogen, cyano, C_1–C_8-alkoxycarbonyl, nitro or halogen,

L^{15}, L^{16} and L^{17} are independently of one another hydrogen, C_1–C_6-alkyl, C_1–C_6-alkoxy, halogen, nitro, cyano, unsubstituted or phenoxy-substituted C_1–C_8-alkoxycarbonyl, C_1–C_8-alkylsulfonyl or unsubstituted or C_1–C_4-alkyl-, C_1–C_4-alkoxy-, halogen- or nitro-substituted phenylsulfonyl, or L^{15} and L^{16} are together a radical of the formula CO—NW—CO, where W is C_1–C_{10}-alkyl with or without interruption by from 1 to 4 oxygen atoms in ether function and with or without substitution by hydroxyl,

L^{18} is hydrogen, methyl or chlorine, and

L^{19} is cyano or C_1–C_8-alkoxycarbonyl, and

K is a radical of the formula



where

Y^1 and Y^2 are independently of each other C_1–C_{10}-alkyl with or without substitution by cyano, hydroxyl, halogen, C_1–C_4-alkanoyloxy, C_1–C_4-alkoxycarbonyl, C_1–C_4-alkoxycarbonyloxy, whose alkyl chain may in each case be interrupted by an oxygen atom in ether function, or phenyl and with or without interruption by from 1 to 4 oxygen atoms in ether function, C_5–C_7-cycloalkyl, C_1–C_4-alkenyl, unsubstituted or C_1–C_4-alkyl-, C_1–C_4-alkoxy-, halogen- or nitro-substituted phenyl, or Y^1 and Y^2 are together with the nitrogen atom joining them together a 5- or 6-membered saturated heterocyclic radical with or without further hetero atoms,

Y^3 is C_1–C_{10}-alkyl, C_5–C_7-cycloalkyl, unsubstituted or C_1–C_4-alkyl-, C_1–C_4-alkoxy-, halogen- or nitro-substituted phenyl or thienyl,

Y^4 is hydrogen, C_1–C_{10}-alkyl with or without interruption by from 1 to 4 oxygen atoms in ether function, hydroxyl, C_1–C_6-alkoxy, C_1–C_4-alkylsulfonylamino, mono- or di(C_1–C_8-alkyl)aminosulfonylamino or the radical —NHCOY^8 or —NHCO$_2$Y^8, where Y^8 is phenyl, benzyl, tolyl or C_1–C_{10}-alkyl with or without interruption by from 1 to 4 oxygen atoms in ether function,

Y^5 is hydrogen, C_1–C_6-alkyl or C_1–C_6-alkoxy, and

Y^6 and Y^7 are independently of each other hydrogen, C_1–C_{10}-alkyl, with or without substitution by cyano, hydroxyl, halogen, C_1–C_4-alkanoyloxy, C_1–C_4-alkoxycarbonyl, C_1–C_4-alkoxycarbonyloxy, whose alkyl chain may in each case be interrupted by an oxygen atom in ether function, or phenyl and with or without interruption by from 1 to 4 oxygen atoms in ether function, C_5–C_7-cycloalkyl, C_3–C_4-alkenyl, unsubstituted or C_1–C_4-alkyl-, C_1–C_4-alkoxy-, halogen- or nitro-substituted phenyl, or Y^6 and Y^7 are together with the nitrogen atom joining them together a 5- or 6-membered saturated heterocyclic radical with or without further hetero atoms.

5,785,720

PROCESS FOR COLORING HIGH MOLECULAR WEIGHT MATERIAL WITH POLYCYCLIC COMPOUNDS

Thomas Eichenberger, Basel, and Thomas Ruch, Marly, both of Switzerland, assignors to Ciba Specialty Chemicals Corporation, Tarrytown, N.Y.

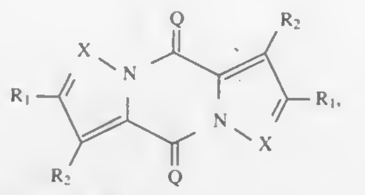
Filed Sep. 6, 1996, Ser. No. 709,050

Claims priority, application Switzerland, Sep. 13, 1995, 02585/95; Sep. 22, 1995, 02678/95

Int. Cl.^{6} C07D *487/14;241/00;* **C09B** *57/00,* **C08K** *5/3462*

U.S. Cl. 8—567 **15 Claims**

1. A process for bulk coloration of high molecular weight organic material, which comprises incorporating into said high molecular weight organic material a tinctorially effective amount of a compound of the formula (I)

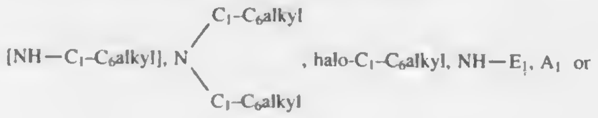


(I)

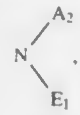
in which Q is O or S, and

X is C(R_3) or N,

R_1, R_2 and R_3 independently of one another are hydrogen, chlorine, bromine, fluorine, C_1–C_6alkyl, C_1–C_6alkoxy, hydroxyl, cyano, nitro, amino, morpholino,



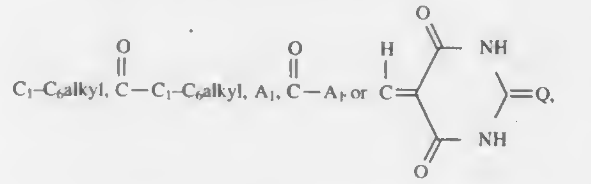
$[NH—C_1–C_6alkyl], N(C_1–C_6alkyl)_2$, halo-$C_1$–$C_6$alkyl, NH—$E_1$, A_1 or



$N(A_2)(E_1)$,

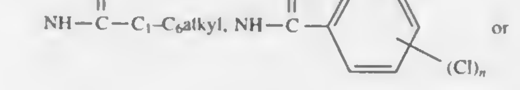
in which A_1 and A_2 independently of one another are C_6–C_{12}aryl substituted by 3 radicals R_4, R_5 and R_6, or C_3–C_{12}heteroaryl which is substituted by 3 radicals R_4, R_5 and R_6 and contains, in the ring system, 1 to 3 hetero atoms chosen from the group consisting of N, O and S,

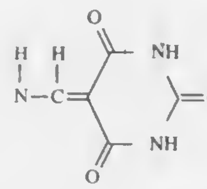
and E_1



or R_1 and R_2 together, or R_1 and R_3 together, are a radical A_3, which A_3 is C_4–C_8alkenylene or C_8–C_{12} aralkenylene which are substituted by 3 radicals R_7, R_8 and R_9,

and R_4 to R_9 independently of one another are hydrogen, chlorine, bromine fluorine, C_1–C_6alkyl, C_1–C_6alkoxy, hydroxyl, cyano, nitro, amino, morpholino,





in which n is zero or an integer from 1 to 3.

5,785,721

FUEL INJECTOR NOZZLE WITH PREHEAT SHEATH FOR REDUCING THERMAL SHOCK DAMAGE

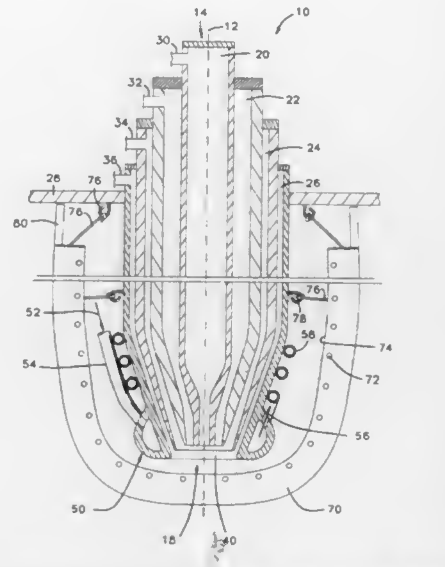
Donald Duane Brooker, Hopewell Junction, N.Y., assignor to Texaco Inc., White Plains, N.Y.

Filed Jan. 31, 1997, Ser. No. 791,189

Int. Cl.^{6} C10J *3/46;3/48*

U.S. Cl. 48—86 R **13 Claims**

1. A fuel injector nozzle for a gasifier comprising,



a) a fuel injector nozzle body having an exterior, an upstream end and a downstream end, the downstream end being in the form of a nozzle portion,

b) at least a first conduit extending within the nozzle body from the upstream end to the downstream end to permit flow of a stream of oxygen-containing gas from the nozzle portion at the downstream end,

c) at least a second conduit extending within the nozzle body from the upstream end to the downstream end to permit flow of a pumpable carbonaceous slurry or gas from the nozzle portion at the downstream end, said second conduit being positioned substantially parallel to said first conduit at the upstream end, and

d) a preformed sheath of insulating material provided around the exterior of the fuel injector nozzle body between the upstream end and the downstream end, said preformed insulating material being gradually consumable when disposed in environs of a preheated reaction chamber of a gasifier.

5,785,722

FIRING SOL-GEL ALUMINA PARTICLES

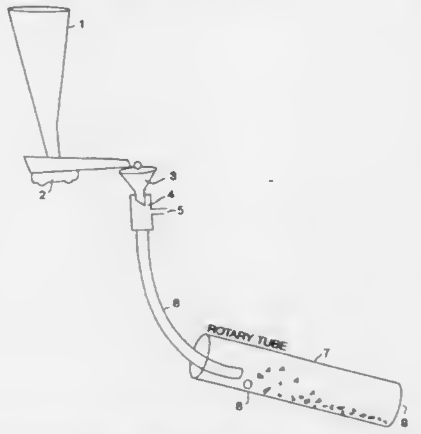
Ajay K. Garg; Arup K. Khaund, both of Northborough; Lawrence E. Orne, Leominster, and Mark R. Young, Boylston, all of Mass., assignors to Saint-Gobain/Norton Industrial Ceramics Corporation, Worcester, Mass.

Division of Ser. No. 417,169, Apr. 5, 1995, Pat. No. 5,725,162.

This application Aug. 22, 1997, Ser. No. 916,495

Int. Cl.^{6} C09C *1/68*

U.S. Cl. 51—295 **6 Claims**



1. A bonded abrasive comprising abrasive grits that have been made by a process comprising feeding particles of a composition

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comprising a dried but unfired sol-gel alumina having a volatilizable content of at least 5% by weight directly into a furnace held at a temperature from about 400°C. to 1600° C. and controlling the residence time in the furnace to explosively comminute the particles.

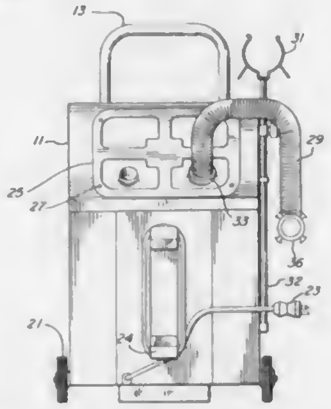
5,785,723
POSITIVE PRESSURE FILTER SYSTEM FOR INFLATABLE BLANKET HEATERS

Anthony V. Beran, Santa Ana, and Gordon Y. Shigezawa, Irvine, both of Calif., assignors to Respiratory Support Products, Irvine, Calif.

Filed Oct. 23, 1995, Ser. No. 546,678

Int. Cl.⁶ B01D *46/12*

U.S. Cl. 55—267 **17 Claims**



1. In combination with an inflatable blanket heater having a cabinet housing, an air blower, and an air heater, said cabinet having an air intake opening and an air outlet opening therein, an improved air filter system, comprising:

- a filter bin located in said cabinet at the air outlet opening, said filter bin having an air inlet aperture and an air outlet aperture;
- a cabinet top fastened to the cabinet and to said filter bin having an aperture therein around said filter bin outlet aperture;
- a filter body having an open top and open bottom located in said filter bin and sealed to the perimeter of the bin;
- a filter media having a top and bottom located within the filter body with a perimeter of said filter media sealed to the interior of the filter body; and
- a lid having an outlet port, said lid sealed to a portion of the top of the filter body to enable air to flow into the air intake opening of said cabinet to be pressurized by the air blower above ambient pressure, heated by the heater located therein, and continue to flow out the air outlet opening into the air inlet of said filter bin, into the open bottom of said filter body, through the filter body, and out the outlet port of said lid.

5,785,724
PROFILED RESILIENT BAND FOR SECURING FILIER BAG

Joe Johnson, Blackburn, United Kingdom, assignor to Scapa Group PLC, Lancashire, United Kingdom

PCT No. PCT/GB95/00626, § 371 Date Nov. 12, 1996, § 102(e) Date Nov. 12, 1996, PCT Pub. No. WO95/25580, PCT Pub. Date Sep. 28, 1995

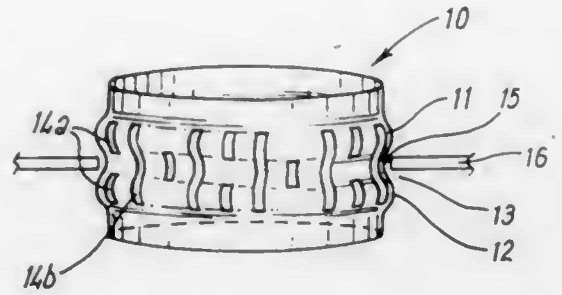
PCT Filed Mar. 21, 1995, Ser. No. 702,485

Claims priority, application United Kingdom, Mar. 22, 1994, 9405650

Int. Cl.⁶ B01D *46/02*

U.S. Cl. 55—377 **10 Claims**

1. A filtering apparatus comprising a filter bag or sleeve, a profiled resilient band connected to a part of the filter bag or sleeve, the profiled band being operative to sealingly engage, or being operative to cause the filter bag or sleeve to sealingly engage, the periphery of an aperture in a filter body, the profiled band having a one piece construction and a profiled region comprising one or more projections defining a channel, and holes or apertures provided in said profiled region of the band.



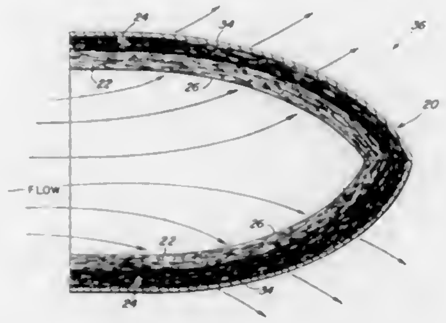
5,785,725
POLYMERIC FIBER AND GLASS FIBER COMPOSITE FILTER MEDIA

Michael John Cusick, Englewood; Fred Lee Jackson, Littleton, both of Colo., and Charles F. Kern, Marietta, Ohio, assignors to Johns Manville International, Inc., Denver, Colo.

Filed Apr. 14, 1997, Ser. No. 837,185

Int. Cl.⁶ B01D *39/16;39/20*

U.S. Cl. 55—382 **36 Claims**



1. A composite fibrous filtration media, comprising:

- a first upstream layer of polymeric fibers; the first upstream layer comprising about 10% to about 60% by weight polymeric microfibers having a mean fiber diameter between about 2.5 and about 4.5 microns, about 25% to about 60% by weight polymeric loft fibers having a mean fiber diameter between about 4 and about 14 denier, and about 15% to about 30% by weight polymeric binder fibers having a mean diameter between about 2 and about 4 denier; the upstream layer having a weight between about 2.0 and about 7.0 grams per square foot; and
- a second downstream layer comprising a blanket of glass fibers bonded together at their points of intersection by a binder and bonded to the first upstream layer; the blanket having a weight between about 1.2 and about 2.7 grams per square foot; the glass fibers having an average fiber diameter within a range from 3.0×10^{-5} to 4.1×10^{-5} inches; and the blanket having an average air filtration efficiency of at least 80%.

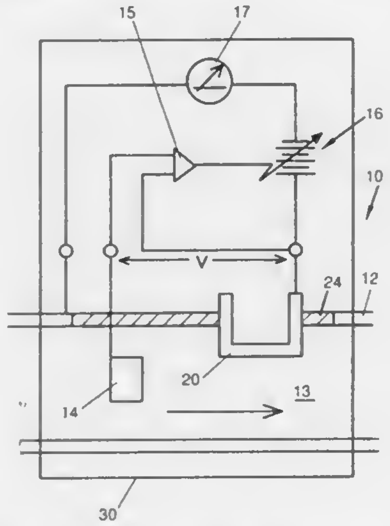
5,785,726
METHOD OF REDUCING BUBBLES AT THE VESSEL/GLASS INTERFACE IN A GLASS MANUFACTURING SYSTEM

William G. Dorfeld, Beaver Dams, and David M. Lineman, Painted Post, both of N.Y., assignors to Corning Incorporated, Corning, N.Y.

Filed Oct. 28, 1996, Ser. No. 736,848

Int. Cl.⁶ C03B *5/16;5/18*

U.S. Cl. 65—134.1 **25 Claims**



1. A method of forming an oxide glass in a manufacturing process employing a metal selected from the group consisting of platinum, molybdenum, palladium, rhodium, and alloys thereof in a melting, fining, delivery, or forming vessel of the manufacturing process, wherein an interface is present between said vessel and said glass, the method comprising: providing a partial pressure of hydrogen outside the vessel in an amount which is sufficient to prevent formation of oxygen blisters in the region of the glass adjacent said vessel/glass interface.

5,785,727
GLASS FORMING MACHINE

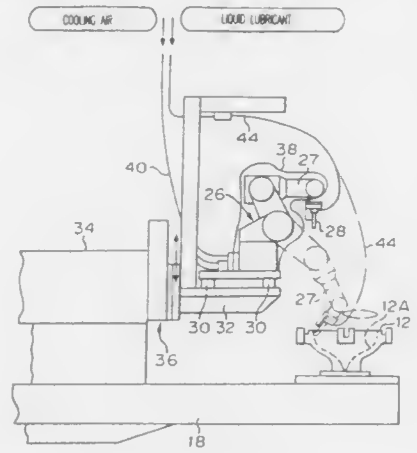
Shinya Mine; Yutaka Segawa, and Masao Tamura, all of Tokyo, Japan, assignors to Asahi Glass Company Ltd., Tokyo, Japan

Filed Jan. 3, 1997, Ser. No. 778,822

Claims priority, application Japan, Apr. 9, 1996, 8-086917

Int. Cl.⁶ C03B *40/027*

U.S. Cl. 65—169 **4 Claims**



1. A glass forming machine comprising:

- a bottom mold into which a molten glass gob is loaded;
- a plunger which presses the gob in the bottom mold; and
- a spray device provided with a nozzle for spraying a lubricant, the spray device being arranged in proximity to at least one of the bottom mold and the plunger, and wherein the nozzle is operated and controlled to spray the lubricant on a mold surface of one of the bottom mold and the plunger;

wherein the nozzle is operated and controlled by a robot;
wherein the robot is covered by a heat resistant jacket; and
wherein a cooling air supply is provided to supply cooling air into the heat resistant jacket.

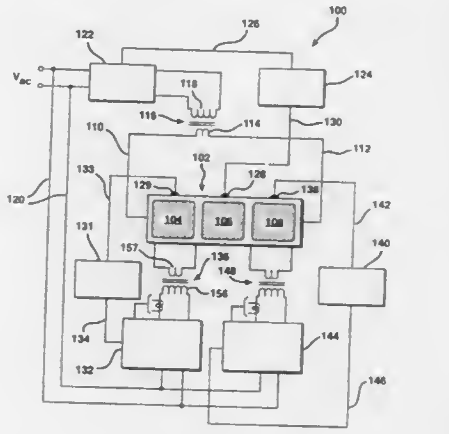
5,785,728
METHOD FOR CONTROLLING HEATING AND COOLING IN SEGMENTS AT A FIBER GLASS BUSHING

Eugene C. Varrasso, Heath, and Paul S. Sanik, Galena, both of Ohio, assignors to Owens-Corning Fiberglas Technology Inc., Summit, Ill.

Continuation of Ser. No. 322,657, Oct. 12, 1994, abandoned. This application Oct. 16, 1996, Ser. No. 734,421

Int. Cl.⁶ C03B *37/07*

U.S. Cl. 65—384 **5 Claims**



1. A method of supplemental control of a segment of a multiple segment fiber glass bushing controlled by a bushing primary controller, said method comprising the steps of:

- providing a supplemental controller including a heating and cooling circuit;
- coupling said heating and cooling circuit to said segment of said fiber glass bushing;
- generating a control signal for said segment of said fiber glass bushing;
- determining whether said control signal commands heating or cooling of said segment of said fiber glass bushing; and
- operating said heating and cooling circuit to heat only said segment of said fiber glass bushing by connecting supplemental current to said segment of said fiber glass bushing when said control signal commands heating and cool only said segment of said fiber glass bushing by diverting current around said segment of said fiber glass bushing when said control signal commands cooling.

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5,785,729

METHOD FOR MANUFACTURING LARGE-SIZED QUARTZ GLASS TUBE

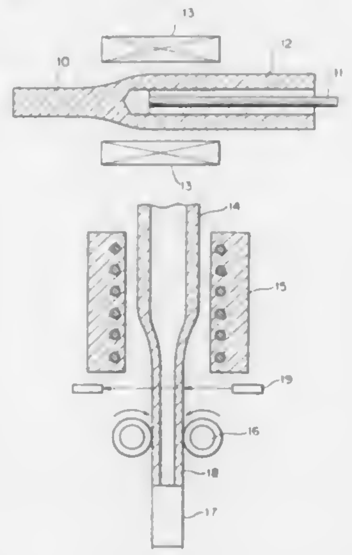
Kiyoshi Yokokawa, Annaka; Masaaki Aoyama, Koriyama, both of Japan, and Gerhart Vilsmeier, Aschaffenburg, Germany, assignors to Heraeus Quarzglas GmbH, Germany, and Shin-Etsu Quartz Products Co., Ltd, Japan

Continuation of Ser. No. 472,241, Jun. 7, 1995, abandoned, which is a division of Ser. No. 154,692, Nov. 18, 1993, abandoned. This application Jun. 13, 1997, Ser. No. 874,321

Claims priority, application Japan, Nov. 19, 1992, 4-332203; Aug. 20, 1993, 5-226669; Aug. 20, 1993, 5-226670; Aug. 20, 1993, 5-226671

Int. Cl.^{6} C03B *20/00;23/26;37/00*

U.S. Cl. 65—385 **4 Claims**



1. A method for manufacturing a large-sized primary treated quartz glass tube,

said quartz glass tube having:

(i) an outer diameter in a range from 50 mmϕ to 300 mmϕ
(ii) an outer to inner diameter ratio falling in a range from 1.1 to 7;
(iii) a wall thickness of 10 mm or more;
(iv) a wall thickness error of 2% or less; and
(v) a roughness of an inner surface of 20 μm or less

wherein the method comprises the steps of:

(a) perforating a cylindrical quartz glass mother material by a hot carbon drill press-in process;
(b) grinding, abrading and finishing outer surfaces of the perforated mother material;
(c) etching the inner and outer surfaces of the perforated mother material with hydrofluoric acid to obtain a processed mother material; and
(d) washing said processed mother material.

3. A method for fabricating a large-scale quartz glass preform which comprises the steps of,

(a) preparing a large-sized quartz glass tube having
(1) an outer diameter in a range from 50 mmϕ to 300 mmϕ
(2) an outer to inner diameter ratio in a range from 1.1 to 7,
(3) a wall thickness of 10 mm or more,
(4) a wall thickness error of 2% or less, and
(5) a roughness of an inner surface being 20 μm or less; and
(b) combining a core glass rod for an optical fiber integrally with the large-sized quartz glass tube wherein the large-sized quartz glass tube is a large-sized heat-treated quartz glass tube obtained by the steps comprising heating, hot drawing or hot drawing under pressure a large-sized primary treated quartz glass tube using a tool-free drawing method under control of an inside pressure thereof in a temperature range from 1600° C. to 3000° C. so as to satisfy the following equation:

$$(D_o/D_i)/(d_o/d_i)=1.0\sim1.5$$

where D_o and D_i respectively represent the outer and inner diameters of the primary treated quartz glass tube; and

d_o and d_i respectively represent the outer and inner diameters of the large-sized heat-treated quartz glass tube obtained from the primary treated quartz glass tube.

5,785,730

FERTILIZER AND METHOD FOR PREPARING THE SAME

Joseph P. Miknevich, Corapolis, and Denis E. Hassick, Monroeville, both of Pa., assignors to Calgon Corporation, Pittsburgh, Pa.

Filed Sep. 12, 1996, Ser. No. 716,828

Int. Cl.^{6} C05F *3/00;* **C02F** *11/14*

U.S. Cl. 71—22 **6 Claims**

1. A method for preparing a fertilizer comprising:

(a) providing a raw agricultural waste, said raw agricultural waste being an aqueous mixture containing 0.1 to 20 weight percent solids, said solids being predominately one or more of an animal manure, an animal feed, an animal bedding, and farmyard scrapings, and an aqueous portion being predominately one or more of an animal urine, an animal milk, and an animal washings, to be treated;
(b) treating said agricultural waste by mixing said raw agricultural waste with an effective amount of a composition comprising a quaternized amino methylated polyacrylamide polymer for separating said raw agricultural waste into a mixture having a separate clarified liquid portion and a separate dewatered nutrient solids portion of substantially reduced water content, wherein said separate dewatered nutrient solids portion is a fertilizer, and wherein said quaternized amino methylated polyacrylamide contains polymeric microparticles which microparticles are substituted with at least about one mole percent of tertiary amino methyl groups and having an average particle size of from about 200 to 4000 Angstroms in diameter wherein crosslinking of said polymeric microparticles occurs in said composition, and wherein said composition is a microemulsion wherein the polymer solids content is greater than ten percent by weight based on said composition; and
(c) subjecting said mixture from step (b) to at least one mechanical separation means for segregating said separated clarified liquid portion from said dewatered nutrient solids portion.

5,785,731

PROCESS OF MAKING A NON-SAG TUNGSTEN WIRE FOR ELECTRIC LAMPS

Martin Fait; Joachim Fuchs, both of Berlin; Alfred-Georg Gahn, Koenigsbrunn, all of Germany; Hans-Joachim Lunk, Towanda, Pa.; Michael Salmen, Munich, and Burkhard Ziemer, Berlin, both of Germany, assignors to Patent-Treuhand-Gesellschaft für elektrische Glühlmpen mbH, Munich, Germany

Filed Feb. 28, 1996, Ser. No. 608,550

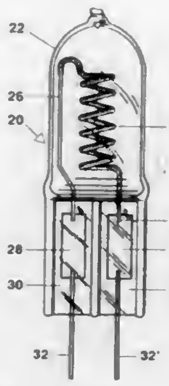
Claims priority, application Germany, Mar. 3, 1995, 195 07 555.2

Int. Cl.^{6} B22F *9/24*

U.S. Cl. 75—368 **10 Claims**

1. A method of making a non-sag tungsten wire comprising the steps of:

(a) providing an aqueous solution of ammonium paratungstate;
(b) adding aqueous potassium hydroxide solution to the aqueous solution of ammonium paratungstate as a doping substance, wherein the mole ratio of potassium to ammonium is 0.1 to 10, thereby forming an ammonium potassium paratungstate;
(c) converting the ammonium potassium paratungstate to potassium-doped tungsten blue oxide;
(d) reducing the doped tungsten blue oxide to doped tungsten powder; and



(e) compacting the doped tungsten powder and drawing doped tungsten wire from the compacted powder.

5,785,732

PROCESS AND APPARATUS FOR RECOVERING NA FROM SPENT NAS CELLS

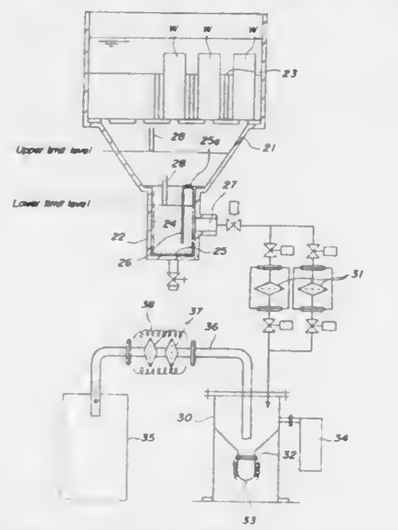
Tomonori Tsuchimoto, Hashima-Gun; Katsuichi Iwata, Ichinomiya, and Yoshihiko Kurashima, Nagoya, all of Japan, assignors to NGK Insulators, Ltd., Japan

Filed Sep. 19, 1996, Ser. No. 710,549

Claims priority, application Japan, Oct. 3, 1995, 7-255922; Feb. 23, 1996, 8-036269; Sep. 17, 1996, 8-244882

Int. Cl.^{6} C22B *26/10;* **H01M** *10/54*

U.S. Cl. 75—375 **12 Claims**



1. A process for recovering sodium without metallic powder from a spent NaS cell, said process comprising the steps of

providing a spent NaS cell,
forming an opening in said cell wherein metallic powder from said cell becomes mixed with sodium,
placing the spent NaS cell with the opening directed downwardly in a vessel containing heating oil and provided with a filter having an outer side, said heating oil having a different specific gravity than the specific gravity of molten sodium,
maintaining said heating oil vessel at a temperature having at least at the melting point of sodium,
permitting molten sodium containing metallic powder to flow down from the interior of the NaS cell through said downward directed opening and into said heating oil vessel,
passing the molten sodium containing metallic powder through said filter to remove metallic powder from the molten sodium,
collecting molten sodium without metallic powder in a bottom portion of said heating oil vessel by reason of the difference in the specific gravity of said molten sodium and said heating oil, and
removing molten sodium without metallic powder from said outer side of said filter.

5,785,733

FLUIDIZED BED TYPE REDUCTION APPARATUS FOR IRON ORE PARTICLES AND METHOD FOR REDUCING IRON ORE PARTICLES USING THE APPARATUS

Il Ock Lee; Yong Ha Kim; Bong Jin Jung; Hang Goo Kim, all of Kyongsangbook-do, Rep. of Korea, and Franz Hauzenberger, Linz, Austria, assignors to Pohang Iron & Steel Co., Ltd.; Research Institute of Industrial Science & Technology, both of Pohang, Rep. of Korea, and Voest-Alpine Industrieanlagenbau GmbH, Linz, Austria

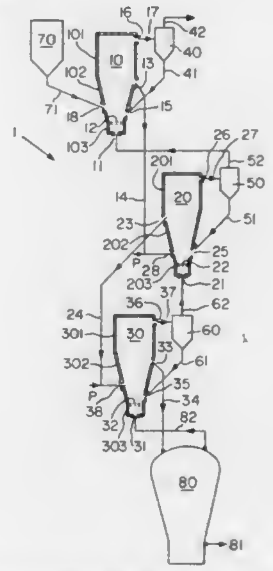
PCT No. PCT/KR95/00182, § 371 Date Oct. 28, 1996, § 102(e) Date Oct. 28, 1996, PCT Pub. No. WO96/21045, PCT Pub. Date Jul. 11, 1996

PCT Filed Dec. 28, 1995, Ser. No. 702,517

Claims priority, application Rep. of Korea, Dec. 31, 1994, 1994/40302

Int. Cl.^{6} C21B *11/00;13/14*

U.S. Cl. 75—444 **36 Claims**



1. A fluidized-bed reduction apparatus for reducing iron ore particles, comprising:

a drying/preheating furnace for drying and preheating fine iron ores supplied from a hopper, the drying/preheating furnace including a first enlarged upper cylindrical section, a first intermediate conical section and a first reduced lower cylindrical section, the first intermediate conical section having a tapered shape being smoothly expanded upwards, the drying/preheating furnace further including a first gas inlet provided at a bottom portion of the first reduced cylindrical section, a first distributor installed at an upper portion of the first reduced cylindrical section, a first ore inlet provided at one side wall portion of the first conical section, a first ore outlet provided at the other side wall portion of the first conical section, a first dusty ore inlet provided at the other side wall portion of the first conical section, and a first exhaust gas outlet provided at an upper portion of the first enlarged cylindrical section;
a reduction furnace for finally reducing the fine iron ores dried and preheated in the drying/preheating furnace, the reduction furnace including a second enlarged upper cylindrical section, a second intermediate conical section and a second reduced lower cylindrical section, the second intermediate conical section having a tapered shape being smoothly expanded upwards, the reduction furnace further including a second gas inlet provided at a bottom portion of the second reduced cylindrical section, a second distributor installed at an upper portion of the second reduced cylindrical section, a second ore inlet provided at one side wall portion of the second conical section, a second ore outlet provided at the one side wall portion of the second conical section, a second dusty ore inlet provided at the other side wall portion of the second conical section, and a second exhaust gas outlet provided at an upper portion of the second enlarged cylindrical section;

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- a first cyclone for capturing dusty iron ores contained in an exhaust gas discharged from the drying/preheating furnace and recycling the captured dusty iron ores to the drying/preheating furnace while outwardly discharging cleaned exhaust gas, free of the dusty iron ores, the first cyclone being connected to the first exhaust gas outlet via a first exhaust gas line, being connected to the first dusty ore inlet via a first dusty ore discharge line, and being connected at a top portion thereof to a first cleaned exhaust gas line opened to the atmosphere;
- a second cyclone for capturing dusty iron ores contained in an exhaust gas discharged from the reduction furnace and recycling the captured dusty iron ores to the reduction furnace while supplying cleaned exhaust gas, free of the dusty iron ores, to the drying/preheating furnace, the second cyclone being connected to the second exhaust gas outlet via a second exhaust gas discharge line, being connected to the second dusty ore inlet via a second dusty ore discharge line, and being connected to the first gas inlet via a second cleaned exhaust gas line;
- a first duct line for connecting the first ore outlet and the second ore inlet so that the iron ore particles are fed therethrough;
- a second duct line for connecting the second ore outlet to a melter gasifier so that the iron ore particles are fed to the melter gasifier therethrough; and
- an exhaust gas line for connecting the second gas inlet to the melter gasifier.

5,785,734
RESIDUE AND WASTE TREATMENT PROCESS

Max Gutknecht, Im Eggli 10/Auf Pünten, CH-8525 Niederneunforn, Switzerland

PCT No. PCT/EP94/04306, § 371 Date Oct. 12, 1995, § 102(e) Date Oct. 12, 1995, PCT Pub. No. WO95/17980, PCT Pub. Date Jul. 6, 1995

PCT Filed Dec. 27, 1994, Ser. No. 505,359

Claims priority, application Germany, Dec. 31, 1993, 43 45 074.1; Feb. 7, 1994, 44 03 746.5

Int. Cl.^{6} C22B *9/00;* B09B *3/00;* F23G *5/02*

U.S. Cl. 75—581 **8 Claims**

1. A process for treating residues and waste materials, which comprises:

- thermomechanically heating a material which is at least one of residues and waste materials, and separating the material into fibers with a worm extruder, thereby providing a stabilized, solid-state material;
- crushing the stabilized, solid-state material to a grain size of 1–10 mm to provide a mixture of different materials;
- separating the different materials from the crushed mixture of materials; and
- blowing the separated different materials directly into a reaction chamber.

5,785,735
PHYTOREMEDIATION OF METALS

Ilya Raskin, 48 Alexandria Dr., Manalapan, N.J. 07726; Nanda P. B. A. Kumar, 547 Starkey Apartments, New Brunswick, N.J. 08903, and Slavik Douchenkov, 353 Crosspointe Dr., East Brunswick, N.J. 08816

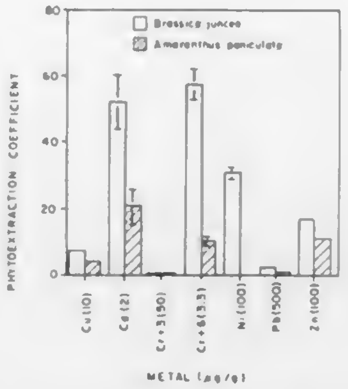
Continuation-in-part of Ser. No. 73,258, Jun. 4, 1993, Pat. No. 5,364,451. This application Jun. 1, 1994, Ser. No. 252,234

Int. Cl.^{6} C22B *3/24*

U.S. Cl. 75—711 **19 Claims**

1. A method of removing an amount of a metal from a soil environment:

- identifying a soil environment contaminated with a metal selected from the group consisting of lead, copper, cadmium, chromium, nickel and zinc:
- planting at least one plant that is a Brassicaceae member in said contaminated soil environment;



- manipulating said contaminated soil environment by adding an effective amount of an appropriate chelating agent to said contaminated soil environment, so that a soluble complex is formed between said metal and said chelating agent, said effective amount of chelating agent being an amount sufficient to increase availability of said metal to said planted Brassicaceae member to the extent that said Brassicaceae member can accumulate said metal to a concentration higher than the concentration of said metal in said environment; and
- maintaining said Brassicaceae member in said manipulated environment under conditions and for a time sufficient for said Brassicaceae member to accumulate said metal from said manipulated soil environment, so that the concentration of accumulated metal in said plant is higher than the concentration of said metal in said environment.

5,785,736
GOLD RECOVERY FROM REFRACTORY CARBONACEOUS ORES BY PRESSURE OXIDATION, THIOSULFATE LEACHING AND RESIN-IN-PULP ADSORPTION

Kenneth G. Thomas, Mississauga; Christopher Fleming, Peterborough; Andrew R. Marchbank, Oakville, and David Dreisinger, Delta, all of Canada, assignors to Barrick Gold Corporation, Toronto, Canada

Continuation-in-part of Ser. No. 389,016, Feb. 2, 1995, Pat. No. 5,536,297. This application Jul. 16, 1996, Ser. No. 680,906

Int. Cl.^{6} C22B *3/46*

U.S. Cl. 75—736 **32 Claims**

1. A process for recovering gold from a slurry comprising a solid ore residue and a gold-bearing thiosulfate lixiviant comprising:

- contacting the slurry with an ion exchange resin having affinity for gold to adsorb gold from the gold-bearing thiosulfate lixiviant onto said resin;
- eluting gold from said resin to produce a gold-bearing eluate; and
- recovering gold from the gold-bearing eluate.

5,785,737
METHOD FOR RECYCLING IRON BEARING SLUDGES IN A STEELMAKING OPERATION

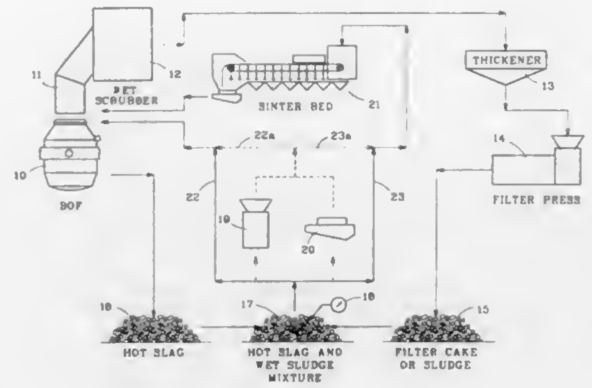
John D. Lynn, Center Valley, Pa.; Colvin W. Smith, Catonsville, Md., and Glenn C. Keyser, Freemansburg, Pa., assignors to Bethlehem Steel Corporation, Del.

Filed Apr. 8, 1997, Ser. No. 835,168

Int. Cl.^{6} C22B *1/00*

U.S. Cl. 75—751 **28 Claims**

1. A process for dehydrating wet sludge to produce a revert having an improved flow rate when handled in a recycle stream, the steps of the process comprising:



- a) combining said wet sludge with hot slag to provide a slag/sludge mixture having a moisture content >10% water by weight, said hot slag having a temperature below the molten liquid state;
- b) discontinuing said step combining said wet sludge and said hot slag and resting said slag/sludge mixture for a time period to enable radiant energy emitted from said hot slag to vaporize water in said slag/sludge mixture and reduce said moisture content to <10% water by weight; and
- c) recycling said slag/sludge mixture as a revert having a reduced moisture content of <10% water by weight, said reduced moisture content improving the flow rate of said slag/sludge mixture revert.

5,785,738
PROCESS AND PLANT FOR TREATMENT OF A GAS MIXTURE INCLUDING OZONE

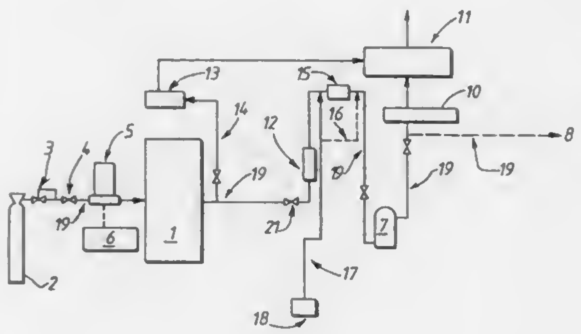
Michel Gastiger, Orsay, and Philippe Renault, Versailles, both of France, assignors to L'Air Liquide, Societe Anonyme Pour L'Etude et L'Exploitation des Procedes Georges Claude, Paris, France

Filed Dec. 27, 1995, Ser. No. 578,946

Claims priority, application France, Dec. 27, 1994, 94 15716

Int. Cl.^{6} B01D *53/04*

U.S. Cl. 95—12 **38 Claims**



1. A process for treatment of a secondary gas including ozone, comprising the steps of:

- a) adding an adjacent gas including CO_2 to the secondary gas to form a mixture of secondary gas and adjacent gas;
- b) passing the mixture of secondary gas and of adjacent gas obtained at the end of step a) into at least one stock of adsorbent, where the ozone is completely or partly adsorbed;
- c) sweeping said stock of adsorbent with the aid of a desorbing gas including CO_2, and discharging from an outlet of said stock of adsorbent an output gas including ozone, wherein said ozone has a concentration which is higher in said output gas than the ozone concentration of said secondary gas.

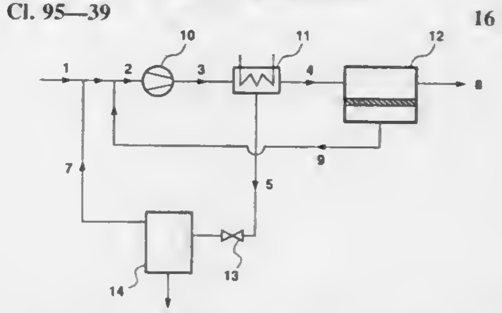
5,785,739
STEAM CRACKER GAS SEPARATION PROCESS

Richard W. Baker, Palo Alto, Calif., assignor to Membrane Technology and Research, Inc., Menlo Park, Calif.

Filed Jan. 24, 1997, Ser. No. 789,376

Int. Cl.^{6} B01D *53/22*

U.S. Cl. 95—39 **16 Claims**



1. A process for treating a gas stream comprising hydrogen, methane, an olefin and at least one other C_{2+} hydrocarbon, to separate said olefin and said C_{2+} hydrocarbon from hydrogen and methane, said process comprising the following steps:

- (a) compressing said gas stream to a pressure no greater than about 1,000 psig;
- (b) cooling said gas stream to a temperature no lower than about −100° C.; said steps (a) and (b) resulting in partial condensation of said gas stream, thereby dividing said gas stream into a condensed portion enriched in said olefin and said C_{2+} hydrocarbon and an uncondensed portion enriched in hydrogen and methane;
- (c) flash evaporating said condensed portion to at least partially remove additional amounts of hydrogen and methane from said condensed portion as a gaseous flash stream, thereby creating a more-enriched olefin and C_{2+} hydrocarbon product stream;
- (d) membrane treating said uncondensed portion in a membrane separation unit, to further divide said uncondensed portion into a more-enriched hydrogen and methane stream and a mixed stream;
- (e) recirculating said gaseous flash stream to said compressing step;
- (f) recirculating said mixed stream to said compressing step.

5,785,740
DEVICE AND PROCESS FOR THE SEPARATION OF GAS BY ADSORPTION

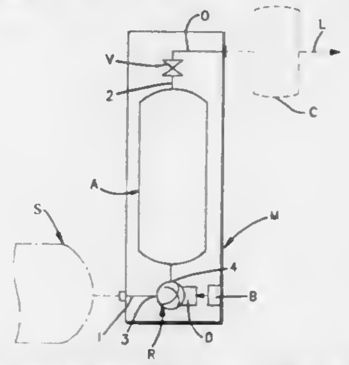
Jean-Renaud Brugerolle, and Christian Monereau, both of Paris, France, assignors to L'Air Liquide, Societe Anonyme pour L'Etude et L'Exploitation des Procedes Georges Claude, Paris Cedex, France

Continuation-in-part of Ser. No. 552,312, Nov. 8, 1995, Pat. No. 5,679,134. This application Oct. 16, 1996, Ser. No. 732,140

Claims priority, application France, May 19, 1995, 95 05956

Int. Cl.^{6} B01D *53/053*

U.S. Cl. 95—102 **21 Claims**



1. A pressure swing adsorption process for producing a product gas separated from a gas mixture to be separated, making use of at least one paired assembly of a reversible rotary machine having a first port solely connected to a single source of said gas mixture and a second port connected to an adsorber having an outlet port

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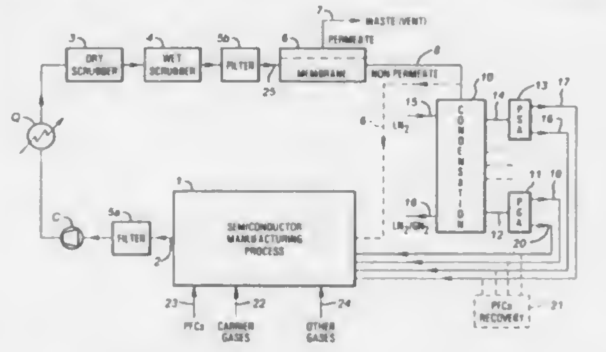
connectable to a production line for supplying said product gas, in a cycle comprising the following successive steps:

a) driving the rotary machine in a first direction during a first phase to establish fluid flow towards the second port to feed the adsorber with the gas mixture up to a high cycle pressure, higher than atmospheric pressure, and to supply product gas via said outlet port to the production line
b) interrupting driving the machine in the first direction
c) driving the machine in a second direction opposite to the first direction to establish a fluid flow towards the first port during a second phase to depressurize the adsorber to a low cycle pressure not exceeding 0.6×10^5 Pa
d) interrupting driving the machine in the second direction, and resuming the cycle steps a) to d), wherein the gas mixture to be separated is atmospheric air.

5,785,741
PROCESS AND SYSTEM FOR SEPARATION AND RECOVERY OF PERFLUOROCOMPOUND GASES
Yao-En Li, Buffalo Grove; Joseph E. Paganessi, Burr Ridge; David Vassallo, Glenview, all of Ill., and Gregory K. Fleming, Wilmington, Del., assignors to L'Air Liquide, Societe Anonyme Pour l'Etude et l'Exploitation des Procedes Georges, Claude, Paris, France, and American Air Liquide, Walnut Creek, Calif.
Continuation-in-part of Ser. No. 503,325, Jul. 17, 1995, abandoned. This application Jun. 14, 1996, Ser. No. 665,142
Int. Cl.⁶ B01D *53/22;53/04*
U.S. Cl. 96—4 **7 Claims**

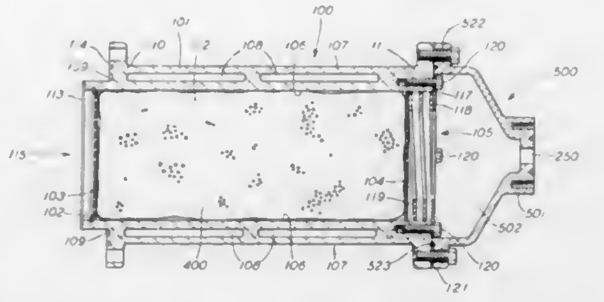


1. A semiconductor manufacturing system comprising:

a) at least one reactor chamber adapted to receive perfluorocompound gases and carrier gases, the reactor chamber having a reactor effluent gas conduit attached thereto;
b) at least one glassy polymer membrane separation unit having a feed side and a permeate side, said membrane being permeable to at least one carrier gas and being substantially nonpermeable to at least one perfluorocompound gas, said membrane unit connected to said reactor chamber via the reactor effluent conduit, said membrane unit having a permeate vent conduit and a non-permeate conduit; and
c) means to recycle at least a portion of a non-permeate stream from said membrane unit through said non-permeate conduit back to the at least one reactor chamber.

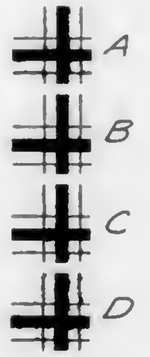
5,785,742
CASING ASSEMBLY FOR DESICCANT ELEMENT HOUSING
Matthew D. Mitsch, Pittsburgh, Pa., assignor to Westinghouse Air Brake Company, Wilmerding, Pa.
Filed Feb. 11, 1997, Ser. No. 798,774
Int. Cl.⁶ B01D *53/02*
U.S. Cl. 96—144 **17 Claims**

1. A casing assembly of a desiccant element housing for housing a desiccant element in a gas dryer system, said casing assembly comprising:



(a) a casing portion having an inner and an outer sleeve with a channel defined between said sleeves for channeling moisture-bearing gas from an inlet port of a head end of said casing portion out a tail end of said casing portion, said inner sleeve defining a flow chamber extending from said tail end to said head end;
(b) said head end featuring (i) an inner seat face for sealing against an inner sealing flange of a main portion of said housing and (ii) an outer seat face for sealingly connecting to an outer sealing flange of said main portion of said housing so that (A) said inlet port communicates with a supply port of said main portion from which said moisture-bearing gas is received during a drying mode of operation of said gas dryer system and (B) an outlet port of said head end communicates with a delivery port of said main portion out of which dried gas is directed during said drying mode;
(c) a retaining means for affixing to said inner sleeve at said head end thereof within said flow chamber;
(d) a head end porous plate abutting an interior facing side of said retaining means within said flow chamber;
(e) a tail end porous plate slidably disposed within said flow chamber of said inner sleeve near said tail end;
(f) a means, connected to said tail end and abutting said tail end porous plate, for compacting said desiccant element within said flow chamber between said porous plates; and
(g) said tail end featuring an outer seat face for sealingly connecting to a sealing flange of a cover portion of said housing so that said moisture-bearing gas channeled out said tail end redirects into said flow chamber for drying by said desiccant element during said drying mode of operation of said gas dryer system.

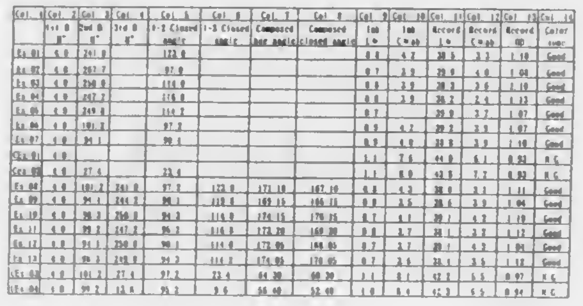
5,785,743
BLEED ALLEVIATION IN INK-JET INKS USING ORGANIC ACIDS
Raymond J. Adamic, Corvallis; James P. Shields, Philomath, and Mark H. Kowalski, Corvallis, all of Oreg., assignors to Hewlett-Packard Company, Palo Alto, Calif.
Filed Dec. 6, 1995, Ser. No. 567,974
Int. Cl.⁶ C09D *11/02*
U.S. Cl. 106—31.27 **18 Claims**



1. A first ink-jet ink composition for thermal ink-jet printing, said first ink-jet ink composition having a pH such that a pH differential exists between said first ink-jet ink composition and a second ink-jet ink composition, said second ink-jet ink composition having a pH-sensitive colorant, said pH differential being sufficient to effect precipitation of said pH-sensitive colorant upon contact of said second ink-jet ink composition with said first ink-jet ink composition, such that bleed of said second ink-jet ink composition into said first ink-jet ink composition is substantially reduced in the event said first and second ink-jet ink compositions are adjacently printed on a print medium, said first ink-jet ink composition including at least one organic acid at a concentration ranging from about 0.5 to 20 wt %,

wherein the pH differential required to effect a reduction in bleed of said second ink-jet ink composition into said first ink-jet ink composition is reduced by the presence of said at least one organic acid in said first ink-jet ink composition.

5,785,744
WATER-BASED BLACK RECORDING INK, AND INK-JET RECORDING PROCESS MAKING USE OF THE SAME
Masaya Fujioka; Takeo Kitahara; Masahito Kato, and Hideto Yamazaki, all of Nagoya, Japan, assignors to Brother Kogyo Kabushiki Kaisha, Nagoya, Japan
Filed Sep. 5, 1996, Ser. No. 707,625
Claims priority, application Japan, Sep. 8, 1994, 7-231470; Sep. 8, 1995, 7-231469; Sep. 8, 1995, 7-231471; Sep. 8, 1995, 7-231472; Sep. 11, 1995, 7-232590; Sep. 11, 1995, 7-232592; Sep. 11, 1995, 7-232593
Int. Cl.⁶ C09D *11/02*
U.S. Cl. 106—31.27 **22 Claims**



Col. 1	Col. 2	Col. 3	Col. 4	Col. 5	Col. 6	Col. 7	Col. 8	Col. 9	Col. 10	Col. 11	Col. 12	Col. 13	Col. 14
	1st θ H°	2nd θ H°	3rd θ H°	1-2 Closed angle	1-3 Closed angle	Composed hue angle	Composed closed angle	Ink L*	Ink C*ab	Record L*	Record C*ab	Record OD	Color tone

1. A water-based black recording ink comprising an aqueous medium and a colorant dissolved or dispersed therein; said colorant comprising:

a first colorant wherein a pure-water-diluted aqueous solution of which, adjusted to have a concentration of from 0.005% by weight to 0.05% by weight, has a transmission color having L* of 4 or below and C*ab of 25 or below in the L*a*b* color system under measuring conditions of a D_{65} light source, 2° visual field and a transmitted-light optical path length of 10 mm, and having a point HA on the a*-b* plane which represents the transmission color of the pure-water-diluted aqueous solution; and

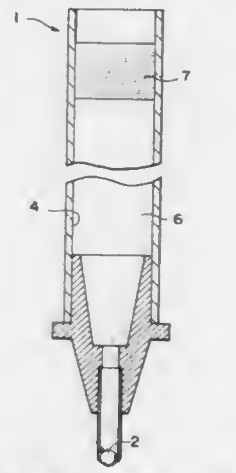
a second colorant wherein a pure-water-diluted aqueous solution of which, adjusted to have the same concentration, has a transmission color having a point HB on the a*-b* plane which represents the transmission color of the pure-water-diluted aqueous solution, under the same measuring conditions, and satisfies that a closed angle formed by a straight line connecting an original point and the point HA and a straight line connecting the original point and the point HB is 90° or greater on the a*-b* plane;

said first and second colorants being mixed so that an aqueous solution thereof diluted to 1/200 with pure water has a transmission color having C*ab of 5 or below in the L*a*b* color system under measuring conditions of a D_{65} light source, 2° visual field and a transmitted-light optical path length of 10 mm.

5,785,745
AMPHIPHILIC DYES
Hiang P. Lauw, and John R. Moffatt, both of Corvallis, Oreg., assignors to Hewlett-Packard Company, Palo Alto, Calif.
Filed Oct. 31, 1996, Ser. No. 742,137
Int. Cl.⁶ C09D *11/02*
U.S. Cl. 106—31.27 **22 Claims**

1. An ink-jet ink composition for ink-jet printing comprising an aqueous liquid vehicle and at least one amphiphilic dye, said at least one amphiphilic dye comprising a plurality of amphiphilic dye molecules, each of said amphiphilic dye molecules consisting essentially of a reactive dye molecule covalently attached to a hydrophobe molecule, said amphiphilic dye being present in said ink-jet ink composition in an amount that is at least equal to its critical micelle concentration.

5,785,746
PREPARATION METHOD FOR SHEAR-THINNING WATER-BASED BALL-POINT PEN INKS COMPOSITIONS AND BALL-POINT PENS EMPLOYING THE SAME
Tsutomu Kito, Tajimi, and Kuniyuki Senga, Kasugai, both of Japan, assignors to The Pilot Ink Co., Ltd., Nagoya, Japan
Filed Feb. 3, 1997, Ser. No. 794,091
Claims priority, application Japan, Feb. 5, 1996, 8-044119; Feb. 23, 1996, 8-061757; May 13, 1996, 8-143620
Int. Cl.⁶ C09D *11/18*
U.S. Cl. 106—31.86 **18 Claims**



1. A method for preparing a shear-thinning water-based ball-point pen ink which comprises colorant and an aqueous vehicle comprising water and water-soluble polar solvent, comprising:

bringing 1 to 30% by weight of a nonionic surface active agent having an HLB value within the range of from 8 to 12, into presence of the aqueous vehicle;
mixing homogeneously said surface active agent, colorant and aqueous vehicle with stirring thereby obtaining an ink composition having a viscosity within the range of from 25 mPa.s to 160 mPa.s at 100 rpm in an EM type rotational viscometer at 25° C. and having a shear thinning index adjusted within the range of from 0.1 to 0.6.

5,785,747
VISCOSIFICATION OF HIGH DENSITY BRINES
Daniel P. Vollmer; Paul H. Javora, and Robert L. Horton, all of Lafayette, La., assignors to Great Lakes Chemical Corporation, West Lafayette, Ind.
Filed Jan. 17, 1997, Ser. No. 785,197
Int. Cl.⁶ C09K *3/00;7/00;7/02;7/06*
U.S. Cl. 106—194.2 **51 Claims**

1. A composition for advantageously viscosifying aqueous solutions comprising:

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a prehydrating alcohol having at least two hydroxyl groups, said alcohol having a molecular weight of from about 60 to about 600;
an inorganic salt; and
a polymer;
wherein the polymer to prehydrating alcohol ratio is from about $\frac{1}{10}$ to about $\frac{3}{1}$ by weight.

5,785,748
TITANIUM DIOXIDE PIGMENTS
Jonathan Banford; Geoffrey Elliott Maud, both of Stockton-on-Tees, England, and Maria Leonida Demosthenous, Calais, France, assignors to Tioxide Group Services Limited, United Kingdom
Filed Jun. 27, 1996, Ser. No. 672,199
Claims priority, application United Kingdom, Jul. 13, 1995, 9514388
Int. Cl.^{6} C09C *1/36;3/06*
U.S. Cl. 106—443 **24 Claims**

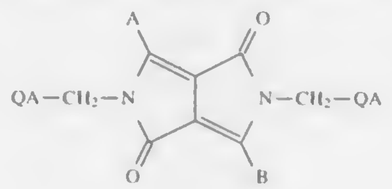
1. A process for the manufacture of a coated titanium dioxide pigment comprising (a) forming a suspension of titanium dioxide, (b) mixing said suspension with a reagent formed by reacting concentrated phosphoric acid with a source of aluminium selected from the group consisting of aluminium and aluminium compounds at elevated temperature and (c) adding an alkaline compound to the suspension until a pH value of at least 3.5 is achieved.

5,785,749
METHOD FOR PRODUCING RHEOLOGICAL ADDITIVES AND COATING COMPOSITIONS INCORPORATING SAME
Benjamin W. Knesek; Terrence P. Brennan, and Carl J. Bauer, all of Gonzales, Tex., assignors to Southern Clay Products, Inc., Gonzales, Tex.
Filed Feb. 19, 1997, Ser. No. 802,269
Int. Cl.^{6} C09C *1/42*
U.S. Cl. 106—484 **15 Claims**

1. A process for preparing a water-based coating formulation exhibiting improved pourability, improved hiding characteristics, and improved thickening in relation to the quantities of rheological additive in the coating formulation, comprising the steps of:
preparing an aqueous smectite clay slurry having 3 to 30% clay by weight;
bead milling the aqueous smectite slurry with a grinding media at an energy input in the range of from about 44 to 146 kw-hr/metric ton of dry clay; and
incorporating the milled smectite slurry as a rheological additive in a water-based coating formulation in an amount in the range of from about 6 to 120 g per liter of formulation.

5,785,750
1,4-DIKETO-3,6-DIARYLPYROLO[3,4-C] PYRROLE
Shivakumar B. Hendi, Newark, Del., assignor to Ciba Specialty Chemicals Corporation, Tarrytown, N.Y.
Filed Sep. 26, 1997, Ser. No. 938,656
Int. Cl.^{6} C07D *471/04;* **C09B** *48/00*
U.S. Cl. 106—497 **21 Claims**

1. A pyrrolopyrrole derivative of the formula (I)



(I)

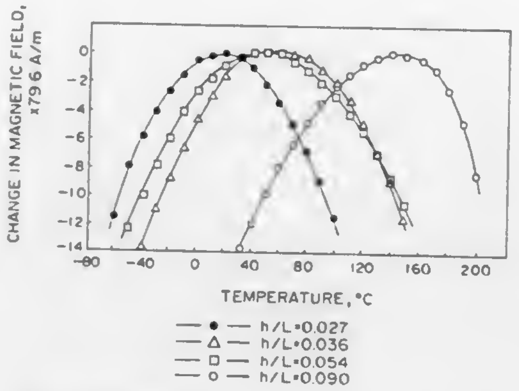
wherein A and B are identical or different aryl radicals, and QA is a quinacridone radical; which pyrrolopyrrole derivative is substituted by from 0 to 6 moles of $—SO_3M$ per mole of the pyrrolopyrrole derivative; wherein M is hydrogen or a metal or ammonium cation.

5,785,751
COMPOSITION OF HYDRAULIC CEMENT
Nikolay Fedorovich Bashlykov, Himky; Sergey Alekseevich Zubehin, Podolsk; Valery Nicolaevich Serduk, Moscow; Vicheslav Rovimovitch Falikman, Dolgoprudniy; Boris Emmanuilovich Yudovetch, Moscow, all of Russian Federation; Jaime Moreno, Chicago, Ill.; Claudio Augusto Eberhardt, Talalpan, Mexico; Alfonso Cadaval; Nagmet Suleimanov-Gonzalez, both of Madrid, Spain, and Shahviran Teimurogly Babaev, Moscow, Russian Federation, assignors to Cement Technology Corporation, Chicago, Ill.
Filed Apr. 16, 1996, Ser. No. 632,851
Int. Cl.^{6} C04B *07/04*
U.S. Cl. 106—725 **20 Claims**

1. A composition of hydraulic cement of low water demand and of high product strength and low product fragility,
comprising Portland cement clinker, calcium sulfate and a dry modifier containing an organic water reducing component in weight percent ratio ranges of 91 to 97:2 to 7:0.085 to 4, respectively,
in which the clinker ingredient contains three fractions I, II and III of particles chemically bonded with the organic water reducing component of the dry modifier and having particle sizes:
I—0.05 to 10 mkm in quantity 15.3 to 34.3 weight percent;
II—10.1 to 30 mkm in quantity 37.2 to 77.5 weight percent;
III—30.1 to 80 mkm in quality 4.2 to 19.6 weight percent; and
one fraction IV—more than 80 mkm in quantity less than 4.9 weight percent and free of modifier;
the calcium sulfate comprising a fraction of particles of sizes 0.5 to 15 mkm and free of the modifier;
the dry modifier being chemically bonded with the clinker fractions I, II and III and being contained in each of them in the following quantities:
in fraction I—0.045 to 1.7 weight percent,
in fraction II—0.02 to 2.1 weight percent, and
in fraction III—0.01 to 0.2 weight percent;
said organic water reducing component being selected from the group consisting of:
a) water soluble alkali and alkaline earth salts of the condensate with formaldehyde of products of sulfation of aromatic compounds;
b) water soluble alkali and alkaline earth salts of products of sulfation and condensation of heterocyclic compounds;
c) water soluble alkali and alkaline earth salts of the products of sulfation of condensed monocyclic aromatic hydrocarbons; and
d) water soluble alkali and alkaline earth salts of the products of sulfation of condensed polycyclic aromatic hydrocarbons.

5,785,752
METHOD FOR THE PREPARATION OF MAGNETIC OXIDE GARNET SINGLE CRYSTAL FOR MAGNETOSTATIC WAVE DEVICE
Masayuki Tanno, and Toshihiko Ryuo, both of Gunma-ken, Japan, assignors to Shin-Etsu Chemical Co., Ltd., Japan
Filed Dec. 12, 1995, Ser. No. 571,097
Claims priority, application Japan, Dec. 14, 1994, 6-310180
Int. Cl.^{6} C30B *15/20*
U.S. Cl. 117—32 **2 Claims**

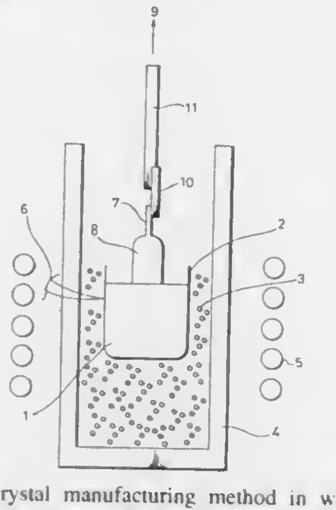
1. In a method for the preparation of a magnetic oxide garnet single crystal to serve as a magnetostatic working element having a chemical composition expressed by the formula



$(Bi_xY_{3-x})(Fe_{5-y}M_y)O_{12}$,

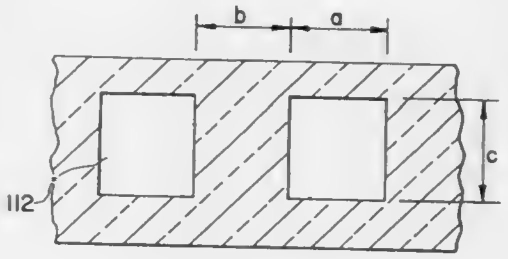
in which M is an element selected from the group consisting of gallium and aluminum, the subscript x is a number in the range from 0.02 to 0.4 and the subscript y is a number in the range from 0.6 to 0.8 and formed by liquid-phase epitaxial growing on a surface of a single crystal substrate having a crystallographic plane orientation of (111) and having a lattice constant in the range from 1.2363 to 1.2386 nm, of which the growth-induced anisotropy constant Ku^g in the crystallographic axial direction of <111> is in the range from 0.3×10^3 to 1.5×10^3 joules/m^3, the improvement which comprises:
(a) measuring a first apex temperature, which is the temperature at which a vertical resonance magnetic field as a function of temperature has a maximum value with a constant resonance frequency or a second apex temperature, which is the temperature at which the vertical resonance frequency as a function of temperature has a maximum value under a constant magnetic field for a substantially rectangular or substantially elliptic specimen; and
(b) cutting the epitaxially grown magnetic oxide garnet single crystal in such dimensions that the ratio of h, which is the thickness of the single crystal, to L, which is the smallest dimension within a flat surface of the single crystal, is in the range from 0.001 to 0.25.

5,785,753
SINGLE CRYSTAL MANUFACTURING METHOD
Yasujiro Taguchi, Tokyo, and Tsutomu Okamoto, Kanagawa, both of Japan, assignors to Sony Corporation, Japan
Filed Nov. 9, 1995, Ser. No. 555,787
Claims priority, application Japan, Nov. 14, 1994, 6-279339
Int. Cl.^{6} C30B *15/20*
U.S. Cl. 117—36 **7 Claims**



1. A single-crystal manufacturing method in which a single crystal is grown from a melt by a crystal pulling, comprising the steps of:
growing a single crystal;
withdrawing, after said single crystal is grown, said grown single crystal to a position wherein it is suspended at a distance above a surface of said melt to
gradually cool said grown single crystal;
separating said grown single crystal from said melt; and
introducing a stimulus for forcibly starting a solidification process of the melt while said grown single crystal is suspended over the surface of said melt and cooled, so as to induce solidification of said melt, said stimulus being locally applied to said melt.

5,785,754
SUBSTRATE, SEMICONDUCTOR DEVICE, ELEMENT-MOUNTED DEVICE AND PREPARATION OF SUBSTRATE
Yoshiyuki Yamamoto; Keiichiro Tanabe; Katsuko Harano; Nobuhiro Ota, and Naoji Fujimori, all of Itami, Japan, assignors to Sumitomo Electric Industries, Ltd., Osaka, Japan
Filed Nov. 30, 1995, Ser. No. 565,593
Claims priority, application Japan, Nov. 30, 1994, 6-296351; Nov. 30, 1994, 6-296353; Dec. 22, 1994, 6-319964; Dec. 22, 1994, 6-319969; Dec. 22, 1994, 6-319975; Dec. 22, 1994, 6-319978; Dec. 22, 1994, 6-319982
Int. Cl.^{6} C30B *29/05*
U.S. Cl. 117—89 **56 Claims**



1. A substrate comprising a layer of a high thermal conductivity material having a thermal conductivity of at least 10 W/cm·K and positioned on a base material, wherein a flow path for passing a cooling medium is provided only on the high thermal conductivity material layer adjacent an interface between the base material and the high thermal conductivity material layer.

5,785,755
METHOD OF GROWING MULTILAYER CRYSTAL FILMS BY METAL ORGANIC VAPOR PHASE EPITAXY
Takahiro Nakamura, and Satoshi Ae, both of Tokyo, Japan, assignors to NEC Corporation, Japan
Filed Mar. 15, 1996, Ser. No. 616,351
Claims priority, application Japan, Mar. 15, 1995, 7-055664
Int. Cl.^{6} C30B *25/02*
U.S. Cl. 117—104 **7 Claims**

1. A method of metal organic vapor phase epitaxy for growth of multiple layer films of InGaAsP having different group V element compositions wherein tertiary-butyl phosphine (TBP) is included in a standby gas flow step which maintains said growth process on standby after growth of a first InGaAsP layer and prior to growth of a second InGaAsP layer wherein said growth of said second InGaAsP layer comprises a gas flow containing a selected group V element composition ratio and said standby gas flow has substantially the same selected group V element composition as said

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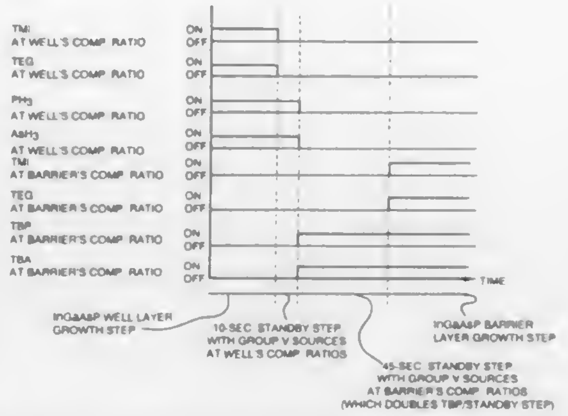


selected group V element composition for growth of said second InGaAsP layer.

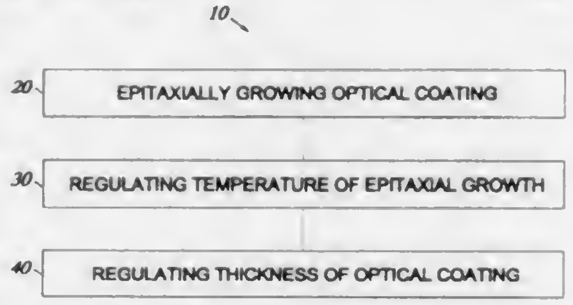
5,785,756
PROCESS FOR FABRICATING STRUCTURALLY ROBUST OPTICAL COATINGS

Myung B. Lee, West Orange, N.J., assignor to Northrop Grumman Corporation, Los Angeles, Calif.

Filed Mar. 6, 1997, Ser. No. 811,755

Int. Cl.⁶ C30B *23/04*

U.S. Cl. 117—105 **15 Claims**


10
20
EPITAXIALLY GROWING OPTICAL COATING
30
REGULATING TEMPERATURE OF EPITAXIAL GROWTH
40
REGULATING THICKNESS OF OPTICAL COATING

1. A process for forming a structurally robust optical coating upon a substrate comprising the steps of:

(a) epitaxially growing first and second compounds upon said substrate such that a resultant coating is formed thereon, said first compound having a first index of refraction and said second compound having a second index of refraction, said first index of refraction being different from said second index of refraction; and

(b) promoting the formation of dislocations within said resultant coating such that the density of dislocations formed therein causes said coating to substantially withstand cracking when cooled from said temperature at which said first and second compounds are epitaxially grown upon said substrate.

5,785,757
APPARATUS FOR FABRICATING A SINGLE-CRYSTAL

Yoshinobu Hiraishi, Omura, Japan, assignor to Komatsu Electronic Metals Co., Ltd., Hiratsuka, Japan

Filed Dec. 13, 1996, Ser. No. 764,989

Claims priority, application Japan, Dec. 14, 1995, 7-351098

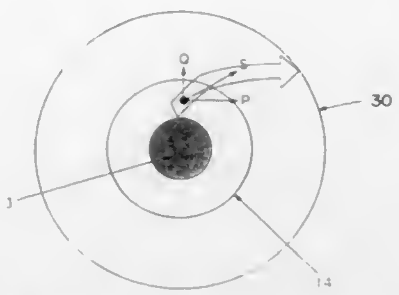
Int. Cl.⁶ C30B *35/00*

U.S. Cl. 117—218 **3 Claims**

1. An apparatus for fabricating a single-crystal semiconductor, comprising

a regulating cylinder concentrically covering the single-crystal semiconductor which is pulled in a vertical upward direction from a melt in a crucible;

a main chamber for isolating the growing single-crystal semiconductor from external atmosphere;



a falling gas introducing means on top of the main chamber for introducing an inert gas into the main chamber; and

a whirling gas introducing means on a circumferential portion of the main chamber for introducing an whirling inert gas into the main chamber in a tangential direction relative to circumference of the main chamber.

5,785,758
SINGLE CRYSTAL GROWING APPARATUS

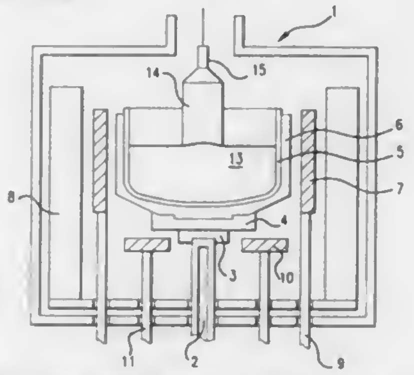
Hirotoshi Yamagishi; Kiyotaka Takano, and Masanori Kimura, all of c/o Handotai Isobe Kenkyusho, Shin-Etsu Handotai Co., Ltd., 13-1 Isore 2-Chome, Annaka-shi, Gunma-ken, Japan

Filed Dec. 20, 1996, Ser. No. 777,670

Claims priority, application Japan, Dec. 26, 1995, 7-351367

Int. Cl.⁶ C30B *35/00*

U.S. Cl. 117—218 **3 Claims**



1. A single crystal pulling apparatus, comprising:

a quartz crucible for containing a semiconductor melt from which a semiconductor single crystal rod is pulled to grow a semiconductor single crystal;

a main heater for heating said semiconductor melt through said quartz crucible; and

a subheater for additionally heating said semiconductor melt through said quartz crucible;

wherein said quartz crucible can move up and down so as to maintain the level of said semiconductor melt constant; and

said main heater and said subheater can move up and down according to the motion of said quartz crucible so that the thermal environment of said semiconductor melt is maintained substantially constant.

5,785,759
ROTATING CUP TYPE LIQUID SUPPLY DEVICE

Hiroyoshi Sago; Shigemi Fujiyama; Futoshi Shimai, and Koichi Nagasawa, all of Kanagawa, Japan, assignors to Tokyo Ohka Kogyo Co., Ltd., Kanagawa, Japan

Filed Oct. 28, 1996, Ser. No. 742,581

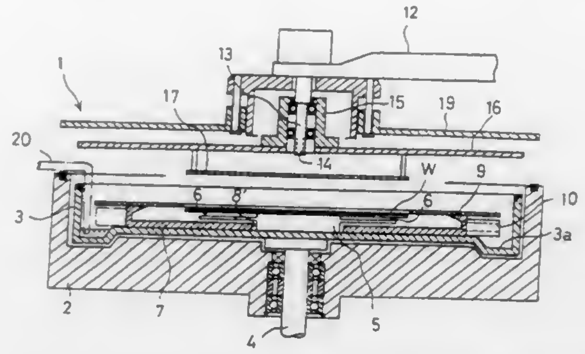
Claims priority, application Japan, Oct. 30, 1995, 7-281159

Int. Cl.⁶ B05B *13/02;* **B05C** *13/00*

U.S. Cl. 118—319 **20 Claims**

1. A rotating cup coating device, comprising:

an outer cup;



an inner cup disposed in said outer cup and driven to rotate by a spinner;

means for holding a substantially planar material to be treated (W) in the center of said inner cup, a nozzle positioned and arranged for supplying a coating material to said planar material; and

a tray fixed onto an inner bottom surface of a bottom plate of said inner cup, said holding means being disposed within said tray such that said material (W) held by said holding means is surrounded by said tray, said tray having an upper opening, and said holding means being accessible to the material (W) through the opening.

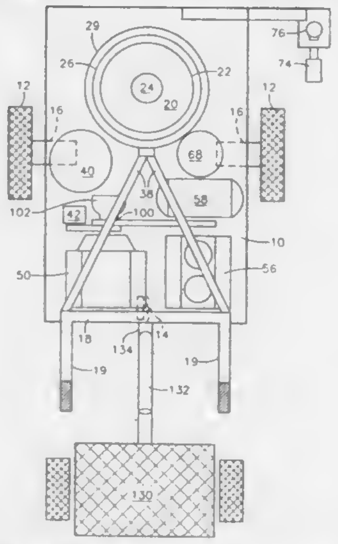
5,785,760
LINE STRIPING MACHINE

John Ross Sconyers, and Robert A. Mallory, Jr., both of Nashville, Tenn., assignors to TechLiner Products & Equipment, Inc., Nashville, Tenn.

Filed Apr. 4, 1996, Ser. No. 640,285

Int. Cl.⁶ B05C *11/00;* **B05B** *1/24;* **B60H** *3/00*

U.S. Cl. 148—600 **29 Claims**



1. An apparatus for applying thermoplastic coating material to a road surface comprising:

a first storage tank having an enclosure for receiving and holding a volume of thermoplastic coating material;

a coating material delivery conduit for providing flow communication of said thermoplastic coating material from said first storage tank to a first distribution discharge appliance to apply the coating material to said surface;

a heat transfer fluid jacket substantially and contiguously surrounding said first storage tank for receiving and holding a volume of heat transfer fluid;

a heating gas flow space substantially and contiguously surrounding said heat transfer fluid jacket for raising the temperature of said heat transfer fluid in said fluid jacket substantially above ambient; and,

a heat transfer fluid circulation conduit for delivering heated heat transfer fluid from said fluid jacket into heat transfer relationship with coating material in said delivery conduit between said first storage tank and said discharge appliance.

5,785,761
FINE PARTICLES DISPERSING APPARATUS

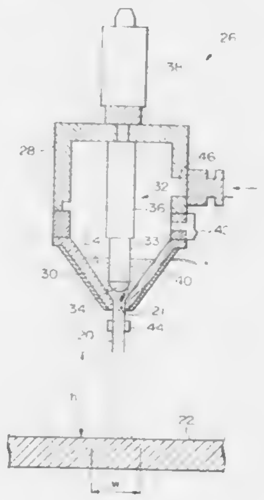
Akihiro Suzuki; Akihiro Obara, and Keiji Kamata, all of Miyagi-ken, Japan, assignors to Alps Electric Co., Ltd., Tokyo, Japan

Filed Jul. 13, 1995, Ser. No. 502,301

Claims priority, application Japan, Jul. 22, 1994, 6-171458

Int. Cl.⁶ B05C *5/00*

U.S. Cl. 118—612 **16 Claims**



1. An apparatus for dispersing particles comprising:

a body having an interior;

a funnel nozzle having an inner surface communicating with the interior of the body, the inner surface tapering to a nose portion defining an opening;

a spherical member movably disposed within the funnel nozzle adjacent the nose portion; and

means for intermittently varying an internal pressure of said body such that the spherical member intermittently moves toward and away from the opening;

wherein the intermittent movement of the spherical member causes an associated intermittent change in a clearance between the spherical member and the inner surface of the funnel nozzle, thereby causing particles within said funnel nozzle to intermittently pass through said clearance and to be discharged through the opening.

5,785,762
EXTERNAL COMBUSTION OXIDATION APPARATUS

Shuichi Masuda, Tokyo, Japan, assignor to NEC Corporation, Tokyo, Japan

Filed Jul. 25, 1997, Ser. No. 900,843

Claims priority, application Japan, Jul. 25, 1996, 8-196082

Int. Cl.⁶ C23C *16/00*

U.S. Cl. 118—666 **8 Claims**

1. An external combustion oxidation apparatus comprising:

a furnace core tube which accommodates a semiconductor wafer in a gas mixture atmosphere of water vapor and a dilute gas and which is heated to a predetermined temperature to form an oxide film on the semiconductor wafer;

a mixing chamber for mixing water vapor and the dilute gas and supplying a gas mixture into said furnace core tube;

first heating means for heating said mixing chamber;

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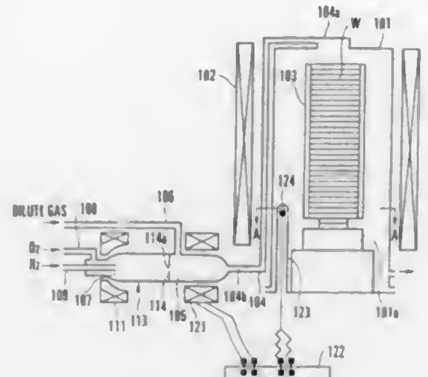
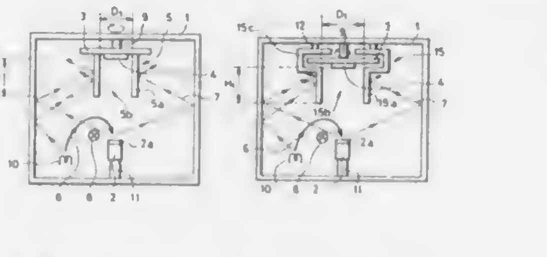


a gas inlet tube for connecting said mixing chamber and said furnace core tube to each other;
temperature detection means for detecting a temperature in said furnace core tube; and
temperature control means for controlling a heating operation of said first heating means based on the temperature in said furnace core tube which is detected by said temperature detection means.

5,785,763
ELECTRON-GUN EVAPORATION SYSTEM HAVING EVAPORATION-SOURCE STREAM REGULATOR

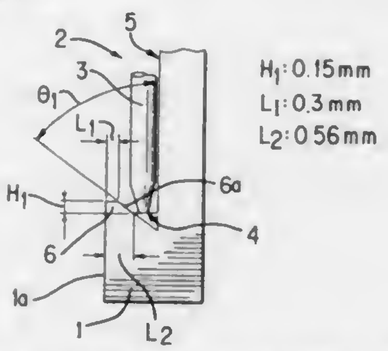
Kazuhiko Onda; Yasuko Hori, and Akira Fujihara, all of Tokyo, Japan, assignors to NEC Corporation, Tokyo, Japan
Filed Aug. 29, 1995, Ser. No. 521,029
Claims priority, application Japan, Aug. 30, 1994, 6-205235
Int. Cl.⁶ C23C *16/00;14/30*
U.S. Cl. 118—723 EB **19 Claims**



1. An electron-gun evaporation system comprising:
an evaporation chamber;
an evaporation source holder for holding an evaporation source, said source holder being placed in said chamber;
an electron gun for producing an electron beam;
an electron-beam controller for controlling said electron beam so that said beam is applied to said source when held by said source holder, said source being heated by said beam to generate a gaseous evaporation source;
an evaporation object holder for holding an evaporation object, said object holder being placed in said chamber; and
a collimator having a wall that forms a hollow space therein and a window that is formed at an end of said wall, said object being surrounded by said wall when held by said object holder and said collimator providing a path between said source and said object;
wherein during an evaporation process said gaseous evaporation source flows into said hollow space of said collimator through said window to be collimated and then reaches said object to be deposited thereon;
and wherein stray electrons generated in said chamber are prevented from being applied to said object held by said object holder by said wall of said collimator.

5,785,764
SUSCEPTOR FOR A GAS PHASE GROWTH APPARATUS

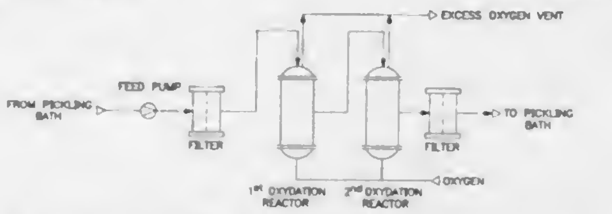
Yusho Hoshina, and Hideki Hariya, both of Annaka, Japan, assignors to Shin-Etsu Handotai Co., Ltd., Tokyo, Japan
Filed Sep. 5, 1997, Ser. No. 924,511
Claims priority, application Japan, Sep. 10, 1996, 8-261404
Int. Cl.⁶ C23C *16/00*
U.S. Cl. 118—500 **16 Claims**



1. A susceptor for a gas phase growth apparatus into which a round depressed pocket with a bottom and a side wall is formed for holding a semiconductor wafer wherein a protuberance is provided on the circumference of the pocket at and near the position where said semiconductor wafer touches said side wall of the pocket in such a way that the protuberance covers a part of a chamfered area of said semiconductor wafer without touching it.

5,785,765
PICKLING OF STAINLESS STEELS WHILE CONTINUOUSLY REOXIDIZING CATALYTICALLY THE PICKLING SOLUTION

Marco Zavattoni, Castronno, Italy, assignor to Condoroil Impianti s.r.l., Casale Litta, Italy
Filed Feb. 26, 1997, Ser. No. 805,974
Claims priority, application European Pat. Off., Mar. 14, 1996, 96830112
Int. Cl.⁶ C23G *1/02*
U.S. Cl. 134—2 **7 Claims**



1. A process of pickling stainless steel or ferrous alloys which comprises contacting the steel or ferrous alloy to be pickled with an aqueous acid solution containing at least a reducible oxidizing agent and
treating a portion of the pickling solution in a separate reactor, reoxidizing said, reduced agent by catalytic reoxidation and recycling the solution treated into the pickling bath;
wherein said treating includes contacting said pickling solution with a noble metal catalyst supported on a material inert to the pickling solution, in the presence of oxygen.

5,785,766
PROCESS FOR THE COLOR RECOVERY OF VINYL PLASTICS

Ronald O. Davis, 308 Firebridge Rd., Columbia, S.C. 29223
Filed Dec. 3, 1996, Ser. No. 753,947
Int. Cl.⁶ B08B *3/00*
U.S. Cl. 134—29 **4 Claims**

1. A process for restoring color to a deteriorated vinyl plastic surface, the process comprising the steps of:

(a) applying a detergent to the deteriorated vinyl plastic surface to clean foreign particulate and fluid materials from the surface;
(b) drying the surface following step (a);
(c) applying a solvent to the deteriorated vinyl plastic surface to remove any accumulated films on the surface, said solvent selected from a group consisting of methanol, ethanol, propanol and butanol,
(d) drying the surface following step (c); and
(e) applying a fluorescent solution to the vinyl plastic surface to restore color to the vinyl plastic surface,
wherein said fluorescent solution comprises at least one florescent agent having emissive wavelengths in the blue to violet region of visible light.

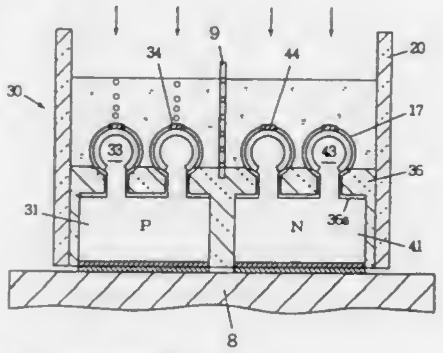
5,785,767
CLEANING AND DISINFECTING SOLUTION FOR CONTACT LENS AND METHOD OF CLEANING AND DISINFECTING CONTACT LENS USING THE SOLUTION

Norio Kimura, Kasugai, and Akira Nakagawa, Yokkaichi, both of Japan, assignors to Tomey Technology Corporation, Japan
PCT No. PCT/JP96/00359, § 371 Date Oct. 3, 1996, § 102(e) Date Oct. 3, 1996, PCT Pub. No. WO96/25957, PCT Pub. Date Aug. 29, 1996
PCT Filed Feb. 19, 1996, Ser. No. 722,033
Claims priority, application Japan, Feb. 21, 1995, 7-032648
Int. Cl.⁶ C11D *3/386;3/20;3/44;* **B08B** *3/00*
U.S. Cl. 134—42 **15 Claims**

1. A cleaning and disinfecting solution for a contact lens which is characterized by comprising a protein stain-removing effective amount of a proteolytic enzyme, 60–80 w/v % of propylene glycol, 10–35 w/v % of glycerine, and water, a total content of said propylene glycol and said glycerine being in a range of 70–95 w/v %.

5,785,768
PHOTO CELLS, PHOTO CELL ARRAYS, AND ELECTROLYTIC DEVICES USING THESE CELLS AND ARRAYS

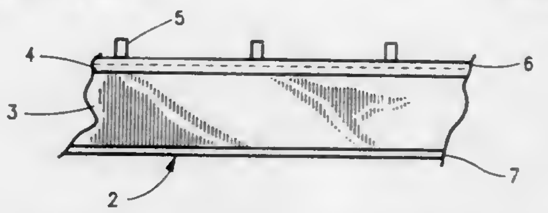
Josuke Nakata, 112-17, Kusekamiohtani, Joyo-shi, Kyoto 610-01, Japan
PCT No. PCT/JP95/01319, § 371 Date Jul. 24, 1996, § 102(e) Date Jul. 24, 1996, PCT Pub. No. WO96/13070, PCT Pub. Date May 2, 1996
PCT Filed Jul. 3, 1995, Ser. No. 666,345
Claims priority, application Japan, Oct. 24, 1994, 6-284217
Int. Cl.⁶ H01L *31/06*
U.S. Cl. 136—250 **12 Claims**



1. A photo cell comprising:
a base material, the base material being a p-type or n-type semiconductor and having a surface;
a light receiving section, the light receiving section being an integral spherical part of the base material which part protrudes outward from the surface of the base and has a semiconductor layer of conductivity type opposite to that of the base material, said semiconductor layer being formed on a surface of said spherical part so that a pn junction interface is formed between the base material and the semiconductor layer;'
a front surface electrode formed from conductive material in ohmic contact with a portion of the semiconductor layer on the surface of the spherical part; and
a back electrode formed from conductive material on the underside of the base material in ohmic contact therewith.

5,785,769
SUBSTRATE FOR THIN SILICON SOLAR CELLS

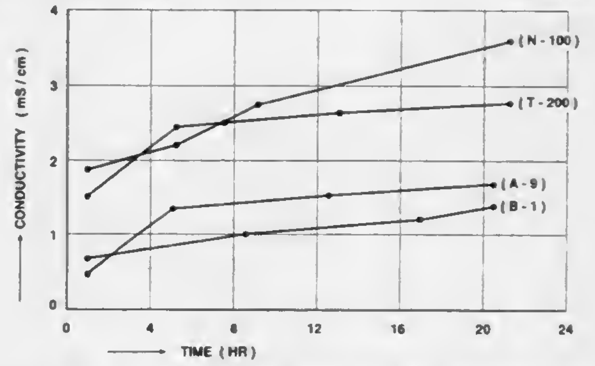
Theodore F. Ciszek, Evergreen, Colo., assignor to Midwest Research Institute, Kansas City, Mo.
Division of Ser. No. 116,849, Sep. 7, 1993, Pat. No. 5,401,331. This application Jan. 27, 1995, Ser. No. 379,970
Int. Cl.⁶ H01L *31/0288*
U.S. Cl. 136—256 **3 Claims**



1. A substrate for a photovoltaic device, wherein said substrate is the base of said photovoltaic device upon which photosensitive material is to be grown, comprising
a body material forming said substrate,
said substrate comprising a top surface upon which said photsensitive material is grown,
said body material comprising an alloy of metallurgical grade silicon and boron,
said alloy comprising boron in a range from 0.1 atomic % of said alloy to 1.3 atomic % of said alloy, and wherein said substrate has a resistivity less than 3×10^{-3} ohm-cm.

5,785,770
BRAZING FLUX

Dayal T. Meshri; Sanjay D. Meshri; Dinshaw B. Contractor, and Jennifer Parker, all of Tulsa, Okla., assignors to Advance Research Chemicals, Inc., Catoosa, Okla.
Filed May 30, 1996, Ser. No. 657,642
Int. Cl.⁶ B23K *35/00*
U.S. Cl. 148—26 **11 Claims**



1. A flux for use in brazing aluminum and aluminum alloy metals, comprising:
(a) eighty to ninety-nine and nine-tenths weight percent (80–99.9 wt. %) of a fluoroaluminate complex; and
(b) one-tenth to twenty weight percent (0.1–20 wt. %) of a metal flurosilicate.

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5,785,771

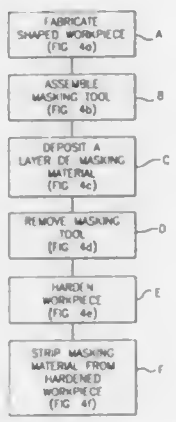
METHOD FOR MANUFACTURING PRECISION GEARS

George D. Mitchell, Jr., Oxford; Edward H. Bittner, Madison, and Walter S. Koscomb, III, Sandy Hook, all of Conn., assignors to Sikorsky Aircraft Corporation, Stratford, Conn.

Filed May 2, 1997, Ser. No. 850,047

Int. Cl.⁶ C23C *2/28*

U.S. Cl. 148—213 **7 Claims**


FABRICATE SHAPED WORKPIECE (FIG 4a)
A
ASSEMBLE MASKING TOOL (FIG 4b)
B
DEPOSIT A LAYER OF MASKING MATERIAL (FIG 4c)
C
REMOVE MASKING TOOL (FIG 4d)
D
HARDEN WORKPIECE (FIG 4e)
E
STRIP MASKING MATERIAL FROM HARDENED WORKPIECE (FIG 4f)
F

1. A method for manufacturing precision gears (**10**) comprising the steps of:

- A. providing a shaped workpiece ($\mathbf{30}_S$) defining a plurality of gear teeth (**12**) each having a top land (**14**), said shaped workpiece furthermore defining a tooth space surface (**68**) defined by and between adjacent gear teeth (**12**),
- B. assembling a masking tool (**60**) in combination with said shaped workpiece ($\mathbf{30}_S$), said masking tool including a flexible back-plate (**64**) and plurality of compliant masking segments (**62**) bonded to and integrated by said flexible back-plate (**64**), each of said compliant masking segments (**62**) defining a surface geometry (**66**) which is substantially complementary to said tooth space surface (**68**) and adjacent compliant masking segments (**62**) defining an open-ended channel (**70**) therebetween, wherein said compliant masking segments are forcibly urged into superposed engagement with the tooth space surfaces (**68**);
- C. depositing a layer of masking material (**28**) on exposed surfaces of said shaped workpiece ($\mathbf{30}_S$) by an immersion process wherein said open-ended channels (**70**) of said masking tool (**60**) facilitate deposition of said masking material (**28**) on said top lands (**14**) of said gear teeth (**12**), said surface deposition step forming a material-masked workpiece ($\mathbf{30}_{MM}$);
- D. removing said masking tool (**60**) from said material-masked workpiece ($\mathbf{30}_{MM}$);
- E. hardening said material-masked workpiece ($\mathbf{30}_{MM}$) thereby forming a hardened workpiece ($\mathbf{30}_H$); and
- F. stripping said masking material (**28**) from said hardened workpiece ($\mathbf{30}_H$).

5,785,772

METHOD AND APPARATUS FOR CONTROLLING GALVANNEAL INDUCTION FURNACE OPERATION

Mitrajyoti Deka, Coopersburg, Pa., assignor to Bethlehem Steel Corporation

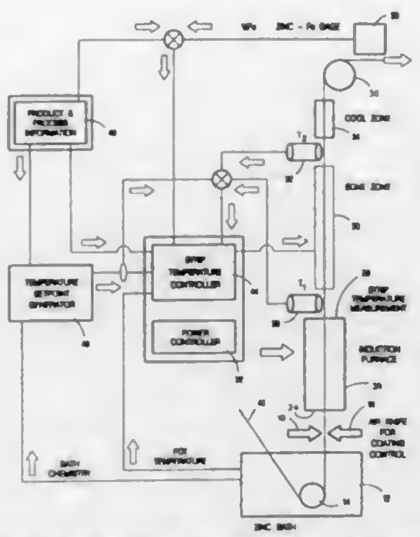
Continuation of Ser. No. 568,339, Dec. 6, 1995, abandoned. This application May 27, 1997, Ser. No. 863,475

Int. Cl.⁶ C21D *1/54*

U.S. Cl. 148—508 **19 Claims**

1. A method of controlling operation of a galvanneal induction furnace, the method comprising the steps of:

- a) providing a steel strip;
- b) transporting the steel strip through a zinc bath in order to apply a zinc coating to the steel strip;
- c) transporting the steel strip with the zinc coating to a galvanneal induction furnace in which the steel strip and zinc coating are to be alloyed;


ZINC - Fe GAGE
PRODUCT & PROCESS INFORMATION
COOL ZONE
SOAK ZONE
TEMPERATURE SETPOINT GENERATOR
STRIP TEMPERATURE CONTROLLER
POWER CONTROLLER
STRIP TEMPERATURE MEASUREMENT
INDUCTION FURNACE
AIR KNIFE FOR COATING CONTROL
BATH CHEMISTRY
POT TEMPERATURE
ZINC BATH

- d) estimating by calculation as a friction of a thickness of the strip, a speed at which the strip is being transported, and a weight of the coating, a first temperature which the steel strip will attain after exiting the zinc bath, but before entering the induction furnace;
- e) selecting a second temperature that the steel strip shall attain in the induction furnace during an alloying reaction between the steel strip and the zinc coating;
- f) using the first estimated temperature to determine a power to be applied to the induction furnace for elevating a temperature of the steel strip to the second temperature;
- g) supplying the determined power to the induction furnace; and
- h) alloying the steel strip and zinc coating in the induction furnace at the second temperature.

5,785,773

PROCESS FOR AVOIDING STICKERS IN THE ANNEALING OF COLD STRIP

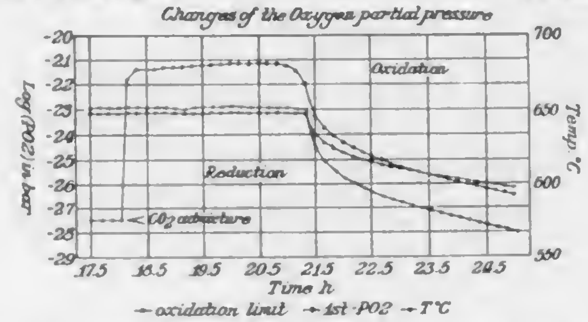
Peter Zylla, Krefeld, Germany, assignor to Messer Griesheim-GmbH, Germany

Filed Aug. 20, 1996, Ser. No. 699,925

Claims priority, application Germany, Aug. 26, 1995, 195 31 447.6

Int. Cl.⁶ C21D *9/663*

U.S. Cl. 148—634 **8 Claims**



1. A process for avoiding stickers in the annealing of cold strip in a bell-type furnace under a protective gas comprising >5% to 100% by volume of hydrogen, remainder nitrogen, including the phases heating, holding and cooling, which comprises coating the cold strip during the holding time with a thin surface film by oxidation at temperatures above 600° C., by establishing an oxidizing partial pressure ratio

$$P(CO_2)/P(CO)>1$$

by admixture of 0.3 g to 0.6 g of carbon dioxide per m² of annealing material surface to the protective gas and high disruption of the thermodynamic equilibrium of the homogeneous water gas reactions (K <<0.01).

5,785,774

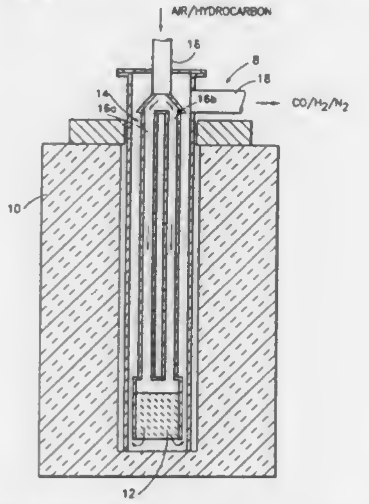
PROCESS FOR PRODUCING HEAT TREATMENT ATMOSPHERES

Jaak Stefaan Van Den Sype, Scarsdale, N.Y., and Alan Russell Barlow, Ridgefield, Conn., assignors to Praxair Technology, Inc., Danbury, Conn.

Continuation of Ser. No. 493,075, Jun. 21, 1995, abandoned, which is a division of Ser. No. 254,796, Jun. 6, 1994, Pat. No. 5,441,581. This application Apr. 3, 1997, Ser. No. 832,257

Int. Cl.⁶ C21D *1/613*

U.S. Cl. 148—634 **8 Claims**



1. A method for the endothermic generation of carbon monoxide and hydrogen atmospheres for the heat treating of ferrous metals, non-ferrous metals, alloys and metal and/or ceramic powders comprising the steps of:

- step 1: disposing a catalyst means containing a noble metal on a porous ceramic carrier means;
- step 2: directing input gases including hydrocarbon gas and oxygen (O_2) through a conduit and onto said noble metal catalyst means at a temperature in the range of about 750 C. to about 900 C., wherein said hydrocarbon gas oxidizes to produce output gases including carbon monoxide and hydrogen wherein the space velocity of said output gases is at least 10,000 units per hour;
- step 3: directing said output gases into a heat treatment furnace; and
- step 4: providing a source of nitrogen into said heat treatment furnace, such that said output gases and said nitrogen mix to form a heat treatment atmosphere.

5,785,775

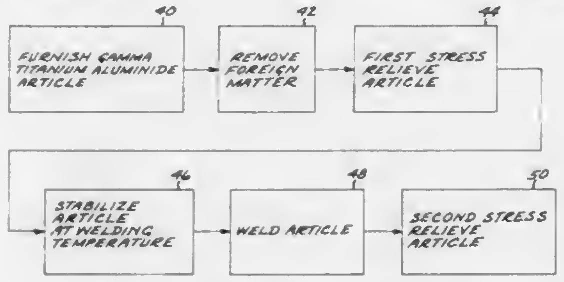
WELDING OF GAMMA TITANIUM ALUMINIDE ALLOYS

Russell W. Smashey, Loveland; Thomas J. Kelly, Cincinnati; John H. Snyder, Fairfield, and Ronald L. Sheranko, Cincinnati, all of Ohio, assignors to General Electric Company, Cincinnati, Ohio

Filed Jan. 22, 1997, Ser. No. 785,408

Int. Cl.⁶ C22F *1/18*

U.S. Cl. 148—669 **19 Claims**


40
FURNISH GAMMA TITANIUM ALUMINIDE ARTICLE
42
REMOVE FOREIGN MATTER
44
FIRST STRESS RELIEVE ARTICLE
46
STABILIZE ARTICLE AT WELDING TEMPERATURE
48
WELD ARTICLE
50
SECOND STRESS RELIEVE ARTICLE

1. A method of welding a gamma titanium aluminide alloy, comprising the steps of

furnishing an article made of a gamma titanium aluminide alloy; thereafter

removing any foreign matter present in a preselected region of the article to be welded; thereafter

bringing the article to a welding temperature; thereafter

stabilizing the temperature of the entire article at the welding temperature; thereafter

welding the preselected region of the article, in an inert atmosphere, at the welding temperature; and thereafter,

stress relieving the article.

5,785,776

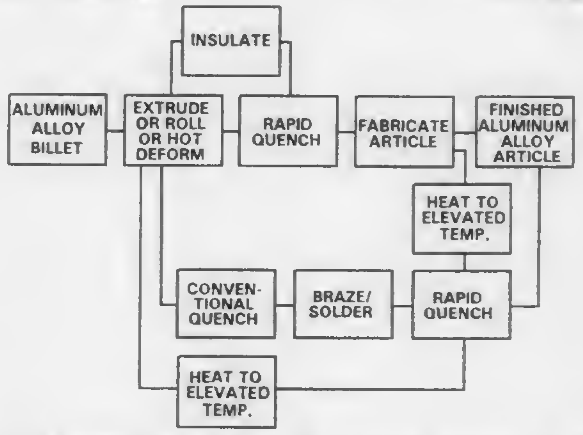
METHOD OF IMPROVING THE CORROSION RESISTANCE OF ALUMINUM ALLOYS AND PRODUCTS THEREFROM

Subhasish Sircar, Richmond, Va., assignor to Reynolds Metals Company, Richmond, Va.

Filed Jun. 6, 1996, Ser. No. 659,788

Int. Cl.⁶ C22F *1/04*

U.S. Cl. 148—690 **15 Claims**



15. A method of improving the corrosion resistance of an extruded aluminum alloy article, wherein the extruded aluminum alloy article has an alloy composition containing solid solution alloying elements which remain substantially in solid solution over time such that the alloy composition is quench insensitive, the alloy consisting essentially of, in weight percent, about 0.1 to 0.5% Mn, about 0.05 to 0.12% Si, about 0.03 to 0.30% Ti, about 0.05 to 0.50% Fe, not more than 0.40% Cu with the balance aluminum and incidental impurities, the method comprising: forming the article by extrusion thereof, using the extruded article in a fabrication process that raises the temperature of at least a portion thereof to an elevated temperature high enough to put solid solution alloying elements of the alloy in a substantially uniform concentration distribution, and rapidly quenching the extruded aluminum alloy article from the elevated temperature to substantially ambient temperature in less than one second to thereby maintain the substantially uniform concentration distribution of the solid solution alloying elements and improve the corrosion resistance of the at least a portion of the aluminum alloy article.

5,785,777

METHOD OF MAKING AN AA7000 SERIES ALUMINUM WROUGHT PRODUCT HAVING A MODIFIED SOLUTION HEAT TREATING PROCESS FOR IMPROVED EXFOLIATION CORROSION RESISTANCE

Mark Alan Cantrell, Rockville; Kevin Richard Anderson, Richmond, and Kim Herbert Archibald, Chesterfield, all of Va., assignors to Reynolds Metals Company, Richmond, Va.

Filed Nov. 22, 1996, Ser. No. 755,082

Int. Cl.⁶ C22C *21/00*

U.S. Cl. 148—694 **18 Claims**

2. In a method of producing an AA7000 series aluminum alloy plate by providing an AA7000 series alloy, working the alloy into

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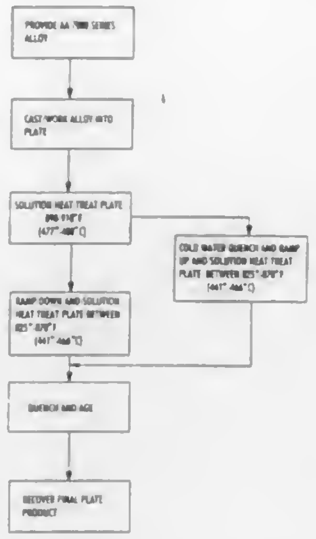

PROVIDE AA 7000 SERIES ALLOY
CAST/WORK ALLOY INTO PLATE
SOLUTION HEAT TREAT PLATE 885-910°F (477°-488°C)
COLD WATER QUENCH AND RAMP UP AND SOLUTION HEAT TREAT PLATE BETWEEN 825°-870°F (441°-466°C)
RAMP DOWN AND SOLUTION HEAT TREAT PLATE BETWEEN 825°-870°F (441°-466°C)
QUENCH AND AGE
RECOVER FINAL PLATE PRODUCT

a plate, solution heat treating the plate, quenching and aging the plate, the improvement comprising the step of solution heat treating the plate in two steps after the alloy has been worked into the plate, a first step comprising heating the plate to a temperature within a first temperature range of about 885° to 910° F. (477°–488° C.) and holding the plate within the first temperature range for at least about 3 hours, a second step comprising heating the plate at a temperature within a second temperature range of about 825° to 870° F. (441°–466° C.), and holding the plate within the second temperature range for at least about 6 hours, the use of the two step solution heat treat improving the exfoliation corrosion resistance of the plate.

5,785,778

AMINOALKYLLITHIUM COMPOUNDS CONTAINING CYCLIC AMINES AND POLYMERS THEREFROM

David F. Lawson, Uniontown; Thomas A. Antkowiak, Rittman; James E. Hall, Mogadore; Mark L. Stayer, Jr., Suffield, and John R. Schreffler, Clinton, all of Ohio, assignors to Bridgestone Corporation, Tokyo, Japan

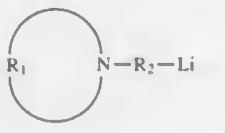
Continuation of Ser. No. 658,242, Jun. 4, 1996, Pat. No. 5,610,237, which is a division of Ser. No. 328,358, Feb. 1, 1995, Pat. No. 5,574,109. This application Mar. 7, 1997, Ser. No. 813,703

Int. Cl.⁶ B60C *5/00;* **C08F** *293/00*

U.S. Cl. 152—151 **7 Claims**

1. A tire having at least one component selected from the group consisting of treads, subtreads, black sidewalls, body ply skims and bead fillers, wherein said component is formed from a vulcanizable elastomer composition comprising a polymer and from about 5 to 80 parts by weight of carbon black, per 100 parts of said polymer, wherein said polymer is prepared by a method comprising:

preparing a solution of one or more anionically polymerizable monomers in a solvent; and, polymerizing under effective conditions, said monomers in the presence of a polymerization initiator having the general formula



wherein R_1 is a divalent alkylene, an oxy- or amino-alkylene, or substituted alkylene having from 6 to about 20 carbon atoms; and, R_2 is a linear-, branched-, or cyclo-alkylene having from about 2 to about 20 carbon atoms, and Li is a lithium atom bonded directly to a carbon atom of R_2.

5,785,779

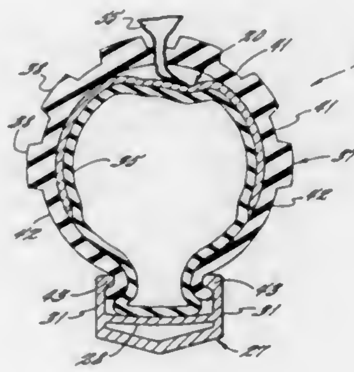
PROTECTIVE TIRE LINER FOR A BICYCLE AND RELATED METHODS

Christopher McGee, Steamboat Springs, Colo.; Daniel R. Nietzold, and Loronzo H. Thomson, both of Warner Robins, Ga., assignors to L. H. Thomson Company, Inc., Macon, Ga.

Filed Feb. 18, 1997, Ser. No. 801,899

Int. Cl.⁶ B60C *19/12;* **B29D** *30/06*

U.S. Cl. 152—204 **20 Claims**



1. A bicycle wheel comprising:

a generally circular bicycle rim;

a bicycle inner tube positioned around said bicycle rim;

a bicycle outer tire covering said bicycle inner tube and being secured to said bicycle rim;

a protective tire liner positioned between said bicycle inner tube and said bicycle outer tire, said protective tire liner comprising

an elongate puncture-resistant flexible strip positioned to extend around a periphery of said inner tube to protect said inner tube from puncture damage, said puncture resistant flexible strip comprising a non-metallic fabric comprising an aramid yarn, said puncture-resistant flexible strip having a relatively abrasive surface especially at side edges thereof so as to be capable of abrading said inner tube upon relative motion therewith, and

at least one elongate flexible covering strip connected to at least one respective major surface of said puncture-resistant flexible strip and extending outwardly beyond side edges thereof to prevent abrading of said inner tube which would otherwise occur from relative motion with said puncture-resistant flexible strip, said at least one elongate flexible covering strip comprising plastic.

12. A method for protecting a bicycle inner tube for a bicycle wheel comprising a generally circular bicycle rim, the bicycle inner tube positioned around the bicycle rim, and a bicycle outer tire covering the bicycle inner tube and secured to the bicycle rim, the method comprising the steps of:

forming a protective tire liner by

providing an elongate puncture-resistant flexible strip to protect the inner tube from puncture damage, said puncture resistant flexible strip comprising a non-metallic fabric comprising an aramid yarn, said puncture-resistant flexible strip having a relatively abrasive surface especially at side edges thereof so as to be capable of abrading the inner tube upon relative motion therewith, and

securing at least one elongate flexible covering strip to at least one respective major surface of said puncture-resistant flexible strip so as to extend outwardly beyond side edges thereof to prevent abrading of said inner tube which would otherwise occur from relative motion with said puncture-resistant flexible strip, said at least one elongate flexible covering strip comprising plastic, and

positioning the protective tire liner to extend around the periphery of the bicycle inner tube between the bicycle inner tube and the bicycle outer tire.

5,785,780

ICE/SNOW ROAD-RUNNING PNEUMATIC TIRES

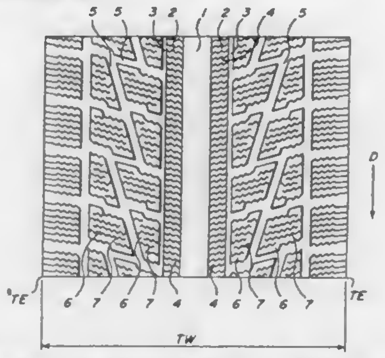
Naoya Ochi, Kodaira, Japan, assignor to Bridgestone Corporation, Tokyo, Japan

Filed Dec. 7, 1995, Ser. No. 569,009

Claims priority, application Japan, Dec. 7, 1994, 6-303997

Int. Cl.⁶ B60C *11/12;115/00*

U.S. Cl. 152—209 R **6 Claims**



1. A pneumatic tire provided with a directional tread pattern, said directional tread pattern comprising: a wide centered circumferential straight groove dividing the tread into right and left sides, inclined grooves on each side of the wide centered circumferential straight groove, a pair of circumferential ribs provided adjacent to right and left sides of the wide centered circumferential straight groove, respectively, and a pair of narrow circumferential straight grooves provided adjacent to and axially outside the circumferential ribs, respectively, wherein:

(1) a groove width of the wide centered circumferential straight groove is 7 to 25% of the width of the tread;

(2) a width of each of the circumferential ribs is 2.5 to 15% of a width of the tread;

(3) each of said narrow circumferential straight grooves has a groove width being 0.5 to 5% of that of the tread and a groove depth being 50 to 100% of that of the wide centered circumferential straight groove; and

(4) each of the circumferential ribs is provided with a plurality of sipes extending obliquely relative to the circumferential direction while being spaced in the circumferential direction, a depth of each sipe being 25 to 100% of the groove depth of the wide centered circumferential straight groove.

5,785,781

RADIAL TIRE WITH AXIALLY OUTER BEAD TIP

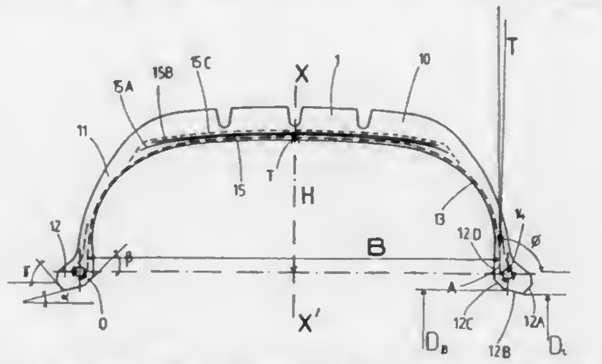
Jean-Jacques Drieux, Volvic; Jean-Charles Lacour; Olivier Muhlhoff, both of Clermont-Ferrand, and Jean-Pierre Pompier, Volvic, all of France, assignors to Compagnie Generale Des Etablissements Michelin, and Michelin & Cie

Division of Ser. No. 464,695, Jun. 7, 1995, Pat. No. 5,634,993. This application Jan. 22, 1997, Ser. No. 787,132

Claims priority, application France, Nov. 12, 1992, 92 15061

Int. Cl.⁶ B60C *3/06;9/08;15/024;17/06*

U.S. Cl. 152—454 **9 Claims**



1. A tire intended to be mounted on a rim having at least one seat, the generatrix of which has an axially outer end closer to the axis of rotation than the axially inner end thereof and comprising two sidewalls and two beads, at least one of said beads being terminated axially to the outside by a tip and intended to be mounted on said at least one seat, and a radial carcass reinforcement, anchored in each bead to at least one reinforcement ring, characterized by the fact that, seen in meridian section, the meridian profile of the carcass reinforcement, when the tire is mounted on its service rim and inflated to its service pressure, has a constant direction of curvature in the at least one bead which is terminated by the tip and in the corresponding sidewall and is such that, in said at least one bead, a tangent AT to the point of tangency A of said profile with the at least one reinforcement ring of said at least one bead forms with the axis of rotation an angle ϕ, open towards the outside, of at least 70°, said at least one bead, of usual axial width, having a bead seat the generatrix of which has its axially outer end closer to the axis of rotation than its axially inner end, said generatrix being extended axially to the outside by an outer face delimiting the bead tip, said face forming with the axis of rotation an angle y, open radially and axially towards the outside, of less than 90°.

5,785,782

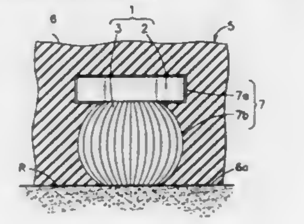
SLIP-PREVENTING VEHICLE TIRE

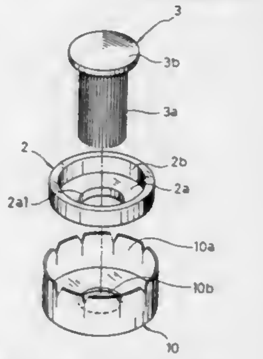
Yasuhiro Tsuzuki, Tokyo, and Tadashi Abe, Miyagi, both of Japan, assignors to Tsuzuki Electric Corporation, Japan

Continuation of Ser. No. 431,641, May 2, 1995, abandoned. This application Dec. 18, 1995, Ser. No. 574,375

Int. Cl.⁶ B60C *11/16*

U.S. Cl. 152—210 **19 Claims**





1. A slip-preventing vehicle tire with at least one groove fashioned therein for receiving a slip-preventing member, said slip-preventing member comprising:

a flat plate fixing element with a central region and a peripheral region;

a plurality of independent wire members affixed in a substantially equi-spaced manner to said central region of said fixing element; and

an annular holder comprising a bottom portion which defines a central opening, and a side wall extending from said bottom portion; wherein:

said peripheral region of said fixing element is affixed to said bottom portion of said annular holder such that said wire members extend through said central opening;

said at least one groove comprises a first elongated portion extending from the surface of the tire inwardly, and a second portion extending further inwardly from said first portion;

said first and second portions of the at least one groove being dimensioned to secure said fixing element and annular holder;

said wire members extend unguided through said first elongated portion of said at least one groove so as to be able to deform therein when said tire surface is in contact with a road surface, and terminate at a position substantially coplanar with the surface of the tires;

each of said wire members has a thickness of approximately 0.4 mm to approximately 0.7 mm, and a hardness of approximately 100 to approximately 180 kg/mm²;

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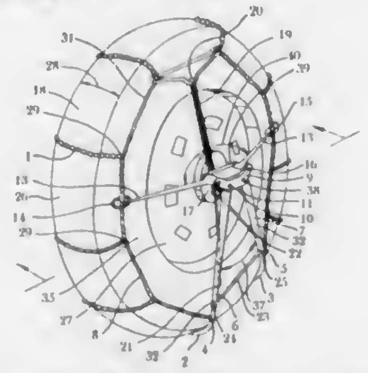
said at least one groove is adapted to undergo a substantially uniform deformation about a central longitudinal axis thereof when said tire surface is in contact with the road surface;
said deformation of said wire members corresponds to said deformation of said elongated portion;
said deformation of said at least one groove creates a reduced pressure in said elongated portion of said at least one groove, said reduced pressure creating an adhering force between said tire surface and said road surface;
said reduced pressure causes water from the road surface to be drawn into said elongated portion; and
said wire members are adapted to hold the water due to a surface tension between the water and said wire members.

5,785,783

DEVICE FOR QUICKLY FITTING SNOW CHAINS TO VEHICLE TIRES

Georges Thioliere, 18, rue Joseph-Serlin, Lyon, France, 69001
PCT No. PCT/FR95/00364, § 371 Date Sep. 24, 1996, § 102(e) Date Sep. 24, 1996, PCT Pub. No. WO95/25643, PCT Pub. Date Sep. 28, 1995
PCT Filed Mar. 24, 1995, Ser. No. 704,753
Claims priority, application France, Mar. 24, 1994, 94 03726
Int. Cl.⁶ B60C *27/12*
U.S. Cl. 152—216 **9 Claims**

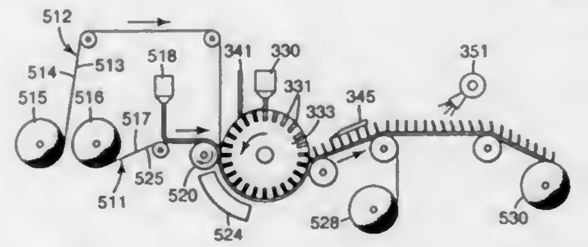


1. A chain assembly for vehicle wheels, comprising:
(a) a plurality of driving surface-contacting members to be maintained on tire tread;
(b) a wall chain subassembly for maintaining the plurality of driving surface-contacting members on the tire tread, this subassembly comprising:
  (i) an inner wall chain, to be positioned on the side of the wheel opposite to that taken by the individual installing the chain assembly; and
  (ii) an outer wall chain, to be positioned on the same side of the wheel as that taken by the individual installing the chain assembly;
(c) two L-shaped stays for tensioning the wall chain subassembly on both sides of the wheel, each of the two L-shaped stays comprising:
  (i) a horizontal portion of the L-shape, to which the wall chain subassembly is directly or indirectly fixed; and
  (ii) a vertical portion of the L-shape, comprising a hooking point;
(d) a common connection element on which each of the two L-shaped stays is journalled, by a respective vertical portion of the L-shape, about a separate axis of rotation, the common connection element to be located, when the chain assembly is assembled on the vehicle wheel, in the vicinity of the wheel axis on the same side of the wheel as the outer wall chain;
(e) a first elastic link for tensioning the chain assembly when the chain assembly is assembled on the vehicle wheel, the first elastic link comprising ends to be fixed to the L-shaped stays at the hooking points:
(f) at least two arms, each fixed at one end to the outer wall chain, and at the other end each journalled on the common connection element about a separate axis of rotation, the axes of rotation for the at least two arms being substantially parallel to the axes of rotation for the two L-shaped stays;
(g) at least one second elastic link comprising three attachment points for connecting between the two L-shaped stays and between the outer wall chain and the two L-shaped stays:
  (i) the first attachment point, for attachment to the outer wall chain, being located in the bisecting plane of the angle formed by the two L-shaped stays, when the chain assembly is assembled on the wheel; and
  (ii) each of the second and third attachment points being connectable to the vertical portions of the L-shape of an L-shaped stay.

5,785,784

ABRASIVE ARTICLES METHOD OF MAKING SAME AND ABRADING APPARATUS

Jason A. Chesley, Hudson, Wis., and William L. Melbye, Woodbury, Minn., assignors to Minnesota Mining and Manufacturing Company, St. Paul, Minn.
Continuation of Ser. No. 372,106, Jan. 13, 1995, abandoned, which is a continuation-in-part of Ser. No. 181,192, Jan. 13, 1994, abandoned, Ser. No. 181,193, Jan. 13, 1994, Pat. No. 5,505,747, and Ser. No. 181,195, Jan. 13, 1994, Pat. No. 5,607,345. This application Jul. 23, 1997, Ser. No. 898,906
Int. Cl.⁶ B24D *11/00;* **B32B** *31/28*
U.S. Cl. 156—66 **43 Claims**

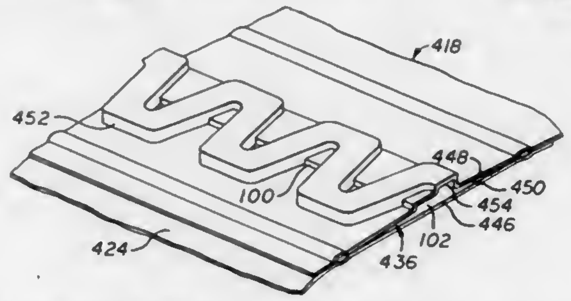


1. A method of making a coated abrasive article comprising the steps of:
a) providing a substrate having a first major surface and a second major surface, wherein said second major surface includes a plurality of hooking stems, and wherein said first major surface comprises a material selected from the group consisting of polypropylene and polyethylene;
b) providing a production tool having a contact surface and a back surface, wherein said contact surface comprises a plurality of cavities, and wherein said contact surface includes a low surface energy material selected from the group consisting of polypropylene and polyethylene;
c) applying an abrasive coating precursor including a binder and a plurality of abrasive particles onto one of said contact surface of said production tool and said first major surface of said substrate;
d) positioning said first major surface of said substrate and said contact surface of said production tool to face one another with said abrasive coating precursor therebetween;
e) while said first major surface of said substrate and said contact surface of said production tool are facing one another with the abrasive coating precursor therebetween, applying sufficient pressure to said second major surface of said substrate and said back surface of said production tool to cause said abrasive coating precursor to wet said first major surface of said substrate and said contact surface of said production tool;
f) exposing said abrasive coating precursor to conditions such that said abrasive coating precursor is at least partially cured to form an abrasive coating adhered to said first major surface, wherein said abrasive coating comprises a plurality of abrasive composites having a precise shape imparted by said cavities; and
g) separating said coated abrasive article from said production tool.

5,785,785

METHOD OF MAKING CONSTANT FLOW IRRIGATION TAPE

William Delmer; Daniel Delmer; Robert Delmer; John W. Erickson, and Ray Charles Emmons, all of Huntington Beach, Calif., assignors to Drip Tape Manufactures & Engineers, Inc., Huntington Beach, Calif.
Division of Ser. No. 328,105, Oct. 24, 1994, Pat. No. 5,620,143. This application Dec. 13, 1996, Ser. No. 766,624
Int. Cl.⁶ B05B *15/00;* **B29C** *53/02*
U.S. Cl. 156—203 **15 Claims**

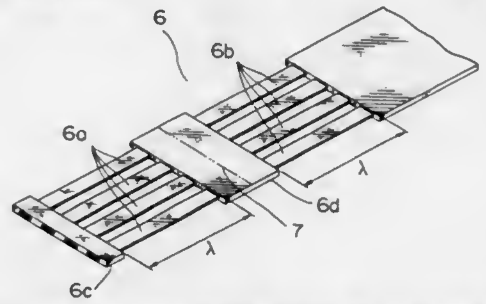


1. A method of making a constant-flow drip irrigation hose of the type having an elongate primary water flow path extending therethrough, and a secondary flow path extending from said primary flow path to open outwardly of said hose, said method comprising the steps of:
providing an elongate flexible resilient strip having opposite longitudinal marginal edges from which to form an elongate hose body with a boundary wall for said irrigation hose;
wrapping said strip on itself with a first longitudinal marginal edge portion and an opposite second longitudinal marginal edge portion of said strip overlapping each other;
sealingly securing said elongate wrapped strip to itself at circumferentially spaced locations adjacent to said longitudinal marginal edges to form said strip into an elongate hose body having a boundary wall;
using said hose body to define an elongate primary water flow path which is bounded by said boundary wall and which extends through said irrigation hose;
employing the overlapping of said marginal edge portions of said strip to define a secondary water flow path disposed radially between said overlapped first and second marginal edge portions and circumferentially between said first and second marginal edges;
providing an inlet port communicating water from said primary flow path to said secondary flow path, and providing an outlet port spaced along the length of said hose from said inlet port for communicating water from said secondary flow path outwardly of said hose;
forming one of said marginal edge portions to define a longitudinally-extending tortuous constantly-open flow channel opening toward the other of said marginal edge portions and defining a first part of said secondary flow path extending between said inlet port and said outlet port;
providing one of said first marginal edge portion and said second marginal edge portion with a longitudinally-extending groove of dimension wider than said tortuous channel and narrower than the circumferential extent of said secondary flow path;
spacing said marginal edge portions radially apart to provide a variable-area part of said secondary flow path extending longitudinally between said inlet port and said outlet port;
using said longitudinally extending groove to define a third variable-area part of said secondary flow path;
exposing an inner one of said marginal edge portions to water pressure within said primary flow path;
flexing said inner one of said marginal edge portions to respectively increase and decrease the area of said variable-area second part of said secondary flow path in response to respective decreasing or increasing water pressures within said hoses; and
using said inner marginal edge portion to further deflect toward the outer one of said marginal edge portions in response to water pressure within said hose to constrict said variable-area third part of said secondary flow path after said variable-area second part of said secondary flow path has been substantially closed.

5,785,786

ULTRASONIC WELDING METHOD

Masataka Suzuki; Hiroyuki Ashiya, and Atsushi Masuda, all of Shizuoka, Japan, assignors to Yazaki Corporation, Tokyo, Japan
Filed Jan. 28, 1997, Ser. No. 791,055
Claims priority, application Japan, Jan. 29, 1996, 8-012776
Int. Cl.⁶ B32B *31/16*
U.S. Cl. 156—73.1 **6 Claims**

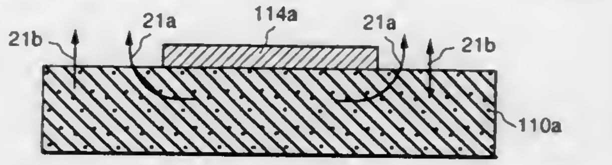


1. An ultrasonic welding method for welding a first metal sheet to a second metal sheet comprising the steps of:
defining a protective portion, a protected portion and a middle portion therebetween in said first metal sheet, each of said protective portion and said protected portion having a length corresponding to a desired weld jointing length;
folding back said protective portion over said protected portion along a return line on said middle portion;
mounting said first metal sheet on said second metal sheet in such a way that said protected portion lays between said protective portion and said second metal sheet;
mounting said first metal sheet and said second metal sheet together on an anvil;
abutting a horn against the protective portion of said first metal sheet from above: and
ultrasonically welding said first metal sheet and said second metal sheet.

5,785,787

PROCESSING LOW DIELECTRIC CONSTANT MATERIALS FOR HIGH SPEED ELECTRONICS

Robert John Wojnarowski, Ballston Lake; Herbert Stanley Cole, Burnt Hills; Theresa Ann Sitnik-Nieters, Clifton Park, and Wolfgang Daum, Glenville, all of N.Y., assignors to General Electric Company, Schenectady, N.Y.
Continuation-in-part of Ser. No. 411,176, Mar. 27, 1995, Pat. No. 5,576,517, which is a division of Ser. No. 247,820, May 23, 1994, Pat. No. 5,449,427. This application Nov. 22, 1995, Ser. No. 561,990
Int. Cl.⁶ B32B *31/12;31/14*
U.S. Cl. 156—155 **6 Claims**



1. A method for fabricating a low dielectric constant printed circuit board, comprising the steps of:
dispersing an additive material in a low dielectric constant porous polymer layer;
providing holes through the low dielectric constant porous polymer layer;

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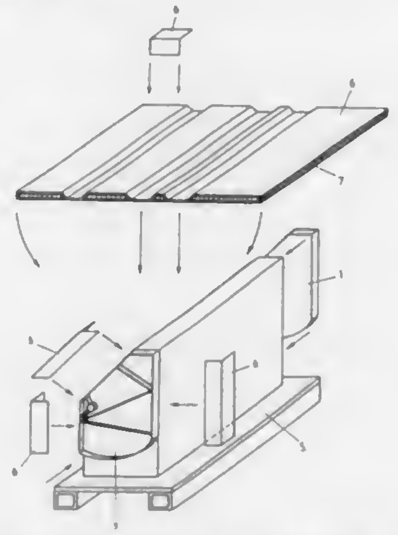
applying a metallization layer over surfaces of the low dielectric constant porous polymer layer and surfaces of the holes;
patterning the metallization layer; and
removing the additive material from the low dielectric constant porous polymer layer.

5,785,788

PROCESS FOR MANUFACTURING A STOWAGE CONTAINER FOR USE IN AN AIRCRAFT

Walter A. Stephan, St. Marein, Austria, assignor to Fischer Advanced Composite Components GmbH, Reid Im Innkreis, Austria

Continuation-in-part of Ser. No. 23,898, Feb. 19, 1993, abandoned. This application Jun. 30, 1995, Ser. No. 497,314
Claims priority, application Austria, Feb. 20, 1992, 312/92
Int. Cl.⁶ B29C *45/00;53/40;65/02;69/00*
U.S. Cl. 156—217 **21 Claims**



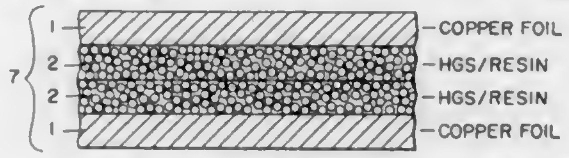
1. A process for manufacturing an aircraft stowage container, the stowage container comprising a composite component, the composite component being an essentially rigid U-shaped surround member or a bottom member, a top member, and at least two side wall members, the bottom, top, and side wall members being essentially rigid and flat, the stowage container further comprising two essentially rigid and flat end wall members, the process comprising the steps of:
(a) preparing at least two layers of prepregs impregnated with a curable thermosetting material for forming the U-shaped surround member or the top, bottom, and side wall members,
(b) interposing between at least two of the layers of prepregs spaced-apart regions of honeycomb construction material with intermediate regions between the spaced-apart regions of honeycomb construction material, the intermediate regions defining folding or bending regions between the spaced-apart regions of honeycomb construction material,
(c) bending or folding the layers of prepregs at at least some of the intermediate regions by applying the layers of prepregs over a mould to form an uncured composite component,
(d) connecting the end wall members with the uncured composite component, wherein a corner is formed by connecting the end wall member with the uncured composite component, the corner including a region where the end wall member touches the uncured composite component,
(e) applying at least one additional layer of prepregs directly to the end wall member and to the uncured composite component with a portion of the at least one additional layer being bent around the corner, and
(f) curing at least the uncured composite component and the additional layer of prepregs with the end wall member in an autoclave by heat application, whereby the resulting stowage container is capable of withstanding up to nine times gravitational force.

5,785,789

LOW DIELECTRIC MICROSPHERE FILLED LAYERS FOR MULTILAYER ELECTRICAL STRUCTURES

Gerald Gagnon, Nashua, N.H.; Richard Alwyn Barnett, Methuen, Mass., and James Anthony Apruzzi, Nashua, N.H., assignors to Digital Equipment Corporation, Maynard, Mass.

Continuation of Ser. No. 032,922, Mar. 18, 1993, abandoned. This application Nov. 23, 1994, Ser. No. 344,793
Int. Cl.⁶ B32B *31/00*
U.S. Cl. 156—235 **12 Claims**



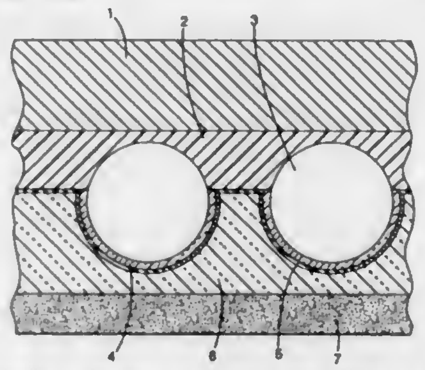
1. A method of fabricating a multilayer electrical structure, comprising:
introducing a first microsphere-filled resin layer and a first removable carrier member supporting the first microsphere-filled resin layer to the multilayer structure;
introducing a second microsphere-filled resin layer, supported by a second removable carrier member, to the multilayer structure; and
laminating the first and the second microsphere-filled resin layers and the multilayer structure to form a permanently bonded multilayer laminate in which the first and the second microsphere-filled resin layers provide a microsphere-containing dielectric layer;
wherein the second microsphere-filled resin layer is introduced adjacent to the first microsphere-filled resin layer after the first removable carrier member is removed from the first microsphere-filled resin layer.

5,785,790

TRANSFER ARTICLE FOR FORMING RETRO REFLECTIVE AND COLORED IMAGES AND METHOD OF MAKING SAME

Ulf N. Olsen, Solbergmoen, Norway; Erik Franke, Copenhagen, Denmark, and Ellif Strand, Drammen, Norway, assignors to Minnesota Mining and Manufacturing Company, St. Paul, Minn.

Division of Ser. No. 39,454, Jun. 23, 1993, Pat. No. 5,510,178. This application Dec. 19, 1995, Ser. No. 575,661
Claims priority, application Denmark, Oct. 25, 1990, 2573/90
Int. Cl.⁶ B32B *31/12*
U.S. Cl. 156—239 **11 Claims**



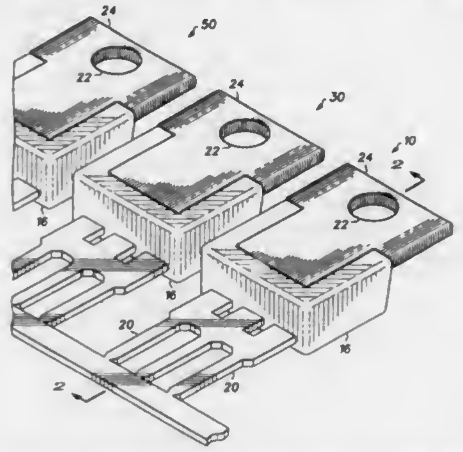
1. A method of making a transfer sheet useful for placing a retroreflective article on a substrate, the method comprising the steps of:
(a) partially embedding a monolayer of transparent microspheres about one-fourth to about one-half their diameter in a support sheet such that a portion of the monolayer is embedded in the support sheet and another portion protrudes therefrom;
(b) applying a specularly reflective layer to the protruding portion of the monolayer of microspheres; and
(c) coating imagewise on the specularly reflecting layer a composition based on a polyester resin and an isocyanate.

5,785,791

METHOD OF MANUFACTURING SEMICONDUCTOR COMPONENT

James P. Letterman, Jr., Mesa; Reginald K. Asher, Sr., Scottsdale; Reginald K. Asher, II, Phoenix, all of Ariz.; Mohan Lal Sanduja, Flushing, and Felicia B. Dragnea, Forest Hills, both of N.Y., assignors to Motorola, Inc., Schaumburg, Ill.

Filed May 5, 1997, Ser. No. 850,307
Int. Cl.⁶ B32B *31/00;* **H01L** *21/00*
U.S. Cl. 156—242 **19 Claims**



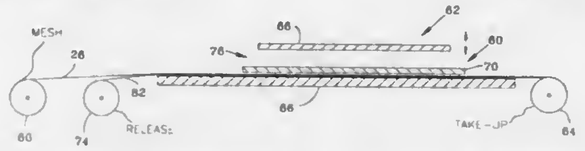
1. A method of manufacturing a semiconductor component comprising:
providing a metal substrate;
providing a resin comprising:
providing a monomer having a side functional group;
providing a graft initiator; and
providing a peroxide;
and
grafting the resin to the metal substrate.

5,785,792

METHOD FOR MAKING A DECORATIVE PANEL FOR USE IN SCREEN DOORS, WINDOWS, AND SIMILAR STRUCTURES

Albert C. Locke, Gardena, and Oscar Schoenfeld, Beverly Hills, both of Calif., assignors to Academy Manufacturing Co., Inc., Gardena, Calif.

Division of Ser. No. 410,972, Mar. 27, 1995, abandoned. This application Oct. 16, 1996, Ser. No. 730,776
Int. Cl.⁶ B32B *31/00;* **B41M** *1/26;* **B05D** *5/00;* **B41C** *1/14*
U.S. Cl. 156—247 **6 Claims**



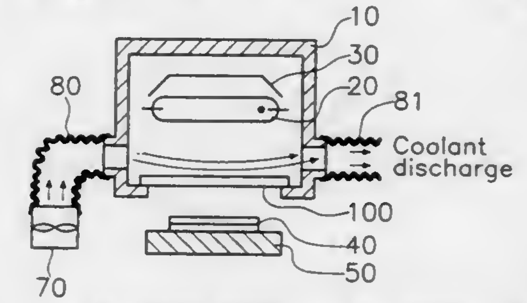
1. A method of manufacturing a decorative, air permeable, visually transparent panel suitable for use in screen doors, windows, and similar structures comprising the steps of:
positioning a sheet of intersecting fibers defining at least a 50% open mesh between a print head and a platen;
positioning a smooth surface release sheet between said mesh sheet and said platen;
operating said print head to deposit a plastic layer on said mesh sheet, and therethrough to said release sheet, to form a decorative pattern; and
peeling said release sheet away from said mesh sheet.

5,785,793

PROCESS AND DEVICE FOR BONDING DISCS TO ONE ANOTHER

Tetsuji Arai, Yokohama; Shouei Ebisawa, Kounosu, and Toshio Yokota, Ebina, all of Japan, assignors to Ushiodenki Kabushiki Kaisha, and Dainippon Ink and Chemicals, Incorporated, both of Tokyo, Japan

Filed May 30, 1997, Ser. No. 866,072
Claims priority, application Japan, May 31, 1996, 8-159257; Jun. 28, 1996, 8-169055
Int. Cl.⁶ B32B *31/28*
U.S. Cl. 156—272.2 **5 Claims**



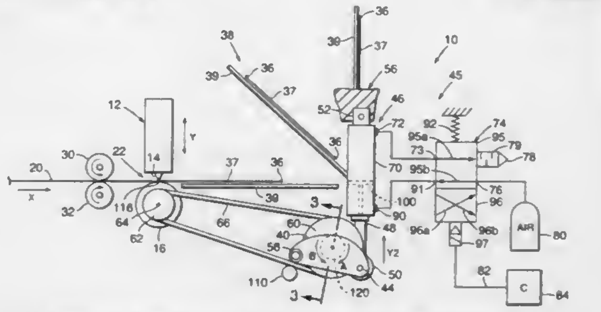
1. Device for bonding together two disc substrates, each of which has a UV transmissive base, at least one disc substrate of which has, on the UV transmissive base thereof, an information recording layer which transmits ultraviolet rays and reflects visible rays, with the disc substrates on top of one another with a bonding agent therebetween that is made of a UV curable composition, the information recording layer of said at least one of the disc substrates facing the other of the disc substrates, comprising
a light irradiation means for irradiating the two disc substrates with light which contains ultraviolet rays with one or more flashes;
a wavelength selection means for transmitting ultraviolet rays and absorbing light in a range of wavelengths which are absorbed by the disc substrates, said wavelength selection means being disposed in an optical path between the light irradiation means from the disc substrates separating the light irradiation means from the disc substrates;
and a cooling means which supplies and discharges cooling air between the light radiation means and the wavelength selection means.

5,785,794

SEAL ROLL INDEX

Lee B. Fiedler, Denmark, Wis., assignor to FMC Corporation, Chicago, Ill.

Filed Mar. 5, 1997, Ser. No. 810,874
Int. Cl.⁶ B31B *1/10;23/00*
U.S. Cl. 156—290 **13 Claims**



1. A method of indexing a roll, comprising the steps of:
providing a rocking device having an axis of rotation;
connecting said axis of rotation to rotate said roll when said rocking device is pivoted in a first direction, and disconnecting said axis of rotation from said roll when said rocking device is pivoted in a second direction;
braking rotation of said roll when said rocking device is rotated an angular amount in said second direction;

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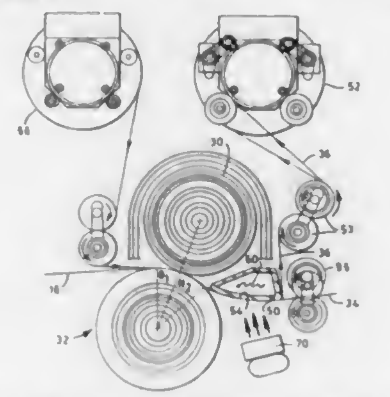
applying a first force to said rocking device at a position on said rocking device eccentric to said axis of rotation to rotate said rocking device in the first direction to rotate the roll a predetermined amount, and then applying a second force in a reverse direction to said first force, to rotate said rocking device in said second direction to brake said roll.

5,785,795
SYSTEM AND APPARATUS FOR DELAMINATING A LAMINATE CONTAINING IMAGE BEARING MEDIA

James F. Ryan, Marlboro, and Alfredo G. Kniazzeh, West Newton, both of Mass., assignors to Polaroid Corporation, Cambridge, Mass.

Filed Mar. 14, 1995, Ser. No. 403,342
Int. Cl.^{6} B32B *35/00*
U.S. Cl. 156—344 **15 Claims**



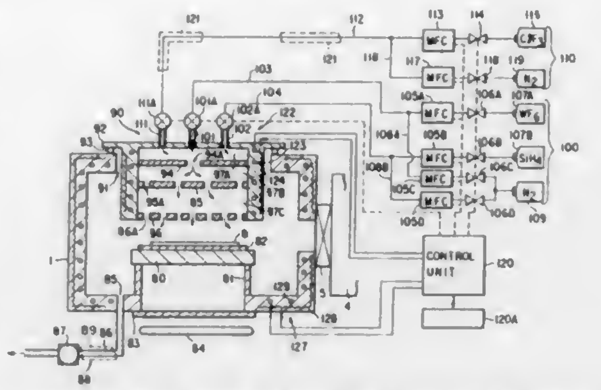
14. A method of reducing pinhole formation in an image bearing layer on an image bearing medium which is being delaminated from a carrier web carrying a protective overcoating material thereon, the method comprising the steps of: delaminating a portion of the overcoating material from an image bearing medium by passing the web against a delaminating assembly in a direction which is different than the direction of advancement of the image bearing medium so as to effect delamination of the carrier web from the medium at a delamination point; and, controlling the temperatures of the delaminating assembly so as to optimize delamination of a release layer in the overcoating material in a manner which reduces the formation of pinholes in the image bearing layer.

5,785,796
VACUUM PROCESSING APPARATUS, VACUUM PROCESSING METHOD, AND METHOD FOR CLEANING THE VACUUM PROCESSING APPARATUS

Hideki Lee, Nirasaki, Japan, assignor to Tokyo Electron Limited, Tokyo, Japan

Continuation of Ser. No. 255,950, Jun. 7, 1994, Pat. No. 5,616,208. This application Dec. 24, 1996, Ser. No. 773,094
Claims priority, application Japan, Sep. 17, 1993, 5-254680; Sep. 17, 1993, 5-254681; Sep. 17, 1993, 5-254682; Sep. 20, 1993, 5-256506; Sep. 20, 1993, 5-256507; Sep. 20, 1993, 5-256508; Nov. 1, 1993, 5-296148
Int. Cl.^{6} C23F *1/02;* C23C *16/00;14/56;* B08B *7/00*
U.S. Cl. 156—345 **23 Claims**

1. A vacuum processing apparatus comprising:
a plurality of vacuum processing chambers for processing a target object using a process gas;
a vacuum convey chamber, connected to said plurality of vacuum processing chambers, for loading and unloading the target object into and from said processing chambers in a vacuum atmosphere;
opening and closing means for opening and closing a path between said plurality of vacuum processing chambers and said vacuum convey chamber; and

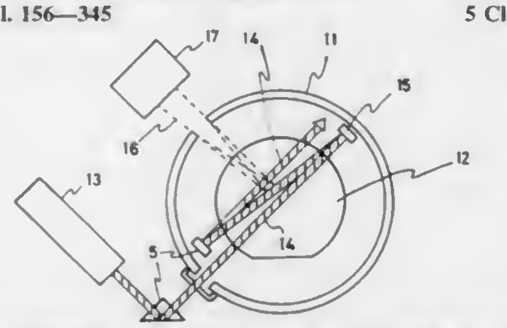


cleaning gas supply means for supplying a cleaning gas containing ClF_3 into at least one of said vacuum convey chamber and said vacuum processing chambers;
wherein the cleaning gas is supplied into said plurality of vacuum processing chambers and said vacuum convey chamber communicating with each other by opening said opening and closing means to clean said plurality of vacuum processing chambers and said vacuum convey chamber;
the vacuum processing apparatus further including a preliminary vacuum chamber connected to said vacuum convey chamber; a target object storage chamber for storing the target object; and a second convey chamber, disposed between said preliminary vacuum chamber and said target object storage chamber, for conveying the target object between said preliminary vacuum chamber and said target object storage chamber;
exhaust means for exhausting the cleaning gas from at least one of each of said vacuum processing chambers, said vacuum convey chamber, said preliminary vacuum chamber, said object storing chamber, and said second convey chamber; and
concentration detection means for detecting Cl and F concentrations in the gas after cleaning using the cleaning gas.

5,785,797
METHOD AND APPARATUS FOR MONITORING ETCHING BY PRODUCTS

Chang Ju Choi, Kyoungki-do, Rep. of Korea, assignor to Hyundai Electronics Industries Co., Ltd., Kyoungki-do, Rep. of Korea

Division of Ser. No. 619,299, Mar. 21, 1996, Pat. No. 5,726,067. This application Oct. 21, 1997, Ser. No. 954,920
Claims priority, application Rep. of Korea, Mar. 22, 1995, 95-6128
Int. Cl.^{6} H01L *21/00*
U.S. Cl. 156—345 **5 Claims**



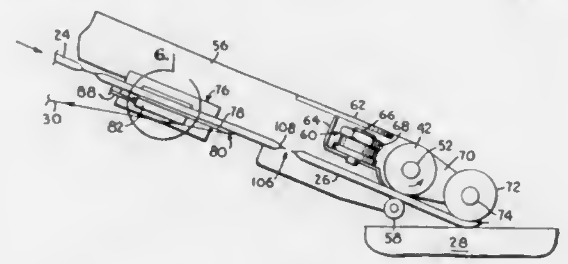
1. An apparatus for monitoring a by-product formed upon etching a wafer, comprising:
an etching chamber for receiving a wafer therein and carrying out an etching for the wafer;
a laser source for irradiating a laser beam onto an upper surface of the wafer in the etching chamber;
a plurality of reflecting mirrors for reflecting the irradiated laser beam along at least two parallel paths; and

a light detector arranged outwardly of the etching chamber and adapted to detect laser induced fluorescent light generated upon irradiating the laser beam in the etching chamber.

5,785,798
LABEL APPLYING APPARATUS

Dennis P. Horsman, Overland Park, Kans.; Christian J. Uebele, Kansas City, Mo., and Georg Austermeier, Hövelhof, Germany, assignors to Multivac, Inc., Kansas City, Mo.

Filed Jul. 25, 1996, Ser. No. 686,253
Int. Cl.^{6} B65C *1/00*
U.S. Cl. 156—361 **13 Claims**



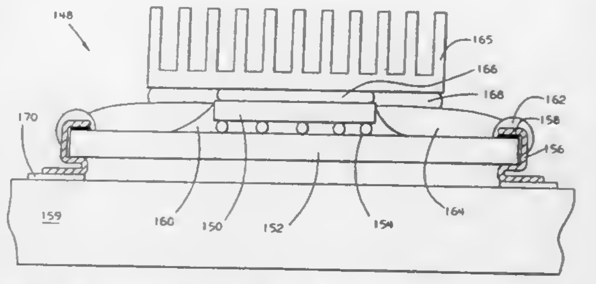
1. A label application apparatus for applying adhesive labels onto a product, the labels being initially coupled to a removable backing material and to each other in end-to-end relation, the apparatus comprising:
a frame;
a supply container, mounted to said frame, for containing a supply of the labels;
a label sensor for detecting a part of an individual label;
an applicator head mounted to said frame, said applicator head having a stripper plate for separating the labels from the backing material, means for separating an individual label from the supply of labels connected in end-to-end relation, means for advancing said individual label to a standby position, and means for applying the individual label onto the product;
a product sensor for detecting a product approaching said applicator head;
a take-up container for containing an amount of said backing material after separation from said labels;
a supply motor for moving the labels from said supply container to said applicator head and for moving the backing material from said applicator head to said take-up container; and
control means for controlling said applying means so that an individual label in said standby position is applied to the approaching product after said product sensor detects the approaching product, and for controlling said separating means, said advancing means and said supply motor so that only one individual label, as detected by said label sensor, is thereafter separated and advanced into said standby position.

5,785,799
APPARATUS FOR ATTACHING HEAT SINKS DIRECTLY TO CHIP CARRIER MODULES USING FLEXIBLE EPOXY

Thomas Moran Culnane, Lanesboro, Pa.; Michael Anthony Gaynes, Vestal, N.Y.; Ping Kwong Seto, Endicott, N.Y., and Hussain Shaukatullah, Endwell, N.Y., assignors to International Business Machines Corporation, Armonk, N.Y.

Division of Ser. No. 668,312, Jun. 26, 1996, Pat. No. 5,672,548, which is a continuation of Ser. No. 273,253, Jul. 11, 1994, abandoned. This application Apr. 11, 1997, Ser. No. 840,295
Int. Cl.^{6} B30B *5/00*
U.S. Cl. 156—379.7 **4 Claims**

1. An apparatus for producing chip carrier modules, comprising:

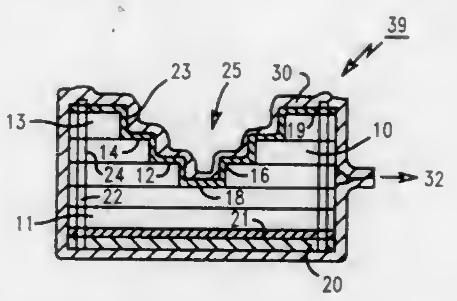


means for electrically connecting first surfaces of semiconductor chips to substrates, each of said substrates including an organic surface;
means for depositing flexible-epoxy not fully cured, between second surfaces of the semiconductor chips and heat spreaders;
means for pressing together the heat spreaders and the semiconductor chips; and
means for heating the semiconductors chips to cure the deposited flexible-epoxy.

5,785,800
APPARATUS FOR FORMING CAVITY STRUCTURES USING THERMALLY DECOMPOSABLE SURFACE LAYER

Govindarajan Natarajan, Pleasant Valley; Niranjan M. Patel, Wappingers Falls, and Kurt A. Smith, Poughkeepsie, all of N.Y., assignors to International Business Machines Corporation, Armonk, N.Y.

Filed Jun. 21, 1996, Ser. No. 668,294
Int. Cl.^{6} B32B *31/20*
U.S. Cl. 156—382 **24 Claims**



1. An apparatus for forming protected cavities in at least one ceramic green sheet comprising:
(a) a first plate to support said at least one green sheet having at least one cavity having a surface contour,
(b) means for aligning and placing at least one planar, thermally decomposable layer over at least a portion of said at least one green sheet and said cavity,
(c) at least one pressure means to force said thermally decomposable layer to conform and adhere to said surface contour of said cavity and to form a surface contour similar to said surface contour of said cavity, and thereby forming protected cavities in at least one ceramic green sheet.

5,785,801
APPARATUS FOR COVERING A TEXTILE DYE TUBE

Leon Eric Atkinson, Siler City; Joseph Stanley Taylor, Asheboro, and Paul Hier Miller, Greensboro, all of N.C., assignors to Technimark, Inc., Asheboro, N.C.

Filed May 8, 1996, Ser. No. 646,614
Int. Cl.^{6} B32B *31/00;* B65H *81/00*
U.S. Cl. 156—450 **19 Claims**

1. An apparatus for covering a textile dye tube with a thermoplastic filter sheet, said apparatus comprising:

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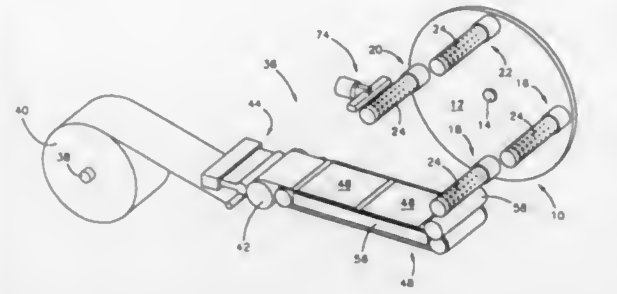


(a) a hollow mandrel for supporting said tube, at least a portion of the outer surface of said mandrel having a plurality of openings;
(b) a vacuum source connected to said mandrel for drawing said sheet against said mandrel;
(c) sealing means for bonding the overlapping edges of said sheet to each other and to said tube, said sealing means including a heating bar movable between a retracted position and an extended position in contact with said sheet wrapped tube;
(d) means for wrapping said sheet around said tube in a direction opposite to the direction the yarn is wrapped, thereby significantly reducing snagging of the yarn on the overlapping edges of the sheet when the yarn is unwrapped;
(e) a mandrel support table having a tube loading station, a sheet wrapping station, a sealing station, and a discharge station;
(f) table drive means for indexing said mandrel sequentially to each of said stations;
(g) said vacuum source including a vacuum chamber extending from said tube wrapping station to said sealing station, said vacuum chamber drawing a vacuum inside said mandrel at and between said wrapping and sealing stations;
(h) a tube feeder for feeding tubes to said tube loading station;
(i) a sheet feeder for feeding sheets of filter material to said wrapping station; and
(j) said sealing means disposed at said sealing station for sealing said sheet around the circumference of said tube.

5,785,802

METHOD AND APPARATUS FOR SINGLE FACER GLUE APPLICATION ADJUSTMENT

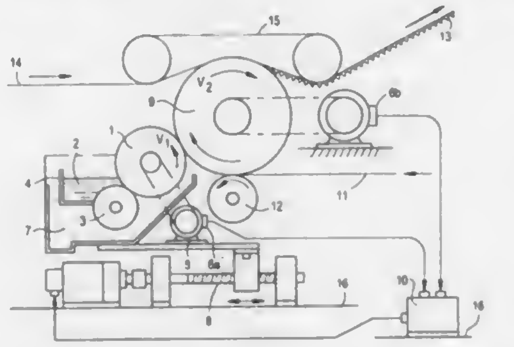
Yukuharu Seki; Makoto Ando, and Toshiaki Miura, all of Mihara, Japan, assignors to Mitsubishi Jukogyo Kabushiki Kaisha, Tokyo, Japan

Filed Mar. 8, 1996, Ser. No. 613,172

Claims priority, application Japan, Mar. 29, 1995, 7-071671

Int. Cl.^{6} B65H *23/188;37/04*

U.S. Cl. 156—471 **7 Claims**



1. A single facer glue application adjusting method for adjusting a position of a glue application roll to a downstream side corrugating roll which corrugates a core paper in engagement with an upstream side corrugating roll, comprising the steps of:

rotating said glue application roll at a circumferential velocity different from a circumferential velocity of said downstream side corrugating roll;
moving said glue application roll toward said downstream side corrugating roll to touch said downstream side corrugating roll via the core paper; and
when the circumferential velocity of said glue application roll varies, stopping movement of said glue application roll so that a gap between said glue application roll and said downstream side corrugating roll is adjusted approximately to a thickness of the core paper.

5,785,803

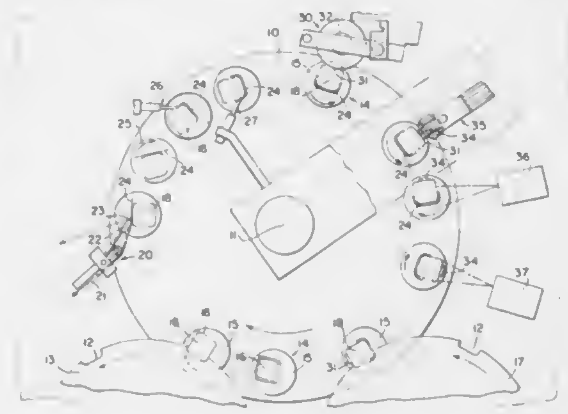
APPARATUS FOR ATTACHING LITERATURE TO ARTICLES

Hans G. Schiessl, Dousman, Wis., assignor to Krones, Inc., Franklin, Wis.

Filed Oct. 15, 1996, Ser. No. 735,447

Int. Cl.^{6} B65C *9/00*

U.S. Cl. 156—538 **8 Claims**



1. Apparatus for adhering outserts to an application surface of respective containers that have vertical axes and differing widths, comprising:

a turntable for being driven rotationally about a vertical axis,
an adhesive applicator and an outsert dispenser positioned radially from said vertical axis in the stated order in respect to the rotational direction of said turntable,
a plurality of support member shafts mounted to said turntable with their axes at equal radial distances from and parallel to said vertical axis of the turntable and equiangularly spaced apart and means for oscillating said shafts at least during a part of a turntable rotation,
a support member mounted to each of said shafts for oscillating with the shaft, and
means for adapting said apparatus to apply outserts to containers of differing widths including one set of container holder plates releasably mountable, respectively, to said support members, wherein
each holder plate in the one set has a recess positioned in the plate for receiving and holding a said container of one width in a position such that said outsert application surfaces of containers having the one width are offset from the axes of the shaft and including an alternative set of holder plates having a recess positioned for receiving and holding containers having widths greater or lesser than the containers having the one width at the same distance from the axes of said support member shafts as are the outsert application surfaces of containers having the one width.

5,785,804

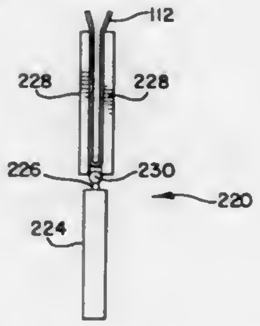
BAG GRIPPING AND TRANSFER APPARATUS AND METHOD

Lloyd Kovacs, Sheboygan, Wis., and Larence Calvin Dobbs, Greer, Calif., assignors to Hayssen, Duncan, S.C.

Continuation-in-part of Ser. No. 550,580, Oct. 31, 1995, abandoned, which is a division of Ser. No. 242,735, May 13, 1994, Pat. No. 5,536,357. This application Feb. 12, 1997, Ser. No. 799,498

Int. Cl.^{6} B65C *9/00*

U.S. Cl. 156—556 **18 Claims**



1. An apparatus for application of a header label to a bag, comprising

a. a primary gripper for gripping and transporting a bag,
b. means for transferring said primary gripper through a plurality of stations where action is taken on a bag, one of said stations being a label application station,
c. a secondary gripper for gripping the bag at said label application station, and means for activating the secondary gripper to grip the bag,
d. means for releasing the primary gripper when the bag is gripped by the secondary gripper,
e. a supply of individual labels oriented in a queue at said label application station,
f. means at said label application station for removing a label from said queue and applying the label to the bag when held by said secondary gripper,
g. means for reactivating the primary gripper to grip both the bag and the label, and
h. means for deactivating the secondary gripper to release the bag.

5,785,805

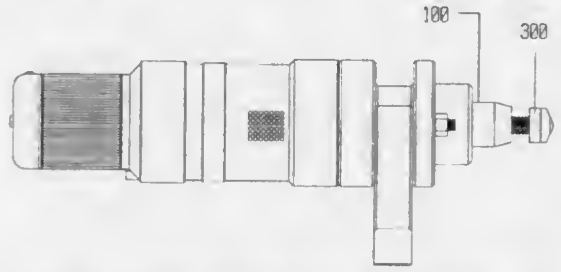
FRICTION WELDING FUSION ENHANCER APPARATUS

John William Fix, Jr., P.O. Box 1847, Palm City, Fla. 34991

Filed Jun. 6, 1997, Ser. No. 870,974

Int. Cl.^{6} B23K *20/12*

U.S. Cl. 156—580 **18 Claims**



1. A friction welding fusion enhancer apparatus which can be utilized with a wide range of friction welder machines for increasing the fusion area of a rotatable workpiece to be friction welded to a substrate workpiece, of either similar or dissimilar materials, for the purpose of achieving greater strength than achieved with conventional methods, while limiting the build-up of plastisized matter around the peripheral edge of the rotatable workpiece in an operation comprising a burn off, upset, forging, fusing and apparatus removal phases, said apparatus comprising:

a reaction surface area greater than said rotatable workpiece is made part of said friction welding fusion enhancer apparatus and further said reaction surface area is located opposite said rotatable workpiece engagement end where further said reaction surface area is removable;
an engagement means for engagement with a chuck of said friction welding machines to permit holding of said friction welding fusion enhancer apparatus during said burnoff, upset, forging, and fusing phases; and
a reaction surface area that can be removable from the stud, shaft or other weldable devices after the stud is friction welded to the substrate.

5,785,806

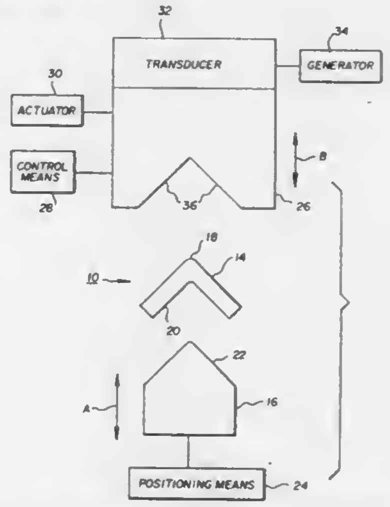
ULTRASONIC CUTTING APPARATUS

Robert G. Engle; Wendy A. Foster, both of Rochester; Fugui He, Penfield; Douglas G. Maley, Rochester; Harold Moore, Pittsford, and David J. Regan, Henrietta, all of N.Y., assignors to Eastman Kodak Company, Rochester, N.Y.

Filed Jul. 22, 1996, Ser. No. 681,256

Int. Cl.^{6} B26D *5/08;* **B26F** *3/00;* **B32B** *31/18*

U.S. Cl. 156—580.2 **9 Claims**



1. An ultrasonic apparatus for cutting a non-planar workpiece, the workpiece having a topside and an underside, the apparatus comprising:

a non-rotating-anvil having a non-planar anvil surface supporting the underside of the workpiece; and
an ultrasonic cutter adapted to resonate at a predetermined frequency toward and away from the anvil to effect cutting of the workpiece, the ultrasonic cutter having a non-planar cutting surface meeting the topside of the workpiece, the ultrasonic cutting surface and the anvil surface having complementary non-planar shapes.

5,785,807

MICROWAVE PLASMA PROCESSING METHOD AND APPARATUS

Saburo Kanai, Hikari; Yoshinao Kawasaki, Yamaguchi-ken; Kazuaki Ichihashi, Kudamatsu; Seiichi Watanabe, Kudamatsu, and Makoto Nawata, Kudamatsu, all of Japan, assignors to Hitachi, Ltd., Tokyo, Japan

Filed Sep. 26, 1991, Ser. No. 765,834

Claims priority, application Japan, Sep. 26, 1990, 2-254162; Oct. 31, 1990, 2-292049; Dec. 18, 1990, 2-403054

Int. Cl.^{6} H01L *21/302*

U.S. Cl. 156—662.1 **16 Claims**

1. A microwave plasma processing method for treating a surface of a sample by use of a plasma comprising the steps of:

generating microwaves;

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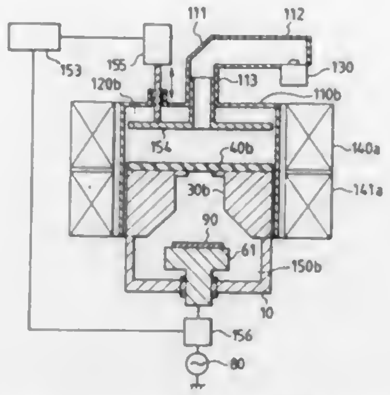
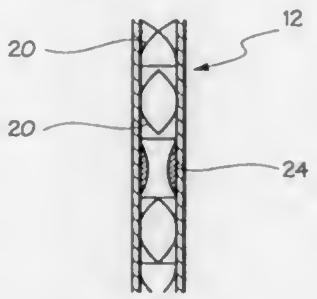


resonating said microwaves at a resonation mode in a cavity resonator;
extracting a part of said microwaves from said resonation mode in said cavity resonator;
transmitting said part of said microwaves from said cavity resonator to a plasma generation region of a vacuum vessel, wherein said vacuum vessel and said cavity resonator are separated by a microwave transmitting window and only a part of said microwaves in said cavity resonator is transmitted to said plasma generation region only through said microwave transmitting window, and wherein at least a portion of said vacuum vessel adjacent said cavity resonator has a diameter smaller than that of said cavity;
interacting a gas with said part of said microwaves in said plasma generation region to generate said plasma; and
treating said sample with said plasma.

5,785,808
HEAT EXCHANGER WITH PRESSURE CONTROLLING RESTRICTER
John H. Litschert, II, and Bruce D. Sterrett, both of Charlotte, N.C., assignors to LCI Corporation, Charlotte, N.C.
Filed Oct. 2, 1995, Ser. No. 538,014
Int. Cl.⁶ B01D *1/00*
U.S. Cl. 159—47.1 **4 Claims**

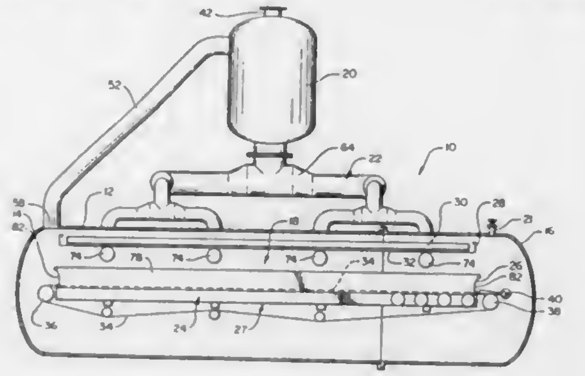


1. A method of heating a polymer mixture containing volatilization components, comprising the steps of:
transporting the polymer mixture in a flow path through a heat exchange medium; and
restricting the flow of the polymer mixture at a predetermined location along the flow path for defining a first heat exchanger zone in the flow path upstream of the predetermined restricting location, wherein the polymer mixture is sufficiently pressurized to maintain a substantially liquid phase and to prevent volatilization of the components in the polymer mixture, and a second heat exchanger zone in the flow path downstream of the predetermined restricting location, wherein the pressure in the polymer mixture is sufficiently relieved to induce partial volatilization of the volatile components in the polymer mixture, causing the polymer to assume a combined liquid/gaseous phase while continuing to be exposed to the heat exchange medium.

5,785,809
BIOLOGICAL DE-INKING METHOD
Steven Say-kyoun Ow, and Tae Jin Eom, both of Daejonjikhalshi, Rep. of Korea, assignors to Krict, Rep. of Korea
Continuation-in-part of Ser. No. 518,935, May 4, 1990, abandoned. This application May 6, 1994, Ser. No. 239,313
Claims priority, application Rep. of Korea, May 16, 1989, 6514/1989
Int. Cl.⁶ D21F *5/02*
U.S. Cl. 162—5 **20 Claims**

1. A method of deinking waste printed paper, comprising
a) pulping waste printed paper with an enzyme capable of dislodging ink particles from the waste printed paper in an aqueous medium at a pH between about 3 to less than 8 and resulting from not having added alkali prior to or the de-inking method, and wherein the ink is dislodged from the waste printed paper by action of said enzyme; and
b) removing dislodged ink particles from the resulting pulp containing medium.

5,785,810
WOOD PULP PROCESSING APPARATUS AND METHOD
Reljo K. Salminen, 373 Cove Rd, Bellingham, Wash. 98226
Continuation-in-part of Ser. No. 20,324, Feb. 19, 1993, abandoned, which is a continuation-in-part of Ser. No. 898,944, Jun. 11, 1992, Pat. No. 5,482,594, which is a continuation-in-part of Ser. No. 748,271, Aug. 24, 1991, abandoned, and Ser. No. 20,194, Feb. 19, 1993, abandoned, which is a continuation-in-part of Ser. No. 898,944, Jun. 11, 1992, Pat. No. 5,482,594, which is a continuation-in-part of Ser. No. 748,271, Aug. 24, 1991, abandoned. This application Feb. 18, 1994, Ser. No. 198,284
Int. Cl.⁶ D21C *9/02*
U.S. Cl. 162—60 **18 Claims**



1. A method of bleaching pulp, comprising:
a. dewatering and washing a batch of pulp at a plurality of washing locations, said washing being accomplished by moving successive quantities of wash liquid into and through said batch of pulp while applying a sufficient pressure differential across said pulp to maintain said pulp at a consistency of at least about one part by weight of cellulose fiber to four parts by weight of liquid;
b. after dewatering and washing said pulp at each of said washing locations, delivering said pulp to a related one of a plurality of bleaching locations where said pulp is bleached;
c. after said pulp is bleached at each of said bleaching locations, dewatering said pulp to a subsequent washing location where said pulp is dewatered and washed;
d. said method being further comprising the following steps:
i. said pulp is dewatered by delivering said pulp as a slurry into a pressure chamber in a pressure vessel so as to be positioned as a pulp layer over a pressure differential table means, and said pressure differential is applied through said pressure differential table means;
ii. successive batches of pulp are delivered into the pressure vessel at each wash location and are removed from said pressure vessel while maintaining above atmospheric pressure in the pressure chamber;
iii. said pulp is discharged from said pressure vessel by positioning said pulp at a discharge location in said pressure vessel while said pulp is subjected to above atmospheric pressure in said pressure vessel, and opening said discharge location to a pressure below pressure in said pressure vessel to create a pressure differential to move said pulp through a discharge passageway portion;
iv. a bleaching agent is delivered into said pulp passing through said discharge passageway portion.

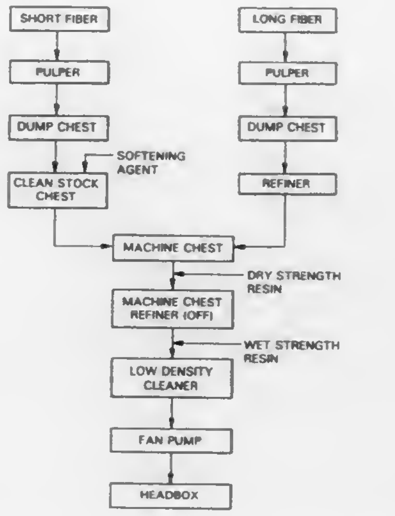
5,785,811
PROCESS FOR TREATING LIGNOCELLULOSIC MATERIAL WITH SOYBEAN PEROXIDASE IN THE PRESENCE OF PEROXIDE
Alexander R. Pokora, Pickerington, and Mark A. Johnson, Chillicothe, both of Ohio, assignors to The Mead Corporation, Dayton, Ohio
Filed Nov. 9, 1992, Ser. No. 973,655
Int. Cl.⁶ D21H *25/02*
U.S. Cl. 162—65 **12 Claims**

1. A process which comprises treating a lignocellulosic pulp with soybean peroxidase in the presence of a peroxide, and removing lignin from said pulp.

5,785,812
PROCESS FOR TREATING OXYGEN DELIGNIFIED PULP USING AN ORGANIC PERACID OR SALT, COMPLEXING AGENT AND PEROXIDE BLEACH SEQUENCE
Magnus Linsten, Kungälv; Jiri Basta, Partille, and Ann-Sofie Hällström, Göteborg, all of Sweden, assignors to Eka Nobel AB, Sweden
PCT No. PCT/SE93/01019, § 371 Date May 17, 1995, § 102(e) Date May 17, 1995, PCT Pub. No. WO94/12721, PCT Pub. Date Jun. 9, 1994
PCT Filed Nov. 25, 1993, Ser. No. 436,243
Claims priority, application Sweden, Nov. 27, 1992, 9203585; Jan. 26, 1993, 9300226
Int. Cl.⁶ D21C *9/16*
U.S. Cl. 162—76 **10 Claims**

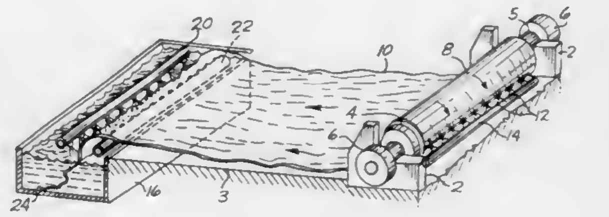
1. A process for delignifying and bleaching oxygen delignified lignocellulose-containing pulp which comprises delignifying said pulp with an organic peracid or salts thereof, thereafter treating the pulp with a complexing agent, washing the pulp after complexing agent treatment, and subsequently bleaching said pulp with a chlorine-free peroxide-containing bleaching agent.

5,785,813
METHOD OF TREATING A PAPERMAKING FURNISH FOR MAKING SOFT TISSUE
Michael John Smith, Neenah; Vinay Kumar Rao, Menasha, and Gary Lee Shanklin, Appleton, all of Wis., assignors to Kimberly-Clark Worldwide Inc., Neenah, Wis.
Filed Feb. 24, 1997, Ser. No. 805,089
Int. Cl.⁶ D21H *23/14*
U.S. Cl. 162—158 **9 Claims**



1. A method of treating a papermaking furnish for making soft tissue comprising:
(a) adding about 0.005 weight percent or greater of a softening agent to a first papermaking furnish comprising primarily hardwood pulp fibers having an average length of about 1 millimeter or less; (b) blending the first papermaking furnish with a second papermaking furnish comprising primarily softwood papermaking fibers having an average length greater than about 1 millimeter; and (c) adding to the blended furnish one or more strengthening agents selected from the group consisting of dry strength agents in an amount of about 0.05 weight percent or greater and wet strength agents in an amount of about 0.05 weight percent or greater.

5,785,814
SPOOL BUTT UNWIND SYSTEM
Catherine A. Tang, Federal Way, and Ralph W. Healy, Kelso, both of Wash., assignors to North Pacific Paper Corporation, Longview, Wash.
Filed Nov. 12, 1996, Ser. No. 747,345
Int. Cl.⁶ D21F *1/36*
U.S. Cl. 162—191 **12 Claims**



1. Apparatus for transferring paper mill reel butt portions to a repulping tank which comprises:
a floor mounted roll stand for holding a reel spool containing a reel butt portion;
a repulper for receiving paper delivered from the reel spool, the repulper being displaced away from the floor stand and having a sheet receiving opening below the axis of the reel spool and essentially at floor level along a projected line normal to the midpoint of the spool axis;
at least one air jet transport means for propelling the sheet toward the repulper and creating an air bearing between the sheet and floor, said air jet means being located essentially at floor level; and
shower means located at the repulper to direct and carry the sheet into said repulper,
so that when the sheet is engaged by the air jet means and shower means the butt portion is continuously unwound from the spool by said air jet and shower means and delivered to the repulper.

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5,785,815

PROCESS FOR DAMPING PRESSURE PULSATIONS AND APPARATUS FOR PERFORMING THE PROCESS

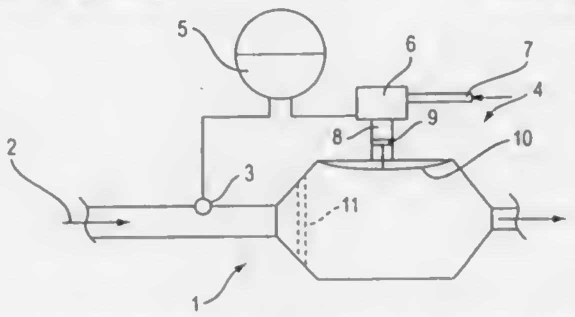
Rudolf Munch, Ravensburg, Germany, assignor to Sulzer-Escher Wyss GmbH, Ravensburg, Germany

Filed Dec. 13, 1994, Ser. No. 358,588

Claims priority, application Germany, Dec. 17, 1993, 43 43 290.5

Int. Cl.^{6} D21F *1/06*

U.S. Cl. 162—198 **27 Claims**



1. A process for the damping of pressure pulsations in a fluid flowing in a closed system, the process comprising:

measuring, in at least one measuring site, a time, indication, and strength of pressure pulsations to be damped;

imparting, in at least one correction site, remote from the measuring site, pressure impulses into the flowing fluid;

dropping the pressure of the flowing fluid between the measuring site and the correction site to an amount at least approximately one-half as large as a pressure drop between the correction site and an exit of the flowing fluid from the closed system by guiding the fluid through one of a throttle and a turbulence device; and

manipulating the imparting of the pressure impulses in accordance with the time, direction and strength of the pressure pulsations such that the pressure impulses are imparted at one of substantially at the same time as, and slightly later in time than, each measured pressure pulsation, but in an opposite direction.

5,785,816

METHOD FOR THE DEWATERING OF A PAPER FIBER MATERIAL LAYER IN A DOUBLE-SCREEN FORMER AND APPARATUS FOR ITS EXECUTION

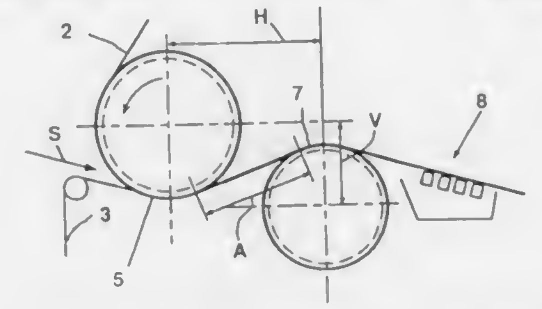
Thomas Schalble, Castle Hill, Australia, assignor to Voith Sulzer Papiermaschinen GmbH, Heidenheim, Germany

Filed Dec. 8, 1995, Ser. No. 569,779

Claims priority, application Germany, Dec. 9, 1994, 44 43 874.5

Int. Cl.^{6} D21F *1/00*

U.S. Cl. 162—203 **26 Claims**



1. A method of dewatering a material layer of paper fibers with a sheet weight of more than 100 g/m^{2} (otro) and an initial solid material content between 0.8 and 3% in a double-screen former having two circulating endless screens that run together while forming a material inlet gap along a co-moving, circularly curved, permeable guide surface, wherein the two endless screens are at least partly jointly guided there, wherein, in the screen running direction, a second co-moving, circularly curved, permeable guide surface is present behind and generally horizontally adjacent to the first guide surface arranged in one of the screens and is arranged in the other screen, and wherein the second guide surface is followed by a further dewatering device with fixed elements, with the sheet formation being concluded at the further dewatering device, wherein no stationary dewatering element that contacts one of the screens is present between a run-out line of the screens from the first guide surface and a run-in line at the second guide surface, a length of a section that is run through by the two screens and lies between the run-out line of the screens from the first guide surface and the run-in line at the second guide surface is not greater than 150 mm, and wherein the first guide surface is contacted by both screens over an angle of wrap between 20 and 110 degrees and the second guide surface is contacted by both screens over an angle of wrap between 20 and 110 degrees.

5,785,817

MOLDABLE PULP MATERIAL AND METHOD OF MANUFACTURING MOLDED PULP PRODUCT

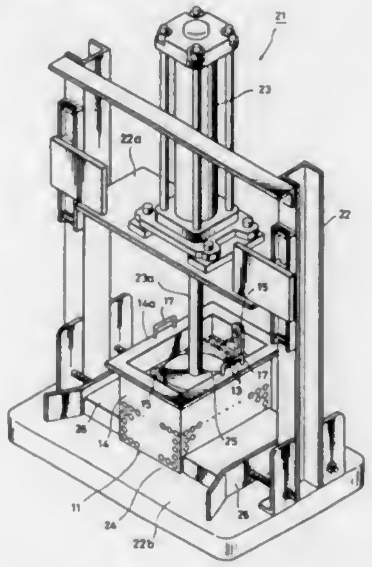
Masaru Tan, Tokyo; Tsutomu Noguchi; Mitoshi Kawano, both of Kanagawa; Kazutoshi Mahama, Gunma; Hiromu Ikeda, and Sunao Suzuki, both of Saitama, all of Japan, assignors to Sony Corporation, Tokyo, and Rengo Co., Ltd., Osaka, both of Japan

Filed Jul. 2, 1996, Ser. No. 675,407

Claims priority, application Japan, Jul. 3, 1995, 7-167601; Jul. 3, 1995, 7-167603

Int. Cl.^{6} D21J *1/08*

U.S. Cl. 162—218 **26 Claims**



1. A method of manufacturing a molded pulp product, comprising the steps of:

mixing a moldable pulp material comprising a main constituent of pulp, a starch binder, and thermally expandable hollow microspheres with water in an amount which is effective to gel the starch binder upon heating;

filling the moldable pulp material mixed with the water in a mold assembly and compressing the moldable pulp material in the mold assembly; and

heating the compressed moldable pulp material to at least a gelation temperature at which the starch binder is gelled and the microspheres are expanded, for thereby gelling the starch binder and expanding the microspheres to produce a molded pulp product of the moldable pulp material

cooling the molded pulp product with air,

removing the molded pulp product from the mold assembly,

wherein the heating cooling and removing steps are carried out in a molding cycle time of less than or about 2½ minutes.

5,785,818

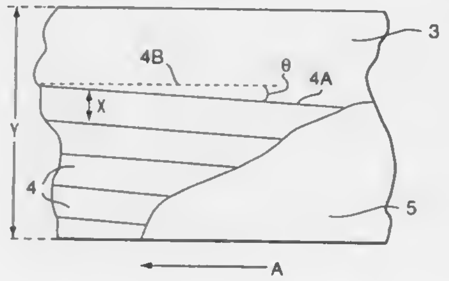
MULTIAXIAL PIN SEAMED PAPERMAKER'S PRESS FELT

Eugene Z. Fekete, Dunwoody, Ga.; Edwin R. Perry, Vancouver, Wash., and Robert P. Burke, Berkeley Lake, Ga., assignors to JWI Ltd., Ottawa, Canada

Continuation-in-part of Ser. No. 805,202, Feb. 27, 1997, abandoned. This application Jun. 30, 1997, Ser. No. 885,750

Int. Cl.^{6} D21F *7/10*

U.S. Cl. 162—358.2 **24 Claims**



1. A multilayer papermaker's press felt fabric comprising in combination:

a woven first fabric layer incorporating therein a cross machine direction pin seam,

a second fabric layer on the paper side face of the first fabric layer,

a layer of needled batt applied to the paper side face of the second layer which penetrates into the first fabric layer thereby binding the first and second layer together, and

a flap comprising a short length of the second fabric layer with attached batt overlaying the pin seam in the first layer, wherein:

(a) the second layer comprises a plurality of relatively narrow strips, and

(b) the strips of the second layer are located with a lateral edge at a first cant angle to the machine direction, and

(c) the first cant angle has a value of from more than 1° to less than 20°.

5,785,819

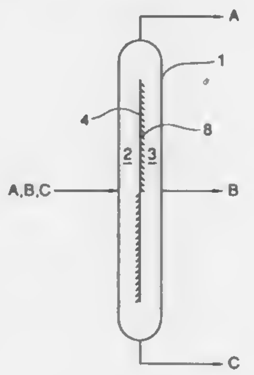
DISTILLATION COLUMN FOR SEPARATING A LIQUID MIXTURE INTO A PLURALITY OF PURE FRACTIONS

Gerd Kaibel, Lampertheim; Manfred Stroezel, Ilvesheim, and Joachim Pfeffinger, Ludwigshafen, all of Germany, assignors to BASF Aktiengesellschaft, Ludwigshafen, Germany

Continuation of Ser. No. 293,956, Aug. 24, 1994, abandoned. This application Jul. 3, 1996, Ser. No. 674,973

Int. Cl.^{6} B01D *3/32*

U.S. Cl. 202—158 **12 Claims**



1. A distillation column for separating a liquid mixture into a plurality of pure fractions, the distillation column being divided into two distillation means, said distillation means having a feed part and a take-off part respectively, the division of the distillation column being formed in its middle region by a separation means effective in the longitudinal direction, wherein the separation means has an upper end and a lower end and consists of two walls with a gas space in between, the distance between the two walls being from 1 to 50 mm, and said gas space is sealed gas-tight from the two distillation means or flushed with inert gas to hinder heat transfer across the separation means.

11. A distillation column for separating a liquid mixture into a plurality of pure fractions, the distillation column being divided into two distillation means, said distillation means having a feed part and a take-off part respectively, the division of the distillation column being formed in its middle region by a separation means effective in the longitudinal direction, wherein the separation means has an upper end and a lower end and consists of two walls with a gas space in between, the distance between the two walls being from 1 to 50 mm, and said gas space is sealed gas-tight from the two distillation means or flushed with inert gas to hinder heat transfer across the separation means, wherein column baffles are used and the separation means possesses, on both sides thereof or on that side thereof which has an operating temperature lower than the operating temperature of the other side thereof, liquid deflectors which deflect liquid from the separation means and thus create a gas cushion from 1 to 50 mm thick between the separation means and column baffles wet with liquid.

5,785,820

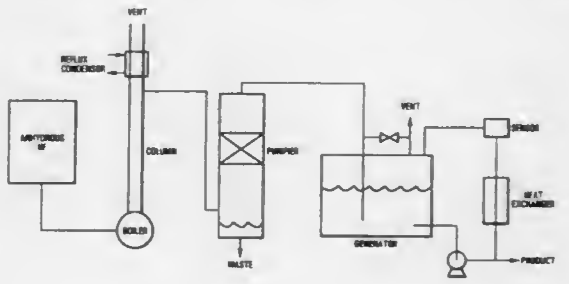
ON-SITE MANUFACTURE OF ULTRA-HIGH-PURITY HYDROFLUORIC ACID FOR SEMICONDUCTOR PROCESSING

Joe G. Hoffman, Cardiff, and R. Scot Clark, Fallbrook, both of Calif., assignors to Startec Ventures, Inc., Fallbrook, Calif.

Continuation-in-part of Ser. No. 610,261, Mar. 4, 1996, which is a continuation of Ser. No. 179,001, Jan. 7, 1994, Pat. No. 5,496,778. This application Jul. 1, 1996, Ser. No. 673,909

Int. Cl.^{6} B01D *3/14*

U.S. Cl. 202—158 **32 Claims**



1. An on-site subsystem, in a semiconductor device fabrication facility, for providing ultra-high-purity reagents comprising HF to a semiconductor manufacturing operation, comprising:

an evaporation source connected to receive an HF source and to provide a flow of HF vapor therefrom;

said flow of HF vapor being connected to pass through an ionic purifier unit which provides a recirculating volume of high-purity water, containing a high concentration of HF in contact with said flow of HF vapor, wherein said purifier exhausts a small amount of HF gas;

a generator unit, connected to receive said flow of HF vapor from said purifier and to combine said HF vapor with an aqueous liquid to produce an ultra-pure aqueous solution comprising hydrofluoric acid; and

a piping connection which routes said aqueous solution to a point of use in the semiconductor device fabrication facility.

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5,785,821
PROCESS FOR THE PRODUCTION OF ACRYLIC ACID

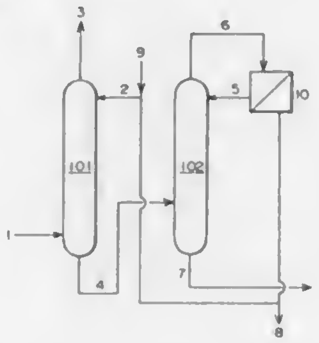
Kazuhiko Sakamoto; Sei Nakahara; Takahiro Takeda; Masatoshi Ueoka, and Yohji Akazawa, all of Himeji, Japan, assignors to Nippon Shokubai Co., Ltd., Osaka, Japan

Filed Dec. 5, 1996, Ser. No. 759,219

Claims priority, application Japan, Dec. 5, 1995, 7-316182

Int. Cl.^{6} B01D *3/34*

U.S. Cl. 203—57 **5 Claims**



1. A process for production of acrylic acid, which comprises:

introducing, into an acrylic acid-collecting tower, a mixed gas obtained by subjecting propylene and/or acrolein to catalytic gas-phase oxidation with a molecular oxygen-containing gas, and contacting the mixed gas with an aqueous collecting agent containing 0.5–5.0% by weight of acrylic acid, 3.0–10.0% by weight of acetic acid and 0.01–0.5% by weight of a poorly-soluble-in-water solvent, to form an aqueous acrylic acid solution,

introducing the aqueous acrylic acid solution into an azeotropic distillation tower and subjecting the solution to azeotropic distillation using a poorly-soluble-in-water solvent, to obtain, from the tower bottom, acrylic acid substantially free from acetic acid, water or the poorly-soluble-in-water solvent and distil off, from the tower top, a mixture containing acetic acid, acrylic acid, water and the poorly-soluble-in-water solvent,

introducing the mixture distilled off from the tower top, into a storage tank to separate it into an organic phase composed substantially of the poorly-soluble-in-water solvent and an aqueous phase containing acrylic acid, acetic acid, the poorly-soluble-in-water solvent and water, and

circulating the organic phase into the azeotropic distillation tower.

5,785,822
PROCESS FOR SEPARATING DIFLUOROMETHANE

Gustavo Cerri, Boonton, N.J.; Kin Ching Kong, Woodside; Charles Francis Swain, Williamsville, both of N.Y., and Rajat Subhra Basu, East Amherst, N.Y., assignors to Allied-Signal Inc., Morristown, N.J.

Filed May 23, 1996, Ser. No. 652,891

Int. Cl.^{6} B01D *3/34*

U.S. Cl. 203—67 **22 Claims**

1. A process for separating dichlorodifluoromethane from a mixture of dichlorodifluoromethane and difluoromethane comprising the steps of:

(A) distilling a mixture comprising dichlorodifluoromethane and difluoromethane, the mixture having a weight percent ratio of difluoromethane to dichlorodifluoromethane less than the weight percent ratio of a dichlorodifluoromethane/difluoromethane azeotrope, by passing the mixture through a distillation apparatus in order to separate dichlorodifluoromethane in a column distillate having a dichlorodifluoromethane/difluoromethane weight percent ratio at least equal to the azeotropic ratio and greater than the weight percent ratio of the mixture distilled and to produce a difluoromethane bottoms product having a reduced content of dichlorodifluoromethane compared to the difluoromethane/dichlorodifluoromethane mixture distilled; and

(B) collecting the difluoromethane bottoms product from the distillation column.

5,785,823
PROCESS FOR THE PURIFICATION OF BISPHENOL

Kurt-Peter Meurer, Leverkusen, Germany; Tony Van Osselaer, Belsele, Belgium; Werner Verhoeven, Heide-Kalmthout, Belgium; Johan Vaes, Kalmthout, Belgium; Ignace Hooftman, Kruibeke, Belgium; Willy Van Herck, Brasschaat, Belgium; Claus Wulff; Jürgen Hinz, both of Krefeld, Germany; Alfred Eitel, Dormagen, Germany, and Kaspar Hallenberger, Leverkusen, Germany, assignors to Bayer AG Konzernverwaltung RP, Germany

Filed Aug. 2, 1996, Ser. No. 691,402

Claims priority, application Germany, Aug. 14, 1995, 195 29 855.1

Int. Cl.^{6} B01D *3/00;* **C07C** *37/74*

U.S. Cl. 203—71 **2 Claims**

1. A process for obtaining bisphenol A with a degree of purity greater than 99.95 wt. % and a Hazen (APHA) colour index of <5 from a reaction solution which is obtained in a reactor during the production of bisphenol A from acetone and phenol in the presence of sulphonic acid ion-exchangers optionally modified with mercapto-amines and/or thiazolidines and/or thiocarboxylic acids, which comprises:

a) adjusting the reaction solution to a concentration of 10 to 40 wt. % of p,p-bisphenol A(BPA) at a temperature of 60°–80° C.,

b) supplying the resulting solution to a sequence of columns connected in series, further comprising

c) removing, in a first distillation step, water and residual acetone and, optionally phenol, from the reaction solution being discharged from the reactor,

d) adjusting, in a second distillation step, a resulting anhydrous solution to a concentration of 70 to 97 wt. % of p,p-BPA at the base of the column,

e) removing, in a third distillations step, barely volatile and involatile components from the resulting solution,

f) removing, in a fourth distillation step, readily volatile components and residual phenol distilled over with the p,p-BPA to leave a p,p-BPA melt at the base of a fourth distillation column, and

g) recovering p,p-BPA from the p,p-BPA melt at the base of the fourth distillation column.

5,785,824
METHOD OF AND APPARATUS FOR PRODUCING OZONE

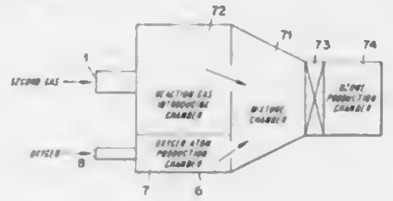
Jiro Kitayama; Toshinori Yagi; Masaaki Tanaka, and Norikazu Tabata, all of Tokyo, Japan, assignors to Mitsubishi Denki Kabushiki Kaisha, Tokyo, Japan

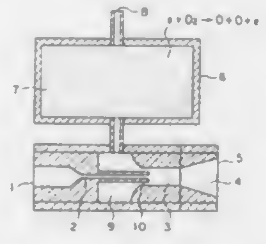
Filed Sep. 12, 1996, Ser. No. 712,845

Claims priority, application Japan, Sep. 28, 1995, 7-251018; Dec. 19, 1995, 7-330344

Int. Cl.^{6} C01B *13/11*

U.S. Cl. 204—176 **19 Claims**





1. A method of producing ozone, comprising:

an oxygen atom producing step of producing a first gas containing oxygen atoms by dissociating a supplied oxygen gas at a specified low pressure not more than atmospheric pressure; and

an ozone producing step of mixing said first gas containing oxygen atoms produced in said oxygen atom producing step with a second gas containing oxygen, and allowing said first gas and said second gas to react with each other in a non-electric discharge state for producing ozone.

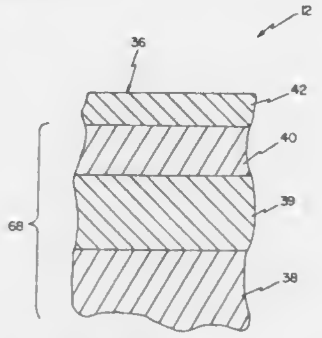
5,785,825
MULTI-PHASE OVERCOATS FOR MAGNETIC DISCS

Kuo-Hsing Hwang, San Jose; Xiaohua Chen, Fremont; Alexander Boris Khazanov, Mountain View; Abdellah Hafid, Campbell; Stella Tan, San Jose, and Quy Cuu Nguyen, Milbidas, all of Calif., assignors to Seagate Technology, Inc., Scotts Valley, Calif.

Filed Oct. 2, 1995, Ser. No. 538,124

Int. Cl.^{6} C23C *14/34*

U.S. Cl. 204—192.16 **17 Claims**



1. A method of manufacturing a magnetic disc for use in a magnetic disc drive, comprising:

providing a partially manufactured magnetic disc having a magnetic layer thereon;

sputtering an amorphous carbon film on the magnetic layer; and

sputtering a doped amorphous carbon film on the amorphous carbon film.

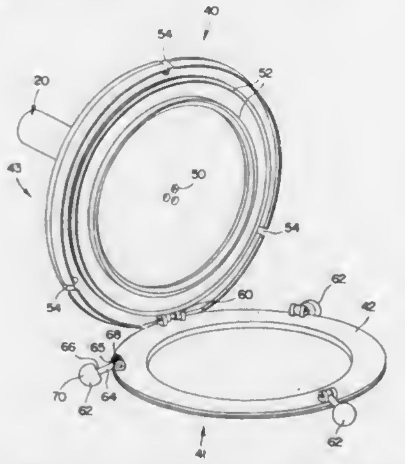
5,785,826
APPARATUS FOR ELECTROFORMING

Alex Greenspan, Rockville Centre, N.Y., assignor to Digital Matrix, Hempstead, N.Y.

Filed Dec. 26, 1996, Ser. No. 778,044

Int. Cl.^{6} C25D *1/00*

U.S. Cl. 204—212 **7 Claims**



1. An apparatus for controlling the uniformity of deposition in an electroforming process by convenient adjustment of the anode to cathode assembly distance, said apparatus including an anode, a cathode assembly facing said anode, said cathode assembly comprising a backplate having a base with a recess which holds a metallic cup, said metallic cup configured for holding a mandrel having a front face to be plated, a clamping ring pivotally attached to said backplate, said clamping ring configured to hold said mandrel against said backplate, said backplate further comprising a contact ring configured to transfer current to the mandrel, said contact ring adapted to abut the front face of said mandrel, said cathode assembly being mounted on a lead screw for providing axial movement of said cathode assembly along an axis normal to said anode to facilitate uniform deposition by optimizing said distance to compensate for factors affecting the uniformity of said electroforming process.

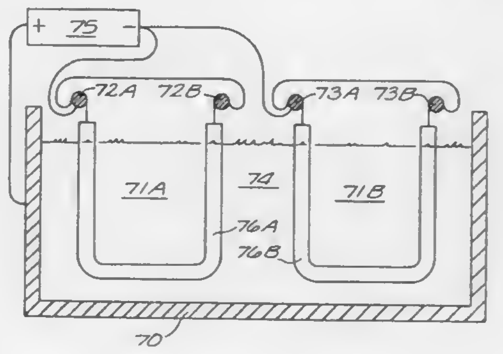
5,785,827
EDGE PROTECTOR FOR REFINING PLATES

Robert C. Dougherty, 937 W. Los Alamos, Tucson, Ariz. 85704

Filed Feb. 7, 1997, Ser. No. 797,541

Int. Cl.^{6} C25C *7/00;7/08*

U.S. Cl. 204—267 **16 Claims**



11. An electro-refining system comprising:

a) a container adapted to hold a liquid solution of electrically reactive minerals;

b) an energy source creating an electrical charge;

c) suspension means, electrically connected to said energy source; and,

d) a multitude of refining plates suspended from, and electrically connected with, said suspension means and adapted for immersion said liquid solution, each of said refining plates having,

  1) a metal plate having a uniform thickness throughout and having,

    A) a first edge including a bracket adapted to suspend said metal plate by said suspension means, and,

    B) a second, third and fourth edge having a series of openings therealong,

  2) an edge protector being composed of non-conducting material and substantially U shaped, said edge protector positioned to enclose and overlap all of the third edge and a portion of said second and fourth edges of said metal plate, said edge protector being fused to itself through said series of openings, said edge protector further including,

    A) a first linear member,

    B) a second linear member, and,

    C) a third linear member abutting said first linear member and to said second linear member substantially at right angles, and,

  3) a seal positioned between an edge of said edge protector and said substantially rectangular metal plate.

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5,785,828

SPUTTERING TARGET FOR PRODUCING OPTICAL RECORDING MEDIUM

Katsuyuki Yamada, Mishima; Hiroko Iwasaki, Tokyo; Yukio Ide, Mishima; Makoto Harigaya, Hiratsuka; Yoshiyuki Kageyama, Yokohama; Hiroshi Deguchi, Yokohama; Masaetsu Takahashi, Yokohama, and Yoshitaka Hayashi, Machida, all of Japan, assignors to Ricoh Company, Ltd., Tokyo, Japan

Filed Dec. 12, 1995, Ser. No. 571,087

Claims priority, application Japan, Dec. 13, 1994, 6-332532

Int. Cl.^{6} C23C *14/34*

U.S. Cl. 204—298.13 **3 Claims**

1. A sputtering target for fabricating a recording layer of an optical recording medium capable of recording and erasing information by utilizing changes in the phase of a recording material in said recording layer, said sputtering target comprising a compound or mixture comprising as constituent elements Ag, In, Te and Sb with the respective atomic percent (atom. %) of α, β, γ and δ thereof being in the relationship of:

$2 \leqq \alpha \leqq 30$,
$3 \leqq \beta \leqq 30$,
$10 \leqq \gamma \leqq 50$,
$15 \leqq \delta \leqq 83$, and
$\alpha+\beta+\gamma+\delta=100$

and being produced by sintering a mixture of (i) finely-divided particles of Ag, In, and Te elements and Sb or (ii) finely-divided particles of Ag, In, Te, and Sb elements, and subjecting the mixture, prior to sintering, to heat treatment at a temperature not higher than the melting point of the mixture.

5,785,829

GAS CONCENTRATION SENSOR

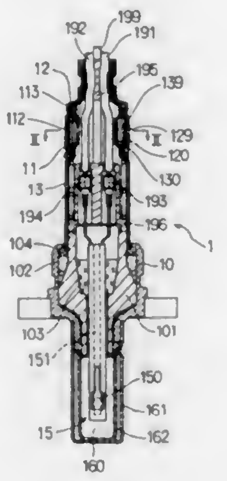
Tsao Watanabe, Nagoya, Japan, assignor to Nippondenso Co., Ltd., Kariya, Japan

Filed Jan. 23, 1996, Ser. No. 590,176

Claims priority, application Japan, Jan. 23, 1995, 7-027460

Int. Cl.^{6} G01N *27/407*

U.S. Cl. 204—427 **30 Claims**



1. A gas concentration sensor comprising:

a housing;

a sensor element inserted into said housing and having a first end exposed to measured gas and a second end exposed to atmospheric gas;

a cover for covering said second end of said sensor element and having a space formed therein, through which said atmospheric gas is introduced to said sensor element,

said cover including:

an outer ventilation hole formed at a side surface of said cover, for introducing said atmospheric gas into said sensor element, and

an inner ventilation hole formed at a side surface of said cover radially inwardly of said outer ventilation hole, for introducing said atmospheric gas into said sensor element; and

a water repellent member disposed in said space radially between said outer ventilation hole and said inner ventilation hole, said water repellent member having axial ends and dividing said space into an inner space and an outer space,

wherein an area of an outer permeable surface of said water repellent member is larger than an outer total passage area of said outer ventilation hole,

an area of an inner permeable surface of said water repellent member is larger than an inner total passage area of said inner ventilation hole; and

said water repellent member contacts said cover only at said axial ends.

5,785,830

ELECTROCHEMICAL PLANAR METAL/METAL OXIDE ELECTRODES

Joseph S. Foos, Needham, and John S. Benco, Holliston, both of Mass., assignors to Chiron Diagnostics Corporation, E. Walpole, Mass.

Continuation of Ser. No. 379,405, Jan. 27, 1995, abandoned. This application Aug. 7, 1996, Ser. No. 693,554

Int. Cl.^{6} G01N *27/26*

U.S. Cl. 204—433 **17 Claims**

1. An active planar metal oxide electrode prepared by a process comprising combining a non-hydroscopic particulate, salt base component with a metal paste to form a metal paste mixture, heating the metal paste mixture in the presence of air for a time sufficient to oxidize a portion of the mixture to form said planar metal/metal oxide electrode.

5,785,831

MIXING LIQUIDS USING ELECTROOSMOTIC FLOW

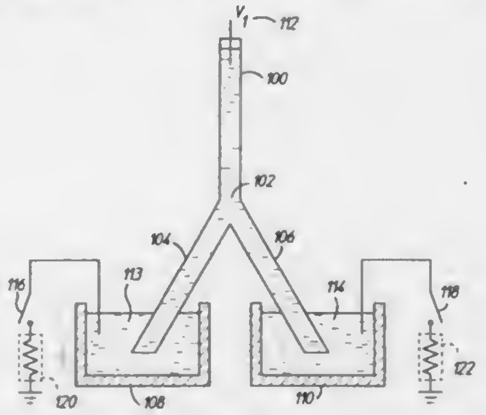
Fritz Bek, Waldbronn, Germany, assignor to Hewlett-Packard Company, Palo Alto, Calif.

Filed Feb. 8, 1996, Ser. No. 598,717

Claims priority, application European Pat. Off., Feb. 19, 1995, 95102304

Int. Cl.^{6} G01N *27/26;27/447*

U.S. Cl. 204—451 **4 Claims**



1. A method of mixing liquids, the method comprising the following steps:

(a) pumping a first liquid by electroosmosis into a junction, with a pumping voltage switched by a first switch;

(b) pumping a second liquid by electrosmosis into the junction, with a pumping voltage switched by a second switch; and,

(c) switching at least one of the first and second switches on and off at a frequency that is sufficiently high-to produce a substantially uniform composition of the first liquid and the second liquid at the junction.

5,785,832

COVALENTLY CROSS-LINKED, MIXED-BED AGAROSE-POLYACRYLAMIDE MATRICES FOR ELECTROPHORESIS AND CHROMATOGRAPHY

Marcella Chiari, Via G. Brocchi 11, and Pier Giorgio Righetti, Via Archimede 114, both of Milan, Italy

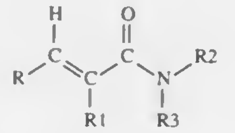
Filed Jul. 26, 1995, Ser. No. 518,598

Int. Cl.^{6} G01N *27/26;27/447*

U.S. Cl. 204—469 **7 Claims**

1. A mixed-bed matrix for electrophoresis comprising covalently-linked polyacrylamide-agarose formed by the copolymerization of at least one monomer with an agarose mixture of allyl-agarose with a gelling point not lower than 35 C and underivatized agarose;

wherein said at least one monomer has the following general formula:



$$\mathrm{R{-}CH{=}C(R1){-}C({=}O){-}N(R2)(R3)}$$

wherein R is hydrogen, C_1–C_4 alkyls or phenyls;

wherein R_1 is hydrogen, C_1–C_4 alkyls or phenyls;

wherein R_2 is hydrogen or C_1–C_4 alkyls bearing one or more substituents OH, SH, OR_4 or SR_4 where R_4 is an alkyl C_1–C_4 or hydroxyalkyl C_1–C_4 and interrupted by one or more atoms of nitrogen to form an heterocyclic ring;

wherein R_3 is hydrogen or C_1–C_4 alkyls, bearing one or more substituents OH, SH, OR_4 or SR_4 where R_4 is an alkyl C_1–C_4 or hydroxyalkyl C_1–C_4 interrupted by one or more atoms of nitrogen to form an heterocyclic ring; and

wherein said agarose mixture comprises agarose derivatized with residues bearing double bonds.

5,785,833

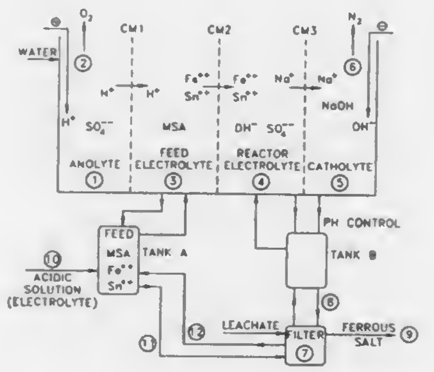
PROCESS FOR REMOVING IRON FROM TIN-PLATING ELECTROLYTES

Daniel J. Vaughan, P. O. Box 258, Rockland, Del. 19732-0258

Filed Apr. 29, 1996, Ser. No. 638,676

Int. Cl.^{6} B01D *59/42;* **C25B** *1/00*

U.S. Cl. 204—525 **6 Claims**



1. A process using an electrochemical cell having at least an anolyte, a feed electrolyte, a reactor electrolyte and a catholyte for conversion of salts of ferrous ions and stannous ions in an acidic solution into insoluble hydroxides of said ferrous and said stannous ions and separating said ferrous ions from said stannous ions and returning said stannous ions to said acidic solution which comprises: (a) feeding said acidic solution selected from solutions having an acid and at least salts of ferrous and stannous ions as said feed electrolyte; (b) passing an electrolyzing current through said cell to (1) form hydrogen ions in said anolyte; (2) electrotransport through cation permeable membranes said ferrous ions and said stannous ions from said feed electrolyte to said reactor electrolyte; (3) react said stannous ions and said ferrous ions with hydroxide ions in said reactor electrolyte to form insoluble stannous and ferrous hydroxides; (4) form hydroxide ions in said catholyte; (c) removing said insoluble stannous hydroxides and said insoluble ferrous hydroxides from said reactor electrolyte (d) dissolving said ferrous hydroxide in an aqueous solution; (e) separating said dissolved ferrous hydroxide from said insoluble stannous hydroxide; (f) dissolving said insoluble stannous hydroxide in an aqueous solution; and (g) adding said solution of said stannous hydroxide to said feed electrolyte.

5,785,834

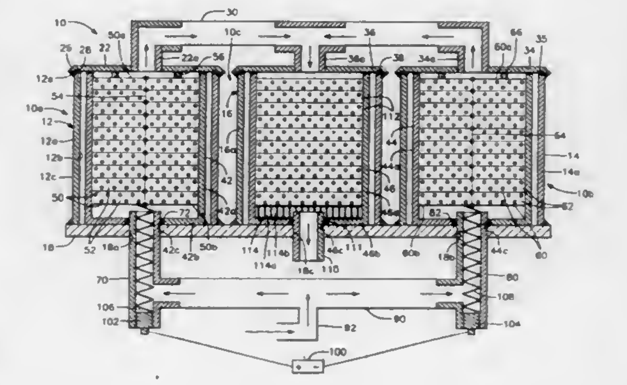
ELECTROSTATIC FILTER

Donald E. Thompson, Modesto, Calif., assignor to Contamco Corporation, Silver Spring, Md.

Continuation of Ser. No. 466,513, Jun. 6, 1995, Pat. No. 5,630,926, which is a continuation of Ser. No. 105,065, Aug. 12, 1993, abandoned. This application Mar. 6, 1997, Ser. No. 812,045

Int. Cl.^{6} B01D *35/06;* **B03C** *5/02*

U.S. Cl. 204—562 **2 Claims**



1. A filtering method for removing particles from fluids comprising the steps of:

dividing the fluid to be filtered into two fluid streams and providing one of the fluid streams to an inlet of a first chamber and providing the other fluid stream to an inlet of a second chamber;

providing a plurality of spaced electrode surfaces within each chamber with porous filter media interposed between the electrode surfaces;

connecting the electrode surfaces of the first chamber to a voltage of one polarity only and connecting the electrode surfaces of the second chamber to a voltage of opposite polarity only;

passing each fluid stream through the respective first and second chambers such that each fluid stream flows between the spaced electrode surfaces and in contact with the electrode surfaces so that the particles to be filtered come into close proximity to the electrode surfaces and pick up the charge of the electrode surfaces;

passing each fluid stream through an outlet of its respective chamber and providing both fluid streams to a third chamber which contains porous filter media;

joining the fluid streams together as they pass into and through the third chamber whereby the charged particles of opposite polarity are attracted to each other to form larger particles;

filtering the larger particles within the third chamber by capturing the larger particles within the filter media; and

providing an outlet for the fluid from the third chamber.

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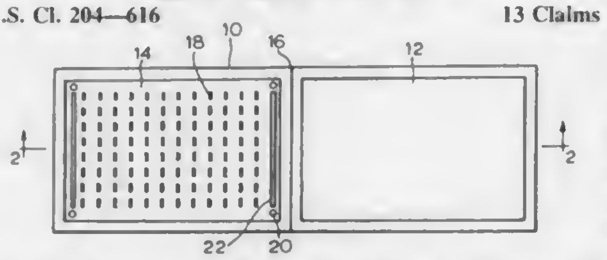
5,785,835

ELECTROPHORESIS METHOD AND DEVICES

Katsuyuki Salto, Agoura; Stewart Han, and Jar-How Lee, both of Los Angeles, all of Calif., assignors to One Lambda, Canoga Park, Calif.

Filed Apr. 12, 1996, Ser. No. 631,406
Int. Cl.^{6} G01N *27/26;27/447*
U.S. Cl. 204—616 **13 Claims**



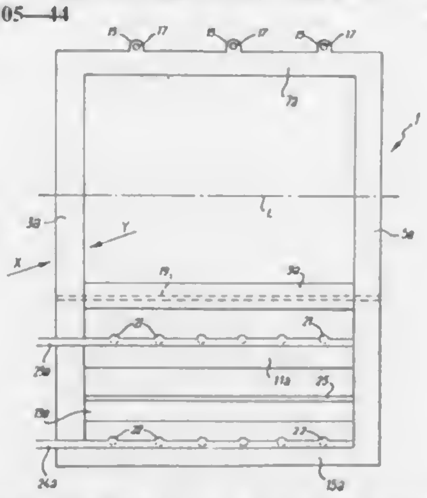
1. An electrophoresis gel-matrix layer having two mutually opposite ends for application of an electrophoresis voltage thereto, an exposed major surface extending between the two ends, and a plurality of wells in the thickness of the layer and open at said exposed surface, wherein the wells are arranged in a plurality of rows each extending transversely of the end-to-end direction of the layer and wherein the wells in successive rows are aligned with each other so as to form columns which are aligned in the end-to-end direction, said gel-matrix layer further comprising two slots positioned at opposing ends of the plurality of open sample wells for insertion of electrophoresis electrodes.

5,785,836

ELECTROLYTIC TREATMENT OF MATERIAL

Bernard Turner, Preston, United Kingdom, assignor to British Nuclear Fuels PLC, United Kingdom

PCT No. PCT/GB95/01267, § 371 Date Apr. 25, 1996, § 102(e) Date Apr. 25, 1996, PCT Pub. No. WO95/33872, PCT Pub. Date Dec. 14, 1995
PCT Filed Jun. 1, 1995, Ser. No. 586,767
Claims priority, application United Kingdom, Jun. 2, 1994, 9411063
Int. Cl.^{6} C25D *21/10;* **C21F** *9/00*
U.S. Cl. 205—44 **4 Claims**



1. A method of treating a body of conducting material electrolytically which comprises the steps of locating the material to be treated in an insulating liner received within an electrically conducting frame, said frame and said liner being inserted in an aqueous oxidizing electrolyte, said liner including a base having perforations to allow said electrolyte to contact said material to be treated, coupling said frame and said material to be treated to opposed poles of a source of electric current and passing an electric current through the electrolyte and said material to be treated and sparging the electrolyte with gas in a region where said electrolyte is in contact with said material to be treated, the gas being supplied by a plurality of pipes extending across the electrolyte at a location beneath the perforated base of said insulating liner, the pipes each having a plurality of gas outlet holes directed towards said material to be treated.

5,785,837

PREPARATION OF TRANSPARENT CONDUCTORS FERROELECTRIC MEMORY MATERIALS AND FERRITES

Raghu Nath Bhattacharya, Littleton, and David S. Ginley, Evergreen, both of Colo., assignors to Midwest Research Institute, Kansas City, Mich.

Filed Jan. 2, 1996, Ser. No. 582,142
Int. Cl.^{6} C25C *1/24;5/02;* **C25D** *5/50*
U.S. Cl. 205—74 **9 Claims**

2. A process for the preparation of a ferroelectric metal oxide powder, wherein the ferroelectric metal oxide film comprises a plurality of metals selected from the group consisting of the groupings of Sr and Ru, Ba and Ti, Pb and Ti, Ni and Fe, Zn and Fe, La and Sr and Co, PbLa and ZnTi, Pb and MgNb, Li and Nb, K and Nb, K and Ta, K and TaNb, SrBa and Nb, PbBa and Nb, KSr and Nb, Bi and Ti, Li and NbTa, Zn and Sn, Ba and Na and Nb, Li and Ta, Ba and Sr and K and Na and Nb, Pb and K and Nb, K and Li and Nb, K and Li and Nb, Pb and Ba and Ti, Pb and FeNb, Ba and MgTa, Pb and Ti and Zn, Cd and Sn, Zn and In and Sn, and Zn and Ga, the process comprising the sequential steps of:

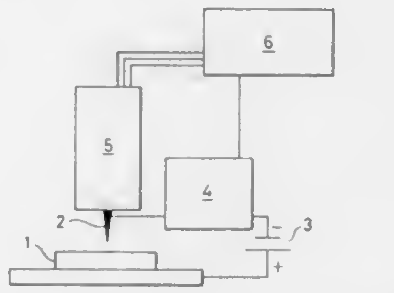
a) providing an electrodeposition bath comprising a non-aqueous, aprotic electrolyte medium and a cathode substrate electrode;
b) providing to the bath salts of each of the metals soluble in said non-aqueous, aprotic electrolyte;
c) electrically energizing the bath by applying a constant potential thereto between about −3V and about −6V to thereby direct ions of each respective metal in the bath to the substrate electrode to thereby cause formation of metallic particles as a film of the plurality of metals on the electrode;
d) continually energizing the bath to cause film formed at the electrode to drop as powder from the electrode into the bath;
e) recovering the powder from the bath; and
f) annealing the powder in flowing oxygen at a temperature of about 475°– 575° C. for a time sufficient to produce substantially complete metal oxide formation.

5,785,838

METHOD FOR PRODUCING AN OXIDE FILM

Hiroyuki Sugimura, Tsukuba, and Tatsuya Uchida, Miyagi, both of Japan, assignors to Nikon Corporation by Hiroyuki Sugimura, Tokyo, Japan

Continuation of Ser. No. 202,126, Feb. 25, 1994, abandoned. This application Dec. 19, 1995, Ser. No. 574,986
Claims priority, application Japan, Feb. 26, 1993, 5-039120; Jul. 22, 1993, 8-181448
Int. Cl.^{6} C25D *11/02*
U.S. Cl. 205—83 **11 Claims**



1. A fine-processing method for producing an oxide film on a surface of a semiconductor to be processed comprising bringing a processing electrode having a tip radius of 100 nm or less close to the surface in an oxygen-containing gas, said oxygen-containing gas being adsorbed on the surface, and impressing a voltage in the single digit range across the material to be processed and the processing electrode, the processing electrode being sufficiently close the surface to allow a current to flow across the material to be processed and the processing electrode, thereby anodizing the surface immediately proximate the processing electrode.

5,785,839

COMPOSITE STRUCTURE INCLUDING A SOLID ELECTROYLTE AND AT LEAST ONE VOLUME ELECTRODE

Michel Kleitz, Grenoble; Gaétan Mairesse; Jean-Claude Boivin, both of D'Ascq, and Gilles Lagrance, Lew Bains, all of France, assignors to Ecole Nationale Superieure de Chimi de Lille, Universite des Sciences et Technologies de Lille, Villeneuve D'Ascq, and L'Air Liquide, Societe Anonyme pour l'Etude et l'Exploitation des Procedes Georges Claude,, Paris, both of France

PCT No. PCT/FR95/00651, § 371 Date Jan. 29, 1997, § 102(e) Date Jan. 29, 1997, PCT Pub. No. WO95/32050, PCT Pub. Date Nov. 30, 1995
PCT Filed May 18, 1995, Ser. No. 737,471
Claims priority, application France, May 19, 1994, 94 016138
Int. Cl.^{6} C25B *1/02*
U.S. Cl. 205—634 **11 Claims**

9. A method for removing oxygen from a gas containing oxygen comprising the steps of:

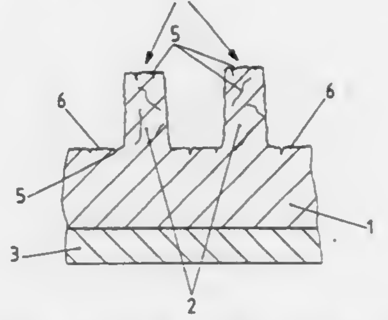
(i) supplying a gas containing oxygen to an anode of a composite structure comprising:
  (a) a solid electrolyte which is an O^{2-} anion conductor and essentially impermeable to gases;
  (b) a cathode; and
  (c) an anode, wherein said cathode and anode are porous to gases and wherein said electrolyte is in contact with said cathode and anode;
(ii) creating a potential difference between the anode and cathode of said composite structure so as to permit reduction of molecular oxygen admitted to the cathode to O^{2-} ions and oxidation of O^{2-} ions transferred through the composite structure to molecular oxygen at the anode; and
(iii) recovering molecular oxygen from the cathode.

5,785,840

PROCESS FOR PRODUCING A SURFACE STRUCTURE FOR A CYLINDER OF A PRINTING MACHINE

Werner Sondergeld, Offenbach, Germany, assignor to Man Roland Druckmaschinen AG, Germany

Filed Apr. 26, 1996, Ser. No. 638,540
Claims priority, application Germany, Apr. 26, 1995, 195 15 394.4
Int. Cl.^{6} C25F *3/02;* **H01R** *43/00;* **B05D** *3/00;* **B23K** *26/06*
U.S. Cl. 205—640 **11 Claims**



1. A process for producing a surface structure on a printing machine cylinder, cylinder dressing, or roller, the process comprising the steps of:

forming a multiplicity of elevated elements and valleys in a coating on the printing machine cylinder, cylinder dressing, or roller, the multiplicity of elevated elements being substantially the same height and randomly distributed; and
forming a multiplicity of depressions in the elevated elements and valleys for increasing the roughness of the surfaces of the elevated elements and valleys.

2. The process for producing a surface structure according to claim 1, wherein the step of forming a multiplicity of elevated elements and valleys comprises a material erosion process.

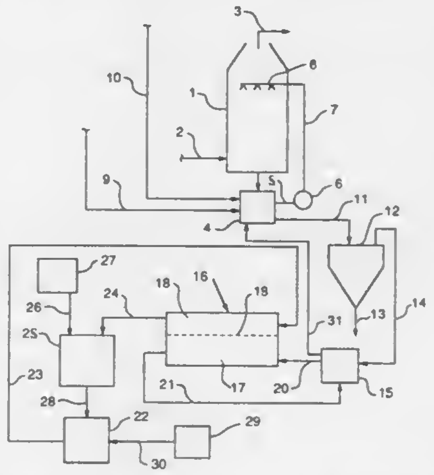
3. The process for producing a surface structure according to claim 2, wherein the material erosion process comprises an electrochemical etching process.

5,785,841

METHOD OF REMOVING SULFUR DIOXIDE AND NITROGEN OXIDES FROM A GASEOUS STREAM

Shiaw C. Tseng, Pittsburgh, Pa., assignor to Dravo Lime Company, Pittsburgh, Pa.

Continuation-in-part of Ser. No. 434,871, May 4, 1995. This application Apr. 19, 1996, Ser. No. 635,330
Int. Cl.^{6} B01D *17/06;59/40;* **C01B** *21/00;17/20*
U.S. Cl. 205—763 **16 Claims**



1. In a method of removing sulfur dioxide and nitrogen oxides from a gaseous stream wherein said gaseous stream is contacted with an aqueous scrubbing medium containing sulfites which react with and remove sulfur dioxide therefrom and ferrous chelates which react with and remove nitrogen oxides therefrom to form a spent aqueous scrubbing medium containing solids and a solution of ferric chelates, the improvement comprising:

separating the solids from said spent aqueous scrubbing medium to provide the aqueous solution of ferric chelates;
passing said aqueous solution of ferric chelates as a catholyte, at an acidic pH of 4.0–6.5, to a cathode compartment of an electrochemical cell containing said cathode compartment and an anode compartment separated from said cathode compartment by a separator, said electrochemical cell having a corrosion resistant anode, and an anolyte feed solution in said anode compartment having an acidic pH of 1.5 to 6.5 and containing magnesium sulfate;
passing an electrical current from said cathode compartment to said anode compartment to reduce ferric chelates in said catholyte to ferrous chelates and form a regenerated ferrous chelate solution; and
recycling said regenerated ferrous chelate solution to said contacting step for use as said ferrous chelates.

5,785,842

CORROSION PROTECTION MONITORING AND ADJUSTMENT SYSTEM

Robert M. Speck, 1102 Sycamore, Richmond, Tex. 77469

Continuation-in-part of Ser. No. 422,799, Apr. 17, 1995, abandoned. This application Mar. 20, 1996, Ser. No. 619,125
Int. Cl.^{6} G01N *27/26*
U.S. Cl. 205—777.5 **15 Claims**

1. A method for obtaining information describing the corrosion protection status of a section of a pipeline provided with a rectifier electrically connected to said section of a pipeline, said method comprising the steps of:

measuring the current input and output, electrical potential, and level of applied cathodic protection of the electrical energy provided by the rectifier to the section of a pipeline;
transmitting said measurements of current input and output, electrical potential and level of applied cathodic protection to a low-level communication satellite;
retransmitting the measurements received by said low-level communication satellite to a management data center.

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5,785,843

LOW HEADROOM COKE DRUM DEHEADING DEVICE

Leslie Peter Antalffy, Houston; Robert Benoit, Richmond; Gerald Bryant, LaPorte; Michael B. Knowles; David W. Malek, both of Houston, and Samuel Allen Martin, Sugarland, all of Tex., assignors to Fluor Daniel, Inc., Irvine, Calif.

Division of Ser. No. 346,610, Nov. 30, 1994. This application Oct. 28, 1996, Ser. No. 738,184

Int. Cl.^{6} C10G *9/014*

U.S. Cl. 208—131 **5 Claims**

1. A method of operating a coking vessel having a body and a removable head, the method compr'sing:

coupling the body to a first section of the head with a pivot;

opening the vessel by moving the head laterally while simultaneously raising the first section of the head and lowering an opposite section of the head; and

closing the vessel by moving the head laterally while simultaneously lowering the first section of the head and rasing the opposite section of the head.

5,785,844

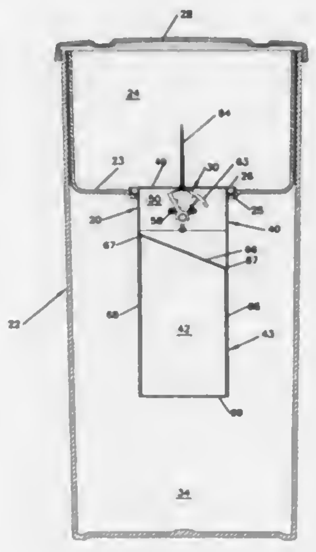
END OF LIFE MECHANISM FOR WATER TREATMENT CARTRIDGE

James L. Lund, Lake Elmo; David J. Emmons, Plymouth, and Richard D. Hembree, Edina, all of Minn., assignors to Recovery Engineering, Inc., Minneapolis, Minn.

Continuation of Ser. No. 341,420, Nov. 17, 1994, Pat. No. 5,536,394. This application Apr. 25, 1996, Ser. No. 637,853

Int. Cl.^{6} B01D *35/143*

U.S. Cl. 210—85 **16 Claims**



1. An apparatus comprising:

a chamber that accommodates a rising and falling fluid level, said chamber comprising a member constructed and arranged to rise and fall with the rising and falling fluid level, and means for advancing said member along a path for accumulating an indication of a total number of times that the fluid level has risen and fallen in said chamber.

2. The apparatus of claim 1, wherein said member is correspondingly configured with respect to said advancing means such that the rising and falling fluid level moves said member at least one increment along said advancing means.

3. The apparatus of claim 2, wherein said member is a float and said advancing means includes a support member for said float, said advancing means further including means for attaching a support member to a housing of said apparatus.

4. The apparatus of claim 3, wherein at least a portion of an interior of said chamber is additionally in communication with a container, said container including water treatment media.

5,785,845

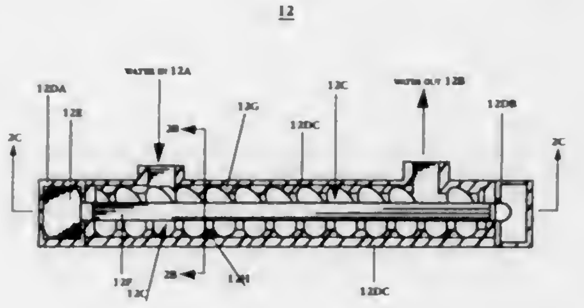
WATER PURIFYING SYSTEM

Robert Colaiano, 1140 Yuma, Denver, Colo. 80204

Filed Nov. 9, 1995, Ser. No. 556,091

Int. Cl.^{6} C02F *1/32;1/72*

U.S. Cl. 210—167 **6 Claims**



1. A water purifying system (**10**) comprising:

A) An ultra violet lighting means (**12**) which comprises an ultra violet lighting means middle housing (**12DC**) having an ultra violet lighting means left housing (**12DA**) sealably attached at a left distal end and an ultra violet lighting means right housing (**12DB**) sealably attached at a right distal end, the ultra violet lighting means middle housing (**12DC**) further comprising an ultra violet lighting means water ingress (**12A**) and an ultra violet lighting means water egress (**12B**) positioned at opposite distal ends thereof, an ultra violet lighting means bulb (**12F**) axially positioned in a center and contained therein, and an ultra violet lighting means baffle (**12G**) longitudinally disposed therein forming an ultra violet lighting means water jacket (**12C**) between the ultra violet lighting means bulb (**12F**) aid the ultra violet lighting means baffle (**12G**); the ultra violet lighting means baffle (**12G**) being circumferentially positioned on and sealably attached to and extending inwardly from an interior surface of the ultra violet lighting means middle housing (**12DC**) and comprising a plurality of alternating ultra violet lighting means baffle ridges (**12GA**) and grooves (**12GB**), and being (**12G**) manufactured from a transparent or translucent material; the lighting means middle housing (**12DC**) further comprising an ultra violet lighting means indicator (**12H**) contained therein, wherein the ultra violet lighting means baffle ridges (**12GA**) extend inwardly to a mid-point between the ultra violet lighting means middle housing (**12DC**) and the ultra violet lighting means bulb (**12F**); and wherein the plurality of ultra violet lighting means baffle ridges (**12GA**) and grooves (**12GB**) are configured in a corkscrew rifled configuration or a multiple ring configuration;

B) an ozonator (**14**) having an inlet connected to the egress of the ultra violet lighting means (**12**) and having an outlet connected to a water reservoir (**22**);

C) a water pump (**20**) having an inlet connected to an outlet of the water reservoir (**22**) by a first water line (**18A**) and having an outlet connected to the ultra violet lighting means ingress; and

D) a hydrogen peroxide container (**16**) connected to the first water line by a second water line (**18B**) having a hydrogen peroxide container pump (**16A**) forming means to add a predetermined amount of hydrogen peroxide from the hydrogen peroxide container (**16**) to the water purifying system (**10**).

5,785,846

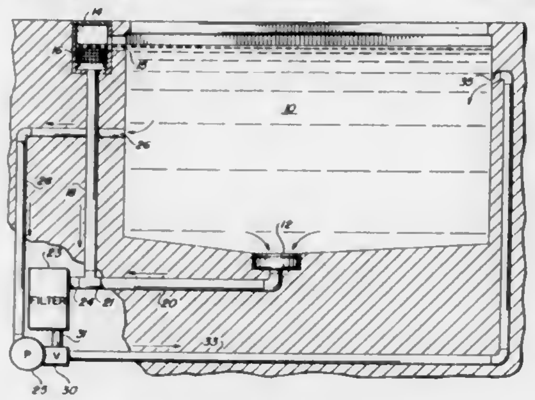
VENTURI-POWERED FILTRATION SYSTEM FOR POOLS

Steven R. Barnes, and Lester Mathews, both of Phoenix, Ariz., assignors to Caretaker Systems, Inc., Scottsdale, Ark.

Filed Feb. 14, 1992, Ser. No. 835,525

Int. Cl.^{6} F04H *4/12*

U.S. Cl. 210—169 **14 Claims**



1. An improved filtration system for a pool having at least two points of suction therein including in combination:

a filter having a housing with a water inlet and a water outlet;

pipes coupling the water inlet of said filter with said two points of suction in said pool;

a water supply independent of said two points of suction for supplying water under pressure;

an entrainment nozzle coupled to receive water from said water supply and further coupled to receive water from the water outlet of said filter for moving water from said two points of suction through the water inlet of said filter and said filter to the water outlet thereof; and

a return pipe coupled to receive water from said entrainment nozzle and said water outlet of said filter for returning said water to said pool.

5,785,847

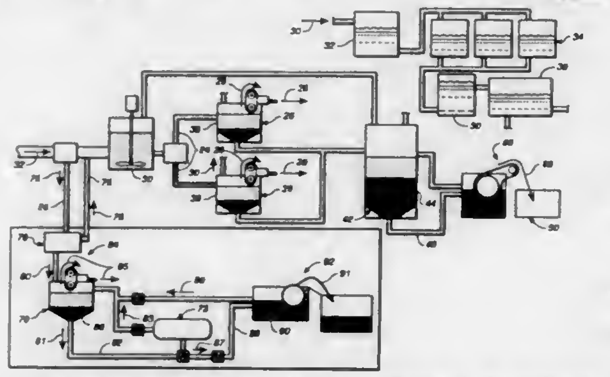
MICROWAVE ASSISTED CLEANING AND RECLAMATION OF INDUSTRIAL WASTES

David A. Purta, Gibsonia, and Alberto M. Guzman, Pittsburgh, both of Pa., assignors to Electric Power Research Institute, Inc., Palo Alto, Calif.

Filed Jun. 7, 1995, Ser. No. 482,258

Int. Cl.^{6} B01D *35/06*

U.S. Cl. 210—177 **13 Claims**



1. An apparatus for cleaning and reclamation of an industrial waste containing oily magnetic solids, comprising:

a magnetic concentrator for concentrating the oily magnetic solids in said waste and removing the water from said waste;

a first receptacle connected to said magnetic concentrator by a first conduit for receiving the magnetically concentrated oily magnetic solids and mixing said solids with a chemical release agent;

a microwave process chamber connected to said first receptacle by a second conduit for applying microwave radiation to the magnetically concentrated oily magnetic solids and chemical release agent mixture to produce clean magnetic solids; and

a separation device for collecting said clean magnetic solids connected to said microwave process chamber by a third conduit.

5,785,848

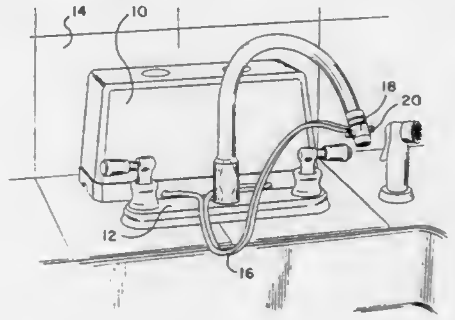
RECTANGULAR BODY WATER PURIFICATION DEVICE

Charles D. Strand, 8811 Royal Harbor Ct., Fort Worth, Tex. 76179

Filed Dec. 6, 1996, Ser. No. 761,219

Int. Cl.^{6} C02F *9/00*

U.S. Cl. 210—282 **1 Claim**



1. A liquid filter, comprising in combination:

a housing in the form of an elongated, substantially rectangular, body having two end walls, top and bottom walls, and two side walls, and the body having length, height and thickness dimensions;

three vertical partitions located in the housing parallel to the end walls and transversely to the length dimension, dividing the housing into four side-by-side linear chambers having bottoms, the chambers including two end chambers each defined by an opposing end wall and a partition and two inner chambers each defined by two opposing partitions;

filtration particulate located in the chambers;

inlet means located in the bottom of one of the end chambers;

port means located in the partitions for causing liquid flowing through the chambers to pass between adjacent chambers;

outlet means located in the bottom of the other end chamber;

with a thickness dimension of about two inches to permit placement of the filter between a sink faucet and a splashboard; and

with a length dimension of about ten inches, such that the filter is located substantially behind the entire length of the sink faucet.

5,785,849

CENTRIFUGAL FILTER

Robert S. Mules, 11 Woodfiled Rd., Talbot, Green Mid Glamorgan CF7 8JF, United Kingdom

Filed Jun. 4, 1997, Ser. No. 868,664

Claims priority, application United Kingdom, Jun. 10, 1996, 9612102

Int. Cl.^{6} B04B *3/00;9/06;* **B01D** *36/00*

U.S. Cl. 210—297 **13 Claims**

1. A centrifugal oil filter comprising a cylindrical housing, having an upstanding cylindrical wall, a vessel rotatably mounted substantially coaxially within said housing, an oil inlet and an oil outlet to said housing, an oil inlet connection between the oil inlet and the interior of the rotatable vessel, at least one outlet nozzle on said vessel adapted to project an oil jet or jets substantially tangentially from said vessel, thereby to induce a rotation of said vessel, the upstanding cylindrical wall extending below the jets and a plurality of circumferentially equally spaced parallel vertical ribs

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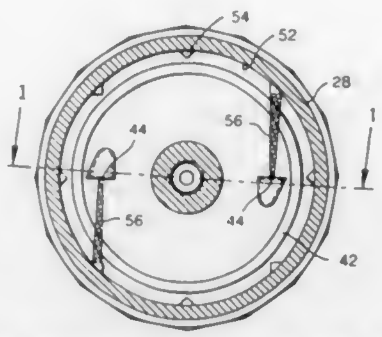


on the inner wall of the cylindrical housing said ribs each having a face positioned to be impacted by said jet or jets, said face extending substantially perpendicular to said jet or jets.

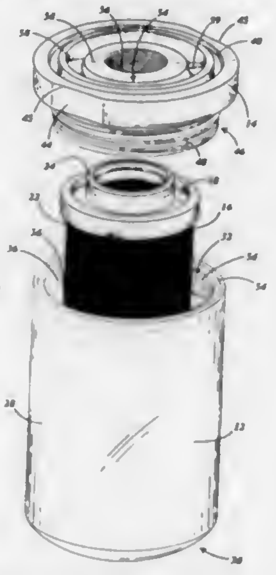
5,785,850
CLEANABLE OIL FILTER

Donald C. Lynch, Minnetonka, and Alan Lonneman, Plymouth, both of Minn., assignors to Certified Technologies Corp., Minneapolis, Minn.

Filed Mar. 17, 1997, Ser. No. 819,169

Int. Cl.^{6} B01D *35/02*

U.S. Cl. 210—304 **14 Claims**



1. A re-usable oil filtration device, comprising:
(a) a cylindrical canister having concentrically disposed inner and outer sidewalls, an open top end and a closed bottom end;
(b) a cylindrical lid closing the open top end of said canister, said lid having an upper planar surface and a lower planar surface and a central axis, wherein said lower planar surface faces in a direction toward the closed bottom of said canister and said upper planar surface faces in a direction away from the closed end of said canister, a first annular member extending from the lower planar surface concentric with said central axis, a central bore concentrically spaced within said first annular member and extending through said upper and lower planar surfaces having internal threading, and a segmented annular fluid inlet extending through said upper and lower planar surfaces and concentrically spaced between the first offset shoulder and the central bore, said segmented fluid inlet having a plurality of sloping fins disposed therein axially between said upper planar surface and said lower planar surface for segmenting said annular fluid inlet and directing fluids in a spiraling direction from the upper planar surface to the lower planar surface;
(c) a filter cartridge having an annular top cap, a cylindrical closed bottom cap, means for filtering particulate sealably coupled therebetween, said top cap having a central opening extending therethrough, wherein the central opening is dimensionally greater than the central bore of the cylindrical lid;
(d) means for sealably securing the open top end of the canister to the lower planar surface of said cylindrical lid; and
(e) means for sealing the annular top cap of the filter cartridge with the lower planar surface of the cylindrical lid.

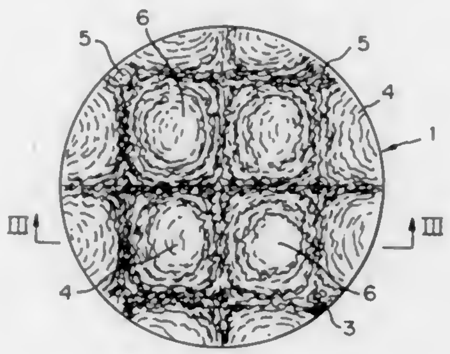
5,785,851
HIGH CAPACITY FILTER

Jay M. Morris, Cuba, and Laurie A. Strom, Geneseo, both of N.Y., assignors to Vesuvius Crucible Company, Wilmington, Del.

Filed Aug. 23, 1996, Ser. No. 702,790

Int. Cl.^{6} B01D *39/20*

U.S. Cl. 210—489 **52 Claims**



1. A filter having a reticulated ceramic inlet portion, a reticulated ceramic intermediate body portion contiguous with said inlet portion and a reticulated ceramic outlet portion contiguous with said intermediate body portion; said inlet portion having an inlet surface formed with a plurality of raised peaks, each of said raised peaks having an upper surface and a base, a lower depression located at said base of each of said raised peaks; and said outlet portion having an outlet surface spaced from said intermediate body portion, whereby said raised peaks and said lower depressions of said inlet surface provide a substantial contact area for liquids supplied to said inlet surface of said inlet portion of said filter to increase the filtration capacity of said filter and the rate of flow of liquid passing through said inlet portion, said intermediate body portion and said outlet portion to said outlet surface.

5,785,852
PRETREATMENT OF HIGH SOLID MICROBIAL SLUDGES

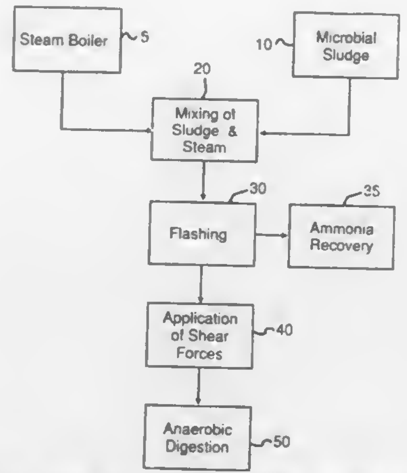
Christopher J. Rivard, Lakewood, and Nicholas J. Nagle, Broomfield, both of Colo., assignors to Midwest Research Institute, Kansas City, Mich.

Filed Apr. 6, 1995, Ser. No. 418,592

Int. Cl.^{6} C02F *11/18*

U.S. Cl. 210—613 **18 Claims**

1. A process for pretreating microbial sludge in order to disrupt cellular integrity of the sludge and enhance secondary anaerobic digestion, comprising:
a) pressurizing and pumping the sludge to be pretreated to a pretreatment reactor;
b) providing steam to the pretreatment reactor;
c) mixing the steam and sludge in the pretreatment reactor to heat the sludge;
d) flashing the sludge to decrease the pressure;



e) applying shear forces to the sludge wherein the cellular integrity of the sludge is disrupted.

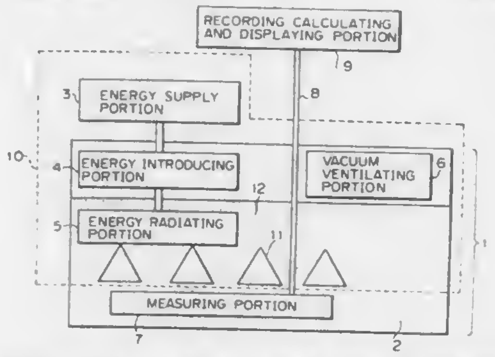
5,785,853
METHOD FOR ACCELERATING REVIVAL OF ENVIRONMENT

Hideaki Isogai, Kashiwa, and Tomoteru Kawakami, Tsukuba, both of Japan, assignors to Agency of Industrial Science and Technology, Tokyo, Japan

Division of Ser. No. 528,414, Sep. 14, 1995. This application Oct. 28, 1996, Ser. No. 738,499

Int. Cl.^{6} C02F *3/28*

U.S. Cl. 210—614 **4 Claims**


RECORDING CALCULATING AND DISPLAYING PORTION
9
3
ENERGY SUPPLY PORTION
8
10
4
ENERGY INTRODUCING PORTION
VACUUM VENTILATING PORTION
6
12
5
ENERGY RADIATING PORTION
11
1
MEASURING PORTION
7
2

1. An environment revival acceleration method comprising the steps of:
providing effective microorganisms in an objective matter containing pollutant within a zone in the environment;
maintaining said objective matter under anaerobic atmosphere;
activating said effective microorganisms by irradiating light and electromagnetic wave to said objective matter;
measuring physical indicia data of said objective matter; and
controlling irradiation of the light and the electromagnetic wave and anaerobic level of the anaerobic atmosphere on the basis of said physical indicia data,
whereby anaerobic fermenting decomposition and photosynthesis by the effective microorganisms are primarily accelerated to convert said pollutant into an organic matter useful for animals and plants.

5,785,854
CURRENT AND AERATION SYSTEM FOR WASTEWATER PLANT

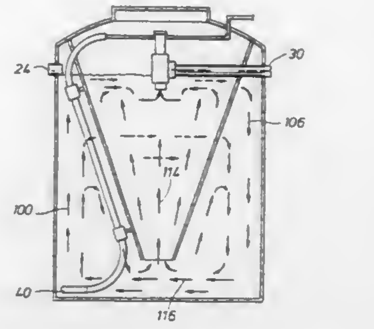
Jerry McKinney, P.O. Box 9337, Beaumont, Tex. 77709

Filed Jul. 14, 1997, Ser. No. 892,681

Int. Cl.^{6} C02F *3/20*

U.S. Cl. 210—620 **10 Claims**

1. In an aerobic wastewater treatment plant comprising:



an aeration chamber containing aerobic bacteria into which wastewater containing organic solids flows to be exposed to aerobic bacteria to convert the organic solids in the wastewater to water and CO_2, said aeration chamber having a bottom and side walls,
means for injecting an oxygenation gas into the wastewater in the aeration chamber to support growth of the aerobic bacteria, and
a clarifier chamber into which wastewater from the aeration chamber flows upwardly toward an outlet pipe through which the wastewater flows from the wastewater treatment plant, said clarifier chamber being defined by a partition in the form of an inverted, truncated cone into the bottom of which the wastewater flows from the aeration chamber,
the improvement comprising a diffuser for releasing the oxygenation gas as bubbles into the aeration chamber of the wastewater treatment plant, said diffuser providing sufficient flow such that all solids suspended within the plant are forced into circulation, said diffuser being placed close to the bottom of the aeration chamber of the wastewater treatment plant and close to the side wall of the aeration chamber, said diffuser providing sufficient oxygenation gas to allow the aerobic bacteria to convert the wastewater into CO_2 and water.

8. The method of creating a current inside an aeration chamber of a wastewater treatment plant, said aeration chamber having a bottom and side walls, comprising the step of
injecting an oxygenation gas such that a current is produced in the aeration chamber, the current flowing upwardly from a position close to the bottom and side wall of the aeration chamber in a direction perpendicular to the bottom of the aeration chamber and parallel to the side wall of the aeration chamber, then around the partition which defines a clarifier chamber, then downwardly along the opposite side wall to the bottom and then across the bottom under an opening to the clarifier chamber and around the side wall of the aeration chamber adjacent the bottom of the aeration chamber to keep solids from settling on the bottom of the aeration chamber.

5,785,855

Patent Not Issued For This Number

5,785,856
AUTOMATED ACCELERATED SOLVENT EXTRACTION APPARATUS AND METHOD

Gary L. Gleave, Milpitas; Norman J. Rothe, Foster City; David W. Kemp, San Jose, all of Calif.; Bruce E. Richter, Sandy, and John L. Ezzell, Layton, both of Utah, assignors to Dionex Corporation, Sunnyvale, Calif.

Division of Ser. No. 398,140, Mar. 3, 1995, Pat. No. 5,660,727, which is a continuation-in-part of Ser. No. 259,667, Jun. 14, 1994. This application Mar. 18, 1997, Ser. No. 820,771

Int. Cl.^{6} B01D *11/00;11/02*

U.S. Cl. 210—634 **37 Claims**

9. A process for accelerated solvent extraction of an analyte from a sample comprising the steps of:

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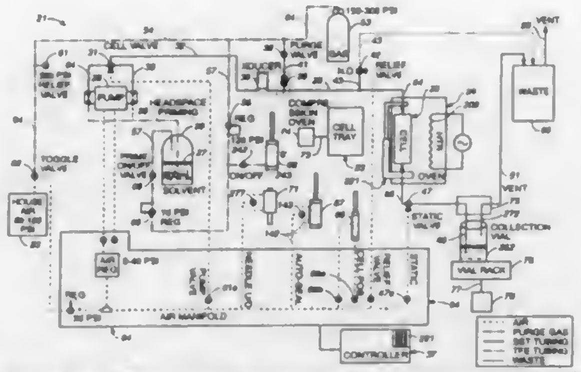


- displacing a fluid conduit assembly into sealed engagement with a passageway structure of a sample containment cell to simultaneously seal and grip said cell with said conduit assembly, said passageway structure extending from an exterior of said cell to a cavity in said cell dimensioned for receipt of said sample;
- while gripping said cell with said fluid conduit assembly, moving said cell between a storage tray and an oven assembly;
- causing flow of an extraction fluid from an extraction fluid reservoir into said cavity through said conduit assembly and said passageway structure;
- elevating the pressure of said extraction fluid while said extraction fluid is in said cavity;
- while said extraction fluid is at an elevated pressure, heating said extraction fluid using said oven assembly; and
- thereafter purging said extraction fluid from said cavity through said passageway structure and said conduit assembly to a fluid receptacle.

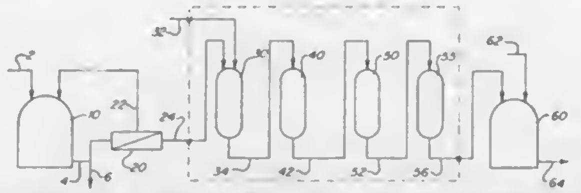
5,785,857
MOBILE PROCESS FOR THE RECOVERY OF SPENT HEAT TRANSFER FLUIDS

Michael D. Kelly; Hubert E. Brown, Jr., both of Memphis; Joe Nichols Skelley, Germantown, all of Tenn., and George Scott Carpenter, Marion, Ak., assignors to Mobile Process Technology, Inc., Memphis, Tenn.

Filed Oct. 31, 1996, Ser. No. 740,703

Int. Cl.^{6} B01D *15/04*

U.S. Cl. 210—638 **1 Claim**



1. A mobile process for the recovery of spent aqueous glycol solutions used as heat transfer fluids, the spent aqueous glycol solutions being characterized by having contaminants including particulates, oil/grease, and dissolved minerals and deficiencies in glycol concentration and in additives such as buffers and corrosion inhibitors, comprising the steps of:

- (a) accumulating spent aqueous glycol solutions at a plurality of dispersed locations;
- (b) transporting a mobile enclosure to at least one of said dispersed locations, said mobile enclosure having means disposed therein for recovery of said spent aqueous glycol solution including particulate removal means, oil/grease removal means, dissolved mineral removal means, glycol addition means, and additive addition means;
- (c) passing said spent glycol solution through said particulate removal means;
- (d) passing said spent glycol solution through said oil/grease removal means;
- (e) passing said spent glycol solution through said dissolved mineral removal means;
- (f) adjusting the concentration of glycol in said spent glycol solution by adding glycol to eliminate any deficiency in glycol concentration;
- (g) adding any required additives to said spent glycol solution;
- (h) dispensing said glycol solution after processing to said dispersed location;
- (i) periodically returning said mobile enclosure to a centralized processing facility;
- (j) regenerating said particulate removal means, said oil/grease removal means, and dissolved mineral removal means at said centralized processing facility; and
- (k) treating and disposing of waste produced by regenerating said particulate removal means, said oil/grease removal means, and dissolved mineral removal means at said centralized processing facility.

5,785,858
METHOD AND APPARATUS FOR REMOVING AIR LOCKS WITHIN MANUALLY OPERATED MICRO-FILTRATION DEVICES

Garth T. Webb, 18040 20th Ave., White Rock, B.C., Canada, V4P 1M6

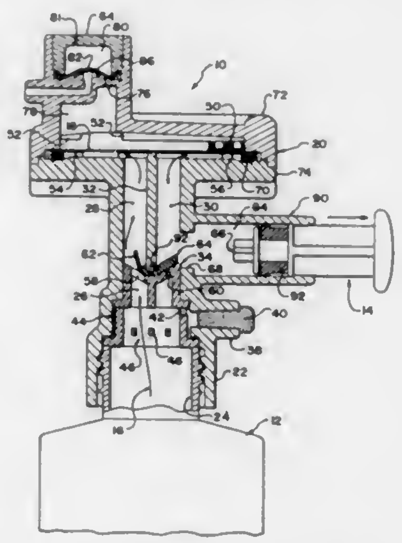
PCT No. PCT/CA94/00599, § 371 Date Jul. 26, 1996, § 102(e) Date Jul. 26, 1996, PCT Pub. No. WO95/12449, PCT Pub. Date May 11, 1995

PCT Filed Nov. 7, 1994, Ser. No. 640,929

Claims priority, application Canada, Nov. 5, 1993, 2102589

Int. Cl.^{6} B01D *61/00;63/00;24/00*

U.S. Cl. 210—650 **6 Claims**



1. A method of removing an air lock from the upstream side of a microfilter in a device for dispensing a sterile liquid from a storage container by forcing said liquid through a microfilter, said device comprising a first inlet passageway communicating between said storage container and a chamber on the upstream side of said filter closable by a first valve, a second outlet passageway communicating between said storage container and said chamber on the upstream side of said filter closable by a second valve, said method comprising the steps of:

- a) creating a partial vacuum in said chamber upstream of said microfilter to thereby open said first valve and draw said liquid from said storage container through said first passageway into said chamber and into contact with the upstream side of said filter;
- b) closing said first and second valves and increasing the air pressure in said upstream chamber; and
- c) opening said second valve thereby releasing air under pressure from said upstream chamber through said second passageway.

5,785,859
OPTIMIZED PROCESS FOR CONDITIONING STEAM-BASED VAPOR STREAMS

Wilfried Raehse, Duesseldorf; Reiner Vogler, Emmerich; Johann F. Fues, Grevenbroich; Wilhelm Beck, Duesseldorf; Kathleen Paatz, Duesseldorf; Truc Tran Anh, Duesseldorf, and Levent Yueksel, Duesseldorf, all of Germany, assignors to Henkel Kommanditgesellschaft auf Aktien, Duesseldorf, Germany

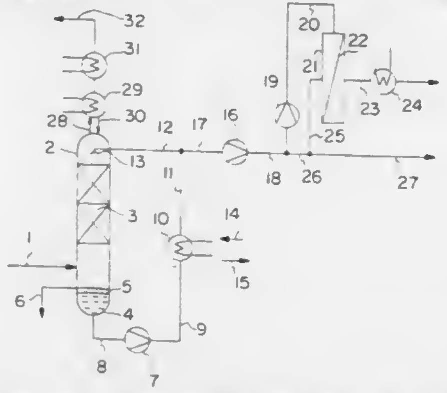
PCT No. PCT/EP95/00228, § 371 Date Oct. 18, 1996, § 102(e) Date Oct. 18, 1996, PCT Pub. No. WO95/21010, PCT Pub. Date Aug. 10, 1995

PCT Filed Jan. 23, 1995, Ser. No. 682,796

Claims priority, application Germany, Feb. 1, 1994, 44 02 883.0

Int. Cl.^{6} B01D *47/00;61/00*

U.S. Cl. 210—651 **12 Claims**



1. The process of conditioning a vapor stream of superheated steam laden with steam-volatile organic components, comprising condensing said vapor stream to form a condensate containing water and said organic components and simultaneously recovering the heat of condensation of said vapor stream by direct contact with a circulated, cooled liquid stream of condensed vapor stream, transferring the energy taken up by the circulated, cooled liquid stream of condensed vapor stream to a second carrier by indirect heat transfer, removing a sidestream from the condensate containing water and said organic components, and subjecting said sidestream to separation by a membrane.

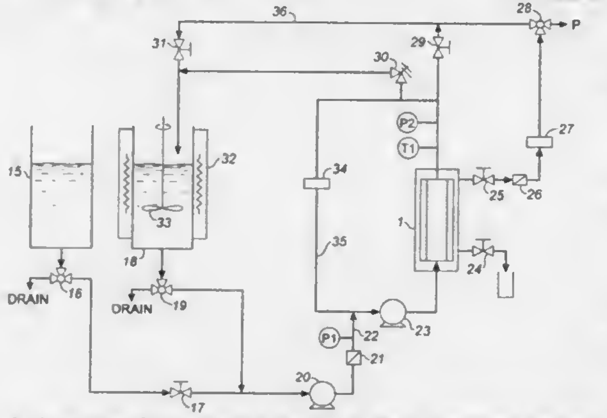
5,785,860
UPGRADING HEAVY OIL BY ULTRAFILTRATION USING CERAMIC MEMBRANE

Kevin J. Smith, Delta, Canada, assignor to University of British Columbia, Vancouver, Canada

Filed Sep. 13, 1996, Ser. No. 710,254

Int. Cl.^{6} B01D *61/00*

U.S. Cl. 210—651 **8 Claims**



1. A process for upgrading heavy oil feed containing asphaltenes, comprising:

- subjecting the feed to ultrafiltration by feeding it at elevated temperature and pressure through a substantially non-fouled ceramic membrane having a large average pore size to produce permeate and retentate products;
- recycling a mayor portion of the permeate product to the feed entering the membrane for sufficient time so that rapid diminution of permeate flux rate begins to substantially level off and the asphaltene content of the permeate product being produced is reduced by at least 30% compared to the feed content;
- terminating recycling and continuing to subject additional feed to ultrafiltration for a prolonged period of time; and
- recovering permeated heavy oil with low asphaltenes content.

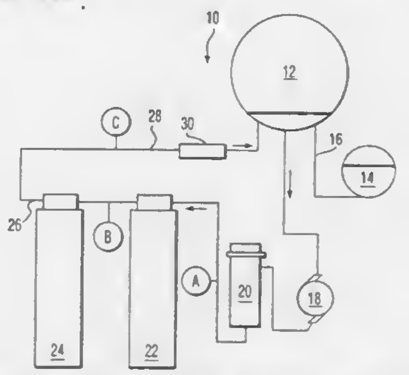
5,785,861
REGENERATION OF PERCHLOROETHYLENE

Peter Dufresne, 428 Coachlight Bay SW., Calgary, Alberta, Canada, T3H 1Z2

Continuation-in-part of Ser. No. 403,190, Mar. 13, 1995, abandoned. This application Sep. 22, 1996, Ser. No. 721,951

Int. Cl.^{6} C02F *1/42;1/28*

U.S. Cl. 210—669 **7 Claims**



1. A method of regenerating dry cleaning fluid comprising the steps of:

- providing a source of contaminated perchloroethylene contaminated with insoluble and soluble contaminants, said contaminants including organic dye contaminants;
- filtering, in a first step, said contaminated perchloroethylene to remove said insoluble contaminants;
- flushing, in a second step, a sorbent resin with uncontaminated perchloroethylene to reduce water content therein to below 15,000 ppm;
- treating, in a third step, said contaminated perchloroethylene with said flushed sorbent resin from said second step and removing said soluble and organic dye contaminants in said contaminated perchloroethylene whereby said perchloroethylene is regenerated to new fluid quality.

5,785,862
PREPARATION AND USES OF POLYFERRIC SULPHATE

Nigel Johnathan Douglas Graham, Surrey, and Jiaqian Jiang, London, both of United Kingdom, assignors to Imperial College of Science Technology & Medicine, London, United Kingdom

PCT No. PCT/GB95/00483, § 371 Date Sep. 18, 1996, § 102(e) Date Sep. 18, 1996, PCT Pub. No. WO95/23765, PCT Pub. Date Sep. 8, 1995

PCT Filed Mar. 6, 1995, Ser. No. 700,534

Claims priority, application United Kingdom, Mar. 4, 1994, 9404191

Int. Cl.^{6} C01G *49/14;* **C02F** *1/52*

U.S. Cl. 210—723 **20 Claims**

1. A process for preparing a polymeric form of ferric sulphate, said process comprising the steps of: (i) oxidising an acidic aqueous solution comprising, ferrous sulphate to form ferric sulphate in said solution at atmospheric pressure and in the absence of an oxidation catalyst, said oxidation step using at least one oxidising

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agent, (ii) partially hydrolyzing the ferric sulphate solution obtained after said oxidation step by addition of at least one base, and (iii) aging the partially hydrolysed ferric sulphate solution obtained from said partial hydrolisis step at a temperature above 30° C. sufficient for polymerisation of the partially hydrolysed ferric sulphate to a polymeric form of ferric sulphate.

5,785,863

REMOVING METALS FROM AQUEOUS WASTE STREAMS

Thomas L. Varner, Jr., Wilmington, Ill.; William C. Hiatt, Hendersonville, N.C., and Thomas A. Hoermann, Toledo, Ohio, assignors to BASF Corporation, Mt. Olive, N.J.

Filed Oct. 28, 1997, Ser. No. 959,179

Int. Cl.⁶ C02F ***1/62***

U.S. Cl. 210—724 **18 Claims**

1. A method of removing a metal having a valence of at least one from an aqueous waste stream, comprising the steps of:

a) providing an aqueous waste stream consisting essentially of deionized cooling water through which strands of polystyrene resin have been passed, said aqueous waste stream containing a metal having a valence of at least one, wherein said waste stream is substantially free of calcium and magnesium;

b) forming a substantially insoluble precipitate of said metal by mixing with said waste stream a material substantially free of calcium and magnesium selected from the group consisting of: fatty acids; zinc, potassium, and sodium salts of fatty acids; and mixtures thereof; and

c) separating said metal precipitate from said waste stream.

5,785,864

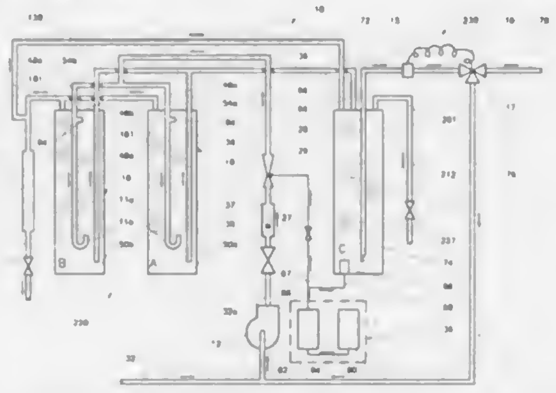
APPARATUS FOR THE PURIFICATION OF WATER AND METHOD THEREFOR

Alfredo J. Teran, Cape Canaveral; John R. Derrick, Jr., Rockledge; Nidal A. Samad, Merritt Island; Igor A. Vassiliev, Cape Canaveral; Carlos V. Diaz, Merritt Island; W. Todd Willoughby, Cape Canaveral, and Louis V. Mangicapra, Merritt Island, all of Fla., assignors to AJT & Associates, Inc., Cape Canaveral, Fla.

Continuation-in-part of Ser. No. 494,232, Jun. 23, 1995. This application Jul. 11, 1997, Ser. No. 893,465

Int. Cl.⁶ C02F ***1/78***

U.S. Cl. 210—739 **13 Claims**



1. A method of purifying water comprising the steps of:

a. obtaining an apparatus for treatment of contaminated water, comprising:

a plurality of longitudinally extending contact columns, each of said contact columns having a closed top-portion, a closed bottom-portion, and an interior space therein, wherein first and second contact columns of said plurality of contact columns are joined together in parallel to define a pair of contact columns, wherein said pair of contact columns are connected in series to a third contact column;

a contaminated water source connected in fluid flow communication with said pair of contact columns via an uptake conduit having a first end and a split second end, wherein said split second end further comprises two influent pipes, each of said pair of contact columns having one of said influent pipes extending therein, whereby equal flows of ozone enriched contaminated water are introduced through said top portions of said first and second contact columns, wherein each of said influent pipes of said pair of contact columns further comprises a plurality of apertures defined in each of said influent pipes whereby the contaminated water is introduced into said interior space of said pair of contact columns, wherein upper and lower directing elbows are coupled to said apertures;

a water conduit connecting each said interior space of said pair of said contact columns in series with said third contact column, said water conduit having a divided first end in close proximity to said bottom-portion of said pair of contact columns and a second end in fluid flow communication with said interior space of said third contact column whereby the contaminated water enters said first end of said water conduit from a portion of said interior space of said pair of contact columns and said second end of said water conduit is connected to said third contact column whereby the contaminated water enters the interior space of said third contact column proximal to said top-portion thereof;

an off-gas conduit connecting each said interior space of said pair of contact columns in with said third contact column, said off-gas conduit having a first end and a second end, said first end of said off-gas pipe in communication with said pair of contact columns and a second end in fluid flow communication with said interior space of said third contact column whereby gas enters the interior space of said third contact column proximal to said top-portion thereof;

a water flow adjustment means disposed between the contaminated water source and said pair of contact columns whereby the flow rate of the water may be adjusted;

a ozone supplier means disposed between the contaminated water source and said pair of contact columns whereby ozone may be introduced into the contaminated water flow;

an ozone source connected in fluid flow communication with said pair of contact columns via said ozone supplier means and said third contact column via an ozone feed line;

a means for pressurizing each of said contact columns to a positive pressure; and

a control means for determining whether the contaminated water is to be recycled through the water purification apparatus;

whereby said gas and water flow counter-current to each other in said plurality of pressurized contact columns such that ozone is dissolved in said water;

b. establishing a set point for the control means;

c. introducing contaminated water into water purification apparatus;

d. adjusting the flow rate of the contaminated water via said water flow adjustment means;

e. introducing ozone into the contaminated water stream via said ozone supplier means;

f. flowing said ozone enriched water through said pair of contact columns wherein the gas and water flow counter-current to one another;

g. directing the contaminated water through said pair of contact columns to the third contact column;

h. diffusing and ozone and oxygen enriched gas into the third contact column against the flow of contaminated water;

i. collecting the unused ozone and oxygen enriched gas from said pair of contact columns;

j. diffusing said collected unused gas into the third contact column to increase the utilization of ozone gas;

k. flowing the treated contaminated water by a control means to determine whether said contaminated water is to be recycled through the water purification system.

5,785,865

WATERCRAFT WASTE WATER TREATMENT SYSTEM AND METHOD

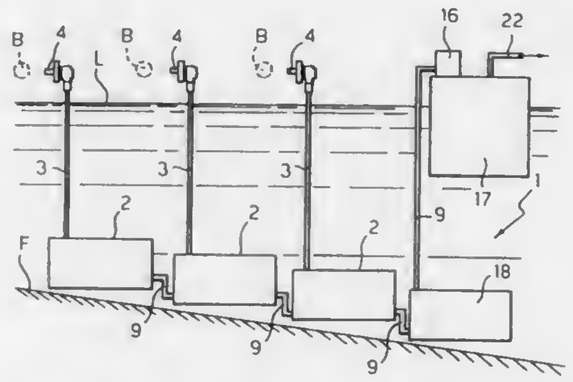
Giorgio Salis, Via Satta 72, I-09127 Cagliari, Italy

Filed Dec. 6, 1996, Ser. No. 761,722

Claims priority, application Italy, Dec. 20, 1995, TO95 A 001029

Int. Cl.⁶ E03F ***5/10***

U.S. Cl. 210—747 **8 Claims**



8. A method for treating waste water from wharf-mooring or riding-at-anchor vessels, boats, ships and watercrafts in general equipped with waste water outlets, comprising the following steps:

providing a movable purification installation means,

moving the purification installation means onto the surface of a boat,

providing a plurality of movable and rigid underwater tanks, at least one tank being connected to said purification installation means and at least one tank being connected to one other tank, said tanks having an integral ballast box and having a tube for watertight connection from outside to at least one waste water outlet,

flooding the ballast box of said tanks and causing said tanks to sink,

connecting at least one of said tubes with at least one of said waste water outlets so as to collect waste water into said at least one underwater tank, and

sucking out the waste water collected into said at least one underwater tank for delivery thereof to said purification installation means.

5,785,866

PROCESS AND APPARATUS FOR THE TREATMENT, IN PARTICULAR PURIFICATION OF WATER CONTAINING HALOGENATED ETHYLENES

Peter Gehringer; Emil Proksch, both of Vienna; Walter Szinovatz, Hornstein, and Helmut Eschweiler, Vienna, all of Austria, assignors to Osterreichisches Forschungszentrum Seibersdorf GmbH, Vienna, Austria

Continuation of Ser. No. 828,805, Feb. 7, 1995. This application Jul. 17, 1996, Ser. No. 683,741

Claims priority, application Austria, Aug. 8, 1989, 1901/89

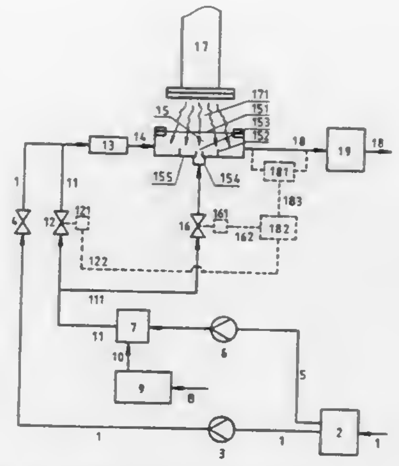
Int. Cl.⁶ C02F ***1/30;1/78***

U.S. Cl. 210—748 **10 Claims**

1. A method of using an apparatus having at least one electron accelerator and at least one irradiation exposure chamber arranged in an area of a cone of rays emitted by said at least one electron accelerator, said at least one chamber having at least one inlet and at least one outlet for a flowing fluid medium and said inlet and said chamber having a height greater than the penetration depth of the electrons from said at least one electron accelerator, said method comprising:

passing a flow of water to be treated through the at least one inlet of the at least one chamber, across a portion of the at least one chamber, and through the at least one outlet such that the flow of water forms a water depth; and

adding ozone to the flow of water and exposing a portion of the water depth to electron radiation such that the penetration depth into the water of the electrons from said at least one electron accelerator is less than the water depth of the flow of water in the chamber, for treatment of the water for at least one of use and consumption by humans.



5,785,867

METHOD AND COMPOSITION FOR INHIBITING GROWTH OF MICROORGANISMS INCLUDING PERACETIC ACID AND A NON-OXIDIZING BIOCIDE

Judy G. LaZonby, Crystal Lake; Robert E. McCarthy, Naperville, and Nancy L. Casselman, Wheaton, all of Ill., assignors to Nalco Chemical Company, Naperville, Ill.

Continuation-in-part of Ser. No. 559,685, Nov. 15, 1995, Pat. No. 5,658,467, which is a continuation-in-part of Ser. No. 350,570, Dec. 7, 1994, Pat. No. 5,494,588, which is a continuation-in-part of Ser. No. 102,286, Aug. 5, 1993, abandoned. This application Apr. 30, 1997, Ser. No. 848,326

Int. Cl.⁶ C02F ***1/50;1/72***

U.S. Cl. 210—759 **9 Claims**

1. A composition for inhibiting the growth of microorganisms comprising effective amounts of peracetic acid and a non-oxidizing biocide selected from the group consisting of 2-methyl-4,5-trimethylene-4-isothiazolin-3-one and 2-(thiocyanomethylthio) benzothiazole.

5,785,868

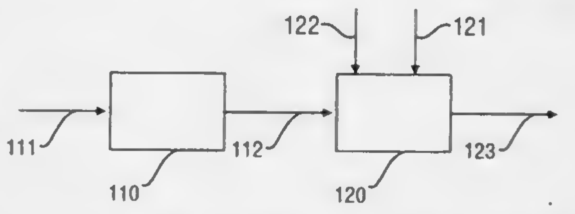
METHOD FOR SELECTIVE SEPARATION OF PRODUCTS AT HYDROTHERMAL CONDITIONS

Lixiong Li, and Earnest F. Gloyna, both of Austin, Tex., assignors to Board of Regents, Univ. of Texas System, Austin, Tex.

Filed Sep. 11, 1995, Ser. No. 526,464

Int. Cl.⁶ C02F ***1/58;1/72***

U.S. Cl. 210—761 **48 Claims**



1. A process useful for separating metal ions from first anionic counterions in an aqueous composition containing the metal ions and the first anionic counterions, comprising:

contacting the aqueous composition with second anionic counterions under supercritical water conditions such that the metal ions and the second anionic counterions form a precipitate, wherein the metal ions are more soluble in supercritical water with the first anionic counterions than with the second anionic counterions; and

separating the precipitate from the first anionic counterions;

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wherein the metal ion is an alkali metal ion, wherein the first anionic counterions are borate and wherein the second anionic counterions are carbonate.

5,785,869

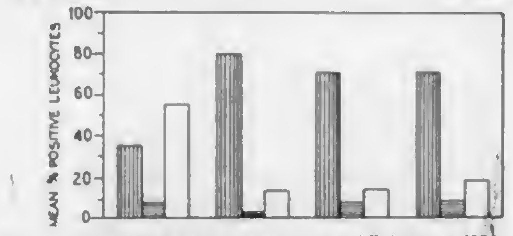
METHOD FOR CREATING A LEUKOCYTE RICH SAMPLE FROM A MIXED POPULATION OF BLOOD CELLS

Jeffrey Martinson, Mundelein; William Bratten, Lake Villa; Li Ming Wang, Vernon Hills, and John Chapman, Lake Villa, all of Ill., assignors to Baxter International Inc., Deerfield, Ill.

Continuation of Ser. No. 434,623, May 4, 1995, abandoned, which is a division of Ser. No. 164,517, Dec. 9, 1993, Pat. No. 5,686,238, which is a continuation-in-part of Ser. No. 37,525, Mar. 24, 1993, Pat. No. 5,498,520. This application Jul. 8, 1996, Ser. No. 676,988

Int. Cl.^{6} B01D *21/26*

U.S. Cl. 210—782 **14 Claims**



	PRE CHAMBER	5 MINUTES	7 MINUTES	10 MINUTES
LYMPHOCYTES ▥	34.36	79 59	71 28	70 60
MONOCYTES ▦	7.04	3.18	7 26	6 53
GRANULOCYTES ☐	54 47	12 42	13.66	17 62

1. A method for creating a leukocyte rich sample from a mixed population of blood cells comprising the steps of:

separating an amount of blood into layers that include a buffy coat layer having a mixed population of blood cells including plasma and red blood cells;

centrifuging the buffy coat layer for a time period between 5 and 10 minutes and at a force between 500×g and 1000×g and at a centrifuge speed of less than 3000 rpm, to separate the buffy coat layer into at least a plasma containing layer, a leukocyte containing layer, and a red blood cell containing layer; and

separating the leukocyte containing layer from the other layers.

5,785,870

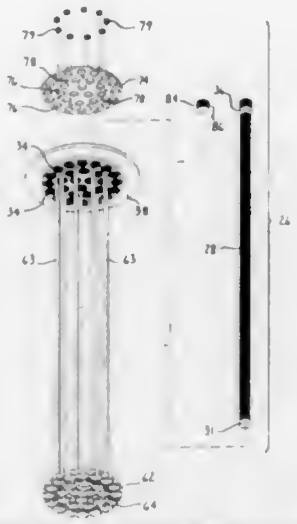
VARIABLE FLOW FILTER UNIT

Scott J. Davis, Kalamazoo; Kenneth T. Bennick, Three Rivers, and Michael E. Isch, Schoolcraft, all of Mich., assignors to Delaware Capital Formation, Inc., Wilmington, Del.

Filed Nov. 8, 1996, Ser. No. 745,398

Int. Cl.^{6} B01D *29/62;29/33*

U.S. Cl. 210—798 **23 Claims**



1. A filter unit for selectively removing matter from a process stream, said filter unit including:

a filter housing, said filter housing having a pair of opposed ends, an inlet port adjacent one said end of said housing and an outlet port adjacent the second said end of said housing;

a element flange secured in said filter housing, said element flange positioned to block fluid flow from said inlet port of said filter housing to said outlet port of said filter housing and being further formed to have a plurality of flange openings that allow fluid flow from said inlet port to said outlet port;

a plurality of filter elements, each said filter element being seated in a separate one of said flange openings in said element flange and extending from said element flange towards said inlet port and having an outer surface that functions as a filter media through which the process stream is filtered, a filter opening located on a side of said element flange directed towards said outlet port and a filter element coupling member located adjacent said filter opening, said filter element coupling member being configured to releasably interlock with said element flange so as to releasably secure said filter element to said element flange, wherein the number of said filter elements is less than the number of said flange openings; and

at least one plug wherein one said plug is disposed in each said flange opening in which a filter element is not seated, each said plug having a plug coupling means for releasably securing said plug in said flange opening so as to form a liquid-tight seal that prevents fluid flow through said flange opening in which said plug is disposed.

5,785,871

PROCESS FOR MINUTE PROCESSING OF DIAMONDS

Hyun Pil Noh, Cheongju-si, Rep. of Korea, assignor to LG Semicon Co., Ltd., Chungcheongbuk-do, Rep. of Korea

Filed Aug. 27, 1996, Ser. No. 703,774

Claims priority, application Rep. of Korea, Apr. 12, 1996, 11068/1996

Int. Cl.^{6} H01L *21/00*

U.S. Cl. 216—2 **15 Claims**

1. A process for the minute processing of diamonds, which comprises the steps of

preparing a substrate;

forming a first buffer layer on the substrate;

forming a second buffer layer, having a higher charge transfer rate than both the substrate and the first buffer layer, on the first layer;

removing a selective portion of the first and second buffer layers to expose a selective surface of the substrate;

depositing diamonds on the entire surface of the exposed portion of the substrate and the remaining first and second buffer layers; and

sequentially removing the by-products formed on the surface of the second buffer layer as well as the second buffer layer itself.

5,785,872

Patent Not Issued For This Number

5,785,873

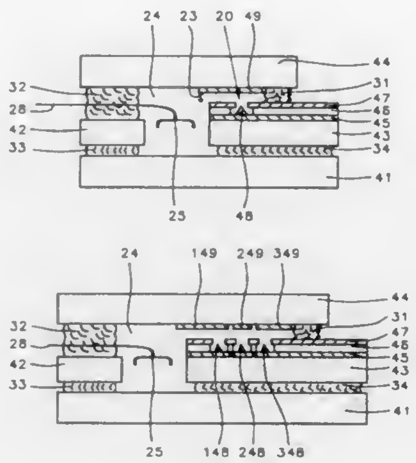
LOW COST FIELD EMISSION BASED PRINT HEAD AND METHOD OF MAKING

Jammy Chin-Ming Huang, Taipei, Taiwan, assignor to Industrial Technology Research Institute, Hsinchu, Taiwan

Filed Jun. 24, 1996, Ser. No. 668,794

Int. Cl.^{6} B44C *1/22;* **H01J** *9/26;9/12*

U.S. Cl. 216—11 **5 Claims**



1. A method for manufacturing a field emission based print head comprising:

providing top and bottom substrates, each having upper and lower surfaces and front and back ends;

providing first and second middle substrates, each having upper and lower surfaces and front and back ends;

depositing a first metallic layer on the upper surface of the second middle substrate;

patterning and etching said first metallic layer to form a cathode column;

depositing a dielectric layer on said substrate and said cathode column;

depositing a second metallic layer on said dielectric layer and then patterning and etching said second metallic layer to form gate lines, orthogonally disposed relative to said cathode column;

forming openings in said gate lines and dielectric layer at the overlaps between the gate lines and the cathode column;

forming a linear array of microtips, one of said microtips being located in each of said openings;

depositing a phosphor layer over a conductive layer on the lower surface of the top substrate then patterning and etching said phosphor layer so that it overlies said linear array of microtips;

permanently sealing the first and second middle substrates to the upper surface of the bottom substrate and to the lower surface of the top substrate, leaving a cavity between said middle substrates and a separation distance between said phosphor layer and said gate lines;

placing unactivated gettering means inside said cavity;

under vacuum, permanently sealing all front ends and all back ends; and

activating said gettering means.

5,785,874

OPTICAL WAVEGUIDE DEVICE BONDED THROUGH DIRECT BONDING AND A METHOD FOR FABRICATING THE SAME

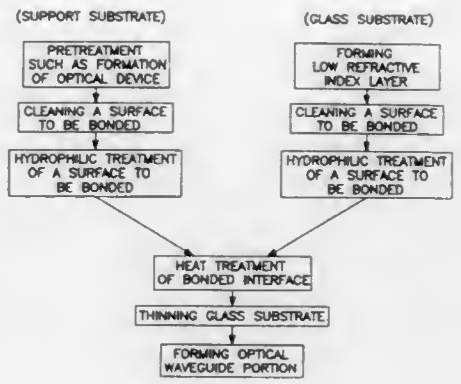
Kazuo Eda, Nara, Japan, assignor to Matsushita Electric Industrial Co., Ltd., Osaka, Japan

Division of Ser. No. 389,070, Feb. 14, 1995, Pat. No. 5,485,540, which is a continuation of Ser. No. 153,148, Nov. 15, 1993, abandoned. This application Aug. 4, 1995, Ser. No. 511,554

Claims priority, application Japan, Nov. 16, 1992, 4-304298; Nov. 16, 1992, 4-304299; Nov. 16, 1992, 4-304300

Int. Cl.^{6} B29D *11/00*

U.S. Cl. 216—24 **5 Claims**


(SUPPORT SUBSTRATE)
(GLASS SUBSTRATE)
PRETREATMENT SUCH AS FORMATION OF OPTICAL DEVICE
CLEANING A SURFACE TO BE BONDED
HYDROPHILIC TREATMENT OF A SURFACE TO BE BONDED
FORMING LOW REFRACTIVE INDEX LAYER
CLEANING A SURFACE TO BE BONDED
HYDROPHILIC TREATMENT OF A SURFACE TO BE BONDED
HEAT TREATMENT OF BONDED INTERFACE
THINNING GLASS SUBSTRATE
FORMING OPTICAL WAVEGUIDE PORTION

1. A method for fabricating an optical waveguide device comprising the steps of:

providing a support substrate having a first surface and a second surface opposing each other and a glass substrate having a first surface and a second surface opposing each other;

exposing the first surface of the support substrate and the second surface of the glass substrate to a hydrophilic treatment;

attaching the first surface of the support substrate and the second surface of the glass substrate to each other;

heating the attached support substrate and the glass substrate;

thinning the glass substrate to a predetermined thickness; and

forming an optical waveguide in the thinned glass substrate.

5,785,875

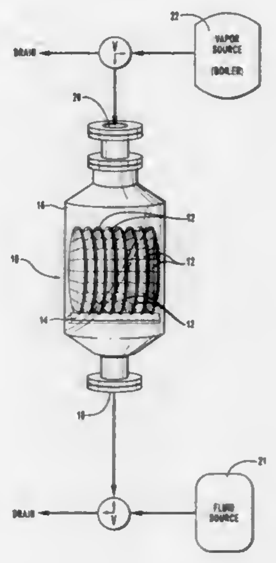
PHOTORESIST REMOVAL PROCESS USING HEATED SOLVENT VAPOR

Richard C. Hawthorne; Jonathan C. Morgan, both of Nampa, and Li Li, Meridian, all of Id., assignors to Micron Technology, Inc., Boise, Id.

Filed Feb. 13, 1996, Ser. No. 600,814

Int. Cl.^{6} H01L *21/02*

U.S. Cl. 216—41 **35 Claims**



1. A method for the removal of photoresist material from an in-process integrated circuit wafer, comprising:

providing a film having a surface which is to be etched on the in-process integrated circuit wafer;

providing a layer of photoresist material on the film;

selectively etching the film with the use of the photoresist material; and

exposing the photoresist material, not in a plasma, to a solvent vapor to solubilize the photoresist material, said solvent vapor being alcohol.

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5,785,876
LAYER CONSTRUCTION WITH AN ORGANIC LAYER AND A TRANSPARENT COVER LAYER WHICH IS HARDER THAN THE ORGAN LAYER AND PROCESS FOR ITS PRODUCTION

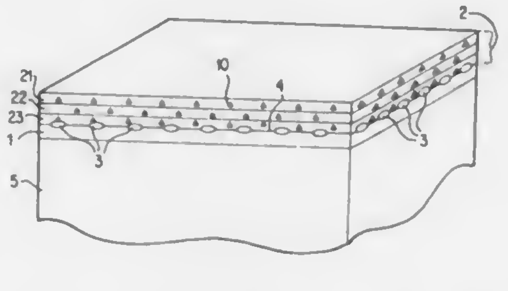
Hans-Juergen Fuesser, Gerstetten; Karl Holdik, Beimerstetten; Klaus Rohwer, Ulm, and Martin Hartweg, Erbach, all of Germany, assignors to Daimler-Benz AG, Stuttgart, Germany

Division of Ser. No. 499,560, Jul. 7, 1995, Pat. No. 5,656,363. This application Apr. 22, 1997, Ser. No. 847,666

Claims priority, application Germany, Jul. 7, 1994, 44 23 891.6

Int. Cl.⁶ B05D *3/00*

U.S. Cl. 216—58 **19 Claims**



1. A process for producing a multi-layer article comprising an organic layer and an adjoining cover layer which covers the organic layer and which is harder than the organic layer, said process comprising the steps of cleaning the organic layer, and depositing the cover layer on the cleaned organic layer by chemical vapor deposition of a precursor material from a gas phase, said cover layer being deposited at least in a transition region where the cover layer joins the organic layer with an index of refraction which is within 20% of that of the underlying organic layer.

5,785,877
DRY ETCHING METHOD

Masaaki Sato; Yoshinobu Arita, both of Atsugi; Masahiro Ogasawara, Koufu; Hidenori Satoh, Tokyo, and Hiromitsu Kanbara, Kawasaki, all of Japan, assignors to Nippon Telegraph and Telephone Corporation, and Tokyo Electron Limited, both of Tokyo, Japan

Continuation of Ser. No. 459,426, Jun. 2, 1995, abandoned. This application Feb. 11, 1997, Ser. No. 799,083

Claims priority, application Japan, Jun. 2, 1994, 6-142213

Int. Cl.⁶ H01L *21/302*

U.S. Cl. 216—67 **11 Claims**

1. A method for etching an object in a low-pressure vapor phase processing chamber and a reaction gas comprising the steps of:

i) purifying a reaction gas into a high purity reaction gas and storing the resultant high purity reaction gas in a first source,

ii) feeding said high purity reaction gas from said first source into a low-pressure vapor phase processing chamber which has a metal wall whose inner surface is exposed to plasma generated in said processing chamber;

iii) feeding an additive gas of oxygen or additive gas at least containing oxygen in an amount effective to suppress a reaction between said high purity reaction gas and a metal wall of said processing chamber from a second source into said processing chamber, high purity reaction gas and additive gas constituting an etching gas; and

iv) dry etching an object in said processing chamber with plasma of said etching gas.

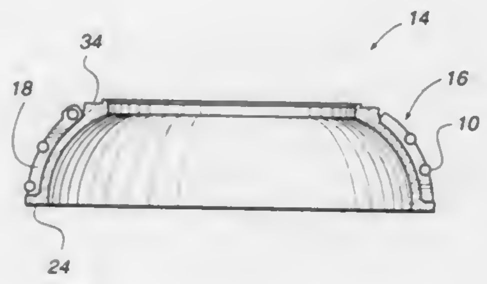
5,785,878
RF ANTENNA HAVING HIGH TEMPERATURE, OXIDATION RESISTANT COATING

Ramkishan Rao Lingampalli, Fremont, Calif., assignor to Applied Materials, Inc., Santa Clara, Calif.

Filed Nov. 2, 1995, Ser. No. 552,224

Int. Cl.⁶ H05H *1/00*

U.S. Cl. 216—68 **17 Claims**



1. A semiconductor processing device, comprising:

a chamber;

a source of RF energy; and

an antenna coupled to the RF energy source and positioned to couple RF energy into the chamber, wherein the antenna comprises a conductive member and a coating layer carried by the conductive member, said coating layer comprising Ni.

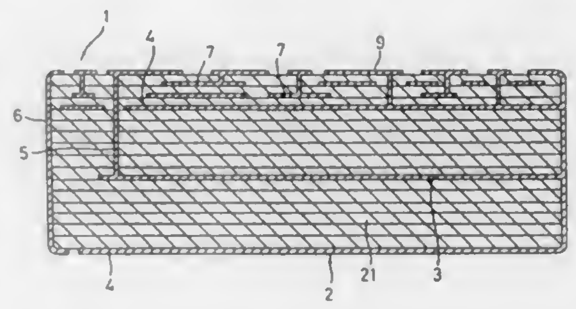
5,785,879
MULTILAYER CERAMIC PARTS AND METHOD FOR MAKING

Keizou Kawamura, Narita; Makoto Kobayashi, Yotsukaido; Akira Nakamura, Narita; Norikazu Yasuda, Yokohama; Suguru Kondoh, Urawa; Taro Miura, Tokyo; Shinya Nakai, Ichikawa, and Tadao Fujii, Yachiyo, all of Japan, assignors to TDK Corporation, Tokyo, Japan

Continuation of Ser. No. 408,115, Mar. 21, 1995, abandoned, which is a continuation of Ser. No. 885,639, May 19, 1992, abandoned. This application Jan. 23, 1997, Ser. No. 784,586

Int. Cl.⁶ B32B *18/00*

U.S. Cl. 216—95 **18 Claims**



1. A method for preparing a multilayer ceramic part having a fired ceramic material and an internal conductive layer formed from a conductive powder, which method comprises:

firing a body, said body comprising an unfired ceramic material and an internal layer of conductive powder,

at a temperature equal to or greater than the melting point of said conductive powder, thereby concurrently firing said ceramic material and melting said conductive powder;

wherein said conductive powder comprises at least 90% by weight of copper or silver and 0–30% by volume of glass frit.

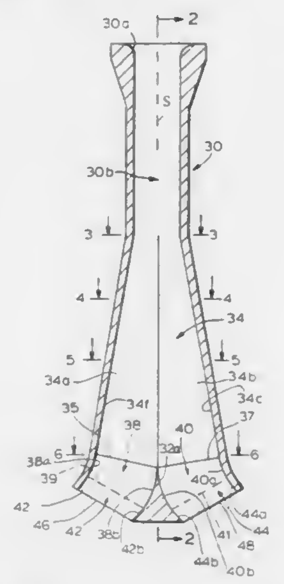
5,785,880
SUBMERGED ENTRY NOZZLE

Lawrence John Heaslip, Scarborough, and James Derek Dorricott, Burlington, both of Canada, assignors to Vesuvius USA, Pittsburgh, Pa.

Continuation-in-part of Ser. No. 220,734, Mar. 31, 1994, abandoned. This application Apr. 25, 1994, Ser. No. 233,049

Int. Cl.⁶ B22D *41/50*

U.S. Cl. 222—594 **34 Claims**



1. A submerged entry nozzle for flowing liquid metal therethrough, comprising; a vertically disposed entrance pipe section having a generally axial symmetry and a first cross-sectional flow area; a diffusing transition section in fluid communication with the pipe section including two or more front walls and two or more side walls, the front walls converging in a first vertical plane and the side walls diverging in a second vertical plane perpendicular to the first vertical plane to substantially continuously change the nozzle's cross-sectional flow area in the transition section from the first cross-sectional flow area to a generally elongated second cross-sectional flow area which is greater in cross-sectional flow area than the first cross-sectional flow area and to substantially continuously change the nozzle's symmetry in the transition section from the generally axial symmetry to a generally planar symmetry; and a divider section in fluid communication with the transition section to divide the flow of liquid metal from the transition section into two streams angularly deflected from the vertical in opposite directions.

5,785,881
OIL SOLUBLE COMPLEXES OF PHOSPHORUS-FREE STRONG MINERAL ACIDS USEFUL AS LUBRICATING OIL ADDITIVES

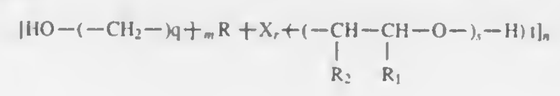
James Stanley Puckace, Perrineville, N.J., assignor to Exxon Chemical Patents Inc., Linden, N.J.

Filed Dec. 9, 1994, Ser. No. 353,012

Int. Cl.⁶ C10M *159/00*

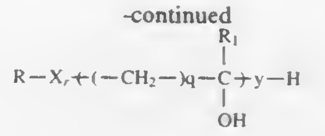
U.S. Cl. 252—46.3 **12 Claims**

1. An oil-soluble additive wherein the additive comprises the complex of a substantially oil-insoluble phosphorus-free strong mineral acid and an alcohol formed at a temperature ranging from about −10° to 65° C., the alcohol being a single alcohol or mixtures of alcohols represented by (I) or (II), where (I) and (II) are:



$$[HO-(-CH_2-)_q\!+_m R + X_r + (-\underset{R_2}{\underset{|}{CH}}-\underset{R_1}{\underset{|}{CH}}-O-)_s-H)_t]_n \qquad (I)$$

-continued



$$R-X_r+(-CH_2-)_q-\overset{R_1}{\overset{|}{\underset{OH}{\underset{|}{C}}}}+_y-H \qquad (II)$$

where:

m+n is an integer from 1 to 4;

m is 0 or an integer from 1 to 4;

n is 0 or an integer from 1 to 4;

q is 0 or an integer from 1 to 6;

R is a C_1–C_{50} hydrocarbyl group in structure (I), and is a C_1–C_{50} hydrocarbyl group or hydrogen in structure (II);

X is sulfur, oxygen, nitrogen, or —CH_2—;

r is 0, or an integer from 1 to 5 providing
 when X is oxygen or nitrogen, r is 1,
 when X is sulfur, r is 1 to 3,
 when X is —CH_2—, r is 1 to 5;

s is 0, or an integer from 1 to 12;

t is 0, or an integer from 1 to 2 providing
 when X is sulfur, oxygen, or —CH_2—, t is 1,
 when X is nitrogen, t is 1 or 2;

y is 0, or an integer from 1 to 10; and

R_1 and R_2 are independently a C_1–C_6 alkyl or hydrogen.

5,785,882
FLUORINE-BASED MAGNETIC FLUID

Yasushi Yamamoto, Tsukuba; Yoshiyuki Takeishi, Tsuchiura; Yutaka Kouda; Tomoko Minagawa, both of Tsukuba, and Takao Kanno, Tokyo, all of Japan, assignors to NOK Corporation, Tokyo, Japan

Filed Jul. 28, 1997, Ser. No. 901,359

Claims priority, application Japan, Jul. 31, 1996, 8-217985; Aug. 23, 1996, 8-241029; Sep. 26, 1996, 8-273971

Int. Cl.⁶ H01F *1/44*

U.S. Cl. 252—62.52 **36 Claims**

1. A fluorine-based magnetic fluid, which comprised (A) fine magnetic particles as dispersed in (D) a perfluoropolyether base oil represented by the following general formula:

$$F[CF(CF_3)CF_2O]mRf$$

where Rf is a perfluoroalkyl group and m is an integer of 1 or more, by means of (B_1) a perfluoroether phosphoric acid or its salt represented by the following general formula:

$$\{F[CF(CF_3)CF_2O]nCF(CF_3)\ (Y)v(R)wO\}tPO(OM)u$$

where R is a divalent organic group; Y is a COO group or CONH group; M is a hydrogen atom, an alkali metal, an alkaline earth metal or an ammonium group, n is an integer of 1 to 100; t is 1 or 2; u is 3-t; and v and w each are 0 or 1, and (C_1) a perfluoroether carboxylic acid amide compound represented by the following general formula:

$$F[CF(CF_3)CF_2O]pCF(CF_3)CONH(CH_2)qNH_2$$

where p is an integer of 1 or more and q is an integer of 2 to 20.

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5,785,883

HYDROFLUOROCARBON COMPOSITIONS WITH TETRAFLUOROETHANE AND CYCLOPROPANE

Barbara Haviland Minor, Elkton, Md.; Donald Bernard Bivens, Kennett Square, Pa., and Brooks Shawn Lunger, Newark, Del., assignors to E. I. du Pont de Nemours and Company, Wilmington, Del.

Division of Ser. No. 435,108, May 4, 1995, Pat. No. 5,672,293, which is a division of Ser. No. 208,777, Mar. 11, 1994, Pat. No. 5,417,871. This application Apr. 23, 1997, Ser. No. 842,164

Int. Cl.^{6} C09K *5/04;3/30;* **C11D** *7/50;* **C08J** *9/14*

U.S. Cl. 252—67 **3 Claims**

1. An azeotropic or azeotrope-like composition consisting essentially of 1–99 wt % 1,1,1,2-tetrafluoroethane (R 134a) and 1–99% cyclopropane (R 270), wherein said composition has a vapor pressure at 25° C. of about 103.2 psia to about 137.5 psia.

5,785,884

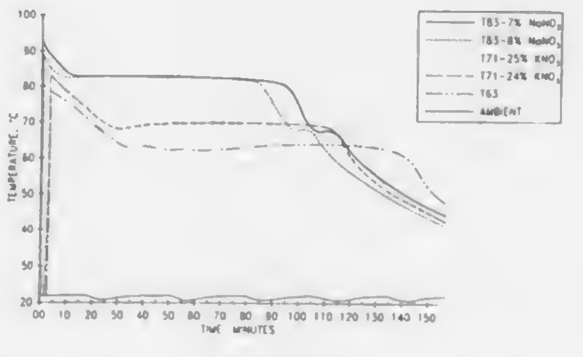
REVERSIBLE LIQUID/SOLID PHASE CHANGE COMPOSITIONS

Michael J. Hammond, Indianapolis, Ind., assignor to Store Heat and Produce Energy, Inc., Indianapolis, Ind.

Filed Jan. 23, 1996, Ser. No. 589,927

Int. Cl.^{6} C09K *5/06*

U.S. Cl. 252—70 **8 Claims**



1. A reversible liquid/solid phase change composition comprising a substantially eutectic ternary mixture of magnesium nitrate hexahydrate, sodium nitrate, and potassium nitrate.

5,785,885

HEAT STORAGE MATERIAL COMPOSITION

Hiroyuki Kakiuchi; Shoichi Chihara; Masanori Yamazaki, and Tsutomu Isaki, all of Inashiki-gun, Japan, assignors to Mitsubishi Chemical Corporation, Tokyo, Japan

Filed Jul. 5, 1996, Ser. No. 678,534

Claims priority, application Japan, Jul. 12, 1995, 7-176253; Jan. 12, 1996, 8-003724

Int. Cl.^{6} C09K *5/06*

U.S. Cl. 252—70 **12 Claims**

1. A heat storage material composition comprising at least one sugar alcohol selected from erythritol, mannitol and galactitol, and between 0.01 and 30% by weight of a salt having a solubility in anhydrous form of 20 g or less in 100 g of a saturated water solution at 25° C. and which is dispersed and maintained in the sugar alcohol as particles at a temperature of the heat storage material composition in a range of from 90 to 190° C. without being decomposed or dissolved.

5,785,886

BLEACHING COMPOSITIONS CONTAINING IMINE HYDROGEN PEROXIDE AND A TRANSITION METAL CATALYST

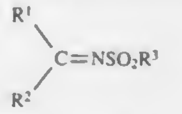
Judith Lynne Kerschner, Ridgewood, N.J.; Stephen Alan Madison, New City, N.Y., and Catherine Victoria Chin Quee-Smith, Teaneck, N.J., assignors to Lever Brothers Company, Division of Conopco, Inc., New York, N.Y.

Division of Ser. No. 481,569, Jun. 7, 1995, Pat. No. 5,653,910. This application Mar. 10, 1997, Ser. No. 814,647

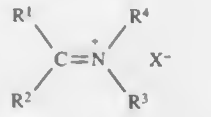
Int. Cl.^{6} C01B *15/00;* **D06L** *3/02*

U.S. Cl. 252—186.33 **5 Claims**

1. A method for bleaching a stained substrate, said method comprising contacting said stained substrate in an aqueous medium with a peroxygen compound which is hydrogen peroxide or an inorganic substance that generates hydrogen peroxide in water, a C_1–C_{30} imine and a transition metal catalyst, the imine having a structure selected from the group consisting of:



$$(R^1)(R^2)C{=}NSO_2R^3 \qquad (I)$$



$$(R^1)(R^2)C{=}\overset{+}{N}(R^4)(R^3)\ X^- \qquad (II)$$

wherein:

R^1 and R^4 may be hydrogen or a C_1–C_{30} substituted or unsubstituted radical selected from the group consisting of phenyl, aryl, heterocyclic ring, alkyl and cycloalkyl radicals;

R^2 may be hydrogen or a C_1–C_{30} substituted or unsubstituted radical selected from the group consisting of phenyl, aryl, heterocyclic ring, alkyl, cycloalkyl, nitro, halo, cyano, alkoxy, keto, carboxylic and carboalkoxy radicals;

R^3 may be a C_1–C_{30} substituted or unsubstituted radical selected from the group consisting of phenyl, aryl, heterocyclic ring, alkyl, cycloalkyl, nitro, halo, and cyano radicals;

R^1 with R^2 and R^2 with R^3 may respectively together form a cycloalkyl, polycyclo, heterocyclic or aromatic ring system; and

X^- is a counterion stable in the presence of oxidizing agents,

said contacting occurring in said medium containing 0.05 to 250 ppm active oxygen from the peroxygen compound per liter water, 0.01 to 300 ppm of imine per liter water and 0.001 to 100 ppm of transition metal catalyst per liter water.

5,785,887

PEROXYGEN BLEACH COMPOSITION

Robert Steltenkamp, and Robert Heffner, both of Somerset, N.J., assignors to Colgate-Palmolive Company, Piscataway, N.J.

Continuation-in-part of Ser. No. 249,374, May 23, 1994, Pat. No. 5,512,206, which is a continuation-in-part of Ser. No. 870,362, Apr. 17, 1992, abandoned. This application Feb. 20, 1996, Ser. No. 841,366

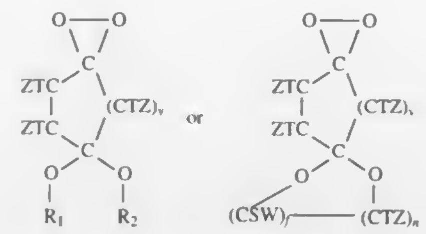
Int. Cl.^{6} C01B *15/10;3/00;* **C11D** *3/39;3/395*

U.S. Cl. 252—186.42 **5 Claims**

1. A solution which comprises approximately by weight:

(a) water; and

(b) about 10 to about 1000 ppms of a bleaching agent characterized by the formulas:



wherein y is 1, 2 or 3, n is 1 to 10, r is 1 to 8, T, W, S and Z are independently selected from the group consisting of hydrogen, an alkyl group having about 1 to about 8 carbon atoms, a halogenated alkyl group having about 1 to about 8 carbon atoms, fluorine, chlorine, bromine, an alkylaryl group having about 7 to 12 carbon atoms and mixtures thereof and R1 and R2 are selected independently from the group consisting of alkyl groups having about 1 to about 8 carbon atoms, halogenated alkyl groups having about 1 to about 8 carbon atoms, cycloalkyl groups having about 5 to about 8 carbon atoms, aryl groups having about 6 to about 12 carbon atoms and alkylaryl groups having about 7 to about 12 carbon atoms.

5,785,888

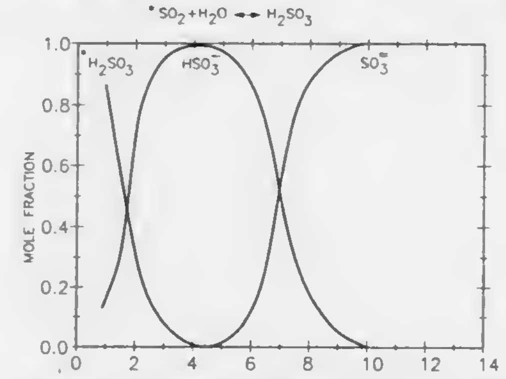
METHOD FOR REMOVAL OF SULFUR DIOXIDE

Chien Kuei Tsai; Johnson H. Y. Fung, and Raghu S. Narayan, all of Lubbock, Tex., assignors to Milmac Operating Company, Lubbock, Tex.

Filed Mar. 24, 1995, Ser. No. 409,422

Int. Cl.^{6} B01D *53/34*

U.S. Cl. 252—192 **23 Claims**



1. A method of removing sulfur dioxide from a gas stream, comprising;

contacting said sulfur dioxide through a contacting means with an absorption liquid at a first location, said absorption liquid absorbing said sulfur dioxide, said absorption liquid comprising;

water;

a polyprotic inorganic acid, to act as a buffering agent, to buffer the pH of said absorption liquid within the range of 2 to 7;

an inorganic base, selected from the group consisting of alkali metal carbonates and alkali hydroxides to aid in the removal of unwanted side products, and to enhance sulfur dioxide solubility; and,

an additive, said additive chosen to synergistically enhance the absorption and solubility of said sulfur dioxide and assist in buffering the pH, while still maintaining effective sulfur dioxide regeneration, said additive consisting essentially of a mixture of adipic acid and ethylene glycol;

transferring said absorption liquid containing said sulfur dioxide to a second location; and,

desorbing said sulfur dioxide by altering the differences between the vapor pressures of said sulfur dioxide in said liquid and the gas phase above the surface of said absorption liquid, such that said vapor pressure of said sulfur dioxide in said absorption liquid is greater than said vapor pressure of said gas above said surface of said absorption liquid.

5,785,889

ANISOTROPIC POLYMER

Simon Greenfield, Creekmoor Poole; Mark John Goulding, Poole; Mark Verrall, Blandford; Owain Parri, Poole; George William Gray, Hull; David Coates, Wimborne, and David Sherrington, Glasgow, all of Great Britain, assignors to Merck Patent Geselischaft Mit Beschrankter Haftung, Darmstadt, Germany

Filed Oct. 4, 1996, Ser. No. 725,514

Claims priority, application European Pat. Off., Oct. 6, 1995, 95115780

Int. Cl.^{6} C09K *19/38*

U.S. Cl. 252—299.01 **13 Claims**

1. An anisotropic polymer film or polymer network prepared by photopolymerization of at least one mesogen-containing compound having two side chains attached to a mesogenic core structure, one side chain being polymerizable, the other side chain being capable of forming association dimers by hydrogen bonds, such that the polymer film or polymer network contains mesogen-containing compounds polymerized by the polymerizable side chains and hydrogen-bonded by the other side chains to form association dimers.

5,785,890

LIQUID CRYSTAL COMPOSITION, LIQUID CRYSTAL DEVICE, AND LIQUID CRYSTAL DISPLAY APPARATUS USING SAME

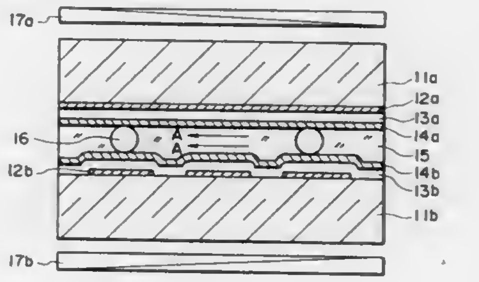
Masataka Yamashita, Chigasaki; Kazuharu Katagiri, Tama; Masahiro Terada, Hadano; Shosei Mori, Hiratsuka; Syuji Yamada, Atsugi; Hiroshi Mizuno, Zama; Ikuo Nakazawa, and Koji Noguchi, both of Atsugi, all of Japan, assignors to Canon Kabushiki Kaisha, Tokyo, Japan

Filed Oct. 11, 1996, Ser. No. 729,575

Claims priority, application Japan, Oct. 12, 1995, 7-289162

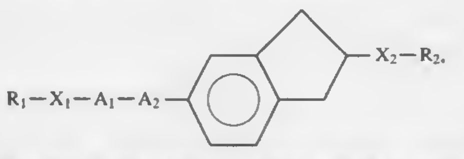
Int. Cl.^{6} C09K *19/32;19/34*

U.S. Cl. 252—299.62 **18 Claims**



1. A liquid crystal composition, comprising:

a compound represented by the following formula (A):



(A)

wherein R_1 and R_2 independently denote a linear or branched alkyl group having 1–18 carbon atoms; X_1 and X_2 independently denote a single bond, —O—, —CO—O— or —O—CO—; and A_1 denotes a single bond,

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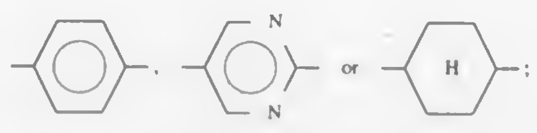
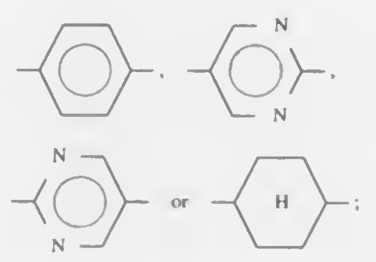
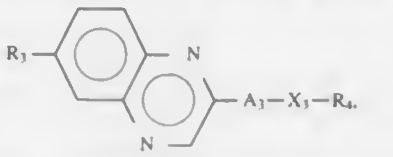


and A_2 denotes

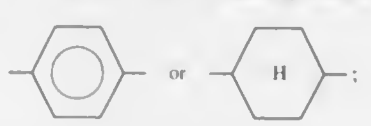


a compound represented by the following formula (B):



(B)

wherein R_3 and R_4 independently denote a linear or branched alkyl group having 1–18 carbon atoms; X_3 denotes a single bond, —O—, —CO—O— or —O—CO—; and A_3 denotes

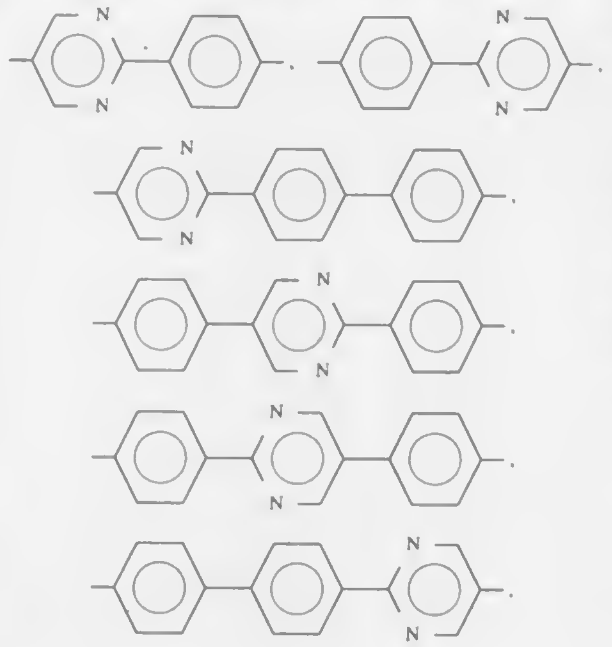


and

a compound represented by the following formula (C):

$$R_5-X_4-A_4-X_5+CH_2+_nA_5, \qquad (C)$$

wherein R_5 denotes a linear or branched alkyl group having 1–18 carbon atoms; X_4 denotes a single bond, —O—, —CO—O— or —O—CO—; X_5 denotes a single bond, —OCH_4—, —CO—O— or —O—CO—; n is an integer of 3–16; and A_4 denotes



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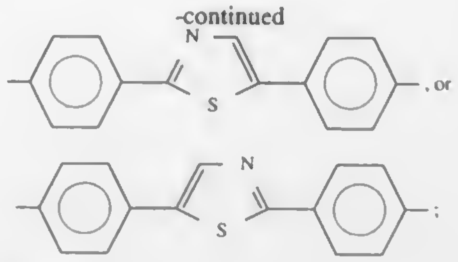
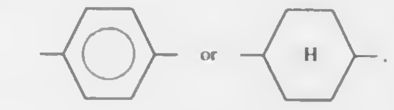


and A_5 denotes



5,785,891

SPRAY FORMULATION FOR THE TESTING OF SMOKE DETECTORS

Walter Lim, Hacienda Hts, Calif., assignor to Leon Cooper, Malibu, Calif.

Filed Sep. 12, 1996, Ser. No. 713,058

Int. Cl.^{6} C09K *3/30;* **G01M** *19/00*

U.S. Cl. 252—305 **12 Claims**

1. A formulation for activating a smoke detector of either the ionization type or the photoelectric type by simulating the presence of combustion products when delivered in aerosol form from a hand held dispenser with a finger actuated spray nozzle, comprising:

a propellant; and

phenyl trimethicone present in a proportion of between 10% and 1%.

5,785,892

ORGANO-ANTIMONY OXIDE SOLS AND COATING COMPOSITIONS THEREOF

Hiroyasu Nishida; Yoshichika Tanaka; Michio Komatsu, all of Kitakyushu, and Teruo Migita, Kitakyuhu, all of Japan, assignors to Catalysts & Chemicals Industries Co., Ltd., Tokyo, Japan

PCT No. PCT/JP92/00536, § 371 Date Mar. 22, 1994, § 102(e) Date Mar. 22, 1994, PCT Pub. No. WO92/19540, PCT Pub. Date Nov. 12, 1992

PCT Filed Apr. 24, 1992, Ser. No. 137,140

Claims priority, application Japan, Apr. 24, 1991, 3-122303

Int. Cl.^{6} B01D *13/00;* **C08K** *3/20*

U.S. Cl. 252—309 **27 Claims**

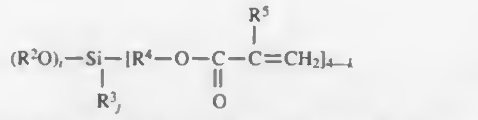
1. An organo-antimony oxide sol comprising an organic dispersant and a particulate colloidal antimony oxide having a pyrochlore structure, said particulate colloidal antimony oxide having electrical conductivity and being formed by a process comprising the steps

(a) treating a particulate colloidal organo-antimony oxide sol with an organosilicon compound of formula (2)

$$R_n—Si—(OR^1)_m \qquad (2)$$

wherein R is C_1–C_6 hydrocarbon; R^1 is C_1–C_6 alkyl; n is an integer of 0 to 3; and m is an integer of 4–n, wherein one mole of particulate colloidal organo-antimony oxide sol based on Sb_2O_5 is treated with 0.01 to 0.8 mole of organosilicon compound of formula (2); and

(b) treating a particulate colloidal organo-antimony oxide prepared by a process comprising step (a) with an organosilicon compound of formula (1) to achieve surface-reforming of a particulate organo-antimony oxide, wherein formula (1) is



$$(R^2O)_i-\underset{R^3_j}{\underset{|}{Si}}-[R^4-O-\underset{\underset{O}{\|}}{C}-\overset{\overset{R^5}{|}}{C}=CH_2]_{4-k} \qquad (1)$$

and R is hydrogen or a C_1–C_5 alkyl group; R^3 is hydrogen or a C_1–C_5 alkyl group; R^4 is a C_1–C_8 alkylene group; R^5 is hydrogen or a C_1–C_8 alkyl group; i is an integer of 1–3; j is an integer of 0–2; and k is an integer of 1–3 equal to i+j, wherein one mole of said particulate organo-antimony oxide based on Sb_2O_5 is treated with 0.004 mol to 0.12 mol organosilicon compound of formula (1); and

said organic dispersant comprises less than 20 wt % of an organic solvent and a photo-setting monomer or oligomer.

5,785,893

Patent Not Issued For This Number

5,785,894

DISPERSANT FOR DISPERSING PARTICULATE SOLIDS

John David Schofield, Bury, and Dean Thetford, Rochdale, both of United Kingdom, assignors to Zeneca Limited, London, Great Britain

PCT No. PCT/GB95/01100, § 371 Date Dec. 13, 1996, § 102(e) Date Dec. 13, 1996, PCT Pub. No. WO95/34593, PCT Pub. Date Dec. 21, 1995

PCT Filed May 16, 1995, Ser. No. 750,531

Claims priority, application United Kingdom, Jun. 13, 1994, 9411791

Int. Cl.^{6} B01F *17/30;* **C07C** *69/76*

U.S. Cl. 252—356 **17 Claims**

1. A dispersant obtained by reacting polyethylene glycol, including a block copolymer of ethylene oxide (EO) and propylene oxide (PO), wherein the PO constitutes a middle portion attached at each end to EO units and where the amount of PO is less than 50% by weight relative to the total weight of the polymer, with a molar excess of hydroxycarboxylic acid containing from 4 to 17 carbon atoms or lactone thereof and/or with a C_{3-4}-alkylene oxide to form a polymeric diol and phosphating the diol to form a phosphate ester including its salt thereof with an alkali metal, ammonia, amine, alkanolamine or quaternary ammonium compound.

5,785,895

BIODEGRADABLE CORROSION INHIBITORS OF LOW TOXICITY

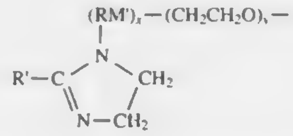
Richard L. Martin, St. Louis; Jo Ann McMahon, Arnold, and Bernardus A. Oude Alink, St. Louis, all of Mo., assignors to Petrolite Corporation, St. Louis, Mo.

Continuation of Ser. No. 394,126, Feb. 24, 1995, abandoned, which is a continuation of Ser. No. 146,900, Nov. 2, 1993, Pat. No. 5,393,464. This application Dec. 6, 1995, Ser. No. 569,372

Int. Cl.^{6} C23F *11/14;11/12;11/16*

U.S. Cl. 252—389.23 **36 Claims**

1. A water-soluble, biodegradable corrosion inhibitor composition comprising (1) an N-ethoxy,2-substituted imidazoline of the formula:



wherein R is a divalent organic moiety, M' is selected from the group consisting of —O—, =$N(CH_2CH_2O)_y$—H and —S—, x is 0 or 1, each y is independently an integer from 0 to about 30 such that the group —$(RM')_x$—$(CH_2CH_2O)_y$—H and contains a total of 1 to about 30 ethoxy units and R' is an unsaturated or polyunsaturated fatty chain of from about six to about thirty carbons, (2) a phosphate ester derived from a water-soluble oxyethylated, straight chain alcohol of from about two to about thirty carbons, and (3) a solvent selected from the group consisting of water, ethylene glycol and propylene glycol.

5,785,896

MIXTURE FOR INHIBITION OF CORROSION OF METALS

Heinz-Joachim Rother, Krefeld, and Franz Kunisch, Odenthal, both of Germany, assignors to Bayer Aktiengesellschaft, Leverkusen, Germany

Filed Oct. 31, 1995, Ser. No. 551,187

Claims priority, application Germany, Nov. 3, 1994, 44 39 193.5

Int. Cl.^{6} C23F *11/06;* **C09K** *15/30;15/06*

U.S. Cl. 252—392 **2 Claims**

1. A method of combatting the corrosion of a metal which comprises contacting such metal with a composition comprising

A. 51 to 80 percent by weight of at least one member rejected from the group consisting of polyaspartic acid, a salt thereof, polyglutamic acid, a salt thereof and succinimide and

B. 20 to 49 percent by weight of at least one corrosion inhibitor selected from the group consisting of benzotriazole, 4-C_1–C_4-alkylbenzotriazoles and 5-C_1–C_4-alkylbenzotriazoles.

5,785,897

COATING SOLUTION FOR FORMING A TRANSPARENT AND ELECTRICALLY CONDUCTIVE FILM, A TRANSPARENT AND ELECTRICALLY CONDUCTIVE FILM FORMED THEREFROM AND A PROCESS FOR FORMING THE SAME

Atsushi Toufuku, Ichikawa, and Kenji Adachi, Inzai, both of Japan, assignors to Sumitomo Metal Mining Co., Ltd., Tokyo, Japan

Filed Feb. 19, 1997, Ser. No. 802,570

Claims priority, application Japan, Apr. 22, 1996, 8-100080

Int. Cl.^{6} H01B *1/02;* **B22F** *9/00;* **F32B** *15/04*

U.S. Cl. 252—514 **13 Claims**

1. A coating solution for forming a transparent and electrically conductive film which contains fine metal particles as fine conductive particles dispersed in a polar solvent, said metal particles comprising silver (Ag) and 0.1 to 30 wt % basis total fine metal particles of at least one other metal selected from the group consisting of palladium (Pd), copper (Cu) and gold (Au), wherein said silver particles and said at least one other metal particles each have a diameter of 50 nm at maximum, and wherein said coating solution further contains at least one compound selected from the group consisting of tin-containing indium oxide, antimony-containing tin oxide, aluminum-containing zinc oxide and partially hydrolyzed and polymerized alkyl silicate.

5,785,898

POTASSIUM LITHIUM TANTALATE NIOBATE PHOTOREFRACTIVE CRYSTALS

Rudolf Hofmeister, Pasadena; Amnon Yariv, San Marino, both of Calif., and Aharon Agranat, Mevaseret Zion, Israel, assignors to California Institute of Technology, Pasadena, Calif.

Continuation of Ser. No. 50,898, Apr. 21, 1993, Pat. No. 5,614,129. This application Sep. 12, 1996, Ser. No. 713,279

Int. Cl.^{6} G02B *5/20;26/08*

U.S. Cl. 252—584 **10 Claims**

1. A photorefractive crystal having the formula $K_{1-y}Li_yTa_{1-x}Nb_xO_3$ wherein x is between 0 and 1 and y is between 0.0001 and

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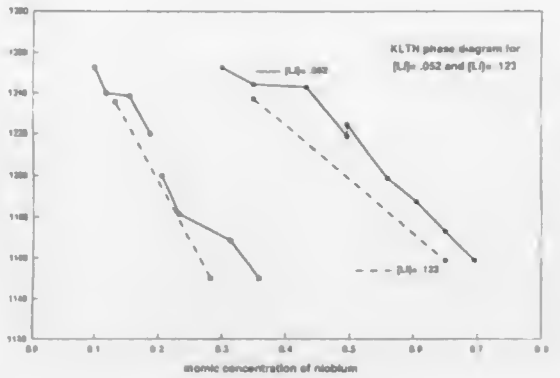
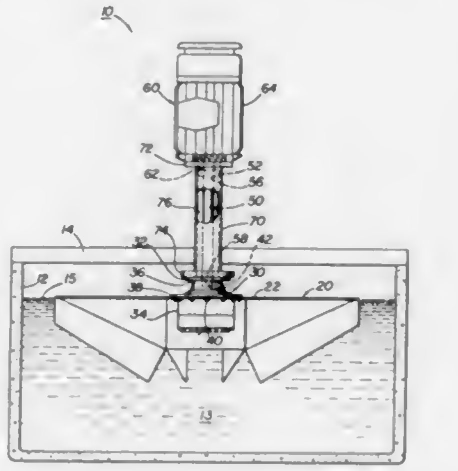


0.15 and wherein said crystal has a perovskite structure which provides said crystal with a temperature dependent display of conventional photorefractive effect, zero electric field photorefractive effect, voltage controlled effect and dielectric photorefractive effect.

5,785,899
AERATING ROTOR WITH SUBMERSIBLE PLANETARY GEARBOX

Richard Nils Young, Atlanta, Ga., assignor to DBS Manufacturing, Inc., Forest Park, Ga.

Filed Mar. 24, 1997, Ser. No. 823,212
Int. Cl.⁶ B01F *3/04*
U.S. Cl. 261—91 **12 Claims**

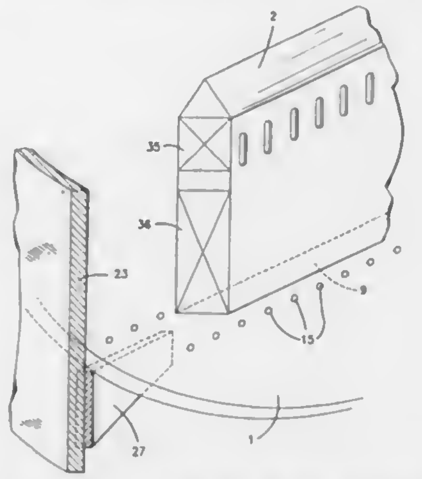


1. An apparatus for aerating a liquid, comprising:
a. an aeration rotor having an axial section;
b. a planetary gear assembly, comprising an input, a stationary upper portion and a rotatable lower portion, the rotatable lower portion being coupled to the axial section of the aeration rotor so that as the aeration rotor is placed in the liquid, a portion of the planetary gear assembly is in contact with the liquid, thereby facilitating cooling of the planetary gear assembly by the liquid;
c. a shaft, having a proximal end and an opposite distal end, the distal end being coupled to the input of the planetary gear assembly; and
d. means, coupled to the proximal end of the shaft, for rotating the shaft, whereby when the rotating means rotates the shaft, the shaft causes the planetary gear assembly to rotate the aeration rotor.

5,785,900
FLUID DISTRIBUTOR FOR HEAT AND MATERIAL EXCHANGE COLUMN AND PROCESS FOR PRODUCING THE SAME

Jean-Marc Belot, La Varenne Saint Hilaire; Jean-Claude Amstad, Saint Maur Des Fosses; Alain Carcone, Le Plessis Trevise; Jean-Claude Dordonnat, Malakoff; Philippe Fraysse, Fontenay Aux Roses; Thierry Gesbert, Villemomble, and Philippe Grigoletto, Villeparisis, all of France, assignors to L'Air Liquide, Societe Anonyme pour l'Etude et l'Exploitation des Procedes Georges Claude, Paris Cedex, France

Continuation of Ser. No. 517,288, Aug. 21, 1995, abandoned. This application Jun. 3, 1997, Ser. No. 867,982
Claims priority, application France, Apr. 4, 1995, 95 03967
Int. Cl.⁶ B01F *3/04*
U.S. Cl. 261—97 **15 Claims**



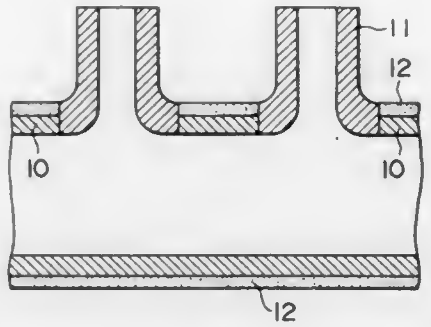
1. A fluid distributor for a heat and material exchange column which comprises a plurality of the distributors in vertical registration in a sleeve, the distributor comprising:
a flat base for installation in a sleeve of a heat and material exchange column, said base having a plurality of elongated slots for upward passage of a gas and a multiplicity of perforations for downward passage of a fluid;
a plurality of elongated one-piece covers, each of said covers being bent so as to have substantially vertical walls and a gabled roof, each of said covers being sealably affixed to said base covering one of said slots, each of said walls having a plurality of gas openings in an upper portion thereof for upward passage of the gas, and each said roof being imperforate to prevent downward passage of the fluid through said slots; and
a plurality of lower end plates, each of said lower end plates being affixed to said base and to said walls at an end of one of said bent covers, said lower end plates leaving an overflow space at ends of said walls so as to allow downward passage of the fluid through said overflow space but not through said gas openings in said walls.

5,785,901
GAS-LIQUID CONTACT APPARATUS

Shigeo Hasegawa; Noohiko Ukawa; Kenji Iwasaki, all of Hiroshima-ken; Tamotsu Higuchi, and Koichiro Iwashita, both of Tokyo, all of Japan, assignors to Mitsubishi Heavy Industries, Ltd., Tokyo, Japan

Filed May 21, 1997, Ser. No. 861,381
Claims priority, application Japan, Jun. 4, 1996, 8-141622
Int. Cl.⁶ B01F *3/04*
U.S. Cl. 261—117 **2 Claims**

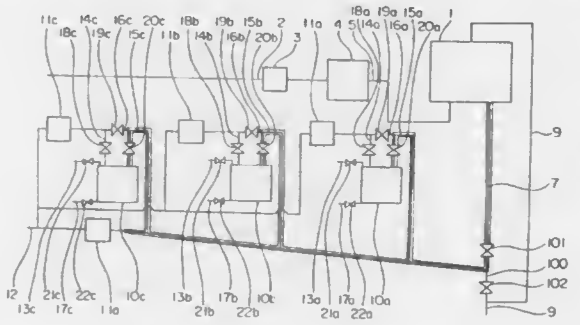
1. A gas-liquid contact apparatus wherein one or more header pipes having attached thereto a plurality of spray nozzles for spouting a slurry upward are disposed in the main body of a tower through which a gas flows, characterized in that said header pipes are made of a fiber-reinforced resin composite material and the outer surface thereof is formed of a corrosion-resistant and wear-resistant layer of a resin containing 5 to 90% by weight of ceramic particles.



5,785,902
LIQUID VAPORIZING APPARATUS

Tooru Yamaguchi; Kouichirou Tsutabara, and Takayuki Suenaga, all of Itami, Japan, assignors to Mitsubishi Denki Kabushiki Kaisha, Tokyo, and Ryoden Semiconductor System Engineering Corporation, Hyogo, both of Japan

Division of Ser. No. 592,449, Jan. 26, 1996, Pat. No. 5,662,838, which is a division of Ser. No. 244,265, Jul. 25, 1994, Pat. No. 5,520,858. This application May 5, 1997, Ser. No. 851,500
Claims priority, application Japan, Sep. 21, 1992, 4-251461
Int. Cl.⁶ B01F *3/04*
U.S. Cl. 261—130 **4 Claims**

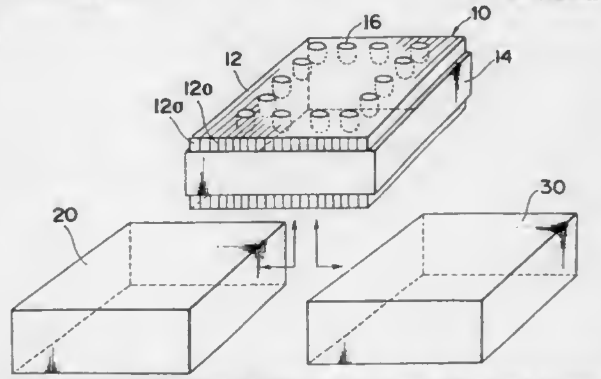


1. A liquid vaporizing apparatus comprising:
a plurality of containers for holding a liquid to be vaporized;
a bubbling tube inserted into the liquid in each of said containers for vaporizing the liquid by blowing a gas into the liquid;
a gas ejection pipe for each of said containers for ejecting the blown gas and vaporized liquid outside of said containers;
a liquid-supply pipe for supplying the liquid into each of said containers;
temperature detection means for each of said containers for detecting the temperature of the liquid in each of said containers; and
temperature adjustment means for each of said containers responsive to the temperatures detected by said temperature detection means for maintaining the liquid in said containers at a predetermined temperature, wherein each of said gas ejection pipes connected to said containers is branched into two sections, each section having a valve, a first group of branched pipes is connected to a portion in which the vaporized liquid is used, a second group of branched pipes is connected to an exhaust pipe, and said branched gas ejection pipes are joined together after branching and before connection to a portion in which the vaporized liquid is used.

5,785,903
METHOD OF MOLDING HIGH-VISCOSITY MATERIALS

Takao Inoue, Hirakata; Junji Ikeda, Ikoma, and Kazuhiro Mori, Katano, all of Japan, assignors to Matsushita Electric Industrial Co., Ltd., Osaka, Japan

Filed Jan. 11, 1996, Ser. No. 584,203
Claims priority, application Japan, Jan. 10, 1995, 7-001702
Int. Cl.⁶ B29C *33/38*
U.S. Cl. 264—2.5 **10 Claims**

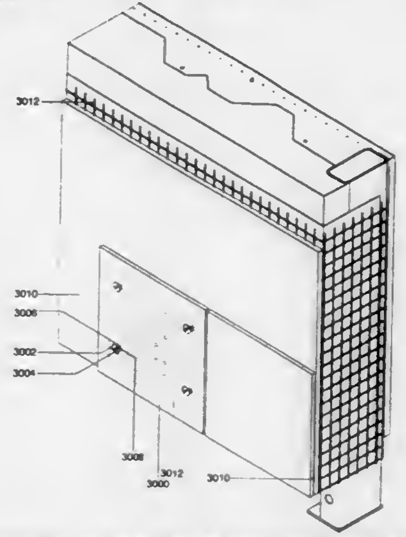


1. A method of molding a high-viscosity material having a high melt viscosity, which comprises the steps of:
preparing a mold fabricated with a high-orientation graphite material;
feeding the high-viscosity material into a molding recess portion of said mold in a non-molten state;
heating the high-viscosity material in said recess portion of said mold from outside said mold to melt said high-viscosity material; and
cooling the molten high-viscosity material in said recess portion of said mold from outside said mold to mold said molten high-viscosity material into a desired shape,
wherein the high-orientation graphite material is a high-orientation graphite block, a high-orientation graphite sheet or a laminate of stacked high-orientation graphite sheets.

5,785,904
METHOD OF SECURING AND ARCHITECTURAL FINISH ELEMENT TO A SURFACE

Roger Georges Abou-Rached, Vancouver, Canada, assignor to R.A.R. Consultants Ltd., Vancouver, Canada

Continuation of Ser. No. 441,188, May 15, 1995, abandoned, which is a division of Ser. No. 169,891, Dec. 20, 1993. This application Mar. 27, 1997, Ser. No. 824,617
Int. Cl.⁶ E04B *1/16*
U.S. Cl. 264—35 **3 Claims**



1. A method of securing an architectural finish element to a surface ultimately formed by a castable material cast about a planar mesh material lying in a plane parallel to said surface, the method including the steps of:

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a) securing at least one projection to a backing surface of said architectural finish element such that a projection extends away from said backing surface;
b) casting said castable material about said planar mesh material;
c) inserting said at least one projection into said castable material before said castable material has set, until said backing surface rests on a surface of said castable material;
d) capturing said planar mesh material between a hook portion on said at least one projection and said backing surface; and
d) permitting said castable material to set about said at least one projection, thereby firmly securing said projection in said castable material and securing said architectural finish element to said castable material and said planar mesh material.

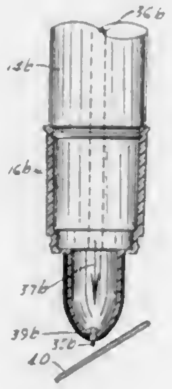
5,785,905
METHOD OF MAKING LIPSTICK SAMPLERS

Robert J. Sheffler, Morganville, N.J., and Charles Chang, 127 E. Edsall Ave., Palisades Park, N.J. 07650, assignors to Charles Chang, Wayne, N.J.

Filed Sep. 11, 1995, Ser. No. 526,446

Int. Cl.^{6} B29B *17/00;* **B28B** *1/38;7/18;* **A61K** *7/027*

U.S. Cl. 264—37 12 Claims



1. A method of making a lipstick sampler with an apparatus which consists of a reservoir containing molten fluid lipstick wax material, a spindle which is disposed above the reservoir and which is advanceable toward and retractable away from the reservoir, and a plastic cup-shaped form having a tip, and having an aperture in the tip, comprising the steps of:
a) applying the plastic cup-shaped form onto the spindle,
b) advancing the spindle to dip the plastic cup-shaped form into the reservoir and submerging the tip of the plastic cup-shaped form in the molten fluid lipstick wax material contained therein for a time interval to form a coating of said molten fluid lipstick wax material on the plastic cup-shaped form and form a coated plastic cup-shaped form,
c) retracting the spindle and the coated plastic cup-shaped form from the reservoir, an excess accumulation of said molten fluid lipstick wax material forming on the tip at the aperture,
d) applying a pressurized gas to the coated plastic cup-shaped form to cause said pressurized gas to flow outwardly through the aperture of the coated plastic cup-shaped form while said molten fluid lipstick wax material is fluid, thereby dislodging the excess accumulation of the molten fluid lipstick wax material from the coated plastic cup-shaped form, and
e) cooling the molten fluid lipstick wax material on the coated plastic cup-shaped form to solidify the molten fluid lipstick wax material on the coated plastic cup-shaped form.

5,785,906
METHOD AND DEVICE FOR MANUFACTURING BIAXIALLY ORIENTED TUBING FROM THERMOPLASTIC MATERIAL

Jan Hendrik Prenger, Hardenberg; Johan Schuurman, Dedemsvaart, and Jan Visscher, Lutten, all of Netherlands, assignors to Wavin B.V., Zwolle, Netherlands

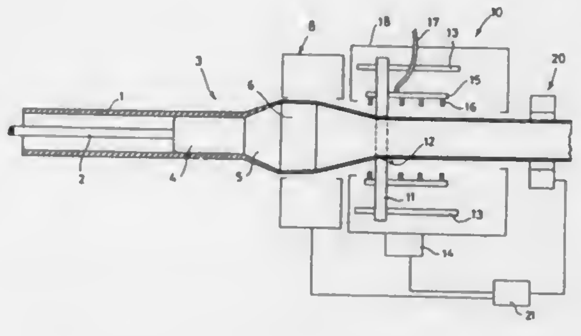
PCT No. PCT/NL95/00099, § 371 Date Nov. 22, 1996, § 102(e) Date Nov. 22, 1996, PCT Pub. No. WO95/25628, PCT Pub. Date Sep. 28, 1995

PCT Filed Mar. 17, 1995, Ser. No. 716,406

Claims priority, application Netherlands, Mar. 22, 1994, 9400452

Int. Cl.^{6} B29C *47/90*

U.S. Cl. 264—40.1 5 Claims



1. Method for manufacturing biaxially oriented tubing from a thermoplastic material comprising the steps of:
providing a tube of thermoplastic material with an orientation temperature of the thermoplastic material;
forcing said tube over a mandrel;
said mandrel having an expansion part for producing expansion in a circumferential direction of said tube which essentially determines a circumferential orientation of the thermoplastic material in the circumferential direction of said tube;
applying an axial pulling force downstream of the mandrel to said tube to produce an axial orientation of said thermoplastic material in an axial direction of said tube,
cooling said tube and fixing a biaxial orientation of said thermoplastic material, said circumferential orientation and said axial orientation comprising said biaxial orientation, wherein
downstream of the mandrel said tube is drawn through a calibration opening bounded by calibration means to reduce an external dimension of said tube; and
measuring the external dimension of said tube downstream of said calibration opening and regulating the distance between said mandrel and said calibration opening depending on external dimensions of said tube measured downstream of said calibration opening to yield a desired external dimension of said tube.

5,785,907
METHOD FOR COMPENSATING SHRINKAGE OF PLASTIC WEBS

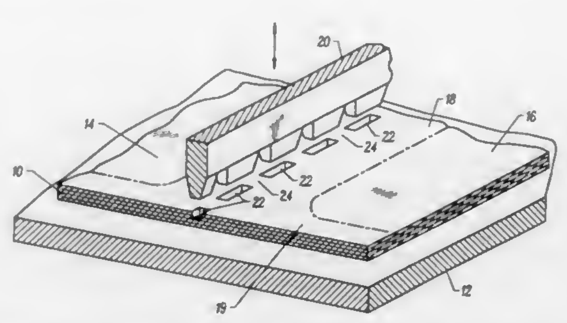
Rainer Melzer, and Roland Melzer, both of Schwelm, Germany, assignors to Melzer Maschinenbau GmbH, Schwelm, Germany

Filed Nov. 15, 1996, Ser. No. 751,519

Int. Cl.^{6} B29C *43/58;59/02*

U.S. Cl. 264—40.1 9 Claims

1. A method for processing a plastic material web provided with card-shaped images which are separated by a blank grid, said material having undergone a shrinking process to produce a shrunk material, comprising elongating said shrunk material by producing indentations in said blank grid whereby material thereof is displaced in a direction of elongation and said card-shaped images to compensate for said shrinking process.



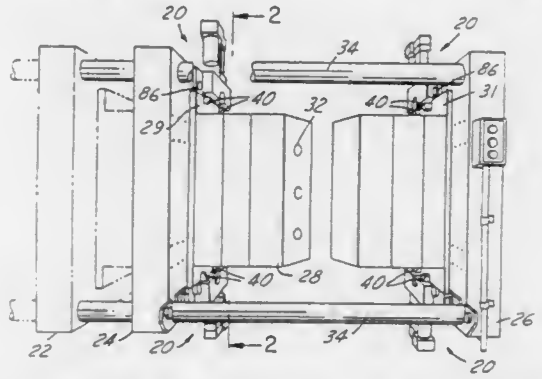
5,785,908
PROCESS FOR ELECTRICALLY CLAMPING MOLDS TO PLATENS

James A. Bott, Waterford, and John Tarr, Goodrich, both of Mich., assignors to Incoe Corporation, Troy, Mich.

Division of Ser. No. 254,198, Jun. 6, 1994, Pat. No. 5,643,613. This application Mar. 7, 1997, Ser. No. 813,519

Int. Cl.^{6} B29C *45/64*

U.S. Cl. 264—40.5 2 Claims



1. A method of clamping a mold to an injection molding machine, comprising
securing a plurality of clamping devices in said molding machine,
positioning said mold in said molding machine, and
electrically operating an electric motor for actuating said clamping devices to secure said mold in said molding machine,
monitoring the current draw of said electric motor; and
determining that said mold is clamped to the molding machine when the current draw is a preselected current draw.

5,785,909
METHOD OF MAKING FOOTWEAR WITH A POURABLE FOAM

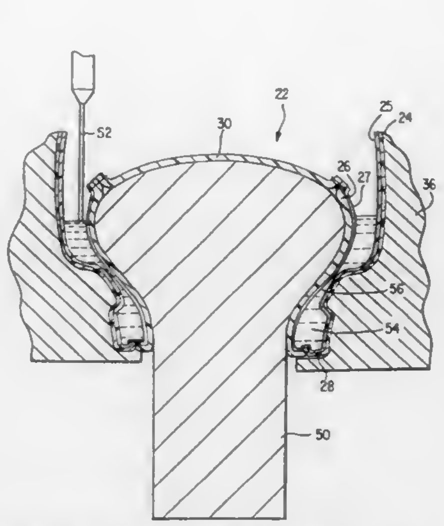
Dong Fong Chang, Taichung, Taiwan; Jeffrey L. Johnson; Ross A. McLaughlin, both of Lake Oswego, Oreg.; Toren P.B. Orzeck, Portland, Oreg.; Donald M. Remlinger, Lantau Island, Hong Kong, and David L. Vattes, Beaverton, Oreg., assignors to Nike, Inc., Beaverton, Oreg.

Filed Aug. 21, 1996, Ser. No. 701,159

Int. Cl.^{6} B29C *44/06;44/12*

U.S. Cl. 264—46.5 19 Claims

1. A method of making an article of footwear, said method comprising the steps of:
constructing an upper component for an article of footwear to define an upper formation cavity between an inner surface material and an outer surface material of the upper component;



disposing the upper component on a mold core;
positioning the mold core and the upper component in a base portion of a mold such that the upper formation cavity is accessible from above when the mold is open;
pouring a plastic foam material into the upper formation cavity of the upper component;
closing a top portion of the mold onto the base portion of the mold to thereby sealingly close the mold and the upper formation cavity;
forming a molded article of footwear upper by curing the plastic foam material within the upper formation cavity of the upper component; and
opening the top portion of the mold and removing the article of footwear upper.

5,785,910
METHOD FOR MANUFACTURING LAMINATE-MOLDED PRODUCTS AND APPARATUS THEREFOR

Katsutoshi Sakashita, Kawasaki; Tetsuzi Funahashi, Yuhki; Akira Yokota, Odawara, and Masayuki Oishi, Hiratsuka, all of Japan, assignors to Kabushiki Kaisha Komatsu Seisakusho, Tokyo, Japan

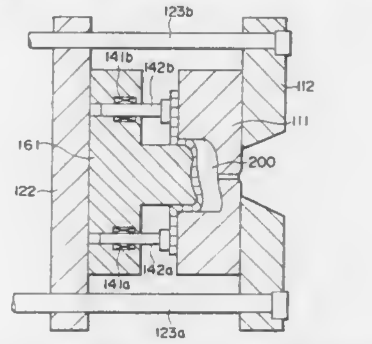
PCT No. PCT/JP94/00733, § 371 Date Oct. 30, 1995, § 102(e) Date Oct. 30, 1995, PCT Pub. No. WO94/25244, PCT Pub. Date Oct. 11, 1994

PCT Filed Apr. 28, 1994, Ser. No. 545,644

Claims priority, application Japan, Apr. 30, 1993, 5-128043; Jun. 23, 1993, 5-174643

Int. Cl.^{6} B29C *44/06;55/02;45/16*

U.S. Cl. 264—45.5 29 Claims



1. A method for manufacturing a laminate-molded product, comprising the steps of:
positioning a sheet of skin material between a first mold and a second mold, one of said first mold and said second mold having a mold cavity,
holding the thus positioned sheet of skin material under tension,
moving said second mold toward said first mold and inserting a portion of the thus held sheet of skin material into said mold cavity,

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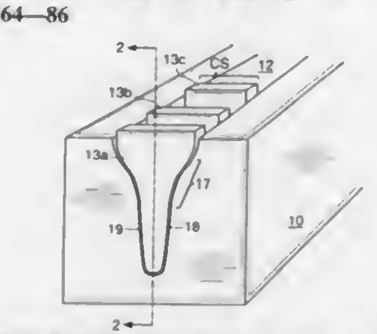
- varying the tension on the thus held sheet of skin material as said portion of the thus held sheet of skin material is inserted into said mold cavity,
- infecting melted resin into said mold cavity and into contact with said portion of the thus held sheet of skin material, and
- solidifying the thus injected melted resin so as to form a molded article which is a laminate of said portion of said sheet of skin material and the thus solidified resin;
- wherein said step of varying the tension comprises changing said tension in consonance with a speed at which said portion of the thus held sheet of skin material is inserted into said mold cavity.

5,785,911
METHOD OF FORMING CERAMIC IGNITERS

Craig A. Willkens, Sterling; Normand P. Arsenault, Holden, and Francis A. Jurnak, Framingham, all of Mass., assignors to Saint-Gobain/Norton Industrial Ceramics Corp., Worcester, Mass.

Filed Jun. 7, 1995, Ser. No. 480,631
Int. Cl.⁶ B28B *1/26*

U.S. Cl. 264—86 **31 Claims**



1. A method of forming thin green ceramic igniter shapes having a thickness characterized by a tolerance of no more than about +/−0.001 inch comprising the steps of:
- a) providing an apparatus comprising:
  - i) a porous mold having a well which defines a pair of opposing porous walls, and
  - ii) a plurality of vertical dividers positioned in the well in substantially parallel, substantially spaced relation, each divider contacting each opposing wall to define a plurality of compartments,
- b) pouring a ceramic slip comprising a ceramic powder and a liquid carrier into the compartments of the apparatus,
- c) dewatering the ceramic slip through the opposing porous walls to form a plurality of green ceramic igniter shapes, and
- d) removing the plurality of green ceramic igniter shapes from the plurality of compartments.

5,785,912
METHOD FOR THE FABRICATION OF AN ELECTROCHEMICAL CELL HAVING LONG TERM CHEMICAL STABILITY

Graham Edward Cooley, Oxon, and Kevin John Nix, Wiltshire, both of United Kingdom, assignors to National Power PLC, Wiltshire, United Kingdom

PCT No. PCT/GB95/00667, § 371 Date Dec. 3, 1996, § 102(e) Date Dec. 3, 1996, PCT Pub. No. WO95/27751, PCT Pub. Date Oct. 19, 1995

PCT Filed Mar. 24, 1995, Ser. No. 718,519

Claims priority, application United Kingdom, Apr. 8, 1994, 9407048

Int. Cl.⁶ B29C *71/00;* H01M *2/00*

U.S. Cl. 264—83 **11 Claims**

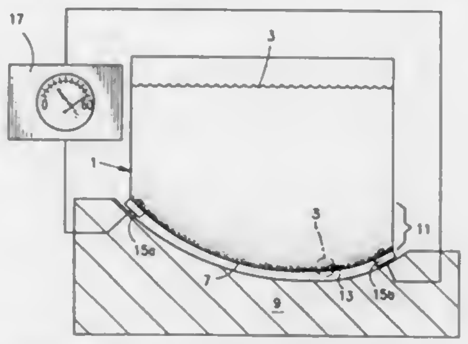
1. A method of fabricating an electrochemical cell which has long term chemical stability to anolyte and catholyte solutions at pH's of less than 2 and above 12, which method comprises the steps of:
- i) thermally processing a polymeric material which exhibits a glass transition and/or a melting thermal transition to form a cell structure or components of the cell structure, and
- ii) subjecting surfaces of the cell structure or components of the cell structure which, in use, will be in contact with the anolyte and catholyte solutions, to a post halogenation process, whereby the polymeric material forming the surfaces undergoes halogen substitution to form a chemically stable halogen modified polymeric material.

5,785,913
METHOD OF MAGNETICALLY FORMING A PARTICLE FILLED POLYMER HAVING ENHANCED MATERIAL CHARACTERISTICS

William G. Clark, Jr., Murraysville Boro, and William A. Byers, Penn Hills Township, both of Pa., assignors to Westinghouse Electric Corporation, Pittsburgh, Pa.

Filed May 30, 1996, Ser. No. 655,794
Int. Cl.⁶ B27N *3/02*

U.S. Cl. 264—109 **32 Claims**



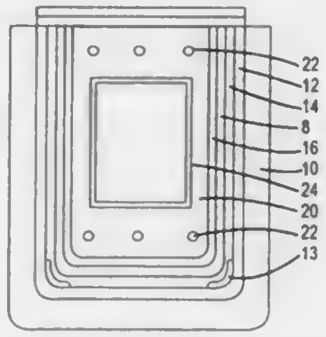
1. A method of fabricating a particle filled polymer, comprising the steps of:
- mixing magnetic particles into a hardenable, liquid polymeric material;
- magnetically orienting said particles within said material along a selected pattern, and
- curing said polymeric material into a hardened state to affix said pattern of particles within said material.

5,785,914
PROCESS OF PRODUCING CERAMIC POLYMER COMPOSITE TOOL

Russel L. Kress, 2861 Jamestown, Rowley, Iowa 52329, and H. Kent Lewis, 1901 Crescent Ave., Fort Wayne, Ind. 46805-4411

Filed Nov. 22, 1995, Ser. No. 561,693
Int. Cl.⁶ B29C *33/60*

U.S. Cl. 264—226 **29 Claims**



1. A method of making a sheet metal die comprising the steps of:
- a. providing a pattern of the object to be produced;
- b. coating a surface of the pattern with a release agent;

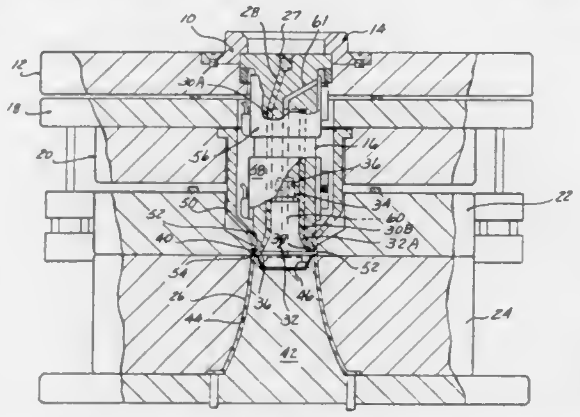
- c. applying a composition comprising a synthetic resin and a ceramic powder to form a first layer over the release agent;
- d. applying a composition comprising a synthetic resin and a filler to form a second layer over the first layer;
- e. applying a third layer of reinforcement material over said second layer of synthetic filled resin; and
- f. releasing the sheet metal die from the pattern.

5,785,915
INJECTION MOLDING WITH ANNULAR GATE AND SLEEVE SHUTOFF VALVE

Jesuś M. Osuna-Diaz, 908 Ravine Ter. Ct., Rochester Hills, Mich. 48307

Filed Sep. 13, 1996, Ser. No. 713,661
Int. Cl.⁶ B29C *45/23*

U.S. Cl. 264—328.9 **11 Claims**



1. A method of injecting plastic melt through a nozzle body into an annular opening of a mold cavity, comprising the steps of:
- directing plastic melt into an annular passage in said valve body which extends to a radial gate defined around the periphery of one end of said nozzle body;
- aligning an annular space just outside said radial gate with said annular mold cavity opening so that said plastic melt is directed axially into said annular opening of said mold cavity;
- selectively moving a sleeve through said annular space and past said radial gate to completely overlie said radial gate and prevent outflow of plastic melt therethrough after each mold cycle.

2. An injection nozzle for injecting plastic melt into an annular mold cavity, comprising:
- an elongated nozzle body having opposite ends, said nozzle body formed with an entry port at one end for introduction of plastic melt under pressure;
- an outwardly flared opening at the other end of said nozzle body;
- a nozzle body insert concentrically disposed in said outwardly flared nozzle body opening, said insert having an outer surface tapering generally outwardly to define therebetween a radially outwardly inclined nozzle body annular passage extending to an outside diameter of said nozzle body at said other end thereof;
- an internal passage interconnecting said entry port and said annular passage;
- said nozzle body insert also formed with a flange portion spaced from said nozzle body one end to define a radially extending annular gate communicating with said outwardly flared annular passage;
- a valve sleeve disposed over said nozzle body lower end movable axially from a retracted position away from said annular gate and an advanced position extending past said annular gate into a space beyond said annular gate so as to completely overlie said annular gate; and,
- actuating means for positively shifting said valve sleeve between said retracted and advanced positions.

5,785,916
PROCESS FOR MAKING MOLDED THERMOPLASTIC POLYURETHANE ARTICLES EXHIBITING IMPROVED UV AND HEAT RESISTANCE

Roger Jyn-Chiarng R. Huarng, Northville, Mich., assignor to BASF Corporation, Mt. Olive, N.J.

Continuation of Ser. No. 547,086, Oct. 17, 1995, abandoned. This application Oct. 31, 1996, Ser. No. 742,274
Int. Cl.⁶ C08J *5/00;* C08K *3/20;* C08L *75/00;* C08F *8/30*

U.S. Cl. 264—331.13 **18 Claims**

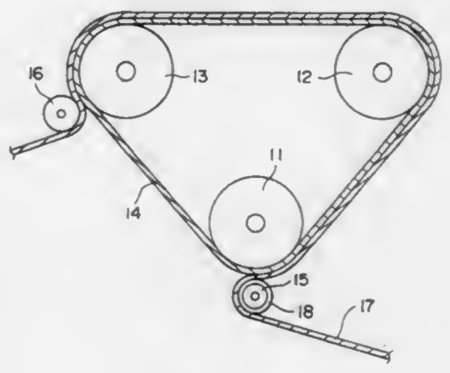
1. A process for making a molded thermoplastic polyurethane article, comprising:
- providing a thermoplastic polyurethane composition, comprising:
  - A) one or more thermoplastic polyurethanes;
  - B) one or more acrylate based rubbers; and
  - C) one or more UV stabilizers having a benzotriazole active ingredient combined with one or more heat stabilizers having a phenol active ingredient; and
- introducing the composition into a mold for a time sufficient to produce a molded article of A)+ B)+C), said article having a greater UV stability as compared to a molded article made of a thermoplastic composition of A)+ C), wherein (a.) UV stability is measured as the difference between (1.) delta E vs. white tile after molded, and (2.) delta E. vs. white tile after 1000 hours of UV exposure.

5,785,917
HEAT-TREATING METHOD OF A THERMOPLASTIC RESIN FILM

Atsushi Fujii; Akira Funaki, and Ryuji Moriwaki, all of Himeji, Japan, assignors to Idemitsu Petrochemical Co., Ltd., Tokyo, Japan

Filed Dec. 23, 1996, Ser. No. 771,895
Claims priority, application Japan, Dec. 28, 1995, 7-342731
Int. Cl.⁶ B29C *71/02*

U.S. Cl. 264—345 **8 Claims**



1. A method of heat-treating a thermoplastic resin film, comprising the steps of:
- preheating the thermoplastic resin film to a temperature T of $Tg<T<m.p\ -10°$ C. and absolutely contacting the thermoplastic resin film with a belt by pressing the thermoplastic resin film at a linear pressure of 9.8 N/cm–980.0 N/cm, wherein Tg is the glass transition temperature of the thermoplastic resin film and m.p. is the melting point of the thermoplastic resin film;
- heating the thermoplastic resin film to a temperature T of m.p. $-20°$ C. $<T<$m.p. $+20°$ C. while the thermoplastic resin film is absolutely contacted with the belt;
- cooling the thermoplastic resin film while the thermoplastic resin film is absolutely contacted with the belt; and
- peeling the thermoplastic resin film from the belt.

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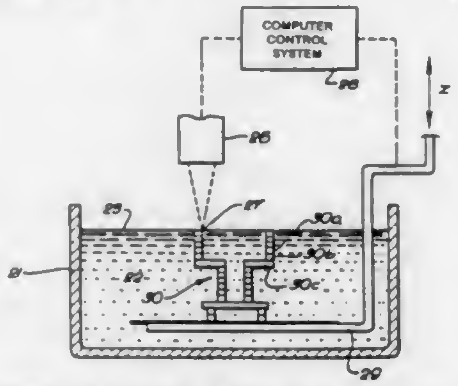
5,785,918
METHOD AND APPARATUS FOR PRODUCTION OF THREE-DIMENSIONAL OBJECTS BY STEREOLITHOGRAPHY

Charles W. Hull, Arcadia, Calif., assignor to Seagate Technology, Inc., Scotts Valley, Calif.

Continuation of Ser. No. 299,878, Sep. 1, 1994, abandoned, which is a division of Ser. No. 967,303, Oct. 20, 1992, Pat. No. 5,344,298, which is a continuation of Ser. No. 749,125, Aug. 23, 1991, Pat. No. 5,174,943, which is a continuation of Ser. No. 637,999, Jan. 4, 1991, abandoned, which is a continuation of Ser. No. 493,498, Mar. 14, 1990, abandoned, which is a division of Ser. No. 340,894, Apr. 19, 1989, Pat. No. 4,929,402, which is a continuation of Ser. No. 161,346, Feb. 19, 1988, abandoned, which is a continuation of Ser. No. 792,979, Dec. 9, 1985, abandoned, which is a division of Ser. No. 638,905, Aug. 8, 1984, Pat. No. 4,575,330. This application Jun. 7, 1995, Ser. No. 483,672

Int. Cl.^{6} B29C *35/08;41/02*

U.S. Cl. 264—401 20 Claims



2. A method of producing a three-dimensional object from a medium capable of solidification when subjected to a spot of synergistic stimulation, said method comprising the steps of:
providing said medium; and
forming successive cross-sectional layers of structure of said object at a surface of said medium, said forming step including the steps of:
specifying a scanning speed at which said spot is traced over said surface during formation of said cross-sectional layers of structure; and
adhering each successive cross-sectional layer of structure to a preceding cross-sectional layer of structure to produce said object.

5,785,919
METHOD OF MANUFACTURE OF STRUCTUAL CELLULAR COMPONENTS

Robert Samuel Wilson, Belfast, Northern Ireland, assignor to Short Brothers PLC, Belfast, Northern Ireland

PCT No. PCT/GB95/01511, § 371 Date Mar. 25, 1996, § 102(e) Date Mar. 25, 1996, PCT Pub. No. WO96/00650, PCT Pub. Date Jan. 11, 1996

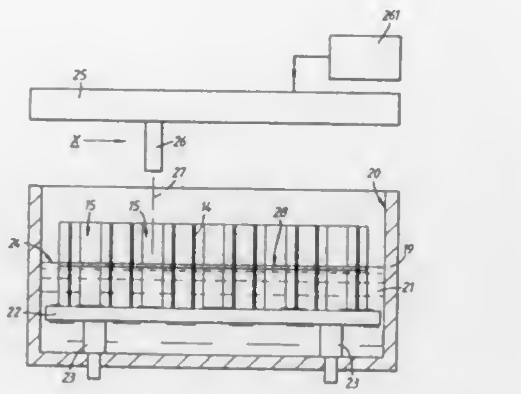
PCT Filed Jun. 28, 1995, Ser. No. 605,146

Claims priority, application United Kingdom, Jun. 30, 1994, 9413158

Int. Cl.^{6} B29C *35/08;41/02*

U.S. Cl. 264—401 36 Claims

1. A method of producing a structure which has a front face, a rear face, a primary wall structure which defines a primary cell which extends between the front face and the rear face and which is open to the front face and to the rear face of the component and a secondary wall structure within the primary wall structure which divides the primary cell into two or more subcells, the method comprising first forming in a primary processing step the primary wall structure and then in a secondary processing step forming the secondary wall structure or an elemental part thereof within the primary wall structure by bringing the primary wall structure into a condition in which it lies within a body of liquid the surface of which provides or is provided with a photosensitive layer and in which the photosensitive layer is at a predetermined level in the primary cell of the primary wall structure at which the secondary wall structure or the elemental part of the secondary wall structure is to be formed, and exposing the photosensitive layer to a radiation source over a predetermined area thereof to bring the photosensitive layer to a consolidated state within the primary cell of the primary wall structure to form the secondary wall structure or the elemental part thereof.



5,785,920
EXTRUSION MOLDING APPARATUS AND METHOD OF FORMING A PARISON

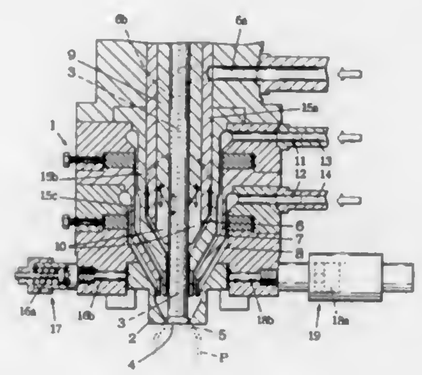
Masaaki Ogawa, Kobe, and Hajime Ishikawa, Toyonaka, both of Japan, assignors to Tigers Polymer Corporation, Osaka, Japan

Filed Dec. 27, 1996, Ser. No. 774,365

Claims priority, application Japan, Dec. 28, 1995, 7-353306

Int. Cl.^{6} B29C *49/04*

U.S. Cl. 264—515 5 Claims



4. A method of extruding a molten resin accumulated in a molten resin accumulation chamber from an annular slit defined by a die and a mandrel to form a parison, which comprises (1) a step of driving a rod forward to open said annular slit and radially displacing the die from an original position where said die is in contact with said mandrel to correct for variation in thickness of a parison to be extruded from said annular slit, (2) a step of extruding the resin in said molten resin accumulation chamber from said annular slit to form a parison, (3) a step of resetting said die to said original position after extrusion of the resin, (4) a step of driving said rod in a reverse direction to close said annular slit with respect to said mandrel after said resetting of the die, and (5) a step of accumulating molten resin in said molten resin accumulation chamber after closure of the annular slit, said steps being executed repeatedly in the sequence mentioned to form parisons on an intermittent basis.

5,785,921
METHOD AND AN ISTALLATION FOR MANUFACTURING THERMOPLASTIC RECEPTACLES, IN PARTICULAR BOTTLES

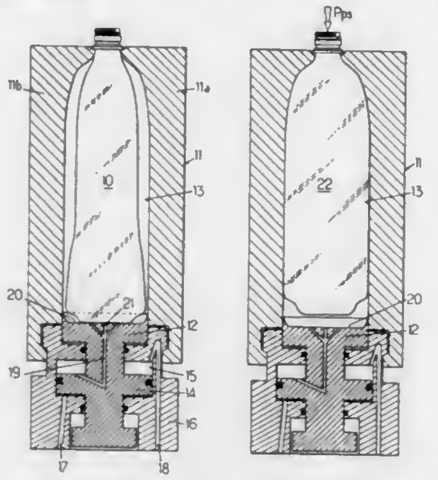
Jean-Tristan Outreman, Sur Mer, and Guy Feuilloley, Le Havre, both of France, assignors to Sidel, Le Havre, France

Filed Jun. 28, 1996, Ser. No. 671,586

Claims priority, application France, Dec. 30, 1993, 93 15920

Int. Cl.^{6} B29C *49/18*

U.S. Cl. 264—529 6 Claims



1. In a method of manufacturing a receptacle from a preform of thermoplastic material, the receptacle being suitable for being subjected subsequently, without significant deformation, to temperature conditions encountered during hot-filling or pasteurization processes, wherein said preform has its body heated to a temperature not less than the softening temperature of the thermoplastic material, is molded by stretch-blowing to form an intermediate receptacle of dimensions greater than those of the final receptacle to be obtained, said intermediate receptacle subsequently being heat treated to obtain a blank having a hot-shrunk body, which blank is blow molded to form the final receptacle,
the improvement comprising:
a heat-shrinking the blank such that the blank has a predetermined length greater than the length of the final receptacle to be obtained;
b then subjecting the blank to preliminary blow-molding at a pressure which expands the blank, with the exception of its bottom, to form a receptacle having the shape of the final receptacle except for its bottom, the length of the thus-formed receptacle having an unmolded bottom being substantially equal to the length of the final receptacle to be obtained; and
c carrying out final blow-molding of the receptacle having an unmolded bottom at a pressure high enough to expand the bottom so that the entire body including the bottom is given its final shape and dimensions, thereby obtaining the final receptacle.

5,785,922
METHOD FOR PRODUCING COMPOSITE SINTERED BODY OF SILICON CARBIDE AND SILICON NITRIDE

Yoshikatsu Higuchi, and Kazumi Miyake, both of Wako, Japan, assignors to Honda Giken Kogyo Kabushiki Kaisha, Tokyo, Japan

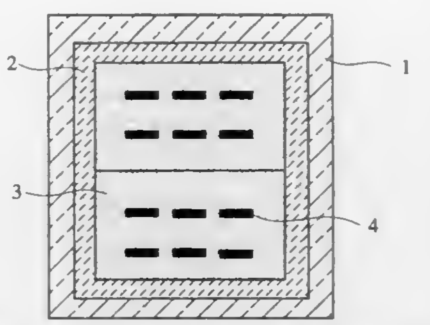
Filed Nov. 16, 1995, Ser. No. 559,001

Claims priority, application Japan, Nov. 21, 1994, 6-311233; Dec. 20, 1994, 6-335076

Int. Cl.^{6} C04B *35/577;35/596*

U.S. Cl. 264—682 5 Claims

1. A method for producing a composite sintered body of silicon carbide and silicon nitride, comprising the steps of:
(a) adding sintering aid powder, boron powder and carbon powder to a mixture of 15–50 weight % of silicon carbide powder and 85–50 weight % of silicon nitride powder to form a green body, said sintering aid powder being a mixture of (i) aluminum oxide or aluminum nitride, and (ii) at least one oxide of an element selected from the group consisting of Y_2O_3, Yb_2O_3, Er_2O_3, ZrO_2 and HfO_2, with a weight ratio of said (i) to said (ii) being from 2:1 to 1:15, and
(b) subjecting said green body to a HIP sintering at an atmosphere gas pressure of 1033–2000 kgf/cm^2.



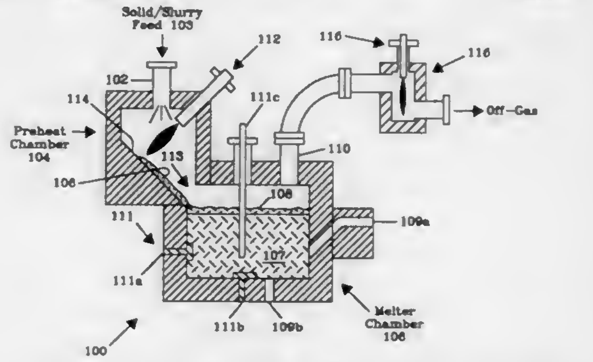
5,785,923
APPARATUS FOR CONTINUOUS FEED MATERIAL MELTING

Jeffrey E. Surma, Kennewick, and Joseph M. Perez, Jr., Richland, both of Wash., assignors to Battelle Memorial Institute, Richland, Wash.

Filed Mar. 8, 1996, Ser. No. 612,692

Int. Cl.^{6} C22B *9/21*

U.S. Cl. 266—144 7 Claims



1. An apparatus for continuously melting materials, comprising:
(a) a melter housing having a feed inlet for receiving feed material into a pretreat chamber having a bottom sloped at least 20 degrees from horizontal, said pretreat chamber having a plasma feed material heater;
(b) a joule heated melter having a at least two joule heating electrodes, said joule heated melter located below said pretreat chamber permitting pretreated feed material to flow by gravity into said joule heated melter wherein a molten pool is to be formed, said joule heated melter further having at least one melt outlet for removing a molten material from said joule heated melter; and
(c) an offgas outlet for removing any volatilized constituent.

5,785,924
STEEL USEFUL FOR THE MANUFACTURE OF MOLDS FOR THE INJECTION MOLDING OF PLASTIC

Jean Beguinot; Frédéric Chenou, both of Le Creusot, and Gilbert Primon, Saint Vallier, all of France, assignors to Creusot Loire Industrie, Puteaux, France

Filed Mar. 3, 1997, Ser. No. 805,851

Claims priority, application France, Mar. 1, 1996, 96 02595

Int. Cl.^{6} C22C *38/42;38/06*

U.S. Cl. 420—63 31 Claims

1. Steel, whose chemical composition comprises, by weight based on total weight of said steel:

$0.03\% \leqq C \leqq 0.25\%$

$0\% \leqq Si \leqq 0.2\%$

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$0\% \leqq Mn \leqq 0.9\%$
$1.5\% \leqq Ni \leqq 5\%$
$0\% \leqq Cr \leqq 18\%$
$0.05\% \leqq Mo + W/2 \leqq 1\%$
$0\% \leqq S \leqq 0.3\%$
at least one element taken from Al and Cu each in contents of from 0.5% to 3%,
optionally $0.0005\% < B < 0.015\%$,
optionally at least one element taken from V, Nb, Zr, Ta and Ti, each in contents of from 0% to 0.3%,
optionally at least one element taken from Pb, Se, Te and Bi, each in contents of from 0% to 0.3%, iron and impurities resulting from processing, the chemical composition additionally satisfying the relations:

$$Kth = 3.8\times C + 9.8\times Si + 3.3\times Mn + 2.4\times Ni + \alpha\times Cr + 1.4\times(Mo + W/2) \leqq 15$$

where $\alpha = 1.4$ if $Cr < 8\%$ and $\alpha = 0$ if $Cr \geqq 8\%$, and:

$$Tr = 3.8\times C + 1.07\times Mn + 0.7\times Ni + 0.57\times Cr + 1.58\times(Mo + W/2) + kB \geqq 3.1$$

where $kB = 0.8$ if the boron content is between 0.0005% and 0.015% and $kB = 0$ if not, and if $Cr \leqq 5\%$;

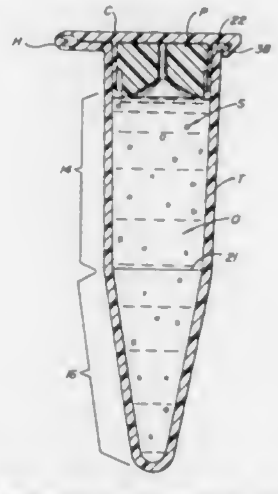
$$Kth/Tr \leqq 3.$$

5,785,925

CENTRIFUGE TUBE PHASE SEPARATION PLUG

Jack U'Ren, Kirkland, Wash., assignor to Saigene Corporation, Bothell, Wash.

Filed Aug. 29, 1996, Ser. No. 703,147
Int. Cl.^{6} G01N *9/30*
U.S. Cl. 422—72 **4 Claims**



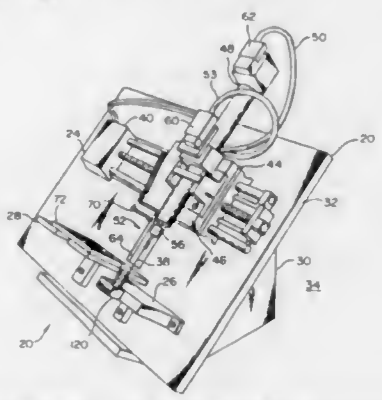
1. A phase separation plug and centrifuge sample tube in combination comprising:
- a centrifuge sample tube having an upper open end and a lower closed end;
- the centrifuge sample tube at the lower and closed end including a lower and closed conical portion and an upper cylindrical portion defining an opening for a cap;
- a cap for mounting to the centrifuge sample tube at the opening;
- a plug body separated from the cap, the plug body shaped for movement under forces of centrifugation from the cylindrical portion of the sample tube to the lower and closed conical portion of the sample tube;
- the plug body defining at least one passage for permitting fluid flow from the lower and closed conical portion of the plug body to the upper cylindrical portion of the plug body;
- means for holding the plug body to the cap under a first force toward the lower and closed end and releasing the plug body from the cap under a second and greater force toward the lower and closed end; and,
- the plug body defining at a peripheral surface a profile for lodging to the lower and closed conical portion of the sample tube whereby downward movement of the plug body under the forces of centrifugation is inhibited.

5,785,926

PRECISION SMALL VOLUME FLUID PROCESSING APPARATUS

Ronald Seubert, Issaquah; Maynard V. Olson, Seattle; Deirdre Meldrum, Seattle; Blake Hannaford, Seattle; Peter Wiktor, Seattle; Neal A. Friedman, Seattle; Donald B. Snow, Mercer Island, and Ray Kraft, Seattle, all of Wash., assignors to University of Washington, Seattle, and GeneTools, Inc., Issaquah, both of Wash.

Filed Sep. 19, 1995, Ser. No. 531,215
Int. Cl.^{6} B01L *3/02*
U.S. Cl. 422—100 **13 Claims**



1. A high precision, small volume fluid processing system, comprising:
- a sample fluid station;
- a reagent fluid dispensing device;
- a sample fluid handling device having a single open ended capillary tube fluidly connected to a precision linear actuator;
- monitoring means for determining position information of ends of a fluid segment in the capillary tube;
- positioning means for precisely positioning the fluid sample handling device in a reference plane with respect to the reagent fluid dispensing device and the sample fluid station; and,
- control means, operatively connected to the linear actuator and the positioning means, for positioning the capillary tube and operating the actuator to receive within the capillary tube both a precisely metered volume of sample fluid from the sample fluid station and at least one precisely metered volume of at least one reagent fluid from the reagent dispensing device.

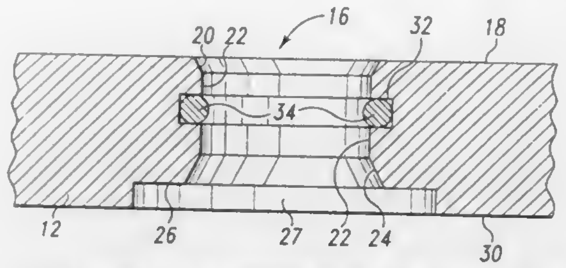
5,785,927

VESSEL HANDLING SYSTEM USEFUL FOR COMBINATORIAL CHEMISTRY

William L. Scott, Indianapolis; Robert A. Schonegg, Greenwood, and Cynthia L. Cwi, Indianapolis, all of Ind., assignors to Eli Lilly and Company, Indianapolis, Ind.

Filed Oct. 24, 1996, Ser. No. 738,971
Int. Cl.^{6} B01L *9/06*
U.S. Cl. 422—104 **19 Claims**

1. A vessel handling system comprising:
- a vessel holder comprising a body through which extend a plurality of apertures, said plurality of apertures located on said body in a first arrangement;
- a plurality of vessels including a first vessel and a second vessel, each of said plurality of vessels comprising an interior volume and a filter dividing said interior volume into a first chamber and a second chamber, each of said plurality of vessels further comprising a first port in communication with said first chamber, a second port in communication with said second chamber, a first stop member for selectively sealing and unsealing said first port, and a second stop member for selectively sealing and unsealing said second port;
- said vessel holder and said plurality of vessels cooperatively configured such that said vessel holder holds each of said plurality of vessels inserted into one of said plurality of body apertures, wherein said vessel holder comprises a plurality of O-rings, one of said O-rings installed in a body groove located along an axial length of each of said apertures, each of said O-rings having an inside diameter sized to frictionally engage a periphery surface of one of said vessels, whereby each of said plurality of vessels is separately removable from said vessel holder without removing the other vessels;
- said first stop member of said first vessel separately operable from said first stop member of said second vessel, whereby said first vessel first port may by sealed and unsealed while said second vessel first port remains unsealed and sealed respectively; and
- said second stop member of said first vessel separately operable from said second stop member of said second vessel, whereby said first vessel second port may by sealed and unsealed while said second vessel second port remains unsealed and sealed respectively.



5,785,928

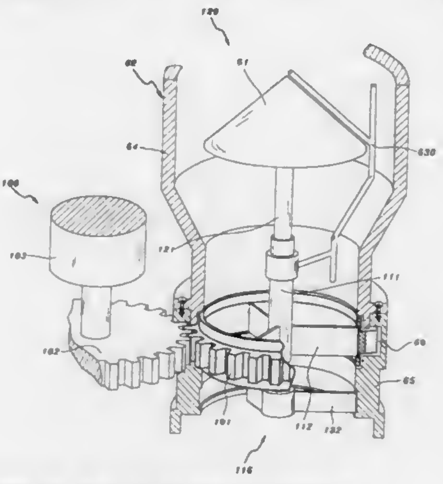
Patent Not Issued For This Number

5,785,929

WASTE GAS DISPOSAL APPARATUS

Hee-duck Kim, Kyonggi-do; Kyue-sang Choi, and Jin-man Kim, both of Seoul, all of Rep. of Korea, assignors to Samsung Electronics Co., Ltd., Suwon, Rep. of Korea

Filed Mar. 19, 1997, Ser. No. 825,225
Claims priority, application Rep. of Korea, Aug. 9, 1996, 96-33003
Int. Cl.^{6} B01D *50/00*
U.S. Cl. 422—171 **10 Claims**



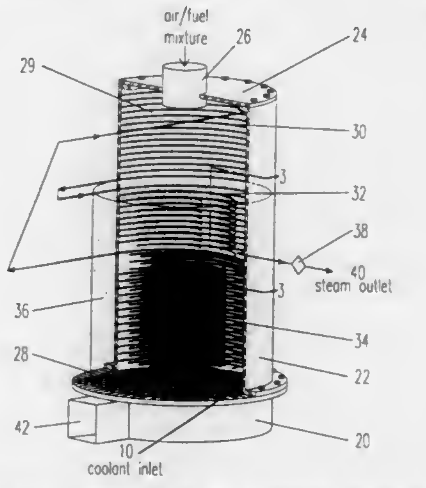
1. A waste gas disposal apparatus, comprising:
- an inlet head into which waste gas, inert gas and air are respectively introduced to create a mixed gas;
- a heating chamber disposed under said inlet head for heating the mixed gas from said inlet head, thereby creating fine reactant particles after a heating reaction occurs in said heating chamber;
- a collecting unit connected to said heating chamber for collecting said fine reactant particles from said heating chamber, said collecting unit comprising
  - a hopper-shaped chamber shell,
  - a guide barrel connected to a lower end of said chamber shell, and
  - a guiding member for guiding said fine reactant particles to the guide barrel, said guiding member being fixed to one end of a shaft, and another end of said shaft being fixed to said guide barrel;
- a scraper portion comprising
  - a ring shaped scraper rotating gear which is inserted into a groove formed along an inner circumference of said guide barrel,
  - a scraper guide rod rotatably fitted onto said shaft and connected to an inner circumference of said scraper rotating gear,
  - a power transmitting gear interconnected with said scraper rotating gear through an aperture formed at a predetermined position in said groove, and
  - a scraper blade connected to said scraper guide rod and configured to simultaneously scrape off fine reactant particles adsorbed to an inner surface of said chamber shell and a surface of said guiding member; and
- a container connected to said collecting unit for receiving said fine reactant particles from said guide barrel.

5,785,930

APPARATUS FOR BURNING A WIDE VARIETY OF FUELS IN AIR WHICH PRODUCES LOW LEVELS OF NITRIC OXIDE AND CARBON MONOXIDE EMISSIONS

Douglas Stewart Sinclair, Rte. 1 Box 11A, Jonesburg, Mo. 63351

Filed Sep. 17, 1996, Ser. No. 715,177
Int. Cl.^{6} F01N *3/10*
U.S. Cl. 422—173 **10 Claims**



1. An apparatus for reducing the pollutants produced by the combustion of fuel in air, comprising:
- a casing having a combustion chamber;
- a burner in communication with the combustion chamber for introducing an ignited fuel and air mixture into the combustion chamber to produce combustion gases therein;
- a layer of granular substance contained in the casing below the combustion chamber in communication therewith for receiving the combustion gases within interstices thereof;
- a plurality of coolant circulating tubular coils in the casing in at least the layer of granular substance, each coil being spaced

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apart from adjacent coils a predetermined distance for removing heat from the granular substance;
said burner being positioned a predetermined distance from the layer of granular substance such that a portion of combustion of the combustion gases occurs within the interstices of the granular substance so as to reduce the formation of nitric oxide therefrom; and
an exhaust port in the casing in communication with the combustion chamber for removing the combustion gases from the casing.

5,785,931
METAL HONEYCOMB BODY OF INTERTWINED SHEET-METAL LAYERS, AND METHOD FOR ITS PRODUCTION

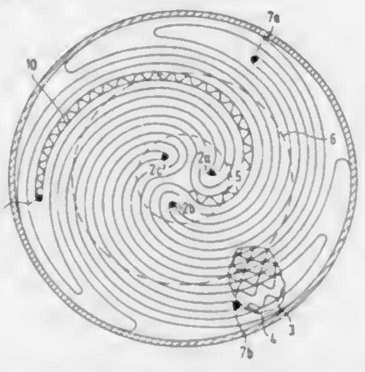
Wolfgang Maus; Helmut Swars; Rolf Brück, all of Bergisch Gladbach, and Bohumil Hum-Polik, Ludwigsburg, all of Germany, assignors to Emitec Gesellschaft fuer Emissionstechnologie mbH, Lohmar, Germany

Division of Ser. No. 504,768, Jul. 20, 1995, Pat. No. 5,608,968, which is a continuation of Ser. No. 91,613, Jul. 14, 1993, Pat. No. 5,464,679. This application Dec. 6, 1996, Ser. No. 761,527

Claims priority, application Germany, Jul. 14, 1992, 42 23 096.9; Jul. 14, 1992, 42 23 134.5

Int. Cl.^{6} B01D *53/34;* **B32B** *3/12*

U.S. Cl. 422—180 **3 Claims**



1. A metal honeycomb body, comprising a jacket member defining an interior with an inner region and a substantially annular outer region surrounding said inner region, at least one partly structured sheet-metal strip disposed in said interior forming a multiplicity of sheet-metal layers as walls for a multiplicity of channels, said sheet-metal layers being wrapped around one another and extending alternatingly back and forth along involute courses between said outer region and said inner region, and said sheet-metal layers forming a multiplicity of loops winding about reversal lines in said outer region.

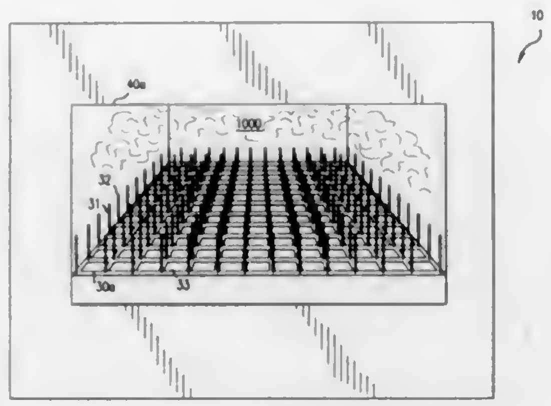
5,785,932
CATALYTIC REACTOR FOR OXIDIZING MERCURY VAPOR

Dennis J. Helfritch, Baltimore, Md., assignor to Environmental Elements Corp.

Filed Feb. 22, 1996, Ser. No. 604,885

Int. Cl.^{6} B01J *19/12*

U.S. Cl. 422—186.04 **27 Claims**



1. A catalytic reactor for oxidizing elemental mercury contained in a gas stream by use of corona discharge comprising:
- a. an elongate fluidic flow conduit extending in an axial direction for axial passage therethrough of said gas stream, said fluidic flow conduit having an axially-extending sidewall portion formed of a dielectric material;
- b. means for forming a corona plane extending transaxially across said fluidic flow conduit, said means for forming said corona plane including a substantially planar perforated discharge plate and a plurality of electrodes electrically connected thereto, said perforated discharge plate having opposing upper and lower surfaces, said perforated discharge plate having a plurality of through openings passing in a direction parallel said axial direction, said electrodes projecting from at least one of said upper and lower surfaces of said perforated discharge plate, each of said electrodes defining a corona point;
- c. a substantially planar perforated electrode plate transaxially extending across said fluidic flow conduit and axially displaced from said means for forming said corona plane by a predetermined distance, said perforated electrode plate having a pair of opposing outer surfaces, said perforated electrode plate having a plurality of through openings passing in a direction parallel said axial direction, at least one of said outer surfaces opposing said corona points;
- d. a catalyst member overlaying said one of said outer surfaces of said perforated electrode plate opposing said corona points, said catalyst member including a catalyst composition for increasing the rate of said oxidation of said elemental mercury contained in said gas stream, said catalyst composition being substantially activated by said corona discharge; and,
- e. means for generating a predetermined electric potential difference between said means for forming said corona plane and said perforated electrode plate for producing said corona discharge between said corona points and said perforated electrode plate during passage of said gas stream through said fluidic flow conduit.

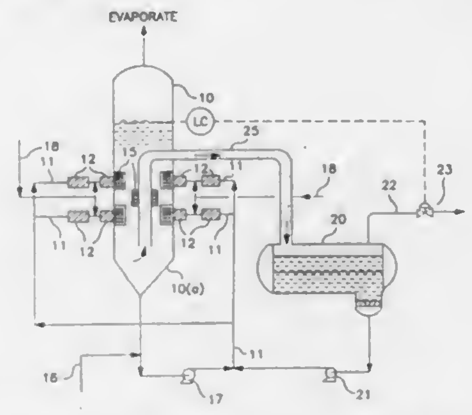
5,785,933
SULFURIC ACID ALKYLATION REACTOR SYSTEM WITH STATIC MIXERS

Brian A. Cunningham, Doylestown, Pa., and Saverio G. Greco, Princeton Junction, N.J., assignors to Mobil Oil Corporation, Fairfax, Va.

Filed Jan. 21, 1997, Ser. No. 779,290

Int. Cl.^{6} B01F *5/00*

U.S. Cl. 422—224 **11 Claims**



1. A sulfuric acid alkylation reactor system for alkylating at least one isoparaffin reactant with at least one olefin reactant, in the presence of sulfuric acid catalyst, to produce hydrocarbon alkylates, comprising:
a reactor vessel having a vertical cylindrical wall, a top, an inverted conical bottom portion and internal perforated baffles;
a settling vessel for separating said sulfuric acid catalyst from said alkylate;
a transfer pipe having a vertical portion suspended within the central portion of said reactor vessel and a horizontal portion sealably extending through said cylindrical wall of said reactor vessel and communicating with said settling vessel, said transfer pipe having a first end disposed toward said inverted conical bottom portion of said reactor vessel and a second end at a top portion of said settling vessel; and
multiple emulsion injection inlet pipes for injecting reactants into said reactor vessel, disposed tangentially to and communicating with the interior of said reactor vessel.

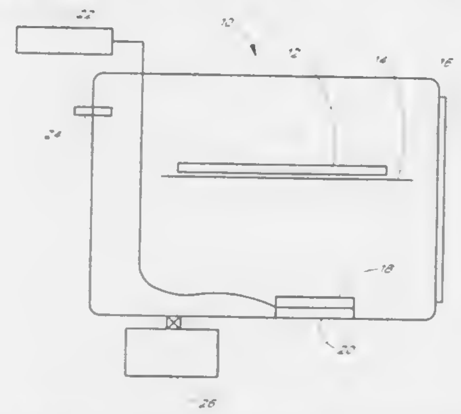
5,785,934
VAPOR STERILIZATION USING INORGANIC HYDROGEN PEROXIDE COMPLEXES

Paul Taylor Jacobs, Trabuco Canyon; Szu-Min Lin, Laguna Hills, and Xiaolan Chen, Irvine, all of Calif., assignors to Johnson & Johnson Medical, Inc., N.J.

Continuation-in-part of Ser. No. 549,425, Oct. 27, 1995, Pat. No. 5,667,753, which is a continuation-in-part of Ser. No. 369,786, Jan. 6, 1995, Pat. No. 5,674,450. This application Sep. 19, 1996, Ser. No. 716,094

Int. Cl.^{6} A61L *9/00*

U.S. Cl. 427—29 **131 Claims**



1. An apparatus for hydrogen peroxide sterilization of an article, comprising:
a container for holding the article to be sterilized; and
a source of hydrogen peroxide vapor in fluid communication with said container, said source comprising an inorganic hydrogen peroxide complex which does not decompose to form a hydrohalic acid, said source configured so that said vapor can contact said article to effect sterilization.

5,785,935
PROCESS FOR REMOVING MERCURY FROM SOIL

William E. Fristad, 321 Buena Vista Dr.; Michael J. Virnig, 1105 Lanewood Dr., and Dana K. Elliott, 1129 Poppy Dr., all of Santa Rosa, Calif. 95404

Division of Ser. No. 930,638, Aug. 17, 1992, Pat. No. 5,494,649, which is a continuation-in-part of Ser. No. 771,286, Oct. 3, 1991, abandoned. This application Jul. 11, 1994, Ser. No. 273,078

Int. Cl.^{6} C01G *13/00;* **C22B** *43/00*

U.S. Cl. 423—109 **9 Claims**

1. A process for removing mercury from mercury-containing soil which comprises mixing soil and a liquid leachant composition which is an aqueous solution of (i) an acid the anion of which forms a water soluble salt with mercury; (ii) an acetate salt of an alkali metal, alkaline earth metal, or an ammonium acetate salt which forms water-soluble salts with mercury, and (iii) an oxidant selected from the group consisting of a persulfate salt. and a halogen in such a manner as to disperse at least a part of said soil in the leachant to form a liguid phase containing dispersed soil solids and for a period of time sufficient to transfer at least a portion of the mercury from the dispersed solids to a soluble mercury species in the liquid phase.

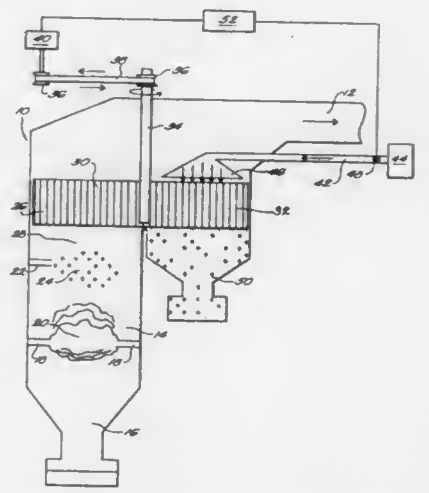
5,785,936
SIMULTANEOUS CONTROL OF SO_2, NO_X, HCL, AND PARTICULATES BY IN-FURNACE HIGH-TEMPERATURE SORBENT INJECTION AND PARTICULATE REMOVAL

Yiannis A. Levendis, Boston, Mass., assignor to Northeastern University, Boston, Mass.

Continuation-in-part of Ser. No. 349,081, Dec. 2, 1994, abandoned. This application Nov. 12, 1996, Ser. No. 747,353

Int. Cl.^{6} B01D *53/46;53/81;46/00*

U.S. Cl. 423—210 **13 Claims**



1. A process for removing NO_x, sulfur compounds, hydrogen chloride, and particulate pollutants from a fossil fuel fired combustion process comprising the steps of:
burning a fossil fuel in a flame region in a furnace and directing effluent gas from the flame region to an effluent duct coupled to said furnace;
injecting a sorbent via a sorbent injection port into said furnace at a location downstream of the flame region and upstream of said effluent duct, wherein the sulfur compounds, the hydrogen chloride, and the NO_x in the effluent gas react with the sorbent;
collecting the partially reacted sorbent and the particulate pollutants in the effluent gas in at least a portion of a ceramic filter assembly coupled to said furnace downstream of said sorbent injection port and upstream of said effluent duct, said filter assembly having pores sized to capture the sorbent and the particulate pollutants in the effluent gas while allowing passage of the effluent gas through said filter assembly, wherein the sorbent collected in said filter assembly continues to react with the sulfur compounds, the hydrogen chloride, and the NO_x in the effluent gas and carbon particles collected on the filter assembly burn;
periodically regenerating said filter assembly by providing a pulse of compressed gas to at least a portion of said filter assembly outside of the flow path of the effluent gas to dislodge particles of spent sorbent and the particulate pollutants from the effluent gas embedded in said filter assembly.

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5,785,937

METHOD FOR THE CATALYTIC CONVERSION OF NITROGEN OXIDES PRESENT IN THE EXHAUST GAS OF AN INTERNAL-COMBUSTION ENGINE

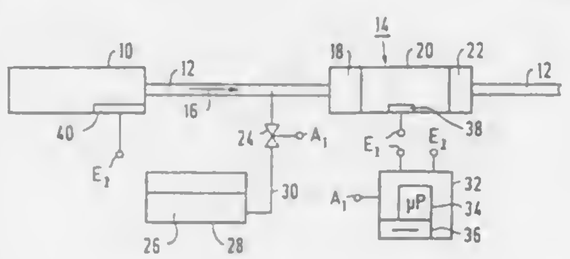
Ronald Neufert; Wieland Mathes, both of Michelau, Germany; Dagmar Schobert-Schaefer, München, and Lothar Hofmann, Burgkunstadt, all of Germany, assignors to Siemens Aktiengesellschaft, Munich, Germany

Filed Feb. 10, 1997, Ser. No. 798,517

Claims priority, application Germany, Aug. 10, 1994, 44 28 329.6

Int. Cl.^{6} B01D *53/94*

U.S. Cl. 423—213.2 **13 Claims**



1. A method for the catalytic conversion of nitrogen oxides present in the exhaust gas of an internal-combustion engine, which comprises:

introducing a reducing agent into an exhaust gas of an internal-combustion engine upstream of a denitration catalytic converter, as seen in flow direction of the exhaust gas;

feeding the reducing agent superstoichiometrically in relation to a nitrogen oxide concentration only during operating periods in which the catalytic converter stores the reducing agent; and

otherwise feeding the reducing agent substoichiometrically, the substoichiometric and superstoichiometric feed of the reducing agent being alternated.

5,785,938

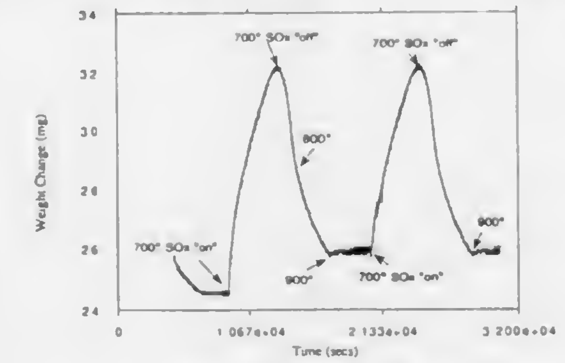
PROCESS USING RECYCLABLE SORBENTS FOR THE REMOVAL OF SOX FROM FLUE GASES AND OTHER GAS STREAMS

Thomas J. Pinnavaia, East Lansing; Malama Chibwe, Lansing, and Jayantha Amarasekera, Southgate, all of Mich., assignors to Board of Trustees operating Michigan State University, East Lansing, Mich.

Continuation of Ser. No. 319,921, Oct. 7, 1994, abandoned, which is a continuation-in-part of Ser. No. 976,543, Nov. 16, 1992, Pat. No. 5,358,701. This application Aug. 2, 1996, Ser. No. 691,424

Int. Cl.^{6} B01J *8/00*

U.S. Cl. 423—244.01 **10 Claims**



Graph showing SOx uptake by a sorbent derived from Ni3Al LDH and its regeneration

1. A process for using a regenerable sorbent for removing SO_x components from a gas stream which comprises:

(a) contacting said gas stream with a heated sorbent composition at a temperature between about 400° C. and 700° C. to remove the SO_x, wherein the sorbent before being heated has the formula:

$$[M_{1-x}^{2+}M_x^{3+}(OH)_2](A^{n-})_{x/n}.pH_2O$$

wherein M^{2+} is a divalent metal cation selected from the group consisting of nickel, zinc, magnesium and mixtures thereof, where nickel is present in the sorbent for at least part of M^{2+}, M^{3+} is a trivalent metal cation selected from the group consisting of iron, aluminum and mixtures thereof, wherein the M^{2+} and M^{3+} together provide oxidation of SO_2 to SO_3 in the gas stream, A is a non-metallic interlayer anion of charge n−, x is between 0.15 and 0.35 and p is a positive number;

(b) heating the sorbent at a temperature between about 700° and 900° C. which releases the SO_x to regenerate the sorbent;

(c) capturing the SO_x released from the sorbent; and

(d) contacting the sorbent which has been regenerated as set forth in step (b) with a second gas stream at a temperature between 400° C. and 700°C. to remove the SO_x wherein the sorbent is regenerated by removal of SO_x at 900°C.

5,785,939

METHOD FOR PRODUCING CALCIUM BORATE

David M. Schubert, Los Angeles, Calif., assignor to U.S. Borax Inc., Valencia, Calif.

Continuation-in-part of Ser. No. 544,518, Oct. 18, 1995, Pat. No. 5,688,481. This application Apr. 18, 1997, Ser. No. 844,481

Int. Cl.^{6} C01B *35/12*

U.S. Cl. 423—279 **13 Claims**

1. The method of producing crystalline calcium hexaborate tetrahydrate which comprises reacting boric acid and lime in an aqueous slurry, at a temperature in the range of from about 60° to about 85° C., wherein the molar ratio of boric acid to water is greater than about 0.25:1 and the molar ratio of lime to boric acid is in the range of about 0.05 to about 0.15:1, wherein said reactants are present in a concentration sufficient to provide at least 25% by weight undissolved solids in the aqueous product slurry, and separating said crystalline calcium hexaborate tetrahydrate from said aqueous product slurry.

9. A crystalline calcium hexaborate tetrahydrate composition produced according to the method of claim 1.

11. The method of dehydrating a crystalline calcium hexaborate tetrahydrate composition produced according to claim 1 wherein said composition is heated at a temperature above about 325° C.

13. An amorphous calcium hexaborate composition produced according to the method of claim 11.

5,785,940

SILICATE REACTOR WITH SUBMERGED BURNERS

J. Randol Carroll, West Chester; William E. Breitenbach, Collegeville, and William C. Combs, Exton, all of Pa., assignors to PQ Corporation, Valley Forge, Pa.

Filed Mar. 18, 1996, Ser. No. 617,456

Int. Cl.^{6} C01B *33/32*

U.S. Cl. 423—334 **7 Claims**

7. A reactor for producing potassium silicate comprising:

a reaction vessel including an inlet, an outlet, and an exhaust;

means for introducing feed sand and potassium carbonate to said reaction vessel;

at least one submerged burner in contact with and supplying heat to a bed of sand, potassium carbonate, and molten potassium silicate in said reaction vessel and sufficient to cause said sand and potassium carbonate to react; and

means for withdrawing said molten potassium silicate from said reaction vessel in a stream through a trough extending from and communicating with said reaction vessel outlet, having an outlet below the level of said reaction vessel outlet, and having a downward angle in excess of 30°.

5,785,941

PROCESS FOR PREPARING FINELY DIVIDED SILICA AND APPARATUS FOR CARRYING OUT THE PROCESS

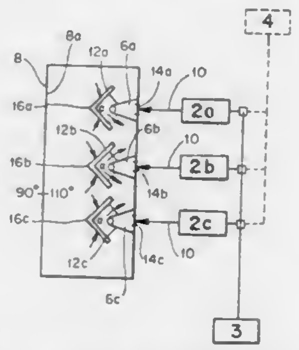
Helmut Maginot, Wendelsteinstrasse 24, D-84508 Burgkirchen, and Johann Huber, Karl-Gross-Strasse 6, D-84489 Burghausen, both of Germany

Continuation of Ser. No. 271,355, Jul. 6, 1994, abandoned. This application Nov. 13, 1995, Ser. No. 558,975

Claims priority, application Germany, Jul. 8, 1993, 43 22 804.6

Int. Cl.^{6} C01B *33/12*

U.S. Cl. 423—337 **8 Claims**



1. A process which avoids the formation of a coating on a wall of the combustion chamber arising from a deposition of silicon dioxide particles formed during a process for preparing silica in the combustion chamber comprising

intermittently blowing gas from at least one gas gun in said combustion chamber while said silica is being prepared.

5,785,942

PROCESS FOR THE PRODUCTION OF HYDROCYANIC ACID

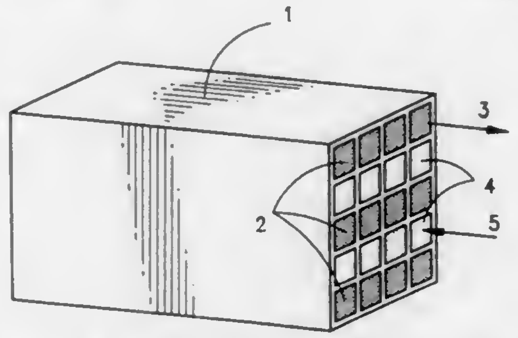
Lukas Von Hippel, Alzenau; Christian Bussek, Kahl, and Dietrich Arntz, Oberursel, all of Germany, assignors to Degussa Aktiengesellschaft, Frankfurt am Main, Germany

Filed Jun. 28, 1996, Ser. No. 670,980

Claims priority, application Germany, Jul. 3, 1995, 195 24 158.4

Int. Cl.^{6} C01C *3/02*

U.S. Cl. 423—376 **11 Claims**



1. A process for the production of hydrocyanic acid comprising;

reacting as the reactants methane and ammonia in a reactor heated by the combustion of a fuel gas and coated with a catalyst;

said reactor comprising a monolithic arrangement of heating and reaction channels for efficient heat transfer between channels through which reaction gases and heating gases pass;

said monolithic arrangement of channels being layered on top of or adjacent to each other;

said reaction channels having their internal walls coated with catalyst, and burning said fuel gas in said heating channels to provide heat for the reaction between the methane and ammonia in the reaction channels to yield hydrocyanic acid.

5,785,943

PRODUCTION OF HYDROGEN PEROXIDE

James E. Guillet, 31 Sagebrush Lane, Don Mills, Ontario, Canada, M3A 1X4, and Gad Friedman, 3 Hazait Street, Rehovot 76349, Israel

Continuation-in-part of Ser. No. 136,020, Oct. 14, 1993, Pat. No. 5,374,339. This application Oct. 14, 1994, Ser. No. 323,423

Int. Cl.^{6} B05D *7/24;* **B32B** *17/02;18/00;* **C01B** *15/023*

U.S. Cl. 423—588 **17 Claims**

1. A process for producing hydrogen peroxide, which comprises reacting oxygen, in the presence of a liquid solvent, with supported anthrahydroquinone moieties bound to a macromolecular inert support, so as to oxidize the supported anthrahydroquinone moieties to supported anthraquinone moieties with formation of hydrogen peroxide, and recovering the hydrogen peroxide so formed as a solution thereof in said liquid solvent, the supported anthraquinone being insoluble in said liquid solvent under conditions of hydrogen peroxide solution recovery.

10. A solid, immobilized anthraquinone derivative comprising:

an inorganic silica or glass supporting material having anthraquinone moieties chemically attached thereto through covalent linkages, the anthraquinone moieties having free, reducible oxo groups;

the immobilized anthraquinone derivative being chemically reducible to its corresponding immobilized anthrahydroquinone derivative which in turn is chemically oxidizable to said anthraquinone derivative to provide a cyclic reduction-oxidation process;

both said derivatives being substantially insoluble in aqueous liquids, polar organic liquids and non-polar organic liquids so as to form a solid phase in reaction mixtures utilizing such liquids as the reaction medium.

14. A process of preparing immobilized anthraquinone derivatives, which comprises treating solid silica or glass with a silane coupling compound carrying a functional group so as to produce functional group-derivatized silica, and covalently bonding thereto a substituted anthraquinone via the respective functional groups.

5,785,944

PREPARATION OF Y ZEOLITE

Stephen J. Miller, San Francisco, Calif., assignor to Chevron U.S.A. Inc., San Francisco, Calif.

Filed Jul. 31, 1996, Ser. No. 690,693

Int. Cl.^{6} C01B *39/24*

U.S. Cl. 423—700 **28 Claims**

1. A method for preparing crystalline Y zeolite from a reaction mixture which does not contain an organic template capable of producing Y zeolite, said method comprising:

(A) preparing in the absence of added binder a self-supporting reaction mixture comprising at least one active, non-zeolitic source of silica, at least one active, non-zeolitic source of alumina, and a source of hydroxide in amounts sufficient to produce Y zeolite, and sufficient water to produce Y zeolite, wherein said reaction mixture has an OH^-/SiO_2 molar ratio of 0.2 to 0.3; and

(B) maintaining said reaction mixture at a temperature of up to about 130° C. under crystallization conditions and in the absence of an added external liquid phase for sufficient time to form crystals of Y zeolite.

5,785,945

PREPARATION OF ZEOLITE L

Stephen J. Miller, San Francisco, Calif., assignor to Chevron Chemical Company LLC, San Francisco, Calif.

Filed Jul. 31, 1996, Ser. No. 690,711

Int. Cl.^{6} C01B *39/02;39/32*

U.S. Cl. 423—700 **26 Claims**

1. A method for preparing crystalline zeolite L, said method comprising:

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(A) preparing a self-supporting reaction mixture comprising at least one active source of silica at least one active source of alumina and a source of hydroxide in amounts sufficient to produce zeolite L, and sufficient water to shape said mixtures wherein said reaction mixture has an OH^-/SiO_2 molar ratio of 0.2 to 0.4;

(B) forming said reaction mixture into a shape; and

(C) heating said reaction mixture at a temperature of about 90° C. to about 200° C. under crystallization conditions and in the absence of an added external liquid phase for sufficient time to form crystals of zeolite L.

5,785,946

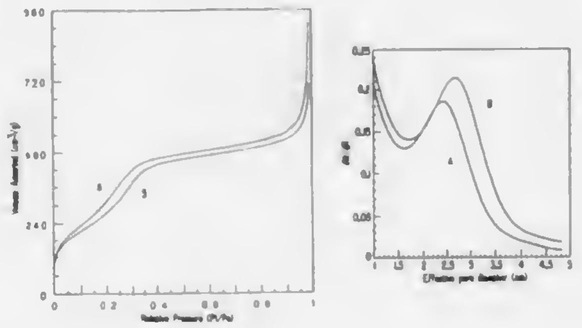
CRYSTALLINE INORGANIC OXIDE COMPOSITIONS PREPARED BY NEUTRAL TEMPLATING ROUTE

Thomas J. Pinnavala, and Peter T. Tanev, both of East Lansing, Mich., assignors to Board of Trustees operating Michigan State University, East Lansing, Mich.

Continuation-in-part of Ser. No. 431,310, Apr. 28, 1995, abandoned, which is a division of Ser. No. 355,979, Dec. 14, 1994, which is a continuation-in-part of Ser. No. 293,806, Aug. 22, 1994, abandoned. This application Feb. 28, 1997, Ser. No. 808,190

Int. Cl.^{6} C01B *39/04*

U.S. Cl. 423—701 **11 Claims**



1. A method for the preparation of a synthetic, crystalline inorganic oxide composition comprising:

(a) preparing an aqueous solution of a hydrolyzable neutral inorganic oxide precursor (I°) which is prepared from an inorganic alkoxide, containing at least one element providing the metal selected from the group consisting of di-, tri-, tetra-, penta or hexavalent elements and mixtures thereof;

(b) optionally aging the said I° inorganic oxide precursor solution under stirring at a temperature of at least minus 20° C. for at least 5 minutes;

(c) preparing a homogeneous solution of a neutral amine as a template (S°) in an aqueous solution as a solvent, and optionally an alcohol as a co-solvent by stirring it at a temperature between about minus 20° and plus 100° C., wherein the amine is selected from the group consisting of $R_1R_2R_3N$ wherein at least one of R_1, R_2 and R_3 is selected from the group consisting of alkyl containing 6 to 22 carbon atoms and aryl containing 6 to 18 carbon atoms and combinations thereof and the remaining of R_1, R_2 and R_3 are hydrogen and alkyl containing 1 to 18 carbon atoms and combinations thereof and a diamine of the formula $R_1R_2N\text{-}XR_4R_5$ and wherein X is selected from the group consisting of alkyl and aryl containing 1 to 18 carbon atoms and combinations thereof containing 1 to 18 carbon atoms and the remaining R groups are selected from the group consisting of hydrogen, alkyl and aryl containing 1 to 18 carbon atoms and combinations thereof;

(d) mixing of the solutions of steps (a) or (b) and (c) at a temperature between about minus 20° and plus 100° C. to form a gel which is aged at 20° C. to 100° C. for at least about 30 minutes to form a crystalline product from the gel;

(e) separating and recovering at least some of the solvent and co-solvent and the amine from the crystalline product by extraction of the amine wherein the extraction is performed with a solvent for the amine or by vacuum distillation; and

(f) calcining the crystalline product at about 300° to 1000° C. for at least about 30 minutes.

5,785,947

PREPARATION OF ZEOLITES USING ORGANIC TEMPLATE AND AMINE

Stacey I. Zones, San Francisco, and Yumi Nakagawa, Oakland, both of Calif., assignors to Chevron U.S.A. Inc., San Francisco, Calif.

Continuation-in-part of Ser. No. 407,432, Mar. 17, 1995, abandoned, which is a continuation-in-part of Ser. No. 130,217, Oct. 1, 1993, abandoned, which is a continuation-in-part of Ser. No. 42,842, Apr. 6, 1993, abandoned, which is a continuation of Ser. No. 809,652, Dec. 18, 1991, abandoned. This application Sep. 11, 1996, Ser. No. 714,025

Int. Cl.^{6} C01B *39/04*

U.S. Cl. 423—705 **50 Claims**

1. A method for preparing a zeolite selected from the group consisting of large pore zeolites, medium pore zeolites having unidimensional channels, and small pore zeolites, said method comprising:

A. forming an aqueous reaction mixture comprising (1) a source of an oxide selected from silicon oxide, germanium oxide and mixtures thereof; (2) a source of an oxide selected from aluminum oxide, gallium oxide, iron oxide, boron oxide, titanium oxide and mixtures thereof; (3) a source of an alkali metal oxide; (4) an amine component comprising at least one amine containing one to eight carbon atoms, ammonium hydroxide, and mixtures thereof, and (5) an organic templating compound capable of forming said zeolite in the presence of said amine, wherein said amine is smaller than said organic templating compound and wherein said organic templating agent is used in an amount less than that required to crystallize the zeolite in the absence of said amine component; and

B. maintaining said aqueous mixture under sufficient crystallization conditions until crystals are formed.

5,785,948

METAL CHELATE FORMING PEPTIDES AND USE THEREOF REPRESENTED BY THREE AMINO ACID SEQUENCES

Yoshitoshi Itaya, Sodegaura; Ikuya Seki, Ichihara; Koichi Hanaoka, Sodegaura, and Yoshifumi Shirakami, Ichihara, all of Japan, assignors to Nihon Medi-Physics Co., Ltd., Hyogo-ken, Japan

Division of Ser. No. 575,863, Dec. 20, 1995. This application Mar. 12, 1997, Ser. No. 815,530

Claims priority, application Japan, Dec. 27, 1994, 6-338024

Int. Cl.^{6} A61K *51/00;* **A61M** *36/14*

U.S. Cl. 424—1.69 **21 Claims**

1. A metal radionuclide-labelled reagent comprising a metal radionuclide coordinated with a metal chelate forming peptide having an amino acid sequence represented by:

X1 - X2 - Cys

wherein X1 represents an Asp residue, a Tyr residue or a Lys residue; X2 represents an amino acid residue other than a Cys residue and a Pro residue, provided that X2 does not represent a Gly residue when X1 represents an Asp residue; wherein functional groups at the N-terminus, C-terminus and side chain are optionally substituted with protecting groups; and wherein each of the amino acid residues are either D-form or L-form.

5,785,949

MEASUREMENT OF LIQUID PHASE GASTRIC EMPTYING

Peter D. Klein, Houston, Tex., assignor to Meretek Diagnostics, Houston, Tex.

Filed Sep. 5, 1996, Ser. No. 711,405

Int. Cl.^{6} A61K *51/00;* **A61M** *36/14*

U.S. Cl. 424—1.81 **7 Claims**

1. A method of measuring gastric emptying time of a liquid phase meal, comprising the steps of: preparing an edible alga of single cell organisms labeled with a carbon isotope by photosynthesis; suspending the alga in a liquid; having a patient consume said liquid and alga so that the carbon labeled nutrients therein are unable to penetrate the gastric mucosa and are absorbed in the small intestine and oxidized to labeled CO_2; and detecting the level of labeled CO_2 in breath samples taken from the patient at periodic intervals to determine the rate of gastric emptying of said liquid phase.

5,785,950

HIGHLY FLUORINATED, CHLORO-SUBSTITUTED ORGANIC COMPOUND-CONTAINING EMULSIONS AND METHODS OF MAKING AND USING THEM

Robert J. Kaufman; Thomas J. Richard, both of University City, Mo.; George G. I. Moore, Afton, and Richard M. Flynn, Mahtomedi, both of Minn., assignors to HemaGen/PFC, St. Louis, Mo., and Minnesota Mining & Manufacturing Co., St. Paul, Minn.

PCT No. PCT/US92/10736, § 371 Date Oct. 12, 1994, § 102(e) Date Oct. 12, 1994, PCT Pub. No. WO93/11868, PCT Pub. Date Jun. 24, 1993

Continuation-in-part of Ser. No. 806,692, Dec. 12, 1991, Pat. No. 5,403,575. This PCT application Dec. 11, 1992, Ser. No. 244,804

Int. Cl.^{6} A61K *31/02;43/00;49/04;* **B01J** *13/00*

U.S. Cl. 424—1.89 **23 Claims**

1. An emulsion comprising perfluoro-bis-chlorobutylether.

14. A contrast agent for biological imaging comprising an amount of an emulsion according to any one of claims 1 to 4 or 5 to 11, said amount being clinically effective for imaging by x-ray, ultrasound, computed tomography, nuclear magnetic resonance, ^{19}F-magnetic resonance imaging or positron emission tomography.

5,785,951

USE OF KETOROLAC FOR TREATMENT OF ORAL DISEASES AND CONDITIONS

Gary Robert Kelm; Harvey Marvin Pickrum; Matthew Joseph Doyle, and William Buchanan, all of Cincinnati, Ohio, assignors to The Procter & Gamble Company, Cincinnati, Ohio

Division of Ser. No. 280,163, Jul. 25, 1994, Pat. No. 5,464,609, which is a continuation of Ser. No. 132,426, Oct. 5, 1993, abandoned, which is a continuation of Ser. No. 947,193, Sep. 18, 1992, abandoned, which is a continuation-in-part of Ser. No. 930,493, Aug. 14, 1992, abandoned, which is a continuation of Ser. No. 651,061, Feb. 8, 1991, abandoned, which is a continuation-in-part of Ser. No. 494,697, Mar. 16, 1990, abandoned. This application Jul. 18, 1995, Ser. No. 503,575

Int. Cl.^{6} A61K *7/16;7/22*

U.S. Cl. 424—49 **3 Claims**

1. A method for prevention or treatment of bone loss due to periodontal flap surgery comprising topical administration to gingival mucosal tissue of the oral cavity after surgery, of a composition providing from about 0.001% to about 0.2% of ketorolac in the oral cavity, wherein said composition is not swallowed and is expectorated after about at least 15 seconds in the mouth.

5,785,952

AEROSOL MEDICAMENT FORMULATION HAVING A SURFACE COATING OF SURFACTANT

Anthony James Taylor, and Patricia Kwon Phieu Burnell, both of Ware, Great Britain, assignors to Glaxo Group Limited, Greenford, England

Continuation of Ser. No. 305,816, Sep. 14, 1994, abandoned, which is a continuation of Ser. No. 39,425, Apr. 29, 1993, abandoned. This application May 12, 1995, Ser. No. 440,441

Claims priority, application United Kingdom, Nov. 9, 1990, 9024366

Int. Cl.^{6} A61K *9/12*

U.S. Cl. 424—46 **19 Claims**

1. An aerosol dispersion formulation comprising a hydrogen-containing fluorocarbon or a hydrogen-containing chlorofluorocarbon propellant and a surfactant-coated medicament in an amount of from 0.005 to 5% w/w, based upon the total weight of the formulation,

said surfactant-coated medicament consisting of a medicament selected from the group consisting of salmeterol, fluticasone propionate and physiologically acceptable salts and solvates thereof in particulate form,

said medicament having a particle size of less than 100 microns and having a dry surface coating of surfactant,

which surfactant is present in an amount of from 0.01 to 10% w/w, based upon the weight of the medicament,

which surfactant has no affinity for said propellant, and

wherein the formulation contains less than 0.5% w/w, based upon the weight of the propellant of liquid components of higher polarity than the propellant.

5,785,953

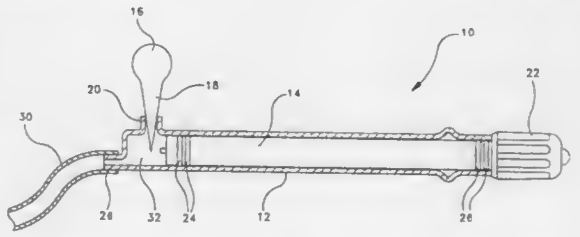
MAGNETIC RESONANCE IMAGING USING HYPERPOLARIZED NOBLE GASES

Mitchell S. Albert; Dilip Balamore, both of Shoreham, N.Y.; Gordon D. Cates, Jr., Skillman, N.J.; Bastiaan Driehuys, Bristol, Pa.; William Happer; Brian Saam, both of Princeton, N.J., and Arnold Wishnia, Setauket, N.Y., assignors to The Trustees of Princeton University, Princeton, N.J., and The Research Foundation of State University of New York, Albany, N.Y.

Continuation of Ser. No. 225,243, Apr. 8, 1994, Pat. No. 5,545,396. This application Jun. 17, 1996, Ser. No. 666,871

Int. Cl.^{6} A61B *5/055*

U.S. Cl. 424—93 **45 Claims**



1. A method of nuclear magnetic resonance (NMR) imaging, which comprises the steps of:

a) delivering a hyperpolarized noble gas to a sample to be represented by NMR imaging;

b) detecting a spatial distribution of said hyperpolarized noble gas in said sample by NMR; and

c) generating a representation of said spatial distribution of said hyperpolarized noble gas.

5,785,954

Patent Not Issued For This Number

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5,785,955
HEMOSTATIC COMPOSITIONS FOR TREATING SOFT TISSUE

Dan E. Fischer, 10444 S. Dimple Dell Rd., Sandy, Utah 84093

Continuation of Ser. No. 439,856, May 12, 1995, abandoned, which is a continuation of Ser. No. 393,369, Feb. 23, 1995, Pat. No. 5,635,162. This application Sep. 10, 1997, Ser. No. 926,866

Int. Cl.^{6} A61K *9/68*

U.S. Cl. 424—49 **43 Claims**

1. A hemostatic composition comprising:

(a) a quantity of a hemostatic agent selected from the group consisting of ferric sulfate, ferric subsulfate, ferric chloride, zinc chloride, aluminum chloride, aluminum sulfate, aluminum chlorohydrate, aluminum acetate, alums, permanganates, tannins, and mixtures thereof;

(b) an effective amount of an inorganic filler for increasing the viscosity of the hemostatic composition and for reducing acidic activity of the hemostatic agent;

(c) a polyol for assisting the inorganic filler in reducing the acidic activity of the hemostatic agent, the polyol being selected from the group consisting of polyethylene glycol, propylene glycol, dipropylene glycol, polypropylene glycol, glycerine, sorbitol, and mixtures thereof; and

(d) an aqueous base.

5,785,956
DUAL COMPONENT DENTIFRICE COMPOSITION FOR DENTAL FLUORIDATION

Richard J. Sullivan, Edison, and Abdul Gaffar, Princeton, both of N.J., assignors to Colgate Palmolive Company, New York, N.Y.

Filed Jun. 7, 1996, Ser. No. 664,226

Int. Cl.^{6} A61K *7/16;7/18*

U.S. Cl. 424—52 **14 Claims**

1. A dual component dentifrice composition for the fluoridation of tooth structures the components being physically separated prior to extrusion in which a first component is a stable, semi-solid, extrudable dentifrice composition which is free of calcium ion and contains a fluoride releasable salt and the second component is a semi-solid, extrudable dentifrice composition containing a dicalcium phosphate abrasive having a magnesium ion content less than about 0.5% by weight based on the weight of the abrasive, the first and second dentifrice components having substantially equivalent viscosities to obtain synchronous extrusion of the components when dispensed for application to the teeth, the components when mixed upon application to teeth providing increased deposition of fluoride thereon.

5,785,957
INCLUSION OF TOOTH WHITENING OXIDATION CHEMISTRIES INTO A TOOTH-PASTE COMPOSITION

Paul Losee, 2783 N. Highway 89, Layton, Utah 84041; F. Richard Austin, 2045 E. 2200 North, Layton, Utah 84090, and Blaine D. Austin, 1811 N. Forest Ridge, Layton, Utah 84040

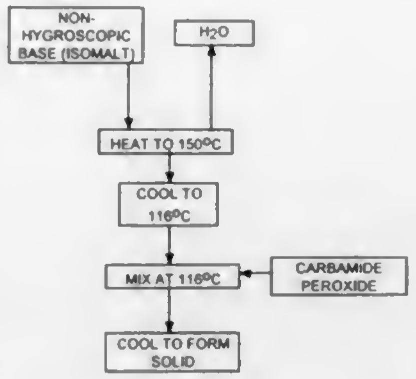
Continuation-in-part of Ser. No. 571,133, Dec. 12, 1995. This application Jan. 13, 1997, Ser. No. 783,385

Int. Cl.^{6} A61K *7/16;7/20;33/40;47/26*

U.S. Cl. 424—53 **5 Claims**

1. A tooth-paste composition for a tooth whitening composition comprising;

carbamide peroxide in an amount effective to dissolve and produce a whitening effect on teeth when the composition is used in the mouth,



a solid, water-free, non-hygroscopic base comprising isomalt, with water in the composition at sufficiently low amount and the composition being sufficiently non-hygroscopic to provide a stable composition with respect to the decomposition of carbamide peroxide in the presence of water.

5,785,958
NON-YELLOWING RAPID DRYING NAIL POLISH TOP-COAT COMPOSITIONS

Sunil J. Sirdesai, Irvine, and George Schaeffer, Beverly Hills, both of Calif., assignors to OPI Products, Inc., North Hollywood, Calif.

Filed Nov. 13, 1995, Ser. No. 558,638

Int. Cl.^{6} A61K *7/00;7/04*

U.S. Cl. 424—61 **30 Claims**

1. A coating composition for application over nail polish, consisting of:

a base resin of cellulose acetate butyrate, from 5 to 50% by weight of the total composition;

a monomer of an aliphatic ester of methacrylic acid from 0.5 to 20% by weight of the total composition;

a film former of methacrylate polymer from 5 to 20% by weight of the total composition;

a cross-linking agent; and

an initiator of polymerization,

wherein the composition forms a durable coating with a substantially clear appearance.

5,785,959
NAIL STRENGTHENING COMPOSITIONS AND A METHOD FOR STRENGTHENING NAILS

Barbara Ann Wolf, Scarsdale, N.Y.; William Joseph Radice, North Brunswick, N.J.; Teanoosh Moaddel, Woodbridge, N.J., and James Joseph Ferone, Bridgewater, N.J., assignors to Revlon Consumer Products Corporation, NY, N.Y.

Filed Aug. 16, 1996, Ser. No. 698,585

Int. Cl.^{6} A61K *7/04*

U.S. Cl. 424—61 **10 Claims**

1. A nail strengthening composition comprising:

1–60% of a permeation/binding agent,

0.001–20% of a thio cross-linking agent,

0.001–20% of a chelating agent,

5–80% water, and

1–60% oil.

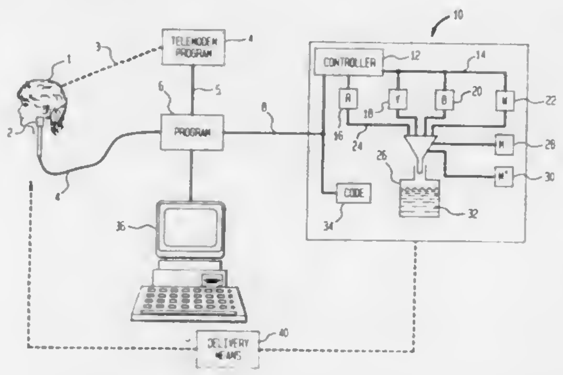
5,785,960
METHOD AND SYSTEM FOR CUSTOMIZING DERMATOLOGICAL FOUNDATION PRODUCTS

Richard Tyson Rigg, Springfield Gardens, N.Y.; Jason Oliver Hendry, Chesire, and Madeline Demayo Flynn, Monroe, both of Conn., assignors to Elizabeth Arden Co., Division of Conopco, Inc., New York, N.Y.

Filed Mar. 19, 1997, Ser. No. 820,516

Int. Cl.^{6} A61K *7/021*

U.S. Cl. 424—63 **17 Claims**



1. A method for customizing a skin foundation product to a customer at a location remote from a central monitoring location in which the product is prepared is also described. The method comprises the steps of:

(a) obtaining a reading of a customer's skin coloration and generating signal conveying information by applying a device for measuring coloration in proximity to the skin of the customer in a remote location;

(b) transmitting the signal conveying information by telemodem means to a device located at a central monitoring location;

(c) converting the signal conveying information in the device to a set of operating instructions for an optimal skin foundation;

(d) transferring the set of operating instructions to a formulation machine for automatically preparing the optimal skin foundation;

(e) dosing together within the formulation machine a plurality of cosmetic chemical compositions including at least four different pigments selected from a red, yellow, black and white monochromatic compositions to form a dosed formula in accordance with the set of operating instructions;

(f) delivering into a container the dosed formula; and

(g) transmitting the container from the central monitoring system back to the remote location of the customer.

5,785,961
MIXING-AT THE TIME OF USE-TYPE HAIR-TREATING COMPOSITION

Yasunari Nakama; Yoko Takeshita; Yasuhiro Arai; Michihiro Yamaguchi, and Masa'aki Yasuda, all of Yokohama, Japan, assignors to Shiseido Company, Ltd., Tokyo, Japan

PCT No. PCT/JP95/01527, § 371 Date Nov. 26, 1996, § 102(e) Date Nov. 26, 1996, PCT Pub. No. WO96/29976, PCT Pub. Date Oct. 3, 1996

PCT Filed Aug. 1, 1995, Ser. No. 750,115

Claims priority, application Japan, Mar. 28, 1995, 7-069099; Mar. 28, 1995, 7-069100; Mar. 28, 1995, 7-069101

Int. Cl.^{6} A61K *7/06*

U.S. Cl. 424—70.19 **26 Claims**

1. A mixing-at the time of use-type hair dye composition wherein a dye and an oxidizing agent are combined at the time of use, wherein

(a) the composition after the combination comprises a dye (I), one or more (II) of surface active agents selected from the group consisting of amphoteric surface active agents and semipolar surface active agents, (II) being optional component(s), one or more (III) of higher fatty acids, one or more (IV) of anionic surface active agents, an oxidizing agent (V), and water (VII), and

(b) before use, components selected from the group consisting of components (I), (II) and (III) are put in such a form that they each are separated from component (V).

5,785,962
HAIR SHAMPOO

Sabine Hinz, Pfungstadt, and Dieter Heinz, Gustavsburg, both of Germany, assignors to Goldwell GmbH, Germany

Continuation of Ser. No. 599,492, Jan. 24, 1996, abandoned. This application Feb. 14, 1997, Ser. No. 801,097

Claims priority, application Germany, Feb. 15, 1995, 195 04 914.4

Int. Cl.^{6} A61K *7/075*

U.S. Cl. 424—70.22 **15 Claims**

1. A hair shampoo composition comprising at least 5% to 50% by weight of the total composition of at least one anionic surfactant, and a mixture of

a) at least 0.1% by wt. lactic acid;

b) at least 0.05% by wt. citric acid; and

c) at least 0.05% by wt. pyrrolidone carboxylic acid;

wherein all percentages are calculated by weight of the total composition.

5,785,963
POLYMERIC HYDANTOIN QUATERNARY COMPOUNDS, METHODS OF MAKING

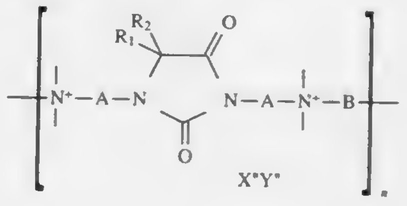
Chuen-Ing J. Tseng, Lawrenceville, N.J., assignor to Lonza, Inc., Annandale, N.J.

Filed Mar. 27, 1996, Ser. No. 624,763

Int. Cl.^{6} A61K *31/785;31/77;* **C08G** *73/06;65/24*

U.S. Cl. 424—78.36 **14 Claims**

1. A polymeric hydantoin quaternary compound, wherein said compound has the following formula:



$$\left[-\overset{|}{\underset{|}{N^+}}-A-N(\text{hydantoin ring: } C(R_1)(R_2)-C(=O),\ C(=O))N-A-\overset{|}{\underset{|}{N^+}}-B- \quad X^-Y^- \right]_n$$

wherein

X and Y are Cl, Br, or I;

R_1 and R_2, which may be the same or different, are selected from the group consisting of hydrogen; alkyl groups of 1 to 18 carbons; alkenyl groups of 1 to 18 carbons; alkynyl groups of 1 to 18 carbons; or substituted derivatives thereof where the substitution may be alkyl or alkoxy or phenyl groups;

R_1 and R_2 taken together may be a cycloaliphatic group of 4 or 5 carbon atoms; A and B may be $-(CH_2)_m-$; $-(CH_2)_mCH{=}CH(CH_2)_p-$; $-(CH_2)_mC{\equiv}C(CH_2)_p-$; $-(CH_2)_mO(CH_2)_p-$; $-(CH_2)_mCHOH(CH_2)_p-$; $-(CH_2)_mNC(O)(CH_2)_p-$; or $-(CH_2)_mC_6H_4(CH_2)_p-$; m and p may be from 1 to 20; and n, the degree of polymerization, may be from 1 to 3,000.

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THREE-DIMENSIONAL GENETICALLY ENGINEERED CELL AND TISSUE CULTURE SYSTEM

Gail K. Naughton, and Brian A. Naughton, both of Groton, Vt., assignors to Advanced Tissue Sciences, Inc., La Jolla, Calif.

Division of Ser. No. 131,361, Oct. 4, 1993, Pat. No. 5,443,950, which is a division of Ser. No. 575,518, Aug. 30, 1990, Pat. No. 5,266,480, which is a division of Ser. No. 402,104, Sep. 1, 1989, Pat. No. 5,032,508, which is a continuation-in-part of Ser. No. 242,096, Sep. 8, 1988, Pat. No. 4,963,489, which is a continuation-in-part of Ser. No. 38,110, Apr. 14, 1987, abandoned, which is a continuation-in-part of Ser. No. 36,154, Apr. 3, 1987, Pat. No. 4,721,096, which is a continuation of Ser. No. 853,569, Apr. 18, 1986, abandoned. This application Apr. 6, 1995, Ser. No. 418,238

Int. Cl.^{6} A01N *63/00;* C12N *5/10*

U.S. Cl. 424—93.21 85 Claims

1. A genetically engineered living stromal tissue prepared in vitro, comprising stromal cells transfected with an exogenous gene under the control of an expression element so that the exogenous gene product is expressed, in which both the transfected stromal cells and connective tissue proteins naturally secreted by the transfected stromal cells are attached to and substantially envelope a framework composed of a biocompatible, nonliving material thereby forming a three-dimensional structure having interstitial spaces bridged by the transfected stromal cells.

5,785,965

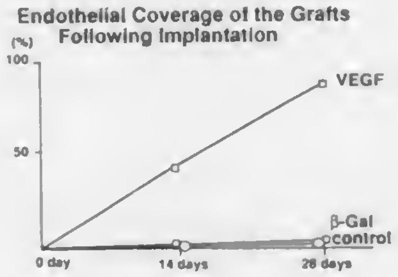
VEGF GENE TRANSFER INTO ENDOTHELIAL CELLS FOR VASCULAR PROSTHESIS

Richard E. Pratt, Palo Alto, and Victor J. Dzau, Los Altos, both of Calif., assignors to The Board of Trustees of the Leland Stanford Junior Univ., Palo Alto, Calif.

Filed May 15, 1996, Ser. No. 647,821

Int. Cl.^{6} A01N *63/00;* C12N *15/00*

U.S. Cl. 424—93.21 11 Claims



1. A vascular prosthesis, comprising:

a synthetic small caliber vessel; wherein deposited on the luminal surface of said vessel are microvessel endothelial cells isolated from subcutaneous adipose tissue and genetically modified by the introduction of DNA encoding human vascular endothelial growth factor (VEGF): operably linked to regulatory sequences for the expression of said VEGF in an endothelial cell.

6. A method of preparing a vascular prosthesis, the method comprising:

modifying microvessel endothelial cells isolated from adipose tissue by the introduction of a vascular growth factor expression vector encoding human vascular endothelial growth factor (VEGF); operably linked to regulatory sequences for the expression of said VEGF in an endothelial cell;

depositing said modified endothelial cells on the luminal surface of a synthetic small caliber vessel;

wherein said modified endothelial cells express said VEGF, thereby facilitating rapid endothelialization and reducing the rate of thrombogenicity when compared to conventional synthetic grafts.

5,785,966

INHIBITION OF HUMAN XENOGENIC OR ALLOGENIC ANTIBODIES TO REDUCE XENOGRAFT OR ALLOGRAFT REJECTION IN HUMAN RECIPIENTS

John G. Coles, 162 Alexandria Boulevard, Toronto, Ontario, Canada, M4R 1M4; Miyoko Takahashi, 65 Franklin Avenue, North York, Ontario, Canada, M2N 1B8; David S. F. Young, 51 Baldwin Street, #3, Toronto, Ontario, Canada, M5T 1L1, and Inka Brockhausen, 88 Fallingbrook Road, Scarborough, Ontario, Canada, M1N 2T4

Filed Jun. 15, 1994, Ser. No. 261,905

Int. Cl.^{6} A61K *39/395;* C07K *16/42;* C12N *5/12*

U.S. Cl. 424—131.1 8 Claims

1. A method for reducing xeno-graft rejection in a patient comprising treating the blood of said patient with an effective amount of at least one β-type anti-idiotypic antibody reactive to a human anti-xenogenic antibody, or mixtures thereof, to reduce blood levels of said human anti-xenogenic antibody, and the B-cells that produce said antibodies in a patient in need of such reduction; wherein said β-type anti-idiotypic antibody is prepared by a method comprising:

preparing a mouse monoclonal antibody to a xenoantigen, wherein said xenoantigen is reactive against said human anti-xenogenic antibody;

using said monoclonal antibody as an antigen to immunize a syngeneic mouse to prepare an anti-idiotypic antibody; and

isolating a β-type anti-idiotypic antibody.

5,785,967

ANTIBODIES IMMUNOREACTIVE WITH LEUKEMIA INHIBITORY FACTOR RECEPTORS

David P. Gearing, Seattle, and Patricia M. Beckmann, Poulsbo, both of Wash., assignors to Immunex Corporation, Seattle, Wash.

Division of Ser. No. 119,780, Sep. 10, 1993, Pat. No. 5,420,247, which is a division of Ser. No. 943,843, Sep. 11, 1992, Pat. No. 5,284,755, which is a continuation-in-part of Ser. No. 670,608, Mar. 13, 1991, abandoned, which is a continuation-in-part of Ser. No. 626,725, Dec. 13, 1990, abandoned. This application Nov. 29, 1994, Ser. No. 347,003

Int. Cl.^{6} A61K *39/395;39/40;* C07K *16/00;* C12P *21/08*

U.S. Cl. 424—139.1 8 Claims

4. A monoclonal antibody that is immunoreactive with a LIF receptor (LIF-R), wherein said LIF-R comprises an amino acid sequence selected from the group consisting of amino acids 1–957 of SEQ ID NO:2, amino acids 1–676 of SEQ ID NO:4, and amino acids 1–1053 of SEQ ID NO:6.

5,785,968

ANTI-FELINE CALICIVIRUS RECOMBINANT ANTIBODY AND GENE FRAGMENT ENCODING THE SAME

Kazuhiko Kimachi; Hiroaki Maeda, both of Kumamoto; Kiyoto Nishiyama, Kikuchi; Sachio Tokiyoshi, Kumamoto; Yukinobu Tohya, Bunkyo-ku, and Takeshi Mikami, Kamagaya, all of Japan, assignors to Juridical Foundation The Chemo-Sero-Therapeutic Research Institute, Kumamoto, Japan

Filed Mar. 1, 1993, Ser. No. 24,253

Claims priority, application Japan, Feb. 28, 1992, 4-079189

Int. Cl.^{6} C07H *21/04;16/00;* A61K *39/395*

U.S. Cl. 424—147.1 3 Claims

1. A genetically-engineered recombinant antibody capable of specifically reacting with a feline calicivirus comprising VH and VL regions which have the amino acid sequence from the 20th to the 136th amino acid of SEQ ID NO: 1 and the amino acid sequence from the 21st to the 123rd amino acid of SEQ ID NO: 2, respectively, and H and L constant regions having an amino acid sequence derived from a feline antibody.

5,785,969

METHOD AND PHARMACEUTICAL AND DIAGNOSIS COMPOSITIONS FOR DRUG TARGETING

Shlomo Magdassi; Zichria Zazkay Rones, both of Jerusalem, and Ofer Toledano, Tel Aviv, all of Israel, assignors to Yissum, Research Development Company of The Hebrew University of Jerusalem, Jerusalem, Israel

PCT No. PCT/EP94/02827, § 371 Date Jul. 22, 1996, § 102(e) Date Jul. 22, 1996, PCT Pub. No. WO95/06483, PCT Pub. Date Mar. 9, 1995

PCT Filed Aug. 25, 1994, Ser. No. 600,988

Claims priority, application Israel, Sep. 2, 1993, 106887

Int. Cl.^{6} A61K *39/395;47/44*

U.S. Cl. 424—181.1 10 Claims

1. A pharmaceutical or diagnostic composition comprising

1) micelle-like antibody aggregates that are formed from antibodies having hydrophobic chains, wherein said micelle-like antibody aggregates are produced by a process comprising attaching hydrophobic chains to antibodies in the presence of a surface-active agent, removing said surface-active agent, and allowing said antibodies with attached hydrophobic chains to form micelle-like antibody aggregates in an aqueous medium, and

2) pharmaceutically active or diagnostically useful hydrophobic molecules which are solubilized by the hydrophobic chains of the derivatized antibodies within the micelle-like antibody aggregate.

5,785,970

METHOD OF THE TREATMENT OF GASTROINTESTINAL DISORDERS WITH IMMUNOGENIC COMPOSITIONS AGAINST GASTRIN

Philip C. Gevas, Honolulu, Hi.; Stephen L. Karr; Stephen Grimes, both of Davis, Calif., and Richard L. Littenberg, Kai Lua, Hi., assignors to Aphton Corporation, Larkspur, Calif.

Continuation of Ser. No. 285,984, Aug. 4, 1994, Pat. No. 5,609,870, which is a continuation of Ser. No. 721,638, Jul. 22, 1991, Pat. No. 5,607,676, which is a continuation-in-part of Ser. No. 351,193, May 12, 1989, abandoned, which is a continuation-in-part of Ser. No. 301,353, Jan. 24, 1989, Pat. No. 5,023,077. This application Jun. 5, 1995, Ser. No. 462,158

Int. Cl.^{6} A61K *39/00;39/385;38/00;* C07K *5/00*

U.S. Cl. 424—184.1 12 Claims

1. A method for the treatment of a gastro-intestinal disorder, comprising administering to a mammal in need thereof an immunogen which raises antibodies in the mammal against its own G_{17}, which antibodies do not cross react with G_{34}, said immunogen comprising an immunogenic carrier conjugated to the carboxyl terminal of a peptide selected from the group of peptides which comprise fragments of the N-terminal amino acid sequence of heptadecagastrin ("G_{17}") up to amino acid residue number 12 attached to a spacer peptide.

5,785,971

PERTUSSIS TOXIN AND USE IN VACCINES

Rino Rappuoli, Quercegrossa-Monteriggioni; Alfredo Nicosia, Siena, and Maria Beatrice Arico, Quercegrossa, all of Italy, assignors to Chiron S.p.A., Italy

Division of Ser. No. 261,743, Jun. 17, 1994, Pat. No. 5,427,788, which is a continuation of Ser. No. 968,162, Oct. 29, 1992, abandoned, which is a division of Ser. No. 634,100, Dec. 26, 1990, which is a continuation of Ser. No. 6,438, Jan. 23, 1987, abandoned. This application Jun. 6, 1995, Ser. No. 467,154

Claims priority, application Italy, Jan. 28, 1986, 19208-A/86; Jul. 30, 1986, 21314-A/86

Int. Cl.^{6} A61K *39/10*

U.S. Cl. 424—190.1 2 Claims

1. *Pertussis* toxin obtained by chemical synthesis or from microorganisms transformed with molecules of recombinant DNA containing the five genes that code for *pertussis* toxin, in which the subunits S1, S2, S3 and S4 are characterized by the aminoterminal sequences set forth in FIG. 2.

5,785,972

COLLOIDAL SILVER, HONEY, AND HELICHRYSUM OIL ANTISEPTIC COMPOSITION AND METHOD OF APPLICATION

Kathleen A. Tyler, Route 5, Box 5285, Hermiston, Oreg. 97838

Filed Jan. 10, 1997, Ser. No. 781,460

Int. Cl.^{6} A61K *35/78;35/64;33/38;31/685*

U.S. Cl. 424—195.1 13 Claims

1. A composition of matter comprising

a combination of colloidal silver, raw honey and helichrysum oil emulsified with an emulsifer to form a solution.

5,785,973

SYNTHETIC PEPTIDES REPRESENTING A T-CELL EPITOPE AS A CARRIER MOLECULE FOR CONJUGATE VACCINES

Garvin Bixler, Fairport; Subramonia Pillai, and Richard Insel, both of Rochester, all of N.Y., assignors to Praxis Biologics, Inc., Rochester, N.Y.

Continuation of Ser. No. 164,989, Dec. 9, 1993, abandoned, which is a continuation of Ser. No. 828,711, Jan. 31, 1992, abandoned, which is a continuation of Ser. No. 304,783, Jan. 31, 1989, abandoned, which is a continuation-in-part of Ser. No. 150,688, Feb. 1, 1988, abandoned. This application Jun. 7, 1995, Ser. No. 481,923

Int. Cl.^{6} A61K *39/12;38/16;38/08*

U.S. Cl. 424—196.11 26 Claims

1. An immunogenic conjugate consisting of a polysaccharide antigen covalently bound to one T-cell epitope of tetanus toxin, diphtheria toxin or pertussis.

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SYNTHETIC PEPTIDES AND VACCINES AGAINST PARVOVIRUS

José Ignacio Casal Alvarez; Carmen Vela Olmo, both of Madrid, Spain; Joannes Pieter Maria Langeveld, Harderwijk; Robert Hans Meloen, Lelystad, both of Netherlands, and Kristian Dalsgaard, Kalvehave, Denmark, assignors to Immunologia Y Genetica Aplicada, S.A., Madrid, Spain

PCT No. PCT/ES94/00006, § 371 Date Nov. 9, 1994, § 102(e) Date Nov. 9, 1994, PCT Pub. No. WO94/17098, PCT Pub. Date Aug. 4, 1994

PCT Filed Jan. 21, 1994, Ser. No. 307,724

Claims priority, application Spain, Jan. 23, 1993, 9300117; Jan. 20, 1994, 9400111

Int. Cl.^{6} A61K *39/23;39/235*

U.S. Cl. 424—233.1 **12 Claims**

1. A vaccine to protect dogs from infection caused by canine parvovirus comprising:

an immunizing quantity of a peptide selected from the group consisting of: SEQ ID NO: 1; SEQ ID NO: 5, SEQ ID NO: 6, SEQ ID NO: 7, SEQ ID NO: 8, SEQ ID NO: 9, SEQ ID NO: 10, SEQ ID NO: 11, SEQ ID NO: 12, and SEQ ID NO: 13; and

a diluent and an adjuvant, being immunologically acceptable.

5,785,975
ADJUVANT COMPOSITIONS AND VACCINE FORMULATIONS COMPRISING SAME

Indu Parikh, Chapel Hill, N.C., assignor to Research Triangle Pharmaceuticals, Durham, N.C.

Filed Jun. 26, 1995, Ser. No. 494,969

Int. Cl.^{6} A61K *45/00*

U.S. Cl. 424—278.1 **15 Claims**

1. An adjuvant useful for administration to a host animal to stimulate immune response, comprising a polysaccharide-phospholipid conjugate wherein the conjugate polysaccharide and phospholipid components are linked by a covalent bond.

5,785,976
SOLID LIPID PARTICLES, PARTICLES OF BIOACTIVE AGENTS AND METHODS FOR THE MANUFACTURE AND USE THEREOF

Kirsten Westesen, Konigslutter/Bornum, and Britta Siekmann, Braunschweig, both of Germany, assignors to Pharmacia & UpJohn AB, Stockholm, Sweden

Continuation-in-part of Ser. No. 141,058, Oct. 26, 1993, abandoned, which is a continuation-in-part of Ser. No. 27,501, Mar. 5, 1993, abandoned. This application Apr. 12, 1994, Ser. No. 226,471

Claims priority, application Canada, Mar. 5, 1993, 2091152

Int. Cl.^{6} A61K *9/10;9/19;* **B01J** *13/00*

U.S. Cl. 424—400 **36 Claims**

1. A process for transferring insoluble or sparingly water soluble agents which are solid at room temperature into suspensions, characterized in that said suspensions is/are colloidal, long-term stable, of narrow size distribution and allow(s) high particle concentration(s) and that the following steps are carried out

a. the solid agent or a mixture of solid agents is melted,

b. a dispersion medium is heated to approximately the same temperature as the molten solid agent or the mixture of molten solid agents,

c. one or more highly mobile water-soluble or dispersible stabilizers is/are added to the dispersion medium in such a way that the amount of highly mobile stabilizers is, after emulsification, sufficient to stabilize newly created surfaces during recrystallization, optionally, one or more lipid-soluble or dispersible stabilizers is are added additionally to the melted agent or mixture of agents,

d. the melted agent or mixture of agents and the dispersion medium is/are premixed to a crude dispersion and subsequently homogenized by high-pressure homogenization, micro-fluidization and/or ultrasonication,

e. the homogenized dispersion is allowed to cool until solid particles are formed by recrystallization of the dispersed agents.

21. A suspension of colloidal solid lipid particles (SLPs) manufactured according to claim 1, characterized in that the SLPs are lipids having melting points between approximately 30° C. and 120° C. and are constituted of mono- di- and triglycerides of long chain fatty acids; hydrogenated vegetable oils; fatty acids and their esters; fatty alcohols and their esters and ethers; natural or synthetic waxes; wax alcohols and their esters; sterols; hard paraffins; or mixtures of the above-mentioned lipids, and further characterized in that the particles are stabilized by a combination of phospholipids and bile salts.

33. In the therapeutic treatment in a living human or animal body, the improvement comprising administering a suspension according to claim 21, but not containing insecticides, pesticides or herbicides.

5,785,977
NON-METALLIC MICROPARTICLE CARRIER MATERIALS

Richard Breithbarth, 17 Baird Pl., Whippany, N.J. 07981

Filed Feb. 7, 1996, Ser. No. 597,972

Int. Cl.^{6} A61K *6/90*

U.S. Cl. 424—401 **14 Claims**

1. A stable dispersion of non-metallic microparticles having a particle size of about 3 to about 250 μm, said microparticles being adapted for uses selected from the group consisting of pharmaceutical and cosmetic uses and carrying a negative surface charge, in a liquid carrier selected from the group consisting of water, methanol, ethanol, propanol, dimethyl sulfoxide, polyethylene glycol and mineral oil.

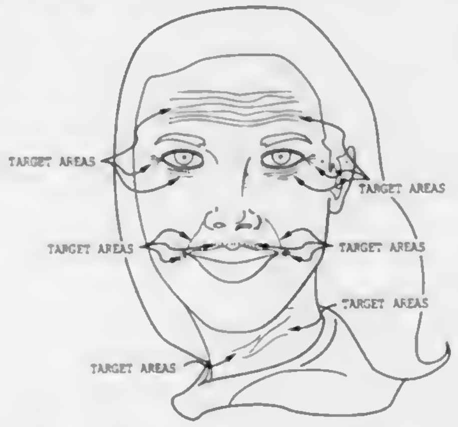
5,785,978
SKIN CARE COMPOSITIONS AND METHODS

Steven S. Porter, and Francine E. Porter, both of Denver, Colo., assignors to Osmotics Corporation, Denver, Colo.

Continuation-in-part of Ser. No. 339,553, Nov. 15, 1994, abandoned, and Ser. No. 414,345, Mar. 31, 1995, abandoned. This application Jul. 24, 1996, Ser. No. 687,122

Int. Cl.^{6} A61K *6/00;13/00*

U.S. Cl. 424—401 **21 Claims**



1. A method of treating skin to lessen or reduce wrinkling, comprising: removing a release liner from a dermal delivery device, the delivery device including a layer having adhesive and powdered or granulated ascorbic acid with an acidity between pH 4 and pH 7, an oxygen impermeable release liner backing on a first side of the layer, and a release liner on a second side of the layer opposite the first side; applying the delivery device to the skin by contacting the layer with the skin and applying an application force to the backing to adhere the device to the skin; allowing moisture from the skin to contact the layer to infuse the ascorbic acid into the skin to lessen or reduce skin wrinkling; and removing the delivery device from the skin.

5,785,979
PERSONAL CLEANSING COMPOSITIONS

Robert Lee Wells, Cincinnati, Ohio, assignor to The Procter & Gamble Company, Cincinnati, Ohio

Filed Jan. 21, 1997, Ser. No. 786,578

Int. Cl.^{6} A61K *6/00*

U.S. Cl. 424—401 **20 Claims**

1. A personal cleansing composition in the form of a stable aqueous emulsion, comprising:

a.) from about 4% to about 50%, by weight, of a surfactant system comprising at least one surfactant selected from the group consisting of an anionic, cationic, nonionic, amphoteric, and zwirterionic surfactants and mixtures thereof;

b.) from above about 0.1% to less than 1.0%, by weight, of a water soluble polymer selected from the group consisting of hydroxyethyl cellulose, ethylhydroxyethyl cellulose, polystyrene and mixtures thereof;

c.) from about 0.1% to about 5%, by weight, of a phase separation initiator selected from the group consisting of electrolytes, amphiphiles and mixtures thereof; and

d.) from about 50% to about 95% a by weight, of water wherein said polymer forms visually distinct aqueous droplets in the aqueous surfactant system.

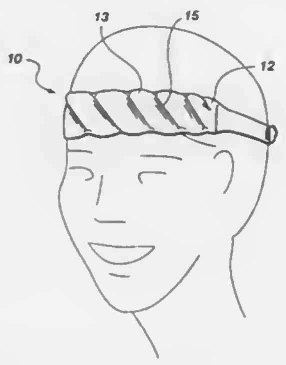
5,785,980
WATER HYDRATABLE GEL-FILLED TUBULAR MATERIAL ENVELOPE

Paul R. Mathewson, 7726 N. Buckboard Dr., Park City, Utah 84098

Continuation-in-part of Ser. No. 492,398, Jun. 19, 1995, Pat. No. 5,597,577. This application Jan. 27, 1997, Ser. No. 789,468

Int. Cl.^{6} A61F *7/00;7/02;7/10;7/12*

U.S. Cl. 424—402 **10 Claims**



1. A device for providing evaporative cooling to a portion of the body comprising:

a flexible, water-permeable envelope sized to contain a particulate, water-hydratable, resinous, gel-forming material; and

an enclosure positioned in close proximity to said water-permeable envelope sized to contain reactable material for producing an endothermic or exothermic chemical reaction wherein heat may be either absorbed by or released to the immediate surroundings.

5,785,981

Patent Not Issued For This Number

5,785,982
DIMETHYL SUBSTITUTED OXYMETHYL CYCLOHEXANE DERIVATIVES FOR THEIR INSECT REPELLENCY PROPERTIES

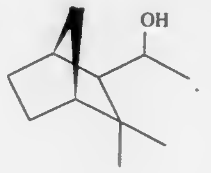
Craig B. Warren, Rumson; Anna B. Marin, Long Branch, both of N.J.; Jerry F. Butler, Gainesville, Fla., and Anubhav P.S. Narula, Hazlet, N.J., assignors to International Flavors & Fragrances Inc., New York, N.Y., and The University of Florida, Gainesville, Fla.

Division of Ser. No. 496,124, Jun. 27, 1995, Pat. No. 5,576,010, which is a continuation-in-part of Ser. No. 253,244, Jun. 2, 1994, Pat. No. 5,472,701, which is a division of Ser. No. 061,044, May 14, 1993, Pat. No. 5,464,626. This application Jul. 25, 1996, Ser. No. 687,261

Int. Cl.^{6} A01N *25/00;25/08*

U.S. Cl. 424—408 **6 Claims**

1. A method of repelling at least one member of the insect species: *Musca domestics L.* (Diptera:Muscidae), *Aedes aegypti, Culex nigripalpus; Aedes atlanticus; Culex salinarius; Aedes vexans; Culex spp.; Simulium spp.; Psoroferia ferox; Aedes infirmatus; Drosophila melanogaster; Coccinellidae; Anopheles crucians; Psoroferia columbiae; Culicoides spp.; Aedes spp,* and/or *Haematobia irritans* , and/or *Aedes albopictus* for a finite period of time from a three-dimensional space inhabited by said insect species member consisting essentially of the step of exposing said three-dimensional space to an effective insect species member-repelling concentration and quantity of the compound having the structure:



5,785,983
NON-POROUS COLLAGEN SHEET FOR THERAPEUTIC USE, AND THE METHOD AND APPARATUS FOR PREPARING IT

Diego Furlan, Segrate; Giovanni Bonfanti, Formia Santa Croce, and Giuseppe Scappaticci, Cassino, all of Italy, assignors to Euroresearch Srl, Milan, Italy

Continuation-in-part of Ser. No. 883,362, May 15, 1992, abandoned. This application Nov. 23, 1993, Ser. No. 155,785

Claims priority, application Italy, May 23, 1991, MI91A1423

Int. Cl.^{6} A61K *38/01*

U.S. Cl. 424—423 **14 Claims**

1. A non-porous sheet of insoluble type I collagen gel of molecular structure, for use in the cicatrization of wounds and burns and as interposition material for preventing adhesions after internal surgical operations, characterized by the following chemical and physical properties:

free from native collagen degradation products;

possesses the rigid triple-helical structure of native collagen;

has an H_2O content not exceeding 20% by weight;

a thickness comprised between 0.02 and 2 mm, which is uniform over the entire surface of the sheet;

free of air bubbles except for bubbles with diameters of less than 0.034 mm, under atmospheric pressure;

an hydroxyproline content exceeding 12%;

a resistance to enzymatic attack of 2% to 5% weight/weight corresponding to the amount of collagen which has dissolved after enzymatic degradation by trypsin with respect to the weight of the tested collagen sample; and is transparent.

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5,785,984
TASTE-MODIFYING METHOD AND BITTERNESS-DECREASING METHOD

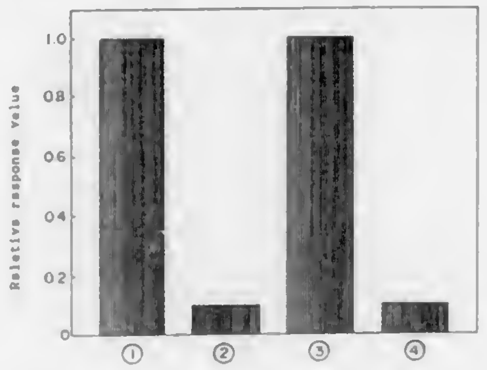
Kenzo Kurihara, Tokyo; Mitsuyoshi Kashiwagi, Chiba; Takeshi Yasumasu, Ibaraki; Yuki Mitsui, Ibaraki; Setsujiro Inaoka, Ibaraki, and Yoshihisa Katsuragi, Ibaraki, all of Japan, assignors to Kao Corporation, and Kenzo Kurihara, both of Tokyo, Japan

Continuation of Ser. No. 307,573, Sep. 22, 1994, abandoned. This application Oct. 10, 1996, Ser. No. 728,192

Claims priority, application Japan, Feb. 5, 1993, 5-019000; Feb. 9, 1993, 5-021285

Int. Cl.^{6} A61K *47/00;31/685*

U.S. Cl. 424—439 **17 Claims**



1. A method of decreasing the bitterness of a pharmaceutical which comprises mixing an effective bitterness-decreasing amount of a protein phospholipid complex with a bitter tasting pharmaceutical component wherein said protein is selected from the group consisting of milk protein, soybean protein and egg protein.

5,785,985
MEDICAL PRESSURE-SENSITIVE ADHESIVE MASS HAVING A HIGH MOISTURE VAPOR TRANSMISSION AND A HIGH ADHESIVE STRENGTH ON DRY HUMAN SKIN AND IN CASE OF INTENSE PERSPIRATION

Zbigniew Czech, Koblenz, and Kurt Seeger, Neuwied, both of Germany, assignors to Lohmann GmbH & Co., KG, Neuwied, Germany

PCT No. PCT/EP95/01723, § 371 Date Nov. 13, 1996, § 102(e) Date Nov. 13, 1996, PCT Pub. No. WO95/31224, PCT Pub. Date Nov. 23, 1995

PCT Filed May 5, 1995, Ser. No. 737,899

Claims priority, application Germany, May 13, 1994, 44 16 928.0

Int. Cl.^{6} A61F *13/02*

U.S. Cl. 424—448 **25 Claims**

1. A medical pressure sensitive adhesive mass having a moisture vapor transmission of at least 10,000 g/m^2/24.h (measured with a pressure sensitive adhesive film having a weight of 30 g/m^2) and an excellent adhesion to both dry skin and that is moist due to perspiration, comprising:

- A) a copolymer synthesized from components comprising:
  - 1) 50 to 95%-wt., based on the weight of the copolymer, of one or several alkyl esters of acrylic and/or methacrylic acid have 4 to 12 C-atoms in the alkyl residue; and
  - 2) 5 to 50%-wt., based on the weight of the copolymer, of a vinylcarboxylic acid,
- B) 25 to 90%-wt. of a hydrophilic emulsifier comprising tertiary or quaternary ammonium groups,
- C) 15 to 60%-wt. of a hydrophilic polyoxyalkylene groups-containing emulsifier which is free from amino groups,
- D) 1 to 20%-wt. of a polyvinylcarboxylic acid,
- E) 1 to 15%-wt. of a tackifying resin, and
- F) 0.05 to 5%-wt. of a cross-linking agent.

5,785,986
WATER CHANNEL

Kiyohide Fushimi, Tokyo; Shinichi Uchida, Tokyo; Sei Sasaki, Tokyo, and Fumiaki Marumo, 8-2-19 Tamagawa-gakuen, Machida, Tokyo, all of Japan, assignors to Fumiaki Marumo, Tokyo, Japan

Division of Ser. No. 126,365, Sep. 24, 1993. This application May 23, 1995, Ser. No. 448,160

Claims priority, application Japan, Sep. 25, 1992, 4-279157; Dec. 25, 1992, 4-357838

Int. Cl.^{6} A61K *9/127;* **C12N** *15/00;* **C07K** *1/00;1/04*

U.S. Cl. 424—450 **5 Claims**

1. An artificial lipid membrane which contains isolated WCH-1 protein molecules, said WCH-1 protein molecules constituting a vasopressin-regulated water channel natively localized in the kidney collecting tubule.

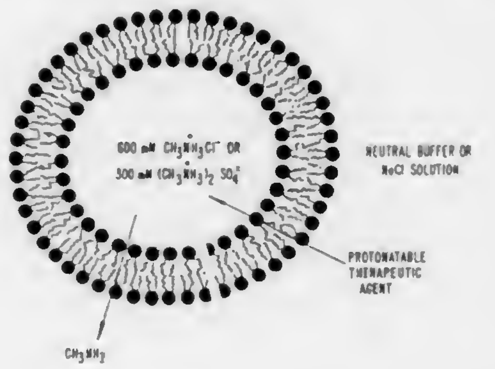
5,785,987
METHOD FOR LOADING LIPID VESICLES

Michael Hope; Pieter R. Cullis, both of Vancouver; David B. Fenske, Surrey, and Kim F. Wong, Vancouver, all of Canada, assignors to The University of British Columbia, Canada

Continuation-in-part of Ser. No. 399,692, Feb. 27, 1995. This application Feb. 27, 1996, Ser. No. 607,614

Int. Cl.^{6} A61K *9/127*

U.S. Cl. 424—450 **12 Claims**


600 mM CH$_3$N̊H$_3$Cl$^-$ OR
300 mM (CH$_3$N̊H$_3$)$_2$ SO$_4^=$
NEUTRAL BUFFER OR NaCl SOLUTION
PROTONATABLE THERAPEUTIC AGENT
CH$_3$NH$_2$

1. A method of preparing a liposome formulation of a zwitterionic quinolone antibacterial agents, said method comprising;

- (i) preparing a mixture of liposomes in an aqueous solution, said liposomes having an encapsulated medium and an external medium, wherein said encapsulated medium and said external medium each contain a methylammonium salt;
- (ii) establishing a concentration gradient of methylamine across the liposome membranes by removing or diluting said methylammonium salts in said external medium; and
- (iii) incubating said liposomes of step (ii) with said zwitterionic agents, said zwitterionic agents being present in a neutral form which is attracted toward said encapsulated medium of said liposomes by said concentration gradient of methylamine, for a period of time sufficient to cause adherence of said therapeutic agent to said liposomes.

5,785,988
COMPOSITION FOR FRESHENING NOSTRILS AND SINUS CAVITIES

Charles A. Fust, 3828 Chaumont Cir., Ocean Springs, Miss. 39564

Filed May 10, 1996, Ser. No. 644,225

Int. Cl.^{6} A61F *13/02*

U.S. Cl. 424—435 **5 Claims**

1. A method of freshening breath comprising the step of introducing into the sinus cavities a solution comprising a carrier means and an odor masking agent.

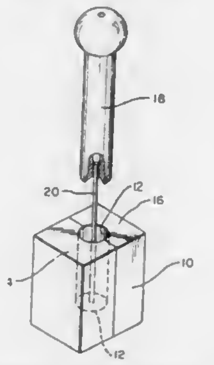
5,785,989
COMPOSITIONS AND METHODS OF MANUFACTURING OF ORAL DISSOLVABLE MEDICAMENTS

Theodore H. Stanley, Salt Lake City, and Brian Hague, West Valley City, both of Utah, assignors to University Utah Research Foundation, Salt Lake City, Utah

Continuation of Ser. No. 333,233, Nov. 2, 1994, abandoned, which is a continuation of Ser. No. 152,396, Nov. 12, 1993, abandoned, which is a division of Ser. No. 403,751, Sep. 5, 1989, Pat. No. 5,288,497, which is a continuation-in-part of Ser. No. 60,045, Jun. 8, 1987, Pat. No. 4,863,737, which is a continuation-in-part of Ser. No. 729,301, May 1, 1985, Pat. No. 4,671,953. This application Mar. 19, 1997, Ser. No. 822,560

Int. Cl.^{6} A61K *9/68*

U.S. Cl. 424—440 **198 Claims**



1. A solid drug-containing dosage-from for use in the transmucosal oral and sublingual delivery of the drug to a patient, said solid dosage-form consisting essentially of:

- a soluble matrix selected from the group consisting of a carbohydrate, wax, fat, protein, or mixture thereof;
- buffers dispersed throughout the soluble matrix;
- a pharmacologically effective dose of a drug being capable of absorption through mucosal tissues of the mouth, pharynx, and esophagus and being dispersed throughout the matrix and formed into a solid integral mass which is capable of being sucked on while held within the mouth to dissolve the integral mass in the mouth of the patient to release the drug for absorption through mucosal tissues of the mouth, pharynx, and esophagus during the period of holding within the mouth resulting in dissolution of the integral mass in the mouth of the patient; and
- attached holder means secured to the integral mass so as to form a drug-containing dosage-form, the holder means being configured to permit convenient insertion and removal of the drug-containing integral mass into and out of the mouth of the patient and to permit administration of the dosage form in a dose-to-effect manner.

5,785,990
FEED FORTIFIER AND ENHANCER FOR PRERUMINANT CALVES AND METHOD OF USING SAME

Jana S. Langrehr, Bangor, Wis., assignor to Merrick's, Inc., Middleton, Wis.

Filed Jul. 10, 1995, Ser. No. 500,221

Int. Cl.^{6} A23K *1/165;1/17;* **A01N** *63/00*

U.S. Cl. 424—442 **7 Claims**

1. A feed fortifier and enhancer for a preruminant calf comprising:

- about 50–75% by weight protein ingredient;
- about 10–50% by weight animal plasma;
- about 2.5–10% by weight micronutrients, selected from the group consisting of cobalt, copper, iodine, iron, magnesium, manganese, selenium, zinc, choline chloride, vitamin C, niacin, d-pantothenic acid, riboflavin, thiamine, menadione dimethylpyrimidinol bisulfite, pyridoxine, folic acid, vitamin E, vitamin A, vitamin D_3, vitamin B_{12}, biotin, biocompatible salts thereof and mixtures thereof;
- electrolytes at less than about 2.5% by weight electrolytes selected from the group consisting of salts of sodium, magnesium, potassium, calcium and combinations thereof, with the electrolytes being in a biocompatible form;
- about 0.8–3.4% by weight of a vitamin E ingredient,, when the vitamin E concentration in the vitamin E ingredient is approximately 60,000 IU/lb of the ingredient;
- about 0.3–1.4% by weight a vitamin A ingredient, when the vitamin A concentration in the vitamin A ingredient is approximately 7,562,000 IU/lb of the ingredient;
- about 0.1–0.4% by weight of a vitamin D_3 ingredient, when the vitamin D_3 concentration in the vitamin D_3 ingredient is approximately 15,000,000 IU/lb of the ingredient;
- allicin, at less than about 2.0% by weight;
- fructooligosaccharides, at less than about 2.0% by weight; and
- direct fed microbials, at less than about 1.0% by weight, which are selected from the group consisting of *Bacillus coagulans, Bacillus licheniformis, Bacillus subtilis, Bifidobacterium bifidum, Lactobacillus acidophilus, Lactobacillus casei, Lactobacillus lactis, Streptococcus diacetylactis;* and mixtures thereof.

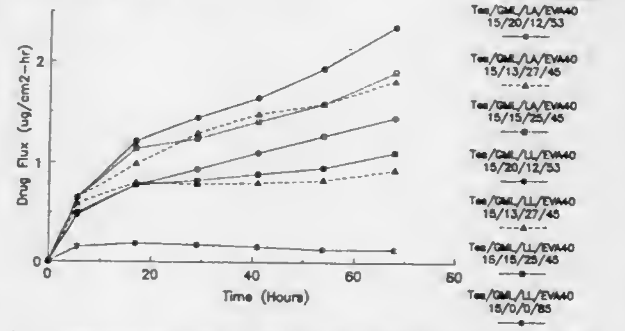
5,785,991
SKIN PERMEATION ENHANCER COMPOSITIONS COMPRISING GLYCEROL MONOLAURATE AND LAURYL ACETATE

Terry L. Burkoth; Lina T. Taskovich, both of Palo Alto, and Nieves Crisologo, Sunnyvale, all of Calif., assignors to Alza Corporation, Palo Alto, Calif.

Filed Jun. 7, 1995, Ser. No. 481,549

Int. Cl.^{6} A61F *13/02*

U.S. Cl. 424—448 **34 Claims**



1. A composition of matter for transdermally delivering at least one drug at a therapeutically effective rate by permeation through a body surface or membrane comprising, in combination:

- (a) at least one drug; and
- (b) a permeation enhancer comprising 1–50 wt % lauryl acetate and 1–50 wt % of a monoglyceride, wherein the agent and permeation enhancer are dispersed within a carrier.

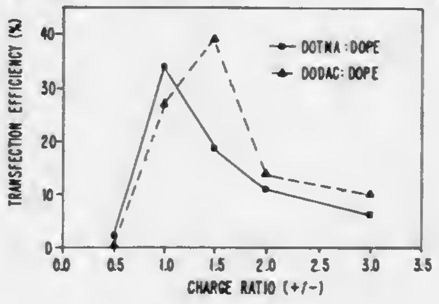
5,785,992
COMPOSITIONS FOR THE INTRODUCTION OF POLYANIONIC MATERIALS INTO CELLS

Steven Michial Ansell; Barbara Mui, and Michael Hope, all of Vancouver, Canada, assignors to Inex Pharmaceuticals Corp., Canada

Filed Sep. 29, 1995, Ser. No. 536,584

Int. Cl.^{6} A16K *9/127*

U.S. Cl. 424—450 **6 Claims**



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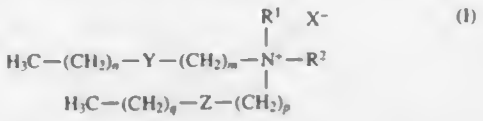
1. A pharmaceutical composition for introducing a polyanion into a cell, said composition being a liposome formulation and comprising a cationic compound of formula (I)



$$H_3C-(CH_2)_n-Y-(CH_2)_m-\overset{\overset{R^1\quad X^-}{|}}{\underset{\underset{H_3C-(CH_2)_q-Z-(CH_2)_p}{|}}{N^+}}-R^2 \qquad (I)$$

wherein

- R^1 and R^2 are each independently C_1 to C_3 alkyl;
- Y and Z are each independently members selected from the group consisting of $-CH_2CH_2CH_2CH_2CH_2-$, $-CH{=}CHCH_2CH_2CH_2-$, $-CH_2CH{=}CHCH_2CH_2-$, $-CH_2CH_2CH{=}CHCH_2-$, $-CH_2CH_2CH_2CH{=}CH-$, $-CH{=}CHCH{=}CHCH_2-$, $-CH{=}CHCH_2CH{=}CH-$, and $-CH_2CH{=}CHCH{=}CH-$, with the proviso that Y and Z are not both $-CH_2CH_2CH_2CH_2CH_2-$;
- n and q are independently integers of from 3 to 7; and
- m and p are independently integers of from 4 to 9, with the proviso that the sums n+m and q+p are each integers of from 10 to 14; and
- X^- is a pharmaceutically acceptable anion selected from the group consisting of chloride, bromide, fluoride, iodide, nitrate, sulfate, phosphate, acetate, benzoate, citrate, glutamate, and lactate;
- at least one neutral lipid selected from the group consisting of diacylphosphatidylcholine, diacylphosphatidylethanolamine, ceramide and sphingomyelin; and
- a pharmaceutically acceptable carrier.

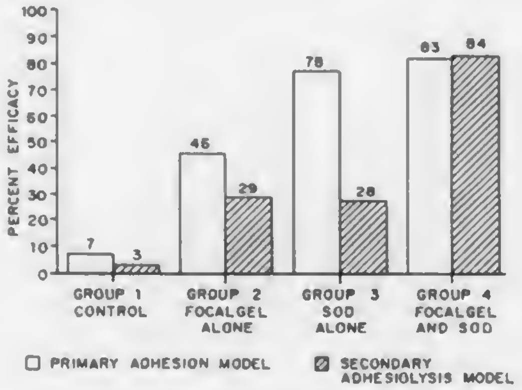
5,785,993
REDUCTION OF ADHESIONS USING CONTROLLED DELIVERY OF ACTIVE OXYGEN INHIBITORS

Keith Baker, Lynn, and Arthur J. Coury, Boston, both of Mass., assignors to Focal, Inc., Lexington, Mass.

Continuation of Ser. No. 410,219, Mar. 24, 1995, abandoned. This application Jul. 29, 1996, Ser. No. 689,139

Int. Cl.^{6} A61K *9/127;9/16;9/52*

U.S. Cl. 424—450 **42 Claims**



1. A fluent composition for the inhibition of a condition selected from the group consisting of adhesion formation, keloid or hypertrophic scarring, hypertrophy which obstructs ducts, inflammation of joints and endometriosis or for repair of structures selected from the group consisting of arteries, nerve sheaths, the spinal column and spinal disks at a tissue site comprising an effective amount of one or more inhibitors of active oxygen species and a material capable of polymerizing to form a barrier at the tissue site,

wherein the composition is fluent when applied to the tissue site, the material is present in a range of 0.5% to 80% by weight of the composition and the inhibitor is selected from the group consisting of superoxide dismutase, catalase, allopurinol, verapamil, and combinations thereof.

5,785,994
METHOD FOR ADMINISTERING DRUG TO GASTROINTESTINAL TRACT

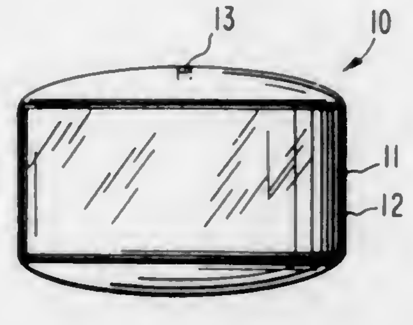
Patrick S.-L. Wong, Palo Alto; Felix Theeuwes, Los Altos; Atul Devdatt Ayer, and Anthony L. Kuczynski, both of Palo Alto, all of Calif., assignors to ALZA Corporation, Palo Alto, Calif.

Continuation of Ser. No. 576,042, Aug. 31, 1990, Pat. No. 5,156,850. This application Apr. 1, 1992, Ser. No. 862,665

The portion of the term of this patent subsequent to Oct. 22, 2009, has been disclaimed.

Int. Cl.^{6} A61K *9/24*

U.S. Cl. 424—473 **8 Claims**



1. A method for administering a drug to the gastrointestinal tract of a warm-blooded animal, which method comprises:

- (a) admitting an osmotic device into the gastrointestinal tract of the warm-blooded animal, said device comprising:
  - (1) a compartment;
  - (2) a wall that surrounds and forms the compartment, said wall comprising a composition that is permeable to the passage of fluid;
  - (3) a first composition in the compartment comprising a viscosity of 100 centipoises to 10,000,000, said first composition drug-free for producing a drug-free interval prior to the administration of drug from the compartment;
  - (4) a second composition in the compartment comprising a dose amount of a drug for producing a therapeutic effect, said drug a member selected from the group consisting of verapamil, nimodipine, nitredipine, nisoldipine, nicardipine, felodipine, diltiazem, lidoflazine, tiapamil, guanabenz, isradipine, gallopamil, amlodipine, mioflazine, caroverene, diltiazem hydrochloride, and midazolam;
  - (5) a third composition in the compartment that expands in the presence of fluid that enters the device; and,
  - (6) exit means in the wall for connecting the exterior of the device with the compartment;
- (b) imbibing fluid into the compartment thereby causing the third composition to expand and push against the second composition; and
- (c) administering the second composition comprising the drug after the first drug-free composition is released from the device.

5,785,995
PHARMACEUTICAL TABLET OF AMIODARONE SALT

Samuel Daisy, Jr., Minneapolis, and William J. Tourek, Plymouth, both of Minn., assignors to Upsher-Smith Laboratories, Inc., Minneapolis, Minn.

Filed Apr. 11, 1997, Ser. No. 827,749

Int. Cl.^{6} A61K *9/20*

U.S. Cl. 424—464 **20 Claims**

1. An orally administered tab let comprising a therapeutic amount of a pharmaceutically acceptable salt of amiodarone, a reducing disaccharide, pregelatinized starch, and an alkali metal starch glycolate, said pregelatinized starch and said alkali metal glycolate being present in total as from 10 to 50% by weight of said tablet and in a weight ratio of from 5:1 to 80:1, respectively.

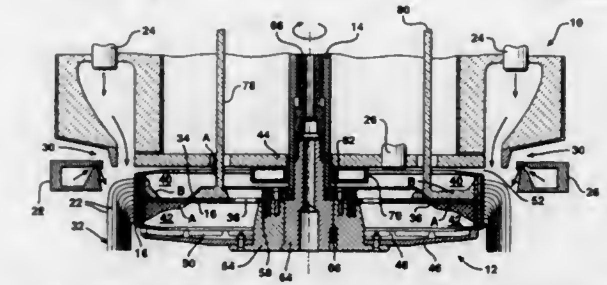
5,785,996
FIBER MANUFACTURING SPINNER AND FIBERIZER

James G. Snyder, Newark, Ohio, assignor to Owens Corning Fiberglas Technology, Inc., Summit, Ill.

Filed Nov. 27, 1996, Ser. No. 757,203

Int. Cl.^{6} D01D *5/18*

U.S. Cl. 425—8 **21 Claims**



1. A spinner mountable to rotate on a shaft in a fiberizer, said spinner comprising:

- a radial extension mountable to the shaft so as to extend radially out therefrom and having at least one flow hole operatively adapted for allowing molten thermoplastic material to flow through said radial extension as said spinner operates;
- a radial wall mounted to and extending radially out from said radial extension and having an outer periphery; and
- an outer peripheral wall disposed around the outer periphery of said radial wall and having a plurality of orifices for centrifuging fibers from molten thermoplastic material,
- wherein molten thermoplastic material flows through said at least one flow hole and to orifices of said peripheral wall, as said spinner rotates.

5,785,997
CONTINUOUS PROCESS FOR MELT-SPINNING MONOFILAMENTS

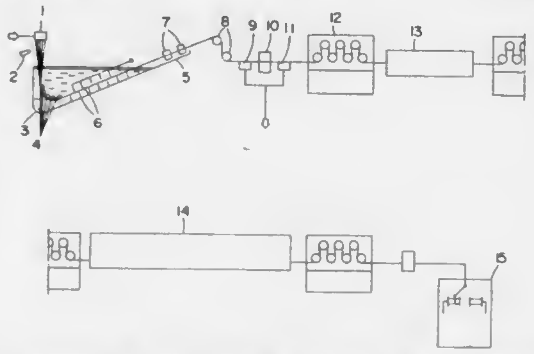
Jürgen Büdenbender; Eckhard Gärtner, and Jakob Jansen, all of Dormagen, Germany, assignors to Bayer Aktiengesellschaft, Leverkusen, Germany

Division of Ser. No. 322,233, Oct. 13, 1994, Pat. No. 5,518,670. This application Feb. 6, 1996, Ser. No. 597,315

Claims priority, application Germany, Oct. 22, 1993, 43 36 097.1

Int. Cl.^{6} D01D *5/088*

U.S. Cl. 425—71 **5 Claims**



1. Apparatus for the continuous formation of monofilaments comprising a non-rotating melt-spinning head with spinneret (**1**), a blowing nozzle (2) supplying cooling gas towards a cooling zone of 1 to 10 cm, a liquid bath (**3**) having a specific filament guidance (**4**) therein for separately guiding the monofilaments through the liquid bath to prevent superficial contact between monofilaments while substantially in said bath, said specific filament guidance (**4**) comprising rod-shaped guidance elements (**4'**) which are disposed in a semi circle and constructed such that, in operation at a filament speed of at least 600 m/min., the filaments slide over said guidance elements (**4'**) through entrained liquid whereby there is substantially no contact between the filaments and the guidance elements (**4'**), an adherent liquid suction means (**9**, **11**) upstream or downstream of, or both upstream and downstream of, the subsequent application (**10**) of the spin finish, one or more drawing apparatuses (**13**) for hot drawing, a fixing zone (**14**) and winding stations (**15**), wherein the post finish is applied in direct manner as a one-way finish at each bobbin station and the winding speed is from 600 m/min. to 4000 m/min., and the winding onto a bobbin is of single monofilaments, a plurality of monofilaments, or both.

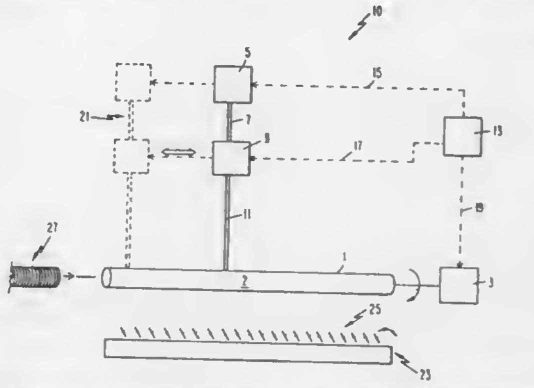
5,785,998
APPARATUS FOR MAKING ULTRA THIN WALLED WIRE REINFORCED ENDOTRACHEAL TUBING

Theodor Kolobow, Rockville, Md., assignor to The United States of America as represented by the Department of Health and Human Services, Washington, D.C.

Division of Ser. No. 26,231, Mar. 2, 1993, Pat. No. 5,537,729, which is a continuation of Ser. No. 758,824, Sep. 12, 1991, abandoned. This application May 14, 1996, Ser. No. 645,886

Int. Cl.^{6} A61M *16/04*

U.S. Cl. 425—110 **10 Claims**



1. An apparatus for making an ultra thin walled wire reinforced endotracheal tubing comprising:

- a) a polymer solution source means;
- b) a mandrel;
- c) means to rotate said mandrel;
- d) a metering pump means further comprising a nozzle for depositing said polymer solution onto said mandrel;
- e) means to longitudinally traverse at least said nozzle along the length of said mandrel; and
- f) said nozzle being of flexible material such that as the polymer solution emerges therefrom and is forced onto the mandrel, the polymer solution forces the nozzle away from the mandrel and causes the nozzle to float thereon, whereby the nozzle follows a contour of the mandrel and the polymer solution is forced around a spring wire applied around the mandrel such that the spring wire becomes incorporated within the polymer solution.

5,785,999
INJECTION APPARATUS FOR MOLDING SYNTHETIC RESIN HOLLOW OR FOAMED BODY

Kazutoshi Takayama, and Kiyoto Takizawa, both of Nagano-ken, Japan, assignors to Nissei Plastic Industrial Co., Ltd., Nagano-ken, Japan

Filed Jan. 30, 1997, Ser. No. 791,258

Int. Cl.^{6} B29C *45/18*

U.S. Cl. 425—130 **2 Claims**

1. An injection apparatus for molding a synthetic resin hollow or foamed body comprising:

- an injection screw having a detachable conical injection head at the front end thereof and a ring valve around a rear portion of the injection head;
- an injection cylinder the interior of a front end portion of which equipped with a nozzle member is formed as a tapered surface in accordance with the injection head and can be closed by its

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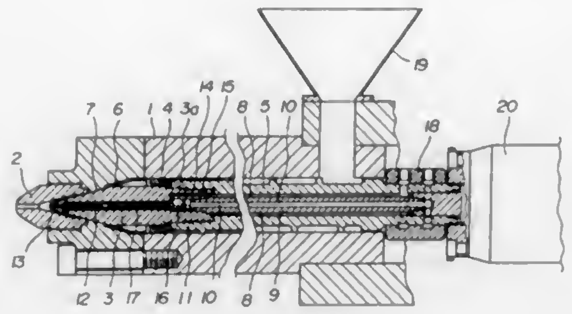


contact with the injection head and which contains the injection screw in such a manner that it can rotate and advance or retreat;

a gas flow passage having a required inner diameter and provided from the front end of the injection head to a rear end portion of the injection screw;

an opening/closing pin for the gas flow passage which is inserted into the gas flow passage in the injection head in such a manner that it can move together with a piston at the rear end of the injection head; and

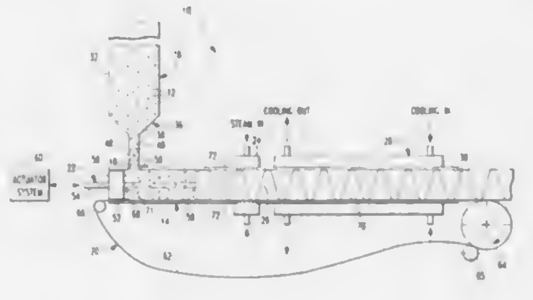
an actuation gas flow passage, provided in the gas flow passage behind the piston, for applying pressure to the piston so as to close the gas flow passage with the opening/closing pin.

5,786,000
CONTINUOUS MOLDING MACHINE WITH PUSHER
Rolf E. Berner, R.D. #6, New Castle, Pa. 16103

Filed Aug. 28, 1996, Ser. No. 705,904

Int. Cl.⁶ B29C ***44/36;47/10***

U.S. Cl. 425—140 **7 Claims**



1. Apparatus for continuously molding heat sensitive thermoplastic material into a product, comprising:

a molding chamber that defines an inlet and an outlet;

a feed system that is adapted to feed the material to said molding chamber inlet;

a pusher defining a head that is positioned to push the material, said pusher forcing the material through said molding chamber, the product exiting said molding chamber outlet;

heating apparatus that heats the material in said molding chamber; and

a reciprocating system that causes said pusher and said molding chamber to reciprocate relative to each other wherein said reciprocating system reciprocates said molding chamber.

5,786,001

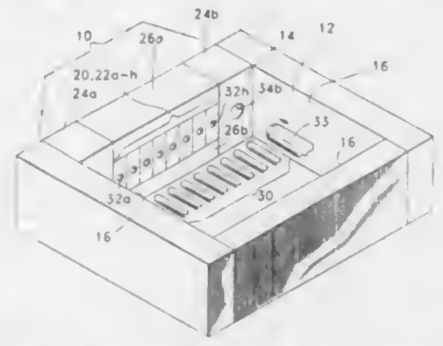
Patent Not Issued For This Number

5,786,002
GUIDE BLOCK ASSEMBLY FOR ALIGNING BORE FORMING PINS DURING MOLDING OF MULTI-FIBER OPTICAL CONNECTOR FERRULES
David L. Dean, Hickory; Alan J. Malanowski, Newton, both of N.C., and Michael D. Domaille, Rochester, Minn., assignors to Siecor Corporation, Hickory, N.C.

Filed Apr. 4, 1996, Ser. No. 627,639

Int. Cl.⁶ B29C ***45/26***

U.S. Cl. 425—183 **7 Claims**



1. A guide block assembly for aligning and retaining a plurality of fiber bore forming pins and at least one guide bore forming pin in precise relation to each other during molding of a multi-fiber ferrule, the guide block assembly comprising:

(a) a plurality of fiber bore blocks, each fiber bore block defining a fiber bore therethrough sized for retaining one of the plurality of fiber bore forming pins, the plurality of fiber bore blocks arranged together in an array such that the fiber bores are generally parallel defining an axial direction and such that adjoining surfaces are defined between adjacent fiber bore blocks in the array; and

(b) at least one guide bore block defining a guide bore therethrough sized for retaining one of the at least one guide bore forming pin, the guide bore block assembled with the array of fiber bore blocks such that the guide bore is oriented generally parallel with the fiber bores and such that adjoining surfaces are defined between the at least one guide bore block and adjacent fiber bore blocks.

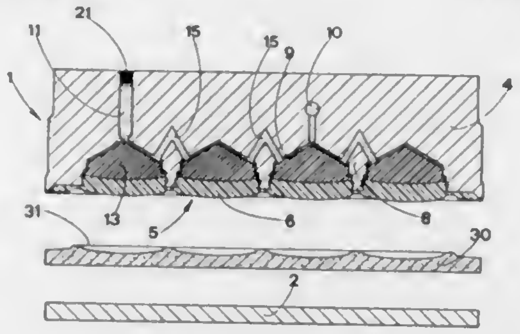
5,786,003
HALF-DIE FOR CERAMIC TILES
Ivano Debbia, Formigine, Italy, assignor to F.D.S. S.r.l., Sassuolo, Italy

Filed Sep. 26, 1996, Ser. No. 721,531

Claims priority, application Italy, Dec. 13, 1995, M095A0170

Int. Cl.⁶ B28B ***3/04***

U.S. Cl. 425—405.1 **6 Claims**



1. An isostatic half-die for ceramic tiles, used in production of uniformly compressed tiles having coplanar reliefs, comprising:

a concave rigid support describing a chamber which chamber is superiorly open;

a lattice located internally of said chamber, which divides the chamber into a plurality of intercommunicating cavities, connected one to another by means of communication holes;

an elastic wall superiorly closing said chamber and being solidly anchored to an edge of said chamber and an upper surface of said lattice, which elastic wall and which upper surface form a rigid rest plane for said reliefs of said tiles;

an incompressible fluid which occupies available fluid space internally of said half-die in said cavities and said communication holes;

an inlet hole and an outlet hole for said incompressible fluid, provided with

an inlet hole internal mouth and an outlet hole internal mouth situated internally of said chamber, and provided with

an inlet hole external mouth and an outlet hole external mouth situated externally of said half-die; wherein:

each of the cavities exhibits a bottom having converging inclined walls;

said communication holes opening into said converging inclined walls of the cavities;

for each of the cavities there is an obturator conformed in such a way as to occupy substantially all of space therein behind said elastic wall, which obturator is solidly anchored to the elastic wall but is free of the walls of the cavity.

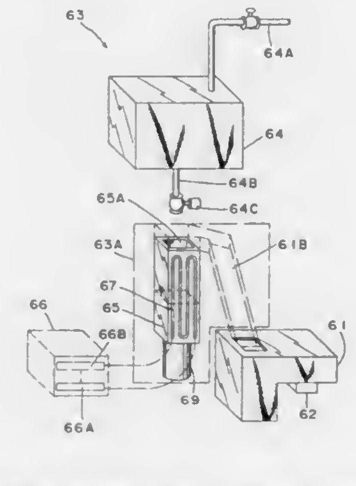
5,786,004
APPARATUS FOR PRODUCING ICE VESSEL
Keijiro Yamauchi, at Kabushiki Kaisha Ymanouchi Seisakusho of 1-8-18, Katakura, Kanagawa-ku, Yokohama-shi, Kanagawa ken, Japan

Continuation-in-part of Ser. No. 515,474, Aug. 15, 1995, Pat. No. 5,634,344. This application May 5, 1997, Ser. No. 851,227

Claims priority, application Japan, Sep. 30, 1994, 6-237792; Jun. 27, 1995, 7-161044

Int. Cl.⁶ B29C ***43/02;43/34;*** **F25C** ***5/14***

U.S. Cl. 425—408 **2 Claims**



1. An apparatus for producing ice vessels comprising:

an ice making machine having an ice making box, an evaporator provided in the ice making box, a refrigerant compressor and condensor connected to the evaporator and a ice pieces pushing-out pin elevatable within the ice making box,

an ice crusher for crushing ice masses supplied from said ice making machine;

a female die for accomodating crushed ice thereinto;

a male die opposite to said female die, which is capable of being raised or lowered.

5,786,005

Patent Not Issued For This Number

5,786,006
MINERALIZED DRINKING WATER AND METHOD OF MAKING SAME
John A. Lindon, Los Angeles, and Arthur Malin, Beverly Hills, both of Calif., assignors to Lindon Hearty Water, LLC, Los Angeles, and Malin Hearty Water, LLC, Beverly Hills, both of Calif.

Filed Apr. 8, 1996, Ser. No. 628,933

Int. Cl.⁶ A23L ***1/304***

U.S. Cl. 426—74 **12 Claims**

1. A sodium free mineralized drinking water formulation which consists essentially of an aqueous solution containing:

0.01–0.08 mg/liter Chromium ions;
30–100 mg/liter Magnesium ions;
30–125 mg/liter Calcium ions;
0.06–0.15 mg/liter Lithium ions; and
10–100 mg/liter Potassium ions,

each of said ions being present in association with water-soluble salts.

5,786,007
NUTRITIVE MAGNESIUM SULFITE/MAGNESIUM SULFATE BINDER FOR ANIMAL FEED
Bob Webb, 2206 Aldo Blvd., Quincy, Ill. 62301

Filed Jul. 1, 1996, Ser. No. 674,201

Int. Cl.⁶ A23K ***1/16;*** **A23L** ***1/304***

U.S. Cl. 426—74 **10 Claims**

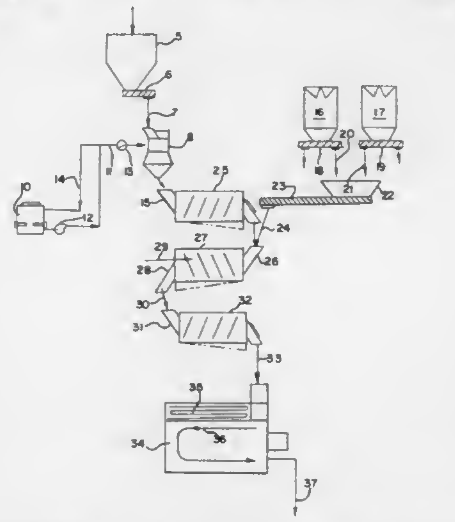
1. An animal feed composition for pelleting or forming into blocks comprising a dry mixture of feed ingredients and a binder therefor, said binder comprising from about 0.1% to 5.0% by weight of the total mixture, said binder comprising a substantially anhydrous complex salt formed as a by-product in the desulfurization of fossil fuel combustion gases with magnesium oxide, said anhydrous complex salt containing greater than 50% to about 80% by weight magnesium sulfite and from about 15 to 45% by weight magnesium sulfate.

5,786,008
COATED FEED AGGLOMERATES AND METHODS OF MAKING THE SAME
R. Kim Humphry, and Basil D. Bevans, both of Quincy, Ill., assignors to Moorman Manufacturing Company, Quincy, Ill.

Filed Feb. 25, 1997, Ser. No. 803,956

Int. Cl.⁶ A23K ***1/00***

U.S. Cl. 426—89 **18 Claims**



1. In the method of making coated feed agglomerates which comprises,

preparing extruded feed agglomerates on which it is desired to apply a coating containing at least one ingredient having a

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substantial lactose content and which is either not included in the agglomerates as extruded or not included therein at a desired inclusion rate level,

coating said extruded agglomerates with a viscous gel binder leaving the gel coated agglomerates in a damp condition,

applying a powder containing said at least one ingredient having a substantial lactose content to said gel-coated agglomerates while in their damp condition, and

drying the gel binder and powder coated agglomerates,

the improvement which comprises agitating a body of said gel binder and powder coated agglomerates for an appreciable time before drying, said appreciable time being sufficient to render the end product free flowing upon drying and for the powder coating to undergo a cure in which said lactose content undergoes a transition from the amorphous form to a crystalline structure that yields a nonhygroscopic product.

5,786,009
PROCESS FOR PREPARING LOW-VISCOUS PASTA SAUCE CONTAINED IN CONTAINER

Hiroshi Goto, and Mamoru Kanada, both of Saitama-ken, Japan, assignors to Nisshin Flour Milling Co., Ltd., Tokyo, Japan

Filed Mar. 12, 1996, Ser. No. 614,207

Claims priority, application Japan, Mar. 30, 1995, 7-095911; Mar. 30, 1995, 7-095912

Int. Cl.^{6} A23L *1/39*

U.S. Cl. 426—106 **4 Claims**

1. A process for preparing a low-viscous pasta sauce contained in a container, comprising the steps of, combining 10 to 65% by weight of an aqueous liquid to be used in formulating a pasta sauce, 0.5 to 5.5% by weight of a waxy starch, and optionally 0.5 to 3% by weight of wheat starch, based on the total weight of the pasta sauce immediately before being loaded into a container, together with other raw materials for the pasta sauce to prepare a condensed pasta sauce; loading the condensed pasta sauce into the container; adding 35 to 90% by weight of the aqueous liquid into the container after, simultaneously with, or before the loading of the condensed pasta sauce into the container; and sterilizing by heating to make a pasta sauce having a viscosity of 500 cp or less at normal temperatures (25° C.).

5,786,010
BAG AND METHOD OF MAKING THE SAME

Gilbert N. Yannuzzi, Jr., Ames, Iowa, assignor to American Packaging Corporation, Philadelphia, Pa.

Filed Jul. 22, 1994, Ser. No. 278,919

Int. Cl.^{6} B65D *85/00*

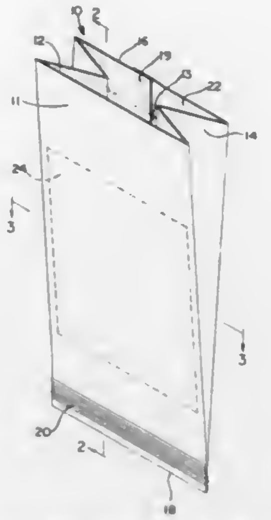
U.S. Cl. 426—107 **17 Claims**

1. A bag suitable for use in microwave cooking comprising

an elongated tube of flexible material having a plurality of side panels, a top first end located at one end of the said side panels, and a bottom second end located at the other end of said side panels,

cold seal means for sealing said top first end of said tube including a bond of a cold seal adhesive means for bonding the too first end of the tube together such that the bond at ambient temperatures cannot be opened without tearing the flexible material of the tube and such that the bond at elevated temperatures produced in microwave cooking softens to form a peelable closure that may be opened without tearing the flexible material of the tube, said cold seal adhesive means located on opposed inner surfaces of said side panels, said cold seal adhesive means on said side panels being pressed together to form a cold seal closure extending across said top first end of said tube, and

heat seal means for sealing said bottom second end of said tube including a deposit of a heat seal adhesive on opposed inner surfaces of said side panels, said heat seal adhesive being responsive to the application of heat and pressure thereto to form a heat seal closure extending across said bottom end of said tube.



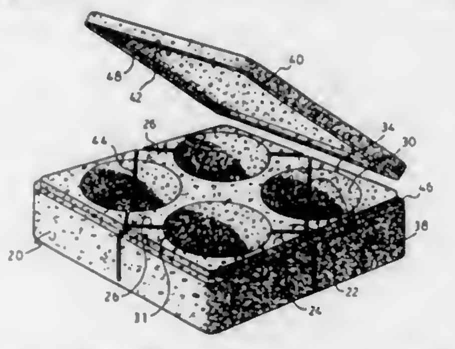
5,786,011
PACKAGED FOOD PRODUCT AND PACKAGE

Andre Desjardins, 184, Desjardins, Magog (QC), Canada, J1X 5X3

Filed Jan. 9, 1997, Ser. No. 781,006

Int. Cl.^{6} B65D *85/00*

U.S. Cl. 426—119 **15 Claims**



1. A container for a food product comprising a body portion having a plurality of cavities formed therein, each cavity being defined by a side wall and a bottom wall, said body portion comprising a central section and a plurality of peripheral sections, lines of weakening being formed in said body portion to thereby divide said central section from said peripheral sections, said lines of weakening allowing an easy detachment of each of said peripheral sections from said central section, each of said cavities overlapping said central section and one of said peripheral sections and having a geometrical shape divided into two parts by said lines of weakening, said lines of weakening allowing for an easy removal of said food product from said cavity after detachment of a peripheral section.

5,786,012
METHOD OF ADDING VITAMIN CONCENTRATES TO DIARY PRODUCTS

Erik G. Peterson, Crown Point, Ind., assignor to Vitamins, Inc., Chicago, Ill.

Filed Dec. 11, 1996, Ser. No. 763,800

Int. Cl.^{6} A23L *2/00*

U.S. Cl. 426—231 **3 Claims**

1. A method of adding vitamin concentrates to a liquid diary product, said method comprising the steps of:

providing a supply of vitamin concentrates to a positive displacement pump;

pumping said vitamin concentrates from said pump to a detection unit;

accurately measuring with said detection unit the flow rate and volume of vitamin concentrates pumped from said pump;

regulating the speed of said pump and the flow rate at which said pump pumps said vitamin concentrates; and

adding said vitamin concentrate to said liquid diary product at a specific flow rate.

5,786,013
METHOD AND APPARATUS FOR OPENING AND CLOSING BAKING MOLDS FOR USE IN A CONTINUOUS OVEN

Wiebe Kloppenburg, Deventer, and Johan Hendrik Adolf Arentsen, Lochem, both of Netherlands, assignors to Suntray B.V., Netherlands

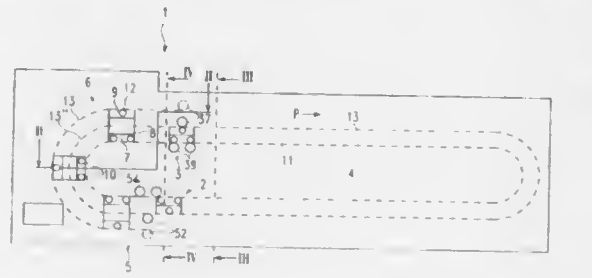
PCT No. PCT/NL95/00139, § 371 Date Mar. 8, 1996, § 102(e) Date Mar. 8, 1996, PCT Pub. No. WO95/28086, PCT Pub. Date Oct. 26, 1995

PCT Filed Apr. 18, 1995, Ser. No. 569,110

Claims priority, application Netherlands, Apr. 18, 1994, 9400619

Int. Cl.^{6} A21B *5/00*

U.S. Cl. 426—233 **26 Claims**



1. A method for manufacturing products in a series of baking molds to be passed through an oven, which baking molds comprise at least two baking sections movable relative to each other, wherein in a baking cycle the baking mold is successively opened, filled, closed and locked in a closing station, guided along a number of guideways extending through the oven, and opened and emptied in a removal station, the method comprising steps of:

- (a) controlling at least a part of the movements of the two baking sections relative to each other by actuator means which are movable relative to each other in response to control signals, such that during an opening and closing of the baking molds, a weight of the baking mold and an opening pressure of the baking mold are substantially borne by the actuator means; and
- (b) transmitting a force directed in a closing direction to the two baking sections to thereby control the movements of the baking sections relative to each other.

5,786,014
CAPACITY CAUSTIC PEELER SYSTEM

Sherman Howell Creed; Jeffrey Alan Dahl; Robert Leland Frenkel, all of Fresno, and Thomas Milton Sams, Oakdale, all of Calif., assignors to FMC Corporation, Chicago, Ill.

Filed Apr. 11, 1997, Ser. No. 837,068

Int. Cl.^{6} A23N *7/00;7/02;7/10*

U.S. Cl. 426—287 **13 Claims**

1. An apparatus for removing skin from fruit, comprising:

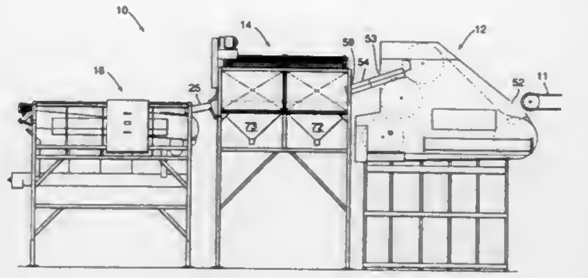
a caustic applicator, comprising:

an endless conveyor formed by a plurality of buckets, wherein each bucket has a depth wherein the depth of the bucket is not greater than 7 inches, and wherein each bucket has a bottom and a plurality of apertures in the bottom of each bucket; and

a means for applying heated caustic fluid to the plurality of buckets;

a flexible cable peeler; and

means for transferring the fruit from the caustic applicator to the flexible cable peeler.



5,786,015
METHOD FOR PRODUCING FOOD GRADE POULTRY OIL AND MEAL

Eugene Warren, Morton; John M. Rogers, Sr., Brandon; Scott Cooper, Pelahatchie, and Greg Butler, Morton, all of Miss., assignors to B. C. Rogers Poultry, Inc., Morton, Miss.

Filed Apr. 9, 1996, Ser. No. 628,110

Int. Cl.^{6} A23L *1/311;1/312;1/315*

U.S. Cl. 426—417 **14 Claims**

1. A process of removing fat, edible oil and moisture from scrap chicken parts, said process comprising:

cooking the scrap chicken parts in a vat of cooking oil heated to a temperature in the range of 360° to 380° F.,

transporting the scrap chicken parts through the vat of cooking oil,

removing the cooking oil from the vat and reheating the cooking oil prior to returning the cooking oil to the vat at an elevated temperature,

removing the cooked scrap chicken parts from the vat,

pressing the cooked scrap chicken parts to remove poultry oil, and

breaking up the pressed and cooked scrap chicken parts to form a high protein, low ash content chicken meal.

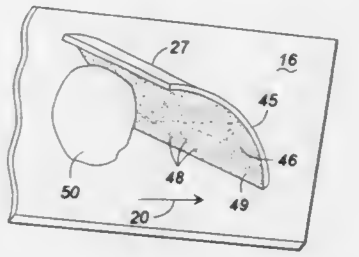
5,786,016
PROCESS AND DEVICE FOR SHAPING BAKER'S DOUGH PIECES

Glenn P. Campbell, and Sterrett P. Campbell, both of Atlanta, Ga., assignors to Campbell Technologies, Inc., Norcross, Ga.

Filed May 9, 1997, Ser. No. 853,537

Int. Cl.^{6} A21C *11/00;* **A21D** *8/00*

U.S. Cl. 426—496 **9 Claims**



6. A process of shaping dough pieces as the dough pieces are moved in series along a processing path, comprising:

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moving the dough pieces along the processing path with a first member; as the dough pieces are moved by the first member, engaging the dough pieces with a dough shaping surface, with the dough shaping surface characterized by having a roughened textured surface and a slick fluropolymer coating covering said roughened textured surface to a thickness that is thin enough to leave a roughened textured surface on the dough shaping surface;

retarding sliding movement of the dough pieces along the dough shaping surface with the roughened textured surface; and

releasing the dough pieces with the slick fluropolymer coating as the dough pieces move away from the dough shaping surface.

5,786,017

PARTICULATE FLAVOR COMPOSITIONS AND PROCESS TO PREPARE SAME

Anthony Blake, Nyon, and Philip Attwool, Geneva, both of Switzerland, assignors to Firmenich SA, Geneva, Switzerland

PCT No. PCT/IB94/00319, § 371 Date May 15, 1996, § 102(e) Date May 15, 1996, PCT Pub. No. WO96/11589, PCT Pub. Date Apr. 25, 1996

PCT Filed Oct. 17, 1994, Ser. No. 646,307

Int. Cl.^{6} A23L *1/22*

U.S. Cl. 426—534 **18 Claims**

1. A process for the preparation of particulate flavour compositions comprising a flavour oil fixed in a particulate polyol material, which comprises:

a. mixing selected amounts of mono- or disaccharide, polysaccharide and water with a minor but flavour effective amount of a flavour oil in order to form a homogeneous substrate possessing a Tg below room temperature; and

b. extruding said homogeneous substrate at a temperature sufficient to form a melt which on cooling solidifies as a hard rubbery and amorphous material having said flavour oil entrapped therein.

5,786,018

PREPARATION OF INSTANT RICE NOODLES

Tian Seng Toh, Singapore, Singapore, assignor to Nestec S.A., Vevey, Switzerland

Filed Apr. 19, 1996, Ser. No. 635,019

Claims priority, application Singapore, Apr. 22, 1995, 9500311-7

Int. Cl.^{6} A23L *1/16*

U.S. Cl. 426—557 **18 Claims**

1. A process for preparing rice noodles comprising:

steaming whole rice so that from 20% to 90% of its starch is gelatinized to obtain a whole rice product which comprises partially gelatinized rice starch;

milling the whole rice product to obtain a flour product;

mixing the flour product with water at a temperature and for a time to form a dough and to gelatinize the rice product starch from 5% to 30% further to obtain a dough in which the starch is not gelantinized completely and extruding the dough to obtain the dough in a form of noodles;

steaming the noodles, at a temperature and for a time sufficient to firm the noodles to obtain firmed noodles;

blanching the firmed noodles with water at a temperature and for a time to obtain blanched noodles so that at least substantially all the blanched noodle starch is gelatinized; and

drying the blanched noodles to a moisture content of below 15% by weight.

5,786,019

HEALTHY SPREAD FATS

Frederick William Cain, Voorburg, Netherlands; Kevin Warren Smith, Bedford, Great Britain, and Nico Zwikstra, Heemstede, Netherlands, assignors to Loders-Croklaan B.V., Wormerveer, Netherlands

PCT No. PCT/EP94/02893, § 371 Date Mar. 5, 1996, § 102(e) Date Mar. 5, 1996, PCT Pub. No. WO95/07619, PCT Pub. Date Mar. 23, 1995

PCT Filed Aug. 31, 1994, Ser. No. 612,900

Claims priority, application European Pat. Off., Sep. 14, 1993, 93307252

Int. Cl.^{6} A23D *9/00*

U.S. Cl. 426—607 **14 Claims**

1. Fat-composition, suitable for healthy margarines or spreads, comprising the following triglyceride-distribution:

5–45 wt % S_2U-triglycerides
0–60 wt % SU_2-triglycerides
5–95 wt % U_3-triglycerides
0–8 wt % S_3-triglycerides

S being: saturated fatty acid with 16–24 carbon atoms

U being: mono- or polyunsaturated fatty acids with at least 18 carbon atoms, said fat-composition has a weight ratio C_{18}–C_{24}-saturated fatty acids; C_{16}-saturated fatty acids of at least 0.3; is substantially free of laurics; contains less than 5 wt % diglycerides, the total weight of saturated fatty acids plus trans acids (SAFA) divided by the weight of all fatty acids present is less than 35 wt % and its solid fat content, measured by NMR-pulse (unstabilized), is:

N_5:	12–30
N_{35}:	less than 7
$(N_5–N_{20})$:	less than 10

and wherein the composition is a blend of fat components (A), (B) and (C),

wherein:

(A) has an SUS level of more than 30 wt %, and displays an N_{20}>20,

(B) has an S_3 level above 45 wt %,

(C) has an (U_2S+U_3) level above 45 wt %, while (A), (B) and (C) are present in amounts of 5–40 wt % (AM), 0–10 wt % (B) and 50–95 wt % (C).

5,786,020

INSTANT PRODUCT OF CEREAL IN ADMIXTURE WITH VEGETABLE MATTER

Ernst H. Reimerdes, Pully; Pierre Dupart, Winterthur; Osvaldo Geromini, Valeyres/Rances, and Jean-Jacques Desjardins, Denges, all of Switzerland, assignors to Nestec S.A., Vevey, Switzerland

Filed Dec. 19, 1995, Ser. No. 574,657

Claims priority, application European Pat. Off., Dec. 22, 1994, 94810747

Int. Cl.^{6} A23L *1/168*

U.S. Cl. 426—619 **15 Claims**

1. A process for preparing a food product comprising:

cooking a mixture in an extruder to cook the mixture and extruding cooked mixture from the extruder to obtain an extrudate product from the extruder, wherein the mixture comprises by weight, from 9 parts to 110 parts cereal, from 7 to 300 parts vegetable puree, from 2 parts to 15 parts fat and has a water content in a range of more than 23% and less than 70%, and prior to extrusion of cooked mixture from the extruder, allowing steam to escape from the cooking mixture from within the extruder so that the extrudate product extruded and obtained from the extruder has a water content of from 15% to 23%;

cutting the extrudate product to obtain cut pieces; and

drying the cut pieces to obtain a dried product.

5,786,021

PROCESSED MATERIAL OF BEAN CURD REFUSE AND METHOD FOR THE PREPARATION THEREOF

Toshio Satoh; Hitoshi Matsumoto; Chitoshi Mori, and Keiji Inouchi, all of Tokushima, Japan, assignors to E.P.D. Co., Ltd., Japan

PCT No. PCT/JP94/01325, § 371 Date Mar. 30, 1995, § 102(e) Date Mar. 30, 1995, PCT Pub. No. WO95/05088, PCT Pub. Date Feb. 23, 1995

PCT Filed Aug. 10, 1994, Ser. No. 411,757

Claims priority, application Japan, Aug. 13, 1993, 5-201407

Int. Cl.^{6} A23L *1/20*

U.S. Cl. 426—634 **6 Claims**

1. A processed material of bean curd refuse, which comprises a highly viscous liquid containing cut bean curd refuse fibers and water-soluble polysaccharides released from bean curd refuse.

5,786,022

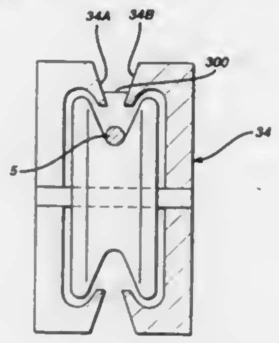
COATING MIXTURE FOR SURGICAL ARTICLES

Vishvaroop Agarwal, Piscataway, and Alastair W. Hunter, Bridgewater, both of N.J., assignors to Ethicon, Inc., Somerville, N.J.

Filed Oct. 31, 1996, Ser. No. 741,884

Int. Cl.^{6} B05D *3/02;7/00*

U.S. Cl. 427—2.31 **17 Claims**



1. A process for coating surgical articles consisting essentially of forming a coating mixture composed in the range of about 98 to about 80 weight percent of a solvent selected from the group consisting of ethyl acetate/ethanol, n-propyl acetate/acetone, isopropyl acetate/ethanol, ethyl acetate/acetone and blends thereof; a biocompatible polymer and a fatty acid salt wherein the ratio of biocompatible polymer to fatty acid salt is in the range of from about 1:4 to 4:1;

contacting a surgical article with said coating mixture to provide a wet coated surgical device; and

drying the wet coated surgical article to substantially remove the solvent to provide a coated surgical article.

5,786,023

METHOD AND APPARATUS FOR THE FREEFORM GROWTH OF THREE-DIMENSIONAL STRUCTURES USING PRESSURIZED PRECURSOR FLOWS AND GROWTH RATE CONTROL

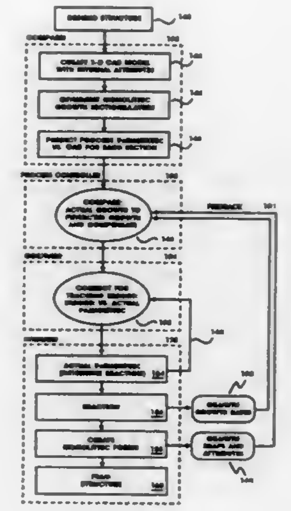
James L. Maxwell, 45A Suncrest Dr., Waterford, N.Y. 12188, and Joseph Pegna, 26 Meadow Valley Dr., Clifton Park, N.Y. 12065-2026

Filed Feb. 13, 1996, Ser. No. 600,454

Int. Cl.^{6} C23C *8/00;* **B05D** *3/12;* **C04B** *40/00*

U.S. Cl. 427—8 **25 Claims**

1. A method of growing a structure, comprising steps of:



A) directing a forced flow of precursor material onto a deposit interface;

B) inducing a localized pyrolytic reaction of said precursor material with a temperature, wherein said localized pyrolytic reaction results in a growth of said deposit interface;

C) controlling a growth direction, and a cross-section of said growth of said deposit interface with said temperature and a flow direction and flowrate of said forced flow that varies said cross-section and said growth direction; and

D) forming a jointless, solid structure of said varied cross-section and said varied growth direction through said controlled growth of said deposit interface, wherein said forced flow is of smaller cross-section than said cross-section of said solid structure being grown by said forced flow.

5,786,024

Patent Not Issued For This Number

5,786,025

BA AND/OR SR TITANATE FILMS BY ORGANIC CHEMICAL VAPOR DEPOSITION

Norimiti Saitou; Hiroto Uchida, and Katsumi Ogi, all of Omiya, Japan, assignors to Mitsubishi Materials Corporation, Tokyo, Japan

Filed Sep. 9, 1996, Ser. No. 709,596

Claims priority, application Japan, Sep. 7, 1995, 7-230452

Int. Cl.^{6} B05D *5/12;* **C23C** *16/30*

U.S. Cl. 427—99 **3 Claims**

1. A method for preparing a film comprising depositing $MtiO_3$, wherein M is Ba, Sr or a mixture thereof, by organic chemical vapor deposition ujsing a β-diketone complex of Ba, Sr or a mixture thereof, said β-diketone complex comprising at most 1 ppm each of alkali metal and impurtity alkaline metal, the Ba and/or Sr β-diketone complex being obtained by

a) purifying by recrystallization and ion-exchange chromatography a barium or strontium compound,

b) decomposing the barium or strontium compound to form barium oxide or strontium oxide,

c) reducing barium oxide or strontium oxide to barium metal or strontium metal in the presence of aluminum, and

d) reacting barium metal and/or strontium metal with a β-diketone compound in an organic solvent to form the Ba and/or Sr β-diketone complex.

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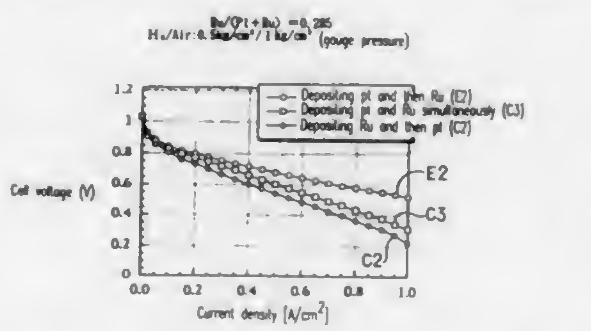
5,786,026

METHOD FOR PRODUCING COMPOSITE CATALYTIC MOLDING

Hideo Seko, Hashima, and Akihito Isomura, Toyota, both of Japan, assignors to Aisin Seiki Kabushiki Kaisha, Kariya, Japan

Filed Nov. 20, 1996, Ser. No. 754,007
Claims priority, application Japan, Nov. 29, 1995, 7-335853
Int. Cl.^{6} B05D *5/12*
U.S. Cl. 427—115 8 Claims



1. A method for producing a composite catalytic molding containing metallic platinum and metallic ruthenium comprising:

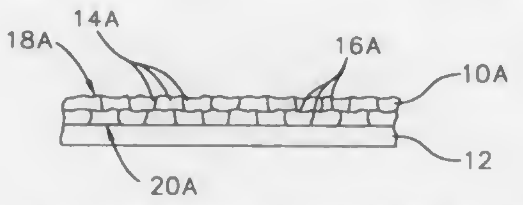
depositing metallic platinum on a surface of a conductive molding containing conductive material and water repellant material by applying a platinum compound solution on said surface and subjecting said platinum compound to deoxidation, followed by depositing metallic ruthenium on a surface of said conductive molding by applying a ruthenium compound solution on said surface and subjecting said ruthenium compound to deoxidation.

5,786,027

METHOD FOR DEPOSITING POLYSILICON WITH DISCONTINUOUS GRAIN BOUNDARIES

J. Brett Rolfson, Boise, Id., assignor to Micron Technology, Inc., Boise, Id.

Continuation of Ser. No. 600,839, Feb. 14, 1996, abandoned. This application Jul. 7, 1997, Ser. No. 888,447
Int. Cl.^{6} C23C *16/24*
U.S. Cl. 427—124 24 Claims



1. A method for depositing a polysilicon film on a substrate comprising:

providing a low pressure chemical vapor deposit ion (LPCVD) apparatus having a reaction chamber;

placing the substrate into the reaction chamber;

heating the reaction chamber to a temperature of from 580° C. to 650° C.;

evacuating the reaction chamber to a pressure of from 200 mTorr to 1 Torr;

injecting a first silicon source gas at a first flow rate and a second silicon source gas at a second flow rate into the reaction chamber, said first silicon source gas having a different adsorption characteristic than said second silicon source gas; and

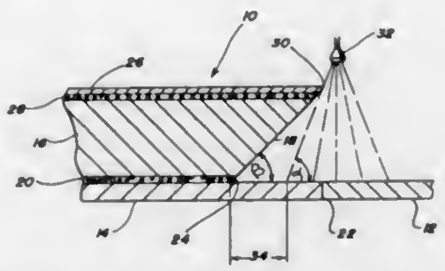
forming polysilicon grains on the substrate, said grains including grain boundaries having a random orientation in which the grain boundaries are not continuous from a surface of the polysilicon film to the substrate.

5,786,028

MASKING TAPE AND METHOD

Jay S. Cantwell, 3905 Avery Place Ct., Bridgeton, Mo. 63044

Filed Sep. 5, 1996, Ser. No. 708,535
Int. Cl.^{6} B05D *1/32;1/02*
U.S. Cl. 427—282 4 Claims



1. A method for the spray application of paint to a surface of an object having a first section to be spray painted and a contiguous second section to be masked, said method comprising:

providing a flexible tape including a body with a top surface and a bottom surface connected by at least one lateral edge, said bottom surface having a pressure sensitive adhesive adapted to adhere to the second section, said bottom surface forming a vertex with the second section proximate but spaced from a demarcation line between the first and second sections, said lateral edge having a leading portion, said leading portion of said lateral edge sloped upwardly and outwardly from the bottom surface and overhanging the vertex;

providing a spray head for spraying paint on the first section adjacent the tape at an included angle a between a leading edge of the spraying paint and the surface of the object, said angle α being greater than an included angle β between the second section and a line passing through the vertex and the extreme of the leading portion of the lateral edge, said leading portion of the lateral edge shadowing the vertex from the spray and forming a shadow zone about the vertex;

applying said tape to the object with the shadow zone between the vertex and the demarcation line between the first and second sections;

spraying a full-thickness layer of paint from the spray head on the first section, said second section being protected by the shadow zone;

terminating spraying when the layer of saint at the demarcation line substantially reaches full-thickness before the paint flows into the shadow zone and makes contact with the lateral edge of the tape;

allowing the paint to dry; and,

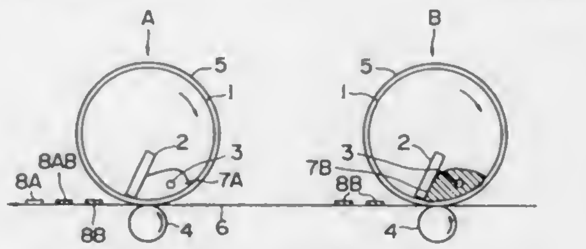
removing the tape from the second section whereby a sharp demarcation line is formed between the first and second sections.

5,786,029

STENCIL PRINTING METHOD

Hideo Watanabe, Inashiki-gun, Japan, assignor to Riso Kagaku Corporation, Tokyo, Japan

Filed Oct. 1, 1996, Ser. No. 724,673
Claims priority, application Japan, Oct. 3, 1995, 7-278270
Int. Cl.^{6} B05D *1/32;1/36*
U.S. Cl. 427—282 8 Claims



1. A stencil printing method which comprises:

successively transferring a plurality of printing inks of different colors through a perforated stencil sheet to an object to be

printed, said plurality of printing inks each being capable of reversibly changing its phase from solid to liquid, each of said printing inks having a different phase change temperature for the phase change from solid to liquid, in which each of said printing inks is successively transferred to the object in descending order of phase change temperature.

5,786,030

SPOTTING RESISTANT GLOSS ENHANCEMENT OF AUTODEPOSITION COATING

Bashir M. Ahmed, Utica; Douglas A. Brown, Troy, and William E. Fristad, Rochester Hills, all of Mich., assignors to Henkel Corporation, Plymouth Meeting, Pa.

Filed Nov. 12, 1996, Ser. No. 745,550
Int. Cl.^{6} B05D *3/10;7/14*
U.S. Cl. 427—353 20 Claims

1. A process for producing a glossy coating on a metal substrate by autodeposition thereon, said process comprising steps of:

(I) contacting a wet autodeposited coating on the metal substrate, said wet autodeposited coating comprising iron cations with a volume of an aqueous liquid composition comprising water and:

(A) an amount of a component of dissolved alkaline material, this alkaline material having a stoichiometric equivalent as hydroxide ions and the amount of this component being measured by a unit, which is abbreviated hereinafter as "M/kg", of number of moles of the stoichiometric equivalent as hydroxide ions per kilogram of the volume of aqueous liquid composition;

(B) an amount of a component of amphoteric, zwitterionic, or both amphoteric and zwitterionic surfactant molecules, exclusive of any that constitute part of component (A), the amount of component (B) being measured by a unit, which is abbreviated hereinafter as "g/kg", of grams of the component per kilogram of total composition; and

(C) an amount of a component of dissolved molecules that are complexing agents for ferrous ions, ferric ions, or both but are not part of the previously recited amounts of components (A) and (B), said complexing agents being selected from the group consisting of organic molecules that comprise both (1) at least one hydroxyl moiety and (2) at least one additional moiety selected from the group consisting of hydroxyl, carboxyl, carboxylate, and amino moieties, moieties (1) and (2) being present in said organic molecules in positions such that an oxygen atom in hydroxyl moiety (1) and an amino nitrogen atom or a non-carbonyl oxygen atom in moiety (2) can, together with the other atoms of the organic molecule and a metal atom to which said oxygen atom in hydroxyl moiety (1) and said amino nitrogen atom or non-carbonyl oxygen atom in moiety (2) are coordinately bonded, form a five- or six-atom-membered ring, the amount of component (C) being measured in g/kg;

(II) maintaining the contacting established in step (I) for a sufficient time to transfer some of the iron cations from said wet autodeposited coating into said aqueous liquid composition; and

(III) thereafter separating said wet autodeposited coating from said volume of said aqueous liquid composition.

5,786,031

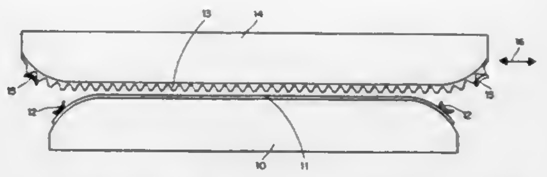
BARRIER FOR A METAL SUBSTRATE

William B. Retallick, West Chester, Pa.; Rasto Brezny, Catonsville, Md.; Paul John Westgate, Eldersburg, Md.; James W. Patten, Jr., Baltimore, Md., and James George Miller, Ellicott City, Md., assignors to Engelhard Corporation, Iselin, N.J.

Filed Jun. 7, 1995, Ser. No. 477,981
Int. Cl.^{6} B05D *3/02;3/10*
U.S. Cl. 427—376.4 15 Claims

1. A method of making an electrically insulating barrier on a metal substrate, the method comprising the steps of:

a) coating a metal substrate with a finely pulverized washcoat of metal oxide,



b) calcining the washcoat to leave a coating of metal oxide,

c) impregnating the coating formed in step (b) with phosphoric acid, and

d) calcining the impregnated coating of step (c) at a temperature sufficient to cause the phosphoric acid to react with the metal oxide to form an electrically insulating barrier.

5,786,032

COATING COMPOSITION AND PROCESS FOR PRODUCING COATED ARTICLES

Frank J. Hughes, Edina, Minn., assignor to Vision-Ease Lens, Inc., Brooklyn Center, Minn.

Continuation of Ser. No. 95,791, Jul. 22, 1993, abandoned, which is a continuation-in-part of Ser. No. 796,007, Nov. 22, 1991, abandoned. This application Dec. 22, 1994, Ser. No. 361,880
Int. Cl.^{6} B05D *3/02*
U.S. Cl. 427—387 16 Claims

1. A method for making a tintable and abrasion resistant coating that is cross-linked by silanol condensation and epoxy polymerization, the method comprising:

partially hydrolyzing an aminosilane having hydrolyzable groups to form an amino silane hydrolyzate;

adding a non-silane epoxy prepolymer to the aminosilane hydrozylate to form a first mixture;

partially polymerizing the first mixture to form a second mixture;

adding a solvent to the second mixture to form a third mixture;

applying the third mixture to a substrate and

curing the third mixture on the substrate to make the tintable and abrasion resistant coating.

5,786,033

METHOD OF FORMING MULTI-LAYER PAINT FILMS, BASE COAT COMPOSITION AND METHOD OF PAINTING

Achim Gast, Sendenhorst, Germany; Kazuki Shiomi, Kanagawa, Japan, and Hitoshi Taniguchi, West Bloomfield, Mich., assignors to BASF Lacke + Farben, AG, Muenster-Hiltrup, Germany

PCT No. PCT/EP95/02454, § 371 Date Feb. 6, 1997, § 102(e) Date Feb. 6, 1997, PCT Pub. No. WO96/00757, PCT Pub. Date Jan. 11, 1996
PCT Filed Jun. 23, 1995, Ser. No. 765,424
Claims priority, application Japan, Jun. 29, 1994, 6-148130
Int. Cl.^{6} B05D *1/36*
U.S. Cl. 427—412.1 22 Claims

1. A method of forming multi-layer paint films wherein a multi-layer paint film is formed on a substrate comprising:

A) applying to the substrate a base coat composition which is aqueous and which contains pigment;

B) forming a paint film of the composition which has been applied in A);

C) applying a transparent top coat over the base coat paint film of (B); and

D) baking the base coat and the top coat at the same time;

wherein the base coat composition comprises

(a.) an aqueous polyurethane resin having a solid fraction, wherein the aqueous polyurethane resin has structural units represented by the general formula (1) indicated below and is dispersed in water:

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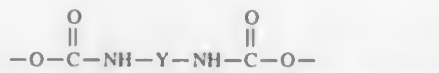


(I)

$$-O-\overset{\overset{O}{\|}}{C}-NH-Y-NH-\overset{\overset{O}{\|}}{C}-O-$$

in this formula, Y represents an aromatic, aliphatic or alicyclic hydrocarbyl group and

(b.) an inorganic rheology control agent of which a 3% by weight aqueous solution exhibits an electrical conductivity of 700–900 μS/cm.

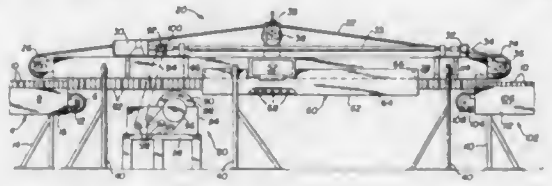
5,786,034
APPARATUS FOR COATING AND CURING THE BOTTOM RIM SURFACE OF A CONTAINER

Robert H. Schultz, Golden, Colo., assignor to Coors Brewing Company, Golden, Colo.

Continuation-in-part of Ser. No. 325,036, Oct. 18, 1994, Pat. No. 5,536,316. This application Jul. 10, 1996, Ser. No. 680,585

Int. Cl.^{6} B05D *1/28;3/00;3/12*

U.S. Cl. 427—428 **4 Claims**



1. A method for providing a bottom rim surface of each of a plurality of containers with a cured coating comprising:

moving a plurality of empty containers on a conveyor in a predetermined linear direction, each having an open end, a sidewall, a bottom rim surface integral with said sidewall and a closed concave bottom surface integral with said bottom rim surface so that each of said bottom rim surfaces has a central portion and adjacent radially inward and outward portions;

positioning said plurality of empty containers on said conveyor so that a plurality of said plurality of empty containers are located on said conveyor in a direction transverse to the movement of said conveyor;

mounting a coating applicator roll having a deformable outer surface at a location to be contacted by said bottom rim surfaces;

applying a coating material to said deformable outer surface;

rotating said coating applicator roll so that said coating applicator roll is moving in the same direction and at the same speed as said plurality of empty containers;

transferring portions of said coating material on said deformable outer surface to said bottom rim surfaces of a plurality of said plurality of empty containers at the same time;

exposing said coated bottom rim surfaces to curing means for curing said coating material on said bottom rim surfaces; and

collecting said plurality of empty containers having said cured coated bottom rim surfaces.

5,786,035
METHOD FOR PRODUCING METAL-CERAMIC COMPOSITE MATERIALS

Yasuhiro Nakao, and Kunitoshi Sugaya, both of Saitama-ken, Japan, assignors to Honda Giken Kogyo Kabushiki Kaisha, Tokyo, Japan

Filed Jul. 26, 1995, Ser. No. 507,727

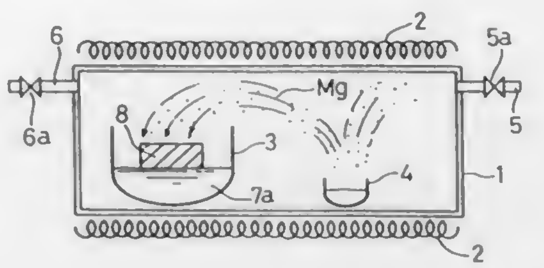
Claims priority, application Japan, Jul. 28, 1994, 6-177178; Aug. 3, 1994, 6-182586

Int. Cl.^{6} B05D *1/18*

U.S. Cl. 427—443.2 **17 Claims**

1. A method for producing a metal-ceramic composite material, comprising the steps of:

setting a porous shaped material of an oxide-based ceramic and magnesium in a furnace;



within the furnace establishing a rare gas atmosphere, subliming the magnesium under heat, and dispersing the resulting magnesium vapor into the porous shaped material;

introducing nitrogen gas into the furnace such that it reacts with the sublimed magnesium to form magnesium nitride (Mg_3N_2), followed by bringing the magnesium nitride into contact with the oxide in a surface of the porous shaped material thereby reducing the oxide and exposing metal atoms; and

thereafter infiltrating a molten metal into the porous shaped material.

5,786,036
BLOW-OFF APPARATUS

Heinrich Pannenbecker, Minnekenstege 73, 46569 Hünxe, and Ronald Jabs, Am Domacker 93, 47447 Moers, both of Germany

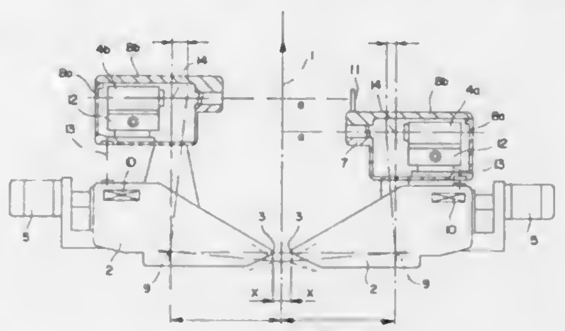
PCT No. PCT/EP94/00560, § 371 Date Oct. 20, 1995, § 102(e) Date Oct. 20, 1995, PCT Pub. No. WO94/20647, PCT Pub. Date Sep. 15, 1994

PCT Filed Feb. 25, 1994, Ser. No. 507,456

Claims priority, application Germany, Mar. 2, 1993, 43 06 394.2; Dec. 16, 1993, 43 42 904.1

Int. Cl.^{6} B05D *3/04;* **B05C** *11/06*

U.S. Cl. 427—444 **20 Claims**



1. A method for blowing off surplus coating material from a metal band which has been coated in a bath during a continuous coating process, comprising

guiding said metal band along a running direction between first and second mutually opposed nozzles which are charged with a blow-off medium, said nozzles comprising first and second nozzle bodies and first and second nozzle orifices, said metal band being guided between said first and second nozzle orifices which extend transversely to the running direction of the metal band;

emitting a light beam towards said metal band by a first optical measuring device which is mounted on said first nozzle body;

moving said first optical measuring device continuously along a zone of movement which is parallel to the first nozzle orifice, so that said light beam is reflected back to said first optical measuring device by said metal band when said first optical measuring device is within the outer edges of said metal band, and by a reflector mounted on said second nozzle body when said first optical measuring device moves beyond the outer edges of said metal band;

producing a first set of measured signals when said light beam is reflected back by said metal band and a second set of measured signals when said light beam is reflected back by said reflector; and

adjusting the distance between said first nozzle orifice and said metal band based on said first set of measured signals, and adjusting the distance between said first nozzle orifice and said second nozzle orifice based on said second set of measured signals.

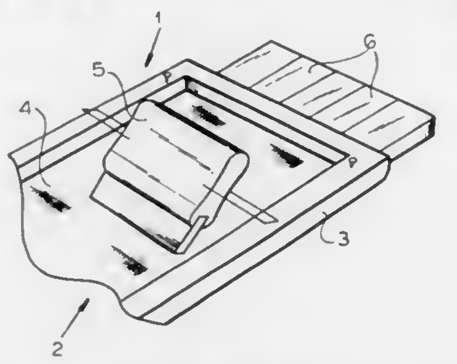
5,786,037
METHOD FOR PAINTING METAL PLATES

Esterina Vergani, Via Roma 6, Carnate (Milano), Italy, I-20040

Filed Jun. 13, 1996, Ser. No. 662,620

Int. Cl.^{6} B05D *1/32*

U.S. Cl. 427—466 **5 Claims**



1. A method of painting a metallic piece in the form of a metal plate or section comprising the steps of:

a) pretreating a surface of a metallic piece so as to cause a powder paint to adhere to the surface;

b) thereafter distributing a first layer of a powder paint on said surface of the metallic piece, said power paint consisting of a meltable and polymerizable powder;

c) thereafter inserting the metallic piece into an oven to heat said surface to a preset temperature to melt the first layer of said powder paint, thereby uniformly spreading the first layer of said powder paint over the surface to be coated;

d) maintaining said surface of the metallic piece in said oven at said preset temperature for a first time period sufficient for said powder to begin polymerization;

e) immediately after the beginning of polymerization removing said metallic piece from said oven and thereby cooling said surface to stop polymerization in step (d);

f) thereafter depositing a second layer of a meltable polymerizable powder paint on said surface of the metallic piece over at least part of the first layer; and

g) thereafter heating said surface covered with first and second layers of the powder paint to a final temperature and maintaining said final temperature for a second time period effective and sufficient for complete polymerization of the first and second layers of the powder paint.

5,786,038
SYNTHETIC DIAMOND LAYERS HAVING WEAR RESISTANT COATINGS FORMED IN SITU AND METHODS OF APPLYING SUCH COATINGS

James G. Conley, 443 Jefferson Ave., Glencoe, Ill. 60022, and Jerome H. Lemelson, 868 Tyler Way, Incline Village, Nev. 89540

Continuation of Ser. No. 475,874, Jun. 7, 1995, Pat. No. 5,616,372. This application Mar. 31, 1997, Ser. No. 829,761

Int. Cl.^{6} B05D *3/06*

U.S. Cl. 427—554 **3 Claims**

1. A process for applying a wear-resistant diamond coating to a substrate comprising:

a. depositing over said substrate an intermediate layer;

b. depositing over said intermediate layer an outer diamond layer;

c. applying a thin layer of graphite over said diamond layer; and

d. treating said layer of graphite after its deposition by laser radiation to partially ablate said graphite to create partially-exposed sp^3 diamond particles in a matrix of graphite or amorphous carbon, thereby leaving an outer diamond/graphite layer having superior lubrication and wear resistance in comparison with a diamond layer alone.

5,786,039
PROCESS FOR ELECTRICAL INSULATION IN MICROELECTRONICS, APPLICABLE IN NARROW CAVITIES, BY DEPOSITION OF OXIDE IN THE VISCOUS STATE AND CORRESPONDING DEVICE

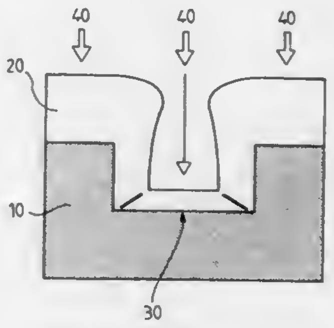
Pierre Brouquet, Neylan, France, assignor to France Telecom, France

Filed May 14, 1996, Ser. No. 645,983

Claims priority, application France, May 15, 1995, 95 05710

Int. Cl.^{6} H05H *1/24*

U.S. Cl. 427—578 **10 Claims**



1. Process for making electrical insulation on conductive or semiconductive regions of a substrate comprising the steps of:

(a) depositing at least one conformal layer of insulating oxide on regions of the substrate to be insulated;

(b) chemically reacting in plasma phase a mixture consisting of a tetraalkylsilicate and hydrogen peroxide to deposit a layer of planarizing oxide precursor on the regions of the substrate covered with at least one conformal layer of insulating oxide;

(c) depositing at least one layer of insulating oxide on the regions of the substrate covered with a layer of planarizing oxide precursor; and

(d) conversion annealing the substrate.

5,786,040
METHODS FOR COATING SURFACES WITH MAGNETIC COMPOSITES EXHIBITING DISTINCT FLUX PROPERTIES

Johna Leddy, and Sudath Amarasinghe, both of Iowa City, Iowa, assignors to The University of Iowa Research Foundation, Iowa City, Iowa

Division of Ser. No. 294,797, Aug. 25, 1994. This application Apr. 1, 1996, Ser. No. 626,082

Int. Cl.^{6} B05D *1/00*

U.S. Cl. 427—598 **14 Claims**

1. A method of making an electrode with a surface coated with a magnetic composite with a plurality of boundary regions with magnetic gradients having paths to the surface of said electrode, comprising the steps of:

mixing a first mixture of at least approximately 1 percent by weight of inert polymer coated magnetic microbeads containing at least approximately 10 percent by weight of magnetizable material having diameters of at least approximately 0.11 micrometer in a first solvent with a second mixture compris-

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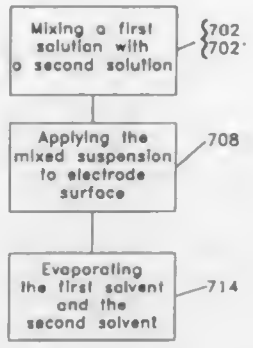

Mixing a first solution with a second solution
702
702'
Applying the mixed suspension to electrode surface
708
Evaporating the first solvent and the second solvent
714

ing at least approximately 2% by weight of an ion exchange polymer in a second solvent to yield a mixed suspension;

applying said mixed suspension to the surface of the electrode, said electrode being arranged in a magnetic field of at least approximately 0.05 Tesla which has a component oriented approximately along the normal of said electrode surface; and

evaporating said first solvent and said second solvent to yield the electrode with a surface coated with the magnetic composite having a plurality of boundary regions with magnetic gradients having paths to the surface of the electrode.

8. A method of coating a surface with a magnetic composite material, comprising the steps of:

applying to the surface a composition comprising an inert polymer coated magnetic microbeads, an ion exchange polymer, and a solvent as a mixed suspension;

arranging the surface in a magnetic field; and

evaporating the solvent to form a coating of the magnetic composite on the surface.

5,786,041

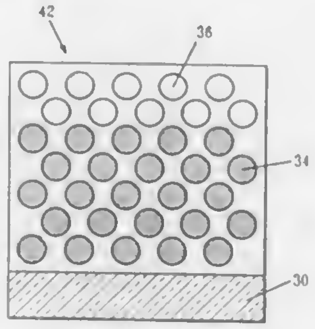
ALIGNMENT FILM, A METHOD FOR PRODUCING THE ALIGNMENT FILM AND A LIQUID CRYSTAL DISPLAY DEVICE USING THE ALIGNMENT FILM

Atsushi Takenaka, Machida; Kenichi Tajima, Moriyama; Hideo Takano, Atsugi, all of Japan; Shui-Chih A. Lien, Briarcliff Manor, and Kang-Wook Lee, Yorktown Heights, both of N.Y., assignors to International Business Machines Corporatinn, Armonk, N.Y.

Filed Jun. 7, 1995, Ser. No. 476,214

Int. Cl.^{6} G02F *1/1337*

U.S. Cl. 428—1 **17 Claims**



1. An alignment film formed by the steps which comprise mixing together a first polymer and a second polymer, said first polymer less sensitive to change in electrical properties when exposed to ultraviolet radiation than said second polymer, in a common solvent such that a solution is formed; casting said solution on a substrate; heating said solution such that a solid film is formed; and exposing only a portion of said film to ultraviolet radiation such that a cured film having a first surface and a second surface is formed wherein said film has a high sensitivity to pretilt angle and a lower internal DC bias voltage than films formed of either said first or said second polymers.

5,786,042

RESIN BLACK MATRIX FOR LIQUID CRYSTAL DISPLAY DEVICE

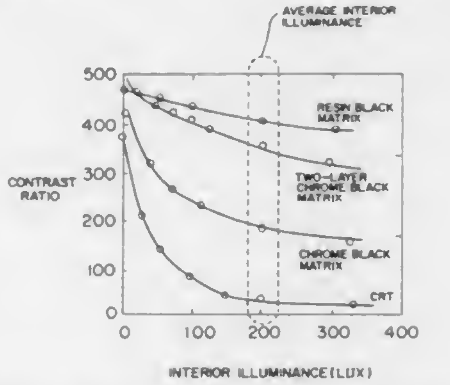
Keijiro Inoue; Fumio Tomita, and Tetsuya Goto, all of Shiga, Japan, assignors to Toray Industries, Inc., Tokyo, Japan

Filed Apr. 26, 1996, Ser. No. 638,369

Claims priority, application Japan, Apr. 28, 1995, 7-106567; Apr. 28, 1995, 7-106568

Int. Cl.^{6} C09K *19/00*

U.S. Cl. 428—1 **21 Claims**



1. A resin black matrix with a light-shading agent dispersed in a resin, comprising the use of carbon black satisfying at least one of the following features of (A) to (D):

(A) 6.5 to 1.0 in pH

(B) $0.001<[COOH]$ in the carboxyl group concentration [COOH] on the surface, as a molar ratio per all carbon atoms

(C) $0.001<[OH]$ in the hydroxyl group concentration [OH] on the surface, as a molar ratio per all carbon atoms or

(D) $0.001<[SO_3H]$ in the sulfonic acid group concentration [SO_3H] on the surface, as a molar ratio per all carbon atoms.

5,786,043

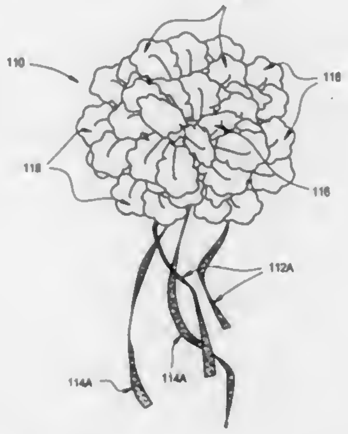
DECORATIVE DEVICE AND METHOD OF MAKING THE DEVICE

Linda L. Lindgren, 41 Nut Plains Rd. West, Guilford, Conn. 06437

Filed Sep. 25, 1996, Ser. No. 719,350

Int. Cl.^{6} A41G *1/00*

U.S. Cl. 428—4 **17 Claims**



1. A decorative device comprising

longitudinally extending tie means having terminal ends, and

a plurality of discrete decorative elements, the elements including a primary component joining the tie means at a common point of intersection of portions of the tie means intermediate the terminal ends of the tie means, the portions of the tie means each supporting a plurality of discrete elements for independent sliding movement relative to the primary component, the elements being slidable into adjacent relation to one another along their respective portion of the tie means in surrounding relation to the primary component, and the terminal ends of the tie means being attachable to one another for securing the elements in desired position to form an ornamental object.

5,786,044

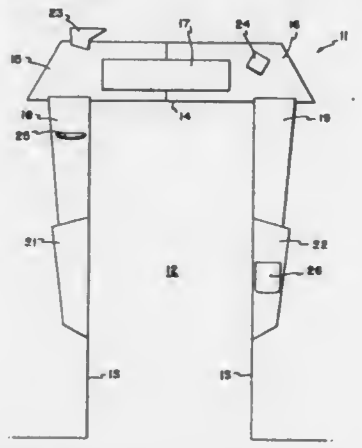
THREE-DIMENSIONAL DOOR DECORATION

Steven P. Hauge, Minneapolis, Minn., assignor to Trend Enterprises, Inc., New Brighton, Minn.

Continuation of Ser. No. 418,146, Apr. 5, 1995, abandoned. This application Sep. 27, 1996, Ser. No. 721,891

Int. Cl.^{6} B32B *3/10*

U.S. Cl. 428—8 **26 Claims**



1. An adjustable three-dimensional decoration for an area of predetermined width defined by a top and left and right sides, comprising:

a header assembly mountable at the top and spanning the width of the area;

left and right side assemblies mountable to the left and right sides of the area and extending downwardly from the header assembly;

the header assembly comprising:

left and right header pieces each of predetermined width with the combined width exceeding the width of the area;

adjustable connection means associated with said left and right header pieces for adjustably connecting said header pieces together in side-by-side relation with the combined assembled width thereof chosen as a function of the width of the area, the adjustable connection means comprising tab means associated with one of said left and right header pieces, and a plurality of slot means associated with the other of said left and right header pieces, each of said slot means being constructed and arranged to connectably receive said tab means permitting the tab means to be connectably inserted into a selected slot means.

5,786,045

COMBINATION LOG-SET SYSTEM

Fred B. Gerth, La Mirada; Sasan Farajian, Long Beach, and Mikhail Alpert, Los Angeles, all of Calif., assignors to Marco Manufacturing, Inc., Lynwood, Calif.

Filed Jun. 28, 1996, Ser. No. 673,300

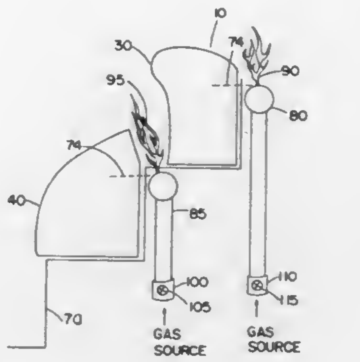
Int. Cl.^{6} B44F *9/04;* **F24C** *3/02*

U.S. Cl. 428—15 **11 Claims**

1. An artificial log assembly comprising:

a first concrete portion and a second concrete portion: and

a ceramic portion having a first side portion and a second side portion, the first concrete portion adjacent and non-fixedly disposed to the first side portion of the ceramic portion and the second concrete portion adjacent and non-fixedly disposed to the second side portion of said ceramic portion.



5,786,046

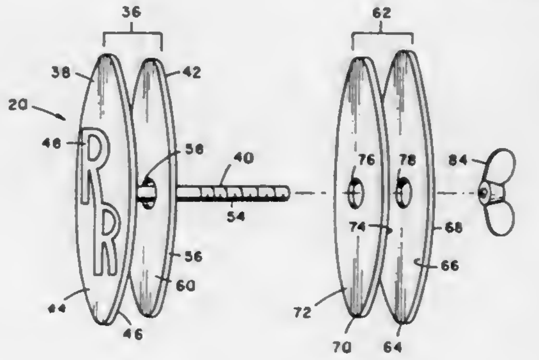
DECORATIVE ACCESSORY FOR ATTACHMENT TO THE GRILLE OF A VEHICLE

Roderick L. Ott, 790 N. Cedar Bluff Rd., Apt. #2907, Knoxville, Tenn. 37923

Filed Jun. 5, 1995, Ser. No. 465,064

Int. Cl.^{6} B60R *13/04*

U.S. Cl. 428—31 **8 Claims**



1. A decorative accessory for attachment to the grille of a vehicle wherein the grille includes spaced bars having front and rear surfaces, the accessory comprising:

a decorative portion positionable against the bars of a grille on the front surfaces thereof and including a first substantially planar disc, an elongated threaded shank and first cushioning means wherein the first disc has two opposite faces and one of the faces bears indicia, the threaded shank is secured to the face of the first disc opposite said one face so that the longitudinal axis of the shank is arranged substantially normal to the plane of the first disc, and the first cushioning means is attached to the face of the first disc opposite said one face for cushioning the face of the first disc opposite said one face when placed against the bars of the grille;

an attachment portion positionable against the bars of the grille on the rear surfaces thereof and including a second substantially planar disc and second cushioning means wherein the second disc includes opposite first and second faces and defines a hole extending between the two faces of the second disc, and the second cushioning means is attached to a first face of the second disc for cushioning said first face when it is placed against the bars of the grille; and

a nut capable of being threadably secured upon the threaded shank so that when the first disc is placed cushioned-face-first against the front surfaces of the bars of the grille so that the threaded shank extends between the grille bars and the second disc can be positioned cushioned-face-first against the rear

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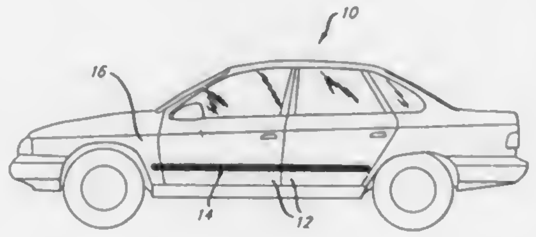
surfaces of the grille bars so that the threaded shank of the decorative portion is accepted by the hole provided in the second disc, the nut can be threadably secured and tightened upon the shank so that the grille is captured between the first and second discs to thereby secure the accessory to the grille.

5,786,047
BODYSIDE MOLDING WITH BRIGHT INSERT AND METHOD OF MAKING SAME

Brian R. Tomblin, Montville, Ohio, assignor to The Standard Products Company, Cleveland, Ohio
Filed Feb. 10, 1997, Ser. No. 797,394
Int. Cl.^{6} B60R *13/04*
U.S. Cl. 428—31 **20 Claims**



18. A bodyside molding to be secured to a vehicle, said bodyside molding comprising:
- a thermoplastic base portion including an opening on a show surface of the base portion; and
- a metallic strip positioned in the opening of the molding by a heat staking process such that edges of the strip are melted into and are embedded within the base portion along the entire length of the strip so the edges are not exposed to air.

5,786,048
PRINTING CYLINDER HAVING A FERROELECTRIC CERAMIC MATERIAL SURFACE

Hans-Jürgen Gesemann, Seufersbach; Lutz Seffner, Dresden; Andreas Schönecker, Dresden, and Falko Schlenkrich, Dresden, all of Germany, assignors to Man Roland Druckmaschinen AG, Offenbach am Main, Germany
Filed Jun. 10, 1996, Ser. No. 658,515
Claims priority, application Germany, Jun. 10, 1995, 195 21 187.1
Int. Cl.^{6} B41F *5/00*
U.S. Cl. 428—34.6 **3 Claims**

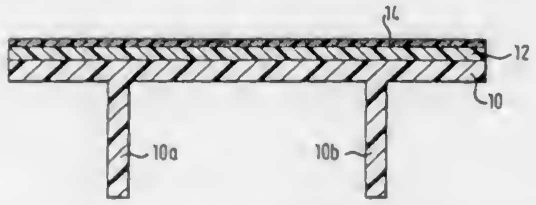
1. A printing cylinder having an outer surface on which a ferroelectric ceramic material is mounted that consists of a ceramic perovskitic mixed crystal, which contains at least one component of Group 1 and at least one component of Group 2, Group 1 consisting of: $PbTiO_3$; $BaTiO_3$; $Pb(Fe_{1/2}Nb_{1/2})O_3$; and, $Pb(Zn_{1/3}Nb_{2/3})O_3$; and, Group 2 containing: $Pb(Mg_{1/3}Nb_{2/3})O_3$; $Pb(Ni_{1/3}Nb_{2/3})O_3$; $Pb(Fe_{2/3}W_{1/3})O_3$; and $Pb(Mn_{1/3}Nb_{2/3})O_3$, wherein the proportions of the components from the two groups in the mixed crystal are determined according to the following equation:

$$\sum_{i=1}^{j} X_i \times T_{ci} = T_{cM}$$

where X_i is the mole fraction of the i-component, T_{ci} is the Curie point of the i-component and T_{cm} is the Curie point of the mixture wherein T_{cm} is between 50° C. and 100° C.

5,786,049
COVER FOR A GAS BAG MODULE

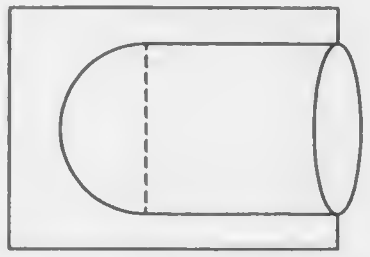
Bernd Nusshör, Spraitbach, Germany, assignor to TRW Occupant Restraint Systems GmbH, Alfdorf, Germany
Filed Jul. 18, 1995, Ser. No. 503,553
Claims priority, application Germany, Jul. 25, 1994, 44 26 342.2
Int. Cl.^{6} B60R *21/16;* **B32B** *27/32*
U.S. Cl. 428—35.2 **16 Claims**



1. A cover for a gas bag module in a vehicle occupant restraining system, said cover having as a main constituent a composite of first and second layers bonded with each other, each of said layers being formed of a polyolefinic material which includes fully cross-linked rubber particles finely dispersed in a continuous matrix of thermoplastic material, said first layer having a hardness amounting to approximately 32 to 43 Shore D and said second layer having a hardness amounting to approximately 45 to 80 Shore A.

5,786,050
EASY OPENING POUCH

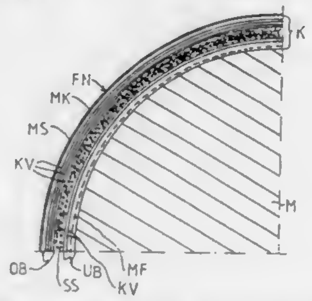
Yoshiaki Otsuka, Tokyo; Hiroshi Hasegawa; Shoji Ito, both of Yokohama, and Hideaki Masuo, Tokyo, all of Japan, assignors to Toyo Seikan Kaisha, Ltd., Tokyo, Japan
Continuation-in-part of Ser. No. 467,141, Jun. 6, 1995, abandoned, which is a continuation-in-part of Ser. No. 251,662, May 31, 1994, abandoned, which is a continuation-in-part of Ser. No. 2,495, Jan. 6, 1993, abandoned. This application Aug. 26, 1996, Ser. No. 702,875
Int. Cl.^{6} B29D *22/00*
U.S. Cl. 428—35.2 **9 Claims**



1. An easy opening pouch formed of a laminated film, the laminated film being composed of
- a film (a) formed of a composition composed 20% to 60% of linear low density polyethylene, 10 to 50% of low density polyethylene and 10 to 40% of ethylene-butene-1 -copolymer;
- a film (b) made of oriented polyolefin having a first ratio MD/TD which is 2 or greater, said first ratio MD/TD is between a degree MD of orientation in a flowing direction measured by an infrared dichroic process and a degree TD of orientation in a direction crossing the flowing direction, and
- a film (c) made of biaxially oriented nylon having a second ratio MD/TD between 1.2 and 2.5, said second ratio MD/TD is between a degree MD of orientation in a flowing direction measured by an infrared dichroic process and a degree TD of orientation in a direction crossing the flowing direction;
- wherein the film (a) serves as a innermost layer making contact with a product to be packaged, the film (b) serves as an intermediate layer, and the film (c) serves as outermost layer wherein the film (c) has coefficients of a orientation measured by a fluorescent orientation process which are $0.1 \leqq l \leqq 0.9$, $0 \leqq m \leqq 0.4$ and $0 \leqq n \leqq 0.9$.

5,786,051
INK TRANSFER ROLLER WITH INTERCHANGEABLE COVER

Georg Niggemeier, Paderborn; Franz-Josef Driller, Borchen, and Roland Brinkman, Paderborn, all of Germany, assignors to Kurt Zecher GmbH, Paderborn, Germany
Continuation-in-part of Ser. No. 343,932, Nov. 17, 1994, abandoned. This application Nov. 7, 1995, Ser. No. 554,707
Claims priority, application Germany, Jul. 26, 1994, 44 26 485.2; May 4, 1995, 195 16 032.0
Int. Cl.^{6} B32B *1/08;* **B41N** *7/06;* **B41F** *31/26*
U.S. Cl. 428—35.9 **17 Claims**



1. An ink transfer roller cover for demountably covering a generally cylindrical roller surface and containing no class fibers at its surface, the roller cover comprising:
- a circumferentially stretchable inner plastic layer (UB), the inner plastic layer being proximal the roller surface when the roller cover is mounted to the roller surface;
- a foamed material compressible layer (SS) surrounding the inner plastic layer;
- an outer plastic layer (OB) including a synthetic-plastic fiber web stabilized synthetic resin material in contact with and surrounding the compressible layer, the synthetic resin material of the outer plastic layer including an elastic laminated synthetic resin material in which the fibers, having a thickness of approximately 0.5 mm, have been embedded as a plurality of synthetic resin web layers;
- a thin metal interlayer (MS) deposited on the outer plastic layer; and
- a metal ceramic layer deposited on the metal interlayer, the metal ceramic layer including a plurality of ink transfer cups.

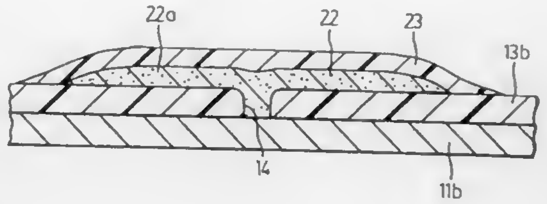
5,786,052

Patent Not Issued For This Number

5,786,053
SUPERIMPOSED COVERINGS HAVING INCREASED STABILITY

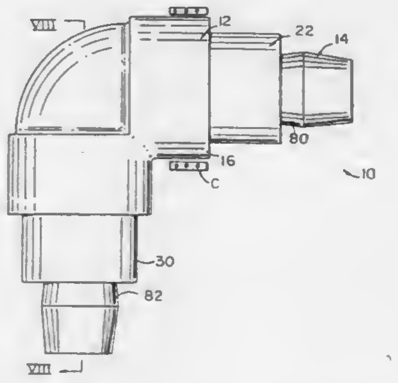
Alfredo Andrenacci, Toronto; Michael A. Romano, Dundas, and John H. Oliver, Huntsville, all of Canada, assignors to Shaw Industries, Ltd., Rexdale, Canada
Division of Ser. No. 599,114, Feb. 9, 1996, Pat. No. 5,662,974, which is a continuation of Ser. No. 262,069, Jun. 17, 1994, abandoned. This application Jan. 28, 1997, Ser. No. 790,226
Int. Cl.^{6} B32B *7/12*
U.S. Cl. 428—36.9 **29 Claims**

1. A method of improving the stability of a covering on an elongated substrate having a substrate outer surface and extending along an axis and being subject to movement in the direction of said axis relative to soil within which the substrate extends, said covering having edges with faces extending transverse to said axis and having a covering outer surface, said method comprising the steps of applying at least over said edges and said substrate and covering outer surfaces a curable deposit of thermoset resin, and curing and bonding said thermoset resin to at least said edges and to the substrate and covering outer surface to provide the covering with increased stability against displacement relative to the substrate in the direction of said axis.



5,786,054
INDUCTIVE WELDING OF THERMOPLASTIC PIPE

Bruce M. Platusich, Bristol, Ind., and Dennis E. McAtamney, Roseville, Mich., assignors to Nibco Inc., Elkhart, Ind.
Division of Ser. No. 74,050, Jun. 8, 1993, Pat. No. 5,503,192. This application May 31, 1995, Ser. No. 455,387
Int. Cl.^{6} F16L *47/02;39/00*
U.S. Cl. 428—36.91 **11 Claims**



1. A method of bonding joints of a double containment polymeric piping assembly comprising:
- providing slidably interfittable polymeric inner pipe components, including a first induction responsive polymeric layer therebetween;
- providing slidably interfittable polymeric outer pipe components, including a second induction responsive polymeric layer therebetween;
- interfitting said inner pipe components in a sliding fit with each other to form an inner connection, and said outer pipe components in a sliding fit with each other to form an outer connection, while causing said inner connection to be axially offset from said outer connection;
- applying an electrical induction force around the periphery of said outer pipe components, axially aligned with said inner connection and offset from said outer connection, and thereby bonding said inner pipe components and said first polymeric layer together;
- moving said components relative to said force, axially offset from said inner connection, and axially aligned with said outer connection, applying an electrical induction force around the periphery of said outer pipe components and thereby fusing said outer pipe components and said second polymeric layer together.

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ADHESIVE FOR SEMICONDUCTOR DEVICES AND ADHESIVE TAPE USING THE ADHESIVE

Akinori Sei; Yoshikazu Tsukamoto; Takashi Shiozawa; Shouji Aoki; Tadahiro Oishi, and Hitoshi Narushima, all of Shizuoka, Japan, assignors to Tomoegawa Paper Co., Ltd., Tokyo, Japan

Filed Feb. 1, 1995, Ser. No. 382,157

Claims priority, application Japan, Feb. 4, 1994, 6-032900

Int. Cl.^{6} A21H *19/00;* **C09J** *7/02*

U.S. Cl. 428—42 8 Claims

1. An adhesive for semiconductor device, comprising

(a) a polyamide resin having an amine value of 20 to 60 and a weight average molecular weight of 1,000 to 5,000 and

(b) a phenolic compound having a weight average molecular weight of 2,000 or less and having a skeleton containing at least 2 methylol groups.

5,786,056

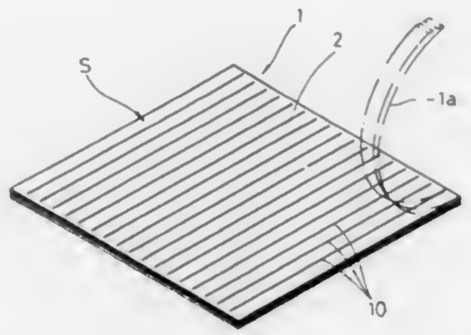
LIQUID ABSORBENT MATERIAL USED IN A POUCH FOR A STOMA

Keiji Komine, 17-25, Motonakayama 3-chome, Funabashi-shi, Chiba, Japan, and Ryuzo Ishigaki, B-201, 8-4, Gamou-Atagocho, Koshigaya-shi, Saitama, Japan

Filed Apr. 10, 1997, Ser. No. 838,804

Int. Cl.^{6} B32B *3/30*

U.S. Cl. 428—43 7 Claims



1. A liquid absorbent material used in a pouch for a stoma comprising a laminate sheet having surface layers formed of water soluble paper or water dispersible paper and an intermediate layer formed of a web prepared by mixing fibrous cellulosic highly water absorbing resin and a powdery synthetic polymeric highly water absorbing resin and bonding them with water soluble powdery adhesives, wherein a plurality of linear recesses are arranged at a predetermined pitch such that the laminate sheet is torn into each of a stick-shape of a unitary width that can be inserted from a urine discharging tube into a bag of a pouch for a urinary tract stoma.

5,786,057

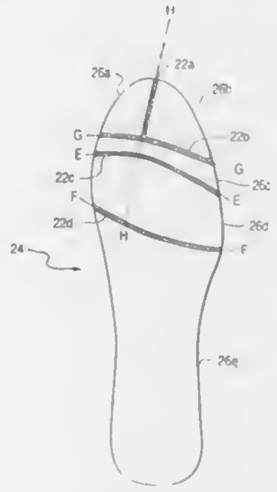
CHEMICAL BONDING OF RUBBER TO PLASTIC IN ARTICLES OF FOOTWEAR

Robert M. Lyden, Beaverton; Ross A. McLaughlin, Oswego; Henry T. Chriss; Calvin M. Buck, IV, both of Beaverton; Daniel R. Potter, Tigard, and Steven M. Vincent, Beaverton, all of Oreg., assignors to Nike, Inc. & Nike International, Ltd., Beaverton, Oreg.

Continuation of Ser. No. 986,046, Dec. 10, 1992, abandoned. This application May 16, 1995, Ser. No. 442,355

Int. Cl.^{6} B32B *7/08;* **A43C** *13/08;* **A43B** *13/14*

U.S. Cl. 428—52 25 Claims



1. An article of footwear having an outsole; said outsole comprising a bonded composite of alternating elements, wherein said elements include at least one plate of relatively inelastic material and at least one segment of relatively elastic material; said segment and said plate being joined by chemical bonding through the use of reactive functional groups and said segment of relatively elastic material forming a flex line to impart flexibility to desired select areas of the outsole.

5,786,058

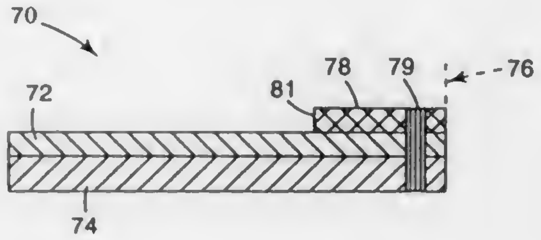
THERMALLY BONDED VIRAL BARRIER COMPOSITE

Sara L. Megchelsen; Nancy C. Rauschenberg, and Mark V. Johnson, all of P.O. Box 33427, St. Paul, Minn. 55133-3427

Division of Ser. No. 415,530, Apr. 3, 1995, abandoned. This application Dec. 13, 1995, Ser. No. 571,468

Int. Cl.^{6} B32B *5/18*

U.S. Cl. 428—57 16 Claims



1. A viral barrier composite comprising a breathable thermoplastic film thermally bonded on at least one side thereof to a breathable thermoplastic web, the viral barrier composite having viral barrier properties that permit less than 100 viruses to pass according to ASTM Method ES 22-1992, a moisture vapor transmission rate of at least 700 $g/m^2/24$ hours and a bond strength between the thermoplastic film and breathable thermoplastic web of at least 0.07 N/cm.

5,786,059

FIBER WEB/AEROGEL COMPOSITE MATERIAL COMPRISING BICOMPONENT FIBERS, PRODUCTION THEREOF AND USE THEREOF

Dierk Frank, Hofheim; Franz Thönnessen, Bobingen, and Andreas Zimmermann, Griesheim, all of Germany, assignors to Hoechst Aktiengesellschaft, Frankfurt, Germany

PCT No. PCT/EP95/05083, § 371 Date Jun. 19, 1997, § 102(e) Date Jun. 19, 1997, PCT Pub. No. WO96/19607, PCT Pub. Date Jun. 27, 1996

PCT Filed Dec. 21, 1995, Ser. No. 860,160

Claims priority, application Germany, Dec. 21, 1994, 44 45 771.5

Int. Cl.^{6} B32B *1/04*

U.S. Cl. 442—68 14 Claims

1. A composite material having at least one layer of fiber web and aerogel particles, wherein the fiber web comprises at least one bicomponent fiber material, the bicomponent fiber material having lower and higher melting regions and the fibers of the web being bonded not only to the aerogel particles but also to each other by the lower melting regions of the fiber material.

5,786,060

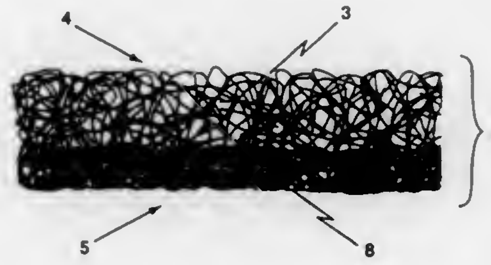
FEMALE MEMBER FOR FACE FASTENER AND METHOD OF PRODUCING THE SAME

Keisuke Takahashi, and Hideo Kimura, both of Souwa-machi, Japan, assignors to Japan Vilene Company, Ltd., Tokyo, Japan

Filed Sep. 28, 1995, Ser. No. 535,335

Int. Cl.^{6} B32B *3/02*

U.S. Cl. 428—89 10 Claims



1. A female member for a face fastener, comprising:

a web which includes a heat-melt-adhering composite fiber body;

a plurality of entangled loops formed in a first surface of the web; and

a densified heat-melt-adhered layer formed in a second surface of the web,

wherein the web includes fibers having a fineness of about 0.5 to 10 deniers and a tensile strength of greater than about 2 g/denier and the second surface is more dense than the first surface so that the plurality of entangled loops formed in the first surface can be forcibly engaged with elements formed on a surface of a male member, with a peel strength required to separate the plurality of entangled loops from the elements formed on the surface of the male member being at least 20 gf/cm.

5,786,061

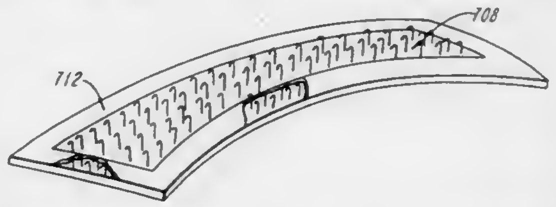
SEPARABLE FASTENER HAVING A PERIMETER COVER GASKET

Donald L. Banfield, Manchester, N.H., assignor to Velcro Industries B.V., Curacao, Netherlands

Continuation-in-part of Ser. No. 684,109, Jul. 19, 1996, which is a continuation of Ser. No. 536,965, Sep. 29, 1995, Pat. No. 5,540,970, which is a continuation of Ser. No. 390,150, Feb. 21, 1995, abandoned, which is a continuation of Ser. No. 87,917, Jul. 6, 1993, abandoned, which is a continuation-in-part of Ser. No. 976,485, Nov. 16, 1992, abandoned, which is a continuation of Ser. No. 695,183, May 3, 1991, abandoned. This application Aug. 2, 1996, Ser. No. 691,998

Int. Cl.^{6} A44B *21/00*

U.S. Cl. 428—100 29 Claims



1. A separable fastener component for use with a complementary separable fastener component, said separable fastener component comprising:

a. a base member, having a nominal fastening face and a non-fastening face;

b. carried on said fastening face, a pattern of fastening elements, said fastening elements selected from the group consisting of hook-type and loop-type elements, said pattern comprising:

i. an interior region of fastening elements, free of any cover;

ii. a perimeter region, substantially surrounding said interior region; and

c. covering each of said fastening elements of said perimeter region, a cover that contacts said base around substantially the entire interior region.

5,786,062

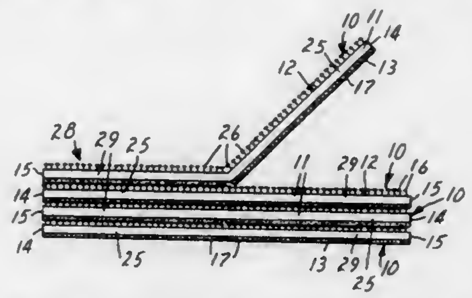
ATTACHMENT STRIPS

Joseph P. Callahan, Jr.; Kevin M. Hamer, both of St. Paul; Patricia R. Konsti, Oakdale, and David C. Windorski, St. Paul, all of Minn., assignors to Minnesota Mining and Manufacturing Company, St. Paul, Minn.

Division of Ser. No. 571,725, Dec. 13, 1995, Pat. No. 5,672,404. This application May 27, 1997, Ser. No. 863,227

Int. Cl.^{6} A44B *13/00;* **B32B** *3/06;7/12*

U.S. Cl. 428—100 24 Claims



1. A plurality of attachment strips adapted for being dispensed from an enclosure comprising walls defining a chamber, which walls include a bottom wall defining a bottom side of the chamber and having opposite ends, two top wall portions defining a top side of the chamber opposite said bottom side and having spaced opposed first and second abutment surfaces extending generally parallel to the ends of the bottom wall, which abutment surfaces define a wide generally central transverse slot;

said plurality of attachment strips each comprising a flexible backing layer having opposite first and second major surfaces

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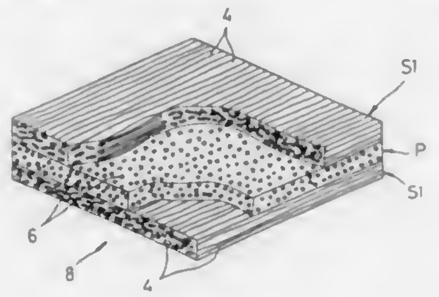
and first and second opposite ends; a predetermined length and longitudinal edges between said first and second ends, a field of hooks along and projecting from one of said surfaces; and a first layer of pressure sensitive adhesive along one of said surfaces, said strips being releasably adhered to each other by releasable adhesion of the layers of pressure sensitive adhesive to form a stack with said longitudinal edges of the strips in the stack aligned and with the first and second ends of successive strips in the stack being adjacent, a first end portion of each of said strips adjacent said first end being unadhered or said strips having release means for providing a first adhesion level between said layers of adhesive along said first end portions and the adjacent underlying strips in the stack to which said layers of adhesive are releasably adhered that affords easy separation of strips along said first end portion from adjacent underlying strips, and said strips having attachment means for providing second adhesion level along a second end portion of each of said strips adjacent said second end between said layer of adhesive and the adjacent underlying strip in the stack, which second adhesion level provides a release force with the adjacent underlying strips that is higher than any release force along said first end portion with the adjacent underlying strips and firmly adheres one of the strips to the adjacent underlying strip in the stack during separation of that strip along said first end portion from the adjacent underlying strip while affording peeling away of that strip from the underlying strip in the stack along said second end portion so that when said stack of strips is positioned in said chamber with said ends of said strips generally parallel to said ends of said bottom wall, and with the first end portion of the uppermost strip in the stack projecting through the slot and resting against the adjacent abutment surface, and tension is applied to that uppermost strip to pull it through the slot, that tension will cause successive portions of the uppermost strip to peel from the first underlying strip in the stack and will cause separation of the first end portion of the first underlying strip from the second underlying strip, and movement of the first end portion of the first underlying strip through the slot with the second end portion of said uppermost strip to leave, after said uppermost strip is fully peeled from the first portion of the first underlying strip, the first end portion of said first underlying strip in a position projecting through the slot and resting against the abutment surface opposite said adjacent abutment surface and disposed in a position where it may be grasped for manual removal in a manner similar to the removal of the uppermost strip.

5,786,063
WOOD COMPOSITE LAYERED MATERIAL

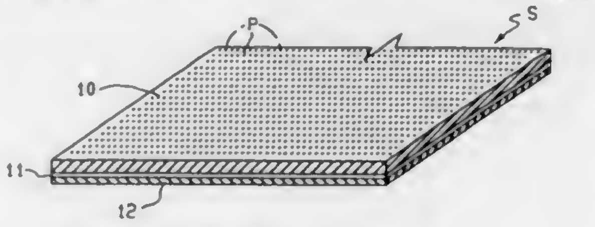
Tatsuya Shibusawa; Sumire Kawamoto; Hideaki Korai, and Tsuyoshi Fujii, all of Ibaragi, Japan, assignors to The Forestry and Forest Products Research Institute, Ibaragi, Japan
Filed Dec. 2, 1996, Ser. No. 753,897
Claims priority, application Japan, Aug. 22, 1996, 8-238673
Int. Cl.⁶ B32B *5/28*
U.S. Cl. 428—107 **32 Claims**



1. A composite multi-layered building material, comprising:
at least one structural layers and
at least one shock/vibration absorbing layer;
said at least one structural layer comprising a plurality of elongated finely split pieces of at least one of wood and bamboo arranged substantially parallel to one another and being adhered to one another by an adhesive agent;
said at least one shock/vibration absorbing layer comprising a plurality of uniformly distributed small pieces of at least one of wood and bamboo which are adhered to one another by an adhesive agent and are smaller than the elongated finely split pieces; wherein:
said at least one shock/vibration absorbing layer is molded to said at least one structural layer;
said at least one structural layer and said at least one shock/vibration-absorbing layer are arranged in a plurality of layers in an alternating manner to form a multi-layered structure; and
said multi-layered structure is pressed to a predetermined thickness such that said at least one structural layer and said at least one shock/vibration absorbing layer adhere to one another to provide said multi-layered material as a unitary body.

5,786,064
PAPER-PLASTIC LAMINATE FABRIC SHEETING

Arnold B. Finestone, 2400 Presidential Way, West Palm Beach, Fla. 33401, and Gilbert Bloch, 3349 S. Malo Ct., Palm Beach Gardens, Fla. 33410
Continuation-in-part of Ser. No. 57,963, May 4, 1993, abandoned, which is a division of Ser. No. 818,544, Jan. 9, 1992, Pat. No. 5,244,702. This application Jul. 1, 1996, Ser. No. 673,139
Int. Cl.⁶ B32B *3/10;5/02*
U.S. Cl. 428—137 **11 Claims**

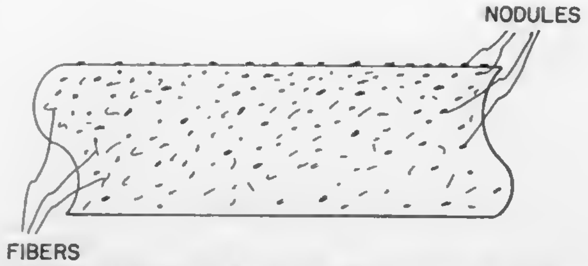


1. A paper-film laminate sheeting comprising:
a paper ply having top and bottom surfaces;
a reinforcing ply of a synthetic plastic film material having top and bottom surfaces;
a water-based adhesive layer for laminating the bottom surface of the paper ply to the top surface of the reinforcing ply; and
fiberglass strands between the paper and reinforcing plies to increase the strength of the sheeting;
wherein the top surface of the film is activated by corona discharge treatment prior to contact by the adhesive to render the surface wettable and receptive to the adhesive for increased bonding thereto; and the sheeting includes a plurality of minute pores which are uniformly distributed throughout.

5,786,065
ABRASIVE NONWOVEN WEB

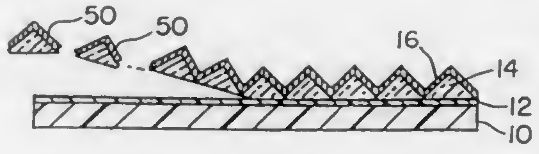
Vaughan R. Annis, South Windsor; John J. Walker, Enfield, and Scott H. Murdock, Suffield, all of Conn., assignors to The Dexter Corporation, Windsor Locks, Conn.
Continuation of Ser. No. 573,412, Dec. 15, 1995, abandoned. This application Mar. 18, 1997, Ser. No. 819,324
Int. Cl.⁶ D04H *13/00*
U.S. Cl. 428—141 **9 Claims**

1. A single phase, absorbent, abrasive nonwoven fibrous web material containing nodulated fiber remnant particles of a thermoplastic composition, substantially all particles of said thermoplastic composition within said web being nodulated throughout the thickness of the web whereby none of the fiber remnant particles have retained a physical fiber form and appearance, said web material having a water holding capacity of at least about 300%, said web material having a first abrasive planar surface formed predominantly of substantially uniformly dispersed nodulated abrasive thermoplastic fiber remnants, the concentration of said abrasive fiber remnants decreasing across the thickness of the web material from said first abrasive planar surface toward the opposite planar surface of the web to provide an abrasive fiber remnant gradient from the first surface across the interior of the web, said nodulated abrasive fiber remnants comprising about 10%–50% by weight of the total fiber content of the web material.



5,786,066
RETROREFLECTIVE STRUCTURE

David C. Martin, Berlin; Edward D. Phillips, Oakville, and William P. Rowland, Southington, all of Conn., assignors to Reflexite Corporation, Avon, Conn.
Division of Ser. No. 596,805, Feb. 5, 1996, which is a continuation of Ser. No. 578,973, Dec. 27, 1995, which is a continuation-in-part of Ser. No. 88,252, Jul. 7, 1993, Pat. No. 5,637,173, which is a continuation of Ser. No. 18,766, Feb. 17, 1993, abandoned. This application Apr. 7, 1997, Ser. No. 834,946
Int. Cl.⁶ B32B *3/00;* **G02B** *5/124*
U.S. Cl. 428—172 **12 Claims**

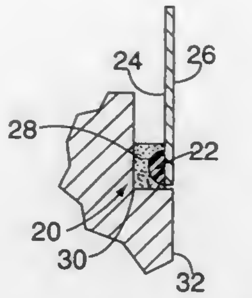


1. A retroreflective structure comprising:
a) a substrate;
b) a layer of transparent prisms attached to said substrate the prisms having facet sides and a window side, the window side abutting the substrate, and wherein the prisms are free-standing on the substrate such that upon removal of the substrate the individual prisms are no longer attached to anything and are free to be dispersed;
c) a reflective layer formed on the facet sides of the prisms.

5,786,067
IN SITU AUTOMOTIVE GASKET AND METHOD OF MAKING SAME

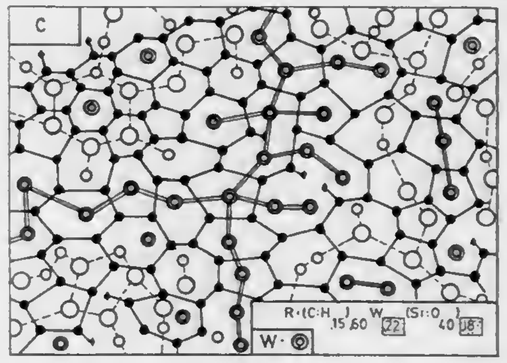
Peter Gold, 465 N. Wood Rd., Rockville Centre, N.Y. 11570
Filed Apr. 23, 1996, Ser. No. 635,150
Int. Cl.⁶ B32B *23/02;31/20*
U.S. Cl. 428—192 **13 Claims**

5. A two-piece gasket for providing a releasable seal between a first member which is hingedly attached to a second member, said gasket comprising:
a) a peripheral curable bead applied to one of the first and second members;
b) a curable adhesive material, non-adherable to said bead, applied to the other of the first and second members, said material being applied in an uncured condition such that said material is partially displaced when the first member is hingedly closed to the second member and said material being cured in said partially displaced condition to thereby form a gasket in situ.



5,786,068
ELECTRICALLY TUNABLE COATINGS

Veniamin F. Dorfman, Stony Brook, and Arvind Goel, Buffalo, both of N.Y., assignors to Advanced Refractory Technologies, Inc., Buffalo, N.Y.
Continuation-in-part of Ser. No. 471,401, Jun. 6, 1995, which is a division of Ser. No. 249,167, May 25, 1994, Pat. No. 5,466,431, which is a division of Ser. No. 695,552, May 3, 1991, Pat. No. 5,352,493. This application Jun. 7, 1995, Ser. No. 483,848
Int. Cl.⁶ B32B *9/00*
U.S. Cl. 428—209 **29 Claims**



1. An electrically tunable coating having a predetermined resistivity formed from interpenetrating networks, comprising a first network of bonded carbon in a diamond-like carbon network stabilized by hydrogen, a second silicon network stabilized by oxygen and, optionally, additional networks made from dopant elements, or dopant compounds containing elements from groups 1–7b and 8 of the periodic table.

5,786,069
COATED TURNING INSERT

Bjorn Ljungberg, Enskede, and Leif Åkesson, Älvsjö, both of Sweden, assignors to Sandvik AB, Sandviken, Sweden
Filed Aug. 28, 1996, Ser. No. 703,965
Int. Cl.⁶ B32B *9/00;19/00*
U.S. Cl. 428—216 **28 Claims**

1. A cutting tool insert for turning of steel comprising a cemented carbide body and a coating thereon, the cemented carbide body including WC, 5–11 wt % Co and 2–10 wt % cubic carbides of groups IVb, Vb and/or VIb of the periodic table and a highly W-alloyed binder phase with a CW-ratio of 0.76–0.92, the coating comprising:
a first layer of $TiC_xN_yO_z$ having a thickness of 0.1–2 μm and equiaxed grains <0.5 μm in size;
a second layer of $TiC_xN_yO_z$ having a thickness of 3–15 μm and columnar grains <5 μm in diameter; and

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a third layer of a smooth, fine-grained κ-Al_2O_3-layer having a thickness of 1–9 μm.

5,786,070
CROSS-LINKED POLYURETHANE RESIN SHEET AND LAMINATED PRODUCT EMPLOYING IT

Toshihiko Higuchi; Satoshi Kondo, both of Yokohama; Hiroyuki Watanabe, Chita-gun, all of Japan; Jean-Louis Bravet, Thourotte, and Noel Crux, Compiegne, both of France, assignors to Asahi Glass Company Ltd., Tokyo, Japan, and Saint Gobain Vitrage, Courbevole, France

Filed Dec. 20, 1996, Ser. No. 777,671

Claims priority, application Japan, Dec. 28, 1995, 7-342138

Int. Cl.^{6} B32B *17/10;27/40;* **C08G** *18/42*

U.S. Cl. 428—220 **14 Claims**

1. A transparent and cross-linked polyurethane resin sheet having self-healing properties and evincing excellent penetration resistance, prepared from a reaction-curable composition which comprises a polyol mixture (A) comprising a polyester polyol and/or a polycarbonate polyol, as its main components, and containing a diol and a trivalent or higher valent polyol, the average hydroxyl value of the mixture being from 40 to 120, the upper limit of the hydroxyl value of each polyol being 400, and the equivalent ratio of the trivalent or higher valent polyol to the diol being from 0.1 to 0.8, a substantially bivalent chain extender (B) other than (A) having a molecular weight not higher than 280 in an amount of from 1.9 to 6.0 equivalents per equivalent of the polyol mixture (A), and a substantially bivalent alicyclic or aliphatic polyisocyanate compound (C) in an amount of from 0.8 to 1.2 equivalents per equivalent of the sum of the polyol mixture (A) and the chain extender (B), as its main components.

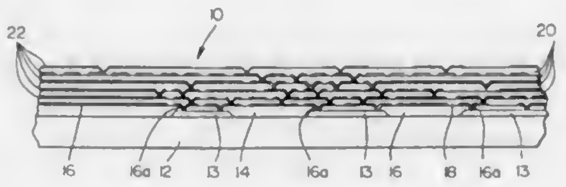
5,786,071
METHOD OF PREPARATION OF POLYQUINOLINES

Matthew L. Marrocco, III, Santa Ana, and Ying Wang, Diamond Bar, both of Calif., assignors to Hitachi Chemical Company, Ltd., Tokyo, Japan

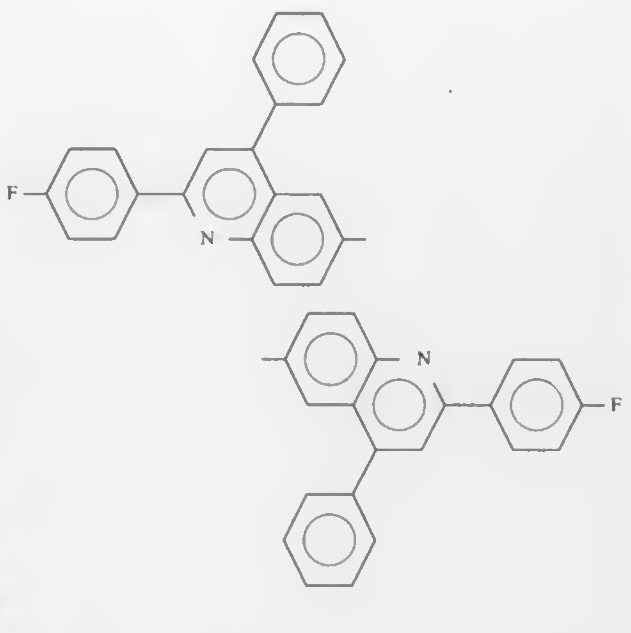
Division of Ser. No. 469,993, Jun. 6, 1995, Pat. No. 5,648,448. This application Apr. 9, 1997, Ser. No. 835,426

Int. Cl.^{6} B32B *7/02;* **C08G** *8/02;14/00*

U.S. Cl. 428—221 **9 Claims**



1. A monomer useful for forming polyquinoline polymers, the monomer having the structure:



5,786,072
PREPRESS SEALER APPLICATION TECHNOLOGY

Oscar Hsien-Hsiang Hsu, 1969 Eva Dr., Lansdale, Pa. 19446, and Anthony Eugene Schiavone, 113 Grassy Lake Rd., Bensontown, N.J. 08088

Continuation of Ser. No. 471,954, Jun. 6, 1995, abandoned, which is a division of Ser. No. 415,782, Apr. 3, 1995, Pat. No. 5,695,823, which is a continuation of Ser. No. 167,382, Dec. 15, 1993, abandoned. This application Nov. 19, 1996, Ser. No. 752,725

Int. Cl.^{6} C08L *97/02;* **B27N** *3/02*

U.S. Cl. 428—292.4 **5 Claims**

1. A finished wood board produced by the steps comprising:

foaming a coating composition to about 4 to about 50 times of the original volume, said composition comprising:

an acrylic latex polymer, a crosslinking agent selected from the group consisting of polyalkoxymethylol melamine, glycourils and dimethylol-dihydroxyl ethylene urea,

from about 0.2 to about 10 weight percent of a water-soluble organic surfactant foaming agent selected from the group consisting of a water-soluble salt or soap of an 18 carbon atom aliphatic carboxylic acid, salt or soap of a fatty acid containing from 12–24 carbon atoms, a polyethylene oxide condensate of higher fatty alcohol, higher aliphatic acid or alkylphenols, and mixtures thereof,

and from about 0.2 to about 15 weight percent of

a cationic agent selected from the group consisting of C_{12} to C_{18} primary, secondary and tertiary amines and salts thereof, diamines, polyamines and their salts, quaternary ammonium salts, polyoxyethylenate amines, quaternized polyoxyethylenate amines and amine oxides,

an anionic agent selected from the group consisting of alkylaryl sulfonates, disodium mono ester sulfosuccinates, disodium isodecyl sulfosuccinates, disodium ethoxylated alcohol half ester of sulfosuccinic acid, disodium ethoxylated nonyl phenol half ester of sulfosuccinates, disodium alkyl amidoethanol sulfosuccinates, disodium alkyl amido polyethoxy sulfosuccinates, disodium alkyl amidoethanol sulfosuccinates, tetrasodium N-(1,2,-dicarboxy-ethyl-)-N-octadecyl sulfosuccinates, disodium N-octadecyl sulfosuccinates, sodium bistridecyl sulfosuccinates, sodium dioctyl sulfosuccinates, sodium dihexyl sulfosuccinates, sodium dioctyl sulfosuccinates, sodium diocyclohexyl sulfosuccinates, sodium diamyl sulfosuccinates, sodium diamyl sulfosuccinates and sodium diisobutyl sulfosuccinates,

a nonionic surfactant wetting agent selected from the group consisting of polyoxyethylenated alkylphenols, alkylphenol ethoxylates, polyoxyethylenated straight-chain alcohol, amine polyglycol condensate, modified polyethoxy adducts, polyoxyethylenated mercaptans, long chain carboxylic acid esters, modified terminated alkylaryl ether, and alkylpolyether alcohols,

or mixtures thereof;

coating a wood fiber mat with a foam layer of said composition;

collapsing said foam layer on said wood fiber mat; and

hot pressing said wood fiber mat coated with said collapsed layer to produce said finished wood composition board.

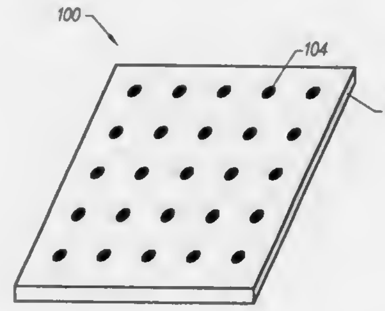
5,786,073
INTEGRATED CIRCUIT COMPRISING SOLDER BUMPS

Nicholas F. Pasch, Pacifica, Calif., assignor to LSI Logic Corporation, Milpitas, Calif.

Division of Ser. No. 771,955, Dec. 23, 1996. This application Aug. 29, 1997, Ser. No. 922,141

Int. Cl.^{6} B05D *5/12*

U.S. Cl. 428—303 **16 Claims**



1. A substrate having a surface including a plurality of solder bumps with fluoride coatings, said fluoride coating being formed by the following steps:

placing said substrate having said solder bumps into a plasma reactor;

introducing a source gas including nitrogen trifluoride gas into said plasma reactor;

striking a plasma from said source gas in said plasma reactor; and

forming said fluoride coating on the surface of said solder bump such that said surface of said substrate is substantially free of carbon or sulfur particles.

5,786,074
MAGNETIC RECORDING MEDIUM

Tadashi Soui, Osaka, Japan, assignor to Hitachi Maxell, Ltd., Osaka, Japan

Continuation of Ser. No. 372,996, Jan. 17, 1995, abandoned. This application May 31, 1996, Ser. No. 655,927

Claims priority, application Japan, Jan. 18, 1994, 6-018998

Int. Cl.^{6} G11B *05/71*

U.S. Cl. 428—323 **6 Claims**

1. A magnetic recording medium including a support film and a magnetic layer comprising magnetic powder particles dispersed in a binder resin and a lubricant, wherein total extract content of said lubricant in said magnetic layer is from 10 to 100 mg/m^2 while the content of said lubricant at the surface of said magnetic layer is not greater than 1.0 mg/m^2 as measured by ESCA including measuring C1s photoelectron spectrum of said lubricant and C1s photoelectron spectrum of said magnetic layer before and after washing a surface of said magnetic layer by normal hexane.

5,786,075
HEAT SINKS AND PROCESS FOR PRODUCING THE SAME

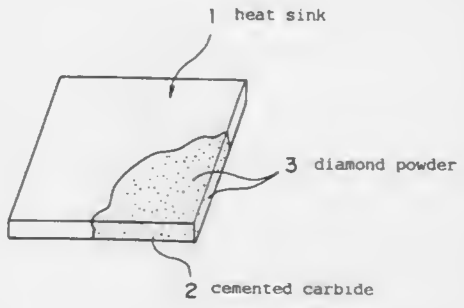
Minoru Mishuku, Kanagawa-ken, and Osamu Terada, Ibaraki-ken, both of Japan, assignors to Fuji Die Co., Ltd., Tokyo, Japan

Filed Mar. 28, 1995, Ser. No. 412,391

Claims priority, application Japan, Feb. 10, 1995, 7-023136

Int. Cl.^{6} B32B *19/00*

U.S. Cl. 428—325 **4 Claims**



1. A molded heat sink comprising cemented carbide and diamond powder, the diamond powder constituting 10 to 40% by weight of the molded heat sink.

5,786,076
BINDERLESS CARBIDES FOR TRIBOLOGICAL APPLICATIONS

Stefan Ederyd, Saltsjö-Boo, Sweden, and Henri Pastor, Grenoble, France, assignors to Sandvik AB, Sandviken, Sweden

Filed Dec. 11, 1995, Ser. No. 570,430

Claims priority, application Sweden, Dec. 12, 1994, 9404325

Int. Cl.^{6} B32B *17/00*

U.S. Cl. 428—325 **10 Claims**

1. A corrosion resistant material consisting essentially of WC, 0.1 to 10 weight % of one or more of the metallic carbides taken from the group consisting of TiC, VC, NbC, TaC, Cr_3C_2, ZrC and combinations thereof; and either

(a) 2 to 10 volume-% of either (1) spherical graphite or (2) spherical BN, hexagonal BN and mixtures thereof; or

(b) 1–5 weight-% of one or more selected from the group consisting of VN, Ti(C,N), CrN and ZrN.

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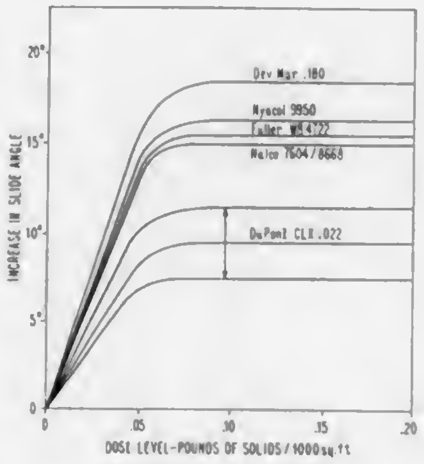
5,786,077
ANTI-SLIP COMPOSITION FOR PAPER

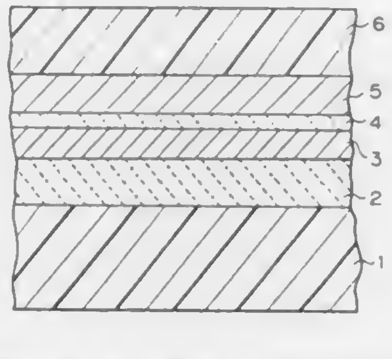
John R. McLaughlin, 240 Highview La., Media, Pa. 19063
Continuation-in-part of Ser. No. 475,071, Jun. 7, 1995, abandoned. This application Mar. 6, 1996, Ser. No. 611,634
Int. Cl.^{6} B32B *5/16*
U.S. Cl. 428—331 **4 Claims**



1. A coated paper having improved anti-skid properties, the paper having at least one of its surfaces coated with a frictionizing coating of at least 0.02 pounds of insoluble colloidal silicate particles per 1000 sq. ft. of paper surface area, said silicate particles having an average particle size of 180 millimicrons to 300 millimicrons.

5,786,078
MAGNETO-OPTICAL RECORDING MEDIUM

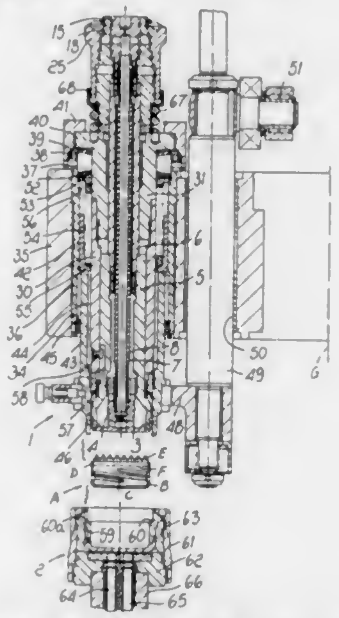
Masahiko Sekiya; Kazuhiko Honjo, and Atsushi Oyamatsu, all of Tokyo, Japan, assignors to Teijin Limited, Chuo-ku and Osaka, Japan
Continuation of Ser. No. 781,109, Oct. 22, 1991, abandoned. This application Jan. 3, 1995, Ser. No. 368,241
Claims priority, application Japan, Oct. 26, 1990, 2-287345
Int. Cl.^{6} G11B *5/66;11/00*
U.S. Cl. 428—332 **21 Claims**



1. A magneto-optical recording medium comprising a transparent substrate, a first dielectric layer on the substrate, a magneto-optical recording layer on the first dielectric layer and a metal reflecting layer on the magneto-optical recording layer, wherein said magneto-optical recording layer has a Curie temperature Tc of from 100° C. to 200° C. and a layer thickness of from 15 nm to 60 nm, said metal reflecting layer has a layer thickness of not less than 60 nm and a product λd of a thermal conductivity λ by the layer thickness d of from 2.5 μW/K to 20 μW/K, and the following formula is satisfied: $10.\lambda d+160 \leqq Tc \leqq -10.\lambda d+240$.

5,786,079
APPARATUS FOR MANUFACTURING SCREW CLOSURES BY PRESSURE MOLDING

Rodiero Alieri, Imola, Italy, assignor to Sacmi Cooperativa Meccanici Imola S.c.r.l., Imola, Italy
PCT No. PCT/EP95/03644, § 371 Date May 13, 1996, § 102(e) Date May 13, 1996, PCT Pub. No. WO96/09153, PCT Pub. Date Mar. 28, 1996
PCT Filed Sep. 15, 1995, Ser. No. 646,323
Claims priority, application Italy, Sep. 19, 1994, BO94A0410
Int. Cl.^{6} B29C *43/08;43/42*
U.S. Cl. 425—349 **13 Claims**



1. An apparatus for manufacturing screw closures having tamper-proof rings provided with retention elements adapted to engage below a collar of a container to be closed comprising:

- a carousel supporting structure that is rotatable about a vertical rotation axis thereof;
- a plurality of pressure molding units including each an upper male half-mold and a lower female half-mold, said male and female half-molds being aligned along a vertical alignment axis that is parallel to said rotation axis of the carousel to form a molding chamber and to further provide a molding pressure in said molding chamber by lifting and respectively forcing the lower female half-mold against the upper male half-mold which is maintained in a stationary position;
- a bowl provided at said female half-mold and forming a cavity which has an annular shoulder;
- a cylindrical jacket provided at said male half-mold, said jacket being fixedly supported at the carousel structure coaxially to said vertical alignment axis;
- a sleeve, which is guided on said jacket and has a lower annular segment that is adapted to engage said bowl;
- a plunger, which is guided in said jacket;
- return elastic means for urging said plunger in a raised molding position;
- hydraulic actuation means for actuating said female half-mold from a lowered position for receiving a dose of plastic material that is sufficient to form a closure, to a raised molding position in which said annular segment of said sleeve enters said bowl to abut against said annular shoulder and to form, together with the plunger, the closure molding chamber in which said closure is molded on said plunger, and again to said lowered position so as to allow removal of said molded closure from said plunger;
- mutually opposite surfaces provided at said plunger and respectively at said jacket to form, in said molding position of the female half-mold, a male half-mold cavity in which the retention element of said tamper-proof ring is molded;
- sleeve actuation means for actuating said sleeve in a downward motion so as to act axially on the molded closure and drag downwards the plunger by a short extent for causing a spacing of said opposite surfaces enough for freeing the molded retention element and remove the molded closure.

5,786,080
COMPOSITIONS AND METHODS FOR MANUFACTURING ETTRINGITE COATED FIBERS AND AGGREGATES

Per Just Andersen, Santa Barbara; Shaode Ong, Goleta, and Simon K. Hodson, Santa Barbara, all of Calif., assignors to E. Khashoggi Industries, Santa Barbara, Calif.
Filed Apr. 3, 1996, Ser. No. 627,487
Int. Cl.^{6} B32B *19/00;* **B05D** *1/12*
U.S. Cl. 428—357 **33 Claims**

1. A mineralized composite material comprising;

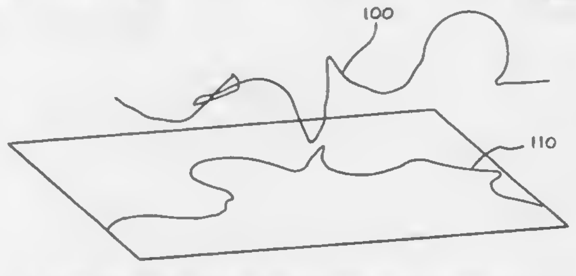
- a substantially nonreactive substrate material selected from the group consisting of fibers and aggregates; and
- ettringite formed on at least a portion of a surface of the substrate material.

5,786,081

Patent Not Issued For This Number

5,786,082
LOOSE-FILL INSULATION HAVING IRREGULARLY SHAPED FIBERS

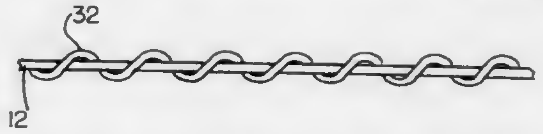
Michael E. Evans; John R. Mumaw, both of Granville; Roberta L. Alkire, Millersport; W. Scott Miller; Ronald A. Houpt, both of Newark; Russell M. Potter, Hebron; Tod D. Green, Somerset; David P. Aschenbeck, Newark, and Clarke Berdan, II, Granville, all of Ohio, assignors to Owens Corning Fiberglas Technology, Inc., Summit, Ill.
Continuation of Ser. No. 309,698, Sep. 21, 1994, abandoned, which is a continuation-in-part of Ser. No. 148,098, Nov. 5, 1993, Pat. No. 5,431,992. This application Feb. 20, 1996, Ser. No. 602,478
Int. Cl.^{6} D02G *3/00;* **D04H** *1/58;* **C03B** *37/01;* **C04B** *1/00*
U.S. Cl. 428—369 **35 Claims**



1. A loose-fill insulation product comprising irregularly shaped glass fibers having a substantially uniform volume filling nature, wherein each of the irregularly-shaped glass fibers comprises two distinct glass compositions with different coefficients of thermal expansion and has a rotation which varies irregularly along its length both in direction and in magnitude.

5,786,083
FLOOR MAT AND YARN THEREFOR

Francis Taylor Harris, Cleveland, Tenn., assignor to Turtle Plastics, Inc., Lorain, Ohio
Filed Dec. 4, 1996, Ser. No. 760,049
Int. Cl.^{6} D02G *3/00;3/02;3/06*
U.S. Cl. 428—373 **8 Claims**



1. A floor mat yarn comprised of a first yarn which is a monofilament of between 600 and 1200 denier and a second yarn which is a multifilament yarn of between about 30 and about 48 denier per fiber, the second yarn being air entangled with the first yarn.

5,786,084

Patent Not Issued For This Number

5,786,085
ASPHALTIC POLYURETHANE FOAM FOR ROOFING APPLICATIONS

Casey G. Tzeng, Irvine, and George F. Thagard, III, Coto De Caza, both of Calif., assignors to Fontana Paper Mills, Inc., Fontana, Calif.
Filed Oct. 20, 1994, Ser. No. 325,131
Int. Cl.^{6} B32B *5/30;5/22;* **E04B** *7/00;* **E04D** *1/30*
U.S. Cl. 428—417.9 **30 Claims**

1. A ridge cap formed from an asphaltic foam material, comprising:

(1) a layer of said asphaltic foam material having an upper surface and a lower surface;
(2) a layer of granules embedded in said upper surface of said layer of asphaltic foam material, said granules forming a decorative and/or protective layer of said ridge cap; and
(3) an elastomeric strip connected to said layer of asphaltic foam material along a central axis of said layer and covered with said granules, wherein said ridge cap is bendable along said central axis.

5,786,086
CONDUCTIVE WIRE COATING

Charles Richard Frihart, Lawrenceville, N.J., and Joseph Kliwinski, Newtown, Pa., assignors to Union Camp Corporation, Princeton, N.J.
Filed Jan. 2, 1996, Ser. No. 581,782
Int. Cl.^{6} B32B *15/00;* **B05D** *3/02;* **H01B** *7/00*
U.S. Cl. 428—379 **37 Claims**

1. A method for electrically insulating a conductive wire comprising:

(a) coating a conductive wire with an insulating material which comprises a substantially solvent-free curable acrylate-modified aminoamide resin; and
(b) curing said resin to provide the insulated wire with a smooth and tack-free surface.

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5,786,087

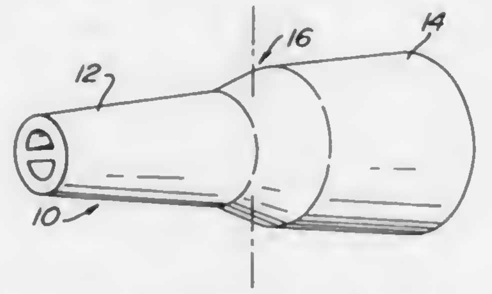
HONEYCOMB BRUSH BRISTLES AND BRUSH MADE THEREFROM

Ronald B. Cansler, Davidsonville, Md., assignor to Specialty Filaments, Inc., Wilmington, Del.

Filed Feb. 22, 1995, Ser. No. 392,228

Int. Cl.^{6} D02G *3/00;* A46B *11/00*

U.S. Cl. 428—398 **17 Claims**



1. In a plurality of monofilamentary brush bristles for association together to form a brush, each bristle being formed of thermoplastic polymeric material having an outer diameter of from 2 to 20 mils, the improvement wherein:

each bristle has a cross section of generally constant shape along its length, the cross section comprising
  an annular portion bounded by a substantially circular outer edge and a substantially circular inner edge,
  a single straight interior web portion extending diametrically between opposing portions of the inner edge, the web portion being continuous with the annular portion, and
  two substantially semi-circular voids enclosed by the web portion and the annular portion and being disposed on opposite sides of the web portion;

the cross-sectional area of the filament having a void content of about from 15% to 45%;

whereby the bristle is generally cylindrical with two hemicylindrical voids extending longitudinally therewithin.

5,786,088

YELLOWISH SCALY POWDER COMPRISING OF METAL OXIDE COMPOSITE COATING

Asa Kimura, and Yukie Ikuta, both of Yokohama, Japan, assignors to Shiseido Co., Ltd., Tokyo, Japan

Filed Aug. 27, 1996, Ser. No. 703,679

Claims priority, application Japan, Aug. 31, 1995, 7-248630

Int. Cl.^{6} B32B *5/16*

U.S. Cl. 428—403 **17 Claims**

1. A yellowish scaly powder comprising a base scaly powder, said base scaly powder being coated with a composite metal oxide comprising titanium and nickel.

5,786,089

Z-TYPE FILMS FOR SECOND HARMONIC GENERATION

Geoffrey Joseph Ashwell, Shelfleys, England, assignor to British Technology Group Ltd., London, England

PCT No. PCT/GB94/01760, § 371 Date Jan. 29, 1996, § 102(e) Date Jan. 29, 1996, PCT Pub. No. WO95/04953, PCT Pub. Date Feb. 16, 1995

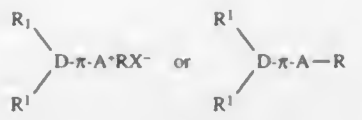
PCT Filed Aug. 11, 1994, Ser. No. 591,445

Claims priority, application United Kingdom, Aug. 11, 1993, 9316662

Int. Cl.^{6} B32B *9/04*

U.S. Cl. 428—411.1 **12 Claims**

1. A film forming hemicyanine dye comprising a hydrophilic chromophore substituted at both ends by hydrophobic alkyl, alkenyl or alkylaryl groups comprising from 4 to 30 carbon atoms, the dye having the formula:



$$(R_1)(R^1)D\text{-}\pi\text{-}A^{+}RX^{-} \quad \text{or} \quad (R^1)_2D\text{-}\pi\text{-}A\text{—}R$$

where $(R^1)_2D$ is a hydrophobic electron donating group and A is an electron accepting group substituted by a hydrophobic group R, π is a conjugated bridging group and X^- is a counterion, in which R^1 is butyl to hexyl and R has at least sixteen carbon atoms.

5,786,090

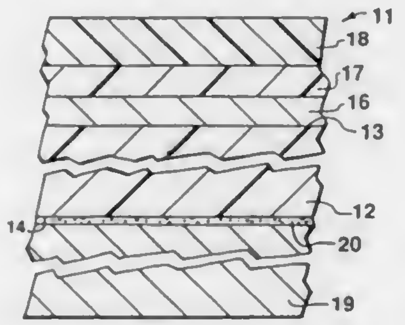
LASER IMAGEABLE THIN FILM STRUCTURE AND PRINTING PLATE INCORPORATING THE SAME

Shari Powell Fisher; Roger W. Phillips, both of Santa Rosa; Gregory F. Davis, Guerneville, and Charlotte LeGallee, Healdsburg, all of Calif., assignors to Flex Products, Inc., Santa Rosa, Calif.

Filed Feb. 29, 1996, Ser. No. 608,646

Int. Cl.^{6} B32B *9/04*

U.S. Cl. 428—411.1 **19 Claims**



1. A lithographic laser imageable film structure comprising a substrate having first and second surfaces, a vacuum-deposited metal layer carried by the first surface of the substrate, a layer of elemental semiconductor material adherent to said metal layer and overlying the metal layer, said metal layer and said elemental semiconductor material having thicknesses which are selected to maximize absorption by light interference of laser energy impinging on the same, said layer of elemental semiconductor material having a thickness ranging from 100 Å to 1,000 Å.

5,786,091

CHARGE ROLLER FOR AN IMAGE FORMING APPARATUS

Junji Kurokawa, Yokohama; Kazuo Nojima, Chiba; Masako Chiba, Urawa, and Toshio Nakahara, Yokohama, all of Japan, assignors to Ricoh Company, Ltd., Tokyo, Japan

Continuation of Ser. No. 197,771, Jan. 12, 1994, abandoned, which is a continuation-in-part of Ser. No. 983,966, Dec. 1, 1992, abandoned. This application Sep. 25, 1995, Ser. No. 534,003

Claims priority, application Japan, Dec. 2, 1991, 3-343985; Apr. 10, 1992, 4-91070; Oct. 31, 1992, 4-316489; Jan. 13, 1993, 5-003675; Oct. 28, 1993, 5-270590

Int. Cl.^{6} B32B *25/08;* G03G *15/02*

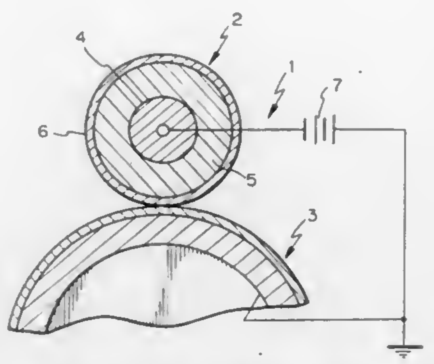
U.S. Cl. 428—421 **6 Claims**

1. A charge roller for charging a photoconductive element included in an image forming apparatus, comprising:

a metallic core;

a voltage source connected to the metallic core to apply a voltage to the metallic core;

an elastic layer made of a substance having a predetermined electric resistance and having no conductive particles dispersed therein formed around the metallic core; and



a surface layer made of a non-adhering substance being formed around the elastic layer, the surface layer being formed by a fluorine-containing resin soluble in a solvent;

wherein said substance having a predetermined electric resistance comprises epichlorohydrin rubber formed by a ternary copolymer of epichlorohydrin/ethylene oxide/arylglycidil ether.

5,786,092

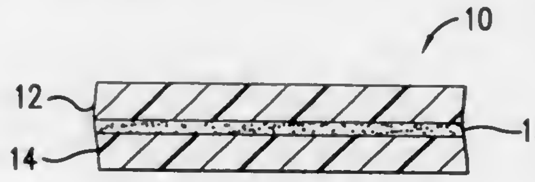
PEELABLE LAMINATE

Tina V. Lorenzo; Jeff C. McConnell, Jr., both of Spartanburg, S.C.; Curtis R. Rubinstein, Lake Zurich, Ill., and Palmer L. Whisenant, Moore, S.C., assignors to W.R. Grace & Co.-Conn., Duncan, S.C.

Continuation-in-part of Ser. No. 342,947, Nov. 21, 1994, abandoned. This application Nov. 6, 1995, Ser. No. 553,937

Int. Cl.^{6} B32B *27/00*

U.S. Cl. 428—423.1 **26 Claims**



1. A peelable laminate comprising:

a) a water soluble substrate; and

b) a water insoluble web peelably adhered to the water soluble substrate.

5,786,093

MAGNETIC RECORDING MEDIUM HAVING A BACKCOAT COMPOSITION WITH LOW CHLORIDE ION AND SULFATE ION EXTRACTABLES

Hiroji Naruse; Taketoshi Sato, and Taro Ohmura, all of Miyagi, Japan, assignors to Sony Corporation, Tokyo, Japan

Filed Nov. 13, 1996, Ser. No. 748,542

Claims priority, application Japan, Nov. 15, 1995, 7-296959; Dec. 22, 1995, 7-335386

Int. Cl.^{6} G11B *5/70*

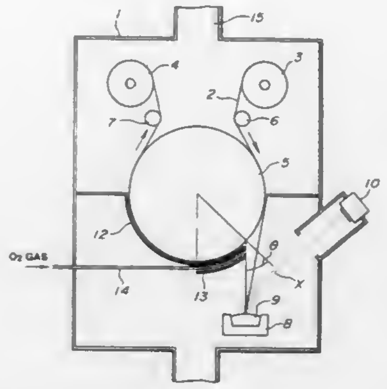
U.S. Cl. 428—425.9 **2 Claims**

1. A magnetic thin film recording medium comprising:

a non-magnetic thin film substrate having first and second opposed major surfaces;

a magnetic metal film disposed on the first major surface; and

a back coating film disposed on the second major surface, said back coating film comprising a polycarbonate-polyurethane resin binder, a non-magnetic pigment powder and from about 5 to about 10 parts by weight based on 100 parts by weight of said resin binder of a polyisocyanate cross-linking agent, the weight ratio of non-magnetic pigment powder to resin binder being about 1:1 and said back coating film having a chloride ion and sulfate ion content such that, when a sample of said back coating film is dried and ground to a powder, and 5 grams of said powder is extracted with 100 mls of pure water at 100° C. for about 3 hours, and 50 mls of the extract water is subjected to ion chromatography, the extract water contains not more than 5 ppm of chloride ions and sulfate ions, respectively.



5,786,094

TRANSPARENT AND CONDUCTIVE ULTRATHIN FILM AND METHOD OF PRODUCING SAME

Masato Kiuchi, Nara, and Akiyoshi Chayahara, Ikeda, both of Japan, assignors to Director-General, Agency of Industrial Science and Technology, Tokyo, Japan

Continuation of Ser. No. 284,189, Aug. 2, 1994, abandoned. This application Apr. 29, 1996, Ser. No. 639,710

Claims priority, application Japan, Aug. 2, 1993, 5-210929

Int. Cl.^{6} B32B *15/04*

U.S. Cl. 428—432 **6 Claims**

1. A transparent and conductive ultrathin metal layer deposited on a substrate made of a glass comprising at least one member selected from the group consisting of silicate, borosilicate, and alkali glass, said metal layer having a thickness of 1 to 50 nm, a light permeability of 30% to 90%, and a conductivity of 1 kΩ/□ to 10 kΩ/□, said metal layer formed by vaporizing and depositing a transition metal on the substrate surface while simultaneously exciting said substrate surface under a vacuum, wherein the conductivity of the metal layer is reduced by the excitation of said substrate surface, said transition metal being selected from the group consisting of titanium, vanadium, chromium, manganese, cobalt, nickel, zirconium, niobium, molybdenum, rhodium, palladium, silver, hafnium, tantalum, tungsten, iridium, platinum, gold, lanthanide metals, and actinide metals.

5,786,095

INORGANIC BASED INTUMESCENT SYSTEM

Vernon H. Batdorf, Minneapolis, Minn., assignor to H.B. Fuller Licensing & Financing, Inc., St. Paul, Minn.

Filed Jul. 3, 1996, Ser. No. 675,083

Int. Cl.^{6} B32B *9/04*

U.S. Cl. 428—446 **21 Claims**

1. An intumescent thermal barrier composition which comprises:

(a) a silicate solution having dispersed therein;

(b) an expandable substantially spherical intumescent agent; and

(c) a frit material.

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5,786,096
SURFACE-TREATED SUBSTRATE AND PROCESS FOR ITS PRODUCTION

Takashige Yoneda; Fumiaki Gunji, and Takeshi Morimoto, all of Yokohama, Japan, assignors to Asahi Glass Company Ltd., Tokyo, Japan

Filed Nov. 12, 1996, Ser. No. 746,482
Int. Cl.^{6} B05D *3/02;* B32B *9/04*

U.S. Cl. 428—447 **14 Claims**

1. A surface-treated substrate comprising:

i) a substrate;

ii) an outermost layer formed by treatment with a surface treating agent comprising compound B of the formula (B):

$$(R^3)_c(R^4)_dSi(NCO)_{4-c-d} \qquad (B)$$

wherein R^3 is an organic group, R^4 is a hydrogen atom or an organic group, c is 1, 2 or 3 and d is 0, 1, or 2, provided that $1 \leqq c+d \leqq 3$; and

iii) an underlayer which is in contact with said outermost layer formed by treatment with a surface treating agent comprising compound A of formula (A):

$$(R^1)_a(R^2)_bSi(Z)_{4-a-b} \qquad (A); \text{ and}$$

$$Si(NCO)_4$$

wherein R^1 is an organic group, R^2 is a hydrogen atom or an organic group, a is 1, 2 or 3, b is 0, 1, or 2, provided that $1 \leqq a+b \leqq 3$ and Z are independently an isocyanate group or a hydrolyzable group,

wherein the weight ratio of compound A to $Si(NCO)_4$ is from 95/5 to 40/60.

8. A process for producing a surface-treated substrate comprising the sequential steps of:

i) forming a treated surface by treating a surface of a substrate with a surface treating agent comprising compound A of formula (A):

$$(R^1)_a(R^2)_bSi(Z)_{4-a-b} \qquad (A); \text{ and}$$

$$Si(NCO)_4$$

wherein R^1 is an organic group, R^2 is a hydrogen atom or an organic group, a is 1, 2 or 3, b is 0, 1, or 2, provided that $1 \leqq a+b \leqq 3$ and Z are independently an isocyanate group or a hydrolyzable group,

wherein the weight ratio of compound A to $Si(NCO)_4$ is from 95/5 to 40/60, and

ii) treating said treated surface with a surface treating agent comprising compound B of the formula (B):

$$(R^3)_c(R^4)_dSi(NCO)_{4-c-d} \qquad (B)$$

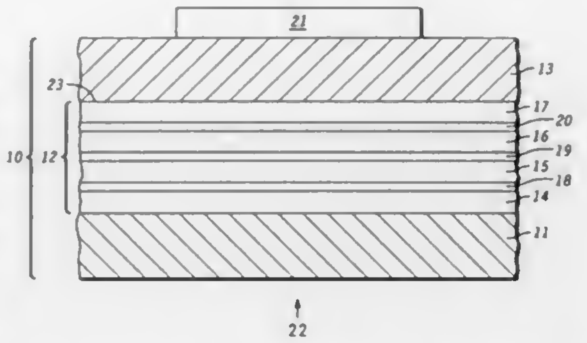
wherein R^3 is an organic group, R^4 is a hydrogen atom or an organic group, c is 1, 2 or 3 and d is 0, 1, or 2, provided that $1 \leqq c+d \leqq 3$.

5,786,097
ASSEMBLY SUBSTRATE AND METHOD OF MAKING

Christopher M. Scanlan, Phoenix, Ariz., assignor to Motorola, Inc., Schaumburg, Ill.

Filed Feb. 1, 1996, Ser. No. 595,565
Int. Cl.^{6} B32B *9/00*

U.S. Cl. 428—469 **20 Claims**



1. A semiconductor component comprising:

a substrate;

a composite layer overlying the substrate, the composite layer comprising:

a first layer comprised of a first oxide and contacting the substrate; and

a second layer having a tetragonal crystal structure and contacting the first layer;

an electrically conductive layer overlying the second layer; and

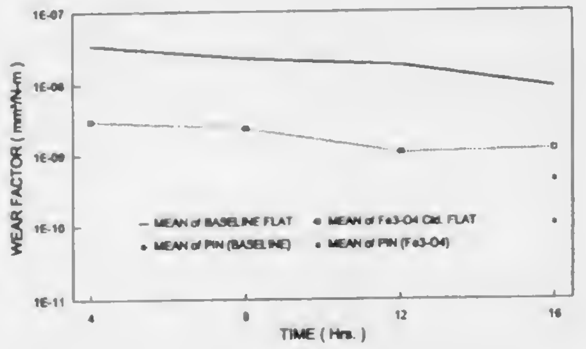
a semiconductor device electrically coupled to the electrically conductive layer.

5,786,098
IRON OXIDE COATED LOW ALLOY STEEL SUBSTRATE FOR IMPROVED BOUNDARY LUBRICATION

John B. Walenta, and Chuong Q. Dam, both of Peoria, Ill., assignors to Caterpillar Inc., Peoria, Ill.

Filed Oct. 7, 1996, Ser. No. 723,441
Int. Cl.^{6} B32B *9/00*

U.S. Cl. 428—469 **21 Claims**



1. A process for increasing the boundary lubrication of low alloy steel lubricated contacts, comprising the steps of:

providing a low alloy steel part having a non-oxidized steel substrate;

forming an iron oxide film on said substrate by low temperature arc vapor deposition; and

forming an iron oxide coated low alloy steel part having greater boundary lubrication than said non-oxidized low alloy steel part.

5,786,099

Patent Not Issued For This Number

5,786,100
COATED PAPER

Katsuhiko Tsuruoka; Shozo Nishida; Masafumi Wakamori; Takemitsu Tanaka; Masaaki Yada; Osamu Ishikawa, and Hiroyuki Miki, all of Yokkaichi, Japan, assignors to Japan Synthetic Rubber Co., Ltd., Tokyo, Japan

Division of Ser. No. 313,911, Sep. 28, 1994, which is a continuation of Ser. No. 34,210, Mar. 19, 1993, Pat. No. 5,444,118, which is a continuation of Ser. No. 540,948, Jun. 20, 1990, abandoned. This application May 8, 1995, Ser. No. 436,491

Claims priority, application Japan, Jun. 30, 1989, 1-169142; Nov. 16, 1989, 1-298581; Nov. 24, 1989, 1-306056; Nov. 24, 1989, 1-306057; Dec. 15, 1989, 1-326930; Dec. 18, 1989, 1-327973

Int. Cl.^{6} B32B *23/08*

U.S. Cl. 428—511 **10 Claims**

1. A coated paper prepared by coating an original paper with a paper-coating composition comprising a pigment and a copolymer latex having a gel content of 10% by weight or more obtained by polymerizing,

(a) 20–65% by weight of a conjugated diene compound,

(b) 0.1 to 10% by weight of an ethylenically unsaturated carboxylic acid, and

(c) 33–79.5% by weight of at least one ethylenically unsaturated compound other than said components (a) and (b), wherein said at least one ethylenically unsaturated compound (c) is at least one compound selected from the group consisting of an aromatic alkenyl compound, an ethylenically unsaturated carboxylic acid ester compound, an ethylenically unsaturated carboxylic acid amide compound, an alkenyl cyanide compound and an ethylenically unsaturated amine compound,

(d) in the presence of 0.1 to 10 parts by weight of α-methylstyrene dimer, per 100 parts by weight of a total of components (a), (b) and (c).

5,786,101

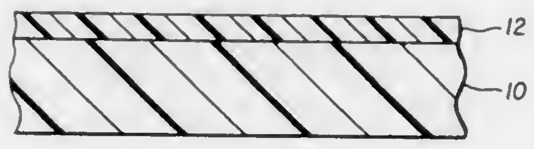
Patent Not Issued For This Number

5,786,102
DEVICE FOR CONVERTING INVISIBLE AND VISIBLE RADIATION TO VISIBLE LIGHT AND/OR UV RADIATION

Gustavo R. Paz-Pujalt; James M. Chwalek; Anna L. Hrycin; Dilip K. Chatterjee, all of Rochester, and Liang-Sun Hung, Webster, all of N.Y., assignors to Eastman Kodak Company, Rochester, N.Y.

Continuation of Ser. No. 186,400, Jan. 25, 1994, abandoned. This application Jan. 16, 1996, Ser. No. 585,657
Int. Cl.^{6} B32B *9/00*

U.S. Cl. 428—689 **14 Claims**



1. An article comprising:

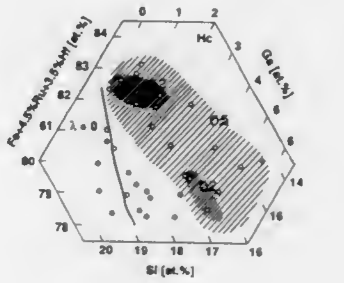
a substrate and a thin amorphous glassy phosphor film consisting essentially of an alkaline earth and a mixture of rare-earth fluorides on the substrate and having an index of refraction greater than the substrate.

5,786,103
SOFT MAGNETIC FILM AND MAGNETIC HEAD EMPLOYING SAME

Hiroyuki Ohmori; Mitsuharu Shouji; Tetsuya Yamamoto, all of Kanagawa, and Yasunari Sugiyama, Tokyo, all of Japan, assignors to Sony Corporation, Tokyo, Japan

Filed Jun. 26, 1996, Ser. No. 672,043
Claims priority, application Japan, Jun. 28, 1995, 7-162158
Int. Cl.^{6} G11B *5/66;5/70;* B32B *9/00*

U.S. Cl. 428—694 R **8 Claims**



1. A soft magnetic film comprising:

a soft magnetic film having the formula:

$Fe_xRu_yL_zGa_uSi_w$, wherein L represents at least one metal selected from the group consisting of Y, Hf, Zr, Ta and Nb, x, y, z, u and w represent atomic percentages such that

$68 \leqq x < 80$

$3 \leqq y < 12$

$3 < z < 5$

$0 < u < 10$ and

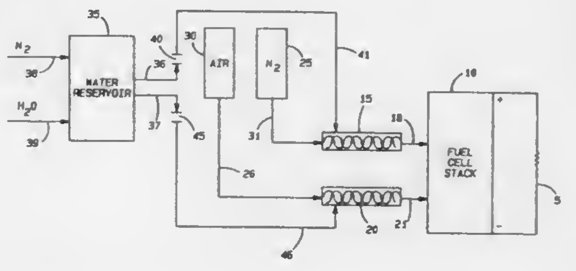
$10 < w < 25$.

5,786,104
METHOD AND APPARATUS FOR HUMIDIFICATION OF INCOMING FUEL CELL PROCESS GASES

Lance L. Black, Richwood, and Keith R. Plowman, Lake Jackson, both of Tex., assignors to The Dow Chemical Company, Midland, Mich.

Filed Dec. 31, 1996, Ser. No. 775,658
Int. Cl.^{6} H01M *8/04*

U.S. Cl. 429—13 **12 Claims**



1. A power generation device comprising (a) a fuel cell having a solid polymer electrolyte and inlets for fuel and oxidant gases to the fuel cell and (b) a means for increasing the relative humidity of either or both of such gases prior to passing through one of the inlets, said means comprising a static mixing device and a variable pressure water source upstream thereof, wherein the static mixer has a heating means connected thereto capable of maintaining the mixer at a temperature in the range of from 60° C. to 140° C.

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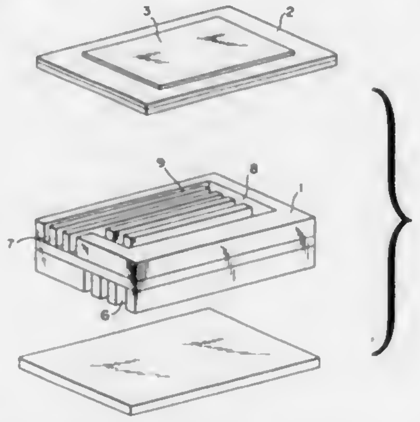
5,786,105
SOLID OXIDE FUEL CELL

Toshio Matsushima, Sayama; Daisuke Ikeda, Tokorozawa, and Himeko Kanagawa, Tokyo, all of Japan, assignors to Nippon Telegraph and Telephone Public Corporation, Tokyo, Japan
Filed Jul. 26, 1996, Ser. No. 686,530
Claims priority, application Japan, Jul. 28, 1995, 7-212364
Int. Cl.^{6} H01M *8/04;8/12*
U.S. Cl. 429—34 **12 Claims**

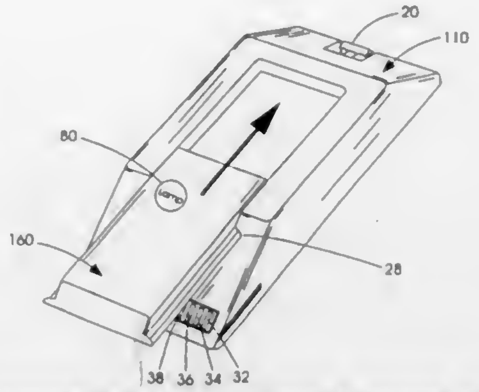


1. A solid oxide fuel cell comprising
- a substrate composed of a first electrode material, said substrate having first and second main surfaces and a third surface intersecting with and interposed between said first and second main surfaces, said substrate having therein
  - a plurality of gas supply passages extending within said substrate and having inlet ports on said third surface of the substrate;
  - a plurality of gas return passages extending within said substrate substantially parallel to said gas supply passages and having outlet ports on said third surface of the substrate;
  - a header interposed between the gas supply and gas return passages, gas entering said header from said gas supply passages being changed in direction and directed into said gas return passages; and
  - means to cause the gas flow from the supply passages to increase in speed;
- a solid electrolyte formed on the first main surface of said substrate;
- an electrode composed of a second electrode material formed on said solid electrolyte; and
- an interconnector formed on the second main surface of said substrate.

5,786,106
BATTERY PACK WITH INTERCHANGEABLE TAG-ALONG SUPPLEMENTAL FEATURE CARTRIDGE PARTICULARLY FOR CELLULAR TELEPHONES

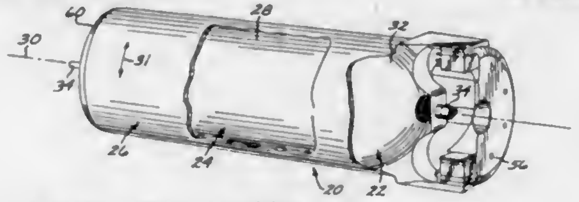
Shane Armani, 20945 Devonshire #107, Chatsworth, Calif. 91311
Filed Jun. 24, 1996, Ser. No. 669,213
Int. Cl.^{6} H01M *2/10*
U.S. Cl. 429—98 **14 Claims**

1. A battery pack used for coexistent attachments to a primary device and a smaller interchangeable supplemental function, comprising:
- a removably attached interchangeable supplemental device cartridge comprising at least one supplemental function means, said interchangeable supplemental device cartridge being smaller in size and weight than said primary device,
- a battery pack main body comprising a primary device attachment means for attachment to said primary device and further comprising a variable number of attachment means for removably attaching battery charging, battery monitoring and, battery protecting circuits, and
- a supplemental device attachment means for attaching said interchangeable supplemental device cartridge to said battery pack main body,
- whereby said interchangeable supplemental device cartridge's functions can be interchanged with different functions by interchanging said interchangeable supplemental device cartridge.



5,786,107
BATTERY SYSTEM WITH A HIGH-THERMAL-CONDUCTIVITY INTEGRAL STRUCTURAL SUPPORT

John P. Stafford, Yorba Linda; Walter Rex Oswald, Redondo Beach; Susan K. Ferer, Rancho Palos Verde, and Steven J. Stadnick, Lakewood, all of Calif., assignors to Hughes Electronics, Los Angeles, Calif.
Filed May 9, 1996, Ser. No. 644,030
Int. Cl.^{6} H01M *2/02*
U.S. Cl. 429—163 **20 Claims**

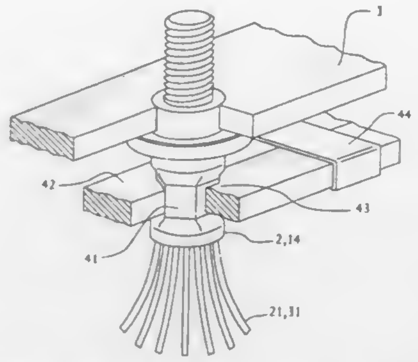


1. A battery system, comprising:
- a battery cell having a battery cell housing;
- a housing support external to the battery cell housing, the housing support comprising
- an electrical insulator layer contacting an external surface of the battery cell housing with no adhesive between the external surface of the battery cell housing and the electrical insulator layer,
- a heat conductor comprising a plurality of heat-conducting fibers contacting the electrical insulator layer, each of the heat-conducting fibers having a sink end thereof, and
- a structural support layer overlying the plurality of heat-conducting fibers, the structural support layer being made of a fiber-reinforced composite material; and
- a thermal sink in thermal contact with the sink ends of the plurality of heat-conducting fibers.

5,786,108
ELECTROCHEMICAL CELL

Dietrich Sprengel; Jürgen Heydecke, both of Halver, and Eberhard Niggemann, Kelkheim, all of Germany, assignors to Varta Batterie Aktiengesellschaft, Hanover, Germany
Filed Oct. 29, 1996, Ser. No. 741,340
Claims priority, application Germany, Nov. 6, 1995, 195 41 255.9
Int. Cl.^{6} H01M *2/30;2/06*
U.S. Cl. 429—178 **13 Claims**

1. An electrochemical cell comprising a terminal post, and a plurality of electrode plates having current conductors connected with the terminal post, wherein the current conductors are wires, wherein the terminal post includes a collar for receiving the current conductors, and wherein the current conductors are connected to the collar of the terminal post by a crimping.



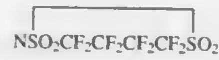
5,786,109

Patent Not Issued For This Number

5,786,110
ALKALI-METAL-ION CONDUCTING ELECTROLYTES

C. Austen Angell; Changle Liu, and Kang Xu, all of Tempe, Ariz., assignors to Arizona Board of Regents, Tempe, Ariz.
Continuation-in-part of Ser. No. 901,669, Jun. 22, 1992, Pat. No. 5,506,073. This application Jun. 6, 1995, Ser. No. 471,840
Int. Cl.^{6} H01M *10/36*
U.S. Cl. 429—199 **61 Claims**

1. An alkali-cation conducting liquid electrolyte having a conductivity equal to or greater than about 10^{-4} S/cm at a temperature of 100° C. or lower, said liquid electrolyte comprising:
- (i) two or more alkali-metal ion containing salts selected from the group consisting of: MX, MBX_4, $MAlX_4$, MAl_2X_7, $MGaX_4$, $MInX_4$, MPX_6, $MAsX_6$, $MSbX_6$, $MFeX_4$, and $MMoX_6$; wherein:
- M is an alkali metal ion; and,
- X is the same or different at each occurrence and is an anion selected from the group consisting of:
- F^-, CN^-, NCO^-, $NCSe^-$, NO_2^-, ClO_3^-, BrO_4^-, BrO_3^-, IO_4^-, IO_3^-, $CF_3CO_2^-$, $CH_3SO_3^-$, p-tolyl—SO_3^-, $CCl_3SO_3^-$, $CF_2ClCFClSO_3^-$



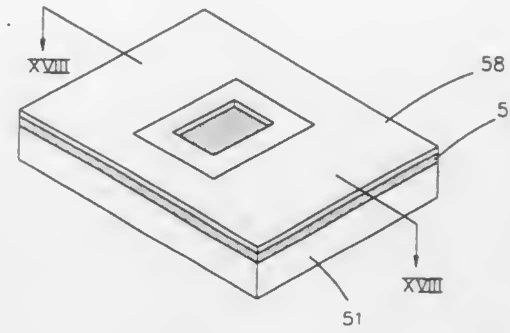
$$\overline{NSO_2CF_2CF_2CF_2CF_2SO_2},$$

- $(SO_2Cl)_2N^-$, $(SO_2F)_2N^-$, $(POCl_2)_2N^-$, $(POF_2)_2N^-$ and $(CF_3SO_2)_3C^-$; and,
- (ii) from 0 to 10 mol percent of one or more organic liquids selected from the group consisting of: molecular solvents, low molecular weight plasticizers, and mixtures thereof.

5,786,111
PHASE SHIFT MASK AND FABRICATING METHOD THEREOF

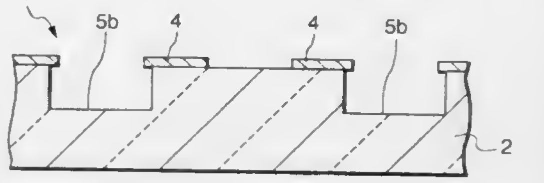
Jun-Seok Lee, Seoul, Rep. of Korea, assignor to LG Semicon Co., Ltd., Choongcheongbuk-Do, Rep. of Korea
Filed May 15, 1996, Ser. No. 647,739
Claims priority, application Rep. of Korea, May 19, 1995, 1995/12565
Int. Cl.^{6} G03F *9/00*
U.S. Cl. 430—5 **29 Claims**

1. A phase shift mask, comprising:
- a light transmitting substrate;
- a light phase shift layer formed on the light transmitting substrate, the light phase shift layer including a light transmitting region of a first thickness and a phase transition region of a second thickness and a slanted region of a non-uniform thickness extending from the phase transition region; and
- a light shielding layer formed above the slanted region.



5,786,112
PHOTOMASK MANUFACTURING PROCESS AND SEMICONDUCTOR INTEGRATED CIRCUIT DEVICE MANUFACTURING PROCESS USING THE PHOTOMASK

Yoshihiko Okamoto, Kodaira, and Yasubiro Koizumi, Sayama, both of Japan, assignors to Hitachi, Ltd., Tokyo, Japan
Filed Jun. 17, 1996, Ser. No. 664,865
Claims priority, application Japan, Jun. 19, 1995, 7-152088
Int. Cl.^{6} G03F *9/00*
U.S. Cl. 430—5 **17 Claims**



1. A method of manufacturing a phase shifting mask using one or more phase shifter edges as a part of a circuit pattern for transferring the circuit pattern onto an integrated circuit wafer by optical reduction projection exposure, the mask having a plurality of first transmission regions, each of which has a shifter edge portion therein, the method comprising the steps of:
- (a) transforming the edge portion within each of the first transmission regions into a shield region by substituting a virtual shield region of a predetermined width for the edge portion on mask pattern data;
- (b) optically capturing a two dimensional image of the phase shifting mask;
- (c) comparing the image with the transformed mask pattern data, and thereby extracting defects in a circuit pattern over the mask; and
- (d) in accordance with the result of the defect extraction, repairing at least a part of the extracted defects.

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5,786,113

PHOTO-MASK USED IN ALIGNER FOR EXACTLY TRANSFERRING MAIN PATTERN ASSISTED BY SEMI-TRANSPARENT AUXILIARY PATTERN AND PROCESS OF FABRICATION THEREOF

Shuichi Hashimoto, and Kunihiko Kasama, both of Tokyo, Japan, assignors to NEC Corporation, Japan

Filed Jun. 24, 1996, Ser. No. 670,768

Claims priority, application Japan, Jun. 29, 1995, 7-163895

Int. Cl.^{6} G03F *9/00*

U.S. Cl. 430—5 **15 Claims**

1. A photo-mask used in a pattern transfer to a photo-sensitive layer, comprising:

a substrate having a first transmittance;

a photo-shield pattern having a second transmittance, and assigned a first area of said substrate; and

a semi-transparent pattern having a third transmittance greater than said second transmittance and less than said first transmittance, and assigned a second area of said substrate in the vicinity of said first area,

said photo-shield pattern and one of said substrate and said semi-transparent pattern defining a main pattern to be transferred to said photo-sensitive layer through a first light,

said semi-transparent pattern and one of said substrate and said photo-shield pattern defining an auxiliary pattern to be carried by a second light so as to cause said first light to exactly transfer said main pattern to said photo-sensitive layer,

wherein said first light and said second light are substantially in-phase.

5,786,114

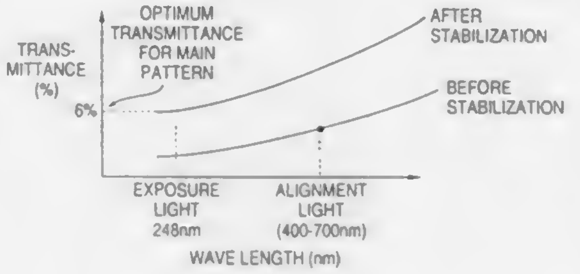
ATTENUATED PHASE SHIFT MASK WITH HALFTONE BOUNDARY REGIONS

Koji Hashimoto, Yokohama, Japan, assignor to Kabushiki Kaisha Toshiba, Kawasaki, Japan

Filed Jan. 10, 1997, Ser. No. 780,840

Int. Cl.^{6} G03F *9/00*

U.S. Cl. 430—5 **11 Claims**



1. A method of making an attenuated phase shift mask, comprising:

depositing a halftone layer on a light transmissive substrate;

patterning the halftone layer to comprise circuit pattern regions and boundary regions adjacent said circuit pattern regions; and

performing a selective stabilization treatment on said circuit pattern regions to optimize the transmittance of the halftone layer therein for an exposure light wavelength, while maintaining the halftone layer in its original state in the boundary regions, so that the transmittance of the circuit pattern regions is increased relative to the transmittance of the boundary regions;

wherein said boundary regions comprise frame regions surrounding respective said circuit pattern regions, and at least one of said frame regions forms an alignment mark.

5,786,115

MASK PRODUCING METHOD

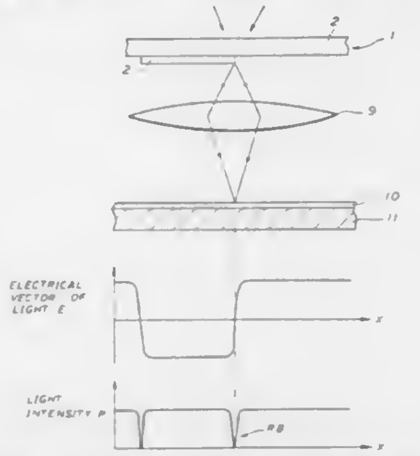
Toshiaki Kawabata, Kawasaki; Kenji Nakagawa, Isehara, both of Japan; Seiichiro Yamaguchi, Tempe, Ariz.; Masao Taguchi, Sagamihara, Japan; Kazuhiko Sumi, and Yuichiro Yanagishita, both of Kawasaki, Japan, assignors to Fujitsu Limited, Kawasaki, Japan

Division of Ser. No. 463,857, Jun. 5, 1995, Pat. No. 5,674,646, which is a division of Ser. No. 54,608, Apr. 30, 1993, Pat. No. 5,489,509, which is a continuation of Ser. No. 516,347, Apr. 27, 1990, abandoned. This application Feb. 3, 1997, Ser. No. 792,070

Claims priority, application Japan, Apr. 28, 1989, 1-111675; Aug. 11, 1989, 1-206837; Feb. 6, 1990, 2-26623

Int. Cl.^{6} G03F *9/00*

U.S. Cl. 430—5 **43 Claims**



1. A method for producing a mask comprising the steps of:

forming a pattern of a resist material on a first layer which is transparent with respect to an exposure light;

forming a phase shift layer to a predetermined thickness on said resist pattern and an exposed portion of said first layer, said phase shift layer being made of a phase shift material capable of transmitting exposure light impinging thereon and shifting the phase of the transmitted light relative to exposure light which does not impinge on the phase shift layer; and

removing said resist pattern, thereby also removing a portion of said phase shift layer formed on said resist pattern.

5,786,116

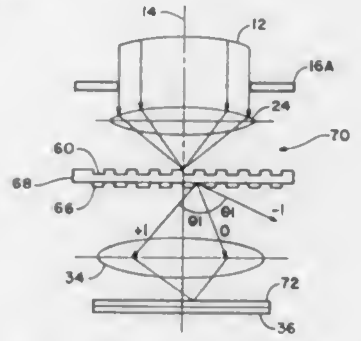
ATOM LITHOGRAPHIC MASK HAVING DIFFRACTION GRATING ALIGNED WITH PRIMARY MASK PATTERN

J. Brett Rolfson, Boise, Id., assignor to Micron Technology, Inc., Boise, Id.

Filed Feb. 14, 1997, Ser. No. 799,166

Int. Cl.^{6} G03F *9/00*

U.S. Cl. 430—5 **36 Claims**



1. A lithographic mask comprising:

a transparent substrate having a first side and a second side separated by a thickness of the substrate;

a mask pattern comprising a patterned opaque layer formed on the first side of the substrate; and

a diffraction grating formed on the second side of the substrate in alignment with at least a portion of the mask pattern, the diffraction grating comprising a pattern of phase shift grooves etched in the second side of the substrate to a depth selected to diffract and phase shift exposure energy transmitted through the phase shift grooves relative to exposure energy transmitted through adjacent full thickness portions of the substrate to provide off axis illumination for the mask pattern.

5,786,117

MEDIUM AND RELATED METHOD AND APPARATUS FOR RECORDING AND REPRODUCING INFORMATION IN CELLS USING MULTIPLE INTERFERENCE

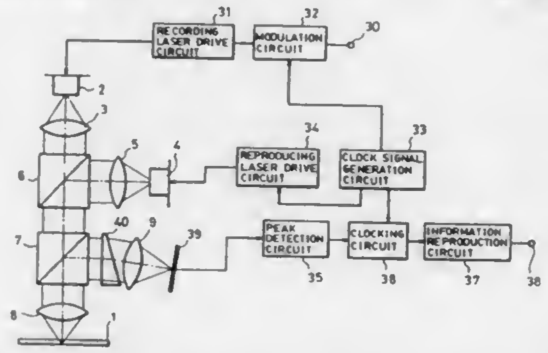
Hiroaki Hoshi; Hideki Morishima; Masakuni Yamamoto; Eiji Yamaguchi, and Susumu Matsumura, all of Kanagawa-ken, Japan, assignors to Canon Kabushiki Kaisha, Tokyo, Japan

Division of Ser. No. 130,676, Oct. 4, 1993, abandoned, which is a continuation of Ser. No. 703,861, May 21, 1991, abandoned. This application Sep. 8, 1994, Ser. No. 303,150

Claims priority, application Japan, May 22, 1990, 2-130143; May 22, 1990, 2-130144; May 29, 1990, 2-137267; Jul. 23, 1990, 2-192871; Jul. 23, 1990, 2-192872; Jul. 24, 1990, 2-194029

Int. Cl.^{6} G11B *7/00*

U.S. Cl. 430—21 **10 Claims**


31
RECORDING LASER DRIVE CIRCUIT
32
MODULATION CIRCUIT
30
2
3
5
4
34
REPRODUCING LASER DRIVE CIRCUIT
33
CLOCK SIGNAL GENERATION CIRCUIT
6
7
40
9
39
PEAK DETECTION CIRCUIT
CLOCKING CIRCUIT
INFORMATION REPRODUCTION CIRCUIT
35
38
37
38
8
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8. A method of reproducing information stored in an optical information recording medium having a base, first and second reflecting layers formed on the base parallel to and at a predetermined distance from each other, and an information storage layer which is formed between the first and second reflecting layers and which has a plurality of reference cells each having a refractive index corresponding to reference information, and a plurality of data cells, each cell having a refractive index of a different value corresponding to multiple-value data stored therein, the reference cells and the data cells being alternately arranged, said method comprising the steps of:

scanning the recording medium with an information reproducing light beam in a direction of the array of cells at a predetermined speed;

changing the wavelength of the information reproducing light beam within a first predetermined range at a first predetermined rate during a period of time when one of the reference cells is irradiated with the information reproducing light beam, the first predetermined range including a wavelength at which multiple interference occurs between the first and second reflecting layers with respect to one reference cell;

changing the wavelength of the information reproducing light beam within a second predetermined range and at a second predetermined rate during a period of time when one of the plurality of data cells is irradiated with the information reproducing light beam, the second predetermined range including a wavelength at which multiple interference occurs between the first and second reflecting layers with respect to each of said plurality of reference cells and said plurality of data cells;

detecting the intensity of light reflected by or transmitted through the recording medium, the intensity of light detected having a peak value at a moment when the wavelength of the detected light is equal to a wavelength at which multiple interference occurs, the peak value of the intensity being detected during each period of time when a reference cell is irradiated with the information reproducing light beam and during each period of time when data cell is irradiated with the information reproducing light beam;

measuring a time period between a moment at which a peak value is detected with respect to a reference cell and a moment at which a peak value is detected with respect to a data cell; and

reproducing information stored in the data cell in accordance with the time period measured in said measuring step.

5,786,118

PHOTOCONDUCTIVE RECORDING MATERIAL CONTAINING CROSSLINKED BINDER SYSTEM

David Terrell, Lint; Stefaan De Meutter, Antwerp, and Marcel Monbaliu, Mortsel, all of Belgium, assignors to AGFA-Gevaert, N.V., Mortsel, Belgium

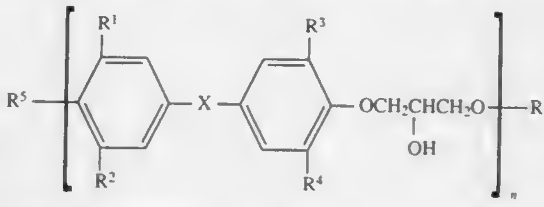
Continuation of Ser. No. 335,713, Nov. 10, 1994, abandoned. This application Sep. 19, 1996, Ser. No. 716,613

Claims priority, application European Pat. Off., Jun. 4, 1992, 92201611

Int. Cl.^{6} G03G *5/05*

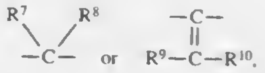
U.S. Cl. 430—58 **4 Claims**

1. A photoconductive recording material comprising a support and a charge generating layer (CGL) in contiguous relationship with a charge transporting layer (CTL) containing a p-charge transporting material (p-CTM), said charge generating layer (CGL) comprising a charge generating material and a binder, wherein said binder has been made insoluble in methylene chloride by crosslinking and consists essentially of at least one resin (1) crosslinked with at least one polyisocyanate, said resin (1) before its crosslinking corresponding to the following general formula (I):



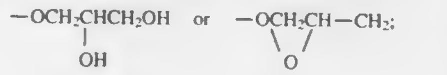
(I)

in which: X represents —S—, —SO$_2$—,

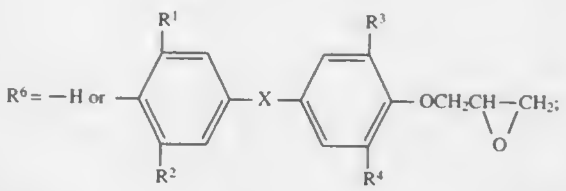


$$\overset{R^7\ \ R^8}{-C-} \quad \text{or} \quad R^9-\underset{}{\overset{-C-}{\overset{\|}{C}}}-R^{10},$$

each of R^1, R^2, R^3, R^4, R^9 and R^{10} (same or different) represents hydrogen, halogen, an alkyl group or an aryl group; R^5 is —OH,



$$-OCH_2\underset{OH}{\underset{|}{C}H}CH_2OH \quad \text{or} \quad -OCH_2CH-CH_2;\ (\text{—O— bridging CH and CH}_2)$$



each of R^7 and R^8 (same or different) represents hydrogen, an alkyl group, an aryl group or represents the necessary atoms to complete, together with the carbon atom to which they are attached, a cycloaliphatic ring, and

n is zero or an integer;

wherein the ratio of total free hydroxy-groups in said resin(s) according to formula (I), expressed as hydroxy-equivalents, to the total isocyanate equivalents in said polyisocyanates is in

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the range 3.0:1 to 1:2.0, said binder in said charge generating layer including another polymer.

5,786,119

ELECTROPHOTOGRAPHIC ELEMENTS HAVING CHARGE TRANSPORT LAYERS CONTAINING HIGH MOBILITY POLYESTER BINDERS

Louis Joseph Sorriero; Marie B. O'Regan, both of Rochester, and Paul Michael Borsenberger, Hilton, all of N.Y., assignors to Eastman Kodak Company, Rochester, N.Y.

Filed Jan. 11, 1996, Ser. No. 584,502

Int. Cl.^{6} G03G *5/047*

U.S. Cl. 430—59 **4 Claims**

1. An electrophotographic element comprising an aggregate charge generation layer and a charge transport layer containing a charge transport material and a polyester binder: wherein

(a) the polyester binder is selected from a group consisting of

poly{4,4'-isopropylidenebisphenylene terephthalate-co-azelate};

poly{4,4'-isopropylidenebisphenylene terephthalate-co-isophthalate-co-azelate};

poly{4,4'-isopropylidenebisphenylene-co-4,4'-hexafluoroisopropylidene bisphenylene terephthalate-co-azelate};

poly{4,4'-hexafluoroisopropylidenebisphenylene terepbthalate-co-azelate};

poly{hexafluoroisopropylidenebisphenylene terephthalate-co-isophthalate-co-azelate} and

poly{4,4'-isopropylidenebisphenylene isophthalate-co-azelate}; and

(b) the charge transport material is selected from the group consisting of (i) a mixture of tri-tolylamine; 1,1-bis(di-4-tolylamino-phenyl)cyclohexane; and diphenylbis-(4-diethylaminophenyl)methane and (ii) a mixture of 3,3'-(4-p-tolylaminophenyl)- 1-phenylpropane and diphenylbis-(4-diethylaminophenyl)methane.

5,786,120

TWO COMPONENT DEVELOPER

Masumi Asanae, Kumagaya, and Masahisa Ochiai, Fukaya, both of Japan, assignors to Hitachi Metals, Ltd., Tokyo, Japan

Continuation of Ser. No. 683,875, Jul. 19, 1996, abandoned, which is a continuation of Ser. No. 406,221, Mar. 16, 1995, abandoned. This application Sep. 22, 1997, Ser. No. 934,662

Claims priority, application Japan, Mar. 17, 1994, 6-046290

Int. Cl.^{6} G03G *9/083;9/107*

U.S. Cl. 430—106.6 **1 Claim**

1. A two-component developer comprising a flat iron carrier having an average particle size of 5–100 μm and a spherical magnetic toner comprising a binder resin, a magnetic powder, and a charge controlling agent, and having a volume average toner particle size of 2–9 μm, said toner particles being produced by polymerizing a monomer using a method selected from the group consisting of emulsion polymerization, soap-free emulsion polymerization, and suspension polymerization, or by dissolving polymer material in a solvent and spray drying, and a toner concentration in said developer being 10–90 weight %.

5,786,121

PROCESS FOR PRODUCING ELECTROPHOTOGRAPHICALLY ACTIVE TITANYLPHTHALOCYANINE MODIFICATIONS

Andreas M. Richter, Halle; Roland Ackermann, Bitterfeld; Manfred Lutz, Warstein, and Hans-Josef Humpert, Anröchte, all of Germany, assignors to Syntec Gesellschaft für Chemie und Technologie der Informationsaufzeichnung mbH, Wolfen, Germany

PCT No. PCT/DE96/00207, § 371 Date Jul. 15, 1997, § 102(e) Date Jul. 15, 1997, PCT Pub. No. WO96/24638, PCT Pub. Date Aug. 15, 1996

PCT Filed Feb. 2, 1996, Ser. No. 875,616

Claims priority, application Germany, Feb. 8, 1995, 195 05 784.8

Int. Cl.^{6} C09B *47/04;* **G03G** *5/06*

U.S. Cl. 430—135 **13 Claims**

1. A process for producing electrophotographically active titanylphthalocyanine, comprising

dissolving titanylphthalocyanine in a mixture of pentafluoropropionic acid and a solvent selected from the group consisting of

(1) a halogenated alkane,

(2) a halogenated aromatic and

(3) a combination selected from the group consisting of

  (a) a halogenated alkane and at least one sulphonic acid;

  (b) a halogenated aromatic and at least one sulphonic acid; and

  (c) a halogenated alkane and a halogenated aromatic and at least one sulphonic acid;

and precipitating the titanylphthalocyanine with water, if necessary in the presence of a further polar organic solvent.

5,786,122

PHOTOSENSITIVE MIXTURE COMPRISING A DIAZONIUM SALT, AN AMPHOPHILIC POLYMER AND A NONIONIC SURFACTANT

Klaus-Peter Konrad, Ingelheim; Willi-Kurt Gries, Wiesbaden, and Guenter Jung, Taunusstein, all of Germany, assignors to AGFA-Gevaert AG, Leverkusen, Germany

Filed Aug. 25, 1995, Ser. No. 519,518

Claims priority, application Germany, Aug. 29, 1994, 44 30 680.6

Int. Cl.^{6} G03F *7/021*

U.S. Cl. 430—157 **24 Claims**

1. A photosensitive mixture which comprises

a polycondensation product of an aromatic diazonium salt,

a polymeric binder which comprises a water-soluble amphophilic polymer having a mean molecular weight M_w of 5,000 to 100,000, and

a nonionic surfactant which has a molecular weight M_w of 150 to 2,000.

5,786,123

OPTICAL RECORDING ELEMENTS COMPRISING A POLYMERIC DYE

Elizabeth Gertrude Burns; Csaba Andras Kovacs, both of Rochester; Ramanuj Goswami, Webster, and Derek D. Chapman, Rochester, all of N.Y., assignors to Eastman Kodak Company, Rochester, N.Y.

Filed Mar. 19, 1996, Ser. No. 618,489

Int. Cl.^{6} G11B *7/24*

U.S. Cl. 430—270.14 **36 Claims**

1. An optical recording element comprising, in the following order:

(a) a transparent support;

(b) an optical recording layer having, from 775 nm to 790 nm, a real refractive index (N) of >1.8 and an imaginary index (k) of 0.005 to 0.3; and

(c) a metal reflective layer;

wherein

the recording layer comprises a polymer (i) having, from 775 nm to 790 nm, a real index (N) of >1.8 and an imaginary index (k) of 0.005 to 0.3; and (ii) comprises from 70 to 100 mole percent repeating units according to Formula I:

$$-\!\!\left[A-Z-A-Z_1 \right]\!\!-_{n} \qquad \text{I}$$

wherein

A represents a divalent radical selected from urethane, carbonate, urea, ester and amide;

Z represents arylene C_2–C_{18}-alkylene; C_3–C_8-cycloalkylene; C_1–C_4 alkylene bonded to C_3–C_8 cycloalkylene bonded to C_1–C_4 alkylene; C_1–C_4 alkylenearylene bonded to C_1–C_4 alkylene; C_2–C_4 alkoxy bonded to C_2–C_4 alkylene;

arylene bonded to C_1–C_4 alkylene bonded to arylene; and C_3–C_8 cycloalkylene bonded to C_1–C_4-alkylene bonded to C_3–C_8 cycloalkylene;

Z_1 represents a divalent dye radical selected from cyanines, formazans, metallized formazans, azos, metallized azos, metallized azo ethers, phthalocyanines, metallized phthalocyanines; and squariliums; and

n represents the number of repeat units needed to build a polymer chain of a size that corresponds to a polystyrene chain of weight-average molecular weight (M_w) of 5,000 to 1,000,000.

5,786,124

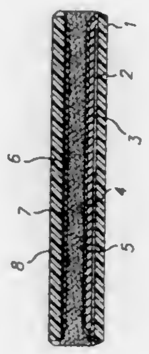
OPTICAL RECORDING ELEMENTS CONTAINING METALLIZED CARBAMOYLAZO DYES

Derek D. Chapman, Rochester; Ramanuj Goswami, Webster, and Csaba A. Kovacs, Rochester, all of N.Y., assignors to Eastman Kodak Company, Rochester, N.Y.

Filed Jun. 25, 1997, Ser. No. 881,832

Int. Cl.^{6} G11B *7/24*

U.S. Cl. 430—270.16 **8 Claims**



2. An optical recording element having the following layer arrangement:

(a) a transparent grooved substrate having a groove width of from 100 to 800 nm; a groove depth of 30 to 270 nm; and a groove pitch of 0.5 to 1.8 μm;

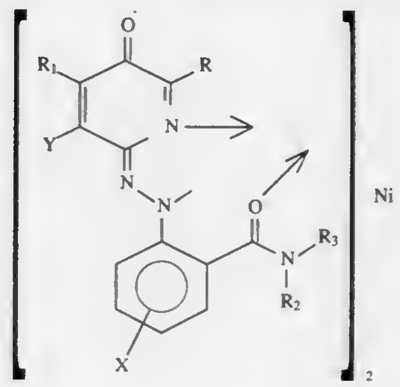
(b) a recording layer (i) comprising a metallized carbamoylazo dye and (ii) having, when unrecorded, a refractive index at a selected wavelength from 400 to 660 nm, comprising a real part (n) greater than 1.8 and an imaginary part (k) less than 0.2;

(c) a light reflecting layer;

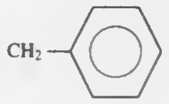
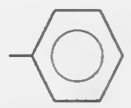
(d) an adhesive layer; and

(e) a substrate; wherein

the metallized carbamoylazo dye is selected from Table 1 as follows:



Dye No	R	R$_1$	Y
1	NH$_2$	H	H
2	NH$_2$	H	H
3	NH$_2$	H	H
4	NH$_2$	CH$_3$	H
5	NH$_2$	H	Cl
6	NH$_2$	H	Cl
7	NH$_2$	H	Cl
8	NH$_2$	H	Cl
9	NH$_2$	H	CH$_3$
10	NH$_2$	CH$_3$	H
11	NH$_2$	H	H
12	NH$_2$	CH$_3$	H
13	NH$_2$	H	H
14	NH$_2$	H	Cl
15	NH$_2$	CH$_3$	H
16	NH$_2$	CH$_3$	H
17	Cl	H	H
18	Br	H	H
19	CH$_3$	H	H
20	NH$_2$	H	H

Dye No	X	R$_2$	R$_3$
1	H	CH$_2$CH$_3$	CH$_2$CH$_3$
2	H	(CH$_2$)$_2$CH$_3$	(CH$_2$)$_2$CH$_3$
3	H	(CH$_2$CH$_2$)$_2$O	
4	H	CH$_2$CH$_3$	CH$_2$CH$_3$
5	H	CH$_2$CH$_3$	(CH$_2$)$_2$CH$_3$
6	CH$_3$	CH$_2$CH$_3$	(CH$_2$)$_2$CH$_3$
7	CH$_2$ 	CH$_2$CH$_3$	(CH$_2$)$_2$CH$_3$
8	H		(CH$_2$)$_2$CH$_3$
9	H	(CH$_2$)$_2$OCH$_3$	(CH$_2$)$_2$CH$_3$
10	H	(CH$_2$)$_2$OCH$_3$	(CH$_2$)$_2$CH$_3$
11	H	(CH$_2$CH$_2$)$_2$CH$_2$	
12	H	(CH$_2$CH$_2$)$_2$CH$_3$	
13	H	(CH$_2$)$_3$CH$_3$	(CH$_2$)$_3$CH$_3$
14	H	(CH$_2$)$_3$CH$_3$	(CH$_2$)$_3$CH$_3$
15	H	(CH$_2$)$_3$CH$_3$	(CH$_2$)$_3$CH$_3$
16	Cl	(CH$_2$)$_3$CH$_3$	(CH$_2$)$_3$CH$_3$
17	H	(CH$_2$)$_3$CH$_3$	(CH$_2$)$_3$CH$_3$
18	H	(CH$_2$)$_3$CH$_3$	(CH$_2$)$_3$CH$_3$
19	H	(CH$_2$)$_3$CH$_3$	(CH$_2$)$_3$CH$_3$
20	H	(CH$_2$)$_3$CH$_3$	H.

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5,786,125
LIGHT-SENSITIVE LITHOGRAPHIC PRINTING PLATE REQUIRING NO FOUNTAIN SOLUTION

Mitsumasa Tsuchiya, and Tsumoru Hirano, both of Shizuoka, Japan, assignors to Fuji Photo Film Co., Ltd., Kanagawa, Japan

Filed Oct. 24, 1996, Ser. No. 736,499

Claims priority, application Japan, Oct. 25, 1995, 7-277889

Int. Cl.^{6} G03F *7/11*

U.S. Cl. 430—272.1 **4 Claims**

1. A light-sensitive lithographic printing plate requiring no fountain solution comprising a support laminated with a light-sensitive layer and a silicone rubber layer in this order, wherein said light sensitive layer comprises (a) a resol resin, (b) a novolak resin, (c) an infrared absorber, and (d) a compound which generates an acid with heat.

5,786,126
ANTI-TACK LAYER FOR PHOTOPOLYMER PRINTING PLATE AND COMPOSITION FOR FORMING THE SAME

Shigenori Nagahara; Akira Tomita; Noriko Takahashi, and Masaru Nampei, all of Ootsu, Japan, assignors to Toyo Boseki Kabushiki Kaisha, Osaka, Japan

Division of Ser. No. 206,831, Mar. 7, 1994, abandoned. This application May 19, 1995, Ser. No. 444,878

Claims priority, application Japan, Mar. 17, 1993, 5-057209; Jan. 18, 1994, 6-003626

Int. Cl.^{6} G03C *1/492*

U.S. Cl. 430—273.1 **16 Claims**

1. A laminate comprising in the following order:

a support;

an adhesive layer;

a photopolymerizable layer;

an anti-tack layer developable with an aqueous liquid, the anti-tack layer having an absorbance of 0.010 to 0.060 at 1140 cm^{-1} per μm thickness of the anti-tack layer; and a cover film; wherein the anti-tack layer is prepared using polyvinyl alcohol and a water soluble crystallizing agent having a boiling point of 120° to 240° C.

5,786,127
PHOTOSENSITIVE ELEMENT HAVING AN OVERCOAT WHICH INCREASES PHOTO-SPEED AND IS SUBSTANTIALLY IMPERMEABLE TO OXYGEN

David C. Madoux, Maryland Heights, and Edward H. Parker, Ballwin, both of Mo., assignors to Western Litho Plate & Supply Co., St. Louis, Mo.

Filed Aug. 15, 1996, Ser. No. 698,549

Int. Cl.^{6} G03F *7/11*

U.S. Cl. 430—273.1 **34 Claims**

1. A pre-sensitized plate for use in making a lithographic printing plate, the pre-sensitized plate comprising:

a support having a surface suitable for lithographic printing;

a photosensitive layer on the surface, the layer comprising a composition of an ethylenically unsaturated compound and a photo-initiator, the composition being capable of photo-initiated addition polymerization; and

a transparent, protective coating on the photosensitive layer, the protective coating being substantially impermeable to atmospheric oxygen and comprising: (i) polyvinyl alcohol which is soluble in an aqueous solvent; and (ii) a hydrolyzed maleic anhydride resin having sufficient hydrolyzed maleic anhydride moieties to impart to the protective coating a pH of no greater than about 5.5 and being present in amount such that the protective coating contains from about 25 to about 40% by weight of the resin.

4. A pre-sensitized plate for use in making a lithographic printing plate, the pre-sensitized plate comprising:

a support having a surface suitable for lithographic printing;

a photosensitive layer on the surface, the layer comprising a composition of an ethylenically unsaturated compound and a photo-initiator, the composition being capable of photo-initiated addition polymerization; and

a transparent, protective coating on the photosensitive layer, the protective coating being substantially impermeable to atmospheric oxygen and comprising: (i) polyvinyl alcohol which is soluble in an aqueous solvent; (ii) hydrolyzed maleic anhydride resin which is present in the protective coating in an amount equal to from about 25 to about 40% by weight of the protective coating; and (iii) a plasticizer which is soluble in an aqueous solvent and is present in the protective coating in an amount equal to from about 5% to about 30% by weight of the protective coating.

7. A pre-sensitized plate for use in making a lithographic printing plate, the pre-sensitized plate comprising:

a support having a surface suitable for lithographic printing;

a photosensitive layer on the surface, the layer comprising a composition of an ethylenically unsaturated compound and a photo-initiator, the composition being capable of photo-initiated addition polymerization; and

a transparent, protective coating on the photosensitive layer, the protective coating, being substantially impermeable to atmospheric oxygen and comprising: (i) polyvinyl alcohol which is soluble in an aqueous solvent; (ii) a second polymer which is soluble in an aqueous solvent and imparts surface hardness and scratch resistance to the protective coating; and (iii) a plasticizer which is soluble in an aqueous solvent and present in the protective coating in an amount equal to about 15 to about 20% by weight of the protective coating.

13. A pre-sensitized plate for use in making a lithographic printing plate, the pre-sensitized plate, comprising:

a support having a surface suitable for lithographic printing;

a photosensitive layer on the surface, the layer comprising a composition of an ethylenically unsaturated compound and a photo-initiator, the composition being capable of photo-initiated addition polymerization; and

a transparent, protective coating on the photosensitive layer, the protective coating being substantially impermeable to atmospheric oxygen and comprising: (i) polyvinyl alcohol which is soluble in an aqueous solvent; (ii) a second polymer which is soluble in an aqueous solvent and imparts surface hardness and scratch resistance to the protective coating; and (iii) a plasticizer which is soluble in an aqueous solvent, present in the protective coating in an amount equal to from about 5% to about 30% by weight of the protective coating, and a solid at 20° C.

22. A pre-sensitized plate for use in making a lithographic printing plate, the pre-sensitized plate comprising:

a support having a surface suitable for lithographic printing;

a photosensitive layer on the surface, the layer comprising a composition of an ethylenically unsaturated compound and a photo-initiator, the composition being capable of photo-initiated addition polymerization; and

a transparent, protective coating on the photosensitive layer, the protective coating being substantially impermeable to atmospheric oxygen and comprising: (i) polyvinyl alcohol which is soluble in an aqueous solvent; (ii) a second polymer which is soluble in an aqueous solvent and imparts surface hardness and scratch resistance to the protective coating; and (iii) a plasticizer which is soluble in an aqueous solvent, is present in the protective coating in an amount equal to from about 5% to about 30% by weight of the protective coating, and comprises at least one material selected from the group consisting of gluconic acid, mannitol, and sorbitol.

5,786,128
ON-PRESS DEVELOPMENT OF A LITHOGRAPHIC PRINTING PLATE HAVING AN ARYLDIAZOSULFONATE RESIN IN A PHOTOSENSITIVE LAYER

Joan Vermeersch, Deinze, and Marc Van Damme, Heverlee, both of Belgium, assignors to AFGA-Gevaert, N.V., Mortsel, Belgium

Filed Sep. 18, 1996, Ser. No. 715,500

Claims priority, application European Pat. Off., Oct. 31, 1995, 95202936

Int. Cl.^{6} G03F *7/021;* **G03C** *1/56*

U.S. Cl. 430—302 **8 Claims**

1. A method for making a lithographic printing plate comprising the steps of:

(1) image-wise exposing an imaging element having on a hydrophilic surface of a lithographic base a photosensitive layer comprising a photosensitive polymer containing aryldiazosulfonate units;

(2) and developing a thus obtained image-wise exposed imaging element by mounting it on a print cylinder of a printing press and supplying an aqueous dampening liquid and/or ink to said photosensitive layer while rotating said print cylinder.

7. A method for making multiple copies of an original comprising the steps of:

(1) image-wise exposing an imaging element having on a hydrophilic surface of a lithographic base a photosensitive layer comprising a photosensitive polymer containing aryldiazosulfonate units;

(2) mounting a thus obtained image-wise exposed imaging element without development, on a print cylinder of a printing press;

(3) rotating said print cylinder while supplying an aqueous dampening liquid and/or supplying ink to said photosensitive layer of said imaging element and

(4) transfering ink from said imaging element to a receiving element.

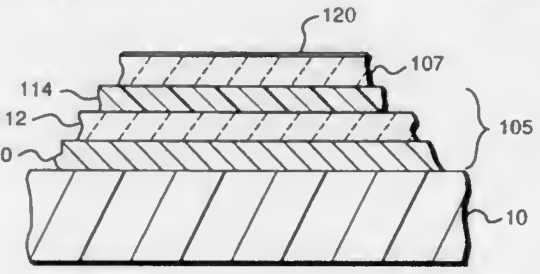
5,786,129
LASER-IMAGEABLE RECORDING CONSTRUCTIONS UTILIZING CONTROLLED, SELF-PROPAGATING EXOTHERMIC CHEMICAL REACTION MECHANISMS

Ernest Ellis, Harvard, Mass., assignor to Presstek, Inc., Hudson, N.H.

Filed Jan. 13, 1997, Ser. No. 782,625

Int. Cl.^{6} B41N *1/08*

U.S. Cl. 430—302 **28 Claims**



1. A printing member directly imageable by laser discharge, the member comprising:

a. at least one ignition layer comprising at least two unreacted, solid chemical species, neither of which comprises a metal oxide and which, upon exposure to heat, combine exothermically to form a final species; and

b. a substrate thereunder,

wherein

c. the at least one ignition layer is removed or rendered removable by the exothermic combination triggered by laser exposure, whereas the substrate is substantially unconsumed by the exothermic combination; and

d. at least one ignition layer comprises a surface layer, the surface layer and the substrate exhibiting different affinities or

for at least one printing liquid selected from the group consisting of ink and an abhesive fluid for ink.

5,786,130
MAPPING METHOD FOR A MICROSCOPE SLIDE

Lawrence L. Hause, 2306 Oakdale Dr., Waukesha, Wis. 53186, and Dean Jeutter, 246 Oak St., Grafton, Wis. 53024

Filed Oct. 20, 1995, Ser. No. 546,177

Int. Cl.^{6} G03F *7/00*

U.S. Cl. 430—320 **10 Claims**

1. A method of forming a pattern not visible to the human eye on a substrate comprising: applying an infrared material, which is transparent to visible light, on a substantially flat surface of the substrate, then forming the pattern with the infrared material.

5,786,131
PROCESS FOR USE OF PHOTORESIST COMPOSITION WITH DEEP ULTRAVIOLET RADIATION

Robert David Allen; Richard Anthony DiPietro, both of San Jose, and Gregory Michael Wallraff, Morgan Hill, all of Calif., assignors to International Business Machines Corporation, Armonk, N.Y.

Continuation of Ser. No. 266,044, Jun. 27, 1994, Pat. No. 5,580,694. This application Jul. 12, 1996, Ser. No. 678,868

Int. Cl.^{6} G03C *5/00;1/492*

U.S. Cl. 430—325 **8 Claims**

1. A process for generating a resist image on a substrate comprising the steps of:

(a) coating a substrate with a film comprising a radiation-sensitive acid generator, androstane-17-alkylcarboxylate having only 1 alkyl carbonyloxy substituent, and a copolymer comprising the reaction product of:

  (i) a monomer selected from acrylic acid or methacrylic acid, and

  (ii) a monomer selected from methacrylate or acrylate;

(b) imagewise exposing the film to electromagnetic radiation having a wavelength of 193 nm to form a latent image; and

(c) developing the image to expose the substrate.

5,786,132
PRE-DYES, MUTABLE DYE COMPOSITIONS, AND METHODS OF DEVELOPING A COLOR

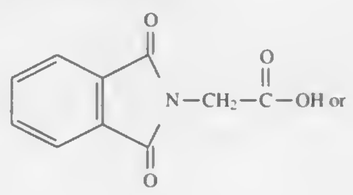
Ronald Sinclair Nohr, Alpharetta, and John Gavin MacDonald, Decatur, both of Ga., assignors to Kimberly-Clark Corporation, Neenah, Wis.

Continuation-in-part of Ser. No. 463,187, Jun. 5, 1995, abandoned. This application May 29, 1996, Ser. No. 649,754

Int. Cl.^{6} G03C *1/73;5/16*

U.S. Cl. 430—343 **26 Claims**

22. A mutable dye composition comprising a leuco dye admixed with a radiation transorber comprises a wavelength-selective sensitizer covalently bonded to a reactive species-generating photoreactor, wherein the wavelength-selective sensitizeris phtaloylglycine having the following formula



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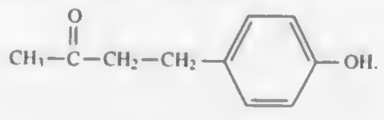
4-(4-Hydroxy phenyl) butan-2-one having the following formula



$$CH_3-\overset{\overset{O}{\|}}{C}-CH_2-CH_2-C_6H_4-OH.$$

comprising carboxylic acid containing vinyl polymer having a glass transition temperature of greater than 60° C. and an acid number of from 60 to 150 wherein the carboxylic acid containing vinyl polymer is reacted with ammonia or amine so that said coating composition has a pH of from 7 to 10.

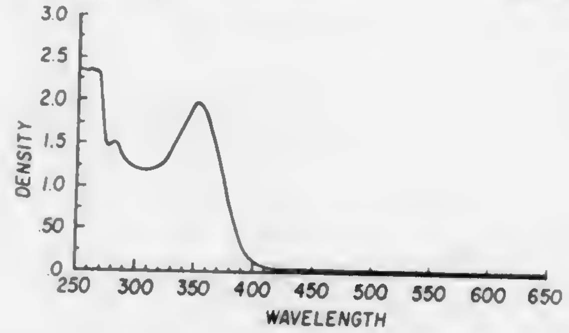
5,786,133
ANTISTATIC LAYER FOR PHOTOGRAPHIC ELEMENTS

Thomas M. Smith, Spencerport, N.Y., assignor to Eastman Kodak Company, Rochester, N.Y.

Filed Nov. 19, 1996, Ser. No. 752,697

Int. Cl.^{6} G03C *1/85;1/89;1/815*

U.S. Cl. 430—512 **16 Claims**



1. A photographic element comprising a support bearing at least one photosensitive layer and an antistatic layer comprising a binder, vanadium pentoxide, and an aromatic ketone ultraviolet absorbing compound.

5,786,134
MOTION PICTURE PRINT FILM

Mridula Nair, Penfield; Kenneth L. Tingler, Rochester; Gustav R. Apal, II, Rochester, and Frank A. Pettrone, Rochester, all of N.Y., assignors to Eastman Kodak Company, Rochester, N.Y.

Filed May 15, 1997, Ser. No. 856,711

Int. Cl.^{6} G03C *1/85;1/825;1/76*

U.S. Cl. 430—517 **15 Claims**

1. A motion picture print film comprising a support having, in order, on one side thereof an antihalation undercoat and at least one silver halide emulsion layer and having, in order, on the opposite side thereof an antistatic layer, a protective overcoat; characterized in that said protective overcoat is comprised of a polyurethane binder and said polyurethane binder has a tensile elongation to break of at least 50% and a Young's modulus measured at a 2% elongation of at least 50000 lb/in^2, and a topcoat farthest from said support comprising a hydrophilic colloid at a weight percent of at least 20 percent.

5,786,135
COATING COMPOSITION FOR IMAGING ELEMENTS

Charles Chester Anderson; Yongcai Wang, both of Penfield; James L. Bello, Rochester, and Mario D. DeLaura, Hamlin, all of N.Y., assignors to Eastman Kodak Company, Rochester, N.Y.

Filed Sep. 11, 1996, Ser. No. 712,006

Int. Cl.^{6} G03C *1/76;1/89;1/93;8/52*

U.S. Cl. 430—529 **11 Claims**

1. An imaging element comprising a support, an image forming layer and an auxiliary layer; said auxiliary layer having been formed by the coating and subsequent drying of an aqueous coating composition having dispersed therein a film forming binder

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5,786,136
METHOD AND DEVICE FOR CONSERVING ORGANS, BODY EXTREMITIES AND PIECES OF BODY TISSUE

Berndt Mayer, Otto-Suhr-Allee 106 c, D-10685 Berlin, Germany

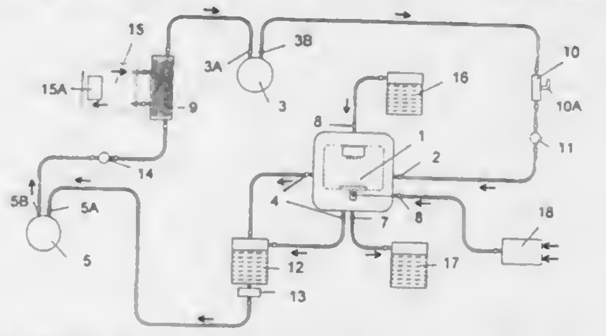
PCT No. PCT/EP94/01839, § 371 Date Nov. 28, 1995, § 102(e) Date Nov. 28, 1995, PCT Pub. No. WO94/28710, PCT Pub. Date Dec. 22, 1994

PCT Filed Jun. 6, 1994, Ser. No. 553,278

Claims priority, application Germany, Jun. 7, 1993, 43 19 368.4; Nov. 9, 1993, 43 39 024.2; Mar. 4, 1994, 44 07 863.3

Int. Cl.^{6} A01N *1/02*

U.S. Cl. 435—12 **20 Claims**



1. Method of conserving a body part, such as organs, body extremities and lobes of body tissue, at a temperature inclusively between room temperature and body temperature, by utilizing an extracorporal circulation system having several circuits and without employing natural organs as a component part of the extracorporal circulation system, comprising the following steps:

(1) in a first circuit supplying the body part with an oxygen-rich arterial perfusate, oxygenizing and detoxicating a venous perfusate and bringing about metabolite exchange,

(2) in a second circuit, oxygenizing a first physiological aqueous solution in a dilution reservoir and effecting an oxygen transfer from said first, oxygenized solution of the second circuit to the first circuit and

(3) in a third circuit, effecting a cleaning-by-flushing of the body part with a second physiological aqueous flushing solution

wherein the circuits are controlled such that either only the first circuit and the second circuit together, or the third path alone, will be in operation at any one time.

5,786,137
METHOD FOR ASSAYING COMPONENTS IN AN ENZYME-PROTEIN SUBSTRATE SYSTEM

Scott L. Diamond, Snyder, N.Y., and Jung-He Wu, Taipei, Taiwan, assignors to Research Foundation of State University of New York, Amherst, N.Y.

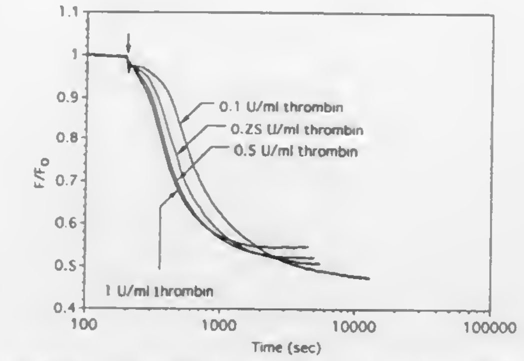
Continuation-in-part of Ser. No. 365,780, Dec. 29, 1994, Pat. No. 5,567,596. This application Aug. 21, 1996, Ser. No. 701,809

Int. Cl.^{6} C12Q *1/00;1/56*

U.S. Cl. 435—4 **16 Claims**

1. A method for measuring in a sample a component's activity in an enzyme-catalyzed polymerization reaction of a protein substrate, wherein the component is the enzyme that catalyzes the polymerization of said protein substrate, said method comprising the sequential steps of:

(a) measuring a basal level of fluorescence emission of a reaction mixture comprising a reaction buffer and a known



amount of the protein substrate which has been labeled with fluorescent molecules, wherein the protein substrate is soluble in the reaction mixture and is a template on which molecular assemblies occur;

(b) contacting the sample with the reaction mixture;

(c) incubating the reaction mixture for a sufficient time for the polymerization reaction to occur in solution;

(d) exposing the reaction mixture to an excitation wavelength specific for the fluorescent molecules; and

(e) detecting the fluorescence emission from the polymerization reaction wherein reduced fluorescence emission, relative to the basal level of fluorescence, is indicative of the polymerization of the fluorescent-labeled substrate and proportional to the enzyme's activity in the sample.

5,786,138
HYPERSTABILIZING ANTISENSE NUCLEIC ACID BINDING AGENTS

David H. Swenson, Baton Rouge, La., assignor to Board of Supervisors of Louisiana State University and Agricultural and Mechanical College, Baton Rogue, La.

Continuation of Ser. No. 010,408, Jan. 29, 1993, abandoned. This application Aug. 11, 1994, Ser. No. 289,130

Int. Cl.^{6} C12Q *1/68;1/70;* **C07H** *21/04;21/02*

U.S. Cl. 435—6 **47 Claims**

24. An in vitro method for binding a selected ribonucleic acid sequence which is not a homopolymer, comprising the steps of:

(a) contacting the selected ribonucleic acid sequence in vitro with an oligonucleotide which is not a homopolymer, and which is complementary to the selected ribonucleic acid sequence, and which can base-pair to the selected ribonucleic acid sequence to form a double helix having a minor groove and a major groove, until such a double helix is formed; and

(b) contacting the double helix in vitro with a binding agent which preferentially binds in the minor groove of the double helix, and which increases the strand separation temperature of the double helix, until said binding agent has bound in the minor groove.

5,786,139
METHOD AND KIT FOR DETECTING NUCLEIC ACID CLEAVAGE UTILIZING A COVALENTLY ATTACHED FLUORESCENT TAG

Thomas J. Burke, Madison; Randall E. Bolger, Oregon; William J. Checovich, Madison, and David V. Thompson, Monona, all of Wis., assignors to PanVera Corporation, Madison, Wis.

Filed Dec. 9, 1994, Ser. No. 353,079

Int. Cl.^{6} C12Q *1/68;* **C12N** *9/16;* **C07H** *21/00*

U.S. Cl. 435—6 **16 Claims**

1. A method of detecting cleavage of a nucleic acid comprising:

a) covalently attaching at least one fluorescence emitting label to a nucleotide of the nucleic acid to be cleaved;

b) measuring the fluorescence polarization of the label before step c);

c) incubating the labeled nucleic acid of step a) with a reagent to be tested wherein the reagent does not interact, in a manner that would diminish reagent activity enough to reduce useful sensitivity of cleavage measurement in step d), with the labeled nucleotide

d) measuring the fluorescence polarization of the label during step c); and,

e) comparing the fluorescence polarization measurements of step b) with step d).

5,786,140
DNA'S ENCODING SUCROSE ISOMERASE AND PALATINASE

Ralf Mattes; Kathrin Klein, both of Stuttgart; Hubert Schiweck; Markwart Kunz, both of Worms, and Mohammad Munir, Kindenheim, all of Germany, assignors to Sudzucker Aktiengesellschaft Mannheim/Ochsenfurt, Germany

Filed Jan. 18, 1995, Ser. No. 374,155

Claims priority, application Germany, Jan. 19, 1994, 44 01 451.1; Apr. 22, 1994, 44 14 185.8

Int. Cl.^{6} C12Q *1/68;* **C12N** *15/63;1/21;* **C07H** *21/04*

U.S. Cl. 435—6 **29 Claims**

1. Isolated DNA that codes for a protein with a sucrose isomerase activity and comprising

(a) a nucleotide sequence selected from the group consisting of SEQ ID NO:1, SEQ ID NO:2, SEQ ID NO:3, SEQ ID NO:9, SEQ ID NO:11, SEQ ID NO:13, and any of these sequences without the signal peptide-coding region;

(b) a nucleotide sequence corresponding to the sequences from (a) within the scope of the degeneracy of the genetic code, or

(c) a nucleotide sequence that hybridizes with a sequence from (a), (b), or both (a) and (b); wherein a positive hybridization signal is still observed after washing with 1×SSC and 0.1% SDS at 55° C. for one hour.

5,786,141
ELECROGENERATED CHEMILUMINESCENCE LABELS FOR ANALYSIS AND/OR REFERENCING

Allen J. Bard, 6202 Mountainclimb Dr., Austin, Tex. 78731; Thomas Richards, 208 Westhaven Dr., Austin, Tex. 78746, and Jonathan K. Leland, 14236 Amberleigh Ter., Silver Spring, Md. 20906

Continuation-in-part of Ser. No. 296,630, Aug. 26, 1994, abandoned. This application Feb. 9, 1995, Ser. No. 385,864

Int. Cl.^{6} C12Q *1/68;1/70;* **C12P** *19/34;* **G01N** *33/53*

U.S. Cl. 435—6 **21 Claims**

1. A composition, comprising:

(a) a substituted polycyclic molecule selected from the group consisting of 1-thianthrenecarboxylic acid, 2-thianthrenecarboxylic acid, and chlorpromazine; and corresponding salts or derivatives thereof; and

(b) a coreactant, wherein said molecule and said coreactant upon exposure to electrochemical energy interact to produce electrochemiluminescence at an emission wavelength distinct from that of $Ru(bpy)_3^{+2}$.

5,786,142
ELECTROPHORESIS AND FLUORESCENCE DETECTION METHOD

John A. Renfrew, Burlington, and James W. Cassidy, Waterloo, both of Canada, assignors to Visible Genetics Inc., Toronto, Canada

Filed May 30, 1995, Ser. No. 452,719

Int. Cl.^{6} C12Q *1/68;* **C25B** *1/00;* **B01D** *61/42;* **G01N** *15/06*

U.S. Cl. 435—6 **4 Claims**

1. A method of electrophoretic separation of a mixture of fluorescent-tagged nucleotide sequence fragments of varying base

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pair lengths, the fragments each having fluorescent activity at a first level of photonluflux, the method comprising the steps of:

adding an additive to the mixture, the additive having a fluorescent activity substantially higher than the first level, the additive having a size and charge giving rise to separation corresponding to a predetermined fragment size;

electrophoretically separating the mixture along a path after adding the additive;

stimulating a sensing region within the path; and

sensing the combined fluorescent activity of the fragments and of the additive in the sensing region over a dynamic range in an analog-to-digital conversion, said range sufficient to distinguish the activity of the fragments from the activity of the additive, and sufficient to detect features in the activity of the additive at an activity level substantially higher than the first level.

5,786,143

Patent Not Issued For This Number

5,786,144

METHOD AND COMPOSITIONS FOR IDENTIFICATION OF SPECIES ORIGIN OF CAVIAR

Rob DeSalle, and Vadim J. Birstein, both of New York, N.Y., assignors to American Museum of Natural History, New York, N.Y.

Filed May 13, 1996, Ser. No. 647,584

Int. Cl.⁶ C12Q *1/68;* **C12P** *19/34;* **C07H** *21/02;21/04*

U.S. Cl. 435—6 **13 Claims**

1. A method of determining a species origin of caviar, said method comprising the steps of:

a) obtaining a sample of caviar;

b) cleaning the surface of the caviar with an agent capable of removing salt and other debris from the surface of the caviar without damaging the caviar;

c) extracting template DNA from said sample;

d) amplifying extracted template DNA by using at least one primer pair consisting of a species-specific diagnostic primer which binds to a nucleotide position diagnostic of a species of said caviar and an anchor primer matched with the diagnostic primer such that the anchor primer binds to a nucleotide position no more than about 250 nucleotides away from said nucleotide position, wherein said diagnostic primer hybridizes one or more DNA fragments having a sequence complementary any of the sequences shown in SEQ. ID NO:8, SEQ. ID NO:10, SEQ. ID NO:12, SEQ. ID NO:14, SEQ. ID NO:16, SEQ. ID NO:18, or SEQ. ID NO:20 through SEQ. ID NO:145; and

e) analyzing the products for the presence or absence of amplified DNA.

5,786,145

OLIGONUCLEOTIDE COMPETITORS FOR BINDING OF HIV RRE TO REV PROTEIN AND ASSAYS FOR SCREENING INHIBITORS OF THIS BINDING

Jonathan Karn; Michael John Galt; Shaun Heaphy, and Colin Dingwall, all of Cambridge, England, assignors to Medical Research Council, London, United Kingdom

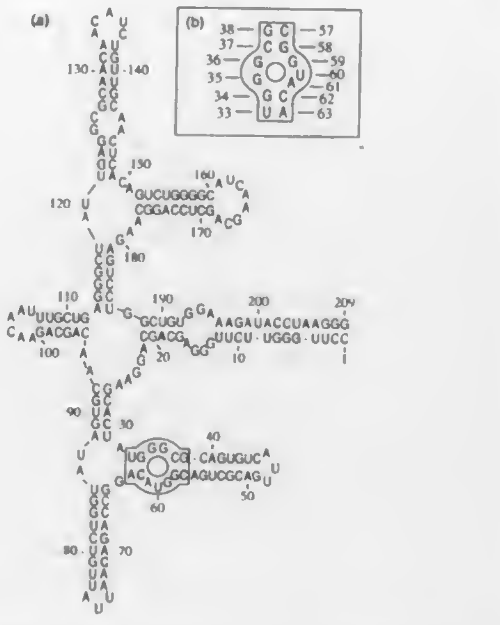
Continuation of Ser. No. 30,102, Mar. 18, 1993, abandoned. This application Oct. 10, 1995, Ser. No. 540,448

Claims priority, application United Kingdom, Sep. 20, 1995, 9020541

Int. Cl.⁶ C07H *21/02;* **C12Q** *1/68*

U.S. Cl. 435—6 **17 Claims**

1. A RNA oligonucleotide molecule which is no longer than thirty four nucleotides in length and forms a duplex having a purine rich bubble structure, wherein the double strand duplex is capable of binding to rev protein and comprises the sequences UGGGCG and CGGUACA.



12. An assay for identifying a compound that inhibits binding of rev protein to RRE RNA, comprising

incubating rev protein with an RNA molecule as claimed in claim 1 in the presence of a test inhibitor compound,

determining the amount of rev protein which is bound to said RNA molecule, wherein decreased binding of rev protein to said RNA molecule in the presence of the test inhibitor compound relative to binding in the absence of said test inhibitor compound is indicative of inhibition.

5,786,146

METHOD OF DETECTION OF METHYLATED NUCLEIC ACID USING AGENTS WHICH MODIFY UNMETHYLATED CYTOSINE AND DISTINGUISHING MODIFIED METHYLATED AND NON-METHYLATED NUCLEIC ACIDS

James G. Herman, Timonium, and Stephen B. Baylin, Baltimore, both of Md., assignors to The Johns Hopkins University School of Medicine, Baltimore, Md.

Filed Jun. 3, 1996, Ser. No. 656,716

Int. Cl.⁶ C12Q *1/68;* **C12P** *19/34;* **C07H** *21/04*

U.S. Cl. 435—6 **27 Claims**

1. A method for detecting a methylated CpG-containing nucleic acid comprising:

contacting a nucleic acid-containing specimen with an agent that modifies unmethylated cytosine,

amplifying the CpG-containing nucleic acid in the specimen by means of CpG-specific oligonucleotide primers, wherein the oligonucleotide primers distinguish between modified methylated and nonmethylated nucleic acid, and

detecting the methylated nucleic acid based on the presence or absence of amplification products produced in said amplifying step.

5,786,147

DETECTION OF ENTEROBACTERIA

Claude Mabilat, Rillieux la Pape, and Raoult Didier, Marseille, both of France, assignors to Bio Merieux, Marcy L'Etoile, France

Filed Sep. 17, 1996, Ser. No. 717,526

Claims priority, application France, Sep. 24, 1995, 95 11125

Int. Cl.⁶ C12Q *1/68;* **C07H** *21/02*

U.S. Cl. 435—6 **32 Claims**

1. An oligonucleotide selected from the group consisting of oligonucleotides comprising a first sequence of at least 12 consecutive nucleotide units which is included in at least one of SEQ ID NO: 1 through SEQ ID NO: 52, and oligonucleotides complementary thereto, excluding oligonucleotides having a second sequence selected from the group consisting of SEQ ID NO: 77, SEQ ID NO: 78 and SEQ ID NO: 79.

5,786,148

POLYNUCLEOTIDES ENCODING A NOVEL PROSTATE-SPECIFIC KALLIKREIN

Olga Bandman, Mountain View, and Surya K. Goli, Sunnyvale, both of Calif., assignors to Incyte Pharmaceuticals, Inc., Palo Alto, Calif.

Filed Nov. 5, 1996, Ser. No. 744,026

Int. Cl.⁶ C12P *21/02;* **C12Q** *1/68;* **C07H** *21/04;* **C12N** *15/63*

U.S. Cl. 435—6 **11 Claims**

1. An isolated and purified polynucleotide sequence encoding a prostate-specific kallikrein comprising the amino acid sequence of SEQ ID NO:1.

5,786,149

MATERIALS AND METHODS FOR THE DETECTION OF MYCOBACTERIUM TUBERCULOSIS

Gregor W. Leckie, Highland Park; Alan H. Davis, Vernon Hills; Ingrid E. Semple-Facey, Beach Park; Matthew T. Manlove, Vernon Hills, and Natalie A. Solomon, Buffalo Grove, all of Ill., assignors to Abbott Laboratories, Abbott Park, Ill.

Continuation of Ser. No. 242,403, May 13, 1994, Pat. No. 5,631,130. This application Dec. 23, 1996, Ser. No. 774,128

Int. Cl.⁶ C12Q *1/68;* **C12P** *19/34;* **C07H** *21/04*

U.S. Cl. 435—6 **5 Claims**

2. A method for detecting the presence of target DNA from *Mycobacterium tuberculosis* in a sample, said method utilizing the ligase chain reaction comprising the steps of:

a) providing a sample suspected of containing said target DNA;

b) providing one or more probe sets according to claim 1, wherein at least one probe of said probe set has a label capable of detection;

c) providing a ligase, one or more deoxynucleotide triphosphates and a polymerase; and

d) performing the following cycle at least once

   i) hybridizing said probe set to said target DNA thereby creating hybridized probes,

   ii) correcting at least one of said hybridized probes in a template dependent manner,

   iii) ligating said hybridized probes to form reorganized probes, and

   iv) detecting said label in said reorganized probes as an indication of the presence of target DNA from *Mycobacterium tuberculosis.*

5,786,150

F0 ATP SYNTHASE SUBUNIT

Jennifer L. Hillman, Mountain View, and Surya K. Goli, Sunnyvale, both of Calif., assignors to Incyte Pharmaceuticals, Inc., Palo Alto, Calif.

Filed Mar. 11, 1997, Ser. No. 815,177

Int. Cl.⁶ C12N *15/60;9/88*

U.S. Cl. 435—6 **10 Claims**

1. An isolated and purified polynucleotide sequence encoding the ATP synthase subunit of SEQ ID NO:1.

5,786,151

MICROENCAPSULATED LABELLING TECHNIQUE

Michael F. Sanders, Slough, Great Britain, assignor to The Minister of Agriculture Fisheries & Food in Her Britannic Majesty's Government of the U.K. of Gt. Britain & N. Ireland

PCT No. PCT/GB95/01478, § 371 Date May 30, 1997, § 102(e) Date May 30, 1997, PCT Pub. No. WO96/01428, PCT Pub. Date Jan. 18, 1996

PCT Filed Jun. 23, 1995, Ser. No. 849,407

Claims priority, application United Kingdom, Jul. 1, 1994, 9413308

Int. Cl.⁶ C12Q *1/68;* **G01N** *33/569;33/58;33/532*

U.S. Cl. 435—6 **27 Claims**

1. A method of labelling a biological material comprising

(a) microencapsulating a nucleotide in non-liposome microcapsules substantially impermeable to the nucleotide, and

(b) linking the resulting microcapsules to the biological material.

5,786,152

METHODS OF INHIBITING SYP BINDING TO A CTLA-4 RECEPTOR

Luc Edgar Joseph Marengère, Toronto; David Peter Siderovski, Richmond Hill, and Tak Wah Mak, Toronto, all of Canada, assignors to Amgen Inc., Thousand Oaks, Calif.

Filed Apr. 26, 1996, Ser. No. 638,271

Int. Cl.⁶ G01N *33/53;33/566*

U.S. Cl. 435—7.1 **14 Claims**

11. A method of identifying a test molecule that inhibits SYP binding to a phosphorylated CTLA-4 receptor in vitro comprising contacting the test molecule with SYP in the presence of phosphorylated CTLA-4 receptor, and assaying for a decrease in SYP binding to phosphorylated CTLA-4 receptor as compared with the level of SYP binding to phosphorylated CTLA-4 receptor in the absence of a test molecule, wherein a decrease in SYP binding indicates the presence of a molecule which inhibits SYP binding to a phosphorylated CTLA-4 receptor.

5,786,153

PREVENTION OF PROBE COATING ON AUTOMATED ANALYZERS USING A NON-DENATURING SURFACTANT

Wei-Chao Ni, Foxborough; Anna Marie Detert, Quincy, and James Joseph Hughes, Acton, all of Mass., assignors to Chiron Diagnostics Corporation, East Walpole, Mass.

Filed Sep. 12, 1996, Ser. No. 712,829

Int. Cl.⁶ G01N *33/53;35/02;* **A61K** *35/14;* **C07K** *16/00*

U.S. Cl. 435—7.1 **28 Claims**

1. A method for preventing or reducing coating of hydrophobic material on a probe of an automated analyzer during an assay, comprising:

providing an automated analyzer having a probe;

providing a composition comprising a non-denaturing surfactant and a reagent for use in an assay, said non-denaturing surfactant being capable of preventing or reducing coating of said probe with hydrophobic material during the assay; and

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contacting said probe with said composition during the assay such that hydrophobic material is prevented or reduced from coating said probe on said automated analyzer.

5,786,154
HUMAN PHOSPHOLIPASE ACTIVATING PROTEIN AND METHODS FOR DIAGNOSIS OF RHEUMATOID ARTHRITIS

John S. Bomalaski, 11 Chestnut La., Wayne, Pa. 19087; Mike A. Clark, 15 Wetmore Dr., Denville, N.J. 07835, and Robert Shorr, 36 Overbrook Pkwy., Wynnewood, Pa. 19096

Division of Ser. No. 236,410, May 2, 1994, Pat. No. 5,580,968, which is a division of Ser. No. 147,925, Nov. 4, 1993, Pat. No. 5,367,063, which is a division of Ser. No. 626,589, Dec. 6, 1990, Pat. No. 5,294,698. This application Jun. 5, 1995, Ser. No. 465,421

Int. Cl.^{6} G01N *33/543;33/564;33/573*

U.S. Cl. 435—7.2 **1 Claim**

1. A method for detecting elevated levels of phospholipase A2 activating protein in a person expected of having rheumatoid arthritis to thereby indicate the presence of rheumatoid arthritis in said person comprising the steps of:

providing a sample of serum from said person;

contacting said sample with an antibody specific for phospholipase A2 activating protein such that said antibody binds with phospholipase A2 activating protein in said sample; and

detecting binding of said antibody to phospholipase A2 activating protein thereby indicating the presence of phospholipase A2 activating protein, whereby elevated levels of phospholipase A2 activating protein in said sample as compared with levels found in persons not having rheumatoid arthritis indicates the presence of rheumatoid arthritis in said person.

5,786,155
METHODS FOR IDENTIFYING A COMPOUND THAT BINDS TO A HUMAN 5-HT 1E RECEPTOR

Richard L. Weinshank, New York, N.Y.; Theresa Branchek, Teaneck, and Paul R. Hartig, Mahwah, both of N.J., assignors to Synaptic Pharmaceutical Corporation, Paramus, N.J.

Division of Ser. No. 370,542, Jan. 9, 1995, Pat. No. 5,476,782, which is a continuation of Ser. No. 194,113, Feb. 8, 1994, abandoned, which is a continuation of Ser. No. 803,626, Dec. 2, 1991, abandoned. This application Oct. 12, 1995, Ser. No. 542,358

Int. Cl.^{6} G01N *33/53;33/567;33/566*

U.S. Cl. 435—7.2 **10 Claims**

1. A process for identifying a chemical compound which specifically binds to a human 5-HT$_{1E}$ receptor, which comprises contacting nonneuronal cells expressing on their cell surface the human 5-HT$_{1E}$ receptor, wherein the human 5-HT$_{1E}$ receptor has the amino acid sequence shown in FIG. 1 (SEQ ID NO: 2), with the chemical compound under conditions suitable for binding, and detecting specific binding of the chemical compound to the human 5-HT$_{1E}$ receptor.

5,786,156
IMMUNOREACTIVE PEPTIDES OF APO(A)

W. C. Taddei-Peters, Gaithersburg, and Sandra M. Butler, Laurel, both of Md., assignors to PerImmune Holdings, Inc., Rockville, Md.

Continuation-in-part of Ser. No. 172,461, Dec. 21, 1993, abandoned. This application Jun. 27, 1994, Ser. No. 266,407

Int. Cl.^{6} G01N *33/53;33/537;33/543*

U.S. Cl. 435—7.9 **11 Claims**

1. An immunoassay to detect Apo(a) in a fluid sample, comprising:

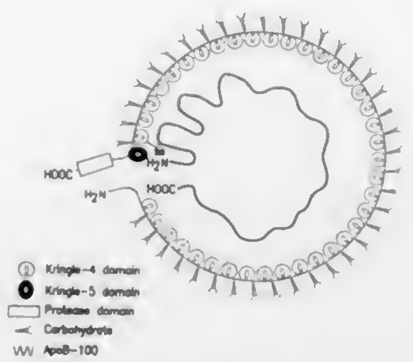
(1) attaching an antibody to a solid support, wherein said antibody will immunologically bind an Apo(a) protease domain peptide, said peptide comprising a sequence of at least five amino acids, wherein said antibody immunologically binds both human and Old World monkey Apo(a) but does not immunologically bind with human and Old World monkey plasminogen, and wherein said peptide is labeled with a label that can be used for detection in the immunoassay;

(2) contacting a labeled peptide with the fluid sample to form a mixture;

(3) adding the mixture to the bound antibodies;

(4) allowing the mixture and the antibodies to react; and

(5) detecting any immune complexes formed, thereby determining the presence of Apo(a) in the fluid sample.



5,786,157
DNA ENCODING HUMAN 5-HT$_{1D}$ RECEPTORS AND USES THEREOF

Richard L. Weinshank, New York, N.Y.; Theresa Branchek, Teaneck, and Paul R. Hartig, Mahwah, both of N.J., assignors to Synapatic Pharmaceutical Corporation, Paramus, N.J.

Continuation of Ser. No. 945,116, Sep. 15, 1992, abandoned, which is a division of Ser. No. 520,716, May 8, 1990, Pat. No. 5,155,218. This application May 2, 1994, Ser. No. 236,686

Int. Cl.^{6} G01N *33/566*

U.S. Cl. 435—7.21 **6 Claims**

1. A process for identifying a chemical compound which specifically binds to a human 5-HT$_{1D}$ receptor, which comprises contacting nonneuronal cells expressing on their cell surface the human 5-HT$_{1D}$ receptor, wherein the human 5-HT$_{1D}$ receptor is selected from the group consisting of the human 5-HT$_{1D\text{-}1}$ receptor having the amino acid sequence shown in FIGS. 4A and 4B and the human 5-HT$_{1D\text{-}2}$ receptor having the amino acid sequence shown in FIGS. 5A and 5B, with the chemical compound under conditions suitable for binding, and detecting specific binding of the chemical compound to the human 5-HT$_{1D}$ receptor.

5,786,158
THERAPEUTIC AND DIAGNOSTIC METHODS AND COMPOSITIONS BASED ON NOTCH PROTEINS AND NUCLEIC ACIDS

Spyridon Artavanis-Tsakonas, Hamden, Conn.; Richard Grant Fehon, Durham, N.C.; Panayiotis Zagouras, and Christine Marie Blaumueller, both of New Haven, Conn., assignors to Yale University, New Haven, Conn.

Continuation-in-part of Ser. No. 955,012, Sep. 30, 1992, abandoned, and a continuation-in-part of Ser. No. 879,038, Apr. 30, 1992, abandoned. This application Jun. 25, 1993, Ser. No. 83,590

Int. Cl.^{6} G01N *33/574;33/53*

U.S. Cl. 435—7.23 **9 Claims**

2. A method of screening for the presence of a malignancy characterized by increased expression of a Notch protein or of a molecule capable of being bound by an anti-Notch antibody, comprising measuring the level of expression of a Notch protein or of a molecule capable of being bound by an anti-Notch antibody, in a sample containing or suspected of containing malignant cells from a patient, in which an increase in expression of a Notch protein or of a molecule capable of being bound by an anti-Notch antibody, in the sample, relative to said level found in an analogous sample of non-malignant cells indicates the presence of the malignancy in the patient.

5,786,159
METHOD OF PRODUCING ANTIBODIES TO A RESTRICTED POPULATION OF T LYMPHOCYTES ANTIBODIES PRODUCED THEREFROM AND METHODS OF USE THEREOF

Steven M. Friedman, Tenafly, N.J.; Mary K. Crow, and David Posnett, both of New York, N.Y., assignors to New York Society for the Ruptured and Crippled Maintaining the Hospital for Special Surgery, New York, N.Y.

Division of Ser. No. 766,751, Sep. 27, 1991, Pat. No. 5,480,895. This application Jan. 25, 1995, Ser. No. 377,930

Int. Cl.^{6} G01N *33/577*

U.S. Cl. 435—724 **2 Claims**

1. Monoclonal antibodies specific to a subset of T cell Vβ proteins, said antibodies obtained from a method comprising the steps of:

(a) incubating T cells with an effective amount of a superantigen under conditions and for a time sufficient to allow division and growth of T cells reactive to the superantigen;

(b) injecting the resulting T cells from step (a) into a mouse;

(c) fusing splenocytes from the mouse with a plasmacytoma cell line to produce a multiplicity of hybridomas; and

(d) selecting a hybridoma secreting the anti-T cell antibody from among those produced in step (c), wherein said hybridoma is a hybridoma given ATCC accession number HB10874.

5,786,160
NATURAL KILLER CELL-SPECIFIC ANTIGEN AND ANTIBODIES THAT IDENTIFY THE SAME

Paul Anderson, Belmont, Mass., and Eric Vivier, Marseilles, France, assignors to Dana-Farber Cancer Institute, Boston, Mass.

Continuation-in-part of Ser. No. 113,170, Aug. 27, 1993, abandoned. This application Jun. 7, 1995, Ser. No. 484,748

Int. Cl.^{6} A61K *33/395;* **C07K** *16/28;* **G01N** *33/579*

U.S. Cl. 435—7.24 **35 Claims**

1. A monoclonal antibody which forms an immune complex with the glycoprotein PEN5.

5,786,161
ISOLATION AND CHARACTERIZATION OF ALLERGEN-BINDING CELLS FOR DIAGNOSIS OF HYPERSENSITIVITY

Johannes Irsch, Cologne; Stefan Miltenyi, Bergisch Gladbach, and Andreas Radbruch, Cologne, all of Germany, assignors to Miltenyi Biotec. GmbH, Bergisch Gladbach, Germany

Filed Jun. 6, 1996, Ser. No. 660,035

Int. Cl.^{6} G01N *33/553;33/543;33/53*

U.S. Cl. 435—7.24 **18 Claims**

18. A method of determining a patient's hypersensitivity to an allergen, the method comprising:

combining a hematopoietic cell sample from said patient with at least one test allergen directly or indirectly coupled to a selection reagent;

selecting for said patient's cells bound to said selection reagent to provide a test enriched cell sample;

combining a hematopoietic cell sample from a non-allergic individual with said at least one allergen coupled to a selection reagent;

selecting for said non-allergic individual's cells bound to said selection reagent to provide a control enriched sample;

wherein the presence of increased numbers of allergen-binding basophilic granulocytic cells in said test enriched sample relative to said control enriched sample is indicative of hypersensitivity to at least one allergen.

5,786,162
FUSED GENES AND THEIR USE FOR DETERMINING THE PRESENCE OF METALS OR OF XENOBIOTIC COMPOUNDS

Philippe Corbisier, Namur; Maximilien Mergeay, Retie, and Ludovicus Diels, Oelegem, all of Belgium, assignors to Vito, Mol, Belgium

PCT No. PCT/EP92/00445, § 371 Date Dec. 27, 1993, § 102(e) Date Dec. 27, 1993, PCT Pub. No. WO92/15687, PCT Pub. Date Sep. 17, 1993

Continuation of Ser. No. 108,754, Dec. 27, 1993, abandoned. This PCT application Feb. 28, 1992, Ser. No. 469,775

Claims priority, application WIPO, Mar. 1, 1991, PCT/EP91/00385

Int. Cl.^{6} C12N *1/21;15/63;* **C12Q** *1/66;* **C07H** *21/04*

U.S. Cl. 435—7.32 **35 Claims**

1. A fused gene comprising a promoter sequence derived from a gene of *Alcaligenes eutrophus* strain CH34, SV661, DS185, AE453, or A5, said gene being a regulatory gene involved in the expression of either the resistance to one or several metals or the catabolism of one or several xenobiotic compounds, said promoter from said regulatory gene being an inducible promoter and is inducible in the presence of said metals or xenobiotic compounds, or both, and downstream of the promoter, a five gene lux (CDABE) operon said genes coding for subunit α and β of luciferase, a fatty acid reductase, an acyltransferase and an acyl-protein synthase, said operon being under the operational control of said promoter, wherein at least one of said genes produces a detectable signal.

5,786,163
BNP ANTIBODY AND IMMUNOASSAY USING IT

Christian Hall, Snarøya, Norway, assignor to Medinnova SF, Oslo, Norway

PCT No. PCT/GB93/01173, § 371 Date Nov. 21, 1994, § 102(e) Date Nov. 21, 1994, PCT Pub. No. WO93/24531, PCT Pub. Date Dec. 9, 1993

PCT Filed Jun. 2, 1993, Ser. No. 338,558

Claims priority, application United Kingdom, Jun. 3, 1992, 9211686

Int. Cl.^{6} G01N *33/53*

U.S. Cl. 435—7.92 **13 Claims**

1. An antibody composition comprising an antibody which specifically binds to a polypeptide consisting of amino acids 1–76 of the N-terminal of human pro-brain natriuretic factor (BNP(1–76)(SEQ ID NO:1)).

5,786,164
METHOD FOR SEPARATING NON HIGH DENSITY LIPOPROTEINS FROM LIPOPROTEIN CONTAINING BODY FLUID SAMPLES

Walter Rittersdorf, Mannheim; Ulfert Deneke, Rimbach-Zotzenbach; Gerhard Hiller, Mannheim; Hartmut Merdes, Heidelberg; Klaus Buecker, Viernheim, and Uwe Goebbert, Mannheim, all of Germany, assignors to Boehringer Mannheim GmbH, Mannheim, Germany

Division of Ser. No. 384,046, Feb. 6, 1995, Pat. No. 5,580,743, which is a division of Ser. No. 572,875, Aug. 24, 1990, Pat. No. 5,426,030. This application Jun. 11, 1996, Ser. No. 661,833

Claims priority, application Germany, Sep. 1, 1989, 39 29 032.8

Int. Cl.^{6} C12Q *1/60*

U.S. Cl. 435—11 **10 Claims**

1. Method for determining high density lipoprotein (HDL) cholesterol in a lipoprotein-containing body fluid sample, comprising

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contacting said lipoprotein-containing body fluid sample to a first porous carrier which contains an agent which precipitates non high density lipoproteins but not HDLs, so as to precipitate non-HDLs from said lipoprotein containing body fluid sample, then

contacting said body fluid sample to a second porous carrier which retains precipitated non-HDLs but is porous to said body fluid sample, and wherein total time required for both said contacting to said first porous carrier and to said second porous carrier is within a time period of one minute or less, and determining cholesterol in said body fluid sample as a measure of HDL cholesterol in said body fluid sample.

5,786,165

HERBICIDE TEST METHOD

Jane Elizabeth Dancer, Saffron Walden, England, and Stephen David Lindell, Frankfurt am Main, Germany, assignors to Agrevo UK Limited, Cambridge, England

PCT No. PCT/EP95/02423, § 371 Date Jan. 2, 1997, § 102(e) Date Jan. 2, 1997, PCT Pub. No. WO96/01326, PCT Pub. Date Jan. 18, 1996

PCT Filed Jun. 22, 1995, Ser. No. 765,880

Claims priority, application United Kingdom, Jul. 2, 1994, 9413343

Int. Cl.^{6} C12Q *1/34;1/37;1/00;* **C12N** *15/00*

U.S. Cl. 435—18 8 Claims

1. A method for identifying potential herbicides which comprises testing a compound in an AMP deaminase inhibition assay and where a measurable reduction of AMP deaminase is observed the compound is subsequently subjected to conventional test(s) to confirm the in vivo herbicidal activity, said measurable reduction comprising at least 25% reduction of AMP deaminase when tested against an enzyme preparation at 100 μM or less.

5,786,166

METHODS FOR DETERMINING EFFECTS OF A COMPOUND ON THE ACTIVITY OF BACTERIAL PERIPLASMIC OXIDOREDUCTASE ENZYMES

Ronald K. Taylor, Lebanon, Pa., and Joel A. Peek, Mountain View, Calif., assignors to University of Tennessee Research Corporation, Knoxville, Tenn.

Continuation-in-part of Ser. No. 782,113, Oct. 25, 1991, Pat. No. 5,382,660. This application Jan. 17, 1995, Ser. No. 372,951

Int. Cl.^{6} C12Q *1/26;1/18;* **C12N** *9/99*

U.S. Cl. 435—25 15 Claims

1. A method for determining the ability of a compound to cause a live bacterium which naturally produces a functional virulence determinant protein to produce a non-functional virulence determinant protein by inactivating a periplasmic oxidoreductase enzyme (PORE) of the bacterium comprising:

exposing the live bacterium to the compound;

determining the presence or absence of a symptom caused by the ability of the bacterium to produce a functional virulence determinant protein; and

correlating the presence or absence of the symptom with the ability of the compound to cause the bacterium to produce a non-functional virulence determinant protein;

whereas the presence of the symptom indicates the compound does not cause the bacterium to produce a non-functional virulence determinant protein and the absence of the symptom indicates the compound does cause the bacterium to produce a non-functional virulence determinant protein.

5,786,167

METHOD AND CULTURE MEDIUM FOR IDENTIFICATION OF SALMONELLAE

Helena Tuompo; Leena Scheinin, both of Espoo; Marita Jussila, Otalampi, and Irmeli Laine, Espoo, all of Finland, assignors to Orion-Yhtymae Oy, Espoo, Finland

PCT No. PCT/FI96/00163, § 371 Date Nov. 22, 1996, § 102(e) Date Nov. 22, 1996, PCT Pub. No. WO96/30543, PCT Pub. Date Oct. 3, 1996

PCT Filed Mar. 20, 1996, Ser. No. 737,990

Claims priority, application Finland, Mar. 24, 1995, 951431

Int. Cl.^{6} C12Q *1/04;1/54;1/34;1/02*

U.S. Cl. 435—34 27 Claims

1. A method for distinguishing bacteria of Salmonella species from other bacteria of the family Enterobacteriaceae, comprising

plating an analytical sample on a solid medium comprising melibiose, mannitol, sorbitol, a pH indicator, and a chromogenic substrate revealing all β-galactosidase-positive bacteria, and

cultivating the bacteria in the sample, whereby

the bacteria of Salmonella species appear as bright red colonies.

5,786,168

METHOD FOR RECOMBINANT PRODUCTION OF ANTIGEN NON-SPECIFIC GLYCOSYLATION INHIBITING FACTOR (GIF)

Kimishige Ishizaka, La Jolla; Yun-Cai Liu, San Diego, both of Calif., and Toshifumi Mikayama, Gunma-machi, Japan, assignors to Kirin Beer Kabushiki Kaisha, Tokyo, Japan, and La Jolla Institute for Allergy and Immunology, San Jose, Calif.

Continuation of Ser. No. 61,041, May 14, 1993, abandoned, which is a continuation-in-part of Ser. No. 709,375, Jun. 3, 1991, abandoned, which is a continuation-in-part of Ser. No. 533,889, Jun. 4, 1990, abandoned. This application May 31, 1995, Ser. No. 455,633

Int. Cl.^{6} C12P *21/02;* **C07H** *21/04*

U.S. Cl. 435—69.1 26 Claims

1. The method of producing a substantially pure, biologically active antigen non-specific glycosylation inhibiting factor (GIF) which comprises:

culturing a eukaryotic cell transformed with a polynucleotide sequence encoding a fusion polypeptide of the formula:

R_1-R_2

wherein R_1 is a pro-region of a precursor of a secretory protein, R_2 is an amino acid sequence as in SEQ ID NO:36 or SEQ ID NO:38, the carboxy terminus of the pro-region contains or is modified to contain the sequence $((X_1X_2)_n$-Lys-Arg), wherein n is either 1 or 2, X_1 is Lys or Arg, and X_2 is any amino acid; and

isolating substantially pure antigen non-specific GIF.

5,786,169

CDI1 POLYPEPTIDES

Roger Brent, Cambridge; Jenö Gyuris, Arlington, and Erica Golemis, Somerville, all of Mass., assignors to The General Hospital Corporation, Boston, Mass.

Division of Ser. No. 370,225, Jan. 9, 1995, Pat. No. 5,580,736, which is a continuation of Ser. No. 969,038, Oct. 30, 1992, abandoned. This application Jun. 5, 1995, Ser. No. 461,859

Int. Cl.^{6} C12P *21/06;* **C12N** *15/00;* **A61K** *38/00*

U.S. Cl. 435—69.1 2 Claims

1. A substantially pure preparation of a Cdi1 polypeptide having the amino acid sequence of SEQ ID NO:35.

5,786,170

Patent Not Issued For This Number

5,786,171

AORTIC PREFERENTIALLY EXPRESSED GENE AND USES THEREOF

Mu-En Lee, Newton, and Chung-Ming Hsieh, Cambridge, both of Mass., assignors to President and Fellows of Harvard University, Cambridge, Mass.

Filed Jun. 22, 1995, Ser. No. 494,577

Int. Cl.^{6} C12P *21/02;* **C12N** *5/10;15/85;* **C07H** *21/04*

U.S. Cl. 435—69.1 14 Claims

1. A substantially pure DNA comprising a sequence encoding an aortic-preferentially-expressed gene-1 (APEG-1) polypeptide.

5,786,172

Patent Not Issued For This Number

5,786,173

MCH4 AND MCH5, APOPTOTIC PROTEASE, NUCLEIC ACIDS ENCODING AND METHODS OF USE

Emad S. Alnemri; Teresa Fernandes-Alnemri, both of Ambler; Gerald Litwack, Wynnewood, all of Pa.; Robert Armstrong, San Diego, and Kevin Tomaselli, La Jolla, both of Calif., assignors to Idun Pharmaceuticals, Inc., La Jolla, Calif.

Continuation-in-part of Ser. No. 618,408, Mar. 19, 1996. This application Jun. 14, 1996, Ser. No. 665,220

Int. Cl.^{6} C12P *21/06;* **A61K** *38/00;* **C07H** *21/04;* **C12N** *15/00*

U.S. Cl. 435—69.1 31 Claims

1. An isolated Mch4 polypeptide comprising an amino acid sequence selected from the group consisting of:

SEQ ID NO:2;
amino acids 1 through 372 of SEQ ID NO:2;
amino acids 373 through 479 of SEQ ID NO:2;
SEQ ID NO:65;
SEQ ID NO:67; and
a QACQG-containing fragment of Mch4.

5,786,174

THERMOPHILE GENE TRANSFER

J. Mark Weber; David C. Demirjian; Malcolm J. Casadaban, all of Chicago, Ill.; Nikos C. Pagratis, Boulder, Colo., and Veronika Vonstein, Chicago, Ill., assignors to Thermogen, Inc., Chicago, Ill.

Continuation of Ser. No. 265,522, Jun. 24, 1994, abandoned. This application Jan. 28, 1997, Ser. No. 790,309

Int. Cl.^{6} C12P *21/02;* **C12N** *15/63;* **C07K** *14/00;* **C07H** *21/04*

U.S. Cl. 435—69.1 5 Claims

1. A method of evolving thermostable proteins which comprises subjecting host cells to elevated temperatures for selection of mutated thermostable proteins in a step-wise fashion, where said host cells were produced by growing host cells and selecting for a stable host cell transformant, where the host cells have been transformed with a vector, where said vector transforms the host cell by inserting a targeting DNA sequence into a targeted chromosomal DNA sequence of a thermophilic microorganism, where said insertion results in a benign mutant phenotype, which targeting DNA sequence contains an exogenous DNA sequence which encodes an exogenous protein, which exogenous DNA sequence will recombine into the targeted DNA sequence, and the expression of said exogenous protein from said exogenous DNA sequence is regulated by the chromosome.

5,786,175

Patent Not Issued For This Number

5,786,176

RECOMBINANT CDW52 ANTIGEN

Geoffrey Hale, Cambridge; Herman Waldmann, Oxford; Masahide Tone, Cambridge; John Tite, and Christine Hale, both of Breckenham, all of Great Britain, assignors to British Technology Group Limited, London, England

PCT No. PCT/GB93/01482, § 371 Date Feb. 3, 1995, § 102(e) Date Feb. 3, 1995, PCT Pub. No. WO94/02604, PCT Pub. Date Feb. 3, 1994

PCT Filed Jul. 14, 1993, Ser. No. 374,533

Claims priority, application United Kingdom, Jul. 15, 1992, 9215071

Int. Cl.^{6} C12N *15/09*

U.S. Cl. 435—69.3 6 Claims

4. A method for the production of recombinant CDw52 antigen or an antigenic fragment thereof which comprises the steps of:

(i) providing a suitable eukaryotic, non-human host cell line capable of processing CDw52 antigen or an antigenic fragment thereof into a form recognized by antibodies raised against natural human CDw52 antigen and transformed with DNA encoding the CDw52 antigen or an antigenic fragment thereof in a form capable of expression;

(ii) growing cell line in a manner such that the CDw52 antigen or the antigenic fragment thereof is expressed in a form recognized by antibodies raised against natural human CDw52 antigen; and

(iii) recovering the recombinant CDw52 antigen or the antigenic fragment thereof,

wherein the cell line is a CHO or BHK cell line.

5,786,177

NUCLEOTIDE SEQUENCES DERIVED FROM THE GENOME OR RETROVIRUSES OF THE HIV-1, HIV-2, AND SIV TYPE, AND THEIR USES IN PARTICULAR FOR THE AMPLIFICATION OF THE GENOMES OF THESE RETROVIRUSES AND FOR THE IN VITRO DIAGNOSIS OF THE DISEASES DUE TO THESE VIRUSES

Maurice Moncany, Paris, and Luc Montagnier, Le Plessis-Robinson, both of France, assignors to Institut Pasteur, and Institut National de la Sante et de la Recherche Medicale, both of Paris, France

Division of Ser. No. 160,465, Dec. 2, 1993, Pat. No. 5,688,637, which is a continuation of Ser. No. 820,599, Jan. 21, 1992, abandoned. This application Jul. 16, 1997, Ser. No. 895,231

Claims priority, application France, Jun. 2, 1989, 89 07954; Sep. 20, 1989, 89 12371

Int. Cl.^{6} C12P *21/02*

U.S. Cl. 435—69.3 2 Claims

1. A method for the preparation of a polypeptide encoded by a region of the HIV or SIV genome, said method comprising:

a) amplifying the nucleic acid encoding said polypeptide with at least two primers, wherein said first primer is complementary to a region of nucleotides of the nucleic acid of said genome, said second primer is complementary to a region of nucleotides of the strand of DNA complementary to said nucleic acid of said genome, wherein said regions of nucleotides are separated by about 100 to about 1100 base pairs when said complementary strands are hybridized to form one double-stranded nucleic acid, and said primer is selected from the group consisting of:

nucleotides 900–881, 1385–1369, 1388–1369, and 2039–2021 of a nucleic acid sequence complementary to the gag gene of HIV-1 Bru;

nucleotides 916–897, 1419–1403, 1421–1403, and 2073–2055 of a nucleic acid sequence complementary to the gag gene of HIV-1 Mal;

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- nucleotides 900–881, 1385–1369, 1388–1369, and 2042–2024 of a nucleic acid sequence complementary the gag gene of HIV-1 Eli;
- nucleotides 1212–1193, 1703–1687, 1706–1687, and 2349–2329 of a nucleic acid sequence complementary to the gag gene of HIV-2 ROD;
- nucleotides 1176–1157, 1667–1651, 1670–1651, and 2381–2299 of a nucleic acid sequence complementary to the gag gene of SIV-MAC;
- nucleotides 5870–5849 of a nucleic acid sequence complementary to the vpr gene of HIV-1 Bru;
- nucleotides 5865–5844 of a nucleic acid sequence complementary to the vpr gene of HIV-1 Mal;
- nucleotides 5834–5813 of a nucleic acid sequence complementary to the vpr gene of HIV-1 Eli;
- nucleotides 6551–6531 of a nucleic acid sequence complementary to the vpr gene of HIV-2 ROD;
- nucleotides 6454–6431 of a nucleic acid sequence complementary to the vpr gene of SIV-MAC;
- nucleotides 2643–2620, 3361–3339, 4207–4186, and 5011–4992 of a nucleic acid sequence complementary to the pol gene of HIV-1 Bru;
- nucleotides 2638–2615, 3356–3334, 4202–4181, and 5006–4987 of a nucleic acid sequence complementary to the pol gene of HIV-1 Mal;
- nucleotides 2607–2584, 3325–3303, 4171–4150, and 4975–4956 of a nucleic acid sequence complementary to the pol gene of HIV-1 Eli;
- nucleotides 2994–2971, 3712–3690, 4555–4534, and 5359–5340 of a nucleic acid sequence complementary to the pol gene of HIV-2 ROD;
- nucleotides 3010–2887, 3628–3606, 4471–4450, and 5275–5256 of a nucleic acid sequence complementary to the pol gene of SIV-MAC;
- nucleotides 9564–9542 and 9956–9933 of a nucleic acid sequence complementary to the nef2 gene of HIV-2 ROD;
- nucleotides 9538–9516 and 9839–9870 of a nucleic acid sequence complementary to the nef2 gene of SIV-MAC;
- nucleotides 5775–5754 and 6082–6061 of a nucleic acid sequence complementary to the vif2 gene of HIV-2 ROD;
- nucleotides 5691–5670 and 5995–5974 of a nucleic acid sequence complementary to the vif2 gene of SIV-MAC
- nucleotides 6228–6208 of a nucleic acid sequence complementary to the vpx gene of HIV-2 ROD;
- nucleotides 6141–6121 of a nucleic acid sequence complementary to the vpx gene of SIV-MAC;
- nucleotides 6930–6905, 7384–7360, 7857–7832, 8869–8844, and nucleotides 8242–8224 of a nucleic acid sequence complementary to the env gene of HIV-1 Bru;
- nucleotides 6928–6903, 7373–7349, 7846–7821, 8861–8836, and 8231–8213 of a nucleic acid sequence complementary to the env gene of HIV-1 Mal;
- nucleotides 6885–6860, 7330–7306, 7800–7775, 8812–8787, and 8185–8167 of a nucleic acid sequence complementary to the env gene of HIV-1 Eli;
- nucleotides 9136–9116 and 9503–9483 of a nucleic acid sequence complementary to the nef1 gene of HIV-1 Bru;
- nucleotides 9137–9117 and 9505–9484 of a nucleic acid sequence complementary to the nef1 gene of HIV-1 Mal;
- nucleotides 9082–9062 and 9449–9428 of a nucleic acid sequence complementary to the nef1 gene of HIV-1 Eli;
- nucleotides 5405–5383 and 5675–5653 of a nucleic acid sequence complementary to the vif1 gene of HIV-1 Bru;
- nucleotides 5400–5378 and 5670–5648 of a nucleic acid sequence complementary to the vif1 gene of HIV-1 Mal and
- nucleotides 5369–5347 and 5639–5617 of a nucleic acid sequence complementary to the vif1 gene of HIV-1 Eli;
- nucleotides 6343–6321 of a nucleic acid sequence complementary to the vpu gene of HIV-1 Bru;
- nucleotides 6338–6316 of a nucleic acid sequence complementary to the vpu gene of HIV-1 Mal; and
- nucleotides 6307–6285 of a nucleic acid sequence complementary to the vpu gene of SIV-MAC;

b) introducing said amplified nucleotide sequence into a vector;
c) transforming a host cell with said vector; and
d) placing said transformed host cell in culture and recovering said polypeptide from said culture.

5,786,178

POLYPEPTIDE-INDUCED MONOCLONAL RECEPTORS TO PROTEIN LIGANDS

Henry L. Niman, Carlsbad, and Richard A. Lerner, LaJolla, both of Calif., assignors to The Scripps Research Institute, La Jolla, Calif.

Continuation of Ser. No. 772,702, Oct. 7, 1991, abandoned, which is a continuation of Ser. No. 736,545, May 21, 1985, abandoned, which is a continuation-in-part of Ser. No. 701,954, Feb. 15, 1985, Pat. No. 5,030,565. This application Sep. 2, 1994, Ser. No. 300,068

Int. Cl.^{6} C12P *21/04*

U.S. Cl. 435—69.6 **11 Claims**

1. A monoclonal receptor molecule that:

(a) binds to a polypeptide encoded by the myb gene and having an amino acid residue sequence, from left to right and in the direction from amino-terminus to carboxy-terminus represented by a formula selected from the group consisting of

RRKVEQEGYPQESSKAG,

RHYTDEDPEKEKRIKELEL, and

LGEHHCTPSPPVDHG, and

(b) binds to an oncoprotein produced by cells expressing the myb gene.

5,786,179

HETEROLOGOUS PROTEIN COMPRISING AVIAN ALPHA-SUBUNIT INHIBIN AND METHODS OF PRODUCING SAME

Konstantin Kousoulas, Baton Rouge; Daniel G. Satterlee, Prairieville, both of La., and William C. Floretti, Colleyville, Tex., assignors to Agritech Technologies Ltd., Grand Prairie, Tex., and Board of Supervisors of Louisiana State University and Agricultural & Mechanical College, Baton Rouge, La.

Continuation-in-part of Ser. No. 395,554, Feb. 28, 1995, abandoned, which is a continuation-in-part of Ser. No. 202,964, Feb. 28, 1994, abandoned. This application Jun. 7, 1995, Ser. No. 482,638

Int. Cl.^{6} C07K *14/00;* C12N *5/10;15/00*

U.S. Cl. 435—69.7 **7 Claims**

1. A fused heterologous protein which increases egg lay, accelerates onset of egg lay, accelerates onset of maximum egg lay, increases lifetime total egg lay, increases egg production, increases intensity of egg production, prolongs persistence of egg lay, improves egg shell quality, accelerates onset of puberty, accelerates onset of ovulation, prolongs persistence of ovulation, increases sperm production, accelerates onset of sperm production, accelerates onset of maximum sperm production, prolongs persistence of sperm production, improves sperm viability, increases testosterone production, increases ejaculate volume, or increases libido, when administered in an effective amount to a bird, the protein comprising avian alpha-subunit inhibin protein, or an immunogenic fragment thereof, fused to a carrier protein.

5,786,180

MONOCLONAL ANTIBODY 369.2B SPECIFIC FOR β A4 PEPTIDE

Gerhard König, Branford, and Paul Graham, New Haven, both of Conn., assignors to Bayer Corporation, Pittsburgh, Pa.

Filed Feb. 14, 1995, Ser. No. 388,463

Int. Cl.^{6} A61K *39/395*

U.S. Cl. 435—70.21 **3 Claims**

1. The monoclonal antibody that is identified as 369.2B, and is produced by the cell line deposited with the American Type Culture Collection (ATCC) as accession number HB 11829.

5,786,181

PROCESS FOR PRODUCING HIGH PURITY 6, 12-DIDEOXYERYTHROMYCIN A BY FERMENTATION

Diane L. Stassl, Highland Park; Gregory T. Maine, Gurnee, both of Ill.; David A. Post, and Mark T. Satter, both of Kenosha, Wis., assignors to Abbott Laboratories, Abbott Park, Ill.

Division of Ser. No. 691,162, Aug. 1, 1996. This application Jan. 28, 1997, Ser. No. 789,979

Int. Cl.^{6} C12P *19/62*

U.S. Cl. 435—76 **8 Claims**

1. A method for making a substantially pure 3"-methylated erythromycin derivative, said method comprising:

a. introducing an integrative recombinant vector containing a first DNA sequence having an 11 kb Hind III fragment of the *Saccharopolyspora erythraea* chromosome wherein said DNA sequence contains SEQ ID NO: 1, a second DNA sequence which contains the origin of replication from plasmid pCD1, a third DNA sequence encoding a selectable marker gene and a fourth DNA sequence which is the eryG gene into host cells wherein said host cells produce a mixture of said 3"-methylated erythromycin derivative and an 3"-unmethylated erythromycin derivative;
b. selecting for stable integrants of said host cells, said integrants having said eryG gene stably integrated into the chromosome of said integrants;
c. culturing said stable integrants in a culture medium; and
d. isolating said 3"-methylated erythromycin derivative from said culture medium.

5,786,182

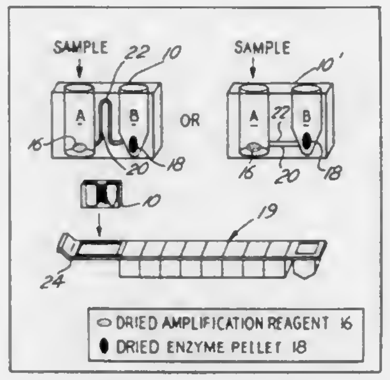
DUAL CHAMBER DISPOSABLE REACTION VESSEL FOR AMPLIFICATION REACTIONS, REACTION PROCESSING STATION THEREFOR, AND METHODS OF USE

Luigi Catanzariti, Duxbury; Bryan W. Kluttz, Norwell; Geoff A. McKinley, Duxbury; Arthur L. Garland, Carver; Louis Graziano, Rockland; James G. Moe, Franklin; Marcela Vera-Garcia, Framingham, all of Mass.; James Clement Bishop, Columbia, Mo.; David Chastain, Acton, Mass., and Fabio Gennari, Florence, Italy, assignors to bioMérieux Vitek, Inc., Hazelwood, Mo.

Filed May 2, 1997, Ser. No. 850,207

Int. Cl.^{6} C12P *19/34;* C12M *3/00;* G01N *21/00;* C12N *15/00*

U.S. Cl. 435—91.1 **25 Claims**



16. A method for conducting a nucleic acid amplification reaction, comprising the steps of:

providing a reaction vessel comprising an amplification chamber and a second chamber separated from said amplification chamber by a heat and moisture barrier;
loading an amplification reagent(s) into said amplification chamber and an amplification enzyme(s) in said second chamber;
loading a sample into said amplification chamber;
heating said first chamber and said sample to a first relatively high temperature greater than or equal to 65 degrees C. while maintaining said enzyme in said second chamber at a relatively cooler second temperature;
cooling said first chamber and a solution of said sample and said amplification reagent(s); and
thereafter introducing said amplification enzyme(s) into said amplification chamber by forcing said enzyme(s) through said heat and moisture barrier into said amplification chamber; and
amplifying said solution in said amplification chamber.

5,786,183

METHODS OF ENHANCING NUCLEIC ACID AMPLIFICATION

Thomas B. Ryder, Escondido; Elizabeth R. Billyard, and Nanibhushan Dattagupta, both of San Diego, all of Calif., assignors to Gen-Probe Incorporated, San Diego, Calif.

Continuation of Ser. No. 97,262, Jul. 23, 1993, abandoned. This application Apr. 14, 1995, Ser. No. 421,471

Int. Cl.^{6} C12P *19/34;* C12Q *1/68*

U.S. Cl. 435—91.2 **59 Claims**

1. A method for amplifying a target region present in a target nucleic acid strand using a combination of at least three oligonucleotide primers in a single reaction mixture comprising the steps of:

(a) contacting a sample comprising said target nucleic acid with said combination, said combination comprising:
  a first oligonucleotide primer comprising a primer region able to hybridize to said target nucleic acid in a first region 3' of said target region,
  a second oligonucleotide primer comprising a primer region able to hybridize to said target nucleic acid in second region 3' of said target region, wherein said second region is 5' of said first region, and
  a third oligonucleotide primer comprising a primer region able to hybridize to a nucleic acid complementary to said target nucleic acid in a first complementary region 3' of a complementary target region,
  wherein said first or second oligonucleotide further comprises a promoter region and said target nucleic acid has not undergone amplification in the absence of said oligonucleotide combination prior to said step (a);
(b) contacting said sample with one or more proteins having the following enzyme activities:
  (i) an RNA-directed DNA polymerase activity or an DNA-directed DNA polymerase activity or both an RNA directed and DNA-directed DNA polymerase activities,
  (ii) an RNA polymerase activity, and
  (iii) an RNAse H activity; and
(c) amplifying said target region under primerextension conditions, wherein temperature is not cycled to denature double-stranded primer-extension products during said amplifying step.

5,786,184

LACTIC BACTERIA PRODUCING EXOPOLYSACCHARIDES

Beat Mollet, Mollie-Margot, and Francesca Stingele, Lusanne, both of Switzerland, assignors to Nestec S.A., Vevey, Switzerland

Division of Ser. No. 597,236, Feb. 6, 1996. This application Nov. 14, 1996, Ser. No. 746,682

Claims priority, application European Pat. Off., Jun. 20, 1995, 952011669

Int. Cl.^{6} C12P *19/04*

U.S. Cl. 435—101 **21 Claims**

1. Method for the production of an exopolysaccharide comprising cloning a DNA fragment encoding amino acid sequences of

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SEQ ID NO's:2–14 into a vector construct, transforming a bacterial host cell with the vector construct, and culturing the transformed bacterial host cell under suitable conditions for the production of an exopolysaccharide.

5,786,185

PROCESS FOR PRODUCING AND RECOVERING LACTIC ACID

George T. Tsao, West Lafayette, Ind.; Seo Ju Lee, Scotch Plains, N.J.; Gow-Jen Tsai, Monsey, N.Y.; Jin-Ho Seo, Seoul, Rep. of Korea; Donald W. McQuigg, Mooresville, Ind.; Susan L. Vorhies, Indianapolis, Ind., and Ganeshkumar Iyer, West Lafayette, Ind., assignors to Reilly Industries, Inc., Indianapolis, Ind.

Continuation of Ser. No. 279,902, Jul. 25, 1994, abandoned, which is a continuation of Ser. No. 954,444, Sep. 14, 1992, abandoned, which is a continuation-in-part of Ser. No. 759,896, Sep. 3, 1991, abandoned. This application Jun. 7, 1995, Ser. No. 480,881

Int. Cl.^{6} C12P *7/56*

U.S. Cl. 435—139 **27 Claims**

1. A fermentation process for producing lactic acid, comprising:
- (a) providing a fermenting medium including a carbon source and a suspension of cells metabolizing said carbon source to produce free lactic acid;
- (b) continuously circulating and processing a fermentation broth away from and back to said fermenting medium, said continuously circulating and processing including the steps of:
  - (i) separating the fermentation broth containing cells and free lactic acid from said fermenting medium;
  - (ii) after said separating, filtering the cells from said fermentation broth;
  - (iii) after said filtering, passing said fermentation broth containing free lactic acid through a column containing an amount of solid-phase polymer containing tertiary amine groups to adsorb the free lactic acid from the fermentation broth; and
  - (iv) after said passing, returning said fermentation broth to said fermenting medium; and
- (c) wherein said continuously circulating and processing are effective to reduce feedback inhibition of the cells by the free lactic acid and maintain the pH of the fermenting medium above about 4, and to increase the production rate of free lactic acid by the cells in the fermenting medium.

5,786,186

DNA ENCODING ENZYMES OF THE GLYCOLYTIC PATHWAY FOR USE IN ALCOHOL PRODUCING YEAST

William Edward Lancashire, Bucks; John Richard Dickinson, South Glamorgan, and Richard Anthony Malloch, Stirling, all of United Kingdom, assignors to Whitbread PLC, London, and University College Cardiff Consultants Ltd., Cardiff, both of United Kingdom

PCT No. PCT/GB95/00648, § 371 Date Sep. 19, 1996, § 102(e) Date Sep. 19, 1996, PCT Pub. No. WO95/25799, PCT Pub. Date Sep. 28, 1995

PCT Filed Mar. 22, 1995, Ser. No. 716,374

Claims priority, application United Kingdom, Mar. 22, 1994, 9405629

Int. Cl.^{6} C12N *1/19;15/52;15/63;* C12P *7/06*

U.S. Cl. 435—161 **13 Claims**

1. A transformed yeast that expresses the enzymes phosphogluconate dehydratase and 2-keto-3-deoxygluconate 6-phosphate aldolase; whereby, in fermentation, a sugar is converted to pyruvate via the Entner-Doudoroff pathway.

5,786,187

METHOD FOR REDUCING NEURONAL DEGENERATION ASSOCIATED WITH SEIZURE

Sidney Strickland; Styliani-Anna Tsirka, and David G. Amaral, all of Setauket, N.Y., assignors to The Research Foundation of State University of New York, Albany, N.Y.

Filed Sep. 21, 1995, Ser. No. 531,595

Int. Cl.^{6} C12N *15/00;* A61K *38/49*

U.S. Cl. 435—172.1 **16 Claims**

1. A method of reducing neuronal degeneration, comprising: inhibiting the activity of tPA in nervous tissue of a human or animal subject having an injury to nervous tissue.

5,786,188

FUNGAL INOCULUM PREPARATION

Richard T. Lamar; Domen Lestan, both of Madison, Wis.; Christine E. Smith, Oxford, Pa., and Diane M. Dietrich, Madison, Wis., assignors to The United States of America as represented by the Secretary of Agriculture, Washington, D.C.

Filed Jun. 5, 1996, Ser. No. 658,326

Int. Cl.^{6} C12N *11/02;11/10;11/12;* A01N *63/00*

U.S. Cl. 435—177 **10 Claims**

1. A fungal inoculum comprising a pelleted substrate having a mechanical strength of at least 0.04 Joules coated with fungal propagules suspended in a hydrophilic material.

5,786,189

VACCINE

Camille Locht, Wannehain, France, and Yves Lobet, Rixensart, Belgium, assignors to SmithKline Beecham Biologicals (S.A.), Rixensart, Belgium

Continuation of Ser. No. 245,848, May 19, 1994, abandoned, which is a continuation of Ser. No. 852,212, May 29, 1992, abandoned, which is a continuation-in-part of Ser. No. 455,648, Dec. 22, 1989, abandoned, which is a continuation-in-part of Ser. No. 442,808, Nov. 29, 1989, abandoned. This application Dec. 11, 1996, Ser. No. 763,460

Int. Cl.^{6} C12N *15/11;15/31;15/70;* A61K *39/10*

U.S. Cl. 435—172.3 **31 Claims**

1. An isolated DNA molecule comprising a recombinant coding sequence encoding all of a *Bordetella pertussis* holotoxin or portion thereof wherein said holotoxin or portion thereof comprises either or both of a modified S2 subunit protein and a modified S3 subunit protein, wherein said modified subunit protein is specifically reactive against a wild-type pertussis toxin but is defective in pertussis toxin target cell receptor binding, and wherein:

said modified S2 subunit comprises one or more amino acid sequence mutations selected from the group consisting of a deletion of one or more of Tyr^{102}, Tyr^{103} and Asn^{105}, an amino acid substitution of either or both of Tyr^{102} and Tyr^{103}, and a substitution of a negatively-charged amino acid for Asn^{105}, and

said modified S3 subunit comprises one more amino acid sequence mutations selected from the group consisting of a deletion of one or more of Tyr^{102}, Tyr^{103} and Lys^{105}, an amino acid substitution of either or both of Tyr^{102} and Tyr^{103}, and a substitution of a negatively-charged amino acid for Lys^{105}.

5,786,190

DAUNORUBIN 14-HYDROXYLASE

Augusto Solari Inventi, Milan; Umberto Breme, Pavia; Anna Luisa Colombo, Milan, all of Italy; Charles Richard Hutchinson, Cross Plains; Sharee Otten, Madison, both of Wis., and Claudio Scotti, Milan, Italy, assignors to Pharmacia & Upjohn S.p.A., Milan, Italy

Division of Ser. No. 396,218, Feb. 27, 1995, Pat. No. 5,695,966. This application Dec. 3, 1996, Ser. No. 760,116

Int. Cl.^{6} C12N *9/00;9/14*

U.S. Cl. 435—183 **3 Claims**

1. A daunorubicin 14-hydroxylase having an amino acid sequence at least 60% identical to the sequence depicted in SEQ ID NO: 2, wherein said daunorubicin 14-hydroxylase has the ability to convert daunorubicin to doxorubicin.

5,786,191

CLONING AND EXPRESSION OF COMPLEMENTARY DNAS FOR MULTIPLE MEMBERS OF THE HUMAN CYTOCHROME P450 2C SUBFAMILY

Joyce A. Goldstein, 10501 New Arden Way, Raleigh, N.C. 27613, and Marjorie Romkes-Sparks, 4 Lockwood Rd., Export, Pa. 15632

Continuation-in-part of Ser. No. 864,962, Apr. 9, 1992, abandoned. This application Feb. 22, 1994, Ser. No. 201,118

Int. Cl.^{6} C12N *9/02;1/20;* C12P *21/06;* C07H *19/00*

U.S. Cl. 435—189 **14 Claims**

1. A method of screening for a drug that is metabolized by a cytochrome P450 having S-mephenytoin 4' hydroxylase activity, the method comprising the steps of:

contacting the drug with a cytochrome P450 2C19 polypeptide; and

detecting a metabolic product resulting from an interaction between the drug and the polypeptide, the presence of the product indicating the drug is metabolized by the S-mephenytoin 4'-hydroxylase activity.

5,786,192

FARNESYL PYROPHOSPHATE SYNTHETASE AND DNA SEQUENCE ENCODING THE SAME

Shusel Ohata, Nagoya; Ayumi Takeshita, Toyota; Kyozo Ogura, and Tanetoshi Koyama, both of Sendai, all of Japan, assignors to Toyota Jidosha Kabushiki Kaisha, Toyota, Japan

Continuation of Ser. No. 953,424, Sep. 29, 1992, abandoned. This application Nov. 2, 1994, Ser. No. 333,321

Claims priority, application Japan, Oct. 1, 1991, 3-253788

Int. Cl.^{6} C12N *9/10;15/54*

U.S. Cl. 435—193 **12 Claims**

1. A composition comprising isolated nucleic acid molecules containing a *Bacillus stearothermophilus* sequence encoding Farnesyl Pyrophosphate Synthetase, wherein the amino acid sequence of said Farnesyl Pyrophosphate Synthetase consists of the amino acid sequence shown in Sequence ID NO. 1.

5,786,193

HUMAN GERANYLGERANYL PYROPHOSPHATE SYNTHETHASE

John M. Greene, Gaithersburg; Ewen F. Kirkness, Olney, and Craig A. Rosen, Laytonsville, all of Md., assignors to Human Genome Sciences, Inc., Rockville, Md.

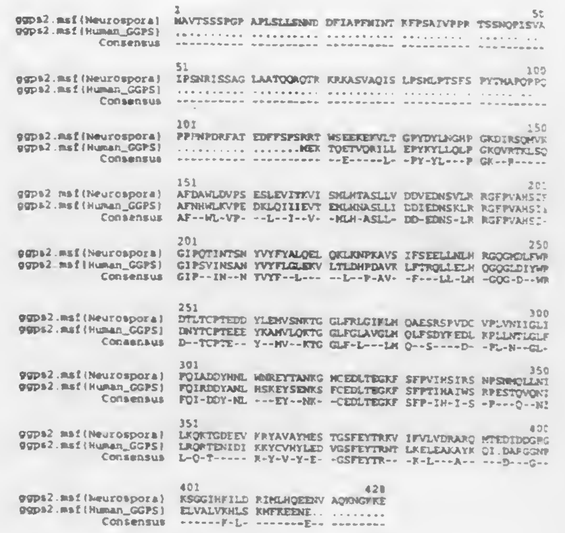
Filed Jun. 6, 1995, Ser. No. 469,665

Int. Cl.^{6} C12N *9/10;15/54;15/63;15/79*

U.S. Cl. 435—193 **18 Claims**

1. An isolated polynucleotide comprising a polynucleotide having at least 95% identity to a member selected from the group consisting of:

(a) a polynucleotide encoding a polypeptide comprising the amino acid sequence from amino acid 2 to 300 of SEQ ID NO:2; and



(b) the complement of (a).

5,786,194

PERIPLASMIC 3':5'-CYCLIC NUCLEOTIDE PHOSPHODIESTERASE AND RELATED METHODS FOR PRODUCING AND USING THE SAME

Paul Vernon Dunlap, and Sean Michael Callahan, both of Woods Hole, Mass., assignors to Woods Hole Oceanographic Institute, Woods Hole, Mass.

Division of Ser. No. 4,751, Jan. 13, 1993, Pat. No. 5,382,519. This application Jan. 5, 1995, Ser. No. 369,130

Int. Cl.^{6} C12N *9/16;15/55*

U.S. Cl. 435—196 **4 Claims**

1. A periplasmic 3':5'-cyclic AMP phosphodiesterase substantially pure at a 50% level obtainable from *Vibrio fischeri.*

5,786,195

METHOD FOR CLONING AND PRODUCING THE BSSHII RESTRICTION ENDONUCLEASE IN *E. COLI*

Shuang-yong Xu, Lexington, and Jian-ping Xiao, Wenham, both of Mass., assignors to New England Biolabs, Inc., Beverly, Mass.

Filed Mar. 12, 1997, Ser. No. 815,688

Int. Cl.^{6} C12N *9/22;15/55*

U.S. Cl. 435—199 **6 Claims**

1. Isolated DNA coding for the BssHII restriction endonuclease, wherein the isolated DNA is obtainable from *B. stearothermophilus.*

5,786,196

BACTERIA AND ENZYMES FOR PRODUCTION OF ALTERNAN FRAGMENTS

Gregory L. Cote, Edwards; Herbert Wyckoff, Washington, both of Ill., and Peter Biely, Bratislava, Slovakia, assignors to The United States of America as represented by the Secretary of Agriculture, Washington, D.C.

Filed Jun. 12, 1995, Ser. No. 490,003

Int. Cl.^{6} C12N *9/40;9/44*

U.S. Cl. 435—208 **8 Claims**

1. The isolated enzyme alternanase, said alternanase being an α-D-glucanase effective for the endo-hydrolytic cleavage of alternan, and having substantially greater hydrolytic activity toward alternan than dextran.

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5,786,197
LEP

Michael Arthur Lonetto, Collegeville, Pa., assignor to SmithKline Beecham Corporation, Philadelphia, Pa.

Filed Nov. 25, 1996, Ser. No. 756,299

Int. Cl.^{6} C12N *9/52;9/50;1/20;* **C07H** *21/04*

U.S. Cl. 435—220 **35 Claims**

1. An isolated Streptococcus polynucleotide comprising a member selected from the group consisting of:

(a) a polynucleotide encoding a polypeptide having leader peptidase activity and having at least 70% identity to a polynucleotide encoding a polypeptide comprising amino acids 1 to 204 of SEQ ID NO:2;

(b) a polynucleotide which is complementary to the polynucleotide of (a).

5,786,198
PHOTOACTIVATED ANTIVIRAL AND ANTITUMOR COMPOSITIONS

George A. Kraus; Susan L. Carpenter, and Jacob W. Petrich, all of Story, Iowa, assignors to Iowa State University Research Foundation

Continuation-in-part of Ser. No. 995,877, Dec. 23, 1992, abandoned. This application Jun. 7, 1995, Ser. No. 474,011

Int. Cl.^{6} C12N *7/04;7/06;* **C07H** *21/04*

U.S. Cl. 435—236 **18 Claims**

1. An antiviral composition comprising:

a. a photosensitizing chemical means for inactivating a virus, wherein said photosensitizing means is activated by absorbing light or energy within a specific wavelength range; and

b. an energy donating chemical means for activating the virucidal activity of said photosensitizing means, wherein said energy donating means, when activated, tranfers energy or emits light within the range of that absorbed by said photosensitizing means.

5,786,199
RECOMBINANT NEGATIVE STRAND RNA VIRUS EXPRESSION SYSTEMS AND VACCINES

Peter Palese, Leonia, N.J., assignor to The Mount Sinai School of Medicine of the City University of New York, New York, N.Y.

Continuation-in-part of Ser. No. 252,508, Jun. 1, 1994, which is a continuation-in-part of Ser. No. 190,698, Feb. 1, 1994, abandoned, which is a continuation-in-part of Ser. No. 925,061, Aug. 4, 1992, abandoned, which is a division of Ser. No. 527,237, May 22, 1990, Pat. No. 5,166,057, which is a continuation-in-part of Ser. No. 440,053, Nov. 21, 1989, abandoned, which is a continuation-in-part of Ser. No. 399,728, Aug. 28, 1989, abandoned. This application Oct. 14, 1994, Ser. No. 323,192

Int. Cl.^{6} C12N *7/02;7/01;9/12;15/44*

U.S. Cl. 435—239 **17 Claims**

1. A recombinant RNA molecule comprising a binding site specific for an RNA-directed RNA polymerase of a negative strand RNA virus, operatively linked to a heterologous RNA sequence comprising the reverse complement of a human immunodeficiency virus coding sequence.

5,786,200

Patent Not Issued For This Number

5,786,201
HUMAN CORNEAL EPITHELIAL CELL LINES WITH EXTENDED LIFESPAN

Carolyn R. Kahn, and Johng Rhim, both of Potomac, Md., assignors to The Gillette Company, Boston, Mass.

Continuation of Ser. No. 253,585, Jun. 3, 1994, abandoned, which is a continuation of Ser. No. 983,226, Nov. 30, 1992, abandoned. This application Jun. 7, 1995, Ser. No. 474,399

Int. Cl.^{6} C12N *5/00;15/00;7/01*

U.S. Cl. 435—240.2 **5 Claims**

1. An immortalized human corneal epithelial cell line containing actively expressing SV40 genes wherein the said immortalized cell line maintains the phenotypic properties of human corneal epithelial cells in vivo.

5,786,202

Patent Not Issued For This Number

5,786,203
ISOLATED NUCLEIC ACID ENCODING CORTICOTROPIN-RELEASING FACTOR$_2$ RECEPTORS

Timothy W. Lovenberg, Carlsbad; Tilman Oltersdorf, Cardiff; Chen Wang Liaw, San Diego; Dimitri E. Grigoriadis, Carlsbad, and Errol DeSouza, Del Mar, all of Calif., assignors to Neurocrine Biosciences, Inc., San Diego, Calif.

Continuation-in-part of Ser. No. 259,959, Jun. 14, 1994, abandoned. This application Jan. 31, 1995, Ser. No. 381,433

Int. Cl.^{6} C07K *14/705;* **C12N** *5/10;15/12*

U.S. Cl. 435—252.3 **13 Claims**

1. An isolated nucleic acid molecule encoding a mammalian CRF$_2$ receptor, wherein said nucleic acid molecule comprises:

(a) a nucleic acid molecule which encodes an amino acid sequence selected from the group consisting of Sequence I.D. Nos. 2, 4, and 8; or

(b) a nucleic acid molecule which hybridizes under conditions of moderate stringency to the complement of a nucleic acid molecule which encodes Sequence I.D. Nos. 2, 4 or 8.

5,786,204
HUMAN PROSTATIC SPECIFIC REDUCTASE

Wei W. He, Columbia; Paul S. Meissner, Barnesville; Peter L. Hudson, Germantown, and Craig A. Rosen, Laytonsville, all of Md., assignors to Human Genome Sciences, Inc., Rockville, Md.

Filed Jun. 5, 1995, Ser. No. 464,400

Claims priority, application WIPO, Jan. 20, 1995, PCT/US95/01827

Int. Cl.^{6} C12N *1/20;15/00;* **C07H** *21/04*

U.S. Cl. 435—252.3 **21 Claims**

1. An isolated polynucleotide comprising a polynucleotide sequence which is a member selected from the group consisting of:

(a) a polynucleotide sequence encoding a polypeptide comprising amino acid 2 to 316 of SEQ ID NO:2; and

(b) the complement of (a).

5,786,205
DELIVERY AND EXPRESSION OF A HYBRID SURFACE PROTEIN BY BACTERIA

Vincent A. Fischetti, West Hempstead, and Olaf Schneewind, New York, both of N.Y., assignors to The Rockefeller University, New York, N.Y.

Continuation of Ser. No. 280,390, Jul. 26, 1994, Pat. No. 5,616,686, which is a continuation of Ser. No. 46,495, Apr. 8, 1993, abandoned, which is a continuation of Ser. No. 902,432, Jun. 18, 1992, abandoned, which is a continuation of Ser. No. 814,323, Dec. 23, 1991, abandoned, which is a continuation of Ser. No. 742,199, Aug. 5, 1991, abandoned, which is a continuation of Ser. No. 522,440, May 11, 1990, abandoned. This application Oct. 17, 1996, Ser. No. 735,670

Int. Cl.^{6} C07H *21/04;* **C12N** *15/00;1/20*

U.S. Cl. 435—252.3 **11 Claims**

1. An isolated and purified DNA encoding a polypeptide, wherein said polypeptide consists of from about six to about twenty amino acid residues and includes as an integral portion of its structure a peptide construct responsible for anchoring a virulence determinant protein to the surface of a gram-positive coccal bacteria wherein the first, second, fourth and fifth amino acid residues of the C-terminal end of said peptide construct are L, P, T, and G respectively.

5,786,206
DNA ENCODING RECOMBINANT LIPOPROTEIN ANTIGENS

Richard S. Smith, Del Mar; Linda K. Curtiss, San Diego; Kanaka Raju Koduri, San Diego; Joseph L. Witztum, San Diego, and Stephen G. Young, Hillsborough, all of Calif., assignors to The Scripps Research Institute, LaJolla, Calif.

Division of Ser. No. 959,946, Oct. 8, 1992, Pat. No. 5,408,038, which is a continuation-in-part of Ser. No. 901,706, Jun. 18, 1992, abandoned, which is a continuation of Ser. No. 774,633, Oct. 9, 1991, abandoned. This application Oct. 31, 1994, Ser. No. 333,577

Int. Cl.^{6} C12N *1/21;15/63;* **C07H** *21/04;* **C07K** *14/775*

U.S. Cl. 435—252.33 **12 Claims**

10. A vector replicable upon transfection in a suitable host cell, said vector comprising:

(a) a first DNA segment having a 5' and a 3' end and comprising a length of 48 to 696 nucleotides that encodes an amino acid residue sequence including the apo A-1 sequence shown in SEQ ID NO:3 from about residue 120 through about residue 135; and

(b) a second DNA segment having a 5' and a 3' end and comprising a length of 240 to 1130 nucleotides that encodes an amino acid residue sequence including the apo B-100 sequence shown in SEQ ID NO:1 from about residue 217 through about residue 297;

the 5' end of said second DNA segment operatively linked to the 3' end of said first DNA segment.

5,786,207
TISSUE DISSOCIATING SYSTEM AND METHOD

Adam J. Katz, and Ramon Llull, both of Pittsburgh, Pa., assignors to University of Pittsburgh, Pittsburgh, Pa.

Filed May 28, 1997, Ser. No. 864,444

Int. Cl.^{6} C07G *17/00*

U.S. Cl. 435—267 **20 Claims**

11. A method for dissociating tissue comprising:

a. providing a system for dissociating tissue having a housing unit having a first compartment and second compartment located therein wherein said first compartment is superiorly positioned relative to said second compartment and said first compartment has a plurality of fluid communicating means between the interior of said first compartment and the interior of said housing unit, said second compartment having pores providing for fluid communication between the interior of said second compartment and said interior of the housing unit, a first inlet port that provides communication between the exterior environment and said interior of said first compartment and provides a means for introducing solutions into said interior of said first compartment, a second inlet port for introducing tissue into said second compartment, a third inlet port wherein said port has a filter and provides a means for filtered air to enter said housing unit, said second compartment having a means for engaging a rotating or agitating mechanism, a means for rotating or agitating said second compartment, a heat source, said housing unit having a downwardly inclined floor wherein an aperture exists at the nadir of said inclined floor, a means for controlling the exit of effluent through said aperture, a first receptacle sealably engaging said housing unit, and a second receptacle wherein said second receptacle is centrifuge-ready and sealably engages said housing unit;

b. inserting tissue to be dissociated into said second compartment via said second inlet port;

c. inserting a washing solution into said first compartment via said first inlet port;

d. permitting said washing solution to descend through said plurality of fluid communicating means between said interior of said first compartment and said interior of said housing unit, through said pores providing for fluid communication between said interior of said second compartment and said interior of said housing unit, and into said second compartment where it interacts with the tissue inserted therein;

e. placing said means for controlling the exit of effluent through said aperture in an open position such that said effluent exits the housing unit and is collected in said first receptacle;

f. placing said means for controlling the exit of effluent through said aperture in a closed position and disengaging said first receptacle and sealably engaging said second receptacle;

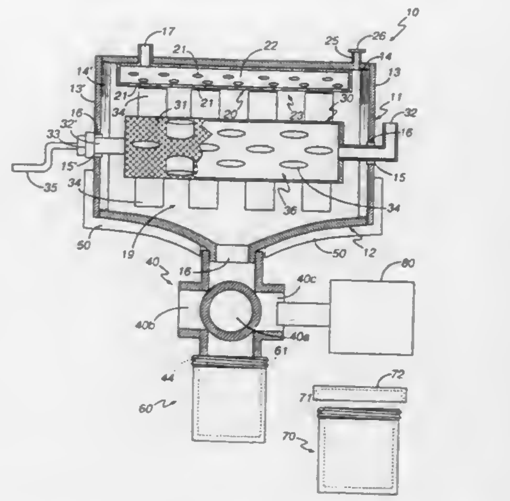
g. inserting a proteolytic enzyme solution into said housing unit;

h. heating said proteolytic enzyme solution using said heat source while agitating or rotating said second compartment within said housing unit using said means for agitating or rotating said second compartment and thereby facilitating tissue dissociation;

i. placing said means for controlling the exit of effluent through said aperture in an open position such that effluent exits said housing unit and is collected in said second receptacle;

j. collecting the cell suspension resulting from tissue dissociation in said second receptacle; and

k. sealing said second receptacle closed.



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5,786,208
METHOD FOR EXTRACTING NUCLEIC ACIDS FROM A WIDE RANGE OF ORGANISMS

Kathleen A. Clark, Cardiff by the Sea, and Daniel L. Kacian, San Diego, both of Calif., assignors to Gen-Probe Incorporated, San Diego, Calif.

Continuation of Ser. No. 390,826, Feb. 17, 1995, abandoned, which is a continuation of Ser. No. 158,940, Nov. 29, 1993, abandoned. This application Oct. 18, 1995, Ser. No. 544,560

Int. Cl.⁶ C12N *1/08;15/00;* **C12Q** *1/68;* **C07H** *21/04*

U.S. Cl. 430—270 **20 Claims**

1. A method for extracting nucleic aids from a wide range of microorganisms, consisting essentially of the steps:

a. contacting a sample containing one or more microorganisms in an aqueous suspension with a permeabilization reagent consisting essentially of a non-ionic detergent, from 0% to about 2% (w/v) of an anionic detergent, and a metal chelating agent; and

b. heating the sample and permeabilization reagent together at about 80°–100° C. until nucleic acids are released from said microorganisms

wherein said nucleic acids are provided in a form suitable for hybridization and said method is performed in the absence of lysozyme.

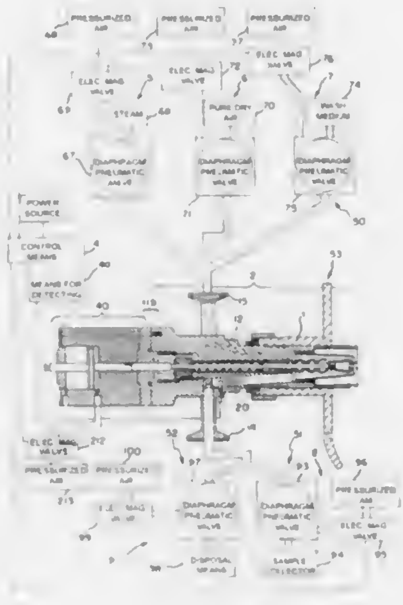
5,786,209
AUTOMATED SAMPLE EXTRACTOR OR FEEDER/INOCULATOR FOR BIOREACTORS AND SIMILAR EQUIPMENT

Douglas A. Newberg, Annapolis, Md., assignor to NL Technologies, Ltd., Gambrills, Md.

Division of Ser. No. 215,416, Mar. 21, 1994, Pat. No. 5,525,301, which is a continuation-in-part of Ser. No. 911,052, Jul. 9, 1992, Pat. No. 5,296,197. This application Mar. 12, 1996, Ser. No. 613,586

Int. Cl.⁶ C12M *1/26*

U.S. Cl. 435—309.2 **36 Claims**



1. A port in a wall of a vessel or conduit and an apparatus for moving a sample of a flowable material through the port comprising:

a body having an end wall and an internal sample cavity communicable with an orifice formed in said end wall;

a valve operating rod extending within at least a portion of the sample cavity, said valve operating rod having a diaphragm on one end thereof, the diaphragm having a sealing tip for engaging the orifice formed in the end wall;

means for reciprocating the valve operating rod and the diaphragm to engage and disengage the sealing tip with the orifice;

a drain passage formed within said body, the drain passage being communicable with the sample cavity, the body having a longitudinal axis and the drain passage having a longitudinal axis which is generally nonperpendicular and nonparallel to the longitudinal axis of the body;

a drain collection trough positioned in the sample cavity in front of an opening to the drain passage, the drain collection trough extending into the sample cavity beyond a rear wall of the sample cavity;

a ferrule attached to the port of the vessel or conduit; and means for attaching the body to the ferrule.

5,786,210
MAMMALIAN THYMOKINE GENES

Gregory S. Kelner, Cupertino; Jacqueline L. Kennedy, Sunnyvale, and Albert Zlotnik, Palo Alto, all of Calif., assignors to Schering Corporation, Kenilworth, N.J.

Continuation-in-part of Ser. No. 231,421, Apr. 22, 1994, abandoned, which is a continuation-in-part of Ser. No. 193,483, Feb. 8, 1994, abandoned. This application Oct. 25, 1994, Ser. No. 329,704

Int. Cl.⁶ C07H *21/04*

U.S. Cl. 435—320.1 **6 Claims**

1. An isolated nucleic acid encoding a mammalian thymokine of approximately 11,000 to 12,500 daltons in the unglycosylated form, wherein said thymokine protein:

i. specifically binds to polyclonal antibodies generated against an immunogen selected from the group consisting of:
  a) the polypeptide of SEQ ID NO. 2; and
  b) the polypeptide of SEQ ID NO. 4; and

ii. has the following chemical properties;
  a) the ability to induce a dose-dependent chemotactic response by thymocytes in a thymokine cell chemotaxis assay;
  b) the inability to induce a dose-dependent chemotactic response in human THP-1 cells in said thymokine cell chemotaxis assay; and
  c) the inability to induce an intracellular Ca^{+2} flux in human THP-1 cells in an intracellular Ca^{+2} flux assay.

5,786,211
ADENO-ASSOCIATED VIRUS MATERIALS AND METHODS

Philip R. Johnson, Gahanna, Ohio, assignor to Children's Hospital, Inc., Columbus, Ohio

Division of Ser. No. 254,358, Jun. 6, 1994, Pat. No. 5,658,785. This application Jun. 7, 1995, Ser. No. 475,391

Int. Cl.⁶ C12N *15/00*

U.S. Cl. 435—320.1 **1 Claim**

1. A composition comprising infectious recombinant adeno-associated virus comprising a recombinant adeno-associated virus genome, wherein said recombinant adeno-associated virus genome comprises the cytomegalovirus (CMV) early promoter, the rabbit β-globin intron, the human immunodeficiency virus rev/env sequences and the rabbit β-globin polyadenylation signal.

5,786,212
MULTIPLE INTEGRATIVE VECTORS AND *YARROWIA LIPOLYTICA* TRANSFORMANTS

Larry C. James, Norwich, and Christine A. Strick, Lisbon, both of Conn., assignors to Pfizer Inc., New York, N.Y.

PCT No. PCT/IB94/00128, § 371 Date May 6, 1996, § 102(e) Date May 6, 1996, PCT Pub. No. WO95/06739, PCT Pub. Date Mar. 9, 1995

Continuation of Ser. No. 117,375, Sep. 2, 1993, abandoned. This PCT application May 30, 1994, Ser. No. 596,382

Int. Cl.⁶ C12N *15/81;15/11;* **C12P** *21/02;* **C07H** *21/04*

U.S. Cl. 435—320.1 **47 Claims**

1. A modified *Y. lipolytica* LEU2 non-wild type gene promoter selected from the group consisting of nucleotides 693 to 798 of SEQUENCE I.D. NO: 1, nucleotides 718 to 798 of SEQUENCE I.D. NO: 1, nucleotides 718 to 798 of SEQUENCE I.D. NO: 1 wherein nucleotide 724 is changed from A to G, nucleotides 718 to 798 of SEQUENCE I.D. NO: 1 wherein nucleotide 725 is changed from T to G, nucleotides 718 to 798 of SEQUENCE I.D. NO: 1 wherein nucleotide 722 is changed from A to G, nucleotides 745 to 798 of SEQUENCE I.D. NO: 1.

5,786,213
INHIBITION OF ENDOGENOUS GASTRIN EXPRESSION FOR TREATMENT OF COLORECTAL CANCER

Pomila Singh, Galveston, and Thomas G. Wood, Houston, both of Tex., assignors to Board of Regents, The University of Texas System, Austin, Tex.

Filed Apr. 18, 1996, Ser. No. 634,546

Int. Cl.⁶ C12N *5/00*

U.S. Cl. 435—320.1 **9 Claims**

1. An isolated genetic construct comprising an antisense polynucleotide sequence of SEQ ID NO:1 flanked by SEQ ID NO:3 at the 5' end, and by SEQ ID NO:4 at the 3' end, wherein transfection in vitro of gastrin-producing human colon cancer cells by a vector comprising said isolated genetic construct results in reduced expression of gastrin gene products.

5,786,214
PH-SENSITIVE IMMUNOLIPOSOMES AND METHOD OF GENE DELIVERY TO THE MAMMALIAN CENTRAL NERVOUS SYSTEM

Eric G. Holmberg, Eagle River, Ak., assignor to Spinal Cord Society, Fergus Falls, Minn.

Filed Dec. 15, 1994, Ser. No. 356,703

Int. Cl.⁶ C12N *15/63;15/85;15/88*

U.S. Cl. 435—375 **22 Claims**

1. PH-sensitive immunoliposomes conjugated to an antibody specific to cells of the mammalian central nervous system, said liposomes consisting essentially of N-glutarylphosphatidylethanolamine, cholesterol, and oleic acid, said liposomes containing an entrapped DNA molecule encoding a polypeptide, for delivery of said DNA molecule to said cells by direct injection into the central nervous system, said liposomes having a lipid to antibody ratio of about 1 to 4, said liposomes being of a size less than or equal to about 0.4 um.

5,786,215
METHOD FOR CULTURING ANIMAL CELLS

Peter C. Brown, Menlo Park; Mark T. Wininger, Benicia, and Robert V. Oakley, Lafayette, all of Calif., assignors to Baxter International Inc., Deerfield, Ill.

Division of Ser. No. 299,322, Aug. 31, 1994, abandoned, which is a continuation of Ser. No. 971,672, Nov. 4, 1992, abandoned, which is a continuation of Ser. No. 635,422, Jan. 3, 1991, abandoned, which is a continuation of Ser. No. 52,682, May 20, 1987, abandoned. This application May 8, 1995, Ser. No. 436,648

Int. Cl.⁶ C12N *5/00;* **C12M** *3/06*

U.S. Cl. 435—401 **5 Claims**

1. A method for culturing animal cells comprising:

(a) providing an integral culture and gassing element comprised of a plurality of generally concentric, generally annular lengths of an oxygen-permeable membrane envelope, said envelope comprised of an edge-sealed composite of a spacer layer sandwiched between a liquid impermeable base layer and a liquid-impermeable top layer, each of said base and top layers being permeable to oxygen, said oxygen-permeable membrane envelope having in communication therewith gas inlet means for providing an oxygen-containing gas to the enclosed spaces thereof and gas outlet means for removing gas from the enclosed spaces thereof, and wherein the area between adjacent lengths of said generally concentric annular lengths of said oxygen-permeable membrane envelope define narrow annular culturing spaces along said lengths for growth of animal cells in contact with culture medium, said culture and gassing element having a liquid inlet face at one end of the length thereof and a liquid outlet face at the opposite end of the length thereof by which culture liquid can be introduced to and withdrawn from said culturing spaces; said integral culture and gassing element being encased in a fluid-tight housing, said housing containing envelope access means for accessing said gas inlet and gas outlet means of said oxygen-permeable membrane envelope, liquid inlet means for introducing a flow of culture medium to the liquid inlet face of said culture and gassing element and liquid outlet means for removing culture liquid from said liquid outlet face of said culture and gassing element;

(b) providing in at least a portion of the length of at least some of the culturing spaces an inoculum of animal cells to be cultured;

(c) passing through said liquid inlet means of said housing a culture medium for said animal cells such that said culture medium passes through the length of at least some of the narrow annular culturing spaces and contacts cells contained therein;

(d) providing an oxygen-containing gas to said oxygen-permeable membrane envelope through said gas inlet means and withdrawing said gas through said gas outlet means, whereby, in passing from said gas inlet to said gas outlet means, at least a portion of said oxygen-containing gas diffuses across an oxygen-permeable layer of said envelope into the narrow annular culturing spaces; and

(e) withdrawing culture fluid through said liquid outlet means of said housing.

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5,786,216
INNER-SUPPORTED, BIOCOMPATIBLE CELL CAPSULES

Keith E. Dionne, Rehoboth, Mass.; Orion D. Hegre, Green Valley, Ariz.; Thomas R. Flanagan, Barrington; Tyrone F. Hazlett, Coventry, both of R.I., and Edward J. Doherty, Mansfield, Mass., assignors to Cytotherapeutics, Inc.

Continuation-in-part of Ser. No. 176,119, Dec. 30, 1993, abandoned, which is a continuation-in-part of Ser. No. 997,770, Dec. 24, 1992, Pat. No. 5,418,154, which is a continuation-in-part of Ser. No. 722,852, Jun. 28, 1991, abandoned, which is a continuation-in-part of Ser. No. 638,759, Jan. 8, 1991, Pat. No. 5,283,187, which is a continuation-in-part of Ser. No. 461,999, Jan. 8, 1990, Pat. No. 5,158,881, which is a continuation-in-part of Ser. No. 121,626, Nov. 17, 1987, Pat. Nn. 4,892,538. This application Nov. 10, 1994, Ser. No. 337,555

Int. Cl.^{6} C12N *5/00; 11/04;* **A61K** *9/52; 9/50*

U.S. Cl. 435—402 **13 Claims**

1. A biocompatible cell capsule for implantation, comprising:

(a) a capsule jacket connected to a chamber top at one end and a chamber bottom at the other end enclosing a cell chamber

(b) the capsule jacket comprising at least one semipermeable surface across which biologically active molecules can be delivered, and

(c) an inner support having two ends extending through the cell chamber such that one end is connected to the chamber top and the other end is connected to the chamber bottom, said inner support having a tensile strength to provide an increase in tensile strength to the capsule of at least about 350% greater than when the capsule does not contain an inner support.

5,786,217
METHODS AND COMPOSITIONS FOR THE REPAIR OF ARTICULAR CARTILAGE DEFECTS IN MAMMALS

Ross A. Tubo, Quincy; Leesa M. Barone, Winthrop, and Courtney A. Wrenn, Haverhill, all of Mass., assignors to Genzyme Corporation, Framingham, Mass.

Continuation of Ser. No. 245,565, May 5, 1994, abandoned. This application Apr. 14, 1997, Ser. No. 834,150

Int. Cl.^{6} C12N *5/00*

U.S. Cl. 435—402 **26 Claims**

1. A method for preparing a multi cell layered synthetic cartilage patch, the method comprising the steps of:

(a) proliferating denuded chondrogenic cells in vitro, wherein said cells are undifferentiated;

(b) seeding said cells into a pre-shaped well having a cell contacting surface which prevents attachment of the cells; and

(c) culturing said cells for a time sufficient for said cells to differentiate and form a multi cell-layered synthetic cartilage and to endogenously produce an extracellular matrix.

5,786,218
METHOD FOR MONITORING SOLID PHASE REACTIONS

Donald Eugene Pivonka, and Keith Russell, both of Newark, Del., assignors to Zeneca Limited, London, United Kingdom

Filed Aug. 16, 1996, Ser. No. 689,942

Int. Cl.^{6} G01N *33/00*

U.S. Cl. 436—34 **8 Claims**

1. A method for determining the viability of a solid-phase reaction between a carbon-containing aromatic or aliphatic compound and a non-deuterated reagent comprising the steps of: a) reacting the compound which is bound to a solid-phase support with a deuterium containing reagent corresponding to the non-deuterated reagent; b) measuring the infrared spectrum of the resulting product; and c) determining if deuterium has been incorporated in said product by determining the presence or absence of carbon-deuterium absorbances in said infrared spectrum.

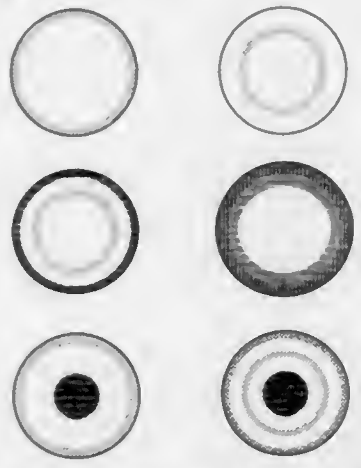
5,786,219
MICROSPHERES WITH FLUORESCENT SPHERICAL ZONES

Yu-Zhong Zhang; Courtenay R. Kemper, and Richard P. Haugland, all of Eugene, Oreg., assignors to Molecular Probes, Inc., Eugene, Oreg.

Filed Oct. 28, 1996, Ser. No. 740,184

Int. Cl.^{6} G01N *33/546; 33/533*

U.S. Cl. 436—523 **28 Claims**



1. A polymeric microsphere having a diameter of about 2 μm to about 100 μm, wherein an equatorial cross-section of said microsphere displays a first distinct fluorescent ring that is concentric with and within said microsphere; said ring having a width that is at least 0.2 μm and no greater than 35% of the radius of said microsphere.

21. A method of improving the performance of an instrument capable of three-dimensional spatial analysis, said method comprising:

a) generating a three-dimensional representation of one or more polymeric microspheres, each microsphere having a diameter of about 2 μm to about 100 μm, wherein an equatorial cross-section of said microsphere displays a first distinct fluorescent ring that is concentric with and within said microsphere; said ring having a width that is at least 0.2 μm and no greater than 35% of the radius of said microsphere;

b) comparing said three-dimensional representation with the actual physical and spectral characteristics of said microspheres;

c) evaluating the performance of said instrument; and

d) adjusting one or more operating parameters of said instrument so as to make said three-dimensional representation more accurate.

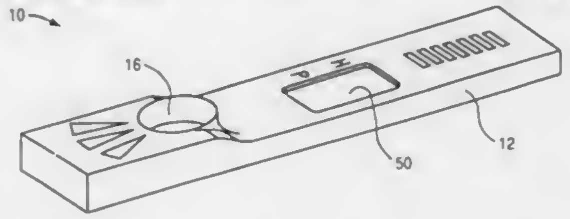
5,786,220
ASSAYS AND DEVICES FOR DISTINGUISHING BETWEEN NORMAL AND ABNORMAL PREGNANCY

Allan D. Pronovost, and Theodore T. Lee, both of San Diego, Calif., assignors to Quidel Corporation, San Diego, Calif.

Filed Apr. 28, 1995, Ser. No. 431,236

Int. Cl.^{6} G01N *33/543*

U.S. Cl. 436—518 **19 Claims**



1. A one step method for assisting in distinguishing between normal and abnormal pregnancies in human females, said method comprising:

directly applying a specimen from the female to a lateral flow matrix, wherein the specimen is selected from the group consisting of blood, plasma, serum, and urine;

selectively binding or depleting a visually observable label within a first binding region on the flow matrix, wherein binding or depletion occurs when the concentration of progesterone in the specimen falls below a threshold value in the range from 5 ng/ml to 50 ng/ml in blood, plasma, or serum, or when the concentration of a progesterone metabolite falls below a corresponding value in urine; and

selectively binding or depleting a visually observable label within a second binding region on the flow matrix, wherein binding or depleting occurs when the human chorionic gonadotropin (hCG) concentration exceeds a threshold value in the range from 25 mIU/ml to 100 mIU/ml in the specimen;

wherein absence of label in the first binding region and the presence of label in the second binding region are indicative of a normal pregnancy, presence of label in the first and second binding regions is indicative of an abnormal pregnancy, and absence of label in the second binding region is indicative that the method is not functioning properly or that the female is not pregnant.

5,786,221
DIAGNOSTIC TEST FOR MEASURING ISLET CELL AUTOANTIBODIES AND REAGENTS RELATING THERETO

Wai-Sai Ma, Vista, and Srinivasa Rao, Laguna Niguel, both of Calif., assignors to Biomerica, Inc., Newport Beach, Calif.

Continuation of Ser. No. 268,299, Jun. 30, 1994, abandoned, which is a continuation of Ser. No. 132,055, Oct. 5, 1993, abandoned, which is a continuation of Ser. No. 798,638, Nov. 26, 1991, abandoned. This application May 23, 1995, Ser. No. 447,382

Int. Cl.^{6} G01N *33/564; 33/543*

U.S. Cl. 436—506 **26 Claims**

1. An immobilized antigen-containing solid phase suitable for use in detecting the presence of islet cell autoantibodies, ICA, in a sample comprising:

a water insoluble polymer;

concanavalin A, Con-A, attached to said water insoluble polymer with bonds capable of withstanding normal washing procedures;

mammal-derived pancreatic proteins attached to said Con-A by bonds capable of withstanding normal washing procedures, said pancreatic proteins including pancreatic antigens which selectively bind to islet cell autoantibodies, which autoantibodies are routinely detected in the blood of patients who have recently been diagnosed as having insulin-dependent diabetes mellitus, IDDM;

non-human blocking proteins attached to substantially all Con-A binding sites which are not bound to pancreatic antigens, said blocking proteins being non-reactive to human IgG and anti-human IgG.

5,786,222
METHOD OF MANUFACTURING HIGH PERFORMANCE BIPOLAR TRANSISTORS IN A BICMOS PROCESS

Johan A. Darmawan, Santa Clara, Calif., assignor to National Semiconductor Corporation, Santa Clara, Calif.

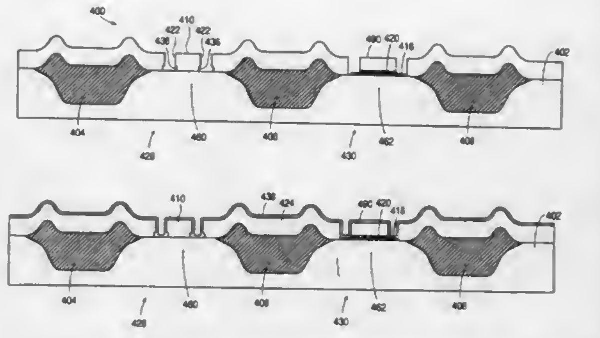
Division of Ser. No. 285,315, Aug. 3, 1994, Pat. No. 5,594,268. This application Aug. 30, 1996, Ser. No. 655,055

Int. Cl.^{6} H01L *21/265*

U.S. Cl. 437—31 **42 Claims**

1. A method of fabricating on a silicon substrate an emitter of a bipolar transistor in a BiCMOS integrated circuit comprising the steps of:

forming footings on the silicon substrate for prospectively supporting lateral edges of the emitter while leaving a medial portion of the emitter adjacent to the silicon substrate;



forming a polysilicon emitter in a pattern having the medial portion overlying the silicon substrate and having the lateral edges supported by the footings;

removing the footings by an etch that is preferential to the footings as compared to polysilicon emitter leaving notches at the lateral edges of the polysilicon emitter; and

refilling the notches with a thin polysilicon film.

5,786,223
TWO-STEP CALIBRATION METHOD FOR DRY CHEMICAL ANALYSIS ELEMENT

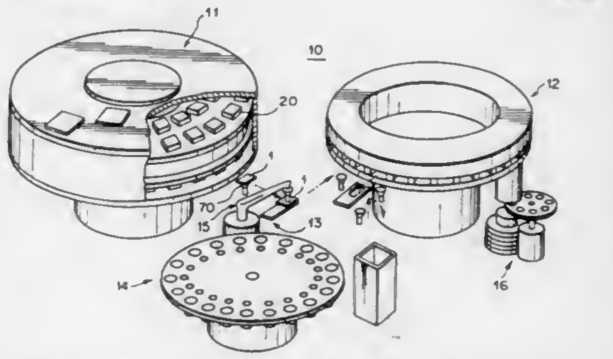
Kaoru Terashima, and Osamu Seshimoto, both of Saitama-ken, Japan, assignors to Fuji Photo Film Co., Ltd., Kanagawa, Japan

Filed May 17, 1996, Ser. No. 650,877

Claims priority, application Japan, May 19, 1995, 7-121248; Apr. 30, 1996, 8-109401

Int. Cl.^{6} G01N *37/00*

U.S. Cl. 436—50 **5 Claims**



1. In a quantitative analysis of a specific analyte in a sample liquid in which the analyte concentration in the sample liquid is determined on the basis of the optical density of a chemical analysis element spotted with the sample liquid according to a standard curve which is a function representing the relation between the concentration of the specific analyte and the optical density of the chemical analysis element or another physical value corresponding to the optical density which is obtained when the concentration of the specific analyte is measured using a chemical analysis element produced in a first production lot,

a method of calibrating the measured concentration of the specific analyte in a sample liquid using a chemical analysis element produced in a second production lot other than the first production lot comprising:

a first step of preparing a first calibration curve in which a plurality of first standard liquids containing therein said specific analyte in different levels which are known are each spotted onto a separate chemical analysis element produced in the second production lot, the concentrations of the specific analyte in the respective first standard liquids are determined according to the standard curve and then there is prepared a first correction calibration curve for correcting the values of the concentrations of the specific analyte in the respective first standard liquids thus determined to the values which would be obtained when the concentrations of the specific analyte in the

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respective first standard liquids are determined using chemical analysis elements produced in the first production lot and the standard curve, and

a second step of preparing a second correction calibration curve in which before quantitatively analyzing the specific analyte in a sample liquid using a chemical element of said second production lot on a particular biochemical analysis system, a plurality of second standard liquids containing therein said specific analyte in different levels which are known are each spotted onto a separate chemical analysis element of the second production lot, the concentrations of the specific analyte in the respective second standard liquids are determined according to the standard curve on said particular biochemical analysis system, the values of the concentrations of the specific analyte in the respective second standard liquids thus determined are corrected according to the first calibration curve, and then there is prepared a second calibration curve for correcting the values of the concentrations of the specific analyte in the respective second standard liquids thus corrected to the values which would be obtained when the concentrations of the specific analyte in the respective standard liquids are determined using chemical analysis elements produced in the first production lot and the standard curve.

5,786,224
REAGENT AND METHOD FOR DIFFERENTIAL DETERMINATION OF LEUKOCYTES IN BLOOD

Yi Li; Carole Young, both of Miami, Fla., and Timothy J. Fischer, Raleigh, N.C., assignors to Coulter Corporation, Miami, Fla.

Filed Jun. 29, 1995, Ser. No. 496,469
Int. Cl.^{6} G01N *33/48*

U.S. Cl. 436—63 **24 Claims**

11. A method for the selective stromatolysis of red blood cells in a blood cell sample and differentiation of the remaining leukocyte subpopulations comprising:

a. exposing a blood sample to a lytic reagent composition comprising a polyoxyethylene based surfactant for the determination of at least four leukocyte subpopulations in a blood sample represented by the general formula:

$$R_1\text{-}R_2\text{-}(CH_2CH_2O)_n\text{—}H$$

wherein R_1 is an alkyl, alkenyl or alkynyl group having 10 to 22 carbon atoms, R_2 is —O— or —COO—, and n is between 20 and 35; and acid to adjust the pH of the lytic reagent composition to be within the range of 20 to 4.0 for a time less than 10 seconds;

b. adding a hypertonic alkaline stabilizing reagent composition to said exposed blood sample to form a hypertonic medium, wherein said stabilizing reagent composition inhibits further lytic action and stabilizes leukocytes of said blood sample; and

c. differentiating at least four leukocyte subpopulations, selected from the group consisting of lymphocytes, monocytes, basophils, neutrophils and eosinophils in a single step measurement using an automated analyzer.

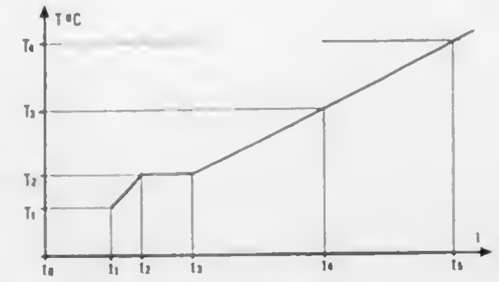
5,786,225
METHOD FOR EVALUATING A POLLUTION CHARACTERISTIC OF A SOIL SAMPLE

Eric Lafargue, Carrieres sur Seine; Jean Ducreux, Bougival; François Marquis, Montlignon, and Daniel Pillot, Paris, all of France, assignors to Institut Francais du Petrole, France

Filed Nov. 13, 1996, Ser. No. 747,758
Claims priority, application France, Sep. 12, 1996, 96 11582
Int. Cl.^{6} G01N *31/12*

U.S. Cl. 436—147 **4 Claims**

1. A method for evaluating at least one type of pollutant characteristic in a soil sample contaminated by hydrocarbon compounds, wherein the soil sample is first heated in a non-oxidizing atmosphere, then in an oxidizing atmosphere, said method comprising:



a) raising a temperature of the sample to a first temperature value of about 80° to 120° C. for a first predetermined period of time,

b) raising the temperature of the sample from the first temperature value to a second temperature value below 200° C. according to a first temperature gradient ranging between 2° and 30° C./min and maintaining the second temperature value for a second predetermined period of time,

c) raising the temperature of the sample from the second temperature value to a third temperature value below 500° C. according to a second temperature gradient ranging between 10° and 40° C./min.

d) raising the temperature of the sample from said third temperature value to a fourth temperature value at most equal to 850° C.,

e) measuring four quantities Q_0, Q_1, Q_2 and during a–d, wherein said quantities correspond to concentrations of hydrocarbon compounds contained in said soil sample,

f) burning any residue of said sample formed in (a)–(e) in an oxidizing atmosphere from a fifth temperature above 350° C. to a sixth temperature at most equal to 850° C., according to a third temperature gradient ranging between 20 and 50° C./min.

g) measuring a quantity Q_4 representative of an amount of residual organic carbon contained in said sample obtained in (f).

h) determining said at least one type of pollutant "a", "b", "c" or "d" of said sample from the quantities Q_0, Q_1, Q_3 and Q_4.

5,786,226
QUANTITATIVE TRANSMISSION SPECTROSCOPY USING SAMPLE CARRIERS WITH NETS

Dirk Böcker, Heidelberg; Gerhard Werner, Weinheim, and Hans-Peter Haar, Wiesloch, all of Germany, assignors to Boehringer Mannheim GmbH, Mannheim, Germany

Filed Mar. 18, 1996, Ser. No. 619,935
Claims priority, application Germany, Mar. 16, 1995, 195 09 094.2
Int. Cl.^{6} G01N *21/35;21/25;* G01J *5/02*

U.S. Cl. 436—164 **54 Claims**

1. A process for performing quantitative transmission spectroscopy, said process comprising the steps of:

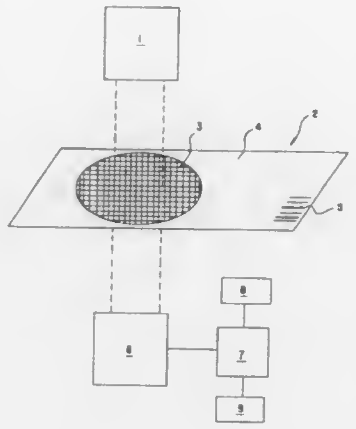
a) contacting a sample liquid to a sample carrier, said sample carrier being provided with a net configured such that the sample liquid disperses across a plurality of openings in a mesh of the net, thereby forming a liquid film thereupon, said net having a regular mesh arrangement featuring identical mesh geometry;

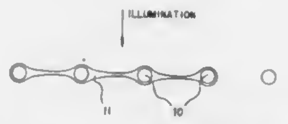
b) exposing the sample carrier to a light source, wherein the light source is disposed perpendicular to a plane of the net whereby light from the light source traverses the liquid film substantially perpendicular thereto;

c) detecting light from the light source which is transmitted through the liquid film;

d) calculating a concentration of at least one analyte contained in the sample liquid based upon the detected light and an effective volume V of the sample liquid, wherein the effective volume is calculated according to the formula

$$V=Q\cdot K_1$$





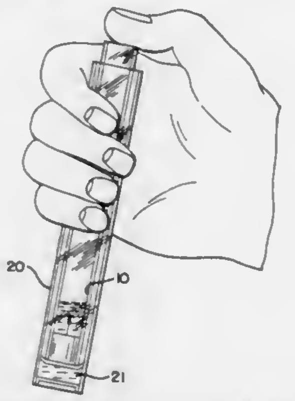
wherein Q is a cross section of the light from the light source where the light is exposed to the plane of the net, and wherein K_1 is a variable which is constant for a particular sample carrier, and is indicative of an effective layer thickness of the liquid film formed on the sample carrier.

5,786,227
FLUID COLLECTION KIT AND METHOD

David Edward Charlton, Sunnyvale, Calif., assignor to Biex, Inc., Dublin, Calif.

Continuation of Ser. No. 475,001, Jun. 7, 1995, abandoned.
This application Feb. 5, 1997, Ser. No. 795,051
Int. Cl.^{6} G01N *1/18*

U.S. Cl. 436—177 **19 Claims**



18. A method of collecting and storing a fluid, comprising:

collecting a fluid in a first tube having a closed first end, an open second end, inner-tube-wall surfaces, and an internal diameter;

inserting into said first tube an internal filtering and holding device comprising a second tube having a storage portion with an unobstructed interior and having a first end porously closed by a filter and an open second end and having an external diameter smaller than said internal diameter of said first tube, said second tube further slidably contacting said inner-tube-wall surfaces of said first tube at said first end of said second tube when said second tube is inserted in said first tube, whereby fluid collected in said first tube is forced through said filter into said second tube; and

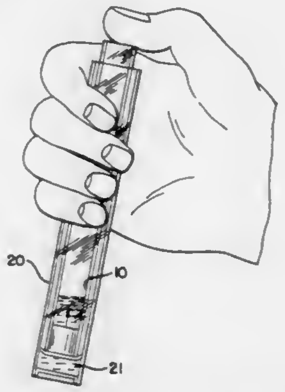
sealing said first tube and said second tube with a cap adapted to seal said open second end od said first tube and said open second end of said second tube in a single closing operation to form a closed storage device, said storage device thereby containing said fluid trapped in said storage portion of said second tube until further testing is performed on the fluid by removing the cap and some of the fluid from the storage portion.

5,786,228
FLUID COLLECTION KIT AND METHOD

David Edward Charlton, Sunnyvale, Calif., assignor to Biex, Inc., Dublin, Calif.

Continuation of Ser. No. 481,611, Jun. 7, 1995, abandoned.
This application Feb. 5, 1997, Ser. No. 795,964
Int. Cl.^{6} G01N *1/18*

U.S. Cl. 436—177 **19 Claims**



18. A method of collecting and storing a fluid, comprising:

collecting a fluid in a first tube having a closed first end, an open second end, inner tube-wall surfaces, and an internal diameter wherein said first tube does not contain any material that absorbs liquid at variable volumes;

inserting into said first tube an internal filtering and holding device comprising a second tube having a storage portion and having a first end porously closed by a filter and an open second end and having an external diameter smaller than said internal diameter of said first tube, said second tube further slidably contacting said inner-tube-wall surfaces of said first tube at said first end of said second tube when said second tube is inserted in said first tube, whereby fluid collected in said first tube is forced through said filter into said second tube; and

sealing said first tube and said second tube with a cap adapted to seal said open second end of said first tube and said open second end of said second tube in a single closing operation to form a closed storage device, said storage device thereby containing said fluid trapped in said storage portion of said second tube.

5,786,229
METHOD FOR PROVIDING ISOLATION BETWEEN SEMICONDUCTOR DEVICES USING EPITAXIAL GROWTH AND POLISHING

Sang-Hoon Park, Kyoungki-do, Rep. of Korea, assignor to Hyundai Electronics Industries Co., Ltd., Rep. of Korea

Filed Dec. 28, 1995, Ser. No. 579,880
Claims priority, application Rep. of Korea, Dec. 30, 1994, 1994 39093; Dec. 30, 1994, 1994 39095
Int. Cl.^{6} H01L *21/761*

U.S. Cl. 437—67 **9 Claims**

1. A method for forming a field oxide for isolation between the semiconductor devices comprising the steps of:

(A) forming sequentially, a first oxide film and silicon nitride layer on a silicon substrate;

(B) forming a first photoresist pattern on the silicon nitride layer where the field oxide for isolation between the semiconductor devices is not to be formed;

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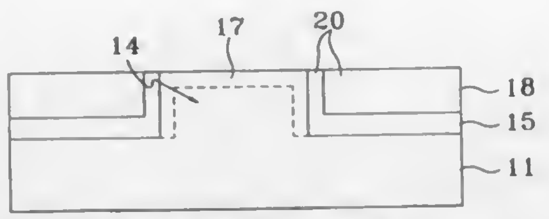


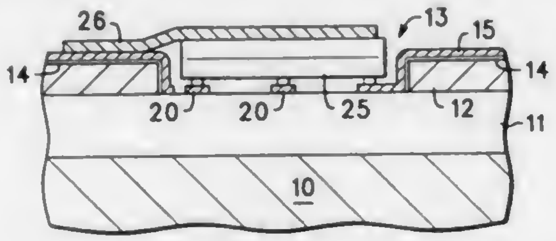
(C) etching exposed silicon nitride without the first photoresist film and the underlying oxide layer and a silicon substrate layer up to a predetermined depth;
(D) stripping the first photoresist film to form a resultant wafer;
(E) oxidizing the resultant wafer from step (D) until a growing second oxide layer grows on the etched silicon substrate layer and a lateral wall of the growing second oxide layer grows laterally out from under a region of the patterned nitride and first oxide layer to a predetermined outward distance;
(F) forming a second photoresist film at the portions excepting the surface of the nitride layer in a structure resultant from step (E) and making a planarization of an entire surface of the second photoresist film to a same height as the surface of the silicon nitride layer;
(G) etching the silicon nitride layer, the first oxide film and a portion of the second oxide layer positioned at a vertical downward direction under the first oxide film to expose a portion of the silicon substrate;
(H) stripping the second photoresist film;
(I) growing epitaxially the exposed portion of the silicon substrate from step (G) to form a resultant structure;
(J) depositing an insulating layer on the resultant structure from step (I); and
(K) polishing the deposited insulating layer until the epitaxial layer is exposed.

5,786,230

METHOD OF FABRICATING MULTI-CHIP PACKAGES

Samuel J. Anderson, Tempe, and Guillermo L. Romero, Scottsdale, both of Ariz., assignors to Motorola, Inc., Schaumburg, Ill.

Filed May 1, 1995, Ser. No. 431,865
Int. Cl.^{6} H01L *21/60*
U.S. Cl. 437—209 **21 Claims**



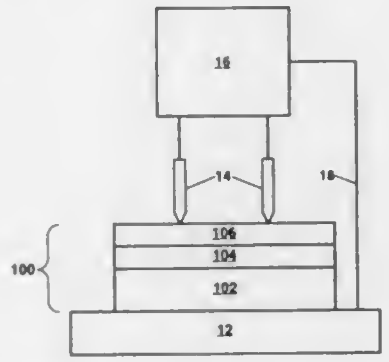
1. A method of fabricating a multi-chip package comprising the steps of:
providing a semiconductor substrate with an electrically insulated surface and providing on the substrate a plurality of heat conductive areas;
providing a plurality of semiconductor chips, each chip having an electrical circuit formed thereon and a plurality of electrical I/O pads connected to the electrical circuit and positioned on one surface of the semiconductor chip, each chip further having a second surface provided for attaching a heat sink thereto;
forming a plurality of electrical conductors on the surface of the substrate so as to define a plurality of semiconductor chip mounting areas with each mounting area having a plurality of bonding pads coupled to the electrical conductors and positioned to mate with the I/O pads of at least one mating semiconductor chip of the plurality of semiconductor chips, each mounting area being further positioned adjacent an associated one of the plurality of heat conductive areas;
mounting one each of the plurality of semiconductor chips in each of the plurality of mounting areas with the one surface of the semiconductor chip adjacent the electrically insulated surface of the substrate and the bonding pads in each mounting area electrically connected to the I/O pads of the mating semiconductor chip for each mounting area; and
connecting one each of a plurality of heat conductive elements to the second surface of each semiconductor chip and to the associated one of the plurality of heat conductive areas.

5,786,231

SCREENING METHOD FOR SELECTING SEMICONDUCTOR SUBSTRATES HAVING DEFECTS BELOW A PREDETERMINED LEVEL IN AN OXIDE LAYER

William L. Warren; Karel J. R. Vanheusden; James R. Schwank; Daniel M. Fleetwood; Marty R. Shaneyfelt; Peter S. Winokur, all of Albuquerque, N. Mex., and Roderick A. B. Devine, St. Martin le Vinoux, France, assignors to Sandia Corporation, Albuquerque, N. Mex.

Filed Dec. 5, 1995, Ser. No. 567,679
Int. Cl.^{6} H01L *21/66;* **G01R** *31/26*
U.S. Cl. 438—17 **26 Claims**



1. A screening method for selecting one or more silicon-on-insulator substrates for integrated circuit fabrication comprising steps for:
(a) annealing the semiconductor substrates at a first temperature in a defect-activating ambient for sufficient time to activate any defects within an oxide layer of the substrates; and
(b) measuring an electrical charge in the oxide layer for providing an indication of a quantity of the activated defects within the oxide layer of the substrates.

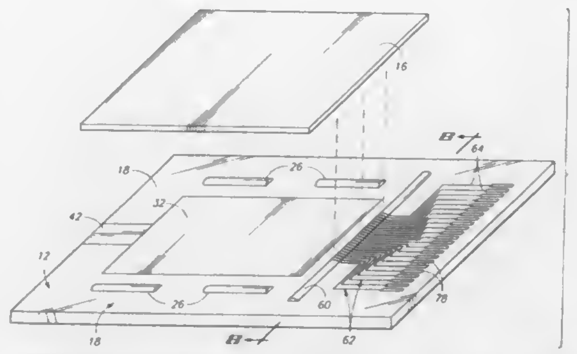
5,786,232

MULTI-LAYER ELECTRICAL INTERCONNECTION METHODS AND FIELD EMISSION DISPLAY FABRICATION METHODS

Darryl M. Stansbury, Boise, Id., assignor to Micron Display Technology, Inc., Boise, Id.

Continuation of Ser. No. 386,644, Feb. 10, 1995, Pat. No. 5,612,256. This application Jan. 2, 1997, Ser. No. 778,311
Int. Cl.^{6} H01L *21/60*
U.S. Cl. 438—20 **9 Claims**

1. A method of fabricating a multi-layer electrical interconnect structure, comprising the steps of:
providing a substrate having an upper level and a lower level;
forming a plurality of conductors over said substrate, a first portion of the plurality of conductors located on said upper level of said substrate and a second portion of said plurality of conductors located on said lower level of said substrate, said plurality of conductors being formed substantially at the same time on said upper level and said lower level of said substrate, said first and second portions of conductors having outermost surfaces; and
forming a plurality of wire interconnects between conductors of said first portion and said second portion, individual of said wire bonds extending between a respective outer surface of one conductor of said first portion and a respective outer surface of one conductor of said second portion.



5,786,233

PHOTO-ASSISTED ANNEALING PROCESS FOR ACTIVATION OF ACCEPTORS IN SEMICONDUCTOR COMPOUND LAYERS

Nikhil R. Taskar, Regopark; Donald R. Dorman, Carmel, both of N.Y., and Dennis Gallagher, Stamford, Conn., assignors to U.S. Philips Corporation, New York, N.Y.

Filed Feb. 20, 1996, Ser. No. 603,959
Int. Cl.^{6} H01L *21/00*
U.S. Cl. 438—46 **20 Claims**

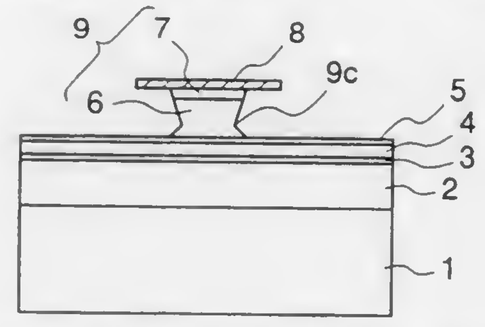
1. A method of increasing the active acceptor concentration N_A of acceptors in a hydrogen passivated p-doped II-VI or III-V semiconductor compound layer formed by chemical vapor deposition, said method comprising heating said layer to an annealing temperature which annealing temperature is below the decomposition temperature thereof but at least at a temperature at which there is a decrease in the resistivity of said layer and there is an increase in the net acceptor concentration of said layer while exposing said layer to photoexcitation with radiation of a wavelength shorter than the bandgap wavelength of said semiconductor compound layer at said annealing temperature for at least about 2 minutes.

5,786,234

METHOD OF FABRICATING SEMICONDUCTOR LASER

Yutaka Nagai, and Hitoshi Tada, both of Tokyo, Japan, assignors to Mitsubishi Denki Kabushiki Kaisha, Tokyo, Japan

Division of Ser. No. 629,942, Apr. 12, 1996, abandoned. This application Jun. 12, 1997, Ser. No. 873,459
Claims priority, application Japan, Oct. 17, 1995, 7-268689
Int. Cl.^{6} H01L *21/00*
U.S. Cl. 438—47 **5 Claims**



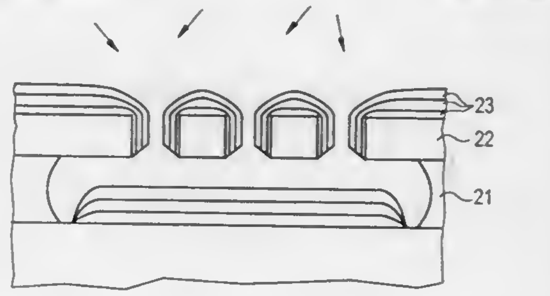
1. A method of fabricating a semiconductor laser comprising:
successively epitaxially growing on a surface of a first conductivity type crystalline semiconductor substrate, a first conductivity type lower cladding layer comprising a semiconductor material having an effective band gap energy, an active layer comprising a semiconductor material having an effective band gap energy smaller than the effective band gap energy of the lower cladding layer, a second conductivity type first upper cladding layer comprising the same semiconductor material as the lower cladding layer and having a first etching rate in an etchant, a second conductivity type etch stopping layer comprising a semiconductor material having a second etching rate, lower than the first etching rate, in the etchant, a second conductivity type second upper cladding layer comprising the same semiconductor material as the first upper cladding layer, and a second conductivity type first contact layer comprising a semiconductor material;
forming a stripe-shaped mask on the second conductivity type first contact layer, the mask extending in a direction relative to a crystalline orientation of the crystalline semiconductor substrate so that, upon etching of parts of the second conductivity type first contact layer and the second conductivity type second upper cladding layer not opposite the stripe-shaped mask with the etchant, a stripe-shaped ridge structure having a reverse mesa cross section and including parts of the second conductivity type first contact layer and the second conductivity type second upper cladding layer is formed on the etch stopping layer;
using the stripe-shaped mask, removing portions of the first contact layer and the second upper cladding layer not covered by the stripe-shaped mask in a first wet etching step using the etchant, thereby exposing the etch stopping layer and forming a mesa structure including parts of the second conductivity type first contact layer and the second conductivity type second upper cladding layer on the etch stopping layer;
removing portions of the second upper cladding layer in a second wet etching step to form a stripe-shaped ridge structure having a reverse mesa cross section;
growing a first conductivity type current blocking layer contacting both sides of the ridge structure;
removing the mask; and
growing a second conductivity type second contact layer comprising the same semiconductor material as the first contact layer on the current blocking layer and on the first contact layer.

5,786,235

PROCESS FOR DEPOSITING A SURFACE-WIDE LAYER THROUGH A MASK AND OPTIONALLY CLOSING SAID MASK

Ignaz Eisele, Icking; Bertrand Flietner, München, and Josef Lechner, Bad Aibling, all of Germany, assignors to Siemens Aktiengesellschaft, Munich, Germany

PCT No. PCT/DE94/00505, § 371 Date Oct. 31, 1995, § 102(e) Date Oct. 31, 1995, PCT Pub. No. WO94/25863, PCT Pub. Date Nov. 10, 1994
PCT Filed May 5, 1994, Ser. No. 537,915
Claims priority, application Germany, May 5, 1993, 43 14 888.3
Int. Cl.^{6} H01L *21/44;21/465*
U.S. Cl. 438—53 **29 Claims**



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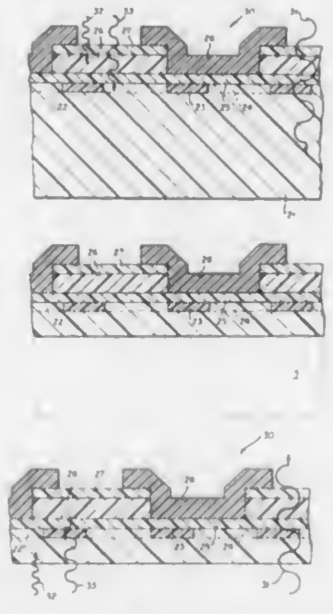
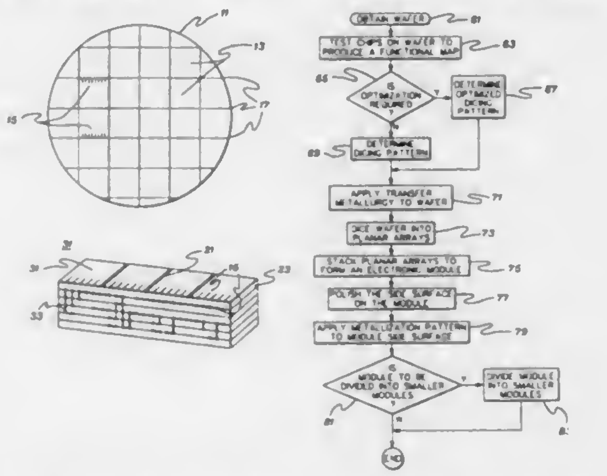
1. A process for producing a suspended-gate field-effect transistor, comprising the steps of:
providing a substrate having a source region, a drain region and a channel disposed between the source region and the drain region;
applying a gate oxide to the substrate;
applying a first silicon nitride layer, a silicon dioxide layer, a second silicon nitride layer and a metal layer to the gate oxide;
patterning the metal layer and the second silicon nitride layer using a photoresist procedure as a mask;
forming a cavity beneath the mask by etching the silicon dioxide layer in an etching process which attacks silicon dioxide selectively with respect to silicon nitride and metal;
depositing a chemically sensitive layer underneath the mask from different directions so that a surface-wide coating takes place underneath the mask; and
the mask forming one of a gate electrode or membrane of the suspended-gate field-effect transistor.

5,786,236
BACKSIDE THINNING USING ION-BEAM FIGURING
Dennis A. Thompson, Scottsville, and Bryan L. Howe, Honeoye Falls, both of N.Y., assignors to Eastman Kodak Company, Rochester, N.Y.
Filed Mar. 29, 1996, Ser. No. 625,603
Int. Cl.^{6} H01L *21/00;21/339;21/30*
U.S. Cl. 438—60 **6 Claims**



1. A method for making backside thinned image sensors comprising the steps of:
providing a semiconductor image sensor having circuits etched upon a first major surface;
mounting the image sensor within a final chip carrier that will serve to complete the image sensor package and function as the final chip carrier for the image sensor;
providing vacuum chamber having a neutral ion beam and control means for directing neutral ion beam direction and intensity, and a translation drive having means for controlling relative position of the neutral ion beam to the final chip carrier;
placing the semiconductor image sensor, that is on the final chip carrier, within the vacuum chamber the neutral ion beam will be incident upon a second major surface of the image sensor, the second major surface having no circuitry etched thereon, and being opposite the first major surface; and
etching away the image sensor by controlling the neutral ion beam to remove a part of the second major surface.

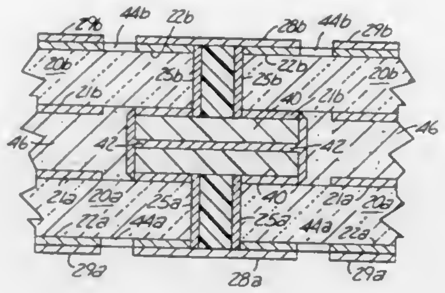
5,786,237
METHOD FOR FORMING A MONOLITHIC ELECTRONIC MODULE BY STACKING PLANAR ARRAYS OF INTEGRATED CIRCUIT CHIPS
Martha Ashley Clark Cockerill; John George Maltabes, both of Austin, Tex.; Loretta Jean O'Connor, Westford, and Steven Howard Voldman, Burlington, both of Vt., assignors to International Business Machines Corporation, Armonk, N.Y.
Division of Ser. No. 293,991, Aug. 22, 1994, abandoned. This application Aug. 16, 1995, Ser. No. 515,611
Int. Cl.^{6} H01L *21/60;21/66;21/70*
U.S. Cl. 438—109 **14 Claims**


OBTAIN WAFER
TEST CHIPS ON WAFER TO PRODUCE A FUNCTIONAL MAP
IS OPTIMIZATION REQUIRED
DETERMINE OPTIMIZED DICING PATTERN
DETERMINE DICING PATTERN
APPLY TRANSFER METALLURGY TO WAFER
DICE WAFER INTO PLANAR ARRAYS
STACK PLANAR ARRAYS TO FORM AN ELECTRONIC MODULE
POLISH THE SIDE SURFACE OF THE MODULE
APPLY METALLIZATION PATTERN TO MODULE SIDE SURFACE
IS MODULE TO BE DIVIDED INTO SMALLER MODULES
DIVIDE MODULE INTO SMALLER MODULES

1. A method for forming an electronic module comprising the steps of:
(a) providing a plurality of planar arrays, each planar array of said plurality of planar arrays having a plurality of functional integrated circuit (IC) chips;
(b) stacking said plurality of planar arrays to form an electronic module having at least one side surface;
(c) polishing the at least one side surface of the electronic module to expose transfer metals extending thereto from at least some integrated circuit chips in each of said plurality of planar arrays, said polishing producing a polished side surface of the electronic module; and
(d) depositing a two-dimensional metallization pattern on said polished side surface of the electronic module for at least partially electrically interconnecting the plurality of planar arrays, wherein said two-dimensional metallization pattern includes lateral interconnect for electrically interconnecting at least some integrated circuit chip in at least one planar array of said plurality of planar array stacked to form said electronic module.

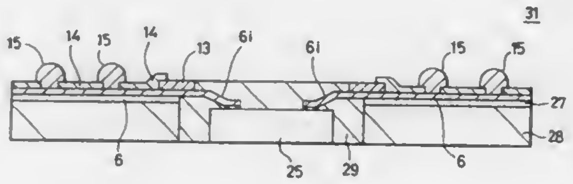
5,786,238
LAMINATED MULTILAYER SUBSTRATES
Deepak K. Pai, Burnsville; Ronald R. Denny, Brooklyn Center; Jeanne M. Chevalier, Savage; George F. Schwartz, III, Hopkins; Clark F. Webster, Northfield; Robert M. Lufkin, Bloomington, and Terrance A. Krinke, Roseville, all of Minn., assignors to Generyal Dynamics Information Systems, Inc., Falls Church, Va.
Filed Feb. 13, 1997, Ser. No. 799,128
Int. Cl.^{6} H01L *21/44*
U.S. Cl. 438—118 **10 Claims**

1. A process of interconnecting large-layer-count (LLC) substrates, comprising:
providing first and second LLC substrates, each having a top surface and a bottom surface;
forming a first via in the first LLC substrate and a second via in the second LLC substrate, the first and second vias extending through the respective first and second LLC substrates between the respective top and bottom surfaces;



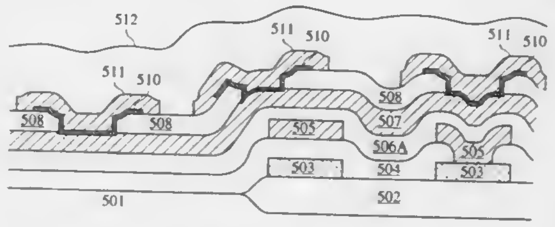
forming a conductive path through each of the first and second vias between the respective top and bottom surfaces;
forming a first post on the top surface of the first LLC substrate over the first via and electrically connected to the conductive path formed through the first via, and a second post on the top surface of the second LLC substrate over the second via and electrically connected to the conductive path formed through the second via;
providing a non-flowable adhesive layer having an aperture;
positioning the non-flowable adhesive layer between the first and second LLC substrates so that the first and second posts confront each other through the aperture in the non-flowable film adhesive layer; and
simultaneously:
pressing the first and second LLC substrates together through the non-flowable adhesive layer so that the non-flowable film adhesive layer is adhesively bonded to the first and second LLC substrates and the first and second posts abut each other; and
bonding the posts to each other electrically.

5,786,239
METHOD OF MANUFACTURING A SEMICONDUCTOR PACKAGE
Kenji Ohsawa, and Makoto Ito, both of Kanagawa, Japan, assignors to Sony Corporation, Tokyo, Japan
Filed Sep. 20, 1996, Ser. No. 717,419
Claims priority, application Japan, Sep. 20, 1995, 7-241965
Int. Cl.^{6} H01L *21/60*
U.S. Cl. 438—123 **10 Claims**



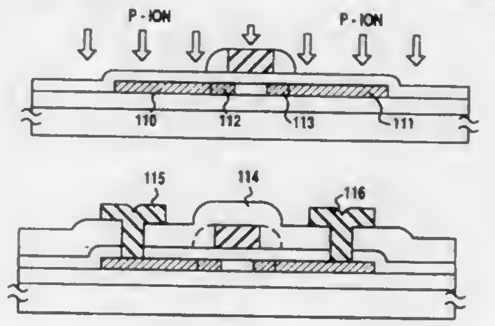
1. A method of manufacturing a semiconductor package comprising the steps of:
respectively forming, by plating, a plurality of leads on a surface of a metal base and a large number of minute convex portions in an outer peripheral area of said leads;
selectively forming an insulation film on a portion including said outer peripheral area having said minute convex portions thereon;
forming a projecting electrode on an outer lead portion of each of said leads through an opening in said insulation film on an outer lead portion of each of said leads;
selectively removing said metal base except a joint portion thereof on an outer periphery to separate said respective leads;
connecting inner lead portions if said leads and a semiconductor chip together; and
cutting off said joint portion of said metal base.

5,786,240
METHOD FOR OVER-ETCHING TO IMPROVE VOLTAGE DISTRIBUTION
Kevin T. Look, Fremont; Yakov Karpovich, Campbell, and Michael J. Hart, Palo Alto, all of Calif., assignors to Xilinx, Inc., San Jose, Calif.
Filed Jun. 27, 1996, Ser. No. 672,185
Int. Cl.^{6} H01L *29/00*
U.S. Cl. 438—131 **6 Claims**



1. A method of controlling the programming voltage of an antifuse, said method comprising:
depositing a first conductive layer on a surface;
depositing a dielectric layer on said first conductive layer;
etching through said dielectric layer to said first conductive layer, thereby forming a via;
over-etching said via to form a trench, wherein said trench extends into, but not through, said first conductive layer, wherein the depth of said trench is approximately the thickness of a to-be-formed silicon-based antifuse layer;
depositing said silicon-based antifuse layer into said via; and
depositing a second conductive layer on said antifuse layer and said dielectric layer.

5,786,241
METHOD FOR FORMING A THIN FILM SEMICONDUCTOR DEVICE UTILIZING A GATE AND GATE SIDE WALLS AS MASKS
Hiroyuki Shimada, Kanagawa, Japan, assignor to Semiconductor Energy Laboratory Co., Ltd., Kanagawa, Japan
Filed Dec. 28, 1994, Ser. No. 365,116
Claims priority, application Japan, Jan. 8, 1994, 6-012151
Int. Cl.^{6} H01L *21/84*
U.S. Cl. 438—163 **24 Claims**



1. A method for forming a thin film semiconductor device comprising the steps of:
forming a semiconductor film on a substrate having an insulating surface;
forming a gate insulating film having a first etching rate on the semiconductor film;
forming a gate electrode including a metal on the gate insulating film;
introducing an impurity, using the gate electrode as a first mask to form impurity regions in the semiconductor film;
forming side walls on sides of the gate electrode having a second etching rate, which is larger than the first etching rate, said side walls comprising an amorphous semiconductive silicon; and

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introducing an impurity providing the same conductivity type as the impurity regions into the impurity regions using the side walls as a second mask.

5,786,242
METHOD OF MANUFACTURING SOI SEMICONDUCTOR INTEGRATED CIRCUIT

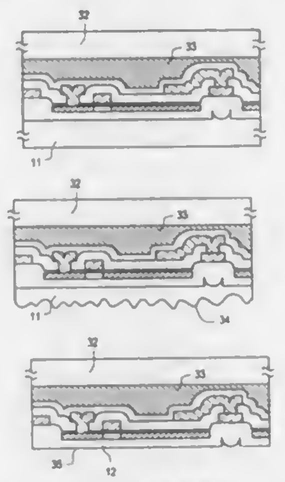
Yasuhiko Takemura, Kanagawa, and Shunpei Yamazaki, Tokyo, both of Japan, assignors to Semiconductor Energy Laboratory Co., Ltd., Kanagawa, Japan

Filed Nov. 21, 1995, Ser. No. 561,184

Claims priority, application Japan, Nov. 25, 1994, 6-315635

Int. Cl.^{6} H01L *21/336*

U.S. Cl. 438—166 **20 Claims**



1. A method of manufacturing an SOI semiconductor integrated circuit comprising the steps of:

(1) forming a layer comprising silicon oxide on a single crystal silicon substrate;
(2) forming a non-single-crystal silicon coating on the silicon oxide layer;
(3) crystallizing the non-single-crystal silicon coating by using the single crystal silicon substrate as a seed;
(4) forming a semiconductor integrated circuit by using the crystallized silicon coating obtained in step (3);
(5) bonding an insulating substrate to a top surface of the semiconductor integrated circuit; and
(6) completely etching the single crystal silicon substrate by leaving the single crystal silicon substrate in a non-plasmatic atmosphere containing a halogen fluoride.

5,786,243

Patent Not Issued For This Number

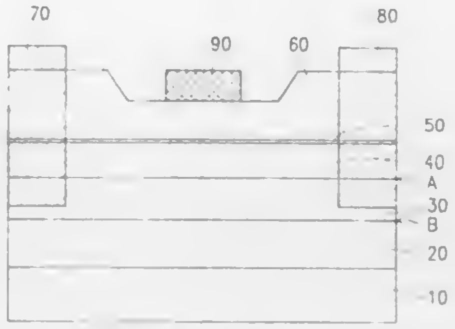
5,786,244
METHOD FOR MAKING GAAS-INGAAS HIGH ELECTRON MOBILITY TRANSISTOR

Chun Yen Chang, Hsinchu, Taiwan, assignor to National Science Council, Taipei, Taiwan

Continuation-in-part of Ser. No. 315,431, Sep. 30, 1994, abandoned. This application Dec. 19, 1996, Ser. No. 770,183

Int. Cl.^{6} H01L *21/338*

U.S. Cl. 438—172 **4 Claims**



1. A method of fabricating a GaAs/InGaAs transistor comprising the steps of:

(i) sequentially growing a GaAs buffer layer, a graded InGaAs channel layer, a GaAs spacer layer, a δ-doping layer, and a GaAs cap layer on an undoped GaAs substrate by LP-MOCVD, wherein said InGaAs channel layer has a chemical composition in a form of $In_xGa_{1-x}As$, wherein x is 0.2 at the interface of the GaAs spacer layer and the graded InGaAs channel layer, and gradually increases to 0.25 at the interface of the graded InGaAs channel layer and the GaAs buffer layer;
(ii) forming a drain terminal and a source terminal on both sides of said GaAs cap layer, and sintering to a point that said drain and said source terminals contact said graded InGaAs channel layer;
(iii) forming a groove on said GaAs cap layer between said drain and said source terminals; and
(iv) forming a gate terminal in said groove.

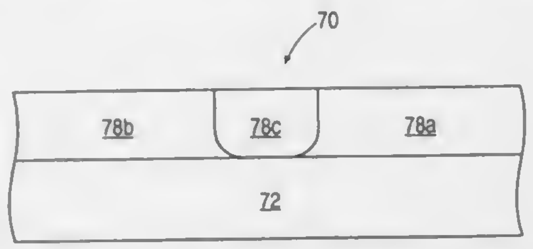
5,786,245
METHOD FOR FORMING A STABLE SRAM CELL USING LOW BACKGATE BIASED THRESHOLD VOLTAGE SELECT TRANSISTORS

Chuen-Der Lien, Mountain View, Calif., assignor to Integrated Device Technology, Inc., Santa Clara, Calif.

Division of Ser. No. 373,863, Aug. 2, 1994, Pat. No. 5,675,165. This application Feb. 28, 1996, Ser. No. 607,414

Int. Cl.^{6} H01L *21/336*

U.S. Cl. 438—197 **3 Claims**



1. A method for forming a more stable SRAM cell, said cell including a select transistor formed in a substrate, said select transistor having an associated backgate biased threshold voltage, wherein said method comprises the steps of:

positioning a first masking layer overlying said substrate to define a first well region in said substrate;
implanting dopants of a first conductivity type into said first well region defined by said first masking layer;
positioning a second masking layer overlying said substrate to define a second well region in said substrate; and
implanting dopants of a second conductivity type into said second well region defined by said second masking layer,
  wherein portions of said first and second well regions overlap to define a third well region in said substrate, said third well region having a dopant concentration less than the dopant concentrations of either of said first and second well regions and serving as a channel region for said select transistor so as to effectively reduce said backgate biased threshold voltage of said select transistor and thereby increase the stability of said SRAM cell.

5,786,246

Patent Not Issued For This Number

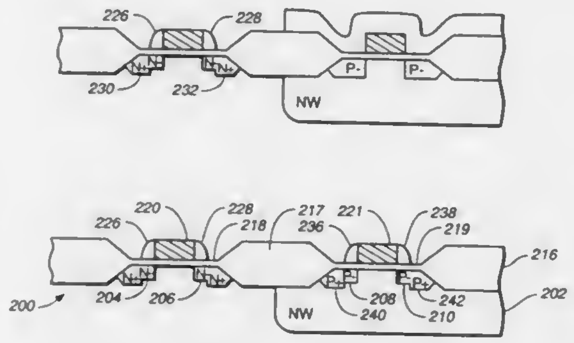
5,786,247
LOW VOLTAGE CMOS PROCESS WITH INDIVIDUALLY ADJUSTABLE LDD SPACERS

Kuang-Yeh Chang, Los Gatos, and Ramachandr A. Rao, Pleasanton, both of Calif., assignors to VLSI Technology, Inc., San Jose, Calif.

Continuation of Ser. No. 239,435, May 6, 1994, abandoned. This application Dec. 9, 1996, Ser. No. 762,411

Int. Cl.^{6} H01L *21/8238*

U.S. Cl. 438—231 **9 Claims**



1. A method for fabricating an integrated circuit having at least one n-channel CMOS transistor and at least one p-channel CMOS transistor, said method comprising the steps of:

forming a substrate of a first conductivity-type material;
forming a well of a second conductivity-type material in said substrate;
forming lightly doped areas of said first conductivity-type material and of said second conductivity-type material in gate regions of said substrate;
forming an oxide layer on said substrate, the oxide layer establishing thick field oxide regions for separating the at least one n-channel CMOS transistor from the at least one p-channel CMOS transistor formed on the substrate, and establishing gate oxide regions in said gate regions of the substrate;
forming gates in said gate regions;
forming a uniform layer of spacer material over said gates and said oxide layer;
masking one of said p-channel transistor and said n-channel transistor with a masking material;
forming at least one spacer over said lightly doped area adjacent said gate of the other of said p-channel transistor and said n-channel transistor;
forming a heavily doped area in said substrate, said heavily doped area being formed in said gate region of said other transistor, and being defined by said at least one spacer;
removing said masking material from said one transistor;
masking the other of said p-channel transistor and said n-channel transistor with a masking material;
etching spacer material of said one transistor using a blanket etch;
forming at least one spacer over said lightly doped area adjacent said gate of said one transistor such that said blanket etch and said step of forming said at least one spacer of said one transistor provide spacers which are different in size with respect to the at least one spacer of said other transistor, said at least one spacer having a size selected to balance operation of said one transistor and said other transistor for a reduced power source of the integrated circuit; and
forming a heavily doped area in said substrate, said heavily doped area being formed in said gate region of said one transistor and being defined by said at least one spacer of said one transistor.

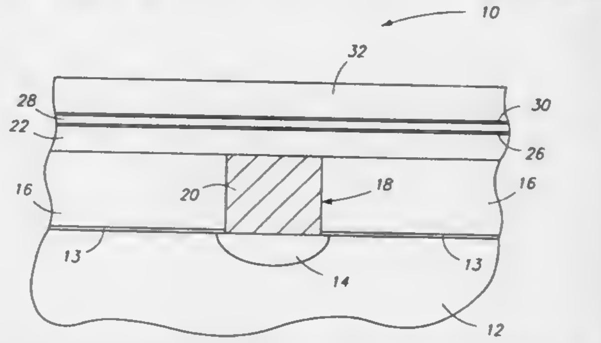
5,786,248
SEMICONDUCTOR PROCESSING METHOD OF FORMING A TANTALUM OXIDE CONTAINING CAPACITOR

Klaus Schuegraf, Boise, Id., assignor to Micron Technology, Inc., Boise, Id.

Filed Oct. 12, 1995, Ser. No. 542,430

Int. Cl.^{6} H01L *21/8242*

U.S. Cl. 438—240 **28 Claims**



1. A semiconductor processing method of forming a capacitor on a substrate comprising the following steps:

providing an oxidizable and electrically conductive inner capacitor plate on the substrate;
cleaning the inner capacitor plate to remove oxide therefrom;
within a chemical vapor deposition reactor, first chemical vapor depositing a dielectric nitride layer over the cleaned inner capacitor plate to a first thickness, the substrate not being exposed to oxidizing conditions between the cleaning and chemical vapor depositing steps;
separately second chemical vapor depositing a Ta_2O_5 dielectric layer over the first chemical vapor deposited dielectric nitride layer;
annealing the Ta_2O_5 layer to densify such layer, the first chemical vapor deposited dielectric nitride layer restricting oxidation of the underlying oxidizable inner capacitor plate during the annealing; and
providing an outer capacitor plate over the Ta_2O_5 layer.

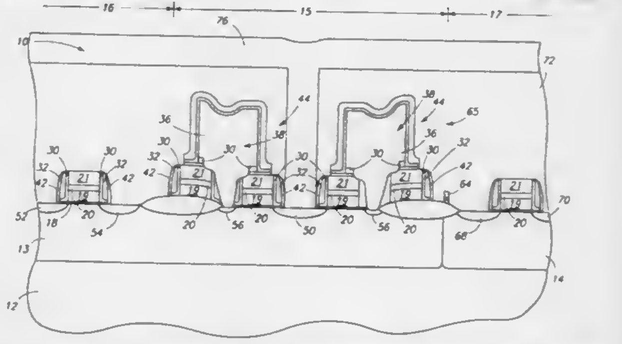
5,786,249
METHOD OF FORMING DRAM CIRCUITRY ON A SEMICONDUCTOR SUBSTRATE

Charles H. Dennison, Meridian, Id., assignor to Micron Technology, Inc., Boise, Id.

Filed Mar. 7, 1996, Ser. No. 612,164

Int. Cl.^{6} H01L *21/8242;21/20*

U.S. Cl. 438—241 **55 Claims**



1. A method of forming DRAM circuitry on a semiconductor substrate having complementary metal oxide semiconductor field effect transistors and associated capacitors comprising the following steps:

defining a memory array area on a substrate for formation of first conductivity type DRAM field effect transistors and defining an area peripheral to the array on the substrate for formation of first and second conductivity type CMOS field

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effect transistors, the peripheral area comprising first and second peripheral areas, the first and second conductivity type transistors to be formed in the first and second peripheral areas, respectively;

providing a plurality of patterned gate lines within the memory array area, the first peripheral area and the second peripheral area; the gate lines defining respective source areas and drain areas adjacent thereto;

providing an insulating dielectric layer within the array area and the first and second peripheral areas over the gate lines, the source areas and the drain areas;

patterning and etching the insulating dielectric layer to outwardly expose selected source areas within the array area;

providing an electrically conductive capacitor storage node layer over the patterned insulating dielectric layer;

patterning and etching the capacitor storage node layer to define respective capacitor storage nodes over the selected array source areas, the storage node etching not going completely through the insulating dielectric layer;

providing a capacitor dielectric layer and an electrically conductive capacitor cell plate layer over the capacitor storage nodes and the first and second peripheral areas;

first photomasking the cell plate layer to cover the array storage nodes and to cover the second peripheral area, while leaving selected source or areas within the array and the first peripheral area unmasked;

with the first photomasking in place, first etching the capacitor cell plate layer and insulating dielectric layer to effectively expose the selected array drain areas and the first peripheral area;

after effectively exposing the selected array drain areas and the first peripheral area source and drain areas and with the first photomasking still in place, implanting first conductivity type dopant impurity into the selected array drain areas and the first peripheral area to form conductively doped array drain regions and conductively doped first peripheral area source and drain regions;

second photomasking the array area and the first peripheral area while leaving the second peripheral area exposed;

with the second photomasking in place, second etching the capacitor cell plate layer and the capacitor dielectric layer from the second peripheral area; and

with the second photomasking in place and after the second etching of the capacitor cell layer, implanting second conductivity type dopant impurity into the source areas and the drain areas in the second peripheral area to form conductively doped second peripheral area drain and source regions.

5,786,250
METHOD OF MAKING A CAPACITOR

Zhiqiang Wu; Li Li, both of Meridian, and Kunal Parekh, Boise, all of Id., assignors to Micron Technology, Inc., Boise, Id.

Filed Mar. 14, 1997, Ser. No. 818,597
Int. Cl.^{6} H01L *21/8242*
U.S. Cl. 438—254 **27 Claims**

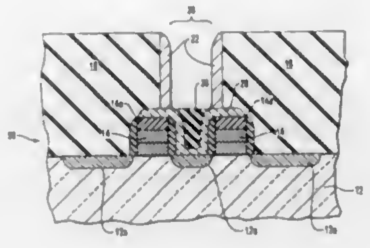
1. A method of forming a structure composed of a conductive material, comprising:

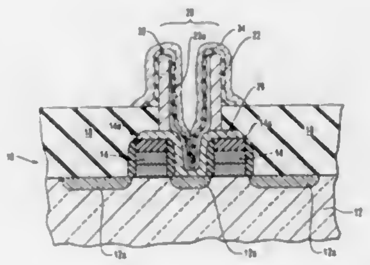
providing an open space extending between a pair of insulated structures situated upon a substrate;

forming a first layer of conductive material within the open space, upon the substrate, and upon the pair of insulated structures;

forming a layer of an insulating material over the first layer of conductive material, the layer of the insulating material substantially filling the open space between the pair of insulated structures;

forming a recess in the insulating material, the recess extending to terminate at an exposed portion of the first layer of conductive material and at a volume of the layer of the insulating material situated upon the first layer of conductive material and between the pair of insulated structures;





forming a second layer of conductive material within the recess upon:

the volume of the layer of the insulating material that is upon the first layer of conductive material and situated between the pair of insulated structures; and

the exposed portion of the first layer of conductive material;

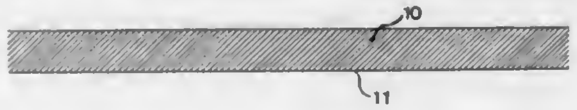
removing a portion of the second layer of conductive material within the recess so as to expose the volume of the layer of the insulating material upon the first layer of conductive material and situated between the pair of insulated structures; and

removing at least a portion of the volume of the layer of the insulating material upon the first layer of conductive material situated between the pair of insulated structures.

5,786,251
METHOD FOR PRODUCING A CHANNEL REGION LAYER IN A VOLTAGE CONTROLLED SEMICONDUCTOR DEVICE

Christopher Harris, Sollentuna; Mietek Bakowski, Skultuna; Lennart Zdansky, Västerås, and Bo Bijlenga, Skultuna, all of Sweden, assignors to ABB Research Ltd., Zurich, Sweden

Filed Jul. 9, 1996, Ser. No. 678,548
Int. Cl.^{6} H01L *21/336*
U.S. Cl. 438—268 **9 Claims**



1. A method for producing a channel region layer having a doping opposite to that of the regions on laterally opposite sides thereof in a SiC-layer for producing a voltage-controlled semiconductor device, said method comprising the steps of:

1) applying a layer of silicon being one of a) polycrystalline and b) amorphous on top of the SiC-layer;

2) etching an aperture in said silicon layer to extend to the SiC-layer;

3) oxidizing a surface layer of a certain thickness of said silicon layer;

4) implanting dopants of a first doping type, which corresponds to the doping type of the SiC-layer, into an area of the SiC-layer defined by said aperture in said silicon layer to obtain a high doping concentration of said first type in a first near-surface layer of the SiC-layer under said area.

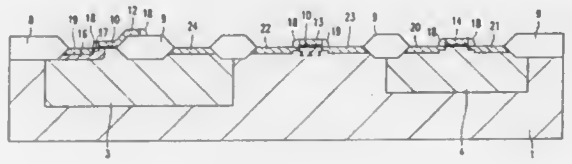
5) removing said oxidized surface layer by etching and thereby increasing said aperture by the thickness of said oxidized layer;

6) implanting dopants of a second dopant type into an area of the SiC-layer defined by the aperture formed by step 5) to such a degree that the doping type of said near-surface layer created by carrying out step 4) is maintained but the doping type of a second near-surface layer under the area exposed through step 5) is changed to form a channel region layer with a lateral extension determined by the thickness of the oxidized silicon layer, wherein the steps are carried out in one of a) the above order and b) the above order, except for step 4) performed before step 3).

5,786,252
METHOD OF MANUFACTURING A SEMICONDUCTOR DEVICE, AND SEMICONDUCTOR DEVICE MANUFACTURED BY SUCH A METHOD

Adrianus W. Ludikhuize, Eindhoven, and Maarten J. Van Dort, Nijmegen, both of Netherlands, assignors to U.S. Philips Corporation, New York, N.Y.

Filed Mar. 6, 1997, Ser. No. 812,185
Claims priority, application European Pat. Off., Mar. 6, 1996, 96200614
Int. Cl.^{6} H01L *21/8234*
U.S. Cl. 438—275 **8 Claims**



1. A method of manufacturing a semiconductor device with a DMOS transistor and a MOS transistor in a common semiconductor body, which method comprises the following steps:

local defining of a first active region at the surface of the semiconductor body for the DMOS transistor and of a second active region at the surface of the semiconductor body for the MOS transistor;

providing an electrically insulating layer on the first active region and on the second active region as a gate dielectric for the DMOS transistor and the MOS transistor;

introducing a dopant into the channel region of the MOS transistor to be formed in the second active region;

providing a silicon layer on the semiconductor body, which layer is insulated from the surface of the semiconductor body by the gate dielectric at least at the areas of the first and the second active region, and formation by photolithographic means of gate electrodes of the DMOS transistor and the MOS transistor from said silicon layer;

forming a p-type back-gate region for the DMOS transistor through a comparatively deep implantation of boron ions into the first active region with the gate electrode of the DMOS transistor acting as a mask, whereby the back-gate region is aligned with an edge of the gate electrode;

forming a lightly doped n-type portion of the source zone of the DMOS transistor through an implantation of n-type ions with a comparatively low doping level into the back-gate region with the gate electrode of the DMOS transistor acting as a mask, whereby the lightly doped portion of the source zone is aligned with said edge of the gate electrode;

causing the boron atoms to diffuse farther into the semiconductor body at a temperature lower than 1,000° C.;

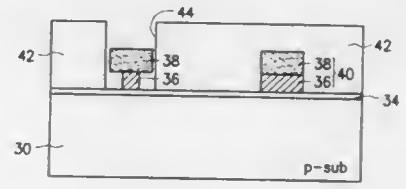
providing of a spacer on the gate electrode of the DMOS transistor and the local provision of a comparatively strongly doped source zone at a distance from the gate electrode;

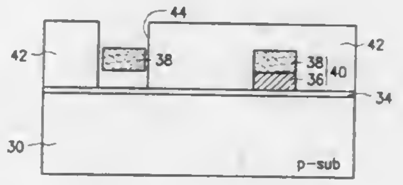
providing source and drain zones for the MOS transistor.

5,786,253
METHOD OF MAKING A MULTI-LEVEL ROM DEVICE

Chen-Chung Hsu, Taichung, Taiwan, assignor to United Microelectronics Corporation, Taipei, Taiwan

Filed Jul. 14, 1997, Ser. No. 892,025
Claims priority, application Taiwan, Apr. 18, 1997, 86105074
Int. Cl.^{6} H01L *21/8246;21/8234*
U.S. Cl. 438—275 **8 Claims**





1. A method of making a multiple-level ROM device, comprising:

providing a substrate comprised of a first conductivity type of ions;

implanting a second conductivity type of ions into the substrate to form a plurality of embedded bit lines extending in a first direction;

forming an oxide layer over a surface of the substrate and a surface of the embedded bit lines;

forming an impurity doped polysilicon layer and a tungsten silicide layer, in sequence, above a surface of the oxide layer;

simultaneously patterning the impurity doped polysilicon layer and the tungsten silicide layer to form a plurality of word lines extending in a second direction, with the second direction and the first direction crossing each other at an angle;

forming a dielectric layer over the oxide layer and a surface of the word lines;

patterning the dielectric layer and forming a plurality of contact windows therein, each being located above a word line and in between two adjacent bit lines, and each having a width that is larger than a width of the respective word line so that a portion of the tungsten silicide layer and the oxide layer therebelow is exposed, wherein at least a first group of memory unit is provided and defined by an absence of a contact window thereabove;

coating the dielectric layer with a first photoresist layer;

patterning the first photoresist layer to expose some of the contact windows;

wet etching and removing all of the impurity doped polysilicon layer underneath the exposed contact windows, while leaving behind the tungsten silicide layer, so as to form a second group of memory unit;

removing the first photoresist layer;

coating the dielectric layer with a second photoresist layer;

patterning the second photoresist layer to expose remaining contact windows;

wet etching and removing a portion of the impurity doped polysilicon layer underneath the exposed remaining contact windows so as to narrow a width of the impurity doped polysilicon layer, thereby forming a third group of memory unit; and

removing the second photoresist layer.

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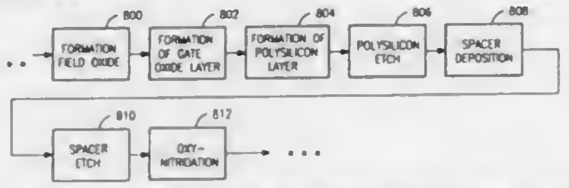
5,786,254
HOT-CARRIER RELIABILITY IN SUBMICRON MOS DEVICES BY OXYNITRIDATION

Ming-yin Hao, Sunnyvale, and Rajat Rakkhit, Milpitas, both of Calif., assignors to Advanced Micro Devices, Inc., Sunnyvale, Calif.

Filed Mar. 19, 1997, Ser. No. 821,121
Int. Cl.^{6} H01L *21/265;21/336*
U.S. Cl. 438—287 **3 Claims**

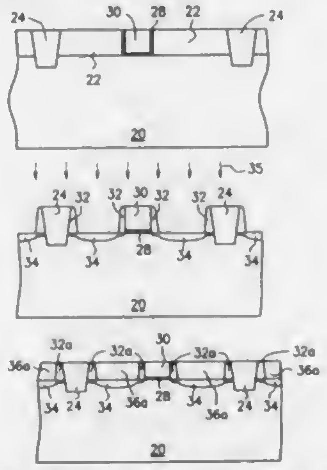


1. A method of manufacturing a semiconductor device with reduced hot-carrier induced degradation, the method comprising:
forming a layer of gate oxide on a surface of a semiconductor substrate;
forming a layer of polysilicon on the layer of gate oxide;
removing a portion of the layer of polysilicon forming a gate structure of polysilicon overlying a layer of gate oxide;
removing the gate oxide layer from the surface of the semiconductor substrate not underlying the gate structure;
forming a layer of a spacer material on the gate and semiconductor substrate;
etching the layer of a spacer material to form sidewall spacers;
introducing a nitrogen species into the gate oxide layer after the layer of spacer material has been etched.

5,786,255
METHOD OF FORMING A METALLIC OXIDE SEMICONDUCTOR

Wen-Kuan Yeh, Chupei; Coming Chen, Taoyuan Hsien, and Jih-Wen Chou, Hsinchu, all of Taiwan, assignors to United Miroelectronics Corporation, Taiwan, Taiwan

Filed May 27, 1997, Ser. No. 863,426
Claims priority, application Taiwan, Apr. 8, 1997, 86104401
Int. Cl.^{6} H01L *21/336*
U.S. Cl. 438—299 **9 Claims**

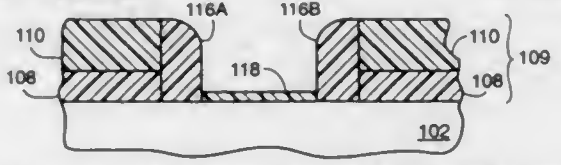


1. A method of forming a MOS component, comprising:
providing a semiconductor substrate, a silicon nitride layer thereabove, and a plurality of trenches formed within the silicon nitride layer;
filling the trenches with an isolating layer;
planarizing the silicon nitride layer and the filled trenches using chemical-mechanical polishing;
defining the silicon nitride layer using a photolithographic process, to etch openings into the silicon nitride layer and expose the semiconductor substrate;
sequentially forming a gate oxide layer and a gate conducting layer over the silicon nitride layer and filling the openings;
removing a portion of the gate oxide layer and the gate conducting layer above the silicon nitride layer using chemical-mechanical polishing;
completely removing the silicon nitride layer;
implanting ions into the semiconductor substrate;
after said implanting ions, forming spacers on sidewalls of the gate oxide layer and the gate conducting layer;
after said forming spacers, implanting more ions into the semiconductor substrate, said implanting ions and said implanting more ions forming ion doped LDD regions within the semiconductor substrate;
forming a polysilicon layer above the semiconductor substrate to cover an area above the ion doped LDD regions; and
planarizing the filled trenches, spacers, gate conducting layer and the polysilicon layer using chemical-mechanical polishing, leaving the polysilicon layer only above the ion doped LDD regions to form source/drain terminals.

5,786,256
METHOD OF REDUCING MOS TRANSISTOR GATE BEYOND PHOTOLITHOGRAPHICALLY PATTERNED DIMENSION

Mark I. Gardner, Cedar Creek; Fred N. Hause, and H. Jim Fulford, Jr., both of Austin, all of Tex., assignors to Advanced Micro Devices, Inc.

Filed Jul. 19, 1996, Ser. No. 684,407
Int. Cl.^{6} H01L *21/336;21/3205*
U.S. Cl. 438—305 **18 Claims**

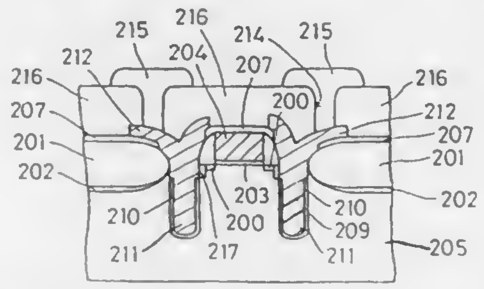


1. A semiconductor fabrication process for use with an optical aligner wherein said optical aligner is capable of resolving a minimum dimension, comprising:
providing a semiconductor substrate, wherein said semiconductor substrate includes a channel region laterally disposed between a pair of source/drain regions;
forming a dielectric stack on an upper surface of said semiconductor substrate;
patterning said dielectric stack to expose an upper surface of a spacer region of said semiconductor substrate, wherein said spacer region includes said channel region and peripheral portions of said pair of source/drain regions proximal to said channel region, and wherein said patterning produces a pair of opposing sidewalls in said dielectric stack, and further wherein a lateral separation between said opposing sidewalls is approximately equal to said minimum dimension of said optical aligner;
forming a pair of first spacer structures on said pair of opposing sidewalls respectively such that said pair of first spacer structures shadow said peripheral portions of said pair of source/drain regions and such that an upper surface of said channel region of said semiconductor substrate is exposed whereby a lateral dimension of said exposed channel region is less than said minimum dimension of said optical aligner;
forming a gate structure on said upper surface of said channel region of said semiconductor substrate, wherein said gate structure is laterally disposed between said pair of first spacer structures;
removing said dielectric stack from upon said upper surface of said semiconductor substrate, thereby exposing a portion of said pair of source/drain regions;
removing said pair of first spacers from said sidewalls of said gate structure; and
after removing said dielectric stack and said pair of first spacers, implanting a first concentration of ions into said pair of source/drain regions before any other source/drain implants are performed such that said first concentration is self aligned to said gate structure to form a transistor, whereby a channel length of said transistor is less than a minimum feature size of said optical aligner, and wherein said first concentration is substantially contained above a first depth below said upper surface of said semiconductor substrate.

5,786,257
METHOD OF FABRICATING A LDD TRANSISTOR

Jemmy Wen, Hsinchu, Taiwan, assignor to United Microelectronics Corporation, Taipei, Taiwan

Filed Oct. 31, 1996, Ser. No. 751,297
Claims prinrity, application Taiwan, Aug. 27, 1996, 85110387
Int. Cl.^{6} H01L *21/8234*
U.S. Cl. 438—305 **7 Claims**



1. A method of fabricating a metal oxide semiconductor device, comprising the steps of:
providing a substrate;
forming a field oxide layer having an opening that exposes an active region of the substrate;
forming a gate in the active region;
forming two lightly doped diffusion regions in the substrate on opposite sides of the gate;
forming a spacer on each side of the gate;
forming a first insulating layer covering the gate;
forming a trench in the substrate between one of the spacers and the field oxide layer;
forming a second insulating layer on a surface of said trench;
forming a first conductive layer in the trench substantially below the top surface of the substrate;
removing portions of the second insulating layer until an upper surface of the remainder of the second insulating layer is substantially below the first conductive layer; and
forming a second conductive layer filling the trench and covering at least part of a surface of the field oxide layer or part of the gate, to thereby to form a source/drain region.

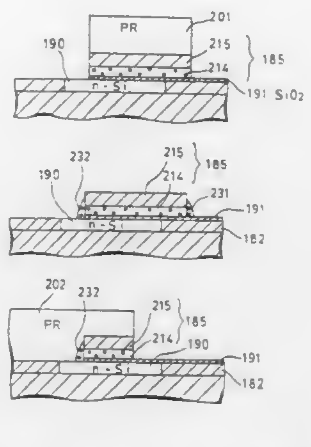
5,786,258
METHOD OF MAKING AN SOI TRANSISTOR

Hiroyuki Miwa; Takayuki Gomi, and Katsuyuki Kato, all of Kanagawa, Japan, assignors to Sony Corporation, Japan

Division of Ser. No. 319,150, Oct. 6, 1994, Pat. No. 5,629,217, which is a division of Ser. No. 245,767, May 18, 1994, Pat. No. 5,580,797, which is a division of Ser. No. 51,765, Apr. 26, 1993, abandoned. This application Jan. 23, 1997, Ser. No. 786,879

Claims priority, application Japan, May 1, 1992, 4-112714; May 27, 1992, 4-160263; May 27, 1992, 4-160264; May 27, 1992, 4-160265; May 28, 1992, 4-162306
Int. Cl.^{6} H01L *21/331;21/22;21/38*
U.S. Cl. 438—337 **2 Claims**

1. A method of manufacturing a semiconductor device which comprises:
a step of removing a portion of a semiconductor portion situated in an insulating portion;
a step of burying a conductor to the portion removed from the semiconductor portion;
a step of forming a diffusion region using said conductor as a diffusion source;

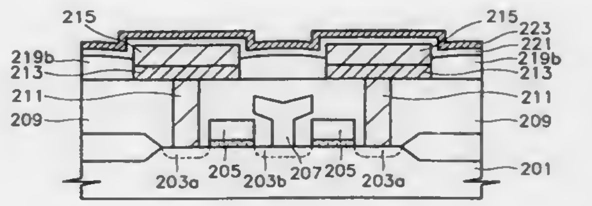


a step of removing a portion of said insulating portion using the conductor as a mask, thereby exposing at least a portion of said conductor buried in said portion to be removed from the semiconductor portion; and
a step of selectively siliciding said exposed portion of said conductor;
wherein the semiconductor device is a bipolar transistor and the step of forming the diffusion region using the conductor as a diffusion source is a step of forming at least one of an emitter and a base; and wherein the conductor comprises poly Si.

5,786,259
METHODS OF FORMING INTEGRATED CIRCUIT CAPACITORS INCLUDING ETCH STOPPING LAYERS

Chang-seok Kang, Kyungki-do, Rep. of Korea, assignor to Samsung Electronics Co., Ltd., Suwon, Rep. of Korea

Filed Oct. 9, 1997, Ser. No. 947,946
Claims priority, application Rep. of Korea, Apr. 25, 1997, 1997-15531
Int. Cl.^{6} H01L *21/20*
U.S. Cl. 438—396 **31 Claims**



1. A method of forming a capacitor for an integrated circuit device, said method comprising the steps of:
forming a first conductive layer on an integrated circuit substrate wherein said first conductive layer covers a first portion of said integrated circuit substrate and wherein a second portion of said integrated circuit substrate is exposed;
forming an etch stopping layer on said first conductive layer;
forming an insulating layer on said etch stopping layer opposite said first portion of said integrated circuit substrate and on said second portion of said integrated circuit substrate;
etching said insulating layer using the etch stopping layer as an etching endpoint so that a portion of said insulating layer on said second portion of said integrated circuit substrate remains adjacent said first conductive layer and so that said etch stopping layer is exposed;
removing said etch stopping layer;
forming a dielectric layer on said first conductive layer; and
forming a second conductive layer on said dielectric layer opposite said first conductive layer.

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5,786,260

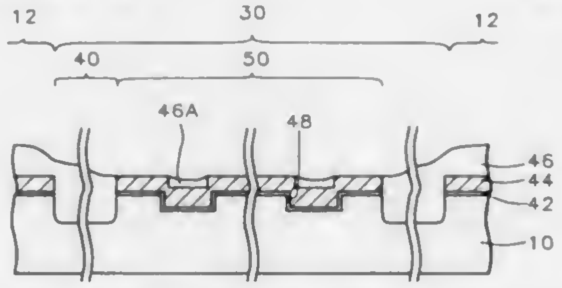
METHOD OF FABRICATING A READABLE ALIGNMENT MARK STRUCTURE USING ENHANCED CHEMICAL MECHANICAL POLISHING

Syun-Ming Jang, Hsin-Chu; Ying-Ho Chen, Taipei; Chung-Long Chang, Dou-Liu, and Chen-Hua Yu, Hsin-Chu, all of Taiwan, assignors to Taiwan Semiconductor Manufacturing Company, Ltd., Hsin-Chu, Taiwan

Filed Dec. 16, 1996, Ser. No. 767,015

Int. Cl.⁶ H01L *23/58*

U.S. Cl. 438—401 **22 Claims**



1. A method of fabricating a readable alignment mark in an alignment mark area on a semiconductor structure, comprising:
- a) providing a semiconductor structure comprising a product area and an alignment mark area, said alignment mark area having an outer area and an inner area, said outer area surrounding and immediately adjacent to said inner area;
- b) forming a plurality of alignment mark trenches in said structure within said inner area;
- c) forming an isolation trench in said semiconductor structure in at least said outer area; said isolation trench surrounding and immediately adjacent to said inner area,
- d) forming an insulating layer at least over said alignment mark area; and
- e) chemical-mechanical polishing said insulating layer removing a first thickness of said insulating layer from said inner alignment mark area; said isolation trenches accelerate the rate of the chemical mechanical polishing of said insulating layer over said alignment mark trenches in said inner area.

5,786,261

METHOD FOR FABRICATING SEMICONDUCTOR DEVICE HAVING DEVICE ISOLATION LAYER

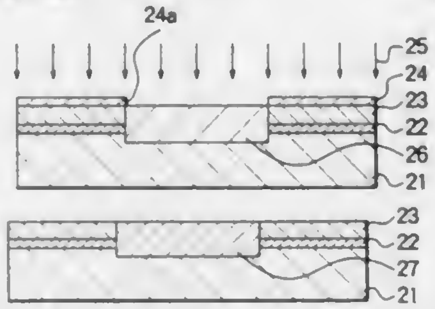
Kazunao Tokunaga, Tokyo, Japan, assignor to NEC Corporation, Japan

Filed Feb. 4, 1997, Ser. No. 794,464

Claims priority, application Japan, Feb. 20, 1996, 8-032215

Int. Cl.⁶ H01L *21/76*

U.S. Cl. 438—403 **15 Claims**



1. A method for fabricating a semiconductor device having a device isolation layer, comprising:
- the first step of forming a conductive layer on a semi-insulating substrate comprising a compound semiconductor;
- the second step of forming a mask having an opening on said conductive layer;
- the third step of applying an energy beam from the upside of said mask and thereby, selectively melting in a region of said conductive layer and said semi-insulating substrate under said opening, thereby forming a melted layer, wherein said melted layer contains at least one type of a chemical element different from the chemical elements constituting said semi-insulating substrate and a device isolation layer is formed due to recrystallization of said melted layer; and
- the fourth step of forming a device on the surface of said conductive layer excluding said device isolation layer.

5,786,262

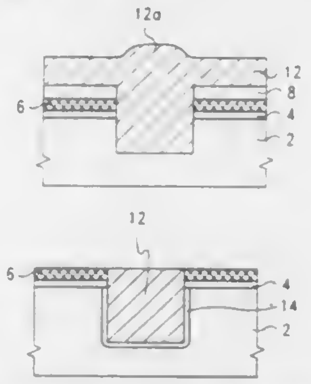
SELF-PLANARIZED GAPFILLING FOR SHALLOW TRENCH ISOLATION

S. M. Jang; Y. H. Chen, both of Hsinchu, and C. H. Yu, Keelung, all of Taiwan, assignors to Taiwan Semiconductor Manufacturing Co., Ltd., Hsinchu, Taiwan

Filed Apr. 9, 1997, Ser. No. 838,606

Int. Cl.⁶ H01L *21/76*

U.S. Cl. 438—424 **20 Claims**



1. A method of forming a shallow trench isolation on a silicon wafer, said method comprising:
- forming a pad layer on said wafer;
- forming a silicon nitride layer on said pad layer;
- forming a thermal oxide layer on said silicon nitride layer;
- forming a shallow trench by etching portions of said thermal oxide layer, said silicon nitride layer, said pad layer and said silicon wafer;
- forming an ozone-TEOS layer for isolation on said thermal oxide layer and refilling into said shallow trench, said ozone-TEOS layer that is formed over said trench being thicker than said ozone-TEOS layer that is formed on said thermal oxide layer; and
- removing a portion of said ozone-TEOS layer by using chemical mechanical polishing to expose the surface of said silicon nitride layer, therefore planarizing said ozone-TEOS layer.

5,786,263

METHOD FOR FORMING A TRENCH ISOLATION STRUCTURE IN AN INTEGRATED CIRCUIT

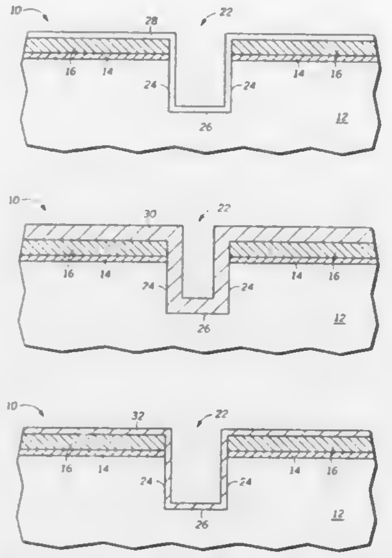
Asanga H. Perera, Austin, Tex., assignor to Motorola, Inc., Schaumburg, Ill.

Filed Apr. 4, 1995, Ser. No. 416,243

Int. Cl.⁶ H01L *21/76*

U.S. Cl. 438—431 **25 Claims**

1. A method for forming a trench isolation structure in an integrated circuit comprising the steps of:
- providing a semiconductor substrate;
- forming a buffer layer overlying the semiconductor substrate;
- forming an oxidation resistant layer overlying the buffer layer;
- patterning the oxidation resistant layer and the buffer layer to leave a remaining portion of the oxidation resistant layer overlying a remaining portion of the buffer layer, and to form an exposed portion of the semiconductor substrate;
- etching the exposed portion of the semiconductor substrate to form a trench, the trench having a trench bottom and a trench sidewall;



- forming a silicon layer within the trench and overlying the remaining portion of the oxidation resistant layer, the silicon layer having a thickness insufficient to fill the trench;
- oxidizing the silicon layer to form a first dielectric layer, the first dielectric layer overlying the remaining portion of the oxidation resistant layer and lying within the trench, the first dielectric layer having a thickness insufficient to fill the trench;
- etching the first dielectric layer to form an etched dielectric layer, where the etched dielectric layer overlies the remaining portion of the oxidation resistant layer, trench sidewall, and the entirety of the trench bottom;
- forming a second dielectric layer overlying the etched dielectric layer;
- removing a portion of the second dielectric layer to form a trench plug within the trench; and
- removing the remaining portion of the oxidation resistant layer.

5,786,264

METHOD OF FORMING ISOLATION LAYER OF SEMICONDUCTOR ELEMENTS

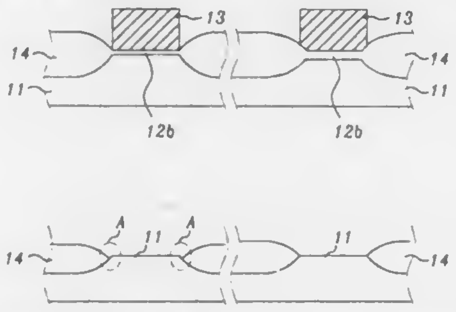
Hyon-Sang Hwang, Daejon, Rep. of Korea, assignor to LG Semicon Co., Ltd., Choongcheongbuk-Do, Rep. of Korea

Filed Dec. 19, 1996, Ser. No. 770,154

Claims priority, application Rep. of Korea, Dec. 29, 1995, 67326/1995

Int. Cl.⁶ H01L *21/76*

U.S. Cl. 438—443 **7 Claims**



1. A method of forming an isolation of a semiconductor device, comprising the steps of:
- defining a semiconductor substrate with a cell region and a peripheral region;
- forming a first buffer layer on the peripheral region of the semiconductor substrate;
- forming a second buffer layer on the cell region of the semiconductor substrate and on the first buffer layer, the second buffer layer having a thickness greater than the first buffer layer;
- forming an anti-oxidation layer on the second buffer layer to define an active region and an isolation region;
- forming a field oxide layer in the cell and peripheral regions of the substrate by oxidation, the field oxide layer having first and second bird's beak regions in the cell and peripheral regions, respectively;
- removing the anti-oxidation layer after forming the field oxide layer; and completely removing the first and second bird's beak regions to form recesses at both edges of the field oxide layer of the cell region.

5,786,265

METHODS OF FORMING INTEGRATED SEMICONDUCTOR DEVICES HAVING IMPROVED CHANNEL-STOP REGIONS THEREIN, AND DEVICES FORMED THEREBY

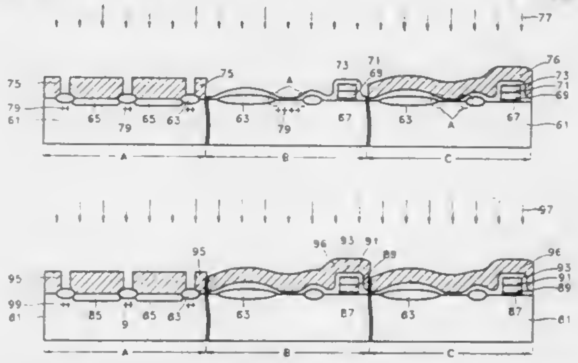
Min-wk Hwang; Hong-mo Yang, both of Kyungki-do; Jae-ho Kim, Seoul; Won-taek Choi, and Won-cheol Hong, both of Kyungki-do, all of Rep. of Korea, assignors to Samsung Electronics Co., Ltd., Suwon, Rep. of Korea

Filed May 9, 1996, Ser. No. 647,874

Claims priority, application Rep. of Korea, May 12, 1995, 1995-11767; Dec. 20, 1995, 1995-52730

Int. Cl.⁶ H04L *21/76*

U.S. Cl. 438—450 **8 Claims**



1. A method of forming an integrated semiconductor device containing channel-stop isolation regions therein, comprising the steps of:
- forming a plurality of first channel-stop isolation regions of first conductivity type in a semiconductor substrate, by implanting first conductivity type impurities at a first dose level into respective locations at a face thereof;
- forming a respective field oxide isolation region at each of the locations so that each of the field oxide isolation regions has an upper surface which is spaced from the face, first and second opposing edges which extend adjacent the face and a bottom surface which extends opposite one of the first channel-stop isolation regions;
- patterning a layer on upper surfaces of the field oxide isolation regions to define openings therein which expose central portions of the upper surfaces and cover peripheral portions of the upper surfaces extending to respective first and second opposing edges;
- forming sidewall spacers in the openings in the patterned layer;
- forming a second channel-stop isolation region of the first conductivity type in a respective first channel-stop isolation region by implanting first conductivity type impurities at a second dose level into the exposed central portions of the upper surfaces of the field oxide isolation regions, using the patterned layer and sidewall spacers as an implant mask, so that each of the second channel-stop isolation regions extends adjacent the bottom surface of a respective field oxide isolation region;
- forming a semiconductor device adjacent a first edge of a field oxide isolation region;
- wherein the first dose level is less than the second dose level so that the net first conductivity type doping concentration of a first channel-stop isolation region is less than the net first

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conductivity type doping concentration of a second channel-stop isolation region therein;

wherein said step of forming a plurality of first channel-stop isolation regions is performed by implanting first conductivity type impurities at a first energy level;

wherein said step of forming second channel-stop isolation regions is performed by implanting first conductivity type impurities at a second energy level which is greater than the first energy level;

wherein the integrated semiconductor device is a nonvolatile memory device containing a memory cell array portion and a peripheral circuit portion for driving the memory cell array portion, in the semiconductor substrate; and

wherein said second channel-stop isolation regions forming step comprises implanting first conductivity type impurities through field oxide isolation regions in the memory cell array and peripheral circuit portions of the substrate simultaneously.

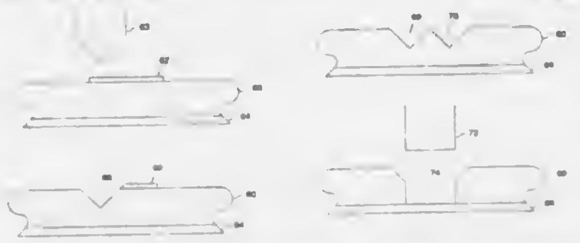
5,786,266
MULTI CUT WAFER SAW PROCESS

Mirek Boruta, Castro Valley, Calif., assignor to LSI Logic Corporation, Milpitas, Calif.

Continuation of Ser. No. 233,630, Apr. 26, 1994, abandoned, which is a continuation-in-part of Ser. No. 225,904, Apr. 12, 1994, abandoned. This application Sep. 16, 1996, Ser. No. 714,624

Int. Cl.^{6} H01L *21/304*

U.S. Cl. 438—462 **7 Claims**



1. A method of cutting a semiconductor wafer along a scribe line with a saw blade, said scribe line located on the top surface of said wafer, comprising the steps of:

providing said wafer with a test pattern deposited along said scribe line;

making at least one scribing cut into the top surface of said wafer along the scribe line and through a portion of said test pattern so that the width of said test pattern remaining is not greater than the thickness of said saw blade; and

making a severing cut along the scribe line and through the remaining test pattern to remove the remaining test pattern and to at least partially sever said wafer.

5,786,267
METHOD OF MAKING A SEMICONDUCTOR WAFER WITH ALIGNMENT MARKS

Hiroshi Haraguchi, Tokyo; Masahiro Abe, Yokohama, and Wataru Nomura, Ichikawa, all of Japan, assignors to Kabushiki Kaisha Toshiba, Kawasaki, Japan

Division of Ser. No. 263,333, Jun. 21, 1994, Pat. No. 5,532,520. This application Jun. 1, 1995, Ser. No. 456,695

Claims priority, application Japan, Jun. 22, 1993, 5-150431; Jun. 14, 1994, 6-132020

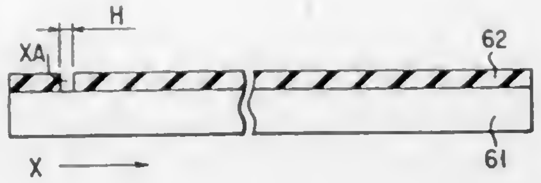
Int. Cl.^{6} H01L *21/44*

U.S. Cl. 438—584 **33 Claims**

1. A method of fabricating a semiconductor device, comprising the steps of:

predicting an average size of grains of a metal film;

forming at least one alignment mark comprising a recess on a semiconductor wafer, said recess of said alignment mark having a width smaller than said average size of said grains of said metal film;



forming said metal film on said alignment mark; and

detecting said alignment mark while said metal film exists on said alignment mark.

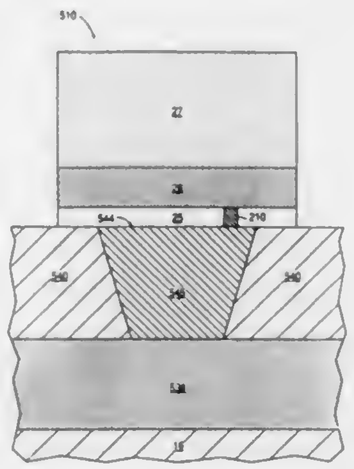
5,786,268
METHOD FOR FORMING PROGRAMMABLE INTERCONNECT STRUCTURES AND PROGRAMMABLE INTEGRATED CIRCUITS

Kathryn E. Gordon, Mountain View, and Richard J. Wong, Milpitas, both of Calif., assignors to QuickLogic Corporation, Sunnyvale, Calif.

Division of Ser. No. 651,102, May 21, 1996, Pat. No. 5,701,027, which is a continuation of Ser. No. 892,466, Jun. 1, 1992, Pat. No. 5,557,136, which is a continuation-in-part of Ser. No. 874,983, Apr. 23, 1992, Pat. No. 5,196,724, which is a continuation of Ser. No. 691,950, Apr. 26, 1991, abandoned, said Ser. No. 892,466 is a continuation-in-part of Ser. No. 891,675, May 28, 1992, abandoned, which is a continuation of Ser. No. 698,648, May 10, 1991, abandoned. This application Aug. 1, 1997, Ser. No. 904,387

Int. Cl.^{6} H01L *21/44*

U.S. Cl. 438—600 **6 Claims**



1. A method for fabricating an integrated circuit comprising an antifuse, the method comprising:

forming an insulating layer over a first conductor;

forming a first opening through the insulating layer;

forming a conductive plug filling the first opening and contacting the first conductor, a top surface of the insulating layer having a portion adjacent to the plug, the portion being substantially coplanar with a top surface of the plug;

forming a layer of programmable material having a substantially planar bottom surface overlaying and contacting the plug, wherein the programmable material is non-conductive over the plug when the antifuse is unprogrammed, and wherein the programmable material provides therethrough a conductive path contacting the plug when the antifuse is programmed; and

forming a second conductor overlaying and contacting the programmable material.

5,786,269
II-VI GROUP COMPOUND SEMICONDUCTOR DEVICE AND METHOD FOR MANUFACTURING THE SAME

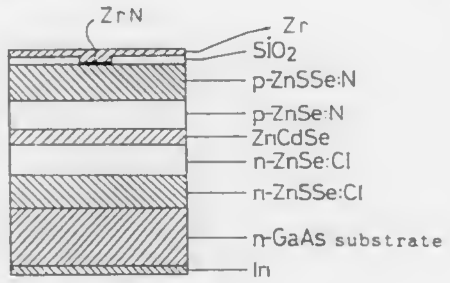
Masanori Murakami, Tsuzuki-gun; Yasuo Koide, Kyoto; Nobuaki Teraguchi, Nara-ken, and Yoshitaka Tomomura, Nara, all of Japan, assignors to Sharp Kabushiki Kaisha, Osaka, Japan

Division of Ser. No. 409,307, Mar. 23, 1995, Pat. No. 5,587,609. This application Sep. 24, 1996, Ser. No. 719,263

Claims priority, application Japan, Mar. 24, 1994, 6-53588

Int. Cl.^{6} H01L *21/28*

U.S. Cl. 438—603 **4 Claims**



1. A method for manufacturing a II–VI group compound semiconductor device having a p-type $Zn_xMg_{1-x}S_ySe_{1-y}(0 \leqq x \leqq 1, 0 \leqq y \leqq 1)$ semiconductor layer which comprises forming the semiconductor layer on a substrate, doping nitrogen during or after the growth of the semiconductor layer, forming an electrode on the resulting semiconductor layer by depositing a metal, or an intermetallic compound of said metal, with the free energy change ΔG of nitride formation lower than −100 kJ/mol.

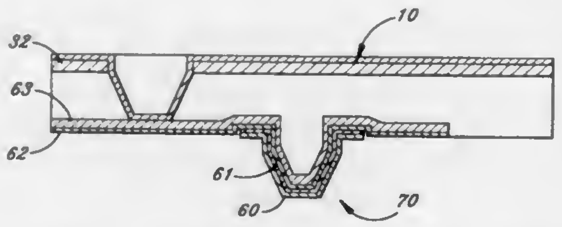
5,786,270
METHOD OF FORMING RAISED METALLIC CONTACTS ON ELECTRICAL CIRCUITS FOR PERMANENT BONDING

Robin E. Gorrell, and Paul J. Fischer, both of Eau Claire, Wis., assignors to W. L. Gore & Associates, Inc., Newark, Del.

Continuation-in-part of Ser. No. 655,017, May 29, 1996. This application Nov. 8, 1996, Ser. No. 744,842

Int. Cl.^{6} H01L *21/44;21/463*

U.S. Cl. 438—613 **7 Claims**



1. A method of forming at least one raised metallic contact on an electrical circuit, said method comprising the following steps:

providing a composite base substrate which is defined by at least a first conductive layer, a dielectric material and a second conductive layer;

removing a portion of the first conductive layer to expose the dielectric material;

removing said exposed portion of the dielectric material to the second conductive layer, thereby forming a depression;

depositing at least one layer of solder material on at least side wall portions of said depression;

depositing at least one layer of conductive material on said solder layer;

removing said second conductive layer; and

completely removing said dielectric material to said first conductive layer thereby forming a raised metallic contact which extends perpendicularly away from said first conductive layer.

5,786,271
PRODUCTION OF SEMICONDUCTOR PACKAGE HAVING SEMICONDUCTOR CHIP MOUNTED WITH ITS FACE DOWN ON SUBSTRATE WITH PROTRUDED ELECTRODES THEREBETWEEN AND SEMICONDUCTOR PACKAGE

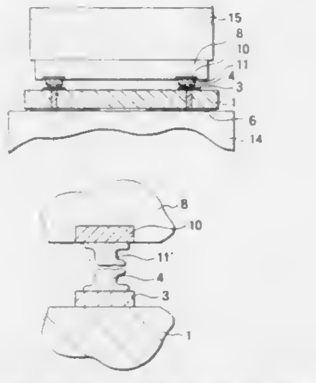
Mitsuru Ohida; Hideo Aoki, and Hiroshi Iwasaki, all of Yokohama, Japan, assignors to Kabushiki Kaisha Toshiba, Kawasaki, Japan

Filed Jul. 3, 1996, Ser. No. 675,213

Claims priority, application Japan, Jul. 5, 1995, 7-169644

Int. Cl.^{6} H01L *21/44*

U.S. Cl. 438—615 **3 Claims**



1. A method for producing a semiconductor package having a semiconductor chip, which has an electrode pad formed on its first surface and is mounted face down on a substrate which has formed on its first surface a wiring circuit containing a conductive terminal and on its second surface a flat external connecting terminal, which is electrically connected to said wiring circuit, the method comprising the steps of:

(a) forming a first protruded electrode, which is solid and has a top surface, on the conductive terminal of said substrate by wire bonding and forming a second protruded electrode on the electrode pad of said semiconductor chip by selective plating,

(b) flattening said first protruded electrode,

(c) providing said substrate and said semiconductor chip so as to oppose said first protruded electrode to said second protruded electrode,

(d) pressing said substrate and said semiconductor chip to make a solid phase diffusion bonding of said first protruded electrode and said second protruded electrode,

(e) charging a sealing resin into a space between said substrate and said semiconductor chip opposed to each other with a second surface of said semiconductor chip exposed, and

(f) curing said charged resin,

wherein said substrate and said semiconductor chip are pressed while being heated in step (d), and a temperature for heating said substrate and said semiconductor chip is in a range of about 200° to 400° C. and a press load is in a range of 100 to 300 gf per bump.

5,786,272
METALLIZATION OVER TUNGSTEN PLUGS

Maria Santina Marangon, Cernusco sul Naviglio; Andrea Marmiroli, Alzano Lombardo, and Giorgio Desanti, Milan, all of Italy, assignors to SGS-Thomson Microelectronics S.r.l., Agrate Brianza, Italy

Continuation of Ser. No. 68,139, May 26, 1993, Pat. No. 5,407,861. This application Apr. 18, 1995, Ser. No. 423,397

Claims priority, application European Pat. Off., May 27, 1992, 92830265

Int. Cl.^{6} H01L *21/44*

U.S. Cl. 438—628 **51 Claims**

1. An integrated circuit fabrication method, comprising the steps of:

(a.) providing a substrate which includes one or more semiconductor devices, with an insulating layer thereover;

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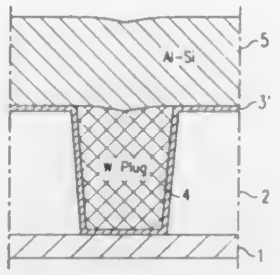


- (b.) etching contact holes in desired locations of said insulating layer;
- (c.) depositing an adhesion layer on said insulating layer and into said contact holes;
- (d.) depositing a filler metal overall;
- (e.) applying RF power to a controlled gas mixture to perform a first unpatterned etch, wherein the ratio of the etch rate of the filler to the etch rate of the adhesion layer is greater than one, and etching until said adhesion layer is exposed but said filler metal has not yet been removed outside said contact holes;
- (f.) applying RF power to a controlled gas mixture to perform a second unpatterned etch, wherein said ratio is reduced and etching until said filler metal has been totally removed outside said contact holes but said adhesion layer remains in at least some locations;
- (g.) depositing a metallization layer overall; and
- (h.) patterning said metallization layer and said adhesion layer to implement a desired wiring pattern which includes connection to said filler metal in multiple ones of said contact holes.

5,786,273

SEMICONDUCTOR DEVICE AND ASSOCIATED FABRICATION METHOD

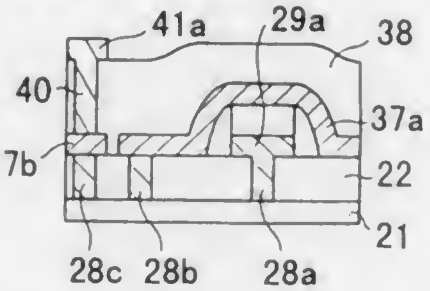
Toshitaka Hibl, Kyoto; Takatoshl Yasul, Osaka; Hisashl Ogawa, Osaka; Susumu Akamatsu, Osaka, and Shunsuke Kugo, Osaka, all of Japan, assignors to Matsushita Electric Industrial Co., Ltd., Osaka, Japan

Filed Feb. 14, 1996, Ser. No. 602,575

Claims priority, application Japan, Feb. 15, 1995, 7-027084

Int. Cl.^{6} H01L *21/44*

U.S. Cl. 438—637 7 Claims



1. A method of fabricating a semiconductor device on a substrate of semiconductor material, said method comprising:

- (1) a first step of forming on said semiconductor substrate a first lower conductive portion, a second lower conductive portion and a third lower conductive portion;
- (2) a second step of forming a first insulating layer to cover said firsts second and third lower conductive portions;
- (3) a third step of forming a first connection hole, a second connection hole and a third connection hole in said first insulating layer,
  - wherein said first connection hole extends down to said first lower conductive portion;
  - wherein said second connection hole extends down to said second lower conductive portion and
  - wherein said third connection hole extends down to said third lower conductive portion;
- (4) a fourth step of depositing a conductive material in said first, second and third connection holes to form a first buried layer, a second buried layer and a third buried layer, respectively;
- (5) a fifth step of:
  - (5-1) forming a first conducting layer to cover said first buried layer, said second buried layer, and said first insulating layer, and forming a second insulating layer to cover said first conducting layer;
  - (5-2) patterning said first conducting layer and said second insulating layer to form a first upper conductive portion and a top protective layer,
  - wherein said first upper conductive portion belongs to an interconnect layer located above each said lower conductive portion and is connected with said first buried layer; and
  - (5-3) exposing the top of said second buried layer;
- (6) a sixth step of forming a sidewall on the side surfaces of said first upper conductive portion and said top protective layer;
- (7) a seventh step of:
  - (7-1) forming a second conducting layer to cover said first insulating layer, said sidewall, said top protective layer, and said second buried layer; and
  - (7-2) patterning said second conducting layer to form a second upper conductive portion,
  - wherein said second upper conductive portion belongs to an interconnect layer located above said first upper conductive portion and is connected with said second buried layer;
- (8) an eighth step of forming an interlayer dielectric over the entire surface of said semiconductor substrate;
- (9) a ninth step of planarizing said interlayer dielectric;
- (10) a tenth step of forming in said interlayer dielectric a fourth connection hole which extends down to said intermediate conductive portion;
- (11) an eleventh step of depositing a conductive material in said fourth connection hole to form a fourth buried layer; and
- (12) a twelfth step of:
  - (12-1) forming a third conducting layer to cover said fourth buried layer and said interlayer dielectric; and
  - (12-2) patterning said third conducting layer to form a third upper conductive portion, wherein said third upper conductive portion belongs to an interconnect layer located above said second upper conductive portion and is connected with said fourth buried layer,
  - wherein, either one of said fifth step and said seventh step includes forming an intermediate conductive portion that is connected to said third buried layer.

5,786,274

Patent Not Issued For This Number

5,786,275

PROCESS OF FABRICATING WIRING STRUCTURE HAVING METAL PLUG TWICE POLISHED UNDER DIFFERENT CONDITIONS

Akira Kubo, Tokyo, Japan, assignor to NEC Corporation, Japan

Filed May 30, 1997, Ser. No. 865,889

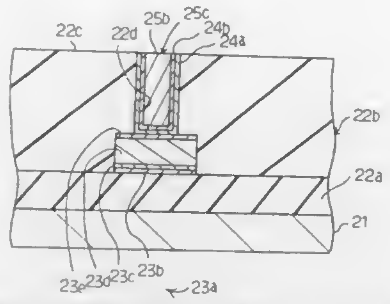
Claims priority, application Japan, Jun. 4, 1996, 8-141656

Int. Cl.^{6} H01L *21/00*

U.S. Cl. 438—692 13 Claims

1. A process of fabricating a wiring structure, comprising the steps of:

- a) forming at least one opening in an inter-level insulating layer over a substrate;
- b) growing conductive metal in said at least one opening in such a manner that a piece of said conductive metal has a projection over an upper surface of said inter-level insulating layer;
- c) polishing an upper portion of said projection under severe conditions; and



- d) polishing a remaining portion of said projection under mild conditions until said piece of said conductive metal becomes coplanar with said upper surface of said inter-level insulating layer.

5,786,276

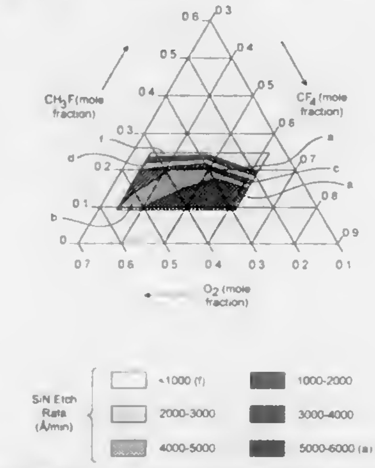
SELECTIVE PLASMA ETCHING OF SILICON NITRIDE IN PRESENCE OF SILICON OR SILICON OXIDES USING MIXTURE OF CH3F OR CH2F2 AND CF4 AND O2

Cynthia B. Brooks, Sunnyvale; Walter Merry, Cupertino; Ajey M. Joshi, San Jose; Gladys D. Quinones, Santa Clara, and Jitske Trevor, Sunnyvale, all of Calif., assignors to Applied Materials, Inc., Santa Clara, Calif.

Filed Mar. 31, 1997, Ser. No. 829,683

Int. Cl.^{6} B44C *1/22*; H01L *21/302*

U.S. Cl. 438—724 18 Claims



1. An etch method for etching a supplied first material layer consisting essentially of a silicon nitride, said method comprising the steps of:

- (a) supplying an input gas including at least one of CH_3F and CH_2F_2 and further including CF_4 and O_2 to a vicinity spaced away from the material layer;
- (b) applying electromagnetic energy to the supplied input gas so as to form a plasma; and
- (c) applying an outflow of the formed plasma to said first material layer.

5,786,277

METHOD OF MANUFACTURING A SEMICONDUCTOR DEVICE HAVING AN OXIDE FILM OF A HIGH QUALITY ON A SEMICONDUCTOR SUBSTRATE

Hironori Yamamoto, Tokyo, Japan, assignor to NEC Corporatinn, Tokyo, Japan

Filed Sep. 27, 1996, Ser. No. 720,376

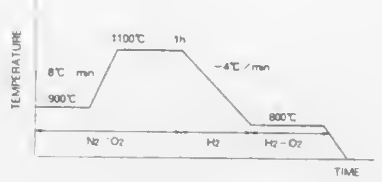
Claims priority, application Japan, Sep. 29, 1995, 7-252315

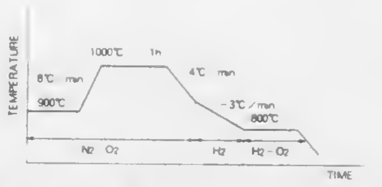
Int. Cl.^{6} H01L *21/316*

U.S. Cl. 438—770 8 Claims

1. A method of manufacturing a semiconductor device comprising a semiconductor substrate having a principal surface and an objective oxide film on said semiconductor substrate, said method comprising the steps of:

- placing said semiconductor substrate within a furnace chamber;
- subjecting said semiconductor substrate to an oxidizing atmosphere within said furnace chamber and increasing the temperature of said oxidizing atmosphere to a first temperature to form a provisional oxide film on said principal surface;
- removing said provisional oxide film to reveal an exposed surface of said semiconductor substrate by subjecting said provisional oxide film to a reducing atmosphere within said furnace chamber and decreasing the temperature of said reducing atmosphere from said first temperature to a second temperature lower than said first temperature; and
- forming said objective oxide film on said exposed surface of the semiconductor substrate in said furnace chamber at said second temperature.





5,786,278

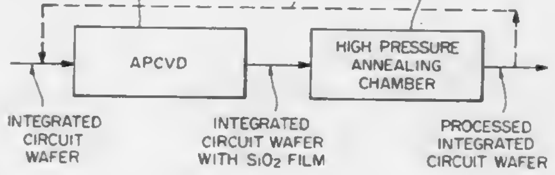
METHOD OF STRESS-RELIEVING SILICON OXIDE FILMS

H. Wallace Fry, Scotts Valley, Calif., assignor to Watkins-Johnson Company, Palo Alto, Calif.

Filed Aug. 27, 1996, Ser. No. 704,227

Int. Cl.^{6} H01L *21/31*

U.S. Cl. 438—787 19 Claims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13
12
APCVD
HIGH PRESSURE ANNEALING CHAMBER
INTEGRATED CIRCUIT WAFER
INTEGRATED CIRCUIT WAFER WITH SiO_2 FILM
PROCESSED INTEGRATED CIRCUIT WAFER

1. A method of converting tensile stress to compressive stress in an APCVD oxide film which comprises the step of: after depositing said oxide film, subjecting the oxide film to pressures above atmospheric pressure and temperatures below the atmospheric pressure conversion temperature, said atmospheric pressure conversion temperature being where the tensile stress in said oxide film converts to compressive stress at atmospheric pressure.

17. A method of forming a silicon oxide film having compressive stress, on a substrate by CVD, comprising the steps of:

- reacting a silicon precursor and an oxygen precursor in an CVD chamber, whereby said precursors interact proximate the surface of said substrate to form a silicon oxide film on said surface;
- removing said substrate from said CVD chamber;
- placing said substrate in an annealing chamber; and
- subjecting said substrate to pressures above atmospheric pressure and temperatures below the atmospheric pressure conversion temperature said atmospheric pressure temperature being where the tensile stress in said oxide film converts to compressive stress at atmospheric pressure, thereby converting the oxide film on said substrate from tensile stress to compressive stress.

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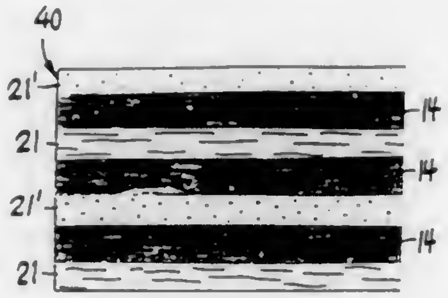
MOLDED PARK FROM RECYCLED USED-CARPETS

Bernhard Funger, Krefeld, and Heinz Grüber, Tönisvorst, both of Germany, assignors to Kusters Maschinenfabrik, Krefeld, Germany

Continuation of Ser. No. 264,541, Jun. 23, 1994, abandoned. This application Dec. 12, 1996, Ser. No. 764,032

Int. Cl.^{6} B32B *27/00*

U.S. Cl. 442—659 **13 Claims**



1. A molded part comprising:
fibrous wooly carpet material, at least a portion of which comes from used-carpets;
a thermoplastic binder in a proportion of 5 to 30 percent by weight of the molded part; and
fiber-like wood chips in a random orientation, in a proportion of 10 to 50 percent by weight of the molded part.

5,786,280

MOLDED PART AND METHOD OF ITS PRODUCTION

Bernhard Funger, Krefeld, and Heinz Grüber, Tönisvorst, both of Germany, assignors to Eduard Küsters Maschinenfabrik GmbH & Co. KG, Krefeld, Germany

Filed Jun. 23, 1994, Ser. No. 264,661

Int. Cl.^{6} B29C *29/00*

U.S. Cl. 442—64 **8 Claims**

1. A molded part comprising:
a coarsely wadded carpet material, at least a portion of which comes from used carpets;
a wax or stearin;
a thermoplastic binder in a proportion of 5 to 30 percent by weight of the molded part; and
a hardening binder in a proportion of 1 to 15 percent by weight of the molded part.

5,786,281

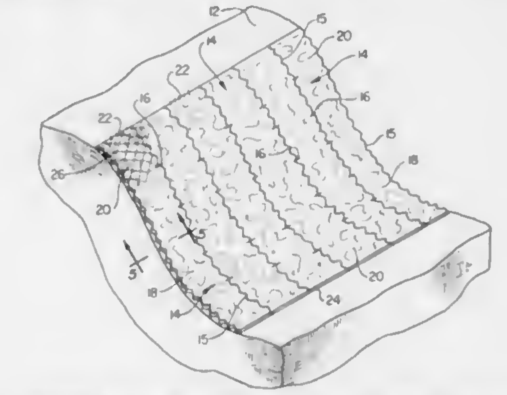
EROSION CONTROL BLANKET AND METHOD OF MANUFACTURE

Timothy Prunty, Rice Lake, Wis.; Wendell E. Johnson, deceased, late of Dallas, and John W. Johnson, legal representative, Colleyville, both of Tex., assignors to American Excelsior Company, Arlington, Tex.

Division of Ser. No. 402,166, Mar. 10, 1995, Pat. No. 5,735,982. This application Feb. 3, 1997, Ser. No. 792,978

Int. Cl.^{6} B32B *5/02;* E02B *3/12*

U.S. Cl. 442—104 **7 Claims**



5. A vegetation growth-enhancing erosion control blanket that may be placed on an area upon which ground vegetation is to be grown, said blanket comprising:
mat, the individual fibers thereof collectively defining in said mat a multiplicity of interstitial regions through which portions of the growing ground vegetation may pass, said flexible mat further defining a contoured side portion along at least one edge of said mat for providing an interlocking engagement with a complimentary contoured side portion of an adjacent mat;
at least a major portion of the individual fibers being held together with an adhesive bonding agent; and
an embossed surface comprising the top of said mat, said embossed surface comprising a pattern for enhancing structural integrity thereof and erosion control aspects therewith.

5,786,282

OPENED WET PROCESSED INTERMEDIATE NATURAL FIBER PRODUCT SUITABLE FOR FORMATION INTO END USE FIBER PRODUCTS WITH LONG-LASTING ANTIMICROBIAL PROPERTIES AND METHOD

Larry Dean Carter, Fort Mill, S.C., and Carole Lundberg Reaves, Gastonia, N.C., assignors to Barnhardt Manufacturing Company, Charlotte, N.C.

Filed Feb. 25, 1997, Ser. No. 806,157

Int. Cl.^{6} B32B *19/00*

U.S. Cl. 442—123 **10 Claims**

1. An opened, wet processed, intermediate dry natural fiber mass having an effective amount of a uniformly dispensed antimicrobial agent thereon, wherein said antimicrobial agent is applied to the fiber mass while the fiber mass is in open form during wet processing and before the fiber mass is dried.

5,786,283

DENTAL REINFORCEMENT STRIP

Geri Borer, Pilatusstrasse, Lucerne, Switzerland, 6003

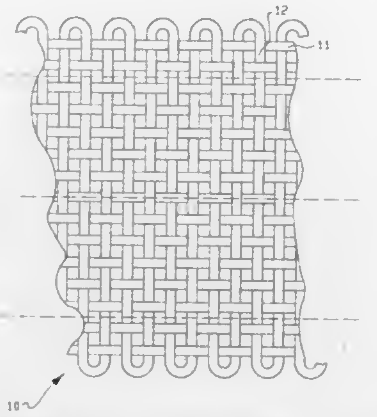
Filed Feb. 13, 1996, Ser. No. 600,784

Claims priority, application Switzerland, Feb. 14, 1995, 00 430/95

Int. Cl.^{6} D05B *93/00*

U.S. Cl. 442—186 **20 Claims**

1. Strip for dental plastic retainers characterized in that it consists of at least 4 and at most 8 interconnected layers of endless threads which possess a yarn count of less than 1 tex and in which the strip possesses a thickness of maximum 500 μm.



5,786,284

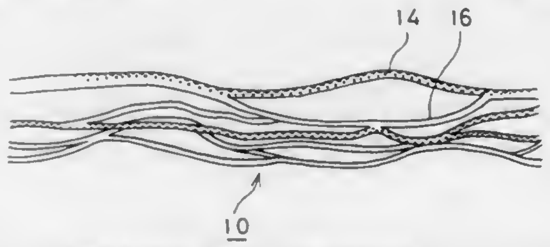
FILAMENT HAVING PLEXIFILAMENTARY STRUCTURE, NONWOVEN FABRIC COMPRISING SAID FILAMENT AND THEIR PRODUCTION

Fumio Matsuoka; Shigemitsu Murase; Koichi Nagaoka, and Hiroshi Nishimura, all of Kyoto, Japan, assignors to Unitika, Ltd., Hyogo, Japan

Continuation-in-part of Ser. No. 577,244, Dec. 22, 1995, abandoned, which is a division of Ser. No. 341,608, Feb. 27, 1995, abandoned. This application Jan. 31, 1997, Ser. No. 791,344

Int. Cl.^{6} D03D *3/00*

U.S. Cl. 442—334 **6 Claims**



1. A nonwoven fabric having a fine fibrillated structure comprising filaments, each of said filaments comprising a plexifilamentary structured polyolefin element and a plexifilamentary structured polyester element which are immiscible with each other, said polyolefin element and said polyester element being present in a ratio within a range of from 5/95 to 95/5 by weight, and said filaments being bonded to each other.

5,786,285

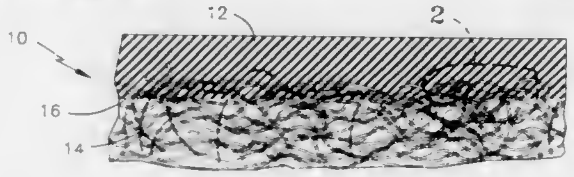
ELASTOMER COATED LAYER FOR EROSION AND/OR FIRE PROTECTION

Lisa A. Walla, Manchester, and Charles R. Watson, Windsor, both of Conn., assignors to United Technologies Corporation, Hartford, Conn.

Filed May 14, 1996, Ser. No. 645,669

Int. Cl.^{6} B32B *27/00*

U.S. Cl. 442—397 **13 Claims**



1. A method for preparing an uncured supported elastomer material, comprising the steps of:
providing a fibrous reinforcement material;
providing a layer of solid uncured elastomer material substantially adjacent to said fibrous reinforcement material; and
exposing said layer and said fibrous reinforcement material to a temperature below a curing temperature and above a flow point of said uncured elastomer material, and a pressure sufficient that said solid uncured elastomer material softens and flows into said fibrous reinforcement material, so as to provide an uncured supported elastomer material between and encompassing said fibrous reinforcement material thereby providing an effective intimate contact between the fibrous reinforcement material and the uncured elastomeric material supported thereon.

5,786,286

GLASS CERAMIC REAR PANEL FOR EMISSIVE DISPLAY

Jeffrey T. Kohli, Corning, N.Y., assignor to Corning Incorporated, Corning, N.Y.

Continuation of Ser. No. 640,609, May 1, 1996, abandoned. This application Mar. 26, 1997, Ser. No. 824,740

Int. Cl.^{6} C03C *10/06*

U.S. Cl. 501—8 **10 Claims**

1. A substrate for an emissive display comprising a glass ceramic, exhibiting a coefficient of thermal expansion (CTE) of approximately 78–88$\times10^{-7}$/°C. over the temperature range from 25° to 300° C., and consisting essentially of a composition within the following range, expressed in weight percent 35–55% SiO_2, 5–25% Al_2O_3, 5–25% MgO, 5–35% BaO, 6–14% TiO_2, 0–10% ZnO, said glass-ceramic exhibiting at 50 percent crystallization and having a primary crystal phase with a hexagonal sheet structure characteristic of hexacelsian.

5,786,287

IR TRANSMITTING RARE EARTH GALLOGERMANATE GLASS-CERAMICS

Shyam S. Bayya, 7705 Random Run La., Apt. T-4, Falls Church, Va. 22042; Barry B. Harbison, 9914 Macintosh Dr., Dunkirk, Md. 20754; Jasbinder S. Sanghera, 7224 S. Ora Ct., Greenbelt, Md. 20770, and Ishwar D. Aggarwal, 7817 S. Valley Dr., Fairfax Station, Va. 22039

Filed Nov. 15, 1996, Ser. No. 751,218

Int. Cl.^{6} C03C *3/253;4/10*

U.S. Cl. 501—10 **9 Claims**

7. An article which transmits in the infrared region of about 2–5 microns and which is a glass-ceramic containing sufficient crystallinity to enhance mechanical properties thereof wherein crystals in said glass-ceramic article have a diameter above 20 nm and below about 500 nm; said article comprises 5–20 mole percent of an additive oxide selected from the group consisting of yttrium oxide, lanthanum oxide, gadolinium oxide, and mixtures thereof, 35–70 mole percent germanium oxide, and 10–20 mole percent gallium oxide; said article has hardness of 800–1200 GPa, Young's modulus of 150–250 MPa, and fracture toughness of 1.5–2.5 MPa.m$^{1/2}$ and said article includes about 0–20 weight percent of a nucleating agent, based on total weight of said additive oxide, germanium oxide, and gallium oxide used to make said article, said nucleating oxide is selected from the group consisting of titanium oxide, zirconium oxide, and mixtures thereof.

5,786,288

LOW DIELECTRIC CERAMIC COMPOSITIONS FOR MULTILAYER CERAMIC PACKAGE

Jau-Ho Jean, Hsin Chu, Taiwan, assignor to National Science Council, Taipei, Taiwan

Filed Dec. 4, 1996, Ser. No. 760,300

Int. Cl.^{6} C03C *4/16;10/08*

U.S. Cl. 501—16 **11 Claims**

1. A dielectric composition which comprises:

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(a) 10–90 wt % Mg-Al-Si glass which forms crystalline cordierite after sintering; and

(b) 10–90 wt % Ca-Al-B-Si glass which forms crystalline calcium feldspar after sintering.

5,786,289

WINDOW GLASS WITH AN ELECTROCONDUCTIVE LAYER, OBTAINED BY PYROLYSIS OF POWDERED COMPONENTS, WHICH CAN BE USED AS A WINDSHIELD FOR AN AUTOMOBILE

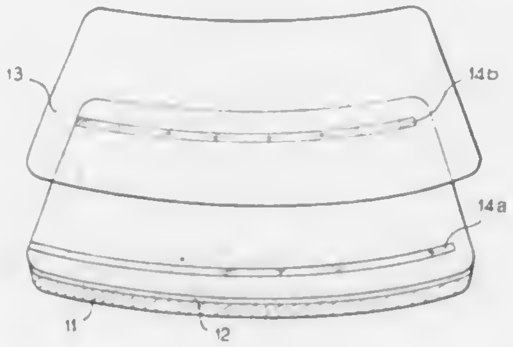
Helene Harmand, Paris; Vincent Sauvinet, Ermenonville, and Maurice Trouve, Nemours, all of France, assignors to Saint Gobain Vitrage, Courbevole, France

Division of Ser. No. 811,907, Dec. 23, 1991, abandoned, which is a continuation of Ser. No. 383,523, Jul. 24, 1989, abandoned. This application Jan. 7, 1994, Ser. No. 178,655

Claims priority, application France, Jul. 27, 1988, 88 10138

Int. Cl.^{6} C03C *3/087*

U.S. Cl. 501—71 **2 Claims**



1. In a dyed in the mass silicon-sodium-calcium oxide glass, the improvement being wherein said glass consists essentially of oxides of silicon, sodium and calcium, Fe_2O_3 in an amount of 0.55–0.62 percent by weight, FeO in an amount of 0.11–0.16 percent by weight, and, at a thickness of 3.85 mm, a light transmission value of about 78% and an energy transmission value of about 60%, wherein said glass further contains a positive amount of CoO and not more than 12 ppm CoO.

5,786,290

CATALYST AND PROCESS FOR PREPARING LONG CHAIN ALKYLAROMATIC COMPOUNDS

Giovanni Colombo, Inveruno; Stefano Amarilli, Maggiora, both of Italy; Imre Kiricsi, Szeged, Hungary, and Carlo Perego, Carnate, Italy, assignors to Enichem Agusta S.p.A., Palermo, Italy

Filed Oct. 20, 1995, Ser. No. 545,875

Claims priority, application Italy, Nov. 10, 1994, MI94A2274

Int. Cl.^{6} B01J *21/16;29/04;* **C07C** *2/66*

U.S. Cl. 502—84 **8 Claims**

1. A catalytic material, comprising:

a smectite containing pillars of aluminum oxide pillars of an oxide of an "A" metal selected from the group consisting of cerium, cobalt and nickel, and pillars of an oxide of a "B" metal selected from the group consisting of gallium, magnesium, zinc, and mixtures thereof.

5,786,291

ENGINEERED CATALYST SYSTEMS AND METHODS FOR THEIR PRODUCTION AND USE

Anthony N. Speca, Kingwood; Jeffrey L. Brinen, League City, and James J. McAlpin, Houston, all of Tex., assignors to Exxon Chemical Patents, Inc., Houston, Tex.

Filed Feb. 18, 1997, Ser. No. 800,743

Int. Cl.^{6} B01J *31/00;37/00;* **C08F** *4/02;4/60*

U.S. Cl. 502—104 **25 Claims**

1. A method for preparing a supported metallocene catalyst, said method comprising the steps of:

(a) combining support material and a first solution comprising a first metallocene thereby forming a mixture; then

(b) removing the solvent from the mixture thereby forming a supported first metallocene; then

(c) combining the supported first metallocene with a second solution comprising a second metallocene wherein the second metallocene is different from the first thereby forming a resultant mixture; then

(d) removing the solvent from said resulting mixture.

5,786,292

Patent Not Issued For This Number

5,786,293

PROCESS FOR PRESULFIDING HYDROCARBON PROCESSING CATALYSTS

John Robert Lockemeyer, Sugar Land, Tex., assignor to Shell Oil Company, Houston, Tex.

Filed Jun. 17, 1996, Ser. No. 668,039

Int. Cl.^{6} B01J *27/02*

U.S. Cl. 502—216 **10 Claims**

1. A process for presulfurizing porous particles of a sulfidable catalyst containing at least one metal or metal oxide, which comprises;

(a) impregnating said catalyst with an inorganic polysulfide solution such that at least a portion of said sulfide or sulfur is incorporated in the pores of said catalyst; and

(b) heating said sulfur-incorporated catalyst in the presence of a non-oxidizing atmosphere.

5,786,294

CRYSTALLINE MESOPOROUS ZIRCONIA CATALYSTS HAVING STABLE TETRAGONAL PORE WALL STRUCTURE

Wolfgang M. H. Sachtler, and Yin-Yan Huang, both of Evanston, Ill., assignors to Northwestern University

Filed May 10, 1996, Ser. No. 644,359

Int. Cl.^{6} B01J *27/053;23/00;27/043*

U.S. Cl. 502—349 **20 Claims**

1. A catalyst material, comprising:

a zirconium dioxide particle with a mesoporous matrix, said mesopores having walls with a substantially tetragonal crystalline structure; and

a stabilizing chemical moiety on the surface of said mesoporous matrix.

5,786,295

METHOD FOR PRODUCING METALLIC CATALYST CARRIER

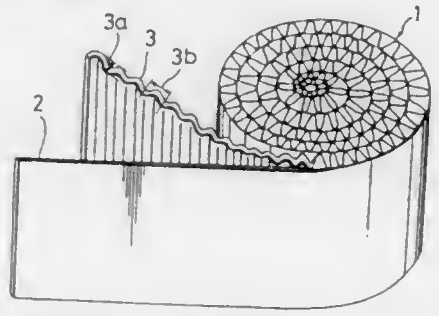
Tamotsu Sugimoto, Gunma-ken; Yuji Yoshidomi, Tochigi-ken, and Eizoh Suyama, Tokyo, all of Japan, assignors to Calsonic Co., Ltd., Tokyo, Japan

Continuation of Ser. No. 367,679, Dec. 30, 1994, abandoned, which is a continuation of Ser. No. 46,551, Apr. 13, 1993, abandoned. This application Mar. 7, 1997, Ser. No. 813,164

Claims priority, application Japan, Nov. 6, 1992, 4-297033

Int. Cl.^{6} B01J *21/04*

U.S. Cl. 502—439 **1 Claim**



1. A method for producing a metallic catalyst carrier comprising

(a) forming a metallic catalyst carrier element by alternately winding or laminating first and second metallic plates made of an alloy containing Fe, Cr, and Al,

(b) calcining the metallic catalyst carrier element in a vacuum, and

(c) integrally connecting a junction part of the first metallic plate and the second metallic plate by a diffused junction,

wherein the metallic catalyst carrier element is calcined above a temperature of 1200° C. under a pressure in the range of 1.5 Pa to 10 Pa and for a time between 5 and 30 minutes to produce on the surface of the metallic catalyst carrier element an effective protective aluminum oxide film.

5,786,296

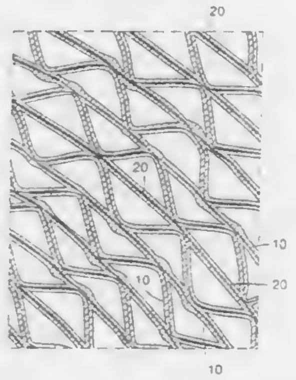
THIN-WALLED, MONOLITHIC IRON OXIDE STRUCTURES MADE FROM STEELS

Alexander Shustorovich; Eugene Shustorovich, both of Pittsford, N.Y.; Richard Montano, Falls Church, Va.; Konstantin Solntsev, Moscow, Russian Federation; Yuri Buslaev, Moscow, Russian Federation; Sergei Myasoedov, Moscow, Russian Federation, and Vyacheslav Morgunov, Moscow, Russian Federation, assignors to American Scientific Materials Technologies L.P., New York, N.Y.

Division of Ser. No. 336,587, Nov. 9, 1994. This application Apr. 18, 1997, Ser. No. 844,239

Int. Cl.^{6} B05J *32/00*

U.S. Cl. 502—439 **2 Claims**



1. A monolithic flow divider consisting essentially of an iron oxide selected from the group consisting of hematite, magnetite, and a combination thereof, and having a wall thickness less than about one millimeter.

5,786,297

THERMAL TRANSFER PRINTING RECEIVER SHEET

Paul Andrew Edwards, Essex, United Kingdom, assignor to Imperial Chemical Industries PLC, United Kingdom

PCT No. PCT/GB95/00402, § 371 Date Oct. 8, 1996, § 102(e) Date Oct. 8, 1996, PCT Pub. No. WO95/23066, PCT Pub. Date Aug. 31, 1995

PCT Filed Feb. 24, 1995, Ser. No. 696,923

Claims priority, application United Kingdom, Feb. 25, 1994, 9403663

Int. Cl.^{6} B41M *5/035;5/38*

U.S. Cl. 503—227 **8 Claims**

1. A receiver sheet for diffusion transfer printing comprising a substrate having thereon a dye receiver layer comprising a dye receptive polymer and the reaction product of a first compound, which is a resin having at least two reactive functional groups and a second, fluorine containing, compound having a single reactive functional group.

5,786,298

BACKING LAYERS FOR IMAGING ELEMENTS CONTAINING CROSSLINKED ELASTOMERIC MATTE BEADS

Andy H. Tsou, Pittsford; Charles C. Anderson, Penfield; Paul E. Woodgate, Spencerport, and Debra L. Delle Fave, Rochester, all of N.Y., assignors to Eastman Kodak Company, Rochester, N.Y.

Filed Apr. 28, 1997, Ser. No. 848,115

Int. Cl.^{6} B41M *5/035;5/38;* **G03C** *1/32*

U.S. Cl. 503—227 **12 Claims**

1. An imaging element comprising a support, an image forming layer and a backing layer comprising a film forming polymeric binder and crosslinked elastomeric matte beads having a glass transition temperature of 10° C. or less.

5,786,299

THERMAL DYE TRANSFER ASSEMBLAGE WITH LOW TG POLYMERIC RECEIVER MIXTURE

Kristine B. Lawrence; Steven V. Haldeman, and Teh-Ming Kung, all of Rochester, N.Y., assignors to Eastman Kodak Company, Rochester, N.Y.

Filed Jun. 19, 1997, Ser. No. 878,565

Int. Cl.^{6} B41M *5/035;5/38*

U.S. Cl. 503—227 **12 Claims**

7. A process of forming a dye transfer image comprising imagewise-heating a dye-donor element comprising a support having thereon a dye layer comprising a dye dispersed in a polymeric binder, said dye being a deprotonated cationic dye which is capable of being reprotonated to a cationic dye having a N—H group which is part of a conjugated system, and imagewise transferring said dye to a dye-receiving element to form said dye transfer image, said dye-receiving element comprising a support having thereon a polymeric dye image-receiving layer, said polymeric dye image-receiving layer comprising a mixture of

a) a polymer having a Tg of less than about 19° C. and having no or only slight acidity; and

b) a water-soluble, multifunctional carboxylic acid with at least two carboxylic acid groups attached.

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ASSEMBLAGE FOR THERMAL DYE TRANSFER

Wayne A. Bowman, Walworth; Robert A. Guistina, and Kristine B. Lawrence, both of Rochester, all of N.Y., assignors to Eastman Kodak Company, Rochester, N.Y.

Filed Jun. 19, 1997, Ser. No. 878,924

Int. Cl.^{6} B41M *5/035;5/38*

U.S. Cl. 503—227 **12 Claims**

7. A process of forming a dye transfer image comprising imagewise-heating a dye-donor element comprising a support having thereon a dye layer comprising a dye dispersed in a polymeric binder, and imagewise transferring said dye to a dye-receiving element to form said dye transfer image, wherein said dye-donor element comprises a support having thereon sequentially repeating dye layer patches of a dye dispersed in a polymeric binder, at least one of said dye patches containing a deprotonated cationic dye which is capable of being reprotonated to a cationic dye having a N-H group which is part of a conjugated system; and said dye-receiving element comprises a support having thereon a polymeric dye image-receiving layer comprising a polymer having a Tg of less than about 9° C. and being of no or only slight acidity and a hydrated transition metal or metalloid salt of a strong acid.

5,786,301
N-BENZOTRIAZOLES

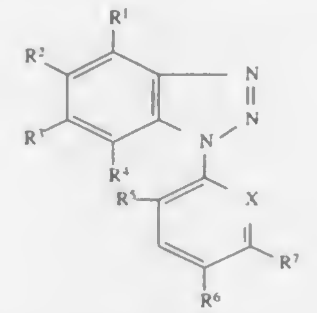
Donald R. James, El Sobrante, and Raymond A. Felix, Richmond, both of Calif., assignors to Zeneca Limited, London, England

Continuation of Ser. No. 345,093, Nov. 28, 1994, abandoned, which is a continuation-in-part of Ser. No. 54,573, Apr. 28, 1993, Pat. No. 5,369,086. This application Aug. 8, 1996, Ser. No. 694,368

Int. Cl.^{6} A01N *43/38;* **C07D** *249/18*

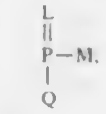
U.S. Cl. 504—261 **15 Claims**

1. A substituted benzotriazole compound of having the formula



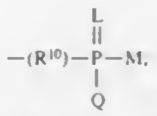
in which:

R^1, R^2 and R^3 may independently be hydrogen; halogen; nitro; hydroxy; cyano; alkyl; amino; alkoxyiminoalkyl; cyanoalkyl; carboxyalkyl; carboalkoxyalkyl; cyano(carboalkoxy)alkyl; hydroxyalkyl; alkoxyalkyl; alkylsulfonylaminoalkyl; haloalkylsulfonylaminoalkyl; (alkyl)$_n$aminoalkyl; (alkylcarbonyloxy)$_z$alkyl; haloalkyl; formyl; alkylcarbonyl; carboxy or its salts; COOalkyl; carboxamido; mono or di-substituted carboxamido wherein the nitrogen substituents are selected from alkyl, haloalkylsulfonyl, and alkylsulfonyl; sulfonamido wherein the nitrogen is optionally substituted with alkyl; (alkylsulfonyl)$_z$amino; (acetyl)$_z$amino;



$$\underset{\underset{Q}{|}}{\overset{\overset{L}{\|}}{P}}-M,$$

wherein Y is O, NR^9, or $S(O)_n$; and R^8 is $(R^{10})_m—COR^{11}$; $—(R^{10})_m—SO_2R^{11}$;



$$-(R^{10})-\underset{\underset{Q}{|}}{\overset{\overset{L}{\|}}{P}}-M,$$

alkyl; haloalkyl; hydroxyalkyl; cyanoalkyl; acetoxyalkyl; alkoxyalkyl; hydroxy; alkenyl or alkynyl;

R^9 is hydrogen; alkyl; alkynyl; alkenyl or alkylcarbonyl;

R^{10} is alkylene;

R^{11} is alkyl; haloalkyl; hydrogen; hydroxy; alkoxy; haloalkoxy; alkoxyalkyl; alkoxyalkoxy; alkoxyalkylamino; dialkoxyalkylamino; alkoxycarbonyl; hydroxycarbonyl; alkoxycarbonylalkyl; hydroxycarbonylalkyl; (alkyl)$_n$amino; (alkyl)$_n$hydrazino; alkoxycarbonylalkylamino; hydroxyalkylamino; (alkyl)$_n$aminoalkylamino; (alkyl)$_n$animocarbonylalkylamino; hydroxycarbonylalkylamino; alkylsulfonylamino; acetylaminoalkylamino; N-alkoxy-N-(alkyl)$_m$amino; N-hydroxy-N-(alkyl)$_m$amino; cyanoalkylamino; (alkenyl)$_n$amino; alkoxyalkylamino; (alkynyl)$_n$amino; alkenyloxy; alkynyloxy or semicarbazido;

m is 0 or 1;

n is 0, 1 or 2;

z is 1 or 2;

q is 0 or 1;

M and Q are independently alkoxy; alkyl; (alkyl)$_n$amino; hydroxy; hydrogen; alkenyloxy; (alkenyl)$_n$amino; alkynyloxy; or (alkynyl)$_n$amino;

L is oxygen or sulfur;

P is phosphorous;

R^4 is hydrogen, halogen, alkyl or nitro;

R^5 is halogen; cyano; alkylthio; alkylsulfinyl; alkylsulfonyl; alkoxy; acetylamino or amino;

R^6 is haloalkyl; haloalkoxy; or SO_yR^{12} and R^{12} is alkyl or haloalkyl and y is 0, 1 or 2;

R^7 is hydrogen or halogen;

X is CR^{13} wherein R^{13} is hydrogen; halogen; haloalkyl; cyano; alkylthio; alkylsulfonyl; alkylsufinyl or alkoxy; with the proviso that when X is CR^{13} and R^1, R^3, R^4, R^7 and R^{13} are hydrogen, at least one of R^2, R^5 and R^6 is not chloro; and when X is CR^{13}, R^5 is acetylamino, halogen or amino and R^1, R^2, R^3, R^4, R^7, R^{13} are hydrogen, then R^6 is not SO_2CH_2Cl; or an agriculturally acceptable salt thereof.

5,786,302
HERBICIDAL METHOD USING SUBSTITUTED PYRAZOLE COMPOUNDS

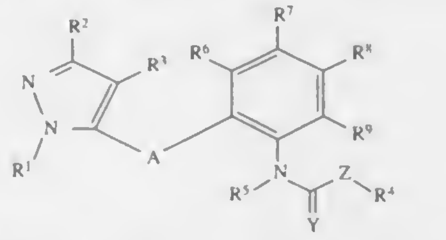
Christopher John Matthews, Pinole, and Don Robert Baker, Orinda, both of Calif., assignors to Zeneca Limited, London, England

Divislon of Ser. No. 742,010, Oct. 31, 1996, Pat. No. 5,698,495. This application Aug. 4, 1997, Ser. No. 905,749

Int. Cl.^{6} A01N *43/56*

U.S. Cl. 504—282 **4 Claims**

1. A method for controlling undesirable vegetation comprising applying to an area where control is desired an herbicidally effective amount of a compound of formula (Ia),



(Ia)

wherein:

R^1 is optionally substituted C_1–C_6 alkyl or C_1–C_6 haloalkyl;

R^2 is optionally substituted C_1–C_6 alkyl, C_1–C_6 haloalkyl or C_3–C_6 cycloalkyl;

R^3 is hydrogen, halogen, C_1–C_6 alkyl or C_1–C_6 haloalkyl;

R^4 is optionally substituted C_1–C_6 alkyl, C_1–C_6 haloalkyl, optionally substituted C_1–C_6 alkoxy, optionally substituted C_3–C_6 cycloalkyl, optionally substituted $(C_1$–$C_6)$alkoxy$(C_1$–$C_6)$alkyl, optionally substituted C_2–C_6 alkenyl, optionally substituted C_2–C_6 alkynyl, optionally substituted aryl, optionally substituted heteroaryl, or an optionally substituted five or six membered heterocyclic ring containing one or more heteroatoms selected from O, N or S;

R^5 is hydrogen, optionally substituted C_1–C_6 alkyl or $(C_1$–$C_6)$alkoxy-$(C_1$–$C_6)$alkyl;

R^6, R^7, R^8 and R^9 are independently selected from hydrogen, halogen, optionally substituted C_1–C_6 alkyl, optionally substituted C_2–C_6 alkenyl, optionally substituted C_2–C_6 alkynyl, optionally substituted C_1–C_6 alkoxy, $(C_1$–$C_6)$alkoxy-$(C_1$–$C_6)$alkyl, C_1–C_6 haloalkyl, C_1–C_6 haloalkoxy, cyano, nitro, $—S(O)_p—R^{10}$ wherein p is 0, 1 or 2 and R^{10} is C_1–C_3 alkyl or C_1–C_3 haloalkyl, $—OSO_2R^{11}$ wherein R^{11} is C_1–C_3 alkyl, $—CO_2H$, $—COR^{12}$, $—COOR^{12}$ or $—NHCOR^{12}$ wherein R^{12} is C_1–C_6 alkyl, C_1–C_6 haloalkyl, optionally substituted C_3–C_6 cycloalkyl, optionally substituted aryl, optionally substituted heteroaryl, $(C_1$–$C_6)$alkoxy-$(C_1$–$C_6)$alkyl or C_1–C_6 alkylthio, $—CONR^{13}R^{14}$ or $—NR^{13}R^{14}$ wherein R^{13} and R^{14} may be the same or different and are each hydrogen, C_1–C_6 alkyl, C_1–C_6 haloalkyl, optionally substituted C_3–C_6 cycloalkyl, optionally substituted C_2–C_6 alkenyl, optionally substituted C_2–C_6 alkynyl, optionally substituted aryl, optionally substituted heteroaryl, $(C_1$–$C_6)$alkoxy-$(C_1$–$C_6)$alkyl or C_1–C_6 alkylthio, or R^{13} and R^{14} together with the N to which they are bound may form a ring having 3–8 members, one or more of which may be O, S or N; and

A is O, S, SO or SO_2;

Y is O or S;

Z is O;

or an agriculturally acceptable salt thereof.

5,786,303
PLANAR MULTI-RESONATOR BANDPASS FILTER

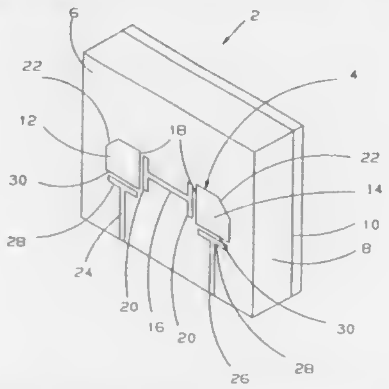
Raafat R. Mansour, Waterloo, Canada, assignor to Com Dev Ltd., Cambridge, Canada

Filed Jun. 7, 1995, Ser. No. 475,653

Claims priority, application Canada, Jun. 22, 1994, 2.126.468

Int. Cl.^{6} H01P *1/203;* **H01B** *12/02*

U.S. Cl. 505—210 **56 Claims**



1. A bandpass filter comprising:

(a) a plurality of patch resonators in a planar configuration, each resonator having a respective periphery with a corresponding perturbation means thereon;

(b) a first coupling path extending between two of said resonators, at least two of said resonators being at least dual mode resonators, said first coupling path having two ends, said first coupling path having a respective longitudinal axis in each area of said ends that extends through said ends and is substantially perpendicular to an adjacent section of said periphery of the corresponding resonator, said ends each having a respective end portion thereon, each respective end portion being substantially perpendicular to said corresponding longitudinal axis, each respective end portion being substantially parallel to and spaced apart from an adjacent section of said periphery of the corresponding resonator, said filter having a housing and an input and an output.

5,786,304
JOINING PRODUCT OF OXIDE SUPERCONDUCTING MATERIAL AND PROCESS FOR PRODUCING THE SAME

Keiichi Kimura; Katuyoshi Miyamoto, and Misao Hashimoto, all of Kawasaki, Japan, assignors to Nippon Steel Corporation, Tokyo, Japan

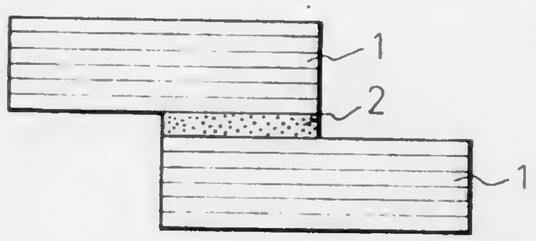
PCT No. PCT/JP93/00432, § 371 Date Sep. 30, 1994, § 102(e) Date Sep. 30, 1994, PCT Pub. No. WO93/20025, PCT Pub. Date Oct. 14, 1993

PCT Filed Apr. 2, 1993, Ser. No. 313,053

Claims priority, application Japan, Apr. 3, 1992, 4-109088

Int. Cl.^{6} H01L *39/12;39/24*

U.S. Cl. 505—234 **5 Claims**



1. A joined product comprising a plurality of $RE^1Ba_2Cu_3O_x$-based monocrystalline superconducting material segments, with each segment having a joining area and an identical crystal orientation, said segments joined with each other at said joining areas with an $RE^2Ba_2Cu_3O_x$-based superconducting phase monocrystalline solder formed by a melt process, wherein

RE^1 is at least one element selected from a group consisting of Y, Nd, Sm, Eu, Gd, Dy, Ho, Er, Tm, Yb and Lu,

RE^2 is at least one element selected from a group consisting of Y, Nd, Sm, Eu, Gd, Dy, Ho, Er, Tm, Yb and Lu,

said $RE^2Ba_2Cu_3O_x$-based superconducting phase monocrystalline solder has a lower peritectic temperature than said $RE^1Ba_2Cu_3O_x$-based monocrystalline superconducting material segments, and

said $RE^2Ba_2Cu_3O_x$-based superconducting phase monocrystalline solder has the same crystal orientation as said $RE^1Ba_2Cu_3O_x$-based monocrystalline superconducting material segments.

5,786,305
PROCESS FOR MANUFACTURING A COMPOUND OXIDE-TYPE SUPERCONDUCTING WIRE

Kazuhiko Hayashi, Osaka, Japan, assignor to Sumitomo Electric Industries Ltd., Osaka, Japan

Continuation of Ser. No. 877,393, Apr. 30, 1992, abandoned, which is a continuation of Ser. No. 596,407, Oct. 5, 1990, abandoned, which is a continuation of Ser. No. 161,480, Feb. 29, 1988, abandoned. This application May 4, 1993, Ser. No. 56,615

Claims priority, application Japan, Feb. 28, 1987, 62-046577

Int. Cl.^{6} H01L *39/24*

U.S. Cl. 505—433 **10 Claims**

1. A process for manufacturing a compound oxide high-temperature superconducting wire, comprising the steps of:

forming powder material into a sintered rod of compound oxide superconductive material;

providing a metal pipe having an outer wall defining an outer diameter, and an innner wall defining an inner diameter;

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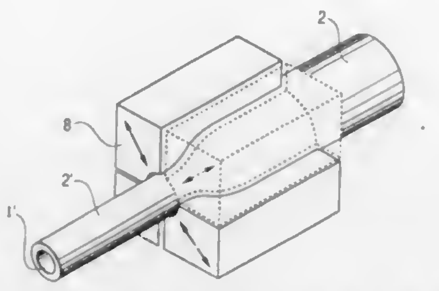


inserting said sintered rod into said metal pipe such that said inner wall surrounds said sintered rod; and then

subjecting said metal pipe to a plastic deformation operation that exerts mainly compressive strain upon said metal pipe, thereby reducing said outer diameter, said inner diameter, and a diameter of said sintered rod.

5,786,306

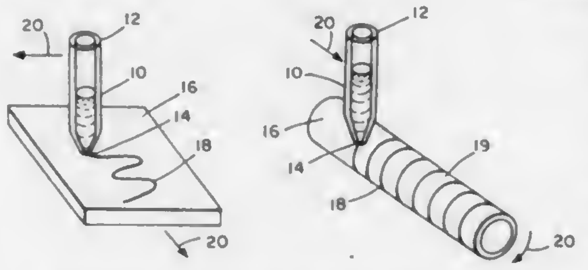
SYNTHESIS OF HIGH T_C SUPERCONDUCTING COATINGS AND PATTERNS BY MELT WRITING AND OXIDATION OF METALLIC PRECURSOR ALLOYS

Wei Gao, Somerville, and John B. Vander Sande, Newbury, both of Mass., assignors to Massachusetts Institute of Technology, Cambridge, Mass.

Continuation of Ser. No. 542,170, Jun. 22, 1990, abandoned. This application May 1, 1991, Ser. No. 696,973

Int. Cl.^{6} H01L *39/24*

U.S. Cl. 505—452 **53 Claims**



1. A method for preparing an adherent superconducting oxide coating comprising:

combining metallic elements of a superconducting oxide to form an alloy;

melting said alloy and maintaining said alloy in a molten state;

melt writing with said molten alloy such that said molten alloy is applied through an orifice to a surface of a substrate;

selectively varying process parameters so that the thickness and width of said molten alloy can be controlled;

moving said orifice and substrate with respect to one another so as to form a patterned precursor alloy; and

oxidizing said patterned alloy to form said adherent superconducting oxide.

5,786,307

LUBRICATING OIL COMPOSITION

Jinich Igarashi; Kazuhiro Yagishita, and Kiyoshi Azami, all of Yokohama, Japan, assignors to Nippon Oil Co., Ltd., Tokyo, Japan

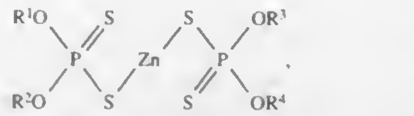
Filed Oct. 23, 1996, Ser. No. 736,073

Claims priority, application Japan, Oct. 27, 1995, 7-303495

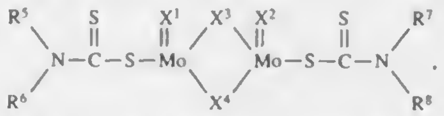
Int. Cl.^{6} C10M *129/28;141/12*

U.S. Cl. 508—365 **15 Claims**

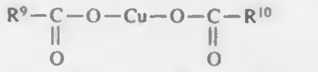
1. A lubricating oil composition which comprises a base oil, 0.01-5.0 mass % of a zinc dihydrocarbyl dithiophosphate of the formula


(I)

wherein R^1-R^4 inclusive each independently are a C_1-C_{18} hydrocarbon group; 0.001-5.0 mass % of a molybdenum dialkyldithiocarbamate of the formula


(II)

wherein R^5-R^8 inclusive each independently are a C_1-C_{18} alkyl group and X^1-X^4 inclusive each independently are a sulfur or oxygen atom; and 0.005-1.0 mass % of a copper carboxylate of the formula


$$R^9-\underset{\underset{O}{\|}}{C}-O-Cu-O-\underset{\underset{O}{\|}}{C}-R^{10} \qquad (III)$$

wherein R^9-R^{10} each independently are a C_1-C_{24} hydrocarbon group, said percentages being based on total composition.

5,786,308

FLOW CONTROLLERS FOR POWDER LACQUERS

Ulrich Eicken, Korschenbroich; Brigitte Hase, Erkrath; Herbert Fischer, Duesseldorf; Paul Birnbrich, Solingen; Heinz-Guenter Schulte, Muelheim; Wolfgang Gress, Wuppertal, and Harald Frommelius, Monheim, all of Germany, assignors to Henkel Kommanditgesellschaft auf Aktien, Duesseldorf, Germany

PCT No. PCT/EP95/00310, § 371 Date Aug. 27, 1996, § 102(e) Date Aug. 27, 1996, PCT Pub. No. WO95/21894, PCT Pub. Date Aug. 17, 1995

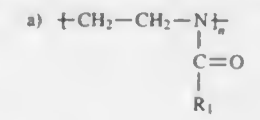
PCT Filed Jan. 30, 1995, Ser. No. 687,552

Claims priority, application Germany, Feb. 8, 1994, 44 03 953.0

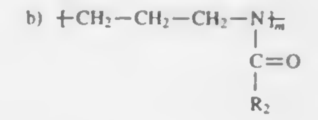
Int. Cl.^{6} C08G *59/00*

U.S. Cl. 528—403 **19 Claims**

1. In a method wherein an additive is incorporated in a powder lacquer formation to control the flow properties of the powder lacquer during coating formation, the improvement which comprises: incorporating in the power lacquer formulation a composition containing at least one flow controller polymer containing at least one group selected from the group consisting of


$$\text{a)}\ \left[CH_2-CH_2-\underset{\substack{|\\C=O\\|\\R_1}}{N}\right]_n$$

and


$$\text{b)}\ \left[CH_2-CH_2-CH_2-\underset{\substack{|\\C=O\\|\\R_2}}{N}\right]_m$$

wherein

R_1 and R_2 are independently hydrogen, an optionally hydroxysubstituted hydrocarbon group containing 1 to 36 carbon atoms, an aryl group, an aralkyl group optionally substituted on the aromatic nucleus, and a group of the formula

R_3—(—OC_2H_4—)—$_p$O—CH_2— where R_3 is alkyl or alkenyl containing 1 to 18 carbon atoms, p is a number of 1 to 10, n and m, independently, are from 0 to 1000 with the sum of n and m being from 2 to 1000, and optionally containing additives typically encountered in powder lacquer formulations.

5,786,309

PROCESSES FOR MAKING POLYFLUORFULLERENE AND COMPOSITIONS COMPRISING SAME

Marijan Bradic, M. Kiepacha 41, HR-43260 Krizevci, Croatia

Filed May 20, 1996, Ser. No. 650,827

Claims priority, application Germany, May 19, 1995, 195 18 005.4

Int. Cl.^{6} C10M *131/02;* **C07C** *17/013;17/02*

U.S. Cl. 508—588 **11 Claims**

1. A process for making polyfluorofullerene comprising the steps:

providing a fullerene solution in an apolar solvent;

mixing said solution with a polytetrafluoroethylene dispersion:

irradiating said mixture with light; and

recovering polyfluorofullerene.

5,786,310

SYNTHETIC OIL-BASED WASHING COMPOSITIONS AND METHOD OF USE

Claude Dubief, Le Chesnay, and Daniele Cauwet, Paris, both of France, assignors to L'Oreal, Paris, France

Division of Ser. No. 176,693, Jan. 3, 1994, abandoned, which is a continuation of Ser. No. 836,727, Feb. 19, 1992, abandoned. This application Jun. 5, 1995, Ser. No. 464,543

Claims priority, application France, Feb. 19, 1991, 91 01954

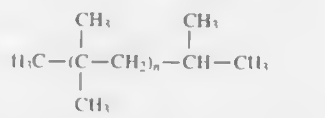
Int. Cl.^{6} C11D *3/18;1/02;1/66*

U.S. Cl. 510—122 **2 Claims**

1. A method of washing and conditioning keratinous materials, comprising applying to said material at least one composition containing in an aqueous medium:

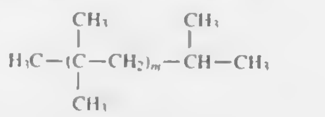
(A) at least one synthetic oil in proportions sufficient to confer softness and sheen to the keratinous materials, selected from the group consisting of:

(i) the isoparaffins of structure (I):


$$H_3C-(\underset{\substack{|\\CH_3}}{\overset{\substack{CH_3\\|}}{C}}-CH_2)_n-\overset{\substack{CH_3\\|}}{CH}-CH_3$$

where n is between 2 and 16 inclusive; and

(ii) a mixture of the isoparaffins of formula (I) with the isoparaffins of formula (II):


$$H_3C-(\underset{\substack{|\\CH_3}}{\overset{\substack{CH_3\\|}}{C}}-CH_2)_m-\overset{\substack{CH_3\\|}}{CH}-CH_3$$

where m is not less than 18.

the capillary viscosity of the oils defined in (i) and (ii) being less than 500 cP.s;

(B) an agent for suspending the synthetic oil defined in (A) in proportions sufficient to suspend the oil selected from the group consisting of:

i) the compounds of formula:

R—X

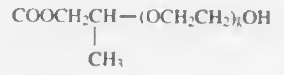
in which

a) R is a C_{11}-C_{21} alkyl or alkenyl radical and X is

a COOA group where A is a mono- or polyhydroxyalkyl radical derived from a C_2-C_3 polyol or a radical $CH_2CH_2SO_3M$;

a group CO $(OCH_2CH_2)_kOH$ where k has a value of between 2 and 150: or

a group


$$COOCH_2\underset{\substack{|\\CH_3}}{CH}-(OCH_2CH_2)_kOH$$

where k has a value of between 2 and 150;

b) R denotes a radical $R_3O(C_2H_4O)_1CH_2$ in which R_3 denotes a C_{12}-C_{16} alkyl group and X a group $CONR_1R_2$ in which R_1 and R_2 represent hydrogen or C_1-C_4 hydroxyalkyl, at least one of R_1 and R_2 representing C_1-C_4 hydroxyalkyl and 1 has a value of 1 to 3 inclusive;

(ii) biopolysaccarides; and

C) a surface-active agent possessing detergent properties present in proportions sufficient to confer detergent properties to the composition selected from the group consisting of:

(i) anionic surface active agents which are alkali metal salts, ammonium salts, amine salts, aminoalcohol salts or magnesium salts of alkyl ether sulphates, alkyl amidoether sulphates, alkyl aryl polyether sulphates, monoglyceride sulphates; alkyl sulphonates, alkyl amide sulphonates, alkyl aryl sulphonates, olefin sulphonates, paraffin sulphonates; alkyl sulphosuccinates, alkyl ether sulphosuccinates; alkyl amide sulphosuccinates; alkyl sulphosuccinamates, alkyl sulphoacetates; alkyl ether phosphates; acyl sarcosinates, and N-acyltaurates, the alkyl or acyl radical of these various compounds being composed of a carbon chain containing 12 to 20 carbon atoms; alkyl sulphates and alkyl phosphates whose alkyl radical contains 12 to 14 carbon atoms; fatty acid salts such as the salts of oleic, ricinoleic, palmitic or stearic acids; copra oil or hydrogenated copra oil acids; or acyl lactylates, whose acyl radical contains 8 to 20 carbon atoms:

(ii) non-ionic surface active agents which are polyethoxylated, polypropoxylated or polyglycerolated alcohol.; or a-diols or alkylphenols with a fatty chain containing 8 to 18 carbon atoms, the number of ethylene oxide or propylene oxide groups being between 2 and 50 and the number of glycerol groups being between 2 and 30; copolymers of ethylene and propylene oxides; condensates of ethylene and propylene oxides with fatty alcohols: polyglycerolated fatty amides containing 1 to 5 glycerol groups and in particular 1.5 to 4; polyethoxylated fatty amines having preferably 2 to 30 mol of ethylene oxide; oxyethylenated sorbitan fatty acid esters having 2 to 30 mol of ethylene oxide; sucrose fatty acid esters, (C_8-C_{18}alkyl)polyglycosides, (C_{10}-C_{14}alkyl)amine oxides or N-acylamidopropylmorpholine; and

(iii) amphoteric or zwitterionic surface active agents; and in that after allowing the composition to act for a period of time, the treated materials are rinsed with water.

5,786,311

MONOHYDRIC ALCOHOL-FREE PROCESS FOR MAKING A TRANSPARENT POUR MOLDED PERSONAL CLEANSING BAR

Alexandre Zyngier, Caracas, Brazil; Benjamin Carl Wiegand, Hamilton, Ohio; Alejandro Figueroa, and Michael August Brunsman, both of Cincinnati, Ohio, assignors to The Procter & Gamble Company, Cincinnati, Ohio

Continuation of Ser. No. 493,351, Jul. 21, 1995, Pat. No. 5,703,025, which is a continuation-in-part of Ser. No. 285,261, Aug. 3, 1994, abandoned. This application Aug. 26, 1997, Ser. No. 920,078

Int. Cl.^{6} C11D *9/00;17/00;9/22*

U.S. Cl. 510—147 **7 Claims**

1. A monohydric alcohol free process for making transparent pour molded personal cleansing soap bars comprising the following steps:

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I. making a molten mix of: (A) from 18 parts to 35 parts soap; wherein said soap is at least 50% insoluble sodium soap; (B) from 5 parts to 37 parts lathering synthetic surfactant, wherein said lathering synthetic surfactant has a critical micelle concentration equilibrium surface tension between 10 and 50 dynes/cm, as measured at 25° C.; (C) from 14 parts to 27 parts water; and (D) from 18 parts to 37 parts of a water soluble organic solvent, wherein the combined level of water and water soluble organic solvent within the bar is at least 40 parts;

II. transferring said molten mix to bar shaped molds or forming tubes; and

III. cooling the transferred molten mix under acquiescent conditions in said bar shaped molds or forming tubes at a rate of approximately 0.1° to 7.0° C. per minute to crystallize and solidify the mix and provide said transparent personal cleansing soap bars.

5,786,312

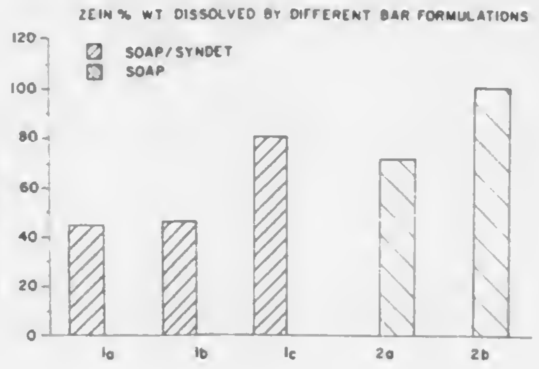
BAR COMPOSITION COMPRISING COPOLYMER MILDNESS ACTIVES

Albert Joseph Post, Teaneck; Edward Van Gunst, Little Ferry; Mengtao He, Wayne; Michael Fair, Hackensack, all of N.J., and Michael Massaro, Congers, N.Y., assignors to Lever Brothers Company, Division of Conopco, Inc., New York, N.Y.

Filed Jun. 12, 1996, Ser. No. 662,394

Int. Cl.^{6} C11D *9/30*

U.S. Cl. 510—152 **9 Claims**



1. A bar composition comprising:

(a) 30% to 85% by weight of total composition of fatty acid soaps;

(b) 0 to 30% by weight of a synthetic surfactant;

(c) 1% to 40% by weight of the composition of a structurant selected from the group consisting of alkylene oxide components having a molecular weight of from about 2,000 to about 25,000; C_8–C_{22} free fatty acids; C_2 to C_{20} alkanols, paraffin waxes; and water-soluble starches; and

(d) 1% to 25% by weight of total composition of an ethylene oxide terminated polyoxyethylene polyoxypropylene nonionic polymer surfactant (EO-PO polymer) having a molecular weight of from about 2,000 to 25,000 and a melting point of about 40° C. to 85° C.;

wherein the portion of ethylene oxide per mole is between 50% to 90%; and

wherein the ratio by weight total composition of fatty acid soaps and synthetic surfactants to EO-PO polymer is between 1.2:1 to 15:1.

5,786,313

USE OF GLYCINE-N,N-DIACETIC ACID DERIVATIVES AS BIODEGRADABLE COMPLEXING AGENTS FOR ALKALINE EARTH METAL IONS AND HEAVY METAL IONS AND PROCESS FOR THE PREPARATION THEREOF

Juergen Schneider, Freinsheim; Birgit Potthoff-Karl, Ludwigshafen; Alexander Kud, Eppelsheim; Richard Baur, Mutterstadt; Alfred Oftring, Bad Durkheim, and Thomas Greindl, Neuburg, all of Germany, assignors to BASF Aktiengesellschaft, Ludwigshafen, Germany

PCT No. PCT/EP94/01838, § 371 Date Nov. 24, 1995, § 102(e) Date Nov. 24, 1995, PCT Pub. No. WO94/29421, PCT Pub. Date Dec. 22, 1994

PCT Filed Jun. 7, 1994, Ser. No. 545,768

Claims priority, application Germany, Jun. 16, 1993, 43 19 935.6

Int. Cl.^{6} C11D *3/33*

U.S. Cl. 510—219 **1 Claim**

1. A process for the industrial cleaning of hard surfaces of articles made of metal, plastic, paint or glass, alkaline cleaning of articles for the beverage and foodstuff industries or for dishwashing of articles, comprising contacting the article with a cleaner formulation comprising α-alanine-N-N-diacetic acid, its alkali metal, ammonium and substituted ammonium salts thereof.

5,786,314

CONTROL OF CALCIUM PRECIPITATION IN AUTOMATIC DISHWASHING

Eugene Steven Sadlowski, Cincinnati, Ohio, assignor to The Procter & Gamble Company, Cincinnati, Ohio

Continuation of Ser. No. 469,744, Jun. 6, 1995, abandoned, which is a continuation of Ser. No. 147,219, Nov. 3, 1993, abandoned. This application Oct. 18, 1996, Ser. No. 733,892

Int. Cl.^{6} C11D *3/37;3/10;7/12;7/60*

U.S. Cl. 510—230 **20 Claims**

1. An automatic dishwashing detergent composition comprising:

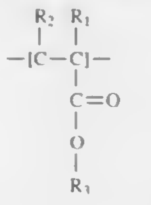
a) from about 1% to about 50% by weight of a carbonate source selected from the group consisting of salts of carbonate, bicarbonate, sesquicarbonate, percarbonate, and mixtures thereof;

b) a calcium complexing component selected from the group consisting of citric acid, sodium citrate, and mixtures thereof, said calcium complexing component being present in a weight ratio to said carbonate source of at least 1.0, said composition having a pH from about 7 to about 12; and

c) from about 0.5% to about 20% of a modified polyacrylate copolymer having a molecular weight of less than about 15,000 and which contains monomer units:

(i) from about 10% to 90%, by weight of said copolymer, of a monomer which is acrylic acid or its salt; and

(ii) from about 10% to 90% by weight of a comonomer which is a substituted acrylic acid or salt of the formula



$$-[\overset{R_2}{\overset{|}{C}}-\overset{R_1}{\overset{|}{C}}]-\quad \text{with } C=O,\ O,\ R_3 \text{ below the second } C$$

wherein R_1 and R_2 are each H, C_{1-4} alkyl or hydroxyalkyl with at least one of R_1 and R_2 being C_{1-4} alkyl or hydroxyalkyl and wherein R_3 is H, C_{1-4} alkyl or hydroxyalkyl or alkali metal.

5,786,315

CONTROL OF CALCIUM CARBONATE PRECIPITATION IN AUTOMATIC DISHWASHING

Eugene Steven Sadlowski, Cincinnati, Ohio, assignor to The Procter & Gamble Company, Cincinnati, Ohio

Continuation of Ser. No. 469,149, Jun. 6, 1995, abandoned, which is a continuation of Ser. No. 147,224, Nov. 3, 1993, abandoned. This application Oct. 23, 1996, Ser. No. 740,171

Int. Cl.^{6} C11D *3/37;3/10;7/12;7/60*

U.S. Cl. 510—230 **19 Claims**

1. An automatic dishwashing detergent composition comprising:

a) from about 1% to about 50% by weight of a carbonate source selected from the group consisting of salts of carbonate, bicarbonate, sesquicarbonate, percarbonate, and mixtures thereof;

b) from about 1% to about 99% by weight of a pH adjusting component, selected from the group consisting of

(i) sodium silicate;

(ii) sodium citrate;

(iii) citric acid;

(iv) sodium borate;

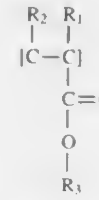
(v) sodium hydroxide; and

(vi) mixtures thereof; and

c) from about 0.5% to about 20% of a modified polyacrylate copolymer having a molecular weight of less than about 15,000 and which contains monomer units:

(i) from about 10% to 90%, by weight of said copolymer, of a monomer which is acrylic acid or its salt; and

(ii) from about 10% to 90% by weight of a comonomer which is a substituted acrylic acid or salt of the formula



$$[\overset{R_2}{\overset{|}{C}}-\overset{R_1}{\overset{|}{C}}]\quad \text{with } C=O,\ O,\ R_3 \text{ below the second } C$$

wherein R_1 and R_2 are each H, C_{1-4} alkyl or hydroxyalkyl with at least one of R_1 and R_2 being C_{1-4} alkyl or hydroxyalkyl and wherein R_3 is H, C_{1-4} alkyl or hydroxyalkyl or alkali metal; said composition providing a wash solution pH of from about 6 to about 9.4.

5,786,316

CLEANING COMPOSITIONS COMPRISING XYLANASES

Andre Cesar Baeck, Bonheiden; Alfred Busch, Londerzeel, and Ann Katrien Marie Agnes Verschuere, Beernem, all of Belgium, assignors to The Procter & Gamble Company, Cincinnati, Ohio

PCT No. PCT/US95/12490, § 371 Date Apr. 16, 1997, § 102(e) Date Apr. 16, 1997, PCT Pub. No. WO96/13568, PCT Pub. Date May 9, 1996

PCT Filed Sep. 29, 1995, Ser. No. 817,711

Claims priority, application Belgium, Oct. 27, 1994, 94870169

Int. Cl.^{6} C11D *3/386;3/08;3/395;3/39*

U.S. Cl. 510—235 **11 Claims**

1. A cleaning composition comprising (A) from 0.1% to 60%, by weight, surfactant (B)0.0001 to 2% by weight of the composition of xylanase enzyme; (C)1% to 25% of an oxygen bleaching agent; (D)0.0001% to 2% of an additional enzyme selected from the group consisting of proteases, lipases, cellulases, and mixtures thereof; (E)10% to 80% of a builder component.

5,786,317

STAIN REMOVAL COMPOSITIONS FOR CARPETS

Clint E. Townsend, 8882 Nimbus Way, Orangevale, Calif. 95662

Filed Nov. 22, 1996, Ser. No. 754,970

Int. Cl.^{6} C11D *3/08;3/33*

U.S. Cl. 510—278 **14 Claims**

1. A stain remover composition, comprising:

(a) between approximately 0.1 weight percent and approximately 10 weight percent of at least one builder compound;

(b) between approximately 2 weight percent and approximately 20 weight percent of at least one water soluble organic solvent;

(c) between approximately 0.1 weight percent and approximately 10 weight percent of at least one sequestering agent selected from the group consisting of ethylenediaminetetraacetic acid, ethylenediaminetetraacetic acid monoalkali metal salt, ethylenediaminetetraacetic acid dialkali metal salt, ethylenediaminetetraacetic acid trialkali metal salt, and ethylenediaminetetraacetic acid tetraalkali metal salt;

(d) between approximately 0.1 weight percent and approximately 10 weight percent of at least one surfactant;

(e) between 7 weight percent and approximately 20 weight percent of at least one reducing agent selected from the group consisting of alkali metal bisulfite, alkali metal hypophosphite, and alkali metal borohydride; and

(f) the remainder water.

5,786,318

SOIL RELEASE POLYMERS AND DETERGENT COMPOSITIONS CONTAINING THEM

Wilfried Blokzijl, Amsterdam, Netherlands; Andrew Martin Creeth, Chester, United Kingdom; Alfred Roy Elmes, Wirral, United Kingdom; Andrew David Green, Liverpool, United Kingdom; Michael Hull, Gwynedd, United Kingdom; Katrin Dagmar Joule, Wirral, United Kingdom, and Ezat Khoshdel, South Wirral, United Kingdom, assignors to Lever Brothers Company, Division of Conopco Inc., New York, N.Y.

Filed Jun. 19, 1996, Ser. No. 666,157

Claims priority, application United Kingdom, Jul. 6, 1995, 9513799; Jul. 6, 1995, 9524515; Sep. 4, 1995, 9518011

Int. Cl.^{6} C11D *3/00;17/00;* **C08G** *63/00;63/66*

U.S. Cl. 510—299 **16 Claims**

1. A water-soluble copolymer providing soil release properties when incorporated in a laundry detergent composition, the copolymer comprising:

(i) from 2 to 30 mole % of monomer units of poly (ethylene glycol) and/or capped poly (ethylene glycol) having the formula I

$$—O—(CH_2—CH_2—O)_n— \qquad (I)$$

and/or the formula Ia:

$$X—O—(CH_2—CH_2—O)_n— \qquad (Ia)$$

wherein X is a hydrogen atom or a capping group and n is an integer; comprising from 0 to 30 mole % of uncapped glycol and from 0 to 30 mole % of capped glycol,

(ii) from 10 to 50 mole % of monomer units of one or more aromatic dicarboxylic acids having the formula II

$$—CO—AR—CO—O— \qquad (II)$$

wherein Ar is a bifunctional aromatic group, optionally including units in which Ar is sulphonated; comprising from 20 to 50 mole % of monomer units of an unsulphonated aromatic dicarboxylic acid and from 0 to 15 wt % of monomer units of a sulphonated aromatic dicarboxylic acid,

(iii) from 30 to 88 mole % of monomer units of a polyol having at least 3 hydroxyl groups, having the formula III:

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$$-CH_2-A-CH_2-O- \qquad (III)$$

wherein A is a bifunctional group containing at least 1 carbon atom and at least 1 hydroxyl group.

5,786,319

CONCENTRATED AQUEOUS DEGREASING CLEANSER

Kimberly M. Pedersen, Canton, and Paul A. Pappalardo, Northville, both of Mich., assignors to Diversey Lever, Inc., Plymouth, Mich.

Continuation of Ser. No. 503,805, Jul. 18, 1995, abandoned. This application Jun. 23, 1997, Ser. No. 880,776

Int. Cl.⁶ C11D *1/88;1/72;3/20;3/43*

U.S. Cl. 510—423 **11 Claims**

1. A liquid detergent composition comprising 3–30% by weight of a glycol ether solvent system effective to dissolve vegetable grease and a surfactant system comprising a combination of a nonionic surfactant and a hydrotrope wherein said glycol ether solvent system and said surfactant system are stably dispersed in water at a pH less than 13:

wherein said surfactant system comprises at least about 3% nonionic surfactant by weight, and an amount of an iminodiproprionate amphoteric surfactant effective to stabilize said nonionic surfactant in solution, wherein said nonionic surfactant and the amphoteric surfactant form at least 7% of the composition; and

wherein said solvent system is selected from the group consisting of propylene glycol methyl ether, dipropylene glycol methyl ether, tripropylene glycol methyl ether, propylene glycol methyl ether acetate, dipropylene glycol methyl ether acetate, propylene glycol n-butyl ether, dipropylene glycol n-butyl ether, tripropylene glycol n-butyl ether, ethylene glycol n-butyl ether, diethylene glycol n-butyl ether, triethylene glycol n-butyl ether, diethethylene glycol methyl ether, triethylene glycol methyl ether, and combinations thereof.

5,786,320

PROCESS FOR PREPARING SOLID CAST DETERGENT PRODUCTS

Allen D. Urfer, Plainfield, Ind., and Virginia L. Lazarowitz, Hatfield, Pa., assignors to Henkel Corporation, Plymouth Meeting, Pa.

Filed Feb. 1, 1996, Ser. No. 595,119

Int. Cl.⁶ C11D *11/00;9/32*

U.S. Cl. 510—470 **22 Claims**

1 A process for forming solid cast detergent products comprising the steps of:

(a) forming an aqueous detergent slurry comprising from about 60 to about 90 parts by weight of solid detergent ingredients, per 100 parts of total detergent slurry weight, said solid detergent ingredients comprising:

(i) from about 5 to about 50 parts by weight of a surfactant;

(ii) from about 0.1 to about 10 parts by weight of a salt-form builder component;

(iii) from about 30 to about 75 parts by weight of a hydrated alkaline component;

(b) adding from about 0.5 to about 10 parts by weight of a sugar surfactant selected from the group consisting of an alkyl polyglycoside having the general formula I:

$$R_1O(R_2O)_b(Z)_a \qquad I$$

wherein R_1 is a monovalent organic radical having from about 6 to about 30 carbon atoms; R_2 is divalent alkylene radical having from 2 to 4 carbon atoms; Z is a saccharide residue having 5 or 6 carbon atoms; b is a number having a value from 0 to about 12; a is a number having a value from 1 to about 6, to form a uniform dispersion; and

(c) casting said uniform dispersion to form a solid cast detergent product.

5,786,321

PREPARATION OF CIS-ISOAMBRETTOLIDIES AND THEIR USE AS A FRAGRANCE

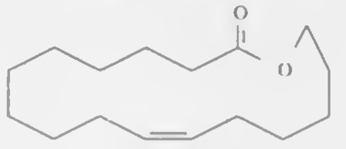
Maurice Mane, Magagnosc, and Jean-Louis Ponge, E. Rouquier, both of France, assignors to V. Mane Fils S.A., Le Bar-sur-Loup, France

Division of Ser. No. 679,389, Jul. 9, 1996, Pat. No. 5,726,328. This application Nov. 10, 1997, Ser. No. 966,649

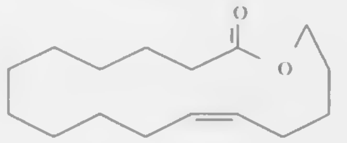
Int. Cl.⁶ A61K *7/46*

U.S. Cl. 512—11 **7 Claims**

1. In a fragrance composition which comprises one or more of fragrant compounds, the improvement comprising including in said fragrance composition at least one fragrant compound selected from the group consisting of compounds of the formulae I–II:



(I)



(II)

5,786,322

PEPTIDES AND COMPOUNDS THAT BIND SELECTINS INCLUDING ENDOTHELIUM LEUKOCYTE ADHESION MOLECULE 1

Ronald W. Barrett, Sunnyvale; Steven E. Cwirla, Palo Alto; William J. Dower, Menlo Park; Kerry J. Koller, San Francisco; Jung Lee, Mountain View; Christine L. Martens, Portola Valley, and Beatrice Ruhland-Fritsch, Los Altos, all of Calif., assignors to Affymax Technologies N.V., Greenford, England

Division of Ser. No. 241,054, May 11, 1994, Pat. No. 5,643,873, which is a continuation-in-part of Ser. No. 57,295, May 5, 1993, abandoned, which is a continuation-in-part of Ser. No. 881,395, May 6, 1992, abandoned. This application Jun. 7, 1995, Ser. No. 485,508

Int. Cl.⁶ A61K *38/00;* **C07K** *5/00;7/00;16/00*

U.S. Cl. 514—2 **5 Claims**

1. A method for determining a site of inflammation in a mammalian patient which inflammation is mediated by ELAM-1 expression which method comprises:

administering to said patient an effective amount of a pharmaceutical composition comprising a peptide or a peptide mimetic which binds to ELAM-1 covalently coupled to a detectable label wherein said peptide or peptide mimetic has a core structure comprising:

$X_1X_2X_3WX_4LW\ X_6X_7X_8X_9$(SEQ ID NO:2)

where each amino acid is indicated by standard on letter abbreviations, and wherein X_1 is H, E, or D, X_2 is I, M or Nle; X_3 is T or S; X_4 is D, E, or L; X_5 is O or E; X_6 is N or D; X is L, M V, or I; X_8 is M or Nle; and X_9 is N, S, or O, and, comprises a molecular weight of less than about 2000 daltons, and a binding affinity to endothelial leukocyte adhesion molecule 1 as expressed by an IC_{50}-standard of no more than about 2.0 mM and wherein from zero to all of the —C(O)NH— linkages of the peptide have been replaced by a linkage selected from the group consisting of a —$CH_2OC(O)NR$— linkage, a phosphonate linkage, a —$CH_2S(O)_2NR$— linkage, a —CH_2NR— linkage, a —$C(O)NR^6$— linkage, and a —NHC(O)NH—linkage where R is hydrogen or lower alkyl, and R^6 is lower alkyl.

further wherein the N-terminus of said peptide or peptide mimetic is selected from the group consisting of a —NRR^1 group, a —NRC(O)R group, a —NRC(O)OR group, a —$NRS(O)_2R$ group, a —NHC(O)NHR group, a succinimide group, a benzyloxycarbonyl-NH— group, and a benzyloxycarbonyl-NH—group having from 1 to 3 substituents on the phenyl ring of the benzyloxycarbonyl-NH— group selected from the group consisting of lower alkyl, lower alkoxy, chloro, and bromo, where R and R^1 are independently selected from the group consisting of hydrogen and lower alkyl,

and still further wherein the C-terminus of said peptide or peptide mimetic has the formula —$C(O)R^2$ where R^2 is selected from the group consisting of hydroxy, lower alkoxy, and —NR^3R^4 where R^3 and R^4 are independently selected from the group consisting of hydrogen and lower alkyl and where the nitrogen atom of the —NR^3R^4 group can optionally be the amine group of the N-terminus of the peptide so as to form a cyclic peptide and physiologically acceptable salts thereof and wherein said detectable label permits detection of the peptide or peptide mimetic,

allowing the labeled peptide or peptide mimetic sufficient time to circulate in the patient and attach to ELAM-1 in the patient; and

detecting the label and its location in the patient and thereby determining the site of inflammation.

5,786,323

USE OF STEM CELL FACTOR AND SOLUBLE INTERLEUKIN-6 RECEPTOR TO INDUCE THE DEVELOPMENT OF HEMATOPOIETIC STEM CELLS

Tatsutoshi Nakahata, Tokyo, Japan, assignor to Amgen Inc., Thousand Oaks, Calif., and Tosoh Corporation, Tokyo, Japan

Continuation of Ser. No. 407,179, Mar. 20, 1995, abandoned, which is a division of Ser. No. 340,559, Nov. 16, 1994, Pat. No. 5,610,056. This application Oct. 9, 1996, Ser. No. 728,100

Int. Cl.⁶ A61K *38/18;* **C07K** *14/47*

U.S. Cl. 514—2 **3 Claims**

1. A composition consisting of stem cell factor, interleukin-6 and soluble interleukin-6 receptor as active ingredients to induce proliferation and differentiation of hematopoietic stem cells to promote erythroid cell production, said active ingredients and said stem cells derived from a human subject; wherein said stem cell factor, interleukin-6 and soluble interleukin-6 receptor is in an amount effective to promote erythroid cell production in vitro in he absence of erythropoietin.

5,786,324

SYNTHETIC PEPTIDES WITH BACTERICIDAL ACTIVITY AND ENDOTOXIN NEUTRALIZING ACTIVITY FOR GRAM NEGATIVE BACTERIA AND METHODS FOR THEIR USE

Beulah Gray, St. Paul; Judith R. Haseman, Eagan, and Kevin Mayo, Minnetonka, all of Minn., assignors to Regents of the University of Minnesota, Minneapolis, Minn.

Filed Mar. 24, 1994, Ser. No. 218,026

Int. Cl.⁶ A61K *38/12;38/04*

U.S. Cl. 514—9 **27 Claims**

1. A bactericidal peptide having about 10 to 100 amino acids, wherein said peptide is bactericidal for Pseudomonas species and comprises the amino acid sequence KWKAQKRFLK (SEQ ID NO:6).

5,786,325

CYCLIC PEPTIDE ANTIFUNGAL AGENTS AND METHODS OF MAKING AND USING

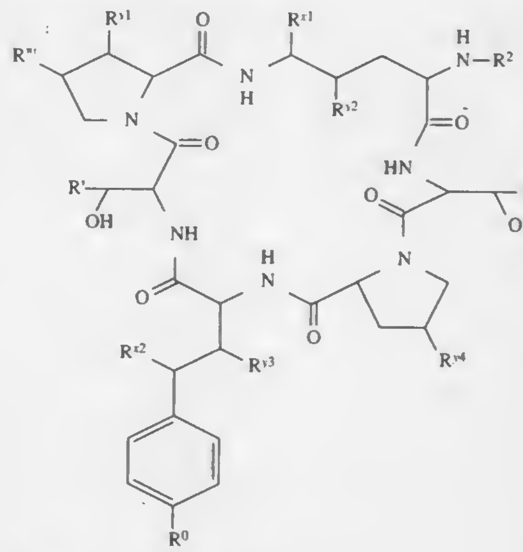
Peter S. Borromeo, Fishers, and William W. Turner, Jr., Bloomington, both of Ind., assignors to Eli Lilly and Company, Indianapolis, Ind.

Continuation of Ser. No. 451,337, May 26, 1995, abandoned. This application Mar. 11, 1996, Ser. No. 614,949

Int. Cl.⁶ A61K *37/02;* **C07K** *7/54*

U.S. Cl. 514—11 **30 Claims**

1. A compound of the formula:



1

wherein:

R' is hydrogen, methyl or —$CH_2C(O)NH_2$;

R" and R'" are independently methyl or hydrogen;

R^{x1} is hydrogen, hydroxy or —O—R;

R is C_1–C_6 alkyl, benzyl, —$(CH_2)_2Si(CH_3)_3$, —$CH_2CHOHCH_2OH$, —$CH_2CH{=}CH_2$, —$(CH_2)_aCOOH$, —$(CH_2)_bNR^{z1}R^{z2}$, —$(CH_2)_cPOR^{z3}R^{z4}$ or —$[(CH_2)_2O]_d$—$(C_1$–$C_6)$alkyl;

a, b and c are independently 1, 2, 3, 4, 5 or 6;

R^{z1} and R^{z2} are independently hydrogen, C_1–C_6 alkyl, or R^{z1} and R^{z2} combine to form —$CH_2(CH_2)_eCH_2$—;

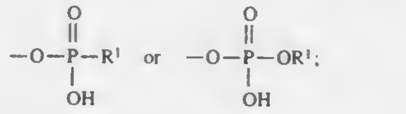
R^{z3} and R^{z4} are independently hydroxy or C_1–C_6 alkoxy;

d is 1 or 2;

e is 1, 2 or 3;

R^{x2}, R^{y1}, R^{y2}, R^{y3} and R^{y4} are independently hydroxy or hydrogen;

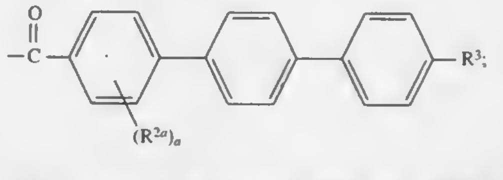
R^0 is hydroxy, —OP(O) $(OH)_2$ or a group of the formulae:



$$-O-\overset{\overset{\displaystyle O}{\|}}{\underset{\underset{\displaystyle OH}{|}}{P}}-R^1 \quad \text{or} \quad -O-\overset{\overset{\displaystyle O}{\|}}{\underset{\underset{\displaystyle OH}{|}}{P}}-OR^1;$$

R^1 is C_1–C_6 alkyl, phenyl, p-halo-phenyl, p-nitrophenyl, benzyl, p-halo-benzyl or p-nitro-benzyl;

R^2 is



each R^{2a} is independently hydroxy, halo, nitro, amino, trifluoromethyl, C_1–C_6 alkyl, C_1–C_6 alkoxy or C_1–C_6 alkylthio;

a is 1, 2, 3 or 4;

R^3 is C_1–C_{12} alkyl, C_1–C_{12} alkoxy or —O—$(CH_2)_m$—[O—$(CH_2)_n]_p$—O—$(C_1$–C_{12} alkyl);

m is 2, 3 or 4;

n is 2, 3 or 4; and

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p is 0 or 1;
or a pharmaceutically acceptable salt thereof.

5,786,326

METHOD FOR THE TREATMENT OF ATHEROSCLEROSIS AND VASCULAR INJURY BY PREVENTION OF VASCULAR SMOOTH MUSCLE CELL PROLIFERATION

Lawrence D. Horwitz, 9853 E. Ida Ave., Englewood, Colo. 80111

Continuation-in-part of Ser. No. 383,180, Feb. 3, 1995. This application Feb. 6, 1997, Ser. No. 796,791

Int. Cl.^{6} A01N *43/46;* A61K *31/55*

U.S. Cl. 514—11 **24 Claims**

1. A method of protecting blood vessels in a living organism from restenosis due to proliferation of vascular smooth muscle cells following angioplasty or vascular surgery, by inhibiting said vascular smooth muscle proliferation, comprising the administration to a living organism in need of such treatment of a composition containing an effective amount of a desferri-Exochelin.

5,786,327

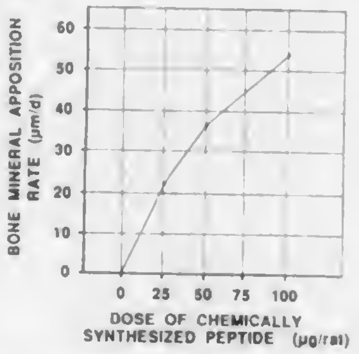
BONE STIMULATING FACTOR, METHODS OF ISOLATING SAME, AND METHODS OF INCREASING BONE GROWTH COMPRISING ADMINISTERING SAME

Cherk Shing Tam, Oakville, Canada, assignor to Gensci Regeneration Sciences Inc., Mississauga, Canada

Continuation-in-part of Ser. No. 120,217, Sep. 13, 1993, abandoned, which is a continuation-in-part of Ser. No. 31,386, Mar. 12, 1993, abandoned. This application Sep. 12, 1994, Ser. No. 302,485

Int. Cl.^{6} C07K *1/14;14/51;* A61K *38/18*

U.S. Cl. 514—12 **57 Claims**



1. An isolated polypeptide having the amino acid sequence (SEQ ID NO:11) NH $_2$-Gly-Ile-Gly-Lys-Arg-Thr-Asn-Glu-His-Thr-Ala-Asp-Cys-Lys-Ile-Lys- Pro-Asn-Thr-Leu-His-Lys-Lys-Ala-Ala-Glu-Thr-Leu-Met-Val-Leu-Asp-Gln-Asn-Gln-Pro-CO $_2$H, or a conservatively substituted variant thereof exhibiting mammalian bone stimulators activity.

5,786,328

USE OF KUNITZ TYPE PLASMA KALLIKREIN INHIBITORS

Mark S. Dennis, San Carlos, and Robert A. Lazarus, Millbrae, both of Calif., assignors to Genentech, Inc., South San Francisco, Calif.

Filed Jun. 5, 1995, Ser. No. 463,432

Int. Cl.^{6} A61K *38/57;* C07K *14/81*

U.S. Cl. 514—12 **4 Claims**

1. A method for treating a mammal for which inhibiting plasma kallikrein is indicated comprising administering a therapeutically effective amount of a composition comprising a polypeptide which inhibits plasma kallikrein comprising a non-native Kunitz-type serine protease inhibitor domain of the formula R$_1$-Xaa$_5$-Xaa$_4$-Xaa$_3$-Xaa$_2$-Xaa $_1$-Xaa$_1$'-Xaa$_2$'-Xaa$_3$'-Xaa$_4$'-R$_2$-Xaa$_{19}$'-R$_3$ where

R$_1$ is a 10 amino acid peptide wherein the amino acid corresponding to amino acid position Xaa$_{11}$ is a Cys;
R$_2$ is a 14 amino acid peptide wherein the amino acid corresponding to amino acid position Xaa$_{-15}$' is a Cys;
R$_3$ is a 24 amino acid peptide wherein the amino acids corresponding to amino acid positions Xaa$_{23}$', Xaa$_{36}$' and Xaa$_{40}$' are Cys;
Xaa$_5$ is selected from the group consisting of Pro, Asp and Glu;
Xaa$_4$ is Gly;
Xaa$_3$ is Pro;
Xaa$_2$ is Cys;
Xaa$_1$ is Arg;
Xaa$_1$' is Ala;
Xaa$_2$' is Ala;
Xaa$_3$' is His;
Xaa$_4$' is Pro and
Xaa$_{19}$' is selected from the group consisting of Val, Trp and Tyr and a pharmaceutically acceptable excipient to the mammal.

5,786,329

ATP-DEPENDENT PROTEASE AND USE OF INHIBITORS FOR SAME IN THE TREATMENT OF CACHEXIA AND MUSCLE WASTING

Alfred L. Goldberg, Brookline, Mass., assignor to The President and Fellows of Harvard College, Cambridge, Mass.

Division of Ser. No. 262,497, Jun. 20, 1994, Pat. No. 5,565,351, which is a division of Ser. No. 699,184, May 13, 1991, Pat. No. 5,340,736. This application Oct. 11, 1996, Ser. No. 730,310

Int. Cl.^{6} A61K *38/16*

U.S. Cl. 514—12 **3 Claims**

1. A therapeutic composition for use in the treatment of diseases or conditions characterized by accelerated muscle wasting, said composition comprising an inhibitor which is capable of specifically interfering with the functioning of either one or both of the ubiquitin conjugation or proteolysis steps of the non-lysosomal ATP-requiring ubiquitin-dependent proteolytic process in muscle cells.

5,786,330

PEPTIDE COMPOUNDS WHICH ARE THERAPEUTICALLY ACTIVE IN THE CASCADE OF BLOOD COAGULATION, PROCESS FOR PREPARING THEM AND PHARMACEUTICAL COMPOSITIONS CONTAINING THEM

Jean-Luc Fauchere, Saint-Cloud; Christophe Thurieau, Paris; Tony Verbeuren, Vernouillet; Alain Rupin, Savonnieres, and Serge Simonet, Conflans Ste Honorine, all of France, assignors to Adir et Compagnie, Courbevoie, France

PCT No. PCT/FR94/01166, § 371 Date Apr. 2, 1996, § 102(e) Date Apr. 2, 1996, PCT Pub. No. WO95/09869, PCT Pub. Date Apr. 13, 1995

PCT Filed Oct. 6, 1994, Ser. No. 619,683

Claims priority, application France, Oct. 7, 1993, 93 11942

Int. Cl.^{6} A61K *38/00*

U.S. Cl. 514—13 **6 Claims**

1. A compound of the formula (I)

H-D-Phe-A$_1$-Arg-Pro-(Gly) $_4$-Asn-Gly-Asp-Phe-Glu-Abo-Ile-Pro-Glu-Glu-A$_2$-Leu-D-Glu-OH (SEQ ID NO: 1) (I)

in which:

A$_1$ represents octahydroindole-2-carbonyl (Oic), 2-azabicyclo[2.2.1]heptane-3-carbonyl (Abh), or 2-azabicyclo[2.2.2]octane-3-carbonyl (Abo),
A$_2$ represents a phenylalanine residue substituted in para or in meta position by a group PO$_3$H$_2$ (Phe(pPO$_3$H$_2$), Phe(mPO$_3$H$_2$)),

or an addition salt thereof with a pharmaceutically-acceptable acid or base, each amino acid of the peptide sequence being optically pure and the alpha carbon of each amino acid having the D or L configuration.

5,786,331

PEPTIDES AND COMPOUNDS THAT BIND TO THE IL-1 RECEPTOR

Ronald W. Barrett, Sunnyvale; Stephen D. Yanofsky, San Mateo; David Baldwin, Palo Alto; Jeff W. Jacobs, San Mateo; Phillipe R. Bovy, Los Altos; Ellen M. Leahy, San Leandro, all of Calif., and Richard S. Pottorf, West Chester, Ohio, assignors to Affymax Technologies N.V., Greenford, England, and Hoechst Marion Roussel, Inc., Kansas City, Mo.

Continuation-in-part of Ser. No. 383,474, Feb. 1, 1995, which is a continuation-in-part of Ser. No. 190,788, Feb. 2, 1994, Pat. No. 5,608,035. This application Jun. 5, 1995, Ser. No. 465,391

Int. Cl.^{6} A61K *38/08;38/00;* C07K *7/04*

U.S. Cl. 514—15 **1 Claim**

1. A method of antagonizing action of Interleukin-I on an interleukin-I type I receptor, the method comprising contacting the receptor with a compound that binds to an interleukin-1 type I receptor having from about 11 to 40 amino acids in length and a core sequence of amino selected from the group consisting of: FEWTPGYWQPY-NH2 (SEQ ID NO:315); FEWTPGYWQHY-NH2 (SEQ ID NO:316); FEWTPGWYQJY-NH2 (SEQ ID NO:317); AcFEWTPGWYQJY-NH2 (SEQ ID NO:318); FEWTPGW-pY-QJY-NH2 (SEQ ID NO:319); FAWTPGYWQJY-NH2 (SEQ ID NO.320); FEWAPGYWQJY-NH2 (SEQ ID NO:321); FEWVPGYWQJY-NH2 (SEQ ID NO:322); FEWTPGYWQJY-NH2 (SEQ ID NO:323); AcFEWTPGYWQJY-NH (SEQ ID NO:324); FEWTPaWYQJY-NH2; FEWTP-Sar-WYQJY-NH2 (SEQ ID NO:326); FEWTPGYYQPY-NH2 (SEQ ID NO:327); FEWTPGWWQPY-NH2 (SEQ ID NO:328); FEWTPNYWQPY-NH2 (SEQ ID NO:329); FEWTPvYWQJY-NH2; FEWT-Pec-GYWQJY-NH$_2$ (SEQ ID NO:347); FEWTP-Aib-YWQJY-NH$_2$ (SEQ ID NO:348); FEWT-Sar-GYWQJY-NH$_2$ (SEQ NO:349); FEWTPGYWQPYALPL (SEQ ID NO:331); 1-Nap-EWTPGYYQJY-NH$_2$ (SEQ ID NO:367); YEWTPGYYQJY-NH$_2$ (SEQ ID NO:368); FEWVPGYYQJY-NH$_2$ (SEQ ID NO:369); FEWTPsYYQJY-NH$_2$; AND FEWTPnYYQJY-NH$_2$; where AcF is acetylated phenylalanine, Y-NH2 is tyrosinamide, -pY- is phosphotyrosine, -Sar- is sarcosine, -Pec- is pipecolic acid, a is d-alanine, v is d-valine, d is d-asparagine, s is d-serine, and -Aib- is aminoisobutyric acid.

5,786,332

CYTOKINE RESTRAINING AGENTS AND METHODS OF USE IN PATHOLOGIES AND CONDITIONS ASSOCIATED WITH ALTERED CYTOKINE LEVELS

Beverly E. Girten, San Diego; Richard A. Houghten, Del Mar; Costas C. Loullis, Cardiff; Mark J. Suto, San Diego, and Ronald R. Tuttle, Escondido, all of Calif., assignors to Trega Biosciences, Inc., San Diego, Calif.

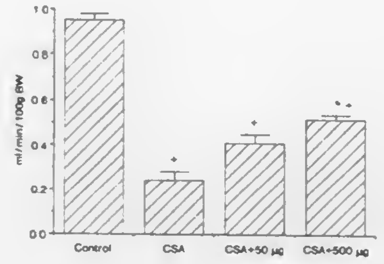
Filed Mar. 6, 1995, Ser. No. 400,983

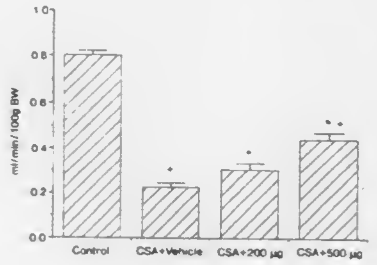
Int. Cl.^{6} A61K *38/00*

U.S. Cl. 514—16 **46 Claims**

1. A method of reducing the effects of disuse deconditioning in a subject, comprising administering to the subject an effective amount of a cytokine restraining peptide, comprising:

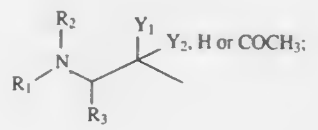
X$_1$-X$_2$-His-(D)Phe-Arg-(D)Trp-X$_3$,



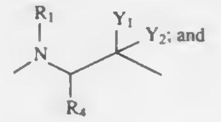


wherein:

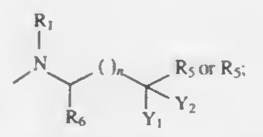
X$_1$ is



X$_2$ is



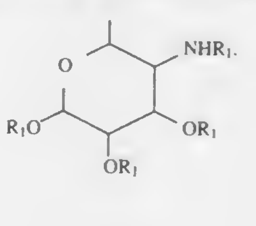
X$_3$ is



wherein Y$_1$ and Y$_2$ are independently a hydrogen atom, or are taken together to form a carbonyl or thiocarbonyl;

R$_1$ is H, COCH$_3$, C$_2$H$_5$, CH$_2$Ph, COPh, COOCH$_2$Ph, COO-t-butyl, CH$_2$CO-(polyethylene glycol) or A;
R$_2$ is H or COCH$_3$;
R$_3$ is a linear or branched alkyl group having 1 to 6 carbon atoms or a cyclic alkyl group having 3 to 6 carbon atoms;
R$_4$ is (CH$_2$)$_m$—CONH$_2$, (CH$_2$)$_m$—CONHR$_1$ or (CH$_2$)$_m$—CONHA;
R$_5$ is OH, OR$_3$, NH$_2$, SH, NHCH$_3$, NHCH$_2$Ph or A; and
R$_6$ is H or R$_3$;

and wherein "Ph" is C$_6$H$_5$, "m" is 1, 2 or 3, "n" is 0, 1, 2 or 3, and "A" is a carbohydrate having the general formula:



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5,786,333

PLATELET AGGREGATION INHIBITORS

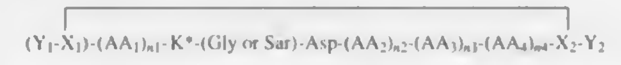
Robert M. Scarborough, Belmont; David Lawrence Wolf, Palo Alto, and Israel F. Charo, Lafayette, all of Calif., assignors to COR Therapeutics, Inc., South San Francisco, Calif.

Continuation of Ser. No. 88,611, Jul. 7, 1993, abandoned, which is a continuation of Ser. No. 542,488, Jun. 22, 1990, abandoned, which is a continuation-in-part of Ser. No. 483,229, Feb. 20, 1990, Pat. No. 5,318,899, which is a continuation-in-part of Ser. No. 418,028, Oct. 6, 1989, abandoned, which is a continuation-in-part of Ser. No. 367,509, Jun. 16, 1989, abandoned. This application Jun. 7, 1995, Ser. No. 484,414

Int. Cl.^{6} A61K *38/00;* **C07K** *5/00;7/00*

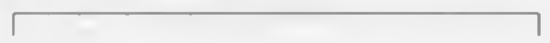
U.S. Cl. 514—16 **288 Claims**

1 A method of treating or preventing a platelet associated ischemic disorder in a patient comprising administering to said patient an effective amount of a platelet aggregation inhibitor of the formula:



$$(Y_1\text{-}X_1)\text{-}(AA_1)_{n1}\text{-}K^*\text{-}(\text{Gly or Sar})\text{-}Asp\text{-}(AA_2)_{n2}\text{-}(AA_3)_{n3}\text{-}(AA_4)_{n4}\text{-}X_2\text{-}Y_2$$

wherein Y_1-X_1 is Mpr, n1 is 0, K* is lysine, (Gly or Sar) is Gly, AA_2 is Y(OMe), n_2 is 1, AA_3 is a proline residue, n_3 is 1, n_4 is 0, X_2 is Cys, Y_2 is NH_2, and



represents a disulfide bond, or a physiologically acceptable basic or acid addition salt thereof.

5,786,334

HEXAPEPTIDE HAVING IMMUNOSTIMULATORY ACTIVITY

Rem V. Petrov; Agusta A. Mikhatlova; Stanklav Jn. Shanurin; Ludmila A. Zakharova; Larissa A. Fonina; Elena A. Kirilina, and Sergey A. Gur'yanov, all of Moscow, Russian Federation, assignors to Technology Resources International, Inc., Arlington, Va.

Continuation-in-part of Ser. No. 928,817, Aug. 14, 1992, abandoned. This application Oct. 27, 1993, Ser. No. 143,815

Int. Cl.^{6} C07K *7/06;* **A61K** *38/08*

U.S. Cl. 514—17 **6 Claims**

1. A hexapeptide of the formula Phe—Leu—Gly—Phe—Pro—Thr.

5,786,335

SULFHYDRYL CONTAINING PEPTIDES FOR TREATING VASCULAR DISEASE

Wayne Livingston Cody, Saline; Helen Tsenwhel Lee; Randy Ranjee Ramharack, both of Ann Arbor; Bruce David Roth, Plymouth; Tomi Sawyer, Ann Arbor, and Drago Robert Sliskovic, Saline, all of Mich., assignors to Warner-Lambert Company, Morris Plains, N.J.

Filed Oct. 31, 1996, Ser. No. 744,698

Int. Cl.^{6} C07K *5/00;7/00;16/00;* **A61K** *38/00*

U.S. Cl. 514—17 **8 Claims**

1. A compound having the Formula I

$$X—A_1—A_2—A_3—A_4—A_5—Y$$

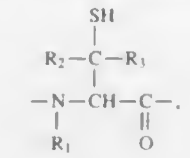
wherein:

X is an amino terminal substituent selected from hydrogen, 1 or 2 alkyl groups from 1 to 16 carbon atoms, an acyl group from 2 to 16 carbon atoms, carbobenzyloxy, or t-butyloxycarbonyl;

A_1 is Ile, Ala, or a bond;

A_2 is Gln, Ala, or a bond;

A_3 is Cys or substituted Cys of the formula



$$\begin{array}{c} SH \\ | \\ R_2—C—R_3 \\ | \\ —N—CH—C—, \\ |\qquad\quad \| \\ R_1 \qquad\quad O \end{array}$$

where R_1, R_2, and R_3 independently are hydrogen or C_1–C_4 alkyl;

A_4 is Tyr (N-tBu)Tyr or Ala;

A_5 is Lys; and

Y is a carboxy-terminal substituent, bonded to the carbonyl group of the A_5 amino acid, selected from OH, C_1–C_8 alkoxy, NH_2, C_1–C_8 alkyl NH—, di-(C_1–C_8) alkyl N—, or a pharmaceutically acceptable salt thereof, with the proviso that X is not an acetyl group when A_1 and A_2 are a bond, A_3 is Cys, A_4 is Ala and Y is OH.

5,786,336

TARGET-SELECTIVE PROTOCOLS BASED ON MIMICS

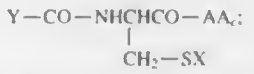
Lawrence M. Kauvar, San Francisco; Matthew H. Lyttle, Point Reyes Station; Amy S. Morgan, Oakland, all of Calif., and Richard F. Borch, Pittsford, N.Y., assignors to Terrapin Technologies, Inc., South San Francisco, Calif.

Continuation-in-part of Ser. No. 130,736, Oct. 1, 1993, Pat. No. 5,545,621, and Ser. No. 126,229, Sep. 24, 1993, Pat. No. 5,599,903, which is a continuation-in-part of Ser. No. 863,564, Apr. 3, 1992, abandoned, which is a continuation-in-part of Ser. No. 693,245, Apr. 29, 1991, abandoned. This application Sep. 19, 1994, Ser. No. 305,993

Int. Cl.^{6} A61K *38/06;* **C07K** *5/08*

U.S. Cl. 514—18 **5 Claims**

1. A method to stimulate the production of granulocyte macrophage progenitors in the bone marrow of a subject which method comprises administering to said subject an effective amount of a compound of the formula:



$$\begin{array}{l} Y—CO—NHCHCO—AA_c; \\ \qquad\qquad\quad | \\ \qquad\qquad CH_2—SX \end{array} \qquad (1)$$

or an amide, ester or mixed amide/ester thereof,

wherein X is a hydrocarbon radical optionally substituted on any aromatic moiety contained therein selected from the group consisting of hexyl, heptyl, octyl, benzyl and naphthyl; Y—CO is γ-Glu or β-Asp and AA_C is an amino acid selected from the group consisting of phenylglycine and β-alanine.

5,786,337

PROTECTIVE MEDIUM FOR PRESERVING VITAL TISSUE, ESPECIALLY TEETH

Bernd Frenzel, Berlin, Germany, assignor to Biochrom KG, Germany

Filed Dec. 14, 1995, Ser. No. 572,585

Claims priority, application Germany, Dec. 24, 1994, 4445769.3

Int. Cl.^{6} A61K *38/00*

U.S. Cl. 514—19 **12 Claims**

1. An antibiotic-free protective medium comprising a protective tissue growth medium, a non-antibiotic preservative to prevent contamination, and a room temperature stable dipeptide wherein one amino acid of the dipeptide is L-glutamine, and wherein the preservative is sodium azide (NaN_3).

5,786,338

METHOD OF TREATING HYPERCHOLESTEROLEMIA WITH A MACROLIDE ANTIBIOTIC

Ira Klein, 5 Windermere, Houston, Tex. 77063

Filed May 7, 1996, Ser. No. 646,062

Int. Cl.^{6} A61K *31/70*

U.S. Cl. 514—29 **54 Claims**

1. A method of treating a human having hypercholesterolemia comprising administering to the human an effective dose for treating hypercholesterolemia of an erythromycin compound.

5,786,339

ERYTHROMYCINS

Constantin Agouridas, and Jean-François Chantot, both of Nogent Sur Marne, France, assignors to Roussel Uclaf, France

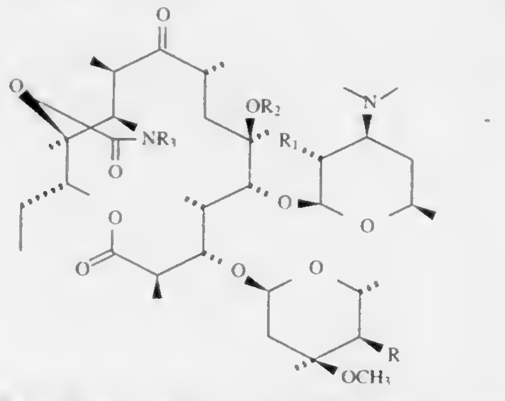
Filed Nov. 30, 1995, Ser. No. 565,252

Claims priority, application France, Dec. 9, 1994, 94 14807

Int. Cl.^{6} A61K *31/70;* **C07H** *17/08*

U.S. Cl. 519—30 **23 Claims**

1. A compound of the formula



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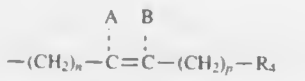
wherein R and R_1 are —OH or —O-acyl of an organic carboxylic acid of 2 to 2- carbon atoms, R_2 is hydrogen or methyl, R_3 is —$(CH_2)_m$—R_4 or



$$\begin{array}{c} \quad A \quad\; B \\ \quad \vdots \quad\; \vdots \\ —(CH_2)_n—C=C—(CH_2)_p—R_4 \end{array}$$

or —N—$(CH_2)_q$—R_4, m is an integer from 1 to 6 n, p and q are individually an integer from 0 to 6, A and B are individually selected from the group consisting of hydrogen, halogen and alkyl of 1 to 8 carbon atoms with the geometry of the double bond being E or Z or a mixture of E and Z or A and B form a triple bond, R_4 is selected from the group consisting of thienyl, furyl, pyrolyl, thiazolyl, oxazolyl, imidazolyl; 4-phenyl-1H-imidazolyl, thiadiazolyl, pyrazolyl, imidazo[4,5-b]-pyridin-3yl, triazolyl, pyridyl, pyrimidinyl, pyridazinyl, pyrazinyl, benzimidazolyl, indolyl, benzofuranyl, and quinolinyl, all optionally substituted with at least one substituent selected from the group consisting of halogen, hydroxy, alkyl, alkoxy, aryl and aryloxy containing up to 18 carbon atoms or a non-toxic, pharmaceutically acceptable acid addition salt thereof.

13. A method of combatting bacterial infections in warm-blooded animals comprising administering to warm-blooded animals an antibactericidally effective amount of a compound of claim 1.

5,786,340

GENE TRANSFER TO THE INTESTINE

Susan June Henning, and Fred D. Ledley, both of Houston, Tex., assignors to Baylor College of Medicine, Houston, Tex.

Division of Ser. No. 376,473, Jan. 20, 1995, which is a continuation of Ser. No. 862,882, Apr. 3, 1992, abandoned. This application Jun. 7, 1995, Ser. No. 472,163

Int. Cl.^{6} A61K *48/00*

U.S. Cl. 514—44 **25 Claims**

1. A method for the in vivo introduction of a nucleic acid cassette into intestinal epithelial progenitor cells or their progeny comprising the steps of:

ligating or clamping a section of the intestine, such that it forms a closed cavity;

injecting into the closed cavity sufficient vector solution to distend the intestine, wherein the vector solution contains the nucleic acid cassette;

removing the ligation or clamp after sufficient time for the nucleic acid cassette to incorporate into the stem cells.

5,786,341

USE OF A COL1A1 MINI-GENE CONSTRUCT TO INHIBIT COLLAGEN SYNTHESIS

Darwin J. Prockop, Philadelphia, Pa.; Jaspal Khillan, Cherry Hill; Shi-Wu Li, Collingswood, both of N.J., and Ruth Pereira, Philadelphia, Pa., assignors to Thomas Jefferson University, Philadelphia, Pa.

Continuation of Ser. No. 37,885, Mar. 26, 1993, abandoned. This application Jun. 7, 1995, Ser. No. 488,346

Int. Cl.^{6} A61K *48/00;* **C07H** *21/04;* **C12N** *15/12;15/85*

U.S. Cl. 514—44 **2 Claims**

1. A method for controlling the synthesis of protein from the human gene for the proα1(I) chain of type I procollagen in cells, comprising:

(a) providing one or more genes selected from the group consisting of (1) a mini-gene construct of the human gene for the proα1(I) chain of type I procollagen, wherein said mini-gene construct does not contain exons 6 to 46 of the human COL1A1 gene, and (2) a mini-gene construct of the human gene for the proα1(I) chain of type I procollagen, wherein said mini-gene construct does not contain exons 6 to 46 of the human COL1A1 gene and wherein the second half of the mini-gene construct codes for an antisense sequence for exons 47 to 52 of the COL1A1 gene and the associated introns; and

(b) administering by injection one or both mini-gene constructs to cells that synthesize protein from the human gene for the proα1(I) chain of type I procollagen.

5,786,342

USES OF ALOE PRODUCTS IN THE TREATMENT OF CHRONIC RESPIRATORY DISEASES

Robert H. Carpenter, Bastrop; Harley R. McDaniel, Dallas, and Bill H. McAnalley, Grand Prairie, all of Tex., assignors to Carrington Laboratories, Inc., Irving, Tex.

Division of Ser. No. 159,830, Dec. 1, 1993, Pat. No. 5,441,943, which is a division of Ser. No. 864,583, Apr. 7, 1992, Pat. No. 5,308,838, which is a division of Ser. No. 558,905, Jul. 27, 1990, Pat. No. 5,118,673, which is a continuation-in-part of Ser. No. 229,164, Aug. 5, 1988, Pat. No. 5,106,616, which is a continuation-in-part of Ser. No. 144,872, Jan. 14, 1988, Pat. No. 4,851,224, which is a continuation-in-part of Ser. No. 869,261, Jun. 5, 1986, Pat. No. 4,735,935, which is a continuation-in-part of Ser. No. 810,025, Dec. 17, 1985, abandoned, which is a continuation-in-part of Ser. No. 754,859, Jul. 12, 1985, abandoned, which is a continuation-in-part of Ser. No. 750,321, Jun. 28, 1985, abandoned, which is a continuation-in-part of Ser. No. 649,967, Sep. 12, 1984, abandoned, which is a continuation of Ser. No. 375,720, May 7, 1982, abandoned. This application Jun. 5, 1995, Ser. No. 462,821

Int. Cl.^{6} A61K *31/715;* **C08B** *37/00*

U.S. Cl. 514—54 **3 Claims**

1. A method for reducing symptoms associated with chronic respiratory diseases in an animal, comprising:

administering to said animal an amount of acetylated mannan compound sufficient to reduce itching, burning, congestion, watering of mucosal membranes, sinus headaches produced by swollen nasal mucosa, wheezing, coughing, bronchitis, tightness in the chest, and difficulty breathing in said animal.

5,786,343
PHAGOCYTOSIS ACTIVATOR COMPOSITIONS AND THEIR USE

Leonid G. Ber, Houston, Tex., assignor to ImmuDyne, Inc., Houston, Tex.

Filed Mar. 5, 1997, Ser. No. 811,584

Int. Cl.^{6} A61K *31/715;31/375*

U.S. Cl. 514—54 **9 Claims**

1 A phagocytosis-stimulating composition that consists essentially of:

a. about 0.0001–50 weight percent of a phagocytosis-stimulating substance that is primarily beta-(1,3)-D-glucan;

b. ascorbic acid or a salt thereof; and

c. a pharmaceutically acceptable carrier.

5,786,344
CAMPTOTHECIN DRUG COMBINATIONS AND METHODS WITH REDUCED SIDE EFFECTS

Mark J. Ratain, and Elora Gupta, both of Chicago, Ill., assignors to Arch Development Corporation, Chicago, Ill.

Continuation-in-part of Ser. No. 271,278, Jul. 5, 1994, abandoned. This application Apr. 17, 1995, Ser. No. 423,641

Int. Cl.^{6} A61K *31/545;31/47*

U.S. Cl. 514—100 **30 Claims**

1. A method for reducing the toxicity of a camptothecin compound, comprising administering said camptothecin compound to an animal in combination with an amount of a second agent effective to reduce excretion of an active camptothecin species through the bile, said second agent increasing glucuronosyltransferase enzyme activity or decreasing the activity of a biliary transport protein.

29. A method for reducing the toxicity of a camptothecin compound, comprising administering said camptothecin compound to an animal in combination with an amount of Cyclosporine A effective to reduce excretion of an active camptothecin species through the bile by decreasing the activity of a biliary transport protein.

30. A method for reducing the toxicity of irinotecan, comprising administering said irinotecan to an animal in combination with an amount of Cyclosporine A effective to reduce excretion of an active irinotecan species through the bile by decreasing the activity of a biliary transport protein.

5,786,345
COMPOSITIONS FOR REGULATING SKIN WRINKLES AND/OR SKIN ATROPHY

Roy Lonnie Blank, Spring Valley, N.Y.; Darrell Gene Doughty, Orange, and Carlos Gabriel Linares, Stamford, both of Conn., assignors to The Procter & Gamble Company, Cincinnati, Ohio

Continuation of Ser. No. 768,086, Dec. 16, 1996, abandoned, which is a continuation of Ser. No. 342,673, Nov. 21, 1994, Pat. No. 5,605,894, which is a continuation of Ser. No. 47,602, Apr. 14, 1993, abandoned, which is a continuation of Ser. No. 796,749, Nov. 25, 1991, abandoned. This application Aug. 29, 1997, Ser. No. 921,422

Int. Cl.^{6} A61K *31/60;7/42;7/44;7/00*

U.S. Cl. 514—159 **12 Claims**

1. A composition for regulating wrinkles or atrophy in mammalian skin comprising.

(a) a safe and effective amount of salicylic acid:

(b) a vitamin; and

(c) a pharmaceutically-acceptable carrier.

5,786,346
USE OF SALICYLIC ACID FOR REGULATING SKIN WRINKLES AND/OR SKIN ATROPHY

Roy Lonnie Blank, Spring Valley, N.Y., assignor to Richardson-Vicks Inc., Shelton, Conn.

Continuation of Ser. No. 757,888, Nov. 27, 1996, abandoned, which is a continuation of Ser. No. 641,296, Apr. 30, 1996, Pat. No. 5,616,572, which is a continuation of Ser. No. 434,250, May 3, 1995, abandoned, which is a continuation of Ser. No. 28,756, Mar. 9, 1993, abandoned, which is a continuation of Ser. No. 796,750, Nov. 25, 1991, abandoned. This application Oct. 29, 1997, Ser. No. 967,183

Int. Cl.^{6} A61K *31/60;7/42;7/44;7/00*

U.S. Cl. 514—159 **22 Claims**

1. A method for regulating wrinkles or atrophy in mammalian skin comprising treating the skin with a safe and effective amount of a composition comprising:

a) a safe and effective amount of salicylic acid;

b) a safe and effective amount of a retinoid; and

c) a pharmaceutically-acceptable carrier.

5,786,347
VITAMIN D AMINE AND AMIDE DERIVATIVES

Robert Henry Hesse, Winchester; Sundara Katugam Srinivasaetty Setty, Cambridge, and Malathi Ramgopal, Andover, all of Mass., assignors to Research Institute for Medicine and Chemistry, Inc., Cambridge, Ohio

PCT No. PCT/GB94/02725, § 371 Date Jul. 31, 1996, § 102(e) Date Jul. 31, 1996, PCT Pub. No. WO95/16672, PCT Pub. Date Jun. 22, 1995

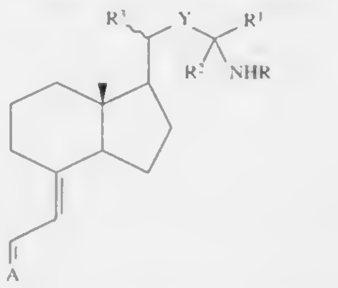
PCT Filed Dec. 13, 1994, Ser. No. 652,597

Claims priority, application United Kingdom, Dec. 13, 1993, 9325415

Int. Cl.^{6} A01N *45/00;* **C07C** *401/00*

U.S. Cl. 514—167 **15 Claims**

1. A compound of general formula (I)



(I)

where

R represents a hydrogen atom, an aliphatic, cycloaliphatic or araliphatic group, or an acyl group comprising an aliphatic, cycloaliphatic, arylaliphatic or aryl group linked to the nitrogen atom by way of a carbonyl group;

R^1 and R^2 are each selected from lower alkyl and cycloalkyl groups or together with the carbon atom to which they are attached form a lower cycloalkyl group;

R^3 represents a methyl group having α- or β-configuration;

Y represents a lower alkylene, alkenylene or alkynylene group optionally substituted by a hydroxyl, etherified hydroxyl or esterified hydroxyl group; and

A= represents a cyclohexylidene moiety characteristic of the A-ring of a 1α-hydroxylated vitamin D or analogue thereof.

5,786,348
METHODS FOR PREPARATION AND USE OF 1α,24(S)-DIHYDROXY VITAMIN D_2

Charles W. Bishop, Verona, Wis.; Ronald L. Horst, Ames, Iowa; Glenville Jones, Kingston, Canada; Nicholas J. Koszewski, Lexington, Ky.; Joyce C. Knutson, Madison, Wis.; Robert M. Moriarty, Oak Park, Ill.; Timothy A. Reinhardt, Ames, Iowa; Raju Penmasta, Elmhurst, Ill.; Stephen Strugnell, Kingston, Canada; Liang Guo, Bolingbrook, Ill.; Sanjay K. Singhal, Morton Grove, Ill., and Lei Zhao, Naperville, Ill., assignors to Bone Care International, Inc., Madison, Wis.

Division of Ser. No. 275,641, Jul. 14, 1994, abandoned, which is a continuation of Ser. No. 940,246, Aug. 28, 1992, abandoned, which is a continuation-in-part of Ser. No. 637,867, Jan. 8, 1991, abandoned. This application Jun. 7, 1995, Ser. No. 477,930

Int. Cl.^{6} A61K *31/59*

U.S. Cl. 514—167 **19 Claims**

1. A method for treating loss of bone mass or bone mineral content in a human being experiencing or predisposed to loss of bone mass or bone mineral content, comprising administering to said human being an amount of 1α,24(S)-dihydroxy vitamin D_2 sufficient to prevent loss of bone mass or bone mineral content without causing hypercalcemia or hypercalciuria.

5,786,349
METHOD FOR TREATING CHLAMYDIA INFECTIOUS DISEASES BY RIFAMYCIN DERIVATIVE

Katsuji Yamashita, Kobe; Kazunori Hosoe, Takasago; Takayoshi Hidaka, Kobe, all of Japan; George Todaro, Seattle, and Ribhi M. Shawar, Bellevue, both of Wash., assignors to Kaneka Corporation, Osaka, Japan

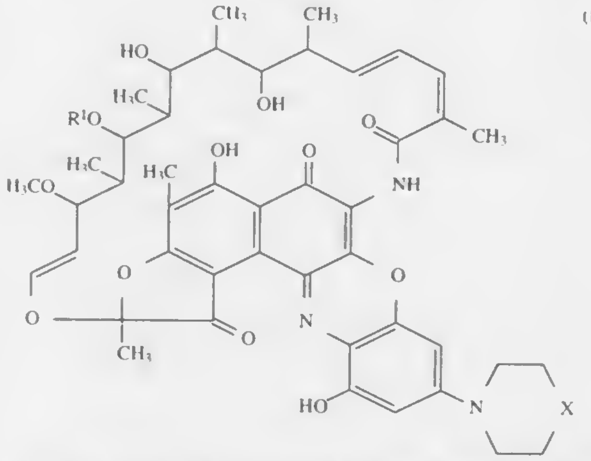
Filed Dec. 9, 1996, Ser. No. 762,501

Claims priority, application Japan, Dec. 8, 1995, 7-320882; Jan. 10, 1996, 8-002634

Int. Cl.^{6} A61K *31/33;31/535*

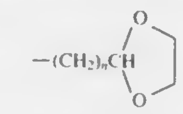
U.S. Cl. 514—183 **14 Claims**

1. A method for treating diseases caused by Chlamydia infection in an animal or human subject, which comprises administering to the subject an effective amount of a rifamycin compound of the formula (I):



(I)

wherein R^1 is hydrogen atom or acetyl group, and X is oxygen atom, sulfur atom or a group NR in which R is hydrogen atom, a linear branched or cyclic alkyl group having 1 to 7 carbon atoms or a group of the formula (II):



(II)

in which n is an interger of 1 to 3 or a physiologically acceptable salt thereof.

5,786,350
36-DERIVATIVES OF RIFAMYCINS AND THEIR USE AS ANTIMICROBIAL AGENTS

Emilio Occelli, Parahiago; Sergio Lociuro, Milan; Romeo Ciabatti, Novate Milanese, all of Italy, and Maurizio Denaro, Cincinnati, Ohio, assignors to Gruppo Lepetit S.p.A., Milan, Italy

PCT No. PCT/EP94/01428, § 371 Date Jan. 22, 1996, § 102(e) Date Jan. 22, 1996, PCT Pub. No. WO94/28002, PCT Pub. Date Dec. 8, 1994

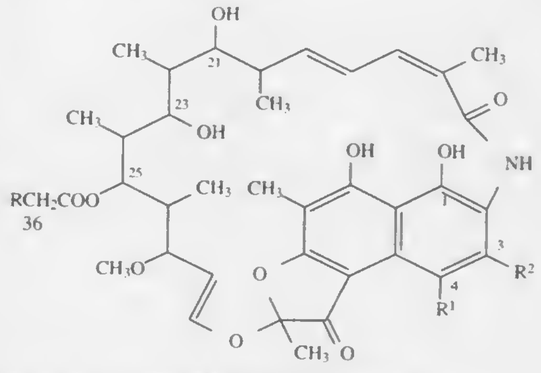
Continuation of Ser. No. 535,233, Jan. 22, 1996, abandoned. This PCT application May 5, 1994, Ser. No. 792,035

Claims priority, application European Pat. Off., May 24, 1993, 93108337; Jun. 29, 1993, 93110315

Int. Cl.^{6} A61D *31/345;* **C07D** *491/08*

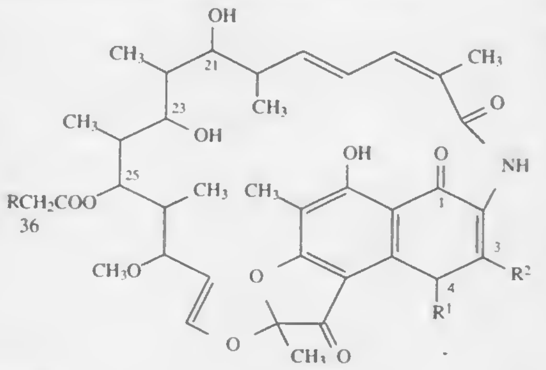
U.S. Cl. 514—183 **26 Claims**

1. Compound of general formula I:



I

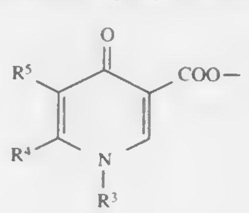
or the oxidated derivatives thereof of formula Ia:



Ia

wherein:

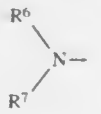
R represents, halo, hydroxy, thio, $(C_1–C_4)$alkoxy, $(C_1–C_4)$alkylthio, $(C_1–C_4)$acyloxy, $(C_1–C_4)$alkylamino, di$(C_1–C_4)$alkylamino or a group of formula:



wherein:

R^3 represents $(C_{1}–_{4})$alkyl or $(C_3–C_6)$cycloalkyl;

R^4 represents a group of formula



wherein:

R^6 and R^7 independently represent hydrogen or $(C_1–C_4)$alkyl or

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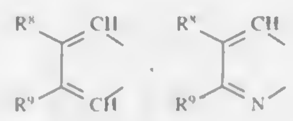
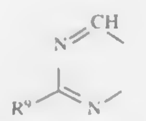
R^6 and R^7 together with the adjacent nitrogen atom form a five or six membered heterocyclic ring, optionally containing one further heteroatom selected from oxygen, nitrogen and sulfur, wherein one of the carbon or nitrogen atoms of the ring is optionally substituted by a (C_1-C_4)alkyl moiety;

R^5 is hydrogen or halogen;

or R^4 together with R^5 form a bifunctional alkylenic chain, optionally containing 1 or 2 nitrogen atoms, of the following formula:



or



wherein:

R^8 represents hydrogen or halogen;

R^9 represents (C_1-C_4)alkyl, or a six membered heterocycle ring containing one or two nitrogen atoms, wherein the carbon and nitrogen atoms of the ring are optionally substituted with one or two (C_1-C_4)alkyl moieties;

R^1 represents hydroxy in formula I or oxygen in formula Ia;

R^2 represents hydrogen, a five or six membered heterocyclic ring containing one or two heteroatoms selected from oxygen, nitrogen and sulfur, wherein one of the carbon or nitrogen atoms of the ring is optionally substituted by a (C_1-C_4)alkyl moiety, or a group of formula:

$-CH{=}N-R^{10}$

wherein R^{10} represents a six membered heterocycle ring containing one or two nitrogen atoms, wherein one of the carbon or nitrogen atoms of the ring is optionally substituted by (C_1-C_4)alkyl or (C_5-C_6)cycloalkyl;

or R^1 and R^2 taken together form a group of formula $=N-(CHR^{11})-X-$, $-NH-(CHR^{11})-X-$, or $-N{=}(CR^{11})-X-$,

wherein:

X represents a sulfur atom or a —NH— group and

R^{11} represents hydrogen, (C_1-C_4)alkyl, (C_1-C_4)alkylamino or di(C_1-C_4)alkylamino;

and the pharmaceutically acceptale base addition salts thereof.

5,786,351

CLAVULANIC ACID SALTS

George Leo Callewaert, Penn, United Kingdom, assignor to Spurcourt Limited, Woodley Reading, England

PCT No. PCT/GB95/03039, § 371 Date Dec. 3, 1996, § 102(e) Date Dec. 3, 1996, PCT Pub. No. WO96/20199, PCT Pub. Date Jul. 4, 1996

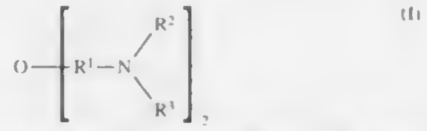
PCT Filed Dec. 22, 1995, Ser. No. 737,891

Claims priority, application United Kingdom, Dec. 24, 1994, 9426261

Int. Cl.⁶ A61K *31/395;* **C07D** *205/12*

U.S. Cl. 514—210 **17 Claims**

1. A di-clavulanate salt prepared from clavulanic acid and a diamino ether of the formula



(I)

where R^1 is selected from the group consisting of an alkylene group; and

each of R^2 and R^3 is selected from the group consisting of an alkyl group.

5,786,352

CYCLIC COMPOUNDS, THEIR PRODUCTION AND USE

Hideaki Natsugari, Hyogo; Takenori Ishimaru; Takayuki Doi, both of Osaka; Yoshinori Ikeura, Nara, and Chiharu Kimura, Hyogo, all of Japan, assignors to Takeda Chemical Industries, Ltd., Osaka, Japan

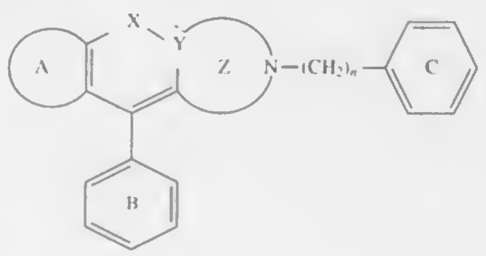
Filed Mar. 25, 1996, Ser. No. 621,360

Claims priority, application Japan, Mar. 24, 1995, 7-091436; Jul. 20, 1995, 7-207553; Sep. 18, 1995, 7-264727; Jan. 23, 1996, 8-030033

Int. Cl.⁶ A61K *31/55;* **C07D** *225/00;487/00;487/12*

U.S. Cl. 514—211 **18 Claims**

1. A compound of the formula:



wherein

—X—Y< is —CO—N< or —CS—N<;

Ring A is a 5-membered or 6-membered aromatic heterocyclic ring having one or two hetero atoms selected from nitrogen, sulfur and oxygen atoms, in addition to the carbon atoms, and which may have 1 to 4 substituents selected from

1) a halogen atom,
2) a C_{1-6} alkyl group which may have 1 to 5 substituents selected from
  (a) a hydroxyl group,
  (b) an amino group,
  (c) a carboxyl group,
  (d) a nitro group,
  (e) a mono- or di-C_{1-6} alkylamino group,
  (f) a C_{1-6} alkyl-carbonyloxy group and
  (g) a halogen atom,
(3) a C_{1-6} alkoxy group which may be halogenated,
(4) a C_{1-6} alkylthio group which may be halogenated,
(5) a C_{6-10} aryl group,
(6) a C_{1-7} acylamino group,
(7) a C_{1-3} acyloxy group,
(8) a hydroxy group,
(9) a nitro group,
(10) a cyano group,
(11) an amino group,
(12) a mono-or di-C_{1-6} alkylamino group,
(13) a 5-membered to 9-membered cyclicamino group which may have 1 to 3 hetero atoms selected from nitrogen, oxygen and sulfur atoms, in addition to the nitrogen atom in the amino group,
(14) a C_{1-6} alkyl-carbonylamino group,
(15) a C_{1-6} alkylsulfonylamino group,
(16) a C_{1-6} alkoxy-carbonylamino group,
(17) a carboxyl group,
(18) a C_{1-6} alkyl-carbonyl group,
(19) a carbamoyl group
(20) a mono- or di-C_{1-6} alkyl-carbamoyl group,
(21) a C_{1-6} alkylsulfonyl group, and
(22) an oxo group;

Ring B is a benzene ring which may have 1 to 4 substituents selected from

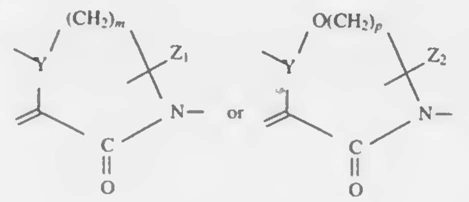
(1) a halogen atom,
(2) a C_{1-6} alkyl group which may have 1 to 5 substituents selected from:
  (a) a hydroxyl group,
  (b) an amino group,
  (c) a carboxyl group,
  (d) a nitro group,
  (e) a mono- or di-C_{1-6} alkylamino group,
  (f) a C_{1-6} alkyl-carbonyloxy group and

  (g) a halogen atom,
(3) a C_{1-6} alkoxy group which may be halogenated,
(4) a C_{1-6} alkylthio group which may be halogenated,
(5) a C_{6-10} aryl group,
(6) a C_{1-7} acylamino group,
(7) a C_{1-3} acyloxy group,
(8) a hydroxy group,
(9) a nitro group,
(10) a cyano group,
(11) an amino group,
(12) a mono- or di-C_{1-6} alkylamino group,
(13) a 5-membered to 9-membered cyclicamino group which may have 1 to 3 hetero atoms selected from nitrogen, oxygen and sulfur atoms, in addition to the nitrogen atom in the amino group,
(14) a C_{1-6} alkyl-carbonylamino group,
(15) a C_{1-6} alkylsulfonylamino group,
(16) a C_{1-6} alkoxy-carbonylamino group,
(17) a carboxyl group,
(18) a C_{1-6} alkyl-carbonyl group,
(19) a carbamoyl group,
(20) a mono- or di-C_{1-6} alkyl-carbamoyl group,
(21) a C_{1-6} alkylsulfonyl group, and
(22) an oxo group;

Ring C is a benzene ring which may have 1 to 5 substituents selected from

(1) a halogen atom,
(2) a C_{1-10} alkyl group which may be halogenated,
(3) an amino-substituted C_{1-4} alkyl group,
(4) a mono- or di-C_{1-4} alkylamino-substituted C_{1-4} alkyl group,
(5) a carboxyl-substituted C_{1-4} alkyl group,
(6) a hydroxy-substituted C_{1-4} alkyl group,
(7) a C_{1-4} alkoxy-carbonyl-substituted C_{1-4} alkyl group,
(8) a C_{3-10} cycloalkyl group,
(9) a nitro group,
(10) a cyano group,
(11) a hydroxyl group,
(12) a C_{1-10} alkoxy group which may be halogenated,
(13) a C_{1-4} alkylthio group which may be halogenated,
(14) an amino group,
(15) a mono- or di-C_{1-4} alkylamino group,
(16) a 5-membered to 9-membered cyclicamino group which may have 1 to 3 hetero atoms selected from nitrogen, oxygen and sulfur atoms, in addition to the nitrogen atom in the amino group,
(17) a C_{1-4} alkyl-carbonylamino group,
(18) an aminocarbonyloxy group,
(19) a mono- or di-C_{1-6} alkylamino-carbamoyloxy group,
(20) a C_{1-4} alkylsulfonylamino group,
(21) a C_{1-4} alkoxy-carbonyl group
(22) an aralkyloxy-carbonyl group,
(23) a carboxyl group,
(24) a C_{1-6} alkyl-carbonyl group,
(25) a C_{3-6} cycloalkyl-carbonyl group,
(26) a carbamoyl group,
(27) a mono- or di C_{1-4} alkyl-carbamoyl group,
(28) a C_{1-6} alkylsulfonyl group, and
(29) a 5-membered or 6-membered aromatic monocyclic heterocyclic group having 1 to 4 hetero atoms selected from nitrogen, oxygen, and sulfur atoms, and which may have 1 to 3 C_{1-4} alkyl groups which may have halogenated;

Ring Z is



wherein m is 3, 4, or 5 and p is 2, 3, 4, or 5, Z_1 and Z_2 represent, independently, a hydrogen atom, a C_{1-4} alkyl group or a hydroxyl group; and

n is an integer from 1 to 6, or a salt thereof.

5,786,353

TRICYCLIC BENZAZEPINE VASOPRESSIN ANTAGONISTS

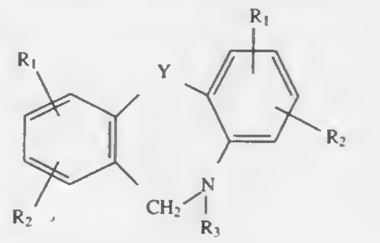
Jay Donald Albright, Nanuet; Marvin Fred Reich, Suffern; Fuk-Wah Sum, Pomona, and Xuemei Du, Valley Cottage, all of N.Y., assignors to American Cyanamid Company, Madison, N.J.

Division of Ser. No. 637,058, Apr. 24, 1996, Pat. No. 5,739,128, which is a continuation-in-part of Ser. No. 254,823, Jun. 13, 1994, Pat. No. 5,512,563, which is a continuation-in-part of Ser. No. 100,003, Jul. 29, 1993, abandoned. This application Jul. 11, 1997, Ser. No. 893,497

Int. Cl.⁶ A61K *31/55;31/675;* **C07D** *223/00;267/02*

U.S. Cl. 514—211 **47 Claims**

1. A compound selected from Formula I:



Formula I

wherein;

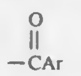
Y is selected from O or S;

R_1 is H, halogen (chlorine, fluorine, bromine, iodine), OH, —S—lower alkyl (C_1-C_3), —SH, —SO lower alkyl (C_1-C_3), —SO_2 lower alkyl (C_1-C_3), —CO lower alkyl (C_1-C_3) —CF_3, lower alkyl (C_1-C_3), —O lower alkyl (C_1-C_3), —NO_2, —NH2, —NHCO lower alkyl (C_1-C_3), N-[lower alkyl $(C_1-C_3)]_2$, SO_2NH_2, —SO_2NH lower alkyl (C_1-C_3), or —SO_2N[lower alkyl $(C_1-C_3)]_2$;

R_2 is H, Cl, Br, I, F, —OH, lower alkyl (C_1-C_3), —O lower alkyl (C_1-C_3); or

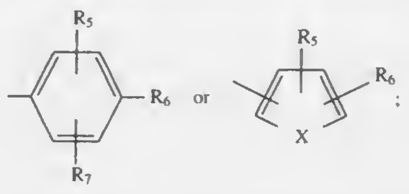
R_1 and R_2 taken together are methylenedioxy or ethylenedioxy;

R_3 is the moiety



$$-\overset{\overset{\displaystyle O}{\|}}{C}Ar$$

wherein Ar is a moiety selected from the group



and X is selected from O, S, —NCH_3, or —N—$COCH_3$;

R4 is selected from H, lower alkyl (C_1-C_3), —CO—lower alkyl (C_1-C_3), SO_2 lower alkyl (C_1-C_3), and the moieties of the formulae:

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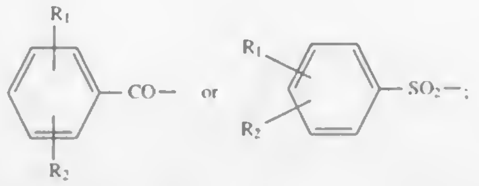
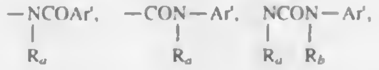
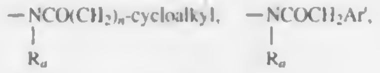


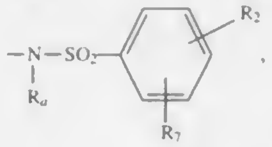
R_5 is H, —CH_3, —C_2H_5, Cl, Br, F, —O—CH_3, or —O—C_2H_5;
R6 is selected from:
(a) moieties of the formula:

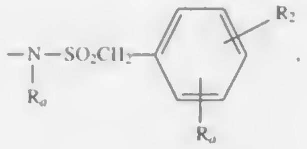


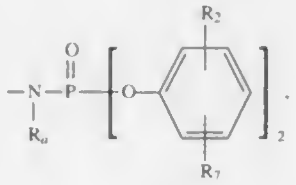
$$-\underset{R_a}{\underset{|}{N}}COAr',\quad -CO\underset{R_a}{\underset{|}{N}}-Ar',\quad \underset{R_a}{\underset{|}{N}}CO\underset{R_b}{\underset{|}{N}}-Ar',$$

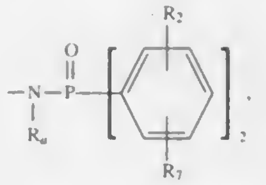


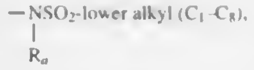
$$-\underset{R_a}{\underset{|}{N}}CO(CH_2)_n\text{-cycloalkyl},\quad -\underset{R_a}{\underset{|}{N}}COCH_2Ar',$$



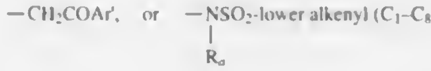






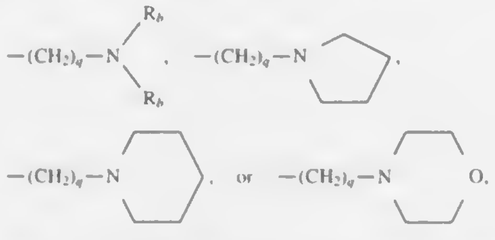


$$-\underset{R_a}{\underset{|}{N}}SO_2\text{-lower alkyl }(C_1\text{-}C_8),$$



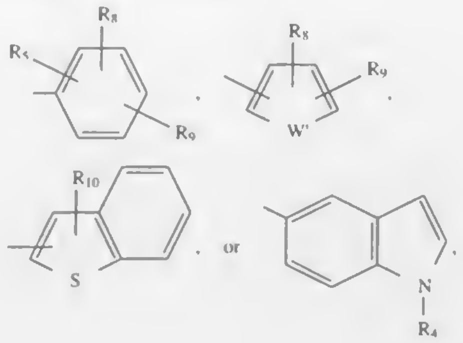
$$-CH_2COAr',\quad\text{or}\quad -\underset{R_a}{\underset{|}{N}}SO_2\text{-lower alkenyl }(C_1\text{-}C_8),$$

wherein
cycloalkyl is defined as C_3–C_6 cycloalkyl, cyclohexenyl or cyclopentenyl;
R_2 is as hereinbefore defined;
n is 0–2;
R_7 is H, —C_3, —CH_2H_5, Cl, Br, F, —OCH_3, —OC_2H_5, or —CF_3;
R_a is hydrogen, CH_3, C_2H_5, moieties of the formulae:

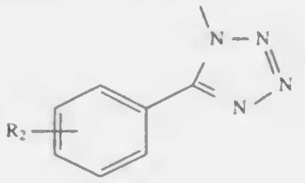


—$(CH_2)2$—O—lower alkyl (C_1-C_3) or —CH_2CH_2OH;
q is one or two;
R_b is hydrogen, —CH_3 or —C_2H_5;

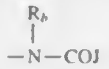
Ar' is selected from the group:



wherein
R_4, R_5 are as hereinbefore defined;
R_8 and R_8 are independently hydrogen, lower alkyl (C_1–C_3), O-lower alkyl (C_1–C_3), S-lower alkyl (C_1–C_3), —CF_3, —CN, —OH, —SCF_3, —OCF_3, halogen, N02, amino, or —NH-lower alkyl (C_1–C3);
R_{10} is selected from halogen, hydrogen, or lower allyl (C_1–C_3);
W" is selected from O, NH, N-lower alkyl (C_1–C_3), —NCO-lower alkyl (C_1–C_3), or NSO_2-lower alkyl (C_1–C_3); and
(b) a moiety of the formula:

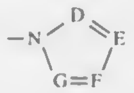


where R_2 is as hereinbefore defined;
(c) a moiety of the formula:

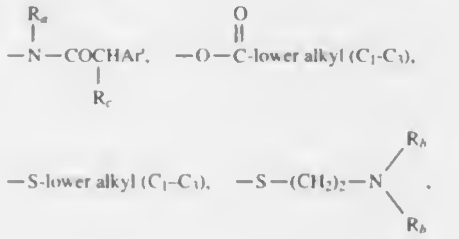


$$-\overset{R_b}{\overset{|}{N}}-COJ$$

wherein J is R_a, lower alkyl (C_1–C_8) branched or unbranched, lower alkenyl (C_2–C_8) branched or unbranched, —O-lower alkyl (C_1–C_8) branched or unbranched, —O-lower alkenyl (C_2–C_8) branched or unbranched, tetrahydrofuran, tetrahydrothiophene, or —CH_2—K wherein K is halogen, —OH, tetrahydrofuran, tetrahydrothiophene or the heterocyclic ring moiety:



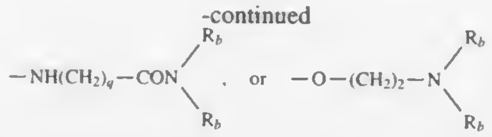
wherein D, E, F and G are selected from carbon or nitrogen and wherein the carbon atoms may be optionally substituted with halogen, (C_1–C_3)lower alkyl, hydroxy, —CO-lower alkyl (C_1–C_3), CHO, (C_1C_3)lower alkoxy, or —CO_2-lower alkyl (C_1–C_3), and R_a and R_b are as hereinbefore defined;
(d) a moiety selected from those of the formulae:



$$-\overset{R_a}{\overset{|}{N}}-CO\underset{R_c}{\underset{|}{C}}HAr',\quad -O-\overset{O}{\overset{\|}{C}}\text{-lower alkyl }(C_1\text{-}C_3),$$

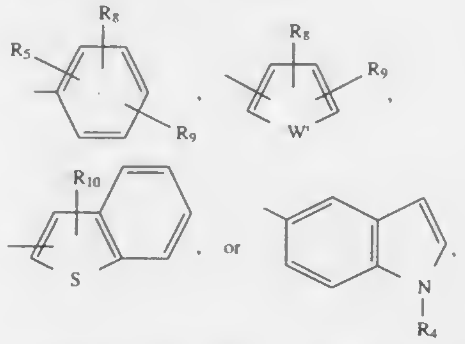
$$-S\text{-lower alkyl }(C_1\text{–}C_3),\quad -S-(CH_2)_2-N(R_b)_2.$$

-continued



$$-NH(CH_2)_q-CON(R_b)_2,\quad\text{or}\quad -O-(CH_2)_2-N(R_b)_2$$

wherein
R_c is selected from halogen, (C_1–C_3) lower alkyl, —O-lower alkyl (C_1–C_3) or OH;
R_b is as hereinbefore defined;
q is 1 or 2;
wherein Ar' is selected from the group:



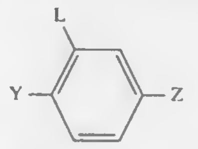
R_7 is hydrogen, —CH_3, C_2H_5, Cl, Br, F, —OCH_3, —OC_2H_5, or —CF_3;
R_8 and R_9 are independently hydrogen, lower alkyl (C_1-C_3), —O-lower alkyl (C_1–C_3), S-lower alkyl (C_1–C_3), —CF_3, —CN, —OH, —SCF_3, —OCF_3, halogen, N_2, amino, or —NH-lower alkyl (C_1–C_3);
R_{10} is selected from the group of halogen, hydrogen, or lower alkyl (C_1–C_3);
W' is selected from O, S, NH, N-lower alkyl (C_1–C_3), —NCO-lower alkyl (C_1–C_3), or NSO_2-lower alkyl (C_1–C_3);
or a pharmaceutically acceptable salt, ester or prodrug thereof.

5,786,354

TRI-SUBSTITUTED PHENYL DERIVATIVES AND PROCESSES FOR THEIR PREPARATION

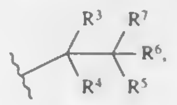
Graham John Warrellow, Northwood, and Rikki Peter Alexander, High Wycombe, both of United Kingdom, assignors to Celltech Therapeutics, Limited, Slough, United Kingdom
Filed Jun. 20, 1995, Ser. No. 492,639
Claims priority, application United Kingdom, Jun. 21, 1994, 9412385; Jun. 22, 1994, 9412492
Int. Cl.⁶ A61K *31/435;31/44*
U.S. Cl. 514—277 **21 Claims**

1. A compound of formula (1)



(1)

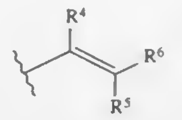
wherein
L is —XR, —C(R^{11})═C(R^1)(R^2) or —(CHR^{11})$_n$CH(R^1) (R^2), where n is zero or an integer 1;
Z is a group (A) or (B):



(A)

or

-continued



(B)

Y is halogen or an alkyl or —XR^a group;
X is —O—, —$S(O)_m$— or —$N(R^b)$—, where m is zero or an integer 1 or 2;
each of R^a and R^b is independently hydrogen or an optionally substituted alkyl group;
R is an optionally substituted alkyl, alkenyl, cycloalkyl or cycloalkenyl group;
each of R^1 and R^2, which may be the same or different, is hydrogen, fluorine, —CN, —NO_2, or an optionally substituted alkyl, alkenyl, alkynyl, alkoxy, alkylthio, —CO_2R^8, —CNR^9R^{10} or —$CSNR^9R^{10}$ group, or R^1 and R^2 , together with the carbon atom to which thy are attached, are linked to form an optionally substituted cycloalkyl or cycloalkenyl group;
R^3 is hydrogen, fluorine, hydroxy or an optionally substituted straight or branched alkyl group;
R^4 is hydrogen, —$(CH_2)_t$Ar or —$(CH_2)_t$—Ar— $(L^1)_n$—Ar', where t is zero or an integer 1, 2 or 3;
R^5 is —$(CH_2)_t$Ar or —$(CH^2)_t$—Ar—$(L^1)_n$—Ar';
R^6 is hydrogen, fluorine, or an optionally substituted group;
R^7 is hydrogen, fluorine, an optionally substituted straight or branched alkyl group, or —OR^c, where R^c is hydrogen, formyl, alkoxyalkyl, alkanoyl, carboxamido, thiocarboxamido or an optionally substituted alkyl or alkenyl group;
each of R^8, R^9 and R^{10} is independently hydrogen or an optionally substituted alkyl, aralkyl or aryl group;
R^{11} is hydrogen, fluorine or a methyl group;
$L^1$is a divalent linking group;
Ar is a monocyclic or bicyclic aryl group, optionally containing one or more heteroatoms selected from oxygen, sulphur and nitrogen atoms;
Ar' is Ar, —COAr, —SO_2Ar, —SO_2NHAr, —SO_2NAlk^1Ar, —$SO_2N(Ar)_2$, —CONHAr, —$CONAlk^1$Ar, —$CON(Ar)_2$, —$NAlk^1SO_2$Ar, —$NHSO_2$Ar, —$N(SO_2Ar)_2$, —$NHSO_2$NHAr, —$NAlk^1SO_2$NHAr, —$NHSO_2NAlk^1$Ar, —$NAlk^1SO_2NAlk^1$Ar, —$NHSO_2N(Ar)_2$, —$NAlk^1SO_2N(Ar)_2$, —NHCOAr, —$NAlk^1$COAr, —$N(COAr)_2$, —NHCONHAr, —$NAlk^1$CONHAr, —$NHCONAlk^1$Ar, —$NAlk^1CONAlk^1$Ar, —$NHCO_2$Ar, —$NAlk^1CO_2$Ar, —CSNHAr, —$CSNAlk^1$Ar, —$CSNAlk^1$Ar, —$CSN(Ar)_2$, —NHCSAr, —$NAlk^1$CSAr, —$N(CSAr)_2$, —NHCSNHAr, —$NAlk^1$CSNHAr, —$NHCSNAlk^1$Ar, —$NAlk^1CSNAlk^1$Ar, —SO_2NHet, —CONHet, —CSNHet, —$NHSO_2$NHet, —NHCONHet, —NHCSNHet, —SO_2NH(Het'), —CONH(Het'), —CSNH(Het'), —$NHSO_2$NH(Het'), —NHCONH(Het') or —NHCSNH(Het');
Alk^1 is a straight or branched C_{1-6}alkylene, C_{2-6}alkenylene or C_{2-6}alkynylene chain optionally interrupted by one, two or three —O— or —S— atoms or —$S(O)_r$— or —$N(R^b)$— groups, where p is an integer 1 or 2;
NHet is an optionally substituted C_{5-7}heterocyclic amino group optionally containing one or more additional —O— or —S— atoms or —$N(R^b)$—, —CO— or —CS— groups;
Het' is an optionally substituted C_{5-7}monocyclic carbocyclic group optionally containing one or more —O— or —S— atoms or —$N(R^b)$— groups; and
the salts, solvate, hydrates, prodrugs and N-oxides thereof;
with the proviso that when R^s is —$(CH_2)_t$Ar and L is —XR, then R^4 is —(CH_2) $_t$—Ar—$(L^1)_n$Ar'.

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5,786,355

4,6-DIARYLPYRIMIDINE DERIVATIVES AND SALTS THEREOF

Yasuo Konno; Kenji Nozaki; Shozo Yamada, all of Hanno; Tetsuji Asao, Tokorozawa; Takashi Suzuki, Hanno, and Masayasu Kimura, Toyama, all of Japan, assignors to Taiho Pharmaceutical Co., Ltd., Tokyo, Japan

PCT No. PCT/JP96/01022, § 371 Date Nov. 27, 1996, § 102(e) Date Nov. 27, 1996, PCT Pub. No. WO96/32384, PCT Pub. Date Oct. 17, 1996

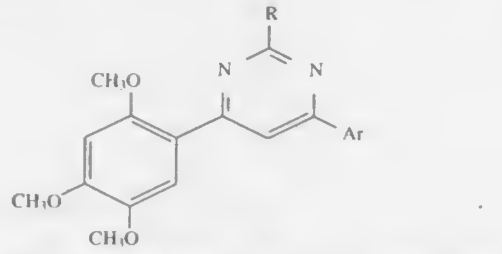
PCT Filed Apr. 12, 1996, Ser. No. 750,197

Claims priority, application Japan, Apr. 13, 1995, 7-088284

Int. Cl.^{6} A61K *31/535;31/495;* **C07D** *413/00;403/00*

U.S. Cl. 514—235.8 **12 Claims**

1. A 4,6-diarylpyrimidine derivative represented by the following formula (1):



(1)

wherein R represents a monocyclic 5- or 6-membered heterocyclic group having from 1–4 nitrogen atoms and 0–1 oxygen or sulfur atoms and which may be substituted by one to four lower alkyl groups or a group —N(R^1)R^2, said R^1 and R^2 being the same or different and independently representing a hydrogen atom, a lower alkyl group, a linear or branched C_{1-6} acyl group or a lower alkylsulfonyl group, and Ar represents a phenyl, naphthyl or aromatic, monocyclic 5- or 6-membered heterocyclic group having from 1–4 nitrogen atoms and 0–1 oxygen or sulfur atoms which may have one to four substituents selected from the group consisting of a hydroxy group; lower alkylsulfoimide group; lower alkylthio group; lower alkoxycarbonyl group; amino group which may be substituted by 1–2 lower alkyl groups; halogen atom; nitro group; phosphoric acid residue; monocyclic 5- or 6-membered heterocyclic group having from 1–4 nitrogen atoms and 0–1 oxygen or sulfur atoms which may be substituted by 1–3 lower alkyl groups; and a lower alkoxy group; or a salt thereof.

5,786,356

SELECTIVE β3 ADRENERGIC AGONISTS

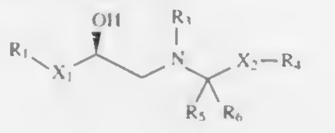
Michael Gregory Bell; Thomas Alan Crowell; Donald Paul Matthews, all of Indianapolis; John Hampton McDonald, III, Carmel; David Andrew Neel, Zionsville; Anthony John Shuker, and Mark Alan Winter, both of Indianapolis, all of Ind., assignors to Eli Lilly and Company, Indianapolis, Ind.

Division of Ser. No. 708,621, Sep. 5, 1996, abandoned. This application Jun. 25, 1997, Ser. No. 882,549

Int. Cl.^{6} A61K *31/495;* **C07D** *403/12*

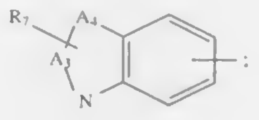
U.S. Cl. 514—248 **20 Claims**

1. A compound of the formula:



wherein:

R_1 is



the bond between A_3 and A_4 is either a single or double bond;

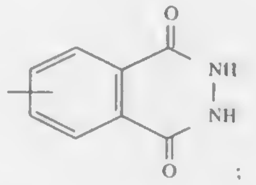
A_3 and A_4 are independently carbon or nitrogen;

R_7 is hydrogen, halo, hydroxy, C_1–C_4 alkyl, C_1–C_4 haloalkyl, aryl, CN, $COOR_2$, $CONHR_2$, $NHCOR_2$, OR_2, NHR_2, SR_2, SO_2R_2, SO_2NHR_2, or SOR_2;

R_2 and R_3 are independently hydrogen, C_1–C_4 alkyl, or aryl;

X_1 is —OHC_2—, —SCH_2—, or a bond;

R_4 is an optionally substituted heterocycle or a moiety of the structure



;

X_2 is a bond, or a 1 to 5 carbon straight or branched alkylene;

R_5 is hydrogen or C_1–C_4 alkyl;

R_6 is hydrogen or C_1–C_4 alkyl;

or R_5 and R_6 combine with the carbon to which each is attached to form a C_3–C_6 cycloalkyl;

or R_6 combines with X_2 and the carbon to which each is attached to form a C_3–C_8 cycloalkyl;

or pharmaceutically acceptable salts thereof.

5,786,357

METHODS AND COMPOSITIONS FOR TREATING SLEEP DISORDERS, CONVULSIVE SEIZURES AND OTHER DISORDERS USING OPTICALLY PURE (+) ZOPICLONE

James W. Young, Palo Alto, Calif., and Steven Brandt, Marlborough, Mass., assignors to Sepracor Inc., Marlborough, Mass.

Continuation of Ser. No. 984,039, Dec. 1, 1992, abandoned, which is a continuation-in-part of Ser. No. 801,312, Dec. 2, 1991, abandoned. This application Aug. 1, 1994, Ser. No. 283,497

Int. Cl.^{6} A61K *31/495;31/50*

U.S. Cl. 514—249 **30 Claims**

1. A method of treating sleep disorders in a human while avoiding the concomitant liability of adverse effects associated with administration of racemic zopiclone, which comprises administering to said human a therapeutically effective amount of (+) zopiclone, or a pharmaceutically acceptable salt thereof, substantially free of its (−) stereoisomer.

5,786,358

PYRIDOPYRIMIDINES AS NONCLASSICAL ANTIFOLATES

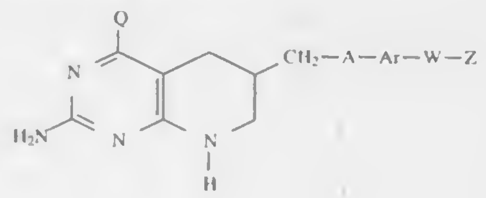
Chuan Shih, Carmel; Lynn S. Gossett; William J. Gill, both of Indianapolis, all of Ind.; Edward C. Taylor, Princeton, N.J., and James T. Metz, Indianapolis, Ind., assignors to The Trustees of Princeton University, Princeton, N.J.

Filed Sep. 4, 1996, Ser. No. 708,351

Int. Cl.^{6} C07D *471/02;* **A61K** *31/505*

U.S. Cl. 514—258 **32 Claims**

1. A compound of the formula:



in which:

Q is —OH or —NH_2;

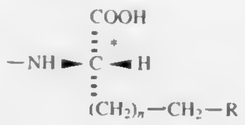
A is —CH_2—, —CH_2CH_2—, —O—, or —S—;

—Ar— is a divalent aromatic ring;

W is —CO— or —SO_2—; and

Z is:

(A) an α-amino acid group of the formula

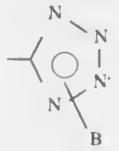


wherein * designates a chiral center in the L configuration,

n has a value of from 0 to 4, and

R is:

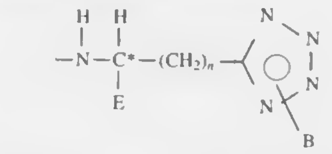
(i) V, wherein V is a tetrazolyl group of the formula



where B is hydrogen, C_1–C_4 alkyl, or C_1–C_4 hydroxyalkyl, or

(ii) —SO_3H;

(B) a tetrazolyl group of the formula

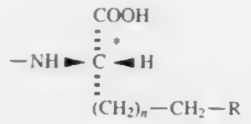


wherein n has a value of from 0 to 4 and E is —COOH or V, wherein V is a tetrazolyl group as defined herein and, if n is greater than 0 or E is other than V, the carbon atom designated * is in the L configuration;

(C) —NHR^1, where R^1 is hydrogen or a substituted or unsubstituted C_1–C_4 alkyl, C_1–C_4 hydroxyalkyl, cycloalkyl, or polycycloalkyl group;

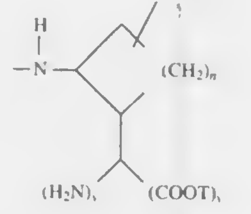
(D) —NR^2R^3 where R^2 and R^3 are independently C_1–C_4 alkyl, C_1–C_4 hydroxyalkyl or COOT, where T is hydrogen or C_1–C_4 alkyl;

(E)



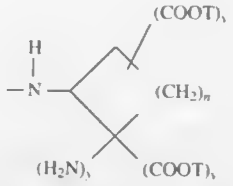
where each T is independently as defined previously, n has a value of from 0 to 4, and y has a value of 0 or 1;

(F)



where n, T and y are as defined herein, provided at least one y is other than zero;

(G)



where n, T and y are as defined herein, provided at least one y is other than zero; or

(H) —NHOH;

and the pharmaceutically acceptable salts and esters thereof.

5,786,359

N^9 ALKYL OR ARALKYL DERIVATIVES OF 7, 8-DISUBSTITUTED GUANINES

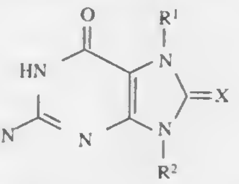
Allen Reitz, Lansdale, Pa.; Michael G. Goodman, Rancho Santa Fe, Calif.; Robert Chen, Belle Mead, N.J., and Bruce E. Maryanoff, New Hope, Pa., assignors to The Scripps Research Institute, LaJolla, Calif.

Continuation of Ser. No. 250,155, May 27, 1994, abandoned. This application Aug. 27, 1996, Ser. No. 703,578

Int. Cl.^{6} C07D *473/18;* **A61K** *31/52*

U.S. Cl. 514—262 **23 Claims**

1. A compound represented by Formula I



I

wherein X is O or S;

R^1 is a hydrocarbyl or substituted hydrocarbyl group selected from the group consisting of (i) an allyl group, (ii) an aralkyl hydrocarbyl radical and (iii) a substituted aralkyl radical whose substituent is selected from the group consisting of halogen, nitro, C_1–C_2 alkyl, trifluoromethyl, amino and substituted amino, wherein the amine substituents are mono- or di-C_1–C_2 alkyl, formyl or acetyl groups; and

R^2 is selected from the group consisting of (i) a C_4–C_{10} straight, branched chain or cyclic alkyl group having a 5- or 6-membered ring, which alkyl group is substituted with zero or one hydroxyl group; (ii) a straight chain alkoxyalkyl or benzyloxyalkyl radical containing a total of three to ten carbon atoms or tetrahydrofuranyl or pyranyl group that is substituted with zero to three hydroxyl groups; and (iii) a benzyl group; and

the pharmaceutically acceptable base addition salts thereof.

5,786,360

A1 ADENOSINE RECEPTOR ANTAGONISTS

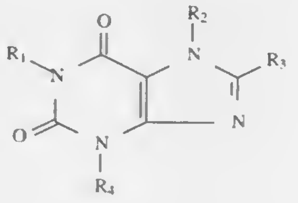
Constance Neely, Raleigh, N.C., assignor to Link Technology Incorporated, Raleigh, N.C.

Filed Nov. 19, 1996, Ser. No. 753,048

Int. Cl.^{6} A61K *31/52;* **C07D** *473/06*

U.S. Cl. 514—263 **15 Claims**

1. A compound of the formula:



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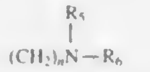
wherein

R$_1$ is selected from the group consisting of C$_1$–C$_8$ alkyl;

R$_2$ is of the formula:



$$(CH_2)_n\overset{R_5}{\overset{|}{N}}-R_6$$

wherein n is an integer ranging from 1 to 8; R$_5$ is H or CH$_3$(CH$_2$)$_p$, wherein p is an integer ranging from 1 to 7 ; and R$_6$ is H or (CH$_2$)$_m$OH, wherein m is an integer ranging from 1 to 8;

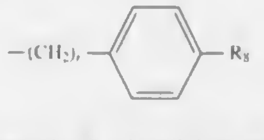
R$_3$ is of the formula:

$-(CH_2)_qC_6H_4-R_7$

and

wherein q is an integer ranging from 1 to 8, and wherein R$_7$ is selected from the group consisting of H, NH$_2$, R$_9$COOH, wherein R$_9$ is an alkylene or alkenylene group having 1 to 8 carbon atoms, and (CH$_2$)$_t$OH, wherein t is an integer ranging from 1 to 8; and

R$_4$ is of the formula:



wherein R$_8$ is selected from the group consisting of H; NH$_2$; (CH$_2$)$_s$OH, wherein s is an integer ranging from 1 to 8; and R$_{10}$COOH, wherein R$_{10}$ is an alkylene or alkenylene group having 1 to 8 carbon atoms; and r is an integer ranging from 1 to 8.

5,786,361

PYRIDAZINO-, PYRIMIDO-, PYRAZINO- AND TRIAZINOINDOLES, -PYRROLOCYCLOALKENES OR PYRROLOOXOCYCLOALKENES, OR PYRIDOPYRROLYLPYRIDO COMPOUNDS, COMPOSITIONS CONTAINING THEM, AND USE THEREOF TO TREAT ATHEROSCLEROSIS

Ulrich Müller, Wuppertal; Peter Eckenberg, Erkrath; Rudi Grützmann, Solingen; Hilmar Bischoff, Wuppertal; Dirk Denzer, Wuppertal, and Ulrich Nielsch, Wuppertal, all of Germany, assignors to Bayer Aktiengesellschaft, Leverkusen, Germany

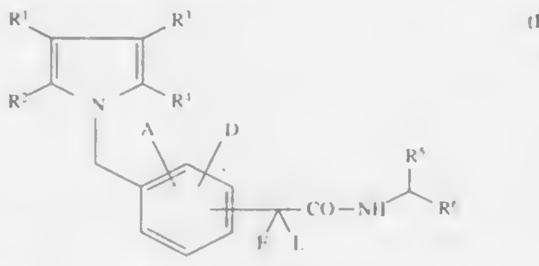
Filed Apr. 11, 1997, Ser. No. 837,076

Claims priority, application Germany, Apr. 11, 1997, 196 15 265.8

Int. Cl.^{6} A61K *31/505;31/44;31/495;31/53,* **C07D** *487/04;471/04;487/14*

U.S. Cl. 514—267 **7 Claims**

1. Compounds of the formula (I)



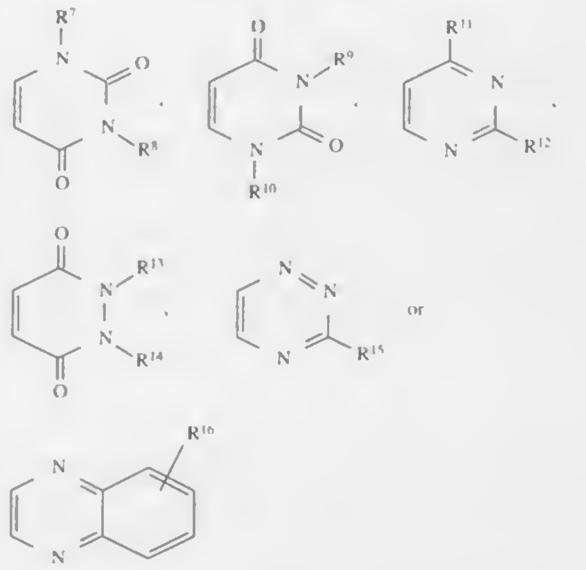
(I)

in which

R^1 and R^2, including the double bond connecting them, together form a phenyl ring or a 5- to 8-membered cycloalkene or oxocycloalkene ring,

which is optionally substituted up to 3 times in an identical or different manner by halogen, trifluoromethyl, carboxyl, hydroxyl, by straight-chain or branched alkoxy or alkoxycarbonyl each having up to 6 carbon atoms or by straight-chain or branched alkyl having up to 6 carbon atoms, which for its part can be substituted by hydroxyl or by straight-chain or branched alkoxy having up to 4 carbon atoms,

R^3 and R^4, including the double bond, together form a radical of the formula



in which

R^7, R^8, R^9, R^{10}, R^{11}, R^{12}, R^{13}, R^{14}, R^{15} and R^{16} are identical or different and denote hydrogen, carboxyl, straight-chain or branched alkoxy, alkylthio, acyl or alkoxycarbonyl each having up to 6 carbon atoms or straight-chain or branched alkyl having up to 6 carbon atoms, which is optionally substituted by hydroxyl, or

R^1 and R^2, including the double bond, form a pyridyl ring, and

R^3 and R^4, likewise including the double bond, together form a pyridyl ring, both pyridyl rings optionally being substituted up to 3 times in an identical or different manner by halogen, trifluoromethyl, carboxyl, hydroxyl, by straight-chain or branched alkoxy or alkoxycarbonyl each having up to 6 carbon atoms or by straight-chain or branched alkyl having up to 6 carbon atoms, which for its part is substituted by hydroxyl or by straight-chain or branched alkoxy having up to 4 carbon atoms,

A and D are identical or different and

represent hydrogen, halogen, trifluoromethyl, hydroxyl or straight-chain or branched alkyl or alkoxy each having up to 5 carbon atoms,

E and L are identical or different and

represent hydrogen, cycloalkyl having 3 to 8 carbon atoms or straight-chain or branched alkyl having up to 10 carbon atoms, which is optionally substituted by cycloalkyl having 3 to 6 carbon atoms, or represent phenyl which is optionally substituted by halogen or trifluoromethyl, or

E and L, together with the carbon atom, form a 4-8-membered cycloalkyl ring,

R^5 represents phenyl or a 5- to 7-membered saturated or unsaturated heterocycle having up to 3 heteroatoms from the series S, N and/or O, the cycles optionally being substituted up to 3 times in an identical or different manner by nitro, carboxyl, halogen, cyano or by straight-chain or branched alkenyl or alkoxycarbonyl each having up to 6 carbon atoms or by straight-chain or branched alkyl having up to 6 carbon atoms, which is optionally substituted by hydroxyl, carboxyl or by straight-chain or branched alkoxy or alkoxycarbonyl each having up to 6 carbon atoms,

and/or the cycles optionally being substituted by a group of the formula —OR^{17} or —NR^{18}R^{19},

in which

R^{17} denotes hydrogen or straight-chain or branched alkyl or alkenyl each having up to 6 carbon atoms,

R^{18} and R^{19} are identical or different and denote phenyl, hydrogen or straight-chain or branched alkyl having up to 6 carbon atoms

or denote straight-chain or branched acyl having up to 8 carbon atoms, which is optionally substituted by a group of the formula —NR^{20}R^{21},

in which

R^{20} and R^{21} are identical or different and denote hydrogen or straight-chain or branched acyl having up to 8 carbon atoms,

R^6 represents hydrogen, carboxyl or straight-chain or branched alkoxycarbonyl having up to 5 carbon atoms,

or represents straight-chain or branched alkyl having up to 6 carbon atoms, which is optionally substituted by hydroxyl or by a group of the formula —O—CO—R^{22},

in which

R^{22} denotes phenyl which is optionally substituted up to 3 times in an identical or different manner by halogen, hydroxyl or by straight-chain or branched alkyl having up to 5 carbon atoms,

or denotes straight-chain or branched alkyl or alkenyl each having up to 22 carbon atoms, each of which is optionally substituted by a group of the formula -OR^{23},

in which

R^{23} denotes hydrogen, benzyl, triphenylmethyl or straight-chain or branched acyl having up to 6 carbon atoms,

optionally in an isomeric form, and their salts.

5,786,362

METHOD OF TREATING HORMONE INDEPENDENT CANCER

Arnon Krongrad, Surfside, Fla., assignor to University of Miami, Miami, Fla.

Filed Jun. 16, 1994, Ser. No. 260,884

Int. Cl.^{6} A61K *31/44*

U.S. Cl. 514—280 **2 Claims**

1. A method of selectively inhibiting growth or proliferation of hormone independent cancer cells in a cell population wherein said cells originate from hormone dependent cancer cells, said method comprising treating the cell population with an effective amount of at least one protein kinase C inhibiting agent, wherein the hormone independent cells are hormone independent prostate cancer cells contained in a population of prostate cancer cells or the hormone independent cells are hormone independent breast cancer cells contained in a population of breast cancer cells and wherein the PKC inhibitor is chelerythrine.

5,786,363

AQUEOUS COMPOSITIONS CONTAINING CIPROFLOXACINE, AND RELATED USE

Pedro Canovas Soler; Joaquin Delgadillo Duarte, and Juan Moreno Rueda, all of Barcelona, Spain, assignors to Bayvit, S.A., Barcelona, Spain

PCT No. PCT/ES94/00155, § 371 Date Mar. 25, 1997, § 102(e) Date Mar. 25, 1997, PCT Pub. No. WO97/05880, PCT Pub. Date Feb. 20, 1997

PCT Filed Jul. 26, 1996, Ser. No. 809,622

Claims priority, application Spain, Aug. 3, 1995, 9501578

Int. Cl.^{6} A61K *31/44;31/47*

U.S. Cl. 514—300 **12 Claims**

1. An aqueous ciprofloxacine-containing topical composition comprising the following essential components, in the amounts given hereinafter in %w/v(g/100 ml):

i) 0.12–0.6% of ciprofloxacine hydrochloride monohydrate (equivalent to 0.1–0.5% of free base);

ii) 0.5–3.0% of a buffer system capable of maintaining the pH between 4 and 5;

iii) 0.05–0.3% of a non ionic surfactant;

iv) 0.5–2.0% of a thickening agent; and

v) water ad 100 ml.

5,786,364

BICYCLIC ISOTHIOUREA DERIVATIVES USEFUL IN THERAPY

James MacDonald, Pittsford, N.Y., assignor to Astra Aktiebolag, Sodertalje, Sweden

PCT No. PCT/SE96/00162, § 371 Date Mar. 8, 1996, § 102(e) Date Mar. 8, 1996, PCT Pub. No. WO96/24588, PCT Pub. Date Aug. 15, 1996

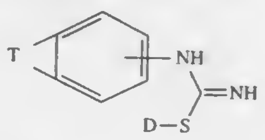
PCT Filed Feb. 9, 1996, Ser. No. 615,254

Claims priority, application United Kingdom, Feb. 11, 1995, 9502669; Feb. 11, 1995, 9502670

Int. Cl.^{6} C07D *217/02;* **C07C** *335/02;* **A61K** *31/47;31/155*

U.S. Cl. 514—307 **11 Claims**

1. A compound of formula I



I

wherein

D represents alkyl C1 to 6;

T represents a C$_{3\text{-}5}$ saturated or unsaturated alkylene chain substituted by —(CH$_2$)$_m$—NXY; —O—(CH$_2$)$_2$—NH- substituted by —(CH$_2$)$_m$—NXY; or —U—(CH$_2$)$_a$—N(X)—(CH$_2$)$_b$—;

U represents NH, O or CH$_2$;

a and b, which may be the same or different, represent an integer 0 to 3, provided that a+b is in the range 1 to 3;

X and Y, which may be the same or different, represent hydrogen, alkyl C1 to 6, or a group —(CH$_2$)$_n$Q;

or NXY together represents piperidinyl, pyrrolidinyl, morpholinyl, or tetrahydroisoquinolinyl;

Q represents phenyl optionally substituted by alkyl C1 to 6, alkoxy C1 to 6, trifluoromethyl, halogen, nitro or cyano;

m and n independently represents an integer 0 to 5;

or a pharmaceutical acceptable salt thereof.

5,786,365

USE OF NONPEPTIDE BRADYKININ ANTAGONISTS FOR THE TREATMENT AND PREVENTION OF CHRONIC FIBROGENETIC LIVER DISORDERS, ACUTE LIVER DISORDERS AND THE COMPLICATIONS ASSOCIATED THEREWITH

Holger Heitsch, Mainz-Kastel; Adalbert Wagner, Gersthofen; Klaus Wirth, Kriftel; Max Hropot, Flörsheim, and Martin Bickel, Bad Homburg, all of Germany, assignors to Hoechst Aktiengesellschaft, Frankfurt am Main, Germany

Filed May 19, 1997, Ser. No. 858,550

Int. Cl.^{6} A61K *31/47*

U.S. Cl. 514—311 **4 Claims**

1. A method of treating a patient suffering from chronic fibrogenetic liver disorders (hepatic cirrhosis and hepatic fibrosis) and acute liver disorders and for the prevention of complications, comprising, administering to said patient an effective amount of a nonpeptide bradykinin antagonist or a physiologically tolerable salt thereof.

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5,786,366

METHOD AND APPARATUS FOR REHYDRATING DRY SKIN

J. Daniel Sobocinski, 191 Wierimus La., Hillsdale, N.J. 07642

Filed Jan. 22, 1997, Ser. No. 787,540

Int. Cl.^{6} A61K *31/47;31/22*

U.S. Cl. 514—312 **8 Claims**

1. A method for rehydrating dry skin of an individual, comprising the following steps:

applying a balm of lanolin and hydroxyquinoline sulfate in a moisturizing base formula to a skin surface to be treated, wherein the skin surface is a hand or a foot of an individual;

covering the skin surface with a cover, wherein the cover is a cotton glove or sock shaped to respectively fit over the hand or foot of the individual;

maintaining the cover over the skin surface for a predetermined period of time; and

removing the cover to reveal a rehydrated skin surface.

5,786,367

CYCLIC AMIDE DERIVATIVES

Yasuo Oshiro, Tokushima; Tatsuyoshi Tanaka; Takao Nishi, both of Itano-gun; Keiichi Kuwahara, Ako; Shigeki Fujisawa, Takasago; Keiko Takasu, Himeji, and Yutaka Wada, Ako, all of Japan, assignors to Otsuka Pharmaceutical Co., Ltd., Tokyo, Japan

PCT No. PCT/JP95/01392, § 371 Date Mar. 5, 1996, § 102(e) Date Mar. 5, 1996, PCT Pub. No. WO96/02508, PCT Pub. Date Feb. 1, 1996

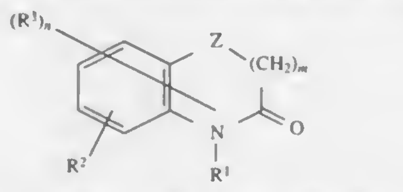
PCT Filed Jul. 12, 1995, Ser. No. 600,987

Claims priority, application Japan, Jul. 14, 1994, 6-161639

Int. Cl.^{6} A61K *31/47;* **C07D** *215/227*

U.S. Cl. 514—312 **23 Claims**

1. A pharmaceutical composition containing a pharmaceutically acceptable carrier and, as the effective ingredient, a cyclic amide derivative or a salt thereof represented by the general formula (1):



(1)

wherein R^2 is a hydroxyl group, a lower alkenyloxy group, a phenyl-lower alkenyloxy group, a cycloalkenyloxy group, a tetrahydropyranyloxy group, or a pyridyloxy group;

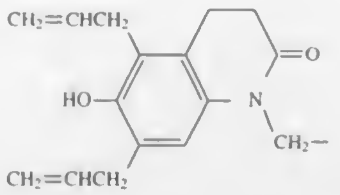
R^3 is a lower alkenyl group;

Z is a group of —CH_2— or a group of —CH=CH—;

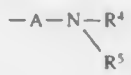
n is an integer of 1 to 3;

m is 0 or 1; provided that when Z is a group of —CH_2—, then m is 1 and when Z is a group of —CH=CH—, then m is 0;

R^1 is a hydrogen atom, an alkyl group, an alkenyl group, a phenyl-lower alkenyl group, a cycloalkyl-lower alkyl group, a phenyl group which may have, in the phenyl ring, one or more substituents selected from the group consisting of a lower alkoxy group and a halogen atom, a hydroxyl group-substituted alkyl group, a halogen-substituted lower alkyl group, a cycloalkenyl group; a lower alkynyl group, a phenyl-lower alkyl group which may have, in the phenyl ring, 1 to 3 substituents selected from the group consisting of a lower alkenyloxy group, a lower alkoxy group, a lower alkenyl group, a hydroxyl group, a lower alkyl group, a carboxyl group, a lower alkoxycarbonyl group and a group of the formula:



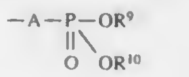
a naphthyl-substituted lower alkyl group, a phthalimido-substituted lower alkyl group, a lower alkoxycarbonyl-substituted lower alkyl group, a group of the formula:



$$-A-N(R^4)R^5$$

(wherein A is a lower alkylene group; R^4 and R^5 are the same or different, and are each a hydrogen atom, a carbamoyl group, a lower alkanoyl group which may have one or more halogen atoms, a phenylsulfonyl group which may have, in the phenyl ring, one or more lower alkyl groups as substituents, a lower alkoxy-lower alkyl group, a lower alkyl group, a hydroxyl group-substituted lower alkyl group, a lower alkoxycarbonyl group-substituted lower alkyl group, or a carboxy-substituted lower alkyl group, further R^4 and R^5 may form a 5- or 6-membered saturated or unsaturated heterocyclic group by combining to each other, together with the adjacent nitrogen atom being bonded thereto, further with or without other nitrogen atom or oxygen atom; said heterocyclic group may have one or more substituents, selected from the group consisting of a carbamoyl group, a carboxyl group, a cycloalkyl group and a phenyl group which may have one or more halogen atoms as substituents in the phenyl ring);

a lower alkanoyloxy-lower alkyl group, a cyano group-substituted lower alkyl group, a group of the formula:



$$-A-P(=O)(OR^9)OR^{10}$$

(wherein A is a lower alkylene group; R^9 and R^{10} are the same or different, and are each a hydrogen atom or a lower alkyl group),

a carboxy-substituted lower alkyl group, a lower alkoxycarbonyl-substituted lower alkyl group or a carbamoyl-substituted lower alkyl group provided that when n is 1, Z is a group of —CH=CH— and R^1 is a hydrogen atom, then R^2 should not be a hydroxyl group, a lower alkanoyloxy group, a tetrahydropyranyloxy group or a pyridyloxy group.

5,786,368

DEOXYGALACTONOJIRIMYCIN DERIVATIVES

Frances M. Platt, Oxford, United Kingdom; Gabrielle R. Neises, Chesterfield, Mo.; Raymond A. Dwek, and Terry D. Butters, both of Oxford, United Kingdom, assignors to Monsanto Company, St. Louis, Mo.

Division of Ser. No. 396,989, Mar. 1, 1995, Pat. No. 5,580,884, which is a division of Ser. No. 102,654, Aug. 5, 1993, which is a continuation-in-part of Ser. No. 61,645, May 13, 1993, Pat. No. 5,399,567. This application Jan. 17, 1996, Ser. No. 588,027

Int. Cl.^{6} A61K *31/445*

U.S. Cl. 514—315 **8 Claims**

1. The method of inhibiting the biosynthesis of glycolipids in cells capable of producing glycolipids comprising subjecting said cells to a glycolipid inhibitory effective amount of an N-alkyl derivative of deoxygalactonojirimycin in which said alkyl contains from 3–6 carbon atoms.

5,786,369

METHOD OF INHIBITING THE SURFACE EXPRESSION OF GLYCOLIPID RECEPTORS FOR BACTERIA

Frances M. Platt, Oxford, United Kingdom; Gabrielle R. Neises, Chesterfield, Mo.; Raymond A. Dwek, and Terry D. Butters, both of Oxford, United Kingdom, assignors to Monsanto Company, St. Louis, Mo.

Continuation of Ser. No. 393,640, Feb. 24, 1995, which is a continuation of Ser. No. 61,645, May 13, 1993, Pat. No. 5,399,567. This application May 20, 1996, Ser. No. 650,558

Int. Cl.^{6} A61K *31/445*

U.S. Cl. 514—315 **5 Claims**

1. The method of inhibiting the surface expression of glycolipid receptors for bacteria comprising subjecting bacterial cells susceptible to said expression to an effective amount in vitro for inhibiting said expression of an N-alkyl derivative of 1,5-dideoxy-1,5-imino-D-glucitol in which said alkyl contains from 2–8 carbon atoms.

5,786,370

Patent Not Issued For This Number

5,786,371

PYRIDINE AND PYRIDAZINE DERIVATIVES, PROCESSES FOR THE PRODUCTION THEREOF AND PHARMACEUTICAL AGENTS CONTAINING THESE COMPOUNDS

Christos Tsaklakidis, Weinheim; Alfred Mertens, Schriesheim; Gerd Zimmermann, Mannheim; Wolfgang Schäfer, Mannheim, and Liesel Dörge, Mannheim, all of Germany, assignors to Boehringer Mannheim GmbH, Mannheim, Germany

PCT No. PCT/EP96/00523, § 371 Date Aug. 11, 1997, § 102(e) Date Aug. 11, 1997, PCT Pub. No. WO96/24586, PCT Pub. Date Aug. 15, 1996

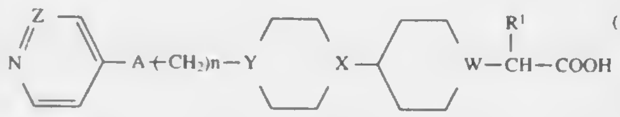
PCT Filed Feb. 8, 1996, Ser. No. 875,951

Claims priority, application Germany, Feb. 10, 1995, 195 04 367.7

Int. Cl.^{6} A01N *43/40*

U.S. Cl. 514—318 **16 Claims**

1. A compound of formula I



(I)

wherein

R^1 is a hydrogen atom, C_1–C_6 alkyl, C_3–C_6 alkenyl, cycloalkyl, cycloalkenyl, a bicyclic aryl which is either unsubstituted or substituted, a monocyclic aryl which is either unsubstituted or substituted, a hetaryl which is either unsubstituted or substituted, an arylalkyl which is either unsubstituted or substituted, —OR^2, or —NR^3R^4, wherein the bicyclic aryl, monocyclic aryl or hetaryl, when substituted, is substituted by a substituent selected from the group consisting of C_1–C_6 alkyl, chlorine, bromine, fluorine, hydroxy, and alkoxy,

W is a nitrogen atom or —>CR^5,

X, Y, and Z, each indepdendently are a nitrogen atom or the group —CH. wherein when W is the group —>CR^5 and X is the group —>CH, Y is not the group —>CH,

A is an oxygen atom, >NR^2 or >N—P,

n is 0 to 5,

P is a protecting group for amines,

R^2 is a hydrogen atom, C_1–C_6 alkyl or arylalkyl, wherein the arylalkyl is selected from the group consisting of benzyl, phenethyl, phenylpropyl, phenylbutyl and phenylpentyl residue, and wherein the arylalkyl is either unsubstituted or substituted by a substituent selected from the group consisting of methyl, ethyl, isopropyl, chlorine, bromine, fluorine, hydroxy, methoxy, benzyloxy, acetyloxy, carboxy, ethoxycarbonyl, aminocarbonyl, methylaminocarbonyl, dimethylaminecarbonyl, cyano, amino, methylamino, dimethylamino, benzylamino, acetylamino, benzoylamino and amidino groups,

R^3 and R^4 are each independently a hydrogen atom or C_1–C_6 alkyl, or R^3 and R^4, together with the nitrogen atom to which they are both bound, form a five or six-membered heterocyclic ring,

R^5 is a hydrogen atom or a group —OR^2,

or an optical isomer or pharmacologically acceptable salt thereof.

5,786,372

HETEROARYL COMPOUNDS USED AS PHARMACEUTICALS

Francis David King; Laramie Mary Gaster, both of Bishop's Stortford, and Keith Raymond Mulholland, Harlow, all of England, assignors to SmithKline Beecham p.l.c., Brentford, England

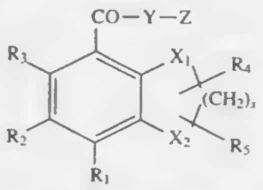
Continuation of Ser. No. 397,229, Mar. 10, 1995, Pat. No. 5,620,992. This application Dec. 20, 1996, Ser. No. 771,093

Claims priority, application United Kingdom, Sep. 10, 1992, 9219163

Int. Cl.^{6} A61K *31/445;* **C07D** *405/12*

U.S. Cl. 514—321 **15 Claims**

1. A compound of formula (1), or a pharmaceutically acceptable salt thereof:



(1)

in which X_1—$(CH_2)_x$—X_2 forms a 5–7 membered ring wherein:

X_1 is O or S;

X_2 is O, S or NR wherein R is hydrogen;

x is 1, 2 or 3;

R_1 is hydrogen, amino, halo, $C_{1\text{-}6}$ alkyl, hydroxy or $C_{1\text{-}6}$ alkoxy;

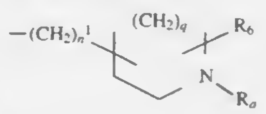
R_2 is hydrogen, halo, $C_{1\text{-}6}$ alkyl, $C_{1\text{-}6}$ alkoxy, nitro, amino or $C_{1\text{-}6}$ alkylthio;

R_3 is hydrogen, halo, $C_{1\text{-}6}$ alkyl, $C_{1\text{-}6}$ alkoxy or amino;

R_4 and R_5 are independently hydrogen or $C_{1\text{-}6}$ alkyl;

Y is NH;

Z is of sub-formula (a):



(a)

wherein

—$(CH_2)_n{}^1$ is attached at carbon; and

n^1 is 0, 1, 2, 3 or 4;

q is 0, 1, 2 or 3;

R_a is $(CH_2)_n{}^2$—R_7 wherein n^2 is 2 or 3 and R_7 is selected from cyano, hydroxyl, $C_{1\text{-}6}$ alkoxy, $C(O)C_{1\text{-}6}$ alkyl, COC_6H_5, —$CONR_8R_9$, NR_8COR_9, $SO_2NR_8R_9$ or $NR_8SO_2R_9$ wherein R_8 and R_9 are hydrogen or $C_{1\text{-}6}$ alkyl; and

R_6 is hydrogen or $C_{1\text{-}6}$ alkyl;

having 5-HT_4 receptor antagonist activity.

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5,786,373
FIBRINOGEN RECEPTOR ANTAGONISTS

George D. Hartman, Lansdale; John D. Prugh, Chalfont; Melissa S. Egbertson, Ambler; Mark E. Duggan, Schwenksville, and William Hoffman, Lansdale, all of Pa., assignors to Merck & Co., Inc., Rahway, N.J.

PCT No. PCT/US93/09750, § 371 Date May 31, 1995, § 102(e) Date May 31, 1995, PCT Pub. No. WO94/08577, PCT Pub. Date Apr. 28, 1994

Continuation of Ser. No. 960,977, Oct. 12, 1992, abandoned. This PCT application Oct. 12, 1993, Ser. No. 416,772

Int. Cl.⁶ A61K *31/38;31/415;31/44;31/445;* **C07D** *333/22;233/64;401/12;409/06*

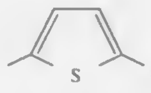
U.S. Cl. 514—326 **13 Claims**

1. A compound of the invention having the formula:

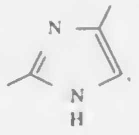
X—Y—Z-Aryl-A—B

and the pharmaceutically acceptable salts thereof wherein:

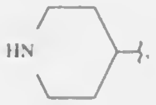
Aryl is

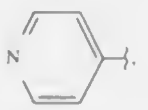


, or



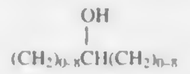
X is:





Y is:

$C_{0\text{-}8}$ alkyl,
$C_{4\text{-}10}$ cycloalkyl,
$C_{0\text{-}8}$ alkyl-NR^3-CO-$C_{0\text{-}8}$ alkyl,
$C_{0\text{-}8}$ alkyl-$CONR^3$-$C_{0\text{-}8}$ alkyl,
$C_{0\text{-}8}$ alkyl-O-$C_{0\text{-}8}$ alkyl,
$C_{0\text{-}8}$ alkyl-$S(O_p)$-$C_{0\text{-}8}$ alkyl,
$C_{0\text{-}8}$ alkyl-SO_2-NR^3-$C_{0\text{-}8}$ alkyl,
$C_{0\text{-}8}$ alkyl-NR^3-SO_2-$C_{0\text{-}8}$ alkyl,
$C_{0\text{-}8}$ alkyl-CO-$C_{0\text{-}8}$ alkyl,
$(CH_2)_{0\text{-}6}$ aryl$(CH_2)_{0\text{-}6}$,
$(CH_2)_{0\text{-}6}$aryl-CO-$(CH_2)_{0\text{-}6}$,
$C_{0\text{-}6}$ alkyl-aryl-$C_{0\text{-}6}$ alkyl,



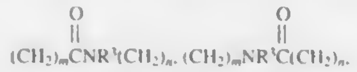
$(CH_2)_{0\text{-}8}\overset{\overset{OH}{|}}{C}H(CH_2)_{0\text{-}8}$

OR $(CH_2)_{0\text{-}6}$aryl-CO-NH-$(CH_2)_{0\text{-}6}$;

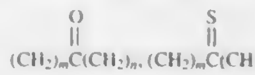
wherein p is 0, 1, or 2;

Z and A are independently chosen from:

$(CH_2)_m$, $(CH_2)_mO(CH_2)_n$, $(CH_2)_mNR^3(CH_2)_n$,



$(CH_2)_m\overset{\overset{O}{\|}}{C}NR^3(CH_2)_n$, $(CH_2)_mNR^3\overset{\overset{O}{\|}}{C}(CH_2)_n$,

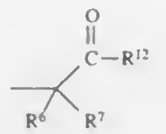


$(CH_2)_m\overset{\overset{O}{\|}}{C}(CH_2)_n$, $(CH_2)_m\overset{\overset{S}{\|}}{C}(CH_2)_n$,

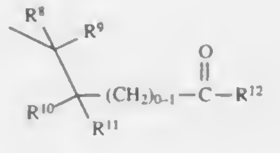
$(CH_2)_mSO_2(CH_2)_n$,
$(CH_2)_mS(CH_2)_n$, $(CH_2)_mSO(CH_2)_n$, $(CH_2)_mSO_2NR^3(CH_2)_n$,
$(CH_2)_mNR^3SO_2(CH_2)_n$, $(CH_2)_mCR^3{=}CR^4(CH_2)_n$,
$(CH_2)_mC{\equiv}C(CH_2)_n$,

where m and n are integers independently chosen from 0–6;

B is



or



wherein:

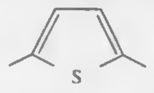
R^6, R^7, R^8, R^9, R^{10}, and R^{11} are independently chosen from
hydrogen,
fluorine,
$C_{1\text{-}8}$ alkyl,
hydroxyl,
hydroxy $C_{1\text{-}6}$ alkyl,
carboxy $C_{0\text{-}6}$ alkyl,
$C_{1\text{-}6}$ alkyloxy,
aryl $C_{1\text{-}6}$ alkyloxy,
$C_{1\text{-}6}$ alkylcarbonyl $C_{0\text{-}6}$ alkyl,
aryl $C_{0\text{-}6}$ alkylcarbonyl $C_{0\text{-}6}$ alkyl,
$C_{1\text{-}6}$ alkylcarbonyloxy,
aryl $C_{0\text{-}6}$ alkylcarbonyloxy,
$C_{1\text{-}6}$ alkylaminocarbonyloxy,
aryl $C_{0\text{-}6}$ alkylaminocarbonyloxy,
$C_{3\text{-}8}$ cycloalkyl,
aryl $C_{0\text{-}6}$ alkyl,
$C_{0\text{-}6}$ alkylamino $C_{0\text{-}6}$ alkyl,
$C_{0\text{-}6}$ dialkylamino $C_{0\text{-}6}$ alkyl,
$C_{1\text{-}8}$ alkylsulfonylamino $C_{0\text{-}6}$ alkyl,
aryl $C_{0\text{-}6}$ alkylsulfonylamino $C_{0\text{-}6}$ alkyl,
aryl $C_{0\text{-}6}$ alkylamino,
$C_{1\text{-}8}$ alkyloxycarbonylamino $C_{0\text{-}8}$ alkyl,
aryl $C_{0\text{-}8}$ alkyloxycarbonylamino C0–8 alkyl,
$C_{1\text{-}8}$ alkylcarbonylamino $C_{0\text{-}6}$ alkyl,
aryl $C_{0\text{-}6}$ alkylcarbonylamino $C_{0\text{-}6}$ alkyl,
$C_{0\text{-}8}$ alkylaminocarbonylamino $C_{0\text{-}6}$ alkyl,
aryl $C_{0\text{-}8}$ alkylaminocarbonylamino $C_{0\text{-}6}$ alkyl,
$C_{0\text{-}8}$ alkylaminosulfonylamino $C_{0\text{-}6}$ alkyl,
aryl $C_{0\text{-}8}$ alkylaminosulfonylamino $C_{0\text{-}6}$ alkyl,
$C_{1\text{-}6}$ alkylsulfonyl $C_{0\text{-}6}$ alkyl,
aryl $C_{0\text{-}6}$ alkylsulfonyl $C_{0\text{-}6}$ alkyl,
$C_{1\text{-}6}$ alkylcarbonyl $C_{0\text{-}6}$ alkyl,
aryl $C_{0\text{-}6}$ alkylcarbonyl $C_{0\text{-}6}$ alkyl,
$C_{0\text{-}8}$ alkylaminosulfonyl $C_{0\text{-}8}$ alkyl,
aryl $C_{0\text{-}8}$ alkylaminosulfonyl $C_{0\text{-}8}$ alkyl,
$C_{0\text{-}8}$ alkylaminocarbonyl $C_{0\text{-}8}$ alkyl,
aryl $C_{0\text{-}8}$ alkylaminocarbonyl $C_{0\text{-}8}$ alkyl,
$C_{1\text{-}6}$ alkylthiocarbonylamino $C_{0\text{-}6}$ alkyl, or
alkyl $C_{0\text{-}6}$ alkylthiocarbonylamino $C_{0\text{-}6}$ alkyl wherein the alkyl or aryl groups may be unsubstituted or substituted with one or more substituents selected from R^1 and R^2;

R^1, R^2, R^3, and R^4 are independently chosen from
hydrogen,
$C_{1\text{-}10}$ alkyl,
aryl $C_{0\text{-}8}$ alkyl,
oxy,
thio,
amino $C_{0\text{-}8}$ alkyl,
$C_{1\text{-}3}$ acylamino $C_{0\text{-}8}$ alkyl,
$C_{1\text{-}6}$ alkylamino $C_{0\text{-}8}$ alkyl,
$C_{1\text{-}6}$ dialkylamino $C_{0\text{-}8}$ alkyl,
$C_{1\text{-}4}$ alkoxy $C_{0\text{-}6}$ alkyl,
carboxy $C_{0\text{-}6}$ alkyl,
$C_{1\text{-}4}$ alkoxycarbonyl $C_{0\text{-}6}$ alkyl,

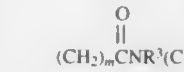
carboxy $C_{0\text{-}6}$ alkyloxy or
hydroxy $C_{0\text{-}6}$ alkyl;

R^{12} is chosen from
hydroxy,
$C_{1\text{-}8}$ alkyloxy,
aryl $C_{0\text{-}6}$ alkyloxy,
$C_{1\text{-}8}$ alkylcarbonyloxy $C_{1\text{-}4}$ alkyloxy,
aryl $C_{1\text{-}8}$ alkylcarbonyloxy $C_{1\text{-}4}$ alkyloxy, or
an L- or D-amino acid joined by an amide linkage and wherein the carboxylic acid moiety of said amino acid is as the free acid or is esterified by $C_{1\text{-}6}$ alkyl

provided that when Aryl is



Y is not $C_{0\text{-}8}$ alkyl-$CONR^3$-$C_{0\text{-}8}$ alkyl, Z is not



$(CH_2)_m\overset{\overset{O}{\|}}{C}NR^3(CH_2)_n$

and A is not $(CH_2)_m$.

5,786,374
BENZISOXAZOLE DERIVATIVES AND PESTICIDAL COMPOSITIONS CONTAINING THEM

Saleem Farooq, Arisdorf, Switzerland; Stephan Trah, Freiburg, Germany, and René Zurflüh, Basel, Switzerland, assignors to Novartis Corporation, Summit, N.J.

PCT No. PCT/EP95/04154, § 371 Date May 1, 1997, § 102(e) Date May 1, 1997, PCT Pub. No. WO96/14305, PCT Pub. Date May 17, 1996

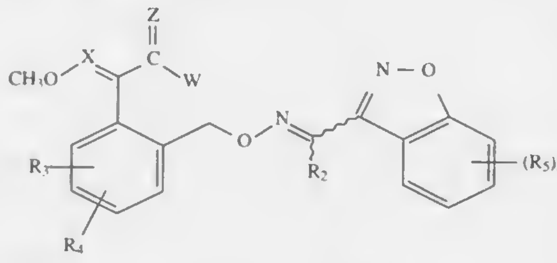
PCT Filed Oct. 23, 1995, Ser. No. 836,072

Claims priority, application Switzerland, Nov. 3, 1994, 328/94

Int. Cl.⁶ A61K *31/42;* **C07D** *263/56*

U.S. Cl. 514—379 **24 Claims**

1. A compound of formula



(I)

wherein
a) X is CH, Z is oxygen and W is OR_1; or
b) X is nitrogen, Z is oxygen and W is OR_1; or
c) X is nitrogen, Z is oxygen, sulfur or sulfoxide and W is the NHR_1 group; and the other substituents have the following meanings:

R_1 is C_1–C_4alkyl; C_3–C_4alkenyl; C_3–C_4alkynyl;

R_2 is H, C_1–C_4alkyl, halo-C_1–C_4alkyl, cyclopropyl, C_1–C_4alkoxymethyl, C_1–C_4alkoxy, C_1–C_4alkylthio or CN;

R_3 and R_4 are each independently of the other H, C_1–C_4alkyl, C_1–C_4alkoxy, OH, CN, NO_2, $Si(CH_3)_3$, CF_3 or halogen;

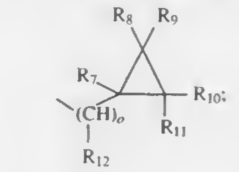
n is 0, 1, 2, 3 or 4;

R_5 is halogen, C_1–C_4alkyl, halo-C_1–C_4alkyl, unsubstituted or mono- to tetrasubstituted C_1–C_4alkylenedioxy, the substituents being selected from the group consisting of C_1–C_4alkyl and halogen; CN, NO_2, XR_6, phenyl or chlorophenyl;

X is O, O(C_1–C_4alkylene), (C_1–C_4alkylene)O, $S(O)_m$, $S(O)_m$(C_1–C_4alkylene), (C_1–C_4alkylene)$S(O)_m$ or C_1–C_4alkylene;

m is 0, 1 or 2;

R_6 is C_1–C_6alkyl; halo-C_1–C_6alkyl; C_3–C_6cycloalkyl; CN; C_1–C_4alkylene-Si(C_1–C_4alkyl)$_3$; C_2–C_6 alkenyl or C_3–C_6alkynyl which are each unsubstituted or substituted by 1 to 3 halogen atoms, or mono- to pentasubstituted aryl or heterocyclyl, the substituents being selected from the group consisting of halogen, C_1–C_6alkyl, halo-C_1–C_6alkyl, C_1–C_6alkoxy, halo-C_1–C_6alkoxy and CN; or



and wherein

R_7, R_8, R_9, R_{10} and R_{11} are each independently of one another H, halogen or C_1–C_4alkyl;

R_{12} is H or C_1–C_4alkyl; and

o is 0, 1, 2 or 3,

and, whenever obtained, an E/Z isomer thereof.

12. Methyl 2-[[[(1-{1,2-benzisoxazol-3-yl}ethylidene)amino]oxy]methyl]-α-(methoxy-methylene)phenylacetate,

methyl 2-[[[(1-{6-methoxy-1,2-benzisoxazol-3-yl}ethylidene)amino] oxy]methyl]-α-(methoxymethylene)phenylacetate,

methyl 2-[[[(1-{6-[(2,2-dichlorocyclopropyl)methoxy]-1,2-benzisoxazol- 3-yl}ethylidene)amino]oxy]methyl]-α-(methoxymethylene)phenylacetate,

methyl α-(methoxymethylene)-2-[[[(1-{6-[3-(trifluoromethyl)benzyloxy]- 1,2-benzisoxazol-3-yl}ethylidene)amino]oxy]methyl]phenylacetate,

methyl α-(methoxymethylene)-2-[[[(1-{6-[2-propenyloxy]- 1,2-benzisoxazol-3-yl}ethylidene)amino]oxy]methyl]phenylacetate,

methyl α-(methoxymethylene)-2-[[[(1-{6-[2-propynyloxy]- 1,2-benzisoxazol-3-yl}ethylidene)amino]oxy]methyl]phenylacetate,

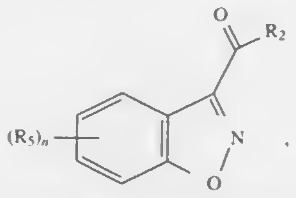
methyl α-(methoxymethylene)-2-[[[(1-{6-[4-(trifluoromethyl)benzyloxy]- 1,2-benzisoxazol-3-yl}ethylidene)amino]oxy]methyl]phenylacetate,

methyl α-(methoxymethylene)-2-[[[(1-{6-[2-(trifluoromethyl)benzyloxy]- 1,2-benzisoxazol-3-yl}ethylidene)amino]oxy]methyl]phenylacetate,

methyl 2-[[[(1-{5-methoxy-1,2-benzisoxazol-3-yl}ethylidene)amino]oxy] methyl]-α-(methoxymethylene)phenylacetate,

2-[[[(1-{6-[3,3-dichloro-2-propenyloxy]-1,2-benzisoxazol-3-yl}ethylidene)amino]oxy]-methyl]-α-(methoxymethylene)phenylacetate and the two E/Z isomers of methyl 2-[[[(1-{6-[1,1,2,3,3,3-hexafluoropropoxy]- 1,2-benzisoxazol-3-yl}ethylidene)amino]oxy]meth-yl]-α-(methoxymethylene)phenylacetate.

13. A process for the preparation of a compound of formula I or of a possible E/Z isomer thereof, which comprises reacting a compound of formula



(II)

and wherein R_2 and R_5 are as defined for formula I optionally in the presence of a base, with hydroxylamine hydrochloride, and reacting the intermediate, which may or may not be isolated, in the presence of a base, with a compound of formula

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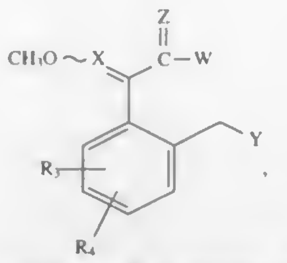


(III)

which is either known or can be prepared in analogy to corresponding known compounds, and wherein X, Z, W, R_3 and R_4 are as defined in connection with formula I, and Y is halogen, and, if desired, converting a compound of formula I obtainable by the process of the invention or in another manner or an E/Z isomer thereof into another compound of formula I or an E/Z isomer thereof, separating a mixture of E/Z isomers obtainable by the process of the invention and isolating the desired isomer.

5,786,375
HYDROXYETHYL-AZOLYL DERIVATIVES

Michael Lindemann, Hamm; Stefan Dutzmann, Hilden; Heinz-Wilhelm Dehne, Bonn, and Gerd Hänssler, Leverkusen, all of Germany, assignors to Bayer Aktiengesellschaft, Leverkusen, Germany

PCT No. PCT/EP94/02964, § 371 Date Mar. 14, 1996, § 102(e) Date Mar. 14, 1996, PCT Pub. No. WO95/07896, PCT Pub. Date Mar. 23, 1995

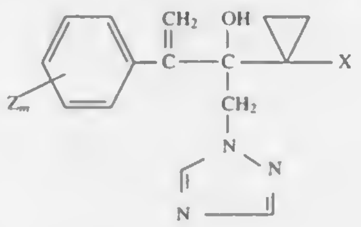
PCT Filed Sep. 6, 1994, Ser. No. 617,852

Claims priority, application Germany, Sep. 16, 1993, 43 31 476.7; Jun. 7, 1994, 44 19 812.4

Int. Cl.^{6} A01N *43/653;* **C07D** *249/08*

U.S. Cl. 514—383 **3 Claims**

1. A hydroxyethyl-azolyl derivative of the formula



in which

X represents fluorine or chlorine,

Z represents fluorine, chlorine, bromine or difluoromethoxy, and

m represents the numbers 0 or 1.

5,786,376
METHODS OF TREATING OPPORTUNISTIC INFECTIONS WITH AZASPIRANES

Alison Mary Badger, Bryn Mawr; Peter John Bugelski, Philadelphia, and Danuta J. Herzyk, Valley Forge, all of Pa., assignors to SmithKline Beecham Corporation, Philadelphia, Pa.

PCT No. PCT/US95/08915, § 371 Date Jan. 21, 1997, § 102(e) Date Jan. 21, 1997, PCT Pub. No. WO96/03126, PCT Pub. Date Feb. 8, 1996

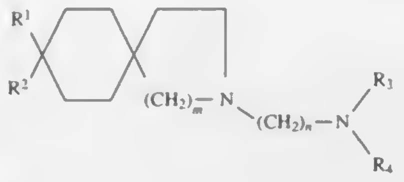
PCT Filed Jul. 14, 1995, Ser. No. 507,487

Claims priority, application United Kingdom, Jul. 23, 1994, 9414902

Int. Cl.^{6} A61K *31/40:31/44:31/55*

U.S. Cl. 514—409 **6 Claims**

1. A method for treating opportunistic infections caused by an organism selected from the group consisting of *Candida sp., Pseudomonas sp., Listeria sp., Pneumocystis carinii, Pneumococci, Neisseria sp., Salmonella sp., Mycobacteria sp., Cryptococcus sp., Aspergillis sp., Cryptosporidium sp., Herpes simplex, Herpes zoster, Cytomegalovirus* and *Toxoplasma sp.* in a mammal including a human subject to such infection which comprises administering to said human an effective amount of a compound of the formula



(I)

wherein:

n is 3–7;

m is 1 or 2;

R^1 and R^2 are the same or different and are selected from hydrogen or straight or branched chain alkyl, provided that the total number of carbon atoms contained by R^1 and R^2 when taken together is 5–10; or R^1 and R^2 together form a cyclic alkyl group having 3–7 carbon atoms;

R^3 and R^4 are the same or different and are selected from hydrogen or straight chain alkyl having 1–3 carbon atoms; or R^3 and R^4 are joined together to form a cyclic alkyl group having 4–7 atoms; or a pharmaceutically acceptable salt or hydrate or solvate thereof.

5,786,377
PYRROLO[3,2-E]INDOL DERIVATIVES, PROCESS FOR THE PREPARATION THEREOF AND APPLICATIONS

José Delamano García, Villagarcía de Arosa; Gabriel Tojo Suarez, Santiago de Compostela; Carmen López Goti, Nede; Jesús Fernández Almeida, Zamora; Dolores García Gravalos, Madrid, all of Spain, and Glynn Thomas Faircloth, Cambridge, Mass., assignors to Universidad de Santiago de Compostela, LaCoruna, Spain

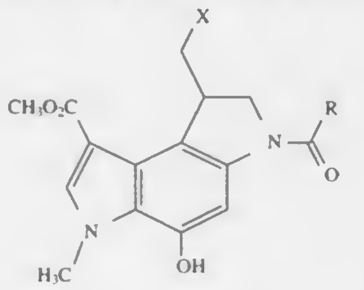
Continuation of Ser. No. 491,870, May 15, 1996. This application Jan. 29, 1997, Ser. No. 790,904

Claims priority, application Spain, Nov. 19, 1993, 9302430

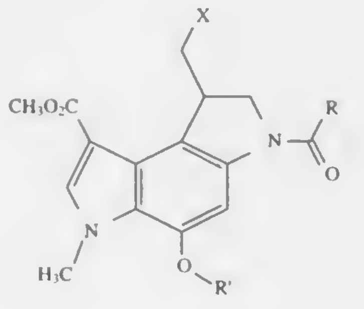
Int. Cl.^{6} A61K *31/40;* **C07D** *487/04*

U.S. Cl. 514—410 **16 Claims**

1. Pyrrolo[3,2-e]indole derivatives, characterized in that they have the following formulae (I) (Ia) and (II):

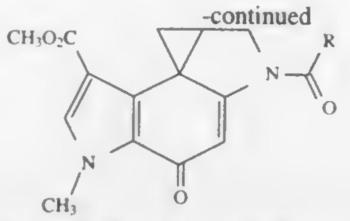


(I)



(Ia)

-continued



(II)

wherein R represents an aryl or heteroaryl group, substituted or not substituted, R' represents alkanoyl, alkenoyl, alkynoyl, arenocarbonyl or heteroarenocarbonyl, substituted or not substituted and X represents chlorine, bromine, iodine or alkyl or arylsulfonyl.

5,786,378
HETEROCYCLIC THIOESTERS

Gregory S. Hamilton, Catonsville, and Jia-He Li, Cockeysville, both of Md., assignors to GPI Nil Holdings, Inc., Wilmington, Del.

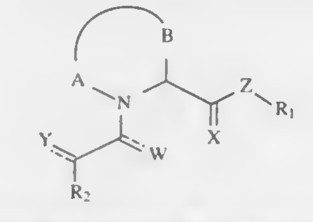
Filed Sep. 25, 1996, Ser. No. 721,765

Int. Cl.^{6} A61K *31/40;* **C07D** *207/06*

U.S. Cl. 514—423 **43 Claims**

Untreated

1. A compound of formula I:



I

or a pharmaceutically acceptable salt thereof, wherein:

A and B, together are —$(CH_2)_3$;

X is either O or S;

Z is S;

W and Y are independently O, S, CH_2 or H_2;

R_1 is C_1–C_6 straight or branched chain alkyl or alkenyl, which is substituted in one or more position(s) with $(Ar_1)_n$, $(Ar_1)_n$ connected by a C_1–C_6 straight or branched chain alkyl or alkenyl, C_3–C_8 cycloalkyl, C_3–C_8 cycloalkyl connected by a C_1–C_6 straight or branched chain alkyl or alkenyl, Ar_2, or a combination thereof;

n is 1 or 2;

R_2 is either C_1–C_9 straight or branched chain alkyl or alkenyl, C_3–C_8 cycloalkyl, C_5–C_7 cycloalkenyl, or Ar_1, wherein said alkyl, alkenyl, cycloalkyl or cycloalkenyl is either unsubstituted or substituted in one or more position(s) with C_1–C_4 straight or branched chain alkyl or alkenyl, hydroxyl, or a combination thereof, provided that R_2 is not methyl when A and B form a 5-membered pyrrolidine ring, X is O, and R_1 is phenyl; and

Ar_1 and Ar_2 are independently a mono-, bi- or tricyclic, carbo- or heterocyclic ring, wherein the ring is either unsubstituted or substituted in one to three position(s) with halo, hydroxyl, nitro, trifluoromethyl, C_1–C_6 straight or branched chain alkyl or alkenyl, C_1–C_4 alkoxy, C_1–C_4 alkenyloxy, phenoxy, benzyloxy, amino, or a combination thereof; wherein the individual ring sizes are 5–6 members; and wherein the heterocyclic ring contains 1–6 heteroatom(s) selected from the group consisting of O, N, S, and a combination thereof.

5,786,379
ADAMANTYL-SUBSTITUTED BIAROMATIC COMPOUNDS AND PHARMACEUTICAL/COSMETIC COMPOSITIONS COMPRISED THEREOF

Jean-Michel Bernardon, Le Rouret, France, assignor to Centre International de Recherches Dermatologiques Galderma, Valbonne, France

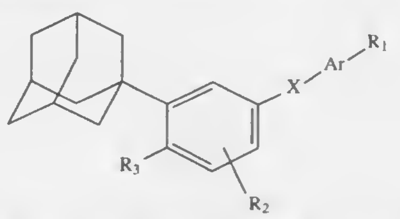
Filed Dec. 2, 1996, Ser. No. 759,312

Claims priority, application France, Dec. 1, 1995, 95 14260

Int. Cl.^{6} A61K *31/38;31/335;31/235;31/19*

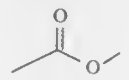
U.S. Cl. 514—448 **56 Claims**

1. An adamantyl-substituted biaromatic compound having the structural formula (I):

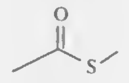


(I)

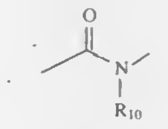
in which R_1 is a —CH_3 radical, a —(CH_2)n—O—R_4 radical, an —O—(CH_2)m—(CO)n—R_5 radical, a —CO—R_6 radical, or a —CO—O—R_7 radical, wherein values of m and n and the radicals R_4 to R_7 are as defined below; R_2 is a hydrogen atom, a halogen atom, a linear or branched alkyl radical having from 1 to 20 carbon atoms, an —OR_4 radical, or an —O—CH_2—O—CH_2—CH_2—O—CH_3 radical; R_3 is a —Y—(CH_2)p—Y—(CH_2)q—R_8 radical, a —(CH_2)p—Y—(CH_2)q—R_8 radical, a —Y—(CH_2)q—R_8 radical, a —CH═CH—(CH_2)r—R_8 radical, or a —(CH_2)q—R_8 radical, wherein the values of p, q and r and the radicals Y and R_8 are as defined below; X is a bridging radical selected from among those of the following formulae (a)–(k), which may be oriented left-to-right or right-to-left:



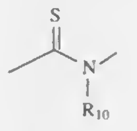
(a)



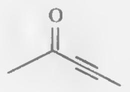
(b)



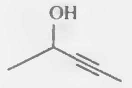
(c)



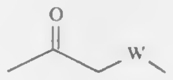
(d)



(e)



(f)



(g)

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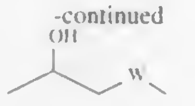
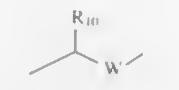
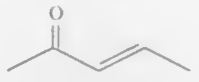


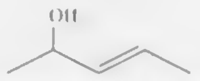
(h)



(i)

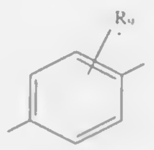


(j)

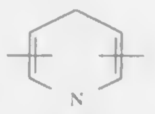


(k)

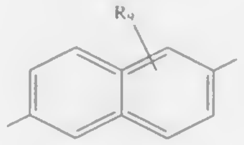
Ar is a radical selected from among those of the following formulae (a')-(f'):



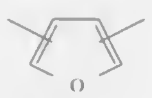
(a')



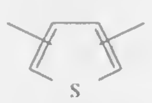
(b')



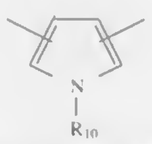
(c')



(d')

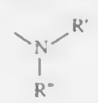


(e')



(f')

m is an integer equal to 1, 2 or 3; n is an integer equal to 0 or 1; p is an integer ranging from 1 to 12, inclusive; q is an integer ranging from 0 to 12, inclusive; r is an integer ranging from 0 to 10, inclusive; t is an integer equal to 0, 1 or 2; Y is an oxygen atom or a radical S(O)t; W is an oxygen atom, a radical S(O)t or a radical N—R_{10}; R_4 is a hydrogen atom, a lower alkyl radical or a radical —CO—R_{11}; R_5 is a lower alkyl radical or a heterocycle; R_6 is a hydrogen atom, a lower alkyl radical, or a radical



in which R' and R", which may be identical or different, are each a hydrogen atom, a lower alkyl radical, a mono- or polyhydroxyalkyl radical, an optionally substituted aryl radical, or an amino acid or peptide or sugar residue, with the proviso that R' and R" may together form, with the nitrogen atom from which they depend, a nitrogen-containing heterocycle; R_7 is a hydrogen atom, a linear or branched alkyl radical having from 1 to 20 carbon atoms, an alkenyl radical, a mono- or polyhydroxyalkyl radical, an optionally substituted aryl or aralkyl radical, or a sugar residue or an amino acid or peptide residue; R_8 is a hydrogen atom, a branched alkyl radical having from 1 to 20 carbon atoms, a C3–C6 cycloaliphatic radical, a monohydroxyalkyl radical or a polyhydroxyalkyl radical, said hydroxyls optionally being protected as methoxy, acetoxy or acetonide groups, an aryl radical, an alkynyl radical, a —CO—R_6 radical, a —CO—O—R_7 radical, an amino alkyl radical whose amine function is optionally substituted with one or two lower alkyl radicals, or a heterocycle, wherein R_7 is as defined above; R_9 is a hydrogen or halogen atom, a linear or branched alkyl radical having from 1 to 20 carbon atoms, an —OR_4 radical or an —O—CH_2—O—CH_2—CH_2—O—CH_3 radical; the radicals R_{10}, which may be identical or different, are each a hydrogen atom or a lower alkyl radical; and R_{11} is a lower alkyl radical, with the provisos that (1) when X is a bridging radical of formula (a), (b), (c), (g), (h), (j) or (k), then R_3 is other than a radical —Y—$(CH_2)_q$—R_8, —CH═CH—$(CH_2)_r$—R_8 or —$(CH_2)_q$—R_8 in which R_8 is a hydrogen atom, (2) when X is a bridging radical of formula (a), then R_3 is other than the radical —Y— $(CH_2)_q$—R_8, (3) when X is a bridging radical of formula (b) and R_3 is the radical —Y—$(CH_2)_q$—R_8 in which Y is a sulfur atom, then R8 is other than an aryl radical, and (4) when X is a bridging radical of formula (g), (h), (j) or (k) and R_3 is a radical —$(CH_2)_q$—R_8 then R_8 is other than a monohydroxyalkyl or polyhydroxyalkyl radical; or a pharmaceutically/cosmetically acceptable derivative or optical or geometric isomer thereof.

5,786,380
VPA-ANALOGOUS ANTIEPILEPTICS

Heinz Nau, Hegauer Weg 43, 14163 Berlin; Ursula Bojic, Grunewaldstr. 27, 12165 Berlin; Ralf-Siegbert Hauck, Steglitzer Damm 72, 12169 Berlin, all of Germany, and Mohamed Mobey Eldin Elmazar, 6 Ahmed El-Shediak Str. Ard El-Golf, Helinopolis, Cairo, Egypt

Filed Nov. 23, 1994, Ser. No. 344,810

Claims priority, application Germany, Sep. 12, 1992, 42 31 085.7

Int. Cl.^{6} A61K *31/19*

U.S. Cl. 514—557 **6 Claims**

1. A method of reducing seizure activity in an individual, comprising administering a therapeutically effective amount of 2-n-propyl-4-hexynoic acid or a pharmaceutically compatible salt thereof, wherein the form of the 2-n-propyl-4-hexynoic acid is chosen from the racemate, a single enantiomer, or a non-racemic mixture of enantiomers.

5,786,381
COSMETIC COMPOSITION

Kevin Ronald Franklin, Wirral; Susan Mary Houghton, Warrington, and Ian Gardner Lyle, Clywd, all of United Kingdom, assignors to Chesebrough-Pond's U.S.A. Co., Division of Conopco Inc., Greenwich, Conn.

Continuation of Ser. No. 565,354, Nov. 30, 1995, Pat. No. 5,641,813. This application May 13, 1997, Ser. No. 855,006

Claims priority, application United Kingdom, Dec. 2, 1994, 9424445

Int. Cl.^{6} A61K *31/19*

U.S. Cl. 514—557 **3 Claims**

1. A cosmetic composition comprising from 0.1 to 100% by weight of the composition of a hydroxy material selected from:

a) a layered double hydroxide of formula

$$[M_{(1-a)}N_a(OH)_2]^{y+}X^{x-}_{y/x}\cdot zH_2O \qquad (I)$$

where

M is selected from divalent metal ions and lithium;

N is a trivalent metal ion;

X is an anion of charge x−;

y+ is the net charge on the mixed metal hydroxide cation; and when M is a divalent metal ion a is a number from 0.17 to 0.5 and y=a;

when M is lithium a is a number from 0.67 to 0.75 and y=(2a−1); and

z is a number from 0 to 10; and

b) a hydroxy salt of formula

$$[M'(OH)_{(2-a'x)}]^{a'+}(X^{x-})_{(a'/x)}\cdot zH_2O \qquad (II)$$

where

M' is at least one divalent metal ion;

a' is a number in the range 0.05 to 1;

X is an anion of charge x−, and

z is a number from 0 to 10; or

c) a mixture thereof and

wherein X comprises the anionic form of a non-sunscreen skin benefit agent selected from the group consisting of lactic acid, glycolic acid, alpha-hydroxycaprylic acid, or a salt or a mixture thereof;

wherein the hydroxy material releases the skin benefit agent via ion exchange.

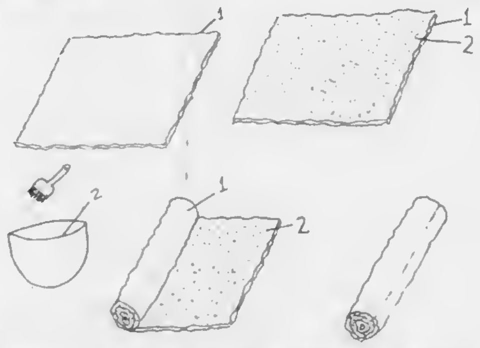
5,786,382
USE OF VALERIAN PLANT AND/OR ROOT AS A SCENT-ATTRACTANT FOR STIMULATING CANINES AND FELINES

Vsande Childers-Zadah, 1659 Brandywine #6218, West Palm Beach, Fla. 33409

Filed Nov. 3, 1995, Ser. No. 553,037

Int. Cl.^{6} A01N *37/18*

U.S. Cl. 514—629 **7 Claims**



1. A method of inducing and/or stimulating the interest, attention, and appetite of a canine and/or feline comprising adding an effective amount of Valerian plant and/or root to ingredients used in the manufacture of ingestible and/or non-ingestible products wherein the amount of Valerian equals no less than 12.5% and no more than 50% of the total weight of dry ingredients when in powder form and/or wherein the amount of Valerian equals no less than 25% and no more than 75% of the total weight of dry ingredients when in Valerian plant form and/or wherein the amount of Valerian equals no less than 25% and no more than 100% of the dry ingredients when in the form of an aqueous extract, such that the aroma of Valerian acts as a stimulant and excitement-producing scent-attractant for canines and/or felines.

5,786,383
PHARMACEUTICAL PREPARATION

Bernd Clement, Johann-Fleck-Strasse 27, D-24106 Kiel, Germany

PCT No. PCT/DE94/00756, § 371 Date Feb. 6, 1996, § 102(e) Date Feb. 6, 1996, PCT Pub. No. WO95/01168, PCT Pub. Date Jan. 12, 1995

PCT Filed Jun. 28, 1994, Ser. No. 571,848

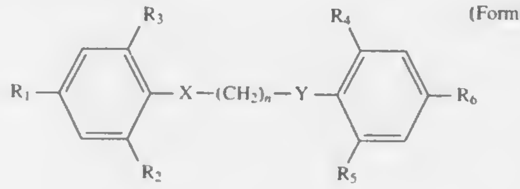
Claims priority, application Germany, Jun. 28, 1993, 43 21 444.4

Int. Cl.^{6} A61K *31/15;* **C07C** *251/36*

U.S. Cl. 514—633 **24 Claims**

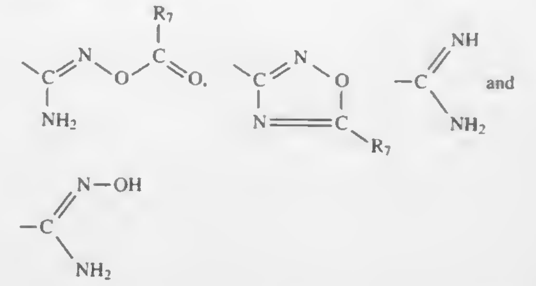
1. A pharmaceutical preparation for oral administration comprising a conventional carrier and an active ingredient having the general formula 1.

(Formula 1)



wherein,

R_1 and R_6 are identical or different, and are selected from the group consisting of:



R_7 is selected from the group consisting of hydrogen, an alkyl residue and an aryl residue,

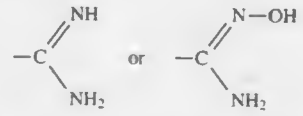
R_2, R_3, R_4, and R_5 are identical or different and are selected from the group consisting of hydrogen, —NO_2, halogen and an OR_8 grouping;

R_8 is selected from the group consisting of hydrogen and an alkyl group;

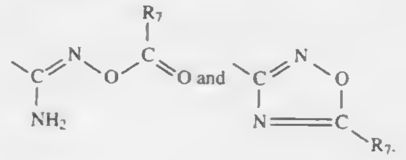
X and Y are identical or different, and are selected from the group consisting of oxygen, nitrogen and sulphur; and

n is a whole number between 0 and 8;

and their salts, with the proviso that when X and Y are both oxygen, R_2, R_3, R_4, and R_5 are each hydrogen, n is 5 and R_1 is



then R_6 is selected from the group consisting of



5,786,384
AGENTS FOR THE TREATMENT AND PROTECTION OF THE SKIN

Roshdy Ismail, Siebengebirgeallee 2, 5 Köln 4, Germany

Continuation of Ser. No. 298,612, Aug. 31, 1994, Pat. No. 5,652,261, which is a continuation of Ser. No. 877,377, Apr. 29, 1992, Pat. No. 5,541,220, which is a continuation of Ser. No. 518,565, May 3, 1990, abandoned, which is a division of Ser. No. 211,125, Jun. 21, 1988, Pat. No. 4,938,960, which is a continuation of Ser. No. 900,727, Aug. 27, 1986, abandoned, which is a continuation-in-part of Ser. No. 706,723, Feb. 28, 1985, abandoned. This application Mar. 18, 1997, Ser. No. 819,097

Claims priority, application Germany, Mar. 7, 1984, 34 08 258.1; Mar. 23, 1984, 34 10 641.3; Jun. 1, 1984, 34 20 459.8; Jul. 25, 1984, 34 27 374.3; Sep. 25, 1984, 34 35 098.5; Nov. 15, 1984, 34 41 711.7; Feb. 12, 1985, 35 04 695.3

Int. Cl.^{6} A61K *31/355*

U.S. Cl. 514—458 **18 Claims**

1. A method of treating skin conditions in a mammal selected from the group consisting of tetter, inflammation, itch, wrinkles, damage from wounds or exposure to ultra-violet light, comprising the administration of an effective dose of a pharmaceutical composition consisting essentially of from 0.5 to 20% by weight of resorbable, vitamin E ester and, optionally, Bufexamac and antihistamines.

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5,786,385
POLYACETYLENES

Conrad Gorinsky, The Old House, Old House Lane, England, EN92LT

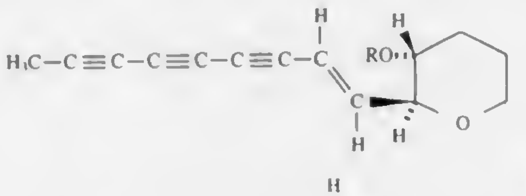
Continuation-in-part of Ser. No. 434,116, May 2, 1995, abandoned, which is a continuation of Ser. No. 189,681, Feb. 1, 1994, abandoned. This application May 10, 1996, Ser. No. 644,894

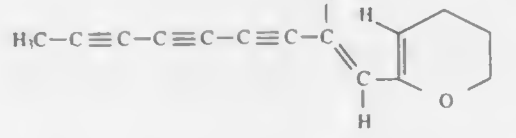
Claims priority, application United Kingdom, Feb. 1, 1993, 9301920

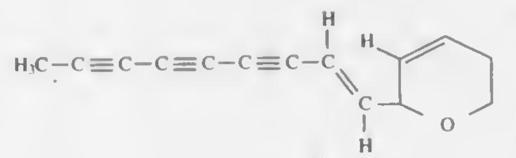
Int. Cl.^{6} **A61K** *31/40;* **C07D** *315/00*

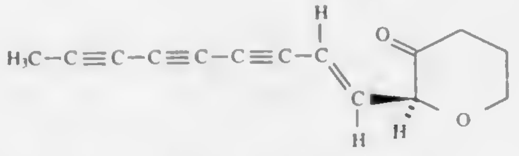
U.S. Cl. 514—460 **6 Claims**

1. A method of treatment of a person affected by a disease or condition benefited by administration of a reversible heart blocking agent, a neuromuscular active or a neuroactive generally, said neuromuscular active being a drug which acts on myoneural junctions, and said neuroactive being a drug that provides benefits in conditions that affect neurofunction, wherein an effective amount of a cunaniol (2-(1-nonen-3,5,7-triynyl)-3-hydroxytetrahydropyran) of formula I, an anhydrocunaniol of formula II or III or cunanione of formula IV, as set out below, is administered as said agent or active.


I


II


III


IV

wherein R=H, alkyl, acyl or glycosidyl.

5,786,386
ANTIBACTERIAL AND FUNGICIDAL AGENT

Kenya Ishida, and Kazutoshi Sakurai, both of Hiratsuka, Japan, assignors to Takasago International Corporation, Tokyo, Japan

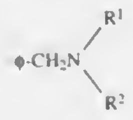
Filed Jul. 15, 1996, Ser. No. 678,598

Claims priority, application Japan, Jul. 18, 1995, 7-181656

Int. Cl.^{6} **A01N** *33/04;43/30;43/50*

U.S. Cl. 514—466 **9 Claims**

1. A method for imparting antibacterial and fungicidal properties to an article of manufacure or a composition which may allow propagation of bacteria, fungi or both, comprising physically contacting the article of manufacture or composition with an antibacterially or fungicidally effective amount of an amino compound of formula (1) or a salt thereof:


(I)

$$\phi\text{-CH}_2\text{N}(R^1)(R^2)$$

wherein

ϕ represents (1) a phenyl group, (2) a substituted phenyl group, wherein the number of substituents is 1 from 5 inclusive, and the substituents, which may be identical to or different from one another, are selected from the group consisting of a hydroxyl group, halogen atoms, lower alkoxyl groups, trifluoromethyl group, an amino group, and a methylenedioxy group), or (3) an imidazolyl group;

R^1 represents a hydrogen atom or a lower alkyl group; and

R^2 represents a C6-C12 alkyl group.

5,786,387
LIPID DOUBLE-CHAIN DERIVATIVE CONTAINING POLYOXYETHYLENE

Hiroshi Watanabe; Kumi Taniguchi; Chikako Udagawa; Takashi Ando, and Satoru Nakabayashi, all of Yokohama, Japan, assignors to Meiji Seika Kabushiki Kaisha, Tokyo-to, Japan

PCT No. PCT/JP95/00535, § 371 Date Jan. 25, 1996, § 102(e) Date Jan. 25, 1996, PCT Pub. No. WO95/25764, PCT Pub. Date Sep. 28, 1995

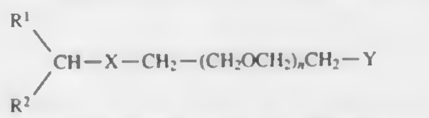
PCT Filed Mar. 23, 1995, Ser. No. 553,601

Claims priority, application Japan, Mar. 23, 1994, 6-052181; Dec. 6, 1994, 6-302165

Int. Cl.^{6} **A61K** *31/225;31/23;* **C07C** *59/235;233/05*

U.S. Cl. 514—547 **17 Claims**

1. A compound represented by the following general formula (I)


(I)

$$(R^1)(R^2)\text{CH}-X-\text{CH}_2-(\text{CH}_2\text{OCH}_2)_n\text{CH}_2-Y$$

wherein R^1 represents straight-chain alkyl having 8 to 24 carbon atoms, straight-chain alkenyl having 8 to 24 carbon atoms, R^3—O—(CH_2)—, R^3—CO—O—(CH_2)—, R^3—O—CO—$(CH_2)_m$— or R^3—CO—NH—$(CH_2)_m$— where R^3 represents straight-chain alkyl having 7 to 24 carbon atoms or straight-chain alkenyl having 7 to 24 carbon atoms, and m is an integer of 1 to 6;

R^2 represents straight-chain alkyl having 8 to 24 carbon atoms, straight-chain alkenyl having 8 to 24 carbon atoms, R^3—O—, R^3—CO—O— or R^3—O—CO— where R^3 is as defined above;

X represents —CO—NH—, —CO—O—, —NH—CO—CH_2—O— or —CH_2—O—CO—CH_2—O—, provided that when X represents —CO—C—, R^1 and R^2 do not represent R^3—O—CO—$(CH_2)_m$— or R^3—O—CO—; when X represents —NH—CO—CH_2—O—, R^1 and R^2 independently represent R^3—O—CO—$(CH_2)_m$— or R^3—O—CO—; when X represents —CH_2—O—CO—CH_2—O—, R^1 represents straight-chain alkyl having 8 to 24 carbon atoms or straight-chain alkenyl having 8 to 24 carbon atoms and R^2 represents straight-chain alkyl having 8 to 24 carbon atoms or straight-chain alkenyl having 8 to 24 carbon atoms;

Y represents hydroxyl, straight-chain or branched alkoxy having 1 to 6 carbon atoms, or carboxyl which may be protected, and n is an integer of 10 to 230.

5,786,388
MEADOWFOAM ESTERS AS SKIN CONDITIONERS

Anthony J. O'Lenick, Jr., Lilburn, Ga., assignor to Fan Tech Ltd., Chicago, Ill.

Continuation-in-part of Ser. No. 759,266, Dec. 2, 1996, Pat. No. 5,760,260, which is a continuation-in-part of Ser. No. 516,138, Aug. 17, 1995, Pat. No. 5,646,321. This application Apr. 24, 1997, Ser. No. 847,577

Int. Cl.^{6} **A61K** *31/23*

U.S. Cl. 514—552 **9 Claims**

1. A process for conditioning the skin which comprises contacting the skin with an effective conditioning amount of a meadowfoam ester conforming to the following structure;

$$CH_3—(CH_2)_a—O—C(O)—R$$

wherein:

R is

60–65% by weight —$(CH_2)_3$—CH=CH—$(CH_2)_{13}$—CH_3

12–20% by weight a mixture of

—$(CH_2)_3$—CH=CH—$(CH_2)_{15}$—CH_3

and

—$(CH_2)_{11}$—CH=CH—$(CH_2)_7$—CH_3

and

15–28% by weight —$(CH_2)_3$—CH=CH—$(CH_2)_6$—CH=CH—$(CH_2)_6$—CH_3;

a is an integer ranging from 6 to 28.

5,786,389
GUERBET CASTOR ESTERS

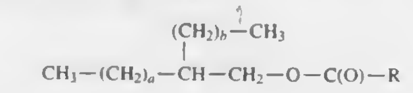
Anthony J. O'Lenick, Jr., Lilburn, and Jeffrey K. Parkinson, Dacula, both of Ga., assignors to Lambert Technologies Inc., Norcross, Ga., and Hanson Co., Woodbury, N.Y.

Filed Dec. 28, 1997, Ser. No. 980,432

Int. Cl.^{6} **A01N** *37/00*

U.S. Cl. 514—552 **9 Claims**

1. A process for providing gloss to the skin which comprises application of an effective glossing concentration of an ester conforming to the following structure:



$$CH_3-(CH_2)_a-\underset{\displaystyle (CH_2)_b-CH_3}{\overset{}{CH}}-CH_2-O-C(O)-R$$

a and b are independently integers ranging from 4 to 20; and

R is CH_3—$(CH_2)_5$—CH(OH)—CH_2—CH=CH—$(CH_2)_7$—.

5,786,390
PHARMACEUTICAL COMPOSITIONS OF THE R-ENANTIOMER OF N-PROPARGYL -1-AMINOINDAN

Moussa B. H. Youdim, Haifa; John P. M. Finberg, Tivon; Ruth Levy, Tel-Aviv; Jeffrey Sterling; David Lerner, both of Jerusalem; Tirtsah Berger-Paskin, Raanana; Haim Yellin, Ramat-Gan, and Alex Veinberg, Rehovot, all of Israel, assignors to Teva Pharmaceutical Industries Ltd., Jerusalem, and Technion Research and Development Foundation Ltd., Haifa, both of Israel

Division of Ser. No. 411,398, Mar. 28, 1995, Pat. No. 5,532,415, which is a continuation of Ser. No. 139,517, Oct. 18, 1993, abandoned, which is a continuation-in-part of Ser. No. 63,455, May 18, 1993, Pat. No. 5,387,612, which is a continuation of Ser. No. 632,184, Dec. 21, 1990, abandoned. This application Jun. 6, 1995, Ser. No. 470,161

Claims priority, application Israel, Jan. 3, 1990, 92952

Int. Cl.^{6} **A61K** *31/135*

U.S. Cl. 514—657 **19 Claims**

1. A pharmaceutical composition which consists essentially of a therapeutically effective amount of R(+)-N-propargyl-1-aminoindan or a pharmaceutically acceptable salt thereof and a pharmaceutically acceptable carrier.

5,786,391
REGULATING GENE EXPRESSION USING RETINOIDS WITH CH_2OH OR RELATED GROUPS AT THE SIDE CHAIN TERMINAL POSITION

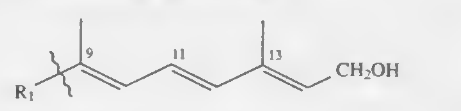
Lorraine J. Gudas, New York, N.Y.; Charles Achkar, North Bergen, N.J.; Jochen Buck, New York, N.Y.; Alexander W. Langston, New York, N.Y.; Fadila Derguini, New York, N.Y., and Koji Nakanishi, New York, N.Y., assignors to Cornell Research Foundation, Inc., Ithaca, and The Trustees of Columbia University in the City of New York, New York, both of N.Y.

Filed Jan. 11, 1995, Ser. No. 371,535

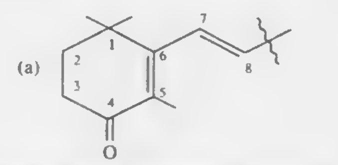
Int. Cl.^{6} **A61K** *31/115;31/045;31/08*

U.S. Cl. 514—690 **5 Claims**

3. A method for treating deep acne in a patient afflicted with this condition comprising administering to said patient an acne clearing amount of a retinoid having the structure

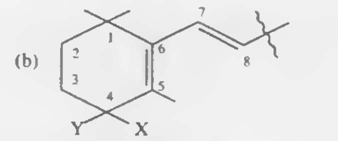


wherein the configuration at the 7-, 9-, 11- and 13-position double bonds is independently Z or E and wherein R_1 is selected from the group consisting of



(I)

wherein the keto group at the 4-position is free or protected; and



(II)

wherein X is selected from the group consisting of hydrogen and $C_{1\text{-}6}$-alkyl and wherein Y is hydroxyl.

5,786,392
ORGANOMETALLIC COMPOUNDS AND POLYMERS MADE THEREFROM

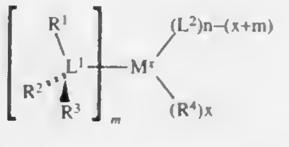
Gary S. Silverman, 85 Pine Hill Rd., Stockton, N.J. 08559; Haewon L. Uhm, 122 Revere Ct., Collegeville, Pa. 19426, and Kenneth K.S. Tseng, 402 Bergen St., Lawrenceville, N.J. 08648

Division of Ser. No. 380,095, Jan. 30, 1995, Pat. No. 5,637,745. This application Mar. 25, 1997, Ser. No. 823,707

Int. Cl.^{6} **A61K** *47/32;* **C08F** *130/04*

U.S. Cl. 514—772.4 **29 Claims**

1. A controlled release composition comprising an active agent and a compound of formula (I)



wherein

L^1 is an element of Groups 13–16 of the Periodic Table;

L^2 is a neutral ligand;

M is a transition element or a metal element of Groups 13–16 of the Periodic Table;

n represents the number of coordination sites of M;

x represents the oxidation state of M,

R^1 a polymerizable group;

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R^2 and R^1 are independently selected from the group consisting of an alkyl of up to 15 carbons; aryl of up to 30 carbons; an alkoxy or thioalkyl of up to 15 carbons; an aryloxy or thioaryl of up to 20 carbons; an oxygen or sulfur containing heterocycle of up to 25 carbons; an amine; an nitrogen heterocycle of up to 25 carbons with the proviso that L is not N; or R^2 and R^3 having the same definitions as above, interconnect to form a chelating ligand;

R^4 is an anionic ligand and when x is greater than 1, each R^4 is the same or different; and

m is 1, with the proviso that m is 2 when M is Cu, x is 1, L^1 is phosphorus, L^2 is not present and R^4 is cyanate; and m is 3 when M is Cu, x is 1, L^1 is phosphorus, L^2 is not present, and R^4 is an thioalkyl having up to 15 carbons or an thioaryl having up to 25 carbons; and also with the proviso that when M is Rh, R^1 is a polymerizable group having a $-(=CH_2)$ group.

5,786,393
LIQUID PHASE PROCESS FOR CONVERTING SYNTHESIS GAS

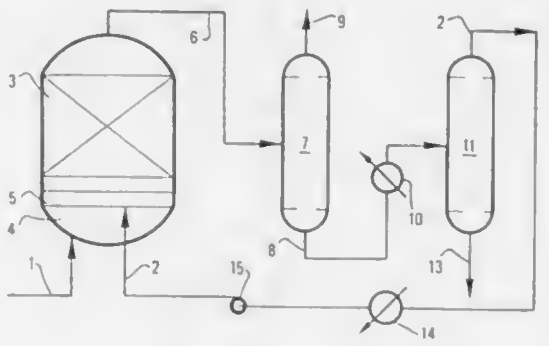
Patrick Chaumette, Bougival; Pierre Boucot, Ternay, and Pierrre Galtier, Vienne Cedex, all of France, assignors to Institut Francais du Petrole, Cedex, France

Filed Jul. 12, 1996, Ser. No. 679,256

Claims priority, application France, Jul. 13, 1995, 95 08637

Int. Cl.^{6} C07C *27/00*

U.S. Cl. 518—700 **13 Claims**



1 A process for the synthesis of essentially linear saturated C_5^+ hydrocarbons from synthesis gas, which comprises circulating a reactive synthesis gas phase either as a downflow or as an upflow through a reaction zone which comprises a fixed catalyst bed, wherein an upflow of an inert liquid hydrocarbon phase is passed through said zone at a superficial flow rate of more than 0.01 cm/s, the liquid hydrocarbon phase comprising a partially vaporizable hydrocarbon cut comprising at least one hydrocarbon with 5, 6, 7, 8, 9 or 10 carbon atoms.

5,786,394
DURABLE, ENERGY-ABSORPTIVE EPP/PUR STRUCTURAL COMPOSITES

John P. Slaven, Harper Woods, Mich., assignor to Lear Corporation, Southfield, Mich.

Filed Dec. 4, 1996, Ser. No. 760,290

Int. Cl.^{6} C08J *9/34*

U.S. Cl. 521—51 **14 Claims**

1. An energy management structural composite resistant to breakage under bending stress, comprising in major part an expanded polyolefin molded part surrounded on at least one surface by an effective breakage minimizing layer of an in situ-produced integral skin polyurethane flexible foam, said integral skin polyurethane foam directly abutting said expanded polyolefin molded part.

5,786,395
ABSORBENT FOAMS MADE FROM HIGH INTERNAL PHASE EMULSIONS USEFUL FOR ACQUIRING AND DISTRIBUTING AQUEOUS FLUIDS

Keith Joseph Stone, Fairfield; Thomas Allen DesMarais, Cincinnati; John Collins Dyer, Cincinnati; Bryn Hird, Cincinnati; Gary Dean La Von, Middletown; Stephen Allen Goldman, Cincinnati; Michelle Renee Peace, Mason, and Paul Seiden, Cincinnati, all of Ohio, assignors to The Procter & Gamble Company, Cincinnati, Ohio

Division of Ser. No. 645,664, May 14, 1996, which is a division of Ser. No. 370,695, Jan. 10, 1995, Pat. No. 5,563,179. This application Aug. 13, 1996, Ser. No. 689,613

Int. Cl.^{6} C08J *9/28*

U.S. Cl. 521—64 **11 Claims**

1. A polymeric foam material which is capable of acquiring and distributing aqueous fluids, said polymeric foam material comprising a hydrophilic, flexible, nonionic polymeric foam structure of interconnected open cells, which foam structure has:

A) the ability to vertically wick synthetic urine to a height of 5 cm in less than about 120 seconds;
B) a capillary absorption pressure of from about 5 to about 25 cm;
C) a capillary desorption pressure of from about 8 to about 40 cm;
D) a resistance to compression deflection of from about 5 to about 85% when measured under a confining pressure of 0.74 psi;
E) a free absorbent capacity of from about 12 to about 125 g/g;
F) a recovery from wet compression of at least about 60%.

5,786,396
METHOD OF PRODUCING MICROPOROUS POLYOLEFIN MEMBRANE

Kotaro Takita; Koichi Kono, and Norimitsu Kaimai, all of Kawasaki, Japan, assignors to Tonen Chemical Corporation, Tokyo, Japan

Filed Jul. 24, 1997, Ser. No. 899,778

Claims priority, application Japan, Aug. 21, 1996, 8-238515

Int. Cl.^{6} C08J *9/28*

U.S. Cl. 521—64 **5 Claims**

1. A method of producing a microporous polyolefin membrane comprising:

dissolving a polyolefin composition in a solvent to prepare a solution comprising 5 to 35% by weight of said polyolefin composition and 65 to 90% by weight of said solvent, said polyolefin composition being a mixture of (A) an ultra high molecular weight polyolefin having a weight average molecular weight of 5×10^5 or more and (B) a polyolefin having a weight average molecular weight less than 5×10^5, and a weight ratio of (B)/(A) being 0.2 to 20;
extruding said solution through a die lip into a form of gel-like sheet;
rapidly cooling said gel-like sheet immediately after said extruding;
removing a residual solvent in the cooled sheet by a washing solvent; and
drying the resultant sheet to remove said washing solvent to obtain said microporous polyolefin membrane.

5,786,397
FOAMABLE MOLDING COMPOSITIONS

Helmut Scheckenbach, Langen; Axel Schönfeld, Wiesbaden, and Siegfried Weis, Eppstein, all of Germany, assignors to Hoechst Aktinegesellschaft, Germany

Division of Ser. No. 800,753, Feb. 14, 1997, Pat. No. 5,708,041. This application Jul. 29, 1997, Ser. No. 902,220

Claims priority, application Germany, Feb. 14, 1996, 196053595

Int. Cl.^{6} G08J *9/02*

U.S. Cl. 521—77 **16 Claims**

1. A foamable molding composition comprising

A) at least one high-temperature-resistant polymer.

B) at least one polymer containing sulfoxide groups in an amount of from 1 to 99% by weight, based on the total polymer content of the molding composition, and
C) optionally conventional additives.

5,786,398
MANUFACTURE OF INSULATING FOAMS CONTAINING FILM FORMING ADDITIVES

Byron J. Hulls, Newark, and Vyacheslav Grinshpun, Granville, both of Ohio, assignors to Owens-Corning Fiberglas Technology Inc., Summit, Ill.

Filed Mar. 24, 1995, Ser. No. 410,607

Int. Cl.^{6} C08J *9/08*

U.S. Cl. 521—82 **15 Claims**

1. A process for producing an insulating foam comprising the steps of:

(a) mixing a foaming composition comprising (i) a resin and (ii) a blowing agent admixed with a film-forming additive, said film-forming additive comprising a mineral or vegetable oil, to initiate foaming and produce foam having cells with interior wall surfaces continuously coated with the film-forming additive; and
(b) curing the foam to a density ranging from 0.5 to 3.0 pounds per cubic foot, wherein the foam has a thermal conductivity of less than 0.200 BTU×in h^{-1} ft^{-2} F^{-1}.

5,786,399
PVC FOAM COMPOSITIONS

George F. Beekman, Westchester, and Lionel R. Price, Cincinnati, both of Ohio, assignors to Morton International, Inc., Chicago, Ill.

Division of Ser. No. 821,185, Mar. 19, 1997, Pat. No. 5,726,213, which is a continuation-in-part of Ser. No. 773,366, Dec. 26, 1996, abandoned. This application Sep. 4, 1997, Ser. No. 923,364

Int. Cl.^{6} C08J *9/00*

U.S. Cl. 521—89 **9 Claims**

1. A rigid, cellular composition consisting essentially of a vinyl chloride polymer, at least one stabilizer selected from the group consisting of:

(A) an organotin mercaptide of a mercaptoalkyl carboxylate having the formula:

$$R^1_{(4-y)}Sn[SR^2OC(=O)R^3]_y \qquad \text{I}$$

wherein R^1 is an alkyl radical having from 1 to 8 carbon atoms, R^2 is an alkylene radical having from 2 to 18 carbon atoms, R^3 is hydrogen, a hydrocarbyl radical, a hydroxyhydrocarbyl radical, or $R^4C(=O)OR^5$, wherein R^4 is $(CH_2)_p$, phenylene, or —CH=CH—, and R^5 is a hydrocarbyl radical, p is 0 or an integer from 1 to 8, and y is any number from 1 to 3; and

(B) a sulfide of an organotin mercaptide of Formula 1; and, optionally,

at least one organotin salt having the formula

$$R'_{(4-x)}SnX_x$$

wherein R' is an alkyl radical having from 1 to 18 carbon atoms, X is a chloride ion or a carboxylate ion, and x is from 1 to 3; with the proviso that when such an organotin salt is not present in the composition, the composition is free from an organotin mercaptoalkylcarboxylate sulfide containing more than about 80% by weight of a monoorganotin bis(mercaptoalkylcarboxylate)sulfide.

5,786,400
PROCESS FOR THE PRODUCTION OF A RIGID POLYURETHANE FOAM AND A COMPOSITION FOR THE PRODUCTION OF A RIGID POLYURETHANE FOAM

Martin Brock, Hyogo-ken; Mitsuaki Ikebe, Osaka-ken, and Teruo Hama, Hyogo-ken, all of Japan, assignors to Sumitomo Bayer Urethane Co., Ltd., Hyogo-ken, Japan

Filed Aug. 8, 1997, Ser. No. 907,811

Claims priority, application Japan, Aug. 13, 1996, 8-213512

Int. Cl.^{6} C08J *9/14*

U.S. Cl. 521—117 **3 Claims**

1. A process for the production of a rigid polyurethane foam in which a polyisocyanate containing a benzene ring is used as an organic isocyanate and a polyether polyol and/or polyester polyol is used as a polyol, characterized in that a hydrocarbon is used as blowing agent and an emulsifying agent which consists of t-butanol.

5,786,401
METHOD FOR PRODUCING A THERMAL INSULATING FOAMED MATERIAL

Fumihiro Inagaki; Takashi Hashida; Masa-aki Suzuki, all of Osaka; Yoshio Kishimoto, Hirakata, and Takayoshi Ueno, Katano, all of Japan, assignors to Matsushita Electric Industrial Co., Ltd., Osaka-fu, Japan

Division of Ser. No. 524,194, Sep. 6, 1995. This application Nov. 5, 1997, Ser. No. 964,743

Claims priority, application Japan, Sep. 7, 1994, HEI 6-213940; Oct. 21, 1994, HEI 6-256746

Int. Cl.^{6} C08J *9/14;* **C08G** *18/00*

U.S. Cl. 521—128 **25 Claims**

1. A method for producing a thermal insulating foamed material comprising the step of concurrent blowing and molding of a resin raw material composition including a polyol, a polyisocyanate, a catalyst for urethane reaction, a foam stabilizer, and a blowing agent composed of at least one compound selected from the group consisting of in iodofluorohydrocarbons, and hydrogen-containing fluoromorpholine derivatives.

5,786,402
PRODUCTION OF POLYURETHANE FOAMS IN THE PRESENCE OF AMINOALKYL- OR AMINOPHENYLIMIDAZOLES AS CATALYST, AND THE USE OF THESE CATALYSTS FOR THE PREPARATION OF POLYISOCYANATE POLYADDITION PRODUCTS

Bernd Bruchmann, Ludwigshafen; Ruth Zschiesche, Mannheim; Heinz-Dieter Lutter, Neckargemünd; Claudia Spang, Eisenberg, and Werner Hinz, Frankenthal, all of Germany, assignors to BASF Aktiengesellschaft, Ludwigshafen, Germany

Filed Apr. 3, 1995, Ser. No. 415,290

Claims priority, application Germany, Apr. 13, 1994, 44 12 677.8

Int. Cl.^{6} C08G *18/20*

U.S. Cl. 521—129 **12 Claims**

1. A process for the production of polyurethane foams comprising reacting

a) organic polyisocyanates, modified organic polyisocyanates or mixtures of organic and modified organic polyisocyanates with
b) polyhydroxyl compounds containing at least two reactive hydrogen atoms and
c) optionally chain extenders, crosslinking agents or mixtures of chain extenders and crosslinking agents.

in the presence of

d) blowing agents, and
e) catalysts,

wherein the catalysts (e) comprise aminoalkyl- or aminophenylimidazoles of the formula

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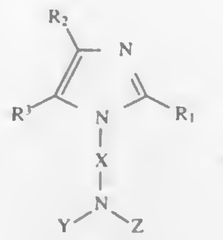
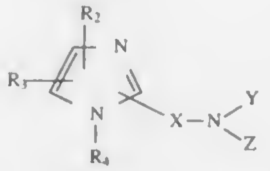


(I)

and/or



(II)

where

- R^1, R^2, R^3 are identical or different radicals from the group consisting of linear or branched alkyl having 1 to 10 carbon atoms, alkoxy having 1 to 4 carbon atoms, N-mono- and N,N-dialkylamino having 1 to 4 carbon atoms in the alkyl moiety, N-mono- and N,N-dialkylaminoalkylene having 1 to 4 carbon atoms in the alkyl moiety and 2 to 4 carbon atoms in the alkylene moiety, phenyl, halogen and hydrogen,
- R^4 is as defined for R^1, with the exception of halogen and alkoxy,
- X is alkylene having 2 to 6 carbon atoms or phenylene,
- Y is hydrogen, hydroxyalkyl having 2 to 4 carbon atoms or hydroxypolyoxyalkylene having 2 to 20 alkylene oxide units and
- Z is hydrogen, alkylene having 1 to 4 carbon atoms, phenyl, hydroxyalkyl having 2 to 4 carbon atoms or hydroxypolyoxyalkylene having 2 to 20 alkylene oxide units.

5,786,403

FOAMABLE OLEFIN THERMOPLASTIC ELASTOMER COMPOSITIONS AND FOAMED PRODUCTS THEREOF

Keiji Okada; Hiroyasu Yamaoka, and Akira Uchiyama, all of Ichihara, Japan, assignors to Mitsui Petrochemical Industries, Ltd., Tokyo, Japan

Filed Mar. 3, 1997, Ser. No. 807,984

Claims priority, application Japan, Mar. 4, 1996, 8-046265

Int. Cl.^{6} C08J *9/08;9/10*

U.S. Cl. 521—134 **9 Claims**

1. A foamable olefin thermoplastic elastomer composition comprising:

[I] 83 to 99 parts by weight of a partially crosslinked thermoplastic elastomer composition (A) obtained by dynamically heat-treating a mixture in the presence of organic peroxide, said mixture comprising:
  60 to 95 parts by weight of a peroxide-crosslinking type olefin copolymer rubber (a) which is an ethylene/α-olefin copolymer rubber comprising ethylene, an α-olefin of 3 to 20 carbon atoms and optionally a nonconjugated diene, and
  5 to 40 parts by weight of a peroxide-decomposition type olefin plastic (b) which is an α-olefin homopolymer or copolymer containing 50 to 100% by mol of an α-olefin of 3 to 20 carbon atoms and having a melt flow rate (ASTM D 1238-65T, 230° C., load of 2.16 kg) of 5 to 80 g/110 min,
  the total amount of said components (a) and (b) being 100 parts by weight,
[II] 1 to 17 parts by weight of long-chain branch-containing polypropylene (B), and
[III] a foaming agent (C),
the total amount of said components (A) and (B) being 100 parts by weight.

5,786,404

OPEN CELLED LOW DENSITY FOAM AND METHOD OF MAKING SUCH AN OPEN CELLED FOAM

David Gerald Wernsing, Littleton, and Carol Jean Claypool, Lakewood, both of Colo., assignors to Johns Manville International, Inc., Denver, Colo.

Filed Aug. 20, 1997, Ser. No. 915,070

Int. Cl.^{6} C08J *9/02;* **C08G** *18/34*

U.S. Cl. 521—157 **17 Claims**

1. A process for producing a lightweight open celled foam comprising the steps of: reacting in the absence of a solvent, an organic polyisocyanate having at least two functional groups per molecule and a mixture of a difunctional acid and a difunctional anhydride in the presence of a tertiary amine catalyst and a surfactant; generating carbon dioxide in situ; interrupting the reaction when the amount of carbon dioxide generated is from about 1% to about 8% by weight of the total mass of the reactants; transferring the reaction mass after the interruption step to a second stage and completing the carbon dioxide generation and forming a polyimide and polyamide foam product having a density no greater than 0.5 pounds per cubic foot (pcf) wherein the ratio of imide to amide groups in the final product is greater than 1 to 1 and no greater than 19 to 1.

5,786,405

AMINE-INITIATED POLYETHER POLYOLS AND A PROCESS FOR THEIR PRODUCTION

Steven L. Schilling, Glen Dale, W. Va.; Herman P. Doerge, and Lotar H. Hanusa, both of Pittsburgh, Pa., assignors to Bayer Corporation, Pittsburgh, Pa.

Filed Nov. 1, 1996, Ser. No. 742,548

Int. Cl.^{6} C08J *9/04;* **C08G** *18/50;* **C07C** *213/04;215/04*

U.S. Cl. 521—167 **13 Claims**

1. A process for the production of a clear amine-initiated polyether polyol by

a) epoxidizing an amine in the presence of an alkali metal hydroxide catalyst and
b) upon completion of epoxidation, adding a hydroxy-carboxylic acid to the epoxidized mixture in an amount sufficient to neutralize any remaining alkali metal hydroxide.

5,786,406

POLYOLEFIN BASED CROSSLINKED FOAM

Nario Uejyukkoku, Shiga-ken, and Yukinari Nakatsu, Otsu, both of Japan, assignors to Toray Industries, Inc., Tokyo, Japan

Filed Feb. 8, 1996, Ser. No. 598,245

Claims priority, application Japan, Feb. 8, 1995, 7-20537; Feb. 10, 1995, 7-22825

Int. Cl.^{6} C08F *36/04;* **C08J** *9/04*

U.S. Cl. 521—50.5 **34 Claims**

1. A crosslinked foam comprising:

a resin (A), which is a polypropylene based resin having a melting point of 125° to 165° C. and a melt flow rate (MFR) of 0.5 to 20 g/10 min and/or a polyethylene based resin having a melting point of 70° to 135° C. and a melt flow rate of 0.5 to 10 g/10 min, and a conjugated diene polymer (B) having a peak tan δ value (obtained by dynamic viscoelasticity measurement) at a temperature between −20° C. and 40° C. inclusive, and an aromatic vinyl monomer content of 5 to 50%.

5,786,407

Patent Not Issued For This Number

5,786,408

BIODEGRADABLE POLYESTER RESIN COMPOSITION, AND A BIODEGRADABLE MOLDED ARTICLE

Takayuki Kuroda, Ohtake; Masahiko Ono, Himeji; Terumasa Daito, Sakai, and Kazushi Watanabe, Ohtake, all of Japan, assignors to Daicel Chemical Industries, Ltd., Sakai, Japan

Filed Jun. 20, 1996, Ser. No. 667,004

Claims priority, application Japan, Jun. 22, 1995, 7-179348; Jan. 24, 1996, 8-029988; Jan. 24, 1996, 8-029989; Jan. 24, 1996, 8-029990; May 8, 1996, 8-137593; May 8, 1996, 8-137594

Int. Cl.^{6} C08L *67/04*

U.S. Cl. 523—124 **14 Claims**

1. A polyester resin composition having biodegradability as regulated by JIS K6950 which comprises from 1 to 200 parts by weight of a polylactone resin and 100 parts by weight of an aliphatic polyester resin wherein the aliphatic polyester resin is prepared by a polycondensation reaction between an aliphatic polyvalent alcohol and an aliphatic dicarboxylic acid, wherein said aliphatic polyester resin contains a residual croup derived from an aliphatic polyisocyanate compound.

5,786,409

FOUNDRY RESINS

Kenneth R. Kurple, 9533 Springborn Rd., Anchorville, Mich. 48004

Continuation of Ser. No. 259,970, Jun. 14, 1994, abandoned. This application Jun. 6, 1996, Ser. No. 659,614

Int. Cl.^{6} B22C *1/18;1/20;* **C08K** *3/10*

U.S. Cl. 523—142 **32 Claims**

1. The process of making a sand core or mold comprising the steps of: dissolving lignin in a suitable solvent, mixing said lignin-solvent solution and an isocyanate with sand, forming said mixture into a core or mold and allowing said mixture to cure, said lignin and isocyanate being present in amount in the range of ¼% to 10% by weight of sand, said lignin containing less than 2% sodium ion.

5,786,410

POLYURETHANE DYE BASED INKS

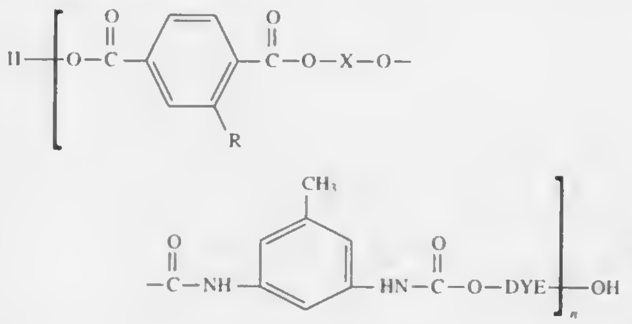
Daniel A. Foucher, Toronto; Guerino G. Sacripante, Oakville; Marcel P. Breton, Mississauga, and Patricia A. Burns, Milton, all of Canada, assignors to Xerox Corporation, Stamford, Conn.

Filed Mar. 31, 1997, Ser. No. 829,300

Int. Cl.^{6} C09D *11/10*

U.S. Cl. 523—161 **37 Claims**

1. An ink composition consisting essentially of (a) water, and a dye containing dissipatible sulfonated polymer of the following formula



wherein R is m(H) and O(SO_3—Y^+), wherein H is hydrogen, Y is an alkali cation or an alkaline earth cation, m is the mol fraction of hydrogen, and O is the mol fraction of sulfonate (SO_3—Y^+); X is a glycol, and n represents the number of repeating segments (b) a miscible organic solvent, and (c) a surfactant and wherein said dye is covalently linked to said polymer.

5,786,411

LIGHT RESISTANT COMPOSITIONS OF POLYCARBONATE AND GRAFT COPOLYMER RESINS

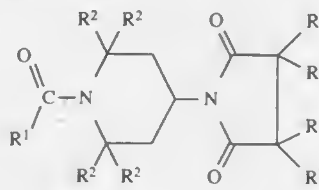
James Paul Barren, Scotia, and James Edward Pickett, Schenectady, both of N.Y., assignors to General Electric Company, Pittsfield, Mass.

Filed Dec. 20, 1996, Ser. No. 772,228

Int. Cl.^{6} C08K *5/3435*

U.S. Cl. 524—102 **11 Claims**

1. A light resistant thermoplastic resin composition comprising:
(A) a polycarbonate resin;
(B) a vinyl aromatic graft copolymer resin; and
(C) an acylated sterically hindered amide according to the structural formula:



wherein R^1 is a C_1–C_{20} residue, each R^2 is independently a C_1 to C_{20} residue, and each R^3 is independently hydrogen or a C_1 to C_{25} residue with the proviso that at least one R^3 is a C_1 to C_{25} residue.

5,786,412

PROCESS FOR PRODUCING A FILM USING SILANE MODIFIED ELASTOMERIC COMPOSITIONS

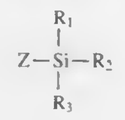
Ketan N. Shah, Appleton, and Stephen M. Campbell, Omro, both of Wis., assignors to Kimberly-Clark Worldwide, Inc., Neenah, Wis.

Continuation of Ser. No. 443,499, May 18, 1995, abandoned, which is a division of Ser. No. 333,805, Nov. 3, 1994, abandoned. This application May 28, 1996, Ser. No. 653,996

Int. Cl.^{6} B32B *27/00;* **C08K** *5/24*

U.S. Cl. 524—264 **3 Claims**

1. A process of producing a film comprising the steps of:
adding to an elastomeric melt extrudable, thermoplastic polymer in an amount between about 0.01 and about 10 weight percent, a silane having the formula:



$$Z-\overset{R_1}{\underset{R_3}{\overset{|}{\underset{|}{Si}}}}-R_2$$

wherein,
Z is selected from the group consisting of double bonded groups capable of reaction under radical polymerization conditions;
R_1, R_2, and R_3 are selected from the group consisting of alkoxy, Cl, Br, ester, O—Si, alkyl and aryl groups, provided, however, that at least one R group must be reactive in order to function as a hydrolytically reactive agent;
extruding said polymer and forming said film and;
exposing said film to moisture for a time and temperature sufficient to cure said polymer.

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ORGANOPOLYSILOXANE RESIN POWDER, PROCESS FOR ITS PREPARATION AND ITS USE IN ORGANOPOLYSILOXANE COMPOSITIONS

Richard Weldner, Burghausen; Hermann Blank, Marktl; Volker Frey, Burghausen, and Johann Schuster, Emmerting, all of Germany, assignors to Wacker-Chemie GmbH, Germany

Filed Jan. 23, 1996, Ser. No. 589,989

Claims priority, application Germany, Jan. 24, 1995, 195 02 034.0

Int. Cl.^{6} C08K *5/54*

U.S. Cl. 524—268 **9 Claims**

1. An organopolysiloxane resin powder having a mean particle diameter of from 70 to 300 μm and a proportion of fine dust havinga diameter <45 μm of less than 5 percent by weight, based on the total weight of the organopolysiloxane resin powder

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5,786,414

BUILDING RUBBER MEMBERS AND METHOD FOR IMPARTING HYDROPHILIC SURFACE THERETO

Makoto Chikuni; Toshiya Watanabe; Makoto Hayakawa, all of Kitakyushu; Tsuneo Kimura, Usui-gun; Akira Yamamoto, Usui-gun, and Hironao Fujiki, Usui-gun, all of Japan, assignors to Toto Ltd., Fukuoka-ken, and Shin-Etsu Chemical Co., Ltd., Tokyo, both of Japan

Filed Dec. 20, 1996, Ser. No. 770,425

Claims priority, application Japan, Dec. 22, 1995, 7-350272

Int. Cl.^{6} C08J *3/28;3/24*

U.S. Cl. 524—413 **17 Claims**

1. A building rubber member comprising a cured product of a curable organopolysiloxane composition comprising a diorganopolysiloxane and photocatalytic particles having a water content up to 1% by weight dispersed therein, said building rubber member having a hydrophilic surface from exposure to ultraviolet radiation.

5,786,415

USE OF STYRENE AND MALEIC ANHYDRIDE COPOLYMERS AS DISPERSING AGENTS AND/OR FOR TREATMENT OF MINERAL FILLERS AND THERMOPLASTIC COMPOUNDS CONTAINING SAME

Pierre Blanchard, Reyrieux, and Patrick Trouve, Clamart, both of France, assignors to Coatex S.A., Genay, France

Filed Dec. 16, 1996, Ser. No. 767,431

Claims priority, application France, Dec. 14, 1995, 95 15012

Int. Cl.^{6} C08K *3/26*

U.S. Cl. 524—423 **8 Claims**

1. A method of dispersing a mineral filler, comprising:

mixing a styrene-maleic anhydride copolymer with a pulverulent mineral filler and a thermoplastic resin, wherein said styrene-maleic anhydride copolymer is present in an amount of from 0.25% to 3% by weight, based on the total weight of the pulverulent filler,

wherein said styrene-maleic anhydride copolymer has a weight average molecular weight between 1000 and 3000; and

wherein said thermoplastic resin is selected from the group consisting of (a) a hydrocarbon homopolymer without an aryl group having a backbone of only carbon; (b) a copolymer without an aryl group having a molecule consisting of carbon, hydrogen and oxygen in which the oxygen content in atoms does not exceed 22% by weight, based on the total amount of atoms in the polymer molecule and (c) a mixture of said homopolymer and said copolymer; and

wherein said pulverulent mineral filler is basic or has surfaces that have free hydroxyl groups.

5,786,416

HIGH SPECIFIC GRAVITY MATERIAL

John Christopher Gardner, Bowdon; Peter James Gardner, Hale; Ian Peter Oliver, Rochdale, and Terry Peake, Warrington, all of Great Britain, assignors to John C. Gardner, and Peter J. Gardner, both of England

Continuation of Ser. No. 593,016, Jan. 29, 1996, abandoned, which is a continuation of Ser. No. 301,981, Sep. 6, 1994, abandoned. This application Oct. 24, 1997, Ser. No. 959,956

Claims priority, application United Kingdom, Sep. 6, 1993, 9318437

Int. Cl.^{6} A01K *95/00;* **F42B** *12/72;7/00;* **C08K** *3/08*

U.S. Cl. 524—440 **8 Claims**

1. Ammunition for a firearm, or an angling weight, comprising:

(i) a polymer matrix comprising,

  (a) at least one rigid thermoplastic polymer component selected from the group consisting of polypropylene, polystyrene, polyvinyl chloride, acrylonitrile-butadiene-styrene copolymer and mixtures and copolymers thereof, and

  (b) at least one elastomeric thermoplastic polymer component selected from block copolymers having at least one amorphous elastomeric unit component; and

(ii) dispersed in the polymer matrix particles of a high specific gravity weight material having a density and present in an amount such that the composition has a specific gravity of greater than four.

5,786,417

WATER-DISPERSIBLE ORGANIC CLAY COMPLEX, AND RHEOLOGY CONTROL AGENT AND AQUEOUS COATING COMPOSITION CONTAINING THE SAME

Hideaki Ogawa, Hirakata; Teruaki Kuwajima, Shijonawate; Yutaka Nakan, Neyagawa, and Katsuaki Yoshioka, Tokyo-to, all of Japan, assignors to Nippon Paint Co., Ltd., Osaka, Japan

Filed Feb. 24, 1997, Ser. No. 803,770

Claims priority, application Japan, Feb. 22, 1996, 8-035092

Int. Cl.^{6} C08K *3/34;3/08;5/19*

U.S. Cl. 524—446 **4 Claims**

1. An aqueous coating composition containing at least one film forming resin selected from the group consisting of a water-soluble or water-dispersible acrylic resin, alkyd resin, polyester resin and urethane resin; water; and a water-dispersible organic clay complex in which a quaternary ammonium ion having both an oxypropylene unit and an oxyethylene unit is present in interlamellar space of an expansible phyllosilicate, wherein said water-dispersible organic clay complex is present in an amount of 0.5 to 20 parts by weight in solid, based on 100 parts by weight of film forming solid components.

5,786,418

HOT MELT ADHESIVE HAVING IMPROVED WET STRENGTH

Diane Strelow, Germantown, and Mark Alper, Mukonaco, both of Wis., assignors to Findley Adhesives, Inc., Wauwatosa, Wis.

Continuation of Ser. No. 377,632, Jan. 25, 1995, abandoned. This application Jul. 3, 1996, Ser. No. 674,994

Int. Cl.^{6} C08J *5/12;* **C08K** *5/01;* **C08L** *23/18*

U.S. Cl. 524—579 **12 Claims**

1. A hot melt adhesive composition having improved wet strength characteristics comprising a formulation having the following ingredients: about 10% to about 60%, by weight, of a butene-1-ethylene copolymer;

about 20% to about 80%, by weight, of a tackifiing resin:

about 5% to about 30%, by weight, of a plasticizer having a molecular weight less than about 1000; and

about 0.1% to about 3%, by weight, of an antioxidant, wherein the ingredients total 100%, by weight, based on the weight of the entire adhesive composition, and wherein the hot melt adhesive composition has a viscosity of about 1,000 to about 50,000 cP at 325° F. and a melting point of about 170° F. to about 200° F., and further wherein the adhesive composition, when applied to one substrate of a tissue laminate, said tissue laminate composed of a first substrate and a second tissue substrate, in an amount of about 3.0 mg/in^{2} and at a temperature of 300° F., and with an open time between application of said adhesive composition to said one substrate and contact with the second substrate of about 0.5 second, produces an average peel strength of between at least about 50 grams and up to failure of either said first substrate or said second tissue substrate following exposure to water for a period of about 1 hour.

5,786,419

POWDER COATING COMPOSITION AND ITS USE FOR THE PREPARATION OF MATTE COATINGS

Hans-Ulrich Meier-Westhues, Leverkusen; Wolfgang Schultz, Krefeld; Hans Josef Laas, Köln; Walter Schäfer, Leichlingen, and Hans-Peter Klee, Burscheid, all of Germany, assignors to Bayer Aktiengesellschaft, Leverkusen, Germany

Filed May 16, 1996, Ser. No. 649,044

Claims priority, application Germany, May 24, 1995, 195 19 006.8

Int. Cl.^{6} C08J *3/00;* **C08K** *3/20;* **C08L** *75/00*

U.S. Cl. 524—590 **20 Claims**

1. A powder coating composition for the production of matte coatings comprising

A) a hydroxyl group-containing component which is solid below 40° C. and liquid above 130° C., and has an OH number of 25 to 200 and a number average molecular weight of 400 to 10,000,

B) an addition polymerization compound which is based on aliphatic and/or cycloaliphatic diisocyanates, contains uretdione groups and optionally free isocyanate groups, and is solid below 40° C. and liquid above 125° C.,

C) a component which contains carboxyl and/or carboxylic acid anhydride groups, is solid below 40° C and liquid above 160° C., and is selected from

  le:.5qC1) aliphatic and/or cycloaliphatic dicarboxylic acids containing 4 to 20 carbon atoms,

  C2) monomeric and/or polymeric anhydrides of the acids C1) which may optionally be modified with polyols or polyisocyanates and

  C3) aliphatic hydroxycarboxylic acids containing 4 to 18 carbon atoms, and

D) a component which contains groups which are reactive with carboxyl and/or carboxylic acid anhydride groups and which has a weight average molecular weight of 250 to 1000,

provided that components A), B), C) and D) are present in amounts such that

i) 0.6 to 1.4 isocyanate groups of component B) are present for each hydroxyl group of component A),

ii) 0.3 to 1.5 groups of component D) which are reactive with carboxyl and/or carboxylic acid anhydride groups are present for each carboxyl equivalent of component C) and

iii) the amount of components C) and D) is 10 to 40% by weight, based on the total weight of components A), B), C) and D).

5,786,420

METHOD FOR PREPARING HYDROPHOBICALLY MODIFIED EMULSION POLYMERS, POLYMERS OBTAINED THEREBY, AND WATERBORNE COATING COMPOSITIONS CONTAINING THE POLYMERS

Sunitha Grandhee, Novi, Mich., assignor to BASF Corporation, Southfield, Mich.

Continuation-in-part of Ser. No. 506,142, Jul. 24, 1995, abandoned, and Ser. No. 506,143, Jul. 24, 1995, Pat. No. 5,569,715. This application Jul. 26, 1996, Ser. No. 690,669

Int. Cl.^{6} C08F *283/00*

U.S. Cl. 525—7 **34 Claims**

1. A process for emulsion polymerization of hydrophobically modified emulsion polymers comprising the steps of

a) forming a mixture of hydrophobic polymer, α,β-ethylenically unsaturated monomers, surfactant and water, wherein the hydrophobic polymer is present in an amount of up to 60% by weight, based on the total weight of hydrophobic polymer and monomers used in the mixture,

b) subjecting the mixture formed in a) to high stress techniques to form surfactant stabilized particles of the hydrophobic polymer and monomers, in the aqueous phase,

c) co-polymerizing the α,β-ethylenically unsaturated groups within the particles to form a hydrophobically modified core polymer,

d) adding to the polymer formed in step c) α,β-ethylenically unsaturated monomers including at least one hydrophilic α,β-ethylenically unsaturated monomer, and co-polymerizing the monomers to form a hydrophilic shell polymer,

wherein the resultant polymer is a hydrophobically modified core-shell emulsion polymer.

5,786,421

METHOD OF PREVENTING FORMATION OF ADHESIONS FOLLOWING SURGERY

Woonza M. Rhee, Palo Alto; Prema R. Rao, Los Gatos; George H. Chu, Cupertino; Frank A. DeLustro, Belmont; Carol F. H. Harner, Redwood Shores; Naomi Sakai, San Mateo, and Jacqueline A. Schroeder, Redwood City, all of Calif., assignors to Cohesion Technologies, Inc., Palo Alto, Calif.

Division of Ser. No. 573,801, Dec. 18, 1995, which is a continuation-in-part of Ser. No. 476,825, Jun. 7, 1995, Pat. No. 5,614,587, which is a continuation-in-part of Ser. No. 147,227, Nov. 3, 1993, Pat. No. 5,565,519, which is a continuation-in-part of Ser. No. 922,541, Jul. 30, 1992, Pat. No. 5,328,955, which is a continuation-in-part of Ser. No. 433,441, Nov. 14, 1989, Pat. No. 5,162,430, which is a continuation-in-part of Ser. No. 274,071, Nov. 21, 1988, abandoned. This application May 6, 1997, Ser. No. 853,045

Int. Cl.^{6} A61F *13/00;* **A61B** *17/07*

U.S. Cl. 525—54.1 **14 Claims**

1. A method for preventing the formation of adhesions following surgery, comprising the steps of:

providing collagen and a multifunctionally activated synthetic hydrophilic polymer;

mixing the collagen and the synthetic polymer to initiate crosslinking between the collagen and the synthetic polymer,

applying the mixture of collagen and synthetic polymer to tissue comprising, surrounding, or adjacent to a surgical site before substantial crosslinking has occurred between the collagen and synthetic polymer, and

allowing the collagen and synthetic polymer to continue crosslinking in situ until equilibrium crosslinking has been achieved;

effecting closure of the surgical site.

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5,786,422

POLYPHENYLENE SULFIDE RESIN COMPOSITION

Yosinobu Mizutani; Takeo Asakawa; Hiroshi Inoue, and Toshikazu Kato, all of Mie-ken, Japan, assignors to Tosoh Corporation, Yamaguchi-Ken, Japan

Filed Feb. 10, 1992, Ser. No. 833,030

Claims priority, application Japan, Feb. 13, 1991, 3-040577; Jan. 21, 1992, 4-029025

Int. Cl.^{6} C08G *63/48*

U.S. Cl. 525—64 **17 Claims**

1. A polyphenylene sulfide resin composition which comprises

(A) 60–99.5% by weight of a thermally cured polyphenylene sulfide material having a melt viscosity of 500–30,000 poises and which has been derived, by thermally curing, from a polyphenylene sulfide having a melt viscosity of 400 poises or higher and containing 0.05–0.5% of amino groups on the basis of the phenylene sulfide repeating units, and

(B) 40–0.5% by weight of a modified polyethylene material comprising high-density polyethylene onto which at least one unsaturated carboxylic acid and/or derivative thereof is graft-copolymerized in a proportion of 0.1–10% by weight of the total weight of said modified polyethylene material.

5,786,423

POLYAMIDE RESIN COMPOSITION

Tatsuo Tsumiyama, and Satoru Nakamoto, both of Yamaguchi, Japan, assignors to UBE Industries, Ltd., Yamaguchi, Japan

Continuation of Ser. No. 635,132, Apr. 19, 1996, abandoned. This application Oct. 7, 1997, Ser. No. 947,285

Claims priority, application Japan, Apr. 21, 1995, 7-096668

Int. Cl.^{6} C08L *77/00*

U.S. Cl. 525—66 **10 Claims**

1. A polyamide resin composition comprising:

(A) from 50 to 92 parts by weight of a crystalline terpolymer polyamide produced from:

(a) an equimolar salt of hexamethylenediamine with adipic acid,

(b) an equimolar salt of hexamethylenediamine with terephthalic acid, and

(c) 12-aminododecanoic acid or ω-laurolactam;

(B) from 5 to 35 parts by weight of a modified polyolefin grafted with an α,β-unsaturated carboxylic acid or a derivative thereof or with an anhydride or a derivative thereof; and

(C) from 3 to 15 parts by weight of polyamide 12, with the total amount of said composition being 100 parts by weight.

5,786,424

BLENDS OF POLYCARBONATE AND LINEAR ETHYLENE POLYMERS

Frank M. Hofmeister, Richwood; Morgan M. Hughes, Angleton; Hani Farah, Sugarland, and Steve R. Ellebracht, Lake Jackson, all of Tex., assignors to The Dow Chemical Company, Midland, Mich.

Continuation of Ser. No. 419,070, Apr. 7, 1995, abandoned. This application Feb. 6, 1997, Ser. No. 795,900

Int. Cl.^{6} C08L *69/00*

U.S. Cl. 525—67 **26 Claims**

1. A composition of matter comprising, in admixture, (a) polycarbonate, and (b) a linear ethylene polymer which is a copolymer of ethylene with a C_3 to C_8 alpha-olefin wherein said linear ethylene polymer has:

(i) a density of less than 0.93 g/cm^3;

(ii) a molecular weight distribution, M_w/M_n, of less than about 3.0;

(iii) a Composition Distribution Branch Index of greater than about fifty percent; and

(iv) no lone chain branching.

5,786,425

PROCESS FOR PRODUCING BIOCOMPATIBLE POLYISOPRENE-POLYURETHANE INTERPENETRATING POLYMER NETWORK COMPOSITIONS FOR USE IN MEDICAL DEVICES AND THE LIKE

Leslie H. Sperling, Bethlehem; Clarence J. Murphy, Stroudsburg, and Vinay Mishra, Bethlehem, all of Pa., assignors to Schneider (USA) Inc, Plymouth, Minn.

Division of Ser. No. 197,030, Feb. 16, 1994, abandoned. This application Jun. 18, 1997, Ser. No. 878,167

Int. Cl.^{6} C08L *75/04;75/06;75/08*

U.S. Cl. 525—131 **15 Claims**

1. A process for producing a material which is a biocompatible elastomeric semi-interpenetrating polymer network of a polyurethane polymer and a polyisoprene polymer, said process comprising:

(a.) forming a mixture of:

(i.) a medical grade of a crystalline, physically crosslinked polyurethane polymer, which contains polyether elastomeric blocks alternating with urethane linkages or polyester elastomeric blocks alternating with urethane linkages, said polyurethane polymer having a variable amount of crystallinity, such that when said material is in a relaxed state, said polyurethane polymer is not fully crystalline and contains at least some non-physically crosslinked non-crystalline regions, and such that when said material is in a stretched or extended state, said polyurethane polymer is more crystalline than when said material is in said relaxed state, with said polyurethane polymer then containing a greater number of physically crosslinked crystalline regions, and further such that said amount of crystallinity of said polyurethane polymer is reversible as said material is alternated between said stretched or extended state and said relaxed state;

(ii.) a medical grade of linear, crystalline, chemically crosslinked polyisoprene polymer, said polyisoprene polymer having a variable amount of crystallinity, such that when said material is in a relaxed state, said polyisoprene polymer is crosslinked and is not fully crystalline, containing at least some non-crystalline regions, and such that when said material is in a stretched or extended state, said polyisoprene polymer is chemically crosslinked and is more crystalline than when said material is in said relaxed state, with said polyisoprene polymer then containing a greater number of chemically crosslinked crystalline regions, and further such that said amount of crystallization of said polyisoprene polymer is reversible as said material is alternated between said stretched or extended state and said relaxed state;

wherein both said polyurethane polymer and said polyisoprene polymer have morphologies such that they each exist in a co-continuous phase; and

(iii.) an effective amount of polymerization initiator sufficient to crosslink said polyisoprene polymer; and

(b.) compression-molding said mixture to form said semi-interpenetrating polymer network.

5,786,426

BIOCOMPATIBLE POLYISOPRENE-POLYURETHANE INTERPENETRATING POLYMER NETWORK COMPOSITIONS AND MEDICAL DEVICES MADE THEREFROM

Leslie H. Sperling, Bethlehem; Clarence J. Murphy, Stroudsburg, and Vinay Mishra, Bethlehem, all of Pa., assignors to Schneider (USA) Inc, Plymouth, Minn.

Continuation of Ser. No. 197,030, Feb. 16, 1994, abandoned. This application Jul. 14, 1997, Ser. No. 892,550

Int. Cl.^{6} C08L *75/04;75/06;75/08*

U.S. Cl. 525—131 **8 Claims**

1. A biocompatible material comprising a composition which is an elastomeric semi-interpenetrating polymer network composed of

a.) a medical grade of a crystalline, physically crosslinked polyurethane which contains polyether elastomeric blocks alternating with urethane linkages or polyester elastomeric blocks alternating with urethane linkages, said polyurethane having a variable amount of crystallinity, such that when said material is in a relaxed state, said polyurethane is not fully crystalline and contains at least some non-physically crosslinked non-crystalline regions, and such that when said material is in a stretched or extended state, said polyurethane is more crystalline than when said material is in said relaxed state, with said polyurethane then containing a greater number of physically crosslinked crystalline regions, and further such that said amount of crystallinity of said polyurethane is reversible as said material is alternated between said stretched or extended state and said relaxed state; and

(b.) a medical grade of linear, crystalline, chemically crosslinked cis-1,4 polyisoprene, said cis-1,4 polyisoprene having a variable amount of crystallinity, such that when said material is in a relaxed state, said cis-1,4 polyisoprene is chemically crosslinked and is not fully crystalline, and such that when said material is in a stretched or extended state, said cis-1,4 polyisoprene is chemically crosslinked and is more crystalline than when said material is in said relaxed state, with said cis-1,4 polyisoprene then containing a greater number of chemically crosslinked crystalline regions, and further such that said amount of crystallinity of said cis-1,4 polyisoprene is reversible as said material is alternated between said stretched or extended state and said relaxed state;

wherein both said polyurethane and said cis-1,4 polyisoprene have morphologies such that they each exist in a co-continuous phase; and

wherein said polyurethane and said cis-1,4 polyisoprene are present in a ratio of from about 1:99 to about 99:1, by weight, respectively.

5,786,427

HIGHLY RIGID PROPYLENIC RESIN AND BLOW MOLDED ARTICLE MADE THEREFROM

Masato Kijima; Masayuki Shinohara; Minoru Sugawara, and Koki Hirano, all of Ichihara, Japan, assignors to Idemitsu Petrochemical Co., Ltd., Tokyo, Japan

Continuation of Ser. No. 605,133, Mar. 13, 1996. This application Jun. 12, 1997, Ser. No. 873,454

Claims priority, application Japan, Jul. 15, 1994, 6-164111

Int. Cl.^{6} C08F *297/08*

U.S. Cl. 525—322 **7 Claims**

1. A rigid propylenic resin, wherein said resin has a melt index (MI) from 0.1 to 1.2 g/10 minutes determined at a temperature of 230° C. and a load of 2,160 g and satisfying a relationship between said melt index and the elongational viscosity (Y (Pa.s)), wherein said relationship is represented by the equation:

$$2.0\times10^5\times MI^{-0.68}\leqq Y\leqq 8.0\times10^5\times MI-0.68.$$

5,786,428

ADSORBENTS FOR AMINO ACID AND PEPTIDE SEPARATION

Frances H. Arnold, and Vidyasankar Sundaresan, both of Pasadena, Calif., assignors to California Institute of Technology, Pasadena, Calif.

Filed Mar. 27, 1996, Ser. No. 622,747

Int. Cl.^{6} C08F *12/08;112/08;212/08;20/10*

U.S. Cl. 525—333.3 **23 Claims**

1. An adsorbent which selectively binds to a target molecule which is an enantiomer of an optically active amino acid or peptide, said adsorbent comprising:

an imprinted polymer matrix comprising a porous polymer and a plurality of metal complexes, each of said metal complexes comprising a polymerizable moiety and a ligand moiety, said metal complexes being linked to said porous polymer via said polymerizable moiety during imprinting polymerization in the presence of said target molecule or analog thereof, wherein said imprinted polymer matrix selectively binds to said target molecule; and

a support structure having a surface, said imprinted polymer matrix being attached to said support structure as a coating thereon.

5,786,429

HIGHLY BRANCHED POLYAMIDOAMINES AND THEIR PREPARATION

Anthony J. Allen, Wilmington, Del., assignor to Hercules Incorporated, Wilmington, Del.

Filed Apr. 18, 1996, Ser. No. 634,226

Int. Cl.^{6} C08L *71/00;77/06*

U.S. Cl. 525—430 **40 Claims**

1. A nonthermosetting and endcapped intralinked polyamidoamine, being free or substantially free of reactive intralinker functionality, and comprising the reaction product of:

(a) endcapped polyamidoamine prepolymer having a DP_n of about 2 to about 50, being free or substantially free of amine and carboxyl end groups and comprising the reaction product of:

(i) at least one dicarboxylic acid or dicarboxylic acid derivative;

(ii) at least one polyamine; and

(iii) at least one endcapping agent comprising at least one member selected from the group consisting of monofunctional amines, monofunctional carboxylic acids, and monofunctional carboxylic acid esters; and

(b) at least one intralinker;

wherein the mole ratio of the at least one intralinker, to intralinker reactive amine groups in the endcapped polyamidoamine prepolymer, is between about 0.02 and 0.5; and wherein the endcapped polyamidoamine prepolymer comprises

alternating dicarboxylic acid and polyamine residues, and

amide endcaps lacking carboxyl and amine functionality.

5,786,430

THERMOSETTING, POWDER COATING COMPOSITIONS

Andreas Kaplan, Chur; Albert Reich, Trin, and Rene Gisler, Chur, all of Switzerland, assignors to EMS-Inventa AG, Zürich, Switzerland

Division of Ser. No. 590,291, Jan. 23, 1996, Pat. No. 5,710,221. This application Nov. 3, 1997, Ser. No. 962,800

Claims priority, application Germany, Jul. 12, 1995, 195 25 437.6

Int. Cl.^{6} C08F *20/00*

U.S. Cl. 525—437 **17 Claims**

1. A thermosetting, powder coating composition comprising the following components:

(A) at least one glycidic ether-containing copolyester, which is amorphous, semi-crystalline or a mixture of said amorphous and semi-crystalline copolyesters, said at least one glycidic ether-containing copolyester having a molecular weight (Mn) of 300 to 10,000 and being obtainable by reacting an epihaloalkane with a copolyester containing hydroxyl groups and wherein, said copolyester containing hydroxyl groups is amorphous, semi-crystalline or a mixture of said amorphous and semi-crystalline hydroxyl containing copolyesters;

(B) a curing agent selected from the group consisting of at least one aliphatic polybasic acid, cycloaliphatic polybasic acid, anhydride of said aliphatic polybasis acid, anhydride of said

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cycloaliphatic polybasic acid, polyol modified anhydride of a polybasic acid, amorphous or semi-crystalline carboxyl functional copolyester resin, carboxyl-functional acrylate resin, and a mixture thereof;

(C) optionally, at least one of a filler, a pigment, another additive, or a mixture thereof.

5,786,431

PROCESS FOR OLEFIN POLYMERIZATION

William K. Reagen, Stillwater, Minn.; Ted M. Pettijohn, Marshall, Tex.; Jeffrey W. Freeman, and Elizabeth A. Benham, both of Bartlesville, Okla., assignors to Phillips Petroleum Company, Bartlesville, Okla.

Division of Ser. No. 109,855, Aug. 20, 1993, Pat. No. 5,451,645, which is a continuation of Ser. No. 807,309, Dec. 13, 1991, abandoned, which is a continuation-in-part of Ser. No. 698,631, May 10, 1991, abandoned, which is a continuation-in-part of Ser. No. 393,354, Aug. 10, 1989, abandoned. This application Jun. 7, 1995, Ser. No. 478,126

Int. Cl.^{6} C08F *4/69*

U.S. Cl. 526—113 **30 Claims**

1. A process comprising polymerizing olefins in the presence of a polymerization catalyst and a cocatalyst wherein said cocatalyst is prepared by a process comprising forming a mixture of:

(a) a chromium compound selected from the group consisting of chromium salts having the formula CrX_n wherein "X" can be the same or different and is an organic or inorganic radical and "n" is an integer from 1 to 6, and chromium metal;

(b) a metal amide selected from the group consisting of alkali metal amide salts, alkaline earth metal amide salts, and mixtures thereof; and

(c) an ether;

wherein said cocatalyst is a trimerization or oligomerization catalyst system and wherein said cocatalyst is different from said polymerization catalyst system.

3. A process according to claim 1 wherein said polymerization catalyst is a titanium-containing catalyst.

5,786,432

METALLOCENES CONTAINING ARYL-SUBSTITUTED INDENYL DERIVATIVES AS LIGANDS, PROCESS FOR THEIR PREPARATION, AND THEIR USE AS CATALYSTS

Frank Küber, Oberursel; Bernd Bachmann, Eppstein/Taunus; Walter Spaleck, Liederbach/Taunus; Andreas Winter, Glashütten/Taunus, and Jürgen Rohrmann, Kelkheim (Taunus), all of Germany, assignors to Targor GmbH, Germany

Continuation of Ser. No. 83,816, Jun. 28, 1993, abandoned.

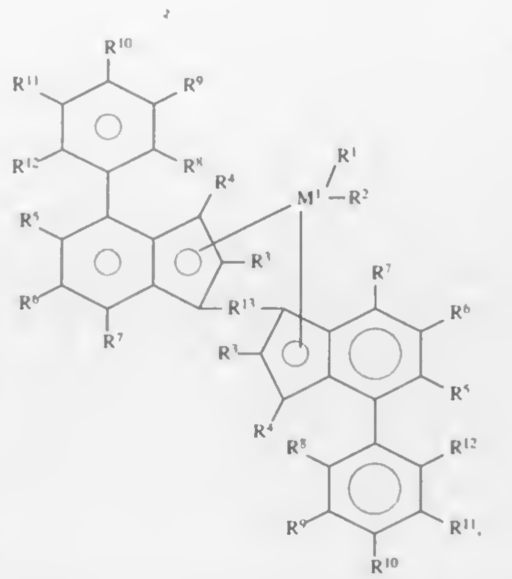
This application Jun. 7, 1995, Ser. No. 473,153

Claims priority, application Germany, Jun. 27, 1992, 42 21 244.8

Int. Cl.^{6} C08F *4/642*

U.S. Cl. 526—127 **5 Claims**

1. A process for the preparation of an olefin polymer by polymerization or copolymerization of an olefin of the formula $R^a—CH=CH—R^b$, in which R^a and R^b are identical or different and are a hydrogen atom or a hydrocarbon radical having 1 to 14 carbon atoms or R^a and R^b, together with the atoms connecting them can form one or more rings, in the presence of a catalyst formed from a metallocene as transition-metal compound and a cocatalyst, wherein the metallocene is a compound of the formula I



(I)

in which

M^1 is a metal from group IVb, Vb or VIb of the Periodic Table,

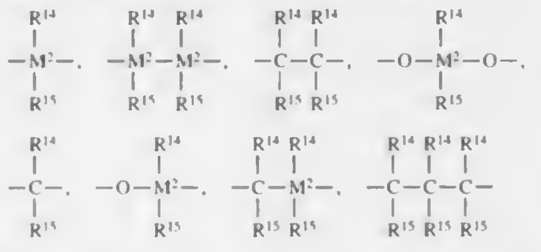
R^1 and R^2 are identical or different and are a hydrogen atom, a C_1–C_{10}-alkyl group, a C_1–C_{10}-alkoxy group a C_6–C_{10}-aryl group, a C_6–C_{10}-aryloxy group, a C_2–C_{10}-alkenyl group, a `C_7–C_{40}-arylalkyl group, a C_7–C_{40}-alkylaryl group, a C_8– C_{40}-arylalkenyl group, an OH group or a halogen atom,

the radicals R^3 are identical or different and are a hydrogen atom, a halogen atom, a C_1–C_{10}-alkyl group, which may be halogenated, a C_6–C_{10}-aryl group,

an $—NR^{16}_2$, $—SR^{16}$, $—OSiR^{16}_3$, $—SiR^{16}_3$ or $—PR^{16}_2$ radical, in which R^{16} is a halogen atom, a C_1–C_{10}-alkyl group or a C_6–C_{10}-aryl group,

the radicals R^8 are identical or different and are a C_1–C_{10}-alkyl group, a C_6–C_{10}-aryl group, an $—NR^{16}_2$, $—SR^{16}$, $—OSiR^{16}_3$, $—SiR^{16}_3$ or $—PR^{16}_2$ radical, in which R^{16} is a halogen atom, a C_1–C_{10}-alkyl group or a C_6–C_{10}-aryl group,

R^4 to R^7 and R^8 to R^{12} are identical or different and are hydrogen atom, a halogen atom, a C_1–C_{10}-alkyl group, which may be halogenated, a C_6–C_{10}-aryl group, an $—NR^{16}_2$, $—SR^{16}$, $—OSiR^{16}_3$, $—SiR^{16}_3$ or $—PR^{16}_2$ radical, in which R^{16} is a halogen a C_1–C_{10}-alkyl group or a C_6–C_{10}-aryl group, or adjacent radicals R^4 to R^{12}, together with the atoms connecting them, form one or more aromatic or aliphatic rings, or the radicals R^5 and R^8 or R^{12},together with the atoms connecting them, form an aromatic or aliphatic ring, R^{13} is



$$-\underset{R^{15}}{\overset{R^{14}}{M^2}}-,\quad -\underset{R^{15}}{\overset{R^{14}}{M^2}}-\underset{R^{15}}{\overset{R^{14}}{M^2}}-,\quad -\underset{R^{15}}{\overset{R^{14}}{C}}-\underset{R^{15}}{\overset{R^{14}}{C}}-,\quad -O-\underset{R^{15}}{\overset{R^{14}}{M^2}}-O-,$$

$$-\underset{R^{15}}{\overset{R^{14}}{C}}-,\quad -O-\underset{R^{15}}{\overset{R^{14}}{M^2}}-,\quad -\underset{R^{15}}{\overset{R^{14}}{C}}-\underset{R^{15}}{\overset{R^{14}}{M^2}}-,\quad -\underset{R^{15}}{\overset{R^{14}}{C}}-\underset{R^{15}}{\overset{R^{14}}{C}}-\underset{R^{15}}{\overset{R^{14}}{C}}-$$

$=BR^{14}$, $=AlR^{14}$, —Ge—, —O—, —S—, =SO, $=SO_2$, $=NR^{14}$, =CO, $=PR^{14}$ or $=P(O)\,R^{14}$,

where R^{14} and R^{15} are identical or different and are a hydrogen atom, a halogen atom, a C_1–C_{10}-alkyl group, a C_1–C_{10}-fluoroalkyl group, a C_1–C_{10}-alkoxy group, a C_6–C_{10}-aryl group, a C_6–C_{10}-fluoroaryl group, a C_6–C_{10}-aryloxy group, a C_2–C_{10}-alkenyl group, a C_7–C_{40}-arylalkyl group, a C_7–C_{40}-alkylaryl group or a C_8–C_{40}-arylalkenyl group, or R^{14} and R^{15}, in each case together with atoms connecting them, form one or more rings, and

M^2 is silicon, germanium or tin.

5,786,433

PROCESS FOR PRODUCING STYRENIC POLYMER

Norio Tomotsu, and Mizutomo Takeuchi, both of Ichihara, Japan, assignors to Idemitsu Kosan Co., Ltd., Tokyo, Japan

Continuation of Ser. No. 131,616, Oct. 5, 1993, abandoned.

This application Mar. 7, 1996, Ser. No. 612,077

Claims priority, application Japan, Oct. 8, 1992, 4-270228

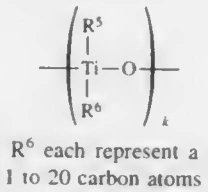
Int. Cl.^{6} C08F *4/642;12/08*

U.S. Cl. 526—153 **9 Claims**

1. A process for producing a styrenic polymer which comprises polymerizing at least one styrenic monomer by the use of a polymerization catalyst comprising in combination (A) a transition metal compound, (B) an aluminoxane, (C) a coordination complex compound comprising a cation and an anion in which a plurality of radicals are bonded to a metal and (D) an organoaluminum compound, and wherein said transition metal compound (A) is:

$$\mathrm{TiRXYZ} \tag{III}$$

wherein R represents a cyclopentadienyl group, a substituted cyclopentadienyl group or an indenyl group; X, Y, and Z, independently of one another, are a hydrogen atom, an alkyl group having 1 to 12 carbon atoms, an alkoxy group having 1 to 12 carbon atoms, an aryl group having 6 to 20 carbon atoms, an aryloxy group having 6 to 20 carbon atoms, an arylalkyl group having 6 to 20 carbon atoms or a halogen atom; or:

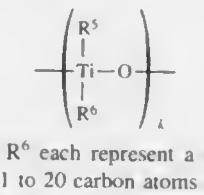


$$\left(-\underset{R^6}{\overset{R^5}{\mathrm{Ti}}}-\mathrm{O}-\right)_k \tag{IV}$$

wherein R^5 and R^6 each represent a halogen atom, an alkoxy group having 1 to 20 carbon atoms or an acyloxy group: and k is an integer from 2 to 20; and

wherein component (A) is present in an amount between 0.25 µmol and 0.5 µmol and component (B) is present in an amount of between 10 µmol and 100 µmol per 10 mL of styrenic monomer.

8. A catalyst for polymerizing a styrenic monomer into a syndiotactic polystyrene which comprises in combination (A) a transition metal compound, (B) an aluminoxane, (C) a coordination complex compound comprising a cation and an anion in which a plurality of radicals are bonded to a metal and (D) an organoaluminum compound, wherein said transition metal compound (A) is a compound of formula IV:



$$\left(-\underset{R^6}{\overset{R^5}{\mathrm{Ti}}}-\mathrm{O}-\right)_k \tag{IV}$$

wherein R^5 and R^6 each represent a halogen atom, an alkoxy group having 1 to 20 carbon atoms or an acyloxy group; and k is an integer from 2 to 20.

5,786,434

WATER-ABSORPTIVE SOFT CONTACT LENS MATERIAL AND CONTACT LENS MADE THEREOF

Ichiro Ando; Toru Kawaguchi, both of Nagoya; Shoji Ichinohe, and Toshio Yamazaki, both of Gunma-ken, all of Japan, assignors to Menicon Co., Ltd., Aichi-ken, Japan

Filed Sep. 10, 1996, Ser. No. 709,691

Claims priority, application Japan, Sep. 12, 1995, 7-233771

Int. Cl.^{6} C08F *226/06;230/08;220/56;220/18*

U.S. Cl. 526—264 **17 Claims**

1. A material suitable for the production of water-absorptive soft contact lenses comprising a copolymer prepared by the polymerization of the monomer mixture comprising (A) 15 to 40% by weight of an N, N-dialkyl acrylamide or methacrylamide, (B) 10 to 30% by weight of an N-vinyllactam, and (C) 30 to 70% by weight of a bis(silicon-containing alkyl) fumarate, wherein the ratio of said component (A) to said component (B) is from about 0.7 to about 1.6 by weight.

5,786,435

LOW SOLVENT COMPOSITION OF ALICYCLIC EPOXY OLIGOMER

Yoshiaki Marutani; Tadamitsu Nakahama; Shinji Sasaki; Hiroyuki Uemura; Kazuhi Koga; Takashi Tomita, and Mika Ohsawa, all of Hiroshima-Ken, Japan, assignors to Mazda Motor Corporation, Hiroshima, Japan

Continuation of Ser. No. 728,264, Oct. 8, 1996, abandoned, which is a contiouation of Ser. No. 331,598, Nov. 4, 1994, abandoned. This application Sep. 10, 1997, Ser. No. 926,995

Claims priority, application Japan, Mar. 19, 1993, 5-060401; Mar. 19, 1993, 5-060402

Int. Cl.^{6} C08F *120/32;* **C08K** *5/01;* **C08L** *33/14*

U.S. Cl. 526—273 **28 Claims**

1. A low solvent content resin composition comprising an acrylic oligomer or a polyester oligomer containing an alicyclic epoxy group in a molecule and having a number average molecular weight (Mn) of 300 to 2000, a weight average molecular weight (Mw) of 300 to 4000 and an Mw/Mn ratio of 1 to 2.5, the content of an organic solvent content of the composition being 0 to 40%.

5,786,436

METHODS OF PREPARING INORGANIC PIGMENT DISPERSIONS

Stephen A. Fischer, Yardley; Michael S. Wiggins, Lansdale, and Bruce Matta, Emmaus, all of Pa., assignors to Henkel Corporation, Plymouth Meeting, Pa.

Continuation of Ser. No. 670,965, Jun. 26, 1996, abandoned.

This application Jul. 11, 1997, Ser. No. 893,445

Int. Cl.^{6} C08F *226/02*

U.S. Cl. 526—307.6 **57 Claims**

1. A polymer useful as an inorganic pigment dispersant, said polymer being derived from monomers consisting essentially of an ethylenically unsaturated aromatic monomer, an ethylenically unsaturated acid monomer, and at least about 1 wt. % of an ethylenically unsaturated amide monomer, wherein the amount of said ethylenically unsaturated acid monomer is at least about 30 wt. % which is sufficient to permit said polymer to associate with an inorganic pigment in an aqueous medium in a manner which disperses said inorganic pigment in said aqueous medium to form a stable aqueous dispersion of said inorganic pigment, and wherein the amount of said ethylenically unsaturated aromatic monomer is sufficient to reduce the water sensitivity of a dried coating of a latex paint comprised of said stable aqueous dispersion of said inorganic pigment.

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5,786,437

ONE-STEP SEALANT BASED ON ELECTRONEGATIVELY SUBSTITUTED PHENOLIC BLOCKING AGENTS AND ALIPHATIC ISOCYANATES PROVIDING FAST CURES AND IMPROVED STABILITY

Paul Peter Nicholas, Broadview Heights, Ohio, assignor to Tremco Incorporated, Beachwood, Ohio

Division of Ser. No. 280,036, Jul. 25, 1994, abandoned, which is a continuation-in-part of Ser. No. 44,856, Apr. 8, 1993, abandoned. This application Jan. 31, 1997, Ser. No. 792,020

Int. Cl.^{6} C08G *18/80*

U.S. Cl. 528—45 **16 Claims**

1. A composition comprising a moisture-curable sealant, curable at ambient temperature, said sealant consisting essentially of (a) an aliphatic polyisocyanate-terminated polyol having a molecular weight in the range from 1,000 to 18,000, wherein isocyanate groups are blocked with phenol groups each having a substituent producing an electron-withdrawing effect quantified by a Hammett constant α_p in the range from >0.24 to about 0.73; and (b) a sufficient amount of a multifunctional imine curative to generate a multifunctional amine which displaces said phenol groups during chain extension and crosslinking in the presence of said moisture; whereby said moisture-curable sealant, when exposed to atmospheric moisture, is cured to a viscosity of 100,000 cp in less than one-half the time required for an aromatic polyisocyanate-terminated polyol having a molecular weight in the range from 1,000 to 18,000, wherein isocyanate groups are blocked with nonyl phenol; and, when sealed under an inert gas in a container at 25° C. in an atmosphere having 50% relative humidity, has a shelf life of at least nine months.

5,786,438

MIXTURES OF CYCLOALIPHATIC DIISOCYANATES, A PROCESS FOR THEIR PREPARATION AND THEIR USE FOR THE PRODUCTION OF POLYISOCYANATE ADDITION PRODUCTS

Hans-Joachim Scholl; Bernhard Jansen, both of Köln; Klaus Jost, Dormagen, and Rolf-Volker Meyer, Leverkusen, all of Germany, assignors to Bayer Aktiengesellschaft, Leverkusen, Germany

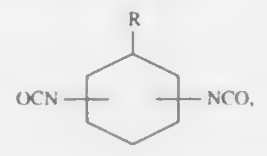
Filed Mar. 31, 1997, Ser. No. 831,448

Claims priority, application Germany, Apr. 11, 1996, 196 14 270.9

Int. Cl.^{6} C08G *18/75*

U.S. Cl. 528—67 **3 Claims**

1. A mixture of cycloaliphatic diisocyanates corresponding to formula (1)



(1)

wherein

R represents a saturated, linear, aliphatic hydrocarbon residue having 8 to 15 carbon atoms.

5,786,439

HYDROPHILIC, SWELLABLE COATINGS FOR BIOSENSORS

William Peter Van Antwerp, Valencia; Christian C. Decker, Beverly Hills, and John J. Mastrototaro, Los Angeles, all of Calif., assignors to MiniMed Inc., Sylmar, Calif.

Filed Oct. 24, 1996, Ser. No. 749,754

Int. Cl.^{6} C08G *18/72;* **B05D** *3/00*

U.S. Cl. 528—77 **15 Claims**

1. A method of reducing electrode impedance of an implantable biosensor comprising coating said biosensor with a hydrogel, wherein said hydrogel is formed from a reaction mixture of:

(a) a diisocyanate, said diisocyanate comprising about 50 mol % of the reactants in said mixture;

(b) a hydrophilic polymer which is a member selected from the group consisting of a hydrophilic polymer diol, a hydrophilic polymer diamine and combinations thereof; and optionally;

(c) a chain extender, said hydrogel having a water pickup of from about 120% to about 400% by weight.

5,786,440

MIXTURES OF CYCLIC OLIGOCARBONATES AND THEIR MANUFACTURE

Burkhard Köhler, Leverkusen; Duane B. Priddy, Jr., Krefeld; Yun Chen, Krefeld; Harald Pielartzik, Krefeld, and Robert-Joseph Kumpf, Düsseldorf, all of Germany, assignors to Bayer Aktiengesellschaft, Leverkusen, Germany, and Bayer Corporation, Pittsburgh, Pa.

Filed Nov. 24, 1997, Ser. No. 977,006

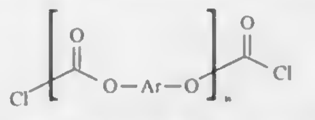
Claims priority, application Germany, Dec. 11, 1996, 196 51 445.2

Int. Cl.^{6} C08G *64/00*

U.S. Cl. 528—196 **7 Claims**

1. A process for the manufacture of cyclic oligocarbonate comprising a reaction of

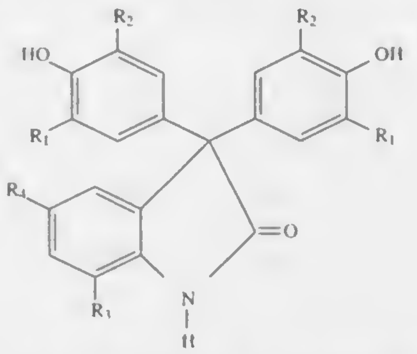
(a) bis-chlorocarbonic acid ester of the formula



V

where Ar is a C_{6-30}-difunctional aromatic residue of a dihydroxy compound and w is an integer of 1 to 4, with

(b) isatinbisphenols of the formula



VI

or with a bis-chlorocarbonic ester of said isatinbisphenol, where R_1, R_2, R_3, and R_4 independently denote hydrogen, halogen or a C_{1-4}-alkyl group.

5,786,441

POLYMERS, ELASTOMERIC COMPOUNDS AND PRODUCTS THEREOF, DERIVED FROM NOVEL AMINE COMPOUNDS CONTAINING SIDE-CHAIN ORGANOLITHIUM MOIETIES

David F. Lawson, Uniontown; William L. Hergenrother, Akron, and Michael L. Kerns, Elyria, all of Ohio, assignors to Bridgestone Corporation, Tokyo, Japan

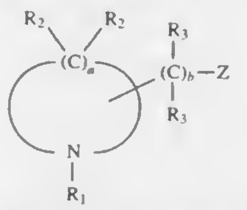
Filed Dec. 31, 1996, Ser. No. 777,656

Int. Cl.^{6} C08G *12/00;* **C08F** *293/00*

U.S. Cl. 528—229 **25 Claims**

1. A functionalized polymer comprising:

a polymer, having at least one cyclic amine end group, defined according to formula (I)



(I)

where Z is an anionically-polymerized polymer; R_1 is selected from the group consisting of organic groups containing from 1 to about 12 carbon atoms and a bridging bond; each R_2 is independently selected from the group consisting of hydrogen, organic groups containing from 1 to about 12 carbon atoms, and a bridging bond; each R_3 is independently selected from the group consisting of hydrogen and organic groups containing from 1 to about 12 carbon atoms; a is an integer from 4 to about 16; and b is an integer from 0 to about 12; and optionally including a bridge, formed by the selection of two of said bridging bonds, the bridge having 0 to about 6 carbon atoms between the bridging ring members.

5,786,442

POLYESTER MIXTURE, ITS PREPARATION AND USE

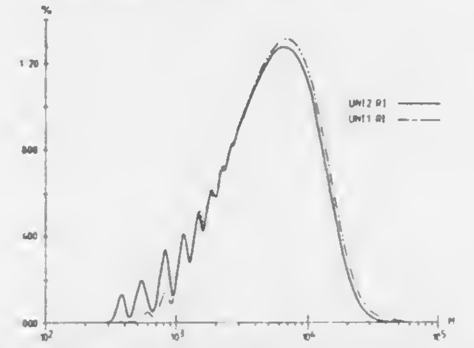
Johan Harmsen, Gouda, Netherlands, assignor to Unilever Patent Holdings B.V., Rotterdam, Netherlands

Filed Oct. 23, 1990, Ser. No. 601,130

Claims priority, application Netherlands, Oct. 23, 1989, 8902625

Int. Cl.^{6} C08G *63/54*

U.S. Cl. 528—295.3 **7 Claims**



1. A polyester mixture useful as a plasticizer, said polyester mixture consisting essentially of the reaction product of equivalent amounts of:

a) at least one C_2–C_7 diol,

b) at least one dicarboxylic acid selected from the group consisting of adipic acid, sebacic acid, azelaic acid, phthalic acid, isophthalic acid and terephthalic acid, together with at least one dimer acid selected from the group consisting of the C_{36} to C_{44} dimers of an unsaturated fatty acid, and

c) a monofunctional C_4–C_{20} compound acting as a chain stopper,

said polyester mixture having an acid value of less than 5, a hydroxyl value of less than 35 and an average number molecular weight between 1500 and 10,000, and containing less than 3 wt. % of compounds with a molecular weight of up to 800.

5,786,443

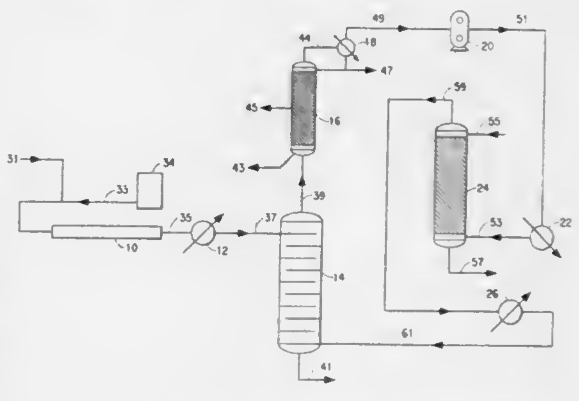
PROCESS OF MAKING POLYESTER PREPOLYMER

David James Lowe, Wilmington, Del., assignor to E. I. du Pont de Nemours and Company, Wilmington, Del.

Filed Dec. 12, 1996, Ser. No. 764,370

Int. Cl.^{6} C08G *63/02*

U.S. Cl. 528—272 **23 Claims**



1. A continuous process for preparing polyester prepolymer comprising the steps of:

(a) esterifying a diacid, chosen from aliphatic or aromatic diacids having a molecular weight less than 300 with an diol, chosen from aliphatic and cycloaliphatic diols having a molecular weight less than 400, in an esterification reactor to form an esterified material having a carboxyl content of about 400 to about 1200 meq/kg and a degree of polymerization of about 2 to about 15;

(b) incorporating diol into the esterified material by continuously feeding the esterified material to a diol-incorporation reactor wherein the pressure ranges from about 24.7 psia to 189.7 psia (170 kPa to 1310 kPa) and the temperature ranges from about 200° C. to about 350° C. and wherein the diol is fed to the diol-incorporation reactor at a flowrate ranging from about 0.5% to about 15% of the flowrate of the esterified material, and allowing the diol and esterified material to react for at least 15 seconds in the diol-incorporation reactor to obtain a reaction product having a degree of polymerization ranging from about 2 to about 7 and a carboxyl content of about 25 to about 300 meq/kg lower than the esterified material entering the diol-incorporation reactor;

(c) continuously passing the reaction product through a heated, pressure-reducing device, thereby allowing diol and other volatile condensation products to flash off;

(d) continuously passing the reaction product into a top portion of a column reactor containing about 2 to about 50 plates, while countercurrently and continuously feeding into a bottom portion of the column reactor a stream of predominantly inert gas at a flowrate of about 0.02 to about 0.75 (kg inert gas)/(kg bottoms product), wherein the minimum temperature of the inert gas as it enters the column reactor is greater than about 5° C. above the freezing point of the prepolymer removed from the bottom of the column reactor and the flowrate of the reaction product is such that it has a residence time in the column reactor of at least about 2 minutes;

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(e) withdrawing a gas stream from the top of the column reactor and removing water, diol, low-molecular-weight solids and degradation reaction products from the gas stream;

(f) collecting, from the bottom of the column reactor, polyester having a lower carboxyl content and a higher degree of polymerization than the esterified material from the esterification reaction, whereby the carboxyl content is in the range of about 25 to about 800 meq/kg lower than the esterified material entering the diol-incorporation reactor and the degree of polymerization is in the range of about 10 to about 30.

5,786,444

TREATING METHOD FOR IMPROVING THE STRENGTH OF MOLDED PRODUCTS OF A THERMOSETTING RESIN

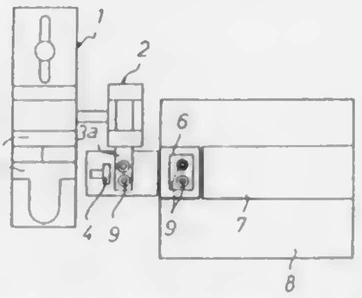
Kiyotaka Shimajiri; Shozo Honda, and Hiroshi Mizoguchi, all of Toyama-ken, Japan, assignors to Sanko Gosei Kabushiki Kaisha, Toyama-ken, Japan

Continuation of Ser. No. 375,807, Jan. 19, 1995, abandoned. This application Feb. 25, 1997, Ser. No. 805,738

Claims priority, application Japan, Oct. 7, 1994, 6-281124

Int. Cl.⁶ C08F *6/00;* **C08G** *3/00*

U.S. Cl. 528—503 **13 Claims**



1. A method for improving the strength of a product molded from thermosetting resin, said method comprising the steps of:

forming a molded product from thermosetting resin in a mold of an injection molding machine;

removing said newly molded product from the mold; and

cooling said molded product by contacting said molded product with a cooling fluid before said molded product substantially cools so that said molded product is quickly cooled, and is thereby increased in strength.

5,786,445

PROCESS FOR DRYING POLYMERIC POWDERS AND POLYMERIC AGGLOMERATES

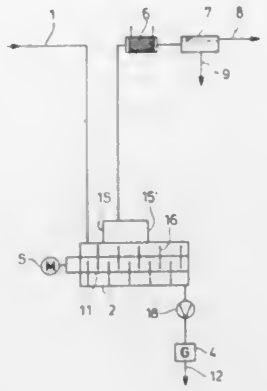
Claus Wulff, Krefeld; Gottfried Zaby, Leverkusen; Thomas Bamberger, Duisburg; Klemens Kohlgrüber, Kürten; Hugo Obermann, Dormagen, all of Germany; Stefaan De Vos, Gravenwezel, Belgium; Gabriel Denecker, Heide-Kalmthout, Belgium; Johan Vaes, Kalmthout, Belgium, and Tony Van Osselaer, Beisele, Belgium, assignors to Bayer Aktiengesellschaft, Germany

Filed Oct. 2, 1996, Ser. No. 724,931

Claims priority, application Germany, Oct. 5, 1995, 195 37 114.3

Int. Cl.⁶ C08F *6/00*

U.S. Cl. 528—500 **10 Claims**



1. A process for drying thermoplastic polymeric powders or polymeric agglomerates, in particular polycarbonate, polyester carbonate, polyalkylene terephthalate, EPDM polymer, polystyrene or polystyrene copolymers or graft copolymers, in the melt, whereby the polymeric powders or polymeric agglomerates which are moist from water or solvent, or moist from water and solvent, and have a water content of from 1 to 50 wt. %, referred to the moist polymeric powder, and a content of solvent and accompanying substances of up to 70 wt. %, optionally after a steam stripping for the removal of organic solvents and accompanying substances volatile in steam, are dried, accompanied by melting of the polymer, in a drying and mixing apparatus, characterised in that a mixer is used which is provided with rotating baffles for the mechanical cleaning of the walls of the apparatus and for the transport of material, with the thermoplastic polymer being dried as a result of the heating of the casing or the heating of the rotating baffles or the heating of the casing and the rotating baffles and as a result of the shearing action caused by the baffles moving in the material to be dried, with simultaneous melting of the polymer,

and the temperature for the heating of the apparatus walls and of the baffles is from 150° to 400° C.,

that the drying taking place at an internal pressure of from 1 mbar to 5 bar,

the residence time is from 5 to 90 minutes,

that the integral energy input, as specific kneading energy referred to the discharged throughput, is from 0.01 to 1 kWh per kg of dried polymeric melt.

5,786,446

Patent Not Issued For This Number

5,786,447

OPIOID PEPTIDE ANALOGS

Peter Schiller, and Ralf Schmidt, both of Montreal, Canada, assignors to Astra AB, Sweden

PCT No. PCT/SE95/00462, § 371 Date May 31, 1995, § 102(e) Date May 31, 1995, PCT Pub. No. WO95/30694, PCT Pub. Date Nov. 16, 1995

PCT Filed Apr. 27, 1995, Ser. No. 448,472

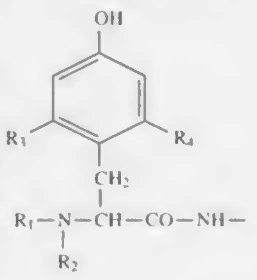
Claims priority, application Sweden, May 6, 1994, 9401596

Int. Cl.⁶ C07K *7/00*

U.S. Cl. 530—317 **14 Claims**

1. A compound of the formula (I)

(I)



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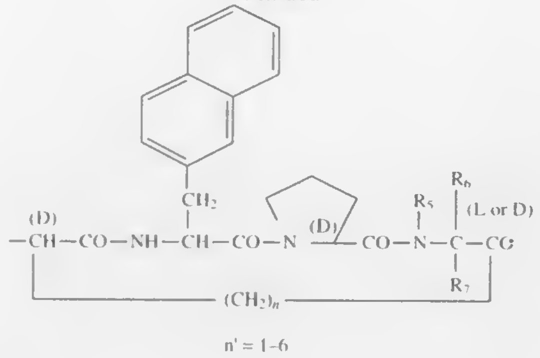
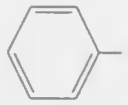
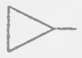


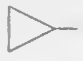
wherein

R1 is H, or $CH_3(CH_2)_{n^2}$—, wherein $n^2 = 0$–12, or


$—CH_2—(CH_2)_{n^3}—$ wherein $n^3 = 0$–5, or


$—CH_2(CH_2)_{n^4}—$, wherein $n^4 = 0$–5, or

$CH_2 = CH—CH_2—$, or arginine; R_2 is H, or $CH_3(CH_2)_{n_2}—$

wherein $n^2 = 0$–12, or

$—CH_2—$ or $CH_2{=}CH—CH_2—$.

R_3 and R_4 respectively, are both H or are both C_1–C_6 alkyl groups;

R_5 is H or a C_1–C_6 alkyl group;

R_6 is H or a C_1–C_6 alkyl group;

R_7 is H or a C_1–C_6 alkyl group;

with the exceptions of compounds wherein R_1, R_2, R_3, R_4, R_5, R_6 and R_7 are all H, and the number (n') of methylene groups in the 2-position side chain is 2,3 or 4.

5,786,448

COMBINATORIAL LIBRARIES OF CYCLIC UREA AND CYCLIC THIOUREA DERIVATIVES AND COMPOUNDS THEREIN

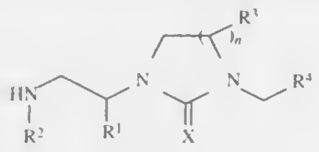
Adel Nefzi, San Diego; John M. Ostresh, Encinitas, and Richard Houghten, Del Mar, all of Calif., assignors to Trega Biosciences, Inc., San Diego, Calif.

Filed Nov. 7, 1996, Ser. No. 745,793

Int. Cl.⁶ A61K *38/12;* **C07D** *233/38*

U.S. Cl. 530—317 **49 Claims**

1. A library composition of matter, comprising a combinatorial library of two or more cyclic urea compounds of the structure:



wherein:

R^1 is selected from the groups consisting of a hydrogen atom, C_1 to C_{10} alkyl, C_1 to C_{10} substituted alkyl, C_7 to C_{16} phenylalkyl, C_7 to C_{16} substituted phenylalkyl, phenyl, substituted phenyl, C_3 to C_7 cycloalkyl, and C_3 to C_7 substituted cycloalkyl;

R^2 is selected from the group consisting of C_1 to C_{10} alkyl, C_2 to C_{10} alkenyl, benzyl, substituted benzyl, naphthylmethyl, and substituted naphthylmethyl;

R^3 is selected from the group consisting of a hydrogen atom, C_1 to C_{10} alkyl; C_1 to C_{10} substituted alkyl, C_7 to C_{16} phenylalkyl, C_7 to C_{16} substituted phenylalkyl, phenyl, substituted phenyl, C_3 to C_7 cycloalkyl, and C_3 to C_7 substituted cycloalkyl;

R^4 is selected from the group consisting of C_1 to C_{10} alkyl, C_2 to C_{10} alkenyl, C_1 to C_{10} substituted alkyl, C_3 to C_7 substituted cycloalkyl, C_7 to C_{16} phenylalkyl, C_7 to C_{16} substituted phenylalkyl, C_7 to C_{16} phenylalkenyl and C_7 to C_{16} substituted phenylalkenyl;

X is selected from the group consisting of an oxygen atom(O) and a sulfur atom(S); and

n is one or two.

5,786,449

STREPTOGRAMIN DERIVATIVES, THEIR PREPARATION AND PHARMACEUTICAL COMPOSITIONS WHICH CONTAIN THEM

Jean-Claude Barriere, Bures-sur-Yvette; Jean-Marc Paris, Vaires-sur-Marne, and Gérard Puchault, Marcilly, all of France, assignors to Rhone-Poulenc Rorer S.A., Antony Cedex, France

PCT No. PCT/FR95/01025, § 371 Date Jan. 31, 1997, § 102(e) Date Jan. 31, 1997, PCT Pub. No. WO96/04299, PCT Pub. Date Feb. 15, 1996

PCT Filed Jul. 31, 1995, Ser. No. 776,665

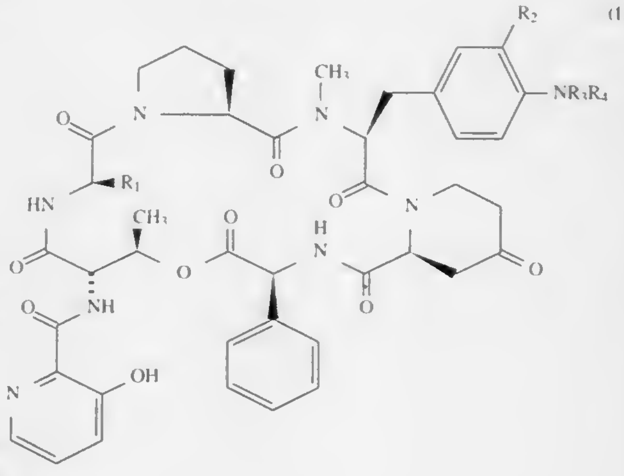
Claims priority, application France, Aug. 2, 1994, 94 09563

Int. Cl.⁶ A61K *38/12;* **C07K** *5/00;7/00;17/00*

U.S. Cl. 530—317 **4 Claims**

1. A streptogramin derivative of formula (I):

(I)



in which

R_1 denotes a methyl or ethyl radical;

R_2 denotes a chlorine or bromine atom, or, when R_3 and R_4 are both methyl radicals, R_2 denotes an alkenyl radical containing 3 to 5 carbon atoms; and

R_3 and R_4 are selected such that one of R_3 and R_4 denotes a hydrogen atom or a methyl radical and the other denotes a methyl radical.

5,786,450

Patent Not Issued For This Number

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5,786,451
23 KD HUMAN RETINAL CAR ANTIGEN

Charles E. Thirkill, Davis, Calif., assignor to The Regents of the University of California, Oakland, Calif.

Continuation of Ser. No. 343,827, Nov. 22, 1994, abandoned, which is a continuation of Ser. No. 874,843, Apr. 28, 1992, abandoned. This application Mar. 18, 1997, Ser. No. 820,051

Int. Cl.^{6} C07K *14/435;* **C12N** *15/09*

U.S. Cl. 530—350 **2 Claims**

1. A substantially homogeneous, isolated polypeptide comprising the amino acid sequence as set forth in SEQ ID NO: 1.

5,786,452

Patent Not Issued For This Number

5,786,453
CDNA OF DOCK 180 GENE AND DOCK180 PROTEIN

Michiyuki Matsuda, and Takeshi Kurata, both of Tokyo, Japan, assignors to Research Development Corporation of Japan, Japan

Division of Ser. No. 588,985, Jan. 19, 1996. This application Nov. 17, 1997, Ser. No. 971,988

Claims priority, application Japan, Jan. 19, 1995, 7-006775

Int. Cl.^{6} C07K *16/00*

U.S. Cl. 530—387.1 **9 Claims**

1. An antibody which specifically binds to a DOCK180 protein, which antibody is prepared by using a DOCK180 protein having an amino acid sequence according to SEQ ID No: 2 as an antigen.

5,786,454
MODIFIED SH2 DOMAINS

Gabriel Waksman, University City, and Andrey Shaw, St. Louis, both of Mo., assignors to Washington University School of Medicine, St. Louis, Mo.

Filed Sep. 16, 1994, Ser. No. 308,086

Int. Cl.^{6} C07K *14/00;14/82*

U.S. Cl. 530—402 **19 Claims**

1. A modified SH2 domain comprising a binding site for a signal transduction protein wherein the amino acid corresponding to Ser177 in the src SH2 domain is replaced or modified such that the binding site reacts with a phosphorylated amino acid of the signal transduction protein and the modified SH2 domain is not an abl SH2 domain.

5,786,455

Patent Not Issued For This Number

5,786,456
BP 50-SPECIFIC ANTIBODIES AND FRAGMENTS THEREOF

Jeffrey A. Ledbetter, and Edward A. Clark, both of Seattle, Wash., assignors to Oncogen, Seattle, Wash.

Division of Ser. No. 896,076, Jun. 2, 1992, Pat. No. 5,247,069, which is a division of Ser. No. 708,075, May 24, 1991, Pat. No. 5,182,368, which is a continuation of Ser. No. 873,884, Jun. 13, 1986, abandoned. This application Sep. 20, 1993, Ser. No. 123,772

Int. Cl.^{6} C07K *16/18;16/28;* **C12N** *5/12*

U.S. Cl. 530—388.73 **2 Claims**

1. A substantially pure antibody molecule or a fragment thereof that

(a) binds to Bp50, a 50 kilodalton B-cell surface antigen defined by monoclonal antibody G28-5, produced by a hybridoma cell line deposited with the ATCC having accession number HB9110; and

(b) upon binding to BP50 expressed on an activated B-cell, augments proliferation of the activated B-cell in a dose range of 0.1 to 0.5 ug/ml, as measured by in vitro [^{3}H]-thymdine uptake.

5,786,457
HORMONE-NUCLEASE COMPOUNDS AND METHOD FOR REGULATING HORMONE RELATED DISEASES

Torrance M. Nett, Ft. Collins; Leonard Michael Glode, Aurora, and Marat Karpeisky, Boulder, all of Colo., assignors to Colorado State University Research Foundation, Ft. Collins, Colo.

Continuation-in-part of Ser. No. 837,639, Feb. 14, 1992, Pat. No. 5,378,688, which is a continuation-in-part of Ser. No. 314,653, Feb. 23, 1989, abandoned, said Ser. No. 481,128 is a continuation-in-part of Ser. No. 88,434, Jul. 7, 1993, Ser. No. 94,250, Jul. 20, 1993, Pat. No. 5,492,893, and Ser. No. 94,625, Jul. 20, 1993, Pat. No. 5,488,036. This application Jun. 7, 1995, Ser. No. 481,128

Int. Cl.^{6} A61K *38/00;* **C07K** *5/00;7/00*

U.S. Cl. 530—402 **9 Claims**

1. A GnRH/nuclease conjugate comprising a peptide hormone capable of binding to a GnRH receptor, conjugated to a nuclease by a linking agent, said conjugate being capable of selectively binding to a cell presenting a GnRH receptor.

5,786,458
SELECTIVE STABILIZATION OF PROTEIN DURING VIRAL INACTIVATION

George A. Baumbach, Knightdale; David J. Hammond; John M. Lang, both of Raleigh, and Cynthia J. Galloway, Garner, all of N.C., assignors to Bayer Corporation, Berkeley, Calif.

Filed Jun. 28, 1996, Ser. No. 672,255

Int. Cl.^{6} C07K *3/00*

U.S. Cl. 530—412 **10 Claims**

1. A process for inactivating virus which may be present in an aqueous solution containing a free biologically active protein, wherein the process comprises the steps of

a) contacting the solution with an immobilized polypeptide which binds to the protein and which stabilizes the protein during viral inactivation, said contacting being done under conditions which allow protein to bind to the polypeptide, thereby resulting in a bound protein,

b) subjecting the bound protein to a viral inactivation treatment under conditions which result in less denaturation of the protein than if the treatment were performed on the free protein in solution, and

c) eluting the protein by washing, the bound protein of step b) under conditions which favor the release of protein into solution and under conditions in which the recovered protein substantially retains its biological activity.

5,786,459
TETRAZO DYESTUFFS

Frank-Michael Stöhr, and Peter Wild, both of Odenthal, Germany, assignors to Bayer Aktiengesellschaft, Leverkusen, Germany

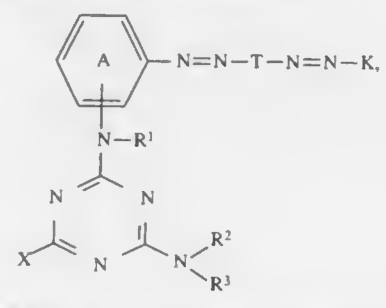
Filed Jul. 5, 1996, Ser. No. 676,021

Claims priority, application Germany, Jul. 14, 1995, 195 25 613.1; Aug. 17, 1995, 195 30 202.8

Int. Cl.^{6} C09B *35/031;35/233;* **C09D** *11/02;* **D06P** *1/04;1/39;1/41*

U.S. Cl. 534—797 **12 Claims**

1. A compound of the formula (I)



(I)

in which

T represents the radical of a tetrazo component,

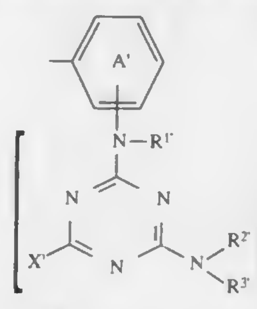
R^1 denotes hydrogen or substituted or unsubstituted C_1–C_4-alkyl,

R^2 and R^3 together with the N atom to which they are bonded form a saturated or unsaturated 3- to 8-membered ring containing no further heteroatoms or containing 1 or 2 further heteroatoms selected from the group consisting of O, S, SO, SO_2 and NR, where R is H or substituted or unsubstituted C_1–C_6-alkyl, which is unsubstituted or substituted by C_1–C_4-alkyl, C_1–C_4-alkoxy, C_1–C_4-hydroxyalkyl or C_1–C_4-aminoalkyl,

X represents NR^2R^3

ring A is unsubstituted or further substituted with one or more members of the group consisting of C_1–C_4-alkyl, C_1–C_4-alkoxy, halogen, OH, S—C_1–C_4-alkyl, NR^4R^5 wherein R^4 and R^5, independently of one another represent hydrogen, or C_1–C_4-alkyl which is unsubstituted or substituted by one or more water solubilizing groups selected from the group consisting of SO_3H, OSO_3H, and COOH; SO_3H, COOH, —NR^1COC_1–C_4-alkyl, NR^1COC_6–C_{10}-aryl, —NR^1—SO_2—C_1–C_4-alkyl, NR_1—SO_2—C_6–C_{10}-aryl, —NR^1CONH_2, —NR^1—$COCH_2OH$, NR^1COOC_1–C_4-alkyl and NR^2R^3 wherein the substituents for the substituted alkyl radicals in the definitions of R^1, $R^{1'}$ and R are selected from the group consisting of OH, C_1–C_4-alkoxy, Cl, F, Br, COOH, SO_3H, OSO_3H, NR^4R^5, R^4 and R^5 having the meanings given above, and combinations thereof.

K denotes a radical of the formula (II)



(II)

in which

m represents 1,

$R^{1'}$ denotes hydrogen or substituted or unsubstituted C_1–C_4-alkyl,

$R^{2'}$ and $R^{3'}$ together with the N atom to which they are bonded form a saturated or unsaturated 3- to 8-membered ring containing no further heteroatoms or containing 1 or 2 further heteroatoms selected from the group consisting of O, S, SO, SO_2 and NR, where R is H or unsubstituted or substituted C_1–C_4-alkyl, which is unsubstituted or substituted by C_1–C_4-alkyl, C_1–C_4-alkoxy, C_1–C_4-hydroxyalkyl or C_1–C_4-aminoalkyl,

X' represents $NR^{2'}R^{3'}$

ring A' is not further substituted or is further substituted with one or more members of the group consisting of C_1–C_4-alkyl, C_1–C_4-alkoxy, halogen, OH, S—C_1–C_4-alkyl, NR^4R^5 wherein R^4 and R^5, independently of one another represent hydrogen, or C_1–C_4-alkyl which is unsubstituted or substituted by one or more water solubilizing groups selected from the group consisting of SO_3H, OSO_3H, and COOH; SO_3H, COOH, —NR^1COC_1–C_4-alkyl, NR^1COC_6–C_{10}-aryl, —NR^1 —SO_2—C_1–C_4-alkyl, NR_1—SO_2—C_6–C_{10}-aryl, —NR^1CONH_2, —NR^1—$COCH_2OH$, NR^1COOC_1–C_4-alkyl and NR^2R^3

wherein the substituents for the substituted alkyl radicals in the definitions of R^1, $R^{1'}$ and R are selected from the group consisting of OH, C_1–C_4-alkoxy, Cl, F, Br, COOH, SO_3H, OSO_3H, NR^4R^5, R^4 and R^5 having the meanings given above, and combinations thereof.

5,786,460
ANTIFUNGAL ANTIBIOTIC CEPACIDINE A

Sung Ho Kim, Songpa-ku; Bong Chul Hyun, Ichun-kun; Jung Woo Suh; Chang One Kim, both of Yangchun-ku; Yoong Ho Lim, Suwon, and Chul Hoon Lee, Songpa-ku, all of Rep. of Korea, assignors to Cheil Foods & Chemicals, Inc., Seoul, Rep. of Korea

PCT No. PCT/KR94/00139, § 371 Date Jun. 18, 1996, § 102(e) Date Jun. 18, 1996, PCT Pub. No. WO95/11310, PCT Pub. Date Apr. 27, 1995

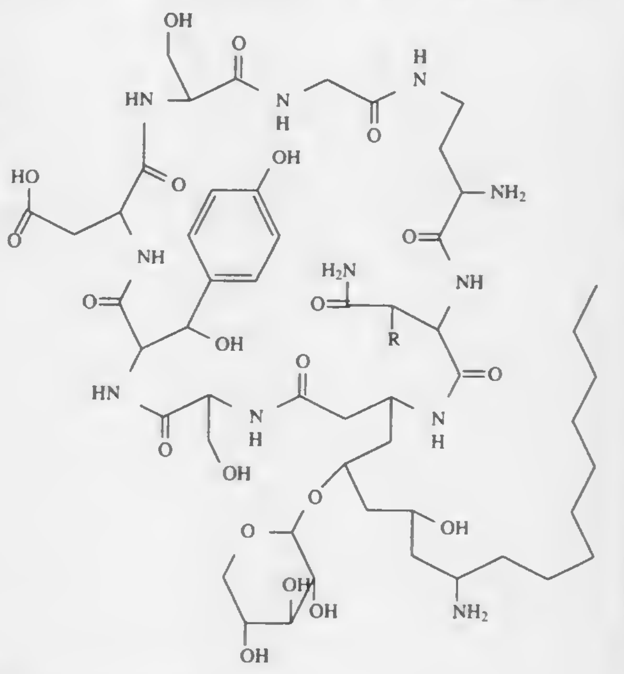
PCT Filed Oct. 17, 1994, Ser. No. 632,458

Claims priority, application Rep. of Korea, Oct. 22, 1993, 93-22089; Oct. 22, 1993, 93-22090

Int. Cl.^{6} C07H *17/08;* **C12P** *19/60;* **C12N** *1/00*

U.S. Cl. 536—6.5 **3 Claims**

1. An antifungal compound having the following formula:



wherein R is H or OH.

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5,786,461
PEPTIDE NUCLEIC ACIDS HAVING AMINO ACID SIDE CHAINS

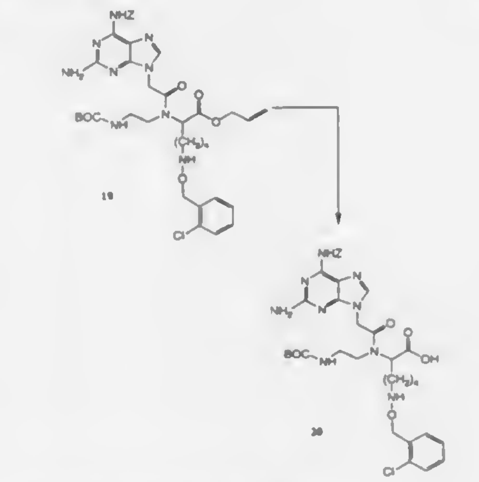
Ole Buchardt, deceased, late of Værløse, Denmark; Michael Egholm, 1231 Lexington Ridge Dr., Lexington, Mass. 02173; Peter Eigil Nielsen, Hjortevænget 509, 2980 Kokkedal, Denmark; Rolf Henrik Berg, Strandvaenget 6, DK 2960 Rungsted Kyst, Denmark, and Dorte Buchardt, Søondergårdsvej 73, 3500 Værløse, Denmark, legal representative of said Ole Buchardt, deceased

Division of Ser. No. 685,474, Jul. 24, 1996, which is a continuation-in-part of Ser. No. 108,591, Nov. 22, 1993. This application May 1, 1997, Ser. No. 847,095

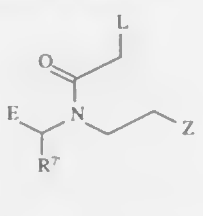
Claims priority, application Denmark, May 24, 1991, 0986/91; May 24, 1991, 0987/91; Apr. 15, 1992, 0510/92

Int. Cl.^{6} C07H *21/00;* **C07K** *5/00;* **C12Q** *1/68*

U.S. Cl. 536—18.7 **9 Claims**



1. A compound having the formula:



wherein:

L is selected from a group consisting of naturally-occurring nucleobases and non-naturally-occurring nucleobases;

R^7 is C_1–C_8 alkylamine;

E is COOH or an activated or protected derivative thereof; and

Z is NH_2 or NBPg, wherein Pg is an amine protecting group.

5,786,462
HIGH AFFINITY SSDNA LIGANDS OF HIV-1 REVERSE TRANSCRIPTASE

Daniel J. Schneider; Larry Gold, both of Boulder, Colo., and Juli Feigon, Los Angeles, Calif., assignors to NeXstar Pharmaceuticals, Inc., Boulder, Colo.

Continuation of Ser. No. 238,863, May 6, 1994, Pat. No. 5,503,978, which is a continuation-in-part of Ser. No. 714,131, Jun. 10, 1991, Pat. No. 5,475,096, which is a continuation-in-part of Ser. No. 536,428, Jun. 11, 1990, abandoned, and Ser. No. 964,624, Oct. 21, 1992, Pat. No. 5,496,938. This application May 17, 1995, Ser. No. 443,407

Int. Cl.^{6} C07H *21/04;* **C12Q** *1/68;* **C12P** *19/34*

U.S. Cl. 536—23.1 **1 Claim**

1. A purified and isolated non-naturally occurring DNA ligand to HIV-1 reverse transcriptase wherein said ligand is selected from the group consisting of the sequences set forth in SEQ ID NOS: 6–72 and 76–94.

5,786,463
MULTIPLE DRUG RESISTANCE GENE OF *CRYPTOCOCCUS NEOFORMANS*

Robert Brown Peery, Brownsburg; Paul Luther Skatrud, and Susan Jane Thornewell, both of Indianapolis, all of Ind., assignors to Eli Lilly and Company, Indianapolis, Ind.

Filed Mar. 8, 1996, Ser. No. 612,521

Int. Cl.^{6} C07H *21/04;* **C12P** *21/02;* **C12N** *5/10*

U.S. Cl. 536—23.1 **11 Claims**

1. A DNA compound that comprises an isolated DNA sequence encoding SEQ ID NO: 2.

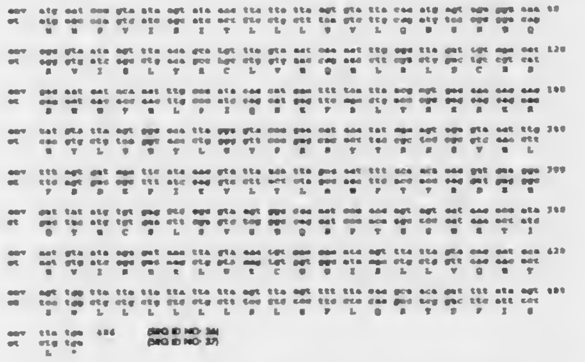
5,786,464
OVEREXPRESSION OF MAMMALIAN AND VIRAL PROTEINS

Brian Seed, Boston, Mass., assignor to The General Hospital Corporation, Boston, Mass.

Filed Sep. 19, 1994, Ser. No. 324,243

Int. Cl.^{6} C12N *15/11;15/12;15/48;* **C12P** *19/34*

U.S. Cl. 536—23.5 **18 Claims**



1. A synthetic gene encoding a protein normally expressed in mammalian cells wherein at least one non-preferred or less preferred codon in the natural gene encoding said protein has been replaced by a preferred codon encoding the same amino acid, said preferred codons being selected from the group consisting of gcc, cgc, aac, gac, tgc, cag, ggc, cac, atc, ctg, aag, ccc, ttc, agc, acc, tac, and gtg, said less preferred codons being selected from the group consisting of ggg, att, ctc, tcc, and gtc, said non-preferred codons being all codons other than said preferred codons and said less preferred codons, wherein said synthetic gene permits the expression of said protein in a mammalian host cell at a level which is at least 110% of that expressed by said natural gene in an in vitro mammalian cell culture system under identical conditions.

5,786,465
SECRETED PROTEINS AND POLYNUCLEOTIDES ENCODING THEM

Kenneth Jacobs, Newton; John M. McCoy, Reading; Edward R. LaVallie, Tewksbury; Lisa A. Racie; David Merberg, both of Acton; Maurice Treacy, Chestnut Hill, and Vikki Spaulding, Billerica, all of Mass., assignors to Genetics Institute, Inc., Cambridge, Mass.

Continuation-in-part of Ser. No. 686,878, Jul. 26, 1996. This application Sep. 27, 1996, Ser. No. 721,489

Int. Cl.^{6} C12N *15/12;15/10;5/10;* **C07K** *14/435*

U.S. Cl. 536—23.5 **20 Claims**

1. An isolated polynucleotide selected from the group consisting of:

(a) a polynucleotide comprising the nucleotide sequence of SEQ ID NO:2;

(b) a polynucleotide comprising the nucleotide sequence of SEQ ID NO:2 from nucleotide 342 to nucleotide 542;

(c) a polynucleotide comprising the nucleotide sequence of SEQ ID NO:2 from nucleotide 402 to nucleotide 542;

(d) a polynucleotide comprising the nucleotide sequence of the full length protein coding sequence of clone AJ172_2 deposited under accession number ATCC 98115;

(e) a polynucleotide encoding the full length protein encoded by the cDNA insert of clone AJ172_2 deposited under accession number ATCC 98115;

(f) a polynucleotide comprising the nucleotide sequence of the mature protein coding sequence of clone AJ172_2 deposited under accession number ATCC 98115;

(g) a polynucleotide encoding the mature protein encoded by the cDNA insert of clone AJ172_2 deposited under accession number ATCC 98115;

(h) a polynucleotide encoding a protein comprising the amino acid sequence of SEQ ID NO:3;

(i) a polynucleotide encoding a protein comprising a fragment of the amino acid sequence of SEQ ID NO:3 from amino acid 21 to amino acid 67; and

(j) a polynucleotide which is an allelic variant of a polynucleotide of (a)–(g) above.

5,786,466
METHOD FOR SCREENING AN EXPRESSION CDNA CLONE BANK FOR THE DETECTION OF POLYNUCLEOTIDES

Michael Breitenbach; Dietrich Kraft; Helmut Rumpold, all of Vienna; Otto Scheiner, Mariaenzersdorf; Heimo Breiteneder; Karin Pettenburger, both of Vienna, and Rudolf Valenta, Theresienfeld, all of Austria, assignors to Biomay Produktions-und Handelsgesellschaft m.b.H., Linz, Austria

Division of Ser. No. 255,127, Jun. 7, 1994, which is a continuation of Ser. No. 59,197, May 5, 1993, abandoned, which is a continuation of Ser. No. 353,844, May 18, 1989, abandoned. This application Jun. 6, 1995, Ser. No. 470,877

Claims priority, application Austria, Oct. 14, 1988, A2554/88

Int. Cl.^{6} C07H *21/04;* **C12N** *15/29;15/63;15/62*

U.S. Cl. 536—23.6 **17 Claims**

1. An isolated DNA molecule comprising nucleotides encoding the sequence:

Met-Gly-Val-Phe-Asn-Tyr-Glu-Thr-Glu-Thr-Thr-Ser-Val-Ile-Pro-Ala-Ala-Arg-Leu-Phe-Lys-Ala-Phe-Ile-Leu-Asp-Gly-Asp-Asn-Leu-Phe-Pro-Lys-Val-Ala-Pro-Gln-Ala-Ile-Ser-Ser-Val-Glu-Asn-Ile-Glu-Gly-Asn-Gly-Gly-Pro-Gly-Thr-Ile-Lys-Lys-Ile-Ser-Phe-Pro-Glu-Gly-Phe-Pro-Phe-Lys-Tyr-Val-Lys-Asp-Arg-Val-Asp-Glu-Val-Asp-His-Thr-Asn-Phe-Lys-Tyr-Asn-Tyr-Ser-Val-Ile-Glu-Gly-Gly-Pro-Ile-Gly-Asp-Thr-Leu-Glu-Lys-Ile-Ser-Asn-Glu-Ile-Lys-Ile-Val-Ala-Thr-Pro-Asp-Gly-Gly-Ser-Ile-Leu-Lys-Ile-Ser-Asn-Lys- Tyr-His-Thr-Lys-Gly-Asp-His-Glu-Val-Lys-Ala-Glu-Gln-Val-Lys-Ala-Ser-Lys-Glu-Met-Gly-Glu-Thr-Leu-Leu-Arg-Ala-Val-Glu-Ser-Tyr-Leu-Leu-Ala-His-Ser-Asp-Ala-Tyr-Asn.

5,786,467

Patent Not Issued For This Number

5,786,468
ANIONIC GLYCASUCCINAMIDE SURFACTANTS AND A PROCESS FOR THEIR MANUFACTURE

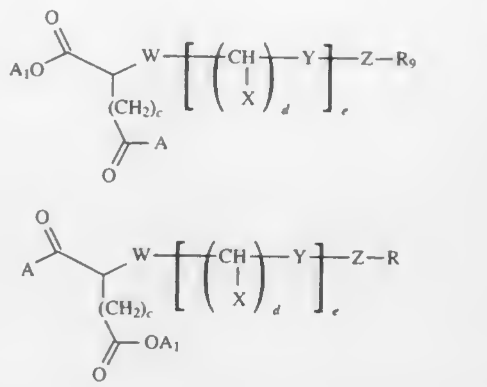
Van Au, New City, N.Y.; Robert Vermeer, Nutley, and Bijan Harichian, South Orange, both of N.J., assignors to Lever Brothers Company, Division of Conopco, Inc., New York, N.Y.

Division of Ser. No. 410,198, Mar. 24, 1995. This application Aug. 11, 1997, Ser. No. 909,374

Int. Cl.^{6} C07H *5/06;15/02;15/04;* **C11D** *3/22*

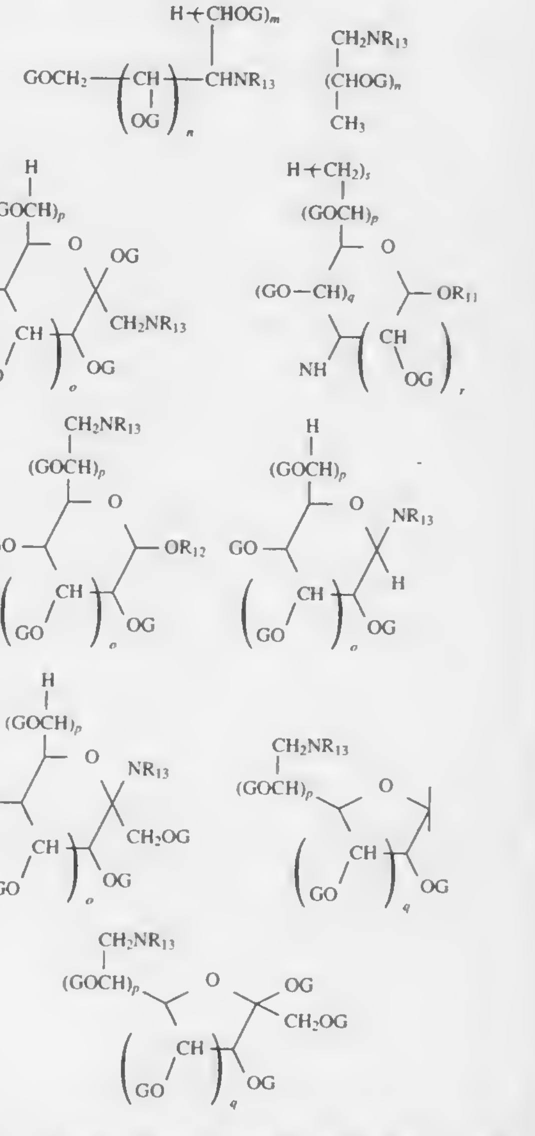
U.S. Cl. 536—29.1 **40 Claims**

1. An anionic alkyl- or alkenyl glycasuccinamide surfactant compound having the formulas:



(I)

wherein A is selected from the group consisting of the following structures which are attached to the succinate ring via the nitrogen (N) atom on said structures;



wherein A_1 is hydrogen (H), an alkali metal, alkaline earth metal, ammonium, alkyl substituted ammonium or mono-, di-, trialkanolammonium group having about 1 to about 6 carbon atoms;

wherein G is selected from the group consisting of hydrogen (H), SO_3M, PO_3M_2, $(CH_2CH_2O)_aH$, $(CH_2CHCH_3O)_bH$ or mono-, di-, oligo-, polysaccharide;

wherein M is selected from the group consisting of hydrogen (H), an alkali metal, alkaline earth metal, ammonium, alkyl

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substituted ammonium or mono-, di-, trialkanolammonium group having about 1 to about 5 carbon atoms;

wherein W is an oxygen atom (O);

wherein X is hydrogen (H), an alkyl group having about 1 to about 4 carbon atoms;

wherein Y is a NR_{10}, $+N(R_{10})_2$, O, S, SO, SO_2, COO, OOC, $CONR_{10}$ or $NR_{10}CO$ group;

wherein Z is a CH═CH or CH_2CH_2 group;

wherein R_9 is a straight or branched chain saturated or unsaturated hydrocarbon which may be unsubstituted or substituted with an aromatic or cycloaliphatic radical having about 1 to about 31 carbon atoms;

wherein R_{10} is hydrogen (H), a hydroxylalkyl group having about 1 to about 6 carbon atoms, a straight or branched chain, saturated or unsaturated hydrocarbon which may be unsubstituted or substituted with an aromatic or cycloaliphatic radical having about 1 to about 8 carbon atoms;

wherein R_{11} is hydrogen (H), alkyl, alkenyl or hydroxyalkyl group having about 1 to about 6 carbon atoms;

wherein R_{12} is hydrogen (H), alkyl, alkenyl or hydroxyalkyl group having about 1 to about 6 carbon atoms;

wherein R_{13} is hydrogen (H), a straight or branched chain saturated or unsaturated hydrocarbon which may be unsubstituted or substituted with a hydroxyl, polyhydroxyl, aromatic or cycloaliphatic radical having about 1 to about 31 carbon atoms;

wherein a=0–35; b=0–35; c=1–3; d=1–5; e=0–35; m=0–8; n=1–6; o=0–2; p=0–4; q=0–3; r=0–3; and s=0–1.

5,786,469

1-C-PERFLOUROALKYL GLYCOSIDES, PREPARATION PROCESS AND USES THEREOF

Sandrine Lavaire; Richard Plantier-Royon, both of Reims, and Charles Portella, Cormontreuil, all of France, assignors to CECA S.A., France

Filed Jun. 20, 1997, Ser. No. 879,364

Claims priority, application France, Jun. 20, 1996, 96 07692

Int. Cl.^{6} C07H *7/02;1/00;* **A62D** *1/00*

U.S. Cl. 536—122 **15 Claims**

1. A perfluoroalkyl-C-glycoside, consisting essentially of a monosaccharide having an anomeric carbon directly linked to a perfluoroalkyl radical and to a hydroxyl group.

5,786,470

GEL PRODUCTION FROM PLANT MATTER

Roderick Greenshields, Swansea, and Artis L. Rees, Pontardawe, both of United Kingdom, assignors to Dalgety Food Ingredients Limited, London, United Kingdom

Continuation-in-part of Ser. No. 240,651, May 13, 1994, Pat. No. 5,530,112. This application Jun. 25, 1996, Ser. No. 673,610

Int. Cl.^{6} C08B *37/14;* **C08L** *5/14;* **A61L** *25/00;27/00*

U.S. Cl. 536—123.1 **37 Claims**

1. A method of producing a gel material, which method comprises:

(a) providing a starch-free starting medium derived from testaceous plant material and comprising a water soluble hemicellulosic material which is free of glucans;

(b) extracting said starting medium with a non-acidic aqueous extraction reagent; and

(c) reacting the extracted hemicellulosic material with an oxidising system comprising a peroxide and an oxygenase, so as to produce a gel material which comprises a matrix of polysaccharide chains, and a multiplicity of ferulate bridges cross-linking said polysaccharide chains at regularly spaced intervals along said polysaccharide chains.

5,786,471

Patent Not Issued For This Number

5,786,472

PROCESS FOR MAKING DIHYDROPYRIMIDINONES

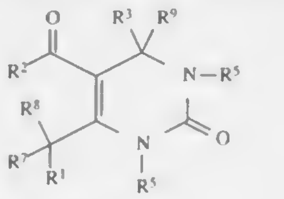
Essa Hsinyi Hu, Edison; Daniel R. Sidler, Whitehouse Station; Ulf H. Dolling, Westfield, all of N.J., and Michael A. Patane, Harleysville, Pa., assignors to Merck & Co., Inc., Rahway, N.J.

Filed Dec. 12, 1996, Ser. No. 766,400

Int. Cl.^{6} C07D *239/36*

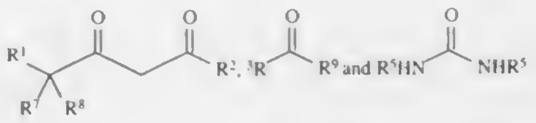
U.S. Cl. 544—318 **24 Claims**

1. A method of forming a compound of formula I

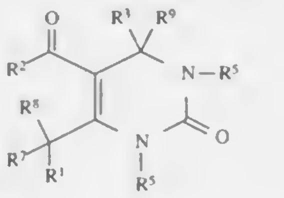


(I)

comprising reacting



in the presence of a boron reagent, a metal salt and a catalyst to form the compound (I)



(I)

wherein

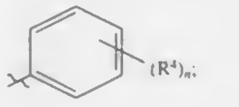
the boron reagent is selected from BF_3, $BF_3{\cdot}2H_2O$, $BF_3{\cdot}Me_2S$, $BF_3{\cdot}HOAc$, $BF_3{\cdot}R_2O$ (e.g., $BF_3{\cdot}Et_2O$, $BF_3{\cdot}Me_2O$, BF_3·tert-butyl methyl etherate), $BF_3{\cdot}ROH$ (e.g., $BF_3{\cdot}CH_3OH$, $BF_3{\cdot}CH_3CH_2CH_3OH$); the metal salt is selected from copper (I) chloride copper (I) oxide copper (II) chloride, copper (H) sulfate copper (H) acetate, nickel (H) bromide, palladium (II) acetate, copper bromide or palladium acetoacetate:

the catalyst is selected from acetic acid, trifluoroacetic acid, methanol, sulfuric acid, MsOH, dichloroacetic acid, $HBr{\cdot}PPh_3$, NH_4OAc, triethylamine, pyridine, cinchonine, quinine or quinidine;

R^1, R^7 and R^8 are each independently selected from hydrogen, halogen, halogenated C_{1-10} alkyl, unsubsituted or substituted aryl, or unsubstituted or substituted C_{1-10} alkyl wherein the substituent on the alkyl is selected from C_{1-6} alkoxy, halogenated C_{1-6} alkoxy or aryl;

R^2 is C_{1-10} alkyl, OR^6, unsubstituted C_{3-6} cycloalkyl or mono-, di- or tri-substituted C_{3-6} cycloalkyl wherein the substitutents on the cycloalkyl are independently selected from hydroxy, C_{1-6} alkyl, halogenated C_{1-6} alkyl, C_{1-6} alkoxy or halogenated C_{1-6} alkoxy;

R^3 and R^9 are each independently selected from hydrogen, C_{1-10} alkyl or



each R^4 is independently selected from hydrogen, halogen, cyano, C_{1-6} alkoxy, halogenated C_{1-6} alkoxy, nitro, C_{1-10} alkyl or halogenated C_{1-10} alkyl;

each R^5 is independently selected from hydrogen or C_{1-10} alkyl;

R^6 is selected from unsubstituted or substituted C_{1-10} alkyl wherein the substituent on the alkyl is selected from C_{1-6} alkoxy, halogenated C_{1-6} alkoxy or aryl; unsubstituted C_{3-6} cycloalkyl or mono-, di- or tri-substituted C_{3-6} cycloalkyl wherein the substitutents on the cycloalkyl are independently selected from hydroxy, C_{1-6} alkyl, halogenated C_{1-6} alkyl, C_{1-6} alkoxy or halogenated C_{1-6} alkoxy; or unsubstituted or substituted aryl; and

n is an integer from one to five.

5,786,473

PROCESS FOR THE PREPARATION OF N-METHYL-3-(1-METHYL-4-PIPERIDINYL)-1H-INDOLE-5-ETHANESULPHONAMIDE

Philip Blatcher; Malcolm Carter, both of Stevenage; Roy Hornby, Buntingford, and Martin Richard Owen, Stevanage, all of United Kingdom, assignors to Glaxo Group Limited, London, England

Division of Ser. No. 600,932, Feb. 29, 1996, Pat. No. 5,659,040. This application Mar. 19, 1997, Ser. No. 820,833

Claims priority, application United Kingdom, Sep. 29, 1993, 9320115

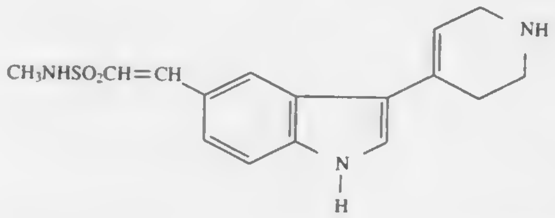
Int. Cl.^{6} C07D *401/00;211/02*

U.S. Cl. 546—277.4 **6 Claims**

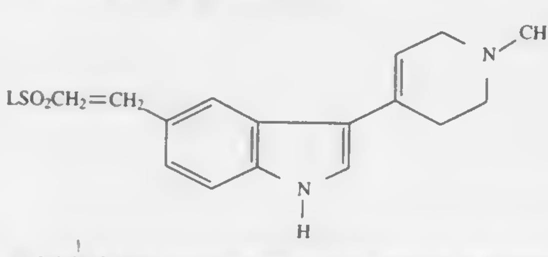
1. A process for the preparation of N-methyl-2-[3-(1,2,3,6-tetrahydro-1-methyl-4-pyridinyl)-1H-indol-5-yl) ethenesulphonamide and salts thereof which comprises either:

methylating the compound of formula (VII);

(VII)



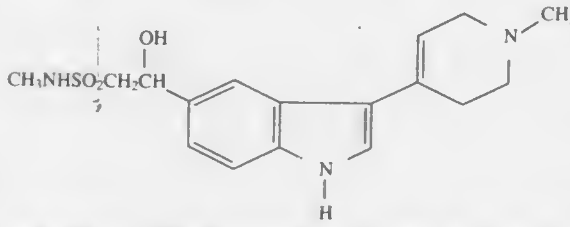
condensing a compound of formula (X), wherein L is a suitable leaving group, with methylamine;



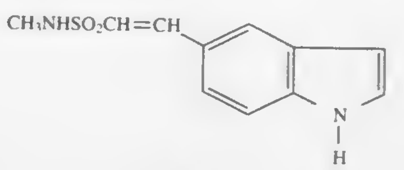
(X)

and dehydrating the compound of formula (XII) in the presence of an acid or a base; or

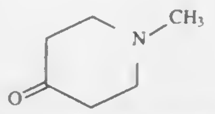
(XII)



reacting the compound of formula (VIII) with the compound of formula (VI);

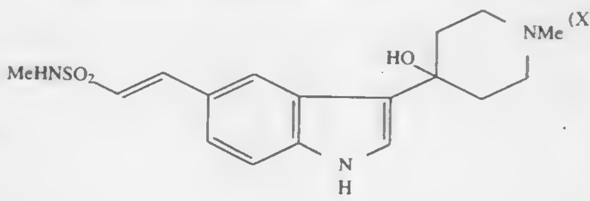


(VIII)



(VI)

or dehydrating the compound of formula (XVI)



(XVI)

5,786,474

N-FLUOROSULFONIMIDES, PROCESS FOR THEIR PRODUCTION, AS WELL AS THEIR USE AS FLUORINATING AGENTS

Rolf Bohlmann, Berlin, Germany, assignor to Schering Aktiengesellschaft, Berlin, Germany

PCT No. PCT/EP94/01251, § 371 Date Feb. 1, 1996, § 102(e) Date Feb. 1, 1996, PCT Pub. No. WO94/24098, PCT Pub. Date Oct. 27, 1994

PCT Filed Apr. 20, 1994, Ser. No. 537,769

Claims priority, application Germany, Apr. 20, 1993, 43 13 664.8

Int. Cl.^{6} C07D *285/16;285/00;205/00;* **C07C** *303/00*

U.S. Cl. 544—5 **15 Claims**

1. An N-fluorosulfonimide of formula 1

$$(R^1{—}SO_2)_2NF \qquad (I),$$

in which

R^1 means a methyl group each or together a group of $—(CH_2)_n—$ with n=1, 2 or 3.

5,786,475

UV ABSORBERS, THEIR PREPARATION AND THE USE THEREOF

Francesco Fuso, Therwil, and Gerhard Reinert, Allschwil, both of Switzerland, assignors to Ciba Specialty Chemicals Corporation, Tarrytown, N.Y.

Filed Sep. 11, 1995, Ser. No. 526,860

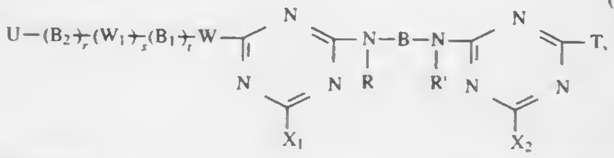
Claims priority, application Switzerland, Sep. 14, 1994, 2802/94

Int. Cl.^{6} C07D *403/00;251/02;251/42*

U.S. Cl. 544—198 **12 Claims**

1. A compound of formula

(1)



wherein

B is an aliphatic, cycloaliphatic, aromatic or aromatic-aliphatic linking group or, together with —NR— and —NR'—, forms a heterocyclic ring,

B_1 and B_2 are each independently of the other an aliphatic linking group,

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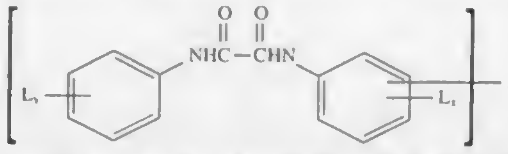
R, R' and R_2 are each independently of one another hydrogen or unsubstituted or substituted C_1–C_4alkyl,

U is the radical of an oxamide-UV absorber of the formula



(7)

wherein x and y are each independently of the other an integer from 0 to 3, the sum of (x+y) being greater than or equal to 1, and the L substituents are each independently of one another sulfo or alkyl, alkoxy or alkylthio, each of 1 to 22 carbon atoms and each unsubstituted or substituted in the alkyl moiety by sulfo, or phenoxy or phenylthio, each unsubstituted or substituted in the phenyl ring by sulfo,

W is —NR_2—,

W_1 is a radical —C(O)O—, —O(O)C—, —C(O)NH— or —HN(O)C—,

X_1 and X_2 are each independently of the other halogen, hydroxy, unsubstituted or substituted amino, 3-carboxypyridin-1-yl or 3-carbamoylpyridin-1-yl,

T independently has one of the meanings given for X_1 or is an alkoxy, aryloxy, alkylthio or arylthio radical which may be further substituted or is a nitrogen containing heterocyclic radical or is independently a radical U—$(B_2)_r$—$(W_1)_s$—$(B_1)_t$—W—, wherein U, B_1, B_2, W and W_1 are each as defined above, and

r, s and t are each independently of one another 0 or 1, and s is 0 when t is 0,

with the proviso that the compounds of formula (1) contain at least one sulfo or sulfato group and at least one group which is removable under alkaline conditions.

5,786,476

UV ABSORBERS, THEIR PREPARATION AND USE

Francesco Fuso, Therwil, Switzerland, assignor to Ciba Specialty Chemicals Corporation, Tarrytown, N.Y.

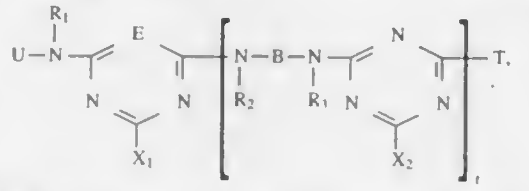
Filed Mar. 10, 1997, Ser. No. 814,303

Claims priority, application Switzerland, Mar. 12, 1996, 641/96

Int. Cl.^{6} C07D *251/54*

U.S. Cl. 544—208 **15 Claims**

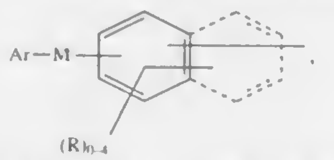
1. A compound of formula



(1)

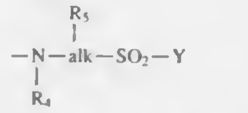
wherein

B is an aliphatic, cycloaliphatic, aromatic or aromatic-aliphatic linking group or, together with —NR_2— and —NR_3—, forms a piperazine ring, R_1, R_2 and R_3 are each independently of the other hydrogen or C_1–C_4alkyl which is unsubstituted or substituted by halogen, hydroxy, cyano, C_1-C_4alkoxy, C_1–C_4alkoxycarbonyl, carboxy, sulfamoyl, sulfo or sulfato, =E— is a =N— or =C(T_1)— group, and T_1 is halogen, C_1–C_4alkylsulfonyl, formyl, C_2–C_4alkoxycarbonyl or cyano, U is the radical of a UV absorber of formula

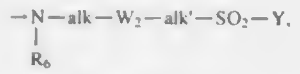


(2)

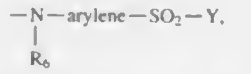
M is a —CO—R'—, —NR'—CO—NR'— or —SO_2—NR'— group, R' is hydrogen or C_1–C_4alkyl, $(R)_{0-4}$ denotes 0 to 4 identical or different radicals R selected from the group consisting of sulfo, C_1–C_4alkyl, C_1–C_4alkoxy, carboxy, hydroxy and halogen, Ar is a phenyl, naphthyl or styryl radical which is unsubstituted or substituted by C_1–C_4alkyl, C_1–C_4alkoxy, phenoxy which is unsubstituted or substituted by C_1–C_4alkyl, C_1–C_4alkoxy, halogen or sulfo, sulfo, carboxy, hydroxy, halogen, nitro, cyano, trifluoromethyl, C_1–C_4alkoxycarbonyl, formyl, C_2–C_4alkanoyl, benzoyl, C_2–C_4alkylcarbonyloxy, sulfamoyl, C_2–C_4alkanoylamino, benzoylamino, N-mono-C_1–C_4alkylsulfamoyl, N,N-di-C_1–C_4alkylsulfamoyl, N-phenylsulfamoyl, C_1–C_4alkylthio, phenylthio, C_1–C_4alkylsulfonylamino or phenylsulfonylamino, X_1 and X_2 are each independently of the other halogen, hydroxy, amino, methylamino, ethylamino, carboxymethylamino, β-sulfoethylamino, N, N-di-β-hydroxyethylamino, cyclohexylamino, o-, m- or p-methylphenylamino, o-, m- or p-methoxyphenylamino, o-, m- or p-sulfophenylamino, 2,4- or 2,5-di-sulfophenylamino, o-carboxyphenylamino, N-ethyl-N-phenylamino, N-methyl-N-phenylamino, 3-carboxypyridin-1-yl or 3-carbamoylpyridin-1-yl, T independently has one of the meanings given for X_1 or is a radical U'—NR_1'—, wherein U' and R' each independently of the other have the meaning given above for U and R_1, or is an alkoxy radical, or a phenoxy radical which is unsubstituted or substituted by C_1–C_4alkyl, C_1–C_4alkoxy, halogen, hydroxy, carboxy or sulfo, or an alkylthio radical or phenylthio radical which is unsubstituted or substituted by C_1–C_4alkyl, C_1–C_4alkoxy, halogen, hydroxy, carboxy or sulfo radical or a piperidino, piperazino or morpholino radical, or a reactive radical of formula



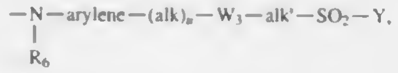
$$-\underset{R_4}{N}-\overset{R_5}{\text{alk}}-SO_2-Y \qquad (3a)$$



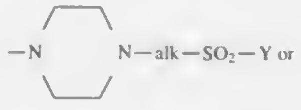
$$-\underset{R_6}{N}-\text{alk}-W_2-\text{alk}'-SO_2-Y, \qquad (3b)$$



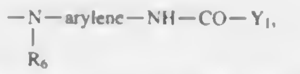
$$-\underset{R_6}{N}-\text{arylene}-SO_2-Y, \qquad (3c)$$



$$-\underset{R_6}{N}-\text{arylene}-(\text{alk})_u-W_3-\text{alk}'-SO_2-Y, \qquad (3d)$$

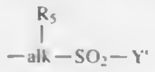


(3e)



$$-\underset{R_6}{N}-\text{arylene}-NH-CO-Y_1, \qquad (3f)$$

R_4 is hydrogen, C_1–C_4alkyl which is unsubstituted or substituted by hydroxy, sulfo, sulfato, carboxy or cyano, or a radical



$$-\overset{R_5}{\text{alk}}-SO_2-Y'$$

R_5 is hydrogen, hydroxy, sulfo, sulfato, carboxy, cyano, halogen, C_1–C_4alkoxycarbonyl, C_1–C_4alkanoyloxy, carbamoyl or the —SO_2—Y group, R_6 is hydrogen or C_1–C_4alkyl, alk and alk' are each independently of the other C_1-C_6alkylene, arylene is a phenylene or naphthylene radical which is unsubstituted or substituted by sulfo, carboxy, C_1–C_4alkyl, C_1–C_4alkoxy or halogen, Y is vinyl or a radical —CH_2—CH_2—G, and G is a leaving group, Y_1 is the radical —CHBr—CH_2—Br or —CBr=CH_2, W_2 is the radical —O— or —NR_6—, W_3 is a —SO_2—NR_4—, —$CONR_4$— or —NR_4CO— group, wherein R_4 has the meaning given above, and t and u are each independently of the other 0 or 1, with the proviso that the compounds of formula (1) carry at least one sulfo or sulfato group and at least one group which is removable with alkali.

5,786,477

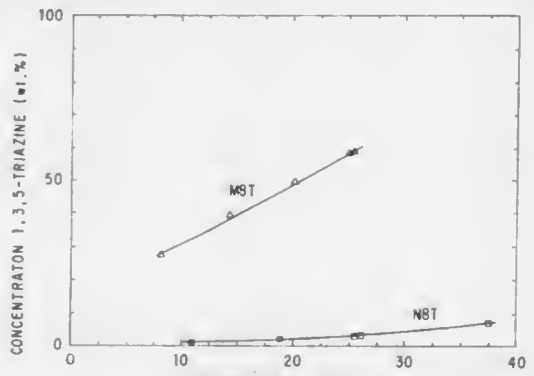
STABILIZATION OF HIGH SOLIDS COATINGS WITH LIQUID COMPOSITIONS OF TRIAZINE UV ABSORBERS

Paul Sheldon Waterman, Shelton, Conn., assignor to Cytec Technology Corp., Wilmington, Del.

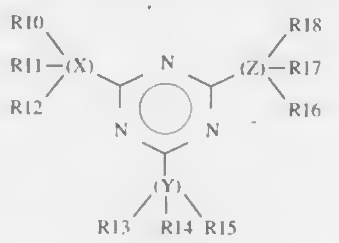
Division of Ser. No. 224,204, Mar. 17, 1994, abandoned, which is a continuation of Ser. No. 486,625, Feb. 28, 1990, abandoned, which is a continuation-in-part of Ser. No. 456,917, Dec. 26, 1989, abandoned. This application May 31, 1995, Ser. No. 454,970

Int. Cl.^{6} C07D *251/12*

U.S. Cl. 544—215 **32 Claims**



1. A triaryl triazine ultraviolet light absorber prepared by the process of alkylating with a mixed isomeric alkyl halide reactant a triaryl triazine reactant represented by the formula below:



wherein

X, Y, and Z are each the same or different aromatic carbocyclic radicals, at least one of X, Y, and Z has two hydroxy groups having positions respectively, ortho and para to the point of attachment to the triazine ring, and the remainder of R^{10} to R^{18} are independently selected from the group consisting of hydrogen, hydroxy, alkyl, alkoxy, sulfonic, carboxy, halo, haloalkyl, and acylamino; and

wherein said mixed isomeric (C_6 to C_{12} alkyl) halide reactant contains at least 10 wt % each of at least three different isomers, wherein wt % is based on the weight of the mixed isomeric halide reactant.

5,786,478

PROCESS FOR PREPARING CYANOPYRAZINE

Young K. Lee; Chae-Ho Shin; Tae-Sun Chang; Dong-Ku Lee, and Deug-Hee Cho, all of Taejon, Rep. of Korea, assignors to Korea Research Institute of Chemical Technology, Rep. of Korea

Filed Aug. 25, 1995, Ser. No. 519,534

Claims priority, application Rep. of Korea, Aug. 26, 1994, 94-21140

Int. Cl.^{6} C07D *241/24*

U.S. Cl. 544—336 **2 Claims**

1. A method for preparing cyanopyrazine by ammoxidation comprising reacting 1 mole of 2-methylpyrazine, 1~20 moles of ammonia and 1.5~20 moles of oxygen over 0.1~10 g of the following formula catalyst at 573~873K:

$Mo_xP_yO_z.X.Y$

wherein,

Mo is molybdenum;

P is phosphorus;

O is oxygen;

X is ammonium ion;

Y is water; and

x, y and z are respectively the numbers of atoms Mo, P and O, wherein y/x is 0.01 to 5and z is 0.01 to 10.

5,786,479

PROCESS FOR PRODUCING A 6-SUBSITITUTED 2(1H)-QUINOXALINONE

Isao Hashiba, Funabashi, and Masataka Hatanaka, Onoda, both of Japan, assignors to Nissan Chemical Industries, Ltd., Tokyo, Japan

PCT No. PCT/JP95/00173, § 371 Date Aug. 13, 1996, § 102(e) Date Aug. 13, 1996, PCT Pub. No. WO95/22531, PCT Pub. Date Aug. 24, 1995

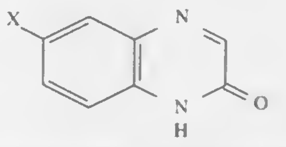
PCT Filed Feb. 8, 1995, Ser. No. 687,439

Claims priority, application Japan, Feb. 17, 1994, 6-020296; Jan. 6, 1995, 7-000548

Int. Cl.^{6} C07D *241/36*

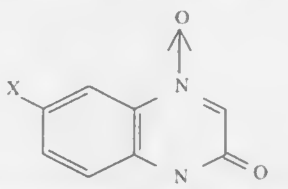
U.S. Cl. 544—354 **15 Claims**

1. A process for producing a 6-substituted 2(1H)-quinoxalinone of the formula (I):



(I)

wherein X is a halogen atom, a trihalogeno-substituted C_{1-5} alkyl group or a nitro group, which process comprises reacting a 6-substituted 2(1H)-quinoxalinone-N-oxide of the formula (II):



(II)

wherein X is as defined above, with an alkali metal hydrosulfide and/or an alkali metal sulfide, the reaction being carried out in the presence of an alkali, the amount of said alkali being from 1 to 20 mol of alkali per mol of 6-substituted 2(1H)-quinoxalinone-N-oxide of the formula (II).

5,786,480

4-SUBSTITUTED PYRAZOLOQUINOLINE DERIVATIVES

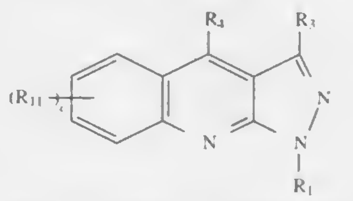
Adriano Afonso, West Caldwell; Joseph M. Kelly, Parlin, and Samuel Chackalamannil, East Brunswick, all of N.J., assignors to Schering Corporation, Kenilworth, N.J.

Division of Ser. No. 234,695, Apr. 28, 1994, Pat. No. 5,608,067. This application Aug. 2, 1996, Ser. No. 691,768

Int. Cl.^{6} C07D *471/04*

U.S. Cl. 546—82 **9 Claims**

1. A compound of the formula



I

or a pharmaceutically acceptable salt thereof, wherein

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R_1 is H, amino$(C_2$–$C_8)$alkanoyl, $(C_2$–$C_8)$alkenyl, $(C_1$–$C_8)$alkoxycarbonyl, $(C_1$–$C_4)$alkoxycarbonyl$(C_1$–$C_8)$alkyl, —CO—R_{15} wherein R_{15} is $(C_1$–$C_8)$alkyl substituted by NH_2 or —CH_2—NHR_{16} wherein R_{16} is $(C_1$–$C_4)$alkyl;

R_3 is $(C_1$–$C_8)$alkyl, or H

R_4 is —$NH(CH_2)_2O(CH_2)_2OH$ or —NH—$(CH_2)_2O$—$(CH_2)_2OC(O)CH_3$; c is 1, 2, 3, 4; and

R_{11} is $(C_1$–$C_8)$alkoxy, benzyloxy or OH when c is 1 and when c is 2, 3 or 4, R_{11} is $(C_1$–$C_8)$alkyl, and the remaining R_{11}, are H, halogen, OH $(C_1$–$C_8)$alkoxy, or $(C_1$–$C_8)$alkyl.

5,786,481

N-ALKYL AND N-ACYL DERIVATIVES OF 3,7-DIAZABICYCLO-[3.3.1]NONANES AND SELECTED SALTS THEREOF AS MULTI-CLASS ANTIARRHYTHMIC AGENTS

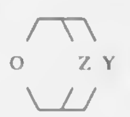
Kenneth Darrell Berlin, Stillwater, Okla.; Gregory Lynn Garrison, Chelmsford, Mass.; Subbiah Sangiah, Stillwater, Okla.; Cyril Roy Clarke, Perkins, Okla.; Chun-Lin Chen, Stillwater, Okla.; Ralph Lazzara, Oklahoma City, Okla.; Benjamin Jacob Scherlag, Oklahoma City, Okla.; Eugene Stuart Patterson, Oklahoma City, Okla., and George Edward Burrows, Stillwater, Okla., assignors to The Board of Regents, Oklahoma State University, Stillwater, Okla.

Division of Ser. No. 144,639, Oct. 28, 1993, Pat. No. 5,468,858. This application Oct. 19, 1995, Ser. No. 545,341

Int. Cl.^{6} C07D *495/08;495/10*

U.S. Cl. 546—114 **1 Claim**

1. 7-Alkyl-3-thia-7-azabicyclo[3.3.1]nonanes characterized by the formula:

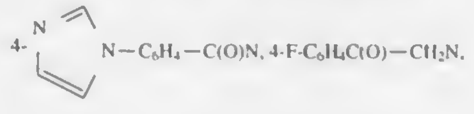


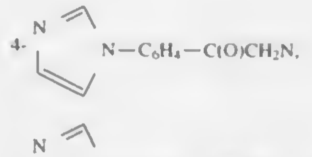
[With and without HX or 2 HX]

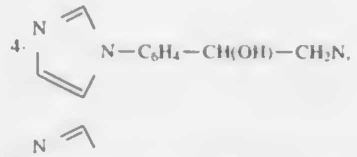
wherein

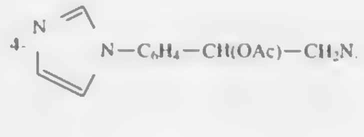
$X=ClO_4$, Cl, Br, HSO_4, citrate, fumarate, or maleate; Q=S; $Z=CH_2$; and

Y=4-O_2N—C_6H_4-C(O)N, 4-H_3CSO_2NH—C_6H_4-C(O)N, 4-O_2N—$C_6H_4CH_2C(O)N$, 4-H_2N—$C_6H_4CH_2C(O)N$ 4-$H_3CSO_2NHC_6H_4CH_2C(O)N$,


4-N—C_6H_4—C(O)N, 4-F-$C_6H_4C(O)$—CH_2N,


4-N—C_6H_4—$C(O)CH_2N$,


4-N—C_6H_4—CH(OH)—CH_2N,


4-N—C_6H_4—CH(OAc)—CH_2N.

5,786,482

DIMERIC ARYLISOQUINOLINE ALKALOIDS AND SYNTHESIS METHOD THEREOF

Gerhard Bringmann, Würzburg, Germany; Michael R. Boyd, Ijamsville, Md.; Roland Götz, Rothenburg, Germany, and T. Ross Kelly, Watertown, Mass., assignors to The United States of America as represented by the Department of Health and Human Services, Washington, D.C., and The Trustees of Boston College, Chestnut Hill, Mass.

Division of Ser. No. 363,684, Dec. 23, 1994, Pat. No. 5,578,729, which is a continuation of Ser. No. 305,211, Sep. 13, 1994, abandoned, which is a continuation-in-part of Ser. No. 279,291, Jul. 22, 1994, Pat. No. 5,552,550, and Ser. No. 279,339, Jul. 22, 1994, Pat. No. 5,571,919. This application Sep. 24, 1996, Ser. No. 721,084

Int. Cl.^{6} C07D *401/10*

U.S. Cl. 546—140 **18 Claims**

1. A method of preparing a dimeric arylisoquinoline alkaloid comprising the steps of:

(a) obtaining first and second isoquinoline building blocks, which are either the same or different, each having protective group(s) at desired site(s), each containing an activation group at a desired coupling site, and each being a tetrahydroisoquinoline, dihydroisoquinoline, or fully aromatic isoquinoline building block,

(b) obtaining a biaryl building block having protective group(s) at desired site(s), a first activation group at a first desired coupling site, and a second activation group at a second desired coupling site,

(c) coupling said first isoquinoline building block at said desired first coupling site,

(d) coupling said second isoquinoline building block at said second coupling site of said biaryl building block, and

(e) optionally deprotecting desired site(s) on said biaryl building block.

5,786,483

α-AND β-AMINO ACID HYDROXYETHYLAMINO SULFONAMIDES USEFUL AS RETROVIRAL PROTEASE INHIBITORS

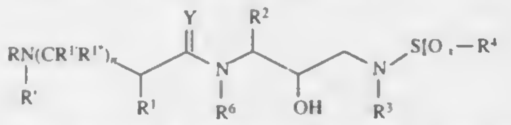
Michael L. Vazquez, Gurnee; Richard A. Mueller, Glencoe, both of Ill.; John J. Talley, St. Louis, Mo.; Daniel Getman, Chesterfield, Mo.; Gary A. DeCrescenzo, St. Peters, Mo., and John N. Freskos, Clayton, Mo., assignors to G. D. Searle & Co., Chicago, Ill., and Monsanto Company, St. Louis, Mo.

Division of Ser. No. 110,911, Aug. 24, 1993, which is a continuation-in-part of Ser. No. 934,984, Aug. 25, 1992, abandoned. This application Jun. 7, 1995, Ser. No. 487,662

Int. Cl.^{6} C07D *215/12*

U.S. Cl. 546—168 **28 Claims**

1. A compound represented by the formula:



(1)

or a pharmaceutically acceptable salt, prodrug or ester thereof wherein:

R represents hydrogen, alkoxycarbonyl, aralkoxycarbonyl, alkylcarbonyl, cycloalkylcarbonyl, cycloalkylalkoxycarbonyl, cycloalkylalkanoyl, alkanoyl, aralkanoyl, aroyl, aryloxycarbonyl, aryloxycarbonylalkyl, aryloxyalkanoyl, heterocyclylcarbonyl, heterocyclyloxycarbonyl, heterocyclylalkanoyl, heterocyclylalkoxycarbonyl, heteroaralkanoyl, heteroaralkoxycarbonyl, heteroaryloxy-carbonyl, heteroaroyl, alkyl, alkenyl, alkynyl, cycloalkyl, aryl, aralkyl, aryloxyalkyl, heteroaryloxyalkyl, hydroxyalkyl, aminocarbonyl, aminoalkanoyl, and mono- and disubstituted aminocarbonyl and mono- and disubstituted aminoalkanoyl radicals wherein the substituents are selected from alkyl, aryl, aralkyl, cycloalkyl, cycloalkylalkyl, heteroaryl, heteroaralkyl, heterocycloalkyl, heterocycloalkyalkyl radicals, or wherein said aminocarbonyl and aminoalkanoyl radicals are disubstituted, said substituents along with the nitrogen atom to which they are attached form a heterocycloalkyl or heteroaryl radical;

R' represents hydrogen and radicals as defined for R^3 or $R''SO_2$— wherein R" represents radicals as defined for R^3; or R and R' together with the nitrogen to which they are attached represent heterocycloalkyl and heteroaryl radical;

R^1 represents hydrogen, —$CH_2SO_2NH_2$, —$CH_2CO_2CH_3$, —CO_2CH_3, —$CONH_2$, —$CH_2C(O)NHCH_3$, —$C(CH_3)_2(SH)$, —$C(CH_3)_2(SCH_3)$, —$C(CH_3)_2(S[O]CH_3)$, —$C(CH_3)_2(S[O]_2CH_3)$, alkyl, haloalkyl, alkenyl, alkynyl and cycloalkyl radicals, and amino acid side chains selected from asparagine, S-methyl cysteine and the sulfoxide (SO) and sulfone (SO_2) derivatives thereof, isoleucine, allo-isoleucine, alanine, leucine, tert-leucine, phenylalanine, ornithine, histidine, norleucine, glutamine, threonine, glycine, allo-threonine, serine, O-alkyl serine, aspartic acid, beta-cyano alanine and valine side chains;

$R^{1'}$ and $R^{1''}$ independently represent hydrogen and radicals as defined for R^1, or one of $R^{1'}$ and $R^{1''}$, together with R^1 and the carbon atoms to which R^1, $R^{1'}$ and $R^{1''}$ are attached, represent a cycloalkyl radical;

R^2 represents alkyl, aryl, cycloalkyl, cycloalkylalkyl and aralkyl radicals, which radicals are optionally substituted with a group selected from alkyl and halogen radicals, —NO_2, —C≡N, CF_3, —OR^9, —SR^9, wherein R^9 represents hydrogen and alkyl radicals;

R^3 represents hydrogen, alkyl, haloalkyl, alkenyl, alkynyl, hydroxyalkyl, alkoxyalkyl, cycloalkyl, cycloalkylalkyl, heterocycloalkyl, heteroaryl, heterocycloalkylalkyl, aryl, aralkyl, heteroaralkyl, aminoalkyl and mono- and disubstituted aminoalkyl radicals, wherein said substituents are selected from alkyl, aryl, aralkyl, cycloalkyl, cycloalkylalkyl, heteroaryl, heteroaralkyl, heterocycloalkyl, and heterocycloalkylalkyl radicals, or in the case of a disubstituted aminoalkyl radical, said substituents along with the nitrogen atom to which they are attached, form a heterocycloalkyl or a heteroaryl radical;

R^4 represents radicals as defined by R^3 except for hydrogen;

R^6 represents hydrogen and alkyl radicals;

x represents 0, 1, or 2;

t represents either 0 or 1; and

Y represents O, S and NR^{15} wherein R^{15} represents hydrogen and radicals as defined for R^3.

5,786,484

RACEMIZATION AND ASYMMETRIC TRANSFORMATION PROCESSES USED IN THE MANUFACTURE OF LEVOBUPIVACAINE AND ANALOGUES THEREOF

Ulrich Conrad Dyer; Christopher James Lock, and Martin Woods, all of Cambridge, United Kingdom, assignors to Chiroscience Limited, United Kingdom

PCT No. PCT/GB95/02247, § 371 Date May 30, 1997, § 102(e) Date May 30, 1997, PCT Pub. No. WO96/09290, PCT Pub. Date Mar. 28, 1996

PCT Filed Sep. 22, 1995, Ser. No. 809,941

Claims priority, application European Pat. Off., Sep. 23, 1994, 94306962; United Kingdom, Mar. 10, 1995, 9504927

Int. Cl.^{6} C07D *211/30;* **A61K** *31/445*

U.S. Cl. 546—225 **18 Claims**

1. A process for the racemisation of an optically-enriched N-containing heterocyclic compound having 3 to 7 ring atoms and a carboxanilide group attached to the ring at a carbon atom in the 2-position adjacent to the N-atom, said carbon atom being the chiral center to be racemised, wherein said N-atom is substituted with an R_1 substituent and said R_1 substituent is not H, said method comprising heating the compound in a wholly or substantially non-aqueous system comprising an acid selected from the group consisting of alkanoic acids, arylalkanoic acids and acids having a pKa of −1 to +6, relative to water.

5,786,485

OPTICALLY ACTIVE BETA-AMINOALKOXYBORANE COMPLEX

Hiroshi Kashihara; Mikio Suzuki, and Yoshio Ohara, all of Funabashi, Japan, assignors to Nissan Chemical Industries, Ltd., Tokyo, Japan

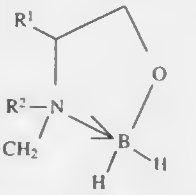
Division of Ser. No. 481,505, Jul. 19, 1995, Pat. No. 5,663,348. This application Apr. 29, 1997, Ser. No. 848,172

Claims priority, application Japan, Mar. 25, 1993, 6-66825; Jan. 17, 1994, 6-78271993

Int. Cl.^{6} C07D *207/08*

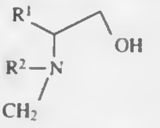
U.S. Cl. 548—405 **1 Claim**

1. A process for producing an optically active β-aminoalkoxyborane complex of the formula (I):



(I)

wherein R^1 is C_1–C_8 alkyl, C_3–C_7 cycloalkyl, C_7–C_{11} aralkyl or C_6–C_{10} aryl, R^2 is hydrogen, C_1–C_8 alkyl or C_7–C_{11} aralkyl, or R^1 and R^2 together from $(CH_2)_n$ wherein n is 3 or 4, and Ar is napthyl, anthryl or phenanthryl, which may be substituted by from 1 to 3 substituents selected from the group consisting of halogen, nitro, C_1–C_6 alkyl, C_3–C_7 cycloalkyl, C_2–C_6 alkenyl, C_2–C_6 alkynyl, C_7–C_{11} aralkyl, C_6–C_{10} aryl, C_1–C_6 alkoxy and styrene polymer substituents, which comprises reacting an optically active β-aminoalcohol compound of the formula (II):



(II)

wherein R^1 is C_1–C_8 alkyl, C_3–C_7 cycloalkyl, C_7–C_{11} aralkyl or C_6–C_{10} aryl, R^2 is hydrogen, C_1–C_8 alkyl or C_7–C_{11} aralkyl, or R^1 and R^2 together form $(CH_2)_n$ wherein n is 3 or 4, and Ar is naphthyl, anthryl or phenanthryl, which may be subsituted by from 1 to 3 substituents selected from the group consisting of halogen, nitro, C_1–C_6 alkyl, C_3–C_7 cycloalkyl, C_2–C_6 alkenyl, C_2–C_6 alkynyl, C_7–C_{11} aralkyl, C_6–C_{10} aryl, C_1–C_6 alkoxy and styrene polymer substituents, with a borane reagent.

5,786,486

ACRYLAMIDE DERIVATIVES AND PROCESS FOR PRODUCTION THEREOF

Yasumichi Fukuda; Shigeki Seto; Yasuo Oomori; Hiroyuki Ebisu, all of Tochigi, and Shiro Terashima, Tokyo, all of Japan, assignors to Kyorin Pharmaceutical Co., Ltd., Tokyo, and Sagami Chemical Research Center, Kanagawa, both of Japan

PCT No. PCT/JP95/02413, § 371 Date May 13, 1997, § 102(e) Date May 13, 1997, PCT Pub. No. WO96/16965, PCT Pub. Date Jun. 6, 1996

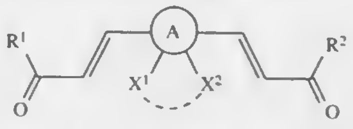
PCT Filed Nov. 28, 1995, Ser. No. 849,160

Claims priority, application Japan, Nov. 29, 1994, 6-295274

Int. Cl.^{6} C07D *487/00;487/02;209/04;* **C07C** *13/465*

U.S. Cl. 548—421 **28 Claims**

1. Acrylamide derivatives represented by General Formula (1):



(1)

(wherein X^1 and X^2 are independently a hydrogen atom, a halogen atom, an amino group, an alkylamino group, an aminoalkyl group, a hydroxyl group, OR^3 (R^3 being a linear or branched lower alkyl of C1–C6, or a substituted or unsubstituted aryl) $OCOR^3$ (R^3 being the same as above), or a linear or branched lower alkyl of C1–C6, and X^1 and X^2 may be linked together; the ring A is a biphenyl

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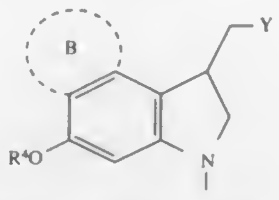
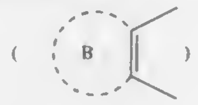
ring, a naphthalene ring, an anthracene ring, or an anthraquinone ring; and R^1 and R^2 are independently:

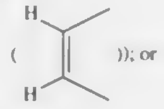
a.



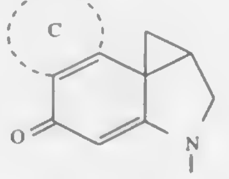
(R^4 is a hydrogen atom, a protecting group for hydroxyl, or a substituent decomposable in vivo; Y is a halogen atom, an arylsulfonyloxy group, a lower alkylsulfonyloxy group, a haloalkylsulfonyloxy group, or an azide group;

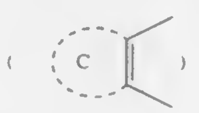


is a condensed ring, or

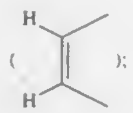


b.





is a condensed ring or



or an optical isomer thereof, or a pharmaceutically acceptable salt thereof.

5,786,487

1,4-DIKETO-3,6-DIARYLPYROLO[3,4-C]PYRROLE PIGMENT DERIVATIVES

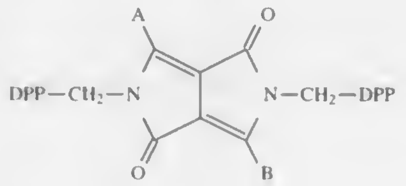
Shivakumar B. Hendi, Newark, Del., assignor to Ciba Specialty Chemicals Corporation, Tarrytown, N.Y.

Filed Sep. 26, 1997, Ser. No. 938,658

Int. Cl.^{6} C07D *487/04*

U.S. Cl. 548—453 **31 Claims**

1. A pyrrolopyrrole derivative of the formula (I)



(1)

wherein A and B are identical or different aryl radicals, and DPP is a diaryldiketopyrrolopyrrole radical; which diketopyrrolopyrrole derivative is substituted by from 0 to 6 moles of $—SO_3M$ per mole of the pyrrolopyrrole derivative; wherein M is hydrogen or a metal or ammonium cation.

5,786,488

SYNTHETIC METHODS FOR THE PREPARATION OF INDOLYQUINONES

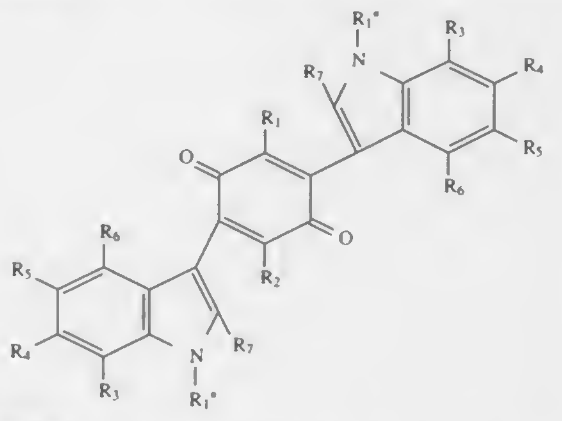
Peng C. Tang, Moraga, and G. Davis Harris, San Francisco, both of Calif., assignors to Sugen, Inc., Redwood City, Calif.

Filed Nov. 5, 1997, Ser. No. 964,791

Int. Cl.^{6} C07D *209/02*

U.S. Cl. 548—455 **30 Claims**

1. A method for preparing an indolylquinone compound of the formula:



I

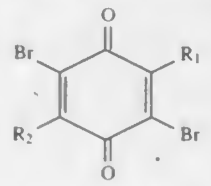
wherein:

R1 and R2 are each independently Br, Cl, F, I, H, OH or —OCOR, wherein R is lower alkyl, aryl or alkylaryl;

R"1 is H, C_1–C_7 alkyl, C_2–C_7 alkenyl, C_2–C_7 alkynyl, arylalkyl or aryl; and

R3 to R7 are each independently hydrogen, branched or unbranched C_1–C_n alkyl, alkylcarboxy, C_2–C_m alkenyl, alkynyl, alkenylcarboxy, aryl, alkylaryl, hydroxy, hydroxyalkyl, C_1–C_n alkoxy, nitro, halo, trihalomethyl, amido, carboxamido, carboxy, sulfonyl, sulfonamido, amino, mercapto, or 2-methylbut-2-en-4-yl, wherein n is an integer from 0 to 12 and m is an integer from 0 to 12, which comprises:

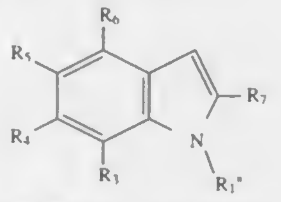
reacting a substituted or unsubstituted 2,5-dibromo-1,4-benzoquinone compound of the formula:



II

wherein R1 and R2 are as defined above;

with at least one indole of the formula



III

wherein R"1 and R3–R7 are as defined above; in a polar organic solvent and in the presence of metal carbonate to produce said indolylquinone compound of formula I.

5,786,489

TRANSFORMATIONS OF TAXOL

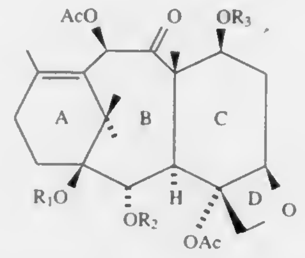
Kyriacos C. Nicolaou, La Jolla; Philippe G. Nantermet, San Diego; Rodney K. Guy, San Diego, and Hiroaki Ueno, San Diego, all of Calif., assignors to The Scripps Research Institute, La Jolla, Calif.

Division of Ser. No. 193,263, Feb. 8, 1994, Pat. No. 5,504,222, which is a continuation-in-part of Ser. No. 110,095, Aug. 20, 1994, Pat. No. 5,440,057. This application Apr. 1, 1996, Ser. No. 626,112

Int. Cl.^{6} C07D *317/70*

U.S. Cl. 549—229 **3 Claims**

I. An improved taxoid intermediate represented by the following structure:



wherein:

R_1 is a radical selected from the group consisting of hydrogen and carbonyl;

R_2 is a radical selected from the group consisting of benzoyl and carbonyl; and

R_3 is a radical selected from the group consisting of H and a protective group for hydroxyls,

with the following provisos:

if R_1 is carbonyl, then R_2 is the same carbonyl as R_1 and forms a carbonate ester; and

if R_2 is carbonyl, then R_1 is the same carbonyl as R_2 and forms a carbonate ester.

5,786,490

PROCESS FOR PREPARING COMPOSITIONS USEFUL AS INTERMEDIATES FOR PREPARING LUBRICATING OIL AND FUEL ADDITIVES

Jeffry G. Dietz, University Heights; Mark R. Baker, Lyndhurst, and Paul E. Adams, Willoughby Hills, all of Ohio, assignors to The Lubrizol Corporation, Wickliffe, Ohio

Continuation of Ser. No. 517,893, Aug. 22, 1995, abandoned. This application Apr. 10, 1997, Ser. No. 844,306

Int. Cl.^{6} C07D *493/04*

U.S. Cl. 549—269 **32 Claims**

1. A process comprising reacting, optionally in the presence of an acidic catalyst selected from the group consisting of organic sulfonic acids, heteropolyacids and mineral acids,

(A) at least one olefinic compound of the general formula

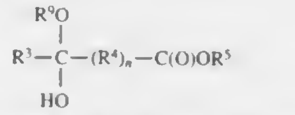
$$(R^1)(R^2)C{=}C(R^6)(CH(R^7)(R^8))$$

wherein each of R^1 and R^2 is, independently, hydrogen or a hydrocarbon based group and each of R^6, R^7 and R^8 is, independently, hydrogen or a hydrocarbon based group; and

(B) at least one carboxylic reactant selected from the group consisting of compounds of the formula

$$R^3C(O)(R^4)_nC(O)OR^5 \qquad (IV)$$

and compounds of the formula



$$R^3-\overset{\displaystyle R^9O}{\underset{\displaystyle HO}{\overset{|}{\underset{|}{C}}}}-(R^4)_n-C(O)OR^5 \qquad (V)$$

wherein each of R^3, R^5 and R^9 is independently H or a hydrocarbyl group, R^4 is a divalent hydrocarbylene group, and n is 0 or 1; wherein (A) and (B) are reacted in amounts ranging from more than 1.5 moles up to about 3 moles (B) per equivalent of (A).

5,786,491

PROCESS FOR CRYSTALLIZING D-ALPHA-TOCOPHERYL SUCCINATE

Michael David Hamlin, Brockport, N.Y., and Richard Wayne Connelly, Rochester, N.Y., assignors to Eastman Chemical Company, Kingsport, Tenn.

Filed Dec. 6, 1996, Ser. No. 761,276

Int. Cl.^{6} C07D *311/04*

U.S. Cl. 549—407 **6 Claims**

4. A process comprising

(A) introducing an d-alpha-tocopheryl succinate in a fluid state into a crystallization zone at a temperature in the range of about 0° to about 200° C.,

(B) subjecting the d-alpha-tocopheryl succinate to a shear rate of at least 1/second and an elongational rate of at least 1/second for at least 5 seconds within the crystallization zone, and

(C) withdrawing the d-alpha-tocopheryl succinate from the crystallization zone at a temperature less than the melting point of the d-alpha-tocopheryl succinate.

5,786,492

HALICHONDRINS

Dolores G. Gravalos, Madrid, Spain; Robin J. Lake, Christchurch 1, New Zealand; John W. Blunt, Christchurch 1, New Zealand; Murray H. G. Munro, Christchurch 1, New Zealand, and Marc S. P. Litaudon, Christchurch 1, New Zealand, assignors to Pharma Mar, S.A., Madrid, Spain

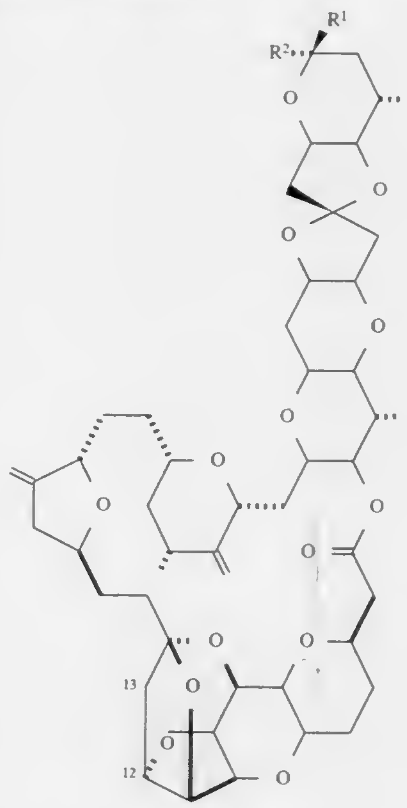
Continuation of Ser. No. 460,407, Jun. 1, 1995, abandoned, which is a continuation of Ser. No. 35,382, Mar. 22, 1993, abandoned. This application Jul. 29, 1997, Ser. No. 902,364

Claims priority, application United Kingdom, Mar. 23, 1992, 9206244

Int. Cl.^{6} C07D *313/00;493/22*

U.S. Cl. 549—268 **4 Claims**

1. Halichondrins of the formula:



in which R^1 and R^2 together represent a spiro attached group selected from the following:

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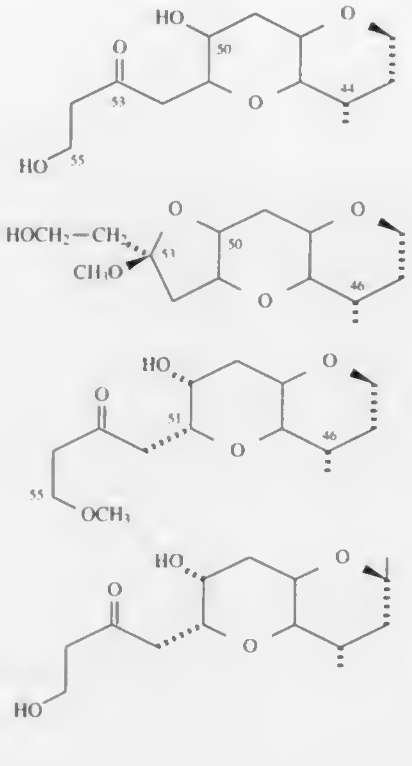


5,786,493

CYCLIC SILANE ESTERS AND SOLVOLYSIS PRODUCTS THEREOF, AND PROCESSES FOR THE PREPARATION OF THE CYCLIC SILANE ESTERS AND THE SOLVOLYSIS PRODUCTS

Hartwig Rauleder; Hans-Joachim Koetzsch; Jaroslaw Monkiewicz; Claus-Dietrich Seiler, all of Rheinfelden, and Hans-Guenther Srebny, Nienburg, all of Germany, assignors to Huels Aktiengesellschaft, Marl, Germany

Filed Jul. 16, 1997, Ser. No. 895,477

Claims priority, application Germany, Jul. 16, 1996, 196 28 588.7

Int. Cl.⁶ C07F *7/08*

U.S. Cl. 556—443 **26 Claims**

1. A process for preparing a cyclic silane ester or a solvolysis product thereof, comprising:

(A) reacting a hydridosilane of the general formula I:

$$X—SiH(R^1)_2 \qquad (I),$$

wherein X is a hydrolyzable radical,

each R^1 is, independently, a hydrolyzable radical or R^2, and

R^2 is an organic radical bonded by a carbon atom, with an allyl compound formula II:

$$CH_2{=}CR^3CH_2—[O(CHR^3)_x]_yOH \qquad (II),$$

wherein each R^3 is, independently, hydrogen or a methyl radical,

x is an integer from 2 to 6, and

y is 0 or an integer or fraction up to 60, to produce an organohydridosilane ester of formula III:

$$CH_2{=}CR^3CH_2—[O(CHR^3)_x]_yO—SiH(R^1)_2 \qquad (III),$$

wherein R^1, R^3, x and y are as previously defined; and

(B) intramolecularly hydrosilylating said ester of formula (III) to produce a cyclic organosilane ester of formula IV:

$$\{Si(R^1)_2CH_2CHR^3CH_2—[O(CHR^3)_x]_yO\}_z \qquad (IV)$$

wherein R^1, R^3, x and y are as previously defined, and z is an integer from 1 to 6.

5,786,494

PROCESS FOR THE SYNTHESIS OF α-SUBSTITUTED ACRYLIC ACIDS AND THEIR APPLICATION

Pierre Duhamel; Lucette Duhamel, both of Mont Saint Aignan; Denis Danvy, Yvetot; Thierry Montell, Mont Saint Aignan; Jeanne-Marie Lecomte, and Jean-Charles Schwartz, both of Paris, all of France, assignors to Societe Civile Bioprojet, Paris, France

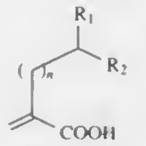
Filed Mar. 1, 1996, Ser. No. 609,209

Claims priority, application France, Mar. 3, 1995, 95 02494

Int. Cl.⁶ C07D *317/54;* **C07C** *51/38*

U.S. Cl. 549—447 **11 Claims**

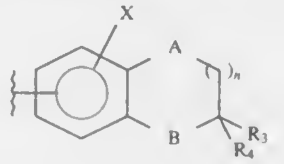
1. Process for the synthesis of α-substituted acrylic acids of formula (I)



(I)

in which

R₁ denotes a hydrogen atom, an alkyl group, a cycloalkyl group, a phenyl group optionally mono- or polysubstituted by a halogen atom, a trifluoromethyl group, a nitro group, a cyano group, an amino. group, a dimethylamino group, a hydroxyl group, a lower alkoxy group, a phenoxy group, a benzyloxy group, a methylthio group, a phenyl group, a lower alkyl group, a lower phenylalkylene group; an alpha- and beta-naphthyl group or a group



where

A is a carbon atom, an oxygen atom, a sulphur atom or a nitrogen atom,

B denotes one of the abovementioned atoms as defined for A, n_1 is equal to 0 or 1,

X denotes a hydrogen atom, a halogen atom, a hydroxyl group, a lower alkoxy group or a trifluoromethyl group,

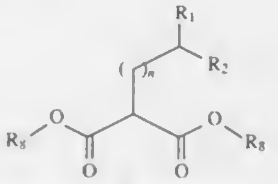
R_3 denotes a hydrogen atom, a phenyl group, a lower alkyl group, a halogen atom or a trifluoromethyl group,

R_4 also denotes a hydrogen atom or one of the above-mentioned groups in the definition of R_3,

R_2 denotes a hydrogen atom or one of the abovementioned groups in the definition of R_1 and

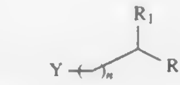
n varies from 0 to 10, characterized in that, in succession,

a) the alkylated esters of malonic acids are prepared, of formula (VIII)



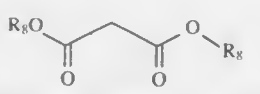
(VIII)

in which n, R_1 and R_2 have the same meaning as in formula (I) and R_8 denotes an alkyl chain containing from 1 to 4 carbon atoms, the alkylated esters of ialonic acids being obtained either by reacting a halide of formula (IX)



(IX)

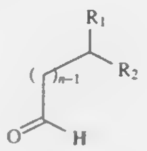
in which n, R_1 and R_2 have the same meaning as in formula (I) and Y denotes a halogen atom, with a malonic acid ester of formula (X)



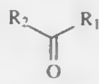
(X)

in which R_8 has the abovementioned definition, in the presence of an alcoholic solution of an alkali metal,

or by a Knoevenagel condensation of a carbonyl compound of formula (XI) or (XI')

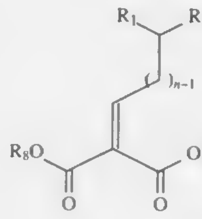


(XI)

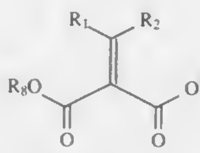


(XI')

in which R_1 and R_2 have the same definition as in formula (I) and n varies from 1 to 10, with a malonic acid ester of formula (X) in the presence of a base and of a carboxylic acid, to produce the esters of formula (XII) or (XII')



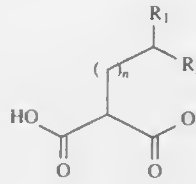
(XII)



(XII')

in which R_1, R_2 and R_8 have the abovementioned meanings and n varies from 1 to 10, the esters of formula (XII) or (XII') being next subjected to a catalytic hydrogenation to form the esters of formula (VIII);.

b) the esters of formula (VIII) are saponified in the presence of a basic aqueous solution, to form the diacids of formula (XIII)



(XIII)

in which n, R_1 and R_2 have the same definition as in formula (I);

c) the diacids of formula (XIII) are subjected to a Mannich reaction with an organic base and formaldehyde to form the acrylic acids of formula (I).

5,786,495

BRIDGED BIS-FLUORENYL METALLOCENES, PROCESS FOR THE PREPARATION THEREOF AND USE THEREOF IN CATALYSTS FOR THE POLYMERIZATION OF OLEFINS

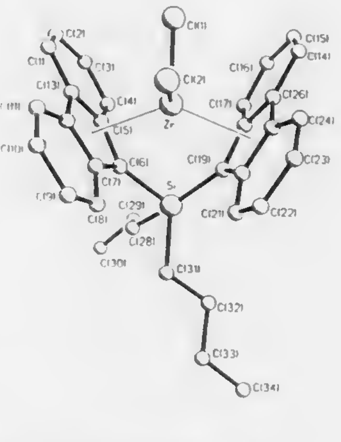
Luigi Resconi, Ferrara, Italy, and Robert L. Jones, Elkton, Md., assignors to Montell Technology Company BV, MS Hoofddorp, Netherlands

Filed Mar. 1, 1996, Ser. No. 609,721

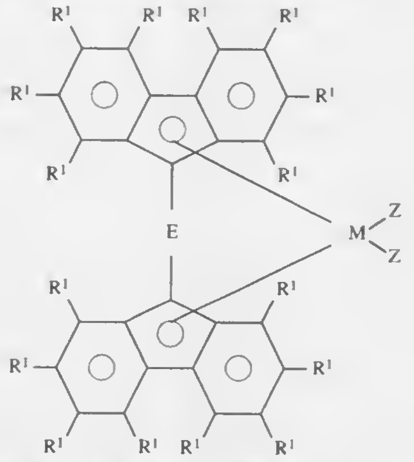
Claims priority, application Italy, Mar. 3, 1995, MI95A0410

Int. Cl.⁶ C07F *9/00;17/00;7/00;7/28*

U.S. Cl. 556—11 **6 Claims**



1. A metallocene compound of formula (I):



(I)

wherein each R^1, same or different, is a hydrogen atom, a C_1–C_{20}—alkyl cycloalkyl radical, a C_2–C_{20}—alkenyl radical, a C_6–C_{20} aryl radical, a C_7–C_{20}—alkylaryl radical, or a C_7–C_{20} arylalkyl radical, and further wherein two adjacent R^1 substituents can form a cycle comprising from 5 to 8 carbon atoms, and furthermore the R^1 substituents can contain silicon or germanium atoms;

E is a bridging group selected from the group consisting of an $SiR^3{}_2$ group and a $GeR^3{}_2$ group, wherein each R^3, same or different, is a C_3–C_{20}—alkyl radical, a C_3–C_{20}—cycloalkyl radical, a C_2–C_{20}—alkenyl radical, a C_7–C_{20}—alkylaryl radical, or a C_7—C_{20} arylalkyl radical, optionally containing heteroatoms, or the two R^3 substituents can be joined to form a cycle comprising up to 8 atoms, at least four total carbon atoms being contained in the two R^3 substituents;

M is an atom of a transition metal selected from those belonging to Group 4 and 5 in the Periodic Table of the Elements (new IUPAC version);

each Z substituent, same or different, is a halogen atom, an —OH, —SH, $—R^4$ OR^4, $—SR^4$, $—NR^4{}_2$, or $—PR^4{}_2$ group, wherein R^4 has the same definition as R^1.

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5,786,496
HIGH OXIDATION STATE METAL OXO COMPLEXES OF THE PHAB LIGAND

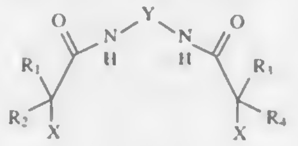
Thomas V. O'Halloran, Kenilworth, Ill.; Frederick M. MacDonnell, Norwood, Mass., and Nathanael L. P. Fackler, Chicago, Ill., assignors to Northwestern University, Evanston, Ill.

Continuation of Ser. No. 294,145, Aug. 22, 1994, abandoned. This application Nov. 15, 1996, Ser. No. 746,617

Int. Cl.^{6} C07F *15/00;* **C07C** *233/00;45/00;* **A61K** *51/00*

U.S. Cl. 556—137 **8 Claims**

1. A compound that complexes a metal to form a coordination complex, said compound having the structure:



wherein the substiutents R_1–R_4 are independently phenyl, t-butyl, neopentyl, trimethyl, silyl or cyclohexyl and wherein Y is a phenyl, substituted phenyl, biphenyl, substituted biphenyl including chiral binapthol, napthol, and substituted naphthol, and wherein Y has bonds to said two nitrogens in said structure with said nitrogens positioned at ortho positions relative to carbons of Y to provide a structure that is effective to form a tetradentate complex with said metal, and X is separately or in combination a hydroxyl, amino, thiol.

5,786,497
PROCESS FOR THE PREPARATION OF PHOSPHITES

James A. Mahood, Morgantown, and Matthew S. Scott, Reedsville, both of W. Va., assignors to General Electric Company, Pittsfield, Mass.

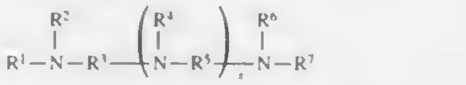
Filed Aug. 29, 1997, Ser. No. 920,961

Int. Cl.^{6} C07F *9/145*

U.S. Cl. 558—85 **17 Claims**

1. A process to produce an organic phosphite, wherein said process comprises heating a di-substituted phosphorohalidite with a phenolic compound and a polymeric amine.

2. The process of claim 1, wherein the polymeric amine is an amine of the general formula:



$$R^1-\overset{R^2}{\overset{|}{N}}-R^3-\left(\overset{R^4}{\overset{|}{N}}-R^5\right)_x-\overset{R^6}{\overset{|}{N}}-R^7$$

wherein each R^1, R^2, R^3, R^4, R^5, R^6, and R^7 is independently a $C_{1\text{-}20}$ alkyl, aryl, or alkaryl moiety, and x is an integer of from 0 to about 100.

5,786,498
RESOLUTION OF RACEMATES OF 2-ARYL-2-ALKYL-ω-ALKYLAMINOALKANE-NITRILES

Ulrich Karl, Ludwigshafen, and Werner Seitz, Plankstadt, both of Germany, assignors to BASF Aktiengesellschaft, Ludwigshafen, Germany

PCT No. PCT/EP96/00236, § 371 Date Jul. 7, 1997, § 102(e) Date Jul. 7, 1997, PCT Pub. No. WO96/23764, PCT Pub. Date Aug. 8, 1996

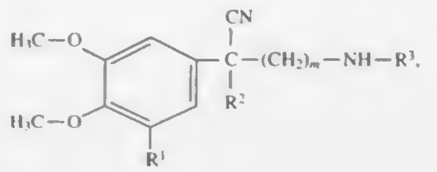
PCT Filed Jan. 20, 1996, Ser. No. 860,664

Claims priority, application Germany, Jan. 31, 1995, 195 02 967.4

Int. Cl.^{6} C07C *253/00*

U.S. Cl. 558—334 **1 Claim**

1. A process for resolving the racemates of 2-aryl-2-alkyl-ω-alkylaminoalkanenitriles of the formula I



I

where

R^1 is hydrogen or methoxy,

R^2 and R^3, which are identical or different, are C_{1-4}-alkyl, and

m is 2 or 3,

in a conventional way, wherein optically active camphorsulfonic acid is used as resolving reagent.

5,786,499
AROMATIC AMIDES OF POLY(OXYALKYLENE)CARBAMATES AND FUEL COMPOSITIONS CONTAINING THE SAME

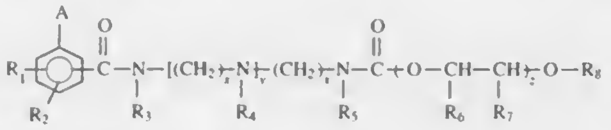
Richard E. Cherpeck, Cotati, Calif., assignor to Chevron Chemical Company, San Ramon, Calif.

Filed Jun. 20, 1996, Ser. No. 667,899

Int. Cl.^{6} C07C *271/12*

U.S. Cl. 560—27 **20 Claims**

1. A compound of the formula:



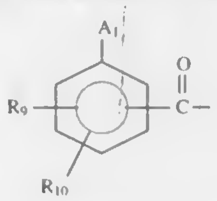
or a fuel-soluble salt thereof;

wherein A is hydroxy, nitro, amino, N-alkylamino wherein the alkyl group contains about 1 to about 6 carbon atoms, or N,N-dialkylamino wherein each alkyl group independently contains about 1 to about 6 carbon atoms;

R_1 and R_2 are each independently hydrogen, hydroxy, lower alkyl having about 1 to about 6 carbon atoms, or lower alkoxy having about 1 to about 6 carbon atoms;

R_3 and R_5 are each independently hydrogen or lower alkyl having about 1 to about 6 carbon atoms;

R_4 is hydrogen or an acyl group of the formula:



wherein A_1 is hydroxy, nitro, amino, N-alkylamino wherein the alkyl group contains about 1 to about 6 carbon atoms, or N,N-dialkylamino wherein each alkyl group independently contains about 1 to about 6 carbon atoms;

R_9 and R_{10} are each independently hydrogen, hydroxy, lower alkyl having about 1 to about 6 carbon atoms, or lower alkoxy having about 1 to about 6 carbon atoms;

R_6 and R_7 are each independently hydrogen or lower alkyl having about 1 to about 6 carbon atoms and each R_6 and R_7 is independently selected in each —O—CHR_6—CHR_7— unit;

R_8 is hydrogen, alkyl having about 1 to about 100 carbon atoms, phenyl, aralkyl having about 7 to about 100 carbon atoms, or alkaryl having about 7 to about 100 carbon atoms;

x is an integer from about 2 to about 5; y is an integer from about 0 to about 1; and z is an integer from about 5 to about 100.

5,786,500
PROCESS FOR THE PREPARATION OF A SUBSTITUTED 2,5-DIAMINO-3-HYDROXYHEXANE

Michael S. Allen, Silver Lake, Wis., and Jien-Heh J. Tien, Libertyville, Ill., assignors to Abbott Laboratories, Abbott Park, Ill.

Division of Ser. No. 415,012, Mar. 31, 1995, which is a continuation-in-part of Ser. No. 141,795, Oct. 22, 1993, abandoned. This application Mar. 28, 1996, Ser. No. 623,066

Int. Cl.^{6} C07C *26/100*

U.S. Cl. 560—29 **8 Claims**

1. A process for purifying (2S,3S,5S)-2-amino-3-hydroxy-5-t-butyloxycarbonylamino-1,6-diphenylhexane comprising crystallizing the compound from solution as its salt with an organic carboxylic acid.

5,786,501
PROCESS FOR THE PREPARATION OF PURE ALKYL ALKYLACETOACETATES

Barry Jackson, Brig-Glis, Switzerland, assignor to Lonza AG, Gampel/Valais, Switzerland

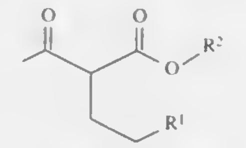
Filed Feb. 25, 1997, Ser. No. 806,051

Claims priority, application Switzerland, Mar. 13, 1996, 0655/96; Apr. 30, 1996, 1087/96

Int. Cl.^{6} C07C *69/72;69/66*

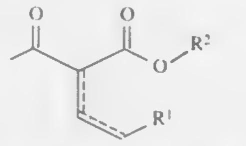
U.S. Cl. 560—178 **6 Claims**

1. A process for the preparation of a pure alkyl alkylacetoacetates of the formula:



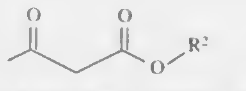
I

wherein R^1 is a C_1–C_{10}-alkyl group and R^2 is a C_1–C_4-alkyl group, from said alkyl alkylacetoacetate which contains an alkyl alkenylacetoacetate of the formula:



II

in which R^1 and R^2 have the above-stated meaning, and/or further by-products, converting the alkylalkenylacetoacetate acid ester of the formula II with an ester of the formula:



III

wherein R^2 has the above-stated meaning, in the presence of a strong base, into an intermediate which is separated off.

5,786,502
PROCESS FOR PREPARING DIESTERS OF HIGHER α,ω-DICARBOXYLIC ACIDS

Guenther Koehler, and Josef Metz, both of Marl, Germany, assignors to Huels Aktiengesellschaft, Marl, Germany

Filed Jun. 9, 1997, Ser. No. 871,586

Claims priority, application United Kingdom, Jun. 13, 1996, 19623585

Int. Cl.^{6} C07C *69/34;67/00*

U.S. Cl. 560—190 **15 Claims**

1. A process for preparing a diester of higher α,ω-dicarboxylic acids comprising:

continuously feeding a cycloaliphatic ketone having 8 to 20 ring members, at least an equimolar amount of a carbonic diester and a catalytic amount of a strongly basic agent to a reaction zone, wherein said catalytic amount of said strongly basic agent is an amount of from 0 05 to 0.5 equivalents per mole of cycloaliphatic ketone wherein condensation of the cycloaliphatic ketone with the carbonic diester to give a cyclic β-keto acid ester enolate and ring-opening of the cyclic β-keto acid ester enolate by an alcohol to give the α,ω-dicarboxylic diester take place in said reaction zone and continuously removing an amount of the resulting reaction mixture from the reaction zone in an amount sufficient to maintain a steady state level of reaction mixture in the reaction zone.

5,786,503

Patent Not Issued For This Number

5,786,504
POLYMERIZATION CATALYST PROMOTER

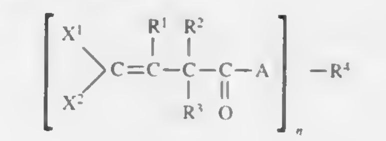
Walter Nudenberg, Newton; Catherine Ann McGeary, Meriden; Xu Wu Feng, Bethany, and Francis Xavier O'Shea, Naugatuck, all of Conn., assignors to Uniroyal Chemical Company, Inc., Middlebury, Conn.

Filed May 15, 1996, Ser. No. 649,736

Int. Cl.^{6} C07C *69/62;327/00*

U.S. Cl. 560—219 **23 Claims**

1. A compound of the formula:



$$\left[\begin{matrix}X^1\\ X^2\end{matrix}\!>C=\overset{R^1}{\overset{|}{C}}-\overset{R^2}{\overset{|}{\underset{R^3}{\underset{|}{C}}}}-\underset{\underset{O}{\|}}{C}-A\right]_n-R^4$$

wherein

n is 1, 2, 3, or 4;

X^1 and X^2 are each, independently, chlorine or bromine;

A is O or S;

R^1 is hydrogen or C_1–C_{16} alkyl;

R^2 is C_1–C_{16} alkyl, C_6–C^{16} aryl, C_1–C_4 alkylidene, or CH_2OR^5;

R^3 is hydrogen, chlorine, bromine, or OR^6;

R^4 is C_4–C_{16} alkyl, C_2–C_{16} alkenyl, or C_6–C_{18} aryl;

R^5 is hydrogen, C_1–C_{16} alkyl, C_7–C_{16} aralkyl, C_2–C_{16} alkenyl, or C_6–C_{18} aryl; and

R^6 is hydrogen or C_1–C_{16} alkyl, wherein R^3 is absent when R^2 is C_1–C_4 alkylidene.

5,786,505
METHOD AND REACTION PATHWAY FOR SELECTIVELY OXIDIZING ORGANIC COMPOUNDS

Donald M. Camaioni, and Michael A. Lilga, both of Richland, Wash., assignors to Battelle Memorial Institute, Richland, Wash.

Division of Ser. No. 56,577, Apr. 30, 1993, Pat. No. 5,585,515, which is a continuation of Ser. No. 679,689, Apr. 3, 1991, abandoned. This application Jul. 3, 1996, Ser. No. 678,440

Int. Cl.^{6} C07C *69/63;27/10;27/12;27/16*

U.S. Cl. 560—227 **17 Claims**

1. A method of oxidizing a hydrocarbon compound having at least two saturated carbon atoms in a single vessel, comprising the steps of:

combining in the single vessel the hydrocarbon compound, an acid solution in which the hydrocarbon compound is soluble, a compound containing two oxygen atoms bonded to one another, and a reactant metal ion reducing agent capable of reducing one of the oxygen atoms of the compound containing two oxygen atoms bonded to one another, and thereby forming a mixture; the acid solution comprising H^+ ion and an acid counter ion;

maintaining the mixture at an effective temperature and effective pressure for a sufficient amount of time and reducing the compound containing the two oxygen atoms bonded to one another by reducing one of such oxygen atoms with the reactant metal ion reducing agent to, a) oxidize the metal reactant ion reducing agent to a higher valence state, and b)

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produce an oxygen containing intermediate capable of oxidizing the hydrocarbon compound;

reacting the oxygen containing intermediate with the hydrocarbon compound and not with the acid solution to oxidize the hydrocarbon compound in the acid solution into an oxidized hydrocarbon intermediate, the oxidized hydrocarbon intermediate having an oxidized carbon atom; and

reacting the oxidized hydrocarbon intermediate with the higher valence state metal ion to produce a quantity of an olefin.

5,786,506

PROCESS FOR DISTILLATION OF CRUDE ISOCYANATE CONCENTRATES

Stephen A. Diblase, Euclid, Ohio; Larry W. Arndt, Pasedena; Gregory M. Stansfield, Seabrook, both of Tex., and Louis A. Renbaum, Pittsburgh, Pa., assignors to The Lubrizol Corporation, Wickliffe, Ohio, and Miles Inc., Pittsburgh, Pa.

Continuation of Ser. No. 659,411, Mar. 11, 1991, abandoned, which is a continuation-in-part of Ser. No. 470,431, Jan. 24, 1990, abandoned, which is a continuation of Ser. No. 319,011, Mar. 3, 1989, abandoned. This application Dec. 4, 1992, Ser. No. 986,878

Int. Cl.^{6} C07C *251/00*

U.S. Cl. 560—352 **2 Claims**

1. A process for the separation and recovery of isocyanate monomers from isocyanate concentrates formed in the production of isocyanates and comprising a volatile isocyanate monomer and by-products which comprises the steps of:

(A) preparing a mixture comprising
  (A-1) the isocyanate concentrate; and
  (A-2) an oil solution comprising:
    (A-2-a) a major amount of hydrocarbon oil, and
    (A-2-b) a minor amount of at least one dispersant selected from the group consisting of (1) a carboxylic dispersant prepared by reacting a substituted carboxylic acid or derivative thereof with an amine having present within its structure at least one >NH group, or a basic inorganic material, (2) an amine dispersant prepared by reacting an aliphatic or alicyclic halide with an amine, (3) a Mannich dispersant, and (4) a product obtained by post-treating (1), (2), or (3) with a member selected from the group consisting of urea, thiourea, carbon disulfide, an aldehyde, a ketone, a carboxylic acid, a hydrocarbon-substituted anhydride, a nitrile, an epoxide, a boron compound, and a phosphorus compound, provided that the dispersant is not an ester obtained by reacting at least one substituted succinic acylating agent with at least one alcohol of the general formula

$$R_1(OH)_m \qquad (I)$$

wherein R_1 is a monovalent or polyvalent organic group joined to the OH groups through carbon bonds, and m is an integer of from 1 to about 10, and

(B) heating the mixture to an elevated temperature whereby isocyanate monomer is distilled and recovered, leaving a liquid residue wherein the oil solution (A-2) also contains
  (A-2-c) a minor amount of at least one neutral or basic alkali metal or alkaline earth metal salt of at least one acidic organic compound.

5,786,507

PROCESS FOR THE PREPARATION OF 3-PHENYLPROPIONIC ACID

Anna M. C. F. Castelijns, Beek; Johanna M. Hogeweg, Sittard, and Simon P. J. M. van Nispen, Beek, all of Netherlands, assignors to DSM N.V., Heerlen, Netherlands

Filed Apr. 16, 1997, Ser. No. 834,380

Claims priority, application Netherlands, Oct. 17, 1994, 9401707

Int. Cl.^{6} C07C *51/235;51/16*

U.S. Cl. 562—412 **12 Claims**

1. A process for the preparation of 3-phenylpropionic acid in which 3-phenylpropanal is subjected to an oxidation using a medium containing molecular oxygen, at an elevated temperature between 40° and 80° C.

5,786,508

SUBSTITUTED KYNURENINES AND PROCESS FOR THEIR PREPARATION

Robert Schwarcz, Baltimore, Md.; Mario Varasi, Milan, Italy; Arturo Della Torre, Varese, Italy; Carmela Speciale, and Alberto Bianchetti, both of Milan, Italy, assignors to Pharmacia & Upjohn S.p.A., Milan, Italy, and University of Maryland at Baltimore, Baltimore, Md.

PCT No. PCT/US94/07804, § 371 Date Apr. 6, 1995, § 102(e) Date Apr. 6, 1995, PCT Pub. No. WO95/04714, PCT Pub. Date Feb. 16, 1995

PCT Filed Jul. 15, 1994, Ser. No. 411,656

Int. Cl.^{6} A61K *31/195;* **C07C** *239/36*

U.S. Cl. 562—444 **4 Claims**

1. A compound selected from the group consisting of:
2-amino-4-(2-amino-5-bromophenyl)-4-oxo-butyric acid;
2-amino-4-(2-amino-5-n-propylphenyl)-4-oxo-butyric acid;
2-amino-4-(2-amino-5-isopropylphenyl)-4-oxo-butyric acid;
2-amino-4-(2-amino-5-cyclohexylphenyl)-4-oxo-butyric acid;
either as a levorotatory isomer or as a mixture of isomers, and the pharmaceutically acceptable salts thereof.

5,786,509

METHOD AND COMPOSITIONS FOR AUTHENTICATING A PRODUCT OR DOCUMENT

Blake Quenten Belding, West Chester; JoAnn Silknitter, Pottstown; Kevin Bruce Stevenson, Downingtown, and Terry William Stovold, Honey Brook, all of Pa., assignors to Nocopi Technologies, Inc., Wayne, Pa.

Division of Ser. No. 455,949, May 31, 1995, Pat. No. 5,595,590. This application Sep. 27, 1996, Ser. No. 722,329

Int. Cl.^{6} C09D *11/02*

U.S. Cl. 564—223 **20 Claims**

1. A composition for use as an activator for a leucodye, wherein the activator is wet micronized and comprises at least one selected from the group consisting of amidophenol, anilides with hydroxyl groups and benzoamides with hydroxyl groups.

5,786,510

PREPARATION OF AMINES FROM OLEFINS OVER CRYSTALLINE OXIDES BASED ON ALUMINUM PHOSPHATES AND HAVING FAUJASITE STRUCTURE

Karsten Eller, Ludwigshafen; Rudolf Kummer, Frankenthal, and Peter Stops, Altrip, all of Germany, assignors to BASF Aktiengesellschaft, Ludwigshafen, Germany

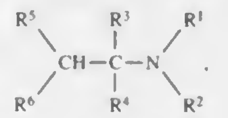
Filed Jan. 16, 1997, Ser. No. 784,772

Claims priority, application Germany, Jan. 17, 1996, 196 01 409.3

Int. Cl.^{6} C07C *209/02*

U.S. Cl. 504—485 **13 Claims**

1. A process for the preparation of an amine of the formula I



$$R^5R^6CH-C(R^3)(R^4)-NR^1R^2 \qquad (I)$$

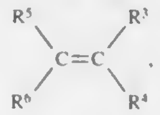
in which

R^1, R^2, R^3, R^4, R^5, and R^6 denote hydrogen, C_1–C_{20} alkyl, C_2–C_{20} alkenyl, C_2–C_{20} alkynyl, C_3–C_{20} cycloalkyl, C_4–C_{20} alkylcycloalkyl, C_4–C_{20} cycloalkylalkyl, aryl, C_7–C_{20} alkylaryl or C_7–C_{20} aralkyl,

R^1 and R^2 together denote a saturated or unsaturated C_3–C_8 alkylene dichain and

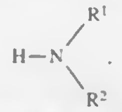
R^3 or R^5 denotes C_{21}–C_{200} alkyl, C_{21}–C_{200} alkenyl or they together form a C_2–C_{12} alkylene dichain,

by the reaction of olefins of the formula II



$$R^5R^6C=CR^3R^4 \qquad (II)$$

in which R^3, R^4, R^5 and R^6 have the aforementioned meanings, with ammonia or primary of secondary amines of the formula III



$$H-NR^1R^2 \qquad (III)$$

in which R^1 and R^2 have the aforementioned meanings,
at temperatures ranging from 200° to 350° C. and pressures of from 100 to 300 bar in the presence of a heterogeneous catalyst, wherein the heterogeneous catalyst is a crystalline oxide based on an aluminum phosphate and having faujasite structure, which is produced in the reactor (in situ) by calcination of the template-containing form.

5,786,511

PROCESS FOR THE PREPARATION OF ORGANIC DISULPHIDES AND POLYSULPHIDES IN THE PRESENCE OF POLYSTYRENE-DIVINYL-BENZENE POSSESSING PRIMARY AMINE GROUPS

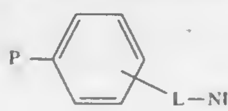
Emmanuel Arretz, Pau, France, assignor to Elf Aquitaine Production, France

Filed Dec. 11, 1996, Ser. No. 764,012

Int. Cl.^{6} C07C *319/22*

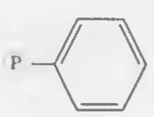
U.S. Cl. 568—21 **15 Claims**

1. In a process for the preparation of organic disulphides and polysulphides by reaction of sulphur with a mercaptan or with a polysulphide of lower sulphur order so as to convert said polysulphide into a polysulphide of higher order, or by reaction of a mercaptan with an organic polysulphide of high sulphur order so as to convert the latter polysulphide into a polysulphide of lower sulphur order, in the presence of a catalyst in the form of a resin with a basic function, the improvement wherein the resin is based on polystyrene-divinylbenzene (PS-DVB) functionalized with primary amine groups and having the general formula (I):



(I)

wherein:



is the PS-DVB resin support, and L is a linear organic radical which is at least as long as methylene (—CH_2—).

5,786,512

MODIFIED PHOSPHOROUS INTERMEDIATES FOR PROVIDING FUNCTIONAL GROUPS ON THE 5' END OF OLIGONUCLEOTIDES

David S. Jones; John P. Hachmann; Michael J. Conrad, all of San Diego; Stephen Coutts, Rancho Santa Fe, and Douglas Alan Livingston, San Diego, all of Calif., assignors to LaJolla Pharmaceutical Company, San Diego, Calif.

Division of Ser. No. 915,589, Jul. 15, 1992, Pat. No. 5,391,785, which is a continuation-in-part of Ser. No. 731,055, Jul. 15, 1991, abandoned, which is a continuation-in-part of Ser. No. 494,118, Mar. 30, 1990, Pat. No. 5,162,515, which is a continuation-in-part of Ser. No. 468,138, Jan. 22, 1990, Pat. No. 5,136,115. This application Nov. 8, 1994, Ser. No. 335,687

Int. Cl.^{6} C07C *321/00;323/00;381/00*

U.S. Cl. 568—22 **2 Claims**

1. A disulfide of the formula

$$Y^3—O—G—S—S—G—OH$$

wherein the G is a hydrocarbylene group of 1 to 20 carbon atoms and Y^3 is a hydroxyl protecting group selected from the group consisting of dimethoxytrityl, trityl, pixyl, benzoyl, isobutyryl, p-bromobenzoyl, t-butyldimethylsilyl and pivaloyl.

2. A disulfide of the formula

$$Y^3—O—G—S—S—G—OH$$

wherein Y^3 is dimethoxytrityl and G is hexylene.

5,786,513

INHIBITORS OF HYDROXYPHENYLPYRUVATE DIOXYGENASE AND AN ASSAY FOR IDENTIFICATION OF INHIBITORS

Arno Schulz, Eppstein, Germany, assignor to Hoechst Aktiengesellschaft, Frankfurt, Germany

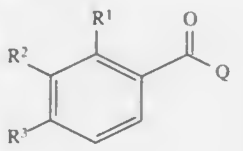
Division of Ser. No. 369,875, Jan. 6, 1995, which is a continuation of Ser. No. 200,741, Feb. 23, 1994, abandoned. This application Jun. 5, 1995, Ser. No. 462,621

Claims priority, application Germany, Feb. 25, 1993, 43 05 696.2

Int. Cl.^{6} C07C *317/14*

U.S. Cl. 568—31 **2 Claims**

1. A p-hydroxyphenylpyruvate dioxygenase inhibitor identified by the general formula (I)



(I)

wherein:
R^1 is Cl,
R^2 is H,
R^3 is methylsulfonyl, and
Q is 2,4-dichloro-6-hydroxyphenyl.

5,786,514

PROCESS FOR ALKOXYLATING CARBONYL-FUNCTIONALIZED PHENOLS USING DOUBLE METAL CYANIDE CATALYSTS

Jianzhong Shen, West Chester; Sujuan Ba, Wayne; David M. Braunstein, Berwyn, and Haven S. Kesling, Jr., Drexel Hill, all of Pa., assignors to Arco Chemical Technology, L.P., Greenville, Del.

Filed Dec. 18, 1996, Ser. No. 769,197

Int. Cl.^{6} C07C *45/70*

U.S. Cl. 568—315 **19 Claims**

1. A process comprising reacting a carbonyl-functionalized phenol with an alkylene oxide in the presence of a substantially non-crystalline double metal cyanide (DMC) catalyst to produce an alkoxylated carbonyl-functionalized phenol.

19. An alkoxylated carbonyl-functionalized phenol made by the process of claim 1.

5,786,515

SYNTHESIS OF α-CHLORO OR FLUORO KETONES

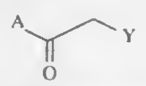
Ulf H. Dolling, Westfield; Lisa F. Frey, Piscataway; Richard D. Tillyer, Westfield, and David M. Tschaen, Holmdel, all of N.J., assignors to Merck & Co., Inc., Rahway, N.J.

Filed Aug. 30, 1996, Ser. No. 706,041

Int. Cl.^{6} C07C *45/62*

U.S. Cl. 568—316 **8 Claims**

1. A process of making an a-chloro or fluoro ketone of the formula I



I

wherein Y is chloro or fluoro and A is a carbon nucleophile, comprising:

(a) reacting an organometallic reagent of formula II

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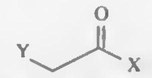
A—M II

wherein M is Li or Mg, with a compound of formula III



III

wherein X is —NR(OR^1) R and R^1 are each independently linear or branched C_{1-3} alkyl, C_{3-6}cycloalkyl, or optionally substituted with C_{1-3}alkoxy, phenyl, substituted phenyl, wherein the substituent on the phenyl is selected from F, Cl, Br, methylthio, —OH, methoxy, aminothio, and C_{1-3} alkyl
in an organic aprotic solvent, and

(b) reacting, without further purification, the product of step (a) with an aqueous solution of acid G, to yield an organic aprotic solvent phase comprising compound of formula I and an aqueous solvent phase comprising compound of formula III'

$HNR(OR^1)\cdot G$ III'

5,786,516
PROCESS FOR THE PREPARATION OF ISOVANILLIN

Christian Maliverney, Lyons, France, assignor to Rhone-Poulenc Chimie, Courbevoie, France

Continuation of Ser. No. 546,648, Oct. 23, 1995, Pat. No. 5,648,552. This application Feb. 14, 1997, Ser. No. 800,818

Claims priority, application France, Oct. 24, 1994, 94 12661

Int. Cl.^{6} C07C *45/65*

U.S. Cl. 568—433 **28 Claims**

1. A process for the preparation of isovanillin, comprising carrying out a dealkylation, selectively in the 3-position of a 3-alkoxy-4-methoxybenzaldehyde using a strong acid wherein said alkoxy group has at least two carbon atoms .

5,786,517
METAL-LIGAND COMPLEX CATALYZED PROCESSES

David Robert Bryant, South Charleston, and James Clair Nicholson, St. Albans, both of W. Va., assignors to Union Carbide Chemicals & Plastics Technology Corporation, Danbury, Conn.

Filed Nov. 26, 1996, Ser. No. 753,503

Int. Cl.^{6} C07C *45/50*

U.S. Cl. 568—454 **20 Claims**

1. A process for separating one or more phosphorus acidic compounds from a reaction product fluid containing said one or more phosphorus acidic compounds, a metal-organophosphite ligand complex catalyst and optionally free organophosphite ligand which process comprises treating said reaction product fluid with water sufficient to remove at least some amount of said one or more phosphorus acidic compounds from said reaction product fluid, wherein said reaction product fluid comprises an organic phase and said water comprises a separate aqueous or water phase.

5,786,518
PROCESS FOR THE MANUFACTURE OF A GAMMA-HALOTIGLIC ALDEHYDE

Bruno Burdet, Baldersheim, France; Paul Nösberger, Birsfelden, and August Rüttimann, Arlesheim, both of Switzerland, assignors to Roche Vitamins Inc., Parsippany, N.J.

Filed Aug. 1, 1997, Ser. No. 904,523

Claims priority, application European Pat. Off., Aug. 19, 1996, 96113248

Int. Cl.^{6} C07C *45/00*

U.S. Cl. 568—487 **8 Claims**

1. A process for making a γ-chloro- or γ-bromotiglic aldehyde of the formula:

$HalH_2C—CH=C(CH_3)—CHO$ I

wherein Hal is chlorine or bromine,
which process comprises:

1) haloalkoxylating a 1-alkoxy-2-methyl-1,3-butadiene of the formula:

$H_2C=CH—C(CH_3)=CH—OR^1$ II

wherein R^1 is C_{1-4}-alkyl,
by reacting the 1-alkoxy-2-methyl-1,3-butadiene with a halogenating agent and an alcohol of the formula R^{2}OH, wherein the halogenating agent is selected from the group consisting of an alkali metal hypochlorite, an alkali metal hypobromite, an alkaline earth metal hypochlorite, an alkaline earth metal hypobromite, tert.butyl hypochlorite, N-bromoacetamide, 1,3-dichloro-5,5-dimethyl-hydantoin and 1,3-dibromo-5,5-dimethyl-hydantoin, and R^2 is C_{1-4}-alkyl, to obtain a γ-halotiglic aldehyde dialkyl acetal of the formula:

$HalH_2C—CH=C(CH_3)—CH(OR^1)(OR^2)$ III

wherein Hal, R^1 and R^2 are as above, and
2) hydrolyzing the γ-halotiglic aldehyde dialkyl acetal under hydrolysis conditions, whereby the γ-chloro- or γ-bromotiglic aldehyde is produced.

5,786,519
PROCESS FOR THE PREPARATION OF A MIXTURE OF GUAIACOL AND P-METHOXY PHENOL

Pramod Prabhakar Moghe; Paul Ratnasamy, both of Pune; Robert Raja, Madras; Ashwini Vinayak Pol, Pune; Madhav Gopal Kotasthane, Pune, and Prakash Kondiba Bahirat, Pune, all of India, assignors to Council of Scientific & Industrial Research, New Dehli, India

Filed Feb. 16, 1996, Ser. No. 602,600

Int. Cl.^{6} C07C *41/26*

U.S. Cl. 568—629 **14 Claims**

1. A process for the preparation of a mixture of guaiacol and p-methoxy phenol which comprises reacting anisole with hydrogen peroxide in the presence of a solid organotransition metal complex selected from the group consisting of phthalocyanines and porphyrins, wherein some or all of the hydrogen atoms of the said organotransition metal complex have been substituted by one or more electron withdrawing groups selected from the group consisting of halogens, the nitro group, the cyano group, and mixtures thereof, and wherein said organotransition metal complex is insoluble in reaction solvents, at a temperature in the range of about 20° C. to about 85° C., and isolating the mixture of guaiacol and p-methoxy phenol formed.

5,786,520
O-ALKYLATION OF PHENOLIC COMPOUNDS VIA RARE EARTH ORTHOPHOSPHATE CATALYSTS

Laurent Gilbert; Marcelle Janin, both of Lyons; Anne-Marie Le Govic, Paris, and Philippe-Jean Tirel, Oullins, all of France, assignors to Rhone-Poulenc Chimie, Courbevoie Cedex, France

Continuation of Ser. No. 420,709, Apr. 11, 1995, abandoned, which is a continuation of Ser. No. 157,284, Nov. 26, 1993, abandoned. This application Oct. 15, 1996, Ser. No. 732,831

Claims priority, application France, Nov. 25, 1992, 92 14154

Int. Cl.^{6} C07C *43/02*

U.S. Cl. 568—630 **33 Claims**

1. A process for the preparation of a carbocyclic/aliphatic ether, comprising reacting a phenolic compound with an alcohol, in gaseous phase, in the presence of a catalytically effective amount of a trivalent rare earth metal orthophosphate, wherein the trivalent rare earth metal orthophosphate is a compound in which the molar ratio between the phosphate anion and the trivalent rare earth metal cation is about 1 plus or minus 0.2.

5,786,521
PROCESS FOR PREPARING HYDROXYMETHYLCYCLOPROPANE

Gerhard Darsow, Krefeld; Lutz Frohn, Erkrath, and Reinhard Langer, Krefeld, all of Germany, assignors to Bayer Aktiengesellschaft, Leverkusen, Germany

Filed Mar. 14, 1997, Ser. No. 818,588

Claims priority, application Germany, Mar. 21, 1996, 196 11 142.0

Int. Cl.^{6} C07C *27/10*

U.S. Cl. 568—700 **9 Claims**

1. A liquid- or trickling-phase process for preparing hydroxymethylcyclopropane from alkyl cyclopropanecarboxylates, which comprises hydrogenating alkyl cyclopropanecarboxylates with excess hydrogen at reaction temperatures of from 100° to 190° C. and a hydrogen pressure of from 30 to 400 bar in the presence of a reduced pelletized catalyst having dimensions in the range from 2 to 10 mm, a compressive strength of from 50 to 200N on the surface of the shaped body, an internal surface area of from 10 to 90 m^2/g. and which is obtainable by pressing a mixture of pulverulent copper, zinc and aluminum oxides. said pulverulent mixture of oxides having a proportion of aluminum of from 0.2 to 6% by weight. and subsequent reduction.

5,786,522
MANUFACTURE OF BISPHENOL-A

Michael J. Cipullo, Prattville, Ala., assignor to General Electric Company, Pittsfield, Mass.

Filed Sep. 13, 1996, Ser. No. 712,929

Int. Cl.^{6} C07C *37/84*

U.S. Cl. 568—724 **8 Claims**

1. A process for the manufacture of BPA, which comprises; condensing phenol with acetone in a reaction zone, in the presence of a stoichiometric excess of phenol and a catalytic proportion of an acid catalyst, whereby a reaction zone effluent is obtained

(a) comprising unreacted phenol, unreacted acetone, water, tars and by-product isomers of BPA including o,p-BPA;
(b) precipitating crystals of the p,p-BPA/phenol adduct from the effluent, leaving a mother liquor;
(c) purging at least a portion of the mother liquor from the process;
(d) recrystallizing the separated crystals of p,p-BPA/phenol adduct;
(e) dewatering and distilling the purge or by-product stream to obtain a lights fraction containing o,p-BPA; and
(f) adding at least a portion of the lights fraction to the p,p-BPA/phenol adduct separated from the mother liquor before the recrystallization of step (d) above, to adjust the o,p-BPA content thereof to a color-stabilizing proportion in the amount of from about 0.01 to about 3% by weight of p,p-BPA.

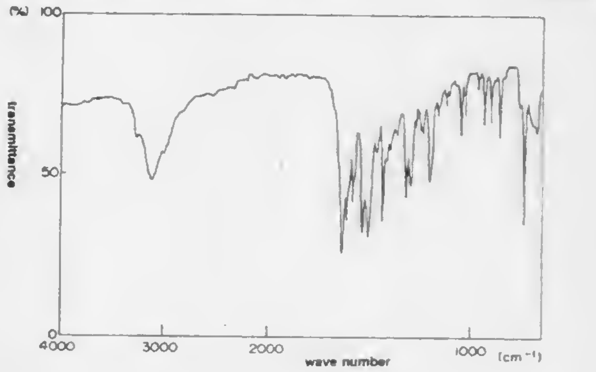
5,786,523
NAPHTHOL DERIVATIVES AND PROCESS FOR PRODUCING THE SAME

Ryuzo Ueno; Shigeru Ito, both of Hyogo; Kenji Minami, Osaka, and Masaya Kitayama, Hyogo, all of Japan, assignors to Kabushiki Kaisha Ueno Seiyaku Oyo Kenkyujo, Osaka, Japan

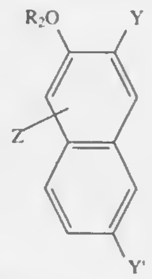
Division of Ser. No. 764,269, Dec. 12, 1996. This application Nov. 18, 1997, Ser. No. 972,480

Int. Cl.^{6} C07C *39/14*

U.S. Cl. 568—735 **4 Claims**



1. Naphthol derivatives represented by the general formula (I):



(I)

wherein
- Y is —COR;
- Y' is —COR';
- R and R' may be the same or different and indicate a hydroxyl group, an optionally branched alkoxy group having 1 to 6 carbon atoms, a halogen atom, a benzyloxy group, a phenyloxy group or a phenacyloxy group;
- R$_2$ is a hydrogen atom, an alkaline metal, an optionally branched alkyl group having 1 to 6 carbon atoms, an acyl group having 1 to 6 carbon atoms or a phenylalkylene group;
- Z is at least one croup selected from the group consisting of a hydrogen atom, a halogen atom, a nitro group, a nitroso group and an amino group Z may be substituted on any ring of the naphthalene ring; and
- n is an integer of 1 or 2;

provided that R$_2$ and Z are not simultaneously a hydrogen atom when R and R' simultaneously are a hydroxyl group.

5,786,524
PROCESS FOR PREPARATION OF 1,3-PROPANEDIOL VIA HYDROGENATION OF 3-HYDROXYPROPANAL

Joseph Broun Powell, Houston; William Ridley Pledger, Pearland; Andreas Nikolaos Matzakos, Missouri City; Paul Richard Weider, Houston, and Juan Pedro Arhancet, Katy, all of Tex., assignors to Shell Oil Company, Houston, Tex.

Filed May 30, 1996, Ser. No. 655,639

Int. Cl.^{6} C07C *31/18;27/04*

U.S. Cl. 568—862 **9 Claims**

1. A process for preparing 1,3-propanediol comprising the steps of:

(a) contacting, at a temperature within the range of about 50° to about 100° C. and a pressure within the range of about 500 to about 5000 psig, ethylene oxide with carbon monoxide and hydrogen in an essentially non-water-miscible solvent in the presence of an effective amount of a non-phosphine-ligated cobalt or rhodium catalyst and an effective amount of a

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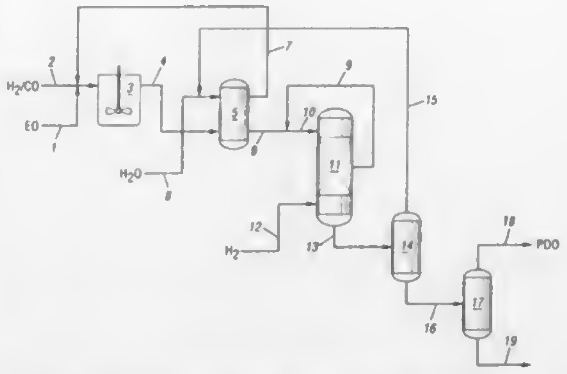


catalyst promoter under reaction conditions effective to produce an intermediate product mixture comprising less than 15 wt % 3-hydroxypropanal;

(b) adding an aqueous liquid to said intermediate product mixture and extracting into said aqueous liquid a major portion of the 3-hydroxypropanal at a temperature less than about 100° C. so as to provide an aqueous phase comprising 3-hydroxypropanal in a concentration of at least about 20 wt %, and an organic phase comprising at least a portion of the cobalt or rhodium catalyst or a cobalt- or rhodium-containing derivative thereof;

(c) separating the aqueous phase from the organic phase;

(d) diluting said aqueous phase with an aqueous solution of 1,3-proganediol to form a 3-hydroxypropanal solution having a 3-hydroxypropanal concentration within the range of about 0.2 to about 15 weight percent;

(e) passing said aqueous 3-hydroxypropanal solution to a hydrogenation zone and in contact with a fixed-bed hydrogenation catalyst under hydrogenation conditions to form an aqueous solution comprising 1,3-propanediol; and

(f) recovering said 1,3-propanediol.

ELECTRICAL

5,786,525

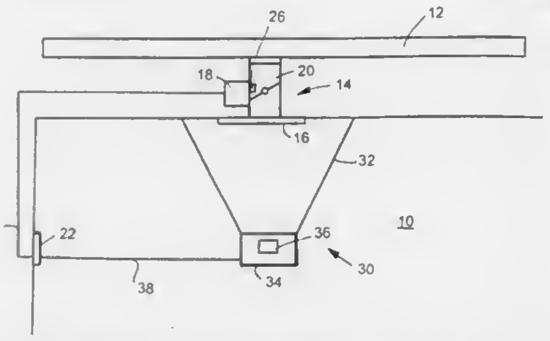
METHOD AND APPARATUS FOR BALANCING AN AIR DISTRIBUTION SYSTEM

Mark G. Freund, Oggiono, Italy, and Ronald Schram, Wauwatosa, Wis., assignors to Johnson Service Company, Milwaukee, Wis.

Filed Apr. 9, 1996, Ser. No. 629,607

Int. Cl.^{6} F24F *7/00*

U.S. Cl. 73—3 **12 Claims**



1. An apparatus for calibrating a variable-air-volume (VAV) device used in an air distribution system to control the flow of conditioned air from a conditioned air source through an air outlet into a zone within a building; the VAV device being disposed between said conditioned air source and said air outlet and including a sensor for sensing a parameter related to the volume of air flowing through the VAV device and producing a sensor output signal related thereto, and a VAV controller responsive to a control signal from an external zone control device for controlling the VAV device in accordance with the sensor output signal; said apparatus comprising:

a flow measuring assembly adapted to be coupled to said air outlet and having a flow measuring device for measuring the actual flow of conditioned air from said outlet into said zone and producing a flow output signal related thereto; and

a communication link for communicating said flow output signal to said VAV controller, said VAV controller being responsive to said flow output signal to calibrate said VAV device.

5,786,526

AIRBAG TESTING APPARATUS AND A METHOD THEREFOR

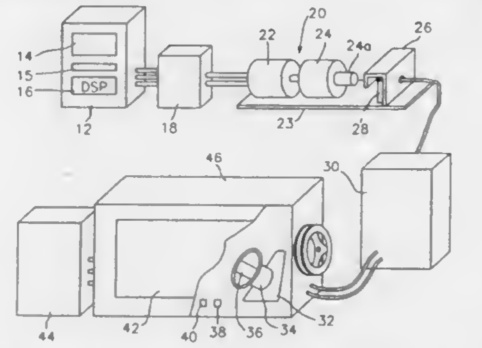
Sung-Kwang Byon, Seoul, Rep. of Korea, assignor to Daewoo Electronics Co., Ltd., Seoul, Rep. of Korea

Continuation-in-part of Ser. No. 534,430, Sep. 25, 1995, abandoned. This application Dec. 23, 1996, Ser. No. 780,082

Claims priority, application Rep. of Korea, Sep. 28, 1994, 94-24444

Int. Cl.^{6} G01P *21/00*

U.S. Cl. 73—12.01 **12 Claims**



1. In a testing apparatus for testing performance of an airbag system including an acceleration sensor, an electronic control unit (ECU) connected to said acceleration sensor for determining to deploy or not to deploy the air bag in accordance with an input acceleration signal, a gas generator connected to said ECU for generating gas for deploying said air bag in accordance with a deployment signal from said ECU and an airbag module expanding by said gas from said gas generator, said testing apparatus comprises:

digital crash signal generating means for processing crash pulse data obtained by an actual car-crash test, and generating a digital crash signal;

a shock controller connected to said digital crash signal generating means for generating a control pulse in response to said digital crash signal from said digital crash signal generating means;

a shock generator connected to said shock controller for being vibrated in accordance with said control pulse from said shock controller;

acceleration-sensor supporting means for supporting said acceleration sensor forming said airbag system to be tested for transmitting the vibration generated from said shock generator to said acceleration sensor;

an ECU test unit for mounting said ECU of said airbag system to be tested to monitor the operation of said ECU;

a tank tester integrally having a holder for installing said gas generator and airbag module of said airbag system to be tested;

a pressure sensor installed at said tank tester for sensing the pressure of said airbag when said deployment signal from said ECU is supplied to said gas generator to deploy said airbag module; and

an output unit connected with said ECU test unit and said pressure sensor for outputting monitored pressure values and data outputted from said ECU test unit,

wherein said ECU test unit comprises a main instruction processor for controlling the overall operation of said ECU test unit, an inflator squib driver connected to said main instruction processor for generating a squib ignition signal to said gas generator installed within said tank tester when said main instruction processor determines to deploy said airbag, an input output processor connected to said main instruction processor for outputting data to said output unit, an analog conversion module connected to said main instruction processor for converting an analog acceleration signal outputted from said acceleration sensor into a digital signal, a target module serving as a connecting port with which said ECU of said airbag contacts and being connected with said main instruction processor by a connecting line, and an external data acquisition module connected to said main instruction processor for receiving said acceleration signal outputted from said acceleration sensor.

5,786,527

METHOD AND APPARATUS FOR TESTING SOIL CONTAMINATION

André Tarte, 540 Morin, Longueuil (Québec), Canada, J4L 3Z7

PCT No. PCT/CA95/00198, § 371 Date Oct. 4, 1996, § 102(e) Date Oct. 4, 1996, PCT Pub. No. WO95/27911, PCT Pub. Date Oct. 19, 1995

PCT Filed Apr. 12, 1995, Ser. No. 718,505

Claims priority, application United Kingdom, Apr. 12, 1994, 9407200

Int. Cl.^{6} G01N *1/24;33/24*

U.S. Cl. 73—19.01 **7 Claims**

1. A method for determining the relative presence of a first fluid in a soil volume, the method including the step of treating a soil volume by injecting a second fluid into said soil volume for a period of time sufficient to reduce the presence of said first fluid,

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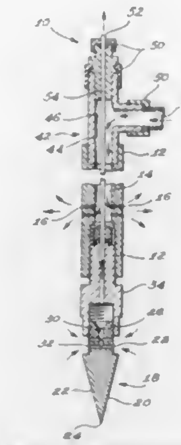


characterized by the step of subsequently measuring the rate of increase of the concentration of said first fluid in said soil volume.

5,786,528

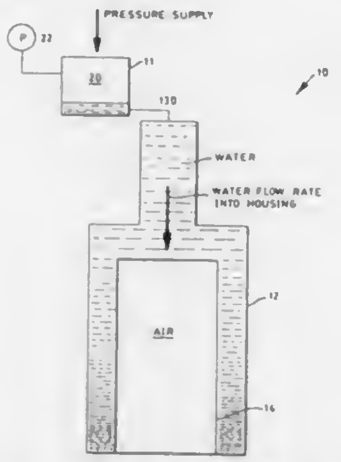
WATER INTRUSION TEST FOR FILTERS

Anthony J. Dileo, Westford, and Richard W. Gray, Chestnut Hill, both of Mass., assignors to Millipore Corporation, Bedford, Mass.

Filed Sep. 10, 1996, Ser. No. 711,755

Int. Cl.⁶ G01N *15/08*

U.S. Cl. 73—38 **11 Claims**



1. A method for determining the integrity and/or pore size distribution of a porous filter by water intrusion flow testing which comprises:

positioning said filter in a test cell.

introducing into said test cell a liquid a liquid which does not instantaneously filter into said test cell, the volume of said liquid being sufficient to surround said filter;

providing an enclosed gas space in fluid communication with said liquid, the combination of the volume of said gas space, the volume of said liquid surrounding said filter device and the volume of liquid within said filter device defining a system volume;

applying a pressure through said gas space to produce a composite liquid flowrate in said test cell consisting of a first flow component representative of a change in volume of said filter due to structural changes of said filter resulting form the compressive effects of applied pressure and a second flow component representative of liquid intrusion into and leaking from the pores of said filter;

calculating the cumulative volume of said gas space while pressure is applied to said filter to derive a value of said system volume at any time while pressure is applied;

determining an adjusted composite liquid flowrate measurement from said derived value of said system volume which is essentially solely indicative of said second flow component; and

correlating said adjusted composite liquid flowrate with a predetermined flowrate value indicative of known integral and/or rated pore size filters whereby the integrity and/or pore size distribution of said filter under test may be accurately determined.

5,786,529

SEARCH GAS DETECTOR WITH VACUUM PUMP AND PROCESS FOR OPERATING SUCH A SEARCH GAS DETECTOR

Gunter Voss, Much, and Anno Schoroth, Konigswinter, both of Germany, assignors to Leybold Aktiengesellschaft, Germany

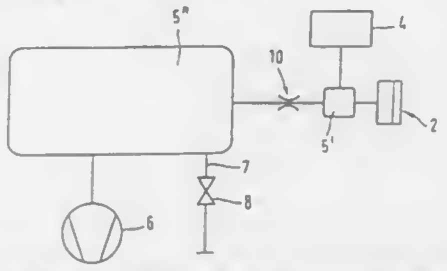
PCT No. PCT/EP94/02309, § 371 Date Feb. 1, 1996, § 102(e) Date Feb. 1, 1996, PCT Pub. No. WO95/04920, PCT Pub. Date Feb. 16, 1995

PCT Filed Jul. 14, 1994, Ser. No. 586,795

Claims priority, application Germany, Aug. 5, 1993, 43 26 264.3

Int. Cl.⁶ G01M *3/20*

U.S. Cl. 73—40.7 **7 Claims**



1. Search gas detector (**1**), for leak detection instruments, comprising:

a gas inlet (**2**);

a vacuum pump (**3**, **6**);

an apparatus through which a presence of search gas is recorded;

said vacuum pump (**3**, **6**) being able to substantially pump all reactive gases;

said search gas recording apparatus (**4**) being able to detect an enrichment of said search gas;

said gas inlet (**2**) being effective for permitting substantially only said search gas to pass therethrough:

a first chamber (**5'**) to which said gas inlet (**2**) and said search gas recording apparatus (**4**) are connected;

a second chamber (**5"**) to which said vacuum pump (**3**, **6**) is connected;

said first and second chambers (**5'**, **5"**) being connected by a constrictive line (**10**); and

said second chamber (**5"**) having a relatively large volume compared to a volume of said first chamber (**5'**).

5,786,530

TESTING OF PACKAGES

Christopher Fenlon, Bristol, Great Britain, assignor to Ishida Co., Ltd., Kyoto, Japan

PCT No. PCT/GB95/01010, § 371 Date Nov. 1, 1996, § 102(e) Date Nov. 1, 1996, PCT Pub. No. WO95/30137, PCT Pub. Date Nov. 9, 1995

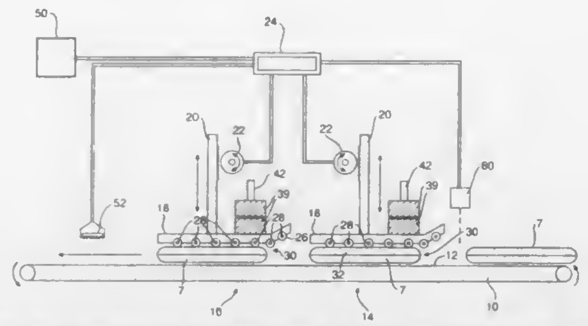
PCT Filed May 3, 1995, Ser. No. 732,374

Claims priority, application United Kingdom, May 3, 1994, 9408705

Int. Cl.⁶ G01M *3/34*

U.S. Cl. 73—49.3 **7 Claims**

1. Test apparatus comprising conveyor means for conveying an object along a conveying path and through one or more test stations arranged along the conveying path, at least one of said test



stations comprising a test head which is freely movable toward and away from the conveying path; said test head being urged solely by gravity towards the conveying path so that an object being conveyed along the path which contacts the head urges the head away from the conveying path; said test head having a contact surface comprising an array of free running rollers adapted to contact and to allow continuing movement of an object along the conveying path; said test station being actuated by the displacement of the test head by contact of the test head with an object moving along the conveying path, there being no additional means for synchronising the action of the test station with the arrival of an object at the test station; and means for monitoring displacement of the head, said displacement monitoring means comprising means for measuring the displacement of the head and means for providing an output signal related to the measured displacement of the head.

5,786,531

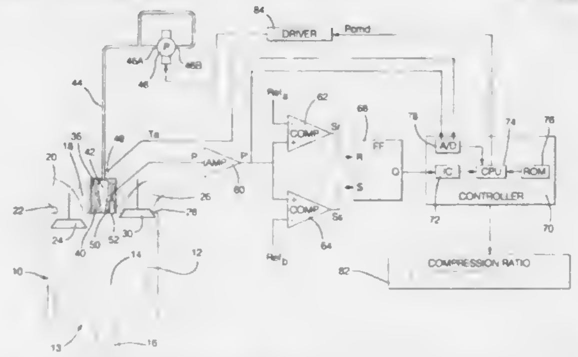
COMPRESSION RATIO MEASUREMENT

Earl O. Lewis, Fowlerville, and Steven Frederick Haller, Highland, both of Mich., assignors to General Motors Corporation, Detroit, Mich.

Filed Feb. 27, 1997, Ser. No. 807,156

Int. Cl.⁶ G01M *15/00*

U.S. Cl. 73—116 **9 Claims**



6. An engine cylinder compression ratio measurement system, comprising:

an air pulse supply;

an air passage between the air pulse supply and the engine cylinder for communicating air pulses between the air pulse supply and the engine cylinder;

a pressure transducer exposed to the gasses within the engine cylinder for transducing cylinder gas pressure into a pressure signal;

drive circuitry for driving the air pulse supply to communicate air pulses to the cylinder;

sensor circuitry for detecting when the engine is at a predetermined rotational position within an engine cycle at which predetermined rotational position the volume of the cylinder is specified;

circuitry for receiving the pressure signal and generating a time rate of change in pressure as a function of the received pressure signal upon detecting that the engine is at the predetermined rotational position and while the air pulse supply is communicating air pulses to the cylinder; and

arithmetic logic circuitry for generating an estimate of cylinder compression ratio as a function of the time rate of change in pressure and of the specified cylinder volume.

5,786,532

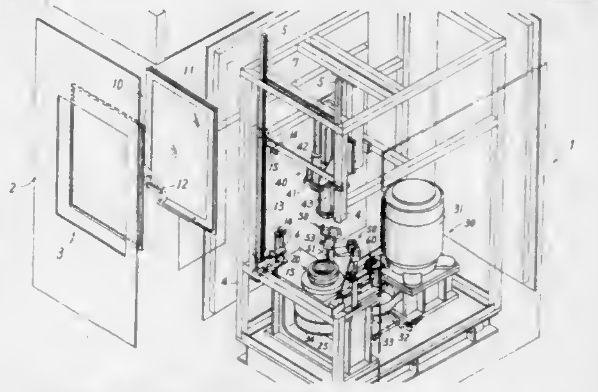
BRAKE FIT ADJUSTER

Makoto Yamazaki; Hitoshi Morita, both of Suzuka, and Kyoichi Nishiwaki, Kameyama, all of Japan, assignors to Honda Giken Kogyo Kabushiki Kaisha, Tokyo, Japan

Filed Feb. 7, 1997, Ser. No. 796,993

Int. Cl.⁶ G01L *5/28*

U.S. Cl. 73—121 **3 Claims**



1. A brake fit adjuster, comprising:

a rotatable drum support for supporting a brake drum right side up;

a brake shoe unit mounting mechanism for elevating a brake shoe unit and holding and mounting the brake shoe unit on the brake drum;

a brake shoe unit locking mechanism for preventing the rotation of the brake shoe unit by engaging a portion of the brake shoe unit; and

a brake shoe unit pressing mechanism for pressing the brake shoe unit against a surface of the brake drum, said pressing mechanism including a tightening wire having a first end connected to the brake shoe unit for transmitting to the brake shoe unit a pressing force corresponding to a tensile force applied to the wire.

5,786,533

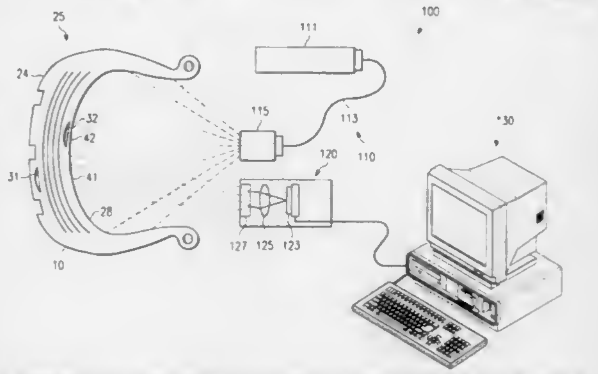
METHOD FOR ANALYZING A SEPARATION IN A DEFORMABLE STRUCTURE

John W. Newman, Newtown, Pa., assignor to Michelin North America, Inc., Greenville, S.C.

Continuation-in-part of Ser. No. 633,669, Apr. 17, 1996, abandoned. This application Jan. 21, 1997, Ser. No. 785,095

Int. Cl.⁶ G01M *17/00*

U.S. Cl. 73—146 **8 Claims**



1. Method for determining a depth of a separation in the material of a deformable structure comprising the steps of:

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subjecting the deformable structure to a plurality of predetermined deforming conditions, thereby forming a bulge in a surface of the deformable structure at each of the predetermined deforming conditions due to the separation in the deformable structure;

measuring an area of the bulge in a predetermined plane at each of the predetermined deforming conditions;

determining the depth of the separation in the material of the deformable structure from the area of the bulge for each of the predetermined deforming conditions.

5,786,534

Patent Not Issued For This Number

5,786,535

FLAW DETECTION APPARATUS EMPLOYING TIRE PROBES HAVING ULTRASONIC OSCILLATORS MOUNTED THEREIN

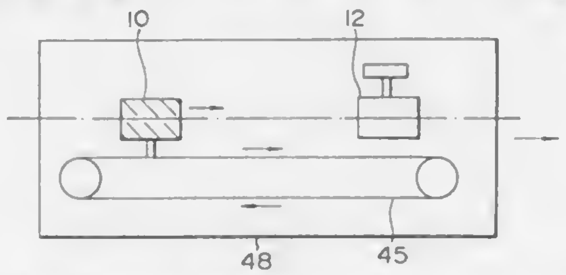
Shinichi Takeuchi; Ryo Ishiyama; Yutaka Kashiwase; Kinuko Kato, and Ryohei Motegi, all of Tokyo, Japan, assignors to Tokimec Inc., Tokyo, Japan

Division of Ser. No. 337,462, Nov. 8, 1994, Pat. No. 5,602,336. This application Nov. 15, 1996, Ser. No. 749,844

Claims priority, application Japan, Nov. 12, 1993, 5-282918

Int. Cl.^{6} G01N *29/06;29/10;29/26*

U.S. Cl. 73—624 **1 Claim**



1. A flaw detection apparatus, comprising:

a tire probe comprising a frame, and a pair of tires each having an ultrasonic oscillator for transmission or reception of ultrasonic waves, said pair of tires arranged on a line along an advancing direction of said frame, and a driving means for moving said frame on a test object through rotationally driving a first tire of said pair of tires and for moving a second tire of said pair of tires relative to the frame through rotationally driving said second tire of said pair of tires;

a control means for controlling said driving means to move said tire probe on the test object through rotationally driving said first tire of said pair of tires while changing a distance between said pair of tires through rotationally driving said second tire of said pair of tires;

a reception data acquisition memory means for acquiring and storing waveform data of ultrasonic reception signals at each of a plurality of predetermined positions during the rotational driving of said pair of tires; and

an adding means for adding each waveform data acquired with said reception data acquisition memory means at the plurality of predetermined positions.

5,786,536

Patent Not Issued For This Number

5,786,537

VIBRATORY GROUND-SURVEY SYSTEM

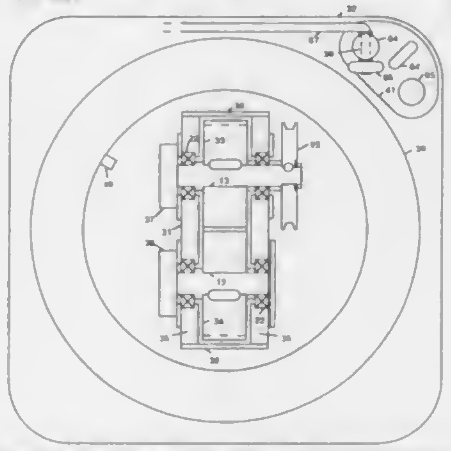
Nigel A. Anstey, Cedar Lodge, Glen Mona, Isle of Man, IM7 1HG, Great Britain

Filed Aug. 30, 1996, Ser. No. 705,767

Claims priority, application United Kingdom, Jul. 24, 1996, 9615576

Int. Cl.^{6} G01P *15/02*

U.S. Cl. 73—662 **5 Claims**



1. A ground survey system comprising in combination a vibrator adapted to vibrate the surface of the ground at a first location, energy-storage means capable of storing and releasing a defined quantity of energy, coupling means to release said energy into said vibrator to engender vibration at a chosen start frequency, transducing means for measuring the natural deceleration of the vibrator as the finite energy is dissipated and the frequency falls to a chosen end frequency, transporting means to allow the apparatus to be moved to second and further locations for comparative measurements, and display means for making a comparative display of the deceleration measurements on a map.

5,786,538

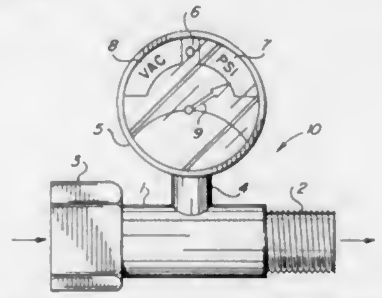
MARINE IMPELLER TESTER

Larry A. Barone, 7342 N. 43rd La., Glendale, Ariz. 85301

Continuation of Ser. No. 616,180, Mar. 15, 1996, Pat. No. 5,668,321, which is a division of Ser. No. 341,675, Nov. 17, 1994, Pat. No. 5,503,022, which is a continuation-in-part of Ser. No. 253,972, Jun. 3, 1994, Pat. No. 5,445,012, which is a continuation of Ser. No. 8,474, Jan. 25, 1993, abandoned. This application Mar. 25, 1997, Ser. No. 823,409

Int. Cl.^{6} G01L *7/00*

U.S. Cl. 73—714 **11 Claims**



1. Apparatus for testing an impeller of a marine engine drive unit comprising in combination:

a marine engine having a drive unit;

a cylinder;

an input connector for providing a flow of water to the cylinder before the marine engine is started;

an output connector on the cylinder for connecting the flow of water to the impeller of the marine engine drive unit;

an air bleed valve for bleeding air out of the cylinder in response to the flow of water;

a gauge connected to the cylinder for indicating the pressure of the flow of water;

a pointer on the gauge responsive to the pressure of the flow of water;

a rotatable dial having a vacuum pressure indication, a positive pressure indication, and a zero indication between the vacuum pressure and positive pressure indications for zeroing the pointer of the gauge after the flow of water has been provided for testing the impeller by responding to the flow of water after the marine engine is started whereby the movement of the pointer away from the zero indication after the marine engine is started provides an indication of the condition of the impeller.

5,786,539

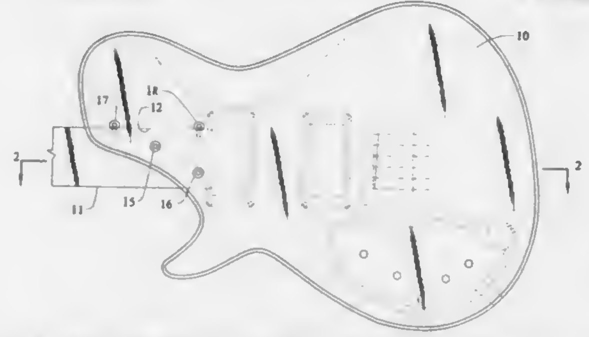
NECK JOINT FOR STRINGED MUSICAL INSTRUMENT

Richard Ned Steinberger, HC 64 Box 090B, Walpole, Me. 04573

Filed Jan. 16, 1996, Ser. No. 585,456

Int. Cl.^{6} G10D *3/00*

U.S. Cl. 84—293 **9 Claims**



1. A neck joint for a stringed musical instrument which comprises:

a body having a recess to receive a neck, said recess having a bottom surface and at least one side surface, said at least one side surface being substantially parallel to the long axis of said neck;

a neck having a long axis in said recess, said neck including a fingerboard having a higher region adjacent said body; and

bolting means for securing said neck to said body, including bolting means having an axis inclined with respect to said bottom surface and said at least one side surface of said recess whereby said neck will be urged against said bottom surface and said at least one side surface of said recess as said bolting means are tightened.

5,786,540

CONTROLLER APPARATUS FOR MUSIC SEQUENCER

Robert L. Westlund, 39424 258th Ave. SE., Enumclaw, Wash. 98022

Filed Mar. 5, 1996, Ser. No. 612,012

Int. Cl.^{6} G10H *1/38*

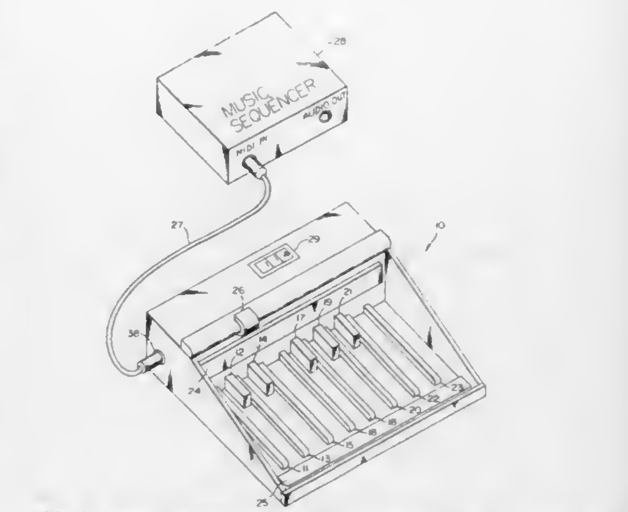
U.S. Cl. 84—645 **15 Claims**

1. An apparatus for controlling a music sequencer which is separate from and independent of said apparatus and which is capable of accepting control signals from an external source, wherein said apparatus is not itself capable of producing audible music, comprising:

a switch means comprising a plurality of switches individually operable by an operator, each switch representing, respectively, a different musical note which is in turn associated with a preselected musical chord;

processing means for scanning said switches and responsive to closure of one of said switches which is associated with a particular musical chord to produce an output signal in the form of a control message in MIDI language format recognizable by music sequencers and representative of the musical chord, which will cause the music sequencer to produce signals which can in turn be used to generate audible accompaniment music in accordance with said preselected chord; and

means for transmitting said message to the said separate music sequencer.



5,786,541

MUSICAL TONE SYNTHESIZING APPARATUS

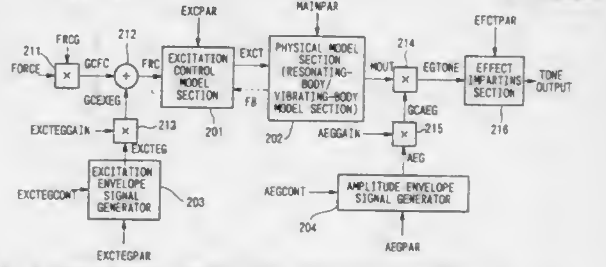
Takeshi Komano, and Yoichiro Ogai, both of Hamamatsu, Japan, assignors to Yamaha Corporation, Hamamatsu, Japan

Filed May 14, 1997, Ser. No. 856,628

Claims priority, application Japan, May 18, 1996, 8-148318

Int. Cl.^{6} G10H *1/057*

U.S. Cl. 84—663 **10 Claims**



1. A musical tone synthesizing apparatus comprising:

an excitation envelope signal generator for generating an excitation envelope signal representing an excitation envelope;

a drive signal generator for generating a drive signal based on the excitation envelope signal;

a physical-model sound source for performing calculations, simulating a tone-generation mechanism of a musical instrument, by using the drive signal, thus producing a musical tone signal;

an amplitude envelope signal generator for generating an amplitude envelope signal representing an amplitude envelope;

a musical tone provider for imparting the amplitude envelope to the musical tone signal outputted from the physical-model sound source, thus providing a synthesized musical tone output; and

an envelope controller, activated when receiving an instruction to generate a next note during generation of a current note, for controlling the excitation envelope signal generator to start formation of an attack portion following a current level of the excitation envelope, the envelope controller also controlling the amplitude envelope signal generator to temporarily damp a current level of the amplitude envelope to a damp level which is determined in advance, then, starting formation of an attack portion following the damp level of the amplitude envelope.

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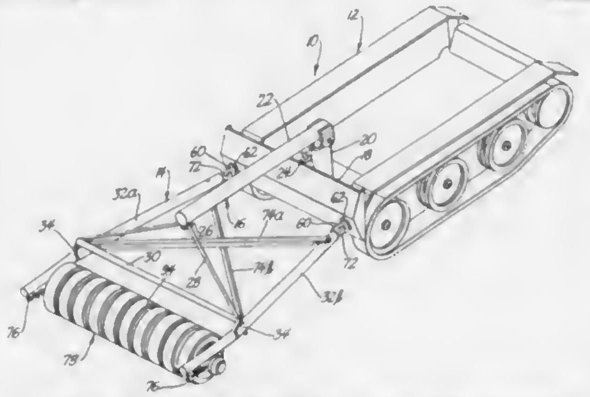
ANTI-PERSONNEL MINE CLEARING SYSTEM

Paul A. Petrovich, Fowlerville; John J. Schimtz, St. Clair Shores; Jack G. Rodgers, Roseville, and Israel M. Grinwald, Bloomfield, all of Mich., assignors to The United States of America as represented by the Secretary of the Army, Washington, D.C.

Filed Nov. 4, 1996, Ser. No. 745,517

Int. Cl.^{6} F41H *11/12*

U.S. Cl. 89—1.13 **7 Claims**



1. A system for clearing mines from a mine field comprising:
a vehicle;
a forward surface of the vehicle;
mounting brackets on the forward surface;
a first arm;
a second arm;
means for pivotably and releasably connecting the arms to the vehicle, the arms able to swing upward about their connections to the vehicle;
means for minimizing side to side swing of the arms about the connecting means while allowing the arms to swing up and down relative to each other;
a roller wheel subassembly connected to the arms;
an axle of the roller wheel subassembly;
a set of roller wheels surrounding the axle, the roller wheels having an inner wheel diameters greater than an axle diameter; and
annular spacers surrounding the axle and alternated with the wheels, diameters of the spacers being larger than the inner wheel diameters but smaller than outer wheel diameters, wherein the wheels and spacers move independently of one another angularly and radially relative to the axle.

5,786,543

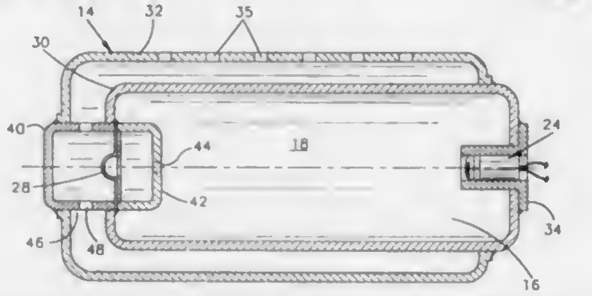
APPARATUS FOR INFLATING A VEHICLE OCCUPANT RESTRAINT

Peter Staudhammer, Mayfield, Ohio, and Jack L. Blumenthal, Los Angeles, Calif., assignors to TRW Vehicle Safety Systems, Inc., Lyndhurst, Ohio

Filed Dec. 4, 1996, Ser. No. 760,425

Int. Cl.^{6} C06D *5/06;* **B60R** *21/28*

U.S. Cl. 102—288 **21 Claims**



1. An apparatus for inflating a vehicle occupant restraint, such as an air bag, said apparatus comprising:
a container for holding a supply of gas;
a supply of gas in said container, said supply of gas comprising a mixture of an inert gas, a combustible gas, an oxidizer gas, and a combustion rate modifier gas selected from the group consisting of an inert carbonaceous gas, water vapor, and mixtures thereof;
said combustion rate modifier gas being present in said container in an amount sufficient to reduce the rate of combustion of said combustible gas;
igniter means for igniting said combustible gas to generate heat to heat said inert gas; and
directing means for directing said inert gas from said container toward said vehicle occupant restraint.

5,786,544

WARHEAD PROTECTION DEVICE DURING SLOW COOK-OFF TEST

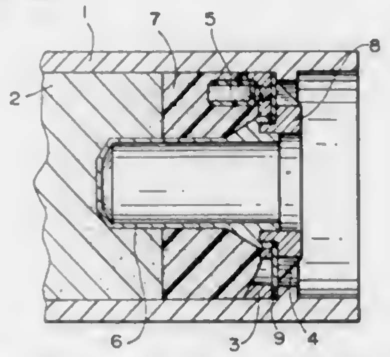
Moshe Gill, Haifa; Itzhak Avnon, Kiryat Shmuel; Yehuda Katz, Haifa, and Tamar Yarom, Kiryat Bialik, all of Israel, assignors to State of Israel—Ministry of Defense, Armament Development Authority, Rafael, Haifa, Israel

Continuation-in-part of Ser. No. 370,810, Jan. 10, 1995. This application Jun. 6, 1996, Ser. No. 659,756

Claims priority, application Israel, Mar. 2, 1994, 108.819; Sep. 17, 1995, 115.328

Int. Cl.^{6} F41A *9/00*

U.S. Cl. 102—481 **4 Claims**



1. A device for imparting non-explosive and non-propulsive properties to a warhead containing an explosive material during a slow cook-off test, which comprises a pyrotechnic pellet having a predetermined ignition temperature of at least 130° C. but below the violent self ignition temperature of the warhead explosive material under slow cook-off conditions, whereby venting holes are present in the venting holes are aft closure of said warhead laterally spaced from a fuse well covered by a composite material that loses its strength below said predetermined ignition temperature, causing a pressure relief and a non-propulsive burning of said warhead through said venting holes, and said pyrotechnic pellet is located adjacent a venting hole.

5,786,545

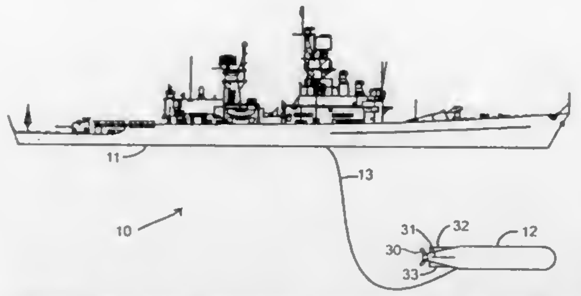
UNMANNED UNDERSEA VEHICLE WITH KEEL-MOUNTED PAYLOAD DEPLOYMENT SYSTEM

Christopher F. Hillenbrand, Bristol, R.I., assignor to The United States of America as represented by the Secretary of the Navy, Washington, D.C.

Filed Oct. 11, 1995, Ser. No. 540,612

Int. Cl.^{6} F41F *3/10*

U.S. Cl. 114—21.2 **9 Claims**



1. An unmanned undersea vehicle system comprising:
a remote-controlled, unmanned undersea vehicle having (i) a weapon compartment for receiving at least one weapon and an associated buoyancy chamber positioned generally axisymmetrically within the weapon compartment, the buoyancy chamber being initially empty and having sufficient capacity so that it can be loaded with seawater whose mass approximates the mass of the weapon, the weapon compartment further including controllable valve means for enabling seawater surrounding the vehicle to fill the buoyancy chamber, the weapon compartment including a corresponding at least one weapon deployment device which has an open position providing an aperture through which the weapon may be expelled from the weapon compartment, and (ii) control means for controlling the deployment of the weapon by expelling the weapon from the weapon compartment and thereafter controlling the firing of the weapon, the control means controlling the valve means during weapon deployment to enable filling of the buoyancy chamber to maintain a predetermined distribution of mass as the weapon is deployed;
a mother vehicle for generating command information for controlling the control means and for receiving unmanned undersea vehicle status information from said unmanned undersea vehicle and processing it for use in generating the command information; and
a communication link for interconnecting said unmanned undersea vehicle and said mother vehicle to facilitate transfer of command information from said mother vehicle to said unmanned undersea vehicle and to further facilitate transfer of unmanned undersea vehicle status information from said unmanned undersea vehicle to said mother vehicle.

5,786,546

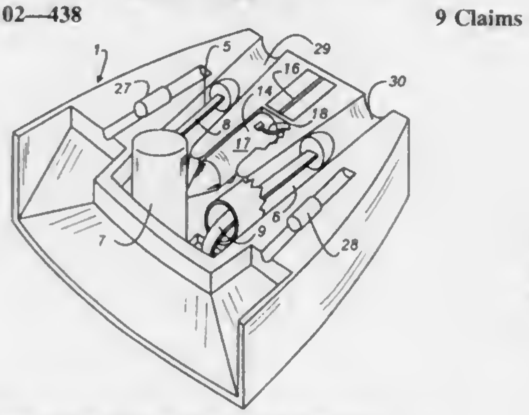
STUNGUN CARTRIDGE

Anton K. Simson, 13227 Aubrey St., Poway, Calif. 92064

Filed Aug. 28, 1997, Ser. No. 919,388

Int. Cl.^{6} F42B *5/03*

U.S. Cl. 102—438 **9 Claims**



1. A-stungun projectile cartridge which comprises:
a housing defining a plurality of compartments including:
  first and second barrel compartments,
  first and second spool compartments,
  a capsule compartment,
  a detonator compartment, each of said compartments having a longitudinal axis;
first and second electrical terminals;
first and second projectiles each in one of said barrel compartments;
a spool rotatably held in each of said first and second spool compartments;
first and second lengths of electrically conductive wire parallelly coiled in multiple layers upon each of said spools each of said lengths having a distal end segment unwinding from a peripheral portion of said spool and attached to one of said projectiles, and a proximal end segment in electrical contact with one of said terminals;
a tubular compressed gas propellant capsule held in said capsule compartment; and
a detonator held in said detonator compartment and having a piercing bullet head proximal to a lateral section of said capsule.

6. A stungun projectile cartridge comprises a pair of projectiles having trailing wires connected to highly charged terminals, said projectiles are held in adjacent barrels, an elongated capsule of compressed propellant gas is positioned to be pierced in a lateral section by a detonator and to discharge said gas into said barrels, and
said elongated capsule being axially perpendicular to said barrels.

5,786,547

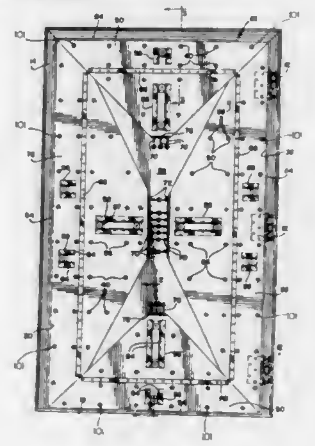
DOOR ASSEMBLY FOR SHIELDED ROOM

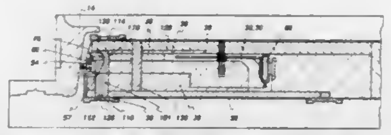
Stanley J. Zielinski, Glendale Heights, Ill., assignor to The Curran Company, Glendale Heights, Ill.

Continuation-in-part of Ser. No. 346,082, Nov. 29, 1994, Pat. No. 5,569,878. This application May 22, 1996, Ser. No. 651,605

Int. Cl.^{6} H05K *9/00*

U.S. Cl. 174—35 MS **13 Claims**





1. A door assembly for an EMI shielded room having an electrically conductive room shield and a doorway bounded by a jamb and a flush threshold including an electrically conductive contact area connected to the room shield, said door assembly comprising:
a door structure including a support frame defining a door edge and opposed door face panels supported by said frame:
means mounting said door structure for movement relative to the jamb to the closed position;
a gap defined between the jamb and said door edge in said closed position:
an electrically conductive door shield supported by said door structure and extending parallel with said face panels; and
a thin, flexible sheet metal contact electrically connected to said door shield and mounted on said door structure adjacent said door edge for flexing movement in said gap toward and away from the contact area of the jamb;
a pusher assembly supported by said frame:
said pusher assembly including a relatively rigid base mounted adjacent said door edge for movement toward and away from said gap and a bumper between said base and said contact; and
means for moving said base toward said gap in order to press said bumper against said contact and force said contact outwardly away from the door edge and parallel to the face panels to engage with said contact area of the jamb, thereby

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forming a single EMI shield between the door structure and the room, and further comprising means for retracting said base and bumper away from said gap to permit said contact to move out of engagement with the contact area.

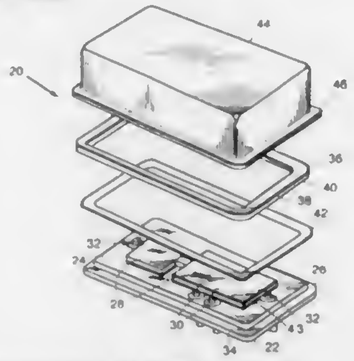
5,786,548
HERMETIC PACKAGE FOR AN ELECTRICAL DEVICE

Richard Fanucchi, Fountain Valley; Daniel A. Huang, West Hills; Bruce A. Igawa, Trabuco Canyon; Brill C. Paet, Laguna Niguel, and Herbert T. Suyematsu, Los Angeles, all of Calif., assignors to Hughes Electronics Corporation, Los Angeles, Calif.

Filed Aug. 15, 1996, Ser. No. 689,857

Int. Cl.^{6} H05K *5/06*

U.S. Cl. 174—50.54 **12 Claims**



1. An electrical device package, comprising:
an aluminum header having a sealing surface;
an annular stainless steel seal ring dimensioned to register with the sealing surface of the header;
means for joining the seal ring to the sealing surface, of the aluminum header including a first layer of gold on the sealing surface of the aluminum header, and a second layer of gold on a portion of the seat ring facing the sealing surface of the aluminum header; and
a stainless steel cover having a flange dimensioned to resister with the seal ring.

5,786,549
LOW PROFILE LOAD SENSOR OF UNITARY CONSTRUCTION

Takasi Serizawa, Tokyo, Japan, assignor to Tanita Corporation, Japan

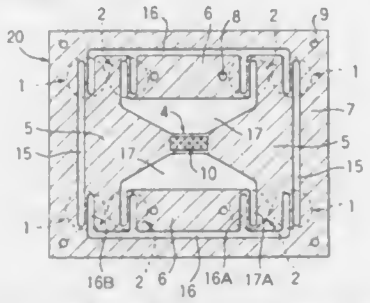
PCT No. PCT/JP95/00302, § 371 Date Feb. 27, 1996, § 102(e) Date Feb. 27, 1996, PCT Pub. Nn. WO95/25262, PCT Pub. Date Sep. 21, 1995

PCT Filed Feb. 28, 1995, Ser. No. 602,841

Claims priority, application Japan, Mar. 17, 1994, 6-071249

Int. Cl.^{6} G01G *3/147*

U.S. Cl. 177—211 **7 Claims**



1. A low profile load sensor for use with a weighing scale having a base and a platform, said load sensor comprising:
an outer frame for mounting on said base;
platform mounting members for connecting to said platform;
a sensing device;
a plurality of load transmission beams positioned between said outer frame and said platform mounting members for receiving a load applied to said platform on a plurality of load-applied-points through said platform mounting members in distributed condition, for supporting said load on a plurality of fulcrums in distributed condition, and for collectively transmitting said load to said sensing device which then produces a strain or a deformation responsive to said load; and
torsional elastic couplings for coupling said load transmission beams to said outer frame and to said platform mounting members;
wherein said load sensor comprises a single flat plate.

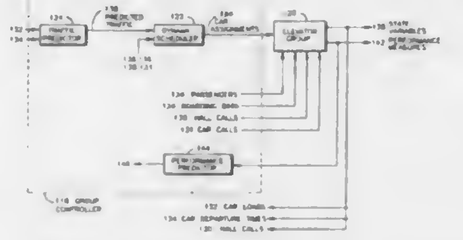
5,786,550
DYNAMIC SCHEDULING ELEVATOR DISPATCHER FOR SINGLE SOURCE TRAFFIC CONDITIONS

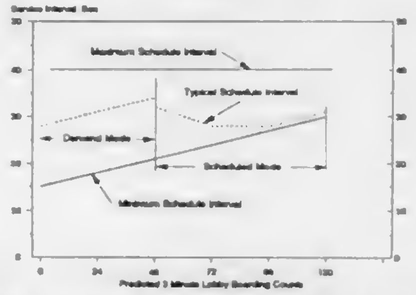
Kandasamy Thangavelu, Avon, Conn., assignor to Otis Elevator Company, Farmington, Conn.

Filed Nov. 30, 1995, Ser. No. 564,668

Int. Cl.^{6} B66B *1/18;1/16*

U.S. Cl. 187—386 **18 Claims**




Service Interval Sec
Maximum Schedule Interval
Typical Schedule Interval
Demand Mode
Scheduled Mode
Minimum Schedule Interval
0
24
48
72
96
120
Predicted 3 Minute Lobby Boarding Counts

3. A system, including a group controller, for controlling a plurality of elevator cars serving a plurality of floors in a building, said group controller repetitively, in each of a continuous series of time periods, determining the level of passenger traffic entering the elevators at a lobby floor, and in response to the level of traffic, alternatively, either
if the level of traffic is below a first threshold level, assigning a car to respond to a hall call at the lobby floor only in response to a hall call being registered at said lobby floor, or
if the level of traffic is above said first threshold level, without regard to whether a hall call is currently registered at the lobby floor or not, successively assigning cars to travel to the lobby floor and open their doors according to a schedule having a recurring interval of time between the time when one assigned car is scheduled to open its door at the lobby floor and the time when a next assigned car is scheduled to open its door at the lobby floor.

5,786,551
CLOSED LOOP FUZZY LOGIC CONTROLLER FOR ELEVATOR DISPATCHING

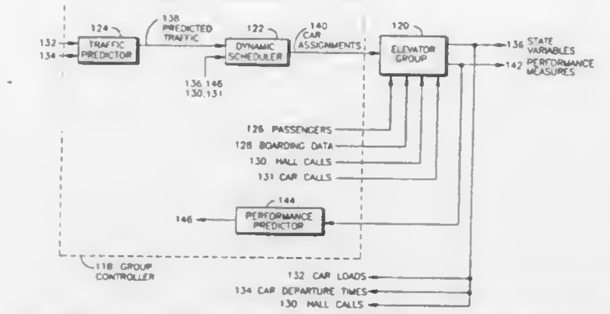
Kandasamy Thangavelu, Avon, Conn., assignor to Otis Elevator Company, Farmington, Conn.

Filed Nov. 30, 1995, Ser. No. 568,892

Int. Cl.^{6} B66B *1/36*

U.S. Cl. 187—386 **2 Claims**

1. A group controller for controlling a plurality of elevator cars in a building having a plurality of floors, comprising:



a traffic predictor for providing fuzzy estimates of the predicted level of passenger traffic boarding elevator cars at a lobby floor of the building and of the rate of change with respect to time of said predicted level of passenger traffic;
a performance predictor for providing fuzzy estimates of predicted values of an elevator system performance measure selected from the group consisting of (a) hall call registration times, (b) average number of registered hall calls, and (c) car loads of cars moving toward said lobby floor; and
a fuzzy logic controller having fuzzy sets of an elevator control parameter selected from the group consisting of (a) a number of cars to assign at one time to travel to said lobby floor and open their doors for passenger boarding, (b) a schedule interval between times when each successive car should reach said lobby floor and open its door to receive passengers, and (c) the tolerance of time before or after the times of said schedule interval when a car's arrival at said lobby floor and opening of its doors is acceptable, as a function of said fuzzy estimates of traffic and traffic rate and said fuzzy estimates of one of said performance measures, said fuzzy logic controller providing values of one of said control parameters in response to said fuzzy estimates of traffic and traffic rate and said one performance measure.

5,786,552
SWITCHING ARRANGEMENT FOR LOAD CHANGE-OVER SWITCHES OF STEP SWITCHES AND FOR SELECTOR SWITCHES

Dieter Dohnal, Lappersdorf; Hans-Henning Lessmann-Mieske, Neutraubling; Josef Neumeyer, Waldetzenberg, and Leonhard Pillmeier, Regensburg, all of Germany, assignors to Maschinenfabrik Reinhausen GmbH, Regensburg, Germany

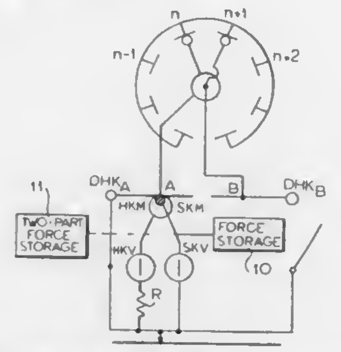
PCT No. PCT/EP95/00855, § 371 Date Sep. 25, 1996, § 102(e) Date Sep. 25, 1996, PCT Pub. No. WO95/24724, PCT Pub. Date Sep. 14, 1995

PCT Filed Mar. 8, 1995, Ser. No. 704,626

Claims priority, application Germany, Mar. 9, 1994, 44 07 945.1; Nov. 18, 1994, 44 41 082.4

Int. Cl.^{6} H01F *29/04*

U.S. Cl. 200—11 TC **5 Claims**



1. An under-load switch comprising:
two spaced apart fixed contacts connected in an electrical circuit and selectively connectable under load;
a main switch contact and a resistance switch contact connected to a load mechanically decoupled from one another and movable independently from one another bidirectionally between said fixed contacts so that, independently of direction of movement, said main switch contact always engages a fixed contact to be selected before the resistance switch contact engages the fixed contact to be selected;
a switchover resistance in series with said resistance switch contact and between said resistance switch contact and said load;
a main vacuum switch cell connected in series with said main switch contact between said main switch contact and said load, and a resistance vacuum switch cell connected in series with said resistance switch contact between said resistance switch contact and said load, said vacuum switch cells being selectively rendered conductive and nonconductive independently of one another; and
a first force storing unit connected to said main switch contact and a second force-storing unit connected with said resistance switching unit for:
tripping of said first force storing unit to jump said main switch contact into engagement with the fixed contact to be selected before said resistance switch contact leaves a prior fixed contact, and
thereafter tripping of said second force storing unit after a time delay to jump said resistance switch contact into engagement with said fixed contact.

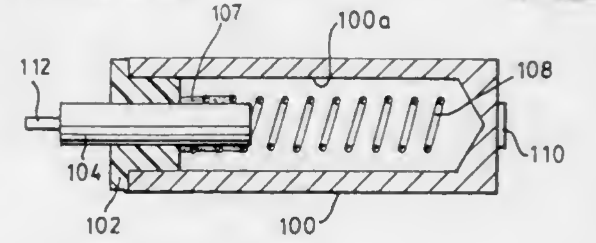
5,786,553
INERTIAL SWITCH

David Zakutin, 170 University Avenue West, Suite 12-103, Waterloo, Ontario, Canada, N2L 3E9

Filed Nov. 1, 1996, Ser. No. 742,927

Int. Cl.^{6} H01H *35/14*

U.S. Cl. 200—61.48 **18 Claims**



1. An inertial switch comprising:
an outer casing having at least one electrically conductive interior surface defining one terminal of said inertial switch;
an electrically conductive helical spring member within said outer casing and defining another terminal of said inertial switch, said spring member having a central longitudinal axis and constituting the moving mass of said inertial switch;
an electrically conductive support extending partially into said outer casing and supporting one end of said spring member, said spring member extending longitudinally beyond said support and being spaced from said at least one conductive surface so as to be electrically isolated therefrom; and
an insulator acting between said support and said outer casing, wherein when said inertial switch undergoes an acceleration above a threshold level and having a vector forming an angle with said central longitudinal axis, said spring member deflects to contact said at least one conductive surface and thereby close said inertial switch.

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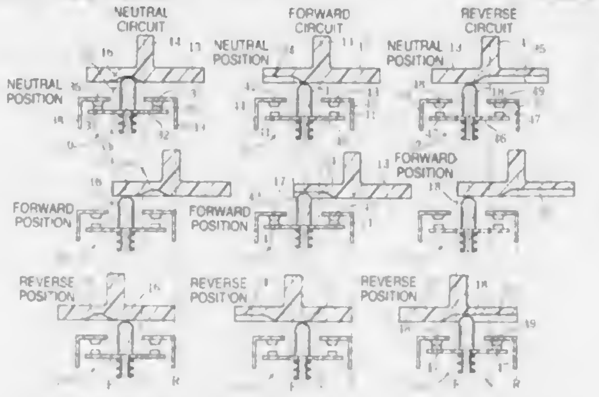
5,786,554
SHIFT SWITCHING DEVICE FOR TORQUE CONVERTER

Kazunori Umezawa, and Kiyoshi Sashida, both of Saitama, Japan, assignors to Toyodenso Kabushiki Kaisha, Tokyo, Japan

Filed Jun. 5, 1996, Ser. No. 659,161
Claims priority, application Japan, Jun. 29, 1995, 7-163465
Int. Cl.^{6} H01H *9/06;9/00;3/16*
U.S. Cl. 200—61.88 **9 Claims**



1. A shift switching device for a torque converter comprising:

a lever for shifting the output of the torque converter to at least a neutral forward or reverse movement;

a slider disposed to link and to move linearly with the lever;

at least three position circuits adapted to be closed or opened by the movement of the slider and being independent in the neutral, forward or reverse movement;

each position circuit having an actuating member which is confined to move in a rectangular movement of the slider moving direction linking with the slider, a movable contact which moves integrally with the actuating member, and a stationary contact against which the movable contact is pressed for electric conductance;

the slider being disposed to selectively close one of the three position circuits in accordance with the neutral position, forward position, or reverse position and provided with a compulsory separation means for moving the actuating members of the other position circuits so that the movable contacts may be compulsorily separated from the stationary contacts, thereby opening the other position circuits;

wherein the compulsory separation means comprises a neutral recess, a forward recess, and a reverse recess formed on the sliding surface of the slider by the actuating member of each position circuit for allowing the actuating member to move in a direction to engage the stationary contact only when any position circuit is closed, and a projection, in the other case, for allowing the movable contact to compulsorily move in a direction to disengage.

5,786,555
POLARIZABLE ELECTRODE FOR ELECTRIC DOUBLE-LAYER CAPACITOR, AND ELECTRIC DOUBLE-LAYER CAPACITOR USING SAID POLARIZABLE ELECTRODE

Kazuo Saito; Atsushi Hagiwara; Toshiharu Okamoto; Kazutoshi Hamada, and Osamu Hasegawa, all of Tokyo, Japan, assignors to Nisshinbo Industries, Inc., Tokyo, Japan

Filed Aug. 6, 1996, Ser. No. 689,275
Claims priority, application Japan, Aug. 11, 1995, 7-227173
Int. Cl.^{6} C25B *11/12*
U.S. Cl. 204—294 **11 Claims**

1. A polarizable electrode for use in electric double-layer capacitor, which is made of a carbon composite material composed mainly of:

100 parts by weight of an activated carbon,

0.05–90 parts by weight of an amorphous carbon,

0.1–1,000 parts by weight of a conductive agent, and

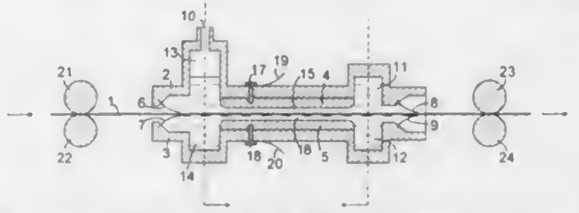
0.03–90 parts by weight of a fibrillated carbon obtained by firing a fibrillated polymer in a non-oxidizing atmosphere.

5,786,556
METHOD AND A DEVICE FOR PICKLING OF STAINLESS STEEL

Conny Grönlund, Göteborg, and Kaj Grönlund, Avesta, both of Sweden, assignors to Swedish Pickling AB, Gothenburg, Sweden

PCT No. PCT/SE94/00406, § 371 Date Dec. 25, 1995, § 102(e) Date Dec. 25, 1995, PCT Pub. No. WO94/26959, PCT Pub. Date Nov. 24, 1994

PCT Filed May 4, 1994, Ser. No. 553,473
Claims priority, application Sweden, May 9, 1993, 9301591
Int. Cl.^{6} C25F *1/06;7/00*
U.S. Cl. 205—705 **16 Claims**



1. A method of electrolytically pickling of a metal in the form of plates or strips which comprises the steps of:

a) providing an electrolytic bath containing an electrochemical cell and a electrolyte circulating in a closed system, said electrochemical cell comprising two cell halves containing an electrode in each;

b) forming a crevice between the metal and each electrode;

c) passing said electrolyte at an elevated speed through each of said crevices; and

d) passing a controlled electric current through one of said electrodes, passing current through said electrolyte, through said metal in the thickness direction of said metal and through the electrolyte to the other electrode.

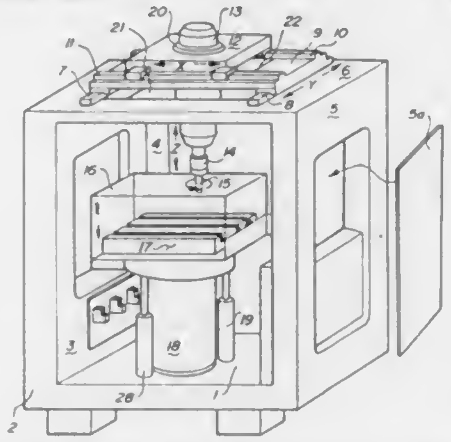
5,786,557
ELECTROEROSION MACHINE WITH A FRAME WITH A NEW STRUCTURE

Roger Girardin, Vernier, Switzerland, assignor to Charmilles Technologies S.A., Switzerland

Continuation-in-part of Ser. No. 304,796, Sep. 12, 1994, abandoned. This application Dec. 22, 1995, Ser. No. 577,650

Claims priority, application Switzerland, Oct. 9, 1993, 02 715/93-2

Int. Cl.^{6} B23H *1/00*
U.S. Cl. 219—69.11 **8 Claims**



1. An electrical discharge machine for machining a stations mounted workpiece, comprising:

a polygonal shaped body having a top, a bottom, and at least one side, said side fixing said top and said bottom in spaced non-movable, relationship, said top and at least one of said sides having an opening formed therethrough for permitting access into said body;

a first pair of guide rails mounted on and supported by said top above said opening and slidably supporting a first chariot positioned over said opening during reciprocating motion of said chariot in a first horizontal direction, said first chariot having an opening formed therethrough;

a second pair of parallel guide rails mounted on said first chariot above said opening in said first chariot and slidably supporting a second chariot above said opening in said first chariot, said second chariot being capable of reciprocating motion in a second horizontal direction perpendicular to said first horizontal direction;

said guide rails being vertically fixed with respect to said body whereby said chariots are movable only in horizontal directions;

a tool carrying machine shaft extending downwardly from said second chariot, through said openings in said first chariot and said top, and into said body, said shaft terminating in a tool and being capable of reciprocating motion in a third, vertical direction; and

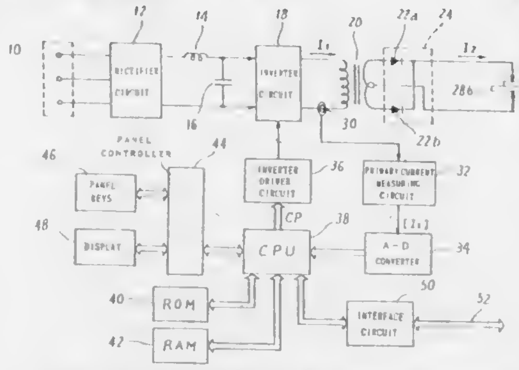
a column mounted to said base and means for upwardly and downwardly actuating said column along said vertical direction, a work table being supported atop said column and fixedly securing the workpiece;

said workpiece being movable in said vertical direction atop said column in coordination with said movements of said shaft and tool to permit machining of said workpiece.

5,786,558
METHOD AND APPARATUS FOR CONTROLLING INVERTER RESISTANCE WELDING

Hiroshi Shimada, Chiba-ken, Japan, assignor to Miyachi Technos Corporation, Chiba-ken, Japan

Filed Jul. 29, 1996, Ser. No. 688,291
Claims priority, application Japan, Aug. 2, 1995, 7-216716
Int. Cl.^{6} B23K *9/10;11/24*
U.S. Cl. 219—110 **9 Claims**



1. A method for controlling an inverter resistance welding machine having an inverter, said method comprising:

computing an initial pulse width based on a ratio of a selected current value to a maximum allowable current value of the welding machine;

controlling the inverter with a control signal having a predetermined high-frequency;

supplying the inverter of the welding machine with a first control pulse within said control signal during a first cycle of a welding operation, said first control pulse having a width equal to said initial pulse width;

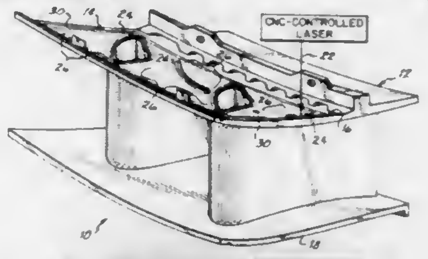
measuring an actual current value of the welding machine and computing a deviation between said actual current value and said selected current value during cycles of the welding operation; and

supplying the inverter of the welding machine with a subsequent control pulse within said control signal during cycles subsequent to the first cycle of the welding operation, said subsequent control pulse having a width computed based on said deviation such that said actual current value of the welding machine is maintained at a value near said selected current value.

5,786,559
WELD-BRAZE PROCESS

Robert F. Ottino, Florence, Ky., and Vonne D. Linse, Columbus, Ohio, assignors to Meyer Tool, Inc., Cincinnati, Ohio

Filed Oct. 17, 1995, Ser. No. 544,185
Int. Cl.^{6} B23K *26/00*
U.S. Cl. 219—121.64 **30 Claims**



1. A method of joining two metal members, the steps comprising:

overlapping first and second metal members to be joined at predetermined weld locations;

sandwiching braze filler material intermediate said first and second metal members between said predetermined weld locations; and

applying localized heat in two offset passes at said predetermined weld locations to form a pair of parallel welds, said welds forming a pair of weld beads extending from one of said metal members and penetrating through said braze filler material and into said other metal member whereby said braze filler material melts and forms a continuous braze layer region intermediate said pair of weld beads,

said first and second metal members thereby being joined by said pair of parallel welds and said continuous braze layer region formed intermediate said pair of weld beads.

5,786,560
3-DIMENSIONAL MICROMACHINING WITH FEMTOSECOND LASER PULSES

Abdelkrim Tatah, Arlington, and Akira Fukumoto, Winchester, both of Mass., assignors to Panasonic Technologies, Inc., Cambridge, Mass.

Continuation of Ser. No. 414,348, Mar. 31, 1995, abandoned. This application Jun. 13, 1997, Ser. No. 874,775
Int. Cl.^{6} B23K *26/06*
U.S. Cl. 219—121.77 **5 Claims**

1. A method of treating a material comprising the steps of:

(a) generating at least four beams having femtosecond pulses, said beams individually having an intensity below a damage threshold intensity of said material;

(b) directing said beams onto a target point within said material such that said femtosecond pulses of said beams overlap to create a total intensity at said target point that is at or above said damage threshold intensity and;

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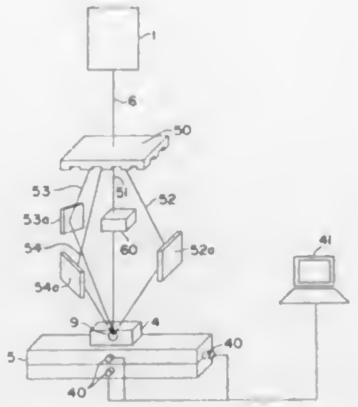


(c) delaying at least one of said beams such that said femtosecond pulses of said beams coincide at said target point.

5,786,561

NOZZLE ASSEMBLY FOR LASER BEAM CUTTING

Hartmut Zefferer, Aachen, Germany, and Dirk Petring, Kerkrade, Netherlands, assignors to Fraunhofer-Gesellschaft Zur Forderung Der Angewandten Forschung E.V., Munich, Germany

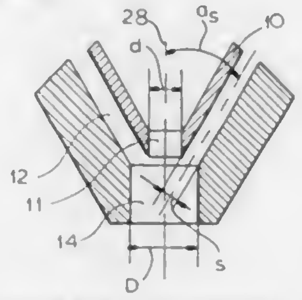
PCT No. PCT/DE95/00050, § 371 Date Jul. 23, 1996, § 102(e) Date Jul. 23, 1996, PCT Pub. No. WO95/19865, PCT Pub. Date Jul. 27, 1995

PCT Filed Jan. 18, 1995, Ser. No. 682,529

Claims priority, application Germany, Jan. 25, 1994, 4402000.7

Int. Cl.^{6} B23K *26/14*

U.S. Cl. 219—121.84 **9 Claims**



1. A nozzle assembly for laser beam cutting, comprising:

a frustoconical nozzle body having an inner frustoconical wall converging to a cylindrical outlet passage and generally following convergence of a laser beam traveling the interior of said nozzle body, said nozzle body having an external frustoconical wall;

means for focusing a laser beam through said nozzle body whereby said laser beam emerges from said passage to cut a workpiece spaced from said nozzle body;

at least one outer nozzle sleeve surrounding said nozzle body and having a frustoconical wall spaced form said outer frustoconical wall of said nozzle body by a constant width measured perpendicularly to said walls and forming an annular clearance converging toward an outlet of said nozzle with the sleeve located ahead of said passage in a direction of said workpiece and of a diameter exceeding a diameter of said passage, said annular clearance having a transition cross section from said width to said outlet measured perpendicular to said frustoconical outer wall of said nozzle body which is substantially equal in cross sectional area to that of .said outlet;

a plenum formed between said nozzle body and said nozzle sleeve and communicating with said annular clearance; and

means for feeding a cutting gas to said plenum whereby said cutting gas is accelerated through said clearance and emerges in a cutting gas stream from said outlet, said annular clearance and a pressure of said gas admitted to said plenum being dimensioned so that said gas is accelerated to a maximum velocity equal to the speed of sound in said clearance.

5,786,562

METHOD AND DEVICE FOR PRODUCING THREE-DIMENSIONAL BODIES

Ralf Larson, Svenshögen, Sweden, assignor to ARCAM Limited, London, United Kingdom

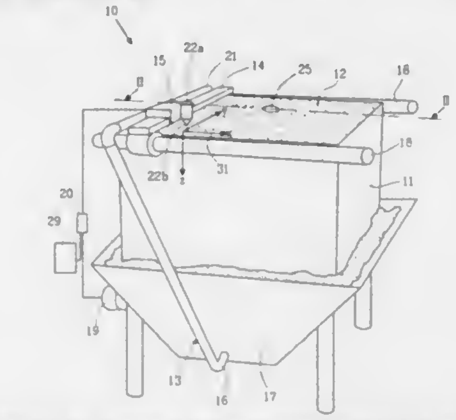
PCT No. PCT/SE94/00442, § 371 Date Nov. 9, 1995, § 102(e) Date Nov. 9, 1995, PCT Pub. No. WO94/26446, PCT Pub. Date Nov. 24, 1994

PCT Filed May 11, 1994, Ser. No. 549,687

Claims priority, application Sweden, May 12, 1993, 9301647

Int. Cl.^{6} B32K *9/00*

U.S. Cl. 219—137 R **32 Claims**



1. Method for creating a three-dimensional body from a material comprising particles, by means of an energy producing device, by producing a number of cross-sectional layers, each representing cross-sectional layers of the body, said device being arranged to move across the particles, whereby particles in determined areas in an uppermost layer are attached to each other or each other and to a preceding layer in accordance with signals from a control unit, while particles that are not connected in respective layers are removed, wherein the method comprises the steps of:

connecting said energy producing device comprising at least one electrode to an energy source to form a first pole in a circuit; and

connecting said material to said energy source to form a second pole in said circuit and generate energy between said electrode and said material, for melting particles of said material by changing physical characteristics of said particles in said determined areas.

5,786,563

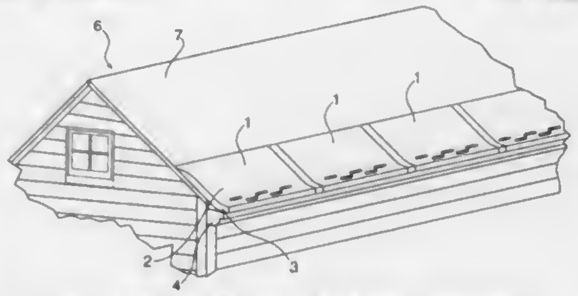
MODULAR ICE AND SNOW REMOVAL PANELS WITH GUTTER EXCLUSION VALVE

Anita Tiburzi, 242 Millerton Rd., Sharon, Conn. 06069-0723

Filed Jul. 18, 1996, Ser. No. 683,261

Int. Cl.^{6} H05B *1/00;* **E04D** *13/00*

U.S. Cl. 219—213 **20 Claims**



1. A roof ice build up prevention apparatus comprising:

at least one heating panel that is installed over existing roofing to prevent ice dam buildup at the edge,

said heating panel being placed over a roof,

said heating panel having a heating element therein,

said heating panel having a movable valve in positional register with at least one perforation in said heating panel,

said movable valve movable from a closed position closing said at least one perforation to prevent flow of water therethrough to an open position opening said at least one perforation to permit flow of water therethrough.

5,786,564

IMAGE FIXING ROLLER AND IMAGE FIXING APPARATUS CONTAINING THE SAME

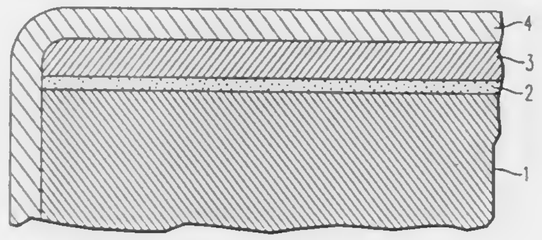
Minoru Matsuo, Sagamihara, Japan, assignor to Ricoh Company, Ltd., Tokyo, Japan

Filed Apr. 18, 1996, Ser. No. 634,735

Claims priority, application Japan, Apr. 18, 1995, 7-116287; Feb. 27, 1996, 8-65505

Int. Cl.^{6} G03G *15/20*

U.S. Cl. 219—216 **21 Claims**



1. A fixing roller comprising:

1) a roller member;

2) an exothermic phase transition layer which has a melting point temperature which is higher than that of a toner fixing temperature provided on an exterior surface of said roller member,

wherein said exothermic phase transition layer comprises an exothermic phase transition material which emits heat when changing from an amorphous state to a crystalline state and is capable of reversible phase transition from an amorphous state to a crystalline state repeatedly; and

3) a protection layer comprising a protection layer material, which seals said exothermic phase transition layer and side portions of said exothermic phase transition layer to said roller member.

5,786,565

MATCH HEAD CERAMIC IGNITER AND METHOD OF USING SAME

Craig A. Willkens, Worcester, and Linda S. Bateman, Spencer, both of Mass., assignors to Saint-Gobain/Norton Industrial Ceramics Corporation, Worcester, Mass.

Filed Jan. 27, 1997, Ser. No. 789,033

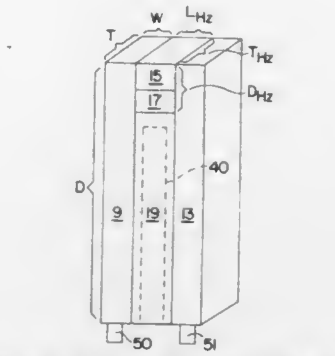
Int. Cl.^{6} F23Q *7/00;7/22;* **H05B** *3/10*

U.S. Cl. 219—260 **24 Claims**

1. A ceramic igniter comprising:

a) a pair of electrically conductive portions, each portion having a first end,

b) a resistive hot zone disposed between and in electrical connection with each of the first ends of the electrically conductive portions, the hot zone having an electrical path length of less than 0.5 cm, and



c) an electrically non-conductive heat sink material contacting the hot zone.

5,786,566

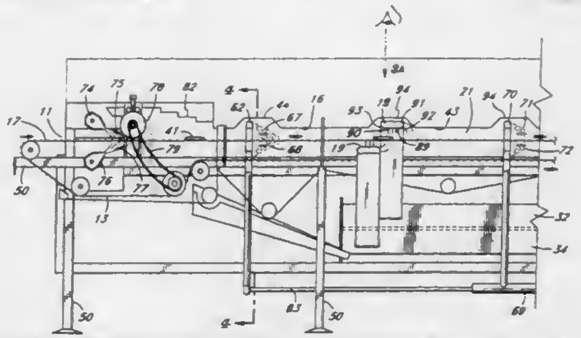
CONVECTION/IMPINGEMENT OVEN FOR CONTINUOUSLY COOKING FOOD

R. Craig Miller, 15160 Desman Rd., Lamirada, Calif. 90638, and Richard W. Naess, 22601 Allview Terrace, Laguna Beach, Calif. 92651

Continuation of Ser. No. 494,716, Jun. 26, 1995, Pat. No. 5,560,952. This application Sep. 27, 1996, Ser. No. 722,550

Int. Cl.^{6} A23L *1/00;* **F24C** *1/04;* **F24B** *9/24*

U.S. Cl. 219—400 **2 Claims**



1. A process for continuously cooking foodstuff while being able to provide excellent control of the properties of the cooked foodstuff, said process comprising the steps of:

placing a foodstuff to be cooked on an upper surface of a perforate, moving belt;

heating at least one surface of the foodstuff to be cooked with a color development and sealing flame;

aiming said color development and sealing flame so that the heat therefrom passes into the entrance of an elongated cooking chamber surrounding said moving belt, said cooking chamber having a product feed and a product discharge;

passing said foodstuff to be cooked through a plurality of cooking phase assemblies to produce cooking vapors and moving the cooking vapors concurrently along said elongated cooking chamber and said cooking vapors increasing in velocity along said cooking chamber as the foodstuff to be cooked moves from the product feed to the product discharge;

venting said cooking vapors from said cooking chamber near the product discharge; and

removing the resulting cooked product from the moving belt.

5,786,567

OVEN

Ching-Hsiang Wang, No. 9, Lande 110, Section 4 Si-Men Road, Tainan 704, Taiwan

Filed Jan. 30, 1997, Ser. No. 791,355

Int. Cl.^{6} A21B *1/26;* **F27O** *7/04;* **F24C** *15/32*

U.S. Cl. 219—400 **2 Claims**

1. An oven having an openable and closeable chamber for placing a broiler on a disc plate therein for broiling.

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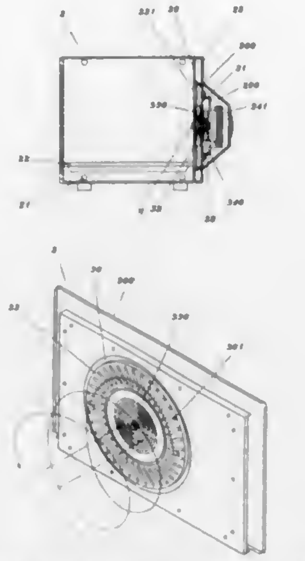


- an electric heating tube provided to extend in an upper portion and a lower portion of said chamber,
- said disc plate located on the lower portion of said electric heating tube;
- a rear wall plate having a rearward recess in a center portion, and
- a hot current device combined with said rear wall plate, and comprising:
  - a separating plate having a disc-shaped rearward recess and a shaft hole in a center of said recess;
  - a front fan located in said disc-shaped recess in front of said separating plate and a rear fan located behind said separating plate, both said fans having a shaft hole in a center;
  - a substantially planar fan disc extending across said recess of said separating plate, covering said front fan, said fan disc having a plurality sucking holes arranged in a first circular array in a center portion and a plurality of elongated exhausting holes spaced apart and arranged in a second circular array adjacent to a periphery, each of said plurality of sucking holes in said fan disc having an elongated arcuate configuration; and,
  - a rotating power unit consisting of a motor frame and a motor, said motor having a transmitting shaft extending forward to protrude through said motor frame, said shaft hole of said separating plate and said shaft holes of said two fans for rotating said two fans; whereby
- said hot current device draws hot air in said chamber through said sucking holes of said fan disc into a space between said fan disc and said recess of said separating plate, the hot air drawn into said space being exhausted out of said space through said exhausting holes of said fan disc into said chamber to create a circulating current in said chamber so that a broiler put on said disc plate in said chamber may be broiled evenly and balanced.

5,786,568
PROGRAMMABLE OVEN FOR COOKING HOLDING AND PROOFING COMESTIBLES

Eugene F. McKinney, Brunswick, Ohio, assignor to Leonhard May, Royalton, Ohio

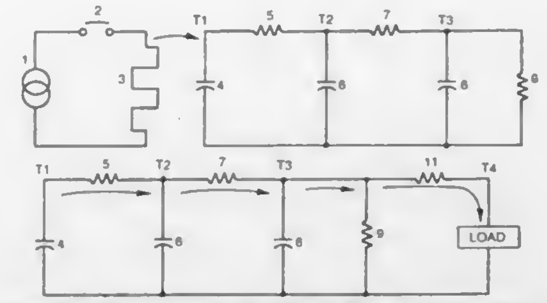
Continuation-in-part of Ser. No. 391,412, Feb. 16, 1995, Pat. No. 5,653,905. This application Jun. 11, 1997, Ser. No. 873,320

Int. Cl.^{6} A47J *27/00;* **A21B** *1/26;* **F27D** *11/00*

U.S. Cl. 219—400 **46 Claims**

1. An upstanding oven cabinet having a compartment to cook and hold comestible foods with at least one door for access to the compartment, an oven circuit with a heater means and an energy source with electric current to the oven, comprising:

- a heat sink comprising a first material characterized by a high thermal capacity, and a heat conductor comprising a second material characterized by a high thermal conductivity, the heater means contacting the first material and further in contact with the second material;
- wherein the heater means comprises heating element including a Nichrome wire wrapped around and insulated with mica, and sheathed in a metal jacket; and,
- an inner chamber formed by a thermal baffle to smooth out heat flow and minimize heat variations within the chamber.



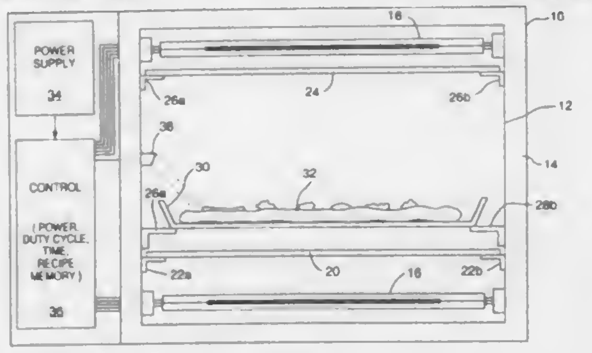
5,786,569
METHOD AND APPARATUS OF COOKING FOOD IN A LIGHTWAVE OVEN

Eugene Westerberg, Palo Alto, Calif., assignor to Quadlux, Inc., Fremont, Calif.

Division of Ser. No. 146,415, Nov. 1, 1993, Pat. No. 5,665,259, which is a continuation-in-part of Ser. No. 738,207, Jul. 30, 1991, abandoned, which is a continuation-in-part of Ser. No. 350,024, May 28, 1989, Pat. No. 5,036,179, and Ser. No. 769,340, Oct. 1, 1991, abandoned, which is a continuation of Ser. No. 664,494, Mar. 5, 1991, abandoned, which is a continuation of Ser. No. 195,967, May 19, 1988, abandoned. This application Jun. 7, 1995, Ser. No. 477,891

Int. Cl.^{6} F27B *9/06;* **H05B** *3/06;6/80*

U.S. Cl. 219—411 **9 Claims**



1. Cooking apparatus comprising:

- a cooking chamber,
- a plurality of high power lamps providing radiant energy in the electromagnetic spectrum including a significant portion in the near-visible and visible ranges and mounted in said chamber,
- means for applying power to at least certain of said lamps for irradiating the food,
- means for sensing the existence of surface water on the food being cooked,
- means responsive to said sensing means for reducing the power to said lamps to a lower duty cycle before vaporizing all of the surface water from the food,
- means for controlling the level of the power applied to said lamps to control the spectrum of the radiation applied to the food, and
- means for controlling the duty cycle of the power to said lamps to control the intensity of the radiation applied to the food.

5,786,570
HEATING ROLLER DEVICE

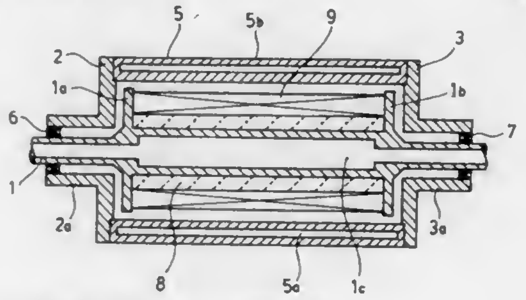
Yukio Miya, Kawagoe; Osamu Sugiyama, Hanno; Ryota Koike, Tokorozawa; Takashi Toida, and Yuji Fukazawa, both of Tokyo, all of Japan, assignors to Citizen Watch Co., Ltd., Tokyo, Japan

Filed Jan. 17, 1997, Ser. No. 785,220

Claims priority, application Japan, Jan. 19, 1996, 8-006936; May 13, 1996, 8-117505

Int. Cl.^{6} G03G *15/20*

U.S. Cl. 219—469 **5 Claims**



1. A heating roller device comprising:

- a center shaft,
- a heat roller rotatably supported on the center shaft,
- heating means provided inside the heat roller,
- an outer surface of the heat roller being formed with a hard carbon film of hydrogenated amorphous carbon, and
- an intermediate layer formed between the outer surface of the heat roller and the hard carbon film for increasing adhesion of the hard carbon film to the outer surface,
- the intermediate layer comprises a first intermediate layer formed directly on the outer surface of the heat roller and a second intermediate layer formed on the first intermediate layer and the hard carbon film is formed on the second intermediate layer,
- the first intermediate layer being formed of titanium (Ti) or chromium (Cr) and the second intermediate layer being formed of silicon carbide (SiC) or tungsten carbide (WC).

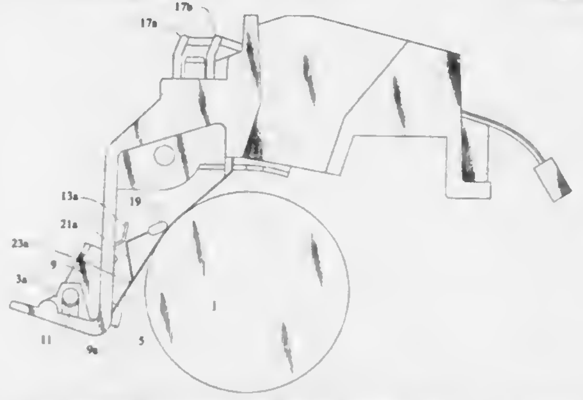
5,786,571
WRAPPED TEMPERATURE SENSING ASSEMBLY

Reginald Keith Bethel, Lexington; Robert Leonard Burdick, Nicholasville; Charles Jerome Cheek, Versailles; Larry Steven Foster, Lexington; Paul Douglas Horrall, Lexington, and Krikor Yosmali, Lexington, all of Ky., assignors to Lexmark International, Inc., Lexington, Ky.

Filed May 9, 1997, Ser. No. 853,993

Int. Cl.^{6} H05B *1/02*

U.S. Cl. 219—494 **5 Claims**



1. An assembly to sense the surface temperature of a member having an extended, curved surface comprising

- a flexible, heat resistant-strip having a first end at one end of said strip and a second end at the opposite end of said strip, said strip being mounted at said first end and at said second end to wrap around and contact at least part of said curved surface, at least one of said first end and said second end being mounted under yieldable pressure, and
- a temperature sensor comprising a solid, heat sensing body and at least one resilient wire extending from said heat sensing body and having a bent portion,
- said at least one resilient wire being mounted on said strip to position said heat sensing body in contact with said strip with said bent portion applying pressure on said heat sensing body toward said strip.

5,786,572
DEVICE FOR HEATING THE INTERNAL SURFACE OF THE OPEN END OF PLASTIC TUBLAR CONTAINERS

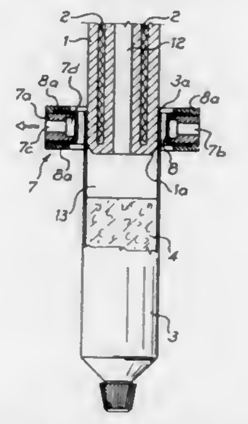
Guido Bruno Tonazzi, Pregassona, Switzerland, assignor to Vittorio Tonazzi & C.S.r.l., Italy

Filed Feb. 8, 1995, Ser. No. 385,754

Claims priority, application Italy, Feb. 15, 1994, MI94 A 0273

Int. Cl.^{6} H05B *3/06*

U.S. Cl. 219—523 **10 Claims**



1. Device for heating an internal surface of an open end of a plastic tubular container, comprising a heating head which has a cross-section corresponding to a shape of the tubular container and can be coaxially inserted inside the open end of the tubular container so as to contact the internal surface of the tubular container along a section of the tubular container to be softened internally, said heating head being provided internally with heating means; and means for pressing said section of the tubular container against the heating head, which is inserted inside the open end of the tubular container, during heating so that heat is transmitted from the heating head to the internal surface of the tubular container by means of direct-contact heat conduction, said pressing means releasing pressing engagement with the section of the tubular container to allow withdrawal of the heating head therefrom upon completion of the heating.

5,786,573
HEATER FOR SHAVING CREAM CONTAINERS ENABLING VERTICAL ADJUSTMENT OF THE HEATER RELATIVE TO THE CONTAINER

Marvin Fabrikant, and Patricia Fabrikant, both of 5149 Tilden St. NW., Washington, D.C. 20016

Continuation of Ser. No. 604,699, Feb. 21, 1996, abandoned, which is a continuation-in-part of Ser. No. 576,379, Dec. 21, 1995, abandoned, which is a continuation-in-part of Ser. No. 499,575, Jul. 7, 1995, abandoned. This application Oct. 31, 1996, Ser. No. 739,671

Int. Cl.^{6} H05B *1/00*

U.S. Cl. 219—535 **11 Claims**

1. A method of heating shaving cream in a shaving cream container comprising the steps of:

- providing a heater comprising (a) a continuous annular housing having a top surface, a bottom surface, an outer annular

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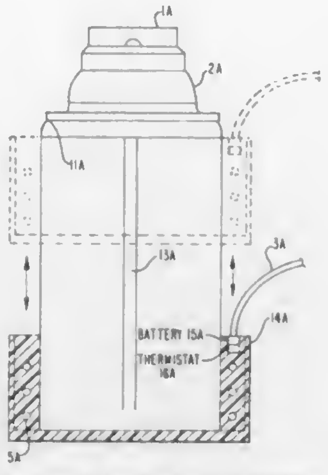
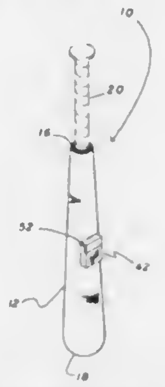


surface, and an inner annular surface defining a through-hole extending from said top surface to said bottom surface, and (b) a heating element disposed between said outer and inner annular surfaces of said housing; and

disposing said housing around a shaving cream container containing shaving cream to heat the shaving cream therein, said through-hole fitting around said shaving cream container tightly enough to hold the housing in position but loosely enough to permit a user to push the housing up or down.

5,786,574
BASEBALL BAT WARMER

Demetrius Garnett, 1103 Hoover St., Winters, Calif. 95964
Filed Sep. 11, 1996, Ser. No. 712,304
Int. Cl.^{6} H05B *3/34*
U.S. Cl. 219—529 **8 Claims**



1. A baseball bat warmer for heating a batting surface of a baseball bat comprising in combination:

an elongated cylindrical sleeve member having a cylindrical side wall with a circular top edge and a bulbous bottom, the sleeve member having a diameter increasing from the top edge to the bulbous bottom, the sleeve member defining an interior cavity being sized and shaped so to receive a baseball bat, the sleeve member being flexible and formed of a resilient material of two woven fabrics sandwiching an insulating padding, one of the two woven fabrics being a soft fabric lining, another of the two woven fabrics being a polymeric fabric having water repellent properties for forming the side wall, the lining and the insulating padding being capable of sandwiching a heating wire therebetween;

a vertical fastening means for releasable coupling vertical edges of a vertical cut through the cylindrical side wall of the sleeve member, the vertical cut of the cylindrical side wall extending from a position on the top edge downwardly to a position on the side wall proximate the bulbous bottom;

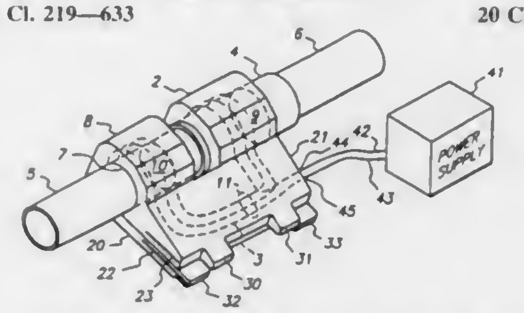
a generally rectangular pouch being open at a top edge thereof and fixedly attached to the side wall of the sleeve member, the pouch having an interior cavity and a pouch flap attached to a rear side of the top edge of the pouch for enclosing the interior cavity of the pouch, the pouch having a pair of electrical connector cables therein being in contact with a battery connector having a male and a female contacts mounted thereon;

a generally rectangular battery housing having an upper wall and a bottom wall being interconnected by four vertical supports, the battery housing being sized and shaped so as to receive a plurality of cylindrical batteries therein, the upper wall having an exterior surface with a female contact and a male contact attached thereto, the upper wall having an interior surface with a flat contact plate being in electrical contact with the male and female connectors of the upper wall, the bottom wall having an interior surface with a resilient contact plate; and

the battery housing having the batteries being positioned within the pouch for coupling of the battery connector of the pouch with the male and female contacts of the housing, the pouch flap being secured for retention of the battery housing within the pouch, the batteries within the housing being capable of providing DC current to the heating wire within the sleeve for warming the baseball bat when positioned within the cavity of the sleeve member.

5,786,575
WRAP TOOL FOR MAGNETIC FIELD-RESPONSIVE HEAT-FUSIBLE PIPE COUPLINGS

Randy J. Bleske, San Jose, and Joel D. Finegan, Fremont, both of Calif., assignors to Gas Research Institute, Chicago, Ill.
Filed Dec. 20, 1995, Ser. No. 575,214
Int. Cl.^{6} H05B *6/10*
U.S. Cl. 219—633 **20 Claims**



1. A wrap tool for inducing an electric current in a heating element, comprising:

a sleeve having a first sleeve portion, a second sleeve portion spaced from the first sleeve portion, a first flange secured with respect to the first sleeve portion and the second sleeve portion, and a second flange secured with respect to the first sleeve portion and the second sleeve portion;

an electric winding having

(a) a first coil secured with respect to the first sleeve portion including a plurality of first wire turns,

(b) a second coil secured with respect to the second sleeve portion including a plurality of second wire turns,

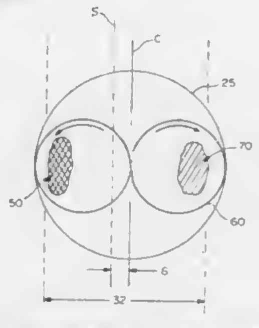
(c) the first coil electrically coupled to the second coil by a plurality of first electrical conductors directing in a first direction an oscillating electric current generating oscillating magnetic fields, the first coil electrically coupled to the second coil by a plurality of second electrical conductors positioned with respect to the first plurality of electrical conductors and directing the oscillating electric current in a second direction that generally cancels the oscillating magnetic fields of the first electrical conductors, and

(d) a series capacitor electrically connected between the first coil and the second coil; and

the first electrical conductors secured with respect to one of the first flange and the second flange.

5,786,576
SELF-STEERING SYSTEM FOR GUIDING A MOVING INDUCTION COIL DURING THERMOPLASTIC WELDING

C. David Lunden, Federal Way, Wash., assignor to The Boeing Company, Seattle, Wash.
Filed Nov. 28, 1995, Ser. No. 564,566
Int. Cl.^{6} H05B *6/36*
U.S. Cl. 219—672 **3 Claims**



1. An induction coil having a self-steering system for moving the induction coil over a bond line in thermoplastic welding operations into alignment with a bond line susceptor, comprising:

(a) a core made from high magnetic permeability material and having at least one pole;

(b) a primary coil wound on the pole of the core;

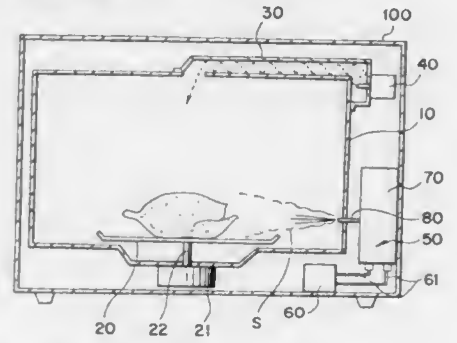
(c) a secondary coil connected with the core for sensing misalignment between the coil and a susceptor at the bond line by detecting a change in the magnetic field arising from the misalignment, and

(d) motive means for adjusting the position of the primary coil relative to the susceptor,

wherein the secondary coil provides a steering signal to the motive means for moving the coil to restore alignment.

5,786,577
MICROWAVE OVEN HAVING A STEAM GENERATOR FOR KEEPING FOOD MOIST DURING COOKING

Yong-Woon Han, Kunpo, and Dae-Sung Han, Suwon, both of Rep. of Korea, assignors to Samsung Electronics Co., Ltd., Suwon, Rep. of Korea
Filed Jul. 8, 1996, Ser. No. 677,559
Claims priority, application Rep. of Korea, Jul. 10, 1995, 95-20212
Int. Cl.^{6} H05B *6/80;6/54*
U.S. Cl. 219—682 **8 Claims**



1. A microwave oven, comprising:

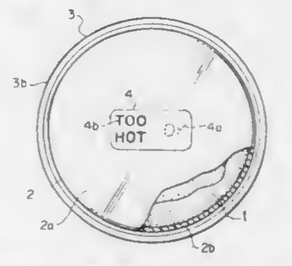
a cooking chamber;

a high frequency generator for supplying high frequency waves to the cooking chamber; and

a steam generator for introducing steam into the cooking chamber, comprising a water-storing tank, a source of electrical power, and a pair of spaced-apart electrode plates arranged to be immersed within water disposed in the tank, the electrode plates connected to the source of electrical power, the water defining a resistance for creating an electrical current flow across the water in the tank for heating the water and generating steam therefrom, the steam generator becoming inoperative as the current flow automatically terminating in response to the water-storing tank running out of water.

5,786,578
MICROWAVE-HEATABLE EXERCISE PUTTY IN A CONTAINER WITH TEMPERATURE INDICATOR

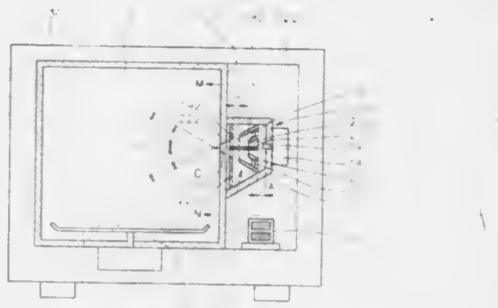
George M. Christy, 2108 Raven Rd., Pleasanton, Calif. 94566, and Robert Parker, 60617 Golf Village Loop, Bend, Oreg. 97702
Filed Jun. 30, 1997, Ser. No. 885,502
Int. Cl.^{6} H05B *6/80*
U.S. Cl. 219—720 **9 Claims**



1. A microwave-heatable therapeutic exercise putty mass packaged in a microwaveable container having at least one transparent wall, said putty mass being in heat transfer proximity with said transparent container wall, and thermochromic heat sensitive semiconductor material affixed to said transparent wall within said container and in intimate heat transfer contact with said putty mass, said thermochromic material providing a visual first indication through said transparent wall when said putty mass has been microwave heated to a therapy acceptable temperature range of about 40 to about 47 degrees C. and a visual second indication through said transparent wall when said putty mass has been microwave heated to a temperature range of about 54 to about 60 degrees C. or above which is non-acceptable for heat therapy.

5,786,579
MICROWAVE OVEN WAVEGUIDE WITH MODE TRANSDUCER AND DIFFERENTIAL MODE ABSORBER

Hyung-Ki Park, Incheon, Rep. of Korea, assignor to Daewoo Electronics Co., Ltd., Seoul, Rep. of Korea
Filed Feb. 27, 1997, Ser. No. 807,147
Claims priority, application Rep. of Korea, Dec. 27, 1996, 96-74025
Int. Cl.^{6} H05B *6/74*
U.S. Cl. 219—746 **10 Claims**



1. A microwave oven comprising:

a heating chamber;

a control chamber;

a partition for separating the control chamber from the heating chamber;

a magnetron for generating a high-frequency microwave;

a housing disposed in the control chamber, the housing being attached to the partition and being provided at a side wall thereof with the magnetron;

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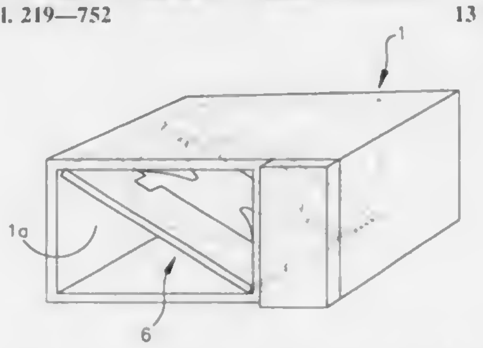
- a mode transducer for superimposing and distributing the high-frequency microwave radiated from the magnetron, the mode transducer being disposed in the housing, the mode transducer including a first hollow-frustuconical member having a first wave guiding opening, a second hollow-frustuconical member having a second wave guiding opening, and a transmission line attached to an inner wall of the second hollow-frustuconical member, the first hollow-frustuconical member being welded to an inner wall of the housing, the second hollow-frustuconical member being accommodated in the first hollow-frustuconical member; and
- a differential mode absorber for absorbing a distorted wave included in the high-frequency microwave which has been passed through the mode transducer, the mode transducer being disposed in the housing.

5,786,580
PACKAGING HOLDER FOR POSITIONING AND PROTECTING MICROWAVE OVEN INTERNAL ELEMENTS SUCH AS A GLASS TRAY AND A ROTATING RING WITHIN AN OVEN CAVITY FOR HANDLING AND SHIPPING

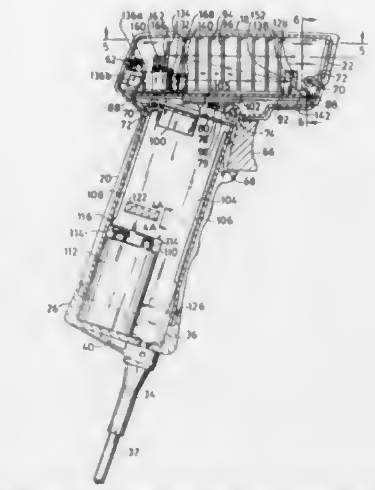
Tae-Hong Yeo, Gyeongnam, Rep. of Korea, assignor to LG Electronics Inc., Seoul, Rep. of Korea
Filed Nov. 20, 1996, Ser. No. 752,927
Claims priority, application Rep. of Korea, Dec. 11, 1995, 48317/1995; Dec. 12, 1995, 48728/1995
Int. Cl.⁶ H05B *6/78;* **B65D** *85/48;81/02*
U.S. Cl. 219—752 **13 Claims**



1. A holder for packaging internal elements including a glass tray and a rotating ring of a microwave oven to position and protect the internal elements within the oven for shipment and handling, said holder adapted to be diagonally fitted inside a cavity of said oven, and comprising two opposed holding slots for tightly receiving and holding diametrically-opposite side portions of said glass tray, said holding slots formed by lower retaining flaps folded from a generally rectangular planar form toward outer side edges of the form, and by upper retaining flaps extending from the outer edges of the form folded inwardly and over the lower retaining flaps, and over a portion of a glass tray positioned between the lower retaining flaps.

5,786,581
OPTICAL SYSTEM FOR SCANNING AND RECORDING BAR CODES WHICH IS ADAPTED TO BE CONFIGURED IN A HAND HELD UNIT

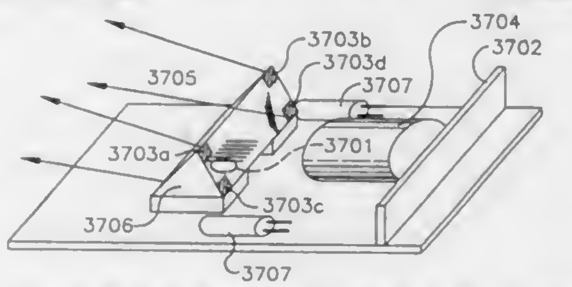
Jay M. Eastman, Pittsford; Anna Marie Quinn, Rochester; Scott R. Grodevant, Hilton, and John A. Boles, Fishers, all of N.Y., assignors to PSC Inc., Webster, N.Y.
Continuation of Ser. No. 349,160, Dec. 2, 1994, abandoned, which is a division of Ser. No. 966,624, Oct. 26, 1992, abandoned, which is a division of Ser. No. 652,158, Feb. 7, 1991, Pat. No. 5,200,597. This application Nov. 25, 1996, Ser. No. 755,354
Int. Cl.⁶ G06K *7/12*
U.S. Cl. 235—455 **8 Claims**



1. A system for controlling optical power output of a solid state light source in a bar code scanner, comprising:
- means for maintaining the optical power at a preset level,
- computer means for generating a digital signal corresponding to said preset level and for generating an allowance signal when the bar code scanner is performing a scanning operation,
- means in said maintaining means responsive to said digital signal for setting said maintaining means to maintain the optical power at the preset level,
- inhibit means for disallowing operation of the solid state light source by cutting off all current from being supplied to said solid state light source when the allowance signal is not generated by said computer means,
- generating means for providing an output representing said optical power when illuminated by said light source,
- means for changing said digital signal until said output reaches a certain level, and
- means in said computer means for storing said digital signal corresponding to said preset level.

5,786,582
OPTICAL SCANNER FOR READING AND DECODING ONE- AND TWO-DIMENSIONAL SYMBOLOGIES AT VARIABLE DEPTHS OF FIELD

Alexander R. Roustaei, La Jolla, and Donald Fisher, Valley Center, both of Calif., assignors to Symbol Technologies, Inc., Holtsville, N.Y.
Continuation-in-part of Ser. No. 363,985, Dec. 27, 1994, abandoned, which is a continuation of Ser. No. 59,322, May 7, 1993, abandoned, which is a continuation-in-part of Ser. No. 965,991, Oct. 23, 1992, Pat. No. 5,354,977, which is a continuation-in-part of Ser. No. 956,646, Oct. 2, 1992, Pat. No. 5,349,172, which is a continuation-in-part of Ser. No. 843,266, Feb. 27, 1992, Pat. No. 5,291,009, said Ser. No. 569,728 is a continuation-in-part of Ser. No. 137,426, Oct. 18, 1993, Pat. No. 5,484,994, and a continuation-in-part of Ser. No. 444,387, May 19, 1995, abandoned, which is a continuation-in-part of Ser. No. 329,257, Oct. 26, 1994, abandoned. This application Dec. 8, 1995, Ser. No. 569,728
Int. Cl.⁶ G02B *26/08;* **G06K** *7/10*
U.S. Cl. 235—462 **5 Claims**

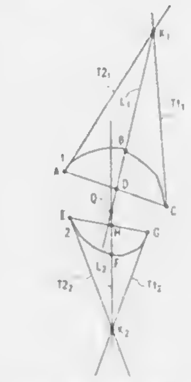


1. An optical scanning device for reading a one- or two-dimensional symbology having a first width, said optical scanning device comprising:
- at least one printed circuit board having a front edge with a second width;

- a light source mounted on said at least one printed circuit board, said light source for projecting an incident beam of light onto said symbology, said incident beam of light having substantially said second width at said front edge of said at least one printed circuit board and a first height and a third width at said symbology, said third width being greater than said second width and at least as large as said first width:
- an optical assembly comprising a plurality of lenses disposed on said at least one printed circuit board along an optical path for receiving and focusing light reflected from said framed symbology to obtain a focused light at a focal plane, said optical assembly having moving means for moving at least one of said plurality of lenses with respect to other lenses of said plurality to provide a variable field of view;
- at least one framing means disposed on said at least one printed circuit board for framing said symbology to identify an area to be scanned by said scanner, wherein said at least one framing means comprises at least one laser diode for emitting a laser beam and at least one diffractive optic for transforming said laser beam into a plurality of diverging beamlets, said diverging beamlets having a beamlet spacing at said symbology at least as large as said first width, wherein said at least one framing means comprises a first framing means and a second framing means, the first framing means corresponding to a wide field of view and the second framing means corresponding to a narrow field of view;
- a detector disposed on said at least one printed circuit board within said optical path substantially at said focal plane of said optical assembly for detecting at least a portion of said focused light within said variable field of view of said detector, said variable field of view having said first height and said third width, said detector for sensing said focused light to obtain a sensed symbology;
- a processor for processing said sensed symbology to obtain an electrical signal; and
- an output means for converting said electrical signal into output data.

5,786,583
METHOD AND APPARATUS FOR LOCATING AND DECODING MACHINE-READABLE SYMBOLS

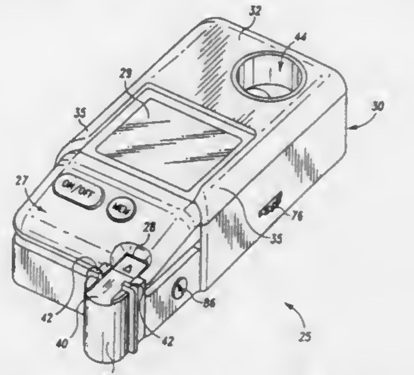
Pavel A. Maltsev, Edmonds, Wash., assignor to Intermec Corporation, Everett, Wash.
Filed Feb. 16, 1996, Ser. No. 602,624
Int. Cl.⁶ G06K *7/10*
U.S. Cl. 235—462 **23 Claims**



1. A method of locating and decoding a machine-readable symbol representing encoded information, the symbol including a plurality of selectively spaced two-dimensional geometric shapes, the shapes and spaces between the shapes having at least a first width in at least one dimension, the symbol having a predetermined orientation pattern of convexly curved shapes and spaces between the convexly curved shapes, the convexly curved shapes at least partially surrounding a predetermined point of the symbol, the method comprising the steps of:
- storing an image of the symbol;
- locating all curved shapes within the stored image of the symbol, including the convexly curved shapes of the predetermined orientation pattern;
- determining a pair of tangent lines from endpoints of each located curved shape;
- defining a line between each pair of tangent lines;
- determining at least one point of intersection of the defined lines;
- locating the predetermined point of the symbol based on the at least one point of intersection of the defined lines; and
- decoding the information encoded in the symbol based on the located predetermined point of the symbol.

5,786,584
VIAL AND CARTRIDGE READING DEVICE PROVIDING AUDIO FEEDBACK FOR A BLOOD GLUCOSE MONITORING SYSTEM

Timothy Hemenway Button, Indianapolis, and Scott Forster Percy, Carmel, both of Ind., assignors to Eli Lilly and Company, Indianapolis, Ind.
Filed Aug. 20, 1996, Ser. No. 699,766
Int. Cl.⁶ G06K *7/10*
U.S. Cl. 235—462 **19 Claims**



1. A device for identifying a labeled content of a medication container comprising:
- a body including a portion shaped to accommodate the medication container;
- a reader arranged to read a medication identifying code on the container when the container is positioned at said body portion;
- a controller within said body and circuited to said reader to receive a signal from said reader corresponding to the read code, said controller comparing said signal to stored data;
- a voice synthesizer for generating a speech pattern identifying the medication in the container responsive to said controller comparing said signal and stored data; and
- a speaker for broadcasting the speech pattern to provide an audible message to a user of the device.

5,786,585
OPTICAL SYMBOL (BAR CODE) READING SYSTEMS AND DEVICES

Jay M. Eastman, and James M. Zavislan, both of Pittsford, N.Y., assignors to PSC, Inc., Webster, N.Y.
Continuation of Ser. No. 985,371, Dec. 4, 1992, abandoned. This application Jan. 19, 1995, Ser. No. 375,216
Int. Cl.⁶ G06K *7/10*
U.S. Cl. 235—472 **51 Claims**

1. A scanning accessory for a portable terminal for collecting and entering data which comprises:
- a first housing having a surface defining a receptacle and also defining a hollow body, said hollow body having a generally tubular surface, said generally tubular surface defining a manually seizable grip portion, said generally tubular surface also defining a window;
- a miniature scan engine module having means for projecting a light beam outwardly from said module toward a data representing symbol, said scan engine being disposed in said grip portion with the beam projecting through said window toward said symbol;

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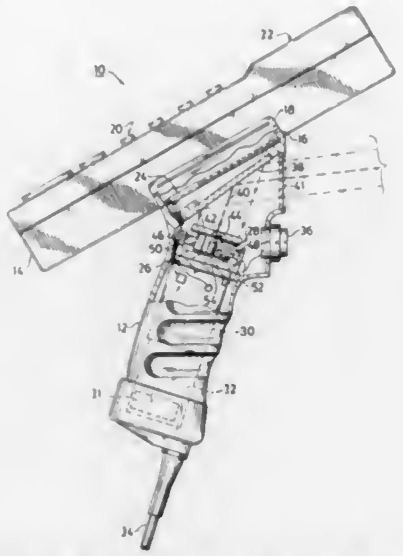


an electro-optical receptor in said grip portion for collecting and concentrating therein light from said symbol in response to illumination by said beam and for providing electrical signals representing said symbol;
means in said grip portion for operating said scan engine; and
means in said receptacle for releasably holding a second housing containing said terminal which comprises a portable data entry terminal having a keyboard for manual data entry, said receptacle having means for holding said first housing and second housing and said terminal and accessory in assembled and signal communication relationship for communicating said signals to said terminal.

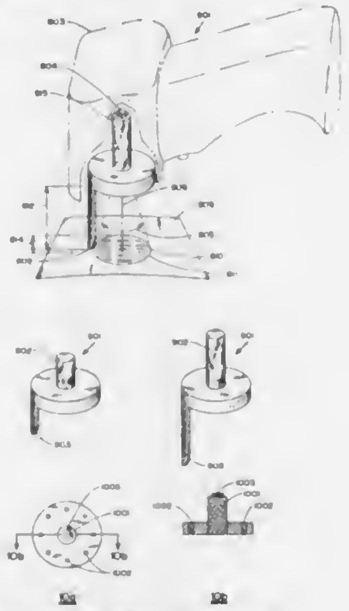
5,786,586
HAND-HELD OPTICAL READER HAVING A DETACHABLE LENS-GUIDE ASSEMBLY

John M. Pidhirny, Skaneateles; Richard A. Monroe, Syracuse; Michael J. Pileski, Skaneateles, and Robert J. Wood, Syracuse, all of N.Y., assignors to Welch Allyn, Inc., Skaneateles Falls, N.Y.

Continuation-in-part of Ser. No. 373,656, Jan. 17, 1995, Pat. No. 5,569,902. This application Oct. 28, 1996, Ser. No. 739,040

Int. Cl.⁶ G06K *7/10*

U.S. Cl. 235—472 **7 Claims**



1. A hand held optical reader comprising:
a housing;
a lens assembly having an optical axis, and a depth of field; and
a guide detachably mounted on a front portion of said housing for establishing a distance between said lens assembly and an equipment target that is displaced a predetermined distance from a mark target, said guide having a proximal end adapted to be mounted on said housing, and a distal end adapted to contact the equipment target, and means for supporting said lens assembly on said guide to form a detachable lens-guide assembly; and
an imaging assembly mounted to said housing in image receiving relationship to said lens assembly;
wherein the length of said guide is such that the positioning of said distal end on said equipment target assures that said mark target is within said depth of field of said lens assembly.

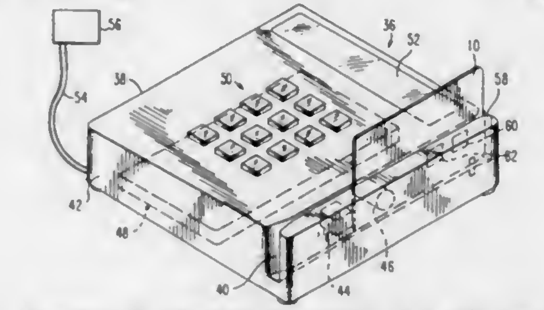
5,786,587
ENHANCEMENT OF CHIP CARD SECURITY

Gilbert Colgate, Jr., New York, N.Y., assignor to American Bank Note Holographics, Inc., Elmsford, N.Y.

Filed Aug. 5, 1996, Ser. No. 689,089

Int. Cl.⁶ G06K *19/00*

U.S. Cl. 235—487 **13 Claims**



1. A method of enhancing the security of a chip card that contains an integrated circuit including a changeable memory and a write once/read only memory, said method comprising
(a) writing first identifying data in said write once/read only memory;
(b) establishing, on an external surface of the card, an optically readable portion comprising a machine readable optically variable device having coded thereon second identifying data; and
(c) establishing, on an external surface of the card, a magnetic stripe having coded therein third identifying data;
said first, second and third identifying data being combinable to verify the authenticity of the card to the integrated circuit.

5,786,588
PHOTOELECTRIC CONVERSION APPARATUS HAVING AN IMPROVED ARRANGEMENT OF PIXEL OUTPUT

Hidekazu Takahashi, Isehara, Japan, assignor to Canon Kabushiki Kaisha, Tokyo, Japan

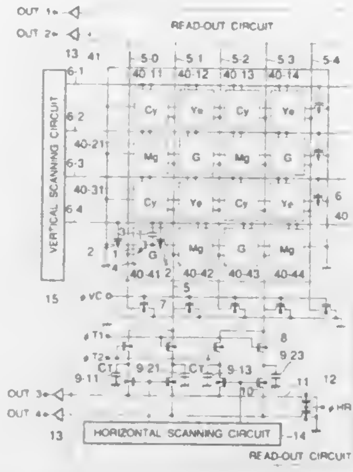
Filed Aug. 1, 1996, Ser. No. 690,936

Claims priority, application Japan, Aug. 2, 1995, 7-197470

Int. Cl.⁶ H01J *40/14*

U.S. Cl. 250—208.1 **10 Claims**

1. An XY-addressable photoelectric conversion apparatus for reading charges, obtained by photoelectric conversion with four color separation filters, from pixels including photoelectric conversion units to a plurality of vertical output lines, comprising:
a color filter array of four color filters A, B, C and D arranged in an alternate array of A, B, A, B, . . . on the pixels of a first horizontal line, in an alternate array of C, D, C, D, . . . on the pixels of a second horizontal line, in an alternate array of A, B, A, B, . . . on the pixels of a third horizontal line, in an alternate array of D, C, D, C, . . . on the pixels of a fourth horizontal line, and arranged thereafter in the repetition of said four lines on the remaining pixels, wherein outputs of said pixels on said second horizontal line and said fourth horizontal line are connected to respectively adjacent ones of



said vertical output lines, such that the charge of a pixel on which there is a D filter on said second horizontal line and the charge of a pixel on which there is a D filter on said fourth horizontal line are output to a same one of said vertical output lines.

5,786,589
PHOTOELECTRIC CONVERTING DEVICE WITH ANISOTROPICALLY CONDUCTIVE FILM FOR CONNECTING LEADS OF WIRING BOARD AND ELECTRODE PADS OF PHOTOELECTRIC CONVERTING DEVICE

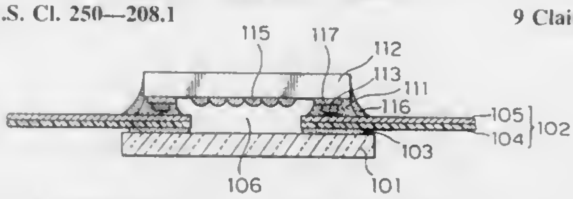
Masao Segawa, Fujisawa; Kazushige Ooi, Yokohama; Masanobu Kimura, Kamakura, and Shuichi Sugi, Tokyo, all of Japan, assignors to Kabushiki Kaisha Toshiba, Tokyo, and Toshiba Ave Co., Ltd., Kanagawa-ken, both of Japan

Continuation of Ser. No. 555,590, Nov. 9, 1995, abandoned, which is a division of Ser. No. 277,320, Jul. 25, 1994, Pat. No. 5,506,401, which is a continuation of Ser. No. 249,571, May 26, 1994, abandoned. This application Feb. 20, 1997, Ser. No. 802,918

Claims priority, application Japan, May 28, 1993, 5-126763

Int. Cl.⁶ G03B *19/00;* **H04N** *3/14*

U.S. Cl. 250—208.1 **9 Claims**



1. A photoelectric converting device fabrication, method, comprising the steps of:
(a) forming a plurality of leads on a first surface of a wiring board:
(b) adhering a second surface of the wiring board onto a light transmitting member: and
(c) forming an anisotropically conductive film between the leads and electrode pads of the photoelectric converting device.

5,786,590
METHOD FOR DRIVING A SCANNING SYSTEM WITH A REFERENCE PATTERN

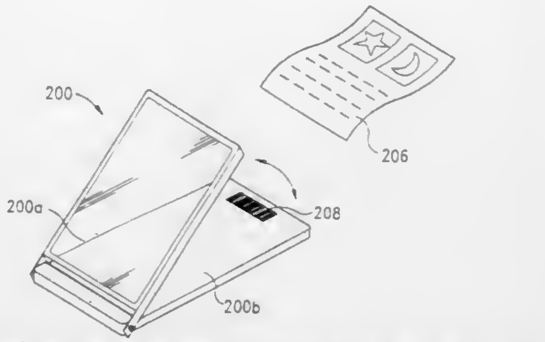
John Lin, Hsinchu, Taiwan, assignor to Mustek Systems Inc., Taiwan

Filed Apr. 3, 1997, Ser. No. 832,338

Int. Cl.⁶ H01J *40/14*

U.S. Cl. 250—208.1 **8 Claims**

1. A method for driving a scanning system, said scanning system having a document holder with a reference pattern to hold a document, wherein said document holder having an opening for



feeding said document into said document holder and said document holder can be fed into said scanning system, a first sensor being set in said scanning system to detect said document holder, a second sensor being set in said system for detecting said reference pattern, said reference pattern being formed and attached in said document holder for driving said scanning system, said method comprising the steps of:
feeding said document holder into said scanning system;
detecting the presence/absence of said document holder by using said first sensor, said second sensor being responsive to a first signal of said first sensor to move to a predetermined position where is exactly over said reference pattern; and
detecting said reference pattern by using said second sensor, said second sensor being responsive to a reflected signal indicative the absence of said reference pattern to capture the image of said document.

5,786,591
OPTICAL FILTER WITH TRANSMISSION WAVELENGTH BAND CONTROLLING FUNCTION AND RECEIVER USING THE OPTICAL FILTER

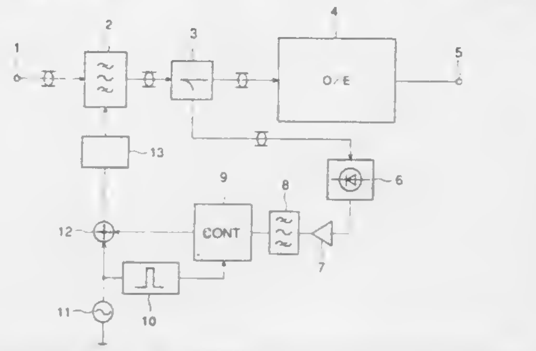
Koji Asahi, Tokyo, Japan, assignor to NEC Corporation, Tokyo, Japan

Filed Mar. 11, 1997, Ser. No. 814,869

Claims priority, application Japan, Mar. 15, 1996, 8-087599

Int. Cl.⁶ G01J *3/50*

U.S. Cl. 250—226 **14 Claims**



1. An optical filter with transmission wavelength band controlling function provided with:
optical filter means for transmitting only the light having a wavelength included in the transmission wavelength band determined by a wavelength controller out of input signal light and for supplying a transmission wavelength band signal light;
low frequency signal generating means for generating a changing signal having a previously prescribed frequency:
light branching means for branching partially the said transmission wavelength band signal light and supplying a branched signal light from one terminal:
photoelectric conversion means for converting said branched signal light to an electric signal;
specific frequency signal component extracting means for extracting a signal component having said frequency of said

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changing signal from said electric signal and for supplying a specific frequency signal;

wavelength controlling means for detecting phase and amplitude of said specific frequency signal and for supplying a control signal so that said phase and amplitude is adjusted to previously prescribed values; and

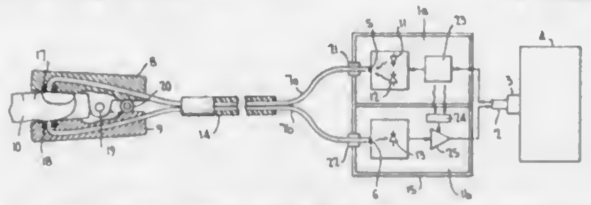
superposing means for superposing said changing signal to said control signal and for supplying said wavelength control signal to said optical filter means.

5,786,592
PULSE OXIMETRY SENSOR WITH FIBEROPTIC SIGNAL TRANSMISSION
Bertil Hök, Västerås, Sweden, assignor to Hök Instrument AB, Västerås, Sweden

Filed Jan. 24, 1997, Ser. No. 788,235

Int. Cl.^{6} H01J *5/16*

U.S. Cl. 250—227.14 **10 Claims**



1. Pulse oximetry sensor with fiber optic signal transmission comprising:

a light emitting and light detecting part (**1***a*, **1***b*) containing light emitting diodes (**11**, **12**) with emission in at least two wavelength regions and at least a photo detector (**13**) with electric connection (**2**) via one or several connectors (**3**) to a pulse oximetry instrument (**4**), in which said light emitting diodes (**11**, **12**) and photo detector (**13**) are optically connected to one end of at least one fiber optic cable (**7**) to the other end of which is connected to a two-halved clamp (**8**, **9**) for fixation and transillumination of a finger, an extremity or other transilluminable body organ, and

at least one power distributor (**23**) transferring a part of the available electric power from said pulse oximetry instrument (**4**) via said electric connection (**2**) to at least one power receiver (**24**), supplying at least one signal amplifier (**25**) with electric power.

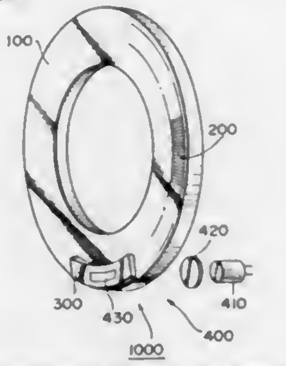
5,786,593
ROTARY ENCODER HAVING A PLURALITY OF PATTERNS WITH DIFFERENT CYCLES
Fumio Ohtomo, and Kaoru Kumagai, both of Tokyo, Japan, assignors to Kabushiki Kaisha Topcon, Tokyo, Japan

Filed Sep. 23, 1996, Ser. No. 717,912

Claims priority, application Japan, Sep. 24, 1995, 7-269162

Int. Cl.^{6} G01D *5/34*

U.S. Cl. 250—231.14 **16 Claims**



1. In an encoder made up of a rotor and a stator, a rotary encoder comprising:

a scale formed on said rotor and having a first pattern modulated for a first period and a second pattern modulated for a second period different from the first period, said first pattern and said second pattern being sequentially disposed at equal pitch in the rotating direction of said rotor, and

scale detection means for reading the patterns of said scale,

wherein said first pattern and said second pattern have at least one point of concurrence where said patterns concur with each other with respect to phases thereof.

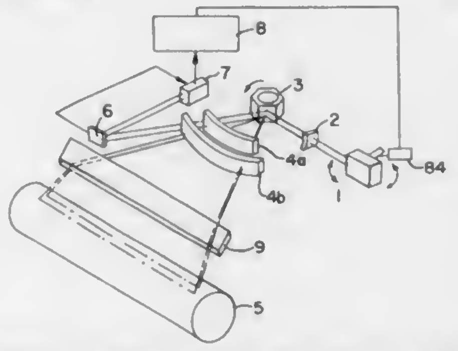
5,786,594
MULTI-BEAM PITCH ADJUSTMENT SYSTEM AND METHOD
Tatsuya Ito; Tomohiro Nakajima, both of Tokyo; Katsumi Yamaguchi, Yokohama; Akira Shimura, Kanagawa; Masaki Narita, Tokyo; Shuichi Yamazaki, Fujimi, and Satoru Ito, Yokohama, all of Japan, assignors to Ricoh Company, Ltd., Japan

Filed Jan. 21, 1997, Ser. No. 786,203

Claims priority, application Japan, Jan. 18, 1996, 8-006273; Jan. 19, 1996, 8-007861; Mar. 1, 1996, 8-068982; Mar. 12, 1996, 8-081899; May 31, 1996, 8-159254; May 17, 1996, 8-123342; Jul. 25, 1996, 8-213278; Jul. 26, 1996, 8-197791; Nov. 13, 1996, 8-302172

Int. Cl.^{6} H04N *1/36*

U.S. Cl. 250—236 **74 Claims**



1. A method of adjusting a pitch between beams on an intermediate image-forming surface, a plurality of light sources being placed in an array on a rotatable unit, comprising the steps of:

a) emitting a plurality of substantially parallel beams from the light sources;

b) measuring a distance between said emitted beams; and

c) automatically rotating the rotatable unit about an axis in parallel to at least one of said emitted beams based upon said measured distance for adjusting the pitch substantially close to a predetermined desired pitch value.

5,786,595
METHOD FOR ESTIMATING LITHOLOGICAL FRACTIONS USING NUCLEAR SPECTROSCOPY MEASUREMENTS
Susan L. Herron, and Michael M. Herron, both of Ridgefield, Conn., assignors to Schlumberger Technology Corporation, Ridgefield, Conn.

Filed Mar. 29, 1996, Ser. No. 625,459

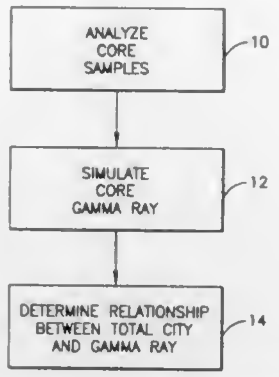
Int. Cl.^{6} G01V *5/00*

U.S. Cl. 250—256 **15 Claims**

1. A method for deriving the total clay content in a formation surrounding a borehole, comprising the steps of:

a) determining the concentrations of a plurality of elements in the formation without measuring an aluminum concentration; and,

b) inputting a selected group of elemental concentrations obtained at step (a), including at least silicon, calcium, and iron, into a predetermined equation to derive total clay content in the formation.



5,786,596
Patent Not Issued For This Number

5,786,597
SEMICONDUCTOR GAMMA-RAY CAMERA AND MEDICAL IMAGING SYSTEM
Clinton L. Lingren, San Diego; Stanley J. Friesenhahn, Poway; Jack F. Butler, Rancho Santa Fe; F. Patrick Doty, San Diego; William L. Ashburn, La Jolla; Frank L. Augustine, Encinitas, and Boris Apotovsky, San Diego, all of Calif., assignors to Digirad Corporation, San Diego, Calif.

Continuation of Ser. No. 372,807, Dec. 23, 1994, abandoned. This application Jun. 28, 1996, Ser. No. 672,831

Int. Cl.^{6} G01T *1/24*

U.S. Cl. 250—370.09 **49 Claims**

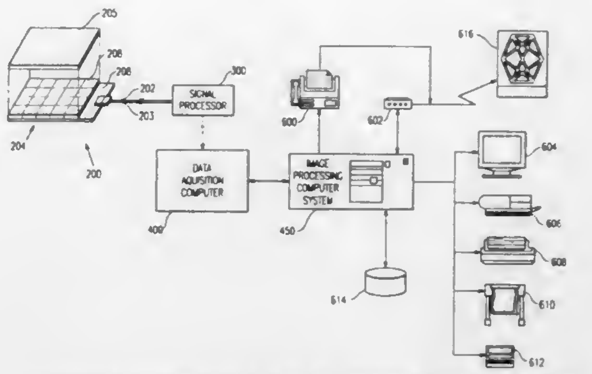
1. A nuclear imaging system, comprising:

a. a radiation guide structure comprising one of a collimator or pinhole, and

b. an imaging detector positioned proximate the radiation guide structure, comprising;

(1) a plurality of detection modules, each having an exposure surface a surface opposite the exposure surface, and a plurality of sides, the exposure surface being substantially covered with radiation detecting material wherein each detection module is buttable on all sides with adjacent detection modules such that the imaging detector has substantially no dead regions between butted detection modules, and wherein each detection module further includes a plurality of semiconductor detection elements for producing electrical pulses having an amplitude indicative of the energy of radiation from high-energy photons impinging on the exposure surface, and

(2) a conditioning circuit, operatively coupled to the detection elements, for conditioning the pulses, wherein the conditioning circuit provides low-noise amplification of the pulse.

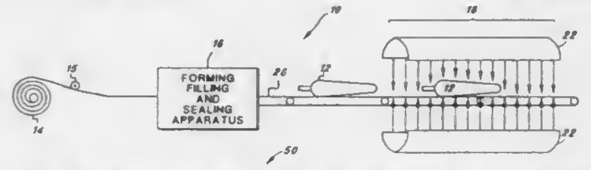


5,786,598
STERILIZATION OF PACKAGES AND THEIR CONTENTS USING HIGH-INTENSITY, SHORT-DURATION PULSES OF INCOHERENT, POLYCHROMATIC LIGHT IN A BROAD SPECTRUM
Reginald Wayne Clark, Del Mar; James C. Lierman, San Diego; Donald Lander, La Jolla, and Joseph E. Dunn, Vista, all of Calif., assignors to PurePulse Technologies, Inc., San Diego, Calif.

Filed May 22, 1996, Ser. No. 651,275

Int. Cl.^{6} B65B *55/08;* **A61L** *2/10*

U.S. Cl. 250—455.11 **31 Claims**



1. An apparatus for sterilizing microorganisms in a container comprising:

the container, wherein the container includes a polyolefin, and wherein the container transmits light in a spectrum of from between 180 nm and 300 nm;

a port coupled to the container including means through which a product within the container can be withdrawn, and

a flashlamp system including means for generating high-intensity, short-duration pulses of polychromatic light in a broad spectrum, and for deactivating microorganisms within the container by illuminating the container with the pulses of light having been generated.

5,786,599
ENHANCED SPATIAL RESOLUTION SCINTILLATION DETECTORS
W. Leslie Rogers, and Neal H. Clinthorne, both of Ann Arbor, Mich., assignors to Regents of the University of Michigan, Ann Arbor, Mich.

Filed Oct. 30, 1996, Ser. No. 739,357

Int. Cl.^{6} G01J *1/58*

U.S. Cl. 250—483.1 **14 Claims**

1. A scintillator, which interacts with invisible radiation particles to produce visible scintillation events, comprising:

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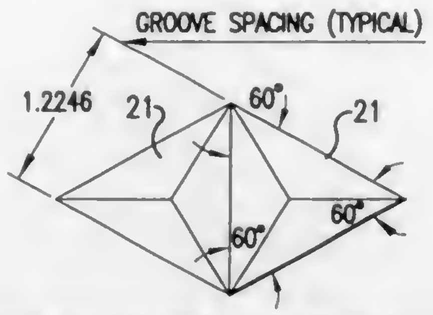


a first planar surface for coupling to scintillation detector means for detecting said scintillation events; and

a second surface opposite said planar surface having an array of discrete reflector elements formed thereon for reflecting light rays from said visible scintillation events back toward said planar surface so as to reduce the light spread function of said scintillator, wherein said discrete reflector elements are integrally formed of the same material as said scintillator in said second surface of said scintillator.

5,786,600

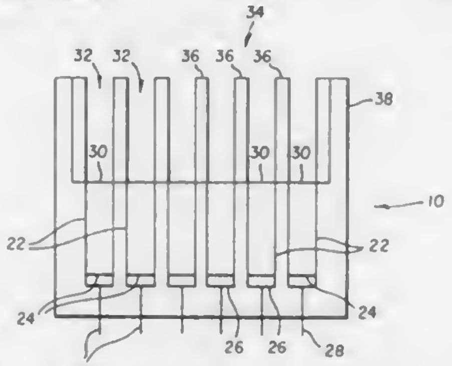
(BARIUM HAFNATE:TI, CE, PB) PHOSPHORS PHOSPHOR SCREENS AND PHOSPHOR PREPARATION METHODS

Patrick Maddock Lambert, Rochester; Gregory S. Jarrold, Henrietta, and Philip Steven Bryan, Webster, all of N.Y., assignors to Eastman Kodak Company, Rochester, N.Y.

Filed Dec. 19, 1995, Ser. No. 574,481

Int. Cl.^{6} C09K *11/67*

U.S. Cl. 250—484.4 **27 Claims**



1. A radiographic storage screen for storing an image pattern of X-radiation exposure that when exposed with stimulating light at 300° K. emits light in the image pattern of X-radiation exposure comprising a support and, coated on the support, at least one layer forming a luminescent portion and an overcoat layer, said luminescent portion and overcoat layer each including a binder that is transparent to the X-radiation, the stimulating light and the emitted light and said luminescent portion including phosphor particles in a weight ratio of phosphor particles to binder of 7:1 to 25:1, said phosphor comprising oxygen and a combination of species characterized by the relationship:

$$(Ba_{1-d}M_d)(Hf_{1-z-e}Zr_zMg_e):yCe,y'Ti,y''Pb$$

wherein

M is selected from the group consisting of Ca, Sr, and combinations thereof;
d is from 0 to 0.05;
z is from 0 to 0.25;
e is from 0 to 0.15;
y is from 1×10^{-6} to 0.025;
y' is from 0 to 0.05;
y" is from 0 to 0.01; and
y+y'+y" is from 1×10^{-6} to 0.05.

5,786,601

ELECTRON BEAM LITHOGRAPHY MACHINE

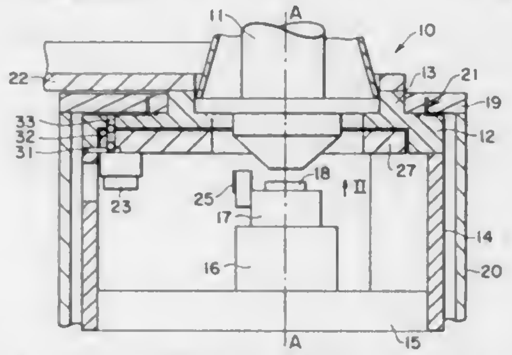
John Monro Sturrock, Cambridgeshire, and Andrew Dean, Essex, both of United Kingdom, assignors to Leica Lithography Systems Ltd., Cambridge, United Kingdom

PCT No. PCT/EP94/02095, § 371 Date Jan. 24, 1997, § 102(e) Date Jan. 24, 1997, PCT Pub. No. WO96/00978, PCT Pub. Date Jan. 11, 1996

PCT Filed Jun. 28, 1994, Ser. No. 750,850

Int. Cl.^{6} G01B *9/02*

U.S. Cl. 250—491.1 **23 Claims**



1. An electron beam lithography machine comprising a movable support for a substrate, an electron beam column for providing an electron beam to scan the substrate, a contactless position monitoring system for monitoring the position of the substrate relative to the optical axis of the column, and a rigid mounting body mounting the support and the column, characterised in that components of the monitoring system are mounted in mutually fixed relationship on a rigid carriage which is supported relative to the body at a plurality of contact points provided by rollable members, the rollable members being arranged to secure the carriage against tilt relative to the body and to permit limited deformation of the body substantially without influence on the position of the components relative to the axis.

5,786,602

METHOD AND APPARATUS FOR ELECTRO-OPTICALLY DETERMINING THE DIMENSION, LOCATION AND ATTITUDE OF OBJECTS

Timothy R. Pryor; Bernard Hockley; Nick Liptay-Wagner; Omer L. Hageniers, and W. J. Pastorius, all of Windsor, Canada, assignors to Sensor Adaptive Machines, Inc., Windsor, Canada

Division of Ser. No. 334,350, Nov. 2, 1994, Pat. No. 5,510,625, which is a division of Ser. No. 124,605, Sep. 21, 1993, Pat. No. 5,362,970, which is a division of Ser. No. 836,508, Feb. 18, 1992, Pat. No. 5,280,179, which is a division of Ser. No. 711,397, Jun. 6, 1991, Pat. No. 5,164,579, which is a continuation of Ser. No. 511,967, Apr. 17, 1990, abandoned, which is a continuation of Ser. No. 381,032, Jul. 19, 1989, abandoned, which is a continuation of Ser. No. 262,131, Oct. 25, 1988, abandoned, which is a continuation of Ser. No. 59,632, Jun. 8, 1987, abandoned, which is a continuation of Ser. No. 757,208, Jul. 22, 1985, Pat. No. 4,674,869, which is a continuation of Ser. No. 697,683, Feb. 1, 1985, abandoned, which is a continuation of Ser. No. 634,191, Jul. 24, 1984, abandoned, which is a continuation of Ser. No. 378,808, May 17, 1982, abandoned, which is a division of Ser. No. 34,278, Apr. 30, 1979, Pat. No. 4,373,804. This application Jun. 5, 1995, Ser. No. 465,656

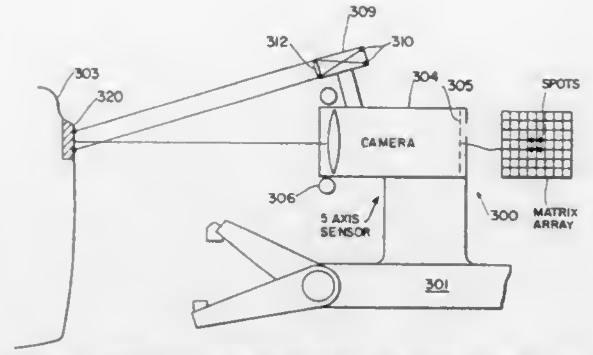
Int. Cl.^{6} G01C *3/08*

U.S. Cl. 250—559.33 **16 Claims**

1. A robotic system for determining a dimension of an object, comprising:

non-contact sensor means for sensing a characteristic of said object and for providing data related to said characteristic,

robot means having at least 4 axes of positional movement for positioning said sensor means relative to said object,



control means for controlling said movement of said robot means to position said sensor means relative to said object, and

means for analyzing data from said sensor means to determine a dimension of said object.

5,786,603

MULTILAYER STRUCTURED SEMICONDUCTOR DEVICES

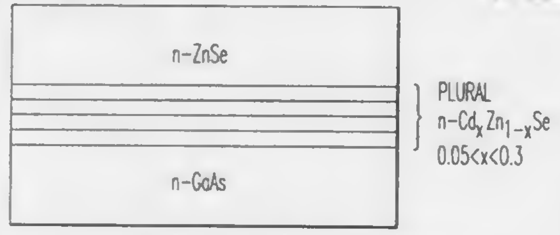
John Rennie, Tokyo; Genichi Hatakoshi, and Shinji Saito, both of Yokohama, all of Japan, assignors to Kabushiki Kaisha Toshiba, Kawasaki, Japan

Filed Sep. 12, 1996, Ser. No. 711,884

Claims priority, application Japan, Sep. 12, 1995, 7-234428; Jun. 18, 1996, 8-156967

Int. Cl.^{6} H01L *129/06;31/0328;31/0336;31/072*

U.S. Cl. 257—13 **6 Claims**



1. A multilayered semiconductor device comprising:

a first n-type compound semiconductor layer containing GaAs;

a second n-type compound semiconductor layer containing ZnSe; and

at least one intermediate layer that is composed of an n-type II-VI compound semiconductor layer, including at least an Cd component, wherein

the energy value at the conduction band edge that said n-type II-VI compound semiconductor layer has lies between the energy values at the conduction band edges of said first and second n-type compound semiconductor layers adjoining both faces of the intermediate layer.

5,786,604

ELEMENT-ISOLATED HYDROGEN-TERMINATED DIAMOND SEMICONDUCTOR DEVICE AND ITS MANUFACTURING METHOD

Satoshi Yamashita, Tokyo; Hiroshi Kawarada, Kanagawa-ken; Masahiro Itoh, Tokyo, and Naofumi Nakamura, Kanagawa-ken, all of Japan, assignors to Tokyo Gas Co., Ltd., Tokyo, Japan

Filed Sep. 13, 1995, Ser. No. 527,809

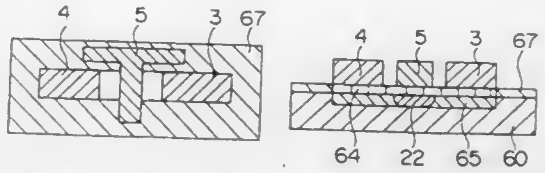
Claims priority, application Japan, Sep. 16, 1994, 6-221276; Mar. 23, 1995, 7-064035

Int. Cl.^{6} H01L *31/0312;29/00;29/12*

U.S. Cl. 257—77 **5 Claims**

1. An element-isolated hydrogen-terminated diamond semiconductor device, comprising:

at least one hydrogen-terminated region formed by terminating a first region of a surface layer of diamond with hydrogen;



a non-hydrogen-terminated insulating region formed by terminating a second region of said surface layer of the diamond with a chemical element other than hydrogen; and

a semiconductor element formed on each said hydrogen-terminated region.

5,786,605

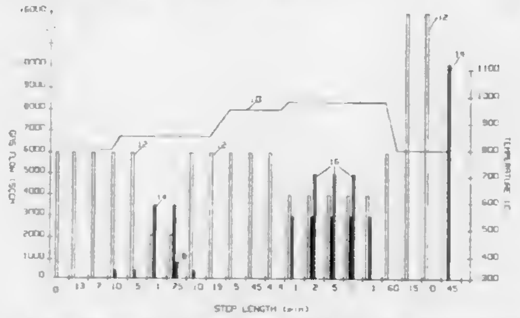
SEMICONDUCTOR DEVICE PRODUCED BY A SINGLE FURNACE CYCLE DIFFUSION AND OXIDATION PROCESS

Jon A. Gwin, San Antonio, Tex., assignor to Sony Corporation, Tokyo, Japan, and Sony Electronics Inc, Park Ridge, N.J.

Continuation of Ser. No. 487,380, Jun. 7, 1995, abandoned, which is a division of Ser. No. 98,667, Jul. 28, 1993, Pat. No. 5,494,852. This application Aug. 6, 1997, Ser. No. 907,264

Int. Cl.^{6} H01L *21/225*

U.S. Cl. 257—101 **9 Claims**



1. A semiconductor device produced by a process for processing semiconductor devices during a single cycle of a furnace, comprising the ordered steps of:

starting a single furnace cycle by loading a semiconductor device into a heating chamber of a furnace and heating said chamber to a chamber temperature lower than that which would produce diffusion of a dopant in said semiconductor device;

maintaining said chamber temperature while forming a layer of dopant glass on a surface of said semiconductor device;

increasing said chamber temperature to a diffusion temperature adequate to drive said dopant into said semiconductor device in an inert environment;

maintaining said diffusion temperature and inert environment for a period of time to drive said dopant into said semiconductor device:

elevating said chamber temperature to an oxidizing temperature and generating an oxidizing environment for a period of time to achieve oxidation of said semiconductor device; and

removing said semiconductor device from said heating chamber of said furnace to complete said single furnace cycle.

5,786,606

SEMICONDUCTOR LIGHT-EMITTING DEVICE

Johji Nishio; Hidetoshi Fujimoto, both of Kawasaki, and Kazuhiko Itaya, Yokohama, all of Japan, assignors to Kabushiki Kaisha Toshiba, Kawasaki, Japan

Filed Dec. 12, 1996, Ser. No. 766,456

Claims priority, application Japan, Dec. 15, 1995, 7-327125; Mar. 8, 1996, 8-051141

Int. Cl.^{6} H01L *33/00;31/0312*

U.S. Cl. 257—103 **10 Claims**

1. A semiconductor light-emitting device, comprising:

a substrate;

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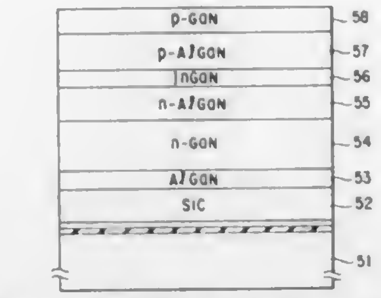


a buffer layer on the substrate comprising a gallium nitride-based material having a thickness less than half the thickness of the substrate; and

a laminate structure on the buffer layer comprising a plurality of gallium nitride-based material layers,

wherein said laminate structure comprises an active layer having a multi-quantum well structure comprising a plurality of pairs of layers comprising a barrier layer and a well layer, and the well layers have a carbon content higher than the barrier layers.

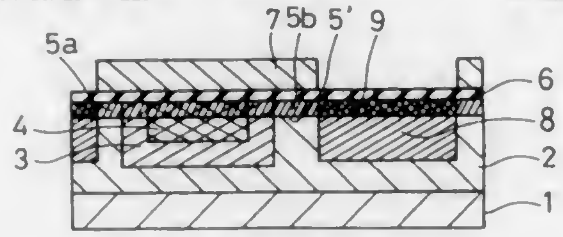
5,786,607
SOLID-STATE IMAGE PICK-UP DEVICE AND METHOD FOR MANUFACTURING THE SAME

Katsuya Ishikawa, Kyoto; Takao Kuroda; Yuji Matsuda, both of Osaka; Masahiko Niwayama, Kyoto, and Keishi Tachikawa, Osaka, all of Japan, assignors to Matsushita Electronics Corporation, Osaka, Japan

Filed May 29, 1996, Ser. No. 654,962

Int. Cl.^{6} H01L *27/148;29/768*

U.S. Cl. 257—225 **8 Claims**



1. A solid-state image pick-up device, comprising:

a plurality of pixel portions arranged as an array on a semiconductor substrate having a surface layer, each of said pixel portions including a photodiode portion, a vertical transfer portion for transferring charges, and a control portion for controlling the reading of the charges from said photodiode portion, wherein:

an isolating portion for isolating said vertical transfer portion from the adjacent photodiode portion is formed between said pixel portions, and

said control portion is formed on the entire surface layer of said semiconductor substrate between said photodiode portion and said vertical transfer portion.

5,786,608
SEMICONDUCTOR CHEMICAL SENSOR DEVICE WITH SPECIFIC HEATER STRUCTURE

Lionel Lescouzeres, Toulouse; Alain Seube, Plaisance, and Anne-Marie Gue, Rebigue, all of France, assignors to Motorola, Inc., Schaumburg, Ill.

Filed Feb. 26, 1997, Ser. No. 806,816

Claims priority, application France, Mar. 14, 1996, 96 03216

Int. Cl.^{6} H01L *23/58;* **G01N** *7/00;* **H01C** *7/00*

U.S. Cl. 257—253 **22 Claims**

1. A semiconductor chemical sensor device comprising:

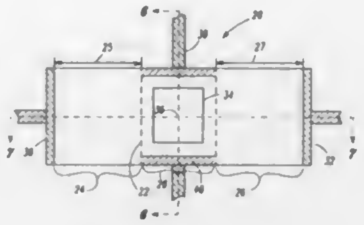
a semiconductor base;

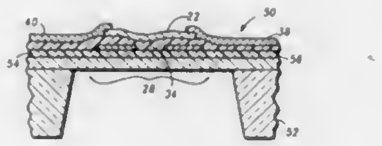
a heater formed over the semiconductor base from conductive material, the heater comprising first and second arms, a heater portion having a first surface and an opposing second surface, and an opening extending vertically through the heater portion from the first surface to the second surface, wherein the first and second arms extend over the semiconductor base from the heater portion;

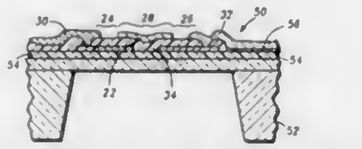
a first heater contact coupled to an end of the first arm;

a second heater contact coupled to an end of the second arm; and

a sensitive layer for detecting specific chemicals, the sensitive layer being formed over the opening and heater portion, wherein a vertical axis through the center of the opening extends through the center of the sensitive layer and wherein the opening has a horizontal cross-section which has a symmetrical shape about the vertical axis.







5,786,609
INTEGRATED HORIZONTAL UNIPOLAR TRANSISTOR HAVING A DOPED LAYER FORMING AN INTERNAL GATE OF THE TRANSISTOR AND AT LEAST ONE INTEGRATED CAPACITOR HAVING A FIRST ELECTRODE CONNECTED TO A SOURCE OF THE TRANSISTOR AND A SECOND ELECTRODE TO THE FIXED POTENTIAL

Josef Kemmer, Oberschleissheim; Gerhard Lutz; Rainer Richter, both of Munich, and Karl-Ernst Ehwald, Frankfurt/Oder, all of Germany, assignors to Max-Planck-Gesellschaft zur Foerderung der Wissenschaften e.V., Munich, Germany

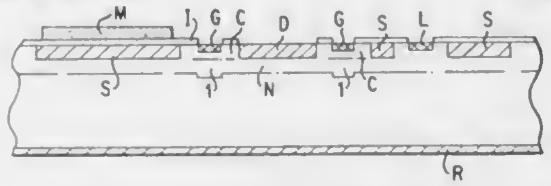
PCT No. PCT/DE94/01066, § 371 Date May 23, 1996, § 102(e) Date May 23, 1996, PCT Pub. No. WO95/08190, PCT Pub. Date Mar. 23, 1995

PCT Filed Sep. 15, 1994, Ser. No. 615,234

Claims priority, application Germany, Sep. 15, 1993, 43 31 391.4

Int. Cl.^{6} H01L *29/80*

U.S. Cl. 257—257 **15 Claims**



1. A semiconductor structure having a semiconductor body, comprising:

a unipolar transistor integrated into the semiconductor body, said unipolar transistor including a drain, a source, a top gate, a resetting contact, and a doped layer, said layer forming at least one gate of the unipolar transistor;

at least one capacitor having a first electrode directly connected to the source of the unipolar transistor;

wherein said unipolar transistor is a horizontal transistor applied on a first major face of the semiconductor body and having a channel disposed in parallel with the first major face;

wherein a return contact is disposed on a second major face of the semiconductor body, said return contact serving to deplete the semiconductor body of charge carriers and to form a potential barrier underneath the first major face; and

wherein a second electrode of the at least one capacitor is connected to a fixed potential.

5,786,610
FIELD EFFECT TRANSISTOR

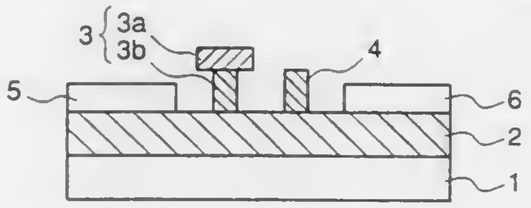
Mamiko Nakanishi, Tokyo, Japan, assignor to Mitsubishi Denki Kabushiki Kaisha, Tokyo, Japan

Filed Sep. 18, 1996, Ser. No. 715,414

Claims priority, application Japan, May 30, 1996, 8-136310

Int. Cl.^{6} H01L *29/80;31/112*

U.S. Cl. 257—280 **5 Claims**



1. A field effect transistor comprising:

an active layer having a surface;

a source electrode and a drain electrode disposed on the surface of the active layer and spaced apart in a gate length direction;

a first gate electrode disposed on the surface of the active layer between the source electrode and the drain electrode, having a T-shaped cross-section, and comprising a lower layer and an upper layer, the lower layer comprising a material having a resistivity and contacting the active layer, and the upper layer being disposed on the lower layer, comprising a material having a resistivity lower than the resistivity of the lower layer, and being longer than the lower layer in a direction parallel to the gate length direction; and

a second gate electrode disposed on the surface of the active layer between the first gate electrode and the drain electrode, having a rectangular cross-section and a single layer.

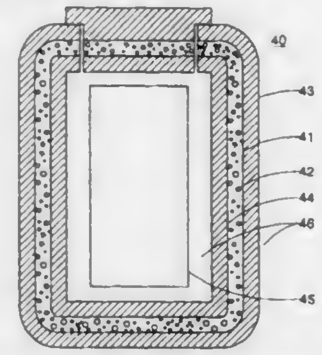
5,786,611
RADIATION SHIELDING COMPOSITION

William J. Quapp, and Paul A. Lessing, both of Idaho Falls, Id., assignors to Lockheed Idaho Technologies Company, Idaho Falls, Id.

Filed Jan. 23, 1995, Ser. No. 378,161

Int. Cl.^{6} G21F *3/04;11/00*

U.S. Cl. 250—515.1 **76 Claims**



1. A radiation shielding concrete product comprising depleted uranium aggregate, said depleted uranium aggregate comprising at least one fused stabilized depleted uranium material; and

cement, said depleted uranium aggregate being admixed to said cement to form a concrete having a density between about 4 and about 15 grams per cm^3 and which will, at a predetermined thickness, attenuate gamma rays from a radioactive material of projected gamma ray emissions over a determined time period.

5,786,612
SEMICONDUCTOR DEVICE COMPRISING TRENCH EEPROM

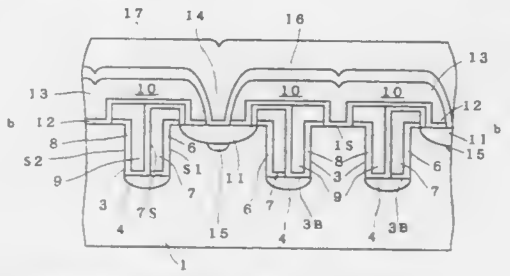
Naoko Otani, and Toshiharu Katayama, both of Tokyo, Japan, assignors to Mitsubishi Denki Kabushiki Kaisha, Tokyo, Japan

Filed Apr. 16, 1996, Ser. No. 633,093

Claims priority, application Japan, Oct. 25, 1995, 7-277588

Int. Cl.^{6} H01L *21/8247*

U.S. Cl. 257—316 **6 Claims**



1. A semiconductor memory device, comprising:

an underlying layer of a first conductivity type;

a trench formed in said underlying layer, extending inward from a main surface of said underlying layer to a prescribed depth, having a prescribed width in a first direction of said main surface and extending along a second direction perpendicular to said first direction;

a first impurity diffusion layer region of a second conductivity type formed at least under a bottom surface of said trench in said underlying layer;

a first gate insulating film formed at least on a side surface of said trench along said second direction and a part of said bottom surface of said trench in a portion inside said trench located in a region for a gate electrode portion to be formed;

a floating gate electrode formed so as to cover at least an upper surface of said first gate insulating film in said portion inside said trench located in said region for said gate electrode portion to be formed;

a second gate insulating film formed at least on one side surface of said floating gate electrode along said second direction, without coming into contact with said upper surface of said first gate insulating film, and formed on the other part of said bottom surface of said trench, the other side surface of said trench opposed to said one side surfaces, and on an upper surface of said floating gate electrode extending along the main surface which is opposed to said bottom surface of said trench in said portion inside said trench located in said region for said gate electrode portion to be formed;

a control gate electrode formed at least on an upper surface of part of said second gate insulating film covering at least said one side surface of said floating gate electrode, said other part of said bottom surface of said trench and said other side surface of said trench in said portion inside said trench located in said region for said gate electrode portion to be formed; and

a second impurity diffusion layer region of the second conductivity type formed in said underlying layer, extending inward from said main surface of said underlying layer, and being adjacent to said first gate insulating film.

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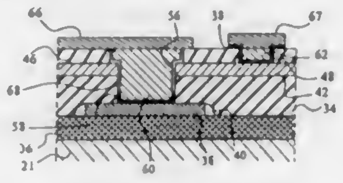
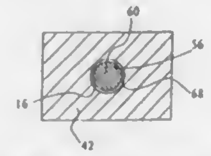
5,786,613
INTEGRATED OVERVOLTAGE PROTECTION DEVICE HAVING ELECTRODES SEPARATED BY A GAS-FILLED CAVITY

Alexander Kalnitsky, Grenoble, France, assignor to SGS-Thomson Microelectronics S.A., Saint Genis, France
Continuation of Ser. No. 403,006, Mar. 10, 1995, abandoned.
This application Mar. 24, 1997, Ser. No. 822,860
Claims priority, application France, Mar. 14, 1994, 94 03302
Int. Cl.⁶ H01L *23/62;* **H02H** *9/06*
U.S. Cl. 257—355 **58 Claims**

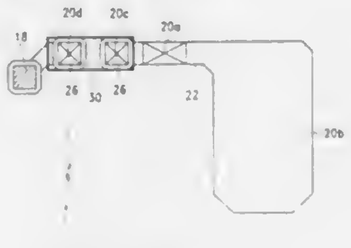


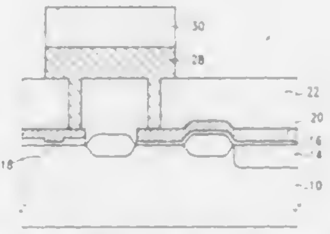


1. A structure within an integrated circuit comprising:
at least two conductive elements having opposing faces, including,
a column, comprised of a first conductive material, supported at a base and disposed over a semiconductor substrate, said column being substantially symmetrical about an axis extending perpendicularly from a surface of the substrate, and
a conductor having a opposing face opposite a part of said column periphery, comprised of a second conductive material,
wherein the opposing faces are separated by a gas filled gap that extends laterally beyond the smaller of the opposing faces.

5,786,614
SEPARATED FLOATING GATE FOR EEPROM APPLICATION

K. J. Chuang, Ma Kung, and H. S. Lui, Hsinchu, both of Taiwan, assignors to Taiwan Semiconductor Manufacturing Co., Ltd., Hsinchu, Taiwan
Filed Apr. 8, 1997, Ser. No. 824,686
Int. Cl.⁶ H01L *29/788*
U.S. Cl. 257—318 **5 Claims**

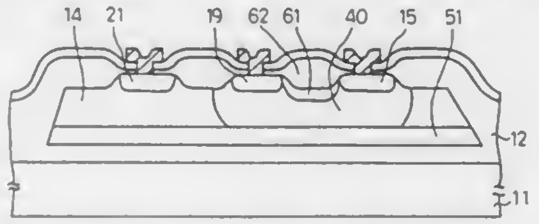




1. An EEPROM cell in a wafer having a separated floating gate comprising:
a plurality of field oxides formed on said wafer for electrical isolation;
a control gate formed in said wafer;
a first gate oxide formed on said wafer for isolation;
a first polysilicon portion formed on said first gate oxide including a gate for a transistor, a first contact window and a floating gate, said floating gate being above said control gate, said transistor being adjacent to said floating gate;
a second gate oxide formed on said wafer adjacent to one of said field oxides;
a tunneling window formed in said second gate oxide for carrier tunneling;
a second polysilicon portion having a second contact window formed on said second gate oxide and covering said tunneling window;
a dielectric layer formed on said first polysilicon portion and said second polysilicon portion;
contact holes formed in said dielectric layer and being exactly over said contact windows; and
a connecting structure formed in said contact holes and on said dielectric layer for interconnection.

5,786,615
JUNCTION FIELD-EFFECT TRANSISTOR (JFET) SEMICONDUCTOR INTEGRATED CIRCUIT DEVICE INCLUDING JFET

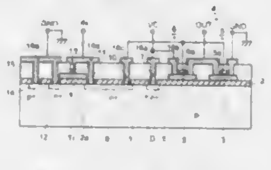
Yutaka Saito, Tokyo, Japan, assignor to Seiko Instruments Inc., Tokyo, Japan
Continuation of Ser. No. 204,461, Feb. 28, 1994, abandoned.
This application May 22, 1996, Ser. No. 651,637
Claims priority, application Japan, Mar. 1, 1993, 5-040319; Jan. 21, 1994, 6-005479
Int. Cl.⁶ H01L *27/01*
U.S. Cl. 257—348 **4 Claims**

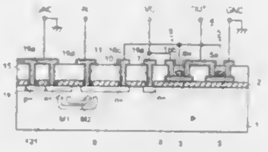


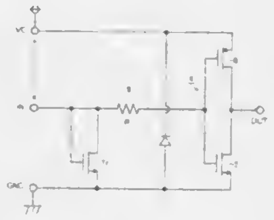
1. A junction type field effect transistor comprising:
a substrate;
a first conductivity type semiconductor film forming a first gate region located above said substrate, said semiconductor film having a bottom surface which faces said substrate, a top surface which faces away from said substrate and a side edge;
a layer of insulating material which is disposed between said substrate and said semiconductor film and covers said bottom surface and said side edge of said semiconductor film, said layer of insulating material electrically isolating said semiconductor film from said substrate;
a second conductivity type source region and drain region formed at the top surface of said semiconductor film, each region having a bottom which faces, and is spaced from, said bottom surface of said semiconductor film;
a second conductivity type gate region formed in said semiconductor film and extending continuously at least between the source region and the drain region, said gate region having an impurity concentration lower than said source region and drain region; and
a first impurity region of a first conductivity type for connection to a gate electrode formed at said top surface of said semiconductor film and spaced apart from said source region and drain region, said first impurity region having an impurity concentration higher than said semiconductor film, wherein said channel gate region extends more deeply than the source region and the drain region and extends laterally to underlie both the source region and the drain region.

5,786,616
SEMICONDUCTOR INTEGRATED CIRCUIT HAVING AN SOI STRUCTURE, PROVIDED WITH A PROTECTIVE CIRCUIT

Harutsugu Fukumoto, Anjo; Hiroaki Tanaka, Okazaki, and Akiyoshi Asai, Aichi-gun, all of Japan, assignors to Nippondenso, Co., Ltd., Kariya, Japan
Continuation of Ser. No. 530,739, Sep. 19, 1995, abandoned.
This application Sep. 10, 1997, Ser. No. 926,997
Claims priority, application Japan, Sep. 19, 1994, 6-222902
Int. Cl.⁶ H01L *27/02*
U.S. Cl. 257—358 **38 Claims**





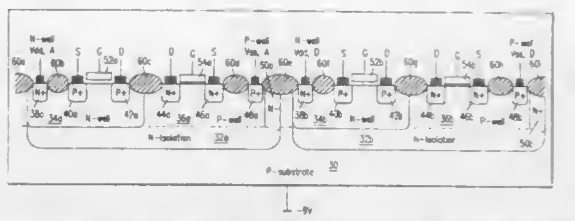


1. A semiconductor integrated circuit device comprising:
an integrated circuit formed in a thin-film semiconductor layer disposed on a semiconductor substrate of a first conductivity type with an insulation film interposed therebetween, said semiconductor integrated circuit device being provided with a signal-input terminal, maximum-potential terminal, and minimum-potential terminal;
a resistor diffusion region of a second conductivity type formed within said semiconductor substrate so as to be electrically connected between a signal-input portion of said integrated circuit and said signal-input terminal;
a diode diffusion region of said second conductivity type formed within said semiconductor substrate adjacent to said resistor diffusion region and connected to one of said maximum-potential terminal and said minimum-potential terminal;
a contact diffusion region of said first conductivity type formed within said semiconductor substrate and connected to another of said maximum-potential terminal and said minimum-potential terminal, whereby said diode diffusion region reverse-biases between said maximum-potential terminal and minimum-potential terminal;
a FET diffusion region of said second conductivity type formed within said semiconductor substrate; and
a a gate electrode formed on said semiconductor substrate with an insulation film interposed therebetween so as to be located over a surface between said FET diffusion region and said resistor diffusion region,
wherein a MOSFET for input-protection use is formed between said signal-input terminal and said other potential terminal by electrically connecting said resistor diffusion region and said gate electrode to said signal-input terminal and by causing said FET diffusion region to be equipotential with said contact diffusion region.

5,786,617
HIGH VOLTAGE CHARGE PUMP USING LOW VOLTAGE TYPE TRANSISTORS

Richard B. Merrill, Daly City, and Whu-ming Young, Palo Alto, both of Calif., assignors to National Semiconductor Corporation, Santa Clara, Calif.
Continuation of Ser. No. 221,602, Apr. 1, 1994, abandoned.
This application Oct. 5, 1995, Ser. No. 556,295
Int. Cl.⁶ H01L *27/092*
U.S. Cl. 257—371 **6 Claims**

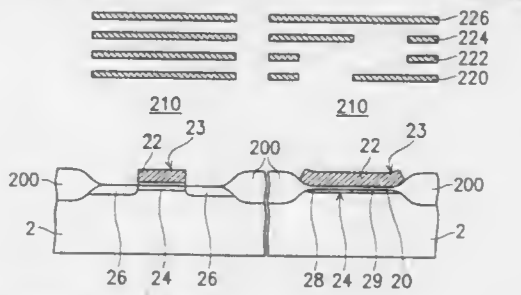
1. An integrated circuit, comprising:
a semiconductor substrate having a principal surface and doped to have a first conductivity type;



a plurality of transistors formed in the substrate in isolated areas of arbitrary voltages, each transistor comprising:
a source and drain region spaced apart in the substrate and each extending to the principal surface, each doped to have the first conductivity type and each formed in a well region of a second conductivity type;
a gate electrode overlying the principal surface between the source and drain regions; and
an isolation layer doped to have the second conductivity type, formed in the substrate and underlying the source, drain, well region and gate electrode and spaced apart from the source and drain regions and from a backside surface of the substrate;
wherein the well region of a first of the transistors is connected to a supply voltage of +3.3 volts, and the well region of a second of the transistors is connected to a supply voltage of +9 volts, and the substrate is connected to a negative voltage supply.

5,786,618
ROM MEMORY CELL WITH NON-UNIFORM THRESHOLD VOLTAGE

Jemmy Wen, Hsinchu, Taiwan, assignor to United Microelectronics, Corp., Hsinchu, Taiwan
Filed Mar. 21, 1996, Ser. No. 620,016
Int. Cl.⁶ H01L *27/112;29/78*
U.S. Cl. 257—391 **6 Claims**



1. A memory comprising:
a semiconductor substrate having isolation structures formed thereon to define a plurality of active regions, wherein the plurality of active regions are divided into subsets, there being a first subset, a second subset, a third subset, and a fourth subset;
above each of said active regions, a gate stack on said substrate within that active region;
in each of said active regions, source and drain regions in said substrate separated on opposite sides of said gate stack;
in each of said active regions, a channel region in said substrate below said gate stack and between said source and drain regions, said channel region comprising a first channel and a second channel deposed in parallel with each other and provided with different threshold voltages;
in each of said active regions of the first subset, impurities implanted in both the first and second channels to produce a first programmed state;
in each of said active regions of the second subset, impurities implanted in the first channel but not the second channel to produce a second programmed state;
in each of said active regions of the third subset, impurities implanted in the second channel but not the first channel to produce a third programmed state;

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in each of said active regions of the fourth subset, impurities implanted in neither the first channel nor the second channel to produce a fourth programmed state.

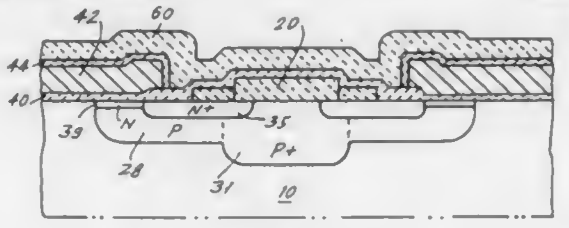
5,786,619
DEPLETION MODE POWER MOSFET WITH REFRACTORY GATE AND METHOD OF MAKING SAME

Daniel M. Kinzer, Riverside, Calif., assignor to International Rectifier Corporation, El Segundo, Calif.

Division of Ser. No. 160,172, Feb. 25, 1988, Pat. No. 5,472,888. This application Nov. 30, 1995, Ser. No. 564,917

Int. Cl.^{6} H01L *29/76;29/94;27/01;27/12*

U.S. Cl. 257—403 **7 Claims**



1. A depletion mode power MOSFET with a refractory gate, comprising:
- a base region of one conductivity type formed in a layer of semiconductor material of the opposite conductivity type by process steps including introducing dopant of the one conductivity type into an upper surface of said layer at a selected location and thermally driving said dopant to a first depth beneath the surface by maintaining said layer at a high temperature;
- a source region of the opposite conductivity type formed in said base region, with an outer periphery of said source region at a surface of said layer being spaced from a periphery of said base region at said surface;
- a depletion channel region of the opposite conductivity type formed at the upper surface of said base region after formation of said base region and interconnecting said peripheries of said source and base regions;
- a gate oxide over said depletion channel region;
- a refractory gate electrode over said gate oxide;
- a dielectric layer over said gate electrode; and
- a source electrode contacting said source region;
- said gate oxide, said refractory gate electrode, said dielectric layer and said source electrode being formed by process steps employing temperatures lower than said high temperature used to form said base region so that the depth of said depletion channel region is minimized, wherein said depletion channel region is less than about 5,000 angstroms deep.

5,786,620
FERMI-THRESHOLD FIELD EFFECT TRANSISTORS INCLUDING SOURCE/DRAIN POCKET IMPLANTS AND METHODS OF FABRICATING SAME

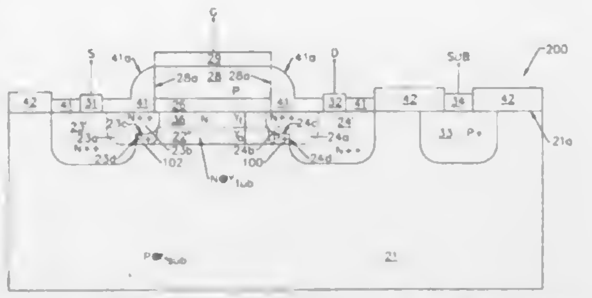
William R. Richards, Jr., Cary, and Michael W. Dennen, Raleigh, both of N.C., assignors to Thunderbird Technologies, Inc., Research Triangle Park, N.C.

Continuation-in-part of Ser. No. 505,085, Jul. 21, 1995, which is a continuation-in-part of Ser. No. 351,643, Dec. 7, 1994, Pat. No. 5,543,654, which is a continuation-in-part of Ser. No. 37,636, Feb. 23, 1993, Pat. No. 5,374,836, which is a continuation-in-part of Ser. No. 977,689, Nov. 18, 1992, Pat. No. 5,369,295, which is a continuation of Ser. No. 826,939, Jan. 28, 1992, Pat. No. 5,194,923. This application Mar. 8, 1996, Ser. No. 613,110

Int. Cl.^{6} H01L *29/76;29/94*

U.S. Cl. 257—408 **29 Claims**

1. A field effect transistor comprising:
- a semiconductor substrate of first conductivity type;



- a tub region of second conductivity type in said substrate at a surface thereof;
- spaced apart source and drain regions of said second conductivity type in said tub region, said source and drain regions including respective source and drain sidewalls;
- a channel region of said second conductivity type in said tub region, between said spaced apart source and drain regions;
- a drain extension region in said substrate at said substrate surface adjacent said drain region and extending from said drain sidewall into said channel region, said drain extension region being doped said second conductivity type and including a drain extension bottom opposite said substrate surface;
- a drain pocket implant region of said first conductivity type in said substrate, extending between said drain sidewall and said drain extension bottom;
- a gate insulating layer on said substrate surface, between said spaced apart source and drain regions; and
- source, drain and gate electrodes contacting said source and drain regions and said gate insulating layer, respectively.

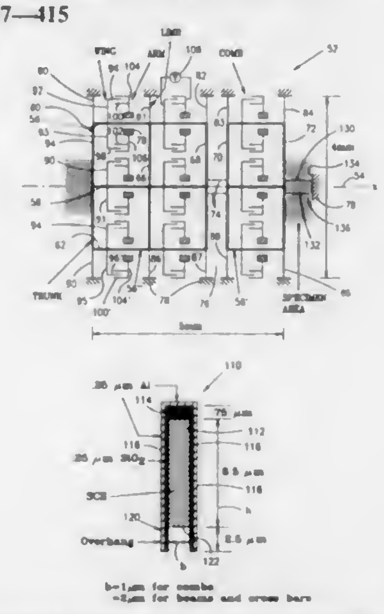
5,786,621
MICROELECTROMECHANICAL INTEGRATED MICROLOADING DEVICE

Muhammed T. A. Saif, and Noel C. MacDonald, both of Ithaca, N.Y., assignors to Cornell Research Foundation, Inc., Ithaca, N.Y.

Filed Jun. 21, 1996, Ser. No. 670,725

Int. Cl.^{6} H01L *29/82;23/58*

U.S. Cl. 257—415 **12 Claims**



1. A microelectromechanical structure comprising:
- an elongated beam structure having a single crystal silicon core with a generally rectangular cross-section and having a width in the range of 0.2–5 μm and a height in the range of 2–100 μm, said core having a top wall and a bottom wall defining the width of said core and opposed side walls defining the height of said core, the height of said core being greater than the width of said core to provide a high aspect ratio for said core;

- a dielectric layer of silicon dioxide having a thickness of about 0.25 μm on said side walls of said core and a dielectric layer of silicon dioxide on said top wall having a thickness greater than said side wall dielectric layer thickness;
- a metal layer of aluminum having a thickness of about 0.25 μm on said dielectric layer, the dielectric and metal layers on said top wall tending to bend said elongated beam in a downward direction;
- said dielectric and metal layer on the side walls of said core extending below said core bottom wall to produce an overhang on each side wall, the overhang tending to bend said elongated beam in an upward direction, wherein the length of said overhang below said core bottom wall is greater than the combined thickness of said top wall dielectric and said metal layer to produce an amount of upward bending which cancels the downward bending produced by said top wall layers to produce a resultant planar beam structure.

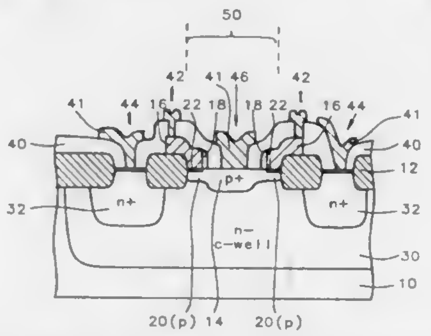
5,786,622
BIPOLAR TRANSISTOR WITH A RING EMITTER

Hannu O. Ronkainen, Espoo, Finland, assignor to TriTech Microelectronics International Ltd., Singapore, Singapore

Filed May 16, 1997, Ser. No. 857,959

Int. Cl.^{6} H01L *27/082;27/102;29/70;31/11*

U.S. Cl. 257—578 **19 Claims**



1. An emitter-base structure for a bipolar junction transistor comprising:
- a silicon wafer having formed within its surface a collector element of said bipolar junction transistor;
- a field oxide over said silicon wafer;
- an opening in said field oxide exposing an area of silicon wherein said emitter-base structure is formed;
- an intrinsic base of a first configuration formed within said silicon wafer in said opening having a ring shape with an outer perimeter defined by the perimeter of said opening;
- an emitter overlying said intrinsic base having a ring shape, the outer perimeter of said emitter being defined by the perimeter of said opening in said field oxide, and the inner perimeter of said emitter outlining a central region smaller than said opening by the width of said emitter;
- a polysilicon layer whose outer perimeter extends over said field oxide surrounding said opening and having an open region which coincides with said central region;
- an oxide sidewall spacer formed along the inner perimeter of said polysilicon layer having a thickness which forms a band laterally adjacent to the inner perimeter of said emitter thereby covering a portion of said central region; and
- an extrinsic base of a second configuration formed within that portion of said central region not covered by said oxide sidewall whereby said extrinsic base is displaced away from the inner edge of said emitter by the width of said spacer and whereby there exists a transition region from said extrinsic base to said intrinsic base beneath said spacer.

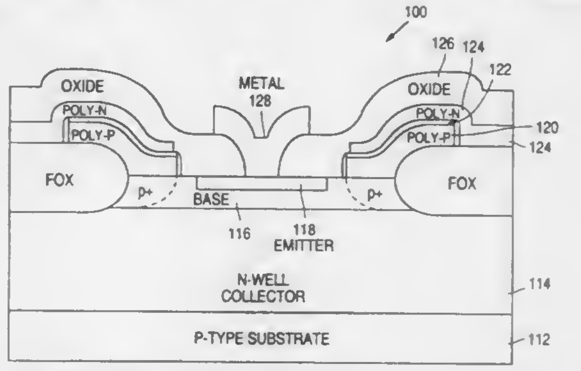
5,786,623
BIPOLAR-BASED ACTIVE PIXEL SENSOR CELL WITH METAL CONTACT AND INCREASED CAPACITIVE COUPLING TO THE BASE REGION

Albert Bergemont, and Min-hwa Chi, both of Palo Alto, Calif., assignors to Foveonics, Inc., Cupertino, Calif.

Filed Oct. 22, 1996, Ser. No. 735,009

Int. Cl.^{6} H01L *27/082;27/102;29/70;31/11*

U.S. Cl. 257—587 **8 Claims**



1. A light sensing cell formed in a substrate of a first conductivity type, the cell comprising:
- a collector region of a second conductivity type formed in the substrate;
- a base region of the first conductivity type formed in the collector region;
- an emitter region of the second conductivity type formed in the base region;
- a field oxide region formed in the collector region adjoining the base region;
- a first region of conductive material formed on a first portion of the field oxide region and the base region;
- a layer of dielectric material formed on the first region of conductive material; and
- a conductive line formed over the layer of dielectric material and a portion of the field oxide region, wherein the conductive line is substantially electrically isolated from the emitter region, and substantially capacitively coupled via the layer of dielectric material to the first region of conductive material and thereby to the base region.

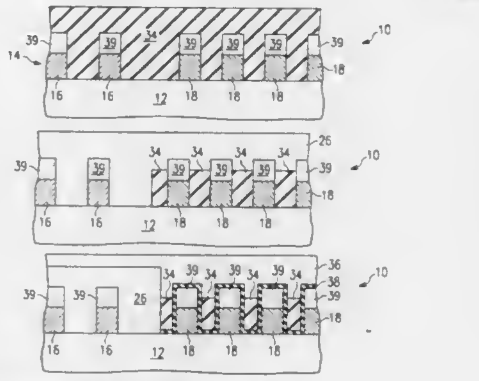
5,786,624
DUAL MASKING FOR SELECTIVE GAP FILL OF SUBMICRON INTERCONNECTS

Robert H. Havemann, Garland, and Richard A. Stoltz, Plano, both of Tex., assignors to Texas Instruments Incorporated, Dallas, Tex.

Continuation of Ser. No. 472,203, Jun. 7, 1995, abandoned, which is a division of Ser. No. 255,198, Jun. 7, 1994, abandoned. This application Feb. 28, 1997, Ser. No. 803,847

Int. Cl.^{6} H01L *29/06*

U.S. Cl. 257—635 **15 Claims**



1. A semiconductor device comprising:
- a substrate,

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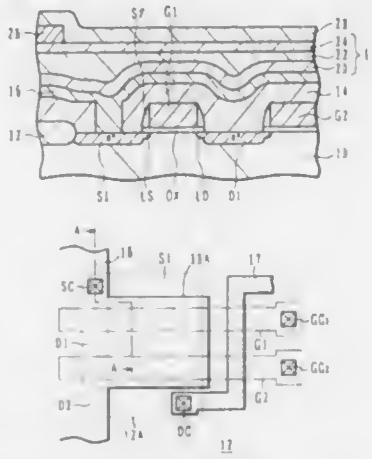
- a first metal layer formed on said substrate, said first metal layer having a first region and a second region;
- widely-spaced leads formed in said first region of said first metal layer, said widely-spaced leads spaced apart by more than one and one-half a minimum lead spacing;
- adjacent portions of closely-spaced leads formed in said second region of said first metal layer, said adjacent portions being spaced apart less than or equal to one and one-half a minimum lead spacing, said closely-spaced leads having a height and tops;
- a first insulating material between at least portions of said closely-spaced leads, said portions being spaced from another portion by less than one and one-half the minimum lead spacing, said first insulating material providing a dielectric constant of less than 3 in a region between at least two of said closely-spaced leads; and
- a third insulating material over said first insulating material and over and between said widely-spaced leads, wherein said third insulating material is a single homogeneous structural dielectric layer and wherein said third insulating material is structurally stronger than said first insulating material.

5,786,625
MOISTURE RESISTANT SEMICONDUCTOR DEVICE

Takahisa Yamaha, Hamamatsu, Japan, assignor to Yamaha Corporation, Japan

Filed Sep. 11, 1995, Ser. No. 526,603
Claims priority, application Japan, Sep. 14, 1994, 6-247154
Int. Cl.⁶ H01L *23/58;23/48*
U.S. Cl. 257—644 18 Claims

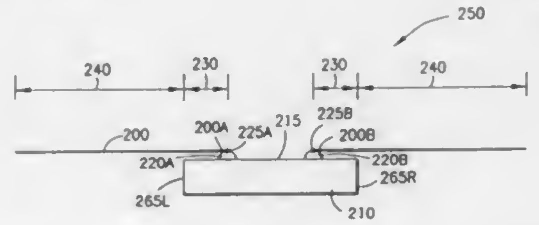


1. A semiconductor device comprising:
(a) a substrate having an active element thereon;
(b) a first interlayer insulating layer formed over the active element;
(c) a conductive wiring layer formed over and contacting the active element, wherein a part of the conductive wiring layer is horizontally extended in a lateral direction to form a laterally extending extra region serving as a conductive moisture blocking film having an overhang portion formed over a blocking region defined within the active element, wherein the overhang portion is smaller than the active element so as to only partially cover the active element; and
(d) a second interlayer insulating layer formed over the conductive wiring layer and the active element,
wherein the second interlayer insulating layer includes moisture contents therein degrading performances of the active element, and wherein the overhang portion extends the routes for the moisture contents in the second interlayer insulating layer toward the active element so that the blocking film blocks penetration of the moisture contents into the active element.

5,786,626
THIN RADIO FREQUENCY TRANSPONDER WITH LEADFRAME ANTENNA STRUCTURE

Michael J. Brady, Brewster, N.Y.; Normand Gilles Favreau, Dunham; Francois Guindon, Stukely sud Qc, both of Canada; Paul Andrew Moskowitz, Yorktown Heights, N.Y., and Phillip Murphy, New Fairfield, Conn., assignors to IBM Corporation, Armonk, N.Y.

Filed Mar. 25, 1996, Ser. No. 621,784
Int. Cl.⁶ H01L *23/495;23/48;23/52;29/40*
U.S. Cl. 257—673 32 Claims

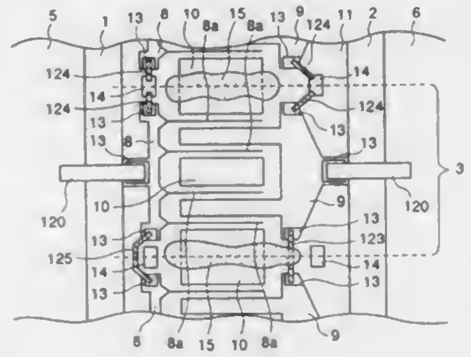


1. A radio frequency transponder comprising:
a. a circuit chip having a surface with one or more connectors; and
b. a self-supporting leadframe antenna, said self-supporting leadframe antenna being an electrically conductive self-supporting foil of a material having a Youngs's Modulus on the order of 12×10^{11} dynes per square centimeter of greater, said self-supporting foil having no supporting substrate and having two or more ends, one or more of the ends being electrically attached to one of the connectors on the circuit chip, the self-supporting foil itself forming an antenna for the radio frequency circuit.

5,786,627
INTEGRATED CIRCUIT DEVICE AND FABRICATING THEREOF

Akira Inoue; Kei Goto; Yoshihiro Notani; Yasuharu Nakajima; Hiroto Matsubayashi, and Yukio Ohta, all of Tokyo, Japan, assignors to Mitsubishi Denki Kabushiki Kaisha, Tokyo, Japan

Continuation of Ser. No. 565,451, Feb. 1, 1996, abandoned.
This application Oct. 22, 1997, Ser. No. 956,497
Claims priority, application Japan, Apr. 20, 1995, 7-094963
Int. Cl.⁶ H01L *23/02;23/52*
U.S. Cl. 257—679 7 Claims



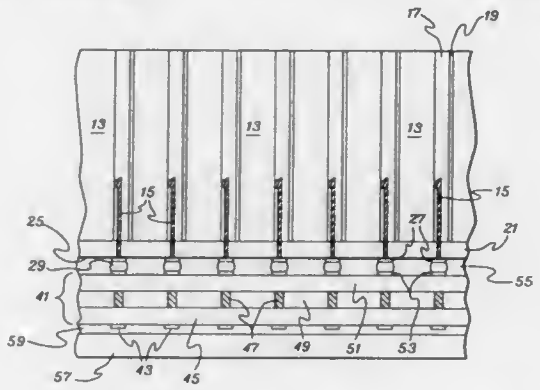
1. An integrated circuit device comprising:
a first substrate;
circuit elements including a plurality of transistors having respective source, drain, and gate electrodes, said transistors being disposed in a linear array, side-by-side, on said first substrate, at least one of the gate electrodes, the source electrodes, and the drain electrodes of adjacent transistors in the linear array being electrically independent of each other;

an electrically insulating film covering the transistors and including a plurality of through-holes providing access to the gate electrodes, the source electrodes, and the drain electrodes; and
a plurality of respective electrically conductive wirings electrically connecting, through the through-holes, in parallel, like electrodes of adjacent transistors that are electrically independent from each other.

5,786,628
METHOD AND WORKPIECE FOR CONECTING A THIN LAYER TO A MONOLITHIC ELECTRONIC MODULES SURFACE AND ASSOCIATED MODULE PACKAGING

Kenneth Edward Beilstein, Jr., Essex Junction; Claude Louis Bertin, South Burlington; John Edward Cronin, Milton; Wayne John Howell, Williston; James Marc Leas, South Burlington, all of Vt., and David Jacob Perlman, Wappingers Falls, N.Y., assignors to International Business Machines Corporation, Armonk, N.Y.

Continuation of Ser. No. 471,666, Jun. 6, 1995, abandoned, Division of Ser. No. 313,976, Sep. 28, 1994, Pat. No. 5,567,654.
This application Oct. 16, 1997, Ser. No. 951,663
Int. Cl.⁶ H01L *23/06;23/02*
U.S. Cl. 257—684 11 Claims



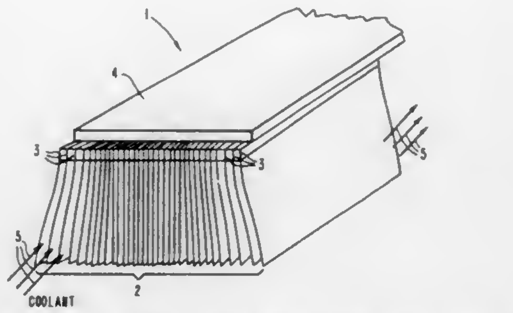
1. A temporary workpiece for attaching to a substantially planar surface of a semiconductor structure having a plurality of contacts, said temporary workpiece comprising:
- a temporary support;
- a temporary adhesive layer disposed on a surface of said temporary support; and
- a thin-film layer coupled to said temporary support by said temporary adhesive layer, wherein said thin-film layer can be transferred to said substantially planar surface of the semiconductor structure to interconnect at least some of said plurality of contacts by bonding said thin-film layer to said substantially planar surface and decoupling said temporary support from said thin-film layer along said temporary adhesive layer.

5,786,629
3-D PACKAGING USING MASSIVE FILLO-LEAF TECHNOLOGY

Sadeg Mustafa Faris, Pleasantville, N.Y., assignor to Reveo, Inc., Hawthorne, N.Y.

Continuation of Ser. No. 882,697, May 14, 1992, abandoned.
This application Apr. 3, 1996, Ser. No. 626,971
Int. Cl.⁶ H01L *23/02*
U.S. Cl. 257—686 46 Claims

1. A three dimensional module comprising:
- a plurality of elements disposed in registry in a stack, each of said elements carrying a plurality of active circuit devices,
- actuating means disposed on each said element for actuating said plurality of active circuit devices when matching first and second coded input signals are applied to said actuating means;

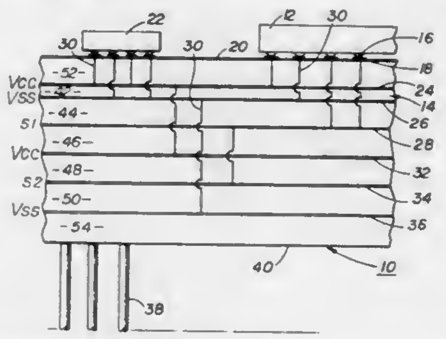


- means disposed at the edge of each said element connected to an associated means for applying first coded signals which are unique to each said element to said an associated means for actuating; and
- means disposed at the edges of said elements connected to each of said means for actuating for applying second coded signals to each of said means for actuating said active devices on one said elements.

5,786,630
MULTI-LAYER C4 FLIP-CHIP SUBSTRATE

Ameet Bhansali, and Qing Zhu, both of Freemont, Calif., assignors to Intel Corporation, Santa Clara, Calif.

Filed Aug. 7, 1996, Ser. No. 693,397
Int. Cl.⁶ H01L *23/48;23/52;23/053;23/02*
U.S. Cl. 257—697 20 Claims



1. An electronic package, comprising:
- a substrate which has a top surface and an opposite bottom surface, said substrate having a first power plane located adjacent to said top surface, a first ground plane located between said first power plane and said bottom surface and a first layer of signal routing traces located between said first ground plane and said bottom surface, a plurality of contacts pads that are located on said top surface and coupled to said first power plane, said first ground plane and said first layer of signal routing traces, and a plurality of contacts that are located at said bottom surface and coupled to said first power plane, said first ground plane and said first layer of signal routing traces; and
- a capacitor which has at least three rows of pins alternating in connection with said first power plane and said first ground plane.

5,786,631
CONFIGURABLE BALL GRID ARRAY PACKAGE

Clifford R. Fishley, San Jose, and Michael L. Lofstedt, Tracy, both of Calif., assignors to LSI Logic Corporation, Milpitas, Calif.

Filed Oct. 4, 1995, Ser. No. 539,188
Int. Cl.⁶ H01L *23/12*
U.S. Cl. 257—701 19 Claims

1. A configurable package for mounting an integrated circuit to a circuit board comprising:

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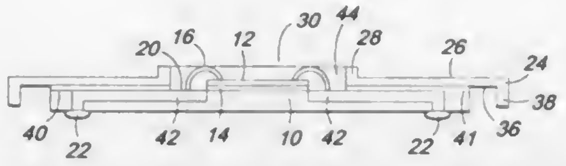


a substrate for receiving the integrated circuit, the substrate having contacts for making electrical connections between the substrate and the integrated circuit, and solder balls for making electrical connections between the substrate and the circuit board, each one of the contacts being in electrical contact with one of the solder balls, and

a clip ring/dam ring for overlaying and attaching to the substrate to stiffen and reinforce the substrate, the clip ring/dam ring forming a reservoir for receiving the integrated circuit on the substrate, the clip ring/dam ring forming attachment members for making attachments thereto.

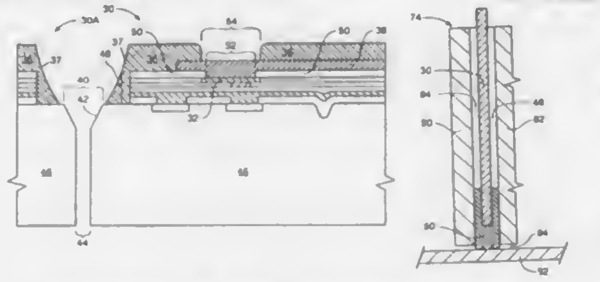
5,786,632
SEMICONDUCTOR PACKAGE

Warren M. Farnworth, Nampa; Alan G. Wood, Boise; Trung Tri Doan, Boise, and John O. Jacobson, Boise, all of Id., assignors to Micron Technology, Inc., Boise, Id.

Continuation of Ser. No. 565,864, Dec. 1, 1995, Pat. No. 5,593,927, which is a continuation-in-part of Ser. No. 294,183, Aug. 22, 1994, abandoned, which is a continuation of Ser. No. 137,645, Oct. 14, 1993, abandoned. This application Sep. 24, 1996, Ser. No. 717,820

Int. Cl.⁶ H01L *23/053;23/12*

U.S. Cl. 257—701 **12 Claims**



1. A semiconductor package comprising:

a semiconductor die comprising a plurality of bond pads and a passivation layer formed on a face thereof, the die having a beveled edge;

a plurality of conductive traces on the passivation layer, at least some of the conductive traces in electrical communication with at least some of the bond pads;

a plurality of exposed contact pads on the face of the die, at least some of the contact pads in electrical communication with at least some of the conductive traces;

a protective layer on the conductive traces, the protective layer having vias therethrough to the contact pads, the protective layer having a tapered edge; and

a die holder retaining the die, the holder comprising a plurality of connectors, at least some of the connectors electrically contacting the exposed contact pads, the connectors configured to slide over the beveled edge and tapered edge during insertion of the die into the holder.

5,786,633
SEMICONDUCTOR MODULE HAVING HIGH INSULATING POWER AND HIGH THERMAL CONDUCTIVITY

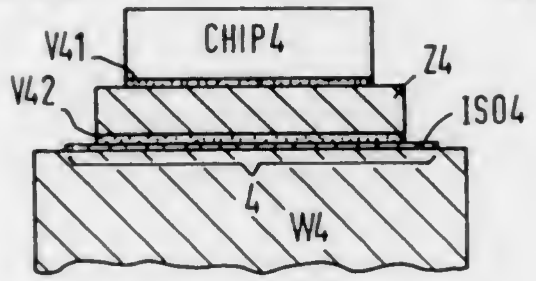
Eckhard Wolfgang, and Reinhold Kuhnert, both of Munich, Germany, assignors to Siemens Aktiengesellschaft, Munich, Germany

Filed Jan. 25, 1993, Ser. No. 8,734

Claims priority, application Germany, Jan. 23, 1992, 42 01 794.7

Int. Cl.⁶ H01L *23/36*

U.S. Cl. 257—706 **9 Claims**



7. A semiconductor module, comprising:

semiconductor chip;

means affixed to said semiconductor chip for eliminating heat from said semiconductor chip;

an electrically insulating and thermally conducting layer of crystalline carbon between said semiconductor chip and said means for eliminating heat;

at least one intermediate layer between said semiconductor chip and said means for eliminating heat; and

connecting layers of silver between said semiconductor chip and said means for eliminating heat;

wherein said means for eliminating heat comprises a cooling member having an end face region, said end face region of said cooling member being mounted directly on said electrically insulating and thermally conducting layer.

5,786,634
SEMICONDUCTOR DEVICE

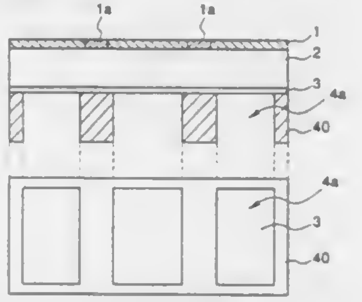
Kiyoshi Nishikawa; Mitsunori Nakatani, and Katsuya Kosaki, all of Tokyo, Japan, assignors to Mitsubishi Denki Kabushiki Kaisha, Tokyo, Japan

Filed Dec. 29, 1996, Ser. No. 773,993

Claims priority, application Japan, Sep. 2, 1996, 8-232242

Int. Cl.⁶ H01L *23/34;23/10;23/06*

U.S. Cl. 257—717 **6 Claims**



1. A semiconductor device including:

a semiconductor substrate having first and second main surfaces and a thickness between the first and second surfaces;

a function element layer having heating element portions generating heat during operation, disposed on the first main surface of the semiconductor substrate; and

a plated heat sink comprising a heat conductive material, having a thickness at least equal to the thickness of the semiconductor substrate, the plated heat sink being disposed only on:

(1) a circumferential region of the second main surface of the semiconductor substrate and having a width from a perimeter of the semiconductor substrate inward;

(2) main heat generating regions of the second main surface of the semiconductor substrate including regions opposite the heating element portions; and

(3) supporting regions of the second main surface of the semiconductor substrate connecting the circumferential region to the main heat generating regions.

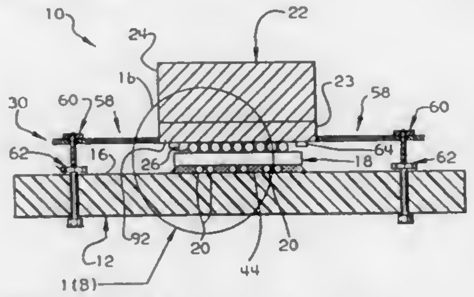
5,786,635
ELECTRONIC PACKAGE WITH COMPRESSIBLE HEATSINK STRUCTURE

David James Alcoe, Vestal, and Sanjeev Balwant Sathe, Johnson City, both of N.Y., assignors to International Business Machines Corporation, Armonk, N.Y.

Filed Dec. 16, 1996, Ser. No. 767,465

Int. Cl.⁶ H01L *23/34;23/10*

U.S. Cl. 257—718 **27 Claims**



1. An electronic package assembly comprising:

a circuitized substrate having a plurality of conductors on a first surface thereof;

an electronic device positioned on said circuitized substrate and electrically coupled to said plurality of conductors;

a heatsink thermally coupled to said electronic device;

a plurality of compressible, thermally conductive members positioned between said electronic device and said heatsink and thermally connected thereto in a separable manner, said compressible, thermally conductive members comprising a plurality of solder elements; and

means for providing compressive force between said heatsink and said electronic device and onto said compressible, thermally conductive members, selected ones of said plurality of compressible, thermally conductive members being compressed and permanently deformed to provide a separable connection between said heatsink and said electronic device.

5,786,636
SEMICONDUCTOR DEVICE AND METHOD OF FABRICATING SAME

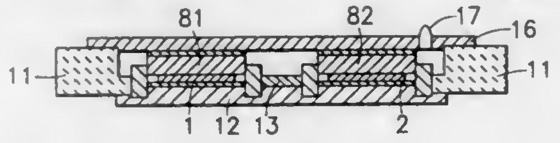
Yoshikazu Takahashi, Nagano, Japan, assignor to Fuji Electric Co., Ltd., Kawasaki, Japan

Division of Ser. No. 315,263, Sep. 29, 1994, Pat. No. 5,563,076. This application Jun. 14, 1996, Ser. No. 663,995

Claims priority, application Japan, Sep. 29, 1993, 5-242266

Int. Cl.⁶ H01L *23/34;23/14;21/44*

U.S. Cl. 257—723 **4 Claims**



1. A semiconductor device comprising:

a container;

said container including an insulating side wall and top and bottom conductive terminal boards;

outer peripheral portions of said top and bottom conductive terminal boards being coupled to top and bottom respectively of said side wall;

a plurality of semiconductor elements in said container;

electrode plates on bottom surfaces of said semiconductor elements, said electrode plates being rigidly fixed to said bottom conductive terminal board;

electrodes on top surfaces of said semiconductor elements; and

at least two intermediate terminal boards on said top surfaces;

said at least two intermediate terminal boards having protruding portions contacting corresponding electrodes on said semiconductor elements;

said at least two intermediate terminal boards having heights differing by an amount sufficient to place top surfaces thereof in a common plane; and

said top terminal board pressing on said top surfaces of said at least two intermediate terminal boards, whereby substantially equal pressure is applied to said at least two terminal boards, and to all connections therebelow.

5,786,637
INTERCONNECTION WITH METAL PLUG AND REDUCED STEP

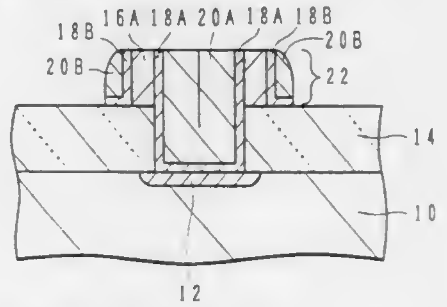
Suguru Tabara, Hamamatsu, Japan, assignor to Yamaha Corporation, Shizuoka-ken, Japan

Division of Ser. No. 651,880, May 21, 1996, Pat. No. 5,670,422. This application May 19, 1997, Ser. No. 858,668

Claims priority, application Japan, May 24, 1995, 7-149457

Int. Cl.⁶ H01L *23/48;23/52*

U.S. Cl. 257—758 **5 Claims**



1. A semiconductor device comprising:

a substrate having a conductive pattern;

an interlayer insulating film covering said substrate;

an interconnection layer formed on said interlayer insulating film;

a connection hole formed through said interconnection layer and said interlayer insulating film;

a plug formed of a metal filling said connection hole; and

a step-relieving member formed on outer side walls of said interconnection layer and formed of a same metal as that of said plug;

wherein the step-relieving member constitutes a portion of said metal filling the connection hole left on an outer side wall of said portion of said insulating film at a peripheral area around said connection hole.

5,786,638
SEMICONDUCTOR DEVICE WITH MOISTURE IMPERVIOUS FILM

Takahisa Yamaha, Hamamatsu, Japan, assignor to Yamaha Corporation, Japan

Continuation of Ser. No. 466,105, Jun. 6, 1995, abandoned, which is a division of Ser. No. 166,548, Dec. 14, 1993, Pat. No. 5,733,797. This application Jun. 5, 1997, Ser. No. 869,672

Claims priority, application Japan, Dec. 16, 1992, 4-354402

Int. Cl.⁶ H01L *23/58;23/48*

U.S. Cl. 257—760 **18 Claims**

1. a semiconductor device comprising:

a) a semiconductor substrate having a surface and a side wall;

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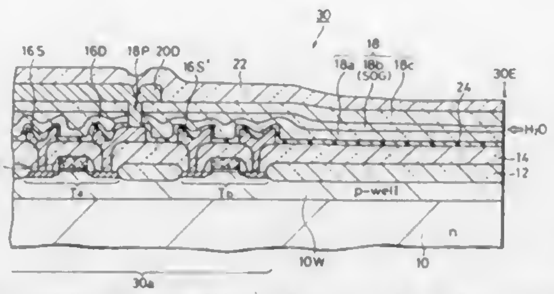


b) a plurality of circuit elements formed on the surface of said semiconductor substrate at predetermined active regions;

c) a laminated wiring layer having a plurality of wiring layers and an interlayer insulating film between each pair of adjacent wiring layers formed on the surface of said substrate, said circuit elements and said plurality of wiring layers and interlayer insulating film constituting an integrated circuit, said interlayer insulating film comprising a first oxide film formed in a plasma ambient, a generally flat spin-coated insulating film on said first oxide film, and a second oxide film formed over the generally flat spin-coated insulating such as to cover said active region and reach the side wall of said substrate or near said side wall;

d) a protective insulating film covering said laminated wiring layer; and

e) a moisture impervious film formed at a level lower than said spin-coated insulating film, said moisture impervious film being formed to cover said active region and being formed at least partly directly on said laminated wiring layer, said first oxide film being formed on and in contact with said moisture impervious film.

5,786,639

WIRING MEMBER AND LEAD FRAME HAVING THE SAME

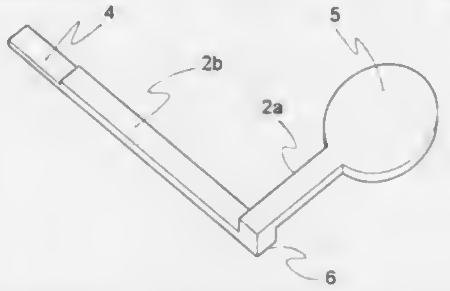
Yoshiharu Takahashi, Tokyo, Japan, assignor to Mitsubishi Denki Kabushiki Kaisha, Tokyo, Japan

Filed Jul. 3, 1997, Ser. No. 888,107

Claims priority, application Japan, Jan. 9, 1997, 9-002310

Int. Cl.⁶ H01L *23/48;23/52;29/40*

U.S. Cl. 257—775 **20 Claims**



1. A wiring member comprising a first electrode portion electrically connected with an electrode formed on a surface of a semiconductor element, a second electrode portion electrically connected with an electrode formed on an external circuit, and a wiring portion which connects the first electrode portion with the second electrode portion,

wherein the first electrode portion, the second electrode portion and the wiring portion are formed of a plate-shaped conductive body, and a thickness of the wiring portion is made not more than half as thick as the first electrode portion or the second electrode portion.

5,786,640

GENERATOR CONTROL SYSTEM FOR A HYBRID VEHICLE DRIVEN BY AN ELECTRIC MOTOR AND AN INTERNAL COMBUSTION ENGINE

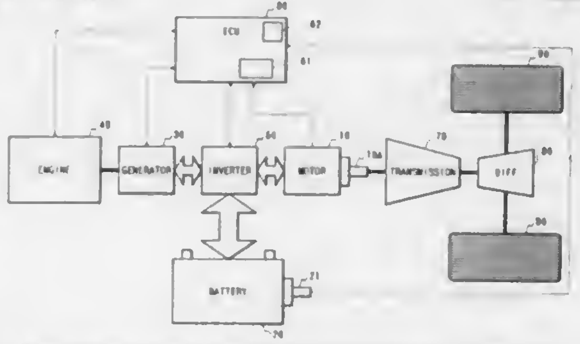
Shoji Sakai; Sadahisa Onimaru; Mitsuo Inagaki, and Hironori Asa, all of Nishio, Japan, assignors to Nippon Soken, Inc., Nishio, Japan

Filed Feb. 2, 1996, Ser. No. 596,407

Claims priority, application Japan, Feb. 13, 1995, 7-023820; Nov. 8, 1995, 7-290089

Int. Cl.⁶ B60L *11/02*

U.S. Cl. 290—17 **45 Claims**



1. A generator control system for hybrid vehicles comprising:

a generator driven by an internal combustion engine;

a battery chargeable by said generator;

an electric motor driven by electric power supplied from said generator and said battery;

state-of-charge detecting means for detecting a state of charge of said battery at predetermined sampling intervals to obtain a present state-of-charge (SOC) of said battery and a variation (ΔSOC) of said state-of-charge of said battery during a predetermined time interval based on said present state-of-charge (SOC); and

control means for controlling an electrical output of said generator based on said present state-of-charge (SOC) and said variation (ΔSOC).

5,786,641

FAILURE DETECTION SYSTEM FOR DETECTING A FAILURE IN A POWER CONVERTER

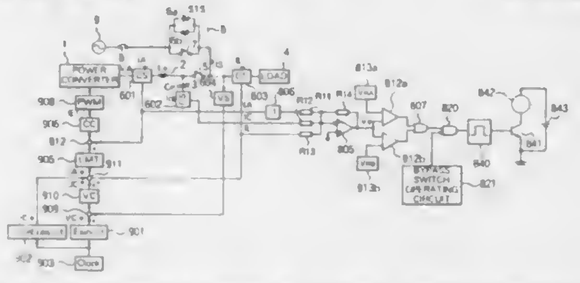
Makoto Nakanishi, and Katsumi Ikeda, both of Tokyo, Japan, assignors to Mitsubishi Denki Kabushiki Kaisha, Tokyo, Japan

Filed Feb. 6, 1996, Ser. No. 597,153

Claims priority, application Japan, Feb. 7, 1995, 7-019505

Int. Cl.⁶ H02J *7/00*

U.S. Cl. 307—64 **14 Claims**



1. A failure detection system for a power converter comprising:

a by-pass switch for switching between a first state connecting a power converter to a load and disconnecting a standby power source from the load, and a second state disconnecting the power converter from the load and connecting the standby power source to the load;

a by-pass switch operating circuit for switching the by-pass switch between the first and second states;

first detecting means coupled to the power converter for detecting output current of the power converter and generating a first output signal in response;

an inverting circuit coupled to the first detecting means for inverting the first output signal to produce a second output signal;

second detecting means coupled to the load for detecting a load current and generating a third output signal in response;

first adding means coupled to the inverting circuit and the second detection means for adding the second and third output signals to produce a first sum; and

failure judgment means coupled to the first adding means for detecting a failure of the by-pass switch, wherein, if the first sum is outside a predetermined range when the by-pass switch is in the first state, the failure judgment means produces a control signal indicating a failure of the by-pass switch.

5,786,642

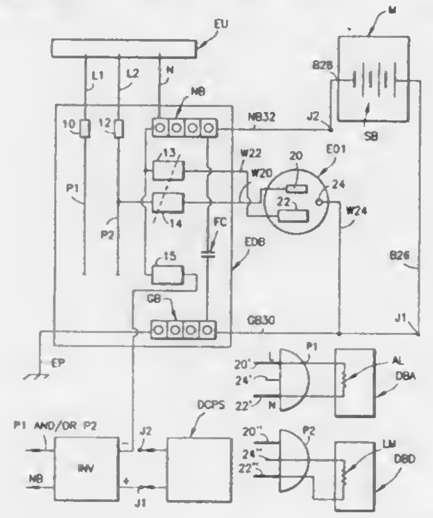
MODULAR POWER MANAGEMENT SYSTEM AND METHOD

William George Wilhelm, Mastic, N.Y., assignor to Nextek Power Systems Inc., Shirley, N.Y.

Continuation-in-part of Ser. No. 328,574, Oct. 24, 1994, Pat. No. 5,500,561, which is a continuation of Ser. No. 129,575, Sep. 29, 1993, abandoned, which is a continuation of Ser. No. 944,796, Sep. 15, 1992, abandoned, which is a continuation of Ser. No. 638,637, Jan. 8, 1991, abandoned. This application Mar. 7, 1996, Ser. No. 606,219

Int. Cl.⁶ H02J *1/00*

U.S. Cl. 307—72 **24 Claims**



1. A modular power management system having common wiring for allowing both AC and DC power therethrough comprising:

an electrical distribution panel capable of receiving both AC and DC power simultaneously;

a system of busses housed within the panel including electrical power buss means, neutral buss means and ground buss means;

a module unit including DC power supply means external to the panel connected across said neutral buss means and said ground buss means within said panel;

means for delivering AC power to said power, neutral, and ground buss means within said panel;

means for delivering AC and DC power from said panel comprising an electric outlet having one receptacle connected to said AC power buss means, a second receptacle connected to said neutral buss means, and a third receptacle connected to said ground buss means;

means for selectively withdrawing AC or DC power for an external load from said electric outlet connecting said load to selected receptacles within said electric outlet; and

circuit breaker means protecting said external load including circuit breakers ganged for simultaneous tripping of both AC power and DC power to receptacles connected to said neutral and AC power busses.

5,786,643

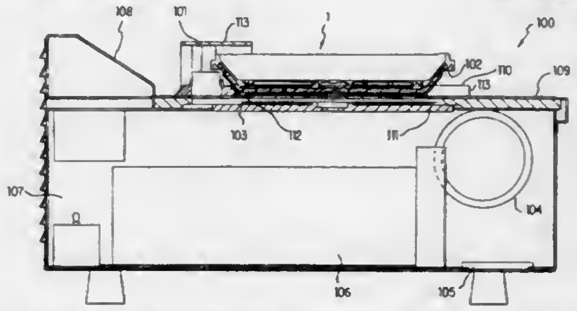
HEAT RETENTIVE SERVER FOR INDUCTION HEATING

W. Burk Wyatt, Brentwood, and Ray Russell Fox, Nashville, both of Tenn., assignors to Aladdin Synergetics, Inc., Nasville, Tenn.

Division of Ser. No. 458,296, Jun. 2, 1995. This application Nov. 22, 1996, Ser. No. 755,218

Int. Cl.⁶ H05B *6/12*

U.S. Cl. 219—621 **65 Claims**



1. A transportable heat retentive server for satellite food service adapted to be rapidly inductively heated comprising:

a central portion, for receiving an article of dishware for serving hot food to a consumer, comprising a heat storage member comprising a material which is susceptible to being heated by induction, and an upper non-metallic surface above said heat storage member; and

an outer peripheral member connected to said central portion by an expansion joint;

said central portion and said peripheral portion at least partially defining a volume within which an article of dishware containing food may be placed;

whereby said heat storage member can be rapidly charged with heat and said upper non-metallic surface slows the dissipation of the heat in the heat storage member to said volume.

5,786,644

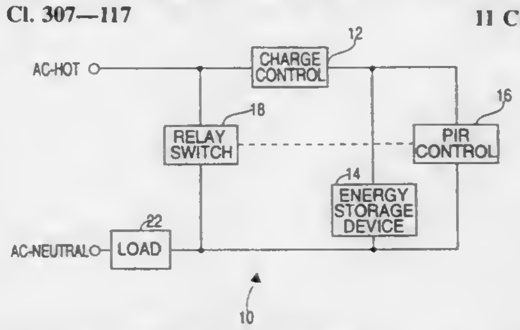
TWO WIRE PIR OCCUPANCY SENSOR UTILIZING A RECHARGEABLE ENERGY STORAGE DEVICE

Albert Zaretsky, Brooklyn, N.Y., assignor to Leviton Manufacturing Co., Inc., Little Neck, N.Y.

Continuation of Ser. No. 498,039, Jul. 3, 1995, Pat. No. 5,623,172. This application Apr. 16, 1997, Ser. No. 834,351

Int. Cl.⁶ H01H *35/00*

U.S. Cl. 307—117 **11 Claims**



1. A two-wire sensor device, comprising:

a) switching means having a coil and a set of switch contacts, said switch contacts set to their open state or their latched closed state in response to a detector output signal applied to said coil for connecting/disconnecting an AC power source to/from an electrical load, said switch contact connected between a phase conductor of said AC source and a first terminal of said electrical load, wherein a second terminal of said electrical load is connected to a neutral conductor of said AC source;

b) energy storage means electrically coupled at a first end to said phase conductor of said AC source and at a second end to said first terminal of said electrical load;

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c) charge control means interposed between said first end of said energy storage means and said phase conductor of said AC source for limiting, filtering and controlling a voltage across said energy storage means; and

d) sensor means electrically connected across said energy storage means for sensing a condition being monitored and generating a detector output signal based thereon, said detector output signal being applied to said coil to set the switch contacts in said open state or said latched closed state in accordance with said detector output signal.

5,786,645

MOTOR-GENERATOR USING PERMANENT MAGNETS

Louis Obidniak, 3115 Ramesay, Duvernay Laval, Canada, H7E 2J6

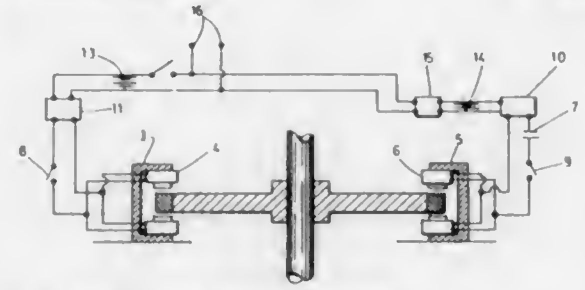
PCT No. PCT/CA94/00241, § 371 Date Oct. 25, 1995, § 102(e) Date Oct. 25, 1995, PCT Pub. No. WO94/26018, PCT Pub. Date Nov. 10, 1994

PCT Filed Apr. 29, 1993, Ser. No. 548,596

Claims priority, application Canada, Apr. 29, 1993, 2095203

Int. Cl.⁶ H02K *25/00;47/00*

U.S. Cl. 310—68 R **6 Claims**



1. An electric motor-generator comprising:
a rotor (1) having a rotation axis;
a plurality of permanent magnets (2) mounted on said rotor (1), said magnets (2) being equally spaced apart and having a pole axis in a plane radial to said rotation axis;
at least one generating core (3) which is fixedly mounted with respect to said rotor and through which said magnets can pass;
at least one generating coil (4) associated to each generating core (3), said generating coil (4) cooperating with said magnets (2) to generate output power;
at least one soft ferromagnetic attraction core (5) which is fixedly mounted with respect to said rotor and through which said magnets can also pass, said at least one attraction core (5) attracting said magnets (2) when they approach one another and causing said rotor to rotate, said attraction core (5) and magnets (2) forming together a magnetic circuit when in proximate alignment;
at least one coil (6) associated with each attraction core (5) for producing a magnetic field in said attraction core (5); and
means for energizing each of said at least one coil (6) so as to neutralize the attraction force between said magnets (2) and the corresponding attraction core (5) as said magnets and core move apart, characterized in that
said means for energizing each of said at least one coil (6) includes a power supply, a passive storage capacitor (7) and a switch (9) to operatively connect said power supply and said capacitor (7) to the corresponding coil (6) so that:
when each permanent magnet (2) is in proximate alignment with the corresponding attraction core (5), closing of the switch (9) causes the capacitor (7) to discharge into the coil (6), after which said power supply supplies further current to the coil (6) and thus a magnetic repulsion energy is generated in the attraction core (5) which allows said magnet (2) to move away from said attraction core (5); and
when said magnet (2) continues moving away from the attraction core (5), the switch (9) is kept closed for an additional period of time to allow decay of the magnetic repulsion energy generated in said attraction core (5) to produce a current in the coil (6) which returns back to the capacitor (7) and recharges it;
whereby, in use, maximum energy efficiency and recovery are achieved.

5,786,646

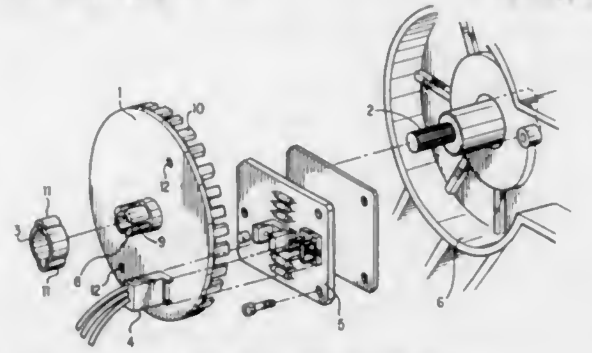
METHOD AND APPARATUS FOR ALIGNING A ROTOR POSITION TRANSDUCER

Barry M. Newberg, Florissant, and Lawrence J. Winkeler, Kirkwood, both of Mo., assignors to Emerson Electric Co., St. Louis, Mo.

Filed Oct. 1, 1996, Ser. No. 724,690

Int. Cl.⁶ H02K *5/10;* **G01D** *5/34*

U.S. Cl. 310—68 B **20 Claims**



1. A rotor position transducer assembly comprising:
a RPT element adapted to be mounted on the shaft of a rotor, said RPT element having a protruded portion; and
a fastening member adapted to be slip-fit over said shaft and said protruded portion of said RPT element, said fastening member being compressed about said protruded portion so as to secure said RPT element to said shaft without causing torsional force to be applied to said shaft or said RPT element to cause misalignment of said shaft or said RPT element.

14. A method of securing a shutter to the shaft of a rotor of an electric motor comprising the steps of:
energizing a phase of the windings to align the rotor into position;
slip-fitting a shutter onto the shaft of said rotor;
aligning said shutter in position with an optical sensing device; and
a step for securing said shutter firmly onto said shaft without causing substantial torsional force to be applied to said shutter or said shaft so as to cause misalignment of said shutter or said shaft.

5,786,647

DEVICE FOR INCORPORATING A MOTOR

Thomas Vollmer, Bühl; Michael Hanek, Renchen; Gerhard Gross, Lauf; Ralf-Michael Schneider, Baden-Baden; Albert Van Wijhe, Bühlertal, and Wolfgang Frank, Bühl, all of Germany, assignors to Robert Bosch GmbH, Stuttgart, Germany

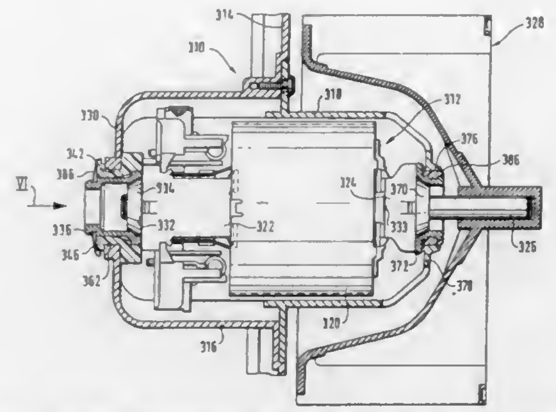
PCT No. PCT/DE94/00271, § 371 Date Nov. 2, 1994, § 102(e) Date Nov. 2, 1994, PCT Pub. No. WO94/21025, PCT Pub. Date Sep. 15, 1994

PCT Filed Mar. 4, 1994, Ser. No. 335,835

Claims priority, application Germany, Mar. 4, 1993, 9303162 U; Oct. 7, 1993, 43 34 124.1

Int. Cl.⁶ H02K *5/00;5/24*

U.S. Cl. 310—89 **19 Claims**



1. An electric motor assembly, comprising an electric motor having a motor armature and a motor shaft, a tubular housing portion enclosing said motor armature, bearings supporting said motor shaft, and supports arranged at end sides of said housing portion for supporting said bearings of said motor shaft; a holding device arranged for receiving said electric motor; and resilient damping members arranged between said holding device and said motor housing, said holding device having inner walls facing said electric motor while said housing portion has outer walls facing said holding device, said damping members being located between and supported at said inner walls of said holding device and said outer walls of said housing portion and arranged at a distance from one another in the direction of a rotational axis of said electric motor, said supports including a retaining pipe and bearing brackets fastened to said retaining pipe, said holding device having a holding pot which is rigidly connected with a wall of an air guidance duct in which said holding device partially extends, and also having a base which forms one wall of said holding device, said holding device having another wall formed as a base of a supporting cup, said electric motor being supported at one of said bases in the direction of said rotational axis of said motor as well as radially to said rotational axis, and is also supported in another of said bases only in a radial direction.

5,786,648

MOTOR

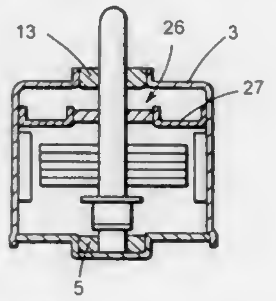
Takashi Iwanami, Nagano, Japan, assignor to Sankyo Seiki Mfg. Co., Ltd., Nagano-ken, Japan

Filed Dec. 10, 1996, Ser. No. 763,984

Claims priority, application Japan, Dec. 13, 1995, 7-346731

Int. Cl.⁶ H02K *5/16;* **F16C** *33/02*

U.S. Cl. 310—90 **7 Claims**



1. A motor comprising:
a rotary shaft;
first and second oil impregnated sintered bearings each rotatably supporting said rotary shaft;
first and second bearing holders supporting said first and second oil impregnated sintered bearings, respectively;
a motor case; and
lateral pressure means arranged between said first and second oil impregnated sintered bearings along said rotary shaft for abrasively contacting said rotary shaft from a radial direction and providing a lateral pressure so that said rotary shaft is displaced in said radial direction;
said lateral pressure means comprising:
an inner ring made of an oil impregnated sintered member in which a through-hole abrasively contacting said rotary shaft from the radial direction is formed,
an elastic member which provides a lateral pressure so that said rotary shaft is displaced in said radial direction; and
an outer ring which holds said elastic member and is fixed to said motor case.

5,786,649

ROTARY ELECTROMAGNETIC ACTUATOR

Dafydd Roberts, Egin Cyfyngedig, Snowdonia BIC, Llys-y-Fedwen, Parc Menai, Bangor, Gwynedd, LL57 4BF, United Kingdom

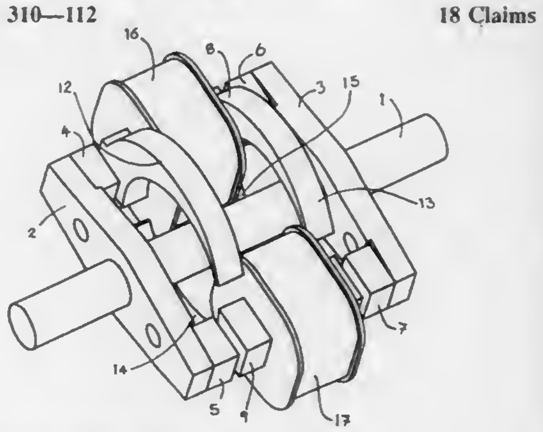
PCT No. PCT/GB95/01445, § 371 Date Dec. 27, 1996, § 102(e) Date Dec. 27, 1996, PCT Pub. No. WO96/00971, PCT Pub. Date Jan. 11, 1996

PCT Filed Jun. 19, 1995, Ser. No. 776,164

Claims priority, application United Kingdom, Jun. 28, 1994, 9412941

Int. Cl.⁶ H02K *7/20;33/00*

U.S. Cl. 310—112 **18 Claims**



1. A rotary magnetic actuator comprising:
(a) a rotatable shaft arranged to carry a rotor member to be rotatable about a rotational path;
(b) a stator member extending adjacent said rotational path of said rotor member;
(c) means for setting up a magnetic circuit comprising said rotor member and said stator member, the reluctance of said magnetic circuit being dependent on the relative rotational orientation of the rotor member relative to the stator member, said reluctance of said magnetic circuit , decreasing in a particular direction of rotation of the rotor relative to the stator to be a minimum at an equilibrium position, said rotor being normally biased to said equilibrium position;
(d) impelling means actuatable to rotate said rotor to advance away from said equilibrium position, advancement of said rotor subsequently causing said rotor to again become part of a magnetic circuit the reluctance of which decreases in the direction of rotation to a minimum at an equilibrium position such that said rotor becomes biased to a rotationally advanced equilibrium position; and
wherein one of the group comprising said stator member and said rotor member includes a tapering portion extending about said shaft such that a gap is defined between said tapering portion and the other of said group comprising said stator member and said rotor member, said gap remaining substantially constant as said rotor member rotates adjacent said stator member.

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5,786,650
ROTOR FOR SYNCHRONOUS MOTOR

Hiroyuki Uchida; Takashi Okamoto, and Hidetoshi Uematsu, all of Yamanashi, Japan, assignors to Fanuc, Ltd., Yamanashi, Japan

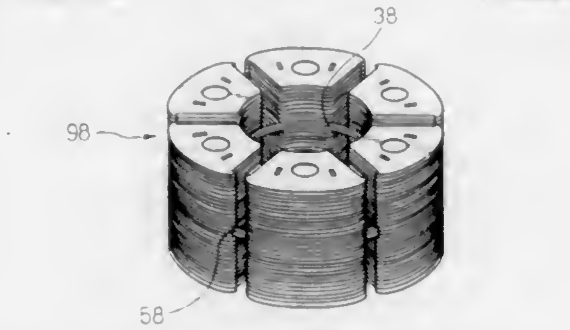
PCT No. PCT/JP94/00227, § 371 Date Oct. 14, 1994, § 102(e) Date Oct. 14, 1994, PCT Pub. No. WO94/18740, PCT Pub. Date Aug. 18, 1994

Continuation of Ser. No. 318,676, Oct. 14, 1994, abandoned. This PCT application Feb. 15, 1994, Ser. No. 873,879

Claims priority, application Japan, Feb. 15, 1993, 5-025765

Int. Cl.^{6} H02K *21/12*

U.S. Cl. 310—156 **6 Claims**



1. A rotor for a synchronous motor comprising: a shaft:

a plurality of permanent magnets disposed around said shaft at generally equal intervals;

a plurality of laminated core members each formed by axially stacking and joining a plurality of core-laminations made of magnetic materials, said laminated core members being disposed around said shaft while holding each of said permanent magnets therebetween in a circumferential direction, so as to form magnetic poles;

supporting means for fixedly supporting said permanent magnets and said laminated core members onto said shaft, said supporting means including a pair of end plates disposed at both axial ends of said laminated core members and fixed to said shaft and a plurality of rod members penetrating through said laminated core members and joined at both ends to said end plates; and

at least one integral core-lamination made of a magnetic material being the same as that of each of said core-laminations, and including a desired number of core-lamination sections locally inserted and fixed between said core-laminations forming each of said laminated core members located at desired positions around said shaft, and located at a position between said end plates axially dividing the laminated length of the core-laminations into generally equal parts allowing magnetic and mechanical balance to be maintained, and also including connecting portions extended from said desired number of core-lamination sections so as to annularly connect all of said core-lamination sections, wherein said connecting portions of said at least one integral core-lamination are extended in a circumferential direction from both sides of respective ones of said core-lamination sections on inner edges opposed to said shaft whereby said laminated core members located at desired positions are fixedly connected with each other in a relative arrangement of a finished rotor assembly;

and wherein said at least one integral core-lamination is formed with a central opening of diameter greater than that of said shaft, such that a gap is defined between said at least one integral core-lamination and said shaft so said at least one core-lamination and said core members are supported against external force only by said end plates and said rod members.

5,786,651
STATOR CORE HAVING A PLURALITY OF CONNECTED CIRCUMFERENTIALLY SEGMENTED CORES AND METHOD AND APPARATUS FOR ASSEMBLING SAME

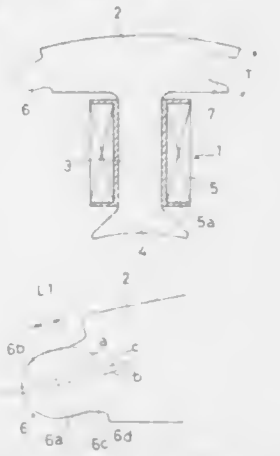
Tetsuo Suzuki, Saitama-ken, Japan, assignor to Honda Giken Kogyo Kabushiki Kaisha, Tokyo, Japan

Filed Feb. 20, 1997, Ser. No. 803,228

Claims priority, application Japan, Feb. 22, 1996, 8-035170; Feb. 22, 1996, 8-035171

Int. Cl.^{6} H02K *1/12*

U.S. Cl. 310—259 **2 Claims**



1. A stator core comprising a plurality of circumferentially segmented cores, each of said segmented cores having a projection and a groove on circumferential one end and the other end, respectively, of a yoke portion thereof, said segmented cores being assembled to form a stator core by circumferentially connecting said segmented cores by fitting a projection in one of adjoining segmented cores into a groove in the other of said adjoining segmented cores,

wherein a straight portion is formed in an intermediate portion of each of said projection and said groove, said straight portion extending straight in a predetermined width in a normal direction which is normal to each end surface of said yoke portion,

wherein one end portion of said projection and an inner bottom portion of said groove are formed into a semicircular shape having a diameter equal to a width of said straight portion,

wherein a contracted portion which adjoins said straight portion and has a width smaller than the width of said straight portion and an enlarged width portion which extends in width from said contracted portion towards each end surface of said yoke portion are formed in those portions of said projection and said groove which are respectively closer to each end surface of said yoke portion,

such that, when said projection is fit by press fitting into said groove in said normal direction, said contracted portion of said groove is enlarged in width within an elastic region of groove walls on diametrically outer side and inner side, respectively of said groove to thereby allow said straight portion of said projection to pass therethrough and that, once said straight portion of said projection has passed through said contracted portion of said groove, said straight portion and said contracted portion of said groove are brought into forced contact with said straight portion and said contracted portion of said projection, respectively, and

wherein said groove is formed in a manner that a widthwise center line of said straight portion is offset diametrically inwards relative to a normal line passing through a widthwise center of the end surface of said other end of said yoke portion such that a bending rigidity of a groove wall on diametrically outer side of said groove becomes equal to a bending rigidity of a groove wall on diametrically inner side thereof.

5,786,652
MAGNETOELECTRIC ROTOR WITH CLAWS AND NON-MAGNETIC SPACERS INTERPOSED THEREBETWEEN

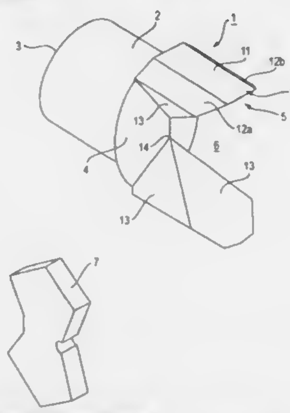
Alain Gueraud, Seichamps; Jean-Charles Mercier, Ludres, and Andre Masson, Aulnay Sous Bois, all of France, assignors to GEC Alsthom Moteurs SA, Nancy, France

Filed Jan. 9, 1997, Ser. No. 781,589

Claims priority, application France, Jan. 10, 1996, 96 00 211

Int. Cl.^{6} H02K *1/22*

U.S. Cl. 310—263 **4 Claims**



1. A claw rotor comprising:

a first magnetic material part, comprising an axial hub having a free end, and an end provided with a plurality of axially-extending claws that are peripherally localized, uniformly distributed, and together define a hollow bezel-shaped central recess and wherein each claw has inside faces extending radially inwardly and forming a point of convergence located close to the center of the bezel-shaped central recess;

a second magnetic material part of polarity opposite to the polarity of the first magnetic material part, having the same shape as the first magnetic material part, and disposed facing the first magnetic material part, each claw of the second magnetic material part being disposed between two claws of the first magnetic material part, and vice versa;

non-magnetic spacers interposed between free ends of the claws and end walls of the claws which define the bezel-shaped central recess; and

non-magnetic rotor-cowling means shrouding said claws.

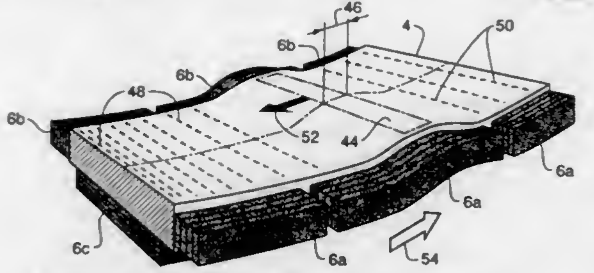
5,786,653
MULTIRESONANT ACTUATOR

Gordon W. Culp, Van Nuys, Calif., assignor to Rockwell International Corporation, Costa Mesa, Calif.

Continuation of Ser. No. 794,109, Nov. 18, 1991, abandoned. This application Apr. 29, 1993, Ser. No. 53,814

Int. Cl.^{6} H01L *41/08*

U.S. Cl. 310—323 **19 Claims**



1. A multiresonant-traveling wave actuator comprising,

a multiresonant vibrator,

a movable object,

a means of providing a normal force to maintain a contact between the object and the vibrator,

a controller to electrically activate an electromechanical transducer, moving the object by traction with negligible contact sliding,

the multiresonant vibrator having at least one electromechanical transducer having a plurality of layers of independently electrically addressable segments which receive signals from the controller,

wherein the segments mechanically frequency sum to produce waves in the multiresonant vibrator, the waves comprising a longitudinal traveling wave having a contact area component for engaging the object and a velocity component for moving the object at a desired speed.

5,786,654
MOVABLE STAGE UTILIZING ELECTROMECHANICAL TRANSDUCER

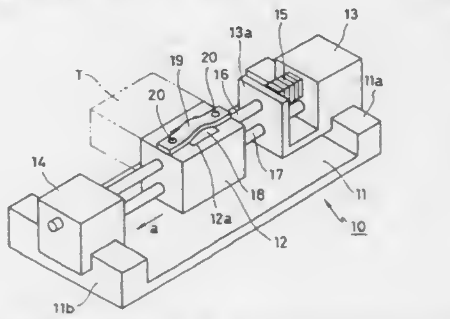
Ryuichi Yoshida, Sakai; Yasuhiro Okamoto, Tondabayashi; Kenji Ishibashi, Izumi; Yasushi Tanijiri, Sakai, and Hiroyuki Okada, Izumi, all of Japan, assignors to Minolta Co., Ltd., Osaka, Japan

Filed Jun. 3, 1996, Ser. No. 657,307

Claims priority, application Japan, Jun. 8, 1995, 7-164572; Jordan, Jan. 23, 1996, 8-027441; Japan, Feb. 8, 1996, 8-045575; Feb. 8, 1996, 8-045576; Feb. 8, 1996, 8-045577; Mar. 6, 1996, 8-075445

Int. Cl.^{6} H02N *2/04*

U.S. Cl. 310—328 **27 Claims**



1. A movable stage utilizing an electromechanical transducer, comprising:

a base frame having a guiding portion extended in a predetermined direction;

a movable table that is guided to be movable in the predetermined direction by said guiding portion;

an electromechanical transducer one end of which is fixed at said base frame to produce linear mechanical expansion and contraction in said predetermined direction in response to an input electrical signal;

a drive member coupled at the other end of said electromechanical transducer and is supported, by said base frame, to be linearly movable in the predetermined direction with said mechanical expansion and contraction;

a movable member friction-coupled with said drive member and also coupled with said movable table to freely move in said predetermined direction; and

a drive controller for driving said electromechanical transducer to move said movable table in the predetermined direction.

5,786,655
STRAIN ELEMENT AND VIBRATION DEVICE

Ichiro Okumura, Yokohama, and Takashi Maeno, Kawasaki, both of Japan, assignors to Canon Kabushiki Kaisha, Tokyo, Japan

Continuation of Ser. No. 445,542, May 22, 1995, abandoned. This application Feb. 10, 1997, Ser. No. 797,889

Claims priority, application Japan, May 26, 1994, 6-112802; Jun. 7, 1994, 6-125109

Int. Cl.^{6} H02N *2/00*

U.S. Cl. 310—333 **45 Claims**

1. A strain element comprising:

an energy conversion member;

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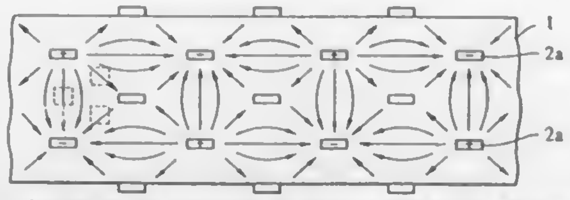


- a plurality of first electrodes provided on surfaces of said energy conversion member; and
- second electrodes provided inside said energy conversion member, wherein
- a combination of said electrodes used for polarization is different from a combination of electrodes used for driving or detection so that shear distortion along a shearing direction can be realized, and a first direction of an electric field during polarization is different from a second direction of an electric field during driving or detection.

5,786,656

FIELD-EMISSION COLD-CATHODE DEVICE AND METHOD OF FABRICATING THE SAME

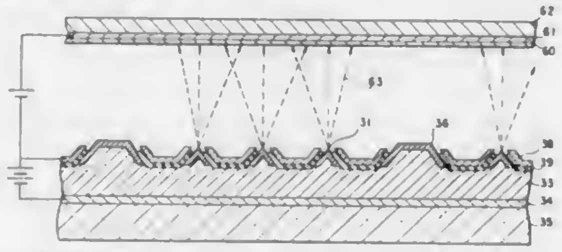
Toshimichi Hasegawa, Tokyo, and Masayuki Nakamoto, Chigasaki, both of Japan, assignors to Kabushiki Kaisha Toshiba, Kawasaki, Japan

Filed Sep. 5, 1996, Ser. No. 708,731

Claims priority, application Japan, Sep. 7, 1995, 7-230346

Int. Cl.^{6} H01J *1/46*

U.S. Cl. 313—308 **22 Claims**



11. A field-emission cold-cathode device comprising:
- a substrate;
- a metal layer formed on said substrate;
- an emitter formed on a surface of said metal layer and having a sharp distal end;
- a gate electrode electrically insulated from said emitter and having a gate electrode hole in a region of the sharp distal end of said emitter; and
- a focusing electrode electrically insulated from said gate electrode, said focusing electrode being formed integrally with said emitter on a surface of said metal layer further from the sharp distal end of said emitter than said gate electrode and having a first inclined surface in a region of an end portion near said emitter and a second inclined surface opposing the first inclined surface so as to form a triangular section.

5,786,657

FIELD EMISSION ELECTRON GUN CAPABLE OF MINIMIZING NONUNIFORM INFLUENCE OF SURROUNDING ELECTRIC POTENTIAL CONDITION ON ELECTRONS EMITTED FROM EMITTERS

Akihiko Okamoto, Tokyo, Japan, assignor to NEC Corporation, Tokyo, Japan

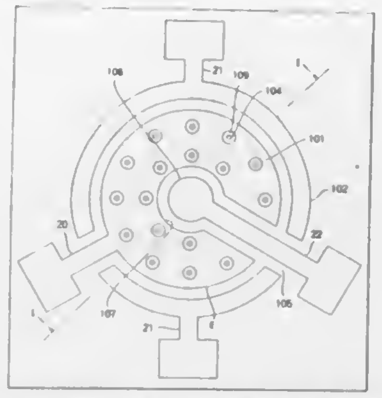
Filed Apr. 16, 1997, Ser. No. 840,763

Claims priority, application Japan, Apr. 16, 1996, 8-094427

Int. Cl.^{6} H01J *9/02*

U.S. Cl. 313—308 **11 Claims**

1. A field emission electron gun comprising: a substrate of a conductive material; a plurality of emitters, each of which is of a sharp pointed shape and which are formed on a plurality of predetermined parts of said substrate for emitting electrons; an insulator film formed on a remaining part of said substrate; a first gate electrode which is formed on said insulator film so as to surround said emitters with a space left between each of said emitters and said first gate electrode and which is applied with a first voltage; and a second gate electrode which is formed on said insulator film to surround an outer peripheral surface of said first gate electrode with a distance left between said outer peripheral surface of said first gate electrode and said second gate electrode and which is applied with a second voltage less than said first voltage; wherein:



- said emitters are formed on the substrate except a center part of said substrate;
- said first gate electrode having an inner peripheral surface which defines a hole exposing a center portion of said insulator film that is positioned on the center part of said substrate.

5,786,658

ELECTRON EMISSION DEVICE WITH GAP BETWEEN ELECTRON EMISSION ELECTRODE AND SUBSTRATE

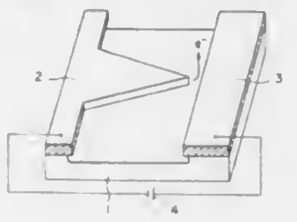
Takeo Tsukamoto, Atsugi; Mamoru Miyawaki, Tokyo; Tetsuya Kaneko; Akira Suzuki, both of Yokohama; Isamu Shimoda, Zama; Toshihiko Takeda, Itsukaichi-machi, and Masahiko Okunuki, Tokyo, all of Japan, assignors to Canon Kabushiki Kaisha, Tokyo, Japan

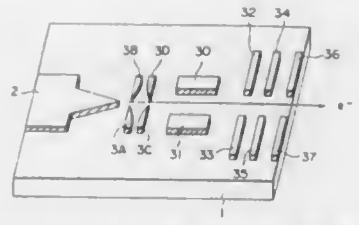
Continuation of Ser. No. 38,067, Mar. 29, 1993, abandoned, which is a continuation of Ser. No. 751,633, Aug. 26, 1991, abandoned, which is a continuation of Ser. No. 386,242, Jul. 28, 1989, abandoned, which is a continuation of Ser. No. 189,216, May 2, 1988, Pat. No. 4,904,895. This application Feb. 22, 1994, Ser. No. 199,967

Claims priority, application Japan, May 6, 1987, 62-108846; May 6, 1987, 62-108847

Int. Cl.^{6} H01J *1/02*

U.S. Cl. 313—309 **3 Claims**





1. An electron emission device comprising an electron emission electrode with a pointed end, a counter electrode opposite to the pointed end and an attracting electrode, with said electron emission electrode and said counter electrode being arranged side by side on an insulating surface of a substrate, said attracting electrode being arranged on the insulating surface of the substrate so as to face the substrate, and a recess being formed in a region of the insulating surface of the substrate corresponding to a portion between the pointed end of said electron emission electrode and said counter electrode, wherein the recess in said insulating surface extends underneath the electron emission electrode to form a gap in the insulating surface between a portion of said electron emission electrode and the substrate beyond a passing area of electrons emitted from the pointed end.

5,786,659

FIELD EMISSION TYPE ELECTRON SOURCE

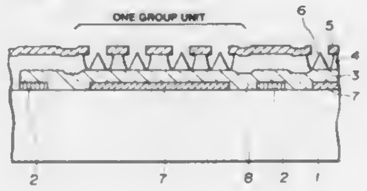
Toshinori Takagi, Nagaokakyo; Masateru Taniguchi, Mobara; Shigeo Itoh, Mobara; Teruo Watanabe, Mobara, and Takahiro Niiyama, Mobara, all of Japan, assignors to Futaba Denshi Kogyo K.K., Mobara, Japan

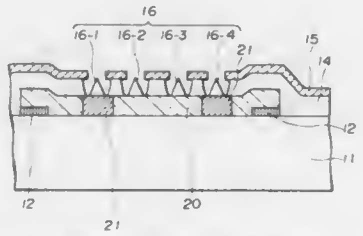
Filed Nov. 29, 1994, Ser. No. 350,027

Claims priority, application Japan, Nov. 29, 1993, 5-320923; Dec. 22, 1993, 5-345609

Int. Cl.^{6} H01J *1/16*

U.S. Cl. 313—309 **14 Claims**





9. A field emission electron source comprising:
- an insulating substrate;
- cathode wirings formed into a stripe shape and arranged on said insulating substrate;
- a resistance layer arranged in a region which includes each of said cathode wirings and is defined on said insulating substrate; and
- emitters formed into a conical shape and arranged on said resistance layer;
- said emitters being arranged at a part thereof in proximity to said cathode wiring;
- a portion of said resistance layer on which said part of said emitters is arranged having a resistance value set to be high by an intermediate depth from a surface of said resistance layer.

5,786,660

FLAT DISPLAY SCREEN WITH A HIGH INTER-ELECTRODE VOLTAGE

Jean-Frédéric Clerc, Saint Egreve, France, assignor to Pixtech S.A., Rousset, France

PCT No. PCT/FR95/01105, § 371 Date Jul. 29, 1996, § 102(e) Date Jul. 29, 1996, PCT Pub. No. WO96/06450, PCT Pub. Date Feb. 29, 1996

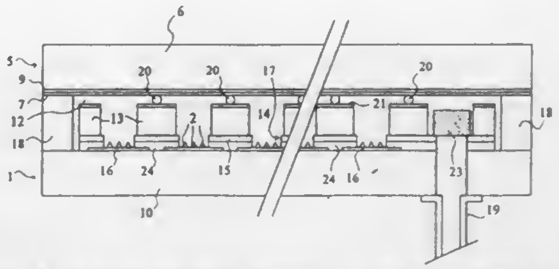
PCT Filed Aug. 23, 1995, Ser. No. 633,738

Claims priority, application France, Aug. 24, 1994, 94 10390

Int. Cl.^{6} H01J *31/12;29/82*

U.S. Cl. 313—495 **7 Claims**

1. A flat display screen having a cathode (**1**) including microtips (**2**) for electronic bombardment associated with a gate (**3**), an anode (**5**) including phosphor elements (**7**), and an insulating plate (**13**) defining an inter-electrode gap (**12**), said insulating plate (**13**) having cylindrical holes (**14**) facing areas (**17**) of microtips (**2**), further comprising beads (**20**) distributed between the plate and the anode (**5**) for maintaining the plate apart from the anode.



5,786,661

FERRITE CORE WITH CONCAVE AND CONVEX PORTIONS

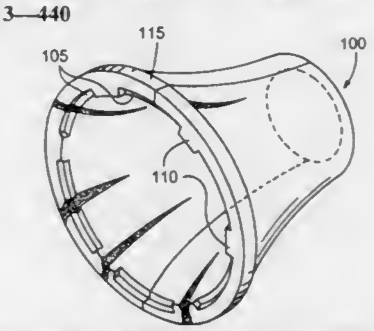
Gyoo Wan Kim, Kumi, Rep. of Korea, assignor to LG Electronics Inc., Seoul, Rep. of Korea

Filed Oct. 28, 1996, Ser. No. 742,574

Claims priority, application Rep. of Korea, Oct. 26, 1995, 37377/1995

Int. Cl.^{6} H01J *29/70;* **H01F** *7/00*

U.S. Cl. 313—440 **5 Claims**



1. A ferrite core for a deflection yoke of a CRT, the deflection yoke having a horizontal deflection coil for deflecting electron beams emitted from an electron gun in the horizontal direction, a vertical deflection coil for deflecting the electron beams in the vertical direction, and a holder for fixing the horizontal deflection coil and the vertical deflection coil to respective given positions and separating them from each other, the ferrite core preventing a magnetic force caused by the horizontal and vertical deflection coils from being reduced and comprising:
- a plurality of concave and convex portions positioned and configured to correct a raster distortion of the deflection yoke by varying a magnetic path at one end of a screen portion of the ferrite core.

5,786,662

Patent Not Issued For This Number

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5,786,663

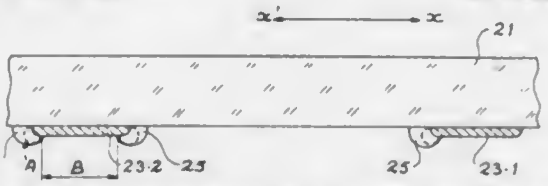
ELECTRON COLLECTOR HAVING INDEPENDENTLY CONTROLLABLE CONDUCTIVE STRIPS

Robert Meyer, St Nazaire les Eymes; Brigitte Montmayeul, Brignoul; Jean-François Boronat, Grenoble, and Jean-Frédéric Clerc, Saint Egreve, all of France, assignors to Commissariat a l'Energie Atomique

Continuation of Ser. No. 352,812, Dec. 1, 1994, abandoned. This application Sep. 18, 1996, Ser. No. 716,570

Int. Cl.^{6} H01J *31/12*

U.S. Cl. 313—495 **60 Claims**



1. An electron collector having an anode constituted by a substrate on which are deposited conductive strips each of which can be raised to a variable potential to bring them into a collecting or non-collecting state, each of the strips having a central portion defined by edges, wherein a dielectric material layer is deposited on at least one edge of each conductive strip, the dielectric material having a thickness of less than about 5 micrometers and a dielectric constant permitting, compared to a conductive strip on which no dielectric material is deposited, a reduction of an electric field at the at least one edge, the dielectric material layer also having visible light-absorbing properties.

5,786,664

DOUBLE-SIDED ELECTROLUMINESCENT DEVICE

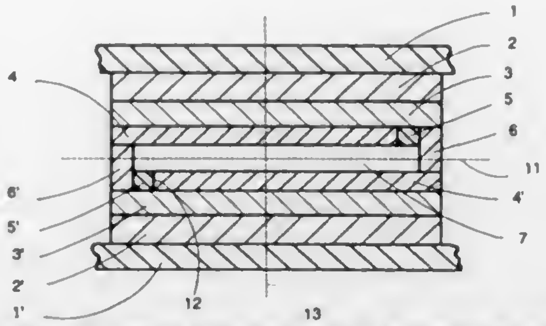
Youmin Liu, 5568 W. 115th Dr., Westminster, Colo. 80020, assignor to Youmin Liu, Palo Alto, Calif.

Filed Mar. 27, 1995, Ser. No. 411,330

Int. Cl.^{6} H01J *1/54;* **G09G** *3/10*

U.S. Cl. 313—506 **17 Claims**

1. A double-sided electroluminescent device emitting light from both sides thereof and having a laminated structure in symmetry with respect to a central plane and a central point at a cross of the central plane and a vertical axis of device, said device comprising a pair of transparent substrates, a pair of transparent electrode layers formed respectively on the substrates, a pair of transparent insulating layers formed respectively on the electrode layers, each of the insulating layers having a step near an edge of the respective electrode layer, a pair of conductive bus bars formed respectively on the electrode layers against the steps of the insulating layers, a central phosphor layer mixed with a binder material disposed between both of the insulating layers and the bus bars and positioned on the central plane, and a transparent insulating frame surrounding and sealing peripheral edges of the central phosphor layer, the bus bars and the insulating layers, said transparent insulating frame separating the two electrode layers at their edge areas.



5,786,665

PLANE-SHAPED LIGHTING DEVICE AND A DISPLAY USING SUCH A DEVICE

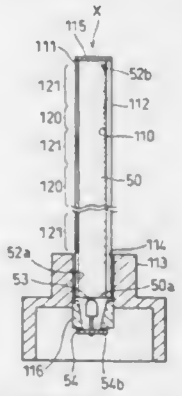
Terukazu Ohtsuki, Ikoma-gun; Masahiko Kimoto, Ikoma; Hiroshi Minematsu, Osaka; Nobuyuki Tominaga, Kawachinagano; Takahiro Funakoshi, Fujiidera; Yasuhiro Wada, Takatsuki, and Hitoshi Azuma, Tondabayashi, all of Japan, assignors to Sharp Kabushiki Kaisha, Osaka, Japan

Filed May 23, 1996, Ser. No. 652,304

Claims priority, application Japan, May 23, 1995, 7-123878

Int. Cl.^{6} F21V *7/00*

U.S. Cl. 313—512 **24 Claims**



14. A display device comprising:

a plane-shaped lighting device having a light source which emits light rays at a plurality of colors and a light-directing plate that has light-takeoff bodies installed on a plane section thereof;

a patterned display board that is placed on a first side of the plane section of the plane-shaped lighting device; and

a reflection plate that is placed on a second side, opposite the first side, of the plane section,

wherein: the patterned display board has light-transmitting sections for allowing light to pass therethrough and light-shielding sections for preventing light from passing therethrough; color filters, which selectively transmit light rays emitted from the light source based upon respective colors of light emission, are placed on the light-transmitting sections; and each of the light-shielding sections has a first side face that forms a reflective surface, the first side face that forms a reflective surface, the first side face being opposite to the light-directing plate, and a second side face that forms a scattering surface with a low reflectivity with respect to visible light rays, the second side face being opposite the first side face.

5,786,666

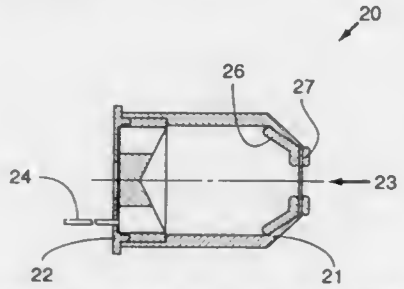
COLLECTOR SURFACE FOR A MICROWAVE TUBE COMPRISING A CARBON-BONDED CARBON-FIBER COMPOSITE

Robert J. Lauf, Oak Ridge; April D. McMillan, Knoxville, both of Tenn.; Arvid C. Johnson, Lake in the Hills, Ill., and Arthur J. Moorhead, Knoxville, Tenn., assignors to Lockheed Martin Energy Systems, Inc., Oak Ridge, Tenn.

Filed Mar. 22, 1996, Ser. No. 620,512

Int. Cl.^{6} H01J *23/027*

U.S. Cl. 315—5.38 **4 Claims**



1. In a microwave electron device having at least: an electron source; a focused electron beam originating at said source and defining an electron optical path; and a copper collector for collecting said electron beam; an improvement comprising:

vacuun brazed a shaped carbon-bonded carbon-fiber composite body to at least one surface of said electron copper collector for reducing the emission of secondary electrons from said surface due to the impingement of said electron beam thereon, said shaped carbon-bonded carbon-fiber composite body having one substantially impermeable surface, said substantially impermeable surface being the surface that is vacuum brazed to said at least one surface of said copper collector.

5,786,667

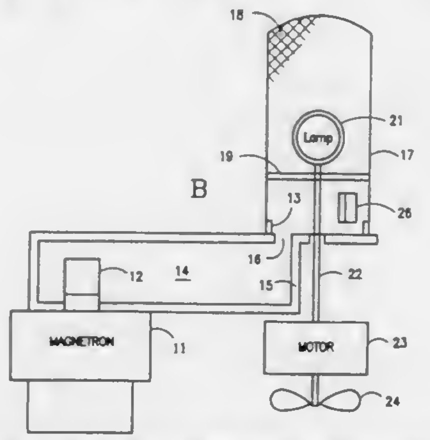
ELECTRODELESS LAMP USING SEPARATE MICROWAVE ENERGY RESONANCE MODES FOR IGNITION AND OPERATION

James E. Simpson, Gaithersburg, and Wayne G. Love, Olney, both of Md., assignors to Fusion Lighting, Inc., Rockville, Md.

Filed Aug. 9, 1996, Ser. No. 694,778

Int. Cl.^{6} H01J *65/04*

U.S. Cl. 315—39 **25 Claims**



15. An electrodeless microwave discharge lamp, comprising:

a microwave energy source;

a waveguide connected to the microwave energy source;

a cavity connected to the waveguide for coupling microwave energy in a first resonant mode during ignition and in a second resonant mode following ignition, wherein the second resonant mode primarily maintains illumination during steady state operation; and

an electrodeless lamp, located within the cavity, containing a fill which emits light when excited by the microwave energy coupled to the electrodeless lamp by the cavity.

5,786,668

ELECTROMAGNETIC FIELD SHIELDING CIRCUIT FOR A DISPLAY

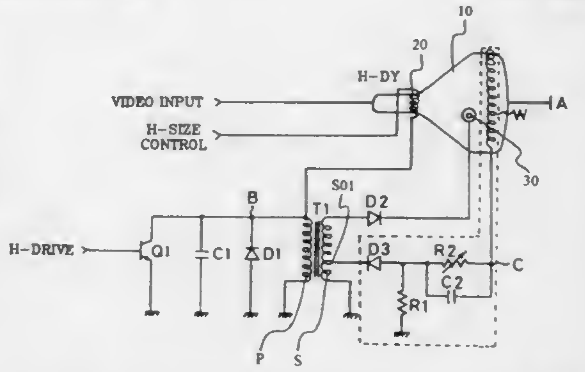
Chai-Gwang Lim, and Seung-Hwan Park, both of Suwon-si, Rep. of Korea, assignors to SamSung Electronics Co., Ltd., Suwon, Rep. of Korea

Filed Oct. 28, 1996, Ser. No. 739,068

Claims priority, application Rep. of Korea; Oct. 27, 1995, 37596/1995

Int. Cl.^{6} H01J *1/52*

U.S. Cl. 315—85 **19 Claims**



1. A display apparatus having a flyback transformer for supplying a high voltage to an anode of a picture tube, said high voltage induced at secondary windings of the flyback transformer, and a circuit disposed to shield an electromagnetic field radiated from said anode of said picture tube, said circuit comprising:

a phase inverting circuit coupled to a turn in said secondary windings, disposed to generate a voltage output having a phase inverted with respect to a phase of said high voltage applied to said anode of said picture tube from said secondary windings, said phase inverting circuit having a diode disposed to connect in a reverse direction to a turn of said secondary windings and having a first resistor coupled between a data input terminal of said diode and a reference voltage terminal;

an oscillation circuit disposed to generate an oscillating voltage signal by oscillating said voltage output from said phase inverting circuit, said oscillating circuit disposed to match said oscillating voltage signal with said high voltage applied to said anode of said picture tube, said oscillating circuit comprising;

  a capacitor disposed to charge and discharge said voltage signal output from said phase inverting circuit, said capacitor being charged by a voltage induced across said first resistor coupled to said diode, and

  a second resistor disposed to establish an electrical conduction path during a discharging operation of said capacitor, to adjust an oscillating period and vary a discharging time of said capacitor, and to discharge said capacitor to said reference voltage terminal via said first resistor; and

an electromagnetic field generation circuit disposed to induce an electromagnetic field in dependence upon said oscillating voltage signal from said oscillation circuit so as to cancel and shield said electromagnetic field radiated from said anode ot said picrure tube.

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5,786,669
CRT ELECTRON GUN WITH LUMINANCE CONTROLLED BY A MINIMUM SPOT DIAMETER AGGREGATE OF FIELD EMISSION CATHODES

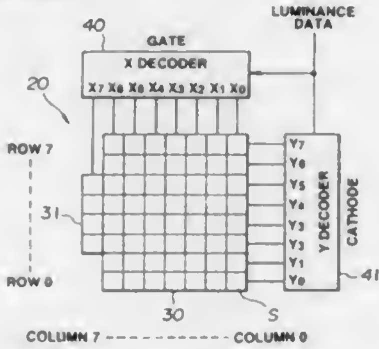
Yoichi Kobori; Koji Onodaka, and Katsuya Hiraga, all of Mobara, Japan, assignors to Futaba Denshi Kogyo K.K., Mobara, Japan

Continuation of Ser. No. 391,026, Feb. 21, 1995, abandoned. This application Nov. 14, 1997, Ser. No. 970,194

Claims priority, application Japan, Feb. 21, 1994, 6-022366; Mar. 2, 1994, 6-032497

Int. Cl.⁶ H01J *29/52*

U.S. Cl. 315—169.3 **7 Claims**



1. A cathode ray tube comprising:
- an electron gun including field emission cathodes each including a cathode conductor, emitters provided on said cathode conductor and a gate disposed in proximity to said emitters;
- said field emission cathodes being arranged in the form of small regions defined in a matrix-like manner;
- a deflection electrode for deflecting electron beams emitted from said electron gun; and
- a luminance control means for driving said cathode conductor and gate of each of said small regions for every row or column of the matrix in said electron gun to control a drive area of each of said field emission cathodes by,forming a continuous single aggregate of said small regions having a minimum-spot diameter, resulting in controlling luminance.

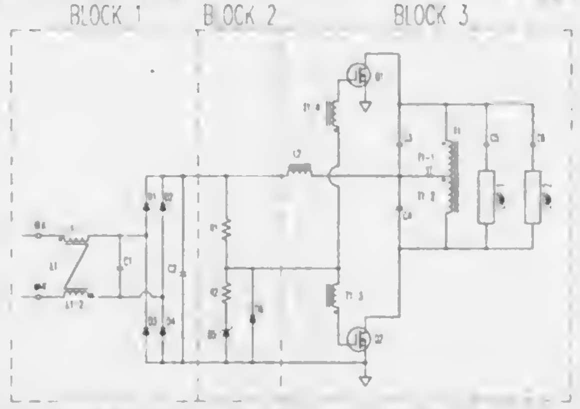
5,786,670
HIGH-FREQUENCY CONVERTER FOR FLUORESCENT LAMPS USING AN IMPROVED TRIGGER CIRCUIT

Long Thanh Nguyen, El Paso, Tex., assignor to Valmont Industries, Inc., Valley, Nebr.

Filed Mar. 15, 1996, Ser. No. 619,811

Int. Cl.⁶ H05B *37/00*

U.S. Cl. 315—200 R **20 Claims**



1. A circuit for driving a gas discharge lamp load comprising:
- an input stage for receiving an AC input voltage from an AC voltage source and rectifying the input voltage to create a DC voltage source;
- an oscillating power inverter connected to said DC voltage source;
- a trigger circuit connected across the DC voltage source and connected to said power inverter to initiate oscillations in said power inverter, wherein said trigger circuit is comprised of a voltage ramp circuit;
- said voltage ramp circuit further comprises a zener diode connected in series with first and second resistors with the second resistor being connected in series between the first resistor and the zener diode, wherein the zenor diode, first resistor, and second resistor form a voltage divider, and wherein the oscillating power inverter is connected to the series connection of the first and second resistors of the voltage divider; and
- an output stage coupled to the power inverter for driving a gas discharge lamp load.

5,786,671
ELECTRONIC BALLAST CIRCUIT HAVING VOLTAGE REDUCING TRANSFORMER

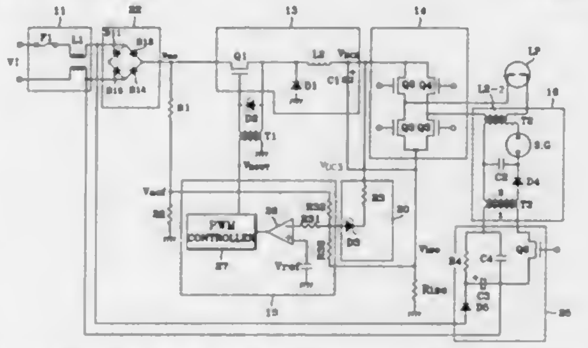
Kyoung-Geun Lee, Ahnsan, Rep. of Korea, assignor to Samsung Electronics Co., Ltd., Kyungki-Do, Rep. of Korea

Filed Nov. 8, 1996, Ser. No. 748,496

Claims priority, application Rep. of Korea, Nov. 10, 1995, 1995-40647; Oct. 8, 1996, 1996-44568

Int. Cl.⁶ G05F *1/00*

U.S. Cl. 315—307 **7 Claims**



1. An electronic ballast circuit connected to a load unit, comprising:
- a filter for receiving and filtering an AC voltage;
- a means for converting said filtered voltage into a unilateral ripple voltage;
- a voltage reducing transformer for pulse-width-modulating said ripple voltage, and for generating and transferring a reduced DC voltage to said load unit;
- a trigger generator for generating high voltage trigger pulses for inducing an initial discharge in said load unit;
- a power controller for feedback-amplifying a sensing voltage of a current said reduced voltage, a sensing voltage of said ripple voltage, and a current sensing voltage supplied from said load unit, and for generating, using said amplified voltage, a pulse width modulation signal to be used by said voltage reducing transformer; and
- a trigger driver for storing said filtered voltage and then instantaneously discharging said stored filter voltage to drive said trigger generator.

5,786,672
DEFLECTION APPARATUS FOR CATHODE RAY TUBE

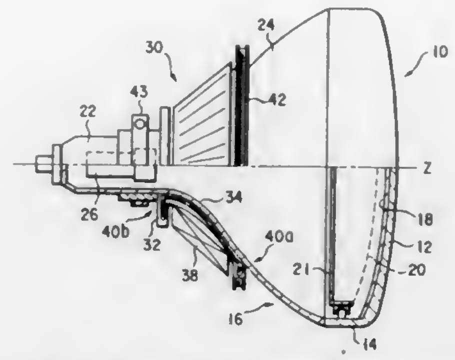
Takahiko Date, Omiya; Hiromichi Arai, Kumagaya, and Kimiyoshi Nishizawa, Honjo, all of Japan, assignors to Kabushiki Kaisha Toshiba, Kawasaki, Japan

Filed Feb. 28, 1997, Ser. No. 807,947

Claims priority, application Japan, Feb. 29, 1996, 8-043120

Int. Cl.⁶ G09G *1/28;* **H01J** *29/56*

U.S. Cl. 315—368.26 **4 Claims**



1. A deflection apparatus for a cathode ray tube including an envelope having a funnel and a face panel with a phosphor screen formed on an inner surface of the face panel, and an electron gun assembly arranged in a neck portion of the funnel, for emitting electron beams onto the phosphor screen, said deflection apparatus comprising:
- a deflection yoke arranged on an outer circumference of the funnel, for deflecting electron beams emitted from the electron gun assembly, in horizontal and vertical directions, the deflection yoke having front and rear end opening portions;
- a compensation coil arranged near either one of the front and rear end opening portions of the deflection yoke, for compensating a shift of convergence of the electron beams and a shift of landing of the electron beams on the phosphor screen due to earth magnetism; and
- an electrostatic capacitance element connected between both end terminals of the compensation coil, for reducing an inducing voltage generated between both end terminals due to a deflection magnetic field generated by the deflection yoke, to be equal to or lower than a predetermined value.

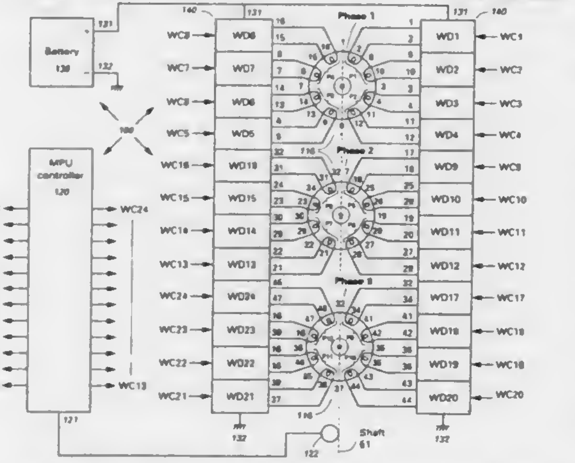
5,786,673
ELECTRIC MOTOR

Ronald A. Johnson, Effingham, Ill., assignor to Johnson Consulting, Inc., Effingham, Ill.

Continuation-in-part of Ser. No. 524,261, Sep. 6, 1995, Pat. No. 5,661,379. This application Jul. 7, 1997, Ser. No. 889,119

Int. Cl.⁶ H02P *5/00*

U.S. Cl. 318—139 **16 Claims**



14. A battery-powered electric motor for generating varying amounts of output torque supplied to a driven member at any constant RPM over a range of RPM speeds so as to reduce power consumption on the battery-powered source comprising:
- a rotor having an axis of rotation;
- a stator assembly disposed around said rotor and being inductively coupled to said rotor;
- said stator assembly having a plurality of poles;
- each of said stator poles having a main winding and at least one fractional-power winding, said at least one fractional-power winding having a lower magnetic field strength than said main winding;
- said main winding and said associated at least one fractional-power winding on each of said stator poles being wound so that the magnetic flux generated in said associated fractional-power winding will be added to the magnetic flux generated by said main winding to produce an increased magnetic field strength;
- power switching means for independently energizing said main and said fractional-power windings on each of said stator poles; and
- means for selectively controlling the energization of said power switching means so that said main and said fractional-power windings on each of said stator poles can vary the rotational speed of said rotor and the amounts of torque supplied to the driven member.

5,786,674
HYDRAULIC SERVO CONTROL PARTICULARLY HYDRAULIC POWER STEERING SYSTEM FOR MOTOR VEHICLES

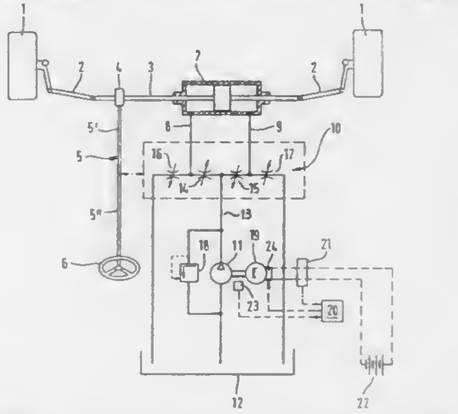
Wolfgang Kress, Stuttgart, and Uwe Kooths, Sindelfingen, both of Germany, assignors to Mercedes-Benz AG, Germany

Filed Jun. 13, 1997, Ser. No. 876,024

Claims priority, application Germany, Jun. 13, 1996, 196 23 567.7

Int. Cl.⁶ B62D *5/22;* **H02P** *5/00*

U.S. Cl. 318—268 **16 Claims**



1. A hydraulic servo control for a hydraulic power steering system of a vehicle, comprising:
- a hydraulic servo motor;
- a hydraulic pump having a delivery side and a suction side;
- an electric motor for driving said hydraulic pump;
- a servo valve having an open center position, said servo valve controllably connecting said hydraulic servo motor to said delivery side of said pump as well as to one of the suction side of said pump and an unpressurized reservoir; and
- an electric speed control unit for controlling rotational speed of said electric motor as a function of one of electric current and electric power consumption of said motor, which speed control unit changes automatically between standby operation at an approximately low rotational speed, and load operation at an approximately constant high rotational speed, wherein
- said electric speed control unit switches to the high rotational speed when said one of electric current and power consumption of the electric motor exceeds a lower threshold value at the low rotational speed, which threshold value is slightly above a first minimum value of said one of current and power consumption of the electric motor at the low rotational speed; and
- said electric speed control unit switches to the low rotational speed when said one of electric current and power consumption of the electric motor at the high rotational speed has fluctuated minimally for a predeterminable time period and

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has remained below an upper threshold value which is slightly above a second minimal value of the current or power consumption of the electric motor at the high rotational speed.

5,786,675
SUNROOF CONTROL CIRCUIT

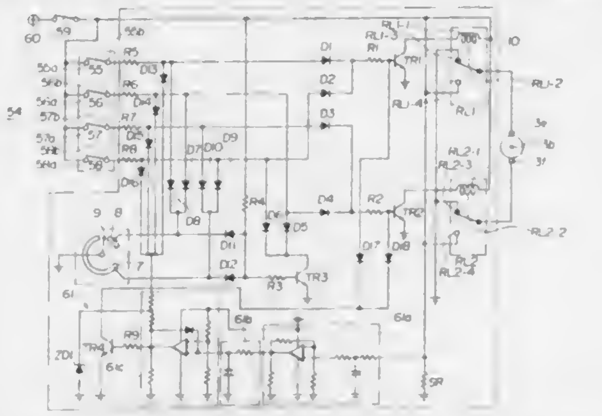
Kenich Niki; Nobuo Yoshioka, and Hiroyuki Funaki, all of Yokohama, Japan, assignors to Jidosha Denki Kogyo Kabushiki Kaisha, Yokohama, Japan

Filed Jul. 3, 1996, Ser. No. 675,058

Claims priority, application Japan, Jul. 4, 1995, 7-169043

Int. Cl.⁶ G05B *5/00*

U.S. Cl. 318—466 **9 Claims**



1. A sunroof control circuit for controlling a sunroof lid of a vehicle having a sliding mode and a tilting mode, the control circuit comprising:
- an electric motor provided with a reduction gear and a position detecting gear operatively connected to said reduction gear;
- a first motor driving circuit connected to said electric motor for supplying the electric motor with an electric current to turn said electric motor in a forward rotational direction;
- a second motor driving circuit connected to said electric motor for supplying the electric motor with an electric current to turn said electric motor in a reverse rotational direction;
- a position detecting switch provided with a movable conductive contact rotatively driven by said position detecting gear which is driven through the reduction gear of said electric motor, an insulating base plate, and arc-shaped first and second contact plates made of conductor plates and disposed coaxially and separate from each other on said insulating base plate, said first and second contact plates being selectively connected with said movable contact;
- a switch means including a first switch for generating a first driving signal to open said sunroof lid and supplying the first driving signal to said first motor driving circuit, a second switch for generating a second driving signal to close said sunroof lid and supplying the second driving signal to said second motor driving circuit, a third switch for generating a third driving signal to tilt up said sunroof lid and supplying the third driving signal to said second motor driving circuit, and a fourth switch for generating a fourth driving signal to tilt down said sunroof lid and supplying the fourth driving signal to said first motor driving circuit; and
- a first prohibition circuit connected to said position detecting switch for prohibiting the second driving signal generated from said second switch to be supplied into the second motor driving circuit and prohibiting the fourth driving signal generated from said fourth switch to be supplied into the first motor driving circuit when the movable contactor is not in contact with the first nor the second contact plate of said position detecting switch, for permitting the second driving signal generated from the second switch to be supplied into the second motor driving circuit when the movable contactor is in contact with the first contact plate of said position detecting switch, and for permitting the fourth driving signal generated from the fourth switch to be supplied into the first motor driving circuit when the movable contactor is in contact with the second contact plate of said position detecting switch.

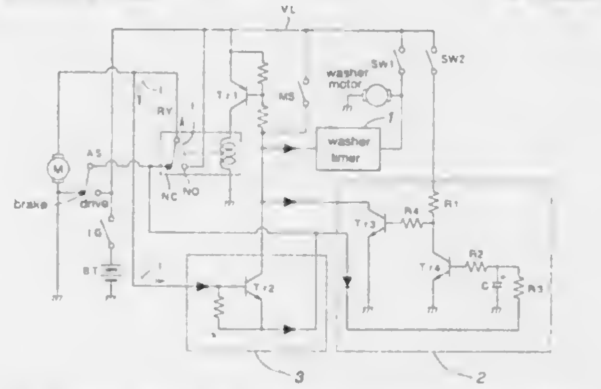
5,786,676
CONTROL CIRCUIT FOR A WINDSHIELD WIPER SYSTEM

Tomoyuki Ogawa, and Iwao Tsurubuchi, both of Gunma-ken, Japan, assignors to Mitsuba Corporation, Kiryu, Japan

Filed Nov. 26, 1996, Ser. No. 757,064

Int. Cl.⁶ G05B *5/00*

U.S. Cl. 318—468 **6 Claims**



1. A control circuit for a vehicle windshield wiper system, comprising:
- means for producing an ON signal of a certain duration;
- a relay having a moveable contact, a normally open contact, a normally closed contact, and a coil for actuating said moveable contact, said contacts being adapted to activate a wiper motor when said coil is energized;
- a relay drive transistor for energizing said coil when said ON signal is produced from said ON signal producing means;
- auto stop switch means coupled to an output shaft of said wiper motor and having a drive position and a brake position for maintaining supply of electric current to said wiper motor immediately after said coil of said relay is de-energized until said auto stop switch means takes said drive position; and
- a relay energization retaining circuit which maintains supply of electric current to said wiper motor when the ON signal for the relay drive transistor is terminated as long as said auto stop switch means is at said brake position until said auto stop switch means subsequently moves on to said drive position.

5,786,677
STOPS AND A CLUTCH FOR A LOADER THAT TEST THE FLYING HEIGHT OF A DISK DRIVE HEAD GIMBAL ASSEMBLY

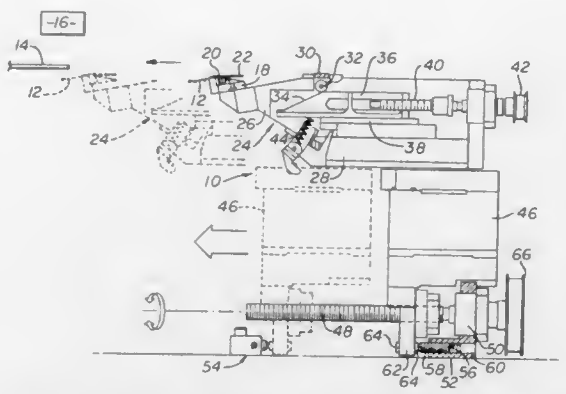
John Marr, Escondido, Calif., assignor to Phase Metrics, San Diego, Calif.

Filed Dec. 20, 1995, Ser. No. 575,916

Int. Cl.⁶ G11B *5/54*

U.S. Cl. 318—560 **17 Claims**

1. A head gimbal assembly loader for a head gimbal assembly of a hard disk drive tester, comprising:
- a clamp that holds the head gimbal assembly;
- a movement assembly that moves said clamp between a first position and a second position;
- a first stop that limits the movement of said clamp to the first position; and,



- a second stop that limits the movement of said clamp to the second position.

5,786,678
METHOD AND APPARATUS FOR AUTOMATICALLY ADJUSTING A GAIN OF A SERVOMECHANISM

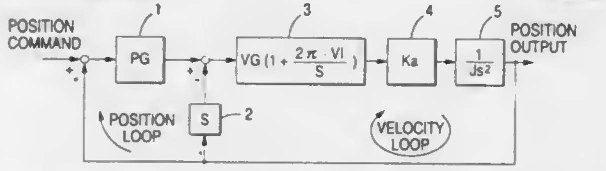
Seiichi Kobayashi, and Ichiro Miura, both of Gunma, Japan, assignors to NSK Ltd., Tokyo, Japan

Filed Nov. 27, 1996, Ser. No. 757,870

Claims priority, application Japan, Nov. 27, 1995, 7-329406

Int. Cl.⁶ B25J *15/02*

U.S. Cl. 318—677 **2 Claims**



1. A method of automatically adjusting a gain of a servomechanism comprising a motor for performing positioning control and velocity control, the method comprising the steps of:
- (a) setting a time constant and a velocity control gain of the servomechanism when a step command is supplied in a condition where the load is applied to the motor;
- (b) adjusting the velocity control gain for reducing the time constant to within a predetermined range;
- (c) measuring the time constant by applying step command which is adjusted according to the velocity control gain, in a condition where the load is applied to the motor;
- (d) estimating a load value of the motor based on the measured time constant and the adjusted velocity control gain; and
- (e) setting automatically a servo-gain of the servomechanism in accordance with the estimated load value.

2. An apparatus for automatically adjusting a gain of a servomechanism driving a motor for performing positioning control and velocity control, the apparatus comprising:
- a driving unit for supplying a step command to the motor in a condition where a load is applied to the motor, to thereby drive the motor;
- an estimating unit for estimating the load based on a velocity output of the motor, said estimating unit comprising
- means for setting a time constant and a velocity control gain of the servomechanism;
- means for adjusting the velocity control gain for reducing the time constant to within a predetermined range;
- means for measuring the time constant by supplying the step command which is adjusted according to the velocity control gain; and
- means for estimating the load based on the measured time constant and the adjusted velocity control gain; and
- gain setting means for setting a servo-gain of the servomechanism in accordance with the estimated load.

5,786,679
DC MOTOR DRIVEN POWER STEERING SYSTEM FOR A MOTOR VEHICLE

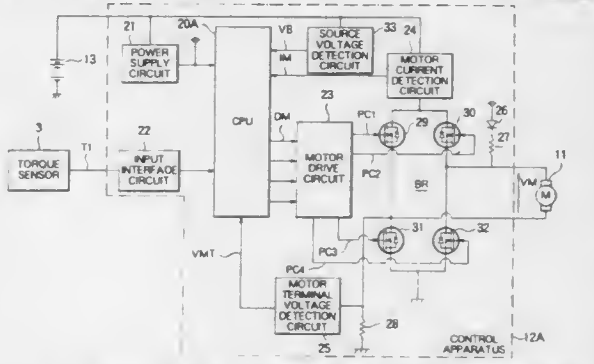
Kazuhisa Nishino; Hirohisa Awa, and Shunichi Wada, all of Himeji, Japan, assignors to Mitsubishi Denki Kabushiki Kaisha, Tokyo, Japan

Filed Mar. 20, 1995, Ser. No. 407,281

Claims priority, application Japan, Mar. 22, 1994, 6-050682

Int. Cl.⁶ H02K *23/00*

U.S. Cl. 318—696 **8 Claims**



1. A DC motor driven power steering system for a motor vehicle, the system having means for detecting the rotation state of the DC motor, comprising:
- a DC motor;
- two sets of paired switching elements connected so as to constitute a bridge commutation circuit together with said DC motor for driving said DC motor;
- motor drive control means for controlling operation of said DC motor by controlling said paired switching elements with a pulse-width modulated control signal;
- motor current detecting means for detecting a motor current flowing through said DC motor;
- power supply voltage detecting means for detecting a power supply voltage applied to said bridge commutation circuit;
- motor voltage estimating means for estimating a voltage applied to said DC motor on the basis of said power supply voltage applied to said bridge commutation circuit and said pulse-width modulated control signals when said motor drive control means energizes said DC motor;
- motor rotation detecting means for detecting rotation state of said DC motor on the basis of said motor current and said estimated motor voltage applied to said DC motor;
- a motor terminal voltage detecting means connected to one of said motor terminals for detecting a motor terminal voltage at said one terminal; and
- motor drive state decision means for deciding whether or not said DC motor is being energized;
- wherein said motor rotation detecting means detects rotation state of said DC motor on the basis of said motor terminal voltage when said DC motor is not being energized.

5,786,680
FIELD SENSOR POSITIONING APPARATUS AND METHOD

Leo L. Klikier, 645 Coveglen Ct., Colorado Springs, Colo. 80906-6801, and Robbie Tuttle, 1905 Hercules Dr., Colorado Springs, Colo. 80906

Filed Aug. 13, 1996, Ser. No. 689,657

Int. Cl.⁶ H02P *8/00*

U.S. Cl. 318—696 **19 Claims**

1. An apparatus for remotely moving a sensor through multiple positions in a test grid comprising:
- a transom;
- a slide carried by the transom;
- a mast carried by the slide;
- a slidable sensor support carried by the mast;
- a slide stepping motor mounted on the transom;

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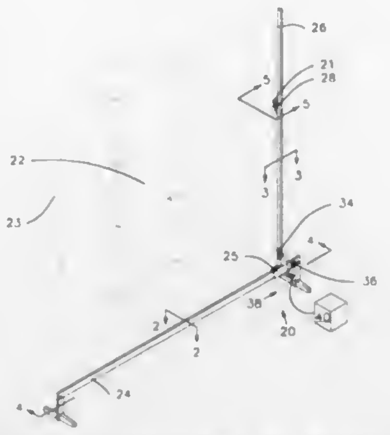
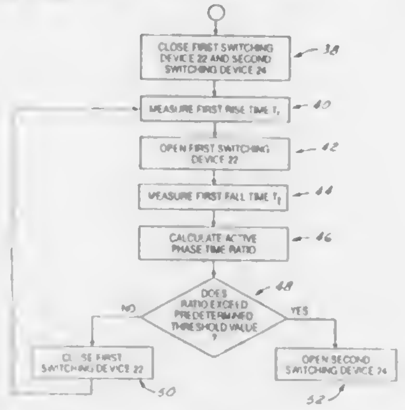


a power conveyance means between the slide stepping motor and the slide;
a sensor support stepping motor mounted on the mast;
a sensor support power conveyance means between the sensor support stepping motor and the sensor support;
a transom base;
a remote power control means electrically connected to the stepping motors;
wherein use one may position the slidable sensor support from the remote power control means by causing the stepping motors to rotate and thereby moving the slide and slidable sensor support proportional distances to a chosen point in the grid.

5,786,681

ACTIVE PHASE COIL INDUCTANCE SENSING

Ramani R. Kalpathi, Ann Arbor, Mich., assignor to Dana Corporation, Toledo, Ohio
Filed Nov. 15, 1996, Ser. No. 749,461
Int. Cl.^{6} H02P ***1/46***
U.S. Cl. 318—701 **17 Claims**

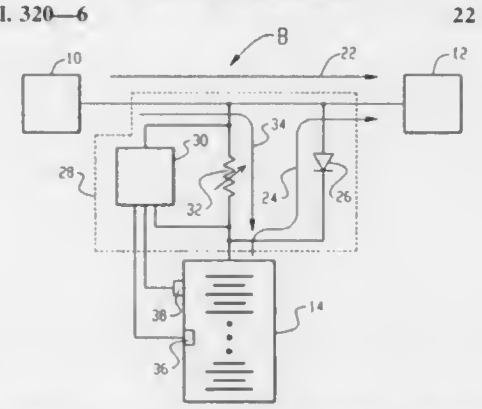

CLOSE FIRST SWITCHING DEVICE 22 AND SECOND SWITCHING DEVICE 24
38
MEASURE FIRST RISE TIME T_r
40
OPEN FIRST SWITCHING DEVICE 22
42
MEASURE FIRST FALL TIME T_f
44
CALCULATE ACTIVE PHASE TIME RATIO
46
DOES RATIO EXCEED PREDETERMINED THRESHOLD VALUE ?
48
NO
YES
CLOSE FIRST SWITCHING DEVICE 22
50
OPEN SECOND SWITCHING DEVICE 24
52

1. A method for commutating a conduction cycle of a motor phase of a switched reluctance motor wherein said motor phase includes a first switching device and a second switching device both connected in series with a phase coil, said method comprising the steps of:
closing said first switching device and said second switching device to initiate said conduction cycle by causing a current to flow through said phase coil;
modulating only a selected one of said first and said second switching devices to control a level of said current between a local maximum level and a local minimum level;
measuring a first rise time for said current level to rise from said local minimum level to said local maximum level;
measuring a first fall time for said current level to fall from said local maximum level to said local minimum level;
calculating a value of an active phase time ratio using said first rise time and said first fall time; and,
opening said first and said second switching devices when said active phase time ratio value reaches a predetermined threshold value to thereby commutate said conduction cycle.

5,786,682

BATTERY CHARGING CIRCUIT INCLUDING A CURRENT LIMITER WHICH COMPARES A REFERENCE CURRENT TO A CHARGING CURRENT TO ENSURE OPERATION OF A LOAD

Merle R. Aiken, South Amherst; Brian D. Goodlive, Cleveland, and James A. Giancaterino, Sheffield Lake, all of Ohio, assignors to Reltec Corporation, Lorain, Ohio
Filed Aug. 7, 1996, Ser. No. 691,038
Int. Cl.^{6} H01M ***10/46***
U.S. Cl. 320—6 **22 Claims**

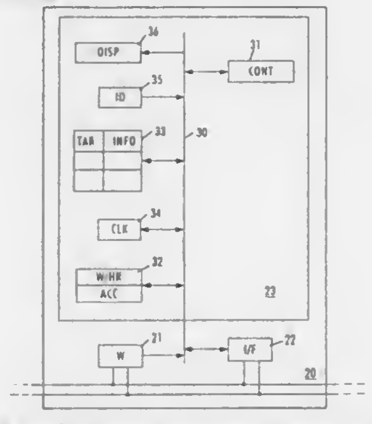


1. A battery charge current limiter used in a circuit having a power supply supplying a load, and a back-up battery connected between the power supply and the load such that the back-up battery supplies power to the load at times when the power supply cannot fully supply the load, the battery charge current limiter comprising,
a controller including,
a first end connected to a main supply line which interconnects the power supply and the load, whereby the first end of the current controller is connected between the power supply and the load;
a second end connected to the back-up battery;
a variable resistance connected between the first end and the second end;
a current controller having a comparator for comparing a current reference signal and a signal representing the current being supplied to the back-up battery, connected to the variable resistance; and
a secondary supply line connected from the back-up battery to the load;
wherein during normal operation the load is supplied by the power supply through the main supply line,
wherein during reduced output by the power supply the load is supplied at least in part by the back-up battery through the secondary supply line,
wherein the power supply recharges the back-up battery through the variable resistance, and
wherein the current controller adjusts the variable resistance based on results of a comparison between the current reference signal and the signal representing the current being supplied to the back-up battery, such that during recharging of the back-up battery the current used to recharge the back-up battery is limited to a level whereby thermal runaway of the back-up battery is avoided.

5,786,683

ELECTRIC SUPPLY CONTROL

Paul Nicholas Williams, Etwall, Great Britain, assignor to Remote Metering Systems Ltd., Hants, England
PCT No. PCT/GB94/01390, § 371 Date Feb. 28, 1997, § 102(e) Date Feb. 28, 1997, PCT Pub. No. WO95/00994, PCT Pub. Date Jan. 5, 1995
PCT Filed Jun. 27, 1994, Ser. No. 564,150
Claims priority, application United Kingdom, Jun. 25, 1993, 9313200
Int. Cl.^{6} H02J ***1/00;*** **G05F** ***1/10***
U.S. Cl. 323—220 **13 Claims**

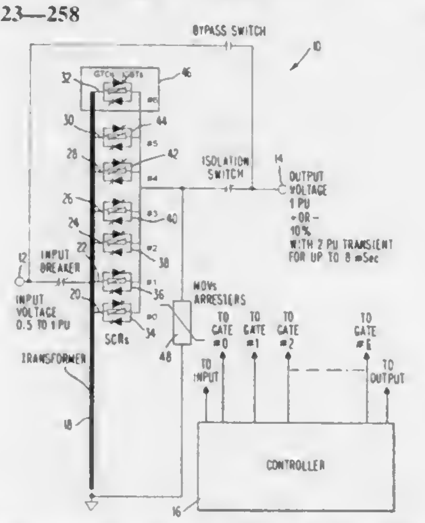


1. A power supply system comprising a meter for storing tariff information including plural tariff rates and associated times, the meter having at least one outlet having a programmable controller responsive to the tariff information stored in the meter, the controller being programmed to cause the outlet to perform an inverse control between the tariff rate at which the outlet may be turned on and the time elapsed since the outlet was last turned on.

5,786,684

APPARATUS AND METHODS FOR MINIMIZING OVER VOLTAGE IN A VOLTAGE REGULATOR

Vinod N. Bapat, Raleigh, N.C., assignor to ABB Power T&D Company, Inc., Raleigh, N.C.
Filed Sep. 16, 1996, Ser. No. 710,318
Int. Cl.^{6} G05F ***1/16***
U.S. Cl. 323—258 **8 Claims**



1. A voltage regulator, having an input and an output on which output a desired voltage is to be regulated, said voltage regulator comprising:
a transformer having a secondary coil, said secondary coil having a plurality of taps;
a first solid state switch, connected between said output and a first one of said taps, said first switch having the capability of being turned ON in response to a first gate signal;
a second solid state switch, connected between said output and a second of said taps, said second switch having the capability of being turned ON and turned OFF in response to a second gate signal;
a third solid state switch, connected between said output and a third one of said taps, said third switch having the capability of being turned ON in response to a third gate signal; and
a controller, connected to said input, said output, said first switch and said second switch, for sensing the voltage present at said input and said output and for generating gating signals in response to the voltage sensed at said input and said output, wherein said controller changes from said first tap to said third tap by removing the gating signal from said first switch, generating said second and third gate signals to turn ON said second and third switches and thereafter generating said second gate signal to turn OFF said second switch.

5,786,685

ACCURATE HIGH VOLTAGE ENERGY STORAGE AND VOLTAGE LIMITER

Gerbard G. Lange, Apalachin, and Stephen M. Mott, Vestal, both of N.Y., assignors to Lockheed Martin Corporation, Bethesda, Md.
Filed Jan. 15, 1997, Ser. No. 783,970
Int. Cl.^{6} G05F ***1/40;*** **H02J** ***7/00***
U.S. Cl. 323—270 **13 Claims**

1. An electronic power supply for supplying uninterrupted power during transients to a load, said electronic power supply connectable to a primary power source, said electronic power supply comprising:
a high voltage bias supply for providing a voltage greater than the nominal voltage of the primary power source;
a holdup capacitor;
a high voltage reference connectable to said high voltage bias supply for setting a maximum voltage limit for said holding capacitor and the load;
a holdup capacitor charger connected to said holdup capacitor for charging said holdup capacitor;
an energy transfer switch for supplying energy to the load from said holdup capacitor when the primary power source voltage is below a first predetermined value; and
a transient voltage limiter including a pass transistor, said pass transistor transitioning from a saturated to an active state when a primary power source voltage is above a second predetermined value provided by said high voltage reference thereby limiting the maximum voltage supplied to said load.

5,786,686

LOW-POWER CONSUMPTION TYPE SEMICONDUCTOR DEVICE

Hisao Ohtake, Tokyo, Japan, assignor to Oki Electric Industry Co., Ltd., Tokyo, Japan
Filed Jan. 9, 1997, Ser. No. 780,847
Claims priority, application Japan, Aug. 30, 1996, 8-229523
Int. Cl.^{6} G05F ***1/40***
U.S. Cl. 323—282 **13 Claims**

1. A power-saving circuit arrangement, comprising:

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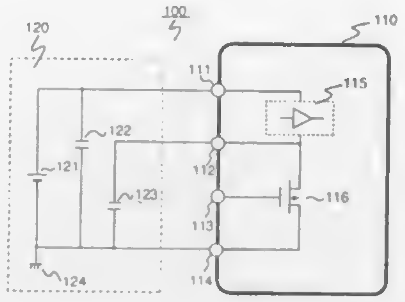


Illustration of First Embodiment of the Present Invention

- a power supply having a drive potential terminal for supplying a drive potential therefrom and having a reference potential terminal for supplying a reference potential that is lower than the drive potential therefrom;
- capacitive means connected to said reference potential terminal; and
- a semiconductor integrated circuit which includes
  - a first external terminal connected to said drive potential terminal;
  - a second external terminal connected to said capacitive means;
  - an internal circuit connected between said first external terminal and said second external terminal and having an operation mode in which a functional operation of said internal circuit is performed by said internal circuit and a non-operation mode in which the function of said internal circuit is substantially stopped;
  - a third external terminal connected to said reference potential terminal;
  - a fourth external terminal supplied with a control signal having a first logic level when said internal circuit is to be placed in the non-operation mode, the control signal having a second logic level when said internal circuit is to be placed in the operation mode; and
  - a switching circuit disposed between said internal circuit and said third external terminal and activated in response to the control signal so as to substantially provide non-conduction between said internal circuit and said third external terminal when said control signal has said first logic level and so as to provide conduction between said internal circuit and said third external terminal when said control signal has said second logic level, said internal circuit receiving power for operation thereof when said switching circuit provides conduction between said internal circuit and said third external terminal.

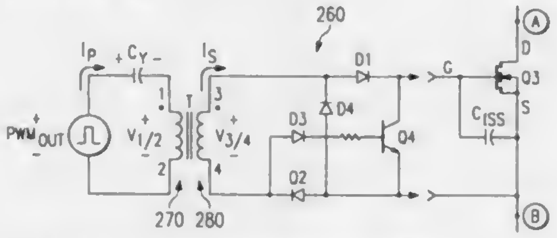
5,786,687
TRANSFORMER-ISOLATED PULSE DRIVE CIRCUIT

Richard A. Faulk, Cypress, Tex., assignor to Compaq Computer Corporation, Houston, Tex.

Filed Dec. 3, 1996, Ser. No. 753,928

Int. Cl.^{6} G05F *1/575*

U.S. Cl. 323—289 **20 Claims**



1. A switch-mode power converter comprising:
- a transistor switch; and
- a pulse transformer circuit for driving the transistor switch in response to a stream of switch control pulses, the pulse transformer circuit comprising:
  - a transformer having a primary winding and a secondary winding;
  - a primary capacitor;
  - the switch control pulse source and the primary capacitor connected in series with the primary winding, wherein the primary capacitor is sized so that beginning at the leading edge of a switch control pulse, a positive voltage spike is applied across the primary winding inducing a positive voltage spike across the secondary winding, and, beginning at the trailing edge of a switch control pulse, a negative voltage spike is applied across the primary winding inducing a negative voltage spike across the secondary winding; and
- a driver operatively connected to the secondary winding and the transistor switch, the driver activating the transistor switch in response to the induced positive voltage spike across the secondary winding and discharging the transistor switch through a hipolar discharging transistor in response to the induced negative voltage spike across the secondary winding.

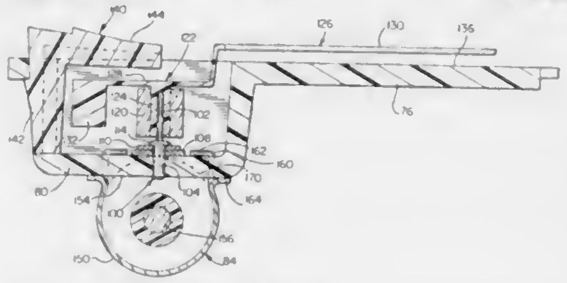
5,786,688
ELECTRICAL AMMETER INCLUDING AN INDUCTION COIL

Robert L. Krupa, Jr., Parma, Ohio, assignor to Prime Instruments, Inc., Cleveland, Ohio

Filed Jun. 5, 1995, Ser. No. 461,642

Int. Cl.^{6} G01R *35/04;1/20*

U.S. Cl. 324—146 **14 Claims**



1. An electrical meter, comprising:
- a housing;
- a motor magnet mounted relative to said housing for pivotal movement; and
- an induction clip defining an area within which may be constrained a conductor through which current passes generating a magnetic field that reacts with the magnetic field of said motor magnet to influence pivotal movement of said motor magnet, said induction clip including an arcuate length of more than 180 degrees between opposite end portions anchored to said housing, and said arcuate portion defining an interior bight space open at one side to a surface of said wall of said housing.

5,786,689
APPARATUS INCLUDING A MEASUREMENT TIME COUNTING DEVICE FOR MEASURING AN ELECTRICAL CHARACTERISTIC OF SEMICONDUCTOR

Mikihiro Kimura, Itami, Japan, assignor to Mitsubishi Denki Kabushiki Kaisha, Tokyo, Japan

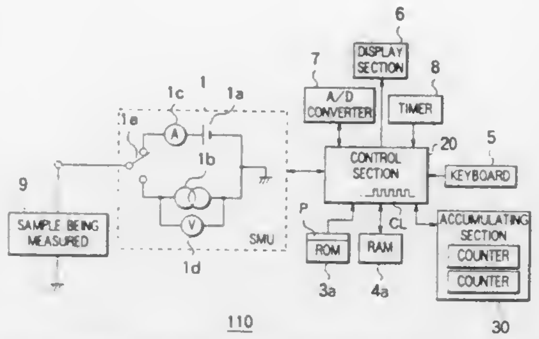
Filed Sep. 19, 1995, Ser. No. 530,089

Claims priority, application Japan, Sep. 20, 1994, 6-225171

Int. Cl.^{6} G01R *31/26*

U.S. Cl. 324—158.1 **8 Claims**

1. An apparatus for measuring an electrical characteristic of a semiconductor device comprising:



- stress applying/measuring means for applying an electrical stress to a semiconductor device and for measuring a current flowing in the semiconductor device;
- time measuring means for measuring separately, in a time interval including a first time period and a second time period after the first time period, the first time period representative of duration of application of a stress by said stress applying/measuring means, the first time period being designated stress applied time, and the second time period indicative of a measurement time for measuring the current flowing in the semiconductor device;
- memory means for recording a measurement value representing the current measured by said stress applying/measuring means and for recording the stress applied time;
- display means for displaying content of said memory means; and
- control means coupled to said memory means, said display means, said time measuring means, and said stress applying measuring means for controlling operation of said memory means, said display means, said time measuring means, and said stress applying/measuring means for measurement of an electrical characteristic of the semiconductor device.

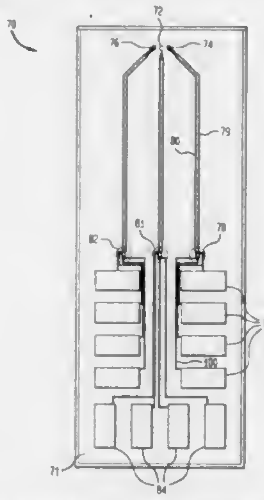
5,786,690
HIGH RESOLUTION THREE-AXIS SCANNING SQUID MICROSCOPE HAVING PLANAR SOLENOIDS

John Robert Kirtley, Katonah, N.Y., and Mark Benjamin Ketchen, Hadley, Mass., assignors to International Business Machines Corporation, Armonk, N.Y.

Filed Aug. 18, 1994, Ser. No. 292,641

Int. Cl.^{6} G01R *33/035;* **H01L** *39/22*

U.S. Cl. 324—248 **6 Claims**



1. An integrated three-axis SQUID magnetometer comprising:
- a substrate;
- three planar SQUIDS each having at least one Josephson element situated on a first region of said substrate;
- three pickup elements formed at a second region of said substrate, each associated with one of said SQUIDS, two of said pickup elements being of a planar solenoid form and the third being of a planar element form having at least one loop.

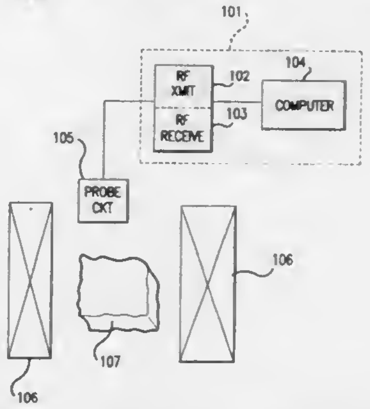
5,786,691
DETECTION OF THERMAL DAMAGE IN COMPOSITE MATERIALS USING LOW FIELD NUCLEAR MAGNETC RESONANCE TESTING

Donald D. Palmer, Jr., Chesterfield; Ronald D. Stoddard, and Mark S. Conradi, both of St. Louis, all of Mo., assignors to McDonnell Douglas Corporation, St. Louis, Mo.

Filed Jan. 30, 1997, Ser. No. 791,812

Int. Cl.^{6} G01V *3/00*

U.S. Cl. 324—300 **16 Claims**



1. A nondestructive method for detecting thermal damage in a specimen which is already manufactured, comprising subjecting the specimen to an NMR evaluation to obtain at least one of a spin-lattice relaxation value and a spin-lattice relaxation of local field order value, and comparing the thus obtained value or values to data indicative of a relationship between a magnitude of the obtained value or values and thermal damage of the specimen.

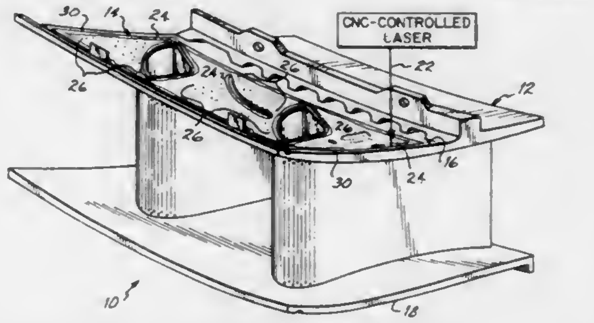
5,786,692
LINE SCAN DIFFUSION IMAGING

Stephan E. Maier, and Hakon Gudbjartsson, both of Brookline, Mass., assignors to Brigham and Women's Hospital, Inc., Boston, Mass.

Filed Aug. 16, 1996, Ser. No. 689,949

Int. Cl.^{6} G01V *3/00*

U.S. Cl. 324—307 **46 Claims**



1. A magnetic resonance imaging method comprising:
- providing a series of selective radio frequency pulses that includes a series of pairs of radio frequency pulses, which pairs each define a pair of planes that intersect at an intersection that defines an imaging volume, wherein the imaging volumes defined by the pairs are distinctly positioned and are part of a first image surface passing through the sample and having a spatial orientation that differs from the spatial orientation of the planes defined by the pairs,
- providing magnetic diffusion gradients in the sample and associated with at least a subset of the imaging volumes.

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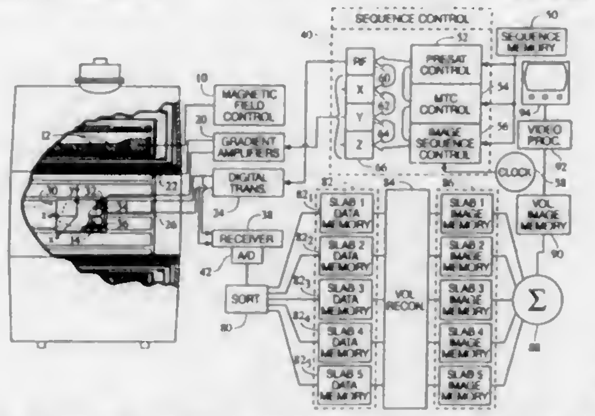
- acquiring a series of nuclear magnetic resonance echo signals resulting from the intersection of the planes in the step of providing a series of selective pulses, wherein at least a subset of the nuclear magnetic resonance echo signals are responsive to the influence of the diffusion gradients, and
- processing the nuclear magnetic resonance echo signals acquired in the step of acquiring to obtain an image that includes lines corresponding to the imaging volumes defined by the pairs.

5,786,693
BATCH MULTI-VOLUME ANGIOGRAPHY USING MAGNETIC RESONANCE IMAGING

Rao P. Gullapalli; Mark J. Loncar, both of Richmond Heights, and Paul M. Margosian, Lakewood, all of Ohio, assignors to Picker International, Inc., Highland Heights, Ohio
Filed Apr. 26, 1996, Ser. No. 638,641
Int. Cl.⁶ G01V *3/00*
U.S. Cl. 324—309 **16 Claims**

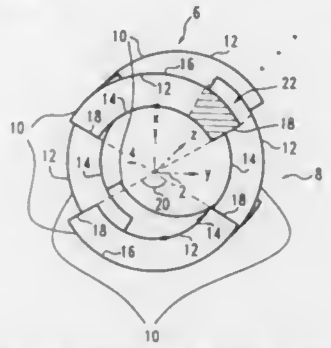


1. A magnetic resonance imaging system which includes a magnet for generating a temporally constant magnetic field through an examination region, a transmitter for inducing dipoles in the examination region to resonance such that radio frequency resonance signals are generated, gradient amplifiers and gradient magnetic field coils for generating at least slab select, phase, and read magnetic field gradient pulses along orthogonal axes across the examination region, a receiver for receiving and demodulating the radio frequency magnetic resonance signals read during the read gradients to produce a series of views, and an image memory for storing a reconstructed volume image representation, the system further comprising:

- a sequence controller for controlling the transmitter and the gradient amplifiers to cause in each repetition the application of at least one prepreparation sequence segment which excites selected dipoles, the prepreparation sequence segment achieves one of:
  - saturation of dipoles of flowing substances flowing in a saturation region upstream from the examination region such that the flowing substances that flow into the examination region through the saturation region are at least partially saturated; and
  - selectively excites a limited frequency spectrum within the entire examination region to precondition dipoles of only selected substances;
- a first imaging sequence segment for inducing magnetic resonance in a first slab of the examination region, phase and frequency-encoding the induced resonance, and receiving at least one view from the first slab and a second imaging sequence segment for inducing magnetic resonance in a second slab of the examination region, phase and frequency-encoding the induced resonance, and receiving at least one view from the second slab;
- a sorter connected with the receiver for sorting the views by slab among at least a first slab data memory and a second slab data memory;
- a volume reconstruction processor for reconstructing the data from the first slab data memory into a first slab image representation and the data from the second slab data memory into a second slab image representation;
- a circuit for combining the first and second slab image representations to form the volume image representation stored in the image memory.

5,786,694
GRADIENT COIL SYSTEM FOR USE IN A DIAGNOSTIC MAGNETIC RESONANCE APPARATUS

Volker Kilian, Frammersbach, and Michael Sellers, Erlangen, both of Germany, assignors to Siemens Aktiengesellschaft, Munich, Germany
Filed Mar. 7, 1997, Ser. No. 813,086
Claims priority, application Germany, Mar. 29, 1996, 196 12 478.6
Int. Cl.⁶ G01V *3/00*
U.S. Cl. 324—318 **14 Claims**

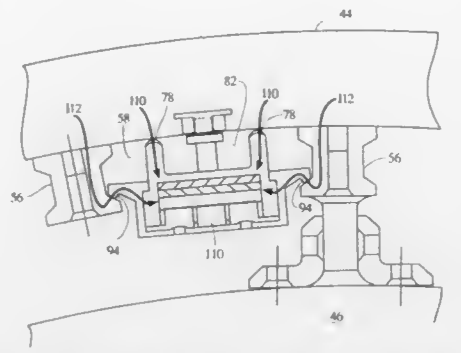


1. In a gradient coil system for a diagnostic magnetic resonance apparatus having a first gradient coil arrangement and a second gradient coil arrangement both disposed relative to an access and rotationally offset relative to each other at an angle of 90° for producing two magnetic gradient fields parallel to said axis with magnetic field gradients oriented perpendicularly to each other and perpendicular to said access, each of said first and second gradient coil arrangements including a plurality of coil pairs disposed along said axis, and each coil pair being formed by two gradient coils disposed laterally opposite each other relative to said axis with coil surfaces oriented substantially perpendicularly to said axis, the gradient coils in the respective first and second gradient coil arrangements overlapping each other, the improvement comprising:

- said first gradient coil arrangement having a first number of said coil pairs an said second gradient coil arrangement having a second number of said coil pairs, said first and second numbers being unequal.

5,786,695
SHIM TRAY WITH REDUCED HEAT CONDUCTION AND FORCED COOLING

William H. Amor, Chagrin Falls; Jerome S. Alden, Reminderville; Gordon D. DeMeester, Wickliffe; James L. Gruden, Kirtland Hills, and Junxiao Ling, University Heights, all of Ohio, assignors to Picker International, Inc., Highland Heights, Ohio
Filed Mar. 21, 1997, Ser. No. 822,766
Int. Cl.⁶ G01V *3/00*
U.S. Cl. 324—320 **19 Claims**

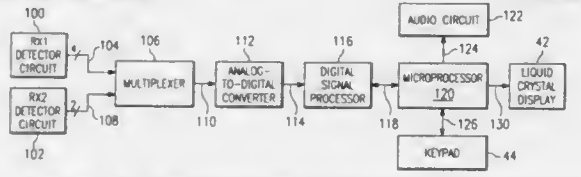


1. A shim set for use in a magnetic resonance imaging apparatus including a main field magnet for generating a temporally constant magnetic field through an examination region, a radio frequency transmitter for exciting and manipulating magnetic resonance in selected dipoles in the examination region, a receiver for demodulating magnetic resonance signals received from the examination region, a processor for reconstructing the demodulated resonance signals into an image representation, and a self-shielded gradient coil assembly including a primary gradient coil and a secondary gradient coil coupled together to cause magnetic field gradients along first, second, and third axes within the examination region and shield at least selected regions outside the examination region from magnetic field gradients, the shim set including:

- an elongate shim tray positioned within an annular gap defined between the primary and secondary gradient coils, the shim tray including pockets for retaining shims therein, the pockets being spaced from an inner periphery of the secondary gradient coil to define a cooling passage therebetween; and
- at least one cover secured to the tray for retaining the shim within the pockets.

5,786,696
METAL DETECTOR FOR IDENTIFYING TARGET ELECTRICAL CHARACTERISTICS, DEPTH AND SIZE

Brent Charles Weaver; Robert J. Podhrasky, and Ayaz Nemat, all of Dallas, Tex., assignors to Garrett Electronics, Inc., Garland, Tex.
Division of Ser. No. 541,034, Oct. 6, 1995, Pat. No. 5,721,489. This application May 20, 1997, Ser. No. 859,457
Int. Cl.⁶ G01V *3/11;3/165;3/38*
U.S. Cl. 324—329 **3 Claims**

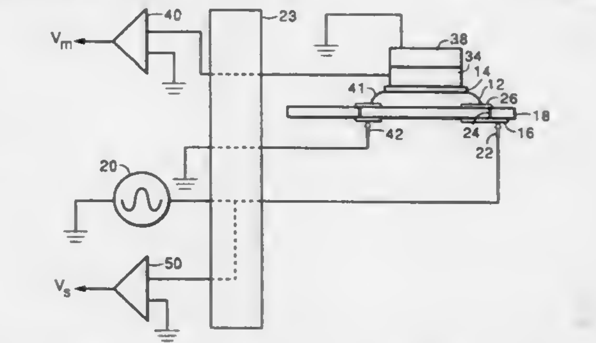


1. A method for determining the conductivity of a target detected by a metal detector, comprising the steps of:

- transmitting a continuous sinusoidal signal from a transmit coil which is spaced proximate a receive coil that is substantially inductively balanced with said transmit coil, wherein said object causes a signal to be produced in said receive coil when said object is in the vicinity of said transmit and receive coil,
- receiving and storing at least first and second signals from said receive coil, said first signal comprising a component of said receive signal which is phase offset by a first phase value from the signal in said transmit coil and said second signal comprising a component of said receive signal which is phase offset by a second phase value from the signal in said transmit coil, said stored signals comprising a data set, and said first phase value is different from said second phase value,
- producing a first Fourier signal derived from the Fourier transform of said first signal, wherein said first Fourier signal includes discrete frequency elements,
- producing a second Fourier signal derived from the Fourier transform of said second signal, wherein said second Fourier signal includes discrete frequency elements,
- determining the frequency range in said first Fourier signal which represents a signal component substantially produced by the presence of said target,
- determining the energy of said first Fourier signal within said frequency range to produce a first energy value and determining the energy of said second Fourier signal within said frequency range to produce a second energy value, and producing a ratio of said first and second energy values wherein said ratio is representative of the conductivity of said target.

5,786,697
CAPACITIVE OPEN-CIRCUIT AND SHORT-CIRCUIT TESTS OF COMPONENT CONNECTIONS TO CIRCUIT BOARDS

Moses Khazam, Lexington, and Steven M. Blumenau, Royalston, both of Mass., assignors to Genrad, Inc., Westford, Mass.
Continuation-in-part of Ser. No. 188,385, Jan. 27, 1994, Pat. No. 5,391,993. This application Feb. 17, 1995, Ser. No. 390,065
Int. Cl.⁶ G01R *31/04;31/312*
U.S. Cl. 324—537 **3 Claims**



1. For testing for the presence, on a circuit board of a given type on which is mounted a subject device that includes a plurality of UUT pins intended to be nominally electrical connected to board nodes respectively associated therewith, of any open circuit between subject ones of the UUT pins and the nodes associated therewith, by means of a test equipment that responds to the capacitances between a capacitive probe plate adjacent the device and the respective nodes associated with the UUT pins, a method comprising the steps of:

- A. in the test equipment connecting together a group of nodes nominally connected to UUT pins that are not nominally connected together on the circuit board,
- B. making a measurement of the capacitance associated with the group of nodes and the probe plate,
- C. comparing the capacitance measurement with a first threshold proportional to the sum of the expected nominal capacitances between the probe plate and the individual ones of said group of nodes, and
- D. asserting an open-circuit in a nominal node-pin connection in the group if the capacitance measurement is less than said first threshold.

5,786,698
TRANSDUCER BOOTSTRAPPING APPARATUS

Roy E. Mallory, Bedford, Mass., assignor to ADE Corporation, Newton, Mass.
Filed Mar. 7, 1996, Ser. No. 612,134
Int. Cl.⁶ H03F *3/30*
U.S. Cl. 324—611 **6 Claims**

1. A capacitive displacement sensor comprising:

- an excitation signal source;
- an amplifier configured as a buffer;
- a reference capacitor coupled between one end of said excitation signal source and an input of said amplifier;
- a probe capacitor connected between said input of said amplifier and ground;
- a second buffer having an input connected to the output of said amplifier and the other end of said excitation signal source;
- a first capacitor connected in series between the output of said second buffer and a negative power connection of said amplifier;

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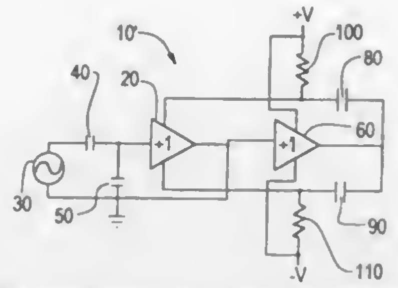


- a second capacitor connected in series between the output of said second buffer and a positive power connection of said amplifier;
- a first resistor connected in series between a positive supply voltage and a positive power connection of said amplifier; and
- a second resistor connected in series between a negative supply voltage and a negative power connection of said amplifier.

5,786,699
TEST METHOD AND APPARATUS FOR TESTING A PROTECTIVE RELAY SYSTEM

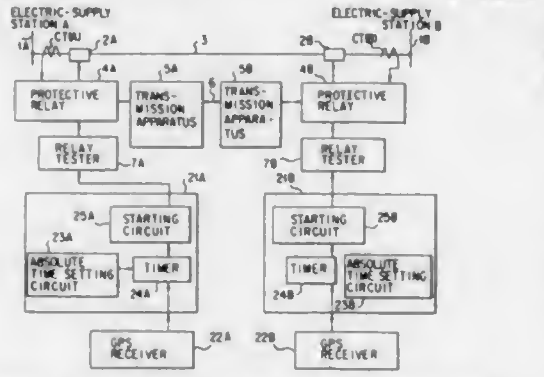
Yukio Sukegawa, and Tetsuo Matsushima, both of Tokyo, Japan, assignors to Kabushiki Kaisha Toshiba, Kawasaki, Japan

Division of Ser. No. 700,875, Aug. 21, 1996, Pat. No. 5,666,060, which is a division of Ser. No. 382,764, Feb. 2, 1995, Pat. No. 5,576,625. This application Apr. 10, 1997, Ser. No. 834,848

Claims priority, application Japan, Feb. 7, 1994, 6-013288

Int. Cl.^{6} H02H *7/26;* **G01R** *31/08*

U.S. Cl. 324—617 **6 Claims**



1. A method for measuring a transmission delay time in a transmission system for transmitting a signal between protective relays respectively connected to first and second electric-supply stations connected through electric transmission lines, the method comprising:

- a transmitting step for generating a transmission signal to be transmitted through, the transmission system in the first electric-supply station which includes a transmission side protective relay; and
- a measuring step for measuring the transmission delay time of the transmission signal transmitted through the transmission system to the second electric-supply station which includes a reception side protective relay, the transmitting step including the sub-steps of,
  - a) analyzing time data included in a signal transmitted from a satellite and converting the time data to a first time signal; and
  - b) converting the first time signal to a transmission signal including the time data and outputting the transmission signal to the transmission side protective relay,
- the measuring step including the sub-steps of,
  - c) analyzing time data included in the signal transmitted from the satellite and converting the time data to a second time signal that corresponds in time with said first time signal;
  - d) receiving the transmission signal transmitted through the transmission system from the transmission side protective relay to the reception side protective relay; and
  - e) comparing the time data included in the second received transmission signal with the time signal once the transmission signal is received, said time data included in said received transmission signal corresponding in time with said second time signal, but for the transmission delay time, thereby measuring the transmission delay time in the transmission system.

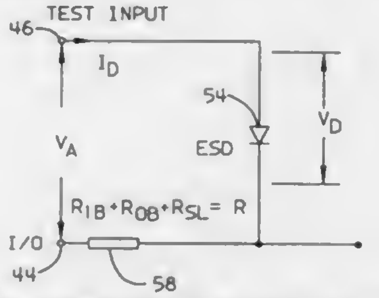
5,786,700
METHOD FOR DETERMINING INTERCONNECTION RESISTANCE OF WIRE LEADS IN ELECTRONIC PACKAGES

Keh-Chee Jen, San Jose, Calif., and Jan Obrzut, Vestal, N.Y., assignors to International Business Machines Corporation, Armonk, N.Y.

Filed May 20, 1996, Ser. No. 650,505

Int. Cl.^{6} G01R *27/08;31/26*

U.S. Cl. 324—713 **12 Claims**



1. A method for determining a linear interconnection resistance R of a circuit, said circuit comprising a nonlinear ESD device in series with said interconnection resistance, said method comprising the steps of:

- obtaining a multiplicity of different current—voltage relationships for currents flowing in said circuit and respective voltages across said circuit, said currents and voltages all forward biasing said ESD device; and
- applying said current—voltage relationships to an interconnection model algorithm to yield said interconnection resistance; and
- wherein said interconnection model algorithm is derived from an interconnection model equation using least squares as a maximum likelihood estimator applied to the interconnection model equation to deliver absolute roots of the interconnection model algorithm, said interconnection model equation modeling said circuit such that a nonlinear parameter of said ESD device is untangled from said linear interconnection resistance.

5,786,701
BARE DIE TESTING

David John Pedder, Long Compton, United Kingdom, assignor to Mitel Semiconductor Limited, Wiltshire, United Kingdom

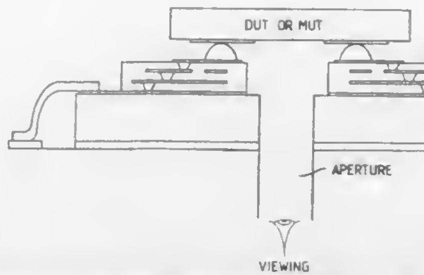
Continuation-in-part of Ser. No. 261,395, Jun. 17, 1994, abandoned. This application Apr. 1, 1996, Ser. No. 625,547

Claims priority, application United Kingdom, Jul. 2, 1993, 9313721

Int. Cl.^{6} G01R *31/02*

U.S. Cl. 324—754 **9 Claims**

1. A die testing apparatus, comprising: a multilayer metallization and dielectric structure formed on a rigid substrate of electrically insulating material and forming a testing station, said structure including an upper metallization layer, a ground plane metallization layer adjacent said substrate, at least one intermediate metallization layer, and a plurality of interlayer vias interconnecting at least parts of said metallization layers, and providing at least one controlled impedance interconnection adjacent said testing station, said testing station having a plurality of microbumps of conductive material located on interconnection trace terminations of said upper metallization layer and distributed in a pattern corresponding to a pattern of contact pads in respect of a die to be tested, a plurality of connections to and from said multilayer structure, said connections being of lower profile than said microbumps, and said multilayer structure being formed with at least one aperture to facilitate alignment to the die under test and to permit testing of the die on a module that is at least partly populated with active devices.



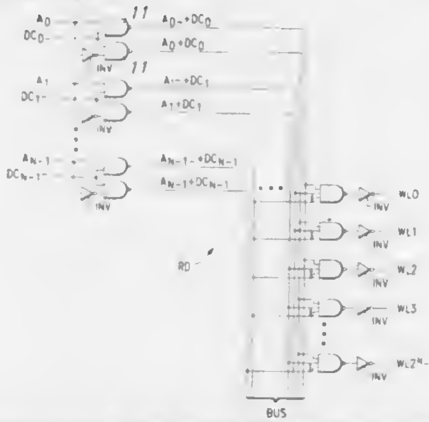
5,786,702
METHOD FOR DETECTING DEFECTS IN INTEGRATED-CIRCUIT ARRAYS

Harvey J. Stiegler, Houston, and Steven V. Krzentz, Dallas, both of Tex., assignors to Texas Instruments Incorporated, Dallas, Tex.

Filed Nov. 30, 1995, Ser. No. 565,603

Int. Cl.^{6} G01R *31/28*

U.S. Cl. 324—763 **12 Claims**



1. A method for detecting defects between adjacent parallel rows of conductors in an integrated-circuit array, said method comprising:

- (a) connecting all alternate rows of conductors of said array to a first voltage and connecting the other alternate rows of conductors of said array to a second voltage different from said first voltage, while measuring the current between said first voltage and said second voltage;
- (b) if said current does not exceed a first limit, ending said process;
- (c) if said current exceeds said first limit, separately repeating step (a) on first and second halves of said array rather than all of said array, with all of the rows of conductors of the half of said array not under test connected to said second voltage;
- (d) if said current exceeds a second limit for a said half of said array in step (c), repeating step (a) on each quarter of said array in said half rather than all of said array, with all of the rows of said array not under test connected to said second voltage; and
- (e) if said current exceeds a third limit for a said quarter of said array in step (d), repeating step (a) on each one-eighth of said array in said quarter rather than all of said array, with all of the rows of said array not under test connected to said second voltage.

5,786,703
METHOD AND DEVICE FOR TESTING OF AN INTEGRATED CIRCUIT

Olli Piirainen, Oulu, Finland, assignor to Nokia Telecommunications Oy, Espoo, Finland

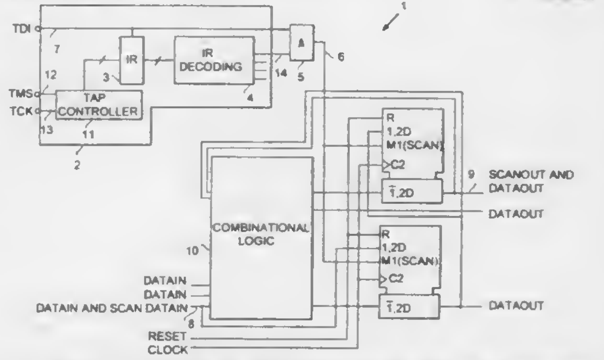
PCT No. PCT/FI94/00439, § 371 Date Apr. 1, 1996, § 102(e) Date Apr. 1, 1996, PCT Pub. No. WO95/10048, PCT Pub. Date Apr. 13, 1995

PCT Filed Sep. 30, 1994, Ser. No. 624,423

Claims priority, application Finland, Oct. 1, 1993, 934327

Int. Cl.^{6} G01R *31/28*

U.S. Cl. 324—763 **5 Claims**



1. A method of testing an integrated circuit after the integrated circuit has been assembled, together with other components, onto a circuit card, the integrated circuit having test structures for testing internal operations of the integrated circuit, said integrated circuit having at least one input for inputting test data to the integrated circuit and at least one output for outputting results from testing of internal operation of the integrated circuit,

said method comprising:

- providing a testing block having at least one mode in which is operable for testing said circuit card and/or at least one of said other components, said testing block having at least one input for controlling said testing block, and an output normally effectively isolated from, but effectively connected in a test state to said test structures;
- providing a signal via said at least one input of said testing block to said testing block for initiating said test state and thereby effectively connecting said testing block to said test structures of said integrated circuit; and
- controlling said internal test structures of said integrated circuit by providing signals via said at least one input of said testing block to said internal test structures of said integrated circuit, while supporting test data to said integrated circuit via said at least one input of said integrated circuit, and monitoring said at least one output of said integrated circuit.

5,786,704
METALLIC TRAY UNIT FOR TESTING A SEMICONDUCTOR DEVICE

Du Chul Kim, Chunan, Rep. of Korea, assignor to Mirae Corporation, Rep. of Korea

Filed Mar. 13, 1996, Ser. No. 615,027

Claims priority, application Rep. of Korea, Apr. 13, 1995, 1995-7446

Int. Cl.^{6} G01R *31/26*

U.S. Cl. 324—765 **3 Claims**

1. A metallic tray unit for testing a semiconductor device comprising:

- a unit body having a bottom and a top, the bottom being formed with a cavity in which the semiconductor device to be tested is placed, rectangular openings respectively formed on opposite sides of the cavity, each rectangular opening having one end opened to the top of the unit body and the other opened into the cavity formed in the bottom of the unit body; and
- fixing means for holding the semiconductor device in the cavity when the semiconductor device is moved to the bottom of the unit body and into the cavity, the fixing means comprising

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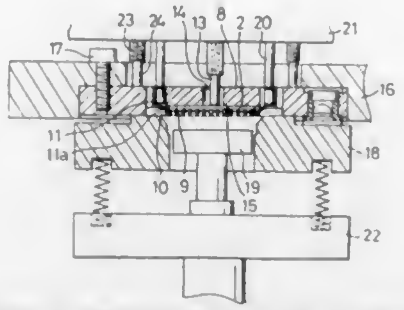


plate springs installed on side walls of said rectangular openings and parallel thereto, said plate springs being opened for insertion of the device into the cavity and being returned to a former condition thereof after insertion of the device into the cavity so that ends of the plate springs exposed to the cavity catch the device.

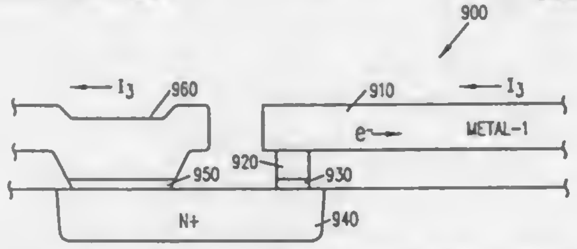
5,786,705
METHOD FOR EVALUATING THE EFFECT OF A BARRIER LAYER ON ELECTROMIGRATION FOR PLUG AND NON-PLUG INTERCONNECT SYSTEMS

Nguyen Duc Bui, San Jose; John T. Yue, Los Altos, and Van Pham, Milpitas, all of Calif., assignors to Advanced Micro Devices, Inc., Sunnyvale, Calif.

Continuation of Ser. No. 445,204, May 23, 1995, abandoned, which is a division of Ser. No. 348,645, Dec. 1, 1994, Pat. No. 5,612,627. This application Nov. 14, 1996, Ser. No. 747,803

Int. Cl.^{6} G01R *27/26*

U.S. Cl. 324—766 **11 Claims**



1. A method for determining an optimal barrier layer, said method comprising the steps of:

providing first and second pluralities of test structures, each of said test structures comprising a first conductor, a diffusion region provided in a semiconductor material, a first barrier layer provided between the diffusion region and the first conductor, a second conductor and a second barrier layer provided between the second conductor and the diffusion region, wherein each of said first and second barrier layers in said first plurality of test structures has a first thickness and each of said first and second barrier layers in said second plurality of test structures has a second thickness;

conducting a first current through each of a first group of test structures selected from said first plurality of test structures, and measuring a first value of lifetime according to a time-to-failure criterion, said first current flowing in each test structure in said first group of test structures from the first conductor to the second conductor;

conducting a second current through each of a second group of test structures selected from said first plurality of test structures, and measuring a second value of lifetime according to said time-to-failure criterion, said second current flowing in each structure in said second group of test structures from the second conductor to the first conductor;

conducting a third current through each of a third group of test structures selected from said second plurality of test structures, and measuring a third value of lifetime according to said time-to-failure criterion, said third current flowing in each test structure in said third group of test structures from the first conductor to the second conductor;

conducting a fourth current through each of a fourth group of test structures selected from said second plurality of test structures, and measuring a fourth value of lifetime according to said time-to-failure criterion, said fourth current flowing in each test structure in said fourth group of test structures from the second conductor to the first conductor; and

determining a thickness based on said first, second, third and fourth lifetimes in relation to said first and second thicknesses.

5,786,706

Patent Not Issued For This Number

5,786,707
METHOD OF DETECTING POSSIBLE DEFECT OF LIQUID CRYSTAL PANEL

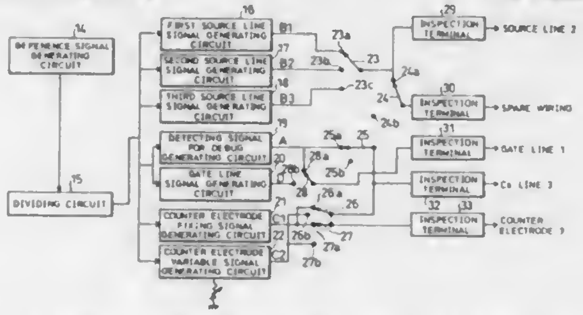
Takafumi Hayama, Ibaraki, and Katsumi Irie, Kashihara, both of Japan, assignors to Sharp Kabushiki Kaisha, Osaka, Japan

Filed Dec. 9, 1996, Ser. No. 762,155

Claims priority, application Japan, Dec. 7, 1995, 7-319314

Int. Cl.^{6} G01R *31/00*

U.S. Cl. 324—770 **14 Claims**


14
REFERENCE SIGNAL GENERATING CIRCUIT
15
DIVIDING CIRCUIT
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FIRST SOURCE LINE SIGNAL GENERATING CIRCUIT
17
SECOND SOURCE LINE SIGNAL GENERATING CIRCUIT
18
THIRD SOURCE LINE SIGNAL GENERATING CIRCUIT
19
DETECTING SIGNAL FOR DEBUG GENERATING CIRCUIT
20
GATE LINE SIGNAL GENERATING CIRCUIT
21
COUNTER ELECTRODE FIXING SIGNAL GENERATING CIRCUIT
22
COUNTER ELECTRODE VARIABLE SIGNAL GENERATING CIRCUIT
B1
B2
B3
A
D
C1
C2
23
23a
23b
23c
24
24a
24b
25
25a
25b
26
26a
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27
27a
27b
28
28a
28b
29
INSPECTION TERMINAL
SOURCE LINE 2
30
INSPECTION TERMINAL
SPARE WIRING
31
INSPECTION TERMINAL
GATE LINE 1
INSPECTION TERMINAL
Cs LINE 3
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INSPECTION TERMINAL
COUNTER ELECTRODE 3

1. A method of detecting a possible defect of a liquid crystal panel provided with a substrate which has active elements for driving picture elements with liquid crystal, first signal lines and second signal lines which intersect each other and control the active elements, and an insulating layer provided between the first signal lines and the second signal lines, said method comprising the steps of:

applying stress to the insulating layer while retaining said liquid crystal panel under a high temperature condition for the active elements and while said liquid crystal panel is being energized by a first inspecting pulse having (a) a switching pulse which controls activation of the active elements via said second signal lines and (b) a driving pulse for applying an inspecting voltages which drives the picture elements, to the active elements via said first signal lines, the high temperature condition being a temperature in the range from above room temperature up to an upper limit of a mesomorphic range of the liquid crystal; and

temporarily applying a second inspecting pulse to the active elements via said first signal lines and said second signal lines while the stress is being applied to the insulating layer, said second inspecting pulse having a driving pulse and a debug switching pulse with a larger potential difference than the switching pulse.

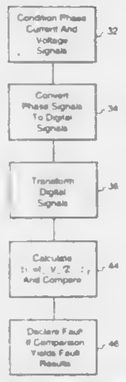
5,786,708
SELF-TUNING AND COMPENSATING TURN FAULT DETECTOR

William James Premerlani, Scotia; Gerald Burt Kliman, Niskayuna, both of N.Y.; David Jeremiah Hoeweler, Cincinnati, Ohio, and Rudolph Alfred Albert Koegl, Niskayuna, N.Y., assignors to General Electric Company, Schenectady, N.Y.

Filed Apr. 1, 1996, Ser. No. 617,718

Int. Cl.^{6} G01R *31/34*

U.S. Cl. 324—772 **17 Claims**


Condition Phase Current And Voltage Signals
32
Convert Phase Signals To Digital Signals
34
Transform Digital Signals
36
Calculate
And Compare
44
Declare Fault If Comparison Yields Fault Results
46

1. A method for detecting turn faults in an induction motor comprising the steps of:

obtaining motor current waveforms:

obtaining motor voltage waveforms:

converting the motor current waveforms to digitized current waveforms and the motor voltage waveforms to digitized voltage waveforms;

extracting fundamental phasors of the digitized current waveforms and the digitized voltage waveforms:

applying a symmetrical component transform to the fundamental phasors to obtain symmetrical component current and voltage phasors including a negative sequence voltage phasor (V_{-}) and negative sequence current phasor (I_{-});

estimating a residual injected negative sequence current (Ir):

estimating a fault injected negative sequence current (Ii_{-}) according to the following equation:

$$Ii_{-}=I_{-}-V_{-}/Z_{-}-Ir,$$

wherein Z_{-} comprises a characteristic negative sequence impedance: and

determining the existence of a turn fault by comparing the estimated fault injected negative sequence current with a threshold fault injected negative sequence current.

5,786,709
INTEGRATED CIRCUIT OUTPUT DRIVER INCORPORATING POWER DISTRIBUTION NOISE SUPPRESSION CIRCUITRY

Howard C. Kirsch, Taoyuan; Yen-Tai Lin, Hsinchu; Chiun-chi Shen, Hsinchu; Jiang-Hong Ho, Kaohsung, and Jack-Lian Kuo, Tainan, all of Taiwan, assignors to Vanguard International Semiconductor Corporation, Taiwan

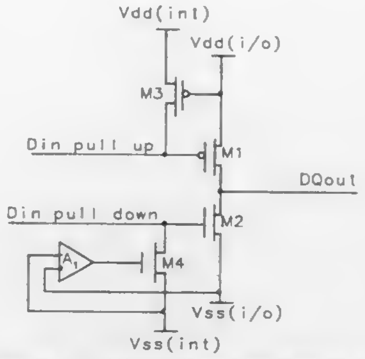
Filed Oct. 25, 1996, Ser. No. 738,214

Int. Cl.^{6} H03K *19/0948*

U.S. Cl. 326—27 **12 Claims**

1. An output driving stage of a plurality of output driving stages arranged upon an integrated circuit substrate to suppress a power distribution transient voltage that results from the switching simultaneously of a number of the plurality of output stages, comprising:

a) a first driver field effect transistor of a first conductivity type, having a gate coupled to a data input pull down terminal, a source coupled to a driver ground distribution network, and drain coupled to a data output terminal,



b) a second driver field effect transistor of a second conductivity type, having a gate coupled to a data input pull up terminal, a source coupled to a driver voltage distribution network and a drain coupled to a the data output terminal;

c) an amplifier means including an input terminal coupled to the driver ground distribution network, a gain circuit to amplify the power distribution transient voltage, and an output terminal having an amplified power distribution transient voltage;

d) a first suppression field effect transistor of the first conductivity type which will begin to conduct if the power distribution transient voltage is present on the driver ground distribution network, wherein said first suppression field effect transistor has a gate coupled to the output terminal of the amplifier means, a source coupled to an internal logic ground distribution network, and a drain coupled to the gate of the first driver field effect transistor; and

e) a second suppression field effect transistor of the second conductivity type which will begin to conduct if the power distribution transient voltage is present on the driver voltage distribution network. wherein said second suppression field effect transistor has a gate coupled to the driver voltage distribution network and the source of the second driver field effect transistor, a source coupled to an internal logic voltage distribution network, and a drain coupled to the gate of the second driver field effect transistor.

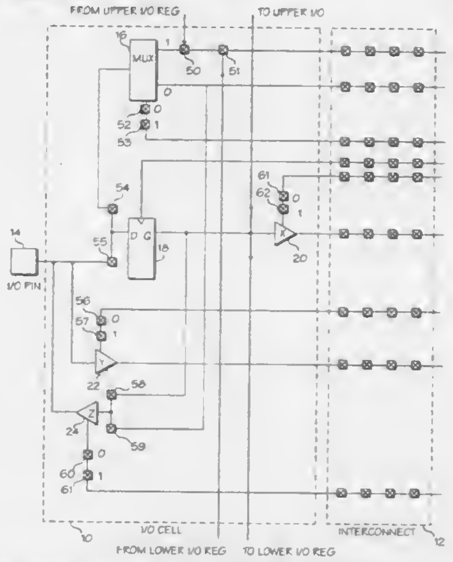
5,786,710
PROGRAMMABLE I/O CELL WITH DATA CONVERSION CAPABILITY

W. Alfred Graf, Saratoga, Calif., assignor to Cypress Semiconductor Corp., San Jose, Calif.

Filed Dec. 29, 1995, Ser. No. 581,105

Int. Cl.^{6} H03K *19/177*

U.S. Cl. 326—40 **7 Claims**



1. A programmable input/output cell for a programmable logic device having a programmable interconnect matrix. the programmable input/output cell comprising:

an input/output pad;

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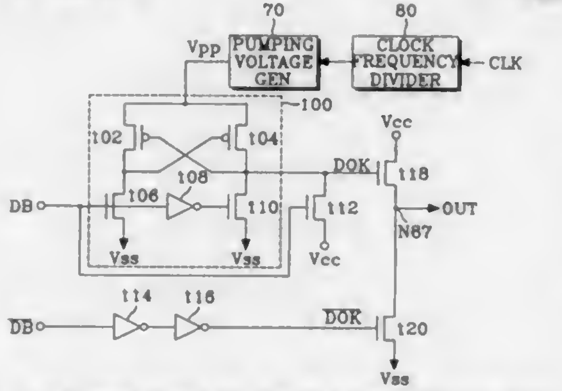
- a register having an input adaptable to be coupled to the input/output pad and the programmable interconnect matrix, the register further having an output;
- a first buffer having an input coupled to the output of the register and an output adaptable to be coupled to the programmable interconnect matrix, the first buffer adaptable to be under the control of a first signal from the programmable interconnect matrix;
- a second buffer having an output coupled to the input/output pad, the second buffer further having an input adaptable to be coupled to the programmable interconnect matrix and the output of the register, the second buffer adaptable to be under the control of a second signal from the programmable interconnect matrix; and
- a third buffer having an input coupled to the input/output pad and an output adaptable to be coupled to the programmable interconnect matrix, the third buffer adaptable to be under the control of a third signal from the programmable interconnect matrix.

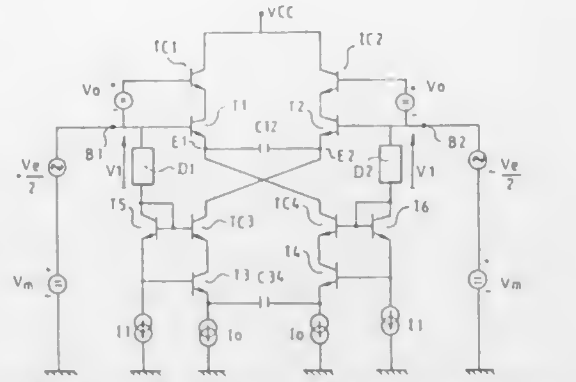
5,786,711
DATA OUTPUT BUFFER FOR USE IN A SEMICONDUCTOR MEMORY DEVICE
Hoon Choi, Seoul, Rep. of Korea, assignor to Samsung Electronics, Co., Ltd., Suwon, Rep. of Korea
Filed Jun. 17, 1996, Ser. No. 668,094
Claims priority, application Rep. of Korea, Jun. 17, 1995, 16175/1995
Int. Cl.^{6} H03K *19/0185;19/017*
U.S. Cl. 326—83 **17 Claims**



1. A data output buffer for use in a semiconductor memory device having a data output driver comprised of a pull-up transistor and a pull-down transistor, said data output buffer comprising:
- a level shifter connected between a data bit line and said gate terminal of said pull-up transistor, for supplying a boosted voltage to said gate terminal of said pull-up transistor;
- a pumping voltage generator for supplying a pumping voltage Vpp to said level shifter; and
- a precharging circuit for precharging the gate terminal of said pull-up transistor to a predetermined voltage level.

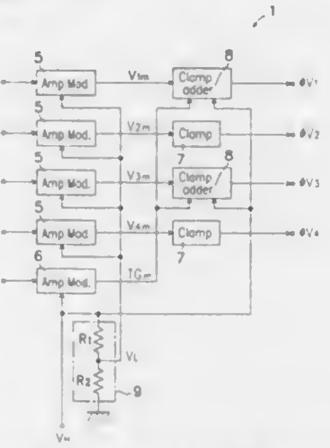
5,786,712
FAST DIFFERENTIAL SAMPLE-AND-HOLD CIRCUIT
Jean-Charles Grasset, Fontaine, France, assignor to Thomson-CSF Semiconducteurs Specifiques, Paris, France
PCT No. PCT/FR95/00317, § 371 Date Sep. 16, 1996, § 102(e) Date Sep. 16, 1996, PCT Pub. No. WO95/25329, PCT Pub. Date Sep. 21, 1995
PCT Filed Mar. 16, 1995, Ser. No. 704,606
Claims priority, application France, Mar. 16, 1994, 94 03086
Int. Cl.^{6} G11C *27/02*
U.S. Cl. 327—94 **20 Claims**

2. A differential sample-and-hold circuit, comprising:
first and second transistors;



- a switching controller switching said first and second transistors on and off;
- an output capacitor connected between emitters of said first and second transistors and providing a differential sample-and-hold output; and
- current compensation circuitry maintaining current flowing through the first and second transistors constant when they are switched on by the switching controller, said current compensation circuitry including a first dynamic current generator, a second dynamic current generator, and a current compensating capacitor, the first dynamic current generator and the second dynamic current generator being modulated by a differential current which is output by said current compensating capacitor which has current variations equal in amplitude but opposite in phase to current variations appearing in the output capacitor.

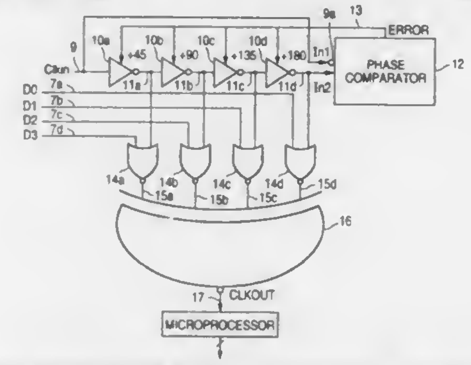
5,786,713
DRIVER CIRCUIT AND A METHOD FOR GENERATING A DRIVING SIGNAL
Eiji Koyama, Nara, and Takashi Watanabe, Soraku-gun, both of Japan, assignors to Sharp, Kabushiki, Kaisha, Osaka, Japan
Filed May 22, 1996, Ser. No. 651,727
Claims priority, application Japan, May 23, 1995, 7-123992; Mar. 15, 1996, 8-059853
Int. Cl.^{6} H03K *5/08*
U.S. Cl. 327—108 **19 Claims**



1. A driver circuit for generating a driving pulse signal having a plurality of levels based on an input timing signal using a single supply voltage of a first polarization, the driver circuit including:
- means for generating a first voltage from the single supply voltage;
- first amplitude modulator means for amplifying the input timing signal using the first voltage, thereby generating a modulated signal having an amplitude of the first voltage; and
- clamping means for clamping a DC component of the modulated signal so as to be held at a predetermined clamping voltage level, and for substantially maintaining an AC component of the modulated signal, thereby generating a pulse signal having an amplitude substantially the same as that of the AC component of the modulated signal and having a second voltage level of a second polarization opposite to the first polarization.

5,786,714
Patent Not Issued For This Number

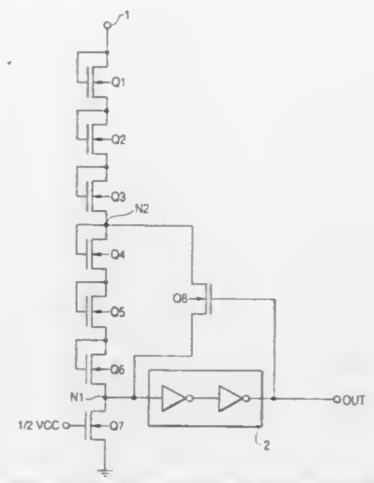
5,786,715
PROGRAMMABLE DIGITAL FREQUENCY MULTIPLIER
Sameer D. Halepete, Sunnyvale, Calif., assignor to Sun Microsystems, Inc., Palo Alto, Calif.
Filed Jun. 21, 1996, Ser. No. 667,430
Int. Cl.^{6} H03B *19/00*
U.S. Cl. 327—116 **24 Claims**



1. An apparatus including a programmable digital frequency multiplier comprising:
- a digital multiphase signal generator configured to generate a plurality of source signals having a common source signal frequency and a corresponding plurality of different source signal phases;
- a plurality of digital signal selection circuits including a plurality of logic gates comprising a plurality of NOR gates, coupled to said digital multiphase signal generator, configured to receive said plurality of source signals and a plurality of multiplication control signals and in accordance therewith generate a plurality of selected signals, wherein at least one of said plurality of selected signals corresponds to at least one of said plurality of source signals; and
- a digital signal combiner, coupled to said plurality of digital signal selection circuits, configured to receive and logically combine said plurality of selected signals and in accordance therewith generate an output signal, wherein said output signal has an output signal frequency which is an integer multiple of said common source signal frequency and said integer multiple corresponds to said plurality of multiplication control signals.

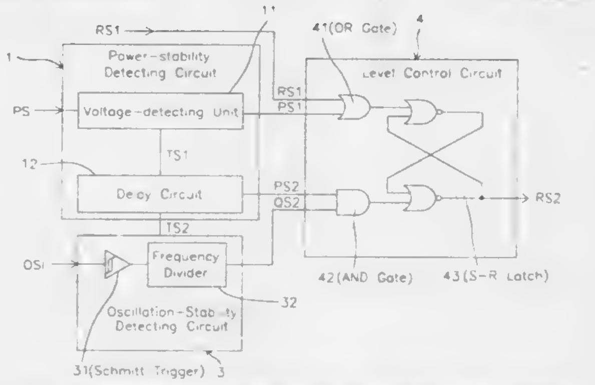
5,786,716
SIGNAL GENERATOR FOR GENERATING TEST MODE SIGNALS
Takashi Honda, and Shinya Takahashi, both of Tokyo, Japan, assignors to Oki Electric Industry Co., Ltd., Tokyo, Japan
Filed Jan. 23, 1997, Ser. No. 788,121
Claims priority, application Japan, Jan. 30, 1996, 8-014232
Int. Cl.^{6} G05F *3/16;* **H03L** *1/00*
U.S. Cl. 327—143 **15 Claims**

1. A signal generator comprising:
- an input pin;
- a circuit being coupled between the input pin and a first node, the circuit comprising a plurality of transistors, the plurality of transistors respectively being connected in series and respectively having a gate coupled with a source or a drain;



- a signal amplifier being coupled with the circuit through the first node;
- a resistor being coupled between the first node and a reference voltage; and
- a transistor being coupled between the first node and a second node between predetermined transistors among the plurality of transistors, the transistor bypassing a current path from the second node to the first node and maintaining a potential level of the first node, in response to an output condition of the signal amplifier.

5,786,717
SYSTEM RESET DEVICE HAVING LEVEL CONTROLLER FOR OPPORTUNELY SETTING SYSTEM RESET STATUS
Kuo Cheng Yu, Hsinchu, Taiwan, assignor to Holtek Microelectronics Inc., Hsinchu, Taiwan
Continuation-in-part of Ser. No. 577,872, Dec. 22, 1995, abandoned. This application Jun. 25, 1997, Ser. No. 881,909
Int. Cl.^{6} H03K *17/22*
U.S. Cl. 327—143 **10 Claims**



1. A system reset device setting the reset status of a system in response to a reset signal, comprising:
- a power-stability detecting circuit for detecting the stability of a power signal generated by a power source and provided for said system;
- an oscillation-stability detecting circuit for detecting the stability of an oscillation signal generated by an oscillator and provided for said system; and
- a level-control circuit electrically connected to said power-stability detecting circuit and said oscillation-stability detecting circuit for controlling a level state of said rest signal in response to the stability of said power signal and said oscillation signal, and said level-control circuit including:
  - an OR gate having input terminals for receiving said reset signal and a first output of said power-stability detecting circuit, and thereby generating an OR-gate output;
  - an AND gate having input terminals for receiving a second output of said power-stability detecting circuit and an out-

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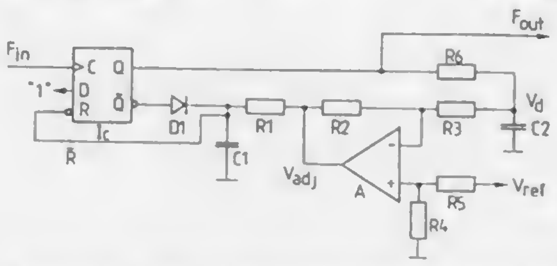
put of said oscillation-stability detecting circuit, and thereby generating an AND-gate output; and

an S-R latch circuit electrically connected with said OR gate and said AND gate, and controlling said level state of said rest signal in response to said OR-gate output and said AND-gate output.

5,786,718
METHOD AND DEVICE FOR SYMMETRIZING A CLOCK SIGNAL

Markku Ruuskanen, Porvoo, Finland, assignor to Nokia Telecommunications Oy, Espoo, Finland
PCT No. PCT/FI94/00525, § 371 Date May 22, 1996, § 102(e) Date May 22, 1996, PCT Pub. No. WO95/15030, PCT Pub. Date Jun. 1, 1995
PCT Filed Nov. 24, 1994, Ser. No. 649,721
Int. Cl.^{6} H03K *3/017*
U.S. Cl. 327—166 **4 Claims**



1. A device for creating a symmetrized output clock signal from an input clock signal, each of the input and output clock signals comprising pulses having a first edge, a second edge and a pulse ratio, wherein the device comprises:

a pulse shaping circuit coupled to the input clock signal for forming at the first edge of each pulse of the input clock signal the first edge of each corresponding pulse of the output clock signal;

measuring means for measuring the pulse ratio of the output clock signal and producing a signal representing the pulse ratio,

a control circuit operationally coupled to the measuring means for forming control voltage;

a time constant circuit operationally coupled to the control circuit; the time constant circuit having an output voltage a slew rate of which is dependent on the control voltage; and wherein

the output voltage of the time constant circuit is operationally coupled to the pulse shaping circuit which is arranged to form the second edge of each pulse of the output clock signal in response to the output voltage of the time constant circuit reaching a level detectable by the pulse shaping circuit;

said pulse shaping circuit being a flip-flop comprising a first input and a second input, wherein the first input is a clock input connected to the input clock signal and the second input is a reset input connected to the time constant circuit.

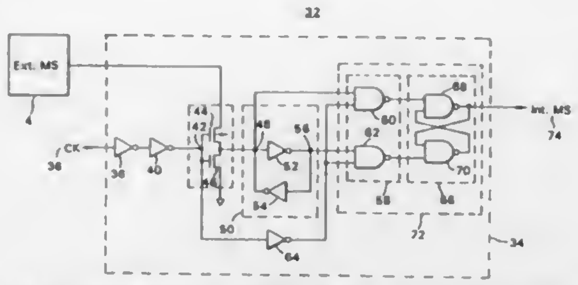
5,786,719
MODE SETTING CIRCUIT AND MODE SETTING APPARATUS USED TO SELECT A PARTICULAR SEMICONDUCTOR FUNCTION

Kiyohiro Furutani, Kyogo, Japan, assignor to Mitsubishi Denki Kabushiki Kaisha, Tokyo, Japan
Continuation of Ser. No. 524,951, Sep. 8, 1995, abandoned. This application Oct. 15, 1996, Ser. No. 732,096
Claims priority, application Japan, Mar. 6, 1995, 7-045236
Int. Cl.^{6} H03K *3/289*
U.S. Cl. 327—202 **26 Claims**

1. A mode setting circuit comprising:

a mode setting terminal to receive a mode setting potential;

a switching circuit connected to said mode setting terminal;



a first holding circuit supplied with the mode setting potential from said mode setting terminal via said switching circuit;

a reset circuit connected to said first holding circuit for resetting said first holding circuit;

a control signal terminal supplying a control signal for controlling said switching circuit and said reset circuit; and

a second holding circuit connected to said first holding circuit and receiving a signal from said first holding circuit to produce and hold an output signal,

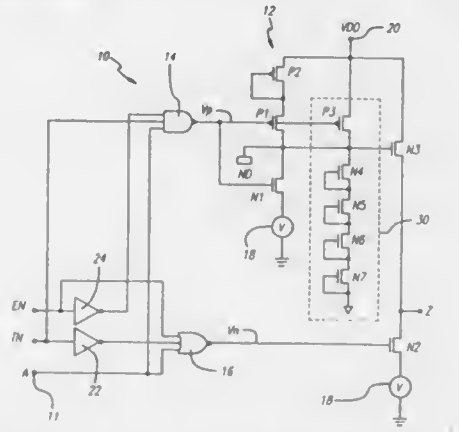
said second holding circuit, when said first holding circuit is reset by said reset circuit, holding a state it was in prior to the reset of said first holding circuit,

said first holding circuit being set to a state corresponding to a state of said mode setting potential when said control signal has a first state in which said first holding circuit is conductively connected to said mode setting terminal via said switching circuit with said second holding circuit being set to a holding state to produce and hold an output signal corresponding to the state of the mode setting potential, and

said second holding circuit being set to continue the holding state when said control signal has a second state in which said first holding circuit is reset by said reset circuit.

5,786,720
5 VOLT CMOS DRIVER CIRCUIT FOR DRIVING 3.3 VOLT LINE

Trung Nguyen, San Jose, and Dien Ngo, Santa Clara, both of Calif., assignors to LSI Logic Corporation, Milpitas, Calif.
Filed Sep. 22, 1994, Ser. No. 310,621
Int. Cl.^{6} H03K *5/08*
U.S. Cl. 327—321 **7 Claims**



1. In an integrated driver circuit that is powered by a nominal power supply voltage having a voltage level varying within a range of about ±5%, and which also includes circuit elements having variable functional characteristics dependent upon process variables effective during formation of said integrated driver circuit, said driver circuit having an output terminal at which is delivered an output voltage limited within a range lower than said nominal power supply voltage despite said variation of said supply voltage and despite said variation in functional characteristics of said circuit elements, the combination in said integrated driver circuit comprising:

a field-effect pull-up transistor for pulling the output terminal up toward the power supply voltage, said field-effect pull-up transistor having a threshold voltage varying in dependence upon said process variables;

a voltage divider connected across the power supply voltage, having a tap connected to the input of the pull-up transistor, and including variable resistance elements whose resistances vary in dependence upon said process variables together with said threshold voltage of the field-effect pull-up transistor for limiting a voltage at the output terminal to within a predetermined range that is lower than the power supply voltage;

an input terminal;

a pre-driver connected between said input terminal and a gate input of said field-effect pull-up transistor, said driver including a respective pull-up transistor;

a pull-up transistor that constitutes one of said variable resistance elements of the voltage divider;

said pre-driver also having a pull down transistor:

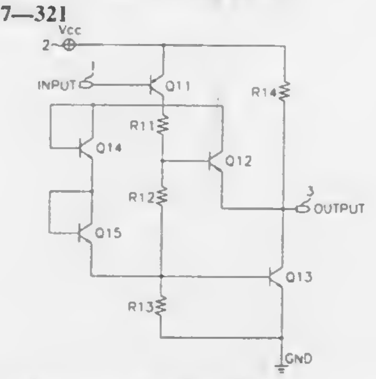
said pull-up transistor of the pre-driver being a PMOS transistor; and

the pre-driver further including a diode-connected PMOS transistor connected in series with the pull-up transistor of the pre-driver;

each of said pull-up transistor of said pre-driver, said pull-down transistor of said pre-driver, said pull-up transistor of said variable resistance elements, and said diode-connected PMOS transistor also having functional characteristics including threshold voltage and resistance which vary in dependence upon said process variables along with said threshold voltage of said field-effect pull-up transistor to maintain said output voltage within said range.

5,786,721
PULSE-SHAPING CIRCUIT

Byeong-Il Kim, Pucheon, Rep. of Korea, assignor to Samsung Electronics, Co., Ltd., Suwon, Rep. of Korea
Filed Oct. 30, 1996, Ser. No. 741,863
Claims priority, application Rep. of Korea, Oct. 31, 1995, 1995-38681
Int. Cl.^{6} H03K *5/08*
U.S. Cl. 327—321 **10 Claims**



1. A pulse-shaping circuit comprising:

first switching means for receiving an input pulse signal through an input terminal of said circuit and forming a current flow path between first and second power sources in accordance with a voltage level of said input pulse signal;

voltage dividing means for dividing a source voltage applied through said first switching means into first and second voltage signals while said current flow path is formed;

a load resistor connected to said first power source and in parallel with said first switching means;

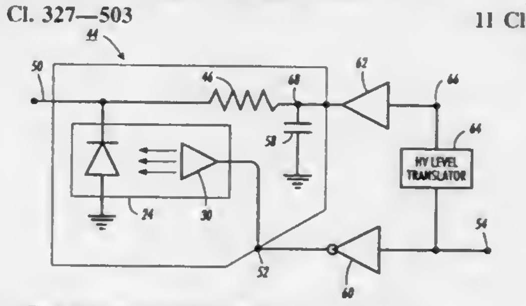
second switching means responsive to said second voltage signal, for providing an output pulse signal from an output terminal of said circuit to an external circuit;

current limiting means for constantly limiting an amount of current flowing through said voltage dividing means and enabling said first and second voltage signals to be maintained constant; and

output voltage limiting means for supplying a saturating current signal for said second switching means and limiting a voltage level of said output pulse signal in accordance with said first voltage signal, whereby said voltage level of said output pulse signal is lowered to about 0.1 volt when said input pulse signal is at low level.

5,786,722
INTEGRATED RF SWITCHING CELL BUILT IN CMOS TECHNOLOGY AND UTILIZING A HIGH VOLTAGE INTEGRATED CIRCUIT DIODE WITH A CHARGE INJECTING NODE

Steven A. Buhler, Sunnyvale; Jaime Lerma, Culver City, both of Calif., and Mohammad M. Mojarradi, Pullman, Wash., assignors to Xerox Corporation, Stamford, Conn.
Filed Nov. 12, 1996, Ser. No. 746,589
Int. Cl.^{6} H01L *29/868*
U.S. Cl. 327—503 **11 Claims**



1. A CMOS integrated RF switch comprising:

a) an RF signal input node,

b) a logical input node,

c) a diode with an anode, cathode, and charge injecting node, with the cathode being connected to said RF signal input and the anode being connected to ground,

d) a charge injecting node driver with an input and an output which is capable of driving a negative signal and up to at least a 0 volt signal, with the charge injecting node driver input connected to said logical input and the charge injecting node driver output connected to the charge injecting node of said diode,

e) a high voltage level translator with an input and an output, with the high voltage level translator input connected to said logical input,

f) a high voltage driver with an input and an output, with the high voltage driver input connected to the high voltage level translator output, and

g) an RC filter connected between the high voltage driver output and said RF signal input.

5,786,723
VOLTAGE SWITCHING CIRCUIT FOR A SEMICONDUCTOR MEMORY DEVICE

Jong-Sun Kim, Seoul, Rep. of Korea, assignor to Samsung Electronics, Co, Ltd., Suwon, Rep. of Korea
Filed Jul. 1, 1996, Ser. No. 674,319
Claims priority, application Rep. of Korea, Jun. 30, 1995, 1995/18976
Int. Cl.^{6} G05F *1/10*
U.S. Cl. 327—530 **5 Claims**

1. A method for biasing a cascode circuit of the type having a first and second FET in a first leg and a third and fourth FET in a second leg comprising:

switching said first and third FETs between an on state and an off state substantially in tandem in response to a level change in an input signal to said cascode circuit;

switching said second and fourth FETs between an on state and an off state substantially in tandem in response to a level change in said input signal and substantially complimentary to the switching of said first and third FETs;

applying a biasing signal to a control electrode of said first FET responsive to transition of said input signal from a first level to a second level; and

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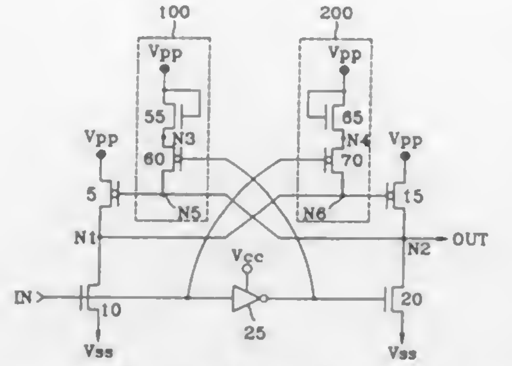


- applying a biasing signal to a control electrode of said third FET responsive to transition of said input signal from said second level to said first level.

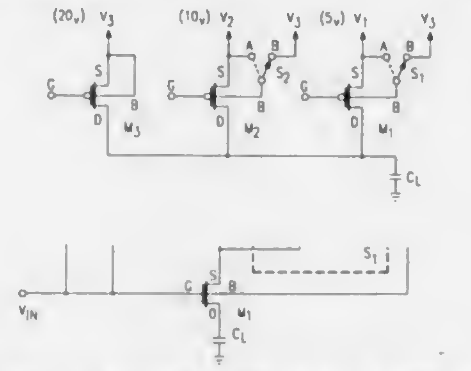
5,786,724
CONTROL OF BODY EFFECT IN MOS TRANSISTORS BY SWITCHING SOURCE-TO-BODY BIAS

Ross E. Teggatz, McKinney, Tex., assignor to Texas Instruments Incorporated

Filed Dec. 17, 1996, Ser. No. 768,876

Int. Cl.⁶ H03K *5/003*

U.S. Cl. 327—534 **7 Claims**



1. A method for preventing a source-to-body forward bias condition in a MOS transistor, the method comprising:

- applying voltage to the gate of the transistor to place the transistor in an ON condition enabling flow of current between the source and drain of the transistor;
- connecting the body of the transistor to the transistor source for the ON condition;
- applying voltage to the gate of the transistor to place the transistor in an OFF condition preventing flow of current between the source and drain of the transistor; and
- switching the body of the transistor to a voltage different than the transistor source voltage for the OFF condition; the different voltage acting to place the transistor in a source-to-body reverse bias condition when keeping the transistor body connected to the transistor source would place the transistor in a source-to-body forward bias condition.

5,786,725
REDUCED COMPLEXITY MAXIMUM LIKELIHOOD MULTIPLE SYMBOL DIFFERENTIAL DETECTOR

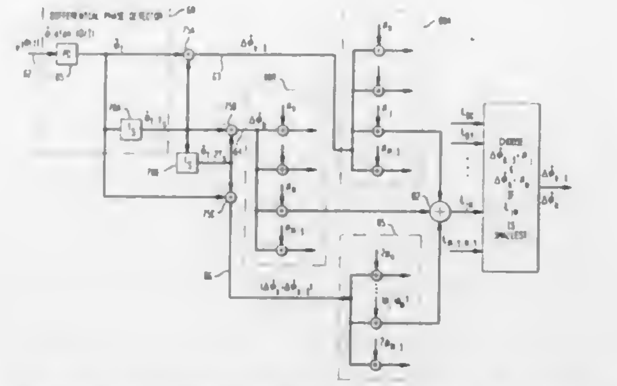
Joseph Boccuzzi, Brooklyn, N.Y., and Paul Petrus, Blacksburg, Va., assignors to Lucent Technologies Inc., Murray Hill, N.J.

Filed Dec. 27, 1996, Ser. No. 777,310

Int. Cl.⁶ H04L *27/233*

U.S. Cl. 329—304 **18 Claims**

9. A method of differentially detecting a differentially encoded symbol, comprising the steps of:



- calculating a predetermined number of phases of said encoded signal at a predetermined number of times, each of said predetermined number of times being separated by a predetermined time interval;
- calculating a plurality of phase shifts by subtracting respective ones of said predetermined number of phases from respective other ones of said predetermined number of phases;
- subtracting respective ones of said phase shifts from respective ones of a plurality of phase state values to produce a plurality of sets of a plurality of first outputs;
- subtracting a sum of said phase shifts from each of a plurality of phase state combination values to produce a plurality of second outputs;
- calculating a plurality of errors, each said error including a sum of respective ones of said first outputs, each said respective one of said first outputs being from a respective one of said sets of first outputs, and a respective one of said second outputs, and determining a minimum of said errors, said minimum error including a sum of particular ones of said first and second outputs, said particular ones of said first outputs being generated using particular ones of said phase state values; and
- outputting a plurality of symbols, each said symbol corresponding to a respective one of said particular ones of said phase state values.

5,786,726
DEVICE OF THE PHASE-LOCKED LOOP TYPE FOR DEMODULATING A FREQUENCY-MODULATED SIGNAL

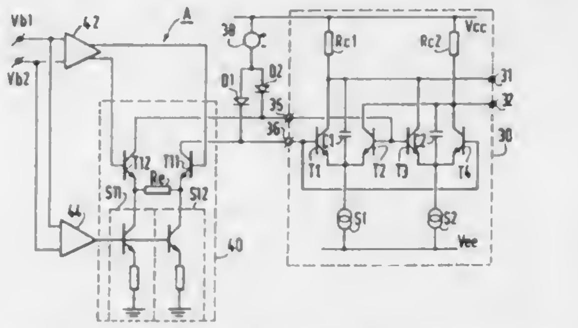
Pascal Lemasson, Caen, France, assignor to U.S. Philips Corporation, New York, N.Y.

Filed Oct. 29, 1996, Ser. No. 741,166

Claims priority, application France, Oct. 31, 1995, 95 12865

Int. Cl.⁶ H03D *3/00;* H03B *5/08;* H03L *7/099;* H03H *11/48*

U.S. Cl. 329—325 **6 Claims**



1. A device for demodulating a frequency-modulated signal, of the type using a phase-locked loop, comprising an oscillator which supplies an output signal having a frequency which is controllable by means of a control voltage, and a phase comparator having two inputs, one input receiving the signal to be demodulated and the other input receiving the output signal from the oscillator, the output of said phase comparator supplying a signal to filtering means which supply said control voltage for the oscillator, and an output signal for the demodulation device, wherein the oscillator comprises a resonant circuit of the type formed by a parallel connection of an inductance, a fixed capacitance and a variable capacitance formed by an electronic module wherein the value of said variable capacitance varies as a non-linear function of the control voltage applied to said module, and said value features a linearity deviation for compensating, in a fixed frequency range, a linearity deviation of the frequency response of the oscillator as a function of the value of said variable capacitance.

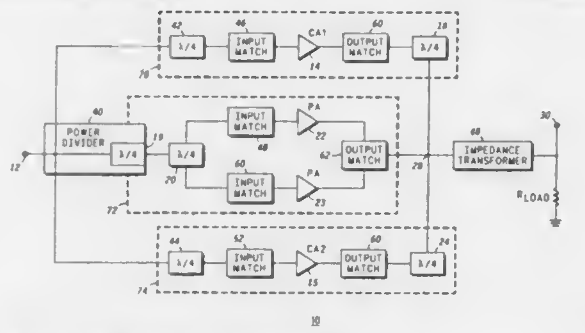
5,786,727
MULTI-STAGE HIGH EFFICIENCY LINEAR POWER AMPLIFIER AND METHOD THEREFOR

Bernard Eugene Sigmon, Gilbert, Ariz., assignor to Motorola, Inc., Schaumburg, Ill.

Filed Oct. 15, 1996, Ser. No. 730,045

Int. Cl.⁶ H03F *3/68*

U.S. Cl. 330—124 R **19 Claims**



10. A power amplifier, comprising:

- a first carrier amplifier configured to amplify low signal levels of a quarter-wavelength phase shifted input signal;
- a first quarter-wavelength transmission line coupled to the output of said first carrier amplifier;
- a second carrier amplifier configured to amplify medium signal levels of said quarter-wavelength phase shifted input signal;
- a second quarter-wavelength transmission line coupled to the output of said second carrier amplifier;
- a peak amplifier configured to amplify high signal levels of a half-wavelength phase shifted input signal; and
- a combiner for in-phase combining output signals of said first and second quarter-wavelength transmission lines and said peak amplifier.

5,786,728
CUBER BASED PREDISTORTION CIRCUIT AND MOBILE STATION USING THE SAME

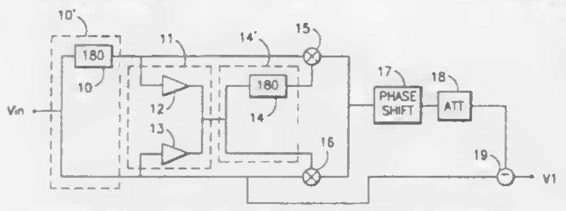
Petteri Alinikula, Helsinki, Finland, assignor to Nokia Mobile Phones, Ltd., Salo, Finland

Filed Jun. 27, 1996, Ser. No. 671,069

Claims priority, application Finland, Jun. 30, 1995, 953251

Int. Cl.⁶ H03F *1/32*

U.S. Cl. 330—149 **9 Claims**



7. A cuber for cubing an input signal (v_{in}), including

- a squarer (**11**) for producing a second order signal, and
- mixing means (**15**, **16**) for mixing the input signal (V_{in}) and the second order signal in order to produce a third order cubed signal,

characterized in that the squarer (**11**) includes differential signal handling and combining means (**12**, **13**) to produce the second order signal by combining two signals wherein the squarer (**11**) is constructed with active components operated in a push-push configuration so as to substantially eliminate odd order signal components from the second order signal.

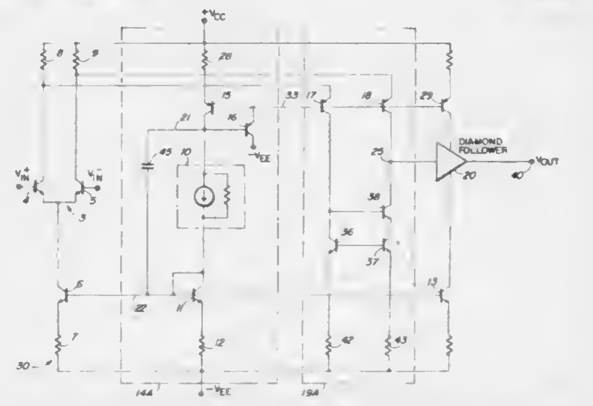
5,786,729
STABLE BIAS CURRENT CIRCUIT FOR OPERATIONAL AMPLIFIER

Douglas L. Smith, Tucson, Ariz., assignor to Burr-Brown Corporation, Tucson, Ariz.

Filed Sep. 18, 1996, Ser. No. 710,632

Int. Cl.⁶ H03F *1/14*

U.S. Cl. 330—255 **20 Claims**



1. A compensated bias current circuit in an operational amplifier including an input stage and an output driver stage, the compensated bias current circuit comprising in combination:

- (a) a PNP current mirror control transistor having an emitter coupled to a first supply voltage conductor, a collector coupled by a first conductor to a first current source terminal, and a base connected to a second conductor, the second conductor being connected to a base of at least one PNP current mirror output transistor;
- (b) an NPN current mirror control transistor having an emitter coupled to a second supply voltage conductor and a collector and a base coupled by a third conductor to a second current source terminal and at least one NPN current mirror output transistor; and
- (c) a compensation capacitor coupled between the first conductor and the third conductor,

to compensate a PNP current mirror feedback loop including base-emitter junctions of the PNP current mirror control transistor and cause balanced responses of the PNP current mirror control transistor and the NPN current mirror control transistor to external noise signals and internal noise signals.

5,786,730
VARIABLE GAIN AMPLIFIER PROVIDING SUBSTANTIALLY UNIFORM MAGNITUDE OUTPUT SIGNAL

Maxwell Richard Hadley, Lyndhurst, Great Britain, assignor to Stewart Hughes Limited, Chandlers Ford, Great Britain

PCT No. PCT/GB95/00503, § 371 Date Nov. 6, 1996, § 102(e) Date Nov. 6, 1996, PCT Pub. No. WO95/24767, PCT Pub. Date Sep. 14, 1995

PCT Filed Mar. 8, 1995, Ser. No. 714,036

Claims priority, application United Kingdom, Mar. 8, 1994, 9404445

Int. Cl.⁶ H03G *3/30;* H03F *17/00*

U.S. Cl. 330—59 **12 Claims**

9. An amplifier circuit for amplifying a signal of variable magnitude from a source having capacitive characteristics, the circuit comprising:

- an amplifier having an input, an output, a frequency response and a gain;

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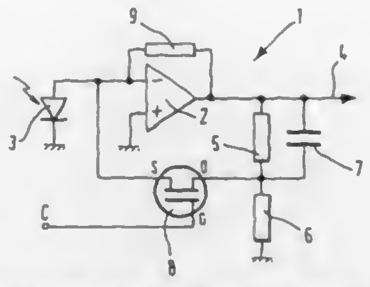


a first feedback path between said output and said input of said amplifier;

an element of variable resistance in said first feedback path, said element of variable resistance having a resistance that varies said gain of said amplifier in relation to said magnitude of said signal so as to cause said amplifier to provide at said output an output signal of substantially uniform magnitude, a second feedback path between said output and said input of said amplifier, said second feedback path comprising a fixed resistance which defines a maximum gain of said amplifier when said resistance of said variable resistance element exceeds a predetermined resistance value, and wherein said first feedback path contains a reactive element which compensates for effects of reactance formed from said capacitive characteristics of said source and said element of variable resistance to optimize said frequency response characteristics of said amplifier.

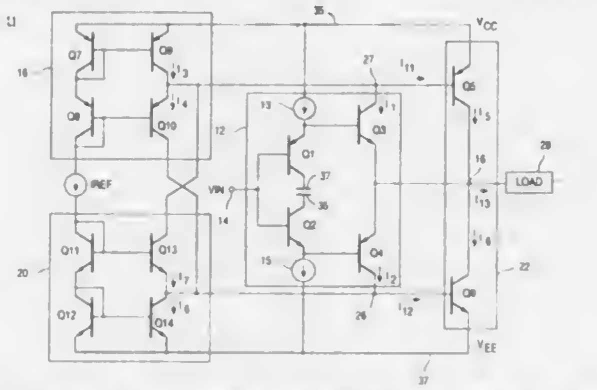
5,786,731
CLASS AB COMPLEMENTARY TRANSISTOR OUTPUT STAGE HAVING LARGE OUTPUT SWING AND LARGE OUTPUT DRIVE

James E. Bales, Fort Collins, Colo., assignor to National Semiconductor Corporation, Santa Clara, Calif.

Filed Mar. 29, 1996, Ser. No. 623,655

Int. Cl.^{6} H03F *3/30*

U.S. Cl. 330—267 **6 Claims**



5. A method of providing a complementary bipolar class AB output stage circuit, said method comprising the steps of:

providing an input terminal configured to receive an input signal;

providing an output terminal for coupling to a load;

providing first and second voltage terminals for coupling to first and second fixed voltage, respectively;

providing a PNP output transistor having an emitter terminal coupled to said first voltage terminal, a collector terminal coupled to said output terminal, and a base terminal coupled to a constant current source;

providing a NPN output transistor having an emitter terminal coupled to said second voltage terminal, a collector terminal coupled to said output terminal, and a base terminal coupled to a constant current sink;

providing a NPN buffer transistor having a collector terminal coupled to said base terminal of said PNP output transistor, an emitter terminal coupled to said output terminal, and a base terminal;

providing a PNP buffer transistor having a collector terminal coupled to said base terminal of said NPN output transistor, an emitter terminal coupled to said output terminal, and a base terminal;

providing means for coupling the input terminal to the base terminal of said NPN buffer transistor and to the base terminal of said PNP buffer transistor;

providing a PNP common base feedback transistor having an emitter terminal coupled to said base terminal of said PNP output transistor, a collector terminal coupled to said base terminal of said NPN output transistor, and a base terminal coupled to a first source of bias voltage less than said first fixed voltage; and

providing a NPN common base feedback transistor having an emitter terminal coupled to said base terminal of said NPN output transistor, a collector terminal coupled to said base terminal of said PNP output transistor, and a base terminal coupled to a second source of bias voltage greater than said second fixed voltage.

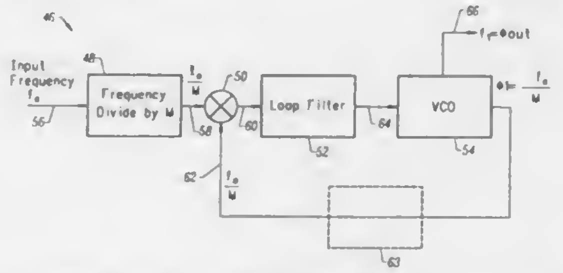
5,786,732
PHASE LOCKED LOOP CIRCUITRY INCLUDING A MULTIPLE FREQUENCY OUTPUT VOLTAGE CONTROLLED OSCILLATOR CIRCUIT

Edward T. Nielson, Vence, France, assignor to VLSI Technology, Inc., San Jose, Calif.

Continuation-in-part of Ser. No. 547,418, Oct. 24, 1995, Pat. No. 5,614,868. This application Dec. 11, 1996, Ser. No. 763,479

Int. Cl.^{6} H03B *5/24;* **H03L** *7/099;7/18;* **H03K** *5/00*

U.S. Cl. 331—1 A **32 Claims**



1. A phase locked loop (PLL) comprising:

a comparator responsive to an input clock and a VCO clock, said input clock having an input clock frequency and said VCO clock having a VCO clock frequency, said comparator being operative to compare a signal derived from said input clock frequency and a signal derived from said VCO clock frequency and to develop a comparator output signal in response thereto;

a VCO controller responsive to said comparator output signal and operative to produce a VCO control signal; and

a voltage controlled oscillator (VCO) having:

an oscillator having a plurality of stages, wherein an "n" number of said plurality of stages are configured to oscillate at a first frequency during a steady state condition, wherein said "n" number of said plurality of stages generates a plurality of phase signals at said first frequency in response to said VCO control signal;

a decoding logic being coupled to said oscillator and being responsive to at least two of said plurality of phase signals, said decoding logic being configured to generate at least one clock signal at a second frequency that is a "y" multiple of said first frequency, wherein "n" divided by "y" is equal to a positive integer.

5,786,733
PHASE-LOCKED OSCILLATING CIRCUIT WITH A FREQUENCY FLUCTUATION DETECTING CIRCUIT

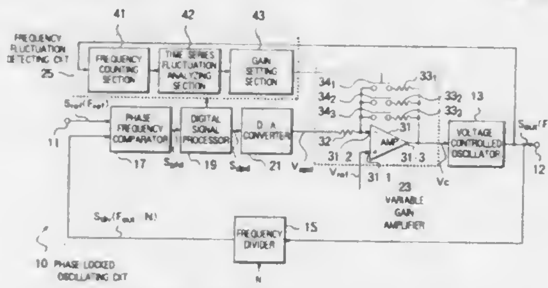
Shigenori Yamaguchi, Tokyo, Japan, assignor to NEC Corporation, Tokyo, Japan

Filed Dec. 4, 1996, Ser. No. 759,832

Claims priority, application Japan, Dec. 4, 1995, 7-315215

Int. Cl.^{6} H03L *7/093;7/18*

U.S. Cl. 331—11 **18 Claims**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FREQUENCY FLUCTUATION DETECTING CKT
25
FREQUENCY COUNTING SECTION
TIME SERIES FLUCTUATION ANALYZING SECTION
GAIN SETTING SECTION
Sref(Fref)
PHASE FREQUENCY COMPARATOR
DIGITAL SIGNAL PROCESSOR
D/A CONVERTER
VOLTAGE CONTROLLED OSCILLATOR
AMP
VARIABLE GAIN AMPLIFIER
23
Sout(Fout)
11
12
13
17
19
21
31
32
Vref
Vc
FREQUENCY DIVIDER
15
N
10 PHASE LOCKED OSCILLATING CKT

1. A phase-locked oscillating circuit comprising:

a voltage-controlled oscillator responsive to a control voltage for generating an output signal having an output frequency;

a frequency divider, connected to said voltage-controlled oscillator, for frequency dividing the output signal on the basis of a predetermined dividing number to produce a divided signal;

a phase-frequency comparator, connected to said frequency divider and supplied with a reference signal having a reference frequency, for detecting a phase-frequency difference between the divided signal and the reference signal to produce a phase-frequency difference signal indicative of the phase-frequency difference;

digital signal processing means, connected to said phase-frequency comparator, for extracting low frequency components from the phase-frequency difference signal to produce a digital phase difference signal indicative of the low frequency components of the phase-frequency difference signal;

a digital-to-analog converter, connected to said digital processing means, for converting the digital phase difference signal into an analog phase difference voltage;

a variable gain amplifier, having a controllable gain and connected to said digital-to-analog converter and said voltage controlled oscillator, for amplifying the analog phase difference voltage on the basis of the controllable gain into an amplified phase difference voltage, said variable gain amplifier supplying said voltage-controlled oscillator with the amplified phase difference voltage as the control voltage; and

frequency fluctuation detecting means, connected to said voltage-controlled oscillator and said variable gain amplifier, for detecting fluctuation in the output frequency of the output signal to control the controllable gain on the basis of magnitude of the fluctuation in the output frequency of the output signal.

5,786,734
TEMPERATURE COMPENSATED RING OSCILLATOR ON A SEMICONDUCTOR SUBSTRATE

Hyung-Sik Park, Seoul, Rep. of Korea, assignor to Samsung Electronics Co., Ltd., Suwon, Rep. of Korea

Filed Nov. 13, 1996, Ser. No. 748,334

Claims priority, application Rep. of Korea, Nov. 13, 1995, 1995 40990

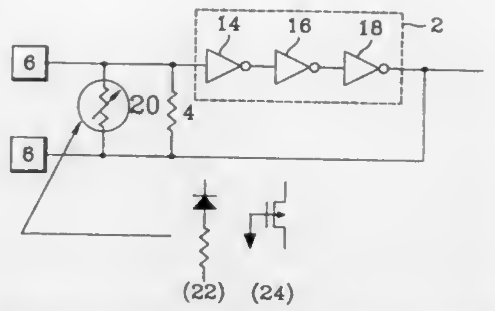
Int. Cl.^{6} H03B *5/04;* **H03L** *1/02*

U.S. Cl. 331—57 **5 Claims**

1. A temperature compensated oscillator circuit formed on a semiconductor substrate, comprising:

an inverter connected between an input terminal and an output terminal;

a feedback resistance connected in parallel with the inverter; and



a temperature compensating means, having a leakage current connected in parallel with the feedback resistance.

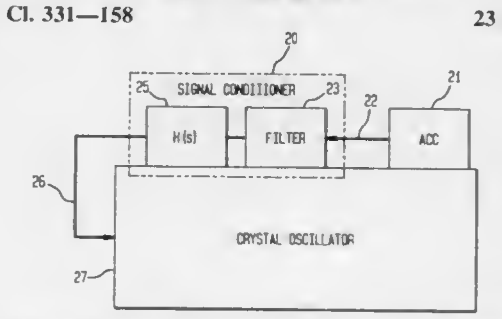
5,786,735
PHASE AND MAGNITUDE COMPENSATED TUNING FOR SUPPRESSION OF VIBRATION INDUCED PHASE NOISE OF CRYSTAL OSCILLATOR WITH VARYING VIBRATION FREQUENCIES

Wei Su, Staten Island, N.Y., assignor to The United States of America as represented by the Secretary of the Army, Washington, D.C.

Filed Feb. 27, 1997, Ser. No. 805,189

Int. Cl.^{6} H03B *5/04*

U.S. Cl. 331—158 **23 Claims**



1. An adaptive signal conditioner for a crystal oscillator in a circuit subjected to a plurality of vibration sources, comprising:

a means for sensing acceleration providing an output to a band filter;

said band filter being connected to a means for compensating magnitude and phase, having a transfer function, H(s);

said output, having a magnitude, a phase, a given frequency and a given frequency response;

said band filter cutting off frequencies outside a predetermined working range;

said means for compensating magnitude and phase, having an analog circuit, being connected to said crystal oscillator;

said transfer function, H(s), having a desired magnitude, M*(f), and a desired phase, P*(f) to be determined;

an identification device, having a second signal conditioner with a second transfer function, M(f) and P(f) to identify said desired magnitude, M*(f), and said desired phase, P*(f);

said second signal conditioner further comprising a second means for compensating magnitude and phase, having a means for magnitude adjustment and a means for phase adjustment;

said identification device being vibrated to produce a vibration-induced phase noise;

said means for magnitude adjustment and said means for phase adjustment being adjusted to obtain said desired magnitude, M*(f), and said desired phase, P*(f);

adding said desired magnitude, M*(f), and said desired phase, P*(f) to a tuning signal of said signal conditioner to match said magnitude and said phase of the output; and

said tuning signal, including a vibration cancellation signal, having a matching frequency response to match said given frequency response and suppressing said vibration-induced phase noise, being sent to said crystal oscillator.

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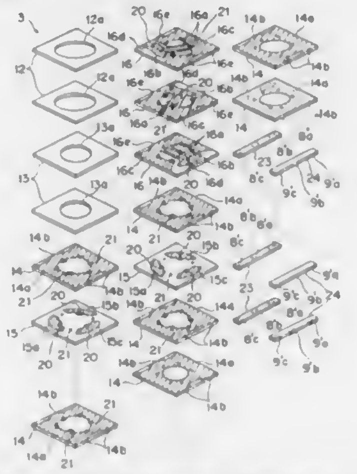
5,786,736
NON-RECIPROCAL CIRCUIT ELEMENT

Hiroki Dejima; Takashi Hasegawa; Yutaka Ishiura; Yoshikazu Chigodou; Hiroshi Matsui, and Keiji Ogawa, all of Nagaokakyo, Japan, assignors to Murata Manufacturing Co., Ltd., Japan

Continuation of Ser. No. 381,837, Feb. 7, 1995, abandoned.
This application Sep. 13, 1996, Ser. No. 713,977
Claims priority, application Japan, Jun. 30, 1993, 5-161736
Int. Cl.⁶ H01P *1/383*

U.S. Cl. 333—1.1 **13 Claims**



1. A non-reciprocal circuit element, comprising:

a multilayer substrate having a plurality of dielectric layers stacked with each other, a plurality of central electrodes provided in said multilayer substrate, said central electrodes being electrically insulated from one another and intersecting one another, and at least one matching capacitance formed in said multilayer substrate: and

a magnet and a ferrite body located on the same side of said central electrodes as one another with said ferrite body being located between said magnet and said central electrodes and being arranged relative to said magnet and said central electrodes to focus lines of magnetic force generated by said magnet onto said central electrodes in the area where said central electrodes intersect one another, said multilayer substrate including at least one opening for positioning said magnet and said ferrite body relative to said central electrodes, said at least one opening comprising a pair of openings which are contiguous with one another and of different size than one another, one of said openings receiving said magnet, the other of said openings receiving said ferrite body.

5,786,737
IMPEDANCE MATCHING CIRCUIT AND THIN FILM MEASURING PROBER

Seiki Goto, Tokyo, Japan, assignor to Mitsubishi Denki Kabushiki Kaisha, Tokyo, Japan

Filed Feb. 6, 1997, Ser. No. 797,515
Claims priority, application Japan, Aug. 9, 1996, 8-211560
Int. Cl.⁶ H01P *5/00*

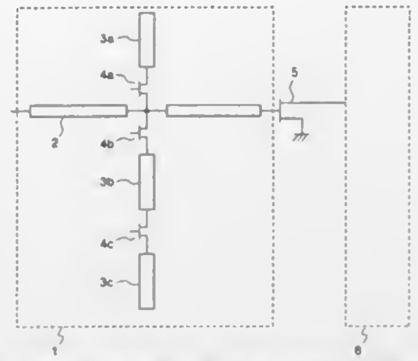
U.S. Cl. 333—33 **11 Claims**

1. An impedance matching circuit for matching input and output impedances of an element to be evaluated comprising:

a matching substrate having a surface;

a main transmission line disposed on the surface of the matching substrate and having an input terminal, an output terminal, and an impedance between the input and output terminals; and

a circuit comprising stubs and field effect transistors alternatingly connected in series, the circuit being electrically connected through one of the field effect transistors to the main transmission line at a point spaced from the input terminal and the output terminal, for changing the impedance of the main transmission line, the field effect transistors being independently switchable on and off in accordance with characteristics of the element whereby the impedance of the main transmission line between the input terminal and the output terminal is changed.

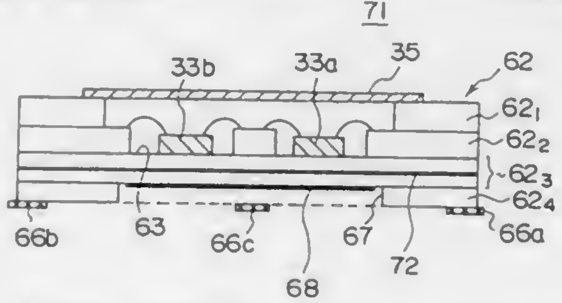


5,786,738
SURFACE ACOUSTIC WAVE FILTER DUPLEXER COMPRISING A MULTI-LAYER PACKAGE AND PHASE MATCHING PATTERNS

Osamu Ikata; Nobuo Hirasawa; Kazushi Hashimoto; Masanori Ueda, and Yoshio Satoh, all of Kawasaki, Japan, assignors to Fujitsu Limited, Kanagawa, Japan

Continuation-in-part of Ser. No. 603,615, Feb. 21, 1996, abandoned. This application May 31, 1996, Ser. No. 652,642
Claims priority, application Japan, May 31, 1995, 7-134311
Int. Cl.⁶ H03H *9/72*

U.S. Cl. 333—133 **11 Claims**



7. A duplexer comprising:

a predetermined number of surface-acoustic-wave band pass filter chips having different pass-band central frequencies; and

a multi-layer package having said predetermined number of filter chips mounted on a chip mounting surface and having terminals for connection with external circuits formed in a bottom layer of the multi-layer package; and

phase matching circuit patterns connected between the surface-acoustic-wave band pass filter chips, said phase matching circuit patterns being formed on an exterior surface of said multi-layer package, wherein said exterior surface of said multi-layer package is disposed between said chip mounting surface and said terminals.

5,786,739
INTEGRATED EVANESCENT MODE FILTER WITH ADJUSTABLE ATTENUATOR

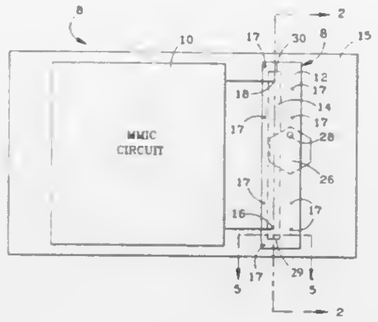
Jeffrey A. Paul; Chaim Warzman, both of Torrance; Roy Wien, Cerritos, and Richard T. Hennegan, Redondo Beach, all of Calif., assignors to Hughes Electronics, Los Angeles, Calif.

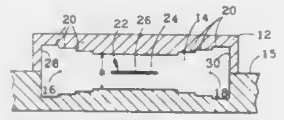
Filed Sep. 3, 1996, Ser. No. 707,277
Int. Cl.⁶ H01P *1/207*

U.S. Cl. 333—210 **6 Claims**

1. An integrated monolithic microwave integrated circuit (MMIC) and evanescent mode waveguide filter, comprising:

a MMIC having a conductive substrate;





a first recess formed in said substrate, said first recess defining a first waveguide portion;

a cover having a second recess that defines a second waveguide portion, said cover carried on said substrate and positioned with said first recess and said second recess aligned;

said first and second recesses each terminating in respective first and second ends with at least one of said first recess and said second recess having a narrowed section between its first and second ends;

an evanescent mode waveguide filter thus formed by said first and second waveguide portions and having a cutoff frequency substantially established by said narrowed section; and

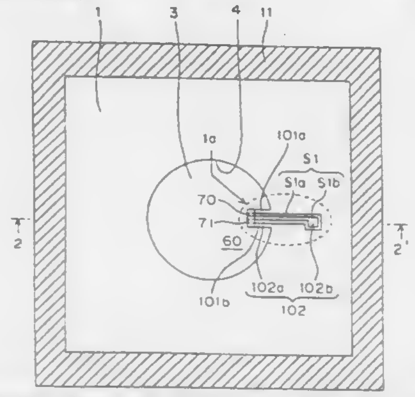
first and second microwave signal couplings arranged to couple said MMIC to said evanescent mode waveguide filter on opposite sides of said narrowed section.

5,786,740
DIELECTRIC RESONATOR CAPABLE OF VARYING RESONANT FREQUENCY

Yohei Ishikawa, Kyoto; Toshiro Hiratsuka, Kusatsu; Sadao Yamashita, Kyoto, and Kenichi Iio, Nagaokakyo, all of Japan, assignors to Murata Manufacturing Co., Ltd., Japan

Filed Sep. 19, 1996, Ser. No. 716,020
Claims priority, application Japan, Sep. 19, 1995, 7-240257
Int. Cl.⁶ H01P *7/10*

U.S. Cl. 333—219.1 **25 Claims**



1. A dielectric resonator capable of varying its resonant frequency comprising:

a pair of upper and lower opposing conductive plates;

a dielectric substrate disposed between said conductive plates;

a first electrode formed on one surface of said dielectric substrate, said first electrode having a first opening;

a second electrode formed on another surface of said dielectric substrate, said second electrode having a second opening corresponding to said first opening so that a resonator having a resonant frequency is formed by a portion of said dielectric substrate disposed between said first and second openings;

a variable capacitor for varying said resonant frequency located on a portion of said dielectric substrate corresponding to an electromagnetic field confined in and around said resonator;

a slit formed in said first electrode, said slit having opposing walls, said slit being connected to said resonator;

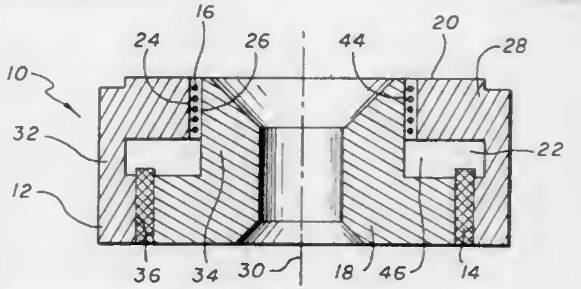
wherein said variable capacitor electrically connects said opposing walls of said slit with each other.

5,786,741
POLYGON MAGNET STRUCTURE FOR VOICE COIL ACTUATOR

Emanuel Leibzon, Tarzana, Calif., assignor to Aura Systems, Inc., El Segundo, Calif.

Filed Dec. 21, 1995, Ser. No. 576,801
Int. Cl.⁶ H01F *7/08;* **H04R** *25/00*

U.S. Cl. 335—222 **5 Claims**



1. A voice coil actuator comprising:

a cylindrical housing defining a vertical axis and having an outer wall, a base portion extending radially in from one end of said outer wall and a top plate extending radially in from another end of said outer wall, said base portion and said top plate further defining an annular channel coaxial within said housing;

a pole piece coaxially disposed within said housing and being dimensioned wherein a first gap is defined between said top plate and said pole piece and a second gap is defined between said base portion and said pole piece, said annular channel being disposed intermediate said first gap and said second gap;

a plurality of rectangular permanent magnets disposed in said second gap and having a first pole face disposed adjacent said base portion and a second pole face disposed adjacent said pole piece, said first pole face and said second pole face being radially oriented with respect to said axis, said magnets being arranged in a polygonal shape such that each of said magnets is disposed interstitially adjacent in intimate contact with two other of said magnets and

an electrical current conductive coil movably suspended coaxially within said first gap such that an electrical current is said coil develops an axial magnetic force on said coil.

5,786,742
PUSH BUTTON SWITCH WITH OVERRIDE INTERRUPTION STRUCTURE

Tien-Ning Yin, 2F-1, No.19, Lane 100, Hopien N. St., Sanchung Ciiy, Taipei Hsien, Taiwan

Filed Jul. 14, 1997, Ser. No. 891,733
Int. Cl.⁶ H01H *71/16*

U.S. Cl. 337—66 **10 Claims**

1. A push button switch with override interruption switch, comprising:

a switch box;

a push button disposed at upper end of the switch box, a bottom of the push button being disposed with a pressing projection, whereby the push button can be depressed or moved upward to close or open a circuit;

a front cover disposed at front end of the switch box;

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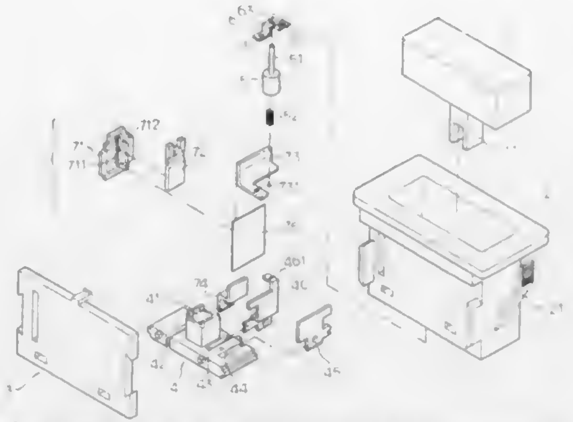


a base disposed at the bottom of the switch box and formed with a receptacle and multiple insertion channels for respectively inserting therein two conducting plates and a second conducting board;

a support rod having an upper end abutting against a lower end of the pressing projection of the push button and having a lower end fitted in the receptacle of the base, a restoring spring being disposed under the support rod for upward pushing the support rod;

an electric contact;

a second conducting board disposed with a second contact point; and

an override interruption switch, said push button being characterized in that an override interruption structure is disposed with a first conducting board having a first contact point, one end of a bimetal blade being connected with the first conducting board, the other end of the bimetal blade being able to form a circuit together with the conducting plate inserted on the base, the override interruption switch being further disposed with a shaft seat and a power cutting member, whereby when the push button is depressed to close the circuit, the shaft seat is engaged with the power cutting member which is downward moved along with the push button, in the case of override, the bimetal blade being thermally deformed to act on the shaft seat so as to disengage from the power cutting member, whereby the power cutting member and the push button and electric contact are upward restored into a power cut state.

5,786,743
FUSE CARTRIDGE OF THE TYPE INCORPORATING AN OPERATION INDICATOR

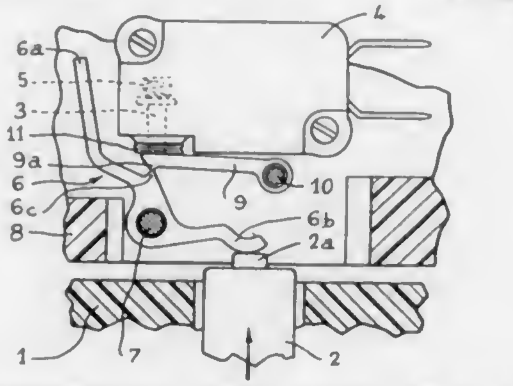
Joël Viscogliosi, Brindas, France, assignor to Ferraz, Lyon, France

Filed Nov. 7, 1996, Ser. No. 746,216

Claims priority, application France, Nov. 8, 1995, 95 13435

Int. Cl.⁶ H01H *85/30*

U.S. Cl. 337—206 **4 Claims**



1. In a fuse cartridge incorporating an actuation indicator of the type in which a rocking lever has a central part including an outwardly extending profiled part and wherein the rocking lever is pivotally mounted on a first pivot shaft so as to pivot in response to an arm of the rocking lever being engaged by a striking pin, and wherein the pivotable movement of the rocking lever is used to control the movement along an axis of a knob associated with an alarm micro-switch and which knob is normally retained in a first position by a resilient element, the improvement comprising:

an arm member having one end mounted to a second pivot shaft and having an outer end portion extending therefrom so as to be positioned between the profiled part of the rocking lever and the knob of the micro-switch, said outer end portion having said arm member being in contact with said profiled part of the rocking lever and the knob of the micro-switch when the knob is in the first position, and said outer end portion of said arm member being spaced from said second pivot shaft a distance such that when the striking pin engages the arm of the rocking lever, the profiled part of the rocking lever will initially urge said outer end portion of said arm member to move the knob along the axis to a second position inwardly of the micro-switch in such a manner that there is substantially no lateral sliding movement between the outer end portion of said arm member and the knob and thereafter said outer end portion of said arm member will engage the central portion of the rocking device at a point spaced from the profiled part to thereby allow the knob to move along the axis outwardly to a third position wherein said outer end portion of said arm member is spaced from the knob.

5,786,744
HYBRID SENSOR

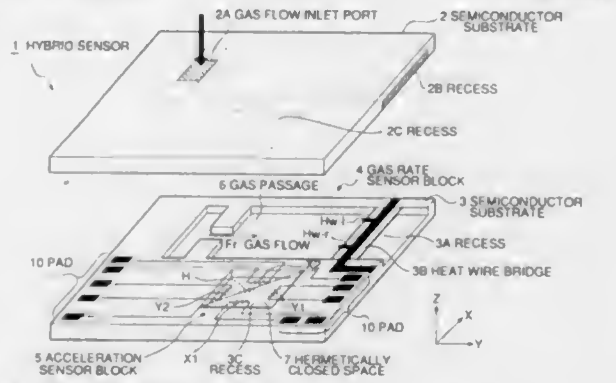
Tomoyuki Nishio; Satoshi Hiyama; Mizuho Doi; Nobuhiro Fueki, and Hiroshi Yamakawa, all of Wako, Japan, assignors to Honda Giken Kogyo Kabushiki Kaisha, Tokyo, Japan

Filed Mar. 23, 1995, Ser. No. 409,197

Claims priority, application Japan, Mar. 24, 1994, 6-054122; Apr. 4, 1994, 6-066277

Int. Cl.⁶ H01C *7/00*

U.S. Cl. 338—14 **17 Claims**



1. A hybrid sensor comprising:

an acceleration sensor for detecting acceleration based on a temperature distribution of a predetermined gas hermetically enclosed within a fluid-tight space, said acceleration sensor comprising heat-generating resistance means for heating said predetermined gas to form said temperature distribution within said fluid-tight space, and temperature-sensitive resistance means for detecting a change in said temperature distribution caused by acceleration acting on said hybrid sensor; and

an angular velocity sensor for detecting angular velocity based on a deviation of a flow of a predetermined gas, said angular velocity sensor comprising a gas passage through which said predetermined gas is caused to flow, and heat wire resistance means arranged within said gas passage for detecting said deviation of said flow of said predetermined gas caused by action of said angular velocity;

said acceleration sensor and said angular velocity sensor being formed in one piece by the use of semiconductor processing technology in a manner such that said acceleration sensor and said angular velocity sensor are formed on a plurality of semiconductor substrates, and then said plurality of semiconductor substrates are superimposed upon another and united into laminate, said acceleration sensor and said angular velocity sensor both being within the laminate,

wherein said acceleration sensor and said angular velocity sensor being capable of detecting, respectively, said acceleration and said angular velocity simultaneously and independently of each other.

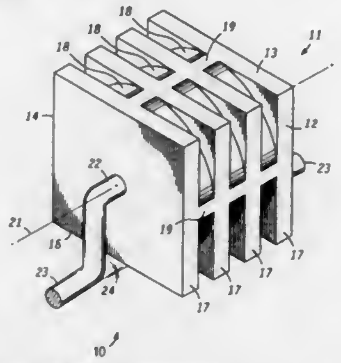
5,786,745
ELECTRONIC PACKAGE AND METHOD

Alexander J. Elliott, Tempe, and Lonne L. Mays, Gilbert, both of Ariz., assignors to Motorola, Inc., Schaumburg, Ill.

Filed Feb. 6, 1996, Ser. No. 597,307

Int. Cl.⁶ H01C *1/08*

U.S. Cl. 338—51 **7 Claims**



1. An electronic package comprising:

a one piece body having an axis and sides with fins and with flat surfaces between and connecting the fins wherein the fins and flat surfaces of each side have an outermost surface in a plane so that the planes of the outermost surfaces of all sides intersect to form a shape of a polygon, the polygon and each fin having axial symmetry about the axis so that each said plane is substantially parallel to the axis; and

a lead having a diameter that is smaller than a thickness of the one piece body exiting the body along the axis and wherein the lead is bent to have a first portion substantially perpendicular to at least one of said planes of the outermost surfaces and a second portion substantially perpendicular to the first portion of the lead and also has an outer surface that is substantially coplanar to the one plane.

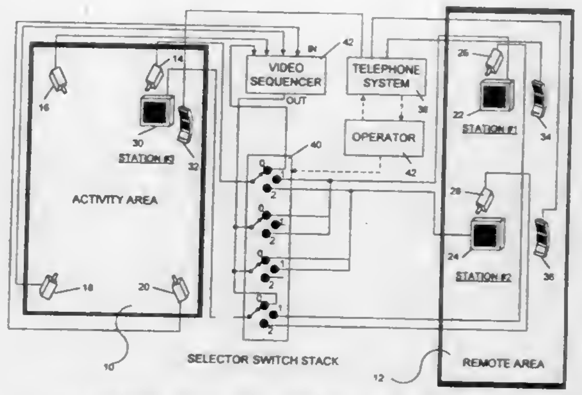
5,786,746
CHILD CARE COMMUNICATION AND SURVEILLANCE SYSTEM

Igino Lombardo, and Richard A. Slater, both of Sharon, Mass., assignors to Allegro Supercare Centers, Inc., Norwood, Mass.

Filed Oct. 3, 1995, Ser. No. 538,251

Int. Cl.⁶ G08B *13/02*

U.S. Cl. 340—286.07 **10 Claims**



1. A child care system comprising

A. an activity area located in a child care center where one or more children can recreate;

B. a remote communication/surveillance area remote from the child care center;

C. first video camera means disposed in the child care center for generating an image of at least a portion of the activity area;

D. first video monitor disposed in the child care center for selectively displaying at least a portion of an image of the remote communication/surveillance area;

E. second video camera means, disposed at the remote communication/surveillance area and coupled to the first video monitor means, for generating an image of at least a portion of the remote communication/surveillance area; and

F. second video monitor, disposed at the remote communication/surveillance area and coupled to the first video camera means, for selectively displaying at least a portion of the image of the activity area, the second video monitor including lock-out means for preventing display of at least a portion of the image of the activity area in the absence of at least one of a key and an authorizing transmission from the child care center.

5,786,747

Patent Not Issued For This Number

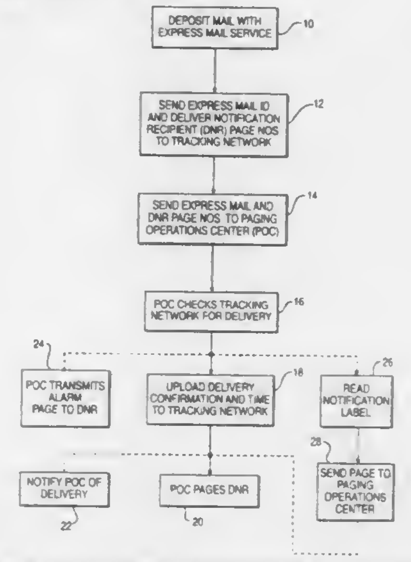
5,786,748
METHOD AND APPARATUS FOR GIVING NOTIFICATION OF EXPRESS MAIL DELIVERY

John E. Nikolic, Pearl, Miss., and Patrick E. Burns, Palo Alto, Calif., assignors to Mobile Telecommunications Technologies, Jackson, Miss.

Filed Feb. 28, 1997, Ser. No. 807,225

Int. Cl.⁶ H04Q *7/00*

U.S. Cl. 340—311.1 **3 Claims**


DEPOSIT MAIL WITH EXPRESS MAIL SERVICE
10
SEND EXPRESS MAIL ID AND DELIVER NOTIFICATION RECIPIENT (DNR) PAGE NOS TO TRACKING NETWORK
12
SEND EXPRESS MAIL AND DNR PAGE NOS TO PAGING OPERATIONS CENTER (POC)
14
POC CHECKS TRACKING NETWORK FOR DELIVERY
16
24
POC TRANSMITS ALARM PAGE TO DNR
UPLOAD DELIVERY CONFIRMATION AND TIME TO TRACKING NETWORK
18
26
READ NOTIFICATION LABEL
28
NOTIFY POC OF DELIVERY
22
POC PAGES DNR
20
SEND PAGE TO PAGING OPERATIONS CENTER

1. A method for providing notification of an express mail delivery to an addressee thereof, comprising the steps of:

sending to an express mail tracking service an ID number assigned to an express mailing and a page number of a delivery notification recipient;

relaying the ID, page number, and an appointed time to a paging operations center;

providing a first indication to the paging operations center that the express mailing has been delivered to the addressee;

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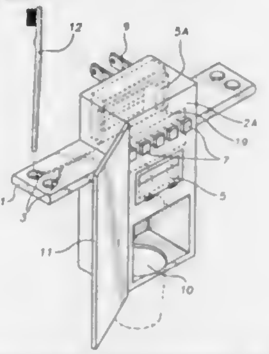
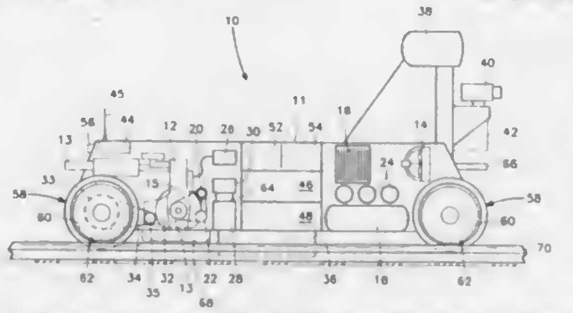
providing a second indication to the paging operations center that the express mailing has not been delivered to the addressee by the appointed time;
transmitting, responsive to the first indication, a wireless page message to the recipient as notification of the express mailing delivery; and
transmitting, responsive to the second indication, a wireless page message to the recipient notifying recipient that the express mailing has not been delivered by the appointed time.

5,786,749
TOOTHBRUSH HOLDER WITH INTEGRATED AUTOMATIC SOUND DEVICE
Cynthia Johnson, 2112 Shillingwood Dr., Kennesaw, Ga. 30152, and Suzette Sweeny, 3021 High Vista Walk, Woodstock, Ga. 30189
Filed May 7, 1997, Ser. No. 852,693
Int. Cl.^{6} G08B *3/10*
U.S. Cl. 340—384.7 **10 Claims**



1. A toothbrush holder with integrated automatic sound device comprising:
a. a base unit;
b. a substantially horizontal plate attached to said base unit having a plurality of apertures thereon for receiving a toothbrush;
c. means for automatically playing preselected sound recordings whenever a toothbrush is removed from one of the apertures.

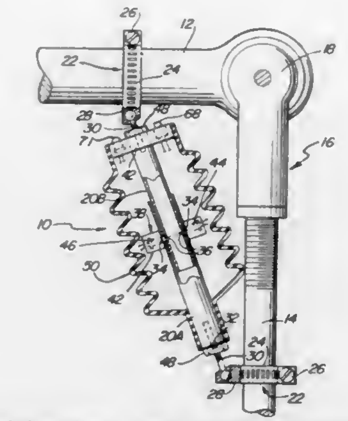
5,786,750
PILOT VEHICLE WHICH IS USEFUL FOR MONITORING HAZARDOUS CONDITIONS ON RAILROAD TRACKS
Guy F. Cooper, Ventura, Calif., assignor to The United States of America as represented by the Secretary of the Navy, Washington, D.C.
Continuation-in-part of Ser. No. 644,464, May 10, 1996, Pat. No. 5,627,508. This application Feb. 21, 1997, Ser. No. 804,348
Int. Cl.^{6} B60Q *1/00*
U.S. Cl. 340—425.5 **20 Claims**



1. A pilot vehicle for surveying railway tracks ahead of a train, said pilot vehicle traveling along a pair of rails of said railway tracks ahead of said train, said pilot vehicle comprising:
a frame;
drive means for propelling said pilot vehicle along said railway tracks;
processing means for receiving position information and control signals transmitted by said train, said processing means processing said position information and control signals to determine a safe distance said pilot vehicle is to be disposed ahead of said train;
drive control means operatively connected to said processing means and said drive means for maintaining said pilot vehicle at said safe distance ahead of said train;
first and second data wheels rotatably mounted on said pilot vehicle, said first and second data wheels engaging said railway tracks upon which said pilot vehicle is traveling, said first and second data wheels generating V1 and V2 electrical signals representative of the velocity of said data wheels as said pilot vehicle travels said railway tracks;
a magnetic compass mounted on said pilot vehicle, said magnetic compass generating a θ_N electrical signal representative of a direction for said pilot vehicle as said pilot vehicle travels said railway tracks;
latitude location means mounted on said pilot vehicle, said latitude location means generating a ψ_L electrical signal representative of degrees latitude of said pilot vehicle as said pilot vehicle travels said railway tracks;
a vertical rate gyro mounted on said pilot vehicle, said vertical rate gyro generating a θ^C electrical signal representative of a pitch rate for said pilot vehicle as said pilot vehicle travels said railway tracks;
a three axis accelerometer mounted on said pilot vehicle, said pilot vehicle generating $a^{c'}_{xtot}$, $a^{c'}_{ytot}$ and $a^{c'}_{ztot}$ electrical signals representative of x, y and z components of acceleration exerted upon said pilot vehicle whenever said pilot vehicle accelerates along said railway tracks;
rail height sensing means positioned on said pilot vehicle to measure a height of said frame of said pilot vehicle above the top of the rails of said railway tracks, said rail height sensing means generating Δh^c_{z1}, Δh^c_{z2}, Δh^c_{z3}, and Δh^c_{z4} electrical signals representative of the height of said frame of said pilot vehicle above the top of the rails of said railway tracks;
said processing means receiving and then processing said V1 and V2 electrical signals, said θ_N electrical signal, said ψ_L electrical signal, said θ^C electrical signal, said $'_{xtot}$, $a^{c'}_{ytot}$ and $a^{c'}_{ztot}$ electrical signals and said Δh^c_{z1}, Δh^c_{z2}, Δh^c_{z3}, and Δh^c_{z4} electrical signals to provide a three by three direction cosine matrix representative of an azimuth heading for the rails of said railway tracks in a predetermined direction;
said processing means comparing said three by three direction cosine matrix with a previously recorded three by three direction cosine matrix for the rails of said railway tracks to locate changes in track orientation and determine when there is damage to the rails of said railway tracks.

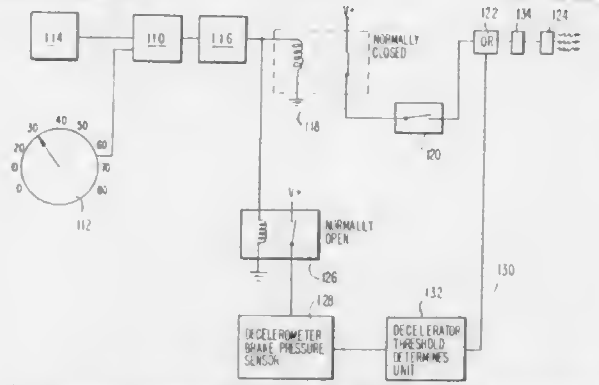
5,786,751
SYSTEM FOR MONITORING ALIGNMENT OF WHEELS USING A PHOTOELECTRIC SENSOR
Guy M. Robby, Saratoga, Calif., assignor to Aydius, Inc., Santa Clara, Calif.
Filed Oct. 27, 1995, Ser. No. 549,424
Int. Cl.^{6} B60Q *1/00*
U.S. Cl. 340—438 **16 Claims**

1. In a vehicle having a steering assembly that includes a pair of steering arms, each of said arms movably coupled at either end thereof to a steering tie rod and to a front wheel for simultaneously changing the direction of the front wheels, a system for monitoring alignment of the front wheels comprising:
a pair of alignment sensing devices, one sensing device extending between each steering arm and the tie rod coupled to said arm, each of said sensing devices comprising;
a pair of concentric tubes retained in a slidable relationship, a distal end of one of said tubes coupled to an adjacent tie rod and a distal end of the remaining tube coupled to an adjacent steering arm,



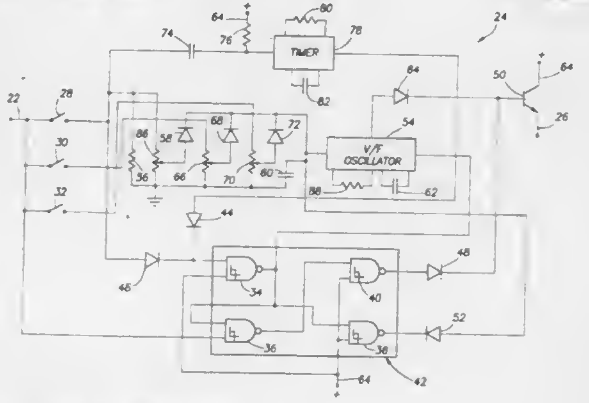
signal emitting means coupled to one of said tubes, said signal emitting means adapted to transmit a first signal,
signal detection means coupled to one of said tubes and diametrically opposed to said emitting means, said detection means transmitting a second signal when activated by the first signal; and
activation means for simultaneously activating the emitting means in each of said sensing devices, said activation means including indicating means for sensing the second signal transmitted by said detection means, whereby said activation means simultaneously activates each of said emitting means so that each of said emitting means simultaneously transmits the first signal, each of said detection means transmitting the second signal upon activation by the first signal, said indicating means providing a first indication when the second signal is simultaneously received from each of said detection means and simultaneously terminated by each of said detection means to indicate that each of said sensing devices are simultaneously aligned and providing a second indication when the second signal from each of said detection means is not a desired one of simultaneously received, or simultaneously terminated, or both, from each of said detection means to indicate that said sensing devices are not simultaneously aligned.

5,786,752
EMERGENCY SIGNAL SYSTEM FOR VEHICLES
Louis R. Bucalo, 3418 Divisadero St., San Francisco, Calif. 94123, and Brian D. Bucalo, 1010 S. Ocean Blvd., #LPH9 Pompano, Fla. 33062
Filed Jul. 12, 1996, Ser. No. 678,957
Int. Cl.^{6} B60Q *1/50*
U.S. Cl. 340—467 **24 Claims**



1. A vehicle signaling device for alerting drivers approaching from a rear of the vehicle, the vehicle including a brake pedal, comprising
at least one light emitting signal arranged on the vehicle facing rearward and having an activated state in which light is emitted and an inactivated state in which light is not emitted,
velocity measurement means for measuring an absolute velocity of the vehicle,
deceleration measurement means for measuring deceleration of the vehicle, said deceleration measurement means being operatively associated with the brake pedal of the vehicle such that deceleration of the vehicle is measured by said deceleration measurement means after the brake pedal is depressed, and
control means coupled to said velocity measurement means and said deceleration measurement means for activating said at least one light emitting signal from its inactivated state to its activated state only if the absolute velocity is greater than a threshold velocity in said control means and the measured deceleration is greater than a deceleration threshold in said control means.

5,786,753
VEHICLE HAVING A DECELERATION RATE SIGNAL GENERATOR INCORPORATED THEREIN
Bryant F. Craig, 412 Northview Dr., Richardson, Tex. 75080, and Randy I. McClanahan, 2323 Augusta, No. 5, Houston, Tex. 77057
Continuation-in-part of Ser. No. 423,790, Apr. 18, 1995. This application Aug. 8, 1996, Ser. No. 689,378
Int. Cl.^{6} B60Q *1/50*
U.S. Cl. 340—467 **25 Claims**



1. A vehicle, comprising:
a voltage source;
a brake switch connected to said voltage source;
a plurality of inertial switches, said inertial switches being configured to close successively in response to successively increasing levels of deceleration of the vehicle, and each of said inertial switches being connected to said brake switch;
a plurality of voltage dividers, each of said voltage dividers being connected to one of said inertial switches;
an oscillator having a voltage input, a gate input, and an output, said oscillator voltage input being connected to each of said voltage dividers; and
four Schmitt triggers, each of said Schmitt triggers having first and second inputs and an output,
a first one of said Schmitt triggers having its first input connected to one of said inertial switches, its second input connected to said voltage source, and its output connected to said gate input of said oscillator,
a second one of said Schmitt triggers having its first input connected to said first Schmitt trigger output, and its second input connected to said brake switch,
a third one of said Schmitt triggers having its first input connected to said second Schmitt trigger output, and its second input connected to said voltage source, and
a fourth one of said Schmitt triggers having its first input connected to said first Schmitt trigger output, its second input connected to said voltage source, and its output connected to said oscillator voltage input.

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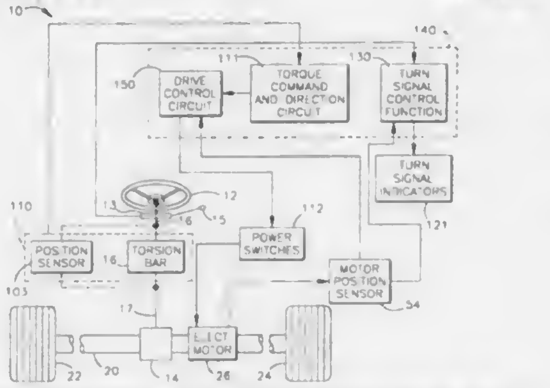
5,786,754
METHOD AND APPARATUS FOR ELECTRONICALLY CANCELLING A VEHICLE DIRECTION SIGNAL IN AN ELECTRIC ASSIST STEERING SYSTEM

Stuart Parker, Manhattan Beach, Calif., assignor to TRW Inc., Lyndhurst, Ohio

Filed Dec. 13, 1995, Ser. No. 572,176

Int. Cl.^{6} B60Q *1/00*

U.S. Cl. 340—476 **6 Claims**



1. An electronically cancelling directional signal for use in a vehicle, comprising:

turn signal selection means for providing a signal indicative of a selected turning direction;

turn signal indicating means for indicating a selected turning direction;

an electric assist motor for, when energized, providing power assist steering;

motor position sensing means for sensing a motor position and for providing a motor position signal indicative thereof; and

control means connected to said turn signal selection means, to said turn signal indicating means, and to said motor position sensing means for actuating said turn signal indicating means in response to said turn signal selection means indicating a selected turning direction and for controlling cancellation of said turn signal indicating means in response to said sensed motor position indicating a motor reversal.

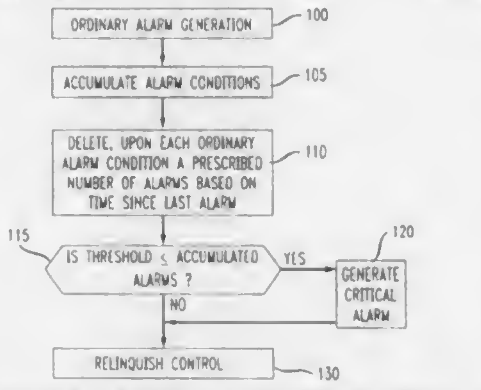
5,786,755
ALARM ESCALATION METHOD

Domenic A. Cicchino, and Stephen M. Milton, both of Freehold, N.J., assignors to AT&T Corp, Middletown, N.J.

Filed Feb. 12, 1997, Ser. No. 799,717

Int. Cl.^{6} G08B *29/00*

U.S. Cl. 340—506 **6 Claims**


ORDINARY ALARM GENERATION
100
ACCUMULATE ALARM CONDITIONS
105
DELETE, UPON EACH ORDINARY ALARM CONDITION A PRESCRIBED NUMBER OF ALARMS BASED ON TIME SINCE LAST ALARM
110
115
IS THRESHOLD ≤ ACCUMULATED ALARMS ?
YES
NO
120
GENERATE CRITICAL ALARM
RELINQUISH CONTROL
130

6. A method for escalating a succession of ordinary alarm conditions into a critical alarm condition, comprising the steps of:

(a) accumulating each ordinary alarm condition upon its occurrence;

(b) deleting, upon the occurrence of each ordinary alarm condition, a prescribed number of accumulated ordinary alarm conditions in accordance with how much time has elapsed since a previous ordinary alarm condition; wherein the prescribed number of deleted ordinary alarm conditions is established from the relationship:

amntToRemv=((Current GMT−lastAlrmGMT)/AlrmThd)*RmvAmt

where:

amntToRemv represents a quantity of ordinary alarm conditions to be deleted;

Current GMT is corresponds to a current time in seconds;

lastAlrmGMT corresponds to a time, in seconds, when ordinary alarm conditions were last deleted;

AlrmThd represents an alarm condition threshold and corresponds to a time, in seconds, when an ordinary alarm condition should be deleted; and

RmvAmt corresponds to a quantity of number of ordinary alarm conditions to be deleted upon the occurrence of each alarm condition; and

(c) escalating the accumulated ordinary alarm conditions into a critical alarm condition when the number of accumulated ordinary alarm conditions at least equals a critical alarm threshold.

5,786,756
METHOD AND SYSTEM FOR THE PREVENTION OF FALSE ALARMS IN A FIRE ALARM SYSTEM

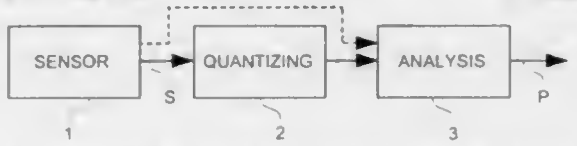
Bernhard Piller, Morges, Switzerland, assignor to Cerberus AG, Switzerland

Filed Nov. 23, 1994, Ser. No. 347,120

Claims priority, application Switzerland, Nov. 23, 1993, 03 487/93

Int. Cl.^{6} G08B *29/00*

U.S. Cl. 340—507 **11 Claims**



1. A method for preventing false alarms in a fire alarm system of the type comprising detectors having one or more sensors for monitoring fire index quantities and for emitting corresponding sensor signals from which hazard signals are derived in a signal processing operation, comprising the steps of:

analyzing a sensor signal during a defined first interval;

calculating the probability of a false alarm in a subsequent second interval; and

generating a warning signal to indicate the likelihood of a false alarm if the probability exceeds a defined value.

5,786,757
LOAD SHED SCHEME FOR TWO WIRE DATA TRANSMISSION

Robert W. Right, Huntington, Conn.; Hilario S. Costa, Sarasota, and Jan A. Braam, Bradenton, both of Fla., assignors to General Signal Corporation, Stamford, Conn.

Filed May 16, 1995, Ser. No. 441,762

Int. Cl.^{6} G08B *1/00*

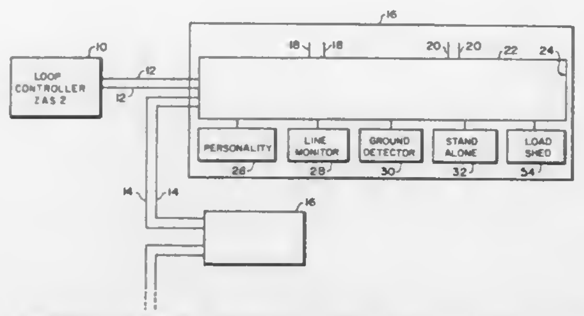
U.S. Cl. 340—531 **4 Claims**

1. An alarm system for detecting and warning of the presence of alarm and trouble conditions in transponders located in a plurality of zones, comprising:

a loop controller having a plurality of input signal and power supply lines connected to the respective transponder units;

a plurality of initiating and indicating devices in a respective plurality of circuits;

a module, including a microcontroller, connected in each of said transponder units to said plurality of input lines and to said plurality of circuits, said module being capable of initiating communication of the conditions of said circuits to said loop controller; and



a plurality of smoke detectors, which are connected in said circuits and to respective modules; and

means for sensing the alarm conditions of said smoke detectors and reporting their conditions to the loop controllers; and

load shed means for permitting, in the first instance, a first of said smoke detectors to draw operating current, but, thereafter, precluding the others of said plurality of smoke detectors from drawing their operating current.

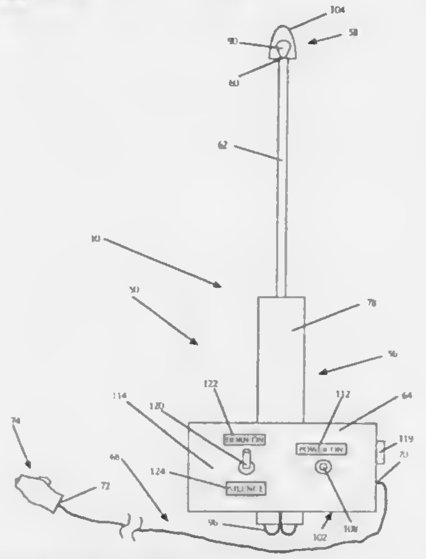
5,786,758
VEHICLE LOCATOR SYSTEM

John H. Bullock, Baton Rouge, La., assignor to J.B.'s Car Finder Corporation, Baton Rouge, La.

Filed Sep. 11, 1995, Ser. No. 526,217

Int. Cl.^{6} G08B *1/08*

U.S. Cl. 340—539 **1 Claim**



1. A vehicle locator system comprising:

a remote transmitting unit having a transmitter and a first power source contained in a first housing;

an activation switch mounted on the exterior of said first housing and connected to said transmitter, whereby said transmitter generates and emits a signal when said activation switch is closed;

a receiving unit mountable on the exterior of a vehicle and having a receiver contained in a second housing and being connectable to a second power source, said receiving unit being disposed and adapted to receive said signal emitted from said transmitting unit;

one or more light sources connected to said receiving circuitry, said one or more light sources being energized by said second power source and disposed to emit light fluxes generally radially outwardly from the vehicle as said receiving unit receives said signal from said transmitting unit and actuates said one or more light sources;

leads connectable between the vehicle's horn and said receiver, so that the horn is actuated when said receiving unit receives said signal from said transmitting unit; and a selector switch, said selector switch being connected to said leads so that the horn can be selectively enabled.

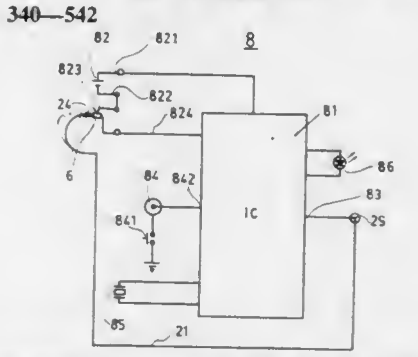
5,786,759
ALARMING WIRE LOCK

Chong-Kuan Ling, P.O. Box 96-156, Taipei, Taiwan

Filed May 15, 1997, Ser. No. 856,748

Int. Cl.^{6} E05B *45/06*

U.S. Cl. 340—542 **7 Claims**



1. An alarming wire lock comprising: a casing (**1**) having a front cover (**1***a*) combined with a rear cover (**1***b*) for forming the casing, and having a right hole (**12**) and a left hole (**13**) respectively formed in an upper right and left portion of said casing;

a wire means (**2**) having a wire rope (**21**) wound on a reel (**22**) rotatably mounted in said casing and a locking head (**24**) secured on an outermost end of the wire rope (**21**) to be rested in the right hole when the wire lock is unlocked, with the locking head locked in the left hole when the wire lock is locked;

a plurality of dials (**3**) and sleeves (**4**) rotatably mounted in said casing;

a push-button latch (**5**) transversely mounted in said casing and slidably engageable with said sleeves resiliently coupled with said dials, said latch (**5**) engageable with said locking head (**24**) when locked in the left hole in said casing;

a resilient impinger (**6**) movably held in a left portion of said casing for resiliently ejecting said locking head (**24**) of said wire means when unlocked;

a wire clutch means (**7**) pivotally mounted in said casing for controlling a rewinding of said wire rope (**21**) on said reel (**22**) and controlling a releasing of said wire rope (**21**) unwound from said reel (**22**), said wire clutch means (**7**) operatively locked by said impinger (**6**) when downwardly depressed by said locking head (**24**) when the wire lock is locked; and

an alarm circuit (**8**) having an alarm (**85**) provided in said casing (**1**), said alarm (**85**) operatively actuated upon a cutting of the wire rope (**21**) or upon a vibration of said casing (**1**);

said alarm circuit (**8**) including: an alarm integrated circuit (**81**) secured on a circuit board (**80**) installed in the casing (**1**) for processing an input alarm signal and for controlling an actuation of said alarm (**85**) electrically connected to the alarm integrated circuit (**81**), a power source having at least a battery (**82**) stored in a battery chamber (**1**)formed in said casing and having two poles of the power source (**82**) electrically connected to the alarm integrated circuit (**81**), a wire-rope input lead (**83**) electrically connected between the alarm integrated circuit (**81**) and the wire rope (**21**) of the wire means (**2**) through a rotary connector (**25**) whereby the cutting of the wire rope (**21**) will input a first signal into the alarm integrated circuit (**81**) through the wire-rope input lead (**83**) to actuate the alarm (**85**) for alarming, a vibration sensor (**84**) having a vibration input lead (**842**) of the sensor (**84**) electrically connected to the alarm integrated circuit (**81**) whereby a vibration of the wire lock will input a second signal into the alarm integrated circuit (**81**) through the vibration input lead (**842**) to actuate the alarm (**85**) for warning, and an indicator lamp (**86**) indicating the alarm circuit (**8**) being ready for warning.

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5,786,760
ALARM SYSTEM WITH VARIABLE WARNING SIGNAL

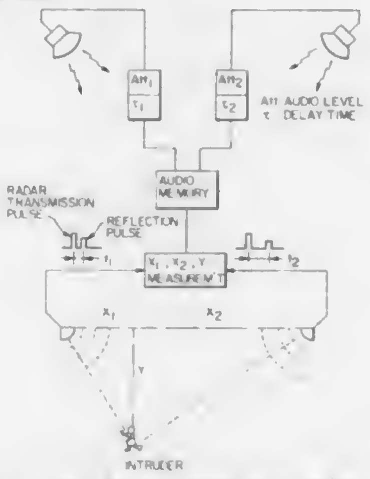
Tomohiko Suzuki, 2-5-1 Kaminarimon #1003, Taitoh, Tokyo 111, Japan, and Shu Tokuyama, 5701 Spring Oak Dr., Los Angeles, Calif. 90028

Filed Mar. 4, 1996, Ser. No. 610,346

Claims priority, application Japan, Mar. 8, 1995, 7-048335

Int. Cl.^{6} G08B *13/00*

U.S. Cl. 340—541 **18 Claims**



1. A method for detecting an intruder and making an impression on the intruder, comprising the steps of:

detecting a presence of the intruder;

determining a location of the intruder by placing a plurality of sensors throughout an area to be protected and calculating the location of the intruder using output signals transmitted from the sensors;

outputting a warning signal for perception by the intruder; and

changing the warning signal based on the determined location of the intruder.

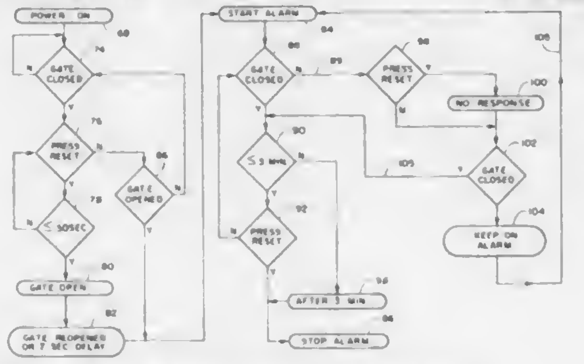
5,786,761
GATE OPENING ALARM WITH RESETTING DISABLE MEANS

Joseph W. T. Hui, 140-B S. Whisman Rd., Mountain View, Calif. 94041

Filed May 9, 1997, Ser. No. 853,599

Int. Cl.^{6} G08B *13/08*

U.S. Cl. 340—547 **18 Claims**



1. A gate opening alarm system which comprises:

an alarm housing;

a mounting bracket;

means for releasably securing a first side of said alarm housing to said mounting bracket;

means for securing said mounting bracket to one of a gate and a gate frame in a gate;

a magnet housing assembly including a magnet housing and means for mounting said magnet housing to the other of said gate and a gate frame;

a permanent magnet within said magnet housing;

a switch housing assembly including a switch housing and means for mounting said switch housing to said one of a gate and a gate frame closely adjacent to said magnet housing;

a magnetically actuatable alarm switch within said switch housing to change state when said gate is opened and said switch housing and magnet housing are moved apart;

electronic circuit means within said alarm housing and connected to said alarm switch for immediately sounding an audible alarm upon detecting said switch changed state;

said electronic circuit means further including means for canceling said reset switch alarm disabling if said switch and maanet housings are not moved apart by opening the gate within a predetermined time period;

manually operable reset switch means on said alarm housing and connected to said electronic means for disabling said audible alarm for a predetermined period; and

battery means removably contained in said alarm housing for powering said electronic circuit means.

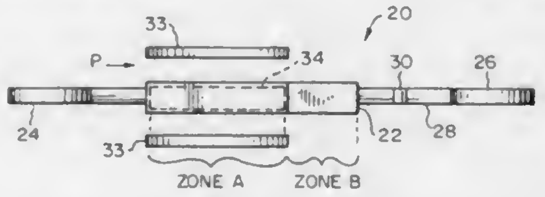
5,786,762
MAGNETOSTRICTIVE ELEMENT FOR USE IN A MAGNETOMECHANICAL SURVEILLANCE SYSTEM

Nen-Chin Liu, Parkland, Fla., assignor to Sensormatic Electronics Corporation, Boca Raton, Fla.

Continuation-in-part of Ser. No. 508,580, Jul. 28, 1995, Pat. No. 5,568,125, which is a continuation-in-part of Ser. No. 269,651, Jun. 30, 1994, Pat. No. 5,469,140, which is a continuation-in-part of Ser. No. 392,070, Feb. 22, 1995, Pat. No. 5,565,849, which is a continuation-in-part of Ser. No. 420,757, Apr. 12, 1995, Pat. No. 5,676,767. This application Oct. 22, 1996, Ser. No. 735,360

Int. Cl.^{6} G08B *13/24*

U.S. Cl. 340—551 **34 Claims**



1. A magnetostrictive element for use in a magnetomechanical electronic article surveillance marker formed by first annealing a strip of amorphous metal alloy, said alloy comprising iron and cobalt with the proportion of cobalt being in the range of about 5 to about 45 atomic percent, in the presence of a saturating magnetic field so that said strip has a characteristic upon completion of said first annealing such that, upon application of a biasing magnetic field to said strip, said strip is mechanically resonant at a resonant frequency in response to exposure to an alternating magnetic field at said resonant frequency, said resonant frequency being subject to variation in dependence on changes in said biasing magnetic field and, subsequent to said first annealing, second annealing said strip to reduce a rate at which said resonant frequency varies in dependence on changes in said biasing magnetic field.

5,786,763
ANTENNA MULTIPLEXER WITH ISOLATION OF SWITCHING ELEMENTS

Larry K. Canipe, Boca Raton, Fla., assignor to Sensormatic Electronics Corporation, Boca Raton, Fla.

Filed Jun. 20, 1996, Ser. No. 667,811

Int. Cl.^{6} G08B *13/14*

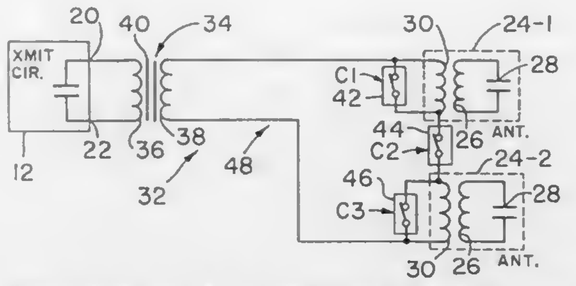
U.S. Cl. 340—572 **21 Claims**

1. A transmitter for an electronic article surveillance system, comprising:

a transmit circuit for generating a transmit signal;

antenna means for receiving the transmit signal generated by the transmit circuit and for radiating the transmit signal into an interrogation zone as an interrogation signal, said antenna means including a first antenna and a second antenna; and

connecting means for transmitting the transmit signal from the transmit circuit to the antenna means, the connecting means including first coupling means for coupling the connecting means to the transmit circuit, second coupling means for coupling the connecting means to the antenna means, and switch means for selectively uncoupling at least one of said first and second antennas from said transmit circuit, the first coupling means having a first impedance and the second coupling means having a second impedance that is matched to said first impedance.



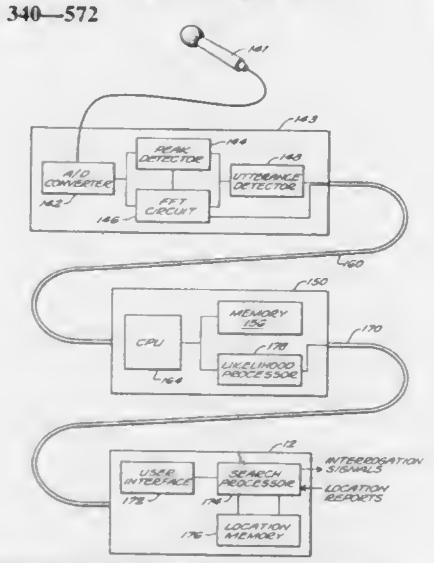
5,786,764
VOICE ACTIVATED ELECTRONIC LOCATING SYSTEMS

Thomas J. Engellenner, 11 Birch Hill Rd., Newton, Mass. 02165

Continuation of Ser. No. 478,866, Jun. 7, 1995. This application Mar. 4, 1997, Ser. No. 811,270

Int. Cl.^{6} G08B *13/14*

U.S. Cl. 340—572 **6 Claims**



1. A system for locating an object comprising:

a transmitter for transmitting of an electromagnetic interrogation signal within a defined interrogation zone;

a tag adapted for attachment to an object, the tag being responsive to said electromagnetic interrogation signal and comprising

- a signal receiving structure adapted to capture at least a portion of the energy of said interrogation signal, and
- a response generator for generating a responsive signal to announce the presence of the object within an interrogation zone;

a receiver for detecting said responsive signal;

input means for entering requests for location of particular tagged objects, said input means further comprising a speech recognition system; and

display means for displaying information on the tagged object.

5,786,765
APPARATUS FOR ESTIMATING THE DROWSINESS LEVEL OF A VEHICLE DRIVER

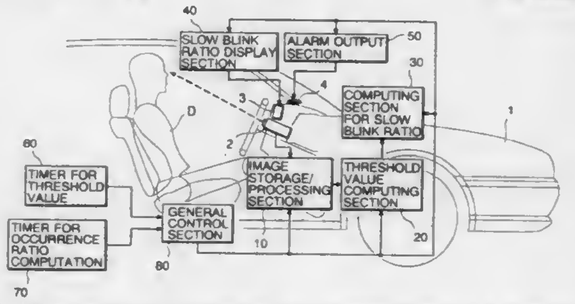
Sae Kumakura; Toru Hara, both of Okazaki, and Yoshihiro Goi, Anjo, all of Japan, assignors to Mitsubishi Jidosha Kogyo Kabushiki Kaisha, Tokyo, Japan

Filed Apr. 11, 1997, Ser. No. 840,132

Claims priority, application Japan, Apr. 12, 1996, 8-091324

Int. Cl.^{6} G08B *23/00*

U.S. Cl. 340—576 **13 Claims**


40
SLOW BLINK RATIO DISPLAY SECTION
ALARM OUTPUT SECTION
50
30
COMPUTING SECTION FOR SLOW BLINK RATIO
1
3
4
D
2
60
TIMER FOR THRESHOLD VALUE
IMAGE STORAGE/ PROCESSING SECTION
THRESHOLD VALUE COMPUTING SECTION
GENERAL CONTROL SECTION
TIMER FOR OCCURRENCE RATIO COMPUTATION
10
20
80
70

1. An apparatus for estimating a drowsiness level of a driver of a vehicle, comprising:

image pickup means for picking up images of a face region of the driver including an eye of the driver;

detecting means for detecting an elapsed time during one blink of the eye as a blink duration in accordance with image data for the face region obtained by said image pickup means;

obtaining means for obtaining a frequency distribution of blink durations detected during a first predetermined period after a start of driving of the vehicle;

setting means for setting a threshold value used to extract slow blinks of the eye in accordance with the frequency distribution;

calculating means for calculating a ratio of occurrence of slow blinks during every second predetermined period after a termination of the first predetermined period, the ratio of occurrence being represented by the ratio of a number of blink durations whose values are not smaller than the threshold value to a total number of blinks of the eye during the second predetermined period; and

discriminating means for discriminating the drowsiness level of the driver in accordance with the calculated ratio of occurrence.

5,786,766

Patent Not Issued For This Number

5,786,767
HOME SAFETY SYSTEM

Joseph Severino, 1416 Pine Ridge, Bushkill, Pa. 18324

Filed Apr. 29, 1997, Ser. No. 840,384

Int. Cl.^{6} G08B *17/10*

U.S. Cl. 340—628 **7 Claims**

1. A home safety system, comprising:

a smoke detector powerable by a/c current and a battery, said smoke detector comprising a sensor for sensing smoke connected to an audible alarm signal;

a carbon monoxide detector powerable by a/c current and by a battery, said detector comprising a sensor for sensing the presence of carbon monoxide connected to an audible alarm signal;

an emergency light system connected to the carbon monoxide detector and smoke detector, said light system adapted to turn on in the event of a power failure, a signal from the smoke detector or a signal from the carbon monoxide detector;

a microphone for detecting sounds in the surrounding area;

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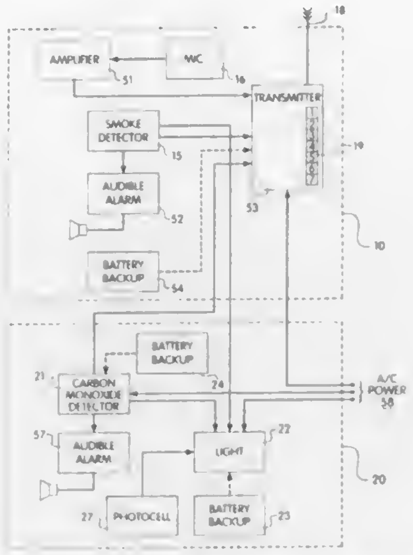


a transmitter connected to the smoke detector, carbon monoxide detector and microphone, said transmitter comprising means for communicating signals from the carbon monoxide detector and smoke detector as well as sounds detected by the microphone to a remote location; and

a portable receiver for receiving the signals and sounds from the transmitter and broadcasting said signals and sounds.

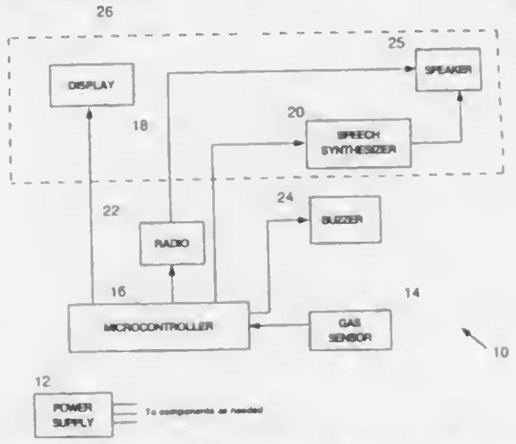
5,786,768
CLOCK RADIO GAS DETECTOR APPARATUS AND METHOD FOR ALERTING RESIDENTS TO HAZARDOUS GAS CONCENTRATIONS

James C. K. Chan, Unionville, and Patrick F. C. Hung, Vaughan, both of Canada, assignors to Patrick Plastics Inc., Vaughan, Canada

Filed Apr. 16, 1997, Ser. No. 834,402

Int. Cl.⁶ G08B *21/00*

U.S. Cl. 340—632 **16 Claims**



1. Apparatus for alerting residents to hazardous gas concentrations, comprising:

(a) an alarm clock for tracking the current time of day and issuing a wake-up alarm and comprising a clock display;

(b) a gas sensor for sensing various concentrations of a specified hazardous gas and generating sensor signals correlatable therewith;

(c) a controller operatively coupled to the alarm clock and the gas sensor, for determining durations of the various concentrations based upon the sensor signals and for generating output signals indicative of the various concentrations and the durations; and

(d) wherein the clock display displays either the time of day or a visual warning message indicative of a particular concentration and duration of a specified hazardous gas, based upon the output signals; and

(e) speech synthesizer means for issuing one of a plurality of distinct audible speech messages, based upon the output signals, wherein each speech message is indicative of a particular concentration and duration of a specified hazardous gas.

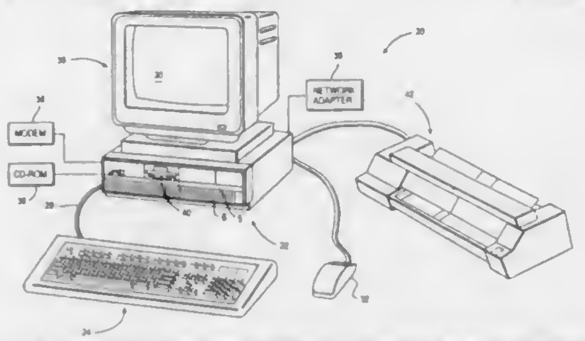
5,786,769
METHOD AND SYSTEM FOR DETECTING THE PRESENCE OF ADAPTER CARDS

Paul William Coteus, Yorktown Height, N.Y., and Daniel Willaim John Johnson, Round Rock, Tex., assignors to International Business Machines Corporation, Armonk, N.Y.

Filed Dec. 11, 1996, Ser. No. 766,545

Int. Cl.⁶ G08B *21/00*

U.S. Cl. 340—687 **8 Claims**



1. A method of detecting whether memory adapter cards are present in a data processing system, each adapter card including a plurality of Single In-line Memory Modules (SIMMS), the method comprising the steps of:

creating a direct electrical path from a first pin of at least one adapter to a second pin of the at least one adapter, the at least one adapter including control signals for transmitting data concerning the plurality of SIMMS located thereon, each one of the control signals having a logical value of either high or low;

connecting ground to the first pin;

connecting a ground detection component to each one of the control signals;

connecting the ground pin of each one of the ground detection components to the second pin, each one of the ground detection components emitting a logical value when ground is absent from the ground pin; and

detecting the absence of the at least one adapter via a high logical value from the ground detection components.

5,786,770
MESSAGE HANDLING IN A TELECOMMUNICATIONS NETWORK

Jonathan A. Thompson, Newbury, United Kingdom, assignor to DSC Communications Corporation, Plano, Tex.

Filed Nov. 16, 1995, Ser. No. 558,664

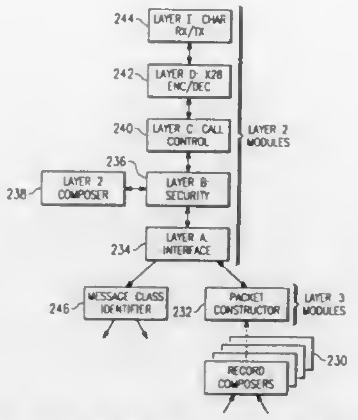
Claims priority, application United Kingdom, Jun. 2, 1995, 9511192

Int. Cl.⁶ H04B *7/00;* H04J *3/00*

U.S. Cl. 340—825.06 **9 Claims**

1. A message handler for the transmission and/or reception of message packets in one or both directions between a telecommunications station and a controller for one or more telecommunications stations, the message handler having a plurality of control layers including:

a transmitter and/or receiver control layer operable to transmit and/or receive strings of characters between the controller and the telecommunications stations via a transmission line;



a call control layer, above the transmitter/receiver layer, for establishing and maintaining connection with the transmission line when message packet transmission is required;

a security layer, above the call control layer, for an exchange of authentication messages between the controller and the telecommunications stations to verify an identity of elements of the telecommunications station during establishment of a call connection.

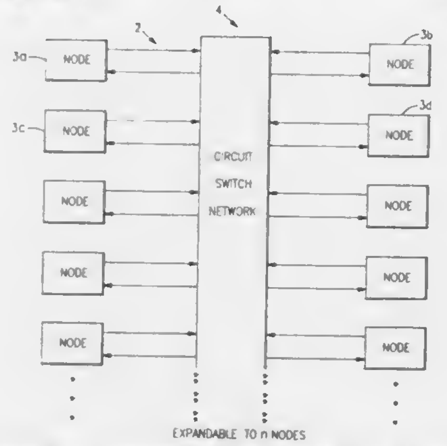
5,786,771
SELECTABLE CHECKING OF MESSAGE DESTINATIONS IN A SWITCHED PARALLEL NETWORK

James William Feeney, Endicott; John David Jabusch, Endwell; Robert Francis Lusch, Vestal, and Howard Thomas Olnowich, Endwell, all of N.Y., assignors to International Business Machines Corporation, Armonk, N.Y.

Filed Feb. 12, 1993, Ser. No. 17,088

Int. Cl.⁶ H04Q *1/00*

U.S. Cl. 340—826 **9 Claims**



1. A method for communicating a message over a multi-stage network coupled to at least two nodes, the method comprising the steps of:

a first node placing an indicator in the message for selecting at least one receiving node and an indicator for selecting destination checking;

the first node sending the message over the multi-stage network to said at least one receiving node;

the multi-stage network routing the message directly and only to said at least one receiving node based upon the indicator for selecting at least one receiving node;

said at least one receiving node receiving the message;

said at least one receiving node determining whether to perform destination checking based upon the indicator for selecting destination checking;

said at least one receiving node performing destination checking if it has determined to do so;

said at least one receiving node accepting the message if either destination checking was performed and said at least one receiving node is a destination of the message, or destination checking was determined not to be performed; and

said at least one receiving node not accepting the message if destination checking was performed and said at least one receiving node is not a destination of the message.

5,786,772
VEHICLE BLIND SPOT DETECTION DISPLAY SYSTEM

Kenneth Schofield, and Niall R. Lynam, both of Holland, Mich., assignors to Donnelly Corporation, Holland, Mich.

Filed Feb. 12, 1997, Ser. No. 799,734

Int. Cl.⁶ G08G *1/16*

U.S. Cl. 340—903 **17 Claims**

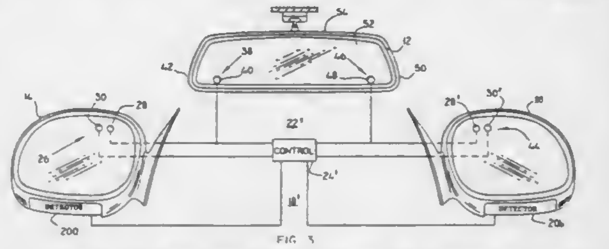


FIG. 3

1. A blind spot detection display system for displaying indications from a blind spot detector system on a vehicle having a passenger compartment and two exterior mirrors on opposite sides of the vehicle outside of the passenger compartment, comprising:

a first indicator positioned on the vehicle in the vicinity of the one exterior mirror and adapted to producing an indication from a blind spot detector system at least of the presence of a first other vehicle adjacent the one side of the vehicle;

an interior mirror assembly within the passenger compartment including a reflective element, a housing for the reflective element and a second indicator, said second indicator adapted to producing an indication from the blind spot detector system at least of the presence of the first other vehicle adjacent said one side of the vehicle;

a third indicator positioned on the vehicle in the vicinity of the other exterior mirror adapted to producing an indication from the blind spot detector system at least of the presence of a second other vehicle adjacent the other side of said vehicle; and

a fourth indicator on said interior mirror assembly adapted to producing an indication from the blind spot detector system at least of the second other vehicle adjacent the other side of said vehicle;

wherein said first and second indicators are concurrently actuated and physically associated and said third and fourth indicators are concurrently actuated and physically associated in a manner that provides cognitive association between said indicators.

5,786,773
LOCAL-AREA AUGMENTATION SYSTEM FOR SATELLITE NAVIGATION PRECISION-APPROACH SYSTEM

Timothy Allen Murphy, Lynnwood, Wash., assignor to The Boeing Company, Seattle, Wash.

Filed Oct. 2, 1996, Ser. No. 720,715

Int. Cl.⁶ G08G *5/00*

U.S. Cl. 340—947 **37 Claims**

1. A landing assistance system to provide navigation information to an aircraft, said landing assistance system including:

(a) a plurality of satellites transmitting satellite signals containing satellite data sufficient to determine an approximate range between said aircraft and each satellite; and

(b) at least one GPS ground station positioned at a fixed location on the ground, said GPS ground station including:

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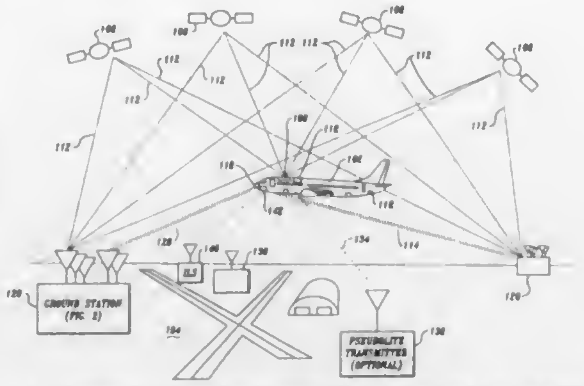


(i) a plurality of receivers operative for receiving said satellite signals and determining pseudoranges to said satellites, said plurality of receivers determining at least four pseudoranges, each pseudorange representing an approximate distance between one receiver and one satellite and having a corresponding error representing a deviation between said pseudorange corresponding to one receiver and one satellite and an actual distance between said one receiver and said one satellite associated with said pseudorange;

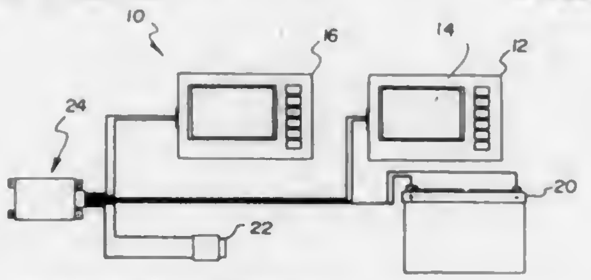
(ii) at least one data processor operative for determining differential correction information, said differential correction information determined by determining said error corresponding to each said pseudorange, each said error consisting of common mode errors and non-common mode errors, differentiating said common mode errors from said non-common mode errors, and filtering out pseudorange measurements having corresponding non-common mode errors that exceeds a threshold, said differentiation of said common mode errors from said non-common mode errors performed based on a comparison of said each error associated with said four pseudoranges; and

(iii) a datalink transmitter operative for transmitting a datalink signal containing said differential correction information.

5,786,774
ALARM MODULE

Joseph M. Sabol, 41 Amherst Dr., Burlington, N.J. 08016
Filed Jun. 9, 1997, Ser. No. 871,258
Int. Cl.⁶ G08B *23/00*

U.S. Cl. 340—984 **6 Claims**



1. An alarm module comprising:

at least one electronic display module situated on a boat with a display for indicating the status of the vital functions of the engine of the boat, the at least one electronic display adapted to produce an activation signal upon detection of an anomaly within the engine;

a direct current battery supply for supplying power;

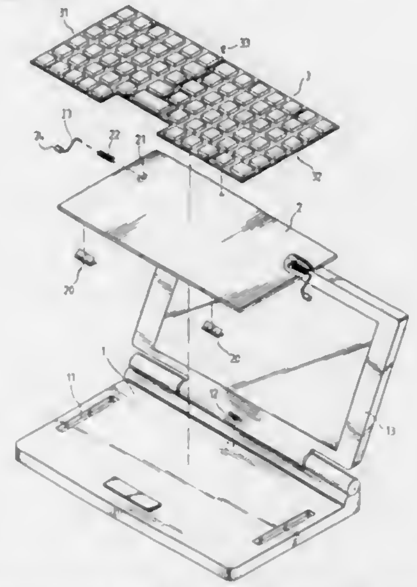
an alarm horn for generating an audible alarm upon the receipt of power;

an interconnection network including power means having at least one voltage regulator connected to the battery supply for providing a lesser voltage an output thereof, each voltage regulator having a pair of capacitors of unequal capacitance connected in parallel between the output of the associated voltage regulator and a ground, the interconnection network further including switch means having at least one input terminal connected to the at least one electronic display module for receiving the activation signal therefrom, a first relay coil connected to the at least one input terminal, a first normally open relay contact connected to the output of the at least one voltage regulator of the power means for closing upon the receipt of the activation signal by the first relay coil, a second relay coil connected between the first relay contact and ground, and a second normally open relay contact connected between the battery supply and the alarm horn for supplying power to the horn upon the closing of the first relay contact.

5,786,775
KEYBOARD STRUCTURE OF A PORTABLE COMPUTER

Chih-Ching Chang, Taipei, Taiwan, assignor to Compal Electronics, Inc., Taipei, Taiwan
Filed Mar. 13, 1997, Ser. No. 816,248
Int. Cl.⁶ H05K *7/16*

U.S. Cl. 341—22 **7 Claims**



1. A keyboard structure of a portable computer, comprising:

a base seat;

a pad board having supporting cranks pivotally disposed on two sides thereof, the free end of each supporting crank being slidably positioned on the base seat, the front edge of the pad board being pivotally connected near the front edge of the base seat by pivot members;

a keyboard disposed on the pad board, whereby when rotating the supporting cranks, the rear end of the pad board is forward and upward lifted by an inclination angle.

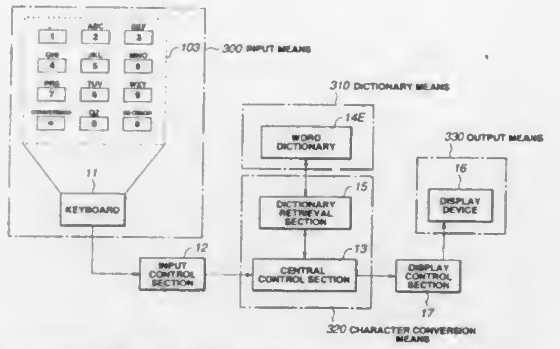
5,786,776
CHARACTER INPUT TERMINAL DEVICE AND RECORDING APPARATUS

Kazuhiro Kisaichi, Hino; Nobuhiro Inoue, Hachioji; Toshihiko Nannichi, Fuchu; Jitsu Iwaki, Kunitachi; Toshiro Nose, Sagamihara; Katsunari Sasaki, Tachikawa, and John Riley, Hino, all of Japan, assignors to Kabushiki Kaisha Toshiba, Kanagawa-ken, Japan
Filed Mar. 12, 1996, Ser. No. 614,246
Claims priority, application Japan, Mar. 13, 1995, 7-052183
Int. Cl.⁶ H03K *17/94*

U.S. Cl. 341—23 **25 Claims**

1. A character input terminal device comprising:

dictionary means for storing character or character string and candidate character corresponding to the character or candidate character string corresponding to the character string;



input means for entering characters or character string including a plurality of keys with which a plurality of characters are associated, a conversion/next candidate key for designating character conversion and a decision key for deciding the designated conversion;

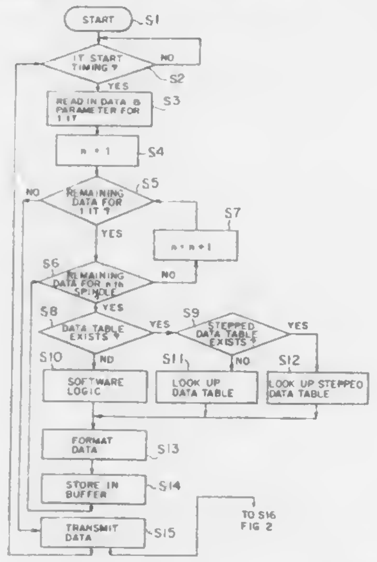
output means for at least displaying and outputting candidate character or candidate character string obtained as a result of conversion; and

character conversion means for obtaining candidate character or candidate string by retrieving said dictionary means, with respect to the input character or input character string entered from said input means, and for transmitting this candidate character or candidate character string to said output means.

5,786,777
DATA COMPRESSION COMMUNICATION METHOD BETWEEN A MAIN CONTROL UNIT AND TERMINALS

Hayao Hirai, Nagoya, Japan, assignor to Mitsubishi Denki Kabushiki Kaisha, Tokyo, Japan
Continuation of Ser. No. 937,564, Aug. 31, 1992, abandoned. This application Apr. 7, 1997, Ser. No. 826,768
Claims priority, application Japan, Sep. 3, 1991, 3-222802
Int. Cl.⁶ H03M *7/00*

U.S. Cl. 341—55 **22 Claims**



1. A method for transmitting electrical data signals between information units of a control system over an electrical transmission medium, said electrical data signals representing decimal numbers corresponding to parameters of said system, comprising the steps of:

converting decimal number parameters of said system to be transmitted, said decimal number parameters being reresented in a character representation code system as 8-bit characters, into base n numbers, where n is a whole number greater than 10;

converting said base n numbers into binary byte codes of an alphanumeric character representation code system;

transmitting said binary byte codes over said electrical transmission medium;

receiving said transmitted binary byte codes from said electrical transmission medium;

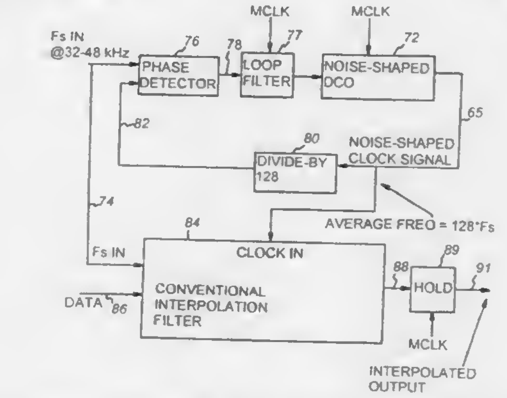
converting received binary byte codes of said character representation code system into received base n numbers; and

converting said received base n numbers into said decimal numbers, such that the amount of decimal number data to be transmitted over said electrical transmission medium is reduced as compared with transmission of said 8-bit character representation code.

5,786,778
VARIABLE SAMPLE-RATE DAC/ADC/CONVERTER SYSTEM

Robert W. Adams, Acton, Mass., and Tom W. Kwan, Milpitas, Calif., assignors to Analog Devices, Inc., Norwood, Mass.
Filed Oct. 5, 1995, Ser. No. 539,438
Int. Cl.⁶ H03M *1/66*

U.S. Cl. 341—61 **18 Claims**



1. A digital oversampling noise-shaping system comprising:

a digital noise-shaped clock signal generating circuit, including a digitally-controlled oscillator DCO operating at a fixed master clock rate, that receives an input clock signal having an input sample rate and produces a noise-shaped clock signal having a variable rate with an average rate equal to a multiple of the input sample rate, wherein the DCO includes a first sigma-delta modulator that operates at a variable rate; and

an interpolator, coupled to the clock signal generating circuit, that receives digital input samples at an input sample rate and, responsive to the noise-shaped clock signal, upsamples the digital input samples at the variable rate.

5,786,779
DIGITAL-TO-ANALOG CONVERTER WHICH USES A SIGMA-DELTA MODULATION

Phil-Seong Chun, Kwacheon, and Kwang-Yong Lee, Yongin-gun, both of Rep. of Korea, assignors to Samsung Electronics Co., Ltd., Kyungki-Do, Rep. of Korea
Filed Aug. 8, 1996, Ser. No. 694,114
Claims priority, application Rep. of Korea, Aug. 8, 1995, 24433/1995
Int. Cl.⁶ H03M *3/02*

U.S. Cl. 341—61 **40 Claims**

18. A digital-to-analog (D/A) converting apparatus for converting digital data to an analog signal, said apparatus comprising:

a sampling rate converting circuit, wherein said sampling rate converting circuit inputs said digital data and converts said digital data into sampled digital data;

an interpolator which interpolates said sampled digital data to produce interpolated data, wherein said interpolator has an

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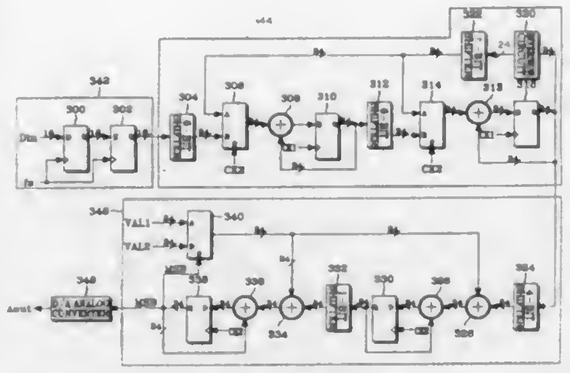


infinite impulse response (IIR) filter which performs an IIR filtering operation based on said sampled digital data to produce said interpolated data;

a digital sigma-delta demodulation circuit which inputs said interpolated data, performs a sigma-delta demodulation operation on said interpolated data, and outputs corresponding demodulated data; and

an analog digital-to-analog converter for converting said demodulated data to said analog signal, wherein said digital sigma-delta demodulation circuit comprises:

- a first shifter, wherein said first shifter inputs and shifts said interpolated data to produce first shifted data;
- first addition means for inputting said first shifted data, first selected data, and first latched data and for adding said first shifted data, said first selected data, and said first latched data to produce first summed data;
- a first latch circuit, wherein said first latch circuit inputs said first summed data and delays said first summed data by one period of a first clock signal to produce said first latched data;
- a second shifter, wherein said second shifter inputs said first latched data and shifts said first latched data to produce second shifted data;
- second addition mean for inputting said second shifted data, said first selected data, and second latched data and for adding said second shifted data, said first selected data, and said second latched data to produce second summed data;
- a second latch circuit, wherein said second latch circuit inputs said second summed data and delays said second summed data by one period of said first clock signal to produce said second latched data; and
- a first data selector, wherein said first data selector inputs a first preset range value, a second preset range value, and at least one bit of said second latched data, wherein said first data selector selectively outputs either said first preset range value or said second preset range value in accordance with said at least one bit of said second latched data, and wherein said at least one bit of said second latched data corresponds to said demodulated data.

5,786,780

VARIABLE-LENGTH ENCODER AND DECODER USING SYMBOL/CODE-WORD RE-ASSOCIATION OF A CODING TABLE

Ju-ha Park, Suwon; Byeung-woo Jeon, Sungnam, and Jechang Jeong, Seoul, all of Rep. of Korea, assignors to Samsung Electronics Co., Ltd., Kyungki-Do, Rep. of Korea

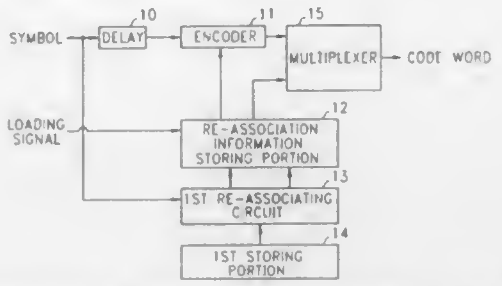
Continuation of Ser. No. 381,649, Jan. 31, 1995, abandoned. This application May 27, 1997, Ser. No. 863,952

Claims priority, application Rep. of Korea, Nov. 30, 1994, 1994 32215

Int. Cl.⁶ H03M *7/40*

U.S. Cl. 341—67 **36 Claims**

1. A variable-length code word transmission system, comprising:



encoder means for receiving and encoding input symbols into variable-length code words based on a frequency of occurrence of said symbols, said encoder means including

- means for re-associating a relationship between code words and each distinct received symbol and generating re-association information for each distinct received symbol; and
- means for transmitting said re-association information generated by said means for re-associating and said variable-length code words in an alternating manner; and

decoder means for decoding the transmitted variable-length code words based on said transmitted re-association information.

5,786,781

ENCODER ANGLE DATA COMPUTATION METHOD AND COMPUTATION APPARATUS

Mitsuyuki Taniguchi, Oshino-mura, and Hiroshi Yamaguchi, Higashishin-machi, both of Japan, assignors to Fanuc Ltd, Yamanashi, Japan

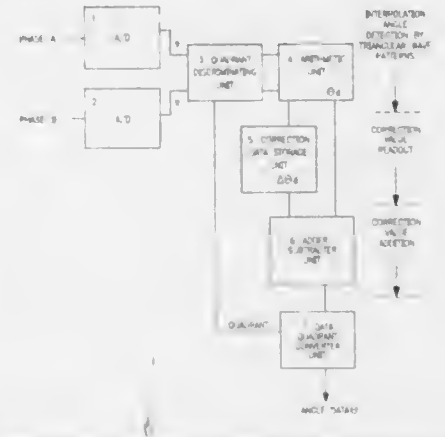
PCT No. PCT/JP96/02301, § 371 Date Apr. 14, 1997, § 102(e) Date Apr. 14, 1997, PCT Pub. No. WO97/07382, PCT Pub. Date Feb. 27, 1997

PCT Filed Aug. 14, 1996, Ser. No. 817,428

Claims priority, application Japan, Aug. 17, 1995, 7-230707

Int. Cl.⁶ G01D *5/245*

U.S. Cl. 341—111 **9 Claims**


PHASE A
PHASE B
A/D
A/D
INTERPOLATION ANGLE DETECTION BY TRIANGULAR WAVE PATTERNS
CORRECTION VALUE READOUT
CORRECTION VALUE ADDITION
ANGLE DATA

1. An angle data computation method for an encoder, comprising steps of:

(a) computing a first angle from two sine-wave encoder signal outputs in different phases by using an equation for obtaining an angle from two sine-wave signal outputs in different phases, and computing a second angle by using an equation for obtaining an angle from two triangular-wave signal outputs in different phases, thereby previously storing an angle error, the difference between the second angle and said first angle corresponding thereto, correspondingly to the second angle;

(b) obtaining two encoder signal outputs in different phases and determining said second angle based on said data; and

(c) obtaining said first angle by adding said angle error, corresponding to said obtained second angle, to the second angle.

5,786,782

MULTIPLEXED SIGNAL CONVERSION

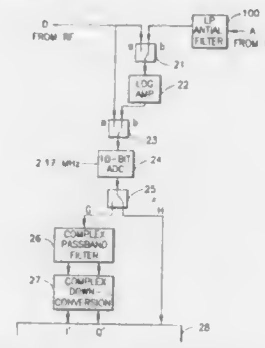
Kjell Östman, Salo; Timo Kolehmainen, Oulu, and Harri Jokinen, Hiisi, all of Finland, assignors to Nokia Mobile Phones Ltd., Salo, Finland

Filed Dec. 18, 1996, Ser. No. 768,430

Claims priority, application Finland, Jan. 5, 1996, 960066

Int. Cl.⁶ H03M *1/00;* H04B *1/38*

U.S. Cl. 341—141 **27 Claims**



1. A method for digital signal processing of two analog input signals (A, D), in which the input signals (A, D) are converted by an analog-to-digital converter (**24**; **31**) to digital form (G, H; K, L) before digital signal processing (**28**) and by a digital-to-analog converter (**45**) back to analog form after the signal processing, characterized in that before the digital signal processing:

a) the analog input signals are combined (**23**; **30**) by multiplexing into a combined multiplex signal,

b) an analog-to-digital conversion (**24**; **31**) is performed on the combined multiplex signal, and

c) the A/D-converted, digitized combined signal is demultiplexed (**25**; **32**, **34**) into two separate digital signals (G, H; K, L), which are directed in different branches to each said signal processing (**28**); wherein

a first one of said analog input signals forms a part of a reception signal path and a second one of said analog input signals forms a part of a transmission signal path.

5,786,783

ANALOG-TO-DIGITAL CONVERTER HAVING SIGNAL PIPELINE AND REFERENCE PIPELINES

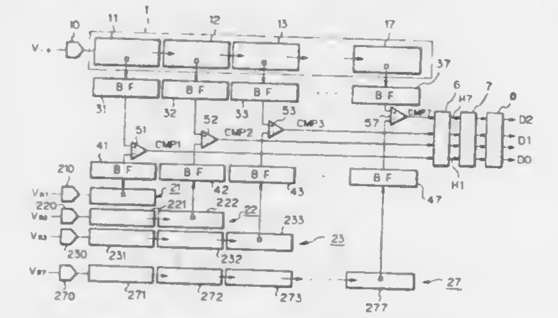
Hiroshi Hasegawa, Tokyo, Japan, assignor to NEC Corporation, Tokyo, Japan

Filed Jun. 24, 1996, Ser. No. 669,182

Claims priority, application Japan, Jun. 23, 1995, 7-180728

Int. Cl.⁶ H03M *1/42*

U.S. Cl. 341—172 **8 Claims**



1. An analog-to-digital converter comprising:

a signal charge-coupled device (CCD) pipeline comprised of a plurality of stages for passing an analog signal therethrough;

a plurality of reference CCD pipelines for passing reference signals therethrough;

a plurality of comparator means, each connected to one of said stages of said signal CCD pipeline and to one of said reference CCD pipelines, for comparing output signals of said stages of said signal CCD pipeline with respective output signals of said reference CCD pipelines;

converting means, connected to said comparator means, for converting output signals of said comparator means into an encoded digital signal, wherein said converting means includes:

- a boundary detecting circuit, connected to said comparator means, for detecting a transition between two adjacent output signals of said comparator means to generate detection signals;
- a delay circuit, connected to said boundary detecting circuit, for delaying said detection signals in accordance with delay times of said reference CCD pipelines; and
- an encoder circuit, connected to said delay circuit, for outputting said encoded digital signals in accordance with said detection signals delayed by said delay circuit.

5,786,784

REMOTE-CONTROL DEVICE FOR A VIDEO RECEIVER

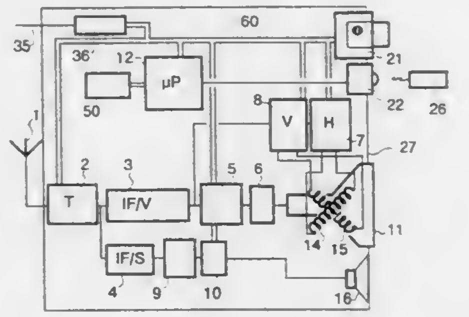
Patrice Gaudichon, Suresnes, France, assignor to U.S. Philips Corporation, New York, N.Y.

Filed Sep. 18, 1996, Ser. No. 715,686

Claims priority, application France, Sep. 20, 1995, 95 11037

Int. Cl.⁶ H03J *9/06*

U.S. Cl. 341—176 **9 Claims**



1. A remote-control system comprising a remote-control unit provided with keys for transmitting messages in response to the activation of the keys, and a video receiver provided with means for receiving said messages, the remote-control unit being provided with enciphering means for transmitting ciphered messages, and the video receiver being provided with reciprocal means for deciphering messages, characterized in that the remote-control unit comprises a plurality of command keys for transmitting a message representing a command, and a plurality of numerical keys each marked by a character representing a numerical value and intended for transmitting a message representing said numerical value, the enciphering means only acting on the numerical keys for transmitting a message representing a numerical value which is different from that corresponding to the key, with a one-to-one correspondence between the set of said different numerical values and the set of values corresponding to each key.

5,786,785

ELECTROMAGNETIC RADIATION ABSORPTIVE COATING COMPOSITION CONTAINING METAL COATED MICROSPHERES

Wayne Laval Gindrup, Hickory, and Rebecca Reeves Vinson, Conover, both of N.C., assignors to Spectro Dynamics Systems, L.P., Hickory, N.C.

Continuation-in-part of Ser. No. 612,622, May 21, 1984, Pat. No. 4,624,865, and a continuation-in-part of Ser. No. 702,684, [00b1], Pat. No. 4,624,798. This application Nov. 24, 1986, Ser. No. 933,829

Int. Cl.⁶ H01Q *07/00*

U.S. Cl. 342—1 **21 Claims**

1. An electromagnetic radiation absorptive composition which comprises an electromagnetic radiation nonabsorptive binder, and a plurality of electromagnetic radiation absorptive microspheres

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dispersed in said binder, said microspheres having a diameter from 1 to 350 microns, said microspheres containing at least one material selected from the group consisting of carbon, ferrites, magnetite, iron, nickel and cobalt; and having a thin coating of metal on the microsphere surface, said metal coating being present at a percentage by weight of 0.01 percent to 22 percent, and said coating being so thin that appreciable light transmission occurs when the microspheres are examined microscopically and so that the microspheres absorb electromagnetic radiation.

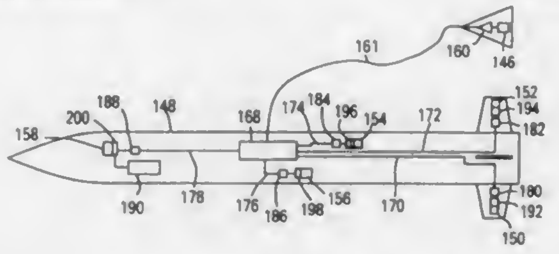
5,786,786
PHOTONIC RADAR DECOY

James G. Small, Tucson, Ariz., assignor to Raytheon Company, Los Angeles, Calif.

Filed Mar. 17, 1997, Ser. No. 818,859

Int. Cl.^{6} G01S *7/38;13/76*

U.S. Cl. 342—13 **25 Claims**



1. A decoy for simulating an aircraft to a radar having an interrogating signal, comprising:

a plurality of antenna attached to said decoy, each of said plurality of antenna independently capable of receiving said interrogating signal;

a plurality of delay lines for transmitting the interrogating signal received by said plurality of antenna;

a combiner coherently adding said interrogating signals transmitted by said plurality of delay lines and producing a coherent signal; and

a transmission antenna emitting said coherent signal which is a simulated radar signature of an aircraft.

5,786,787
METHOD FOR DETERMINING THE COURSE OF ANOTHER VEHICLE

Lars Eriksson, Stockholm, and Bert-Eric Tullsson, Järfälla, both of Sweden, assignors to Celsiustech Electronics AB, Jarfalla, Sweden

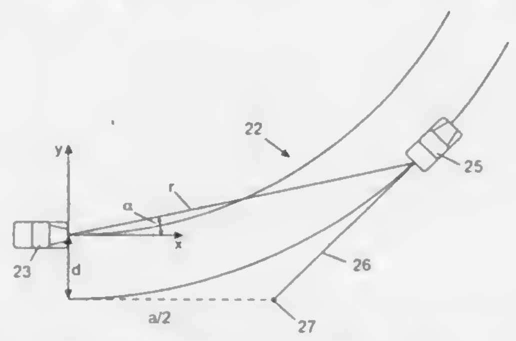
PCT No. PCT/SE95/00660, § 371 Date Dec. 6, 1996, § 102(e) Date Dec. 6, 1996, PCT Pub. No. WO95/34830, PCT Pub. Date Dec. 21, 1995

PCT Filed Jun. 7, 1995, Ser. No. 750,588

Claims priority, application Sweden, Jun. 7, 1994, 9401964

Int. Cl.^{6} G01S *13/93;13/60*

U.S. Cl. 342—70 **16 Claims**



1. A method for determining the course of another vehicle in relation to one's own vehicle by measuring the position of the other vehicle in relation to one's own vehicle with a transmitter/receiver system, said method comprising the steps of:

a) determining the position of the other vehicle by position measurements,

b) determining the side location of the other vehicle and one's own vehicle at a position where the other vehicle is level with one's own vehicle on the basis of said position measurements by moving at least one of 1) the front vehicle backwardly in time and 2) the rear vehicle forwardly in time,

c) comparing the side location of the other vehicle at the position determined in step b) with the side location of one's own vehicle, and

d) using the difference in the side locations between one's own vehicle and the other vehicle as a measure of the discrepancy between the course of the other vehicle and the course of one's own vehicle, and

wherein the position where the other vehicle is level with one's own vehicle is determined on the basis of the other vehicle's inertial speed vector at one or more points in time.

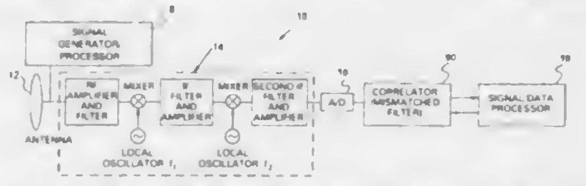
5,786,788
RADAR SYSTEM AND METHOD FOR REDUCING RANGE SIDELOBES

Michael B. Schober, and Carlos A. Davila, both of Tucson, Ariz., assignors to Raytheon Company, Los Angeles, Calif.

Filed Oct. 8, 1996, Ser. No. 727,108

Int. Cl.^{6} G01S *7/292*

U.S. Cl. 342—159 **18 Claims**



1. A system for reducing range sidelobes in a binary phase coded pulsed radar system comprising:

means for providing a received binary phase coded signal having a first length;

means for providing a binary phase coded correlator signal having a second length different from said first length; and

mismatched filter means for correlating said received signal with said correlator signal for providing a predetermined number of reduced range sidelobes at the output of said mismatched filter means.

5,786,789
GPS AND CELLPHONE UNIT HAVING ADD-ON MODULES

James M. Janky, Los Altos, Calif., assignor to Trimble Navigation Limited, Sunnyvale, Calif.

Filed Nov. 14, 1994, Ser. No. 339,990

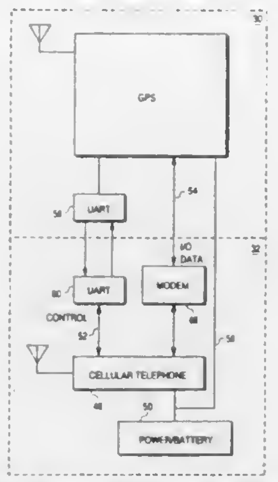
Int. Cl.^{6} G01S *5/02*

U.S. Cl. 342—357 **14 Claims**

11. A hand-held device having cellular telephone and position-locating capabilities comprising:

a hand-held cellular telephone unit;

a removable battery power module removably fixed to said cellular telephone unit to form an integral hand-held unit, wherein said battery power module includes means for providing power to said hand-held cellular telephone unit and wherein said battery power module includes a position-locating device integral therewith; and



means for removably coupling power as well as control and information signals between said cellular telephone unit and said battery power module.

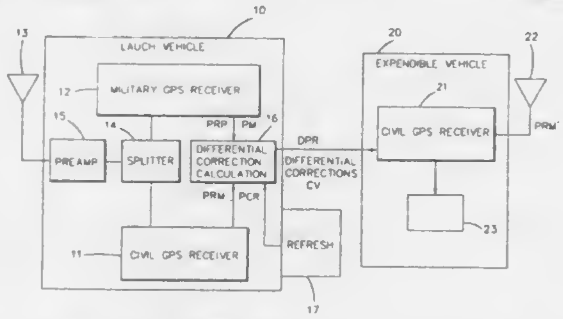
5,786,790
ON-THE-FLY ACCURACY ENHANCEMENT FOR CIVIL GPS RECEIVERS

Anthony Steven Abbott, Rancho Palos Verdes, Calif., assignor to Northrop Grumman Corporation, Los Angeles, Calif.

Filed Feb. 27, 1997, Ser. No. 806,865

Int. Cl.^{6} G01S *5/02*

U.S. Cl. 342—357 **19 Claims**



ON-THE-FLY DIFFERENTIAL GPS

1. Apparatus for on-the-fly accuracy enhancement of the position solution of a civil or degraded accuracy GPS receiver, comprising:

precise accuracy GPS receiver means and civil GPS receiver means, coupled to the same antenna, for producing respective position solutions in response to the receipt of GPS signals from a set of GPS satellites through said antenna;

means for comparing said respective position solutions and producing signals indicative of said comparisons; and

means for providing said comparison indicative signals to said degraded accuracy GPS receiver to correct its position solutions for accuracy enhancement.

5,786,791
METHOD FOR DETERMINING AN ANGLE OF ARRIVAL OF A SIGNAL TRANSMITTED BY A REMOTE UNIT IN A COMMUNICATION SYSTEM

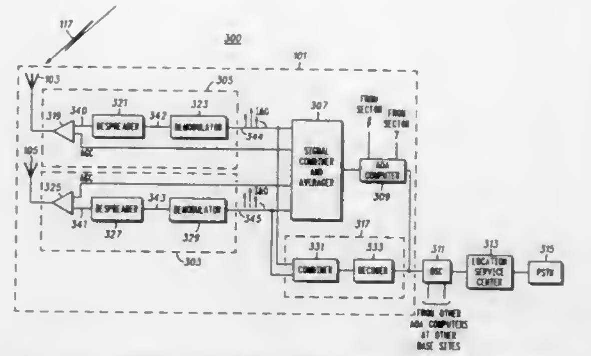
Eugene J. Bruckert, Arlington Heights, Ill., assignor to Motorola, Inc., Schaumburg, Ill.

Filed Feb. 24, 1997, Ser. No. 804,780

Int. Cl.^{6} H04B *7/185;* **G01S** *5/02*

U.S. Cl. 342—457 **12 Claims**

1. A method for determining an angle of arrival of a remote unit in a Code Division, Multiple Access (CDMA) communication system, the method comprising the steps of:



receiving an RF signal at a first antenna existing within a sectorized base site, the RF signal comprising a plurality of rays produced by undergoing multi-path scattering;

receiving the RF signal at a second antenna existing within the sectorized base site;

identifying a prompt ray from the plurality of rays received at the first antenna;

identifying the prompt ray from the plurality of rays received at the second antenna; and

determining the angle of arrival from the prompt ray received at the first and the second antenna.

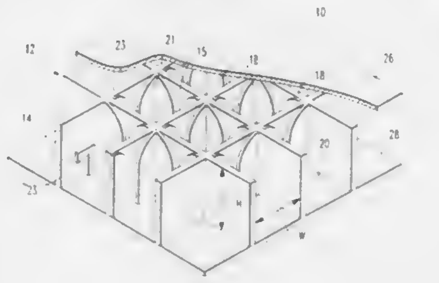
5,786,792
ANTENNA ARRAY PANEL STRUCTURE

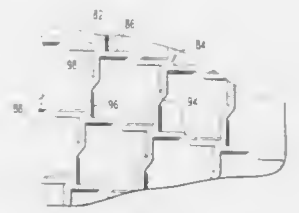
Peter A. Bellus, Eden Prairie, Minn.; Robert J. Miklosko, Cary, N.C., and Thomas P. Fontana, White Bear Lake, Minn., assignors to Northrop Grumman Corporation, Los Angeles, Calif.

Continuation of Ser. No. 259,097, Jun. 13, 1994, abandoned. This application Dec. 15, 1995, Ser. No. 573,611

Int. Cl.^{6} H01Q *13/10*

U.S. Cl. 343—770 **4 Claims**





1. An antenna array, comprising:

a monolithic three dimensional grid of dielectric material having sidewalls defining a plurality of adjacent polygonal cells, said sidewalls having an upper and lower edge;

an antenna circuit formed on a surface of at least one of the sidewalls of a plurality of the cells, between the upper and lower edge thereof, to form a plurality of notch radiating elements having a horn shaped configuration, said radiating elements being positioned near the center of said sidewalls, and wherein each of said sidewalls is offset intermediate their ends so that approximately one-half of the sidewall is offset from another half, and the antenna circuitry comprises a notch formed by circuitry on opposite surfaces of the wall offset from one another;

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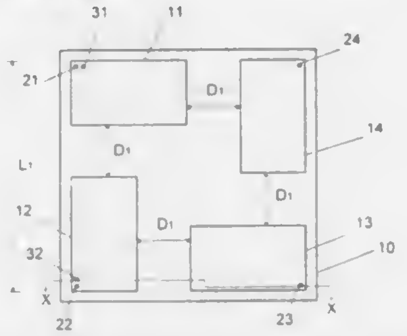
- a first sheet of dielectric material bonded to the upper edge of the grid serving as a structural outer skin and antenna radome; and
- a second sheet bonded to the lower edge of each of the sidewalls serving as both a structural inner skin and as a member supporting interconnecting circuitry of the antenna.

5,786,793
COMPACT ANTENNA FOR CIRCULAR POLARIZATION

Shoji Maeda, Osaka; Tsutomu Kobayashi, Kyoto; Munehiko Itoh, Osaka, all of Japan; Raj Mittra, Urbana, Ill.; Ikmo Park, Kwanchun, Rep. of Korea, and Supriyo Dey, Champaign, Ill., assignors to Matsushita Electric Works, Ltd., Osaka, Japan

Continuation of Ser. No. 614,650, Mar. 13, 1996, abandoned.
This application Aug. 8, 1997, Ser. No. 908,723
Int. Cl.^{6} H01Q *1/38;21/26*
U.S. Cl. 343—700 MS **7 Claims**

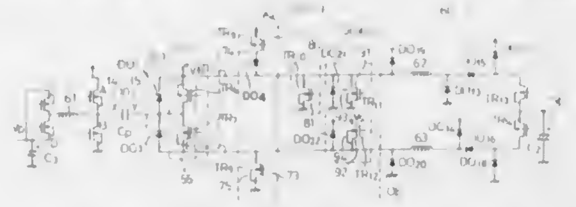


1. A compact antenna for circular polarization comprising:
- a substrate made of a dielectric material and having a top surface and a bottom surface;
- a ground plane on the bottom surface of said substrate;
- four planar and rectangular patches made of an electrically conductive material and defined as first, second, third and fourth patches which are mounted in a coplanar relation on the top surface of said substrate, the lengths of said rectangular patches being substantially equal, the widths of said rectangular patches being substantially equal, said four patches being arranged in a square pattern such that a longitudinal axis of said first patch extends parallel to that of said third patch and perpendicularly to that of each of said second and fourth patches, and that each said patch is separated from two adjacent patches by a distance, said square pattern having four sides each of which is equal to the sum of said distance, length and width of said rectangular patch;
- shorting means for shorting each of said four patches to said ground plane at a shorting point which is located at a corner of said patch; and
- feed means for directly feeding only each of said first and second patches at a feed point located near said shorting point, thereby defining said first and second patches as active antenna elements and defining said third and fourth patches as parasitic antenna elements, said feed means comprising a 90° hybrid circuit for providing a first signal to said first patch and providing a second signal which is 90° out of phase with said first signal to said second patch, and two feed lines extending from said 90° hybrid circuit to said feed point of each of said active antenna elements through said substrate without interfering with said parasitic antenna elements, said parasitic antenna elements being electromagnetically excited by said active antenna elements fed with said first and second signals to develop third and fourth signals which are cooperative with said first and second signals to achieve circular polarization, said third patch providing said third signal which is 180° out of phase with said first signal, said fourth patch providing said fourth signal which is 270° out of phase with said first signal, all of said first, second, third and fourth patches operating at a single resonance frequency for transmitting a circular polarization wave.

5,786,794
DRIVER FOR FLAT DISPLAY PANEL

Tomokatsu Kishi; Shigeki Kameyama; Kazuo Yoshikawa; Akira Otsuka, and Tadatsugu Hirose, all of Kawasaki, Japan, assignors to Fujitsu Limited, Kawasaki, Japan

Continuation of Ser. No. 188,910, Jan. 31, 1994, abandoned.
This application May 17, 1995, Ser. No. 443,038
Claims priority, application Japan, Dec. 10, 1993, 5-310258
Int. Cl.^{6} G09G *3/28;3/30*
U.S. Cl. 345—60 **41 Claims**

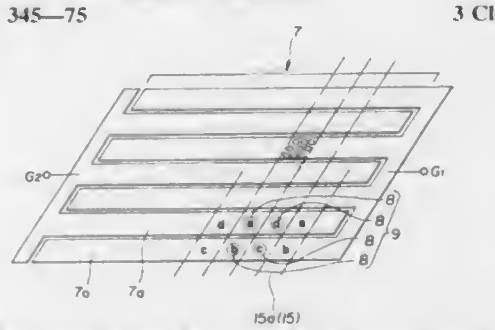


1. A driver for a panel display system comprising n scan electrodes which are independent of each other, said driver comprising:
- n driver circuits, respectively connected to said n scan electrodes;
- a power supply for supplying a voltage to each of said n driver circuits; and
- a leakage current control circuit which leaks current caused by said voltage applied to each of said n driver circuits.

5,786,795
FIELD EMISSION DISPLAY (FED) WITH MATRIX DRIVING ELECTRON BEAM FOCUSING AND GROUPS OF STRIP-LIKE ELECTRODES USED FOR THE GATE AND ANODE

Takao Kishino; Yoichi Kobori; Shigeo Itoh; Takahiro Niiyama; Toshimitsu Fuyuki, and Koji Onodaka, all of Mobara, Japan, assignors to Futaba Denshi Kogyo K.K., Mobara, Japan

Filed Sep. 30, 1994, Ser. No. 315,578
Claims priority, application Japan, Sep. 30, 1993, 5-245193; Oct. 20, 1993, 5-262388
Int. Cl.^{6} G09G *3/22*
U.S. Cl. 345—75 **3 Claims**

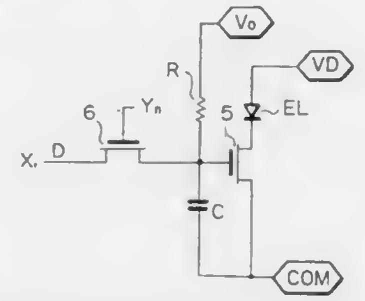


1. A field emission type fluorescent display device comprising:
- a field emission cathode including a cathode conductor, emitters and a gate; and
- a phosphor-deposited anode arranged in a manner to be opposite to said filed emission cathode;
- said field emission cathode having an electron emission region divided into a plurality of unit regions arranged in a matrix-like configuration;
- said unit regions being subject to matrix driving, resulting in a display being selectively carried out;
- said unit regions each being divided into a plurality of subregions;
- said gate and anode each being divided into a plurality of strip-like electrodes said strip-like electrodes of said gate and said strip-like electrodes of said anode being arranged in a manner to be perpendicular to each other;
- said strip-like electrodes being arranged in a manner to correspond to said subregions and commonly connected to each other at every second or more interval, to thereby provide a plurality of strip-like electrode groups.

5,786,796
IMAGE DESPLAY DEVICE

Ichiro Takayama, Kanagawa; Michio Arai, Tokyo, and Mitsufumi Codama, Kanagawa, all of Japan, assignors to TDK Corporation, Tokyo, and Semiconductor Energy Laboratory Co., Ltd., Atsugi, both of Japan

Filed Mar. 1, 1996, Ser. No. 609,376
Claims priority, application Japan, Mar. 3, 1995, 7-43749
Int. Cl.^{6} G09G *3/30;5/00;3/10*
U.S. Cl. 345—76 **1 Claim**



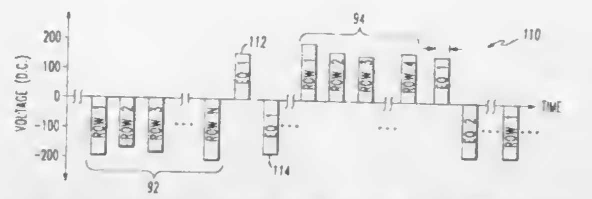
1. An image display device comprising, for each pixel, a thin film display element, a first non-linear element for emit control of said thin film display element, a signal hold capacitor coupled with a gate electrode of said non-linear element, and a second non-linear element for writing data in said capacitor, wherein the improvement comprises that said display element is an organic EL element with one end coupled with a fixed potential and another end thereof coupled with said first non-linear element, and that a resistor is provided between said capacitor and a fixed potential so that a resistance of the resistor is larger than a resistance of said non-linear element for writing data in an ON state, and is smaller than the resistance of said non-linear element for writing data in an OFF state, wherein a resistance of said resistor is in the range between 2 times and 10^8 times as large as that of said second non-linear element in ON state, and is in the range between ½ times and $1/10^8$ as large as that of said second non-linear element in OFF state.

5,786,797
INCREASED BRIGHTNESS DRIVE SYSTEM FOR AN ELECTROLUMINESCENT DISPLAY PANEL

Mohan Lal Kapoor, Orange; Dominic Louis Monarchie, Norwalk; Thomas John Rebeschi, North Haven, and Russell Anthony Budzilek, Bridgeport, all of Conn., assignors to Northrop Grumman Corporation, Los Angeles, Calif.

Continuation of Ser. No. 367,901, Jan. 3, 1995, abandoned, which is a continuation of Ser. No. 210,118, Mar. 17, 1994, abandoned, which is a continuation of Ser. No. 988,545, Dec. 10, 1992, abandoned. This application Aug. 30, 1996, Ser. No. 705,977
Int. Cl.^{6} G09G *3/30*
U.S. Cl. 345—79 **5 Claims**

1. A symmetrical drive method of respectively applying write and modulation voltages across intersecting row and column electrodes of an AC thin film electroluminescent display panel forming thereby a frame of pixels to display information on the panel, comprising the steps of:
- generating a continuous or discrete ramped voltage signal;

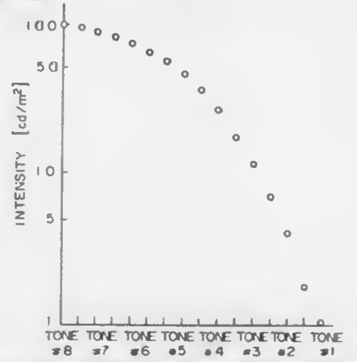


- coupling said ramped voltage signal to a set of column drivers, said column drivers operating as sample-and-hold devices for sampling said ramped voltage signal at a predetermined time and retaining a sampled value thereof to provide a variable modulation voltage signal for said pixels during a frame generation period to vary the luminance of said pixels;
- applying said variable modulation voltage to said column electrodes during each write cycle;
- generating positive and negative supply voltage signals;
- coupling said positive and negative supply voltage signals to a set of row drivers for generating positive and negative polarity write signals;
- applying first write pulse voltage signals of one of said positive and negative polarities sequentially to all of said row electrodes in a first write cycle;
- applying second write pulse voltage signals sequentially to all of said row electrodes of substantially the same magnitude as said first write pulse voltage signals but now of an opposite polarity from said one polarity in a second and alternate write cycle; and
- generating and simultaneously applying a first equalizing voltage pulse signal having a positive or negative voltage polarity and a second equalizing voltage pulse signal having an opposite voltage polarity from the polarity of the first equalizing voltage pulse signal to all of said row electrodes in said first and second write cycles to thereby remove electrons trapped at dielectric interfaces of said pixels, said equalizing voltage pulse signals having a pulse width about equal to or greater than the pulse width of said first and second write pulse voltage signals and also having a voltage magnitude of a predetermined value so as to reduce latent images and pseudo persistence.

5,786,798
MULTIPLE-TONE DISPLAY SYSTEM

Naruhiko Kasai, Fujisawa; Hiroyuki Mano, Chigasaki; Shigeyuki Nishitani, Ebina; Isao Takita, Fujisawa, and Kohji Takahashi, Mobara, all of Japan, assignors to Hitachi, Ltd., Tokyo, Japan

Continuation of Ser. No. 486,291, Jun. 7, 1995, Pat. No. 5,610,626, which is a division of Ser. No. 18,494, Feb. 17, 1993, Pat. No. 5,495,287. This application Mar. 7, 1997, Ser. No. 813,387
Claims priority, application Japan, Feb. 26, 1992, 4-039203
Int. Cl.^{6} G09G *3/36*
U.S. Cl. 345—89 **15 Claims**



1. A multiple-tone display system for providing multiple-tone representations for display on a display device having a plurality of pixels arrayed in a dot matrix pattern, said display system comprising:
- a data converter for receiving multiple-tone display information containing n bits per pixel, and sequentially converting the

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n-bit multiple-tone display information into m-bit display data corresponding to one horizontal line on the display device;

a drive voltage generator having a group of voltage dividing resistors for dividing a reference voltage non-uniformly into M drive voltage levels to provide unequal differences between adjacent ones of the drive voltage levels such that display intensities of a plurality of display tones based on such drive voltage levels are defined as a convex function of a grade of said plurality of tones when said display intensities are plotted on a logarithmic scale with respect to said plurality of tones;

a data driver for selecting one of the M drive voltage levels from said drive voltage generator for display data of each pixel on one horizontal line on the display device, and connecting said drive voltage generator with said data converter so as to supply the selected drive voltage level to the display device in accordance with the display data supplied by said data converter, said data driver selecting two different drive voltage levels in successive frames with respect to at least some of a plurality of display tones such that display intensities of the plurality of display tones are defined as a convex function of a grade of said plurality of tones when said plurality of display intensities are plotted on a logarithmic scale with respect to said plurality of tones, in order to obtain N grades of display tones by said M-level drive voltage generator, wherein m and n are natural numbers larger than 1, $M=2^m$, $N=2^n$, and $M<N$; and

a scan driver for selecting one horizontal line on the display device for successive display of multiple-tone representations in synchronism with the operation of said data converter and said data driver.

5,786,799

DRIVING METHOD FOR A LIQUID CRYSTAL DISPLAY

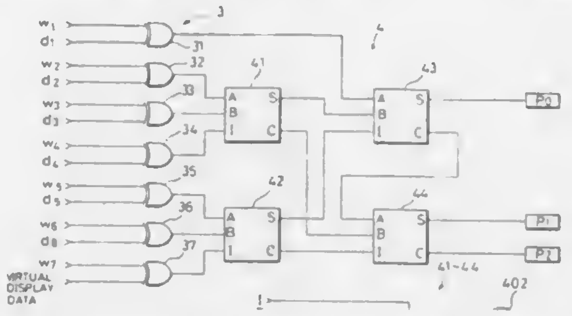
Kiyohisa Matsui; Norio Yasunishi, both of Yamatokoriyama; Hiromasa Asada; Koki Taniguchi, both of Ikoma, and Toshihiro Ohba, Nara, all of Japan, assignors to Sharp Kabushiki Kaisha, Osaka, Japan

Filed Sep. 19, 1995, Ser. No. 531,169

Claims priority, application Japan, Sep. 20, 1994, 6-225182

Int. Cl.⁶ G09G *3/36*

U.S. Cl. 345—94 **8 Claims**



1. A driving method for a liquid crystal display having a liquid crystal, the liquid crystal responding to a root-mean-square voltage and being disposed between a plurality of row electrodes and a plurality of column electrodes, the row and column electrodes being arranged in a matrix form, said method comprising the steps of:

(a) applying a row select voltage to each of the row electrodes simultaneously, the row select voltage corresponding to an element of an orthogonal matrix and being either +1 or −1;

(b) conducting an exclusive-or operation with respect to each element of a row select vector and a display vector, the row select vector indicating the row select voltages by vector notation and the display vector indicating a display data by the vector notation, and conducting a summation of each exclusive-or operation;

(c) applying to the column electrode a voltage of a level which varies depending on the summation so as to simultaneously drive the plurality of row electrodes; and

(d) in a case where all the display data correspond to ON display or OFF display in the step (c), assigning the row select voltage, applied to either the selected row electrode having the lowest select voltage among driving voltages within one frame period for the ON display or the selected row electrode having the highest select voltage among the driving voltages within one frame period for the OFF display, to a virtual row electrode outside a display area, and applying a virtual display data to the virtual row electrode.

5,786,800

DISPLAY DEVICE

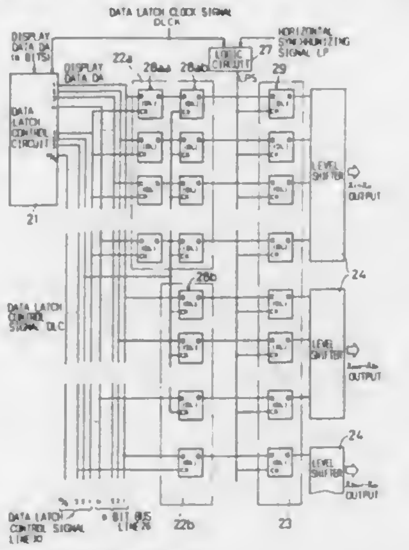
Seijirou Gyouten, Tenri, Japan, assignor to Sharp Kabushiki Kaisha, Osaka, Japan

Filed Apr. 12, 1996, Ser. No. 630,973

Claims priority, application Japan, Apr. 14, 1995, 7-089860

Int. Cl.⁶ G09G *3/36*

U.S. Cl. 345—98 **12 Claims**


DATA LATCH CLOCK SIGNAL DLCK
DISPLAY DATA DA (n BITS)
HORIZONTAL SYNCHRONIZING SIGNAL LP
LOGIC CIRCUIT
27
22a
28aa
28ab
29
DISPLAY DATA DA
DATA LATCH CONTROL CIRCUIT
21
LEVEL SHIFTER
OUTPUT
24
DATA LATCH CONTROL SIGNAL DLC
DATA LATCH CONTROL SIGNAL LINE 30
n BIT BUS LINE 26
22b
23

1. A display device comprising:

a display panel wherein a plurality of segment electrodes disposed in parallel with one another are arranged orthogonal to a plurality of scanning electrodes disposed in parallel with one another, the intersections of electrodes are used as pixels, and data signals for determining display conditions are supplied from the segment electrodes to the pixels on the scanning electrodes selected by selection signals sequentially supplied to the scanning electrodes;

a signal output circuit for delivering a clock signal which is to be used as the reference of signal output timings, the data signals, the selection signals, a horizontal synchronizing signal to be delivered each time the delivery of the data signal for one scanning electrode ends, and a vertical synchronizing signal to be delivered each time the delivery of the data signals for all the scanning electrodes ends;

a segment-side drive circuit for retaining the data signal for one scanning electrode and for supplying the retained data signal to the segment electrodes; and

a common-side drive circuit for sequentially supplying a selection signal to the scanning electrodes,

wherein the data signals are delivered in parallel to n (n is an integer of 1 or greater) pieces of segment electrodes within one period of the clock signal, the parallel signals are delivered x/n times (x is the total of segment electrodes; when x is not an integer multiple of n, a decimal fraction thereof is rounded up) to supply data signals for one scanning electrode, and

the segment-side drive circuit includes:

a data latch control circuit for outputting the first to m/nth (m is an integer multiple of n and the number of segment electrodes to which data signals to be supplied at one time are supplied by the segment-side drive circuit) latch control signals, the logic level of which is inverted while data signals for n pieces of segment electrodes are supplied and the logic level inversion timing values of which are shifted from one another by one period of the clock signal;

a data latch circuit for capturing data signals in accordance with the latch control signal;

a capture signal output circuit for outputting a capture signal for capturing data during the period between the termination of the delivery of the horizontal synchronizing signal and the termination of the delivery of the first clock signal for the next scanning electrode in accordance with the horizontal synchronizing signal and the clock signal;

a line latch circuit for retaining data signals for one scanning electrode retained in the data latch circuit while the capture signal is outputted; and

a data output circuit for outputting data signals for one scanning electrode retained in the line latch circuit to the segment electrodes of the display panel,

wherein the data latch circuit includes:

a first latch circuit portion comprising n pieces of latch circuits disposed in parallel with one another at a first stage thereof and n pieces of other latch circuits disposed in parallel with one another at a second stage thereof, the latch circuits at the first stage being connected to the latch circuits at the second stage in series, respectively; and

a second latch circuit portion comprising (m–n) pieces of latch circuits disposed in parallel with one another and connected to the latch circuits of the first latch circuit portion in parallel so that the first and second latch circuit portions can be used as one latch circuit group of n pieces of latch circuits,

wherein among the data signals for one scanning electrode, a data signal to be delivered the first time is retained in the latch circuits at the first stage of the first latch circuit portion in accordance with the first latch control signal;

the data signal retained at the first stage of the first latch circuit portion is retained in the latch circuits at the second stage, while the data signal to be delivered the second time is retained in the latch circuit group of the second latch circuit portion in accordance with the second latch control signal; and

the remaining data signals of the data signals for one scanning electrode are retained sequentially in the latch circuit group of the second latch circuit portion in accordance with the third to m/nth latch control signals.

5,786,801

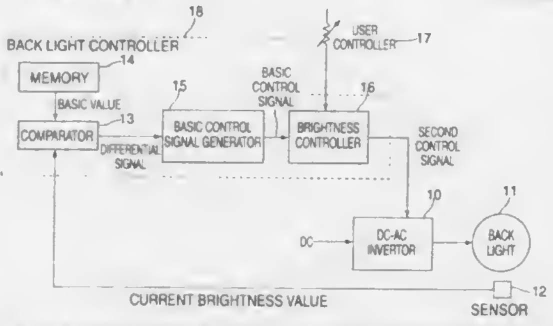
BACK LIGHT CONTROL APPARATUS AND METHOD FOR A FLAT DISPLAY SYSTEM

Atsushi Ichise, Newport Beach, Calif., assignor to Sony Corporation, Tokyo, Japan, and Sony Transcom, Inc., Irvine, Calif.

Filed Sep. 6, 1996, Ser. No. 709,080

Int. Cl.⁶ G09G *3/36*

U.S. Cl. 345—102 **15 Claims**



1. A back light control apparatus, for a back light installed in one of a plurality of display apparatus forming a system co-located in discrete space, comprising:

a sensor arranged to detect only a brightness value of light produced by said back light;

a comparator to compare a detected brightness value from said sensor with a predetermined system luminance level and producing a control signal only when the detected brightness value is greater than or equal to said predetermined system luminance level;

a user controller manually operated by a user for generating a user control signal; and

a brightness controller for controlling brightness of said back light based on said control signal from said comparator and on said user control signal from said user controller so as to control said brightness based only on said user control signal when said detected brightness value is higher than said predetermined luminance level, thereby producing substantial uniformity of perceived brightness among said plurality of co-located display apparatus.

5,786,802

CIRCUIT AND METHOD FOR VERTICALLY EXPANDING A DISPLAY IMAGE

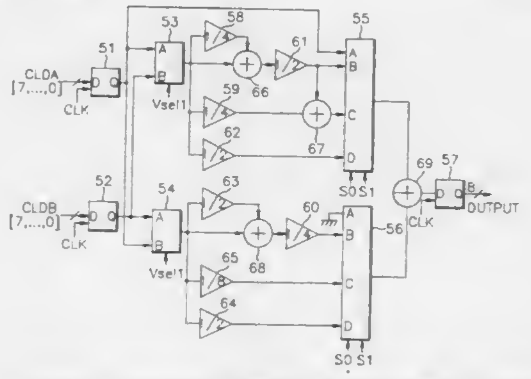
Se-Woong Park, Seoul, Rep. of Korea, assignor to Samsung Electronics Co., Ltd., Kyungki-Do, Rep. of Korea

Filed Dec. 28, 1995, Ser. No. 579,673

Claims priority, application Rep. of Korea, Dec. 28, 1994, 1994-38080

Int. Cl.⁶ G09G *5/00*

U.S. Cl. 345—127 **1 Claim**



1. A circuit for vertically expanding a display image in which a field memory stores a color signal, having even and odd numbered fields, wherein the color signal is obtained by multiplying R-Y and B-Y components, a first line memory operates in synchronization with a write enable signal active simultaneously with a read enable signal for controlling the field memory and stores data output from the field memory in units of a line, and a second line memory operates in synchronization with the write enable signal active simultaneously with the read enable signal for controlling the field memory and stores data output from the first line memory, the circuit comprising:

first and second multiplexers, receiving the line data stored in the first and second line memories, for selectively outputting, according to a third select signal, said line data received from the first line memory and the second line memory;

a first adder for adding said line data output from said first multiplexer amplified ¼ times to said line data output from said first multiplexer;

a second adder for adding a signal output from said first adder amplified ½ times to the signal output from said first multiplexer amplified by ¼ times;

a third multiplexer, inputting the signal output from said first multiplexer amplified by ½ times, for selectively outputting the input signal to said third multiplexer based on a signal for classifying the field as one of the even field and the odd field;

a third adder for adding the signal output from said second multiplexer amplified by ½ times to said signal output from said second multiplexer;

a fourth multiplexer, inputting the signal output from said second multiplexer amplified ½ times, the signal output from said second multiplexer amplified ⅛ times and the output of

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said third adder amplified ¼ times, for selectively outputting said signals input to said fourth multiplexer based on said signal for classifying the field as one of the even field and the odd field; and

a fourth adder for adding output signals of said third and fourth multiplexers.

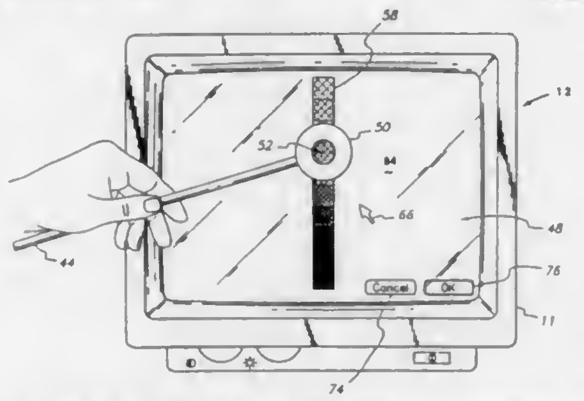
5,786,803
SYSTEM AND METHOD FOR ADJUSTING THE ILLUMINATION CHARACTERISTICS OF AN OUTPUT DEVICE

Mathew Hernandez, El Granada; Richard D. Cappels, Sr., San Jose, and Jesse Michael Devine, Sunnyvale, all of Calif., assignors to Apple Computer, Inc., Cupertino, Calif.

Continuation-in-part of Ser. No. 240,002, May 9, 1994. This application Sep. 20, 1994, Ser. No. 309,165

Int. Cl.⁶ G09G *5/04*

U.S. Cl. 345—153 **2 Claims**



1. A system for adjusting color and intensity to compensate for reflected ambient illumination, the system comprising:

an output device having a controllable output and an input for receiving an output signal to be output on the output device;

a processor, having inputs and outputs, an output of the processor coupled to the output device;

a compensator, having inputs and outputs coupled to the processor, for adjusting an output signal from the processor to the output device to compensate the output device for the effects of ambient illumination; and

a reflection device having pre-determined reflectivity characteristics, for comparing to the output of the output device, the reflection device defining an aperture having a diameter less than 1.75 centimeters.

5,786,804
METHOD AND SYSTEM FOR TRACKING ATTITUDE

Gary B. Gordon, Saratoga, Calif., assignor to Hewlett-Packard Company, Palo Alto, Calif.

Filed Oct. 6, 1995, Ser. No. 540,355

Int. Cl.⁶ G09G *5/08*

U.S. Cl. 345—158 **16 Claims**

1. A method of tracking attitude of a device comprising the steps of:

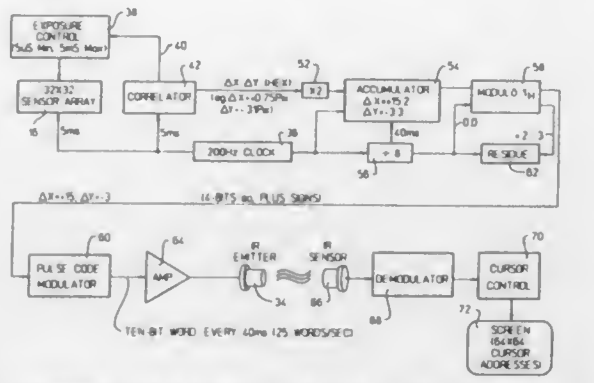
fixing a two-dimensional array of photosensors to said device;

attaching an optical means to said device to image features of an environment onto said photosensors;

utilizing said two-dimensional array to acquire a first image of features within a field of view of said array;

storing said first image;

utilizing said two-dimensional array to acquire a second image of features within said field of view at a time subsequent to acquiring said first image, said first and second images being images of regions that are largely overlapping such that there are features common to both of said first and second images,



correlating said first and second images to detect differences in location of said common features within said first and second images; and

based upon said step of correlating, forming an attitudinal signal indicative of any changes in angular orientation of said device during an interval between acquiring said first and second images.

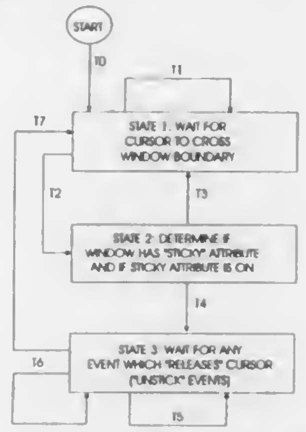
5,786,805
METHOD AND APPARATUS FOR IMPROVING OBJECT SELECTION ON A COMPUTER DISPLAY BY PROVIDING CURSOR CONTROL WITH A STICKY PROPERTY

Edwin Franklin Barry, 1208 Larkhall Ct., Cary, N.C. 27511

Filed Dec. 27, 1996, Ser. No. 774,359

Int. Cl.⁶ G07G *5/08*

U.S. Cl. 345—159 **8 Claims**


START
T0
T1
T7
STATE 1: WAIT FOR CURSOR TO CROSS WINDOW BOUNDARY
T2
T3
STATE 2: DETERMINE IF WINDOW HAS "STICKY" ATTRIBUTE AND IF STICKY ATTRIBUTE IS ON
T4
STATE 3: WAIT FOR ANY EVENT WHICH "RELEASES" CURSOR ("UNSTICK" EVENTS)
T6
T5

1. A computer system that supports 1) the display of objects on a display area of a display device and 2) a pointing device that, in conjunction with cursor control logic, controls movement of a cursor over the display area of said display device, for purpose including selection individual of said objects, with a predefined sensitivity characteristics wherein

said cursor control logic includes position logic for detecting when the cursor is at a point on the display which is within such an object and sensitivity control logic, responsive to said position logic detecting the cursor within said object, that changes the sensitivity of said pointing device

wherein the sensitivity control logic reduces the sensitivity of the pointing device when the cursor is detected within said object whereby the pointing device is adapted to more easily permit selection of the object and

wherein said sensitivity control logic determines the speed of the cursor as it moves on the display and disables the change in sensitivity if the speed is above a predetermined level.

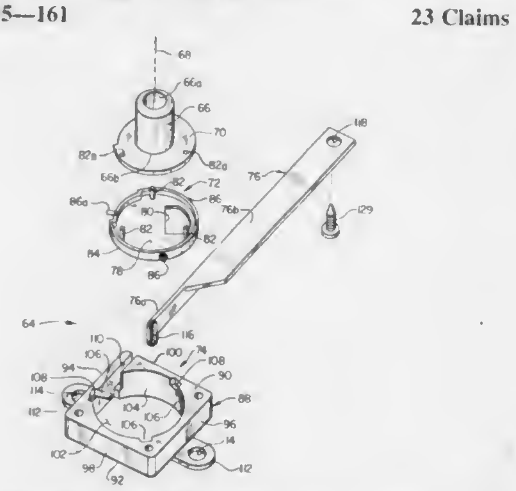
5,786,806
COLLAPSIBLE KEYBOARD/POINTING STICK STRUCTURE

Joseph R. Fester, Tomball, Tex., assignor to Compaq Computer Corporation, Houston, Tex.

Filed Mar. 29, 1996, Ser. No. 627,697

Int. Cl.⁶ G09G *5/08*

U.S. Cl. 345—161 **23 Claims**



1. A keyboard structure for an electronic device having a screen upon which a movable cursor may be displayed, said keyboard structure comprising:

a keyboard support structure;

a mutually spaced series of keys each carried on said keyboard support structure for movement relative thereto, in a first direction, between extended use and retracted storage/transport positions;

cursor positioning means operative to generate a signal useable to selectively vary the screen position of the cursor, said cursor positioning means including:

a manual force-receiving pointing stick longitudinally extending along an axis parallel to said first direction, said pointing stick being positioned and extending outwardly between a plurality of said keys,

support means for supporting said pointing stick for rotation in opposite directions relative to said keyboard support structure about said axis in a manner causing said pointing stick to be moved axially in opposite directions between extended use and retracted storage/transport orientations thereof, and

a translatable member connected to said support means and being translatable in opposite directions relative thereto in a manner selectively rotating said pointing stick in said opposite directions about said axis.

5,786,807
CONVERTIBLE PERIPHERAL INPUT DEVICE

Johnny D. Couch, Redwood City; Sarah Mason, Foster City; Ira L. Velinsky, Saratoga, all of Calif.; Steven Kevin Guerrera, Millford, Mass.; Gregory Hunter, Westwood, Mass.; John Gundlach, Rowley, Mass., and Masanori Kudou, Kawasaki, Japan, assignors to Sega Enterprises, Ltd., Tokyo, Japan

Continuation-in-part of Ser. No. 455,055, May 31, 1995, abandoned. This application May 28, 1996, Ser. No. 654,396

Int. Cl.⁶ G09G *5/08*

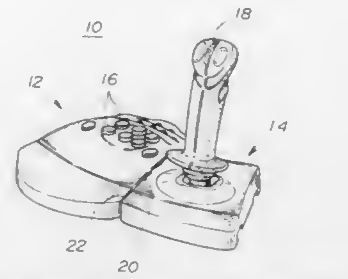
U.S. Cl. 345—161 **18 Claims**

1. A convertible peripheral input device comprising:

a control pad having a bottom surface;

a multiaxis input device having a bottom surface; and

a hinge member having a first end and a second end opposite to said first end, said hinge member being rotatably mounted to said control pad substantially 180 degrees with respect to said bottom surface of said control pad at said first end, said hinge member being rotatably mounted to said multiaxis input



device substantially 180 degrees with respect to said bottom surface of said multiaxis input device at said second end,

wherein said multiaxis input device is movable to either the right or left side of said control pad.

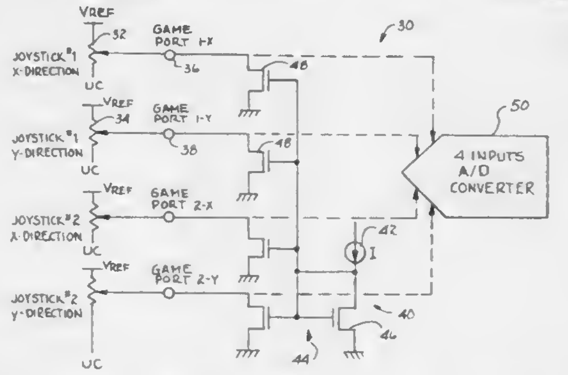
5,786,808
DIGITAL POSITIONING JOYSTICK SYSTEM AND METHOD THEREFOR

Elie G. Khoury, Gilbert, Ariz., assignor to VLSI Technology, Inc., San Jose, Calif.

Filed Apr. 17, 1997, Ser. No. 837,433

Int. Cl.⁶ G09G *5/08*

U.S. Cl. 345—161 **11 Claims**



1. A digital positioning system for a joystick comprising, in combination:

a plurality of potentiometers each of said plurality of potentiometers having one input coupled to a constant supply voltage and a second input coupled to a joystick game port each of said plurality of potentiometers generating an individual variable resistance representative of a current axial position of said joystick;

a constant current generation circuit coupled to said joystick game ports for generating a current for converting each of said individual variable resistances representative of said current axial position of said joystick to individual voltage levels representative of said current axial position of said joystick; and

an analog-to-digital (A/D) converter circuit coupled to said joystick game ports for converting each of said individual voltage levels representative of said current axial position of said joystick to individual digital voltage signals representative of said current axial position of said joystick;

wherein said constant current generation circuit comprises:

a constant current source for generating said current; and

a current mirroring circuit coupled to said constant current source and to said joystick game ports for sending said current generated by said constant current source to each of said plurality of potentiometers for converting each of said individual variable resistances of each of said plurality of potentiometers to said individual voltage levels representative of said current axial position of said joystick.

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5,786,809
METHOD OF ENTRY OF SYMBOLIC INFORMATION INTO COMPUTER SYSTEM

Vladimir Alexandrovich Ryzhov, ul. Sholokhova, d.11, kv.10, 119634, Moscow, and Sergei Viktorovich Trofimov, ul. Mosfilmovskaya, d.25, kv.41, 117330, Moscow, both of Russian Federation

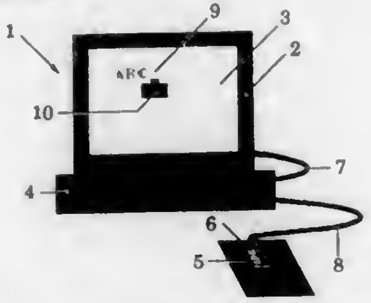
PCT No. PCT/RU94/00101, § 371 Date Mar. 18, 1996, § 102(e) Date Mar. 18, 1996, PCT Pub. No. WO94/27241, PCT Pub. Date Nov. 24, 1994

PCT Filed May 10, 1994, Ser. No. 557,063

Claims priority, application Russian Federation, May 12, 1993, 93025896

Int. Cl.^{6} G09G *5/00*

U.S. Cl. 345—168 **7 Claims**



1. A method of entry of information into a computer system having a screen of a display, comprising the steps of:
   setting an output position of a predetermined symbol on said screen,
   outputting an image of a set of symbols including the predetermined symbol onto said screen at a position which has a fixed relationship to said output position,
   selecting said predetermined symbol from said set,
   entering said predetermined symbol into said computer system after said image of said set of symbols has been output in said fixed positional relationship,
   outputting an image of said predetermined symbol onto said screen in said output position
   moving said output position on said screen to a new position, and
   moving said image of said set of symbols synchronously with said moving of said output position on said screen to maintain said fixed positional relationship between said image of said set of symbols and said output position.

5,786,810
METHOD OF DETERMINING AN OBJECT'S POSITION AND ASSOCIATED APPARATUS

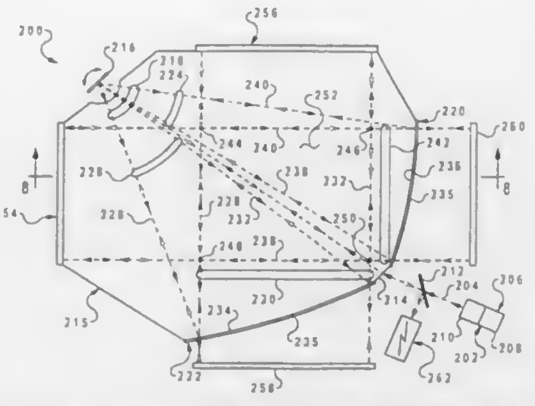
Richard M. Knox, Houston, and John R. Masters, Woodlands, both of Tex., assignors to Compaq Computer Corporation, Houston, Tex.

Continuation-in-part of Ser. No. 486,310, Jun. 7, 1995, Pat. No. 5,734,375. This application Jun. 4, 1996, Ser. No. 651,881

Int. Cl.^{6} G06F *3/023*

U.S. Cl. 345—168 **40 Claims**

1. A method of optically sensing an object's position, said method comprising the steps of:
   generating a light beam having substantially parallel sides;
   converting said light beam to an oscillating beacon, said oscillating beacon having first and second differently directed portions, said first and second beacon portions being disposed in a first plane;
   intercepting and reflecting at least one of said first and second oscillating beacon portions in said first plane;
   transposing said at least one of said first and second beacon portions to a second plane, said second plane being offset from said first plane;
   interposing the object in the path of said at least one of said first and second beacon portions to interrupt it;



   sensing the interruption of said at least one of said first and second beacon portions in said second plane; and
   utilizing the sensed interruption to determine the position of the interposed object in said second plane.

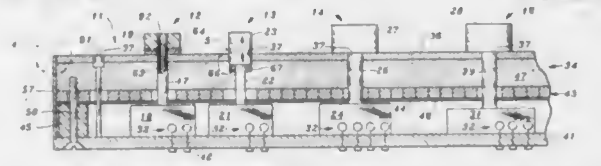
5,786,811
OPERATOR/CIRCUIT INTERFACE WITH INTEGRATED DISPLAY SCREEN

Denny Jaeger, Oakland, Calif., assignor to Intertactile Technologies Corporation, Oakland, Calif.

Division of Ser. No. 420,438, Apr. 10, 1995, Pat. No. 5,572,239, which is a continuation of Ser. No. 225,782, Apr. 11, 1994, abandoned, which is a continuation-in-part of Ser. No. 147,545, Nov. 5, 1993, abandoned. This application Aug. 26, 1996, Ser. No. 702,978

Int. Cl.^{6} G09G *5/00*

U.S. Cl. 345—172 **2 Claims**



1. In apparatus for enabling manual control of electrical equipment which apparatus has a plurality of operator actuated components each having a component housing and an actuator which extends from the housing and which can be moved from a first position to at least one other position to alter operation of said equipment, the improvement comprising:
   a control panel formed at least in part by a flat panel display having a screen with an image area at which visible images can be displayed, said screen having a first array of parallel busbars therein which extend within said image area of said screen and which extend in orthogonal relationship with busbars of a second array of parallel busbars within said display screen and which enable activation of different combinations of image pixels at different times, said screen having a plurality of spaced apart openings which extend through said screen and which are situated in said image area thereof,
   said operator actuated components being disposed at said image area of said screen with said housings of said components being behind said screen and wherein said actuators of said components extend through said openings in said image area of said screen, and
   control means for generating visible images at said image area of said screen which images convey information pertaining to operation of said components.

5,786,812
TABLET POINTER

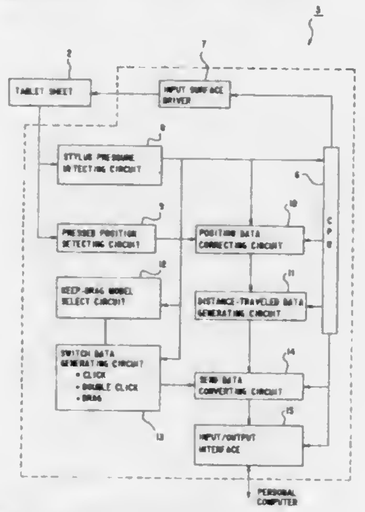
Osamu Yoshikawa; Ryo Okamura; Minekazu Miyazaki, and Noriyuki Nakanishi, all of Tokyo, Japan, assignors to SMK Corporation, Tokyo, Japan

Filed Jun. 11, 1996, Ser. No. 661,451

Claims priority, application Japan, Jun. 27, 1995, 7-182272

Int. Cl.^{6} G09G *5/00*

U.S. Cl. 345—173 **6 Claims**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7
TABLET SHEET
INPUT SURFACE DRIVER
8
STYLUS PRESSURE DETECTING CIRCUIT
6
CPU
9
PRESSED POSITION DETECTING CIRCUIT
10
POSITION DATA CORRECTING CIRCUIT
12
KEEP-DRAG MODE SELECT CIRCUIT
11
DISTANCE-TRAVELED DATA GENERATING CIRCUIT
SWITCH DATA GENERATING CIRCUIT
• CLICK
• DOUBLE CLICK
• DRAG
14
SEND DATA CONVERTING CIRCUIT
13
15
INPUT/OUTPUT INTERFACE
PERSONAL COMPUTER

1. A tablet pointer comprising:
a tablet sheet;
distance-traveled data generating means for generating distance-traveled data representing the distance of travel of a stylus pressed against said tablet sheet;
switch data generating means for generating switch data representing an operating state of a mouse switch;
keep-drag mode select means for generating a keep-drag mode signal and a keep-drag cancel signal, and for outputting one of said keep-drag mode signal and said keep-drag cancel signal into said switch data generating means; and
data output means for outputting, to a personal computer, device output data consisting of said distance-traveled data and said switch data provided in a similar same format to a mouse output format;
wherein said data output means outputs, as device output data in a mouse drag mode, said device output data that contains said distance-traveled data indicating distance of travel of said stylus press-held to said tablet sheet and said switch data indicating depression of said mouse switch,
when said switch data contained in said device output data in said mouse drag mode changes to switch data indicating a release of said mouse switch, said data output means outputs, as device output data for cancelling said drag mode, device output data containing said switch data, and
wherein when said switch data generating means is switched to a keep-drag mode by said keep-drag mode signal from said keep-drag mode select means, said switch data generating means does not generate said switch data indicating said release of said mouse switch until said keep-drag mode is cancelled by said keep-drag cancel signal from said keep-drag mode select means.

5,786,813
VIDEO DISPLAY UNIT

Jarmo Kurikko, Espoo, Finland, assignor to ICL Personal System OY, Helsinki, Finland

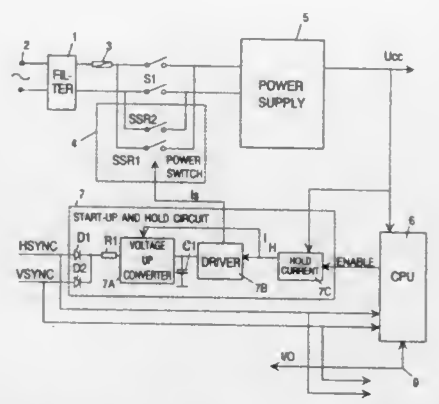
Continuation of Ser. No. 24,639, Mar. 1, 1993, abandoned. This application Aug. 23, 1994, Ser. No. 294,429

Claims priority, application Finland, Mar. 2, 1992, 920935

Int. Cl.^{6} G09G *5/00*

U.S. Cl. 345—212 **11 Claims**

1. Video display unit comprising
a built-in power supply;



at least one electrically controlled switch having an open and a closed state for controllably connecting a mains voltage to the power supply;
a control means responsive to the state of at least one video or deflection signal received by the display unit, for controlling said at least one switch to assume the open and closed state to turn the display unit off and on, respectively, no operating voltage being present in the control means when the switch is open; and
a start-up and holding circuit responsive to at least one video or deflection signal to control said at least one switch to assume the closed state by the energy of said at least one video or deflection signal to which the start-up and holding circuit responds without additional sources of energy to activate the power supply and the control means.

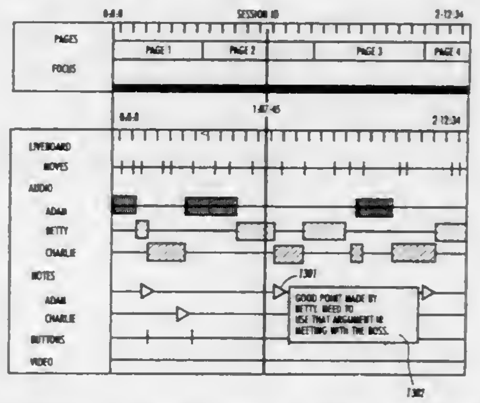
5,786,814
COMPUTER CONTROLLED DISPLAY SYSTEM ACTIVITIES USING CORRELATED GRAPHICAL AND TIMELINE INTERFACES FOR CONTROLLING REPLAY OF TEMPORAL DATA REPRESENTING COLLABORATIVE ACTIVITIES

Thomas P. Moran, Palo Alto; Donald G. Kimber, Mountain View; William J. van Melle, Los Alto, all of Calif., and Gordon P. Kurtenbach, Toronto, Canada, assignors to Xerox Corporation, Stamford, Conn.

Filed Nov. 3, 1995, Ser. No. 552,663

Int. Cl.^{6} H04N *5/91*

U.S. Cl. 345—328 **10 Claims**



1. A computer controlled display system for controlling the replay of a session captured on a plurality of media capture devices, wherein at least one of said plurality of media capture devices is a shared representation media, said shared representation media for creating and displaying graphical objects, said computer controlled display system coupled to one or more players for replaying said session, said computer controlled display system comprising:
   a display;
   a cursor control device for enabling a user to interact with said computer controlled display system;

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session input means for receiving temporal data of said captured session, said temporal data comprising timestreams and events;

processing circuitry coupled to said session input means, said processing circuitry for generating display information for windows displayed on said display, said processing circuitry comprising:

shared representation media emulation circuitry for generating display information from a timestream representing interactions with said shared representation media for display in a first window on said display, said first window serving as a player for visually displaying the temporal sequence of markings on said shared representation media and as a user interface for controlling the playback of said session;

timeline generation circuitry for generating display information for displaying visual indicators on a timeline in a second window on said display, said visual indicators corresponding to an event recorded by said plurality of media capture devices and each of said visual indicators representing a temporal index into said session; and

user interface control circuitry for detecting a user interaction in either said first window or said second window and generating control signals to each of said shared representation media emulation circuitry and said timeline generation circuitry for updating said first window and said second window responsive to said user interaction.

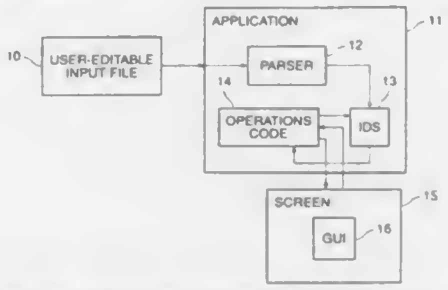
5,786,815
CONFIGURABLE RUNTIME GRAPHICAL USER INTERFACE WIDGET MANAGEMENT

David M. Ford, Los Gatos, Calif., assignor to Sun Microsystems, Inc., Palo Alto, Calif.

Filed May 31, 1996, Ser. No. 656,587

Int. Cl.⁶ G06F *3/00*

U.S. Cl. 345—333 **40 Claims**



1. A computer-implemented method for specifying a graphical user interface of an application, the method comprising:

creating a first entity definition defining a structure of a first entity;

storing the first entity definition in an input file for the application, the application including a set of callback routines;

editing the input file in order to add or modify the first entity definition; and

during execution of the application, creating a first graphical user interface that permits a user to create or modify instances of the first entity definition independent of modification to the set of callback routines, wherein said step of creating a first graphical user interface comprises the steps of:

accessing the input file and parsing the first entity definition to produce a corresponding internal format;

accessing the internal format, to determine the set of graphical elements of the first graphical user interface; and

creating the set of graphical elements of the first graphical user interface.

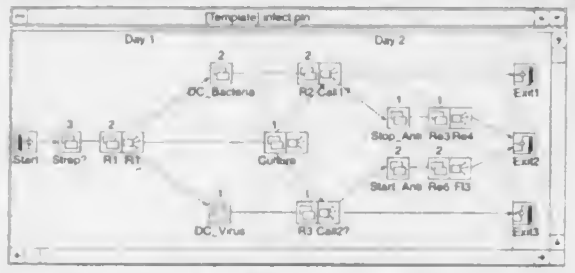
5,786,816
METHOD AND APPARATUS FOR GRAPHICAL USER INTERFACE-BASED AND VARIABLE RESULT HEALTHCARE PLAN

Kenneth I. Macrae, San Francisco; Annsheng C. Ting, Los Altos; Chung-Jen Ho, San Jose; Ragnar W. Edholm, Sunnyvale; Toshikazu Matsumoto, Half Moon Bay; Robert B. Sigmon, Jr., Redwood City, and Erik Worth, Milpitas, all of Calif., assignors to Araxsys, Inc., Redwood City, Calif.

Filed Oct. 20, 1995, Ser. No. 546,048

Int. Cl.⁶ G06F *3/00;19/00;* **A61B** *5/00*

U.S. Cl. 345—339 **29 Claims**



1. A data processing apparatus, comprising:

a display for displaying data;

input means for supplying input data;

a storage location, coupled with the display and the input means, for storing data, images, and programs; and

processing means, coupled to the display means, the input means, and the storage means, for controlling the storage means, the input means, and the display means in response to stored programs and input data to perform data processing operations;

wherein the display includes,

a plurality of graphic icon images, stored in the storage location, arranged on the display representing a medical treatment plan;

wherein the stored programs includes,

a first program for splitting an icon image representing a result in the medical treatment plan into a first icon image representing a first result and a second icon image representing a second result; and

a second program for providing a separate results/flow control node pair having informational connections that are coupled to the first icon image and the second icon image, the separate results/flow control node responsive to the icon image.

5,786,817
METHOD AND APPARATUS FOR SETTING RETENTION PERIOD OF E-MAIL BASED ON VISUAL SCREEN SELECTION

Akio Sakano, Ibaraki, and Michiru Maeji, Kanagawa, both of Japan, assignors to Sony Corporation, Tokyo, Japan

Filed May 22, 1996, Ser. No. 650,268

Claims priority, application Japan, May 31, 1995, 7-134522

Int. Cl.⁶ G06F *3/00*

U.S. Cl. 345—339 **15 Claims**

1. An apparatus for managing information, comprising:

memory means for successively storing entered information;

a CPU having a program for managing the information stored by said memory means;

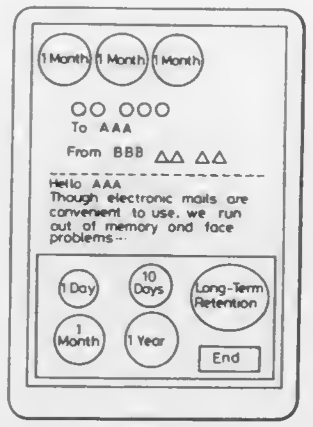
a display unit for displaying the information managed by said CPU;

a timer;

input means for making an entry of retention period data relative to the information displayed by said display unit;

said input means having setting means for establishing a retention period with respect to the displayed information from displayed retention period data;

said CPU having means for adding the retention period to the information and controlling the display unit to display the retention period data with the information, for storing the information with the retention period added thereto in said memory means and for deleting the information with the added retention period which has expired, as detected by comparison with a present time in said timer at a given period of time, wherein said setting means comprises means for independently displaying different units of retention period data on said display unit at the same time with the information and establishing said retention period in response to one or more entries made in relation to any one of said different units of retention period data, and wherein said CPU comprises means for adding a date of a present time to the information and for storing the information with the date of the present time from said timer and said retention period in said memory means.



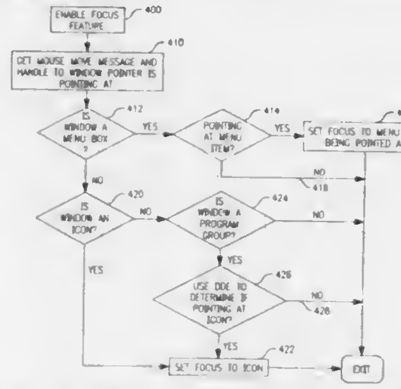
5,786,818
METHOD AND SYSTEM FOR ACTIVATING FOCUS

Timothy T. Brewer, Bellevue; Daniel S. Hoeger, Woodinville; Lora K. McCambridge, Bellevue; Teresa L. Kelsey, Seattle; Anthony R. Claflin, Bellevue; Kenneth R. Robertson, Redmond, and Michael W. Van Flandern, Seattle, all of Wash., assignors to Microsoft Corporation, Redmond, Wash.

Division of Ser. No. 417,078, Apr. 5, 1995, Pat. No. 5,611,040. This application Dec. 19, 1996, Ser. No. 770,226

Int. Cl.⁶ G06F *3/00*

U.S. Cl. 345—339 **11 Claims**


ENABLE FOCUS FEATURE
400
GET MOUSE MOVE MESSAGE AND HANDLE TO WINDOW POINTER IS POINTING AT
410
IS WINDOW A MENU BOX ?
412
YES
POINTING AT MENU ITEM?
414
YES
SET FOCUS TO MENU ITEM BEING POINTED AT
416
NO
418
NO
IS WINDOW AN ICON?
420
NO
IS WINDOW A PROGRAM GROUP?
424
NO
YES
YES
USE DDE TO DETERMINE IF POINTING AT ICON?
426
NO
428
YES
SET FOCUS TO ICON
422
EXIT

1. A computer-implemented method for interpreting data corresponding to position data of a mouse pointer to eliminate the need for clicking when setting focus within a graphical user interface comprising the steps of:

(a) without clicking, receiving position data for a mouse pointer;

(b) setting the focus to a menu item from a background portion of the graphical user interface, if the position data indicates that the mouse pointer is pointing at the menu item within a menu box;

(c) setting the focus to an icon from a background portion of the graphical user interface, if the position data indicates that the mouse pointer is pointing at the icon; and

(d) setting focus to the icon from a background portion of the graphical user interface, if the position data indicates that the mouse pointer is pointing at the icon which is within a program group.

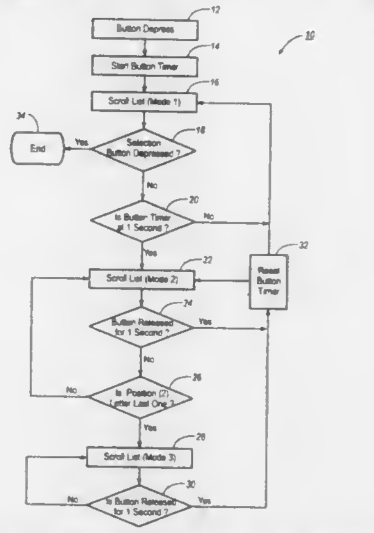
5,786,819
ONE BUTTON SEARCHING OF LONG LISTS

Mark D. Weiser, and Jock D. Mackinlay, both of Palo Alto, Calif., assignors to Xerox Corporation, Stamford, Conn.

Filed Jun. 11, 1996, Ser. No. 665,068

Int. Cl.⁶ G06F *7/10*

U.S. Cl. 345—354 **11 Claims**



1. A method for one button searching of an alphanumerically ordered list too large to permit simultaneous individual display of each list member within a predetermined display area, comprising the steps of

depressing a first search button to initiate a first mode scrolling search of a plurality of list members ordered in a list, with each list member sequentially displayed,

initiating a second mode scrolling search after maintenance of the first search button in a depressed state and elapse of a first predetermined time interval, with a selected subset of list members, each having a same first letter, ordered by their second letters for sequential display, and

commencing a third mode scrolling search after maintenance of the first search button in a depressed state and elapse of a second predetermined time interval, with selected subset of list members ordered by their first letter sequentially displayed.

5,786,820
METHOD AND APPARATUS FOR INCREASING THE DISPLAYED DETAIL OF A TREE STRUCTURE

George G. Robertson, Foster City, Calif., assignor to Xerox Corporation, Stamford, Conn.

Continuation of Ser. No. 282,848, Jul. 28, 1994, abandoned. This application Sep. 23, 1996, Ser. No. 710,827

Int. Cl.⁶ G06T *3/00*

U.S. Cl. 345—357 **21 Claims**

14. In a computer controlled display system for controlling the display of a multi-level tree structure on a viewing area of a coupled display, said computer controlled display system having a processing means, internal memory, a cursor control device, a keyboard and external memory, said tree structure comprised of a plurality of nodes laid out on a planar surface wherein each of said plurality of nodes has a planar address, an improvement comprising:

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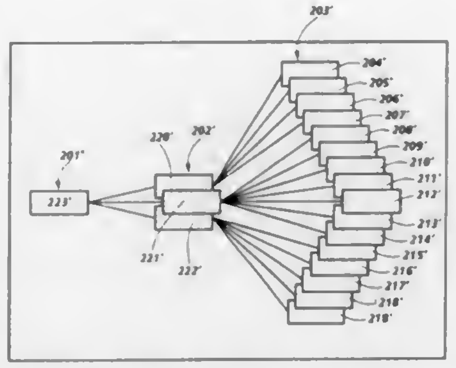


warping means for warping said tree structure about a surface so that an increased number of nodes of said tree structure are visible in said viewing area of said display, said warping means comprised of:
- means for receiving a planar address for a node of said tree structure;
- means for transforming said planar address for said node of said tree structure to create a three dimensional display address for said node using a surface function, said surface function corresponding to said surface; and

scrolling means coupled to said warping means, said scrolling means for scrolling said tree structure about said surface.

5,786,821

Patent Not Issued For This Number

5,786,822
METHOD AND APPARATUS FOR MAPPING TEXTURE ON AN OBJECT DISPLAYED AT A VARYING VIEW ANGLE FROM AN OBSERVER

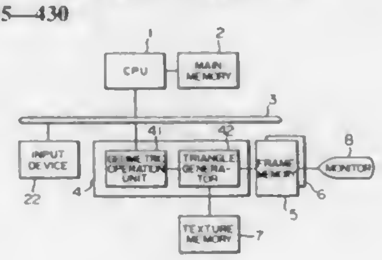
Toru Sakaibara, Kawasaki; Toshiharu Kawasaki, Yokohama, and Toshiyuki Kuwana, Hitachi, all of Japan, assignors to Hitachi, Ltd., Tokyo, Japan

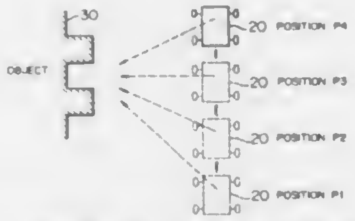
Continuation of Ser. No. 371,367, Jan. 11, 1995, abandoned. This application Jun. 13, 1997, Ser. No. 874,954

Claims priority, application Japan, Jan. 26, 1994, 6-007017

Int. Cl.^{6} G06T *11/40*

U.S. Cl. 345—430 **14 Claims**





1. A texture mapping method for mapping texture data on each of a plurality of polygons constituting a displayed polyhedron on a display screen, after conducting coordinate transformation for a plurality of vertexes on each of the polygons based on modeling data for geometrically defining the polyhedron, texture data for expressing a surface detail of each said polygon, and parameters including a view position and a view direction given by a virtual camera, comprising the steps of:
- predetermining a plurality of view directions from said virtual camera for each said polygon;
- presetting texture data for each said polygon for said plurality of predetermined view directions;
- selecting the preset texture data for one of the predetermined view directions corresponding to an actual view direction for each said polygon being actually displayed; and
- mapping the preset texture data on each said polygon being actually displayed.

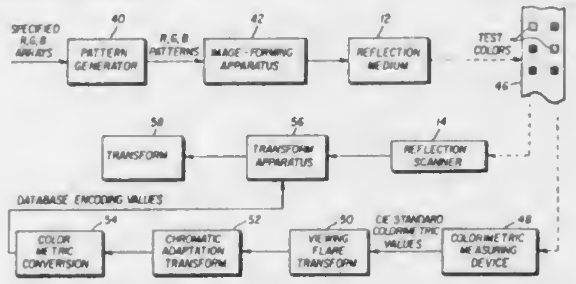
5,786,823
METHOD AND APPARATUS EMPLOYING COMPOSITE TRANSFORMS OF INTERMEDIARY IMAGE DATA METRICS FOR ACHIEVING IMAGING DEVICE/MEDIA COMPATIBILITY AND COLOR APPEARANCE MATCHING

Thomas Ethan Madden, East Rochester, and Edward Joseph Giorgianni, Rochester, both of N.Y., assignors to Eastman Kodak Company, Rochester, N.Y.

Continuation-in-part of Ser. No. 59,060, May 7, 1993. This application Sep. 29, 1995, Ser. No. 536,016

Int. Cl.^{6} G06K *9/38*

U.S. Cl. 345—431 **22 Claims**



1. A method for forming a composite transform for transforming color-image data encoding values to image-bearing signals for producing output images with an output imaging means, comprising the steps of:
- a) specifying an encoded-image viewing environment in terms of its amount of viewing flare light, surround type, and adaptive white point chromaticities;
- b) specifying an output-image viewing environment in terms of its illuminant spectral energy distribution, amount of viewing flare light, surround type, and adaptive white point chromaticities;
- c) specifying patterns of test color-image data encoding values which adequately sample and cover the color-image data encoding value range;
- d) adjusting said test color-image data encoding values in accordance with the difference in the amounts of viewing flare light specified for the encoded-image viewing environment and the output-image viewing environment to form flare-adjusted colorimetric values;
- e) adjusting said flare-adjusted colorimetric values in accordance with the difference in the surround types specified for the encoded-image viewing environment and the output-image viewing environment to form surround-adjusted colorimetric values;
- f) adjusting said surround-adjusted colorimetric values in accordance with the difference between the adaptive white point chromaticities specified for the encoded-image viewing environment and the output-image viewing environment to form first output colorimetric values;
- g) adjusting said first output colorimetric values in accordance with the color gamut capabilities of said output imaging means;

- h) specifying patterns of image-bearing signals for producing colors which adequately sample and cover the useful color-range of an output imaging means;
- i) forming output test colors with said output imaging means using said image-bearing signals;
- j) determining second output colorimetric values from said output test colors and the output-image viewing environment illuminant;
- k) forming at least one interim transform by relating said second output colorimetric values to corresponding test color image-bearing signals;
- l) utilizing the at least one interim transform to transform the adjusted output colorimetric values of step g) to form imaging means' image-bearing signals;
- m) deriving a sequence of least one transformation relating the image-bearing signals of step l) to the test color-image data encoding values of step c); and
- n) forming the composite transform from said sequence of at least one transformation.

5,786,824
PROCESSING IMAGE DATA

Benoit Sévigny, Montreal, Canada, assignor to Discreet Logic Inc, Montreal, Canada

Filed Apr. 10, 1996, Ser. No. 630,131

Int. Cl.^{6} G06F *15/00*

U.S. Cl. 345—438 **8 Claims**

1. A method of processing image data, wherein a plurality of recorded and digitized images are replayable as a video clip, comprising the steps of:
- selecting an image portion in an image frame;
- tracking said selected image portion over a plurality of frames;
- adjusting the position of the selected image within a frame boundary for each image frame so as to maintain the position of said selected portion substantially constant within its image frame;
- repositioning portions of said image which extend beyond a frame edge to positions within its image frame;
- defining a modification to a portion of an image frame;
- repeating said modification over a plurality of frames; and
- readjusting the position of said image within the image frame.

5,786,825
VIRTUAL DISPLAY SUBSYSTEM IN A COMPUTER

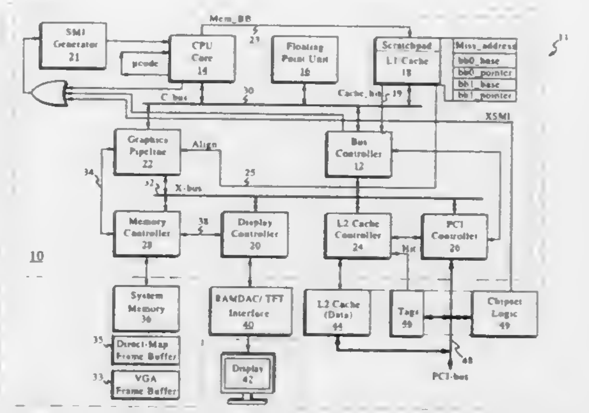
Bradley W. Cain; Frederick S. Dunlap, both of Longmont, and Joseph F. Baldwin, Ft. Collins, all of Colo., assignors to National Semiconductor, Santa Clara, Calif.

Filed Dec. 13, 1995, Ser. No. 571,498

Int. Cl.^{6} G06T *1/00;* G06F *15/00*

U.S. Cl. 345—501 **20 Claims**

1. A processing system employing a virtual display subsystem comprising:
- (a) a pipelined core having a plurality of stages to execute at least one program having a plurality of instructions;



- (b) raster graphics circuitry coupled to the pipelined core that displays raster graphics;
- (c) a system management mode mechanism;
- (d) event trap circuitry, coupled to the plurality of stages of the pipelined core and responsive to a predetermined event occurring in at least one of the plurality of stages of the pipelined core arising from execution of selected instructions in the plurality of instructions, to invoke the system management mode mechanism wherein subsequent instructions to the selected instructions are not executed until after control is returned from the system management mode mechanism; and,
- (e) a video display handler, executable by the pipelined core under the system management mode mechanism, for controlling the raster graphics circuitry to assimilate a display protocol.

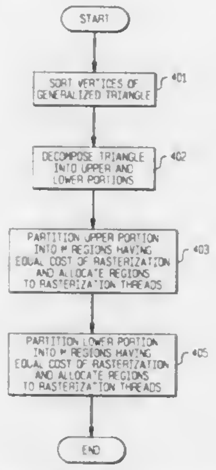
5,786,826
METHOD AND APPARATUS FOR PARALLEL RASTERIZATION

Thomas Yu-Kiu Kwok, Washington Township, N.J., assignor to International Business Machines Corporation, Armonk, N.Y.

Filed Jan. 26, 1996, Ser. No. 592,046

Int. Cl.^{6} G06F *15/80*

U.S. Cl. 345—505 **36 Claims**


START
SORT VERTICES OF GENERALIZED TRIANGLE
401
DECOMPOSE TRIANGLE INTO UPPER AND LOWER PORTIONS
402
PARTITION UPPER PORTION INTO M REGIONS HAVING EQUAL COST OF RASTERIZATION AND ALLOCATE REGIONS TO RASTERIZATION THREADS
403
PARTITION LOWER PORTION INTO M REGIONS HAVING EQUAL COST OF RASTERIZATION AND ALLOCATE REGIONS TO RASTERIZATION THREADS
405
END

1. A method for rasterizing an object for display utilizing a plurality of rasterization engines, wherein the object is represented by a plurality of faces, the method comprising the steps of:
- partitioning at least one face of said object into a plurality of sub-faces according to a first cost function representing cost of rasterizing said face; and
- assigning said sub-faces to said plurality of rasterization engines for rasterization.

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5,786,827

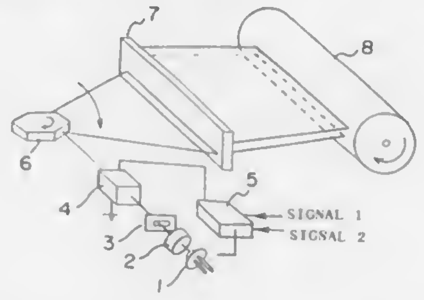
SEMICONDUCTOR OPTICAL STORAGE DEVICE AND USES THEREOF

Milan F. Jukl, Neshanic Station; Norman Loren Schryer, New Providence, and Masakazu Shoji, Warren, all of N.J., assignors to Lucent Technologies Inc., Murray Hill, N.J.

Filed Feb. 21, 1995, Ser. No. 391,804

Int. Cl.^{6} G09G *5/36*

U.S. Cl. 345—507 **15 Claims**



1. A semiconductor memory device for storing data including a semiconductor chip having a surface optically viewable from outside said device, an array of electrically addressable, data storing memory cells within said chip for electrical reading of data stored within said cells, each of said cells including a circuit element having an electrical characteristic the value of which determines the data stored in each said cell, said surface containing a graphic image of data stored within said array of memory cells, said image comprising an array of pixels having different optical characteristics by means of which said graphic image is stored and is optically viewable independently of electrical reading of data stored within said cells, each of said pixels being operatively associated with a respective one of said circuit elements, and the electrical characteristic of each of said circuit elements being a function of the optical characteristics of the pixel associated therewith.

5,786,828

DETACHABLE PRINT UNIT HAVING UPDATABLE CONDITION MEMORY AND PRINTER USING THE SAME

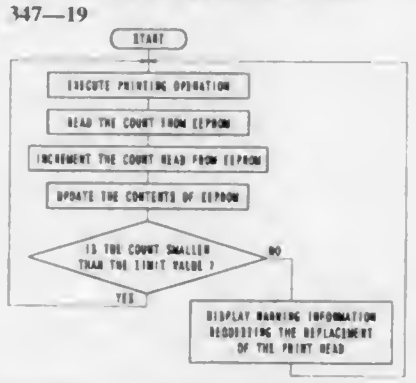
Seiichiro Yamamoto, Shizuoka, Japan, assignor to Tokyo Electric Co., Ltd., Tokyo, Japan

Continuation of Ser. No. 250,608, May 27, 1994, abandoned. This application Apr. 2, 1996, Ser. No. 626,756

Claims priority, application Japan, May 27, 1993, 5-125563

Int. Cl.^{6} B41J *29/46;29/00*

U.S. Cl. 347—19 **1 Claim**


START
EXECUTE PRINTING OPERATION
READ THE COUNT FROM EEPROM
INCREMENT THE COUNT READ FROM EEPROM
UPDATE THE CONTENTS OF EEPROM
IS THE COUNT SMALLER THAN THE LIMIT VALUE ?
NO
YES
DISPLAY WARNING INFORMATION REQUESTING THE REPLACEMENT OF THE PRINT HEAD

1. A method for monitoring a thermal print head, comprising the steps of:

recording information indicating usage of the thermal print head in a memory mounted on the thermal print head;

monitoring the information stored in the memory to determine a remaining lifetime of the thermal print head after which the thermal print head should be replaced;

indicating a warning indicating to an operator that the thermal print head needs to be replaced based on a result of the monitoring step;

removing the print head from a printer;

reading the information in the memory; and

processing the information which has been read from the memory.

5,786,829

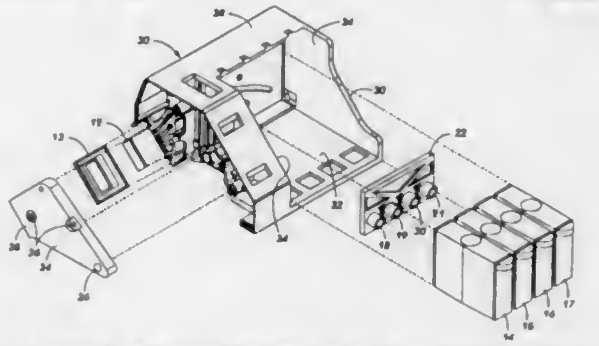
APPARATUS AND METHOD FOR CLEANING AN INK FLOW PATH OF AN INK JET PRINTHEAD

Donald J. Pasclak, Jr., Farmington, and Mark E. Klino, Macedon, both of N.Y., assignors to Xerox Corporation, Stamford, Conn.

Filed Jul. 1, 1996, Ser. No. 673,479

Int. Cl.^{6} B41J *2/165*

U.S. Cl. 347—28 **9 Claims**



1. A method for cleaning the interior ink channels and nozzles of an ink jet printhead, including the steps of:

applying a vacuum to the printhead nozzles

forming a mixture comprising a cleaning liquid and sure nitrogen bubbles and

flushing the interior ink channels and nozzles of said printhead with said mixture.

5,786,830

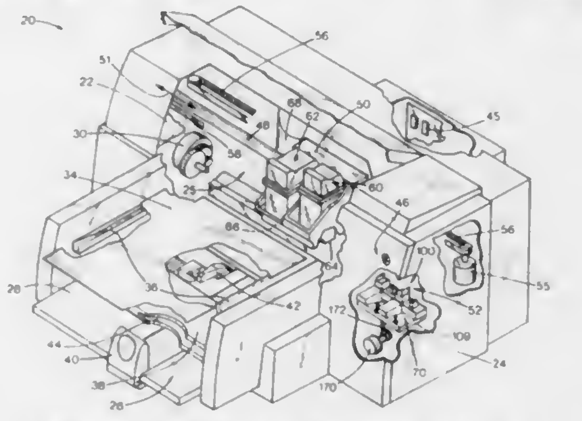
ADAPTIVE WIPING SYSTEM FOR INKJET PRINTHEADS

Wen-Li Su, Vancouver, Wash., and Kris M. English, Portland, Oreg., assignors to Hewlett-Packard Company, Palo Alto, Calif.

Continuation-in-part of Ser. No. 558,561, Oct. 31, 1995. This application Feb. 29, 1996, Ser. No. 608,787

Int. Cl.^{6} B41J *2/165*

U.S. Cl. 347—33 **21 Claims**



1. A method of cleaning first and second orifice plates of respective first and second inkjet printheads in an inkjet printing mechanism, comprising the steps of:

first wiping the first orifice plate with a first wiper at a first speed; and

second wiping the second orifice plate with a second wiper at a second speed different from the first speed.

5,786,831

INK JET RECORDING APPARATUS FOR RECORDING ADJACENT AREAS WITH PLURAL COLORS

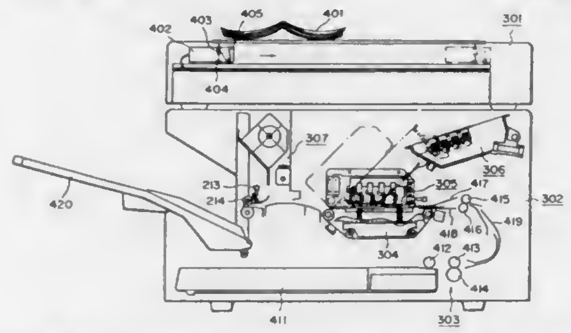
Hisashi Fukushima; Nobuhiko Takekoshi, and Akio Suzuki, all of Yokohama, Japan, assignors to Canon Kabushiki Kaisha, Tokyo, Japan

Continuation of Ser. No. 92,950, Jul. 19, 1993, abandoned, which is a continuation of Ser. No. 913,631, Jul. 16, 1992, abandoned, which is a continuation of Ser. No. 649,259, Jan. 31, 1991, Pat. No. 5,252,992, which is a continuation of Ser. No. 498,959, Mar. 26, 1990, abandoned. This application Oct. 12, 1994, Ser. No. 321,591

Claims priority, application Japan, Mar. 29, 1989, 1-074916

Int. Cl.^{6} B41J *2/21*

U.S. Cl. 347—43 **10 Claims**



1. An ink jet recording apparatus wherein an image is formed on a recording material by ejection of coloring agents having different colors from a recording head, said apparatus comprising:

means for discriminating whether a first image having an edge and a second image having high image density are to be overlaid or not overlaid; and

control means, responsive to said discriminating means, for reducing a quantity of one of the coloring agents for the high density second image at a position corresponding to the edge of the first image to be overlaid on the high density second image or a periphery of the edge of the first image to be overlaid.

5,786,832

INK-JET RECORDING HEAD

Akihiro Yamanaka; Takashi Watanabe, both of Yokohama; Hiroyuki Ishinaga, Tokyo; Takahisa Kawamura, Yokohama; Seiichiro Karita, Yokohama; Norio Ohkuma, Yokohama; Masahiko Higuma, Togane; Akira Goto, Yokohama; Teruo Arashima, Kawasaki; Motoaki Sato, Tokyo, and Megumi Saito, Kawasaki, all of Japan, assignors to Canon Kabushiki Kaisha, Tokyo, Japan

Continuation of Ser. No. 846,579, Mar. 5, 1992, abandoned. This application Jul. 22, 1994, Ser. No. 281,801

Claims priority, application Japan, Mar. 8, 1991, 3-043653; Mar. 8, 1991, 3-043666; Jul. 15, 1991, 3-173959; Mar. 2, 1992, 3-044770

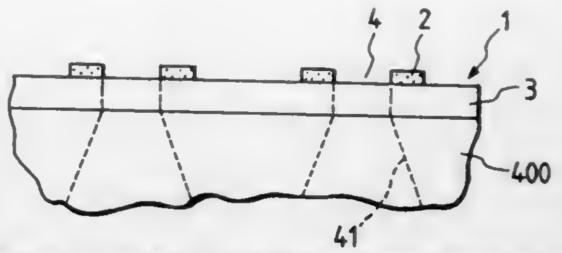
Int. Cl.^{6} B41J *2/135;2/16*

U.S. Cl. 347—45 **4 Claims**

1. An ink jet recording head produced by the process comprising the steps of:

providing a substrate provided with an energy generating element for electing an ink;

providing a cover plate having a groove for forming a flow path by bonding the cover plate with the substrate, the groove having an end portion, and having an orifice plate provided at the end portion of the groove;



applying to a surface of the orifice plate a water-repellent having a hardness higher than a pencil hardness 6B at room temperature to form a water repellent layer;

irradiating a laser beam from a groove side to the orifice plate provided with the water repellent layer to form in the orifice plate an ejection outlet for electing the ink, communicating with the groove;

heat-hardening the water-repellent so that a decomposition product produced by the laser irradiation is fixed at a periphery of the ejection outlet in a state such that the decomposition product is mixed with the water-repellent;

bonding the substrate with the cover plate having the water repellent layer which has heat-hardened to form the flow path; and

sealing a surface of the ejection outlet of the orifice plate with a sealing member.

5,786,833

PIEZOELECTRIC DRIVER FOR AN INK JET RECORDING HEAD, INCLUDING FRONT END PLATE HAVING FRONT END FACE ALIGNED WITH FRONT END FACE OF INACTIVE REGION OF DRIVER

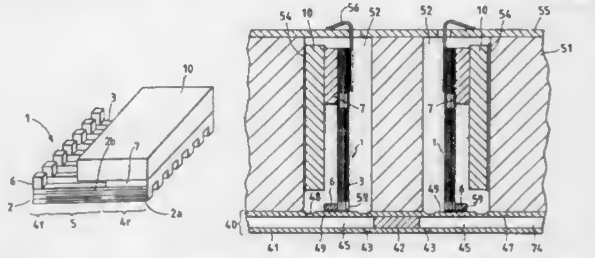
Takahiro Naka; Shinji Yasukawa, and Minoru Usui, all of Nagano, Japan, assignors to Seiko Epson Corporation, Tokyo, Japan

Filed Oct. 7, 1994, Ser. No. 319,584

Claims priority, application Japan, Oct. 7, 1993, 5-276171; Dec. 27, 1993, 5-348532; Jul. 20, 1994, 6-190012

Int. Cl.^{6} B41J *2/045*

U.S. Cl. 347—71 **19 Claims**



1. A piezo-electric driver for an ink jet recording head comprising:

a piezo-electric plate having upper and lower surfaces, said plate including a front end portion having a front end face, a middle portion, and a rear end portion having a rear end face, wherein said front end portion and said rear end portion comprise an inactive region of said plate, and wherein said middle portion comprises an active region of said plate, said active region including laminated conductive layers; and

a front end plate mounted on one of the upper and lower surfaces of said piezo-electric plate at the front end portion of said plate, wherein a front end face of said front end plate is flush with the front end face of said front end portion, and wherein

said piezo-electric plate and said front end plate are cut at predetermined intervals to form a plurality of piezo-electric vibrators.

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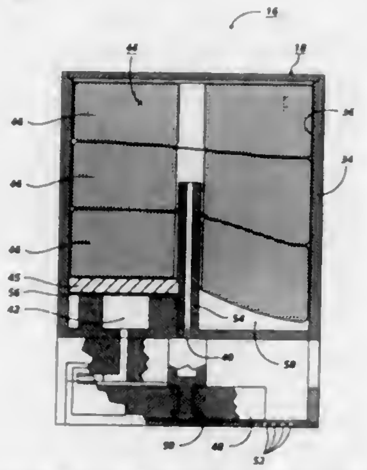
5,786,834
METHOD AND APPARATUS FOR STORING AND SUPPLYING INK TO A THERMAL INK-JET PRINTER

Michael Carlotta, Sodus; Steven J. Dietl, Ontario, and David P. Breemes, Sr., Palmyra, all of N.Y., assignors to Xerox Corporation, Stamford, Conn.

Filed Jan. 3, 1994, Ser. No. 176,976

Int. Cl.⁶ B41J *2/175*

U.S. Cl. 347—87 **12 Claims**



1. A method for storing and supplying liquid ink to an ink jet printhead having an ink inflow channel, the method comprising the steps of:

(a) attaching, to the printhead, a housing defining a liquid ink storage chamber and an ink outflow opening such that said ink outflow opening of said housing is in communication with the ink inflow channel of the printhead;

(b) adding a quantity of liquid ink to said liquid ink storage chamber; and

(c) placing into said liquid ink storage chamber a quantity of a non-reticulation processed copolymer polyurethane foam material having a bulk density of 3.5 lb/ft^3 for providing desired ink-flow back pressure and release efficiency over ink flowing from said storage chamber to the printhead, and having tri-lobal web frames defining cells including virgin or non-reticulation process produced open pores for controlling ink flow back pressure and ink releasability, said open pores ranging in size from 50μ to 350μ.

5,786,835
IMAGE FORMING METHOD, PROCESS FOR PRODUCING DECORATIVE ALUMINUM PLATE, APPARATUS FOR CARRYING OUT THE PROCESS, DECORATIVE ALUMINUM PLATE, AND RECORDING MEDIUM

Masami Ikeda, Yokohama; Tsutomu Abe, Isehara, and Keisuke Matsuo, Yokohama, all of Japan, assignors to Canon Kabushiki Kaisha, Tokyo, Japan

Continuation of Ser. No. 773,089, Dec. 24, 1996, abandoned, which is a continuation of Ser. No. 300,270, Sep. 2, 1994, abandoned. This application Aug. 28, 1997, Ser. No. 919,311

Claims priority, application Japan, Sep. 30, 1993, 5-244762; Jul. 14, 1994, 6-162092; Jul. 14, 1994, 6-162093

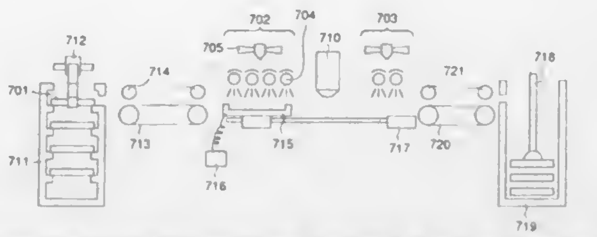
Int. Cl.⁶ B41J *2/01*

U.S. Cl. 347—106 **65 Claims**

1. An image forming process for forming an image on an anodic oxide layer formed on the surface of a plate, sheet or foil made of aluminum or an aluminum alloy, using an ink-jet printing process with an ink containing a dye and a volatile component, comprising the steps of:

dehydrating and activating the anodic oxide layer;

imparting ink to the anodic oxide layer by performing dot-interval printing by scanning a printing head plural times; and



removing a volatile component contained in the ink from the anodic oxide layer to fix the dye contained in the ink into the anodic oxide layer.

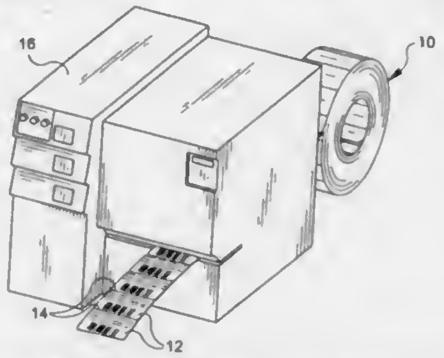
5,786,836
USER CARD HAVING SELECTED VARIABLE DATA

Philip T. Glennon, Jr., 105 W. Shallowstone Rd., Greer, S.C. 29650

Filed Apr. 4, 1996, Ser. No. 626,277

Int. Cl.⁶ B41J *3/20;* **B41M** *5/20*

U.S. Cl. 347—171 **21 Claims**



1. A composite wallet card capable of receiving selected variable data utilizing a thermal transfer printer, said card comprising:

a substrate layer having a first predetermined thickness, a first planar face of said substrate layer having thereon a predetermined printed image;

a top layer having a second predetermined thickness, said top layer being transparent and overlying said first planar face of said substrate layer such that said predetermined printed image may be seen, but will be protected thereby;

said top layer further having characteristic properties to permit receipt of said selected variable data from said printer in a substantially scratch-proof and smear-proof manner; and

an adhesive layer having a third predetermined thickness, said adhesive layer disposed between said substrate layer and said top layer.

5,786,837
METHOD AND APPARATUS FOR THERMAL PRINTING WITH VOLTAGE-DROP COMPENSATION

Eric Kaerts, Melsele, and Dirk Meeussen, Bornem, both of Belgium, assignors to Agfa-Gevaert N.V., Mortsel, Belgium

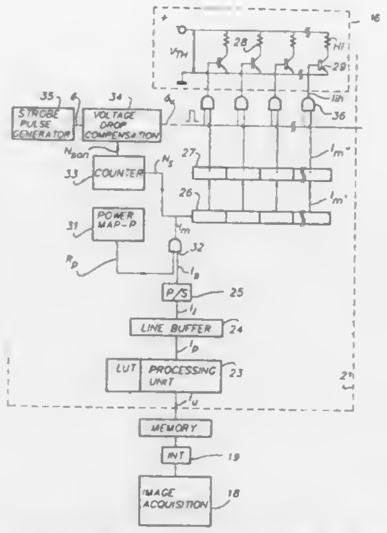
Filed Nov. 7, 1995, Ser. No. 554,856

Claims priority, application European Pat. Off., Nov. 29, 1994, 94203465

Int. Cl.⁶ B41J *2/36*

U.S. Cl. 347—190 **8 Claims**

2. A method for adjusting the thermal recording of a thermal printer, said thermal printer having a line-type thermal printing head with a plurality of heating elements, storage means for storing resistance compensation data R_p associated with said plurality of heating elements, a strobe generation means for repeatedly generating a strobe signal having predetermined cycles of repetition, said strobe signal having a first voltage during a first percentage of each cycle and a second voltage during a second percentage of each cycle, and gated driving means for allowing the activation of said plurality of heating elements while said strobe signal is at said first voltage and prohibiting the activation of said plurality of heating elements while said strobe signal is at said second voltage, the method comprising the steps of:



a) supplying input data to said thermal printer, said input data representing a test pattern to be thermally recorded on a receiving medium, said test pattern comprising a first solid black area covering a first percentage of the width of said receiving medium and a second solid black area covering a second percentage of the width of said receiving medium, at least a portion of said first and second solid black areas covering different lines of said receiving medium;

b) storing a portion of said input data in a line buffer memory, said portion of said input data representing one line of said test pattern to be printed on said receiving medium;

c) converting said portion of said input data into serial configured data 1_s, said serial configured data 1_s comprising one or more activation sequences for said plurality of heating elements;

d) converting said serial configured data 1_s into power-mapped data 1_m using said resistance compensation data R_p, said power-mapped data 1_m comprising one or more power-mapped activation sequences for said plurality of heating elements;

e) for each of a predetermined number of cycles of said strobe signal, consecutively shifting each power-mapped activation sequence of said power-mapped data 1_m into a shift buffer memory;

f) for each power-mapped activation sequence, counting the number of said plurality of heating elements to be activated from each sequence;

g) for each of said predetermined number of cycles of said strobe signal, adjusting said first percentage of each cycle for which said first voltage is generated in accordance with said number of heating elements to be activated;

h) for each of said predetermined number of cycles of said strobe signal, providing said shifted power-mapped activation sequence to said gated driving means;

i) for each of said predetermined number of cycles of said strobe signal, activating said plurality of heating elements in accordance with said shifted power-mapped data and said strobe signal;

j) repeating steps (b) to (j) until said test pattern is printed on said receiving medium;

k) calculating a deviation between the printed density of said first solid black area with the printed density of said second solid black area of said test pattern printed on said receiving medium; and

l) adjusting said first percentage of each cycle for which said first voltage is generated in accordance with said deviation.

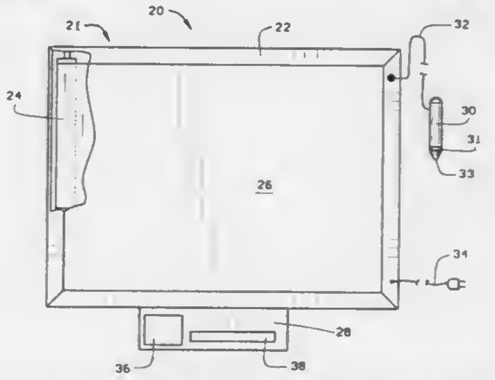
5,786,838
SELF-ERASING THERMOCHROMIC WRITING BOARD AND SYSTEM

Louis P. Steinhauser, and A. Konrad Juethner, both of St. Louis, Mo., assignors to Watlow Electric Manufacturing Company, St. Louis, Mo.

Filed Apr. 1, 1996, Ser. No. 626,118

Int. Cl.⁶ B41M *5/00*

U.S. Cl. 347—179 **36 Claims**



1. A self-erasing writing structure for use with a cooled-tip writing instrument, the self-erasing writing structure comprising:

a substrate;

a first layer of an electrically conductive material disposed on said substrate;

a second layer of a thermochromic material disposed on said substrate, said thermochromic material having a writing temperature range, a retention temperature range, and an erasure temperature range, said thermochromic material of a first color when the temperature thereof is within said erasure temperature range and also within said retention temperature range before ever being within said writing temperature range, said thermochromic material of a second color when the temperature thereof is within said writing temperature range and thereafter within said retention temperature range until reaching said erasure temperature range wherein said thermochromic material changes to said first color and remains said first color when back within said retention temperature range;

a source of electrical power; and

electrical leads coupled to said source of electrical power and said first layer to selectively allow power from said source of electrical power to generate heat in said first layer and thus said second layer thereby bringing the temperature of said second layer within said erasure temperature range.

5,786,839
ELECTRONIC PARTS, THERMAL HEAD, MANUFACTURING METHOD OF THE THERMAL HEAD, AND HEAT SENSITIVE RECORDING APPARATUS

Hiroshi Itoh, Hyogo, Japan, assignor to Mitsubishi Denki Kabushiki Kaisha, Tokyo, Japan

Division of Ser. No. 165,160, Dec. 10, 1993, Pat. No. 5,610,650. This application Dec. 11, 1996, Ser. No. 763,881

Claims priority, application Japan, Dec. 28, 1992, 4-360042; Apr. 30, 1993, 5-124678

Int. Cl.⁶ B41J *2/345*

U.S. Cl. 347—211 **27 Claims**

18. A thermal head comprising:

a plurality of heating resistors connected in series and arranged on an edge portion of a substrate;

a plurality of electrode patterns arranged on said substrate in such a way that every adjacent two of said electrode patterns are connected across each of said heating resistors, said electrode patterns being grouped into first group electrode patterns and a second group electrode patterns, and in said every adjacent two of said electrode patterns, one being one of said

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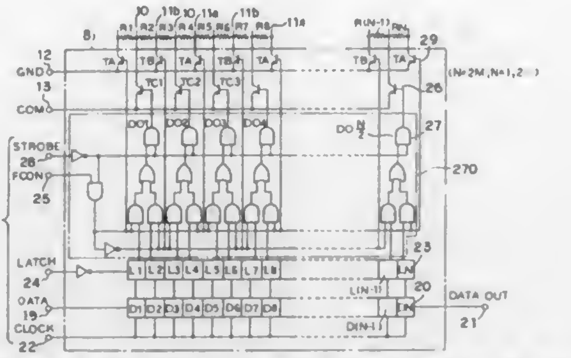


first group electrode patterns and the other being one of said second group electrode patterns;

first group switching elements respectively connected to said first group electrode patterns;

second group switching elements respectively connected to said second group electrode patterns;

said second group switching elements including first and second group every other switching elements, each of said first and second group every other switching elements being connected respectively to alternate ones of said second group electrode patterns;

a selecting circuit, connected to said first group switching elements and said second group switching elements, for selecting, in response to selecting data, one group or the other group of every other switching elements in said second group switching elements, and for selecting at least one of said first group switching elements, the selected switching elements being driven substantially simultaneously,

whereby at least one of said heating resistors corresponding to said selected switching elements are driven;

a shift register, for storing a part of said selecting data for selecting at least one of said heating resistors to be driven;

storage elements for latching the data output from said shift register; and

a selecting signal input means for receiving and connecting to each of said first group switching elements and said second group switching elements a selecting signal for selecting one group or the other group of every other switching elements in said second group switching elements; and further

wherein, said shift register, said storage element, said selecting circuit, and said first group switching elements are formed on a first IC chip; and

said second group switching elements are formed on a second IC chip.

5,786,840

Patent Not Issued For This Number

5,786,841
SINGLE TRACK OF METERING MARKS ON THERMAL PRINTER MEDIA
Mark A. Bobb; Daniel C. Maslanka, and Keith A. Hadley, all of Rochester, N.Y., assignors to Eastman Kodak Company, Rochester, N.Y.

Filed Jan. 12, 1995, Ser. No. 371,943

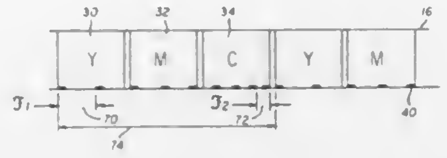
Int. Cl.⁶ B41J *31/05*

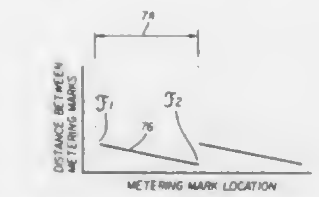
U.S. Cl. 347—217 **12 Claims**

1. A thermal dye printer media element for use in a thermal printer, comprising:

sequential color patches which form multiple color groups located along a length of said element; and

metering marks provided repetitively along the length of said element for measurement of distances along said element, wherein the spacing between successive pairs of said metering marks changes in a linear fashion.





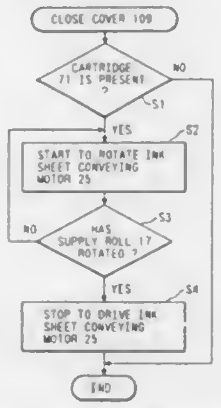
5,786,842
RECORDING APPARATUS WHICH CONTROLS INK SHEET SLACK AND METHOD FOR THE SAME
Takashi Awai; Minoru Yokoyama, both of Yokohama; Yasushi Ishida, Tokyo; Akihiro Tomoda; Masakatsu Yamada, both of Yokohama; Takehiro Yoshida, Tokyo; Makoto Kobayashi, Tama; Satoshi Wada, Kawasaki; Takeshi Ono, and Tomoyuki Takeda, both of Yokohama, all of Japan, assignors to Canon Kabushiki Kaisha, Tokyo, Japan

Continuation of Ser. No. 48,937, Apr. 20, 1993, which is a continuation of Ser. No. 553,697, Jul. 18, 1990. This application Jun. 7, 1995, Ser. No. 483,155

Claims priority, application Japan, Jul. 19, 1989, 1-184411; Jul. 20, 1989, 1-186108

Int. Cl.⁶ B41J *17/10*

U.S. Cl. 347—217 **29 Claims**


CLOSE COVER 109
CARTRIDGE 71 IS PRESENT ?
S1
NO
YES
S2
START TO ROTATE INK SHEET CONVEYING MOTOR 25
S3
NO
HAS SUPPLY ROLL 17 ROTATED ?
YES
S4
STOP TO DRIVE INK SHEET CONVEYING MOTOR 25
END

1. A thermal transfer recording apparatus for recording an image on a recording medium by transferring an ink from an ink sheet onto said recording medium, the apparatus being located in an apparatus body having a cover openable and closable with respect to the apparatus body, the apparatus comprising:

a loading portion for detachably loading said ink sheet therein;

an ink sheet driving portion for conveying said ink sheet from an ink sheet supply reel to an ink sheet winding reel;

a recording medium conveying portion for conveying said recording medium;

a thermal recording portion for transferring said ink from said ink sheet loaded in said loading portion to record said image on said recording medium;

a first detecting portion for detecting that said ink sheet is loaded on said loading portion;

a second detecting portion for detecting a rotation of said ink sheet supply reel;

a cover opening detecting portion for detecting an opening of the cover; and

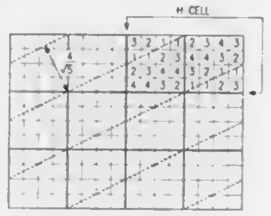
a control portion for controlling said ink sheet driving portion after said cover opening detecting portion detects the opening of the cover until said second detecting portion detects the rotation of said ink sheet supply reel in accordance with a loading detection of said ink sheet by said first detecting portion.

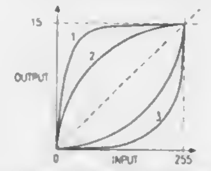
5,786,843
TWO-DIMENSIONAL MODULATION FOR LINE SCREEN PRINTING
Vadlamannati Venkateswar, 2705 Cobre Valle La., Plano, Tex. 75023

Filed Sep. 27, 1996, Ser. No. 721,880

Int. Cl.⁶ H04N *1/40*

U.S. Cl. 347—251 **11 Claims**





1. A method of generating greyscale values to be used for printing an image comprised of a number of pixels each having an input value, comprising the steps of:

line-screening said image with a number of lines in one direction and a number of lines in a substantially orthogonal direction, by dividing said image into a number of horizontal cells each containing the same number of said pixels and having a repeating pattern of a portion of one or more of said lines in said one direction, and by dividing said image into a number of vertical cells each containing the same number of said pixels and having a repeating pattern of a portion of one or more of said lines in said substantially orthogonal direction;

for each said pixel, classifying said pixel in accordance with its distance from the nearest of said lines in its associated horizontal cell, thereby obtaining a horizontal cell classification, and then mapping said horizontal cell classification to said pixel's input value to a first output value;

for each said pixel, classifying said pixel in accordance with its distance from the nearest of said lines in its associated vertical cell, thereby obtaining a vertical cell classification, and then mapping said vertical cell classification to said pixel's input value to a second output value; and

combining said first output value and said second output value of each said pixel to determine a greyscale value for each said pixel.

5,786,844
VIDEO MODEM FOR TRANSMITTING VIDEO DATA OVER ORDINARY TELEPHONE WIRES
Steven Rogers, Leesburg, and John Gerig, Reston, both of Va., assignors to Objective Communications, Inc., Portsmouth, N.H.

Continuation of Ser. No. 352,112, Dec. 1, 1994, Pat. No. 5,621,455. This application Dec. 30, 1996, Ser. No. 775,445

Int. Cl.⁶ H04N *7/10*

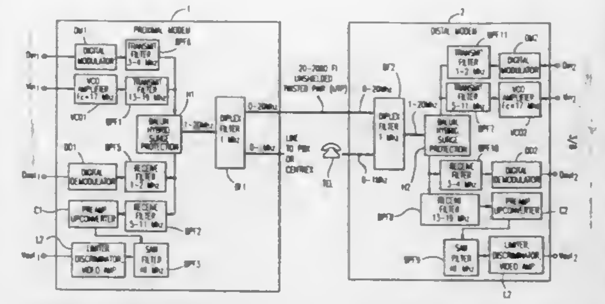
U.S. Cl. 348—6 **39 Claims**

1. A method for transmitting moving video information over a single pair of unshielded twisted pair (UTP) wires, comprising the steps of:

(1) frequency modulating a first carrier signal in accordance with a first composite video signal having a luminance component and a color subcarrier and producing thereby a first FM signal comprising a first upper sideband and a first lower sideband each including said color subcarrier of said first composite video signal;

(2) filtering said first FM signal with a first band pass filter to suppress one of said first sidebands and to pass the other of said first sidebands, and producing thereby a first filtered signal having a frequency bandwidth less than a frequency bandwidth of said first FM signal; and

(3) from a first physical location, injecting said first filtered signal into said single pair of UTP wires.



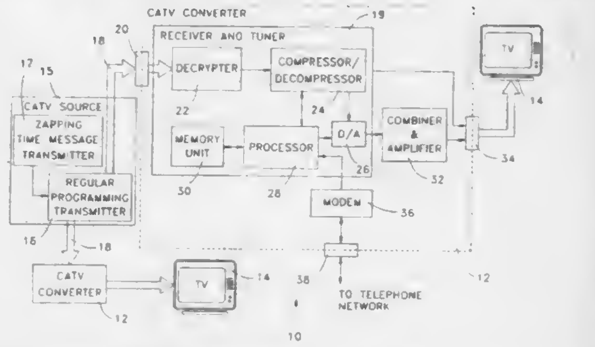
5,786,845
CATV MESSAGE DISPLAY DURING THE CHANGING OF CHANNELS
Yossi Tsuria, Shoham, Israel, assignor to News Datacom Ltd., Berkshire, England

Filed Nov. 13, 1995, Ser. No. 556,024

Claims priority, application Israel, Nov. 11, 1994, 111610

Int. Cl.⁶ H04N *7/16*

U.S. Cl. 348—9 **30 Claims**



1. A television receiver assembly comprising:

a multi-channel television signal decoder coupled to a source of incoming television signals;

a multi-channel television display coupled to said decoder for displaying received decoded television signals;

a channel changing device operative to change the channel decoded by the decoder and displayed by the display, the multi-channel television display being inoperative to display received decoded television signals during a channel changing interval, the channel changing interval having a beginning, an and, and a variable length; and

an interval message provider operative:

to determine the beginning of the channel changing interval;

to begin displaying at least one predetermined information message at the beginning of the channel changing interval as determined by the interval message provider;

to determine the end of the channel changing interval, and

to cease displaying the at least one predetermined information message at the end of the channel changing interval as determined by the interval message provider wherein said interval message provider provides an audio and visual information message during said channel changing interval.

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5,786,846
USER INTERFACE OF A VIDEO COMMUNICATION TERMINAL UNIT AND A METHOD FOR NOTIFYING A TERMINAL USER'S DEVIATION FROM AN APPROPRIATE SHOOT RANGE

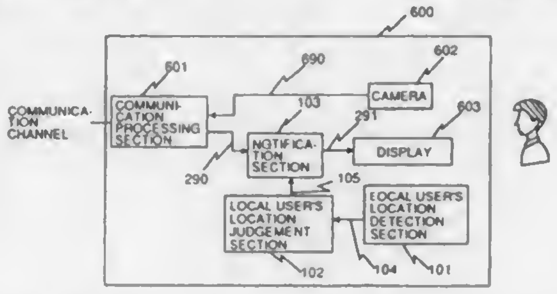
Toshihiko Hiroaki, Tokyo, Japan, assignor to NEC Corporation, Tokyo, Japan

Filed Mar. 11, 1996, Ser. No. 615,031

Claims priority, application Japan, Mar. 9, 1995, 7-049639

Int. Cl.⁶ H04N *7/14*

U.S. Cl. 348—20 **40 Claims**


600
601
690
602
CAMERA
603
COMMUNICATION CHANNEL
COMMUNICATION PROCESSING SECTION
103
291
NOTIFICATION SECTION
DISPLAY
290
105
LOCAL USER'S LOCATION JUDGEMENT SECTION
LOCAL USER'S LOCATION DETECTION SECTION
102
104
101

1. A user interface of a video communication terminal unit having a shoot means for shooting a terminal user, a display means for displaying a video image and a video communication processing means for executing video communication between said terminal user and a remote terminal user, said user interface comprising:
- a location detection means for detecting a location of said terminal user shot by said shoot means and generating information on said terminal user's location;
- a location judgement means for determining whether or not said terminal user is within an appropriate shoot range of said shoot means and generating notification control information based on the determination result; and
- a notification means for notifying said terminal user of his/her deviation from said shoot range if said notification control information indicates said terminal user's deviation.

5,786,847
APPARATUS FOR ADJUSTING THE CONVERGENCE IN A STEREOSCOPIC IMAGE SYSTEM

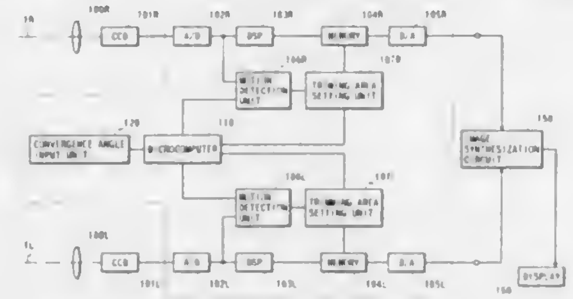
Tatsushi Katayama, Setagaya-ku; Shigeki Okauchi, Kodaira; Masayoshi Sekine, Shinjuku-ku, and Katsuhiko Mori, Kawasaki, all of Japan, assignors to Canon Kabushiki Kaisha, Tokyo, Japan

Filed Jun. 6, 1996, Ser. No. 659,182

Claims priority, application Japan, Jun. 9, 1995, 7-143357

Int. Cl.⁶ H04N *13/00*

U.S. Cl. 348—47 **23 Claims**



1. An image pickup apparatus comprising:
- a) plural image pickup means for picking up an image of an object and outputting image signals;
- b) memory means for storing plural image signals output from said image pickup means;
- c) convergence angle setting means for setting the convergence angle of said plural image pickup means;
- d) motion detection means for detecting motion information of the image; and
- e) extracting means for extracting, from each of the plural image signals stored in said memory means, the signal of a portion according to the convergence angle set by said convergence angle setting means and the motion information detected by said motion detection means.

5,786,848
THREE-DIMENSIONAL VIDEO SIGNAL GENERATOR AND THREE-DIMENSIONAL VIDEO DISPLAY APPARATUS

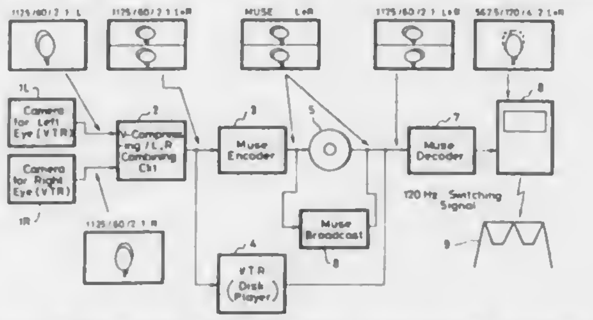
Toshinobu Isobe, Chiba; Yasuhiro Kawamura; Hisafumi Yamada, both of Tokyo, and Hidehiko Okada, Kanagawa, all of Japan, assignors to Sony Corporation, Tokyo, Japan

Continuation of Ser. No. 272,006, Jul. 7, 1994, abandoned. This application Jun. 25, 1996, Ser. No. 670,139

Claims priority, application Japan, Jul. 13, 1993, 5-173165

Int. Cl.⁶ H04N *7/18*

U.S. Cl. 348—51 **4 Claims**



1. A three-dimensional high-definition video signal generator, comprising:
- a high-definition video signal source for generating left and right high-definition video signals having, as left and right video signals, video signals in respective effective scanning periods of odd-numbered and even-numbered field signals of an interlaced-scanning high-definition video signal composed of multiple scanning lines and having an interlace factor of 2:1;
- left and right video signal compressing means for vertically compressing in time, with a compression ratio of 11:5, the left and right video signals in the respective effective scanning periods of the left and right high-definition video signals supplied from said high-definition video signal source; and
- combining means for combining the compressed left and right video signals in the odd-numbered and even-numbered fields from said left and right video signal compressing means into a three-dimensional video signal disposed in each of effective scanning periods of odd- and even-numbered-field signals of one high-definition video signal, the three-dimensional video signal having a vertical blanking interval of a given time duration, the three-dimensional video signal also having a pseudo vertical blanking period of a duration greater than the given time duration inserted between the compressed left and right video signals such that a time interval of the compressed left and right video signals is a ½ field period.

5,786,849
MARINE NAVIGATION I

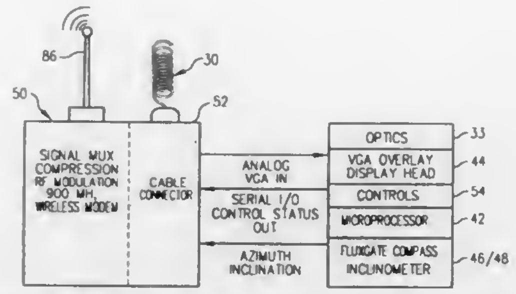
C. Macgill Lynde, 2789 152nd Ave. NE., Redmond, Wash. 98052

Filed Feb. 7, 1997, Ser. No. 796,611

Int. Cl.⁶ H04N *7/18*

U.S. Cl. 348—113 **25 Claims**

1. Apparatus for producing a composite image, said composite image including a real image of a surrounding environment and a virtual image comprising data related to navigation, comprising:
- (a) an ocular device for forming the real image, the real image representing a portion of the surrounding environment imaged by the ocular device;



- (b) a position sensor that produces a position signal indicative of a position of the ocular device;
- (c) at least one orientation sensor that produces an orientation signal indicative of an orientation of the ocular device;
- (d) a computer coupled to the position sensor and said at least one orientation sensor to receive the position signal and the orientation signal to determine a field of view of the ocular device, said computer generating a display signal that varies in response to the field of view of the ocular device and changing in response to changes in the position and orientation of the ocular device, said display signal defining navigational data within the virtual image, said navigation data including a navigational route projected on the field of view; and
- (e) a display that is coupled to the computer to receive the display signal to display the composite image, with the navigational route projected on the field of view.

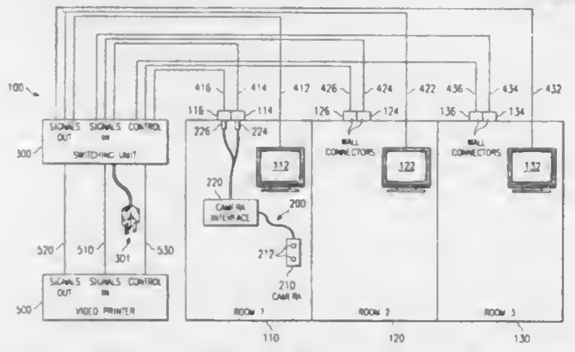
5,786,850
MULTIPLE ROOM PORTABLE CAMERA SYSTEM

James D. Pritchett, Dallas; Larry Gene Kaatz, Arlington, and Boris Germanishkis, Richardson, all of Tex., assignors to Ultrak, Inc., Carrollton, Tex.

Filed Feb. 17, 1994, Ser. No. 198,187

Int. Cl.⁶ H04N *7/18*

U.S. Cl. 348—158 **19 Claims**



1. A portable camera multiple site video system for utilizing a single portable video camera to take and display video pictures at a selected one of a plurality of picture sites comprising:
- a plurality of sites, each site comprising a video monitor, a site signal connector, and a site control connector;
- a portable video camera having a camera signal connector and a camera control connector selectively connectable respectively to the site signal connectors and the site control connectors of said sites;
- a video printer;
- a switching unit comprising a plurality of site switches, each one of the site switches corresponding with a different one of said sites, each one of the site switches being wired to electrically connect the site signal connector of the corresponding site to the video monitor of the corresponding site upon being thrown, and to electrically connect the site signal connector of the corresponding site to said video printer upon being thrown;
- said switching unit further comprising a plurality of relays, each one of the relays being associated with a different one of the site switches, each one of the relays being wired to be actuated upon establishment of an electrical connection between the camera control connector and the site control connector of the corresponding site for the associated site switch, and wherein activation of one of the relays throws the associated site switch, thereby electrically connecting the site signal connector of the corresponding site to the video monitor of the corresponding site, and to said video printer.

5,786,851
IMAGING SYSTEM FOR RECORDING OR REPRODUCING A PHOTOGRAPHED IMAGE SIGNAL OR INPUT AUDIO SIGNAL AS A DIGITAL SIGNAL

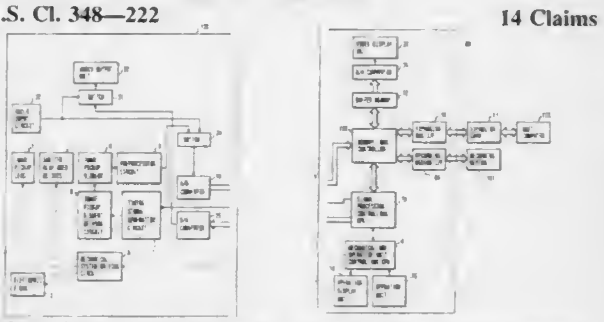
Hiroshi Kondo, Kawasaki, and Masao Suzuki, Tokyo, both of Japan, assignors to Canon Kabushiki Kaisha, Tokyo, Japan

Division of Ser. No. 426,973, Apr. 24, 1995, Pat. No. 5,640,202. This application Jan. 29, 1997, Ser. No. 790,438

Claims priority, application Japan, Apr. 26, 1994, 6-088594; May 23, 1994, 6-108445

Int. Cl.⁶ H04N *5/228*

U.S. Cl. 348—222 **14 Claims**



1. An image signal and audio signal recording system comprising:
- (A) an image pickup apparatus including
  - (a) image pickup means,
  - (b) audio input means,
  - (c) single A/D converting means for converting an image signal from said image pickup means and an audio signal from said audio input means to digital image and audio signals,
  - said image signal being constructed by a plurality of picture planes, and
  - (d) first means for outputting the digital image signal and the digital audio signal from said A/D converting means;
- (B) a recording apparatus for recording the digital image signal and the digital audio signal from said first means; and
- (C) a signal processing apparatus including
  - (a) second means for inputting the digital image signal and the digital audio signal from said first means, and
  - (b) changing means for changing the number of picture planes per unit time of the digital image signal inputted by said second means.

5,786,852
IMAGE PICK-UP APPARATUS HAVING AN IMAGE SENSING DEVICE INCLUDING A PHOTOELECTRIC CONVERSION PART AND A VERTICAL TRANSFER PART

Masao Suzuki, Tokyo, and Kenichi Kondo, Kawasaki, both of Japan, assignors to Canon Kabushiki Kaisha, Tokyo, Japan

Filed Jun. 7, 1995, Ser. No. 481,838

Claims priority, application Japan, Jun. 20, 1994, 6-137318; Dec. 16, 1994, 6-333659

Int. Cl.⁶ H04N *5/14*

U.S. Cl. 348—312 **5 Claims**

1. An image pick-up apparatus comprising:
- an image sensing device for converting an optical image into an electrical signal, said image sensing device including a photoelectric conversion part and a vertical transfer part;

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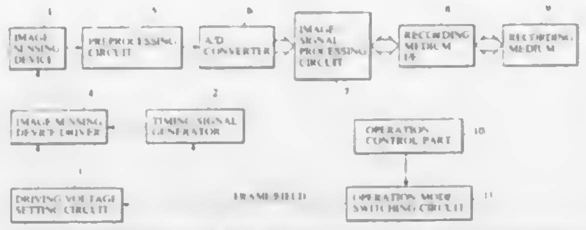


mode switching means for switching an operation mode between a frame mode and field mode; and

control means for controlling the bias level and/or a timing of a vertical transfer pulse depending on the operation mode selected via said mode switching means,

wherein said control means gives a predetermined amount of shift to an intermediate level of a transfer pulse used to drive a vertical transfer part adjacent to a photoelectric conversion part, and said control means also gives the same amount of shift to intermediate levels of transfer pulses used to drive other vertical transfer parts, and

wherein said control means further includes a plurality of shifting circuits for determining the amount of shift given to the individual vertical transfer pulses, said plurality of shifting circuits being connected to the same power supply source used in common.

5,786,853
LENS CONTROL DEVICE

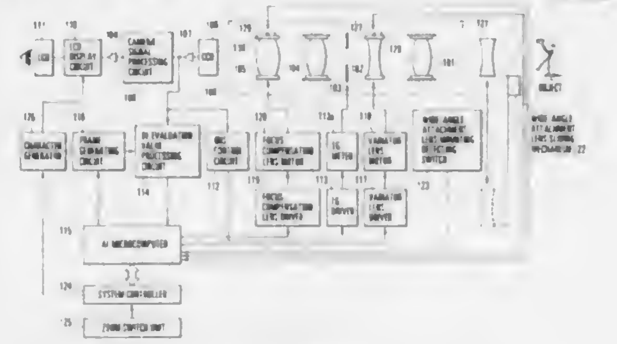
Hiroto Ohkawara, Ibaraki-ken; Masahide Hirasawa, and Taeko Tanaka, both of Kanagawa-ken, all of Japan, assignors to Canon Kabushiki Kaisha, Tokyo, Japan

Filed Apr. 6, 1995, Ser. No. 418,269

Claims priority, application Japan, Apr. 12, 1994, 6-098024; Apr. 12, 1994, 6-098026; Apr. 12, 1994, 6-098027; Aug. 4, 1994, 6-202830

Int. Cl.⁶ A04N *5/235*

U.S. Cl. 348—358 **20 Claims**



1. A lens control device comprising:

(A) a variator lens for zooming;

(B) a focusing lens for compensating for a focus plane position change associated with the movement of the variator lens;

(C) a conversion lens for modifying the focal length determined by the variator lens;

(D) driving means for driving the variator lens and the focusing lens; and

(E) control means for changing a driving speed of the variator lens during photography between when the conversion lens is mounted and when the conversion lens is not mounted.

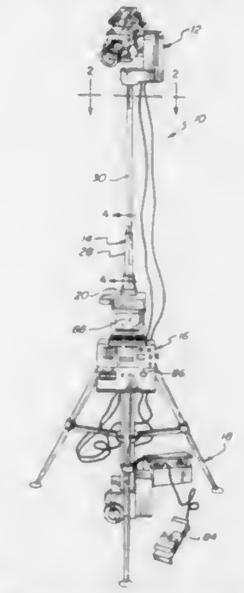
5,786,854
PORTABLE SELF-CONTAINED TELESCOPING CAMERA TOWER SYSTEM FOR HIGH ANGELIMAGING

Mark W. Slade; Veronia V. Slade, both of Weston, Conn.; Steven M. Nettik, Bozeman, and Torence P. Brogan, Belgrade, both of Mont., assignors to Tree Top Systems, Inc., Westport, Conn.

Filed Nov. 21, 1995, Ser. No. 561,371

Int. Cl.⁶ H04N *5/225*; G03B *17/00*

U.S. Cl. 348—373 **10 Claims**



1. A portable, self-contained telescoping camera tower system for high angle imaging, comprising:

(a) a multi-segment, vertical mast including
  (i) a base tubular segment having an interior surface on which bearing means are supported, an uppermost end, a lowermost end, and a pulley mounted at the uppermost end having an axis of rotation perpendicular to a first wall of the interior surface of the base tubular segment,
  (ii) at least one intermediate tubular segment having a smaller cross sectional dimension than the base tubular segment, an interior surface on which bearing means are supported, an uppermost end, a lowermost end, and an exterior surface in contact with the bearing means on the base tubular segment; the intermediate tubular segment having pulleys mounted at both the uppermost end and the lowermost end, the pulley mounted at the uppermost end having an axis of rotation perpendicular to a first wall of the interior surface of the intermediate tubular segment, and the pulley mounted at the lowermost end having an axis of rotation parallel to the first wall and having a line carrying groove extending at least partially through the first wall;
  (iii) a terminal tubular segment of smaller cross sectional dimension than an adjacent intermediate tubular segment and having an uppermost end, a lowermost end, a first wall of an interior surface of the terminal tubular segment and an exterior surface in contact with bearing means on the adjacent intermediate tubular segment;
  (iv) wherein the base tubular segment, the intermediate tubular segment and the terminal tubular segment form nested elements;

(b) a drive mechanism including
  (i) a power unit located outside of the base tubular segment for driving at least one drum inside the base tubular segment,
  (ii) at least one power-up drum engaged with the power unit to enable the drum to be rotated by it,
  (iii) at least one line affixed at one end to the power-up drum and the other to the terminal tubular segment, the line being threaded though the pulley at the uppermost end of the base tubular segment, to the pulley at the lowermost end of an intermediate tubular segment, and to the pulley at the uppermost end of the intermediate tubular segment; and

(c) a control unit to control the operation of the power unit.

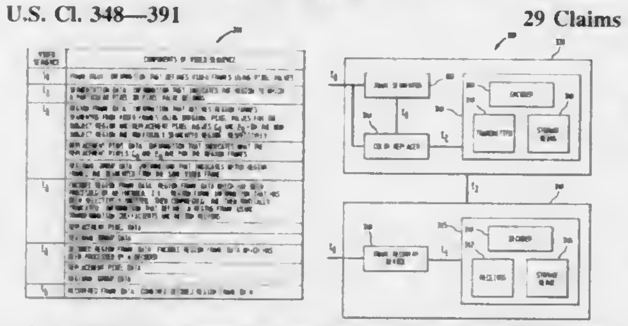
5,786,855
METHOD AND APPARATUS FOR CODING SEGMENTED REGIONS IN VIDEO SEQUENCES FOR CONTENT-BASED SCALABILITY

Tsuhan Chen, Middletown, and Barin Geoffry Haskell, Tinton Falls, both of N.J., assignors to Lucent Technologies Inc., Murray Hill, N.J.

Filed Oct. 26, 1995, Ser. No. 548,818

Int. Cl.⁶ H04N *7/12*

U.S. Cl. 348—391 **29 Claims**



1. A method for generating region frame data from video frame data, wherein said video frame data and region frame data include pixel values that define regions, said regions categorized as subject regions, previously segmented regions and non-subject regions, said method comprising the steps of:

extracting said pixel values defining said subject region from said video frame data into said region frame data;

assigning a non-subject pixel value in said region frame data for defining said non-subject regions, said non-subject pixel value indicative of a color not indicated by any of said pixel values defining said subject region; and

specifying previously segmented pixel values in said region frame data for defining said previously segmented regions.

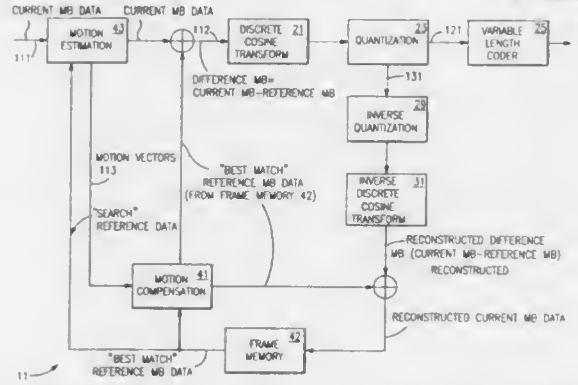
5,786,856
METHOD FOR ADAPTIVE QUANTIZATION BY MULTIPLICATION OF LUMINANCE PIXEL BLOCKS BY A MODIFIED, FREQUENCY ORDERED HADAMARD MATRIX

Barbara Ann Hall, Endwell; John Mark Kaczmarczyk, Endicott; Agnes Yee Ngai, Endwell, and Robert Leslie Woodward, Newark Valley, all of N.Y., assignors to International Business Machines, Armonk, N.Y.

Filed Mar. 19, 1996, Ser. No. 618,659

Int. Cl.⁶ H04N *7/18*

U.S. Cl. 348—403 **8 Claims**


CURRENT MB DATA
CURRENT MB DATA
111
MOTION ESTIMATION 43
112
DISCRETE COSINE TRANSFORM 21
QUANTIZATION 23
121
VARIABLE LENGTH CODER 25
DIFFERENCE MB= CURRENT MB-REFERENCE MB
131
INVERSE QUANTIZATION 29
MOTION VECTORS 113
"BEST MATCH" REFERENCE MB DATA (FROM FRAME MEMORY 42)
INVERSE DISCRETE COSINE TRANSFORM 31
"SEARCH" REFERENCE DATA
RECONSTRUCTED DIFFERENCE MB (CURRENT MB-REFERENCE MB) RECONSTRUCTED
MOTION COMPENSATION 41
RECONSTRUCTED CURRENT MB DATA
FRAME MEMORY 42
"BEST MATCH" REFERENCE MB DATA
11

1. A method for spatial compression of a digital video picture comprising the steps of:

a. dividing the picture into a plurality of macroblocks, each macroblock having pixel blocks;
b. multiplying each pixel block by a modified frequency ordered Hadamard matrix to yield a first dimension of each pixel block;
c. multiplying the first dimension of each luminance pixel block by the inverse of the modified frequency ordered Hadamard matrix to yield a second dimension of each pixel block;
d. weighting the second dimension of each pixel block against a programmable weight matrix, and summing the weighted terms of each pixel block to obtain one sum for each pixel block; and
e. selecting the minimum of the sums of the pixel blocks to thereby detect edge or texture of the macroblock.

5,786,857
IMAGE PROCESSING SYSTEM

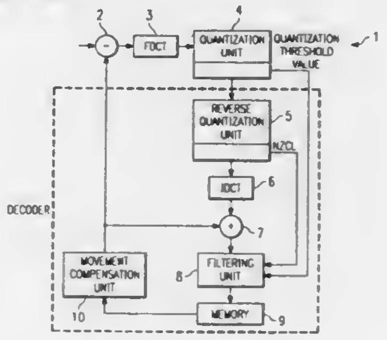
Hirohisa Yamaguchi, Tsukuba, Japan, assignor to Texas Instruments Incorporated, Dallas, Tex.

Continuation of Ser. No. 316,764, Oct. 3, 1994, abandoned. This application May 28, 1997, Ser. No. 864,266

Claims priority, application Japan, Oct. 1, 1993, 5-246777

Int. Cl.⁶ H04N *7/32;7/30*

U.S. Cl. 348—405 **8 Claims**


2
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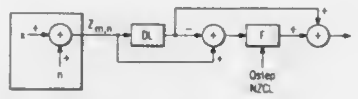
FDCT
QUANTIZATION UNIT
QUANTIZATION THRESHOLD VALUE
1
REVERSE QUANTIZATION UNIT
5
NZCL
IDCT
6
DECODER
7
MOVEMENT COMPENSATION UNIT
FILTERING UNIT
8
10
MEMORY
9



1. An image processing system comprising:

means for inputting m pixels×n lines of image information;

first transformation means connected to said input means for receiving the image information therefrom and transforming the image information into data represented in the frequency domain;

quantization means connected to said first transformation means for receiving the transformed frequency domain data therefrom and forming quantized data based upon the frequency domain data as transformed by the first transformation means;

reverse quantization means connected to said quantization means for receiving the quantized data therefrom and performing a reverse quantization on the quantized data to provide reverse quantized frequency domain data, said reverse quantization means generating a distribution pattern of non-zero transform coefficients related to the reverse quantized frequency domain data provided thereby and being a specific value at each position of the (m×n) positions;

second transformation means connected to the reverse quantization means for receiving the reverse quantized frequency domain data therefrom and transforming the reverse quantized frequency domain data into reconverted image information; and

filtering means connected to said reverse quantization means and to said second transformation means for receiving the reconverted image information from said second transformation means and filtering the reconverted image information in accordance with the distribution pattern of the non-zero transform coefficients generated by said reverse quantization means, so that the amount of compression noise can be

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estimated at each position of the (m×n) positions whereby mosquito and block noise is removed from the reconverted image information.

5,786,858
METHOD OF ENCODING IMAGE SIGNAL, APPARATUS FOR ENCODING IMAGE SIGNAL, METHOD OF DECODING IMAGE SIGNAL, APPARATUS FOR DECODING IMAGE SIGNAL, AND IMAGE SIGNAL RECORDING MEDIUM

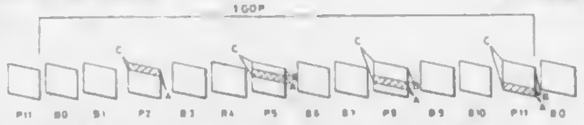
Yoichi Yagasaki; Jun Yonemitsu, both of Kanagawa, and Teruhiko Suzuki, Chiba, all of Japan, assignors to Sony Corporation, Japan

Continuation of Ser. No. 302,803, Oct. 13, 1994, abandoned. This application Oct. 7, 1996, Ser. No. 729,712

Claims priority, application Japan, Jan. 19, 1993, 5-007046; Jan. 25, 1993, 5-010302

Int. Cl.^{6} H04N *7/36*

U.S. Cl. 348—415 **45 Claims**



1. An image signal encoding method, comprising steps of:

coding input image signals to produce coded picture signals, the coded picture signals including a group-of-pictures, wherein the group-of-pictures includes a plurality of P-pictures but no I-pictures;

a first designating step, for designating for at least some of the P-pictures of the group-of-pictures, first slices consisting entirely of intra-coded macroblocks;

providing, in the coded picture signals, an indication of the first slices;

a second designating step, for designating for at least some of the P-pictures of the group-of-pictures, second slices consisting only partly of intra-coded macroblocks; and

providing, in the coded picture signals, an indication of the intra-coded macroblocks of the second slices.

5,786,859
VIDEO CODING/DECODING APPARATUS WITH PREPROCESSING TO FORM PREDICTABLE CODED VIDEO SIGNAL PORTION

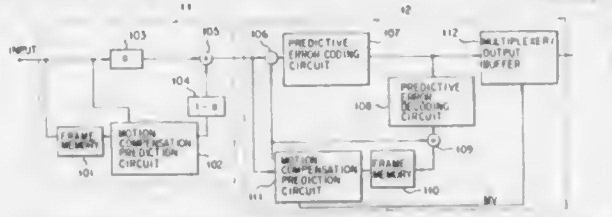
Hideyuki Ueno, Tokyo, and Masami Akamine, Yokosuka, both of Japan, assignors to Kahushiki Kaisha Toshiba, Kawasaki, Japan

Filed Jun. 29, 1995, Ser. No. 496,316

Claims priority, application Japan, Jun. 30, 1994, 6-149726

Int. Cl.^{6} H04N *7/32*

U.S. Cl. 348—416 **12 Claims**


11
12
INPUT
103
105
106
107
112
PREDICTIVE ERROR CODING CIRCUIT
MULTIPLEXER/ OUTPUT BUFFER
104
1 - δ
PREDICTIVE ERROR DECODING CIRCUIT
108
FRAME MEMORY
MOTION COMPENSATION PREDICTION CIRCUIT
101
102
109
MOTION COMPENSATION PREDICTION CIRCUIT
FRAME MEMORY
110
111
MV

1. A preprocessing device used in a video coding apparatus, comprising:

change data generating means for detecting a change in an input video signal relative to a current picture portion of the input video signal and a past picture portion of the input video signal to generate change data; and

current picture deforming means for deforming the current picture portion in accordance with the change data generated by said change data generating means such that a deformed current picture is sent to a motion compensation prediction coding section of said video coding apparatus to be coded;

wherein said change data generating means includes video change detecting means for comparing the current picture portion of the input video signal with a video signal of at least one previous picture frame or field of said input video signal making up said past picture portion to detect a degree of change between the current picture portion and the past picture portion and to output video change data as said change data, and said current picture deforming means includes prediction processing means for preparing a predictive picture signal based on said video change data from said video change detecting means and means for weighting and adding the predictive picture signal from said prediction processing means and the current picture portion to generate the deformed current picture being sent to said motion compensation prediction coding section.

5,786,860
HIGH SPEED BLOCK MATCHING FOR BI-DIRECTIONAL MOTION VECTOR ESTIMATION

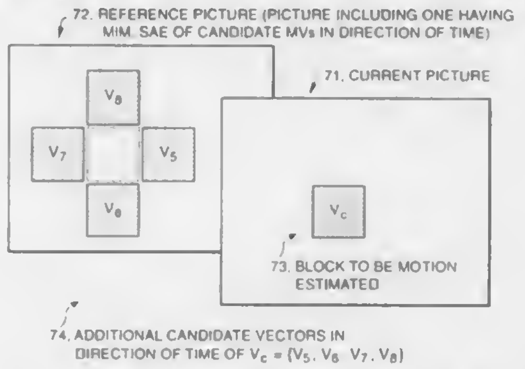
Min-Kyu Kim, Inchon, and Jae-Kyoon Kim, Seoul, both of Rep. of Korea, assignors to Korean Advanced Institute of Science and Technology, Taejon, Rep. of Korea

Filed Feb. 22, 1995, Ser. No. 392,344

Claims priority, application Rep. of Korea, Jul. 30, 1994, 1994 18902

Int. Cl.^{6} H04N *7/36*

U.S. Cl. 348—416 **6 Claims**


72. REFERENCE PICTURE (PICTURE INCLUDING ONE HAVING MIM. SAE OF CANDIDATE MVs IN DIRECTION OF TIME)
71. CURRENT PICTURE
V8
V7
V5
V6
Vc
73. BLOCK TO BE MOTION ESTIMATED
74. ADDITIONAL CANDIDATE VECTORS IN DIRECTION OF TIME OF Vc = (V5, V6, V7, V8)

1. In a system for compressing and encoding video data representing moving pictures, wherein pictures are logically divided into blocks, a method of bi-directional motion vector estimation for use in block matching in a block-based motion estimation system, the block-based motion estimation system being operable to effect block matching and to generate motion vectors representing the displacement between a new video data block and a displaced video data block within a reference video frame, the method comprising, for a block in the picture:

(a) estimating an initial motion vector for the block;

(b) selecting a search area around the initial motion vector for the block based on an accuracy of the estimated initial motion vector;

(c) selecting a final motion vector in the selected search area; and

(d) using the selected final motion vector to compress and encode data representing the pictures

wherein the selecting of the search area comprises:

setting the search area based on the value of the sum of estimated absolute errors of the initial motion vector and on the number of picture elements per frame,

where the selecting of the search area is based on the sum of estimated absolute errors of the initial motion vector; the maximum sum of estimated absolute errors of the candidate motion vectors; and the minimum sum of estimated absolute errors of the candidate motion vectors.

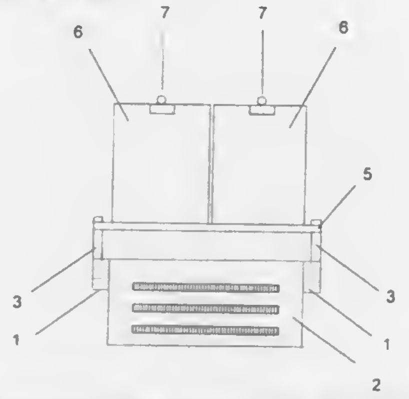
5,786,861
CLIPBOARDS ATTACHED TO COMPUTER KEYBOARD

Joan H. Parker, 302 Los Arboles Dr., Santa Fe, N. Mex. 87501, assignor to Joan H. Parker, Santa Fe, N. Mex.

Filed Apr. 3, 1997, Ser. No. 832,515

Int. Cl.^{6} B41J *11/02*

U.S. Cl. 248—442.2 **4 Claims**



1. A detachable clipboard structure for attachment to a computer keyboard, said detachable clipboard structure comprising a first and a second arm base adapted to be attached to the sides of the computer keyboard, a first extension arm having a first end attached within a hole in said first arm base and a second extension arm having a first end attached within a hole in said second arm base, a rod rotatably extending from a second end of said first extension arm to a second end of said second extension arm, said rod having an elongated channel groove therein and a pair of clipboards, each clipboard having a first end which is slidably positioned within said channel groove, whereby said clipboards are simultaneously rotatable about the elongated axis of said rod and slidably adjustable along said channel groove of said rod to provide multiple viewing positions for a computer keyboard user, said pair of clipboards adapted to provide a dustcover for the computer keyboard, adapted to use little desk space, and adapted to be within easy reach and easy reading distance of said computer keyboard user.

5,786,862
METHOD AND APPARATUS FOR INTERPOLATING PIXELS BASED ON WIDE-VECTOR CORRELATIONS

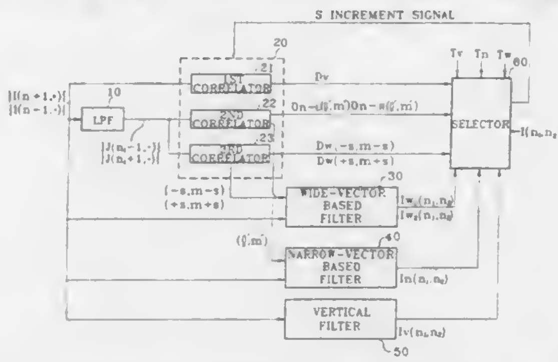
Yeong-Taeg Kim, Suwon, and Yong-Hun Cho, Seoul, both of Rep. of Korea, assignors to Samsung Electronics Co., Ltd., Kyungki-do, Rep. of Korea

Filed Sep. 30, 1996, Ser. No. 723,118

Claims priority, application Rep. of Korea, Sep. 30, 1995, 95-33972; Sep. 6, 1996, 96-38664

Int. Cl.^{6} H04N *7/01*

U.S. Cl. 348—448 **21 Claims**



1. A method for interpolating a pixel selected among pixels constituting a line between two lines selected from an image having a plurality of lines of pixels, the pixel interpolation method comprising:

(a) calculating narrow-vectors with respect to a plurality of adjoining pixels from among the pixels of the two selected lines and related to the selected pixel, and determining narrow-vectors therefrom having a minimum norm value, wherein the selected pixel to be interpolated is $I(n_1,n_2)$;

(b) interpolating pixels of the narrow-vectors having the minimum norm value when the narrow-vector minimum norm value determined in step (a) is smaller than a first predetermined value, and determining every wide-vector having a minimum norm value when the narrow-vector minimum norm value determined in step (a) is greater than the first predetermined value, wherein each of the wide-vectors includes a larger number of pixels than the number of pixels of each of said narrow-vectors from the two selected lines; and

(c) interpolating the pixels of the wide-vector having the minimum norm value determined in step (b) when the determined narrow-vector minimum norm value is greater than the first predetermined value.

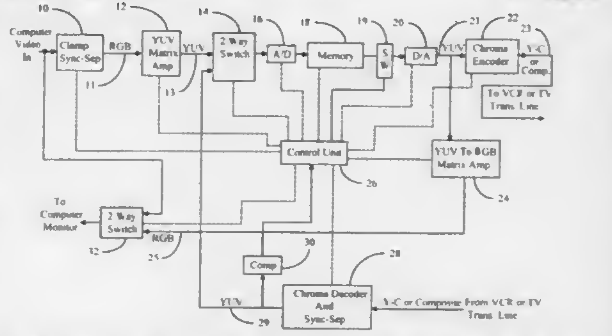
5,786,863
HIGH RESOLUTION RECORDING AND TRANSMISSION TECHNIQUE FOR COMPUTER VIDEO AND OTHER NON-TELEVISION FORMATTED VIDEO SIGNALS

Galen Collins, San Jose, Calif., assignor to Redlake Imaging Corporation, Mogan Hill, Calif.

Filed Aug. 8, 1995, Ser. No. 512,634

Int. Cl.^{6} H04N *7/01*

U.S. Cl. 348—458 **8 Claims**



1. A method for converting computer video signals to proprietary TV signals wherein said computer video includes N frames of data in the same time period that said proprietary TV signal occupies a single frame of data, and each of said computer video frames includes M lines of data, said method comprises the steps of:

a. converting said M lines of data in the first of said N frames of computer video to M lines of TV signals;

b. selecting two integer values, $X=0$ and $Y=1$;

c. writing lines $(XM/N)+1$ through $(YM)/N$ of the M lines of TV signals of step a. into TV frame Y;

d. advancing X and Y each by 1 and repeating step c. if the value of Y is no greater than N; and

e. repeating steps a. through d. for the next N frames of computer data.

5,786,864
MOVING PICTURE PROCESSING APPARATUS AND METHOD WHEREIN IMAGE DATA AND SPECIAL EFFECTS DATA ARE TRANSMITTED IN COMMON

Kunihiro Yamamoto, Tokyo, Japan, assignor to Canon Kabushiki Kaisha, Tokyo, Japan

Continuation of Ser. No. 144,655, Nov. 2, 1993, abandoned. This application Mar. 6, 1996, Ser. No. 611,979

Claims priority, application Japan, Nov. 5, 1992, 4-295602

Int. Cl.^{6} H04N *7/08*

U.S. Cl. 348—473 **45 Claims**

1. A moving-picture processing apparatus comprising:

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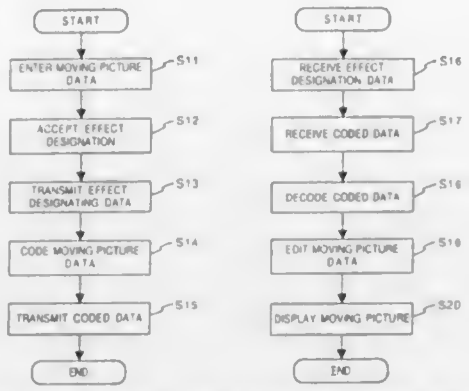


receiving means for receiving from an external apparatus (i) digital moving-picture data which is coded in accordance with a coding method that utilizes correlation between a plurality of frames, represented by the coded digital moving-picture data, and (ii) command data for commanding image modification processing to be applied to the digital moving-picture data;

decoding means for decoding the coded digital moving-picture data; and

image modification processing means for subjecting the digital moving-picture data decoded by said decoding means to image modification processing in accordance with the command data, and

wherein said image modification processing comprises superimposing processing.

5,786,865

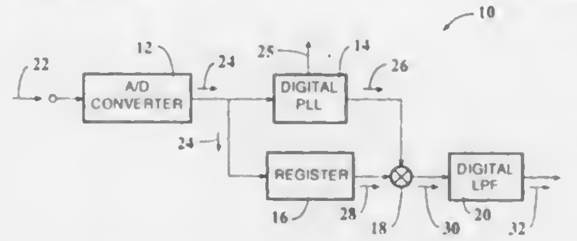
APPARATUS AND METHOD FOR DIGITAL AMPLITUDE AND PHASE DETECTION

Oscar Ayzenberg, Sunnyvale, and Anatoliy V. Tsyrganovich, Cupertino, both of Calif., assignors to Zilog, Inc., Campbell, Calif.

Filed Jun. 28, 1996, Ser. No. 673,264

Int. Cl.^{6} H04N *5/06*

U.S. Cl. 348—505 **30 Claims**



1. In a television system, a digital amplitude detector for detecting the amplitude of a color burst digital signal, comprising:

a phase lock loop circuit for generating a constant amplitude sinusoidal digital signal having a phase angle approximately 90 degrees out-of-phase with that of said color burst signal;

a delay circuit for delaying the color burst digital signal by a selected amount of clock cycles;

a multiplying circuit for generating a product signal by multiplying the delayed color burst signal by the constant amplitude sinusoidal signal, wherein said product signal has a high-frequency component and a low-frequency component having an amplitude response substantially proportional to that of the color burst signal; and

a low pass filter circuit coupled to said multiplying circuit for filtering said product signal such that the intensity of the high-frequency component is substantially lower than that of the low-frequency component.

5,786,866

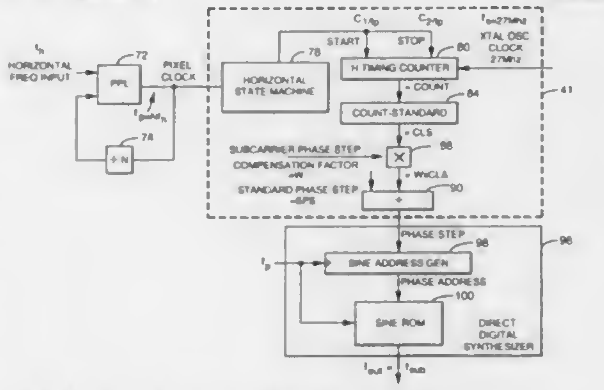
VIDEO COLOR SUBCARRIER SIGNAL GENERATOR

Mehdi H. Sani; De Dzwo Hsu, both of San Diego, Calif., and Willard K. Bucklen, Greensboro, N.C., assignors to Fairchild Semiconductor Corporation, South Portland, Me.

Filed Oct. 15, 1996, Ser. No. 730,591

Int. Cl.^{6} H04N *9/475*

U.S. Cl. 348—520 **9 Claims**



1. A video color subcarrier signal generator, comprising:

a phase locked loop driven by a horizontal line synchronizing signal of a video signal and which outputs a pixel clock signal having a frequency which is a multiple of that of the horizontal line synchronizing signal;

a scaler driven by the pixel clock signal from the phase locked loop and by a reference clock signal; and

a digital frequency synthesizer having two input terminals, a first input terminal being coupled to receive the pixel clock signal output by the phase locked loop and a second input terminal being connected to an output terminal of the scaler, the digital frequency synthesizer providing the color subcarrier signal at its output terminal.

5,786,867

VIDEO CONTROL SIGNAL GENERATOR FOR PROCESSING DIGITAL VIDEO SIGNAL

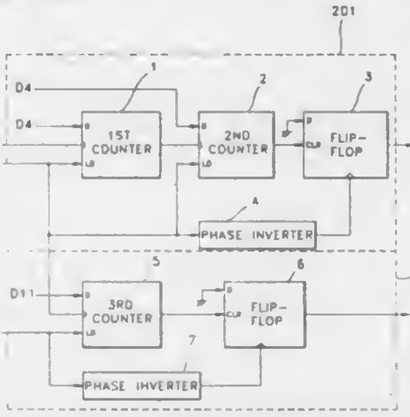
Inh-seok Suh, Suwon, Rep. of Korea, assignor to Samsung Aerospace Industries, Ltd.., Kyongsangnam-do, Rep. of Korea

Filed Mar. 14, 1996, Ser. No. 615,967

Claims priority, application Rep. of Korea, Mar. 20, 1995, 1995 5786

Int. Cl.^{6} H04N *5/08*

U.S. Cl. 348—521 **10 Claims**



1. A system for generating a video control signal to process a video signal associated with a video composite signal, said video composite signal having a horizontal driving signal and a vertical driving signal, each of said driving signals having one or more pulses, said system comprising:

a counter for counting said pulses of one of said horizontal and vertical driving signals; and

a flip-flop, coupled to said counter, for generating a blanking signal based on the the pulse count in said counter; and

an inverter for inverting the phase of a respective one of said horizontal and vertical driving signals to generate an inverted driving signal, wherein said flip-flop includes means, coupled to said inverter, for generating said blanking signal at least partially based on said inverted driving signal.

5,786,868

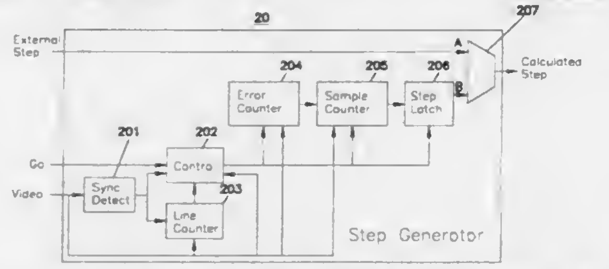
AUTOMATIC STEP GENERATOR FOR SELF-CORRECTION OF SAMPLING

Robert J. Hankinson, Carrollton, Tex., assignor to Cirrus Logic, Inc., Fremont, Calif.

Filed Dec. 22, 1995, Ser. No. 578,301

Int. Cl.^{6} H04N *5/12*

U.S. Cl. 348—536 **28 Claims**



1. A method of generating a correction factor for variations in an actual sample count in a system in which variations between a measured sampling rate and a desired sampling rate could occur, said method comprising the steps of:

selecting a sampling window in the measured sampling rate, the sampling window theoretically containing an ideal sample count at the desired sampling rate, the sampling window selected so that the ideal sample count approximates a preselected integer power of 2;

calculating a numeric difference between the ideal sample count and the preselected integer power of 2;

monitoring for actual samples experienced in the sampling window;

counting said actual samples to derive the actual sample count;

adjusting the actual sample count with the numeric difference between the ideal sample count and the preselected integer power of 2;

representing said adjusted actual sample count in binary as a binary sample count; and

adjusting the binary sample count a number of places equal to the preselected integer so as to yield a binary quotient as said correction factor.

5,786,869

AUTOMATIC CHANNEL SEARCHING METHOD FOR A TELEVISION RECEIVER

Woon Kil Baek, and Han Sun Sung, both of Kyungsangbuk-Do, Rep. of Korea, assignors to LG Electronics Inc., Seoul, Rep. of Korea

Filed Dec. 28, 1995, Ser. No. 580,178

Claims priority, application Rep. of Korea, Dec. 28, 1994, 1994 37801; Dec. 28, 1994, 1994 37802

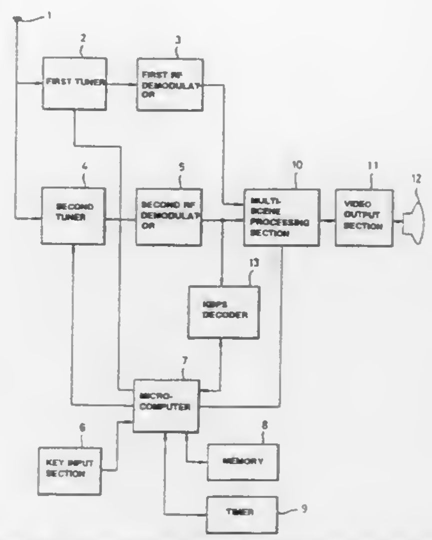
Int. Cl.^{6} H04N *5/445:5/50*

U.S. Cl. 348—565 **8 Claims**

1. An automatic channel searching method for a picture-in-picture type television receiver, comprising the steps of:

detecting broadcasting program information from an input channel broadcasting signal;

determining from the detected broadcasting program information whether or not a newly starting broadcasting program exists; and



displaying the broadcasting program of a corresponding channel on a sub-channel region of a display screen if it is determined that the newly starting broadcasting program exists.

5,786,870

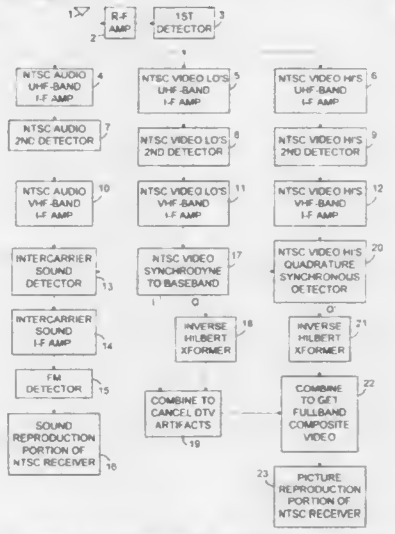
NTSC VIDEO SIGNAL RECEIVERS WITH REDUCED SENSITIVITY TO INTERFERENCE FROM CO-CHANNEL DIGITAL TELEVISION SIGNALS

Allen LeRoy Limberg, Vienna, Va., assignor to Samsung Electronics Co., Ltd., Suwon, Rep. of Korea

Continuation-in-part of Ser. No. 821,944, Mar. 21, 1997. This application Jun. 25, 1997, Ser. No. 882,541

Int. Cl.^{6} H04N *5/21*

U.S. Cl. 348—607 **20 Claims**


1
R-F AMP
2
1ST DETECTOR
3
NTSC AUDIO UHF-BAND I-F AMP
4
NTSC VIDEO LO'S UHF-BAND I-F AMP
5
NTSC VIDEO HI'S UHF-BAND I-F AMP
6
NTSC AUDIO 2ND DETECTOR
7
NTSC VIDEO LO'S 2ND DETECTOR
8
NTSC VIDEO HI'S 2ND DETECTOR
9
NTSC AUDIO VHF-BAND I-F AMP
10
NTSC VIDEO LO'S VHF-BAND I-F AMP
11
NTSC VIDEO HI'S VHF-BAND I-F AMP
12
INTERCARRIER SOUND DETECTOR
13
NTSC VIDEO SYNCHRODYNE TO BASEBAND
17
I
Q
NTSC VIDEO HI'S QUADRATURE SYNCHRONOUS DETECTOR
20
Q'
INTERCARRIER SOUND I-F AMP
14
INVERSE HILBERT XFORMER
18
INVERSE HILBERT XFORMER
21
FM DETECTOR
15
COMBINE TO CANCEL DTV ARTIFACTS
19
COMBINE TO GET FULLBAND COMPOSITE VIDEO
22
SOUND REPRODUCTION PORTION OF NTSC RECEIVER
16
23
PICTURE REPRODUCTION PORTION OF NTSC RECEIVER

1. A video signal receiver with reduced sensitivity to interference from co-channel digital television signals, said video signal receiver comprising:

first input circuitry for selecting a vestigial sideband amplitude-modulation signal descriptive of a video signal, converting the selected vestigial sideband amplitude-modulation signal to a first intermediate frequency signal, and amplifying said first intermediate frequency signal to provide an amplified first intermediate frequency signal, said vestigial sideband amplitude-modulation signal as originally received by said first input circuitry including a video carrier and full sideband in addition to a vestigial sideband, the selection of said vestigial sideband amplitude-modulation signal being from any single one of a plurality of channels at least one of which is subject to containing at times co-channel interference from a digital television signal;

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video synchrodyning circuitry for synchronously detecting said amplified first intermediate frequency signal with respect to said video carrier signal and with respect to a carrier in quadrature phase with said video carrier signal, for generating a first in-phase synchronous detection response and for generating a first quadrature-phase synchronous detection response;

first phase shift circuitry for phase shifting by substantially 90° all frequency components of said first quadrature-phase synchronous detection response above a prescribed frequency to generate a first phase shift circuitry response; and

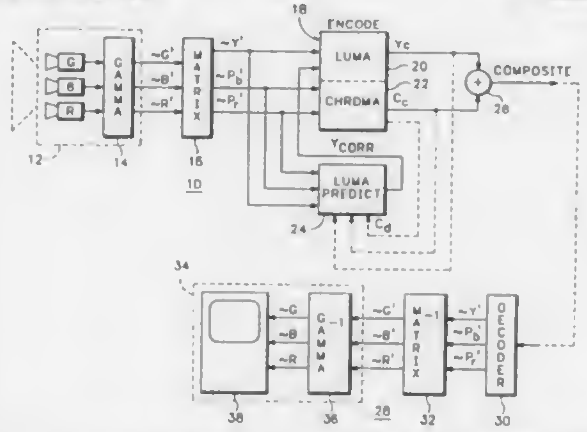
first linear combining circuitry linearly combining said first in-phase synchronous detection response and said first phase shift circuitry response for recovering lower frequency portions of said video signal described both in said full sideband and said vestigial sideband, substantially free of artifacts from any co-channel interfering digital television signal.

5,786,871
CONSTANT LUMINANCE CORRECTOR

Bruce J. Penney, Aloha, Oreg., assignor to Tektronix, Inc., Wilsonville, Oreg.

Filed Apr. 1, 1996, Ser. No. 625,381
Int. Cl.^{6} H04N *5/21*

U.S. Cl. 348—609 17 Claims



1. A constant luminance corrector for use with an encoder having separate luminance and chrominance component signal channels, the encoder having as inputs conventional gamma-corrected luminance and chrominance component signals and providing as an output a composite signal formed from encoded luminance and chrominance component signals generated by the encoder, comprising:

means for processing input luminance and chrominance component signals to produce a luminance correction signal, the input luminance component signal being selected from the group consisting of the conventional gamma-corrected luminance component signal and the encoded luminance component signal and the input chrominance component signals being selected from the group consisting of the conventional gamma-corrected chrominance component signals and the encoded chrominance component signal together with a discarded chrominance component signal representing portions of the conventional gamma-corrected chrominance component signals lost during processing by the encoder to produce the encoded chrominance component signal; and

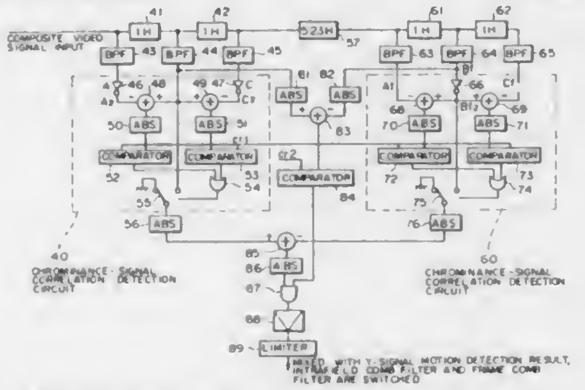
means for combining the luminance correction signal with the conventional gamma-corrected luminance component signal at the input of the encoder so that the composite signal is a constant luminance composite signal.

5,786,872
MOTION DETECTION CIRCUIT CALCULATES DIFFERENCE BETWEEN INPUT VIDEO SIGNAL AND ONE FRAME-PERIOD SIGNAL

Shinichirou Miyazaki, and Masaharu Tokuhara, both of Kanagawa, Japan, assignors to Sony Corporation, Tokyo, Japan

Filed Jul. 22, 1996, Ser. No. 685,974
Claims priority, application Japan, Jul. 26, 1995, 7-190014
Int. Cl.^{6} H04N *9/78*

U.S. Cl. 348—669 9 Claims


COMPOSITE VIDEO SIGNAL INPUT
1H
523H
BPF
ABS
COMPARATOR
LIMITER
41
42
43
44
45
57
61
62
63
64
65
81
82
83
84
85
86
87
88
89
40
CHROMINANCE-SIGNAL CORRELATION DETECTION CIRCUIT
60
CHROMINANCE-SIGNAL CORRELATION DETECTION CIRCUIT
MIXED WITH Y-SIGNAL MOTION DETECTION RESULT, INTRAFIELD COMB FILTER AND FRAME COMB FILTER ARE SWITCHED

1. A motion detection circuit comprising:

delaying means for outputting an input video signal corresponding to a specified image with a delay of a one-frame period and forming a delayed signal;

first detection means for detecting chrominance correlation from said input video signal and forming a first detection result;

second detection means for detecting chrominance correlation from the delayed signal output from said delaying means and forming a second detection result;

first calculation means for calculating a difference between the first detection result output from said first detection means and the second detection result output from said second detection means and forming a first calculation result;

second calculation means for calculating a difference between said input signal and said delayed signal and forming a second calculation result;

comparison means for comparing the second calculation result output from said second calculation means with a specified reference level and forming a comparison result; and

output means for outputting a motion detection result according to the comparison result output from said comparison means and the first calculation result output from said first calculation means.

5,786,873
EFFICIENT OPTICAL SYSTEM FOR A HIGH RESOLUTION PROJECTION DISPLAY EMPLOYING REFLECTION LIGHT VALVES

George Liang-Tai Chiu, Cross River; Thomas Mario Cipolla, Katonah; Fuad Elias Doany, Katonah; Derek Brian Dove, Mt. Kisco; Alan Edward Rosenbluth, Yorktown Heights, all of N.Y.; Rama Nand Singh, Bethel, Conn., and Janusz Stanislaw Wilczynski, Ossining, N.Y., assignors to International Business Machines Corporation, Armonk, N.Y.

Continuation of Ser. No. 410,428, Mar. 23, 1995, abandoned.
This application Aug. 13, 1997, Ser. No. 910,807
Int. Cl.^{6} H04N *9/31;5/74*

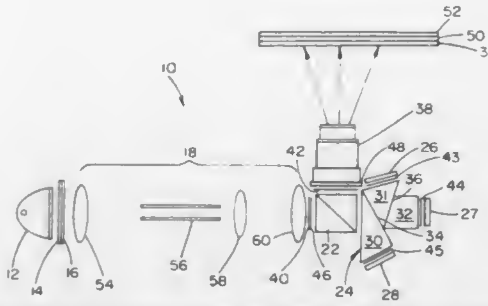
U.S. Cl. 348—756 8 Claims

1. An apparatus for displaying an image on a screen comprising:

a projection lens;

means for substantially suppressing stray reflection from said projection lens from reaching said screen; and

means for suppressing ambient light from illuminating said screen, wherein said means for suppressing ambient light transmits light from said projection lens without suppression and includes a quarter wave plate and a polarizing film placed on said screen, said polarizing film being positioned on the viewing side of said screen and said quarter wave plate being positioned between said polarizing film and said screen;



a polarizing beam splitting means for splitting light into first and second polarizations;

a polarizer located between the polarizing beam splitting means and the projection lens;

a prism assembly for splitting the light from said polarizing beam splitting means of said first polarization into a plurality of colors, and directing each color through a separate output face of said prism assembly, and for recombining said plurality of colors reflected back into said prism assembly through each respective output face;

spacial light modulator means positioned adjacent each output face of said prism assembly for rotating light directed through each output face of said prism assembly, and reflecting said rotated colored light back into said prism assembly through each said respective output face for recombining therein;

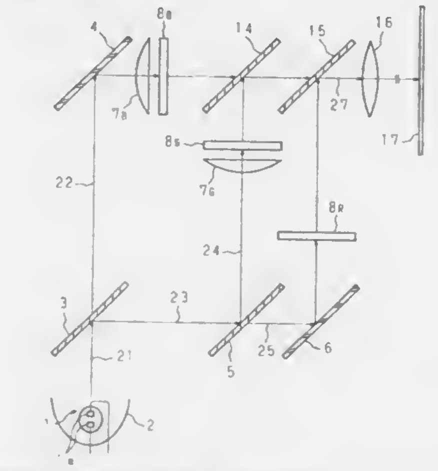
means for directing light from said source into said polarizing beam splitting means, wherein cross-sectional shapes of said means for directing light and said spacial light modulator means are configured to transfer substantially all light emerging from said means for directing light to said spacial light modulator means.

5,786,874
LIQUID CRYSTAL PROJECTOR WITH CONDENSER LENSES FOR BLUE AND GREEN PANELS ONLY OR THE RED PANEL CONDENSER LENS FOCAL LENGTH BEING LARGEST

Naoki Kawamoto, and Masanori Kojima, both of Tokyo, Japan, assignors to Mitsubishi Denki Kabushiki Kaisha, Tokyo, Japan

Filed Jul. 1, 1996, Ser. No. 675,291
Claims priority, application Japan, Mar. 28, 1996, 8-074941
Int. Cl.^{6} G02F *1/1335*

U.S. Cl. 349—8 9 Claims



1. A liquid crystal projector, comprising:

a light source which emits light redder at the peripheral portion than at the central portion;

separating means for separating light emitted by said light source into single color lights of red, green and blue;

a liquid crystal panel for red light which modulates the red light separated by said separating means;

a liquid crystal panel for green light which modulates the green light separated by said separating means;

a liquid crystal panel for blue light which modulates the blue light separated by said separating means;

a condenser lens for green light which is disposed at incident side of said liquid crystal panel for green light, and condenses the green light separated by said separating means;

a condenser lens for blue light which is disposed at incident side of said liquid crystal panel for blue light, condenses the blue light separated by said separating means;

composing means for composing the light modulated by each of said liquid crystal panel; and

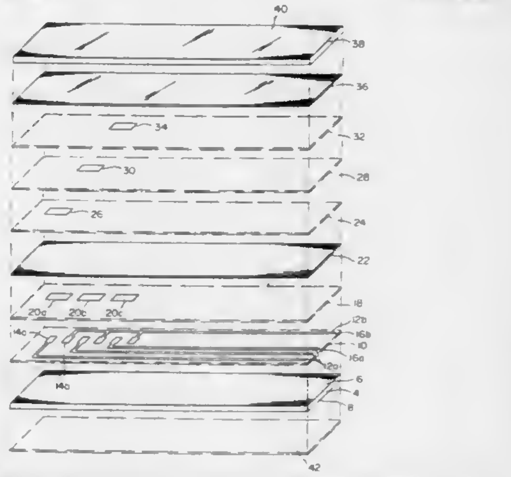
a projection lens which projects the light composed by said composing means, wherein said liquid crystal panel for red light receives the red light separated by said separating means without the red light traversing a condenser lens.

5,786,875
THERMAL LIQUID CRYSTAL DISPLAY USING THERMOELECTRIC LINK

Lawrence Allen Brader, 21314-129th Ave. SE., Snohomish, Wash. 98290, and Roger Guy March, 14120 NE. 181st Pl., Apt. J204, Woodinville, Wash. 98072

Filed Mar. 15, 1996, Ser. No. 616,644
Int. Cl.^{6} G02F *1/133*

U.S. Cl. 349—20 18 Claims



11. A method for producing a thermally addressed liquid crystal display comprising the steps of:

a) depositing thermoelectric ink across electrical contact points on an electrical circuit layer; and

b) depositing thermal liquid crystal material in thermal contact with said thermoelectric ink.

5,786,876
ACTIVE MATRIX TYPE LIQUID CRYSTAL DISPLAY SYSTEM

Masuyuki Ota, Katsuta; Genshiro Kawachi, Hitachi; Masaaki Kitajima, Hitachioota; Tohru Sasaki; Masahito Oh-e, both of Hitachi; Katsumi Kondo, Katsuta, and Makoto Tsumura, Hitachi, all of Japan, assignors to Hitachi, Ltd., Tokyo, Japan

PCT No. PCT/JP94/01021, § 371 Date Jan. 13, 1995, § 102(e) Date Jan. 13, 1995, PCT Pub. No. WO95/25291, PCT Pub. Date Sep. 21, 1995

PCT Filed Jun. 24, 1994, Ser. No. 374,531
Claims priority, application Japan, Mar. 17, 1994, 6-046916
Int. Cl.^{6} G02F *1/136;1/1333;1/1343*

U.S. Cl. 349—42 39 Claims

1. An active matrix type liquid crystal display system having a liquid crystal composition being interposed between first and sec-

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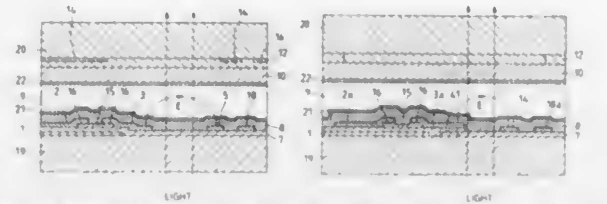


ond substrates, a plurality of pixel parts being constructed with a plurality of scanning electrodes and a plurality of signal electrodes arranged in a matrix on one of said first and second substrates, a switching element being provided in each of the pixel parts, wherein:

the switching element is connected to a pixel electrode, the pixel electrode and a common electrode being so constructed on the one of said first and second substrates as to be operable in keeping the major axes of the liquid crystal molecules parallel to the surface of the one of said first and second substrates;

in the pixel part, the signal electrode and the pixel electrode being formed, a shield electrode being formed between the signal electrode and another of said first and second substrates and between the signal electrode and the pixel electrode.

5,786,877
REFLECTOR HOLDING STRUCTURE FOR LIQUID CRYSTAL MODULE

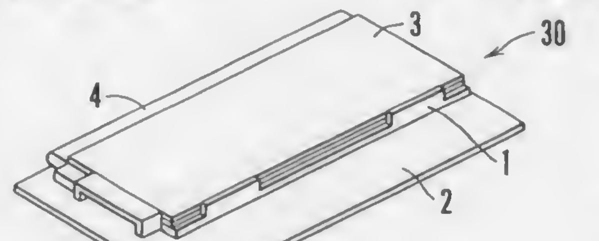
Hiroshi Yamada, Kakegawa, Japan, assignor to NEC Corporation, Tokyo, Japan

Filed Mar. 28, 1996, Ser. No. 623,182

Claims priority, application Japan, May 16, 1995, 7-116882

Int. Cl.⁶ G02F *1/1333;1/1345;* F16B *7/06*

U.S. Cl. 349—58 **6 Claims**



1. A reflector holding structure for a liquid crystal module of a liquid crystal display device, including first and second lock portions and a positioning hole on a board on which a driving circuit for driving a liquid crystal is mounted, and first and second pawls and a positioning pin on a reflector constituting a liquid crystal module, wherein said first and second pawls are locked to said respective first and second lock portions, and said positioning pin is fitted in said positioning hole, thereby holding said reflector on said board, and wherein said first lock portion is formed on one end side of said board, and said second lock portion and said positioning hole are formed on the other end side of said board so as to define a triangle together with said first lock portion.

5,786,878
METHOD OF MANUFACTURING A LIQUID CRYSTAL DISPLAY HAVING RANDOMLY DISTRIBUTED BIDIRECTIONAL SURFACE ORIENTATIONS

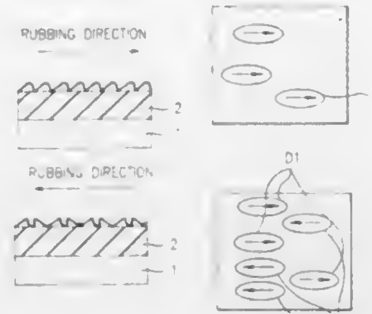
Wan Soo Kim, Kyungki-do, Rep. of Korea, assignor to LG Electronics Inc., Seoul, Rep. of Korea

Filed Nov. 27, 1995, Ser. No. 563,045

Int. Cl.⁶ G02F *1/1337*

U.S. Cl. 349—126 **8 Claims**

3. A method of making a liquid crystal display having an opposed pair of substrates, said method including the steps of:



forming, on the first substrate, randomly distributed first bidirectional surface orientations sufficient to orient liquid crystal molecules in contact with the surface of the first substrate;

forming, on the second substrate, randomly distributed second bidirectional surface orientations sufficient to orient liquid crystal molecules in contact with the surface of the second substrate; and

orienting said first and second substrates to form the liquid crystal display with the first bidirectional surface orientations substantially perpendicular to the second bidirectional surface orientations.

5,786,879
LIQUID CRYSTAL DEVICE WITH DIFFERENT PRETILT IN PERIPHERAL PORTION

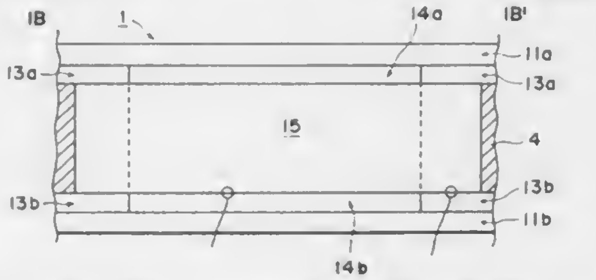
Yasuto Kodera, Fujisawa; Yoshio Hotta; Yukio Hanyu, both of Atsugi; Tadashi Mihara, Isehara, and Sunao Mori, Atsugi, all of Japan, assignors to Canon Kabushiki Kaisha, Tokyo, Japan

Division of Ser. No. 512,349, Aug. 8, 1995, abandoned, which is a continuation of Ser. No. 234,992, Apr. 28, 1994, abandoned. This application Oct. 30, 1996, Ser. No. 740,485

Claims priority, application Japan, Apr. 28, 1993, 5-102754

Int. Cl.⁶ G02F *1/1333;1/13*

U.S. Cl. 349—134 **15 Claims**



1. A liquid crystal device comprising a pair of oppositely disposed substrates having opposing inner surfaces and opposing electrodes thereon, and a chiral smectic liquid crystal disposed between the opposing electrodes, said liquid crystal device having an effective optical modulation region and a peripheral region outside the effective optical modulation region;

wherein liquid crystal molecules in the peripheral region have a pretilt angle which is larger than a pretilt angle of liquid crystal molecules in the effective optical modulation region; and

the liquid crystal molecules in the effective optical modulation region have a pretilt angle of at most 5 degrees.

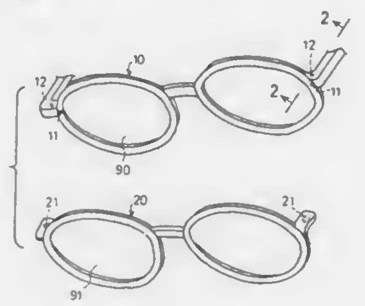
5,786,880
METHOD FOR FORMING A SPECTACLE FRAME HAVING A MAGNET MEMBER

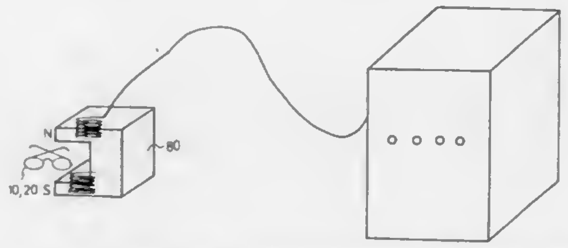
David Yinkai Chao, 1120 Green Acre Rd., Towson, Md. 21204

Filed May 29, 1997, Ser. No. 865,379

Int. Cl.⁶ G02C *1/00*

U.S. Cl. 351—41 **2 Claims**





1. A method for forming a spectacle frame having at least one magnet engaged in said spectacle frame, said method comprising:

engaging at least one magnetizable member in said spectacle frame, and

magnetizing said at least one magnetizable member for allowing said at least one magnetizable member to be magnetized without damaging an outer appearance of said spectacle frame.

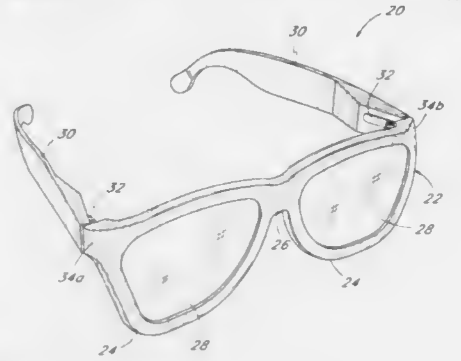
5,786,881
COMPOSITE SPECTACLES

Craig L. Monroe, San Juan Capistrano, Calif., assignor to Woody's Originals, Inc., Solana Beach, Calif.

Continuation of Ser. No. 306,637, Sep. 15, 1994, Pat. No. 5,537,161. This application Jun. 20, 1996, Ser. No. 666,967

Int. Cl.⁶ G02C *11/02*

U.S. Cl. 351—51 **13 Claims**



1. Spectacles, comprising:

a frame formed of densified wood;

earpieces attached to said frame.

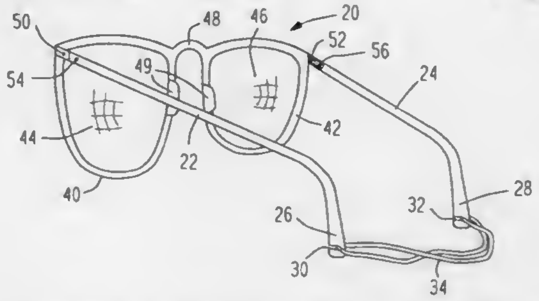
5,786,882
RETAINER FOR SPECTACLES

Richard W. Satterthwaite, 2014 Charles St., Fredericksburg, Va. 22401-3417

Filed Jun. 18, 1997, Ser. No. 878,204

Int. Cl.⁶ G02C *3/00*

U.S. Cl. 351—156 **10 Claims**



1. A retainer for spectacles having a double eyeglass frame, comprising

a pair of temples having front ends for being pivotally to attached opposite sides of the eyeglass frame and having rear ends depending downward for extending back of ears of a user of the spectacles;

said depending rear ends each having flat plastic tips for extending parallel to and engaging the skin on the user's head back of the user's ears;

said flat tips each having a slot formed therein extending horizontally through the flat cross section of the respective tip from a front edge to a central portion of the flat tip; and

an elastic band having end portions for being received and retained in the respective slots of the flat tips while extending on the backside of the user's head to retain the spectacles on the user's head.

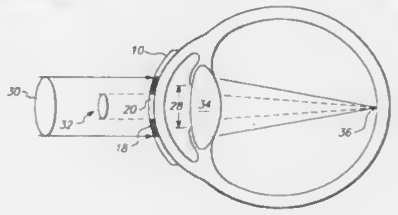
5,786,883
ANNULAR MASK CONTACT LENSES

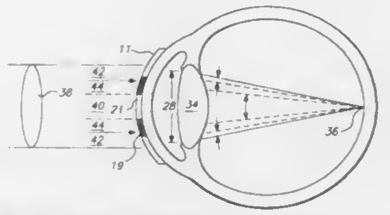
David Miller, Brookline, Mass., and Leroy Meshel, Ross, Calif., assignors to Pilkington Barnes Hind, Inc., Sunnyvale, Calif.

Continuation-in-part of Ser. No. 791,121, Nov. 12, 1991, Pat. No. 5,245,367. This application Sep. 13, 1993, Ser. No. 120,970

Int. Cl.⁶ G02C *7/04*

U.S. Cl. 351—162 **44 Claims**





1. A contact lens which comprises:

a lens body having a first surface substantially configured to conform to the eye curvature of the wearer,

said lens body having a second surface optically configured, in conjunction with said first surface, to correct the vision of the wearer selectively at a focus between and including far and near objects, and

said lens body having an annular mask region of selected optical transmissivity and arranged for

(i) forming a substantially pinhole-like optical aperture which transmits light energy through the pupil of the wearer.

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- (ii) centering said annular mask region over the pupil of the wearer, and
- (iii) permitting increasing light energy to pass through said lens body as the pupil of the wearer dilates during lower lighting conditions

wherein optical transmissivity of the the annular mask region varies such that the annular mask region transmits less light energy toward the pinhole aperture and transmits more light energy toward the outer edge of the contact lens.

5,786,884

Patent Not Issued For This Number

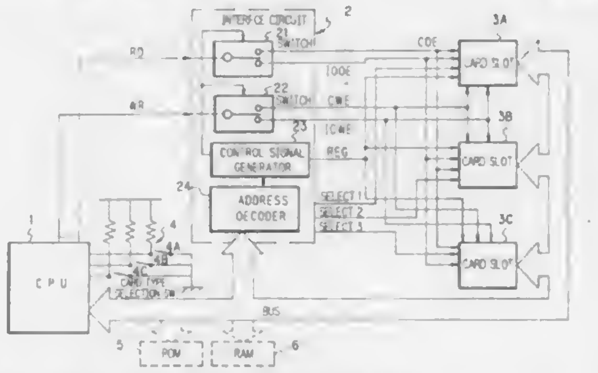
5,786,885
IMAGE PROCESSING SYSTEM

Yoshiaki Satoh, Hachlohji, Japan, assignor to Olympus Optical Co., LTD., Tokyo, Japan

Continuation of Ser. No. 301,632, Sep. 7, 1994, abandoned. This application Apr. 17, 1997, Ser. No. 840,847

Int. Cl.⁶ G06F *3/00*

U.S. Cl. 395—309 **2 Claims**



1. An image processing system comprising:

a plurality of medium loading units for selectively loading a plurality of different data recording media or media with data transfer function with respect to external apparatus;

a selection switch for selecting a function of a multi-function card loaded in at least one of said plurality of medium loading units;

a central processing unit having an accessible virtual memory area inclusive of attribute areas, IC memory areas and I/O card areas corresponding to said medium loading units respectively, and said attribute areas being accessed prior to all others so as to discriminate types of loaded cards;

data bus and address bus connecting said central processing unit and said plurality of medium loading units; and

an interface circuit including first and second circuit sections;

said first circuit section being connected to said central processing unit via a read command line, a write command line and the data and address buses and serving to decode data transmitted from said central processing unit via send data and address buses so as to form a switching control signal and a plurality of select signals each corresponding to each of said plurality of medium loading units;

said second circuit section serving to assign signals transmitted via the read and write command lines as a plurality of different output enable signals and a plurality of different write enable signals corresponding to different types of media selectively loaded in said plurality of medium loading units to corresponding predetermined output terminals according to the switching control signal.

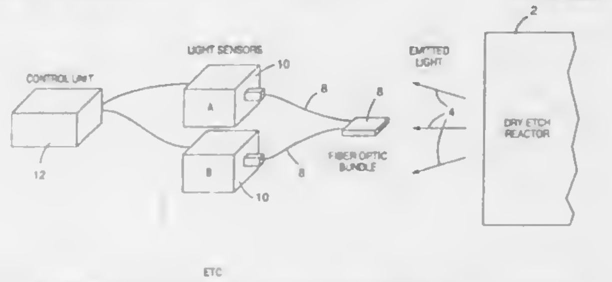
5,786,886
INTERFERENCE REMOVAL

Herbert E. Litvak, Palo Alto; Steven C. Leach, Santa Clara, and Edward G. Rodgers, Mountain View, all of Calif., assignors to Luxtron Corporation, Santa Clara, Calif.

Continuation of Ser. No. 19,748, Feb. 19, 1993, Pat. No. 5,414,504, which is a continuation of Ser. No. 526,558, May 18, 1990, Pat. No. 5,208,644. This application May 8, 1995, Ser. No. 436,946

Int. Cl.⁶ G01N *23/22*

U.S. Cl. 356—72 **24 Claims**



1. A method of generating an endpoint detection signal indicative of the endpoint of a dry etch process that is characterized by having an optical emission, comprising the steps of:

measuring said optical emission at two or more wavelengths to generate a plurality of measurement signals by employing a fiber optics bundle having two or more sets of fibers, with the fibers within said sets mixed to minimize any bias in the view of individual ones of said two or more sets of fibers, and

generating said endpoint detection signal from said plurality of measurement signals by increasing the signal to noise ratio and reducing the obscuring effects of correlated fluctuations in said endpoint detection signal so that the endpoint of said dry etch process indicated in said endpoint detection signal is not obscured by random noise and said correlated fluctuations,

wherein an exposed film area of a surface to be etched is less than 5 percent of the surface.

5,786,887
ATOMIC ABSORPTION SPECTROPHOTOMETER AND ATOMIC ABSORPTION SPECTROCHEMICAL ANALYSIS

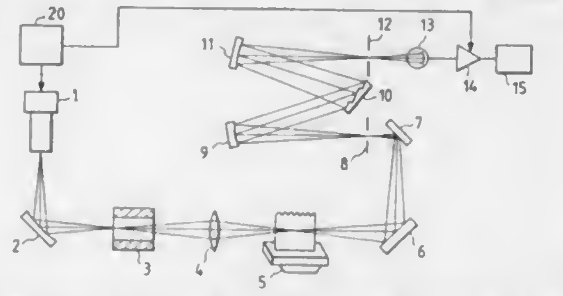
Yoshisada Ebata; Kazuo Moriya; Hisashi Kimoto, all of Hitachinaka; Hayato Tobe, Mito, and Yasushi Terui, Hitachinaka, all of Japan, assignors to Hitachi, Ltd., Tokyo, Japan

Filed Sep. 5, 1996, Ser. No. 708,484

Claims priority, application Japan, Sep. 20, 1995, 7-241375

Int. Cl.⁶ B01N *21/00*

U.S. Cl. 356—73 **6 Claims**



1. An atomic absorption spectrophotometer comprising a light source emitting a beam of light; a photodetector; and two or more types of sample atomizing apparatus disposed in a series arrangement on an optical path between the light source and the photodetector and capable of being used selectively for analysis; the two or more types of sample atomizing apparatus including an electrothermal type sample atomizing apparatus and a burner type sample atomizing apparatus, the electrothermal type sample atomizing apparatus and the burner type sample atomizing apparatus being disposed so that the burner type sample atomizing apparatus is between the electrothermal type sample atomizing apparatus and the photodetector; a concave mirror between said light source and said electrothermal type sample atomizing apparatus acting as an image forming element for concentrating said light beam emitted by the light source on a central portion of the electrothermal type sample atomizing apparatus; and a lens disposed between said electrothermal type sample atomizing apparatus and said burner type sample atomizing apparatus, concentrating the light beam, after passing through said electrothermal type sample atomizing apparatus, on said burner type sample atomizing apparatus.

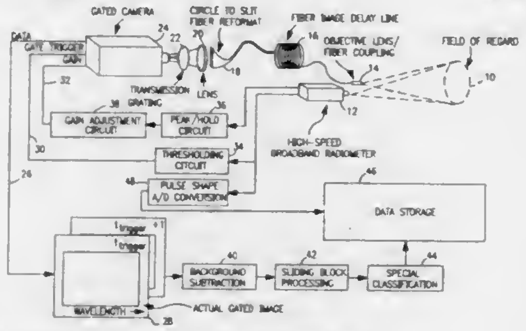
5,786,888
PULSED RADIATION CLASSIFIER AND RELATED METHOD

Mark T. Allen; Richard E. Preston, both of Princeton, N.J., and Christopher G. Simi, Chantilly, Va., assignors to TRW Inc., Redondo Beach, Calif., and The United States of America as represented by the Secretary of the Army, Washington, D.C.

Filed Sep. 16, 1997, Ser. No. 931,432

Int. Cl.⁶ G01J *3/12*

U.S. Cl. 356—73 **8 Claims**



1. A pulsed radiation classifier, comprising:

a gated spectrometer providing a measure of wavelength of a detected laser pulse;

a radiometer for generating an output pulse that provides a measure of irradiance, width and time of occurrence of the detected laser pulse;

a triggering circuit, using the radiometer output pulse to generate a gating signal for the gated spectrometer at approximately the time of detection of the laser pulse; and

an optical delay device for delaying the detected laser pulse from reaching the gated spectrometer until the spectrometer has been gated to an active condition.

5,786,889
METHOD OF MONITORING COALIGNMENT OF A SIGHTING OR SURVEILLANCE SENSOR SUITE

Stephen John Pope, Colwyn Bay, and Grahame Stewart Crook, Rhyl, both of Wales, assignors to Pilkington P E Limited, Wales, United Kingdom

PCT No. PCT/GB94/01010, § 371 Date Nov. 9, 1995, § 102(e) Date Nov. 9, 1995, PCT Pub. No. WO94/27108, PCT Pub. Date Nov. 24, 1994

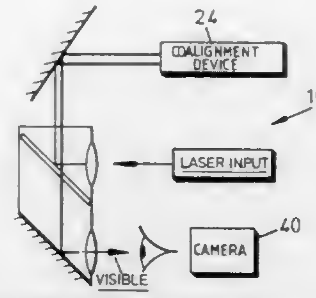
PCT Filed May 11, 1994, Ser. No. 545,782

Claims priority, application United Kingdom, May 12, 1993, 9309750

Int. Cl.⁶ G01J *5/02;* G01B *11/26*

U.S. Cl. 356—152.1 **12 Claims**

1. Apparatus for monitoring the coalignment of a sighting or surveillance suite including a laser and a sensor which are coaligned such that the image created by the beam from the laser impinging on an object is viewed by the sensor, the apparatus comprising: means for redirecting the beam from the laser; and means for (i) doubling the frequency of the redirected beam to produce a modified beam which is itself directly visible to the sensor and for (ii) directing the modified beam back to the means for redirecting in order to impinge on the sensor.



5,786,890
OPTICAL OUTPUT DETECTOR

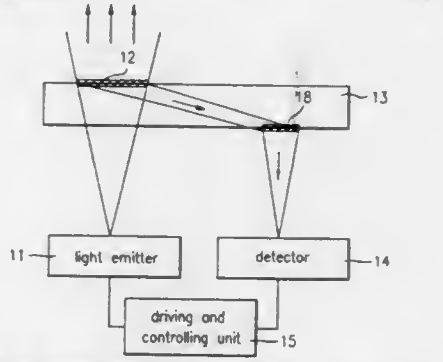
Sung Woo Noh, Seoul, Rep. of Korea, assignor to LG Electronics Inc., Seoul, Rep. of Korea

Filed Dec. 6, 1996, Ser. No. 762,970

Claims priority, application Rep. of Korea, Mar. 22, 1996, 7942/1996

Int. Cl.⁶ G11B *7/135.*

U.S. Cl. 356—225 **10 Claims**



1. An optical output detector comprising:

a light emitting portion for generating light emitted in one direction;

a transmitting and diffracting portion for transmitting most of said light emitted in one direction and diffracting parts of said emitted light;

a reflecting portion for reflecting said diffracted light;

a detecting portion for detecting said reflected light; and

a driving and controlling portion for variably amplifying the output of said detecting portion, and maintaining the light of said light emitting portion constantly;

wherein said transmitting and diffracting portion is integrally formed in both planes of a glass having a predetermined thickness with a constant spacing.

5,786,891
METHOD AND APPARATUS FOR DETECTING DEFECTS IN AN OPTICAL FIBER COATING

Christian Jakobsen, Copenhagen; Flemming Pedersen, Farum, both of Denmark; Leonardo M. Penn, Norcross, Ga.; Tracy E. Brewer, Charleston, S.C.; Aarne Karp, Hamilton Square, and David H. Smithgall, East Windsor, both of N.J., assignors to Lucent Technologies Inc., Murray Hill, N.J.

Filed Mar. 11, 1997, Ser. No. 815,180

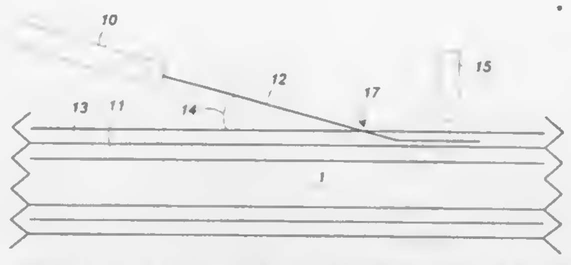
Int. Cl.⁶ G01N *21/00;21/84;* G01B *9/10*

U.S. Cl. 356—237 **17 Claims**

1. An apparatus for detecting defects in a coating layer of an optical fiber, said apparatus comprising:

a light source for coupling a beam of light into the coating layer at a coupling spot along the optical fiber, said light source being positioned so that the beam of light is coupled into the

VOL 1212 ISS 4 JL 28 1998 UMI



coating layer at a preselected angle with respect to a longitudinal axis of the optical fiber;

an optical detector positioned adjacent the optical fiber a predetermined distance away from the coupling spot wherein the coupling spot is between said light source and said optical detector so that detection of light reflected at the coupling spot from an outer surface of the coating layer is avoided, and wherein said optical detector receives at least a portion of the light coupled into the coating layer by said light source as the light coupled into the coating layer is reflected outward from the optical fiber by defects existing in the coating layer; and

a signal processor electrically coupled to said optical detector for receiving an output signal from said optical detector and for processing the output signal to determine whether or not one or more defects have been detected.

5,786,892
PLASTICS IDENTIFICATION

John Amner, Rochford; Steve Miles, Kelvedon Hatch, and Peter Mucci, Southampton, all of Great Britain, assignors to Ford Global Technologies, Inc., Dearborn, Mich.

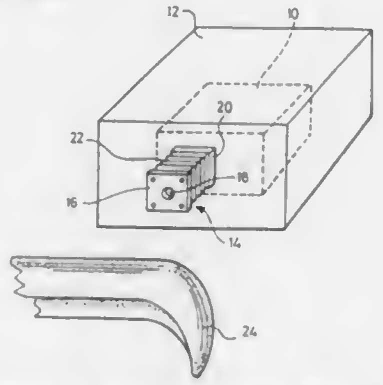
PCT No. PCT/GB95/00779, § 371 Date Sep. 30, 1996, § 102(e) Date Sep. 30, 1996, PCT Pub. No. WO95/27892, PCT Pub. Date Oct. 19, 1995

PCT Filed Apr. 5, 1995, Ser. No. 732,483

Claims priority, application United Kingdom, Apr. 7, 1994, 9406842; Aug. 10, 1994, 9416159

Int. Cl.⁶ G01N *21/01*

U.S. Cl. 356—244 **16 Claims**



1. An apparatus for identifying different plastic materials comprising:

a spectrometer (**10**),

a protective casing (**12**, **112**), surrounding the spectrometer (**10**) and defining a sensing window (**58**, **158**) formed in one face of the casing (**12**, **112**);

an interface device (**14**) associated with the sensing window (**58**, **158**), of the interface device (**14**) having a front wall (**16**, **116**) defining a sample aperture (**18**, **118**) against which a sample (**24**) can be placed so that a surface of the sample (**24**) is exposed through the aperture (**18**, **118**);

means (**48**, **148**, **480**) for cleaning a sample surface (**24**) placed against the front wall (**16**, **116**);

means (**52**, **152**) for extracting debris resulting from the sample cleaning; and

means (**28**, **30**, **128**, **130**) for guiding the front wall (**16**, **116**) towards the sensing window (**58**, **158**) to enable the spectrometer (**10**) to take a reading from the sample surface (**24**).

5,786,893
RAMAN SPECTROMETER

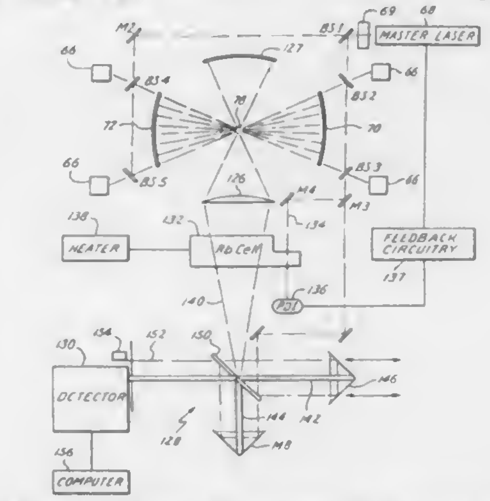
Manfred F. Fink; John C. Robinson, and Walter F. Buell, all of Austin, Tex., assignors to Board of Regents, The University of Texas System, Austin, Tex.

Continuation of Ser. No. 48,020, Apr. 15, 1993, abandoned.

This application Sep. 26, 1994, Ser. No. 312,439

Int. Cl.⁶ G01N *21/65*; G02B *5/22*

U.S. Cl. 356—301 **32 Claims**



1. An improved Raman spectrometer for analyzing a sample, comprising:

a spectrometer for producing a spectrogram of light directed into an entrance of said spectrometer;

a plurality of substantially monochromatic light sources having a predetermined frequency, the light sources reflecting multiple times in a multipass cell and positioned to illuminate said sample placed in a target region;

collection optics for collecting light scattered by the sample when the sample is illuminated by said monochromatic light sources, and for directing a collected light beam to the entrance of the spectrometer; and

a filter positioned in the path of the collected light beam for removing light having said predetermined frequency from the collected light beam, the filter comprising a single line removal filter including a mono-atomic vapor that has a single narrow absorption band at the Rayleigh frequency and that transmits substantially all other frequencies in the Stokes and anti-Stokes regions.

5,786,894
MEASUREMENT OF PAPER PULP AND FIBER VISUAL CHARACTERISTICS

William R. Shields, Newburgh, N.Y.; Kapil M. Singh, Erie, Pa.; James F. Suska, West Milford, N.J., and Jody MacDonald, Dryden, Me., assignors to International Paper Company, Purchase, N.Y.

Filed Oct. 25, 1996, Ser. No. 738,161

Int. Cl.⁶ G01N *15/02;21/00*

U.S. Cl. 356—338 **22 Claims**

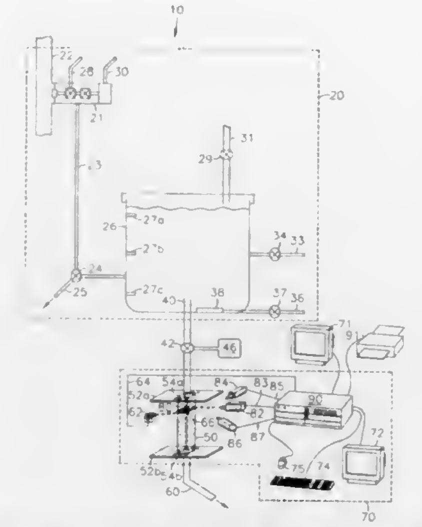
1. A system for determining characteristics of objects having surfaces, including wood fibers, dirt and shives, in wood pulp, the system comprising:

means for diluting the pulp in a liquid to provide a wood pulp slurry having a consistency in the range of from about 0.01 to about 0.001 percent;

a transparent flow cell in flow communication with said means for diluting for receiving the pulp slurry;

means for conducting the pulp slurry into the flow cell:

a light source positioned adjacent said flow cell for radiating light into an illumination area of the cell, wherein upon initiation of said light source light radiated by said light source into the illumination area is reflected off surfaces of said objects to produce scattered light;



a first camera positioned substantially orthogonal to said light source and adjacent said flow cell at a first viewing angle to the illumination area so that upon initiation of said camera it is operable to receive a portion of the scattered light in a first field of view containing light reflected directly from surfaces of said objects, producing a first plurality of video signals corresponding to scattered light received by said first camera;

a framegrabber circuit for initiating said light source and camera, receiving said first plurality of video signals, digitizing said first plurality of video signals to produce a first image having a plurality of pixels in a two-dimensional array, and holding said first image for display and analysis;

a digital data processor for controlling said framegrabber circuit to cause said circuit to initiate said light source and camera and produce said first image, said data processor including means for analyzing said first image to produce a second image containing substantially only objects having predefined sizes and shapes, said processor further including means for analyzing said second image to determine one or more object characteristics;

a display for visually displaying at least said second image; and means for electronically transferring said second image from said data processor to said display.

5,786,895
MEANS AND METHOD FOR ACTIVE DISPERSION EQUALIZATION OF A MULTIOSCILLATOR RING LASER GYROSCOPE

Robert A. Mitchell, Woodland Hills, and Tae Whan Hahn, Chatsworth, both of Calif., assignors to Litton Systems, Inc., Woodland Hills, Calif.

Filed Mar. 11, 1996, Ser. No. 613,335

Int. Cl.⁶ G01C *19/66*

U.S. Cl. 356—350 **16 Claims**

1. A method for active dispersion equalization of a multioscillator ring laser gyroscope having a plurality of coils, a path length control and means for producing single beam laser radiation traversing clockwise and anticlockwise paths, comprising the steps of:

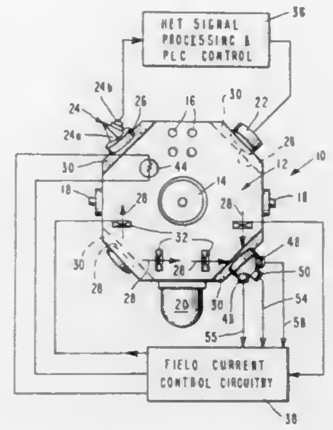
describing gyroscope bias (BIAS_G) as induced by gain medium dispersion effects by the equation

$$\mathrm{BIAS}_G \alpha\, (I_{DE}-I_{COIL})\cdot(V_{DE}-V_{OFF})$$

where I_{DE} is the proper operating coil current, I_{COIL} is the actual coil current, V_{DE} is the proper path length control operating voltage and V_{OFF} is the actual offset voltage;

obtaining optimum path length offset (V_{OFF}) from heterodyne amplitude as a discriminant for driving ($V_{DE}-V_{OFF}$) to zero;

obtaining optimum dispersion coil current (I_{COIL}) from single beam DC intensities from clockwise and anticlockwise beams as a discriminant for driving ($I_{DE}-I_{COIL}$) to zero; and


NET SIGNAL PROCESSING & PLC CONTROL
36
24b
24
24a
26
16
30
22
26
12
10
30
18
44
14
28
18
32
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50
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30
43
54
56
55
FIELD CURRENT CONTROL CIRCUITRY
38

matching at least one of V_{DE} by path length control offset voltage and I_{DE} by proper coil current, to produce a zero induced bias.

5,786,896
OBLIQUE INCIDENCE INTERFEROMETER WITH FRINGE SCAN DRIVE

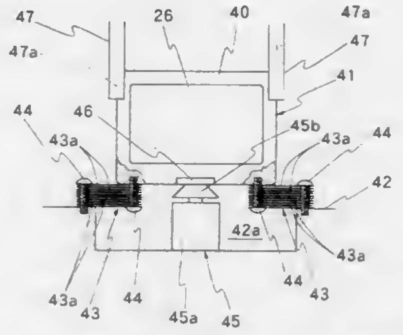
Masatoshi Hizuka, Omiya, Japan, assignor to Fuji Photo Optical Co., Ltd., Omiya, Japan

Filed May 21, 1996, Ser. No. 650,994

Claims priority, application Japan, May 23, 1995, 7-146931

Int. Cl.⁶ G01B *9/02*

U.S. Cl. 356—354 **2 Claims**



1. An oblique incidence type interferometer, including a light source, a first diffraction grating member located in a light path from said light source to diffract incident light rays into a reference wave in travel in a straightforward direction therethrough and a diffracted wave having a predetermined angle with respect to said reference wave, a specimen holder table so located as to hold a specimen in position for reflecting off said diffraction wave from said first diffraction grating member, a second diffraction grating member located at an intersection of said reference wave and an object wave reflected off a testing surface of said specimen on said specimen holder table to superpose wave fronts of said reference and object waves, and an interference fringe observation means including means for imaging interference fringed produced by interference between the wave fronts of said reference and object waves, said oblique incidence type interferometer comprising:

a fringe scan drive means provided in association with either one of said first and second diffraction grating members for driving said either one of said first and second diffraction grating to shift a path of diffraction light of +1 order stepwise precisely by a distance smaller than a wavelength of laser light from said light source in a direction perpendicular to a straightforward travel direction of incident light from said light source.

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5,786,897

METHOD AND DEVICE FOR MEASURING PATTERN COORDINATES OF A PATTERN FORMED ON A PATTERN SURFACE OF A SUBSTRATE

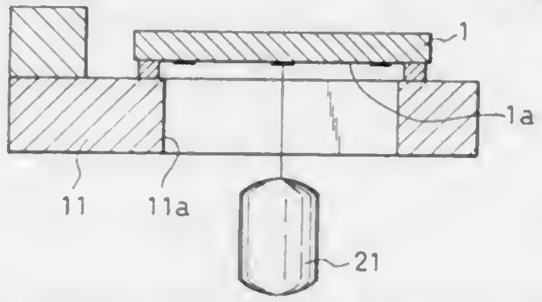
Taro Ototake, Tokyo, Japan, assignor to Nikon Corporation, Tokyo, Japan

Filed Jun. 17, 1996, Ser. No. 665,300

Claims priority, application Japan, Aug. 28, 1995, 7-218430

Int. Cl.⁶ G01B *11/00*

U.S. Cl. 356—363 **24 Claims**



1. A method for measuring coordinate of a pattern formed on a pattern surface of a substrate which is mounted on a mounting stage, comprising steps of:

mounting said substrate on said mounting stage with said pattern surface facing downwards;

detecting said pattern by a pattern detection device; and

measuring the coordinate of said pattern on the basis of a result of detecting of said pattern.

5,786,898

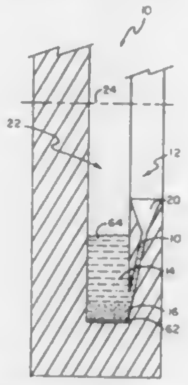
STRUCTURE AND METHOD FOR CENTRIFUGAL SEDIMENTATION PARTICLE SIZE ANALYSIS OF PARTICLES OF LOWER DENSITY THAN THEIR SUSPENSION MEDIUM

Stephen T. Fitzpatrick, R.F.D. 3 Box 90A, Gorham, Me. 04038

Filed Aug. 23, 1996, Ser. No. 697,435

Int. Cl.⁶ G01N *21/84;9/30;* B04B *15/00*

U.S. Cl. 356—426 **6 Claims**



1. A method for analysis of the size and/or distribution of low-density particles by centrifugal sedimentation in a centrifuge chamber having a bottom, a top, and an axis of rotation adjacent said top, said centrifuge chamber containing a fluid volume having a density gradient and an initial top level such that particles lower in density than the gradient densities of the fluid in said centrifuge chamber can move through the volume of the fluid, said method comprising the steps of:

spinning said centrifuge sedimentation chamber at the axis of rotation;

delivering said low-density particles to be analyzed as a suspension to said bottom of said spinning centrifuge chamber;

allowing said low-density particles in said delivered suspension to rise through said density gradient fluid from said bottom towards said top of said spinning centrifuge chamber; and

providing means to analyze the size and/or distribution of said low-density particles as said particles rise in said gradient density fluid of said spinning centrifuge chamber.

5,786,899

Patent Not Issued For This Number

5,786,900

IMAGE RECORDING DEVICE FOR RECORDING MULTICOLOR IMAGES WITH DOT PITCH PATTERN RANDOMLY ARRANGED ONLY IN THE SUB-SCANNING DIRECTION

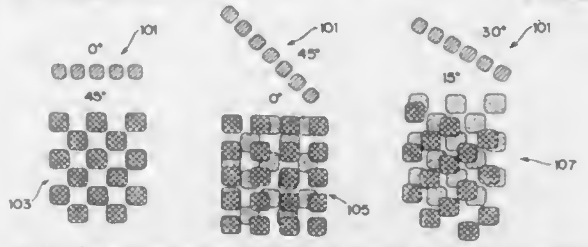
Mitsuru Sawano, Shizuoka-ken, Japan, assignor to Fuji Photo Film Co., Ltd., Kanagawa, Japan

Filed Feb. 17, 1995, Ser. No. 390,797

Claims priority, application Japan, Mar. 23, 1994, 6-052113

Int. Cl.⁶ H04N *1/40;1/46*

U.S. Cl. 358—298 **4 Claims**



1. An image recording method in which a head, in which a plurality of recording elements are arranged in the main scanning direction, is moved in the sub-scanning direction, one of densities and area rates of respective pixels being varied in accordance with image densities, respective colors of yellow, magenta, cyan and black being combined so as to record multicolor images, said method comprising the step of:

recording the respective colors in a pattern in which a sub-scanning direction dot pitch was randomly arranged only in the sub-scanning direction.

5,786,901

IMAGE SHIFTING MECHANISM AND IMAGING DEVICE

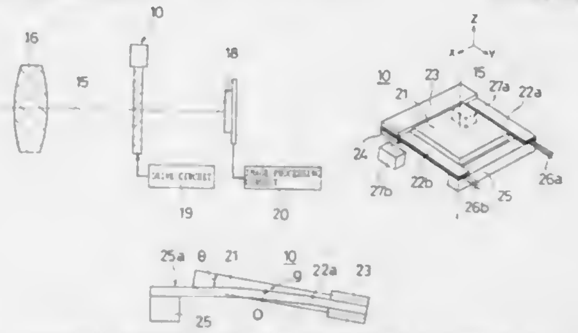
Hideo Okada, Nara; Masayuki Nishikawa, Higashi-osaka, and Tohru Okuda, Nara, all of Japan, assignors to Sharp Kabushiki Kaisha, Osaka, Japan

Continuation of Ser. No. 654,734, May 29, 1996, abandoned. This application Mar. 26, 1997, Ser. No. 824,185

Claims priority, application Japan, May 30, 1995, 7-132273; Jan. 22, 1996, 8-008628

Int. Cl.⁶ H04N *1/04*

U.S. Cl. 358—474 **13 Claims**



1. An image shifting mechanism for shifting the optical axis of incident light to a solid state imaging device by inclining a flat refraction plate and equivalently increasing the resolution of an image, the image shifting mechanism being disposed between an optical system for condensing light from a subject and a solid state imaging device for imaging the subject,

wherein a pair of bimorph type piezoelectric elements are disposed on both sides of the flat refraction plate so that the surfaces of the elements are nearly parallel to a surface of the flat refraction plate,

one end of the flat refraction plate is joined to the free end sides of the pair of bimorph type piezoelectric elements to be supported such that the other end of the flat refraction plate extends toward the fixed end sides of the pair of bimorph type piezoelectric elements, and

the flat refraction plate is angularly displaceable about an imaginary rotation center in the flat refraction plate owing to the displacement of the pair of bimorph type piezoelectric elements.

5,786,902

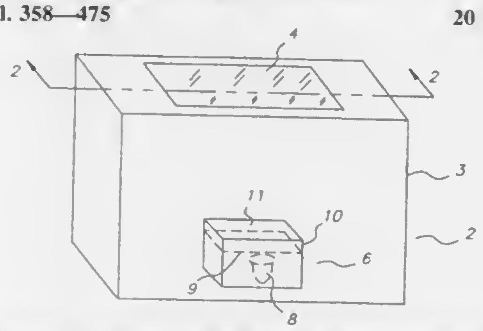
PHOTOGRAPHIC PRINTER AND METHOD OF DIGITALLY CORRECTING FOR A PHOTOGRAPHIC PRINTER

Roger Roy Adams Morton, Penfield, N.Y., assignor to Eastman Kodak Company, Rochester, N.Y.

Filed Sep. 17, 1996, Ser. No. 715,208

Int. Cl.⁶ G03B *27/80;27/32*

U.S. Cl. 358—475 **20 Claims**



1. A method of improving uneven illumination in a photographic printer having an original image position and a light source to illuminate the original image position, and an exposure position at which a light sensitive element is positioned for exposure, wherein the exposure position may have an inherent non-uniform illumination absent the original image, the method comprising:

inputting into a computer, data representative of illumination at multiple laterally spaced locations positioned in a direction from the light source to the exposure position;

processing the data in the computer to form an illumination correction function with a visually indistinguishable resolution.

5,786,903

MULTI-POWER CONTROL SYSTEM FOR SCANNERS

Tsao-Chin Gene Tai, and Ming-Sung Huang, both of Hsin-Chu, Taiwan, assignors to Must Systems Inc., Hsinchu, Taiwan

Filed Apr. 23, 1996, Ser. No. 636,437

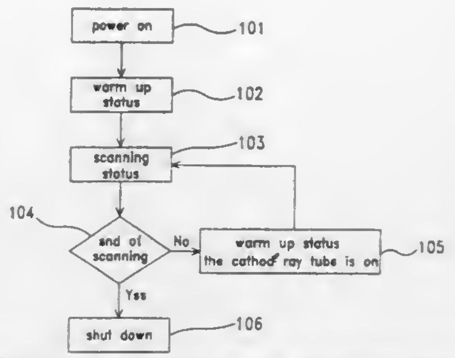
Int. Cl.⁶ H04N *1/04;* H05B *39/100;* H01J *7/44;* G06F *9/45*

U.S. Cl. 358—485 **16 Claims**

1. A method of a multi-power control system for a optic scanner, said method comprising:

choosing a mode of warm up time to determine how much time a cathode ray tube needs to be warmed up;

executing a standby status to make the luminosity of said cathode ray tube corresponding to said mode of warm up time;



executing a warm up status to increase said luminosity to normal status; and

executing a scanning status to scan a document.

5,786,904

APPARATUS AND METHOD FOR PREPARING INDEX PRINTS BASED ON THE NUMBER OF FRAMES TO BE INDEXED

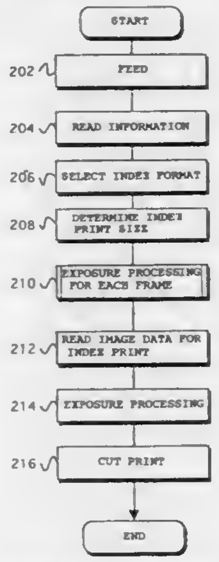
Toshihiko Narita, Kanagawa, Japan, assignor to Fuji Photo Film Co., Ltd., Kanagawa, Japan

Filed Feb. 17, 1995, Ser. No. 390,764

Claims priority, application Japan, Feb. 21, 1994, 6-022616

Int. Cl.⁶ H04N *1/04;* G03F *3/10*

U.S. Cl. 358—487 **14 Claims**



1. An apparatus for preparing index prints comprising:

image storing means for storing images obtained by image pick-up from photograph frames formed on a photographic film;

photograph frame number detecting means for detecting a number of photograph frames on said photographic film;

storing means for storing a plurality of index format information for arrangements of said photograph frames;

selecting means for selecting an index format from said plurality of index format information in accordance with said number of photograph frames; and

forming means for forming an index print of said photographic film by printing said stored images onto printing paper to correspond to the selected index format, wherein the size of the images to be printed onto said printing paper is previously determined, and the size of the printing paper is determined depending on the number of the stored images.

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5,786,905
IMAGE SCANNER HAVING SYSTEM EXTENDING FUNCTION AND IMAGE CORRECTING FUNCTION

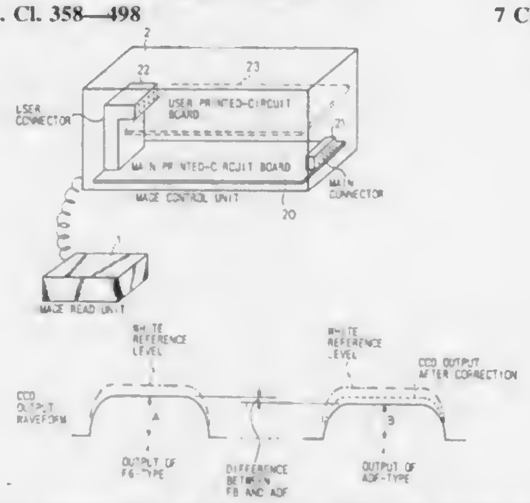
Yukio Kaji, Kahoku-gun; Norio Kanemitsu, Kawasaki, and Mikio Murosaki, Kahoku-gun, all of Japan, assignors to PFU Limited, Ishikawa, and Fujitsu Limited, Kawasaki, both of Japan

Division of Ser. No. 447,808, May 23, 1995. This application Dec. 18, 1995, Ser. No. 574,348

Claims priority, application Japan, May 24, 1994, 6-109863; Sep. 20, 1994, 6-224942

Int. Cl.^{6} H04N *1/04*

U.S. Cl. 358—498 **7 Claims**



6. An image scanner having a flat bed (FB) type structure and an automatic document feeding (ADF) type structure, said image scanner comprising:

a white reference portion provided for a glass plate which holds a manuscript;

a black reference portion provided adjacent to said white reference portion;

a lamp unit for irradiating light to said manuscript;

CCD sensors for converting images on said manuscript to electric signals;

said lamp unit, said CCD sensors forming an image read unit being used commonly in the FB type and the ADF type;

an AGC amplifier connected to said ÇCD sensors for amplifying an output of said CCD sensors and controlling the gain thereof;

a microprocessor;

a D/A converter for adjusting the gain of said AGC amplifier in accordance with control by said microprocessor;

a sample-hold means for sampling the output of said AGC amplifier;

a white level memory for storing a white reference level which is obtained by reading said white reference portion;

a white level D/A converter for converting an analog white reference level signal, which is read from said white level memory, to a digital signal;

a black level memory for storing a black reference level which is obtained by reading said black reference portion;

a black level D/A converter for converting the analog black reference level signal, which is read from said black level memory, to the digital signal;

an A/D converter having an input terminal for receiving the analog signal from said sample-hold means, a white reference terminal for receiving the output from the D/A converter, and a black reference terminal for receiving the output from the D/A converter, and outputting the digital signal;

a memory for storing resultant data;

wherein correction of the difference of an image output between the FB type and the ADF type is performed in accordance with a change rate of the white reference level between the FB type and the ADF type.

5,786,906
METHOD AND APPARATUS FOR PROCESSING IMAGE

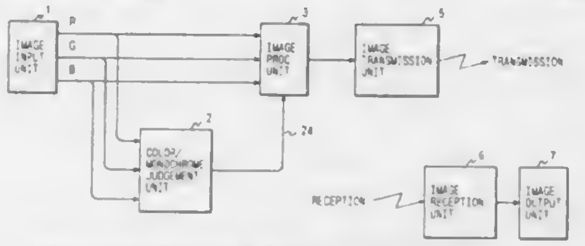
Junichi Shishizuka, Tokyo, Japan, assignor to Canon Kabushiki Kaisha, Tokyo, Japan

Continuation of Ser. No. 672,098, Mar. 19, 1991, abandoned. This application Aug. 18, 1994, Ser. No. 292,049

Claims priority, application Japan, Mar. 19, 1990, 2-70935; Mar. 19, 1990, 2-70936; Mar. 19, 1990, 2-70937; Mar. 19, 1990, 2-70938; Aug. 3, 1990, 2-206549; Aug. 3, 1990, 2-206550; Aug. 3, 1990, 2-206608; Aug. 3, 1990, 2-206609; Aug. 3, 1990, 2-206610

Int. Cl.^{6} H04N *1/46*

U.S. Cl. 358—500 **31 Claims**



1. An image processing apparatus comprising:

a) first judging means for performing a color/monochrome judgment in accordance with an input color signal representing a pixel;

b) second judging means for performing a color/monochrome judgment of one-frame input color signals representing an original composed of a plurality of pixels;

c) control means for excluding a predetermined color from judgment objects of said second judging means.

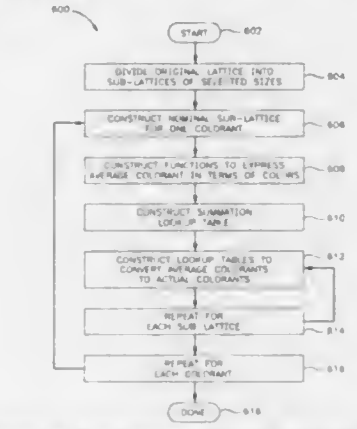
5,786,907
HIGH SPEED COLOR COMPENSATION SYSTEM

Jeffrey Bruce Lotspiech, San Jose, Calif., assignor to International Business Machines Corporation, Armonk, N.Y.

Filed Dec. 20, 1994, Ser. No. 361,781

Int. Cl.^{6} G03F *3/08*

U.S. Cl. 358—518 **16 Claims**


600
START
602
DIVIDE ORIGINAL LATTICE INTO SUB-LATTICES OF SELECTED SIZES
604
CONSTRUCT NOMINAL SUB-LATTICE FOR ONE COLORANT
606
CONSTRUCT FUNCTIONS TO EXPRESS AVERAGE COLORANT IN TERMS OF COLORS
608
CONSTRUCT SUMMATION LOOKUP TABLE
610
CONSTRUCT LOOKUP TABLES TO CONVERT AVERAGE COLORANTS TO ACTUAL COLORANTS
612
REPEAT FOR EACH SUB LATTICE
614
REPEAT FOR EACH COLORANT
616
DONE
618

1. A method of translating a color of a pixel described by a set of input values compatible with a first machine to a set of output values compatible with a second machine, comprising the steps of:

receiving a pixel from the first machine, said pixel including multiple input values, each input value corresponding to a level of a primary color present in the pixel;

determining an average output value corresponding to one of the output values by applying an initial lookup table constructed by receiving a multi-dimensional lattice containing an output value for each combination of input values, each output value being positioned by using its input values as multi-dimensional coordinates, dividing the lattice into multiple sub-lattices, averaging corresponding output values of the sub-lattices to produce a nominal sub-lattice, and constructing a lookup table to receive a set of input values and provide a corresponding average output value from the nominal sub-lattice;

identifying one of said sub-lattices that corresponds to the input values and applying a final lookup table to the average output value to determine an actual output value, wherein said final lookup table is specific to the identified sub-lattice and functions to apply a previously established best-fit relationship between average output values and actual output values corresponding to the identified sub-lattice;

repeating the determining and identifying steps for remaining ones of the set of output values; and

storing the pixel in the second machine in accordance with the determined actual output values.

5,786,908
METHOD AND APPARATUS FOR CONVERTING IMAGE COLOR VALUES FROM A FIRST TO A SECOND COLOR SPACE

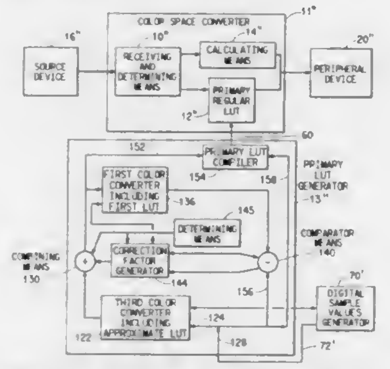
Tony Zhongjie Liang, Sewell, N.J., assignor to E. I. du Pont de Nemours and Company, Wilmington, Del.

PCT No. PCT/US93/09286, § 371 Date Mar. 30, 1995, § 102(e) Date Mar. 30, 1995, PCT Pub. No. WO94/08274, PCT Pub. Date Apr. 14, 1994

Continuation-in-part of Ser. No. 957,933, Oct. 7, 1992, abandoned, which is a continuation-in-part of Ser. No. 822,550, Jan. 15, 1992, abandoned. This PCT application Oct. 5, 1993, Ser. No. 406,906

Int. Cl.^{6} G03F *3/08;* **H04N** *1/46*

U.S. Cl. 358—518 **14 Claims**



1. A method for matching colors, comprising:

I) converting a first plurality of color image values from a first color space to a second plurality of color values in a second color space, wherein the first color space is a device dependent color space and the second color space is a device independent color space, by:

generating a primary regular conversion LUT correlating preselected regularly distributed color values in said first color space to color values in said second color space by:

1) generating a predetermined regular set of intermediate values representing a set of color patches;

2) printing said set of color patches;

3) measuring each of said printed patches and generating for each of said printed patches color values in said independent color space;

4) producing a first color space converter comprising a first LUT cross-referencing the predetermined regular set of intermediate color values representing the set of color patches, and the measured color values in said device independent color space representing the printed set of color patches, and a first interpolation algorithm for calculating Intermediate values not represented by any printed patches to color values in said device independent color space;

5) reading said printed set of color patches with a device of the type which produces color values in the device dependent color space, and producing for each of said printed patches device dependent color values in said device dependent color space;

6) generating a second color space converter comprising a second LUT cross-referencing the predetermined regular set of Intermediate values representing the set of color patches and color values in the device dependent color space, and a second interpolation algorithm for calculating Intermediate values not represented by any printed patches to the device dependent color values;

7) generating a third color space converter comprising a third LUT approximately cross-referencing the device dependent values and the Intermediate values;

8) generating a set of predetermined, regularly distributed, digital device dependent sample color values;

9) applying the third color space converter to said sample color values to obtain a corresponding set of sample Intermediate values;

10) applying the second color space converter to the sample Intermediate values to obtain a new set of device dependent sample color values corresponding to the digital device dependent sample color values;

11) comparing said regularly distributed device dependent digital sample color values and said new set of device dependent sample color values to obtain an error signal and using this error signal to derive a correction factor;

12) combining the correction factor with the output of the third color space converter to obtain a corrected output and again applying the second color space converter to the resulting corrected output of the third color space converter;

13) repeating steps 11) and 12) until the error signal is a minimum below a preset acceptable limit close to 0;

14) applying the first color space converter to the corrected output to produce an output device independent value for each regular digital device dependent sample color value; and

15) creating the primary LUT correlating the device independent values from the output of the first color space converter and the set of predetermined, regularly distributed, digital device dependent sample color values;

inputting and comparing randomly distributed image color values in said first color space to the values in said primary LUT; and

(a) if there is a regularly distributed color value in the primary LUT corresponding to the random color value, outputting a corresponding value in said second color space; and

(b) if there is no corresponding regularly distributed color value in said primary LUT, selecting from said primary LUT a closest regularly distributed color value to said randomly distributed color value and calculating therefrom a color value in said second color space, corresponding to said inputted random color value, and outputting said calculated value; and

II) using the outputted values from steps (a) and (b) to produce an image on a peripheral device.

5,786,909
PHOTOGRAPHIC PRINTING APPARATUS WITH EXPOSURE POSITION RECTIFYING AND METHOD THEREOF

Hiroshi Miyawaki, Wakayama; Mitsuhiko Itojima, Naga-gun; Hiroto Nakao, Waka yama; Takayuki Oka, Wakayama; Hisahiro Maeda, Wakayama; Masaaki Tsuji, Hannan, and Toshiro Akira, Wakayama, all of Japan, assignors to Noritsu Koki Co., Ltd., Wakayama, Japan

PCT No. PCT/JP93/00472, § 371 Date Dec. 16, 1993, § 102(e) Date Dec. 16, 1993, PCT Pub. No. WO93/21559, PCT Pub. Date Oct. 28, 1993

PCT Filed Apr. 13, 1993, Ser. No. 162,188

Claims priority, application Japan, Apr. 17, 1992, 4-124312; Apr. 22, 1992, 4-129549; May 21, 1992, 4-153078; May 21, 1992, 4-153079; Jun. 26, 1992, 4-193083

Int. Cl.^{6} G03B *13/18;27/52;15/14;* **G03F** *3/10*

U.S. Cl. 358—527 **1 Claim**

1. A three-dimensional (3D) photographic printing apparatus provided with an enlarging lens, comprising:

a lens supporting member for supporting said enlarging lens;

a guide member for moving said lens supporting member in a direction of a light axis of said enlarging lens; and

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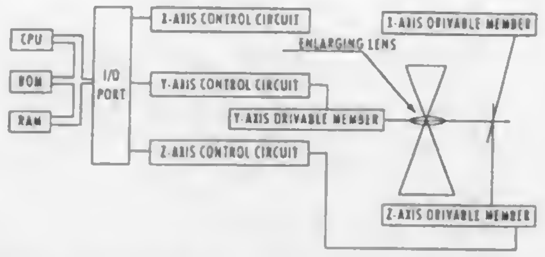


means for controlling said guide member to position said enlarging lens at a first distance, adjacent a film negative, during 3D photographic printing operation of said 3D photographic printing apparatus and at second distance, greater than said first distance, during other operations of said 3D photographic printing apparatus.

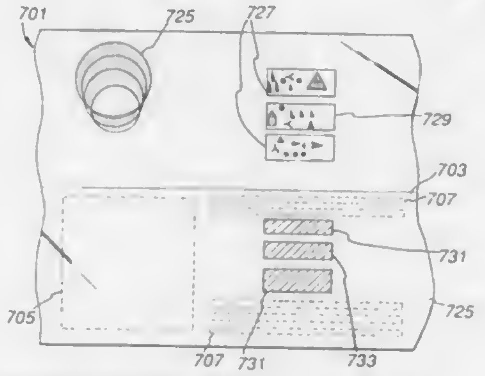
5,786,910
PATTERN METALLIZED OPTICAL VARYING SECURITY DEVICES

Glenn J. Walters, Duxbury, and John A. McCormick, Lakeville, both of Mass., assignors to Advanced Deposition Technologies, Inc., Taunton, Mass.

Filed May 11, 1995, Ser. No. 438,776

Int. Cl.⁶ G03H *1/00*

U.S. Cl. 359—2 **20 Claims**



1. A pattern metallized security device, comprising:

a substrate, one surface of which includes a surface relief pattern; and

a metallic grid screen disposed thereon, the grid screen composed of a plurality of intersecting grid lines having a density and a line width selected to visually amplify the surface relief pattern and to be partially transparent to an observer, the line width being narrow enough not to disturb the observer,

the metallic grid screen defining one region substantially opaque to electromagnetic radiation at a predetermined frequency, and a second region substantially transparent to electromagnetic radiation at the predetermined frequency, and a metallic pattern indicative of a code disposed in a position to lie under the second region.

5,786,911
OPTICAL SCANNING APPARATUS UTILIZING LINEAR POLARIZED BEAMS

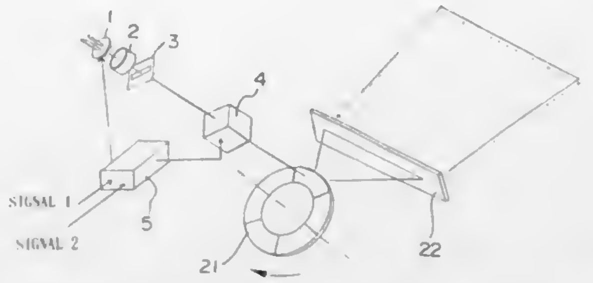
Fumihiro Tawa; Junji Tomita, and Shinya Hasegawa, all of Kawasaki, Japan, assignors to Fujitsu Limited, Kawasaki, Japan

Filed Nov. 13, 1995, Ser. No. 555,866

Claims priority, application Japan, Mar. 20, 1995, 7-061139

Int. Cl.⁶ G02B *5/32; 26/08*

U.S. Cl. 359—17 **1 Claim**



1. An optical scanning apparatus comprising:

a light source for outputting a scanning beam comprised of a single fixed direction polarization component;

a polarization control element for changing, according to an electrical signal, a polarization direction of the scanning beam outputted from said light source;

a hologram disk for diffracting the scanning beam outputted from said polarization control element;

a splitting image formation means including a first hologram on an input surface side of a plate-shaped glass for straightening said scanning beam, and a second hologram on an output surface side of the plate shaped glass for splitting said straightened scanning beam into two linear polarized beams having polarization states that orthogonally cross each other by diffracting one of the linear polarized beams and simultaneously passing through the other linear polarized beam, to form images with the linear polarized beams at independent locations on a scanning surface; and

a signal processing means for turning on and off said light source, for switching to "supply" or "stop" the electrical signal for said polarization control element, and for switching on and off each of said linear polarized beams.

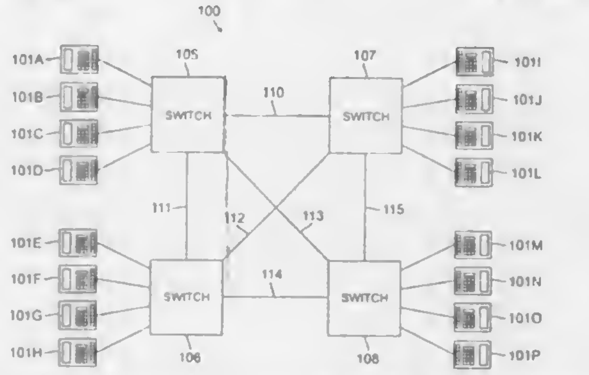
5,786,912
WAVEGUIDE-BASED, FABRICLESS SWITCH FOR TELECOMMUNICATION SYSTEM AND TELECOMMUNICATION INFRASTRUCTURE EMPLOYING THE SAME

Stamatios V. Kartalopoulos, Clinton Township, Hunterdon County, N.J., assignor to Lucent Technologies Inc., Murray Hill, N.J.

Filed Dec. 27, 1996, Ser. No. 777,404

Int. Cl.⁶ H04J *14/00*

U.S. Cl. 359—117 **24 Claims**



1. A switch for selectively cross-coupling first and second input lines to first and second output lines, comprising:

a waveguide having a cavity for containing signals therein;

first and second wireless transmitters, coupled to said first and second input lines, respectively, and said waveguide, that radiate signals received from said first and second input lines, respectively, within said cavity;

first and second wireless receivers, coupled to said first and second output lines, respectively, and said waveguide, that selectively receive said signals from said cavity and provide said signals to said first and second output lines; and

a switch controller, coupled to at least some of said first and second wireless transmitters and receivers, that controls said at least some of said first and second wireless transmitters and receivers selectively to couple said first and second input lines to said first and second output lines, said waveguide, said wireless transmitters and said wireless receivers cooperating to provide a fabricless cross-connect within said switch.

5,786,913
OPTICAL TDMA RING NETWORK WITH A CENTRAL TRANSMITTING AND RECEIVING DEVICE

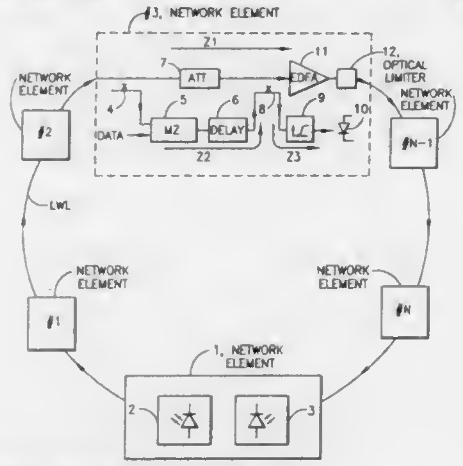
Thomas Pfeiffer, Stuttgart, Germany, assignor to Alcatel NV, Netherlands

Filed Jul. 31, 1996, Ser. No. 688,844

Claims priority, application Germany, Aug. 10, 1995, 195 29 376.2

Int. Cl.⁶ H04B *10/20;* **H04J** *14/00*

U.S. Cl. 359—119 **10 Claims**



1. An optical ring network comprising.

a center (1) having a laser (2) which produces an optical data stream, the optical data stream including optical pulses of a predetermined pulse repetition frequency, a useable time interval being defined between every two successive optical pulses; and

a plurality of network elements (#1, . . . , #N), each of the network elements (#1, . . . , #N) being passive elements which do not contain a laser, each of the network elements (#1, . . . , #N) being responsive to the optical data stream and comprising a facility whereby information can be added to and extracted from each useable time interval of the optical data stream.

5,786,914
WDM CHANNEL INSERTION

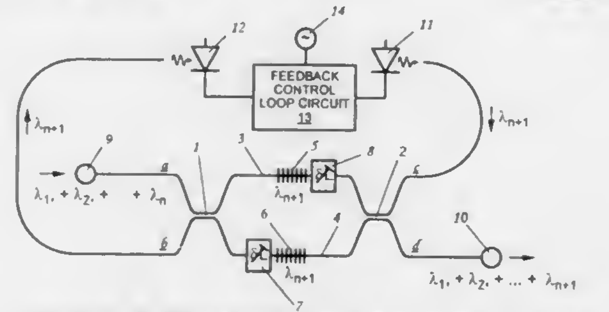
Alan Fielding, Bishops Stortford, United Kingdom, assignor to Northern Telecom Limited, Montreal, Canada

Filed Oct. 29, 1996, Ser. No. 739,365

Claims priority, application United Kingdom, Dec. 16, 1995, 9525765

Int. Cl.⁶ H04J *14/02*

U.S. Cl. 359—124 **2 Claims**


12
14
11
FEEDBACK CONTROL LOOP CIRCUIT 13
λ_{n+1}
λ_{n+1}
9
1
3
5
8
2
a
c
$\lambda_1 + \lambda_2 + \ldots + \lambda_n$
λ_{n+1}
6
4
10
b
d
λ_{n+1}
7
$\lambda_1 + \lambda_2 + \ldots + \lambda_{n+1}$

1. A wavelength division multiplexed transmission system channel transmitter and associated channel insertion filter, wherein the channel insertion filter comprises a 4-port Mach Zehnder optical waveguide configuration having a pair of equal optical path length interference arms in which are respectively included a matched pair of spectrally selective retro-reflecting distributed Bragg partial reflectors, wherein three of the four ports of the Mach Zehnder configuration respectively constitute input, output and channel insertion ports of the channel insertion filter, and wherein the fourth of the four ports constitutes a feedback output port optically coupled with a detector in an emission wavelength control feedback loop regulating the mean emission wavelength of the channel transmitter.

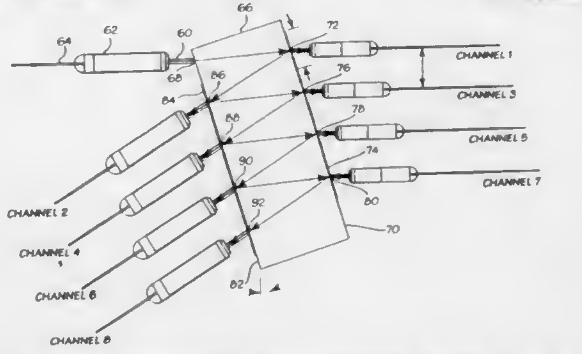
5,786,915
OPTICAL MULTIPLEXING DEVICE

Michael A. Scobey, Marlborough, Mass., assignor to Corning Oca Corporation

Continuation of Ser. No. 490,829, Jun. 15, 1995, Pat. No. 5,583,683. This application Oct. 22, 1996, Ser. No. 734,883

Int. Cl.⁶ H04J *14/02;* **G02B** *5/28*

U.S. Cl. 359—127 **44 Claims**



1. An optical multiplexing device comprising an optical block having an optical port transparent to multiple wavelength collimated light, a continuous, variable thickness interference filter extending on a multiport surface of the optical block and forming multiple ports arrayed in spaced relation to each other along the multiport surface, at least one of the multiple ports of the continuous, variable thickness interference filter being transparent to a different wavelength sub-range of the multiple wavelength collimated light than at least another of the multiple ports, and means for cascading light along a multi-point travel path from one to another of the multiple ports.

5,786,916
OPTICAL-WAVELENGTH INTERCHANGER ELEMENT AND OPTICAL-WAVELENGTH INTERCHANGER DEVICE

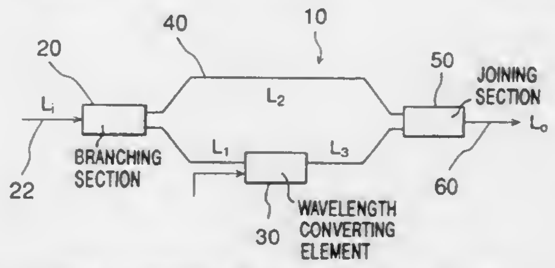
Hideaki Okayama, and Chang Qing Xu, both of Tokyo, Japan, assignors to Oki Electric Industry Co., Ltd, Tokyo, Japan

Filed Jun. 19, 1996, Ser. No. 663,875

Claims priority, application Japan, Jun. 30, 1995, 7-165251

Int. Cl.⁶ H04J *14/02*

U.S. Cl. 359—128 **17 Claims**



1. An optical-wavelength interchanger element, comprising:

a branching section for bifurcating a wavelength-multiplexed input light signal from an input transmission path into first

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and second light signals, said wavelength-multiplexed input light signal having a multiplicity N, wherein $N=2^n$ and n is a positive integer;

a wavelength converting element connected to said branching section for simultaneously converting wavelengths multiplexed in said first light signal so as to output a third light signal;

a transmission path connected to said branching section for sending said second light signal therethrough without converting wavelengths multiplexed in said second light signal; and

a joining section connected to said wavelength converting element and said transmission path for combining said third light signal and said second light signal so as to output a wavelength-multiplexed output light signal to an output transmission path.

5,786,917

OPTICAL SWITCHING NETWORK AND CONTROL METHOD FOR SAME

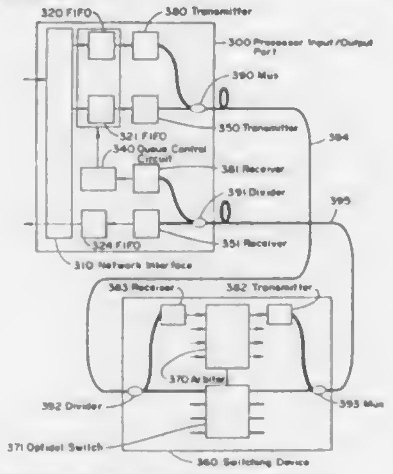
Yoshiharu Maeno, Tokyo, Japan, assignor to NEC Corporation, Tokyo, Japan

Filed Dec. 16, 1996, Ser. No. 767,205

Claims priority, application Japan, Dec. 23, 1995, 7-350139

Int. Cl.^{6} H04J *14/02*

U.S. Cl. 359—128 **13 Claims**



8. An optical switching network comprising:

a network interface circuit that divides transmitted messages into control information and transmission data;

first and second optical transmitters that electro-optically convert said control information and said transmission data and output an optical control information and an optical transmission data, respectively;

a first wavelength multiplexer that multiplexes said optical control information and said optical transmission data and outputs a first multiplexed optical signal;

an optical switching device that includes:

- a first wavelength divider which divides said first multiplexed optical signal into said optical control information and said optical transmission data;
- an optical switch that performs routing processing of said optical transmission data and outputs routed optical data;
- a first optical receiver that receives said optical control information and outputs a received control information;
- an arbiter that process said received control information and outputs a processed control information;
- a third optical transmitter that receives said processed control information and transmits a transmitted control information; and
- a second wavelength multiplexer that multiplexes said transmitted control information and said routed optical data, and outputs a second multiplexed optical signal;

a second optical receiver that receives said transmitted control information of said second multiplexed optical signal, and outputs control signals;

a third optical receiver that receives said routed optical data of said second multiplexed optical signal, and outputs reception data;

a queue control circuit that receives said control signals and performs queue control; and

a reception buffer that stores said reception data.

5,786,918

OPTICAL COMMUNICATION SYSTEM AND OPTICAL TRANSMITTING DEVICE

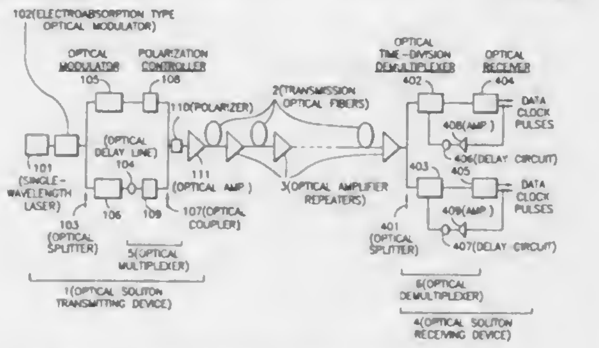
Masatoshi Suzuki, Kawashima-Saitama; Hidenori Taga, Sakado; Noboru Edagawa, Akatsuka; Hideaki Tanaka; Shu Yamamoto, both of Shiki, and Shigeyuki Akiba, Tokyo, all of Japan, assignors to Kokusai Denshin Denwa Kabushiki Kaisha, Tokyo, Japan

Continuation of Ser. No. 266,135, Jun. 27, 1994, abandoned. This application Dec. 19, 1995, Ser. No. 575,174

Claims priority, application Japan, Sep. 8, 1993, 5-246085

Int. Cl.^{6} H04J *14/08;* **H04B** *10/00*

U.S. Cl. 359—135 **13 Claims**



1. An optical communication system, comprising:

an optical fiber transmission line having a required number of optical amplifier repeaters connected to a transmission optical fiber at required intervals,

an optical transmitting device for transmitting over said optical fiber transmission line optical multiplexed signals obtained by optical time-division multiplexing return-to-zero optical pulses having digital information, and

an optical receiving device having an optical demultiplexer for receiving and demultiplexing said optical multiplexed signals received from said optical fiber transmission line into original optical signals,

an average wavelength dispersion value of said transmission optical fiber, an optical output intensity of each of said optical amplifier repeaters and widths of said return-to-zero optical pulses being determined so as to compensate for a pulse compression effect by a nonlinear optical effect produced on said optical pulses and a pulse spreading effect by a wavelength dispersion effect produced on said optical pulses,

said optical transmitting device further comprising an optical multiplexer for time-division multiplexing said return-to-zero optical pulses into said optical multiplexed signals to have alternate amplitudes of said return-to-zero optical pulses;

said optical demultiplexer in said optical receiving device comprising an optical splitter for branching said optical multiplexed signals into a plurality of optical signals and an optical time-division demultiplexer for dividing each repetition rate of each branched optical signal to an original transmission rate by a rectangular synchronizing optical gate of a width about the same as the full time slot at a transmission rate after multiplexing.

5,786,919

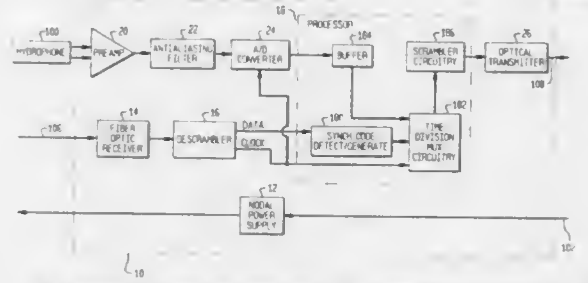
DATA MULTIPLEXING NODE FOR LINE ARRAY

Amir W. Habboosh, Somerset, Mass.; Robert J. Reid, Tiverton, and Steven D. Jette, Exeter, both of R.I., assignors to The United States of America as represented by the Secretary of the Navy, Washington, D.C.

Filed Sep. 5, 1996, Ser. No. 706,590

Int. Cl.^{6} H04J *3/00*

U.S. Cl. 359—135 **5 Claims**



1. In a sensor system having each of a plurality of multiplexing nodes associated with one of a plurality of analog sensors arranged in a line array, each of said plurality of multiplexing nodes comprising:

- an amplifier/filter section coupled to an associated one of the plurality of analog sensors for amplifying and shaping a signal generated by said associated one;
- an analog-to-digital (A/D) converter for sampling said signal after amplifying and shaping;
- a receiver coupled to a previous one of said multiplexing nodes for receiving scrambled data in serial fashion from said previous one, wherein said scrambled data contains both data information and clock information from said previous one;
- a descrambler coupled to said receiver to separate said data information from said clock information for output from said descrambler;
- a processor coupled to said A/D converter and said descrambler, said processor checking said data information for the presence of a code, wherein the presence of said code causes said processor to be placed in a slave mode and the absence of said code causes said processor to be placed in a master mode, said processor placed in said master mode adding said code to said data information, said processor multiplexing in a time division fashion said data information, said clock information and said signal, and said processor scrambling said data information, said clock information and said signal; and
- a transmitter coupled to said processor for transmitting said data information, said clock information and said signal after scrambling in serial fashion over a single data line to a next one of said plurality of multiplexing nodes.

5,786,920

Patent Not Issued For This Number

5,786,921

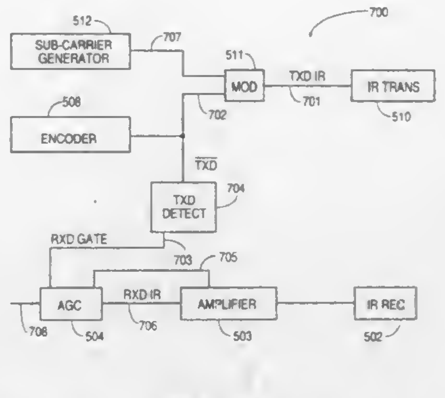
INFRARED COMMUNICATION DEVICE FOR MULTISTANDARD OPERATIONS

Li-Chen Wang, Watsonville, and Keming Yeh, Fremont, both of Calif., assignors to ActiSys Corporation, Fremont, Calif.

Division of Ser. No. 290,330, Aug. 15, 1994, Pat. No. 5,617,236. This application Aug. 12, 1996, Ser. No. 695,481

Int. Cl.^{6} H04B *10/24*

U.S. Cl. 359—152 **3 Claims**



'RXD GATE' block diagram

1. An infrared radiation (IR) transceiver integrated circuit, comprising:

- a control circuit for processing data received and data to be transmitted as IR signals;
- a subcarrier generator circuit for generating a subcarrier signal;
- a modulator circuit, coupled to said control circuit and said subcarrier generator circuit, for modulating said data to be transmitted with said subcarrier signal to provide a modulated data signal;
- a driver circuit for driving an external light emitting diode in accordance with said modulated data signal;
- a receiver circuit for (i) amplifying and detecting IR signals received in an external phototodetector and (ii) providing said IR signals to said control circuit as said data received;
- an automatic gain control circuit, coupled to said receiver circuit for adjusting the gain in said receiver circuit, in accordance with strengths of said IR signals received; and
- a transmitter-active detection circuit for detecting a transmission time of said data to be transmitted, and for disabling said automatic gain control circuit for a period of time equal to said transmission time plus a predetermine time period.

5,786,922

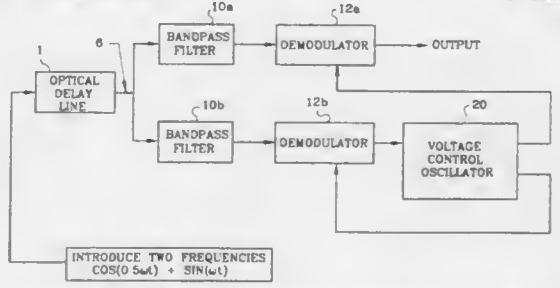
DUAL SIGNAL SUBHARMONIC CARRIER FOR SYSTEMS WITH UNKNOWN DELAY

David A. Bailey, Glendale, Ariz., assignor to Honeywell Inc.

Filed Feb. 15, 1996, Ser. No. 601,413

Int. Cl.^{6} H04B *10/00*

U.S. Cl. 359—158 **5 Claims**



3. A system for obtaining calibration information for an optical communication means comprising:

- optical communication means;
- signal generating apparatus generating a first signal at a first frequency and a second signal at a second frequency which are input into the optical communication means;
- a first demodulator receiving the first signal from the optical communications means and a second demodulator receiving the second signal from the optical communication means;
- control means, connected to the first demodulator and the second demodulator, for stabilizing the second signal from the second demodulator and for creating an input to the first demodulator to provide calibration information for the optical communication means.

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5,786,923

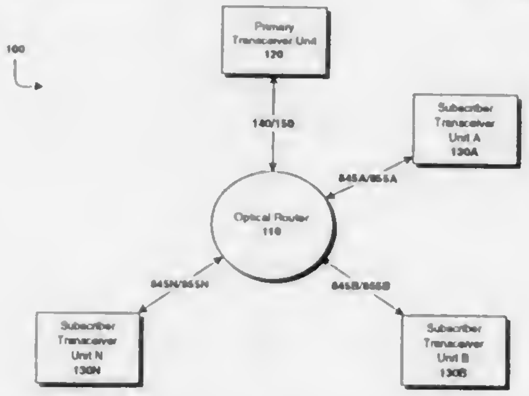
POINT-TO-MULTIPOINT WIDE AREA TELECOMMUNICATIONS NETWORK VIA ATMOSPHERIC LASER TRANSMISSION THROUGH A REMOTE OPTICAL ROUTER

Mark A. Doucet, and David L. Panak, both of College Station, Tex., assignors to Dominion Communications, LLC, Bryan, Tex.

Filed Mar. 29, 1996, Ser. No. 625,725

Int. Cl.^{6} H04B *10/00*

U.S. Cl. 359—172 **106 Claims**


100
Primary Transceiver Unit 120
140/150
Subscriber Transceiver Unit A 130A
845A/855A
Optical Router 110
845N/855N
845B/855B
Subscriber Transceiver Unit N 130N
Subscriber Transceiver Unit B 130B

1. A point-to-multipoint bi-directional wide area communications network employing atmospheric optical communication, comprising:

a primary transceiver unit comprising a primary light source configured to generate a first light beam, wherein said primary transceiver unit is configured to modulate first data on said first light beam, wherein said primary transceiver unit atmospherically transmits said first light beam including said first data;

an optical router configured to receive said first light beam including said first data from said primary transceiver unit; and

a plurality of subscriber transceiver units;

wherein said optical router is configured to receive said first light beam including said first data from said primary transceiver unit and redirect said first light beam to said plurality of subscriber transceiver units;

wherein each of said plurality of subscriber transceiver units is configured to atmospherically receive said first light beam from said optical router, wherein each of said plurality of subscriber transceiver units is configured to demodulate at least a portion of said first data from said first light beam;

wherein each of said plurality of subscriber transceiver units is configured to modulate respective second data on a second light beam, wherein each of said plurality of subscriber transceiver units atmospherically transmits said second light beam including said respective second data;

wherein said optical router is configured to receive a plurality of said second light beams including said respective second data from said plurality of subscriber transceiver units and redirect said second light beams to said primary transceiver unit;

wherein said primary transceiver unit atmospherically receives said second light beams including said respective second data, wherein said primary transceiver unit is configured to demodulate said respective second data from said second light beams; and

wherein said primary transceiver unit, said optical router and said plurality of subscriber transceiver units comprise a wide area optical telecommunications network.

5,786,924

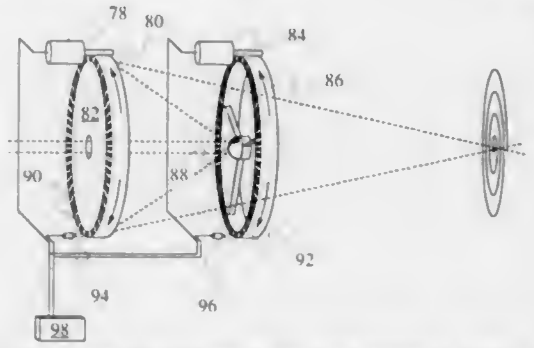
METHOD AND APPARATUS FOR TREATING A SURFACE WITH A SCANNING LASER BEAM HAVING AN IMPROVED INTENSITY CROSS-SECTION

Michael Black, Foster City, and Vladimir Lemberg, Belmont, both of Calif., assignors to Reliant Technologies, Inc., Foster City, Calif.

Continuation of Ser. No. 527,576, Sep. 13, 1995, Pat. No. 5,546,214. This application Aug. 12, 1996, Ser. No. 700,685

Int. Cl.^{6} G02B *26/08*

U.S. Cl. 359—197 **16 Claims**



7. An apparatus for directing a light beam against a surface to be treated, said apparatus comprising:

a plurality of reflecting surfaces for redirecting a light beam directed along a central axis from a light beam source, situated in an operative position relative to the reflecting surfaces, in a predetermined path and for converging a light beam toward a focal point;

said reflecting surfaces including a first reflecting surface that is repositionable to thereby alter the predetermined path of a light beam to cause a light beam to scan along a surface to be treated;

a blocking element for blocking a part of a beam moving in the predetermined path to thereby modify the intensity cross section of a light beam impinging on a surface to be treated; and

a drive for rotating the first reflecting surface around a first axis.

5,786,925

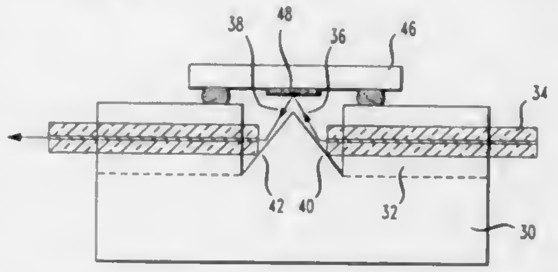
METHOD AND COMPOSITION FOR ARBITRARY ANGLE MIRRORS IN SUBSTRATES FOR USE IN HYBRID OPTICAL SYSTEMS

Keith Wayne Goossen, Aberdeen, and James Albert Walker, Howell, both of N.J., assignors to Lucent Technologies Inc., Murray Hill, N.J.

Division of Ser. No. 146,567, Nov. 1, 1993, abandoned. This application May 20, 1996, Ser. No. 650,582

Int. Cl.^{6} G02F *1/025;1/035;1/295;* **G02B** *6/26*

U.S. Cl. 359—245 **12 Claims**



9. An apparatus for modulating an optical signal comprising:

a first tapered reflective surface formed in a substrate for receiving and reflecting the optical signal;

a modulator that receives the reflected optical signal and reflects a lesser portion of the optical signal in a first state and a greater portion of the optical signal in a second state; and

a second tapered reflective surface formed in the substrate that receives the lesser and greater portions of the optical signal reflected from the modulator during its respective first and second states.

5,786,926

ELECTRO-OPTICAL DEVICE HAVING INVERTED DOMAINS FORMED INSIDE A FERRO-ELECTRIC SUBSTRATE AND ELECTRO-OPTICAL UNIT UTILIZING THEREOF

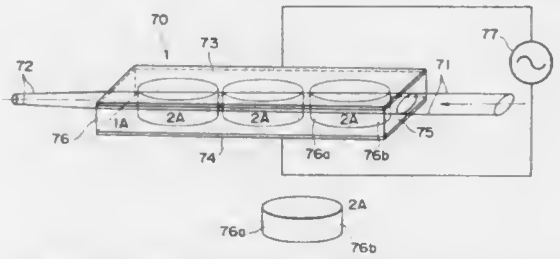
Masahiro Yamada, Kanagawa, Japan, assignor to Sony Corporation, Tokyo, Japan

Filed Nov. 22, 1996, Ser. No. 754,136

Claims priority, application Japan, Nov. 24, 1995, 7-329851

Int. Cl.^{6} G02F *1/03*

U.S. Cl. 359—250 **14 Claims**



1. An electro-optical device comprising a ferro-electric substrate, electrodes provided on principal surfaces of said substrate and inverted domains formed therebetween with a predetermined shape inside said substrate, at least one of the walls of said domains being substantially perpendicular to said principal surfaces of said substrate, at least two domain walls being convex or concave relative to the beam propagation direction, wherein a light beam traversing at least two of said domains walls is deflected by the application of a voltage between the electrodes, the amount of deflection varying according to the voltage applied.

5,786,927

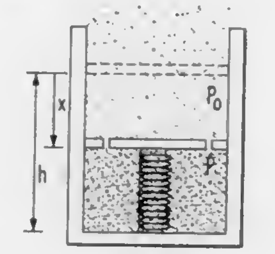
GAS-DAMPED MICROMECHANICAL STRUCTURE

Dennis S. Greywall, White House Station, N.J., assignor to Lucent Technologies Inc., Murray Hill, N.J.

Filed Mar. 12, 1997, Ser. No. 815,774

Int. Cl.^{6} G02B *26/00*

U.S. Cl. 359—291 **18 Claims**



1. A high-speed gas-damped micromechanical structure comprising:

a movable member;

a gas-tight seal enclosing the movable member; and

a gas within the gas-tight seal, wherein,

ambient pressure within the gas-tight seal is greater than about one atmosphere and no more than about 48 atmospheres.

5,786,928

THIN FILM ACTUATED MIRROR ARRAY IN AN OPTICAL PROJECTION SYSTEM AND METHOD FOR MANUFACTURING THE SAME

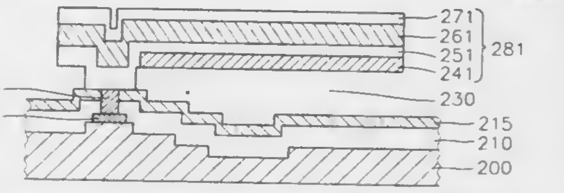
Yun-Woo Nam, and Sang-Chol Jung, both of Seoul, Rep. of Korea, assignors to Daewoo Electronics Co., Ltd., Rep. of Korea

Filed Jan. 31, 1997, Ser. No. 791,556

Claims priority, application Rep. of Korea, Aug. 13, 1996, 96-33605; Aug. 13, 1996, 96-33606

Int. Cl.^{6} G02B *26/00*

U.S. Cl. 359—295 **27 Claims**



23. A method for manufacturing a thin film actuated mirror array in an optical projection system being actuated by first signal and a second signal, said method for manufacturing a thin film actuated mirror array in an optical projection system comprising the steps of:

providing a substrate having an electrical wiring and a connecting terminal for receiving a first signal from outside and transmitting the first signal;

forming a first supporting layer on said substrate and patterning said first supporting layer to form a bottom supporting layer on a first portion of said substrate after forming a sacrificial layer on said substrate, planarizing said sacrificial layer by using a spin on glass or by a chemical mechanical polishing method and patterning said sacrificial layer in order to expose a portion of said substrate adjacent to said connecting terminal;

forming a bottom electrode layer, an active layer and a top electrode layer on said bottom supporting layer and on said substrate;

patterning said top electrode layer to form a first top electrode for receiving the second signal and generating an electrode field and to form a second top electrode for receiving the second signal and generating an electric field;

patterning said active layer to form a first active layer deformed by the electric field and to form a second active layer deformed by the electric field;

patterning said bottom electrode layer to form a first bottom electrode on said bottom supporting layer for receiving the first signal and to form a second bottom electrode on a second portion of said substrate for receiving the first signal;

forming a second support layer on said second top electrode above the second portions of said substrate and patterning said second supporting layer to form a top supporting layer on said second top electrode; and

forming a reflecting means for reflecting a light on said top supporting layer.

5,786,929

OPTICAL PARAMETRIC OSCILLATOR WITH DELAYED REPUMPING

C. David Nabors, Sunnyvale, Calif., assignor to Coherent, Inc., Santa Clara, Calif.

Filed Jun. 3, 1996, Ser. No. 656,843

Int. Cl.^{6} G02F *1/39*

U.S. Cl. 359—330 **21 Claims**

17. A optical parametric oscillator, comprising:

first and second spaced-apart optical-elements forming a resonant cavity for signal light, and, disposed in said resonant cavity, an optically non-linear crystal for converting pump light to said signal light;

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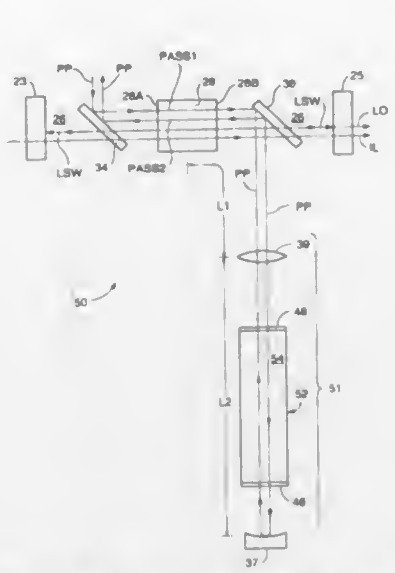


a beamsplitter located between said crystal and one of said first and second optical elements, said beamsplitter being highly reflective for said pump light and highly transmissive for said signal light;

a positive reflector located outside of said resonant cavity, said positive reflector being highly reflective for said pump light;

a positive lens located between said beamsplitter and said positive reflector, said positive lens being highly transmissive for said pump light;

said beamsplitter, said positive lens, and said positive reflector arranged such that a pulse of said pump light, directed longitudinally on an initial pass through said crystal toward said beamsplitter, is directed transversely out of said resonant cavity, through said positive lens toward said positive reflector, reflected by said positive reflector through said positive lens toward said beamsplitter, and redirected by said beamsplitter to make a return pass longitudinally through said crystal, in a direction opposite that of said initial pass;

said crystal and said beamsplitter, and said beamsplitter and said positive reflector having a combined spacing therebetween such that said initial and return passes of said pulse are separated in time by a delay time corresponding to at least about one-half of one full-width at half peak intensity of said pulse.

5,786,930
OPTICAL FREQUENCY SWEEP SIGNAL GENERATOR

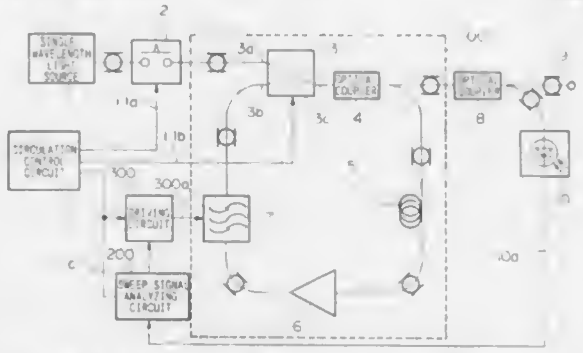
Tatsuhiko Takatsu, Tokyo; Kazuo Aida, Yokohama, and Kiyoshi Nakagawa, Miura-gun, all of Japan, assignors to Ando Electric Co., Ltd., and Nippon Telegraph and Telephone Corporation, both of Tokyo, Japan

Filed Jan. 24, 1997, Ser. No. 785,844

Claims priority, application Japan, Jan. 25, 1996, 8-011233

Int. Cl.⁶ H01S *3/13*

U.S. Cl. 359—331 **1 Claim**


2
SINGLE WAVELENGTH LIGHT SOURCE
A
3a
3
OPTICAL COUPLER
OPTICAL COUPLER
11a
3b
3c
4
8
11b
CIRCULATION CONTROL CIRCUIT
5
300
300a
DRIVING CIRCUIT
200
C
SWEEP SIGNAL ANALYZING CIRCUIT
6
10a

1. An optical frequency sweep signal generator comprising:

a circulation control circuit for generating a first electric signal which indicates the start and the end of a sweep;

an optical switch for converting continuous light output from a single-wavelength light source into pulsed light based on the first electric signal;

an optical loop circuit having an optical loop path along which the pulsed light circulates;

an acousto-optical frequency shifter, inserted in the optical loop path, for introducing the pulsed light into the optical loop path and for shifting the optical frequency of the pulsed light which circulates along the optical loop path by a predetermined optical frequency, based on the first electric signal;

first light branch means, inserted in the optical loop path, for splitting the pulsed light which circulates along the optical loop path and for outputting one of the split pulsed light to the outside of the optical loop circuit;

a delay optical fiber, inserted in the optical loop path, for delaying the other of said split pulsed light output from the first light branch means so as to adjust a circulation time of the pulsed light;

an optical amplifier, inserted in the optical loop path, for amplifying light which circulates along the optical loop path, the light including natural emission light, so as to compensate for circulation loss;

an optical frequency variable bandpass filter for suppressing circulation of the natural emission light output from the optical amplifier;

second light branch means for splitting said one of the split pulsed light output from the first light branch means;

an optical output end for outputting one of the split pulsed light output from the second light branch means as an optical frequency sweep signal;

a light receiving element for converting the other of the split pulsed light output from the second light branch means into a second electric signal, and for outputting the converted signal;

a sweep signal analyzing circuit for detecting a difference between the center frequency of the optical frequency variable bandpass filter and the optical frequency of the pulsed light which circulates along the optical loop path based on the first and second electric signals, and for outputting a set value for compensating for the difference; and

a driving circuit for supplying a driving signal for determining the center frequency of the optical frequency variable bandpass filter to the optical frequency variable bandpass filter, based on the first electric signal and the set value.

5,786,931
PHASE GRATING AND METHOD OF PRODUCING PHASE GRATING

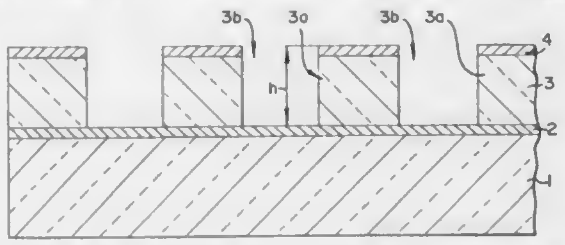
Peter Speckbacher, Kirchweidach; Georg Flatscher, Schneizlreuth; Michael Allgäuer, Stein; Erich Bayer, Trostberg; Erwin Spanner, Traunstein, and Andreas Franz, Trostberg, all of Germany, assignors to Johannes Heidenhain GmbH, Traunreut, Germany

Filed Apr. 8, 1996, Ser. No. 629,379

Claims priority, application European Pat. Off., Apr. 13, 1995, 95105584

Int. Cl.⁶ G02B *5/18;27/44;* G03H *1/04*

U.S. Cl. 359—572 **11 Claims**



1. A phase grating for a photoelectric position measuring instrument, comprising:

a substrate;

a first reflective layer disposed over an entire surface of the substrate;

a transparent spacer layer disposed on the first reflective layer; and

a second reflective layer disposed on the spacer layer wherein the second reflective layer is spaced apart from and extends parallel with the first reflective layer, the second reflective layer forming an amplitude grating wherein the spacer layer is provided solely between the first and second reflective layer, the spacer layer forming lands which have edges that are not covered with the second reflective layer extending perpendicularly to the first and second reflective layers wherein the index of refraction is different on either side of the edges.

5,786,932
VISION ASSISTING APPARATUS

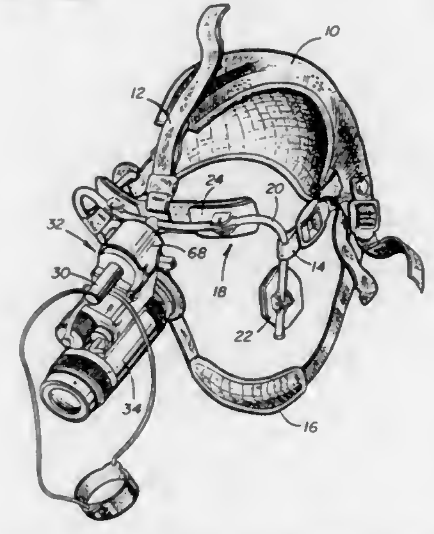
Zeev Pniel, Petach Tikva, Israel, assignor to International Technologies (Lasers), Ltd., Rishon Lezion, Israel

Filed Dec. 19, 1994, Ser. No. 358,387

Claims priority, application Israel, Dec. 19, 1993, 108081

Int. Cl.⁶ G02B *23/00;27/14;7/02*

U.S. Cl. 359—409 **6 Claims**



1. A single eye vision assist device including a head mount, a vision assist assembly mounted on the head mount for selectable positioning in front of an eye of a wearer and a positioning apparatus for positioning of the vision assist assembly on the head mount, said positioning apparatus capable of axial movement along an axis generally perpendicular to the face of a wearer and rotational movement about said axis into and out of a position in front of the eye of the wearer.

5,786,933
REAR PROJECTOR CABINET

Yuji Iwai, Kanagawa; Ryoji Naito, Tokyo; Masataka Onishi, Tokyo, and Takayasu Ishikawa, Tokyo, all of Japan, assignors to Sony Corporation, Tokyo, Japan

Filed Jun. 18, 1996, Ser. No. 666,596

Claims priority, application Japan, Jun. 19, 1995, 7-151356

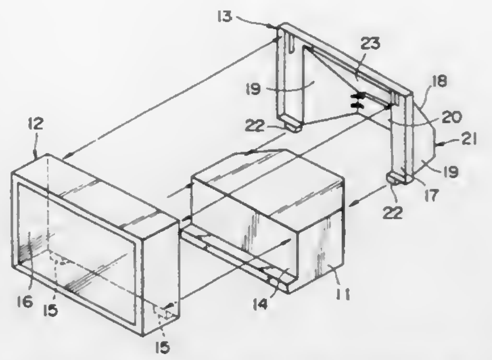
Int. Cl.⁶ G03B *21/28*

U.S. Cl. 359—460 **3 Claims**

1. An improved rear projector cabinet of a kind having a bottom cabinet with a predetermined shape and a predetermined size for installing visual devices therein;

a screen fixing segment with a screen fixed thereto arranged at an upper front surface of the bottom cabinet;

a mirror fixing segment having a mirror fixed therein and being inclined at an inner side of a rear surface thereof; and having an improvement in which:



a rear surface side of the screen fixing segment and a front surface side of the mirror fixing segment are attached to each other and assembled on the bottom cabinet, and

the screen fixing segment and the mirror fixing segment are formed by injection molding of a plastic material to have one of at least two selected widths, wherein a depth of the assembled segments is a constant depth independent of the selected width and an inclination of the mirror in the mirror fixing segment is at a constant angle independent of the selected width.

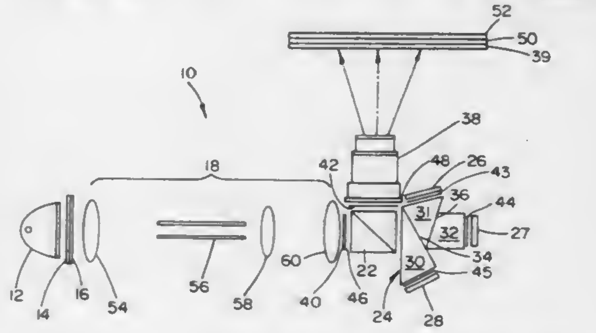
5,786,934
EFFICIENT OPTICAL SYSTEM FOR A HIGH RESOLUTION PROJECTION DISPLAY EMPLOYING REFLECTION LIGHT VALVES

George Liang-Tai Chiu, Cross River; Thomas Mario Cipolla; Fuad Elias Doany, both of Katonah; Derek Brian Dove, Mt. Kisco; Alan Edward Rosenbluth, Yorktown Heights, all of N.Y.; Rama Nand Singh, Bethel, Conn., and Janusz Stanislaw Wilczynski, Ossining, N.Y., assignors to International Business Machines Corporation, Armonk, N.Y.

Continuation of Ser. No. 410,429, Mar. 23, 1995, abandoned. This application Aug. 25, 1997, Ser. No. 917,400

Int. Cl.⁶ G02B *5/30;27/28;* G03B *21/00;* G02F *1/00*

U.S. Cl. 359—494 **13 Claims**



1. An apparatus for projecting an image onto a screen comprising:

a light source for providing light;

a polarizing beam splitting means for splitting the light into first and second polarized lights having first and second polarizations respectively;

a color splitting prism assembly having a plurality of output faces, said color splitting prism assembly splitting the first polarized light into a plurality of color components and directing each color component through a corresponding one of said output faces;

color absorbing means at each of said output faces for absorbing beach of said plurality of color components not corresponding to the color components of light directed through each of said output faces;

a spatial light modulator at each of said output faces for reflecting said color components passed through each of said output

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faces as a reflected color component of the image passed back into said prism assembly;

said color splitting prism assembly recombining the reflected color components of the image to form a combined reflected image, and said polarizing beam splitting means splitting the combined reflected image into first and second polarized images and directing said second polarized image to a projection lens, said projection lens projecting said second polarized image as the image onto the screen.

5,786,935
SCOPE

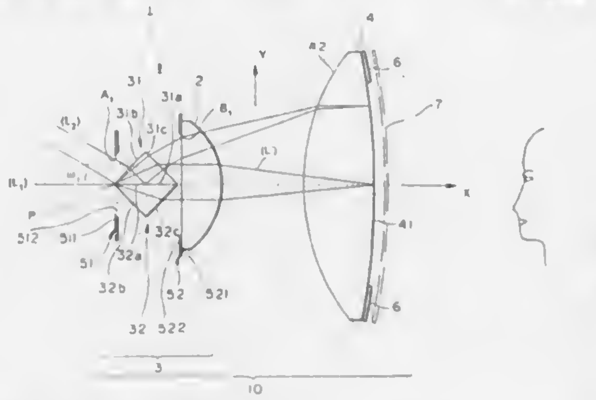
Moriyasu Kanai, and Ryota Ogawa, both of Tokyo, Japan, assignors to Asahi Kogaku Kogyo Kabushiki Kaisha, Tokyo, Japan

Continuation of Ser. No. 330,257, Oct. 27, 1994, abandoned. This application Jul. 25, 1996, Ser. No. 687,269

Claims priority, application Japan, Oct. 27, 1993, 5-291270

Int. Cl.^{6} G02B *25/04;7/00*

U.S. Cl. 359—504 **16 Claims**



14. A scope comprising:

an image inverting optical system;

a first member having a rectangular aperture therein with opposed sides having an elongated longitudinal dimension, said first member being disposed on one side of said image inverting optical system;

a second member having a rectangular aperture therein disposed on an opposite side of said image inverting optical system, said second member aperture having opposed sides with an elongated dimension extending perpendicular to said first member rectangular aperture sides having an elongated longitudinal dimension,

an objective lens having an entrance side on a side of said second member opposite to said image inverting optical system; and,

a condenser disposed so that an exit surface thereof is positioned to substantially coincide with an image plane of said objective lens;

wherein said exit surface has a curvature corresponding to a curvature of said image plane.

5,786,936
IMAGE STABILIZING DEVICE

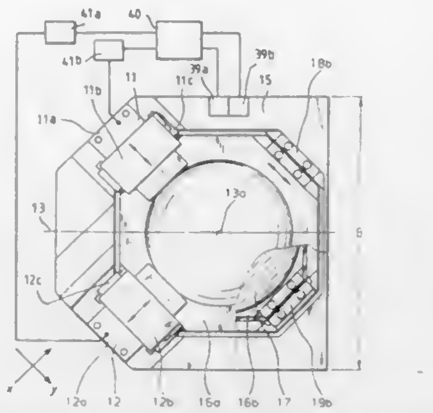
Hans Baumann, Raisdorf, and Wolfgang Graczyk, Kiel, both of Germany, assignors to Carl-Zeiss-Stiftung, Heidenheim, Germany

Filed Dec. 20, 1993, Ser. No. 170,615

Claims priority, application Germany, Dec. 24, 1992, 42 44 073.4

Int. Cl.^{6} G02B *27/64;21/00*

U.S. Cl. 359—557 **22 Claims**



1. Image stabilizing device for optical equipment including an optical arrangement comprising:

at least one driving means for compensating vibrations acting on said optical arrangement from its surroundings,

a sensor for sensing and providing signals in respect to said vibrations,

an electronic circuit for converting signals from said sensor into signals for actuating said driving means, wherein

said driving means comprises a linear motor,

said linear motor comprises a coil device having a substantial plurality of turns, a stator, and two permanent magnets, and

said stator comprises a closed unshaped body.

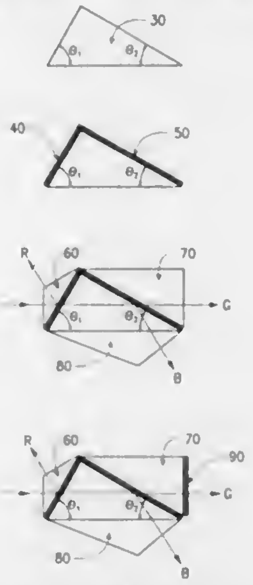
5,786,937
THIN-FILM COLOR-SELECTIVE BEAM SPLITTER AND METHOD OF FABRICATING THE SAME

Cheng-Wei Chu; Yi-Jen Tsou, both of Taipei, and Fang Chuan Ho, Hsinchu, all of Taiwan, assignors to Industrial Technology Research Institute, Hsinchu, Taiwan

Filed Jul. 17, 1996, Ser. No. 682,447

Int. Cl.^{6} G02B *1/10;5/28;27/14;* B05D *1/36*

U.S. Cl. 359—583 **12 Claims**



1. A method for fabricating a thin-film color-selective beam splitter, comprising the steps of:

(i) forming a main prism by a pre-selected material, and deciding a first base angle and a second base angle in accordance with substance and coating characteristics of the pre-selected material;

(ii) by a single deposition process, coating a first multilayer film and a second multilayer film on two slopes of the main prism, in which tilt angles for coating the first multilayer film and the second multilayer film and angles of light entering and emerging the main prism are different, so that spectra of the first multilayer film and the second multilayer film are different, and the first multilayer film can be a red reflective film and the second multilayer film can be a blue reflective film; and

(iii) using the pre-selected material to form interface prisms, and adhering the interface prisms to the main prism, so that light can perpendicularly enter and emerge surfaces of the main prism.

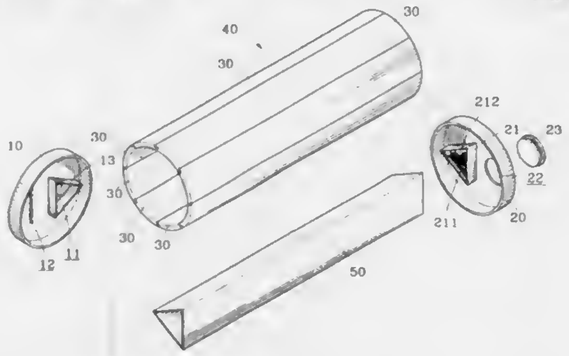
5,786,938
KALEIDOSCOPE STRUCTURE

Lung-Hsi Chang, No. 24, Ln 66, Sec. 1, Yen Ping N. Rd., Taipei, Taiwan

Filed May 29, 1997, Ser. No. 864,744

Int. Cl.^{6} G02B *27/08*

U.S. Cl. 359—617 **7 Claims**



1. A kaleidoscope comprising:

a barrel having a top opening and a bottom opening;

a top cover having a flat portion with a circumferential wall shaped and sized to be force fit onto the top opening of the barrel. the top cover having a triangular frame formed on an inside surface of the flat portion and an article receiving slot formed on the flat portion;

a bottom cover having a flat portion with a circumferential wall shaped and sized to be force fit onto the bottom opening of the barrel, the bottom cover having a flake container formed on an inside surface of the flat portion thereof which container is defined by a triangularly-arranged wall corresponding to the triangular frame of the top cover, a plurality of flakes being received within the container and confined therein by means of a transparent lid which is fixed inside the container in such a manner to leave a distance between the lid and free edge of the wall of the container to define a recess corresponding to the triangular frame of the top cover, an access hole being provided on the flat portion of the bottom cover and openably closed by a plug; and

a prism received within the barrel to define a space therebetween and having a first end fit into the triangular frame of the top cover and a second end fit into the recess of the flake container of the bottom cover, the space between the prism and the barrel being in communication with the receiving slot of the top cover and the access hole of the bottom cover.

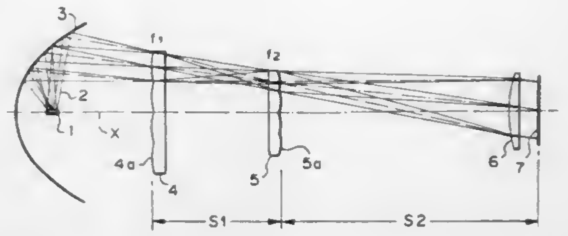
5,786,939
ILLUMINATION OPTICAL SYSTEM

Fumio Watanabe, Omiya, Japan, assignor to Fuji Photo Optical Co., Ltd., Omiya, Japan

Continuation-in-part of Ser. No. 606,942, Feb. 26, 1996, abandoned. This application Jan. 30, 1997, Ser. No. 792,570

Int. Cl.^{6} G02B *27/10;* G03B *21/14*

U.S. Cl. 359—621 **6 Claims**



1. An illumination optical system comprising, in this order, a light source portion constituted by an emitter and an ellipsoidal mirror whose cofocal positions are substantially at a position of said emitter and a position of an object to be illuminated; a first lens array plate formed by a plurality of lenses having substantially identical opening shapes arranged two-dimensionally; and a second lens array plate formed by a plurality of lenses having substantially identical opening shapes arranged two-dimensionally:

in which the opening shapes of respective lenses in said first and second lens array plates are substantially conformable to a shape of an area to be illuminated and the following conditional expressions (1) to (4) are satisfied:

$$1.0<k1\times s2/s1<1.8 \tag{1}$$

$$1.0<k2\times(s1+s2)/s1<1.8 \tag{2}$$

$$0.8<f1\times s2/[(s1\times(s1+s2)]<2.0 \tag{3}$$

$$0.8<f2\times(s1+s2)/(s1\times s2)<2.0 \tag{4}$$

wherein:

s1: distance between said first lens array plate and second lens array plate,

s2: distance between said second lens array plate and said object to be illuminated,

k1: ratio of conformity of the opening shape of each lens in said first lens array plate to the shape of said area to be illuminated,

k2: ratio of conformity of the opening shape of each lens in said second lens array plate to the shape of said area to be illuminated,

f1: focal length of said first lens array plate, and

f2: focal length of said second lens array plate.

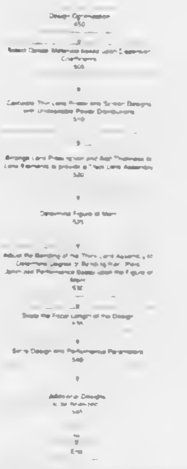
5,786,940
OPTICAL SYSTEM DESIGN OPTIMIZATION USING AN ANALYTICAL FIGURE OF MERIT

Paul N. Robb, Sunnyvale, Calif., assignor to Lockheed Martin Corp., Sunnyvale, Calif.

Filed Dec. 17, 1996, Ser. No. 767,939

Int. Cl.^{6} G02B *9/14*

U.S. Cl. 359—637 **13 Claims**



1. A method of identifying optical designs that are performance optimized, the method comprising:

identifying a plurality of optical materials that are appropriate for use as lens elements in an optical design:

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selecting a first optical design comprising a first lens element and a second lens element that form a first lens assembly, the first and second lens elements selected from the plurality of optical materials;

adjusting the bending of the first lens assembly to provide a bending range;

determining a figure of merit for the first optical design for a plurality of degrees of bending in the bending range, the figure of merit providing an analytical evaluation of performance; and

optimizing the first optical design by analyzing the figure of merit over the bending range.

5,786,941
ZOOM LENS SYSTEM

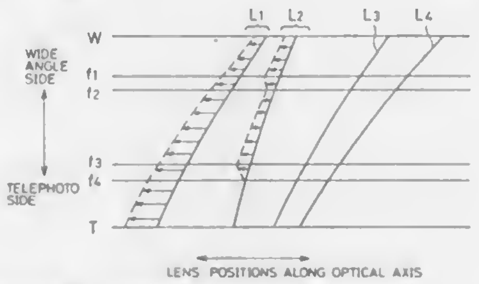
Minoru Kuwana, Osaka; Hitoshi Hagimori, Nara-Ken, and Junji Hashimura, Sakai, all of Japan, assignors to Minolta C., Ltd., Osaka, Japan

Filed Jul. 7, 1995, Ser. No. 499,297

Claims priority, application Japan, Jul. 8, 1994, 6-179742; Jul. 8, 1994, 6-179743

Int. Cl.^{6} G02B *15/14*

U.S. Cl. 359—683 **11 Claims**



1. A zoom lens system comprising:

a plurality of lens units movable along an optical axis to provide a variable focal length to the zoom lens system, wherein first to third focal length zones are set according to predetermined focal lengths of the zoom lens system, and wherein during focusing, in the first focal length zone, the lens units are moved at a first constant ratio of displacement along the optical axis, and in the third focal length zone, the lens units are moved at a second constant ratio of displacement along the optical axis which is different from the first constant ratio, and in the second focal length zone, a movement ratio of the lens units varies according to the focal length of the zoom lens system.

5,786,942
ZOOM LENS AND ASPHERICAL LENS

Kazunori Komori, and Takayuki Sensui, both of Tokyo, Japan, assignors to Asahi Kogaku Kogyo Kabushiki Kaisha, Tokyo, Japan

Filed Oct. 2, 1996, Ser. No. 725,050

Claims priority, application Japan, Oct. 3, 1995, 7-279663

Int. Cl.^{6} G02B *15/14;3/02*

U.S. Cl. 359—686 **5 Claims**

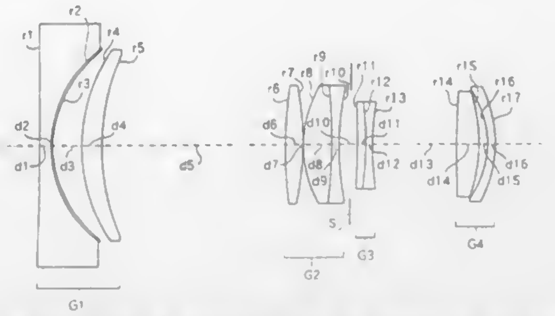
1. A zoom lens comprising: a negative first lens group; a positive second lens group; a negative third lens group; and a positive fourth lens group, arranged in this order from an object side,

wherein upon zooming from a wide-angle side toward a telephoto side, all said lens groups are moved so that a distance between said first and second lens groups is reduced, a distance between second and third lens groups is increased, and a distance between said third and fourth lens groups is reduced,

wherein said first lens group includes a negative first lens element and a positive second lens element, arranged in this order from said object side, at least one of said two lens elements being an aspherical lens, said aspherical lens comprising a hybrid lens including a resin film layer provided on one surface of a glass lens elements, and

wherein a ratio of a maximum thickness dmax to a minimum thickness dmin of said resin film layer, within a full effective diameter of said resin film layer, satisfies the relationship:

$$dmax/dmin<2.$$



5,786,943
ZOOM LENS SYSTEM HAVING A HIGH ZOOM RATIO

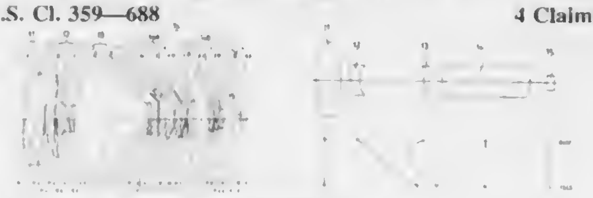
Tetsuya Abe, Hokkaido; Takayuki Ito, and Takashi Enomoto, both of Tokyo, all of Japan, assignors to Asahi Kogaku Kogyo Kabushiki Kaisha, Tokyo, Japan

Filed Aug. 23, 1996, Ser. No. 702,045

Claims priority, application Japan, Aug. 25, 1995, 7-217731

Int. Cl.^{6} G02B *15/14*

U.S. Cl. 359—688 **4 Claims**



1. A zoom lens system, comprising:

a first lens group having a positive power;

a second lens group having a negative power and a magnification varying function, said second lens group being moved during a zooming operation;

a third lens group having a negative power and a focus compensating function, said third lens group being moved during said zooming operation; and

a fourth lens group having a positive power and an image forming function, said fourth lens group not being moved during said zooming operation,

wherein said first, second, third, and fourth lens groups are arranged in this order from an object side,

said fourth lens group comprising, in order from said object side, a first sub-lens group and a second sub-lens group spaced from said first sub-lens group, each having a positive power,

wherein said zoom lens system satisfies the following relationships:

$$5.5<L_{W2-3}/f_W<8.5,$$

$$0.2<|m_{2W}|<0.4\ (m_{2W}<0),$$

$$0.6<|m_4|<0.9\ (m_4<0),$$

$$0.5<m_{4b}<0.9, \text{ and}$$

wherein

L_{W2-3} represents a distance between said second lens group and said third lens group at a shortest focal length extremity,

f_W represents a focal length of the entire zoom lens system at said shortest focal length extremity,

m_{2W} represents a lateral magnification of said second lens group at said shortest focal length extremity,

m_4 represents a lateral magnification of said fourth lens group, and

m_{4b} represents a lateral magnification of said second sub-lens group of said fourth lens group,

wherein said first sub-lens group of said fourth lens group comprises, in order from said object side, a positive first lens element, a positive second lens element, a negative third lens element and a positive fourth lens element and satisfies the following relationships:

$$0.8<f_4/f_{4a}<1.3$$

$$-0.7<f_{4a}/f_{4a-3}<-0.4,$$

$$0.2<f_{4a}/f_{4a-4}<0.7, \text{ and}$$

wherein

f_4 represents a focal length of said fourth lens group,

f_{4a} represents a focal length of said first sub-lens group of said fourth lens group,

f_{4a-3} represents a focal length of said negative third lens element of said first sub-lens group of said fourth lens group, and

f_{4a-4} represents a focal length of said positive fourth lens element of said first sub-lens group of said fourth lens group.

5,786,944
ZOOM LENS SYSTEM

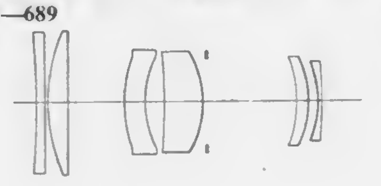
Hitoshi Hagimori, Nara-Ken, and Mitsuaki Shimo, Osaka, both of Japan, assignors to Minolta Co., Ltd., Osaka, Japan

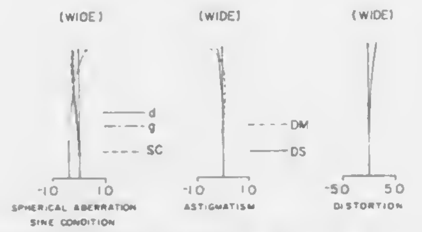
Filed Jul. 5, 1996, Ser. No. 675,819

Claims priority, application Japan, Jul. 6, 1995, 7-170592

Int. Cl.^{6} G02B *15/16*

U.S. Cl. 359—689 **19 Claims**





1. A zoom lens system comprising from an object side to an image side:

a first lens unit of a positive refractive power;

a second lens unit of a positive refractive power, wherein a first area of empty space provided between the first and second lens unit is variable during a zooming operation; and

a third lens unit of a negative refractive power, wherein a second area of empty space provided between the second and third lens unit is variable during the zooming operation;

wherein the zoom lens system fulfills the following condition:

$$BFL_W>DL/2$$

wherein BFL_W represents a back focal length of the zoom lens system in the shortest focal length condition, and DL represents a diagonal length of an image frame.

5,786,945
ZOOM LENS SYSTEM

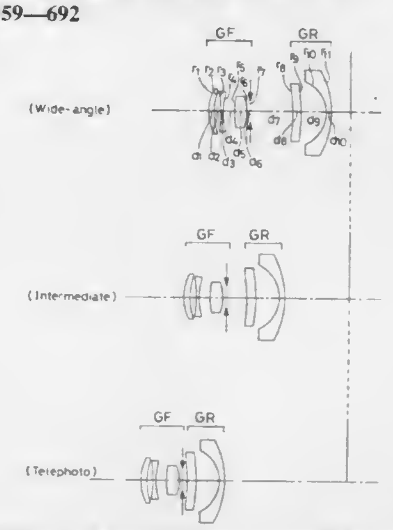
Norihiko Aoki, Sagamihara, and Atsujiro Ishii, Hoya, both of Japan, assignors to Olympus Optical Co., Ltd., Tokyo, Japan

Filed Jun. 4, 1996, Ser. No. 659,006

Claims priority, application Japan, Jun. 6, 1995, 7-139451

Int. Cl.^{6} G02B *15/14;13/18*

U.S. Cl. 359—692 **21 Claims**



1. A zoom lens system comprising, in order from an object side:

a front lens group including a plurality of positive lenses containing at least a plastic lens and having a positive refracting power as a whole; and

a rear lens group comprising a plurality of negative lenses containing at least a plastic lens and having no positive lens at all,

wherein zooming is carried out by varying a spacing between the front and rear lens groups, and all the lenses satisfy the following condition (1):

$$n_d<1.75 \qquad (1)$$

where n_d is the d-line indices of refraction of the lenses.

5,786,946
ZOOM LENS BARREL INCLUDING IMAGE BLUR SUPPRESSION DEVICE TO SUPPRESS BLUR IN AN OPTICAL IMAGE

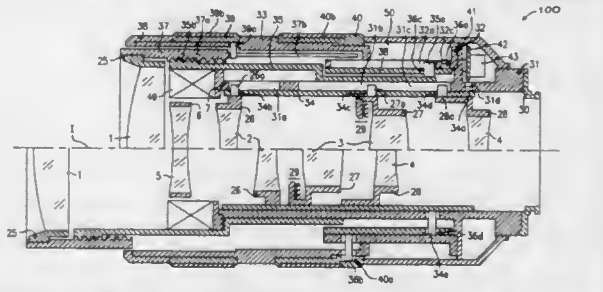
Yoshio Imura, Kawasaki, Japan, assignor to Nikon Corporation, Tokyo, Japan

Filed Sep. 11, 1996, Ser. No. 711,461

Claims priority, application Japan, Sep. 14, 1995, 7-262585

Int. Cl.^{6} G02B *15/14;7/02*

U.S. Cl. 359—695 **20 Claims**



1. A zoom lens barrel which compensates for image blurring motion comprising:

a mounting device to mount the zoom lens barrel to an optical device;

a fixed tubular body affixed to said mounting device;

a frame affixed to said fixed tubular body;

two or more lens groups disposed within said fixed tubular body which move to effect a zooming operation;

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an image blur suppression lens group mounted on said frame and driven to compensate for the image blurring motion; and
a drive device to drive said image blur suppression lens group.

5,786,947
OPTICAL PICKUP DEVICE WITH A FLOATING ELEMENT

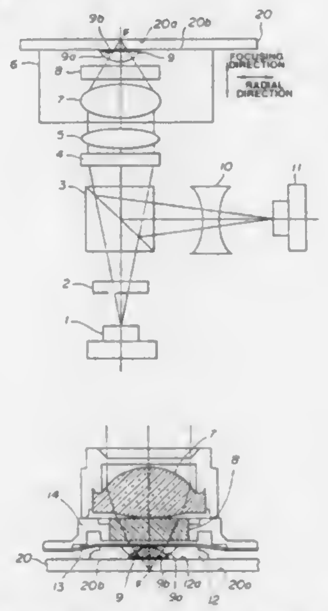
Fumisada Maeda, Tokyo; Isao Ichimura, Kanagawa; Kenji Yamamoto, Saitama; Kiyoshi Ohsato, Chiba, and Toshio Watanabe, Kanagawa, all of Japan, assignors to Sony Corporation, Japan

Continuation of Ser. No. 597,978, Feb. 7, 1996. This application Apr. 14, 1997, Ser. No. 834,147

Claims priority, application Japan, Feb. 15, 1995, 7-026562

Int. Cl.⁶ G02B *7/02*

U.S. Cl. 359—822 **11 Claims**



1. An optical pickup device for collecting the light from a light source on a signal recording surface of an optical recording surface, comprising:
at least one objective lens;
a lens holder for holding said objective lens;
a convex lens having a planar surface facing the optical recording medium and having a pre-set refractive index;
a slider configured for securing said convex lens and for being floated over said optical recording medium; and
floating supporting means connecting with said lens holder and said slider for floating and supporting said slider over said optical recording medium.

5,786,948
SIDE VIEW MIRROR AND METHOD OF ASSEMBLY THEREOF

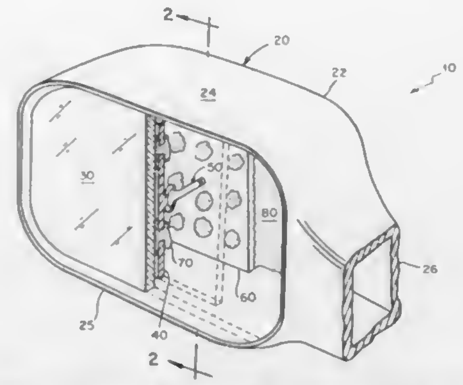
Peter Gold, 465 N. Wood Rd., Rockville Centre, N.Y. 11570

Filed Apr. 15, 1996, Ser. No. 631,995

Int. Cl.⁶ G02B *5/08;7/182*

U.S. Cl. 359—838 **11 Claims**

1. A kit for replacing an internal mechanism inside a housing of an adjustable side view mirror, the kit comprising:
an anchor plate for attaching to the inside of the housing of the adjustable side view mirror, said anchor plate comprising at least one hole;
a mirror;
a mirror support for attaching to the rear surface of said mirror;
means for connecting said mirror support to said anchor plate so that said mirror is pivotally adjustable; and



a plurality of temporary spacers for temporarily positioning an edge of said mirror in spaced-apart relation from the inside of the housing when attaching said anchor plate to the housing.

5,786,949
MAGNETIC TRANSFER APPARATUS INCLUDING A TAPE CLEANING ARRANGEMENT

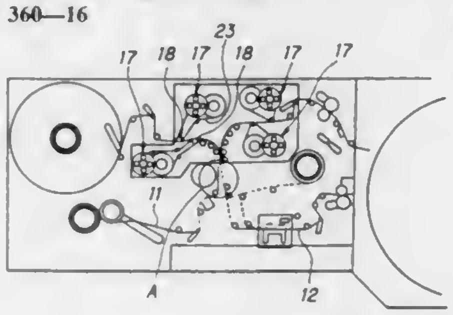
Takeyoshi Sakamoto, Miyagi, Japan, assignor to Sony Corporation, Tokyo, Japan

Filed Dec. 18, 1995, Ser. No. 574,384

Claims priority, application Japan, Dec. 26, 1994, 6-337284

Int. Cl.⁶ G11B *5/86*

U.S. Cl. 360—16 **4 Claims**



1. A cleaning device for a magnetic transfer apparatus transferring information magnetically recorded on a mother tape onto a blank tape by a magnetic contact print method for bringing a cleaning tape into contact with at least one of the mother tape and the blank tape and keeping the contacted tape clean at all times, the cleaning device comprising;
a guide pole for bringing a cleaning tape into contact with at least one of a mother tape and a blank tape, the guide pole having two end flanges;
a slit provided in each of the end flanges of the guide pole and arranged so that matter fallen from both edge surfaces of the cleaning tape can be sucked thereinto;
a through channel provided inside the guide pole for connecting each said slit; and
a source of air suction connected to the through channel.

5,786,950
PR4 SAMPLED AMPLITUDE READ CHANNEL EMPLOYING AN NRZI WRITE MODULATOR AND A PR4/NRZI CONVERTER

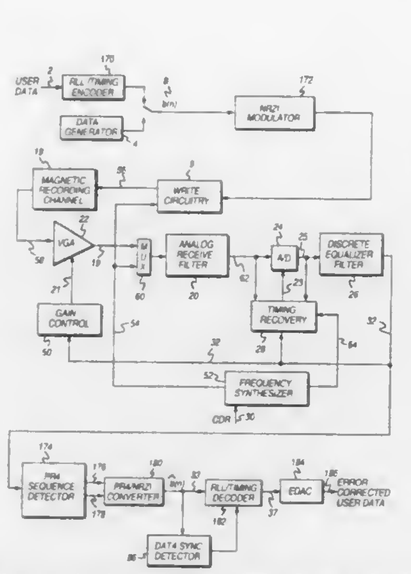
Christopher P. Zook, Longmont, and David E. Reed, Westminster, both of Colo., assignors to Cirrus Logic, Inc., Fremont, Calif.

Filed Jul. 29, 1996, Ser. No. 681,694

Int. Cl.⁶ G11B *5/09*

U.S. Cl. 360—41 **18 Claims**

1. A sampled amplitude read channel for reading digital data from a sequence of discrete time sample values generated by sampling pulses in an analog read signal from a read head positioned over a disc storage medium, comprising:



(a) an encoder for encoding user data during a write operation into codewords;
(b) a NRZI modulator for writing the codewords to the disc storage medium according to a NRZI format without precoding the codewords;
(c) a sampling device for sampling the analog read signal during a read operation to generate the sequence of discrete time sample values;
(d) a timing recovery circuit for generating synchronous sample values in response to the discrete time sample values; and
(e) a discrete time detector for detecting the codewords from the synchronous sample values.

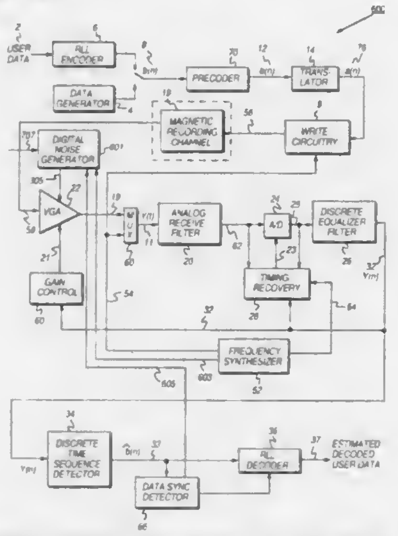
5,786,951
SAMPLED AMPLITUDE READ CHANNEL EMPLOYING A DISCRETE TIME NOISE GENERATOR FOR CALIBRATION

David R. Welland, Austin, Tex.; Richard T. Behrens, Louisville, Colo., and Iuri Mehr, Austin, Tex., assignors to Cirrus Logic, Inc., Fremont, Calif.

Filed Jun. 5, 1996, Ser. No. 658,763

Int. Cl.⁶ G11B *5/09;5/035*

U.S. Cl. 360—46 **10 Claims**



1. A sampled amplitude read channel for reading digital data from a storage medium, the read channel being equalized according to a desired channel pulse response, the read channel comprising:
(a) a sampling device for sampling an analog read signal from a read head positioned over the storage medium to generate a sequence of discrete time sample values;
(b) a discrete time noise generator for generating an analog noise signal used to increase a bit-error rate to facilitate calibration of the read channel, the discrete time noise generator comprising:
  (i) a sequence generator that generates a pseudo-random sequence of discrete time values, comprising a plurality of linear feedback shift registers, wherein:
    each one of the plurality of linear feedback shift registers provides a corresponding one binary digit output sequence to form a plurality of binary digit output sequences; and
    the plurality of binary digit output sequences together form the pseudo-random sequence of discrete time values; and
  (ii) a discrete-to-analog converter that converts the pseudo-random sequence of discrete time values into the analog noise signal; and
(c) a discrete time detector for detecting the digital data from the sequence of discrete time sample values, wherein:
the storage medium comprises a plurality of sectors;
the plurality of linear feedback shift registers are initialized at least once; and
the read channel is capable of reading successive sectors without re-initialization of the plurality of linear feedback shift registers.

5,786,952
MAGNETIC DIGITAL STORAGE METHOD AND SYSTEM WHEREIN MAGNETIC TRANSITION POINTS IN ADJACENT RECORDED TRACKS ARE OUT OF PHASE WITH EACH OTHER

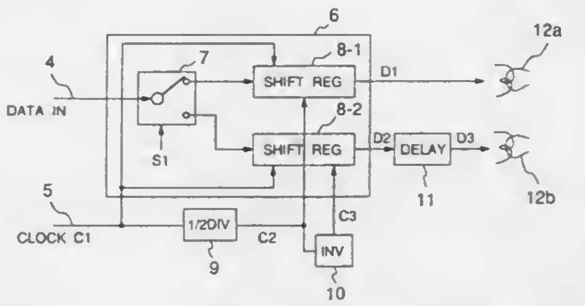
Masuo Umemoto, Tokyo; Yoshihiro Shiroishi, Hachioji; Reijiro Tsuchiya, Sagamihara; Kyo Akagi, Fuchu; Takehiko Hamaguchi, Omiya; Takashi Kawabe, Odawara; Atsushi Saito, Hino, and Kouichirou Wakabayashi, Kokubunji, all of Japan, assignors to Hitachi, Ltd., Tokyo, Japan

Filed Nov. 22, 1995, Ser. No. 562,203

Claims priority, application Japan, Nov. 25, 1994, 6-291085

Int. Cl.⁶ G11B *5/09;5/596*

U.S. Cl. 360—48 **10 Claims**



1. A magnetic digital storage method comprising the steps of:
converting a continuous digital signal to a plurality of digital signal sequences;
recording said plurality of digital signal sequences onto a plurality of adjacent recording tracks on a recording medium as recording bits each having a recording bit length with a plurality of integrated recording heads;
reproducing said plurality of digital signal sequences recorded onto said plurality of adjacent recording tracks with a plurality of integrated reproducing heads; and
converting said plurality of digital signal sequences reproduced by said plurality of reproducing heads to an original continuous digital signals;
wherein said step of converting a continuous digital signal to a plurality of digital signal sequences includes the step of delaying one of said plurality of digital signal sequences to be recorded onto one recording track of said adjacent recording tracks by a delay time smaller than a time corresponding to the recording bit length relative to another one of said plurality of digital signal sequences to be recorded onto another

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recording track of said adjacent recording tracks adjacent to said one recording track to cause a phase of a magnetic transition point in said one recording track to be different from a phase of a magnetic transition point in said other recording track adjacent to said one recording track when said plurality of digital signal sequences are recorded onto said plurality of adjacent recording tracks.

5,786,953

ARRANGEMENT FOR REPRODUCING N DIGITAL SIGNALS HAVING N PHASE-LOCKED LOOPS EACH INCLUDING A PHASE SHIFTER, CONTROLLED BY AN INTEGRATING ELEMENT, ARRANGED BETWEEN A VCO OUTPUT AND A PHASE DETECTOR

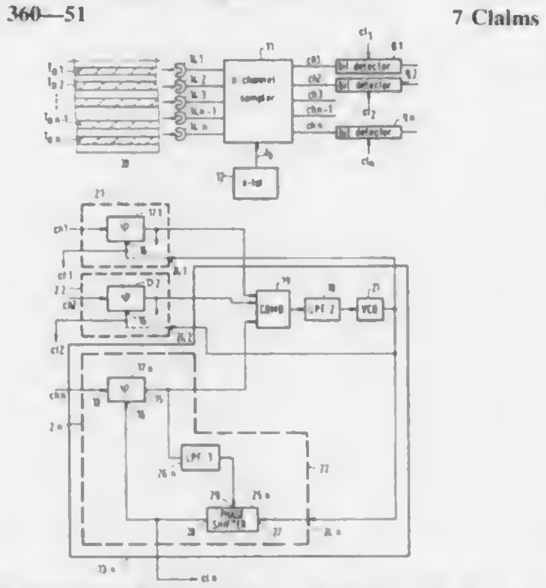
Joahnnes J. W. Kalfs, Eindhoven, Netherlands, assignor to U.S. Philips Corporation, New York, N.Y.

Continuation of Ser. No. 424,924, Apr. 19, 1995, abandoned. This application Feb. 11, 1997, Ser. No. 798,589

Claims priority, application European Pat. Off., Apr. 21, 1994, 94201101

Int. Cl.^{6} G11B *5/09;15/12*

U.S. Cl. 360—51 **7 Claims**



1. An arrangement for reproducing n digital signals from n adjacent tracks on a record carrier, n being an integer greater than 1, said arrangement comprising:

read means comprising n read heads, each having an output, for reading n information signals from the n adjacent tracks and applying said information signals to the outputs;

n detection means having inputs coupled to the outputs of the n read heads, for deriving the n digital signals from the n information signals read from the tracks and supplying said n digital signals to outputs, said n detection means having clock signal inputs for receiving a clock signal; and

n phase-locked loops having respective inputs coupled to the n outputs of the n read heads, each phase-locked loop comprising a phase comparator having a first input coupled to the input of the phase-locked loop, a second input and an output; a phase-shifter unit having an input, an output coupled to the second input of the phase comparator and to an output of the phase-locked loop, and a control signal input; and a control signal generator unit having an input coupled to the output of the phase comparator and an output coupled to the control signal input of the phase-shifter unit; said n phase-locked loops further comprising, in common, a signal combination unit having an output and n inputs, each of the n inputs being coupled to the output of a respective one of the n phase comparators; and a voltage-controlled oscillator having an input coupled to the output of the signal combination unit, and an output for supplying a clock signal of a given frequency, the output of the voltage-controlled oscillator being coupled to the inputs of the n phase-shifter units, the outputs of said n phase-locked loops being coupled, respectively, to the clock signal inputs of said n detection means; characterized in that the control signal generator unit is an integrating element.

5,786,954

MAGNETIC DISK RECORDING AND PLAYBACK APPARATUS USING INDEPENDENTLY POSITIONED RECORDED PATTERN SETSFR CLOCK GENERATION

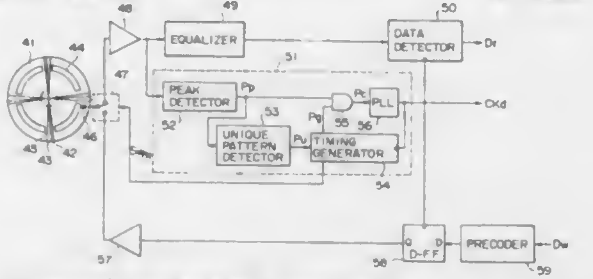
Hiroaki Yada; Nobuhiro Hayashi; Takamichi Yamakoshi, all of Kanagawa, and Munekatsu Fukuyama, Tokyo, all of Japan, assignors to Sony Corporation, Tokyo, Japan

Continuation of Ser. No. 584,708, Jan. 11, 1996, abandoned, which is a continuation of Ser. No. 134,375, Oct. 12, 1993, abandoned. This application Apr. 29, 1997, Ser. No. 840,414

Claims priority, application Japan, Oct. 14, 1992, 4-276165; Oct. 19, 1992, 4-280014

Int. Cl.^{6} G11B *5/09*

U.S. Cl. 360—51 **42 Claims**



1. A magnetic disk apparatus, comprising:

a magnetic disk having a magnetic clock pattern region for providing a common timing reference between a data recording region and adjacent tracks, the magnetic disk also having a set of several magnetic patterns region for specifying a circumferential position of the magnetic clock pattern, wherein the magnetic clock pattern region and set of several magnetic patterns region are formed independently of each other on the magnetic disk, such that the magnetic clock pattern and set of several magnetic patterns region produce isolated waveforms when read;

playback means for reproducing information recorded on said magnetic disk;

clock generating means for generating a data existing point clock using signals reproduced from said magnetic clock pattern region and set of several magnetic patterns region on said magnetic disk; and

data detecting means for detecting data repropduced from said data region of the magnetic disk based upon data exising point clock generated by said clock generating means.

5,786,955

RECORDING MEDIUM CARTRIDGE WITH MEMORY CIRCUIT FOR STORING DIRECTORY INFORMATION INCLUDING IMAGES

Teruhiko Kori, Kanagawa; Harumi Kawamura, Tokyo; Hisato Shima, Chiba, and Kazuyuki Ogawa, Kanagawa, all of Japan, assignors to Sony Corporation, Tokyo, Japan

Continuation of Ser. No. 730,561, Oct. 15, 1996, abandoned, which is a continuation of Ser. No. 94,428, Jul. 21, 1993, abandoned. This application Aug. 21, 1997, Ser. No. 924,469

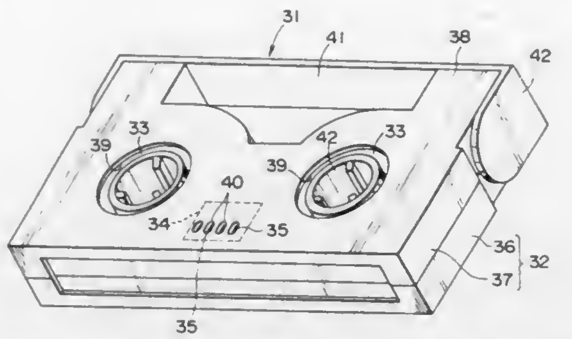
Claims priority, application Japan, Jul. 24, 1992, 4-217503

Int. Cl.^{6} G11B *23/04;27/10*

U.S. Cl. 360—72.1 **20 Claims**

1. A method for cataloguing information representative of signals recorded on a recording medium, said recording medium being accommodated within a recording medium cartridge, comprising the steps of:

providing a memory device as part of said recording medium cartridge and separate from said recording medium; and



storing said information in said memory device in the form of a plurality of data packets, the size and format of said data packets having been determined prior to the storing of said information;

wherein said information is organized according to a hierarchical structure, said hierarchical structure including at least two levels and being capable of accommodating more than two levels; and

wherein said information includes at least one image data that is derived from a moving image signal.

5,786,956

RECORDING AND/REPRODUCING APPARATUS HAVING NO CAPSTAN AND NO PINCH ROLLER AND METHOD OF CONTROLLING THE SAME

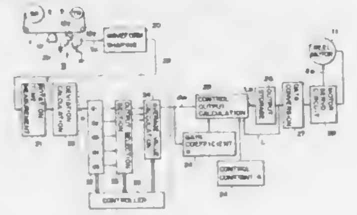
Kunio Shimizu, Chiba, and Yoshitomo Nakano, Tokyo, both of Japan, assignors to Sony Corporation, Tokyo, Japan

Division of Ser. No. 558,153, Feb. 12, 1996, which is a division of Ser. No. 92,864, Jul. 19, 1993, Pat. No. 5,502,602. This application Jan. 28, 1997, Ser. No. 789,834

Claims priority, application Japan, Jul. 21, 1992, 4-214727; Jul. 21, 1992, 4-214728; Jul. 21, 1992, 4-214729; Jul. 21, 1992, 4-214730; Jul. 21, 1992, 4-214731

Int. Cl.^{6} G11B *15/52*

U.S. Cl. 360—73.14 **3 Claims**



1. A controlling method for a reel motor of a recording and/or reproducing apparatus which includes no capstan and no pinch roller and wherein a rotatable roller contacts a recording medium in the form of a tape to measure a period of rotation of said roller and a reel is driven to rotate by a reel motor in accordance with the period of rotation thus measured, comprising the steps of:

measuring a one rotation period T of said roller by rotation detection means;

calculating a deviation d of the one rotation period T obtained at the measuring step from a predetermined rated period T_{025};

successively storing the last n deviations obtained by the deviation calculating step, n being a natural number equal to or greater than 3 and less than or equal to 5;

determining whether the number of stored deviations is smaller than n−1;

adding, when it is determined that the number of stored deviations is equal or greater than n−1, the values of the stored deviations except a maximum value and a minimum value thereof and dividing the sum value obtained by the addition by n−2 to obtain an average value;

adding, when it is determined that the number of stored deviations is smaller than n−1, all of the stored deviations and dividing the sum value obtained by the addition by the stored number of deviations to obtain an average value;

calculating a servo control value in accordance with the average value thus obtained;

storing the thus calculated servo control value;

converting the stored servo control value into a PWM signal; and

controlling driving of said reel motor in response to the PWM signal obtained by the step of converting.

5,786,957

MAGNETIC DISK DEVICE USING NON-ALIGNED READ AND WRITE HEADS WITH TRACKING SERVOS AND A ROTARY ACTUATOR

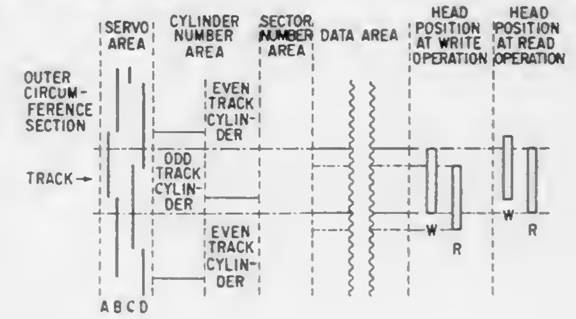
Tetsuo Inoue, Ichikawa; Takehito Yamada, Kawasaki; Shigeru Takekado, and Kazunori Moriya, both of Tokyo, all of Japan, assignors to Kabushiki Kaisha Toshiba, Kawasaki, Japan

Filed Sep. 2, 1994, Ser. No. 299,667

Claims priority, application Japan, Sep. 2, 1993, 5-218288; Dec. 29, 1993, 5-351326

Int. Cl.^{6} G11B *5/596*

U.S. Cl. 360—77.08 **13 Claims**



1. A magnetic disk drive comprising:

a rotary actuator;

a rotary actuator arm having a first and a second end connected to said rotary actuator;

a composite magnetic head, mounted on said first end of said rotary actuator arm, and structured by integrally combining a write head into a read head;

a magnetic disk having a servo area where positioning information of said composite magnetic head is recorded and an ID area, in which ID information of a sector is recorded, said ID area including a first ID area where a plurality of odd track ID areas are continuously formed and a second ID area where a plurality of even track ID areas are continuously formed, said plurality of odd and even track ID areas having cylinder number information; and

head tracking servo means for providing a positioning offset to said composite magnetic head such that said write head is set to be on-track in the data area of said magnetic disk at a write operation and said read head is set to be on-track state in the data area of said magnetic disk at a read operation;

wherein said lead tracking servo means includes means for setting a width of each of said plurality of odd and even track ID areas to an integral multiple of a pitch width for servo positioning of said composite magnetic head recorded in said servo area, and

the cylinder number information of said plurality of odd and even track ID areas is recorded in different phase relationships in accordance with a remainder obtained when the cylinder number is divided by n, wherein n is a narural number at least as large as 2.

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5,786,958
HEAD TRACKING SERVO PATTERN

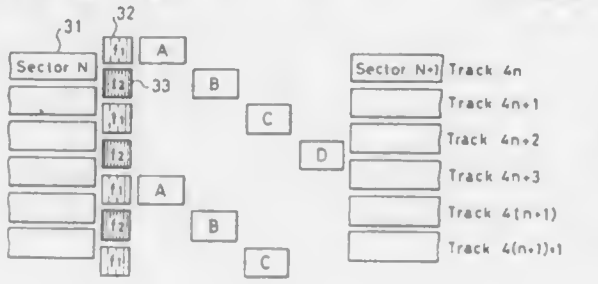
Ryuichi Negishi, Chichibu; Toru Okada, Kumagaya, and Tsuyoshi Sakuma, Chichibu, all of Japan, assignors to Canon Denshi Kabushiki Kaisha, Chichibu, Japan

Continuation of Ser. No. 456,043, May 31, 1995, abandoned, which is a division of Ser. No. 59,345, May 11, 1993, Pat. No. 5,453,887, which is a continuation of Ser. No. 707,921, May 28, 1991, abandoned, which is a continuation of Ser. No. 143,518, Dec. 31, 1987, abandnned. This application Jan. 15, 1997, Ser. No. 784,137

Claims priority, application Japan, Oct. 23, 1987, 62-268771; Oct. 23, 1987, 62-268772; Oct. 23, 1987, 62-268773; Jan. 13, 1997, 62-4020

Int. Cl.^{6} G11B *5/58*

U.S. Cl. 360—77.01 **11 Claims**



1. A storage device comprising:

a) a plurality of data storing sectors for storing data in accordance with a predetermined format which defines a plurality of tracks divided into said plurality of sectors, said plurality of data storing sectors being serially formed in a first direction at a predetermined interval; and

b) a plurality of position control signal storing portions each formed between said data storing sectors to indicate positions of said data storing sectors,

said position control signal storing portions each including:

a first storing portion which stores a first position control signal including a first frequency signal component,

a second storing portion which stores a second position control signal including a second frequency signal component different from said first frequency signal component, and

a third position storing portion which stores a plurality of third position control signals,

said first storing portion and said second storing portion being adjacently formed in a second direction perpendicular to said first direction,

said third position control signals being formed adjacently to said first storing portion and said second portion in the first direction, and

said third position control signals being sequentially shifted in said first direction and said second direction for each track of a set of tracks associated with said third portion control signals;

said first position control signal and said second position control signal being used for timing control of reading said third position control signals, and

said third position control signals are used for positional control of reading said data stored in said data storing sectors.

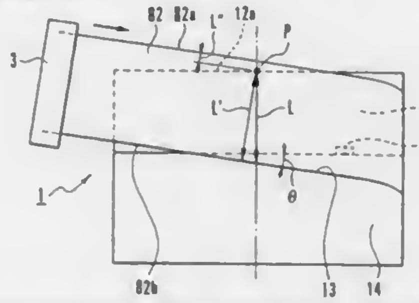
5,786,959
RECORDING AND/OR REPRODUCING APPARATUS WITH ROTARY DRUM UNIT

Junichi Doi, Tokyo, and Takeshi Kawabe, Kanagawa-ken, both of Japan, assignors to Canon Kabushiki Kaisha, Tokyo, Japan

Continuation of Ser. No. 509,198, Jul. 31, 1995, abandoned. This application Jul. 29, 1997, Ser. No. 902,475

Int. Cl.^{6} G11B *15/61*

U.S. Cl. 360—85 **18 Claims**



1. An apparatus for recording and/or reproducing information on or from a tape, comprising:

a) a rotary drum, unit including a rotary drum having at least one head, and a fixed drum arranged to rotatably support said rotary drum; and

b) a loading member arranged to wrap the tape around outer circumferential surfaces of said rotary drum and said fixed drum,

wherein, at a tape wrapping start point where the tape begins to be wrapped around said rotary drum, an upper end part of said rotary drum is located between an upper edge of the tape at the tape wrapping start point and an upper end part, closest said upper edge of the tape, of a recording track formed as an effective signal recording area on the tape.

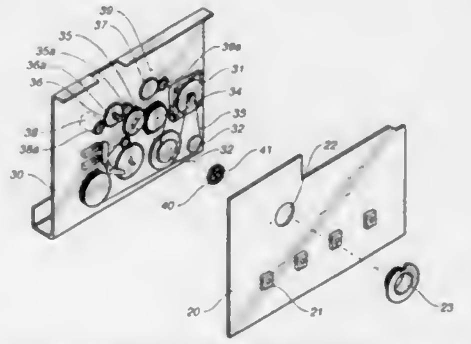
5,786,960
DEVICE FOR DISPLAYING THE ROTATING CONDITION OF TAPE OR DISK IN AUDIO OR VIDEO SYSTEMS

Kim Yong Hak, Inchon, Rep. of Korea, assignor to Clear Electronics, Inc., Seoul, Rep. of Korea

Filed Jan. 10, 1997, Ser. No. 782,572

Int. Cl.^{6} G11B *5/008*

U.S. Cl. 360—90 **3 Claims**



1. A device for displaying the rotating condition of a tape or disk in audio or video systems, comprising:

rotary means installed inside a housing of an audio or video system and rotated synchronously with a tape feeding or disk rotating motion of the system;

a transparent window set on said housing at a position suitable for observing said rotary means from outside the housing; and

a guide tube extending from the window toward said rotary means and allowing a user to observe a rotating motion of said rotary means through the transparent window and thereby to check the tape feeding or disk rotating motion of the system.

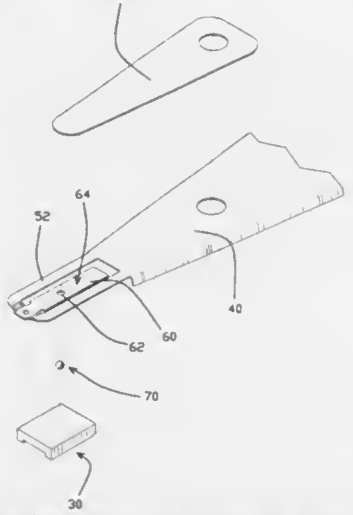
5,786,961
SUSPENSION ASSEMBLY WITH BALL FOR STATIC ATTITUDE COMPENSATION AND LOAD POINT

Lloyd C. Goss, Bloomington, Minn., assignor to Hutchinson Technology Incorporated, Hutchinson, Minn.

Continuation of Ser. No. 236,994, May 2, 1994, abandoned. This application Sep. 30, 1996, Ser. No. 721,754

Int. Cl.^{6} G11B *5/48*

U.S. Cl. 360—104 **21 Claims**



1. A disk drive head suspension assembly for supporting a head slider over selected tracks of a rotatable data storage disk, comprising:

a load beam having proximal and distal ends and a bearing cover portion;

a gimbal on the distal end of the load beam, including:

a flexure pad having a slider-engaging first surface and a second surface opposite the first surface;

a ball-receiving hole in the flexure pad;

a ball mounted in the ball-receiving hole in the flexure pad and having a load point portion extending from the second surface of the flexure pad and engaging the bearing cover portion of the load beam, and a static attitude compensating portion extending from the first surface of the flexure pad;

a head slider having a gimbal-engaging surface and a transducer; and

a layer of adhesive for bonding the gimbal-engaging surface of the head slider to the slider-engaging first surface of the flexure pad, and wherein the static-attitude compensating portion of the ball is engaged with the gimbal-engaging surface and the adhesive fills spaces between the gimbal-engaging surface of the slider and the first surface of the flexure platform to hold the slider at a desired static attitude.

5,786,962
MAGNETIC HEAD ASSEMBLY

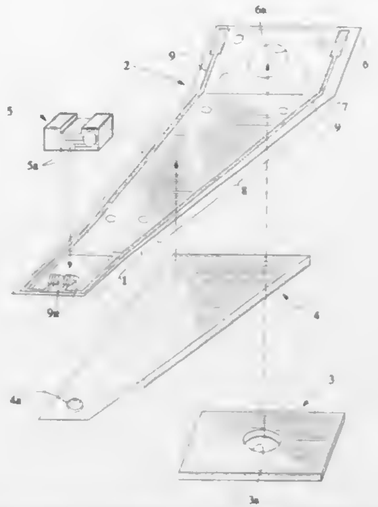
Kazushige Kawazoe, Kanagawa, Japan, assignor to Sony Corporation, Tokyo, Japan

Filed Jan. 22, 1997, Ser. No. 785,966

Claims priority, application Japan, Jan. 24, 1996, 8-029849

Int. Cl.^{6} G11B *5/60;21/21*

U.S. Cl. 360—104 **7 Claims**



1. A magnetic head assembly having a slider, comprising:

a load beam having a gimbal portion at a distal end and a fitting portion at a proximal end;

a slider having a magnetic head portion and fitted to said gimbal portion;

a thin film lead extending between said gimbal portion and said fitting portion on said load beam;

a slider terminal provided on an end face of said slider and connected to said magnetic head portion; and

a gimbal terminal portion formed in said gimbal portion, said gimbal terminal portion comprises an elastically deformable free end portion separated from said gimbal portion, said elastically deformable free end portion being bent out of a plane of said gimbal portion to engage said slider terminal, said section having a thickness which is thinner than that of said gimbal portion from which said end portion is separated, said elastically deformable end portion comprising an electrical terminal which is placed into electrical contact with said slider terminal when said slider is positioned on said gimbal portion.

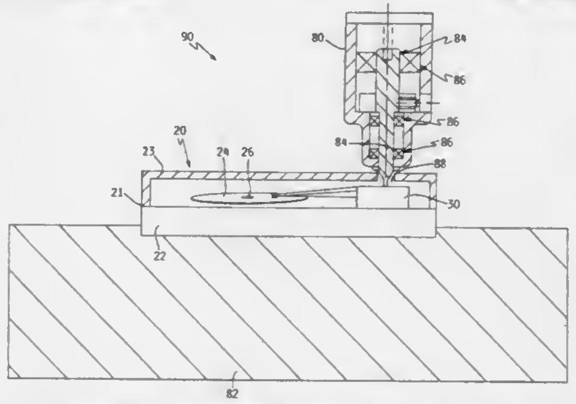
5,786,963
SERVO INFORMATION RECORDING METHOD AND APPARATUS FOR AN ENCLOSED DATA STORAGE SYSTEM

Sattar S. Malek, San Jose, Calif., assignor to International Business Machines Corporation, Armonk, N.Y.

Division of Ser. No. 323,518, Oct. 14, 1994, Pat. No. 5,627,698. This application Oct. 31, 1996, Ser. No. 741,827

Int. Cl.^{6} G11B *21/08*

U.S. Cl. 360—106 **10 Claims**



1. A system for storing data adapted for use with a separate servo writer assembly having a pivot assembly with a rotatable shaft, the data storing system comprising;

a housing defining an access aperture thereon;

a data storage disk;

a spindle motor mounted to the housing and adapted for rotating the data storage disk;

an actuator pivotally mounted to the housing on an axis of rotation:

a transducer mounted to the actuator; and

coupling means, disposed on the actuator proximate the access aperture, for coupling the pivot assembly with the actuator at more than one coupling location around the axis of rotation of the actuator when writing servo information to the disk.

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5,786,964
MAGNETIC DISK DRIVE UNIT WITH IMPROVED SIGNAL FEEDING AND EXTRACTING ARRANGEMENT

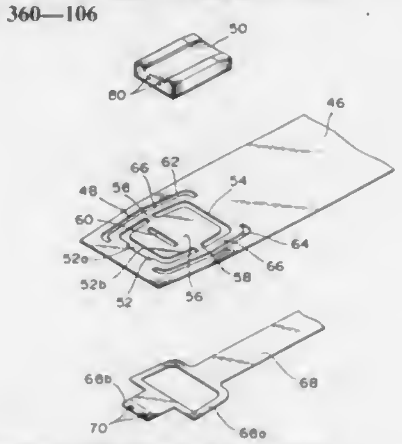
Katsuhide Sone, Kawasaki; Yoshinori Kadowaki, and Kaoru Abiko, both of Higashine, all of Japan, assignors to Fujitsu Limited, Kawasaki, Japan

Continuation of Ser. No. 611,028, Mar. 5, 1996, abandoned, which is a continuation of Ser. No. 349,539, Dec. 5, 1994, abandoned. This application Apr. 22, 1997, Ser. No. 841,417

Claims priority, application Japan, Mar. 8, 1994, 6-037174

Int. Cl.⁶ G11B *5/55;5/48*

U.S. Cl. 360—106 **11 Claims**



1. A magnetic disk drive unit comprising:
a housing having a base and a cover;
a magnetic disk rotatably mounted within said housing and having a plurality of tracks;
a transducer for writing/reading data with respect to said magnetic disk;
a slider having said transducer mounted on one end thereof;
a spring arm having a flexure integrally formed on one end of said spring arm and adapted to bias said slider toward said magnetic disk, said flexure having a slider placing-section, said slider being bonded to said slider placing-section by an adhesive, said slider placing-section being defined by a plurality of slits with a bridge left between said slits, said slider placing-section having at least one slit extending in a direction generally at a right angle to a longitudinal direction of said spring arm and said at least one slit having a first edge opposite a second edge, without separate and independent slits extending in a direction generally parallel with said longitudinal direction of said spring arm, wherein said slider is bonded adjacent to said first edge and said second edge of said at least one slit to mitigate deformation that occurs when said adhesive is hardened by cutting off shrinking force at said first and second edges, said shrinking force being generated during the hardening of the adhesive; and
actuator means for moving said slider mounted on said spring arm across the tracks of said magnetic disk.

5,786,965
MAGNETO-RESISTANCE EFFECT MAGNETIC HEAD

Norio Saito; Kenichi Baba, both of Miyagi, and Yutaka Soda, Kanagawa, all of Japan, assignors to Sony Corporation, Tokyo, Japan

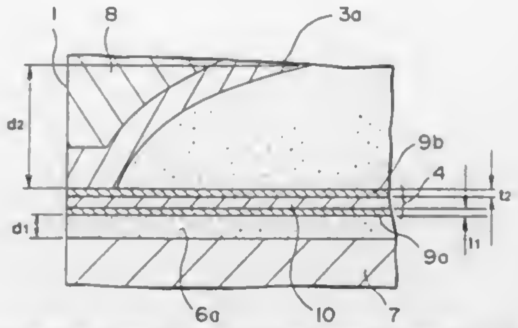
Continuation of Ser. No. 480,792, Jun. 7, 1995, Pat. No. 5,661,620. This application Mar. 31, 1997, Ser. No. 829,731

Claims priority, application Japan, Jun. 13, 1994, 6-130649

Int. Cl.⁶ G11B *5/39*

U.S. Cl. 360—113 **1 Claim**

1. A magneto-resistance effect magnetic head having a magneto-resistance effect device interposed between first and second magnetic shield cores, said magneto-resistance effect device being made up of first and second magneto-resistance effect thin films laminated with an insulating layer in-between, said first magneto-resistance effect thin film being disposed closer to said first magnetic shield core than said second magneto-resistance effect thin film is disposed relative to said second magnetic shield core, said first magneto-resistance effect thin film being thinner in film thickness and having a higher resistivity than said second magneto-resistance effect thin film, the first magnetic shield core being disposed on a substrate as a lower shield core, wherein,



the first magneto-resistance effect thin film has a film thickness t_1, and the second magneto-resistance effect thin film has a film thickness t_2, such that $0.5<t_1/t_2<0.7$, and
the first magneto-resistance effect thin film has a resistivity ρ_1 that is at least about 3 times greater than a resistivity of ρ_2 of the second magneto-resistance effect thin film.

5,786,966
MAGNETIC TAPE CASSETTE HAVING IMPROVED GUARD PANEL STRUCTURE

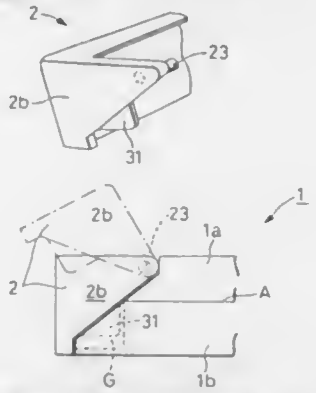
Hidetoshi Hirata, Odawara, Japan, assignor to Fuji Photo Film Co., Ltd., Kanagawa, Japan

Filed Nov. 10, 1992, Ser. No. 974,209

Claims priority, application Japan, Nov. 13, 1991, 3-101046

Int. Cl.⁶ G11B *23/04*

U.S. Cl. 360—132 **3 Claims**



2. A magnetic tape cassette comprising:
a cassette case comprising upper and lower cassette halves defining therebetween a front surface opening;
a pair of tape winding members rotatably supported within said case;
a magnetic tape wound around said members;
a guard panel for covering said front surface opening, said guard panel including two side plates at opposite ends thereof;
two support shafts provided, respectively, on said two side plates of said guard panel for rotatably mounting said guard panel to said case; and
a stepped portion disposed on an outer edge surface and a lower edge side of one of said two side plates and having a thickness smaller than a thickness of said one of said two side plates, said stepped portion having an opposing surface which faces away from a portion of said case;
a rib provided as an integrally molded part of a main body of said cassette, said rib having an inner surface which faces toward said central portion and an outer surface which faces away from said central portion, said rib being fittable within said stepped portion, said stepped portion conforming in size and shape to said rib, so as to cover said stepped portion and so that said opposing surface is in opposition to said inner surface when said guard panel covers said front surface opening thereby restricting movement of said guard panel when said guard panel covers said front surface opening.

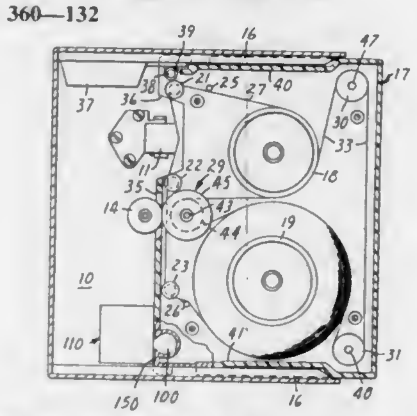
5,786,967
TAPE CARTRIDGE INCLUDING AN INDICATION DEVICE TO DISTINGUISH BETWEEN CARTRIDGES HAVING DIFFERENT CHARACTERISTICS BUT NEARLY IDENTICAL PHYSICAL CHARACTERISTICS

Sten R. Gerfast, Mendota Heights; Eugene S. Johnson, Burnsville; Eddie T. Morioka, Roseville; Theodore A. Schwarz, Woodbury, and Robert W. Tapani, Oakdale, all of Minn., assignors to Imation Corp., Oakdale, Minn.

Continuation of Ser. No. 945,599, Sep. 16, 1992, abandoned, which is a continuation of Ser. No. 732,729, Jul. 18, 1991, abandoned, which is a continuation of Ser. No. 464,290, Jan. 12, 1990, abandoned, which is a continuation-in-part of Ser. No. 322,617, Mar. 13, 1989, abandoned. This application Dec. 3, 1993, Ser. No. 161,978

Int. Cl.⁶ G11B *23/02*

U.S. Cl. 360—132 **4 Claims**



1. A data tape cartridge having a front and a side, and having a plurality of indicator openings formed therein the presence or absence of which would be detectable by sensors in a tape drive for the data tape cartridge upon placement of the data tape cartridge in a suitable tape drive and which would indicate information about the tape cartridge to the tape drive, wherein said plurality of indicator openings comprises:
a. a first indicator opening in an industry standard location indicating that data tape cartridges of a certain nature are write-protected, said first indicator opening being permanently open;
b. a second indicator opening indicating the nature of the tape in the data tape cartridge, said second indicator opening extending around a corner from the front to the side of the data tape cartridge such that a tape drive sensor positioned on either said front or said side of said data tape cartridge could detect said second indicator opening.

5,786,968
MAGNETIC HEAD CARRIAGE DEVICE HAVING A HEAD LOAD SPRING GUIDE MECHANISM

Tomohiko Osaka, Yamagata, Japan, assignor to Mitsumi Electric Co., Ltd., Tokyo, Japan

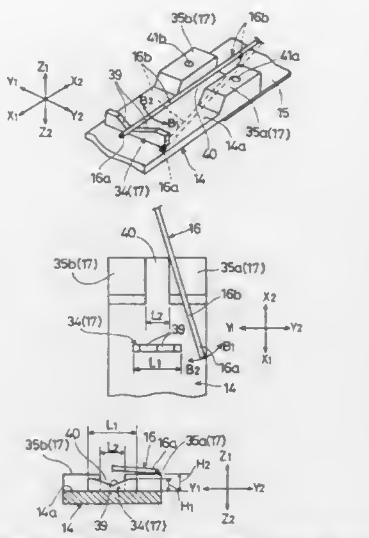
Filed Jan. 17, 1997, Ser. No. 785,528

Claims priority, application Japan, Jan. 19, 1996, 8-007740

Int. Cl.⁶ G11B *5/54;21/16*

U.S. Cl. 360—104 **5 Claims**

1. A magnetic head carriage device for a magnetic disk drive in which a magnetic disk is accessed by an upper head and a lower head, said magnetic head carriage device comprising:
a carriage base on which the lower head is mounted;
an upper arm on which the upper head confronting the lower head is mounted, said upper arm having a width in a lateral direction and a base portion at which the upper arm is fixed to



the carriage base, said upper arm being vertically movable to said carriage base around said base portion;
a head load spring for exerting a downward actuating force on said upper arm such that the upper arm is pressed toward the carriage base, said head load spring having an end portion at which the head load spring downwardly presses the upper arm and a base portion at which the head load spring is fixed to the carriage base; and
spring guide means for guiding a movement of the end portion of the head load spring in the lateral direction such that the end portion is maintained in the center of the width of the upper arm, wherein said spring guide means comprises:
a pair of projecting portions on the upper arm adjacent to the base portion of the head load spring, the projecting portions having a recess between the projecting portions, the head load spring entering the recess when the end portion is in the center of the width of the upper arm; and
a connecting portion on said upper arm adjacent to the end portion of the head load spring, the end portion of the head load spring being connected to said connecting portion, said connecting portion having a width in the lateral direction, said width of said connecting portion being greater than a predetermined range of the movement of the end portion of the head load spring in the lateral direction, and wherein a width of said connecting portion in the lateral direction is greater than a width of the recess between said projecting portions in the lateral direction.

5,786,969
DISC CARTRIDGE WITH WEDGE-SHAPED INCLINED SHUTTER SLIDER ENGAGING PROTRUSION AND LINE CONTACT ENGAGEMENT BETWEEN SLIDER PORTION AND GROOVE OR PROTUSION OF CARTRIDGE BODY

Isamu Fukushima; Hiroshi Masuda, and Makoto Arimura, all of Kurashiki, Japan, assignors to Mitsubishi Chemical Corporation, Tokyo, Japan

Continuation of Ser. No. 388,065, Feb. 9, 1995, abandoned. This application Feb. 27, 1997, Ser. No. 807,318

Claims priority, application Japan, Feb. 15, 1994, 6-018338; Aug. 24, 1994, 6-199564; Sep. 8, 1994, 6-214750; Sep. 26, 1994, 6-229670

Int. Cl.⁶ G11B *23/03*

U.S. Cl. 360—133 **25 Claims**

1. A disc cartridge containing a disc-shaped recording medium, said disc cartridge comprising:
a cartridge body having an opening portion for exposing a portion of a surface of the disc-shaped recording medium contained therein;
a shutter for covering and uncovering the opening portion;
a slider for supporting the shutter, disposed on the cartridge body for sliding thereon;

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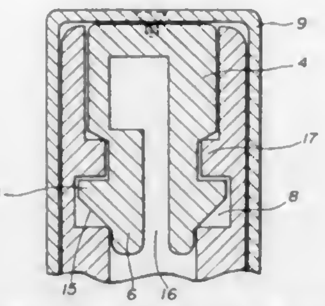


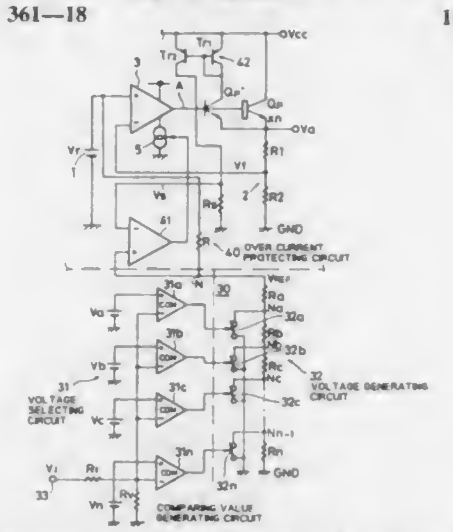
- a spring for resiliently restoring the slider and the shutter to the covering position; and
- the slider having an engagement part facing an inside of the cartridge body, the engagement part formed as a wedge-shaped inclined surface, the cartridge body having a corresponding groove or protrusion formed along a side thereof for engaging the engagement part, the engagement part of the slider being engaged to the groove or protrusion solely by a line contact therebetween.

5,786,970
STABILIZED POWER SOURCE CIRCUIT AND IC INCORPORATING THE SAME

Yuhji Nao, Kyto, and Susumu Fujihara, Kobe, both of Japan, assignors to Rohm, Co., Ltd., Kyoto, and Fujitsu Ten Limited, Kobe, both of Japan

Filed Mar. 6, 1996, Ser. No. 611,751
Claims priority, application Japan, Mar. 20, 1995, 7-087340
Int. Cl.^{6} H02H *3/00*

U.S. Cl. 361—18 **10 Claims**


OVcc
Tn
Tn
42
3
A
Qp'
Qp
OVo
Vr
5
R1
R2
GND
40 OVER CURRENT PROTECTING CIRCUIT
Vref
30
R0
32a
32b
32
VOLTAGE GENERATING CIRCUIT
31
VOLTAGE SELECTING CIRCUIT
Vc
32c
Nn-1
Rn
GND
31n
32n
Vi
Ri
33
Vn
Rv
COMPARING VALUE GENERATING CIRCUIT

1. A stabilized power source circuit for stabilizing an output voltage of an output power transistor, wherein stabilization is obtained by reducing a voltage from a power source at a constant voltage thereby generating an error signal, which depends upon either the difference between the constant voltage and the output voltage or the difference between a voltage obtained by multiplying the constant voltage by a predetermined rate and a voltage obtained by multiplying the output voltage by the predetermined rate, and stabilizing the output voltage at the constant voltage by controlling an output current of the output transistor based on the error signal, the stabilized power source circuit comprising,

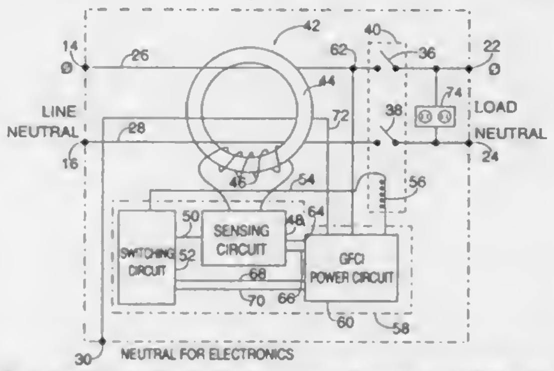
- an over current protecting circuit which obtains either a current value or a voltage value corresponding to the output current value of said output transistor as an detected value, compares the detected value with a predetermined constant value and lower the output current when the detected value exceeds the predetermined constant value;
- a comparing value generating circuit which receives an external signal, generates one of either a predetermined plurality of voltage values or a predetermined plurality of current values in response to the level of the received external signal and transmits the same to said over current protecting circuit as the predetermined constant value, wherein either the predetermined plurality of voltage values or the predetermined plurality of current values are provided so as to correspond to the respective over currents of said output transistor and an inherent rated current value of said output transistor is selected to be equal to or larger than the maximum value among the respective output current values; and
- an over current detection use transistor connected in parallel with said output transistor, wherein said over current protecting circuit determines the output current value of said output transistor by detecting the current flowing through said over current detection use transistor;
- wherein both the detected value and the predetermined constant value are respectively voltage signals, and said over current protecting circuit includes a differential amplifier circuit which receives the detected value and the predetermined constant value, and the error signal is lowered by the output of said differential amplifier circuit when the detected value exceeds the predetermined constant value; and
- wherein the external signal is a voltage signal, and said comparing value generating circuit includes a plurality of comparators to which first inputs respectively different reference voltages are input and to which second inputs the external signal is applied, a plurality of switching circuits which are provided so as to corresponds to said plurality of comparators and are turned ON or OFF when output signals from said corresponding comparators are received, and a resistor circuit which generates the predetermined constant value depending on the turning ON or OFF of said plurality of switching circuits.

5,786,971
GROUND FAULT PROTECTION CIRCUIT FOR MULTIPLE LOADS WITH SEPARATE GFCI BRANCHES AND A COMMON NEUTRAL FOR THE GFCI ELECTRONICS

David Chan, Bellerose, N.Y., and Paul Gernhardt, Chesapeake, Va., assignors to Leviton Manufacturing Co., Inc., Little Neck, N.Y.

Filed Jul. 23, 1997, Ser. No. 899,129
Int. Cl.^{6} H02H *3/00*

U.S. Cl. 361—42 **22 Claims**



10. A method of eliminating nuisance tripping of a ground fault protection device for plural loads, each connected across N Volts from a 2N Volts power source, comprising:

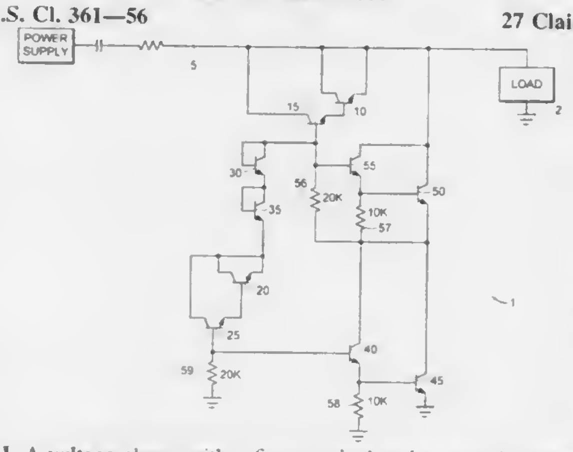
- a) providing n branches, each branch supplying power from said power source to at least one of said loads, where n is greater than one;
- b) connecting a ground fault interrupter device in each branch between one of said loads and said power source; and
- c) eliminating voltage variations in power for the electronics of said ground fault interrupter devices due to unbalanced loading.

5,786,972
TEMPERATURE-COMPENSATED VOLTAGE CLAMP WITH FORCED PASS TRANSISTOR VOLTAGE SHARING

Denis P. Galipeau, Woonsocket, and Jon A. Rhan, Coventry, both of R.I., assignors to Cherry Semiconductor Corporation, East Greenwich, R.I.

Filed Jun. 7, 1996, Ser. No. 664,236
Int. Cl.^{6} H02H *9/00*

U.S. Cl. 361—56 **27 Claims**



1. A voltage clamp with a first terminal and a second terminal, comprising:

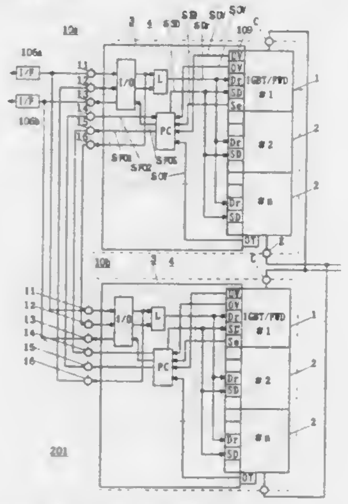
- a first pass transistor with collector coupled to the first terminal of the voltage clamp;
- a first clamping element with a first terminal coupled to the first terminal of the voltage clamp and a second terminal coupled to the base of the first pass transistor;
- a second clamping element with a first terminal coupled to the second terminal of the first clamping element and a second terminal coupled to a common node; and
- a second pass transistor with its collector coupled to the emitter of the first pass transistor, its emitter coupled to the common node, and its base coupled to the second terminal of the second clamping element.

5,786,973
SEMICONDUCTOR POWER MODULE AND COMPOUND POWER MODULE

Gourab Majumdar, Tokyo, and Takashi Marumo, Fukuoka, both of Japan, assignors to Mitsubishi Denki Kabushiki Kaisha, Tokyo, Japan

Filed Apr. 9, 1996, Ser. No. 629,756
Claims priority, application Japan, Oct. 31, 1995, 7-283546
Int. Cl.^{6} H02H *3/00*

U.S. Cl. 361—100 **20 Claims**



1. A semiconductor power module comprising:

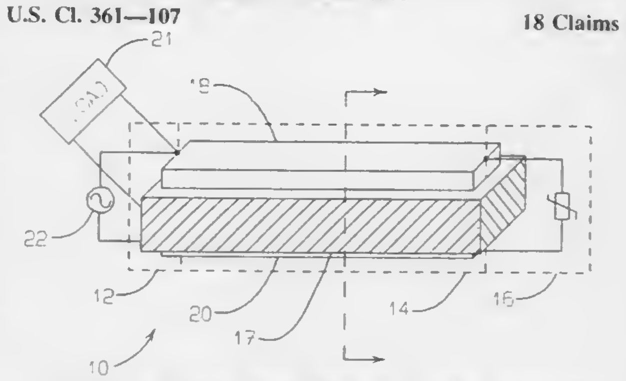
- a semiconductor power switching element for switching a main current;
- a drive circuit for driving said element;
- a protective circuit for protecting said element from damage when an abnormality occurs;
- plural input terminals;
- an output terminal;
- a selection circuit for selecting a most delayed control signal from among plural control signals applied to said plural input terminals, and for transmitting said most delayed control signal selected to said drive circuit; and
- a transmission route for transmitting one of said plural control signals entered into said selection circuit to said output terminal.

5,786,974
APPARATUS FOR AND METHOD OF SUPPRESSING POWER SURGES UTILIZING ELECTRICAL STRIPLINES

Albert Zaretsky, Brooklyn, N.Y., assignor to Leviton Manufacturing Co., Inc., Little Neck, N.Y.

Continuation of Ser. No. 514,202, Aug. 11, 1995, abandoned. This application Mar. 12, 1997, Ser. No. 815,759
Int. Cl.^{6} H02H *7/00*

U.S. Cl. 361—107 **18 Claims**



1. A transient voltage surge suppressor circuit, for low frequency, high power applications, comprising:

- a) a pair of input terminals for connecting said circuit to a source of electrical power operating at power distribution frequencies and capable of producing transient high current, high power surges and to a circuit requiring low frequency, high power surge suppression protection;
- b) surge suppressor means capable of suppressing low frequency, high power surges, electrically coupled to said input terminals for maintaining maximum voltage suppression capability at said input terminals; and
- c) at least one stripline conductor pair, capable of conducting low frequency, high power electric surges, electrically interposed between said input terminals and said surge suppressor means such that an inductive reactance present within said stripline conductor pair during low frequency, high power surges is minimized.

5,786,975
ELECTRONIC SWITCHING CIRCUITS

Peter H. Duncan, and Glenn R. Randall, both of Bristol, Great Britain, assignors to British Aerospace PLC, Bristol, Great Britain

Filed Mar. 19, 1993, Ser. No. 38,340
Claims priority, application United Kingdom, Mar. 21, 1992, 9206194
Int. Cl.^{6} H02H *3/22*

U.S. Cl. 361—111 **27 Claims**

1. A switching circuit for connection between an electronic component having first and second input terminals and a power supply, said switching circuit comprising:

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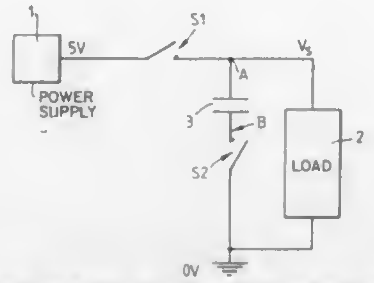


a decoupling capacitor for connection across said first and second input terminals of said electronic component; and

first and second switches for isolating electrically said electronic component and said decoupling capacitor from said power supply, said first switch providing a connection between said first terminal of said electronic component and said power supply, and said second switch providing a connection between said second terminal of said electronic component and said decoupling capacitor.

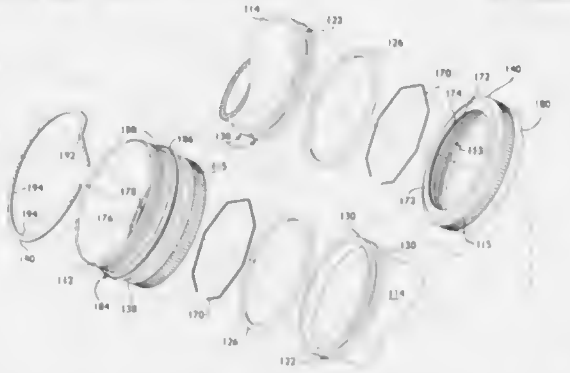
5,786,976
COUPLING WITH HARD METALLIC DUCTILE CONDUCTIVE COATING

Stanley R. Field, Garden Grove, Calif., assignor to Hydraflow, Cerritos, Calif.

Filed Jul. 16, 1996, Ser. No. 680,958

Int. Cl.^{6} H01R *4/64*

U.S. Cl. 361—215 **16 Claims**



9. A coupling for providing electrical contact between first and second conduits, the coupling comprising:

first and second coupling members in electrical contact with the first and second conduits respectively, the first and second coupling members each comprising threads and being threadably engageable, the threads being coated with a boron nickel coating for providing a low coefficient of friction between the threads and a strong electrical connection between the coupling members through the threads.

5,786,977
DEVICE FOR ELECTROSTATICALLY GROUNDING THE FEET OF PERSONS IN ELECTRONICS FACTORIES

Lenard Cohen, Southboro, Mass., assignor to Desco Industries, Inc., Walnut, Calif.

Filed Sep. 13, 1996, Ser. No. 712,587

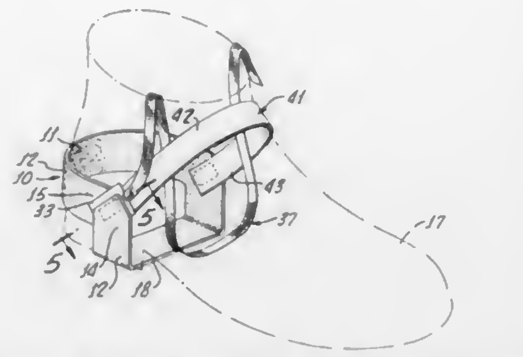
Int. Cl.^{6} H05F *3/00*

U.S. Cl. 361—223 **15 Claims**

1. A foot-grounding combination, which comprises:

(a) electrically-conductive grounding means adapted to be mounted on the shoe of a person in order to conduct static electricity to the floor underlying said shoe,

(b) an electrically-conductive tab adapted to be inserted into said shoe to conduct static electricity from said person, and



(c) means electrically connecting said tab to said grounding means to effect controlled draining of static electricity from said person to said floor,

said last-named means comprising a discrete high-resistance resistor,

further comprising a flexible substrate,

further comprising conductor means provided on said substrate and having a gap therein,

further comprising electrical connections between said resistor and portions of said conductor means on opposite sides of said gap,

further comprising insulating and moisture barrier means provided to prevent a short across said gap whereby said static electricity flows from said tab to said floor through said resistor, and

further comprising thread means to form a seam to thereby sew said substrate to said tab and to said grounding means to effect electrical contact between said conductor means on said substrate and (1) said tab and (2) said grounding means.

5,786,978
DIELECTRIC CERAMIC COMPOSITION AND CERAMIC CAPACITOR USING THE SAME

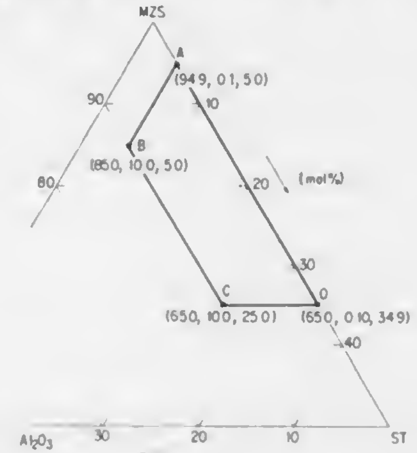
Youichi Mizuno, Tokyo, Japan, assignor to Taiyo Yuden Co., Ltd., Tokyo, Japan

Filed Jun. 25, 1997, Ser. No. 882,079

Claims priority, application Japan, Jun. 28, 1996, 8-188094

Int. Cl.^{6} H01G *4/06;4/008;* **C04B** *35/46*

U.S. Cl. 361—321.5 **3 Claims**



1. A dielectric ceramic composition comprising a magnesium silicate-zinc component, an alumina component and a strontium titanate component, as represented by formula:

$$X(Mg_aZn_{(1-a)})_xSiO_{x+2}—YAl_2O_3—ZSrTiO_3$$

wherein

a is equal to or larger than 0.1 and equal to or smaller than 0.8; and

x is equal to or larger than 0.67 and equal to or smaller than 1.5; and

wherein a molar ratio (%) of the magnesium silicate-zinc component, as represented by $(Mg_aZn_{(1-a)})_xSiO_{x+2}$, to the alumina component, as represented by Al_2O_3, to the strontium titanate component, as represented by $SrTiO_3$, is set to be located in an area enclosed by a polygon having the vertexes at points A, B, C and D in a three-component composition diagram indicating molar ratios by percentage (X, Y, Z) of three component compounds; in which the points A, B, C and D are set, respectively, at:

A(94.9, 0.1, 5.0)
B(85.0, 10.0, 5.0)
C(65.0, 10.0, 25.0)
D(65.0, 0.1, 34.9).

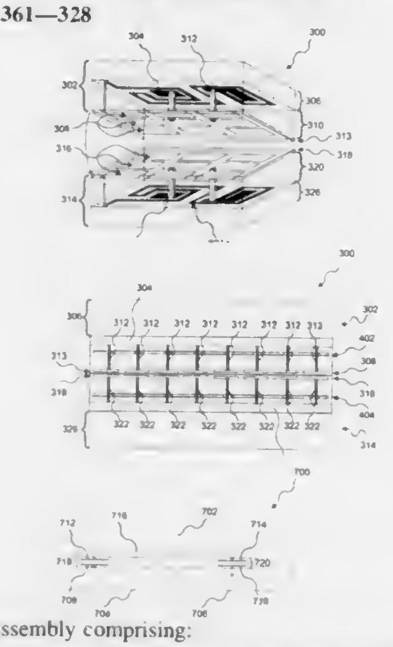
5,786,979
HIGH DENSITY INTER-CHIP CONNECTIONS BY ELECTROMAGNETIC COUPLING

Barry G. Douglass, 1930 W. Rundberg La. Apt. 1236, Austin, Tex. 78758

Filed Dec. 18, 1995, Ser. No. 574,056

Int. Cl.^{6} H01G *4/38*

U.S. Cl. 361—328 **37 Claims**



1. An assembly comprising:

a first chip having a first substrate and a first circuit disposed on a face of the first substrate, the first chip further having a first means for coupling disposed over the face of the first substrate and coupled to the first circuit; and

a second chip, disposed in a face-to-face spatial relationship to the first chip, the second chip having a second substrate and a second circuit disposed on a face of the substrate, the second chip further having a second means for coupling disposed over the face of the second substrate and coupled to the second circuit, wherein the first and second means for coupling provide at least one electromagnetic path between the first and second chips for time-varying signals.

5,786,980
ELECTRICAL COMPONENT PACKAGE AND PACKAGED ELECTRICAL COMPONENT

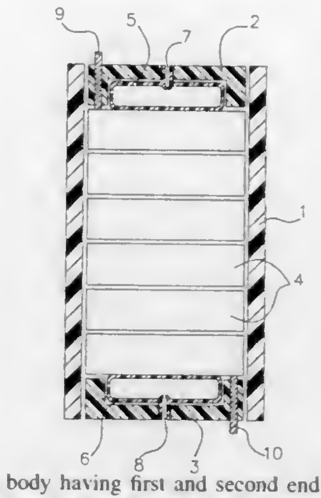
David A. Evans, Seekonk, Mass., assignor to Evans Capacitor Company, Incorporated, East Providence, R.I.

Filed Feb. 2, 1996, Ser. No. 595,647

Int. Cl.^{6} H01G *9/00;* **H01M** *2/00*

U.S. Cl. 361—502 **21 Claims**

1. A package for an electrical component comprising:



a tubular body having first and second ends and an opening at the first end for receiving an electrical component;

at least one end cap mountable on the first end of the tubular body for closing and sealing the opening at the first end of the tubular body; and

a closed, variable volume, fluid-filled pressure-applying element disposed within the tubular body at the first end of the tubular body for applying pressure to an electrical component disposed within the tubular body.

5,786,981
BASIC CELL FOR AN ELECTRIC DOUBLE LAYER CAPACITOR

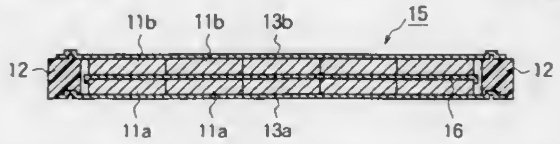
Munekazu Aoki; Masako Inagawa, and Keitaro Katsu, all of Tokyo, Japan, assignors to NEC Corporation, Tokyo, Japan

Filed Feb. 19, 1997, Ser. No. 808,959

Claims priority, application Japan, Feb. 19, 1996, 8-030872

Int. Cl.^{6} H01G *9/00*

U.S. Cl. 361—502 **25 Claims**



1. In a basic cell for an electric double layer capacitor, said basic cell having a first sheet collector, a first polarizing electrode including a plurality of chip electrodes arranged on said first sheet collector, an insulating separator covering said chip electrodes, a second polarizing electrode including a plurality of chip electrodes arranged on said insulating separator in opposed relationship with the plurality of chip electrodes of said first polarizing electrode, and a second sheet collector disposed on said second polarizing electrode, the improvement comprising an arrangement of said chip electrodes in each of said first and second polarizing electrodes such that said chip electrodes are electrically connected together by a direct contact between each adjacent two of said chip electrodes.

5,786,982
SERPENTINE MOLDED BUS BAR BARRIER

William E. Rose, Grayson, and Christopber Bozzone, Duluth, both of Ga., assignors to Siemens Energy & Automation, Inc., Alpharetta, Ga.

Filed Mar. 27, 1996, Ser. No. 622,976

Int. Cl.^{6} H02B *1/20*

U.S. Cl. 361—639 **1 Claim**

1. A load center comprising an enclosure, a pair of bus bars located within the enclosure for interconnecting a line supply with a plurality of circuit breakers located within the enclosure, a basepan mounted within the enclosure, the bus bars having inte-

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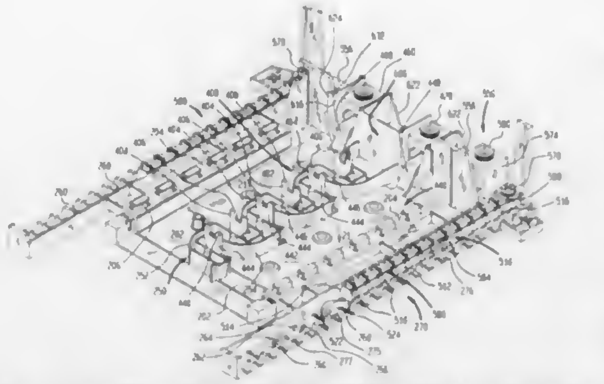


grally formed stabs which extend in parallel planes perpendicular to a longitudinal axis of each bus bar and aligned in a row in an interleaved face to face relation, free ends of each of the stabs being mechanically and electrically connected within recesses in a plurality of circuit breakers, and an electrically insulated barrier disposed between the bus bars, the electrically insulated barrier having a double walled serpentined structure composed of an electrical insulative material having at least two serpentined walls integrally formed with and extending substantially orthogonally upwards from a planer surface of the basepan, the serpentined structure positioned on the basepan to provide a continuous double walled physical barrier between the pair of bus bars.

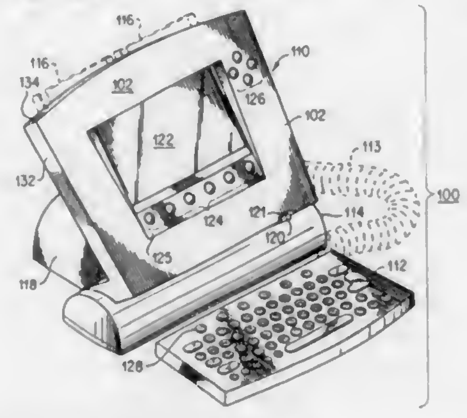
5,786,983
INFORMATION DEVICE WITH DISPLAY AND KEYBOARD HAVING CORRESPONDING SETS OF FUNCTION KEYS

Richard K. Brenner, Fanwood, N.J.; Mark S. Kimbrough, Austin, Tex.; Philip Leung, Heaton, England; Robert Garrett, and Pearce Jones, both of Austin, Tex., assignors to Brother International Corporation, Somerset, N.J.

Filed Jan. 16, 1996, Ser. No. 585,734

Int. Cl.^{6} G06F *1/16;* H05K *5/02*

U.S. Cl. 361—680 13 Claims



1. An information device comprising:

a display screen portion in which a display screen is positionable;

a removably linked keyboard having a first set of function keys; and

a second set of function keys positioned in the display screen portion, wherein a same function is assigned to corresponding ones of the first set of function keys and the second set of function keys, wherein shapes of keys in the second set of function keys correspond to shapes of keys in the first set of function keys.

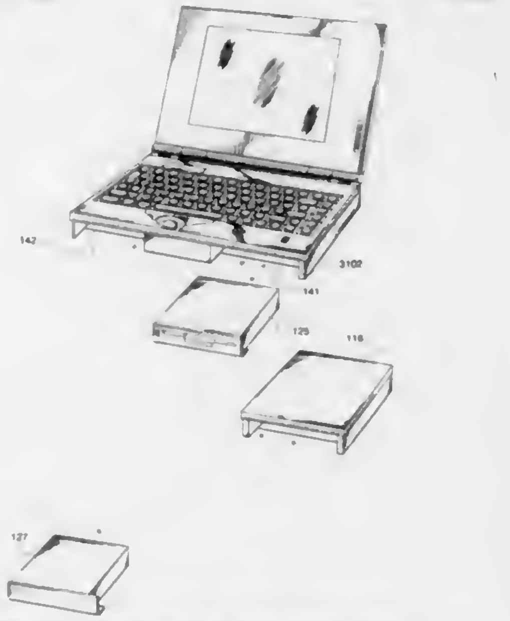
5,786,984
MODULAR PORTABLE PERSONAL COMPUTER

Timothy A. Bonardi, Buchanan; Eric D. Fuhs, Stevensville, both of Mich.; Peter A. Ojeda, Mundelein, Ill.; Wayne L. Griffin, St. Joseph, Mich.; William C. Hallowell, Spring; John P. Wagner, Round Rock, both of Tex.; Bruce Wang, Livonia, Mich., and Elisa E. Zappacosta, Issaquah, Wash., assignors to Packard Bell NEC, Sacramento, Calif.

Continuation-in-part of Ser. No. 27,521, Aug. 23, 1994, Pat. No. Des. 370,006. This application Mar. 24, 1995, Ser. No. 415,229

Int. Cl.^{6} G06F *1/16;* H05K *7/10*

U.S. Cl. 361—686 11 Claims



1. A modular personal computer system comprising:

a motherboard;

a first housing for carrying said motherboard, said first housing including one or more predetermined bays formed from one or more interior cavities open on one predetermined side and having a predetermined size to enable said interior cavities to be accessible from said predetermined side, said interior cavities sized and shaped to receive correspondingly sized and shaped modules inside said interior cavities;

a first predetermined electrical connector carried in an interior portion of each of said one or more first interior cavities, said first predetermined electrical connector electrically coupled to said motherboard;

a predetermined module adapted to be received in said one or more interior cavities, said predetermined module comprising a second housing for housing a standard peripheral device, said module sized and shaped to be received in said one or more interior cavities and a second predetermined electrical connector carried by said second housing, said second predetermined electrical connector being configured to mate with said first predetermined electrical connector when said second housing is fully inserted into said one or more cavities;

an external bay adapted to be mounted externally to said first predetermined housing;

said external bay including means for enabling said external bay to be electrically coupled to said motherboard, said external bay formed with a second cavity open on one side and sized to be substantially the same size as said first interior cavity to enable said one or more predetermined modular devices to be interchangeably installed in said first interior cavity; and

an electrical connector carried in an interior portion of said second cavity in said external bay and configured to mate with said electrical connector on said modular device when said modular device is fully inserted in said second cavity and said external bay.

5,786,985
SEMICONDUCTOR DEVICE AND SEMICONDUCTOR DEVICE UNIT

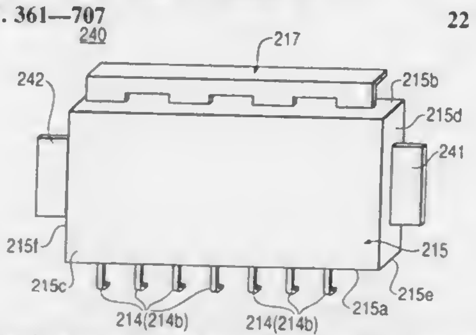
Norio Taniguchi, Tanabe; Junichi Kasai, Kawasaki; Kazuto Tsuji, Kawasaki; Michio Sono, Kawasaki; Masanori Yoshimoto, Kawasaki; Katsuhiro Hayashida, Kawasaki; Mitsutaka Sato, Kawasaki; Hiroshi Yoshimura, Kawasaki; Tadashi Uno, Kawasaki; Kosuke Otokita, Kawasaki, and Tetsuya Fujisawa, Kawasaki, all of Japan, assignors to Fujitsu Limited, Kawasaki, Japan

Continuation of Ser. No. 460,803, Jun. 2, 1995, abandoned, which is a continuation-in-part of Ser. No. 252,522, Jun. 1, 1994, Pat. No. 5,684,675, which is a continuation of Ser. No. 152,883, Nov. 16, 1993, abandoned, which is a continuation of Ser. No. 889,955, May 29, 1992, abandoned. This application Nov. 15, 1996, Ser. No. 749,734

Claims priority, application Japan, May 31, 1991, 3-129776; Aug. 22, 1994, 6-196926; Dec. 14, 1994, 6-311021

Int. Cl.^{6} H05K *7/20*

U.S. Cl. 361—707 22 Claims



1. A semiconductor device adapted to be surface mounted on a circuit substrate in an approximate vertical position, said semiconductor device comprising:

a semiconductor chip;

a stage having a first surface and a second surface opposite to the first surface, said semiconductor chip being directly mounted on the first surface and said second surface defining a back plane of the semiconductor device such that substantially none of the semiconductor device extends beyond the second surface;

a resin package encapsulating said semiconductor chip with the second surface of the stage not being covered by the encapsulation, said resin package having upper and lower surfaces and side surfaces extending from the upper to the lower surfaces, one of the side surfaces of the resin package being substantially planar, to match the second surface of the stage and enable stacking of semiconductor devices;

a plurality of leads respectively having one end electrically connected to said semiconductor chip and another end extending downwardly from the lower surface of said resin package and being curved for surface mounting connection on a circuit substrate;

an upper extension, provided on said stage, extending upwardly from the upper surface of said resin package; and

a side extension, provided on said stage, extending sideways from the side surface of said resin package.

5,786,986
MULTI-LEVEL CIRCUIT CARD STRUCTURE

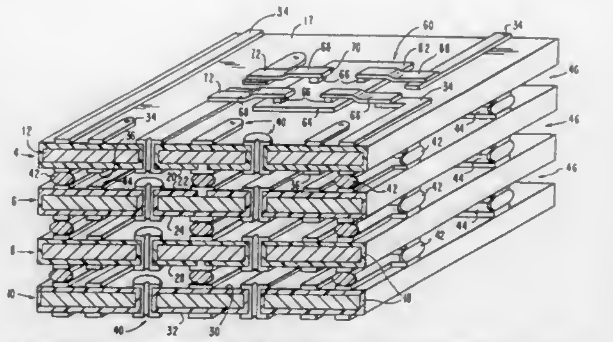
Mark Fielding Bregman, Ridgefield, Conn.; Stephen Leslie Buchwalter, Wappingers Falls, N.Y.; Karl Hermann, Austin, Tex.; Caroline Ann Kovac, Ridgefield, Conn.; Paige Adams Poore, Durham, N.C., and Alfred Viehbeck, Stormville, N.Y., assignors to International Business Machines Corporation, Armonk, N.Y.

Continuation of Ser. No. 128,331, Sep. 29, 1993, abandoned, which is a continuation of Ser. No. 339,334, Apr. 17, 1989, abandoned. This application Aug. 1, 1994, Ser. No. 283,922

Int. Cl.^{6} H05K *7/20*

U.S. Cl. 361—719 24 Claims

1. An electronic device mounting structure comprising:



a plurality of substrates, each having a major surface, each of said substrates having a thermally conductive core;

a dielectric material on a major surface of said conductive core;

a major surface of one of said plurality of substrates facing a major surface of another of said plurality of substrates so that there are adjacent major surfaces each having said dielectric material;

an electrical conductor pattern on each of said dielectric-coated adjacent major surfaces, at least one of said electrical conductor patterns being electrically connected to at least one of said conductive cores;

a plurality of malleable connectors disposed between and spacing apart said adjacent major surfaces to form a thermal conduction path therebetween; and

a part of said plurality of malleable connectors electrically connecting a part of said conductor patterns on said adjacent major surfaces.

5,786,987
MODULAR ELECTRICAL INTERFACE DEVICE

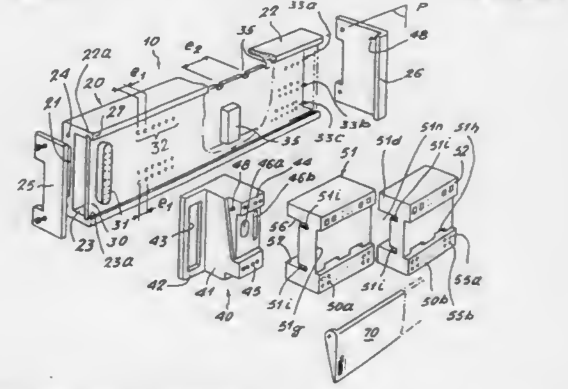
René Barbier, Remilly sur Tille; Andras Gyongyosi, Dijon; André Vianes, Darois; Marc Soulas, and Jean-Marie Colonna, both of Dijon, all of France, assignors to Schneider Electric SA, Boulogne-Billancourt, France

Filed Jan. 26, 1996, Ser. No. 592,550

Claims priority, application France, Feb. 7, 1995, 95 01486

Int. Cl.^{6} H05K *7/12;7/14*

U.S. Cl. 631—732 10 Claims



1. Interface device comprising:

a printed circuit board adapted to be connected to a processor unit such as a programmable automatic controller,

an elongate base having lengthwise grooves to receive the board,

active or passive interface devices connected by terminal blocks to an electrical equipment to be operated or controlled by the processor unit, the interface devices and the terminal blocks being soldered to the board,

characterised in that:

the interface devices are housed in separate modules the lengths (l) of which are equal to or integer multiples of a modulus, each module comprising a strip of indicator openings or terminal operating openings disposed lengthwise of the base at a particular pitch (e_1).

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the modules have on their side faces complementary grooves and tongues for assembling them together oriented perpendicularly to the plane (P) of the board to form a rigid assembly.

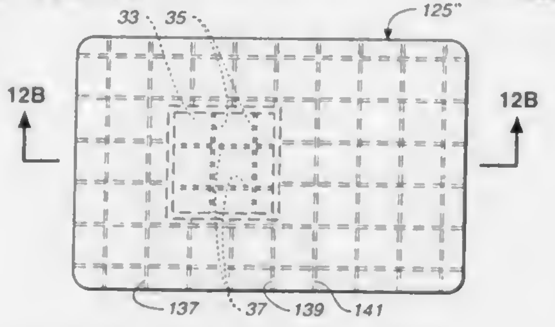
5,786,988
INTEGRATED CIRCUIT CHIPS MADE BENDABLE BY FORMING INDENTATIONS IN THEIR BACK SURFACES FLEXIBLE PACKAGES THEREOF AND METHODS OF MANUFACTURE

Eliyahou Harari, Los Gatos, Calif., assignor to SanDisk Corporation, Sunnyvale, Calif.

Filed Jul. 2, 1996, Ser. No. 678,421

Int. Cl.^{6} H05K *1/18*

U.S. Cl. 361—749 **59 Claims**



1. A bendable electronic circuit chip, comprising:

a rectangularly shaped substrate having first and second opposing surfaces,

an integrated circuit formed on said first substrate surface, and

at least one indentation into said second substrate surface in a manner to allow flexing of the circuit chip at a location of said indentation.

5,786,989
PRINTED CIRCUIT BOARD MOUNTING STRUCTURE AND ELECTRONIC DEVICE USING THE SAME

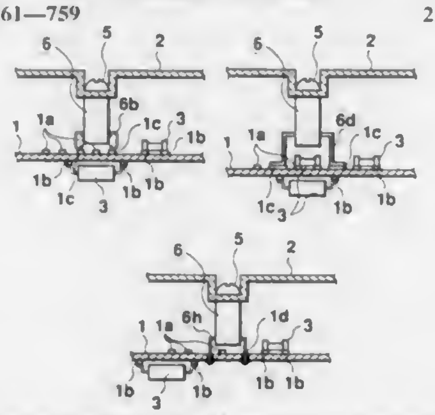
Shin Kawabe, Tokyo, Japan, assignor to Mitsubishi Denki Kabushiki Kaisha, Tokyo, Japan

Filed Jan. 25, 1996, Ser. No. 591,908

Claims priority, application Japan, Feb. 17, 1995, 7-029544

Int. Cl.^{6} H05K *5/00;* **H01R** *9/18*

U.S. Cl. 361—759 **22 Claims**



1. A mounting structure for receiving a screw to mount a printed circuit board to a frame of an electronic device, comprising:

(a) a body;

(b) a threaded portion formed on a side of the body corresponding to the frame, the threaded portion receiving the screw for securing the body to the frame; and

(c) at least one lead disposed on the body and extending from the body to the printed circuit board, the lead being soldered to lands on a mounting surface of the printed circuit board, the lead supporting the body away from the mounting surface to define a space between the body of the mounting structure and the mounting surface of the printed circuit board.

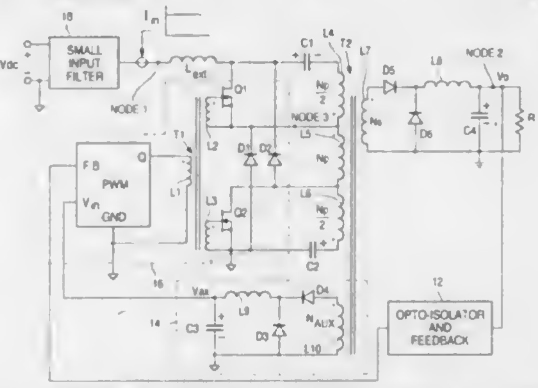
5,786,990
IMPLEMENTATION OF RIPPLE STEERING TO CONVERTER TOPOLOGIES

Joseph Marrero, Menlo Park, Calif., assignor to National Semiconductor Corporation, Santa Clara, Calif.

Filed Sep. 27, 1996, Ser. No. 722,812

Int. Cl.^{6} H02J *1/00;* **H02M** *1/12;7/537;3/336*

U.S. Cl. 363—16 **27 Claims**



1. A controllable voltage converter for asserting a controllable output voltage in response to an input voltage, said converter including:

at least one yoked switch pair, having a duty cycle which determines the output voltage;

control circuitry coupled to the switch pair, and configured to control the duty cycle, and thereby to control the output voltage; and

ripple steering circuitry coupled to the switch pair, said ripple steering circuitry including at least two inductors coupled so as to steer ripple current and thereby maintain at least one of substantially DC input current and substantially DC output current with no more than small, secondary, time varying frequency components.

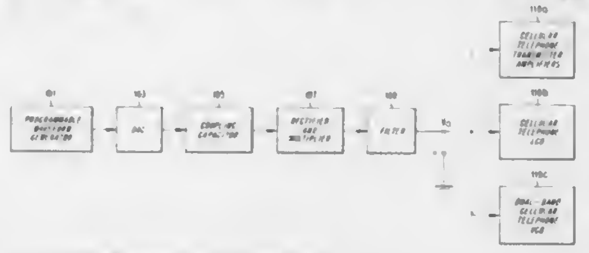
5,786,991
PROGRAMMABLE VOLTAGE SOURCE

Christopher R. Koszarsky, Holly Springs, N.C., assignor to Ericsson Inc., Research Triangle Park, N.C.

Filed Nov. 1, 1996, Ser. No. 742,483

Int. Cl.^{6} H02M *7/06*

U.S. Cl. 363—84 **28 Claims**



1. A cellular telephone comprising:

a programmable waveform generator for generating a digital bit stream which represents an AC waveform;

a digital-to-analog converter responsive to the digital bit steam and for converting the digital bit stream into an analog AC waveform;

a rectifier circuit for converting the analog AC waveform into a substantially DC voltage, wherein said rectifier circuit is connected to said digital-to-analog converter by a coupling device;

an electronic cellular telephone module; and

means for applying the substantially DC voltage to the electronic, cellular telephone module, wherein the substantially DC voltage provides a bias voltage for the electronic, cellular telephone module.

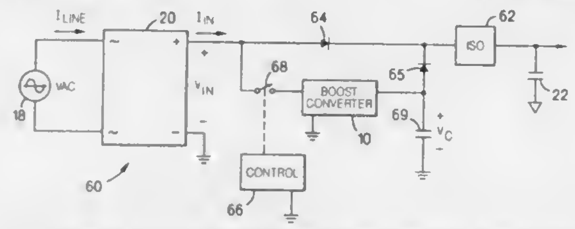
5,786,992
EFFICIENT POWER CONVERSION

Patrizio Vinciarelli, Boston, and Richard E. Beede, Andover, both of Mass., assignors to VLT Corporation, San Antonio, Tex.

Continuation of Ser. No. 224,834, Apr. 8, 1994, abandoned. This application Jul. 29, 1996, Ser. No. 681,618

Int. Cl.^{6} H02M *5/42;7/537*

U.S. Cl. 363—89 **67 Claims**



1. Apparatus for converting power from a varying voltage source and delivering it to a load, comprising

boost conversion elements for effecting a boost conversion of power originating from the varying voltage source,

additional conversion elements for also effecting conversion of power originating from the varying voltage source, and

a power factor correcting controller for causing variations in current drawn from the voltage source to follow variations in voltage of the voltage source.

5,786,993
APPARATUS FOR AND METHOD OF CONTROLLING AND/OR REGULATING PROCESS PARAMETERS OF AN INSTALLATION

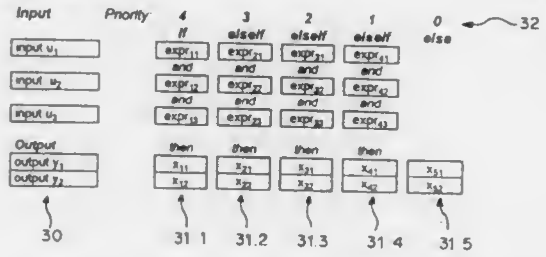
Theo Frutiger, Steinhausen; Jim Coogan, Des Plaines; Walter Hegetschweiler, Steinhausen, and Franz Renggli, Buchrain, all of Switzerland, assignors to Landis & Gyr Technology Innovation Corp., Switzerland

Filed Sep. 3, 1996, Ser. No. 707,242

Claims priority, application Switzerland, Jun. 14, 1996, 1493/96

Int. Cl.^{6} G05B *11/01*

U.S. Cl. 364—140 **9 Claims**



1. Apparatus for controlling and/or regulating process parameters of an installation, comprising:

means for graphic representation of data, commands and images,

means for input and alteration of data,

means for storage of data,

a decision table comprising a plurality of rules, said rules being associated with predetermined priorities which is unique in said decision table and which is established by positions of said rules in said decision table,

means for evaluation of said rules, wherein a sequence observed in evaluation of said rules is determined by said priorities associated with said rules, a rule having the highest priority being evaluated first, and at least one of said rules includes a condition and an action, said action being executed only when said condition of said at least one of said rules is fulfilled,

wherein said decision table is stored and graphically displays said positions priorities, condition and action of said rules so that a state of the installation, and the process parameter causing said state, is recognized by an operator,

said apparatus further comprising at least one input channel having a value which is compared by said condition to a further value, and

at least one output channel having a value which is altered by said action when executed.

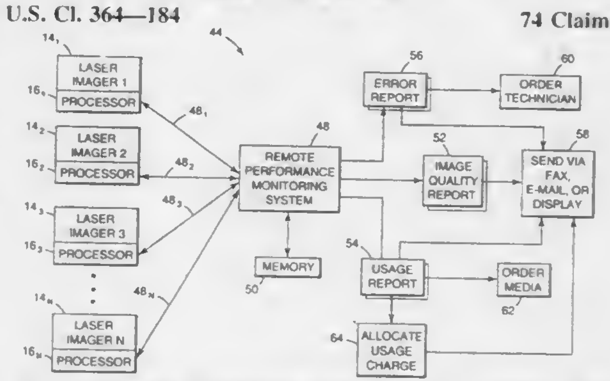
5,786,994
PERFORMANCE MONITORING SYSTEM AND METHOD FOR A LASER MEDICAL IMAGER

Robert N. Friz, Cottage Grove, Wash.; Mark D. Hunter, Woodbury, Minn.; Douglas J. Rowen; Steven J. Craig, both of St. Paul, Minn.; Todd G. Langmade, Mahtomedi, Minn., and Charles N. McMacken, Apple Valley, Minn., assignors to Imation Corp., Oakdale, Minn.

Filed Nov. 23, 1994, Ser. No. 344,146

Int. Cl.^{6} G05B *9/02*

U.S. Cl. 364—184 **74 Claims**



1. A system for monitoring performance of a medical laser imager, the laser imager forming medical diagnostic images on radiation-sensitive imaging media, the system comprising:

polling means for periodically polling said laser imager to acquire data from said laser imager, said data being representative of at least one performance condition associated with said laser imager, wherein said data representative of said at least one performance condition includes data representative of an optical density associated with each of said images on said imaging media;

memory means for storing said data acquired by said polling means over a plurality of polling periods; and

reporting means for generating a report representative of the data stored by said memory means over said plurality of polling periods.

5,786,995
AVIONICS SYSTEM HAVING ACCESS THROUGH HINGED DISPLAY AND CONTROL PANEL

Larry Wayne Coleman, Los Angeles, Calif., assignor to Teledyne Industries, Inc., Los Angeles, Calif.

Filed Nov. 14, 1996, Ser. No. 748,767

Int. Cl.^{6} G05B *00/00*

U.S. Cl. 364—188 **20 Claims**

1. An avionics unit in which front panel space is conserved, said avionics unit configured to be mounted in an aircraft cockpit for recording and displaying aircraft information, said avionics unit comprising:

a housing, said housing having an interior;

a stacked assembly of at least two circuit cards located within said housing;

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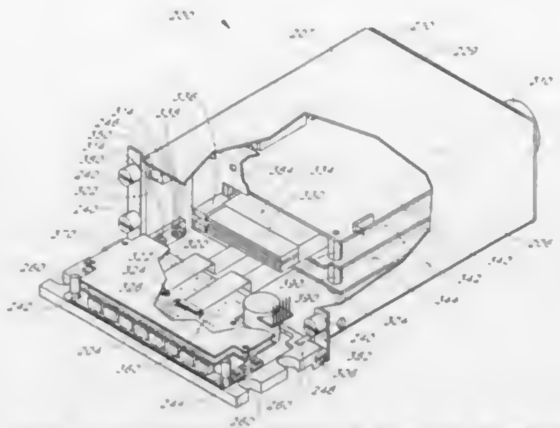


- at least one receptacle mounted on at least one of said two circuit cards, said at least one receptacle configured to receive at least one removable storage cartridge;
- an active front panel assembly having an inward facing side and an outward facing side, said active front panel assembly including at least one display and at least one control used to set a mode of said avionics unit on said outward facing side, said active front panel assembly swingably mounted to said housing, wherein said active front panel assembly is configured to be selectively opened, thereby exposing said housing interior for removal of said at least one removable storage cartridge, said active front panel assembly configured to be selectively closed, thereby enclosing said at least one removable storage cartridge within said interior; and
- a circuit board mounted on the inward facing side of said active panel, wherein said control is connected to said circuit board.

5,786,996

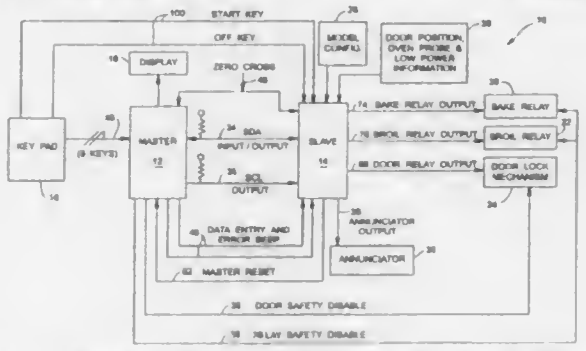
APPLIANCE CONTROL CIRCUIT COMPRISING DUAL MICROPROCESSORS FOR ENHANCED CONTROL OPERATION AND AGENCY SAFETY REDUNDANCY AND SOFTWARE APPLICATION METHOD THEREOF

Kimble Ally Vitkus, Sycamore, and Joseph Stewart Calabrese, Arlington Heights, both of Ill., assignors to Eaton Corporation, Cleveland, Ohio

Filed Jun. 28, 1996, Ser. No. 672,323

Int. Cl.^{6} G05B *19/048;* **H05B** *1/02*

U.S. Cl. 364—187 **11 Claims**



1. An appliance control circuit for enhanced control operation and agency safety redundancy comprising:

- a first processor disposed in operative communication with operator control switches for primarily software control of a first switch for a supply of power for principal appliance functions;
- a second processor in operative communication with the first processor and disposed for primarily software monitor of appliance safety detection circuits and operator control switches independent of said first processor and for controlling agency circuitry redundancy through a second switch in series with said first switch; and,
- wherein said first and second switches comprise agency circuitry for enabling said supply of power when said first switch is directly enabled by said first processor and said second switch is directly enabled by said second processor for safety redundancy of said supply of power.

5,786,997

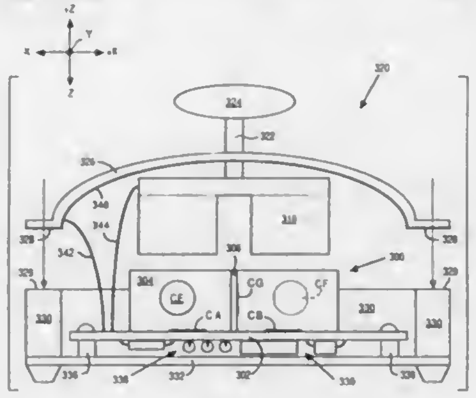
CAPACITIVELY COUPLED MULTIPLE AXIS DATA INPUT APPARATUS AND METHOD

Joshua K. Hoyt, Portland, Oreg.; Neil L. Brown, Falmouth, Mass., and William D. Leppo, Hillsboro, Oreg., assignors to Ziba Design, Inc., Portland, Oreg.

Continuation-in-part of Ser. No. 492,655, Jun. 20, 1995, Pat. No. 5,687,080. This application Jun. 18, 1996, Ser. No. 666,619

Int. Cl.^{6} G05B *9/02*

U.S. Cl. 364—190 **61 Claims**



35. A multiple axis data input apparatus, comprising:

- a signal source generating an electrical signal;
- an electrode assembly having multiple electrodes coupled to the electrical signal;
- a sensor electrode having multiple faces, each face in proximity to an associated electrode of the electrode assembly;
- a positioning means for orienting the sensor electrode in at least four predetermined axes relative to the electrode assembly such that each face receives an amount of the electrical signal that depends on an orientation-induced spacing between each face and its associated electrode and in which each face provides a signal amplitude in response to the amount of the electrical signal received, the positioning means including an elastomeric ring that suspends the sensor electrode relative to the electrode assembly and isolates the sensor electrode and the electrode assembly from at least one of dust, dirt, contaminants, and electric fields; and
- a controller that receives and processes the signal amplitudes and generates spacing data related to the orientation-induced spacing between each face and its associated electrode.

5,786,998

APPARATUS AND METHOD FOR TRACKING REPORTING AND RECORDING EQUIPMENT INVENTORY ON A LOCOMOTIVE

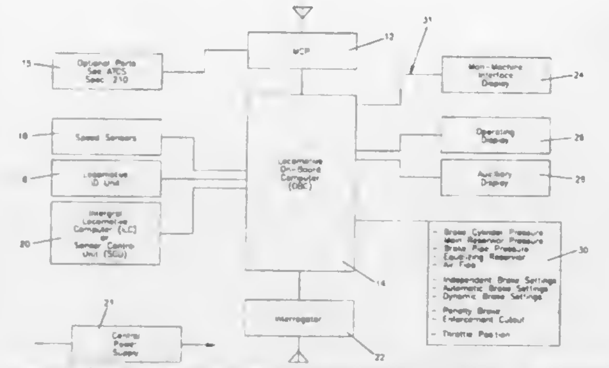
Michael J. Neeson, and Edward L. Furman, both of Omaha, Nebr., assignors to Automated Monitoring and Control International, Inc., Omaha, Nebr.

Filed May 22, 1995, Ser. No. 445,528

Int. Cl.^{6} H04B *1/00;* **G01S** *7/00*

U.S. Cl. 364—424.01 **13 Claims**

1. An apparatus for tracking, reporting and recording equipment inventory on a railroad field unit equipped with a mobile communications package (MCP) operatively connected to on-board intelligent devices and operative to transmit and receive information to and from at least one remote base communications unit, the intelligent devices operatively connected in a local communications network, said apparatus comprising:



- processing means operative to broadcast a Query for Health Report to on-board intelligent devices and receive Health Report messages from on-board intelligent devices, wherein said Query for Health Report comprises a request for equipment identification information and said Health Report messages comprise the requested equipment identification information;
- equipment identification information storage means in information transmission connection with said processing means, said storage means operative to receive and store equipment identification information received by said processing means via said Health Report messages;
- polling means operatively connected to said processing means for periodically initiating broadcasting of said Query for Health Report to on-board intelligent devices on a railroad field unit;
- temporary information storage means in information transmission connection with said processing means for initially receiving and storing recently received equipment identification information from a locomotive via Health Report messages received in response to said Query for Health Report;
- comparing means in said processing means for comparing equipment identification information in said temporary information storage means to equipment identification information in said equipment identification information storage means for a particular field unit to determine additions and deletions of intelligent equipment on the field unit; and
- reporting and notifying means in information transmission connection with said processing means for reporting intelligent devices on-board a field unit and for notifying an operator of a change of intelligent devices on a field unit.

5,786,999

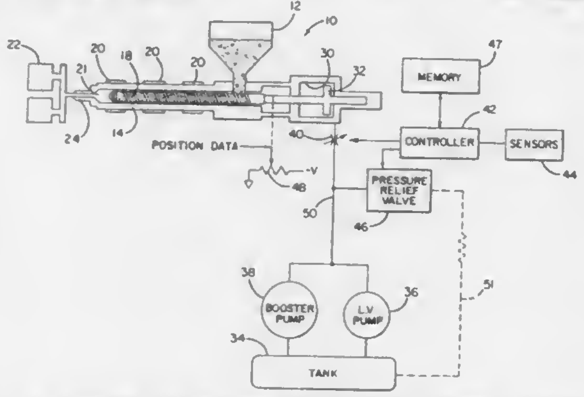
COMBINATION CONTROL FOR INJECTION MOLDING

David K. Spahr, Roscoe, and Dennis C. Tibbitts, Rockford, both of Ill., assignors to Barber-Colman Company, Loves Park, Ill.

Filed Oct. 4, 1995, Ser. No. 539,098

Int. Cl.^{6} G06G *7/64;7/66;* **G06F** *19/00*

U.S. Cl. 364—475.05 **16 Claims**



1. A controller for use with an injection molding apparatus having a ram that moves within a cylinder to force molten plastic contained within the cylinder into an injection mold that is disposed in fluid communication with the cylinder, the controller comprising:

- a first set of parameters that operate upon a stored setpoint, the first set of parameters defining a first control equation for controlling the movement of the ram in an open-loop mode;
- a second set of parameters that operate upon a stored setpoint, the second set of parameters defining a second control equation for controlling the movement of the ram in a closed-loop mode;
- a memory for storing the first and second sets of controller parameters; and
- processing means in communication with the memory, the processing means configured to retrieve the stored setpoints and the first and second sets of parameters and to effect controlled movement of the ram in accordance with the first and second control equations, the processor further configured to evaluate the movement of the ram in comparison to the setpoints and update the first and second sets of controller parameters for use the with stored setpoints in subsequent injection cycles.

5,787,000

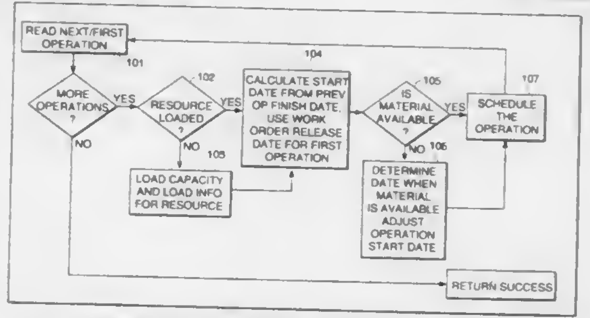
METHOD AND APPARATUS FOR SCHEDULING WORK ORDERS IN A MANUFACTURING PROCESS

Richard T. Lilly, Hampton Falls, and David V. Layne, Litchfield, both of N.H., assignors to Lilly Software Associates, Inc., Hampton, N.H.

Filed May 27, 1994, Ser. No. 250,179

Int. Cl.^{6} G06F *19/00;* **G06G** *7/64;7/65*

U.S. Cl. 364—468.01 **23 Claims**


READ NEXT/FIRST OPERATION
101
MORE OPERATIONS ?
YES
NO
102
RESOURCE LOADED ?
YES
NO
103
LOAD CAPACITY AND LOAD INFO FOR RESOURCE
104
CALCULATE START DATE FROM PREV OP FINISH DATE, USE WORK ORDER RELEASE DATE FOR FIRST OPERATION
105
IS MATERIAL AVAILABLE ?
YES
NO
106
DETERMINE DATE WHEN MATERIAL IS AVAILABLE ADJUST OPERATION START DATE
107
SCHEDULE THE OPERATION
RETURN SUCCESS

1. A computerized method for scheduling a plurality of work orders for manufacturing products in a manufacturing process, each work order comprising a set of operations to be performed using a plurality of resources and materials, the method comprising:

- monitoring the availability of each resource used in the manufacturing process;
- monitoring the availability of each material used in the manufacturing process;
- inputting information for each work order to be scheduled, said work order information comprising: a release date for the work order; a want date for the work order; operations information comprising the identity and sequence of operations to be performed, the identity of the resources needed to perform each operation, a minimum resource capacity needed to perform each operation, and the time needed to perform each operation; and materials requirements information comprising the identity of the materials needed to perform each operation and the quantity of each material needed for the operation;
- assigning resource capacity and a start date/time and a finish date/time to each operation based upon the resource availability, the material availability, and the work order information, by selecting a start date/time for each operation based upon a determination that both the resource capacity and the material required for that operation are concurrently available on such start date/time, to provide a schedule; and
- outputting the assigned resource capacity, the assigned start date/time and the assigned finish date/time for each operation in a graphical format.

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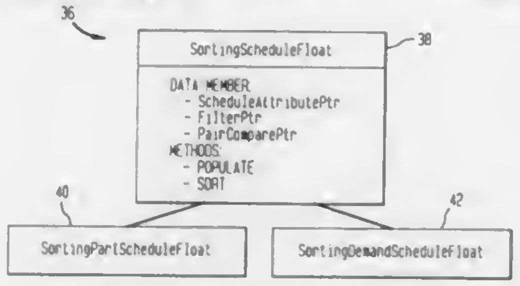
5,787,001
METHOD FOR USING SORTING TECHNIQUES IN A TYPE-SAFE WAY

Walter C. Dietrich, Jr., Yorktown Heights; Thomas Robert Ervolina, Hopewell Junction; John Peter Fasano, Briarcliff Manor, and Jung-Mu Tang, South Salem, all of N.Y., assignors to IBM Corporation, Armonk, N.Y.

Filed Jul. 20, 1995, Ser. No. 504,626

Int. Cl.^{6} G06F *11/00;9/00*

U.S. Cl. 364—468.03 **31 Claims**



1. A method comprising the steps of:
a. specifying one or more sets of data of a specified type;
b. specifying one or more functions associated with the type for selecting subsets of the data;
c. specifying one or more criteria associated with the type for sorting the subsets;
d. associating one or more sets with one or more selection functions and one or more sorting criteria;
e. acquiring data, selecting subsets, and sorting them, always respecting type information.

5,787,002
CONTROL SYSTEM FOR PRODUCTION FACILITIES

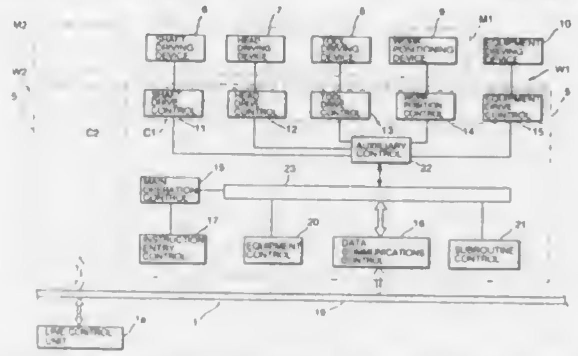
Hiroshi Iwamoto; Masato Ueyama, and Tatsurou Morimoto, all of Hiroshima-ken, Japan, assignors to Mazda Motor Corporation, Hiroshima-ken, Japan

Filed Mar. 29, 1995, Ser. No. 413,875

Claims priority, application Japan, Mar. 29, 1994, 6-059169; Oct. 27, 1994, 6-289099

Int. Cl.^{6} G06F *19/00*

U.S. Cl. 364—468.22 **10 Claims**



1. A control system for controlling a production facility including a plurality of work stations, each said work station being provided with a plurality of working apparatuses having machining tools, said control system comprising:
working apparatus control means for controlling said working apparatuses, respectively, so as to perform a specified machining operation independently from one another;
intermittent control means interfaced to said working apparatus control means by means of a data communication network so as to communicate data on deterioration of said machining tools of said working apparatus with one another, said intermittent control means governing said working apparatus control means of said respective apparatuses for each said work station and unifying said data on deterioration of said machining tool of said respective working apparatus for each said work station transmitted from said respective working apparatus control means so as to present predetermined attributes of data; and
inclusive control means for interfacing to said respective intermittent control means by means of a data communications network so as to communicate data with one another and for governing said intermittent control means for said respective work stations and unifying said data transmitted from said intermittent control means for said respective work stations;
said intermittent control means transmitting, on one hand, data among said predetermined attributes of data intrinsic to each said working apparatus control means and, on the other hand, data of said predetermined attributes of data to said inclusive control means.

5,787,003

Patent Not Issued For This Number

5,787,004
METHOD FOR COMPUTER-ASSISTED ITERATIVE DETERMINATION OF THE TRANSIENT RESPONSE OF A QUARTZ RESONATOR CIRCUIT

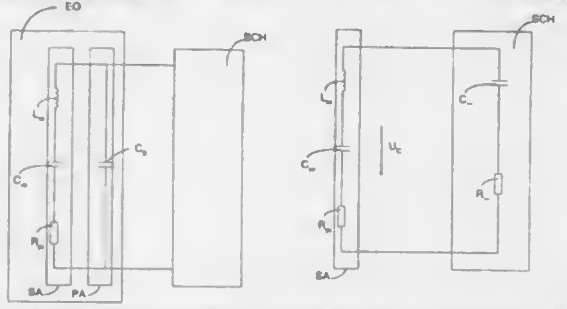
Christof Schmidt-Kreusel, Duisburg; Qinghua Zheng, Iaufkirchen, and Joerg-Uwe Feldmann, Munich, all of Germany, assignors to Siemens Aktiengesellschaft, Munich, Germany

Filed Jan. 22, 1997, Ser. No. 787,441

Claims priority, application Germany, Jan. 22, 1996, 196 02 125.1

Int. Cl.^{6} H03H *9/02;* **G06F** *17/50*

U.S. Cl. 364—484 **14 Claims**



1. A method for computer-assisted iterative determination of the transient response of a quartz resonator circuit in a computer, comprising the steps of:
a) determining an initial amplitude of current in a dynamic arm of the quartz resonator;
b) determining an operating point of the quartz resonator circuit;
c) replacing an equivalent circuit diagram of the quartz resonator with a current source having an initial amplitude of the current in the dynamic arm of the quartz resonator;
d) determining a dynamic equilibrium state for the quartz resonator circuit with the substituted current source;
e) replacing the current source with the equivalent circuit diagram of the quartz resonator;
f) determining with a transient analysis a growth rate of the amplitude of the current in the dynamic arm of the quartz resonator for a dynamic equilibrium state of the quartz resonator circuit;
g) implementing steps b) through f) for an amplitude-boosted current in the dynamic arm of the quartz resonator when the growth rate is greater than zero, and for an amplitude-reduced current in the dynamic arm of the quartz resonator when the growth rate is less than zero, until a current growth rate is less than a predetermined threshold; and
h) determining the transience of the quartz resonator circuit from the iteratively determined sequence of growth rates.

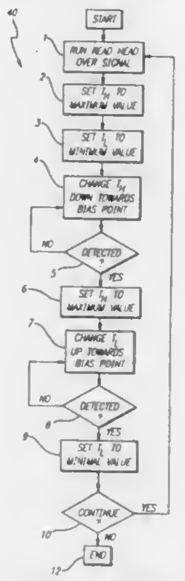
5,787,005
METHOD AND APPARATUS FOR SIGNAL THRESHOLD ADJUSTMENT THAT COMPENSATES FOR SIGNAL ASYMMETRY

Andrew B. Millerd, Jr., San Juan Capistrano, Calif., and Nobuyoshi Futatsugi, Nikko, Japan, assignors to Aiwa Co., Ltd., Tokyo, Japan

Filed May 13, 1996, Ser. No. 644,434

Int. Cl.^{6} G11B *5/09*

U.S. Cl. 364—487 **25 Claims**


40
START
RUN READ HEAD OVER SIGNAL
SET I_H TO MAXIMUM VALUE
SET I_L TO MINIMUM VALUE
CHANGE I_H DOWN TOWARDS BIAS POINT
DETECTED ?
NO
YES
SET I_H TO MAXIMUM VALUE
CHANGE I_L UP TOWARDS BIAS POINT
DETECTED ?
NO
YES
SET I_L TO MINIMAL VALUE
CONTINUE ?
YES
NO
END
1
2
3
4
5
6
7
8
9
10
12

1. A program storage device readable by a machine, tangibly embodying a program of instructions executable by the machine to perform method steps for threshold adjustment for an amplified signal from a head assembly which compensates for asymmetry of the amplified signal relative to a bias voltage, said method steps comprising:
setting a first threshold voltage to a first value and a second threshold voltage to a second value; then
adjusting said first threshold voltage in a first direction towards said second voltage while
monitoring said amplified signal to detect a first portion of said amplified signal; then
storing the thus adjusted first threshold voltage; then
re-setting said first threshold voltage to said first value; then
adjusting said second threshold voltage in a second direction opposite said first direction while monitoring said amplified signal to detect a second portion of amplified said signal; then
storing the thus-adjusted second threshold voltage;
wherein the monitoring of said amplified signal further comprises the steps of:
utilizing an adjustable gain amplifier for amplifying said signal.
simultaneously coupling the amplified signal to a first threshold comparator and a second threshold comparator, and
outputting a resulting signal from either of said comparators.

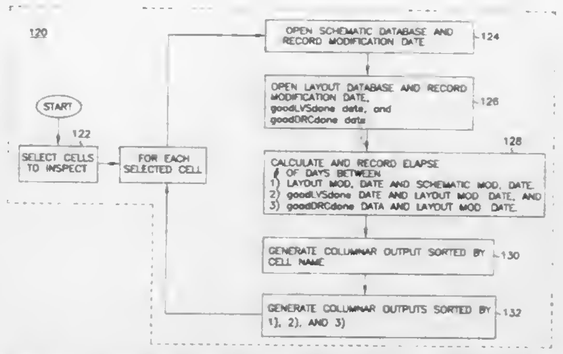
5,787,006
APPARATUS AND METHOD FOR MANAGEMENT OF INTEGRATED CIRCUIT LAYOUT VERIFICATION PROCESSES

Christophe J. Chevallier, Palo Alto, and Yarema A. Hryciw, San Jose, both of Calif., assignors to Micron Technology, Inc., Boise, Id.

Filed Apr. 30, 1996, Ser. No. 640,105

Int. Cl.^{6} G06F *17/50*

U.S. Cl. 364—488 **43 Claims**


120
START
122
SELECT CELLS TO INSPECT
FOR EACH SELECTED CELL
OPEN SCHEMATIC DATABASE AND RECORD MODIFICATION DATE
124
OPEN LAYOUT DATABASE AND RECORD MODIFICATION DATE, goodLVSdone date, and goodDRCdone date
126
128
CALCULATE AND RECORD ELAPSE # OF DAYS BETWEEN 1) LAYOUT MOD. DATE AND SCHEMATIC MOD. DATE, 2) goodLVSdone DATE AND LAYOUT MOD DATE, AND 3) goodDRCdone DATA AND LAYOUT MOD DATE
GENERATE COLUMNAR OUTPUT SORTED BY CELL NAME
130
GENERATE COLUMNAR OUTPUTS SORTED BY 1), 2), AND 3)
132

1. A data processing system for use in managing and analyzing data generated during the design of an integrated circuit or an electronic system mounted on a printed circuit board, comprising:
a database containing layout data files for a plurality of cells of the integrated circuit or system, the layout data file for each cell containing a time of the last modification of the layout for that cell;
an input device for allowing a user to designate a cell and its corresponding data files contained in the database;
design rule checking means for performing a design rule verification process on a layout data file of the designated cell; and
a data processor capable of accessing the layout data file corresponding to the designated cell and modifying that file by appending a time of a successful completion of the design rule verification process to the layout data file.

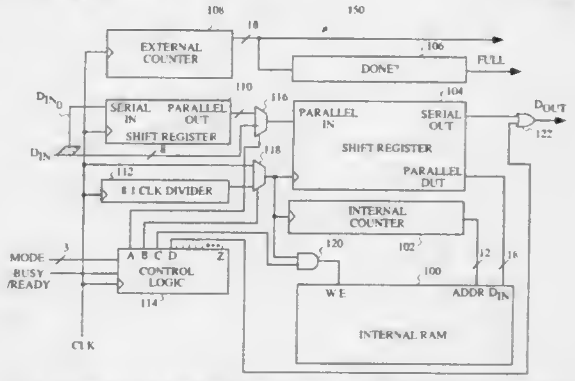
5,787,007
STRUCTURE AND METHOD FOR LOADING RAM DATA WITHIN A PROGRAMMABLE LOGIC DEVICE

Trevor J. Bauer, Campbell, Calif., assignor to Xilinx, Inc., San Jose, Calif.

Filed Jan. 30, 1996, Ser. No. 593,985

Int. Cl.^{6} H03K *19/177;17/693*

U.S. Cl. 364—489 **15 Claims**



1. A method of loading data into a random access memory (RAM) block within a programmable logic device, said method comprising the steps of:
configuring the programmable logic device as a first circuit capable of loading the data into the RAM block;
loading the data into the RAM block; and
configuring the programmable logic device as a second circuit which utilizes the data loaded into the RAM block.

5,787,008
SIMULATION CORRECTED SENSITIVITY

Satyamurthy Pullela; Abhijit Dharchoudhury; David T. Blaauw; Tim J. Edwards; Joseph W. Norton, and Peter R. O'Brien, all of Austin, Tex., assignors to Motorola, Inc., Schaumburg, Ill.

Filed Apr. 10, 1996, Ser. No. 629,488

Int. Cl.^{6} G06F *17/50*

U.S. Cl. 364—489 **9 Claims**

1. A method for correcting sensitivity characteristic values associated with circuit elements, said circuit elements and associated

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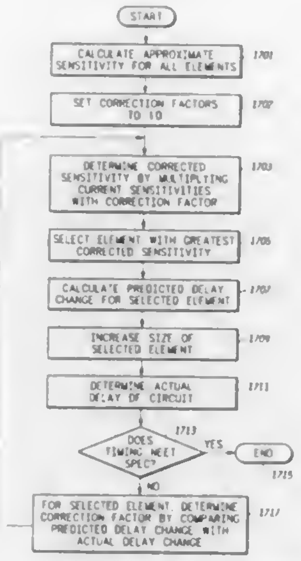

START
CALCULATE APPROXIMATE SENSITIVITY FOR ALL ELEMENTS
1701
SET CORRECTION FACTORS TO 1.0
1702
DETERMINE CORRECTED SENSITIVITY BY MULTIPLYING CURRENT SENSITIVITIES WITH CORRECTION FACTOR
1703
SELECT ELEMENT WITH GREATEST CORRECTED SENSITIVITY
1705
CALCULATE PREDICTED DELAY CHANGE FOR SELECTED ELEMENT
1707
INCREASE SIZE OF SELECTED ELEMENT
1709
DETERMINE ACTUAL DELAY OF CIRCUIT
1711
DOES TIMING MEET SPEC?
1713
YES
END
1715
NO
FOR SELECTED ELEMENT, DETERMINE CORRECTION FACTOR BY COMPARING PREDICTED DELAY CHANGE WITH ACTUAL DELAY CHANGE
1717

sensitivities comprising a file from which selected ones of said elements are designated to be included in a model circuit for use in specifying circuit elements and connections therebetween for a circuit being designed, said circuit elements defining a plurality of paths within the circuit being designed, said method comprising:

- determining a voltage relationship at each node within the circuit, where at least two of said circuit elements are coupled together at each node;
- calculating approximate sensitivities for each of said circuit elements based on the voltage relationship at each corresponding node;
- determining corrected sensitivities by applying a calculated correction factor;
- selecting a most sensitive element on a non-critical path of the plurality of paths having a highest corrected sensitivity;
- calculating a predicted circuit delay change based upon using said model circuit including said most sensitive element;
- increasing said most sensitive element size;
- determining actual delay time of said model circuit;
- determining whether said delay time of said model circuit meets a predetermined threshold, and
- terminating said method if said delay time of said model circuit meets said predetermined threshold, said method being further operable otherwise for:
    - calculating a correction factor based upon said predicted delay change and said actual delay change, said calculated correction factor being available for determining corrected sensitivities for said circuit elements.

5,787,009

METHODS FOR ALLOCATING CIRCUIT DESIGN PORTIONS AMONG PHYSICAL CIRCUIT PORTIONS

Bruce B. Pedersen, San Jose, Calif., assignor to Altera Corporation, San Jose, Calif.

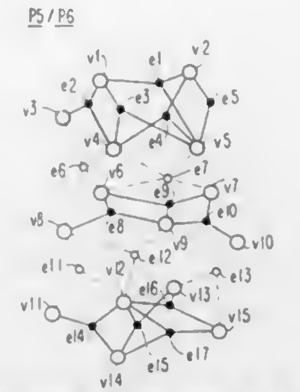
Filed Feb. 20, 1996, Ser. No. 603,222

Int. Cl.^{6} G06F *17/50*

U.S. Cl. 364—489 **14 Claims**

1. A method of implementing an electrical circuit design in a physical circuit which includes a plurality of physical subcircuits, said circuit design including a plurality of circuit elements and a plurality of connections between said elements, said method comprising the steps of:

- partitioning said circuit design into a first plurality of design subcircuits, each of which is implementable in a respective one of said physical subcircuits;
- partitioning said circuit design into a second plurality of design subcircuits, each of which is implementable in a respective one of said physical subcircuits, said first and second pluralities being different from one another;



- identifying each connected component in each of said design subcircuits, a connected component being any subplurality of said elements which are within said design subcircuit and which are all connected to one another by one or more of said connections which extend only to elements in said subplurality and which connections are therefore also part of said connected component;
- for each connected component in each of said first and second pluralities, performing the following substeps (a) through (d) for said connected component:
    - (a) identifying as adjacent connected components all connected components in the other of said first and second pluralities that have at least one element in common with said connected component;
    - (b) determining as a first number the number of said connections which are part of said connected component;
    - (c) determining as a second number the number of said connections which are part of said adjacent connected components and which are also connected to at least one element of said connected component, said connections in said second number being referred to as adjacent connections; and
    - (d) determining whether said first or second number is predominant, and if said first number is predominant, then deleting said adjacent connections from said adjacent connected components, with consequent modification of the elements and connections which are part of said adjacent connected components;
- combining the connected components which remain in said first and second pluralities after performance of the preceding steps to produce a plurality of combined connected components;
- for each combined connected component, including said combined connected component in an associated modified design subcircuit along with other combined connected components and elements that are not part of any combined connected component to the extent that the resulting modified design subcircuit can be implemented in a respective one of said physical subcircuits; and
- implementing each of said modified design subcircuits in said respective one of said physical subcircuits.

5,787,010

ENHANCED DYNAMIC PROGRAMMING METHOD FOR TECHNOLOGY MAPPING OF COMBINATIONAL LOGIC CIRCUITS

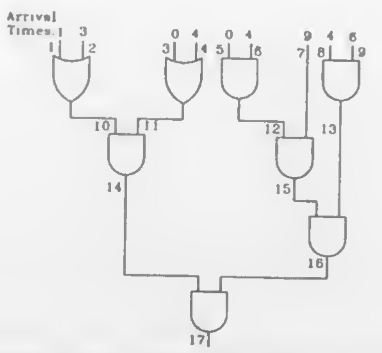
Thomas J. Schaefer, 10610 E. Estates Dr., Cupertino, Calif. 95014, and Robert D. Shur, 390 Cecelia Way, Los Altos, Calif. 94022

Continuation of Ser. No. 862,100, Apr. 2, 1992, abandoned.
This application Jun. 6, 1997, Ser. No. 870,860

Int. Cl.^{6} G06F *15/00*

U.S. Cl. 364—489 **8 Claims**

1. A method of implementing a combinational logic circuit using cells from a library of technology-specific cells, said library containing a cost (C) for each cell C in the library, said method comprising the steps of:



- (a) producing a representation of said circuit that is equivalent to a directed acyclic graph, said representation including at least one INPUT node on which can be applied and associated input signal and including an OUTPUT node on which is produced an output signal;
- (b) decomposing said representation into trees;
- (c) representing each tree as a reduced circuit expressed in terms only of gates selected from the class consisting of:
- a first gate selected from the set {2-input OR gate, 2-input NOR gate},
- a second gate selected from the set {2-input AND gate; 2-input NAND gate}, and
- an INVERTER; and
- (d) for each tree, in a levelized input-to-output order, determining a cost(G,k) for each node G and for k=1, . . . N_{MAX}, where N_{MAX} is the maximum number of inputs of a cell that will be considered for implementing a circuit, where said cost is an area cost, and where,
- for k>1, cost (G,k) is the minimum cost of getting k different signals to node G from gates of the same type and where cost(G.1) is the minimum cost of implementing a complete subtree rooted at node G. wherein said cost(G,1) for an INPUT node equal to the area of an inverter for each inverting INPUT node and is equal to zero for each non-inverting INPUT node, and
- whereby said combinational logic circuit can be optimized without recourse to a potentially very time-consuming and memory consuming pattern matching procedure required to identify, in a technology-dependent cell library, an optimal cell that can be used to replace a subtree that is rooted at node G.

5,787,011

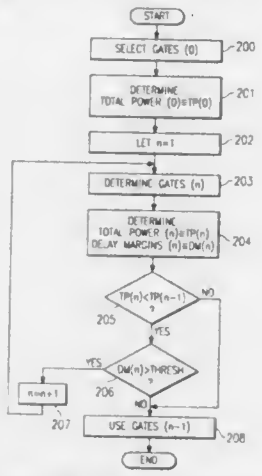
LOW-POWER DESIGN TECHNIQUES FOR HIGH-PERFORMANCE CMOS CIRCUITS

Uming Ko, Plano, Tex., assignor to Texas Instruments Incorporated, Dallas, Tex.

Filed Jan. 19, 1995, Ser. No. 375,145

Int. Cl.^{6} H01L *21/8238;* **H03K** *19/0948*

U.S. Cl. 364—490 **18 Claims**



1. CMOS data processing circuitry, comprising:

- first and second signal paths, wherein said first signal path is a speed critical path of said data processing circuitry.
- said first signal path including a first logic gate for performing a predetermined logic operation, said first logic gate having a first transistor-level logic gate structure; and
- said second signal path including a second logic gate for performing said predetermined logic operation more slowly and with less power consumption than said first logic gate, said second logic gate having a second transistor-level logic gate structure which differs from said first transistor-level logic gate structure.

5,787,012

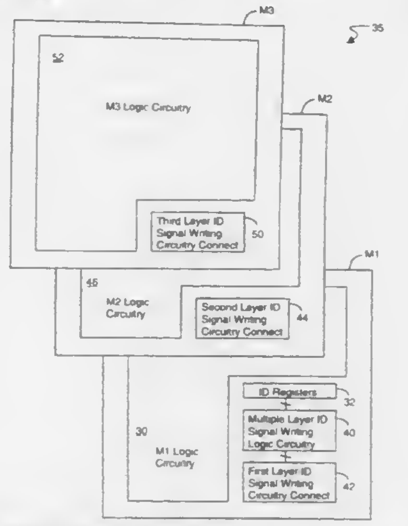
INTEGRATED CIRCUIT WITH IDENTIFICATION SIGNAL WRITING CIRCUITRY DISTRIBUTED ON MULTIPLE METAL LAYERS

Marc E. Levitt, Sunnyvale, Calif., assignor to Sun Microsystems, Inc., Mountain View, Calif.

Filed Nov. 17, 1995, Ser. No. 560,040

Int. Cl.^{6} G06F *17/50;* **G01R** *31/3177*

U.S. Cl. 364—490 **20 Claims**


M3
35
52
M3 Logic Circuitry
M2
Third Layer ID Signal Writing Circuitry Connect
50
M1
46
M2 Logic Circuitry
Second Layer ID Signal Writing Circuitry Connect
44
ID Registers
32
30
M1 Logic Circuitry
Multiple Layer ID Signal Writing Logic Circuitry
40
First Layer ID Signal Writing Circuitry Connect
42

1. An integrated circuit, comprising:

- a first metal layer with first layer identification signal writing circuitry connections to produce first metal layer circuit identification signals;
- a second metal layer with second layer identification signal writing circuitry connections to produce second metal layer circuit identification signals; and
- logic circuitry in said first metal layer with input connections to said first layer identification signal writing circuitry connections and said second layer identification signal writing circuitry connections, said logic circuitry combining said first metal layer circuit identification signals and said second metal layer circuit identification signals to produce a circuit identification number.

5,787,013

AUTOMATIC ROUTING METHOD FOR INTER-FUNCTIONAL CELLS

Nobuyasu Yui, Tokyo, Japan, assignor to NEC Corporation, Tokyo, Japan

Filed Jan. 30, 1996, Ser. No. 593,526

Claims priority, application Japan, Jan. 30, 1995, 7-033176

Int. Cl.^{6} G06F *17/50*

U.S. Cl. 364—490 **5 Claims**

1. An automatic routing method for a semiconductor integrated circuit including a plurality of functional cells, comprising the steps of:

- (a) receiving terminals to be electrically connected to each other;
- (b) setting a routing area including said terminals;

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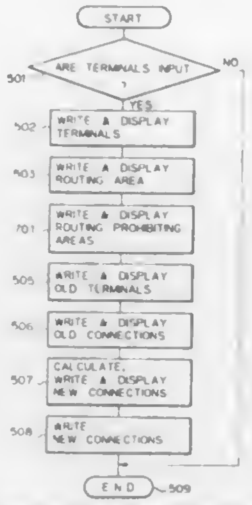

START
ARE TERMINALS INPUT ?
501
NO
YES
502
WRITE & DISPLAY TERMINALS
503
WRITE & DISPLAY ROUTING AREA
701
WRITE & DISPLAY ROUTING PROHIBITING AREAS
505
WRITE & DISPLAY OLD TERMINALS
506
WRITE & DISPLAY OLD CONNECTIONS
507
CALCULATE, WRITE & DISPLAY NEW CONNECTIONS
508
WRITE NEW CONNECTIONS
END
509

(c1) determining whether or not a selected functional cell within said routing area includes one of said terminals;

(c2) determining whether or not a ratio of routing prohibiting areas to an entire area in said selected functional cell is larger than a predetermined value, when said selected functional cell does not include at least one of said terminals;

(d) setting routing prohibiting areas in said selected functional cell in accordance with routing prohibiting information, when the ratio of routing prohibiting areas to an entire area in said selected functional cell is not larger than said predetermined value and when said selected functional cell includes one of said terminals;

(e) setting a routing prohibiting area in the entirety of said selected functional cell, when said selected functional cell does not include any of said terminals;

(f) repeating said steps (c1), (c2), (d) and (e) for another selected functional cell within said routing area; and

(g) routing a connection between said terminals to avoid said routing prohibiting areas.

5,787,014

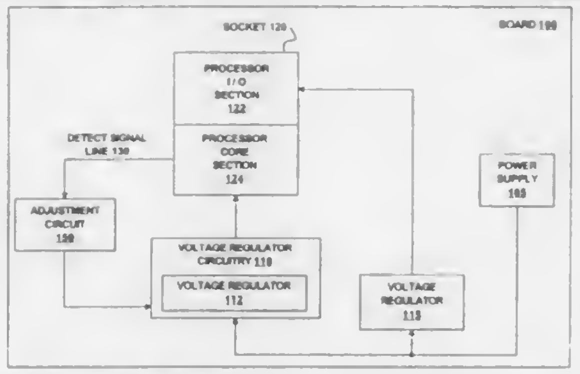
METHOD AND APPARATUS FOR AUTOMATICALLY CONTROLLING INTEGRATED CIRCUIT SUPPLY VOLTAGES

Jerald Nevin Hall, Scappoose; Thomas A. Rampone, Hillsboro, and Kirk Tyler Byers, Portland, all of Oreg., assignors to Intel Corporation, Santa Clara, Calif.

Filed Mar. 29, 1996, Ser. No. 625,798

Int. Cl.^{6} G05F *3/16*

U.S. Cl. 364—492 **21 Claims**



6. A system comprising:

a circuit board, the circuit board comprising an area for attaching an integrated circuit to the circuit board;

a detect signal line coupled to the circuit board;

an adjustment circuit coupled to the circuit board and the detect signal line for generating one of either a first voltage or a second voltage responsive to a voltage level of the detect signal line;

a first voltage regulator, coupled to the circuit board and the adjustment circuit, for providing a third voltage to the area responsive to the adjustment circuit generating the first voltage, and for providing a fourth voltage to the area responsive to the adjustment circuit generating the second voltage; and

a second voltage regulator for conditionally supplying, based on whether outputs of the first voltage regulator and the second voltage regulator are coupled together in the integrated circuit, a fifth voltage to the area in the event the first voltage regulator supplies the third voltage.

5,787,015

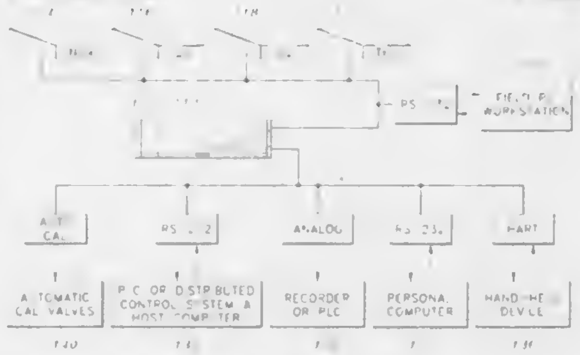
MODULAR ANALYZER SYSTEM

Roland Aldridge, Los Angeles; Mark Olsen, Long Beach, both of Calif., and Mitch Timin, State College, Pa., assignors to Rosemount Analytical, Inc., La Habra, Calif.

Filed Sep. 16, 1994, Ser. No. 307,281

Int. Cl.^{6} G06F *17/40*

U.S. Cl. 364—496 **9 Claims**



1. A modular analyzer system comprising:

a. at least one functional module having a detector and microprocessing means containing a phrase menu for operating said module to determine the concentration of an unknown in a fluid sample and for displaying the results of said determination;

b. an input/output module for each said functional module;

c. a control device comprising a platform for mounting said I/O module, a control module having display means and means for entering operating commands into said system and means electronically connecting said input/output module and said control module;

d. network means connecting said functional module and said control device; and

e. a phrase dictionary in said control device containing the phrases in said phrase menu of said functional module, each phrase in said dictionary and the correlative phrase in said phrase menu of said functional module having a corresponding code, said codes being compiled in an index maintained at each said functional module and said control device, said corresponding codes being transmitted between said command module and said functional module;

whereby menus, data output and commands are transmitted between said functional modules and said control device as a series of codes substantially reducing memory requirements and transmission time.

5,787,016

Patent Not Issued For This Number

5,787,017

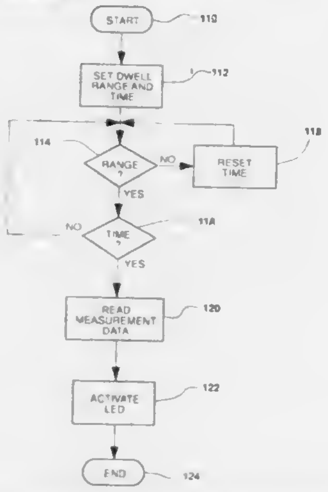
METHOD AND APPARATUS FOR ACQUIRING DATA FROM A MEASUREMENT TRANSDUCER

Stephen G. Hearing, Gaines, Mich., assignor to LMI Corporation, Byron, Mich.

Filed Apr. 18, 1997, Ser. No. 844,232

Int. Cl.^{6} G01B *21/00*

U.S. Cl. 364—564.444 **14 Claims**



1. A method of acquiring measurement data from a gage generating a measurement signal representing a dimensional measurement comprising the steps of:

a. setting a dwell dimensional range representing high and low limits for a value of a dimensional measurement signal generated by a dimensional measurement gage making dimensional measurements;

b. setting a dwell time period representing a length of time period during which the dimensional measurement signal generated by the measurement gage must remain within the dwell dimensional range;

c. timing the elapsed period the dimensional measurement signal remains in the dwell dimensional range; and

d. recording the value of the dimensional measurement signal in response to the elapsed time equaling the dwell time period.

5,787,018

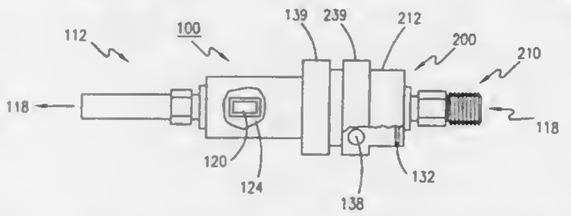
SYSTEMS AND METHODS TO GATHER, STORE, AND TRANSFER INFORMATION FROM ELECTRO/MECHANICAL TOOLS AND INSTRUMENTS

Michael L. Bolan, Dallas, and Nicholas M. G. Fekete, Richardson, both of Tex., assignors to Dallas Semiconductor Corporation

Continuation of Ser. No. 355,934, Dec. 14, 1994, Pat. No. 5,615,130. This application Mar. 17, 1997, Ser. No. 819,406

Int. Cl.^{6} G06F *17/00*

U.S. Cl. 364—505 **12 Claims**



8. A system for gathering, storing and transferring information between electro/mechanical device and a host computer, comprising:

- a host computer;
- a serial bus connected to said host computer;
- a plurality of electro/mechanical devices, each comprising:
  - an electronic circuit adapted to be removably attachable to said serial bus, each of said electronic circuits comprising:
    - a unique n-bit identification data;
    - a memory circuit;
    - a serial bus interface circuit; and
    - control logic connected to each of said unique n-bit identification data, said memory circuit, and said serial bus interface circuit.

5,787,019

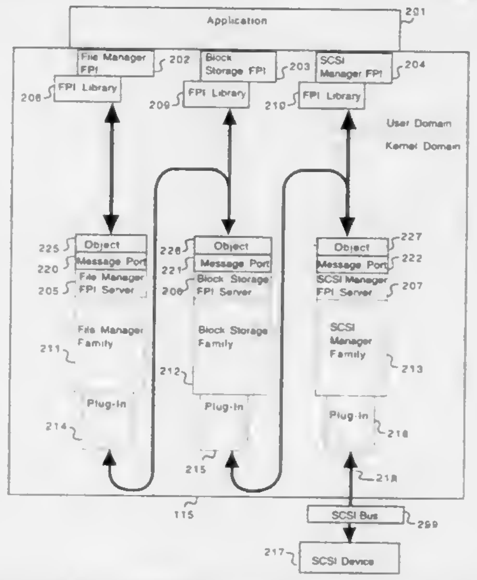
SYSTEM AND METHOD FOR HANDLING DYNAMIC CHANGES IN DEVICE STATES

Holly Knight, La Honda; Milton Soong, San Jose, and Pradeep Kathail, Santa Clara, all of Calif., assignors to Apple Computer, Inc., Cupertino, Calif.

Filed May 10, 1996, Ser. No. 644,255

Int. Cl.^{6} G06F *15/177*

U.S. Cl. 364—550 **18 Claims**



1. A method for handling dynamic changes in states of physical input/output devices in a computer system, comprising the steps of:

establishing a plurality of families of software, each family being executable by the computer system and providing access to a predetermined class of input/output devices;

establishing subscriptions for predetermined ones of said families with predetermined other ones of said families, whereby said predetermined ones of said families receive notification of changes in states of the input/output devices from said predetermined other ones of said families;

detecting a change in state of an input/output device by a respective family; and

notifying said predetermined ones of said families having subscriptions with said respective family of the change in state of the input/output device.

5,787,020

PROCEDURE AND APPARATUS FOR ANALYZING ELEVATOR OPERATION

Etienne Motliere, Nice; Veikko Mattsson; Risto Jokinen, both of Hyvinkää, and Jari Lammassaari, Helsinki, all of Finland, assignors to Kone Oy, Helsinki, Finland

Filed Dec. 6, 1996, Ser. No. 764,074

Claims priority, application Finland, Dec. 8, 1995, 955921

Int. Cl.^{6} G01B *17/00*

U.S. Cl. 364—550 **13 Claims**

1. A method for analyzing elevator functions and detecting deviating functions, comprising the steps of:

continuously monitoring functions of an elevator by monitoring signals which control elevator components or which appear in response to elevator component functions;

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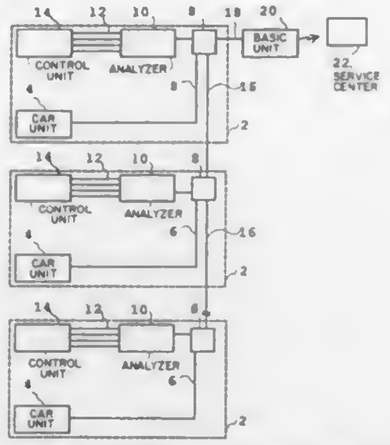


- analyzing the monitored functions for deviations from a normal range by comparing successive signals relating to a given function with each other, or by comparing the monitored signals with a reference quantity; and
- updating the definition of the normal range for the monitored signals, the normal range corresponding to normal operation and being updated based upon frequencies of occurrence of the monitored signals and their deviations, such that the definitions of signals to be regarded as belonging to normal operation are determined automatically for the elevator.

5,787,021

INFORMATION SYSTEM FOR PRODUCTION CONTROL

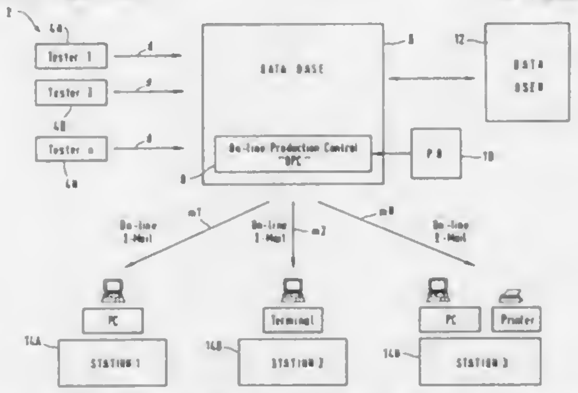
Moustafa Samaha, Freiburg, Germany, assignor to Detusche ITT Industries GmbH, Freiburg, Germany

Filed Dec. 18, 1995, Ser. No. 574,394

Claims priority, application Germany, Dec. 28, 1994, 44 46 966.7

Int. Cl.^{6} G06F *19/00*

U.S. Cl. 364—552 **18 Claims**



11. An information system for providing improved production control in the area of semiconductor fabrication, comprising:

- at least one tester for generating data relative to semiconductor fabrication;
- a database for receiving and storing said data;
- means for analyzing said data including test profiles associated to the different devices to be tested, each of said profiles having predetermined limits for generating at least one error message in response to said data exceeding said predetermined limits, wherein said test profile is assigned to a receiving station; and
- a plurality of said receiving stations, at least one of said plurality of receiving stations remotely located, each said receiving station associated with at least one of said test profiles for automatically receiving said error message generated from one of said test profiles, wherein receipt of said error message from said assigned test profile initiates a check on a semiconductor fabrication procedure, wherein said plurality of receiving stations are coupled to said analyzing means by a two way data link comprising an electronic mail system, wherein each said error message generated in response to said data exceeding said predetermined limits is transmitted over said data link.

5,787,022

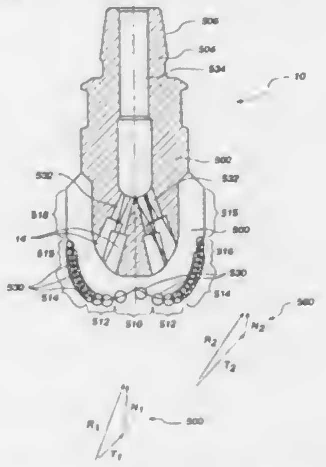
STRESS RELATED PLACEMENT OF ENGINEERED SUPERABRASIVE CUTTING ELEMENTS ON ROTARY DRAG BITS

Gordon A. Tibbitts, Salt Lake City, Utah, and Evan C. Turner, The Woodlands, Tex., assignors to Baker Hughes Incorporated, Houston, Tex.

Division of Ser. No. 430,444, Apr. 28, 1995, Pat. No. 5,605,198, which is a continuation-in-part of Ser. No. 353,453, Dec. 9, 1994, Pat. No. 5,590,729, and a continuation-in-part of Ser. No. 164,481, Dec. 9, 1993, Pat. No. 5,435,403. This application Nov. 1, 1996, Ser. No. 742,858

Int. Cl.^{6} G06F *17/50;* **G06G** *7/48*

U.S. Cl. 364—578 **10 Claims**



1. A method of designing a rotary drill bit for drilling a subterranean formation, comprising:

- selecting a bit body design, including profile;
- mathematically simulating a rock formation to be drilled with said selected bit profile;
- determining the magnitude of strength of said simulated rock formation in at least one location adjacent said selected bit profile for a proposed set of drilling parameters; and
- selecting at least one cutting element for placement on said selected bit profile at said at least one location, said at least one cutting element possessing a structure adapted to penetrate said simulated rock formation under said proposed set of drilling parameters substantially without damage.

5,787,023

DIGITAL FILTER DEVICE FOR ELECTRONIC MUSICAL INSTRUMENTS

Taichi Kosugi, Shizuoka-ken, Japan, assignor to Kabushiki Kaisha Kawai Gakki Seisakusho, Shizuoka-Ken, Japan

Filed Sep. 30, 1996, Ser. No. 722,972

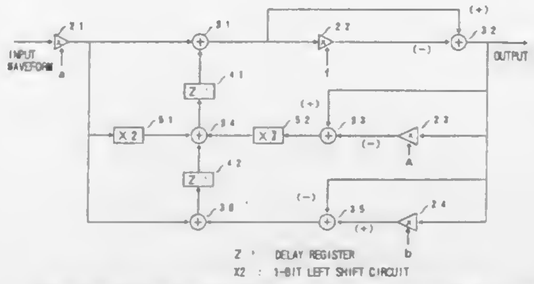
Claims priority, application Japan, Nov. 30, 1995, 7-334282

Int. Cl.^{6} G06F *17/10;* **G10H** *5/00*

U.S. Cl. 364—724.011 **9 Claims**

1. A digital filter device, for an electronic musical instrument, comprising:

- filter coefficient generation means for generating a set of filter coefficients in consonance with a designated resonance frequency and Q; and
- filter operation means for performing an operation for an IIR digital filter, relative to an input tone wave, by using said filter coefficient, which is generated by said filter coefficient generation means, with said filter coefficient generation means including trigonometric function output means, for outputting a trigonometric function value that is consonant with said resonance frequency, and filter coefficient calculation means, for calculating a plurality of filter coefficients based on said Q and said trigonometric function value that is generated by said trigonometric function output means, and with said filter coefficient calculation means having segment approximation means for performing, within a range of $x \geqq 0$, segment approximation of a function $f(x)=x/(1+x)$, or $f(x)=1/(1+x)$, and for outputting said filter coefficients.



5,787,024

HORIZONTAL FILTER IN MOVING PICTURE DECODING APPARATUS

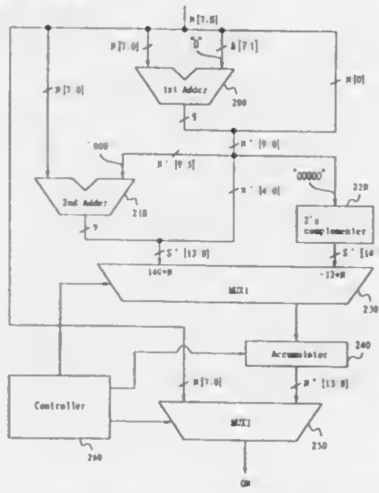
Tae-Sung Kim, Seoul; Jong-Seon Kim, Suwon; In-Shig Shim, Songnam, and Young-Wha Oh, Seoul, all of Rep. of Korea, assignors to Samsung Electronic Co., Ltd., Kyungki-do, Rep. of Korea

Filed Dec. 4, 1996, Ser. No. 760,297

Claims priority, application Rep. of Korea, Dec. 6, 1995, 1995 47222

Int. Cl.^{6} G06F *17/10*

U.S. Cl. 364—724.011 **8 Claims**



1. A horizontal filter in a moving picture decoding apparatus comprising:

- operating means for obtaining multiplied values by multiplying an input picture signal with 140 and with −12;
- first selecting means for selectively outputting said multiplied values obtained from said operating means in a sequence of said input picture signal;
- an accumulator for accumulating signals outputted from said first selecting means;
- second selecting means for selectively outputting said input picture signal and signals outputted from said accumulator; and
- a controller for controlling an output time of said first and second selection means and said accumulator.

5,787,025

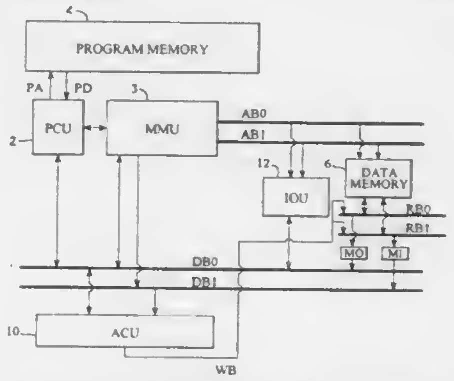
METHOD AND SYSTEM FOR PERFORMING ARITHMETIC OPERATIONS WITH SINGLE OR DOUBLE PRECISION

Jumana A. Muwafi, San Francisco, and Mihran Touriguian, Hercules, both of Calif., assignors to Atmel Corporation, San Jose, Calif.

Filed Feb. 28, 1996, Ser. No. 607,937

Int. Cl.^{6} G06F *7/38*

U.S. Cl. 364—736.01 **23 Claims**



1. A circuit operable in a selected one of a single precision mode and a double precision mode to perform at least one arithmetic operation on data in response to control signals, where the control signals have been generated by executing instructions in a pipelined manner, said circuit including:

- arithmetic logic means for performing a selected one of at least two arithmetic operations on a first operand and a second operand thereby generating an output word, said arithmetic logic means having a first input for receiving the first operand and a second input for receiving the second operand;
- an accumulator register for receiving the output word from the arithmetic logic means; and
- an operand circuit, wherein the operand circuit includes:
- a first output connected to the first input of the arithmetic logic means for asserting the first operand to the arithmetic logic means;
- a second output connected to the second input of the arithmetic logic means for asserting the second operand to the arithmetic logic means;
- a third input for receiving a first N-bit data word;
- a fourth input for receiving a second N-bit data word, and
- means, operable in a selected one of the single precision mode and the double precision mode in response to a subset of the control signals, for concatenating the first N-bit data word with the second N-bit data word thereby generating a first 2N-bit operand and asserting the first 2N-bit operand to the second output in a single pipeline cycle in the double precision mode, and for asserting the first N-bit data word to the first output as a first N-bit operand and the second N-bit data word to the second output as a second N-bit operand in the single precision mode, wherein the arithmetic logic means is controllable to assert the first 2N-bit operand unaltered to the accumulator register in the single pipeline cycle in the double precision mode.

5,787,026

METHOD AND APPARATUS FOR PROVIDING MEMORY ACCESS IN A PROCESSOR PIPELINE

Doron Orenstein, Haifa, Israel; Millind Mittal, S. San Francisco, Calif., and Ofri Wechsler, Ramat-Ishai, Israel, assignors to Intel Corporation, Santa Clara, Calif.

Filed Dec. 20, 1995, Ser. No. 575,780

Int. Cl.^{6} G06F *9/302;9/38*

U.S. Cl. 364—736.05 **35 Claims**

1. A method for executing an instruction in a processor pipeline, said method comprising the steps of:

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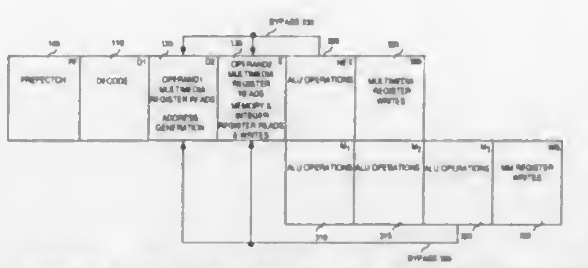
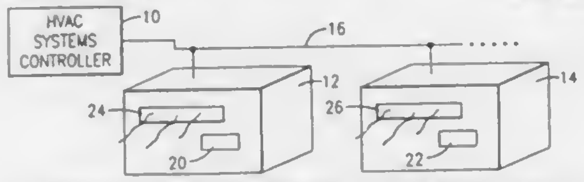

BYPASS
PREFETCH
DECODE
OPERAND1 MULTIMEDIA REGISTER READS ADDRESS GENERATION
OPERAND2 MULTIMEDIA REGISTER READS MEMORY & INTEGER REGISTER READS & WRITES
ALU OPERATIONS
MULTIMEDIA REGISTER WRITES
ALU OPERATIONS
ALU OPERATIONS
ALU OPERATIONS
MM REGISTER WRITES
BYPASS

- A) reading at least a first operand of said instruction from a first register file in a first stage of said processor pipeline;
- B) if said instruction specifies a storage area other than said first register file in which said first operand is to be placed, placing said first operand in said storage area in a second stage of said processor pipeline;
- C) otherwise, performing at least part of one or more ALU operations on said first operand and at least a second operand of said instruction in a third stage of said processor pipeline, said ALU operations generating a result.

5,787,027
NOISE TOLERANT HVAC SYSTEM

Robert P. Dolan, Syracuse; Thomas R. Phillips, Cicero; Thomas L. DeWolf, Liverpool, and Mark A. Hill, Lafayette, all of N.Y., assignors to Carrier Corporation, Syracuse, N.Y.
Continuation of Ser. No. 578,349, Dec. 26, 1995, abandoned. This application Sep. 10, 1997, Ser. No. 929,143
Int. Cl.^{6} G01F *7/00*
U.S. Cl. 364—505 **20 Claims**

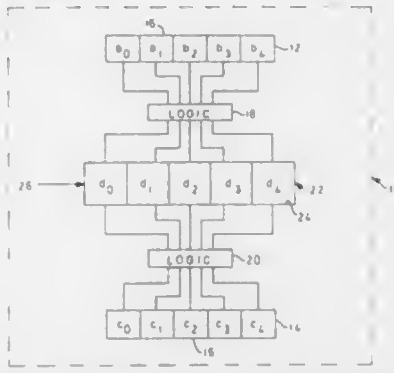


1. A memory for storing values of control parameters used by a programmed processor to control a unit for providing conditioned air to a space to be heated or cooled, said memory comprising:

- a first set of addressable storage locations having at least two distinct storage portions in each addressable storage location wherein one of the distinct storage portions in each addressable storage location contains the value of at least one of the control parameters used by the programmed processor to control the unit and the second distinct storage portion in the same addressable storage location contains the verification image of the value of the control parameter stored in the first distinct storage portion of the addressable storage location, said verification image in each addressable storage location having a mathematical relationship with respect to the value of the control parameter in the same addressable storage location; and
- a second set of addressable storage locations having at least two distinct storage portions in each addressable storage location wherein one of the distinct storage portions in each of said second set of addressable storage locations contains the value of a particular control parameter, the particular control parameter being different from the one or more control parameters having values stored in said first set of addressable storage locations and wherein the second of the distinct storage portions in each of said second set of addressable storage locations contains a verification image of the value of the particular control parameter wherein each verification image of the value of the particular control parameter in a second portion of an addressable storage location in said second set of addressable storage locations has a mathematical relationship with respect to the value of the particular control parameter stored in the first portion of the same addressable location that is substantially different from any mathematical relationship that a verification image of a value of a control parameter stored in a second portion of one of the first set of addressable storage locations has with respect to the stored value of that control parameter.

5,787,028
MULTIPLE BIT MULTIPLIER

Ronald C. Mullin, Waterloo, Canada, assignor to Certicom, Corp., Mississauga, Canada
Filed Mar. 29, 1996, Ser. No. 626,237
Claims priority, application United Kingdom, Mar. 30, 1995, 9506574
Int. Cl.^{6} G06F *7/00;15/00*
U.S. Cl. 364—746.1 **9 Claims**


16
b_0 b_1 b_2 b_3 b_4
12
LOGIC
18
26
d_0 d_1 d_2 d_3 d_4
22
24
10
LOGIC
20
c_0 c_1 c_2 c_3 c_4
14
16

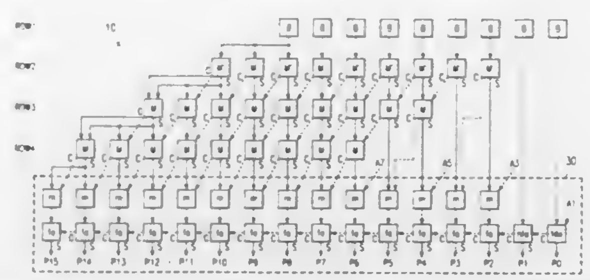
1. A method of computing the product D of two elements B,C of the finite field GF(2^{nm}) where n and m are integers greater than 1, the field having components A^{2^i} o≦i<nm that constitute a normal basis for GF2^{nm} as an extension of GF2^n, comprising the steps

- a) representing the element B as a vector of subfield elements b_i, where b_i is the coefficient of in said normal basis representation of B,
- b) representing the element C as a vector of subfield elements c_i, where c_i is the coefficient of in said normal basis representation of C,
- c) converting the representation of elements B and C to vectors of m subfield elements with each subfield element represented as a n-tuple,
- d) storing in successive cells of a first m cell recirculating shift register the n-tuples representing the element B,
- e) storing in successive cells of a second m cell recirculating shift register the n-tuples representing the element C,
- f) establishing logical connections between the m cells of the first and second shift registers and a m cells product register to provide a m subfield element finite field multiplier in which grouped terms representing the subfield elements of the product D are generated in the respective ones of the m cells of the product register as the contents of said shift registers and product registers are cyclically shifted, said logical connections performing arithmetic operations bit wise on the n-tuples as determined by a grouped term and subfield arithmetic inherent in the subfield elements to provide an n-tuple subfield element in each of the m cells of the product register, and
- g) continuing cyclic shifting of said registers until all grouped terms are generated.

5,787,029
ULTRA LOW POWER MULTIPLIER

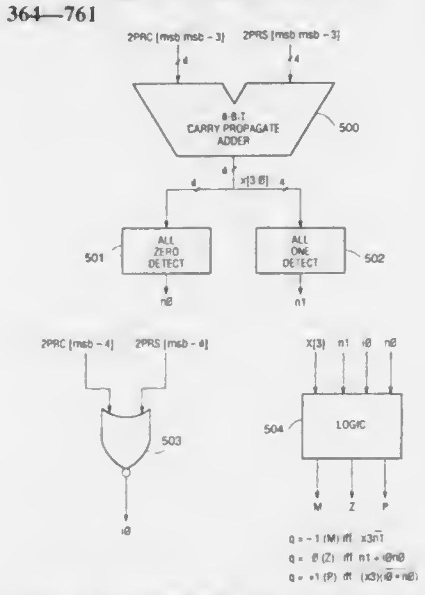
Edwin de Angel, Austin, Tex., assignor to Crystal Semiconductor Corp., Austin, Tex.
Continuation of Ser. No. 356,054, Dec. 19, 1994, abandoned. This application Jan. 10, 1997, Ser. No. 782,527
Int. Cl.^{6} G06F *7/52*
U.S. Cl. 364—760.01 **20 Claims**

1. A digital multiplier having an array of computational units arranged in rows and columns characterized in that the multiplication operation involves calculations which progresses in a first direction across a plurality of said rows, and wherein, depending on input data to said digital multiplier, some row calculations are suppressed in that the calculations in said suppressed row are not made, and output data from a row previous to said suppressed row are used in calculations of a row after said suppressed row.



5,787,030
CORRECT AND EFFICIENT STICKY BIT CALCULATION FOR EXACT FLOATING POINT DIVIDE/SQUARE ROOT RESULTS

J. Arjun Prabhu, Palo Alto, and Grzegorz B. Zyner, San Jose, both of Calif., assignors to Sun Microsystems, Inc., Mountain View, Calif.
Filed Jul. 5, 1995, Ser. No. 498,397
Int. Cl.^{6} G06F *7/52;7/38*
U.S. Cl. 364—761 **13 Claims**

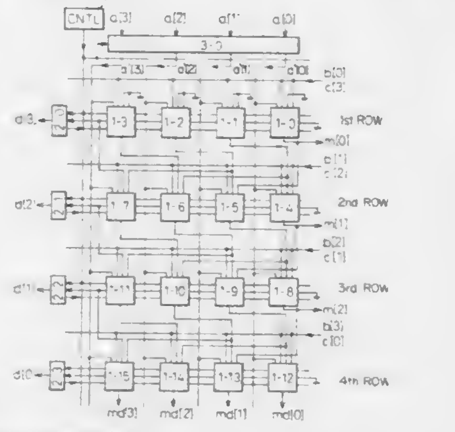


1. A quotient digit selection circuit that determines a quotient digit in binary division and square root operations based upon a redundant partial remainder input, wherein the redundant partial remainder input includes first, second, third, fourth, and fifth sum bits and first, second, third, fourth, and fifth carry bits, and wherein the quotient digit chosen is output by asserting one of a minus output corresponding to a negative one quotient digit, a zero output corresponding to a zero quotient digit, and a plus output corresponding to a positive one quotient digit, the quotient digit selection circuit comprising:

- a four-bit carry-propagate adder that takes the first, second, third, and fourth sum bits and the first, second, third, and fourth carry bits as inputs and produces first, second, third, and fourth estimated partial remainder bits as outputs;
- a four-bit zero detector that takes the first, second, third, and fourth estimated partial remainder bits as inputs, and that produces an all-zero signal that is asserted if and only if the first, second, third, and fourth estimated partial remainder bits are all zeros;
- a four-bit one detector that takes the first, second, third, and fourth estimated partial remainder bits as inputs, and that produces an all-one signal that is asserted if and only if the first, second, third, and fourth estimated partial remainder bits are all ones;
- a NOR gate that takes the fifth sum bit and the fifth carry bit as inputs and that produces a fifth bit zero signal; and
- a zero circuit that takes the all-one signal, the fifth bit zero signal, and the all-zero signal as inputs and that produces the zero output, such that the zero output is asserted if and only if either the all-one signal is asserted or the fifth bit zero signal and the all-zero signal are both asserted.

5,787,031
DIVIDER AND MULTIPLIER/DIVIDER USING SAID DIVIDER

Kohji Ichikawa, Obu, and Hiroaki Tanaka, Okazaki, both of Japan, assignors to Nippondenso Co., Ltd., Kariya, Japan
Continuation of Ser. No. 629,905, Apr. 9, 1996, abandoned, which is a continuation of Ser. No. 208,748, Mar. 11, 1994, abandoned. This application Nov. 14, 1996, Ser. No. 749,210
Claims priority, application Japan, Mar. 12, 1993, 5-051770
Int. Cl.^{6} G06F *7/52*
U.S. Cl. 364—764 **10 Claims**



1. A divider comprising:

- a plurality of groups of arithmetic units, arithmetic units in each said group connected in series and corresponding to a number of bits of first data, a selected one of said arithmetic units in each of said groups being a most significant arithmetic unit, wherein each of said arithmetic units comprises:
  - an adder for inputting said first data, second data, and carry input data, effecting an addition operation of said first data, said second data and said carry input data, and outputting addition result data to a next arithmetic unit; and
  - a selector for selecting either said addition result data from said adder or said second data in accordance with a select signal;
- a divisor data input unit for inputting a 2's complement of divisor data as said first data;
- signal lines, each connected to receive carry output data from each of said most significant arithmetic units, respectively, a first group of said arithmetic units each receiving a bit of dividend data as said second data and a second group of said arithmetic units each receiving an output of one of said arithmetic units from said first group or said second group as said second data; and
- a plurality of AND circuits, each corresponding to one bit in said divisor data, each of said AND circuits calculating a logical product of a corresponding bit of said divisor data and carry output data sent from a corresponding signal line, and supplying said logical product as said select signal to said selector of corresponding arithmetic units.

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5,787,032

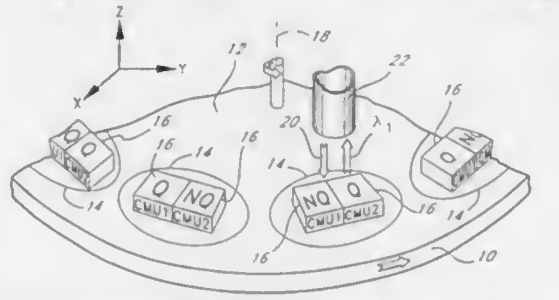
DEOXYRIBONUCLEIC ACID(DNA) OPTICAL STORAGE USING NON-RADIATIVE ENERGY TRANSFER BETWEEN A DONOR GROUP, AN ACCEPTOR GROUP AND A QUENCHER GROUP

Michael J. Heller, Encinitas, and Eugene Tu, San Diego, both of Calif., assignors to Nanogen, San Diego, Calif.

Continuation-in-part of Ser. No. 232,233, May 5, 1994, Pat. No. 5,565,322, which is a continuation-in-part of Ser. No. 790,262, Nov. 7, 1991, abandoned, which is a continuation of Ser. No. 250,951, May 27, 1994, Pat. No. 5,532,129. This application Jun. 10, 1994, Ser. No. 258,168

Int. Cl.⁶ G11C *13/00*; G11B *7/00*

U.S. Cl. 365—151 **39 Claims**



1. An optical memory comprising:

a plurality of read portals disposed on a substrate, and

chromophoric memory units disposed within the read portals, each chromophoric memory unit adapted to receive photonic energy and to re-emit energy based upon the action or non-action of a quencher.

5,787,033

SEMICONDUCTOR MEMORY DEVICE WITH REDUCED PROBABILITY OF POWER CONSUMPTION

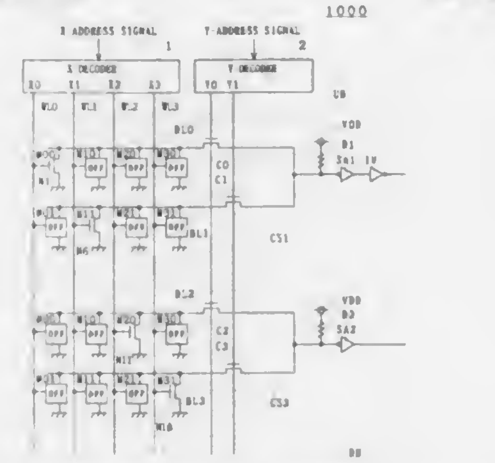
Hideshi Maeno, Tokyo, Japan, assignor to Mitsubishi Denki Kabushiki Kaisha, Tokyo, Japan

Filed Jul. 19, 1996, Ser. No. 684,209

Claims priority, application Japan, Aug. 22, 1995, 7-213312; Feb. 7, 1996, 8-021448

Int. Cl.⁶ G11C *17/10*

U.S. Cl. 365—182 **20 Claims**



1. A semiconductor memory device, comprising:

a plurality of columns each including an array of a plurality of memory cells; and

an output part connected to said plurality of columns for amplifying and outputting output data of said plurality of columns,

wherein said plurality of memory cells include at least one ON/OFF controllable memory cell and at least one OFF-state memory cell, and said plurality of memory cells are programmed with desired data by selectively arranging said at least one ON/OFF controllable memory cell and said at least one OFF-state memory cell,

said output part of said semiconductor memory device including at least one data inverting means, for inverting data outputted from at least one specific column of said plurality of columns.

5,787,034

NONVOLATILE SEMICONDUCTOR MEMORY HAVING A STRESS RELAXING VOLTAGE APPLIED TO ERASE GATE DURING DATA WRITE

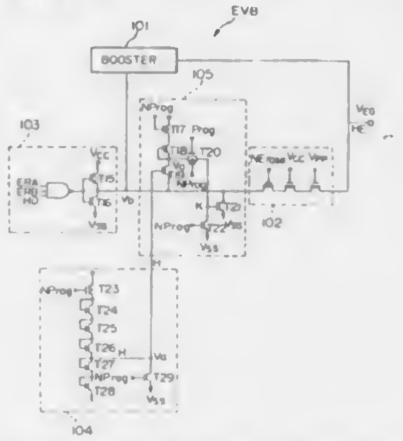
Sachiko Omino, Kokubunji; Tadashi Miyakawa, Adachi-Ku, and Masamichi Asano, Ota-Ku, all of Japan, assignors to Kabushiki Kaisha Toshiba, Kawasaki, Japan

Division of Ser. No. 570,575, Dec. 11, 1995, Pat. No. 5,636,160, which is a division of Ser. No. 913,908, Jul. 16, 1992, abandoned. This application Mar. 3, 1997, Ser. No. 813,951

Claims priority, application Japan, Jul. 16, 1991, 3-201255

Int. Cl.⁶ G11C *16/06*

U.S. Cl. 365—185.02 **9 Claims**



1. A non-volatile semiconductor memory comprising:

a memory cell array having non-volatile memory cells disposed in a matrix form, each said memory cell having a floating gate, a control gate, an erase gate, a source and a drain, and data being written through injection of electrons into said floating gate and erased through removal of electrons from said floating gate; and

a memory control circuit coupled to said memory cell array and being driven by a high voltage power source and a low voltage power source, predetermined voltages being applied by said memory control circuit to said control gate, said erase gate and said drain respectively of each said memory cell to enter one of a data write mode, a data erase mode and a data read mode, in said data write mode, high voltages being applied to said control gate and said drain of said memory cell to be data-written, a stress relaxing voltage being applied to each said erase gate of said memory cells not to be data-written, and said stress relaxing voltage being an intermediate voltage between the voltages of said high and low voltage power sources,

wherein said memory control circuit includes voltage outputting means for outputting said stress relaxing voltage,

wherein said voltage outputting means includes:

- a block decoder for receiving control signals and outputting a signal to an output terminal, said output signal taking a first level in said data write mode and said data erase mode and a second level in said data read mode;
- a voltage booster circuit connected to said output terminal of said block decoder, said voltage booster circuit being inputted with a booster circuit drive control signal, said booster circuit drive control signal taking said first level in said data erase mode and taking said second level in said data write mode and data read mode, said voltage booster circuit entering in an operation state when said voltage booster circuit drive control signal takes said first level, to output an erase high voltage to a final output terminal of said voltage outputting means, and said voltage booster circuit entering an inactive operation state when said voltage booster circuit drive control signal takes said second level, to disconnect said voltage booster circuit from said final output terminal;
- a voltage buffer circuit connected between an output terminal of said voltage booster circuit and an output terminal of said block decoder, for preventing said erase high voltage outputted from said voltage booster circuit from being applied directly to said block decoder, and outputting said stress relaxing voltage to said final output terminal when said block decoder outputs said output signal of said first level, and outputting a voltage of said low voltage power source to said final output terminal when said block decoder outputs said output signal of said second level; and
- a feedback circuit connected between said block decoder and said voltage buffer circuit, said feedback circuit regulating a potential at the connection node between said block decoder and said voltage buffer circuit to have a predetermined potential value, by lowering said potential through discharge when said potential rises over said predetermined potential value and by raising said potential through charge from said block decoder when said potential lowers below said predetermined potential value.

5,787,035

MEMORY CELL ARRAY

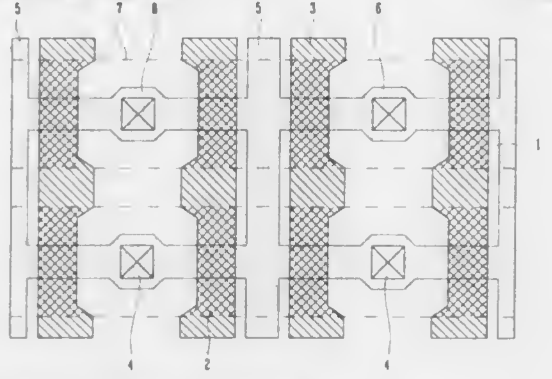
Ho Cheol Kang, Kyungki-Do, and Jong Ho Kim, Seoul, both of Rep. of Korea, assignors to Hyundai Electronics Industries Co., Ltd., Kyungki-do, Rep. of Korea

Filed Aug. 29, 1997, Ser. No. 924,005

Claims priority, application Rep. of Korea, Aug. 30, 1996, 96-36631

Int. Cl.⁶ G11C *13/00*

U.S. Cl. 365—185.05 **2 Claims**



1. Memory cell array comprising:

a plurality of field oxide layers formed at isolation regions and arranged in the form of a plurality of rows, said each field oxide layer of a row corresponded the space between said field oxide layers of adjacent rows;

a plurality of floating gates formed on a silicon substrate between said field oxide layers of adjacent rows, said each floating gate insulated from said silicon substrate by a tunnel oxide layer;

a plurality of control gates formed on said floating gates which is formed between said field oxide layers and said field oxide layers placed in both sides of said floating gates, said each control gate insulated from said each floating gate by dielectric layer;

a plurality of source regions formed on said silicon substrate surrounded by adjacent four field oxide layers and adjacent four floating gates, said source regions separated from each other by said field oxide layer; and

a plurality of drain regions formed on said silicon substrate surrounded by adjacent four field oxide layers and adjacent four floating gates, said drain regions separated from each other by said field oxide layer, whereby said each floating gate is placed between each drain region and each source region so that four memory cells hold said single source region or single drain region in common.

5,787,036

FLASH MEMORY INCLUDING IMPROVED TRANSISTOR CELLS AND A METHOD OF PROGRAMMING THE MEMORY

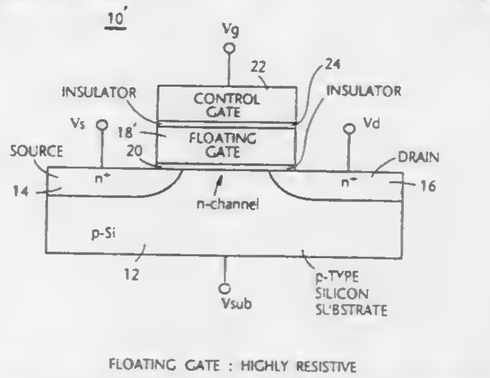
Takeshi Okazawa, Tokyo, Japan, assignor to NEC Corporation, Tokyo, Japan

Filed Dec. 12, 1996, Ser. No. 764,362

Claims priority, application Japan, Dec. 12, 1995, 7-322889

Int. Cl.⁶ G11C *16/02*

U.S. Cl. 365—185.18 **11 Claims**



1. An improved flash memory of the type including a plurality of MOSFETs (metal oxide semiconductor field effect transistors) each of which comprises:

a first conductive type substrate;

a source and a drain, said source and drain both being doped with an impurity of a different type from that with which said first conductive type substrate is doped, said source and said drain being formed on one major surface of said substrate;

a floating gate, situated over said major surface via a first insulation layer, controlling a current flowing through a channel between said source and said drain; and

a control gate provided over said floating gate via a second insulation layer,

wherein the improvement comprises doping said floating gate with an impurity in order to increase the resistance of said floating gate so as to hold electrons in essentially the same region as they were injected from a depletion region formed in said channel during a programming or reprogramming operation.

5,787,037

NON-VOLATILE MEMORY DEVICE WHICH SUPPLIES ERASABLE VOLTAGE TO A FLASH MEMORY CELL.

Masakazu Amanai, Tokyo, Japan, assignor to NEC Corporation, Tokyo, Japan

Filed May 9, 1997, Ser. No. 853,675

Claims priority, application Japan, May 10, 1996, 8-115910

Int. Cl.⁶ G11C *11/34*

U.S. Cl. 365—185.18 **9 Claims**

1. A nonvolatile semiconductor memory device comprising: an address driving section comprising an N-channel transistor and a P-channel transistor, said address driving section producing a level signal corresponding to an address decoded signal; and a memory cell having a control gate, said memory cell erasing stored contents therefrom by supplying the control gate with a predetermined voltage, wherein said nonvolatile semiconductor memory device comprises:

means, on writing data in said memory cell, for supplying the control gate of said memory cell with a higher voltage than an

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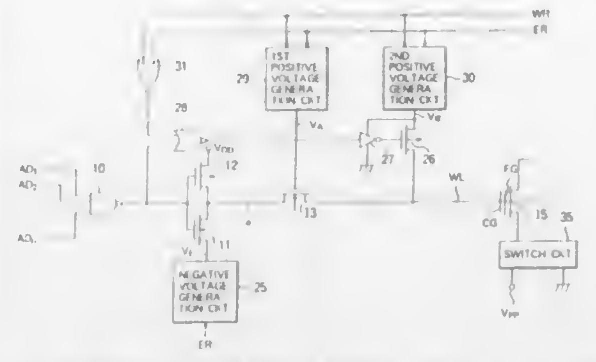
1ST POSITIVE VOLTAGE GENERATION CKT
2ND POSITIVE VOLTAGE GENERATION CKT
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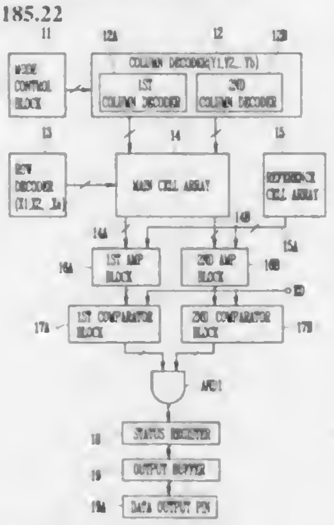
output voltage of said address driving section in place of the output voltage of said address driving section; and

a negative voltage generation circuit, on erasing the stored contents, for supplying a negative voltage to a source of said N-channel transistor to supply the negative voltage to the control gate of said memory cell via said N-channel transistor, thereby erasing the stored contents from said memory cell.

5,787,038
FLASH MEMORY DEVICE
Jae Kwan Park, Seoul, Rep. of Korea, assignor to Hyundai Electronics Industries Co., Ltd., Kyungki-do, Rep. of Korea
Filed Oct. 18, 1996, Ser. No. 730,872
Claims priority, application Rep. of Korea, Oct. 18, 1995, 95-35937
Int. Cl.^{6} G11C *11/34*
U.S. Cl. 365—185.22 **3 Claims**



1. A flash memory device comprising:

a mode control block to select a verify mode;

a column decoder coupled to said mode control block and divided into first and second column decoders by treating as "don't care" one of a plurality of input address pins.

a main cell array to which an address of said first and second column decoders and an address of a row decoder are input;

first and second sense amplifier blocks to which information from each column line of said main cell array selected by the address of said row decoder and an output signal of a reference cell array are input, respectively, wherein said first and second sense amplifier blocks operate to sense and amplify the information to produce a sense signal indicative thereof;

first and second comparator blocks to which each sense signal from said first and second sense amplifier blocks and a constant expected data are input, wherein each of first and second comparator blocks compares the sense signal with the constant expected data and each outputs a compare signal indicative thereof;

means for generating a pass or fail signal to determine whether said main cell array is normally programmed or erased according to each compare signal;

a status register to store the pass or fail signal; and

an output buffer to output the pass or fail signal from said status register to a data output node.

3. A flash memory device comprising:

a mode control block to select a verify mode;

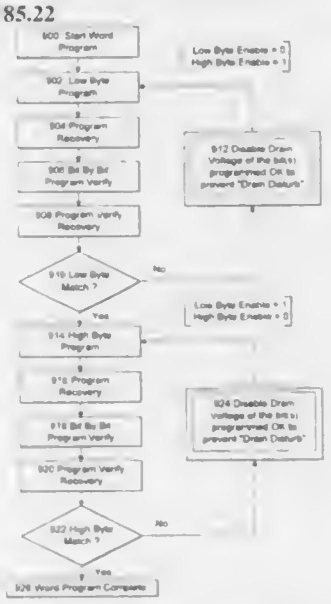
a column decoder which is divided into a plurality of column decoders by treating as "don't care" one or more addresses of input addresses;

a main cell array to which an address of said column decoders and an address of a row decoder are input;

a plurality of sense amplifier blocks to which information stored on memory cells selected by said column decoder and said row decoder using an output signal of a reference cell array; and

means for generating a pass or fail signal to determine whether said main cell array is normally programmed or erased by comparing each output signal using a plurality of comparator blocks of said sense amplifier with a constant expected data and then combining each compare signal from said comparator blocks.

5,787,039
LOW CURRENT FLOATING GATE PROGRAMMING WITH BIT-BY-BIT VERIFICATION
Han-Sung Chen, Keelung; Tzeng-Huel Shlau, Hsin-Pu; Yu-Shen Lin, Taipei; Chung-Cheng Tsai, Houli; Jin-Lien Lin, Taoyuan, all of Taiwan; Ray Lin Wan, Fremont, Calif.; Yuan-Chang Liu, Miao-Li, and Chun Hsiung Hung, Hsinchu, both of Taiwan, assignors to Macronix International Co., Ltd., Hsinchu, Taiwan
Filed Mar. 6, 1997, Ser. No. 812,615
Int. Cl.^{6} G11C *16/06*
U.S. Cl. 365—185.22 **45 Claims**


900 Start Word Program
902 Low Byte Program
904 Program Recovery
906 Bit By Bit Program Verify
908 Program Verify Recovery
910 Low Byte Match ?
No
Yes
914 High Byte Program
916 Program Recovery
918 Bit By Bit Program Verify
920 Program Verify Recovery
922 High Byte Match ?
926 Word Program Complete
Low Byte Enable = 0
High Byte Enable = 1
Low Byte Enable = 1
High Byte Enable = 0
912 Disable Drain Voltage of the bit(s) programmed OK to prevent "Drain Disturb"
924 Disable Drain Voltage of the bit(s) programmed OK to prevent "Drain Disturb"

1. An apparatus for storing data, comprising:

a memory array comprising a plurality of words of memory, wherein each word comprises a plurality of bits of memory, wherein each bit of memory comprises a floating gate memory cell;

an addressing mechanism to address individual words in said plurality of words of memory, wherein said addressing mechanism specifies an addressed word;

a plurality of column lines, each of which is coupled to a plurality of floating gate memory cells from said memory array;

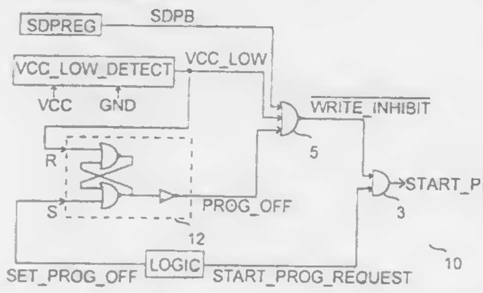
a data bus comprising a plurality of data bit lines to transfer data into and out of said memory array, each of said data bit lines being coupled to a plurality of column lines from said plurality of column lines;

programming power supply circuits coupled with said memory array, to apply programming voltages to said addressed word of memory to program and reprogram said addressed word of memory, including a plurality of column drivers, each of which is coupled to said plurality of column lines coupled to an associated data bit line of said data bus, each of said column drivers including a bit enable input for enabling programming of an individual bit within said addressed word of memory;

program verify logic, coupled with said memory array, to separately verify programming of said addressed word of memory, and within said addressed word to separately verify programming of each of said plurality of bits to determine a set of bits failing to program; and

control circuits to control said programming power supply circuits to program said addressed word of memory and to reprogram only said set of bits failing to program, said control circuits being coupled to: said programming power supply circuits, said bit enable inputs of said programming power supply circuits and to said program verify logic, said control circuits further including a plurality of bit program flags corresponding to respective bits within said addressed word, said bit program flags being coupled to and being set by said program verify logic to indicate a set of bits failing to program within said addressed word.

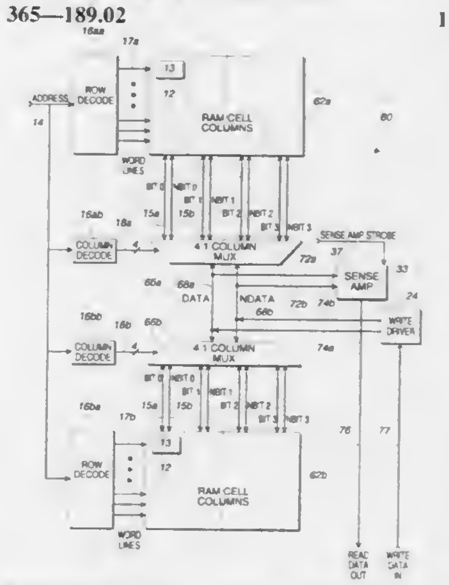
5,787,040
DEVICE FOR THE PROTECTION OF STORED DATA
Jean-François Leon, Biver, and Sébastien Zink, Aix En Provence, both of France, assignors to SGS-Thomson Microelectronics S.A., Saint Genis, France
Filed Aug. 21, 1997, Ser. No. 916,054
Claims priority, application France, Aug. 27, 1996, 96 10588
Int. Cl.^{6} G11C *7/00*
U.S. Cl. 365—189.01 **2 Claims**



1. A device for protection of data stored in a memory, comprising protection means to control an enabling signal to enable programming of a memory, programming being permitted when an enabling signal is in a first state and prohibited when this signal is in a second state, the protection means including a supply voltage drop detection device to set the enabling signal in the second state when the supply voltage is below a threshold,

said device further comprising a flip-flop circuit with an output controlling the state of the enabling signal concurrently with the supply voltage drop detection device so that all programming is prohibited when the flip-flop circuit stores a first state, and the protection device is organized in such a way that this state of the flip-flop circuit is modified only after the supply voltage drop detection circuit has detected that the supply voltage is below the threshold.

5,787,041
SYSTEM AND METHOD FOR IMPROVING A RANDOM ACCESS MEMORY (RAM)
J. Michael Hill, and Donald R. Weiss, both of Fort Collins, Colo., assignors to Hewlett-Packard Co., Palo Alto, Calif.
Filed Oct. 1, 1996, Ser. No. 724,204
Int. Cl.^{6} G11C *7/00*
U.S. Cl. 365—189.02 **17 Claims**



4. A system for enhancing speed and reducing power dissipation and logic complexity in random access memory, comprising:

(a) a first plurality of memory cell columns, each of said columns including:
  (1) at least one memory cell, each said cell configured to read and write a respective logic state; and
  (2) bit and nbit connections connected to each of said cells;
(b) a second plurality of said memory cell columns;
(c) a first multiplexer configured to multiplex said bit and nbit connections of said first plurality of memory cell columns;
(d) a second multiplexer configured to multiplex said bit and nbit connections of said second plurality of memory cell columns;
(e) a single sense amplifier connected between said first multiplexer and second multiplexer, said sense amplifier configured to read said bit and nbit connections of said first and second pluralities via respectively said first and second multiplexers, said sense amplifier configured to output a logic state from any of said cells based upon a voltage differential and a polarity between said bit and nbit connections of any of said columns;
(f) a write driver configured to write said bit and nbit connections of said first and second plurality via respectively said first and second multiplexers, said write driver configured to drive a logic state onto any of said cells based upon said voltage differential and said polarity between said bit and nbit connections of any of said columns; and
(g) logic configured to control said first and second mulitplexers, said logic configured to access a particular column and cell in one of said first and second pluralities during each memory access.

5,787,042
METHOD AND APPARATUS FOR READING OUT A PROGRAMMABLE RESISTOR MEMORY
Donald M. Morgan, Boise, Id., assignor to Micron Technology, Inc., Boise, Id.
Filed Mar. 18, 1997, Ser. No. 819,991
Int. Cl.^{6} G11C *7/00;* G01R *19/00*
U.S. Cl. 365—196 **20 Claims**

1. Circuitry for reading out a data bit stored in a memory cell of a memory array, comprising:

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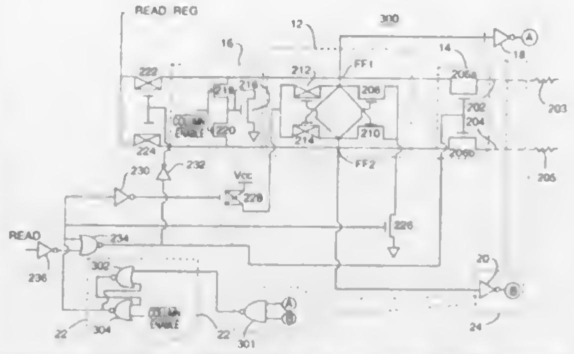


a readout circuit including at least one sense node coupled to receive a readout signal from the memory cell; and

a detector circuit coupled to the sense node and operating when the readout signal achieves a threshold level indicative of the data bit stored in the memory cell to condition the readout circuit such that the sense node is driven to a logic signal level that reliably indicates a binary value of the stored data bit.

5,787,043
SEMICONDUCTOR MEMORY DEVICE HAVING A REDUNDANCY CAPABILITY

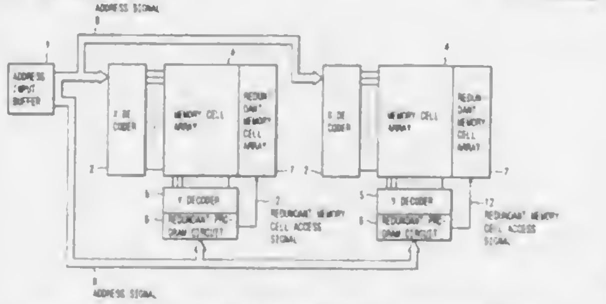
Takashi Akioka; Yuji Yokoyama, both of Hitachi; Atsushi Hiraishi, Oume; Masahiro Iwamura, Hitachi; Yutaka Kobayashi, Katsuta; Tatsumi Yamauchi, Hitachi; Shigeru Takahashi, Hitachiohta, and Koichi Motohashi, Kodaira, all of Japan, assignors to Hitachi, Ltd., Tokyo, Japan

Continuation of Ser. No. 100,202, Aug. 2, 1993, abandoned, which is a continuation of Ser. No. 585,239, Sep. 20, 1990, abandoned. This application Feb. 27, 1995, Ser. No. 394,765

Claims priority, application Japan, Sep. 20, 1989, 1-242125

Int. Cl.^{6} G11C *7/00;29/00*

U.S. Cl. 365—200 **18 Claims**


ADDRESS SIGNAL
ADDRESS INPUT BUFFER
X DECODER
MEMORY CELL ARRAY
REDUNDANT MEMORY CELL ARRAY
X DECODER
MEMORY CELL ARRAY
REDUNDANT MEMORY CELL ARRAY
Y DECODER
REDUNDANT PROGRAM CIRCUIT
REDUNDANT MEMORY CELL ACCESS SIGNAL
Y DECODER
REDUNDANT PROGRAM CIRCUIT
REDUNDANT MEMORY CELL ACCESS SIGNAL
ADDRESS SIGNAL

1. A defect relief semiconductor memory device comprising:

a memory having a memory array constituted by a plurality of memory mats, in which data can be written thereinto and read therefrom, and at least one standby memory cell array,

wherein said memory is divided into a plurality of memory blocks, each one of said at least one standby memory cell array being associated with a respective one or more of the memory blocks, and each of said plurality of memory blocks including a memory mat, a separate address circuit for accessing memory cells of that memory block, a circuit for generating an access prohibition signal when a defective memory cell in that memory block is accessed and another circuit for selecting that one of said at least one standby memory cell array associated therewith when said defective memory cell is accessed by the address circuit of that memory block, and

wherein the number of address bits for designating a defective memory cell in a memory block having the defective memory cell to be accessed by said access prohibition signal is smaller than the number of address bits required for designating a memory cell of said memory array on said device as a whole.

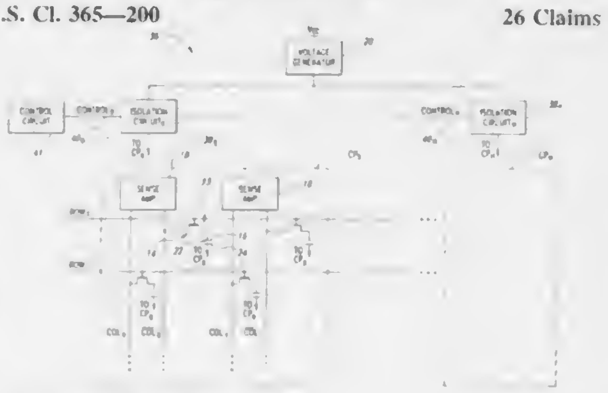
5,787,044
MEMORY-CELL ARRAY AND A METHOD FOR REPAIRING THE SAME

Kevin G. Duesman, Boise, Id., assignor to Micron Technology, Inc., Boise, Id.

Continuation of Ser. No. 546,674, Oct. 23, 1995, abandoned. This application Apr. 8, 1997, Ser. No. 835,867

Int. Cl.^{6} G11C *1/40*

U.S. Cl. 365—200 **26 Claims**



1. A memory array, comprising:

a plurality of row lines;

a plurality of column lines;

a plurality of conductive cell plates that each correspond to a respective one of said column lines;

a plurality of memory cells that are arranged in rows and columns, each of said memory cells coupled to a respective one of said row lines and to a respective one of said column lines, each of said memory cells including,

a capacitor having a first plate and having a second plate coupled to a respective cell plate, said capacitor operable to store a bit of data, and

a switch coupled to said row line, said column line, and said first plate, said switch operable to couple said capacitor to said column line in response to a signal on said row line;

a generator that is operable to produce a bias voltage; and

a plurality of isolation circuits that are each coupled between said generator and a respective one of said cell plates, each isolation circuit operable to isolate said bias voltage from said respective cell plate when said respective cell plate is coupled to a voltage other than said bias voltage.

5,787,045
INTERNAL ADDRESS GENERATOR OF SEMICONDUCTOR MEMORY DEVICE

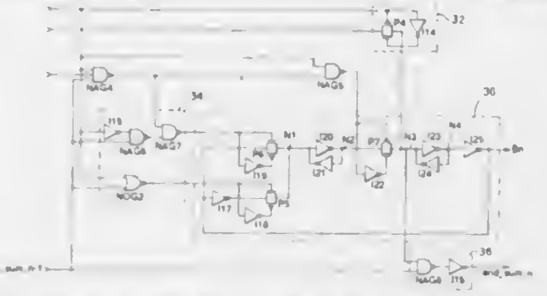
Jae Jin Lee, Ichon, Rep. of Korea, assignor to Hyundai Electronics Industries Co., Ltd., Ichon, Rep. of Korea

Filed Dec. 27, 1996, Ser. No. 777,206

Claims priority, application Rep. of Korea, Dec. 31, 1995, 95-72393

Int. Cl.^{6} G11C *13/00*

U.S. Cl. 365—230.01 **10 Claims**



1. An internal address generator having a least two bit counters that receive a less significant AND-SUM signal from another, less significant bit counter from among the at least two bit counters,

wherein each bit counter receives an external address signal of 2 or more bits by 1 bit,

wherein the bit counters commonly respond to an enable signal for transferring the external address signal,

wherein the bit counters commonly respond to a clock signal for activating an internal address counting operation, and

wherein each bit counter comprises:

a) a first pass transistor connected between an output terminal and a first node and being responsive to said clock signal;

b) a first inverter for inverting a logic value from said output terminal;

c) a second pass transistor for transmitting an output signal from said first inverter to said first node;

d) second and third inverters parallel-coupled between said first node and a second node to form a feedback loop;

e) fourth and fifth inverters parallel-coupled between third and fourth nodes to form a feedback loop;

f) a third pass transistor connected between said second and third nodes;

g) a sixth inverter connected between said fourth node and said output terminal;

h) a clock switching part for transmitting said clock signal to said third pass transistor during a counter mode in accordance with logic values of said enable signal and said less significant AND-SUM signal;

i) an address switching part for selectively transmitting an external address signal to said third node in accordance with the logic value of said enable signal;

j) a loop switching part for applying said clock signal to said first pass transistor to drive the first pass transistor complementarily to the third pass transistor during the count mode, and to complementarily drive said first and second pass transistors during a loading mode, in response to the logic values of said enable signal and said less significant AND-SUM signal; and

k) an AND-SUM operation part for generating an AND-SUM signal by a logic signal on said third node and said less significant AND-SUM signal.

5,787,046
SEMICONDUCTOR MEMORY DEVICE PROVIDED WITH BLOCK WRITE FUNCTION

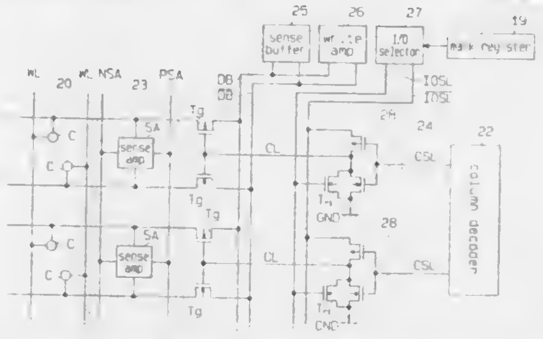
Takaaki Furuyama, and Akira Sugiura, both of Kasugai, Japan, assignors to Fujitsu Limited, Kanagawa, Japan

Filed Apr. 23, 1996, Ser. No. 636,801

Claims priority, application Japan, Aug. 8, 1995, 7-202319

Int. Cl.^{6} G11C *13/00*

U.S. Cl. 365—230.03 **7 Claims**



1. A semiconductor memory device which is operable in an operation mode selected from a read mode, a normal write mode and a block write mode, said memory device comprising:

a memory cell array having a plurality of pairs of bit lines, a plurality of word lines and a plurality of memory cells provided at intersections of said bit lines and said word lines, each pair of said bit lines and the memory cells associated with each bit line pair forming one of a plurality of columns defined in said memory cell array;

a pair of data lines; and

a column selection controller, supplied with a group of column selection signals, for selectively connecting and disconnecting said pair of data lines to and from said plurality of pairs of bit lines,

wherein in response to the group of column selection signals with a first signal output pattern for use in said normal write mode or said read mode, said column selection controller selects one of said plurality of columns to connect said pair of data lines to a pair of bit lines associated with the selected column, and

wherein in response to the group of column selection signals with a second signal output pattern for use in said block write mode, said column selection controller selects at least two of said plurality of columns to connect said pair of data lines to the bit line pairs associated with a column block as a group of the selected columns.

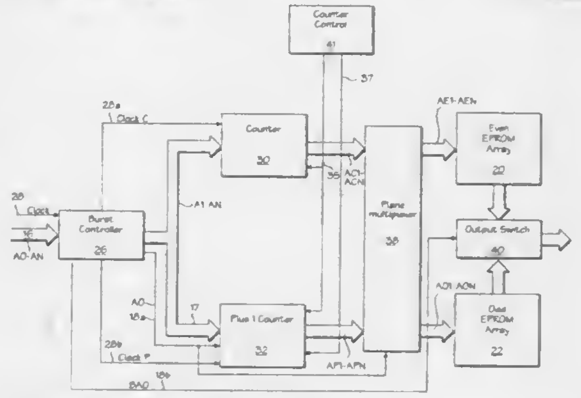
5,787,047
MEMORY ARCHITECTURE FOR BURST MODE ACCESS

Christopher S. Norris, Sunnyvale, and Timothy M. Lacey, Cupertino, both of Calif., assignors to Cypress Semiconductor Corp., San Jose, Calif.

Division of Ser. No. 473,076, Jun. 7, 1995, which is a division of Ser. No. 123,377, Sep. 17, 1993, Pat. No. 5,453,957. This application Nov. 8, 1996, Ser. No. 745,876

Int. Cl.^{6} G11C *7/00;8/00*

U.S. Cl. 365—230.04 **13 Claims**



1. A memory system comprising:

a first array configured to store data at even addresses of said memory system;

a second array configured to store data at odd addresses of said memory system;

an input line configured to receive an initial address; and

a burst processing circuit coupled to said input line and to said first and second arrays and configured to alternatingly read the data from said first and second arrays for a plurality of addresses within a burst address space containing said initial address based on a predetermined burst address space size and a predetermined burst address sequencing mode.

5,787,048
SHIP WAKE SIGNATURE SUPPRESSION

Matthew J. Sanford, Bel Alton, Md., assignor to The United States of America as represented by the Secretary of the Navy, Washington, D.C.

Filed May 6, 1997, Ser. No. 851,795

Int. Cl.^{6} H04K *3/00*

U.S. Cl. 367—1 **16 Claims**

1. A method of inhibiting the production of microbubbles having diameters of approximately 1000 microns or less and reducing the quantity of microbubbles having diameters of approximately 1000 microns or less, said microbubbles residing within a ship's wake, said method comprising the step of projecting ultrasonic acoustic

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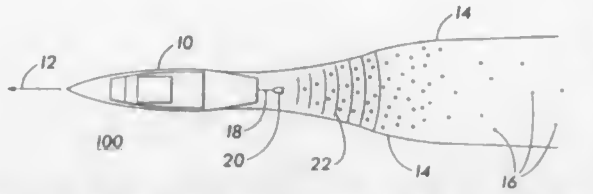


energy into the ship's wake, said ultrasonic acoustic energy having a constant frequency selected from the range of approximately 0.5-2.5 MHz.

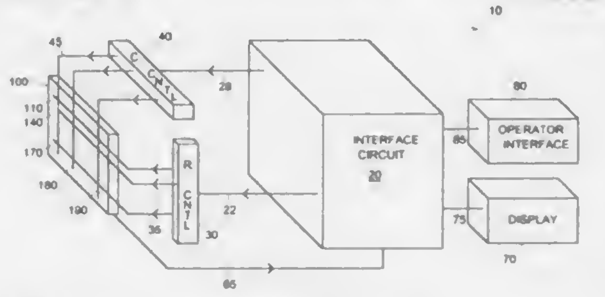
5,787,049
ACOUSTIC WAVE IMAGING APPARATUS AND METHOD

Kenneth N. Bates, 575 Stonegate St., Eugene, Oreg. 97401

Filed Nov. 7, 1995, Ser. No. 554,859

Int. Cl.^{6} G03B *42/06;* **G01N** *29/00*

U.S. Cl. 367—7 **23 Claims**



1. An acoustic imaging apparatus, comprising:

control logic;

a plurality of transducer elements arranged in an array, each coupled to said control logic and capable of transmitting an acoustic signal representative of an electrical transmit control signal propagated from said control logic and generating an electrical receive signal representative of an incident acoustic signal;

means within said control logic for generating an electrical transmit control signal for each transducer element such that the electrical transmit control signal for each transducer element contains a coded signal;

means within said control logic for generating an electrical receive control signal for each transducer element such that the electrical receive control signal for each transducer element contains a frequency and phase shift that when combined with the transducer element's electrical receive signal modifies the frequency and phase of that electrical receive signal in such a manner as to permit the coherent combination of the modified electrical receive signals from all of said plurality of transducer elements;

means for combining the electrical receive control signal of each transducer element with an electrical receive signal generated by that transducer;

means coupled to each of said transducer elements for combining the modified electrical receive signals from said transducer elements so as to form a coherently combined array output signal;

means coupled to said transducer output combining means for decoding a combined reflected coded signal in the coherently combined array output signal to produce a decoding means output signal; and means coupled to said decoding means for generating image data from said decoding means output signal.

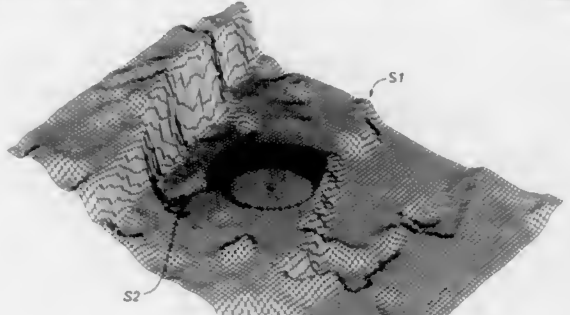
5,787,050
WELL TEST IMAGING

Bruce A. Slevinsky, Calgary, Canada, assignor to Petro-Canada, Calgary, Canada

Filed Aug. 13, 1996, Ser. No. 689,791

Int. Cl.^{6} G01V *1/40;* **F21B** *49/00*

U.S. Cl. 367—25 **2 Claims**



1. A method for creating an image of an oil, gas, or water reservoir boundary from well pressure test data values, the image being oriented relative to a well located in a reservoir, comprising:

(a) obtaining reservoir pressure response values from a well pressure test selected from the group consisting of drawdown, build-up, fall-off and pulse tests;

(b) providing geologic features which are known for the reservoir and have a known orientation to the well;

(c) using the pressure response values obtained to calculate data values reflecting the rate of pressure change over time and the radius of investigation;

(d) extracting from the data values obtained in step (b) the response that is due to near-wellbore and matrix effects, to obtain residual values representative of boundary effects;

(e) calculating values from the residual values representative of an angle-of-view of the boundary as a function of time;

(f) subtracting each angle-of-view from a ring, each ring being analogous to the circumference of the corresponding radius of investigation in time, to form a plurality of circumferential arcs;

(g) individually rotating each circumferential arc about the well so that at least one of the end-points of the circumferential arc is substantially coincident with a known geologic feature;

(h) determining values, by analyzing and applying the spatial location of the collective end-points of the circumferential arcs, indicative of the location and orientation of the boundaries of the reservoir; and

(i) forming visual images showing the reservoir boundaries relative to the location of the well, using the values determined in step (h).

5,787,051
THREE-DIMENSIONAL SEISMIC ACQUISITION

William Nicholas Goodway, and Brent Roland Ragan, both of Calgary, Canada, assignors to PanCanadian Petroleum Limited, Calgary, Canada

Filed Jul. 1, 1996, Ser. No. 673,071

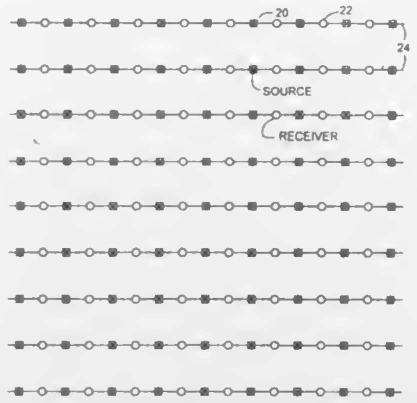
Int. Cl.^{6} G01V *1/20*

U.S. Cl. 367—56 **4 Claims**

1. A method of three-dimensional seismic acquisition comprising:

(a) providing a plurality of substantially parallel source/receiver lines, each said source/receiver line comprising a linear array of seismic energy receivers at substantially equally spaced station intervals and a linear array of seismic energy sources located at each second station or at each station, adjacent source/receiver lines being spaced apart by two station intervals;

(b) initiating a seismic disturbance from one of said sources;



(c) receiving seismic energy at receivers disposed about said source reflected from sub-surface bin areas, each bin centred about a common mid-point between said source and one said receiver and having dimensions of one-half by one station intervals;

(d) converting said received energy into electrical signals;

(e) repeating steps (b) to (d) and prestack processing said signals into stacked traces from common bins;

(f) associating said stacked traces from each bin with a smaller bin centred about the common mid-point and having dimensions of one-half by one-half station intervals;

(g) post-stack processing said stacked traces to produce wavefield reconstructed traces and associating said wavefield reconstructed traces with smaller bins with which said stacked traces have not been associated;

(h) displaying said stacked and wavefield reconstructed traces.

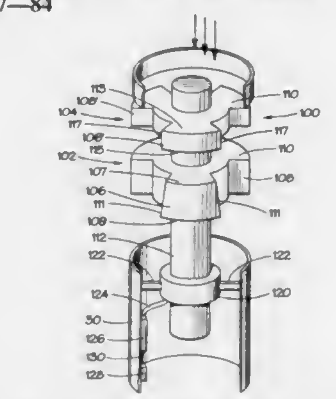
5,787,052
SNAP ACTION ROTARY PULSER

Wallace Reid Gardner, and Wilson Chung-Ling Chin, both of Houston, Tex., assignors to Halliburton Energy Services Inc., Houston, Tex.

Filed Jun. 7, 1995, Ser. No. 483,739

Int. Cl.^{6} G01V *1/40;* **H04M** *9/00*

U.S. Cl. 367—84 **11 Claims**



1. A snap action pressure pulse generator for creating an acoustic pulse within a fluid stream comprising:

(a) a housing defining a flowbore therethrough;

(b) a stator fixedly positioned within the housing, said stator having a central hub with a lobe radially extending therefrom and at least one port permitting a fluid stream to pass therethrough;

(c) a rotor positioned within the housing downstream from said stator, said rotor having a central hub with a lobe radially extending therefrom, said rotor being rotatable within the housing;

(d) a linear actuator operably associated with said rotor for effecting axial movement of the rotor with respect to the stator, said axial movement resulting in rotational movement of the rotor to selectively close the opening in said stator.

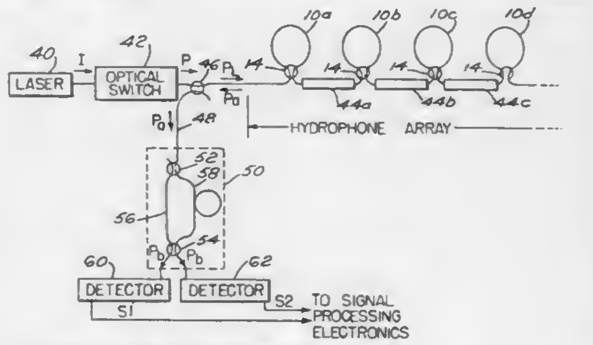
5,787,053
CONTINUOUS FIBER PULSE REFLECTING MEANS

Gregory H. Ames, Gales Ferry, and Jeffrey C. Gremillion, Salem, both of Conn., assignors to The United States of America as represented by the Secretary of the Navy, Washington, D.C.

Filed Jul. 7, 1989, Ser. No. 380,480

Int. Cl.^{6} H04R *23/00;* **H04B** *13/00*

U.S. Cl. 367—149 **12 Claims**



1. A hydrophone array system, comprising:

continuous laser means adapted to produce continuous laser light therefrom;

optical modulator means, connected to said continuous laser means, for receiving said continuous laser light from said continuous laser means and producing an optical pulse .P therefrom;

optical coupler means, connected to said optical modulator means, for receiving said optical pulse P from said optical modulator means and producing optical pulse P_L therefrom;

pulse sampled optical fiber hydrophone array means, connected to said optical coupler means, for receiving said optical pulse P_L from said optical coupler means and producing back-reflected optical pulses P_a therefrom, said pulse sampled optical fiber hydrophone array means further comprising a plurality of serially arranged optical fiber hydrophone sensor means, and a plurality of continuous fiber pulse reflecting means, one each connected to each end of one of said pulse sampled optical fiber hydrophone sensor means, for receiving said optical pulse P_L from said optical coupler means and producing said optical back-reflected pulses P_a therefrom;

optical pulse delay and recombining means. connected to said optical coupler means, for receiving said back-reflected optical pulses P_a from said pulse sampled optical fiber hydrophone array means via said optical coupler means and producing first and second optical pulses P_b therefrom;

first optical detector means, connected to said optical pulse delay and recombining means, for receiving said first optical pulse P_b from said optical pulse delay and recombining means and producing system output electrical signal S1; and

second optical detector means, connected to said optical pulse delay and recombining means, for receiving said second optical pulse P_b from said optical pulse delay and recombining means and producing system output electrical signal S2 therefrom.

5,787,054
PORTABLE ELECTRONIC DEVICE

Naoaki Yasukawa, Suwa, and Chiaki Nakamura, Chiba, both of Japan, assignors to Seiko Epson Corporation, Tokyo, and Seiko Instruments, Inc., Chiba, both of Japan

Filed Aug. 9, 1996, Ser. No. 694,719

Claims priority, application Japan, Aug. 31, 1995, 7-224320

Int. Cl.^{6} G04B *1/00*

U.S. Cl. 368—204 **6 Claims**

1. A portable electronic device comprising a device body having a housing;

a circuit board disposed in said housing;

a main energy source housed in said housing;

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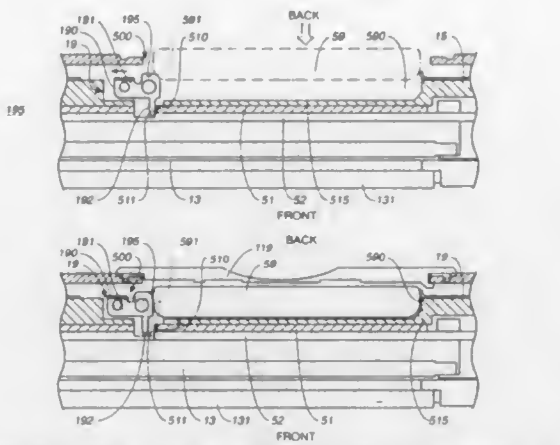


- an auxiliary energy source electrically connected in parallel to said main energy source;
- a cover for selectively opening and closing said housing, wherein said main energy source is removable when said cover is opened;
- a switching mechanism detachably coupled to said main energy source for being in a first state when said main energy source is housed in said housing and in a second state when said main energy source is absent from said housing; and
- a controller for controlling said portable electronic device in accordance with one of the first and second states of said switching mechanisms

wherein said switching mechanism comprises a switch end for being in electrical connection with said auxiliary energy source,

wherein said switch end contacts an input terminal of said circuit board when the main energy source is removed from said housing to provide said input terminal a signal to said controller corresponding to a voltage of said auxiliary energy source for indicating that the main energy source is absent from said housing in the second state,

wherein said switch end is disconnected from said input terminal when the main energy source is housed in said housing in the first state,

wherein said switch end selectively connects with and disconnects from said input terminal such that the switch end is forced into said housing when said main energy source is removed from said housing, and is pushed out from said housing by said main energy source when said main battery is housed in said housing,

wherein said switch end comprises an extension of a conductive plate electrically connecting said auxiliary energy source and said main energy source housed in said housing,

wherein said extension comprises a spring member projecting into said housing,

wherein said switch end comprises a chamfer facing an opening of said housing arranged in a peripheral area of said housing,

wherein said switch end is pushed to a side from said housing by a side edge of said main energy source contacting said chamfer when said main energy source is inserted into said housing, and

wherein said switch end moves from the side into said housing to contact said input terminal when said main energy source is removed from said housing.

5,787,055
CHANGEABLE WALL CLOCK

David J. Alpert, 929 N. Astor No. 407, Milwaukee, Wis. 53202

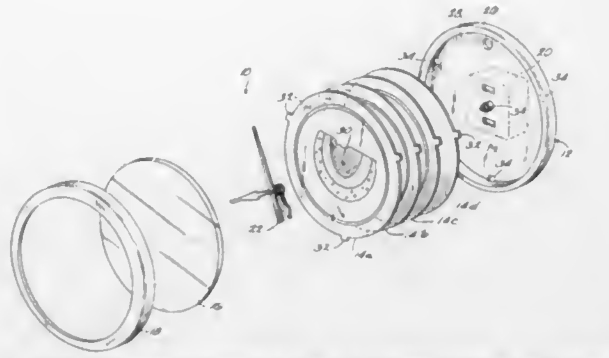
Filed Mar. 19, 1996, Ser. No. 618,358

Int. Cl.^{6} G04B *19/04*

U.S. Cl. 368—223 **10 Claims**

1. A changeable wall clock comprising:

- a clock base having a rear panel and an open end opposite said rear panel;



- a clock movement mounted to said clock base adjacent said rear panel;
- a transparent cover receivable in said open end of said clock base;
- a frame removably secured around said open end of said clock base to removably secure said transparent cover to said clock base;
- a first clock dial card mounted in said clock base over said rear panel and visible through said transparent cover; and
- a second clock card separate from said first clock card mounted in said clock base between said first clock card and said rear panel so as not to be visible through said transparent cover,

said first and second clock dial cards being interchangeable so that, after removing said removable frame and said transparent cover, said second clock dial card can be placed in a visible position and said first clock dial card placed in a position that is not visible through said transparent cover when said transparent cover is thereafter mounted on said clock base.

5,787,056
MAGNETO-OPTICAL RECORDING MEDIUM WITH MULTIPLE MAGNETIC LAYERS

Junichiro Nakayama; Michinobu Mieda, both of Shiki-gun; Junji Hirokane, and Akira Takahashi, both of Nara, all of Japan, assignors to Sharp Kabushiki Kaisha, Osaka, Japan

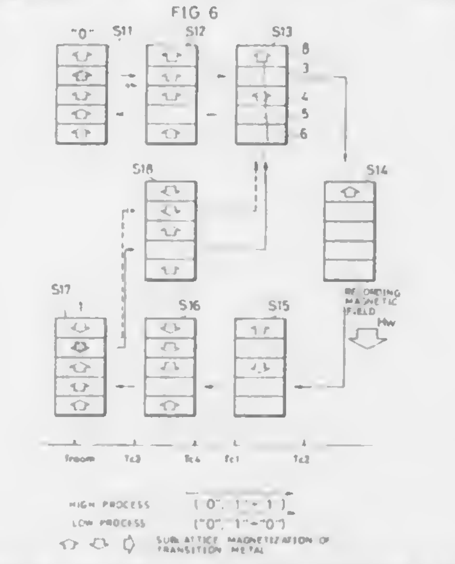
Filed Dec. 13, 1996, Ser. No. 766,015

Claims priority, application Japan, Dec. 19, 1995, 7-330508

Int. Cl.^{6} G11B *11/00;5/66*

U.S. Cl. 369—13 **23 Claims**

FIG 6


"0"
S11
S12
S13
8
3
4
5
6
S18
S14
S17
S16
S15
RECORDING MAGNETIC FIELD
Hw
Troom
Tc3
Tc4
Tc1
Tc2
HIGH PROCESS ("0", "1"→"1")
LOW PROCESS ("0", "1"→"0")
SUBLATTICE MAGNETIZATION OF TRANSITION METAL

1. A magneto-optical recording medium comprising a first magnetic layer, a second magnetic layer and a fourth magnetic layer having curie points Tc1, Tc2 and Tc4, respectively, and showing perpendicular magnetization from room temperature to the Curie points Tc1, Tc2, and Tc4, said first, second and fourth magnetic layers being arranged in this order,

- a direction of magnetization of said second magnetic layer being copied to said first magnetic layer by an exchange force at temperatures between room temperature and Tc1,
- a direction of magnetization of said fourth magnetic layer being copied to said second magnetic layer by an exchange force but magnetization of said second magnetic layer being not copied to said first magnetic layer in a predetermined temperature range R between room temperature and Tc4,

said room temperature, Tc1, Tc2 and Tc4 being related by

$$\text{room temperature} < Tc4 < Tc1 < Tc2,$$

wherein a fifth magnetic layer whose Curie point Tc5 is higher than the Curie point Tc1 of said first magnetic layer is provided on a side of said first magnetic layer, opposite to a side whereupon said second magnetic layer is formed.

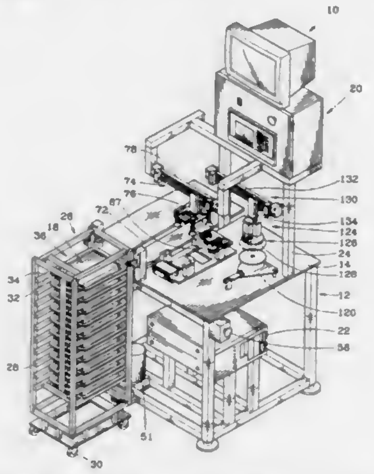
5,787,057
CD-ROM TESTING APPARATUS

Jackley Fan, Chung Li, Taiwan, assignor to Behavior Tech Computer Corp., Taipei, Taiwan

Filed May 27, 1997, Ser. No. 863,380

Int. Cl.^{6} G11B *7/00*

U.S. Cl. 369—34 **20 Claims**



1. A CD-ROM testing apparatus adapted to test a CD-ROM having a plurality of control switches and signal output elements and a control/power/data slot, the CD-ROM testing apparatus comprises:

- a frame;
- a CD-ROM transportation means mounted on the frame for picking up and moving the CD-ROM from an entry position to a testing position;
- a CD-ROM tester, mounted on the frame at the testing position for receiving and performing test on the CD-ROM positioned at the testing position, the tester comprising a pin card engageable with the control/power/data slot of the CD-ROM to establish control/power/data connection therewith, the tester further comprising a test actuation system for testing the control switches and receiving signal from the signal output elements of the CD-ROM;
- a disk shifting device for positioning a test disk into the CD-ROM located at the testing position; and
- a controller controlling the CD-ROM transportation means and the disk shifting device to position the CD-ROM into the tester and position the disk into the CD-ROM, the controller being electrically connected to the tester to operate the tester in testing the CD-ROM and receive and store test result.

5,787,058
OPTICAL PICKUP APPARATUS UTILIZING A POLYGONAL PRISM

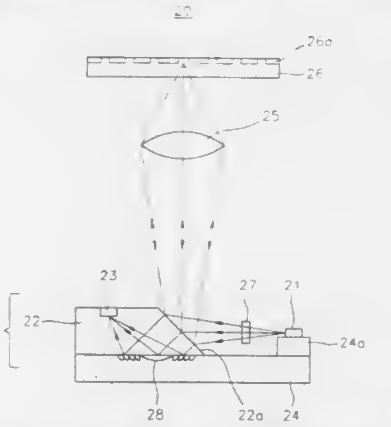
Yang-Oh Choi, Seoul, Rep. of Korea, assignor to Daewoo Electronics Co., Ltd., Rep. of Korea

Filed May 30, 1996, Ser. No. 655,445

Claims priority, application Rep. of Korea, May 31, 1995, 1995 14152; May 31, 1995, 1995 14151

Int. Cl.^{6} G11B *7/135*

U.S. Cl. 369—44.23 **10 Claims**



1. An optical pickup apparatus of an optical disc player for reading information recorded on optical disc, the optical pickup apparatus comprising:

- a first semiconductor substrate;
- a laser source disposed on an upper portion of the first semiconductor substrate for emitting a laser beam;
- means for orienting the laser beam emitted by the laser source in a first direction toward the optical disc and for orienting a reflected laser beam which is incident after being reflected by the optical disc to allow the reflected laser beam to go forward in a second direction, the orienting means producing an astigmatism in the reflected laser beam, the orienting means including
  - a polygonal prism for reflecting the laser beam emitted from the laser source toward the optical disc, refracting the reflected laser beam reflected by the optical disc, and providing a transmission path for the reflected laser beam, and
  - a Fresnel lens for producing the astigmatism in the reflected laser beam and for conversing and for reflecting the reflected laser beam,
  - wherein the polygonal prism includes an upper surface, an incline surface disposed opposite the laser source, and a bottom surface attached to the first semiconductor substrate, and the Fresnel lens is disposed between the bottom surface and the first semiconductor substrate; and
- a photodetector for detecting the reflected beam from the orienting means so as to read the information of the optical disc and for providing data so as to perform tracking and focusing servo operations, the photodetector being embedded in the upper surface of the polygonal prism.

5,787,059
OPTICAL HEAD SEEK CONTROLLER FOR OPTICAL DISK DEVICE

Mitoshi Sohmuta, Tokyo, Japan, assignor to NEC Corporation, Japan

Division of Ser. No. 620,131, Mar. 21, 1996, Pat. No. 5,717,668. This application Aug. 12, 1997, Ser. No. 910,013

Claims priority, application Japan, Mar. 31, 1995, 7-063637

Int. Cl.^{6} G11B *7/00*

U.S. Cl. 369—44.28 **3 Claims**

1. An optical head seek controller having an optical head for producing three beam spots on an optical disk with data signal recorded thereon in raised and recessed forms and receiving three beam spots reflected from said optical disk, a matrix circuit for

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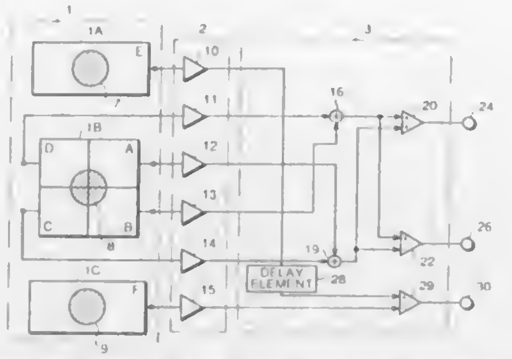


processing data contained in said three beam spots received by said optical head to generate and output a predetermined track error signal when accessing a track, and a main controller for controlling the movement of said optical head to a desired track position by calculating a relative position and a speed of said optical head according to said predetermined track error signal from said matrix circuit, said optical head seek controller comprising:

a track error signal generator, in said matrix circuit, for generating the track error signal for accessing tracks on said optical disk and for position and speed detection necessary for calculating said relative position and said speed of said optical head with respect to said optical disk, and

a signal delaying means, in said track error signal generator, for delaying the signal concerning a preceding one of said three beam spots by a delay time corresponding to an inter-beam distance between said preceding one and a succeeding one of said three beam spots according to a linear speed data about said optical disk, said track error signal being generated according to the difference between signals concerning said preceding and succeeding beam spots after removal of the time difference between the preceding and succeeding beam spot signals.

5,787,060
OPTICAL DATA RECORDING/REPRODUCING APPARATUS FOR PRODUCING DATA AND SERVO SIGNALS USING DIFFERENT LIGHT RECEIVING AREAS OF A LIGHT RECEIVER

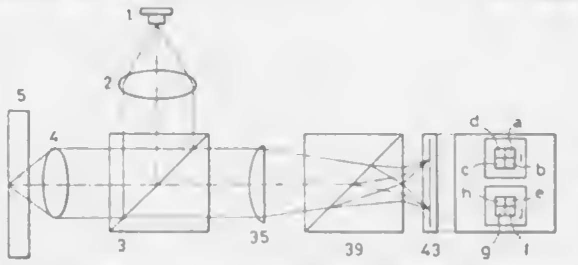
Hirotake Ando, Tokyo, Japan, assignor to Canon Kabushiki Kaisha, Tokyo, Japan

Continuation of Ser. No. 229,673, Apr. 19, 1994, abandoned. This application Jan. 17, 1997, Ser. No. 786,120

Claims priority, application Japan, Apr. 27, 1993, 5-122078

Int. Cl.^{6} G11B *7/00*

U.S. Cl. 369—44.42 **18 Claims**



1. An optical data recording/reproducing apparatus comprising:

light-receiving means for receiving a light beam that is one of reflected by and passed through a recording medium, said light-receiving means having a plurality of light-receiving areas for both (i) wavefront splitting the light beam into split light beams and (ii) receiving the split light beams, each of said plurality of light-receiving areas being provided directly adjacent to at least one other of said plurality of light-receiving areas on one continuous surface of said light-receiving means;

data signal generating means for generating a data signal on the basis of outputs of said plurality of light-receiving areas; and

servo signal generating means for generating a servo signal on the basis of outputs of said plurality of light-receiving areas, wherein said light-receiving areas used to obtain the servo signal are within said light-receiving areas used to obtain the data signal on the surface of said light-receiving means.

5,787,061
OPTICAL DISC RECORDING REPRODUCING APPARATUS RECORDING/REPRODUCING INFORMATION TO/FROM OPTICAL DISCS ACCORDING TO DIFFERENT STANDARDS

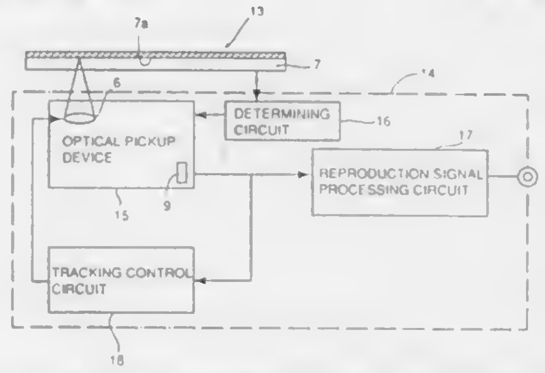
Yoichi Tsuchiya, Hashima; Seiji Kajiyama, Ibi-gun; Yasuyuki Kanou, and Shuichi Ichiura, both of Hashima, all of Japan, assignors to Sanyo Electric Co., Ltd., Osaka, Japan

Filed Feb. 29, 1996, Ser. No. 608,848

Claims priority, application Japan, Aug. 31, 1995, 7-224395; Oct. 5, 1995, 7-258894; Dec. 19, 1995, 7-330576

Int. Cl.^{6} G11B *7/00;7/135*

U.S. Cl. 369—58 **59 Claims**



1. An optical disc recording/reproducing apparatus irradiating an optical disc with a laser beam to record/reproduce information to/from said optical disc, said optical disc recording/reproducing apparatus comprising:

a laser for generating a laser beam to be directed to said optical disc;

an objective lens for focusing the laser beam from said laser to said optical disc;

numerical aperture changing means for changing an effective numerical aperture of said objective lens according to a thickness of a substrate of said optical disc, wherein said numerical aperture changing means includes;

polarization plane rotating means for selectively rotating a plane of polarization of said laser beam according to the thickness of the substrate of said optical disc, and

blocking means for selectively blocking a peripheral portion of the laser beam having said rotated plane of polarization.

5,787,062
DISC-THICKNESS-AND-WARP DETECTING APPARATUS

Tsutomu Mochizuki, Chiba, Japan, assignor to Sony Corporation, Japan

Filed Oct. 17, 1996, Ser. No. 733,170

Claims priority, application Japan, Oct. 24, 1995, 7-299020

Int. Cl.^{6} G11B *7/13*

U.S. Cl. 369—58 **8 Claims**

1. An optical pickup apparatus including:

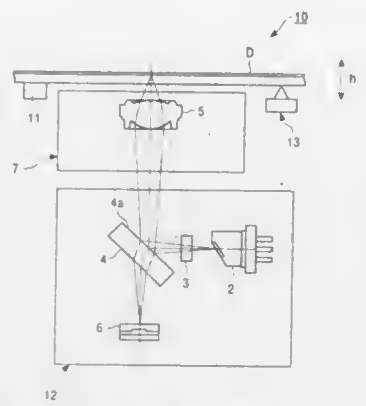
beam-emitting means for emitting laser light onto an optical disc;

an object lens for converging said laser beam from said beam-emitting means onto said disc;

an actuator for supporting said object lens so as to move the same in the focussing direction and the tracking direction;

detecting means for detecting light returned from said disc; and

means for disc-thickness-and-warp detecting, said detecting means comprising



a light source for emitting rays onto a peripheral portion of said disc;

a photo-detector having a plurality of photo-detecting portions separated corresponding to the direction of tracks formed on said disc, for detecting the rays emitted from said light source, reflected by said disc;

an adding circuit for generating a sum-signal by adding the detection-signals from the respective photo-receiving portions of said photo-detector; and

a subtracting circuit for generating a difference-signal by performing the subtraction of the detection-signals from the respective photo-receiving portions of said photo-detector.

5,787,063
DISK DRIVE UNIT HAVING IMPROVED SHUTTER MECHANISM

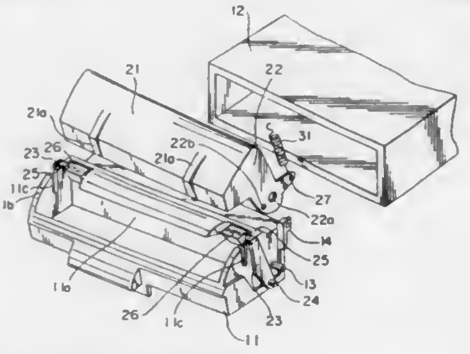
Tetsuo Kanno, Ebina, and Akihiko Okamoto, Kawasaki, both of Japan, assignors to Richoh Company, Ltd., Tokyo, Japan

Continuation-in-part of Ser. No. 118,802, Sep. 8, 1993, abandoned, and Ser. No. 236,624, Apr. 29, 1994, abandoned, which is a continuation of Ser. No. 921,300, Jul. 28, 1992, Pat. No. 5,351,228, which is a continuation-in-part of Ser. No. 747,529, Aug. 20, 1991, abandoned. This application May 17, 1995, Ser. No. 443,103

Claims priority, application Japan, Sep. 20, 1990, 2-248913; Apr. 18, 1991, 3-86732; Aug. 20, 1991, 3-231151; Sep. 8, 1992, 4-239540

Int. Cl.^{6} G11B *33/02*

U.S. Cl. 369—77.2 **16 Claims**



15. A disk drive unit comprising:

a body case;

an opening portion formed in said body case for inserting a disk cartridge into said body case and taking said cartridge out of said body case, said cartridge having a disk therein;

a shutter supported rotatably in said body case for opening and closing said opening portion, said shutter closing said opening portion except when said cartridge is inserted or ejected, said shutter rotating upwardly by coming into contact with said cartridge to open said opening portion when said cartridge is inserted;

a driving device fixed to said body case and configured to receive said cartridge inserted through said opening portion and to rotate said disk in said cartridge;

a loading device configured to vertically move said cartridge so as to load said inserted cartridge onto said driving device and so as to selectively eject said cartridge in an ejection movement;

a cam linked with said shutter, for rotating said shutter upwardly in association with said ejection movement of said cartridge caused by said loading device thereby to open said opening portion when said cartridge is being ejected; and

a spring for biasing said shutter toward an opening direction of said shutter during an opening operation of said shutter by said cam.

5,787,064
OPTICAL HEAD WITH A PLURALITY OF OPTICAL SENSORS TO RECEIVE REFLECTED LIGHT BEAMS FOR REPRODUCING FOCUSING TRACKING AND RF SIGNALS

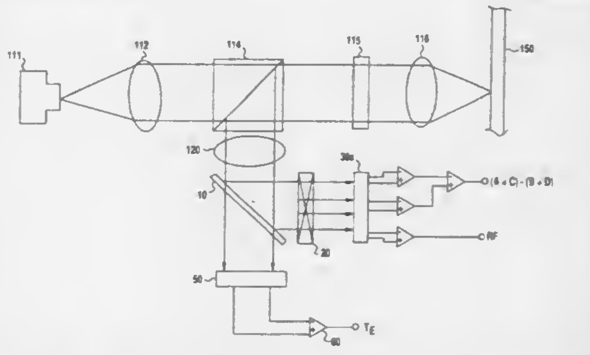
Tsutomu Matsui, Tokyo, Japan, assignor to NEC Corporation, Tokyo, Japan

Filed Sep. 26, 1996, Ser. No. 721,241

Claims priority, application Japan, Sep. 29, 1995, 7-254092

Int. Cl.^{6} G11B *7/00*

U.S. Cl. 369—112 **23 Claims**



1. A phase-change type optical head apparatus, for generating an RF signal, a focus error signal and a tracking error signal based on a reflected beam from an optical disc, comprising:

a beam splitting means for splitting a beam reflected from an optical disc into at least four beams without polarization change;

a first optical sensor that receives two beams of a plurality of the beams split by said beam splitting means and outputs a signal for generating a focus error signal; and

a second optical sensor that receives at least one beam of a plurality of the beams split by said beam splitting means and outputs a signal for generating a RF signal by amplifying the outputted signal corresponding to said at least one beam.

5,787,065

Patent Not Issued For This Number

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5,787,066
BOTH-SIDED OPTICAL DISC PLAYER CAPABLE OF TRANSFERRING A BOTH-SIDED DISC UP AND DOWN ABOUT AN OPTICAL PICKUP

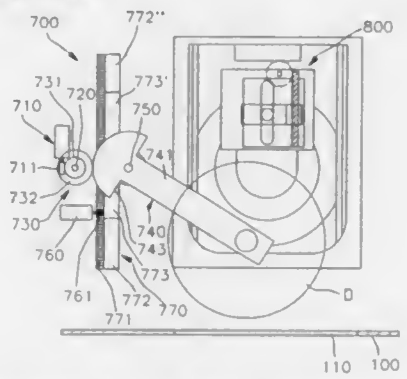
Yang-Oh Choi, Seoul, Rep. of Korea, assignor to Daewoo Electronics Co., Ltd., Seoul, Rep. of Korea

Filed Dec. 29, 1995, Ser. No. 580,614

Claims priority, application Rep. of Korea, Dec. 29, 1994, 94-38649

Int. Cl.^{6} G11B *17/04*

U.S. Cl. 369—200 · 4 Claims



1. A both-sided optical disc player comprising:
a main body provided with an insertion groove for insertedly receiving a both-sided disc in a front plane thereof;
a disc deck, said turntable arranged within the main body having a turntable installed to an upper portion of said disc deck being shaft-supported to be rotated by a spindle motor for driving said disc, and an optical pickup for the use of said both-sided disc slidably connected to the upper portion of said disc deck in the vicinity of said turntable;
a disc tray for guiding said both-sided disc to said turntable for loading said disc upon said disc deck;
clamp means for pressively supporting said both-sided disc seated on said turntable of said disc deck by said disc tray upon said turntable; and
transfer means for transferring said both-sided disc seated on said turntable in the up and down directions centering about said optical pickup,
wherein said transfer means comprises:
a first driving motor section having a worm in a rotational shaft for moving said disc to a place out of alignment with said optical pickup;
a gear assembly having a worm wheel brought into meshing engagement with said worm of said first driving motor section, a spur gear integrally formed to an upper portion of said worm wheel and a support shaft installed to be perpendicular to a disc plane within said main body for rotatable installing said sour gear centering about said support shaft;
a fixing shaft installed between said disc deck on said main body and said gear assembly to be perpendicular to said disc plane;
a turntable support bracket having an opening into which said fixing shaft is inserted, so that said turntable support bracket is rotatable centering about the opening and movable up and down along said fixing shaft in a state that: the fixing shaft is inserted into the opening, the turntable support bracket having one end to be provided with the turntable, and the turntable support bracket having the other end provided with an arch-shaped gear formed along a side surface of the other end, said arch-shaped gear being engaged with said spur gear, so that when the sour gear is rotated by the driving of the first driving motor section, the end provided with the arch-shaped gear is rotated about the opening and the end provided with the turntable is also rotated about the opening;
a second driving motor section having a pinion formed on a rotational shaft thereof;
a guide member for guiding upward and downward transference of said support bracket, said guide member having a rack brought into meshing engagement with said pinion of said second driving motor in one side of the lengthwise direction, and said guide member having flat guide planes and slanted guide planes; and
a contact plate integrally formed to a lower portion of said turntable support bracket, said contact plate having a shaft supported by said fixing shaft and contacting with said flat guide planes and said slanted guide planes.

5,787,067
OPTICAL PICK-UP APPARATUS

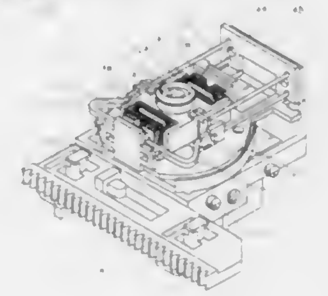
Ki-Seog Song, Seoul, Rep. of Korea, assignor to Daewoo Electronics Co., Ltd., Seoul, Rep. of Korea

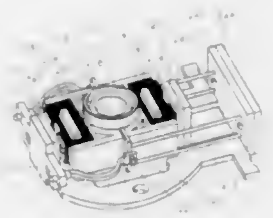
Continuation of Ser. No. 624,219, Mar. 29, 1996, abandoned. This application Nov. 17, 1997, Ser. No. 971,965

Claims priority, application Rep. of Korea, Mar. 31, 1995, 95-6275 U; Mar. 31, 1995, 1995-7427 .

Int. Cl.^{6} G11B *21/16*

U.S. Cl. 369—247 9 Claims





1. An optical pick-up apparatus comprising:
a holder formed with a first beam thruhole and having first and second vertical mounting grooves defined in both sides, the first beam thruhole being for mounting an objective lens therein;
an actuator having focusing coils for driving the holder in a focusing direction, tracking coils for actuating the holder in a tracking direction, permanent magnets for interacting with said focusing coils and said tracking coils, and yokes for providing magnetic paths between the focusing coils and tracking coils;
a yoke plate having a second beam thruhole at least partially aligned with the first beam thruhole and supporting the focusing coils and the tracking coils mounted on an upper plane thereof spaced apart from each other by a predetermined distance, said yoke plate including a suspension support plate and a damping yoke;
suspensions for supporting said holder, said suspensions being engaged with said suspension support plate of the yoke plate at one end thereof and connected to said holder at the other end thereof; and
a damping means for applying compressed force to said suspensions and for preventing the holder from being vibrated, said damping means being mounted between the holder and said damping yoke of the yoke plate,
wherein said holder is disposed intermediate said suspension support plate and said damping yoke, and
said damping means absorbs an impact transmitted to the holder due to an external force.

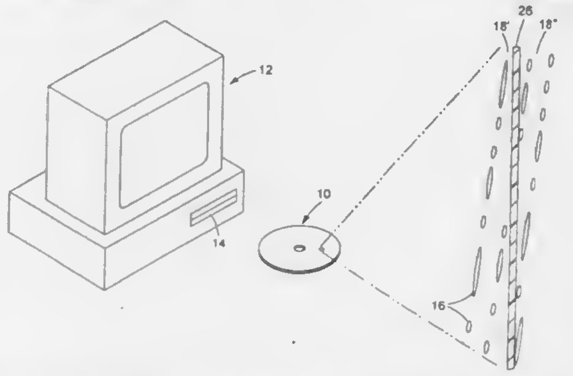
5,787,068
METHOD AND ARRANGEMENT FOR PREVENTING UNAUTHORIZED DUPLICATION OF OPTICAL DISCS USING BARRIERS

Mark A. Arps, Woodbury, Minn., and Jon Blixt, Fremont, Calif., assignors to Imation Corp., Oakdale, Minn.

Filed Nov. 7, 1996, Ser. No. 740,340

Int. Cl.^{6} G11B *7/00*

U.S. Cl. 369—275.3 13 Claims



1. An optically-readable data disc having at least one track along which data is recorded in the form of optically-readable patterns, comprising:
a plurality of data-placement zones;
a multitude of barriers constructed using a laser-application process which locates the barriers to provide a unique and nonrepeatable pattern of the barriers, and wherein the barriers are arranged along said at least one track and separating the data-placement zones;
a plurality of data files recorded along said at least one track in selected ones of the data-placement zones; and
an address-information data file including data which identifies addresses of data files to be sequentially read in noncontiguous zones.

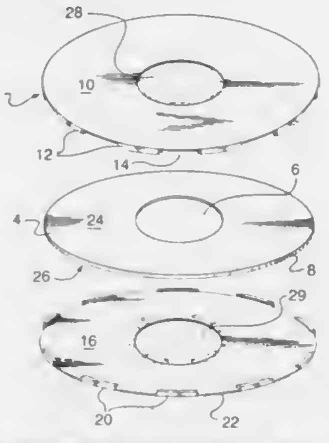
5,787,069
PROTECTIVE COVER FOR AN OPTICAL DISC

Michael D. Lowe; Tom A. Borhot; Paule Pijo William Zono Andric; Oliver J. Medic; Warren J. Blatz; Douglas Christian Greening, and Stephen Arthur Withington, all of Calgary, Canada, assignors to Digital Armor Inc., Calgary, Canada

Filed Sep. 13, 1996, Ser. No. 713,523

Int. Cl.^{6} G11B *7/24;33/14*

U.S. Cl. 369—291 11 Claims



1. A removable protective cover for use with an optical disc, said optical disc of circular configuration having a circular aperture centred therein and having an outer edge, said protective cover comprising:
a first sheet of film of generally circular configuration corresponding to the circular configuration of said disc and of a material that will not interfere with the read process of said disc when said cover is in place about said disc;
a second sheet of film of generally circular configuration corresponding to the circular configuration and size of said disc, said second sheet of film of a material that will not interfere with the read process of said disc when in place about said disc;
a plurality of resilient clasps spaced about a circumferential edge of said first and second sheets of film to engage said disc about said outer edge in a snap fit, said first and second sheets to engage said disc on opposite faces thereof and wherein said clasps of one of said oppositely facing sheets are alternating and offset relative to said clasps of the other of said opposite facing sheets about said edge of said disc.

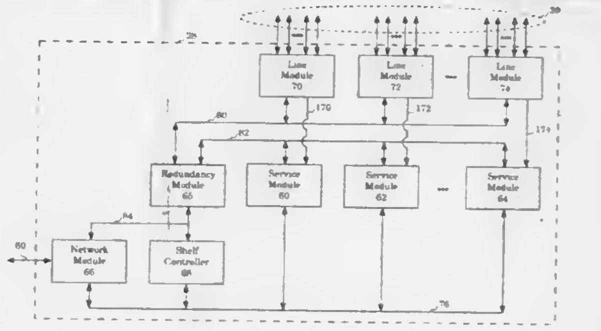
5,787,070
ONE FOR N REDUNDANCY IN A COMMUNICATION SYSTEM

Amar Gupta, Cupertino; Joel Craig Naumann, Morgan Hill; Shirish K. Sathe, Cupertino, and Mohammad Seyed Nikuie, Mountain View, all of Calif., assignors to Cisco Technology, Inc., San Jose, Calif.

Filed Jun. 21, 1995, Ser. No. 492,961

Int. Cl.^{6} H04L *1/22*

U.S. Cl. 370—217 14 Claims



1. A communication interface, comprising:
a first service module coupled to receive first communication signals from corresponding first communication links;
a second service module coupled to receive second communication signals from corresponding second communication links: and
a redundancy module coupled to said first service module and to said second service module and configured to transfer said first communication signals to said second service module upon a failure of said first service module.

5,787,071
HOP-BY-HOP FLOW CONTROL IN AN ATM NETWORK

Claude Basso, Nice; Jean Calvignac, La Gaude; Daniel Orsatti, Cognos sur Mor, and Fabrice Verplanken, La Gaude, all of France, assignors to International Business Machines, Armonk, N.Y.

Filed Nov. 6, 1995, Ser. No. 554,113

Claims priority, application European Pat. Off., Nov. 8, 1994, 94 480125.7

Int. Cl.^{6} H04L *12/56*

U.S. Cl. 370—231 9 Claims

1. For use in a data communication system having a plurality of nodes interconnected by links, each of said links being able to support one or more logical connections between adjacent nodes, each of said connections supporting a separate flow of data cells from a source node to a connection-specific input buffer at a destination node, a data traffic flow control system located in the destination node and comprising:
a first backpressure mechanism for monitoring the number of data cells received in a connection-specific input buffer for

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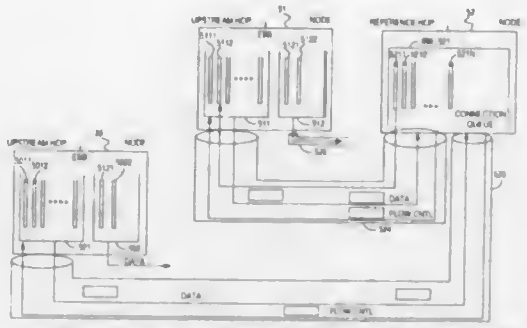


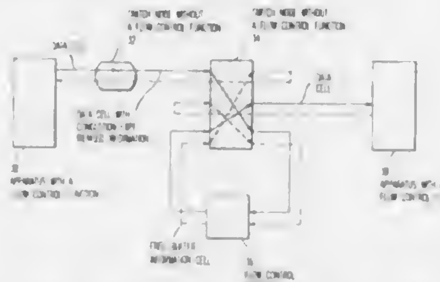
each logical connection to the destination node and for generating a connection-specific backpressure signal for a connection on which the number of data cells stored in the connection-specific input buffer exceeds a predetermined connection-specific high threshold level; and

a second backpressure mechanism for monitoring the number of data cells received in the connection-specific input buffers for all of the logical connections on a particular link to the destination node and for generating a global backpressure signal for the particular link if the total number of data cells received on the link exceeds a predetermined global high threshold level.

5,787,072
FLOW CONTROL APPARATUS AND FLOW CONTROL METHOD

Yoshimitsu Shimojo, and Yasuro Shohatake, both of Kanagwaken, Japan, assignors to Kabushiki Kaisha Toshiba, Kawasaki, Japan

Filed Mar. 15, 1996, Ser. No. 616,311
Claims priority, application Japan, Mar. 23, 1995, 7-063256
Int. Cl.^{6} H04L *12/56*
U.S. Cl. 370—231 **15 Claims**


SWITCH NODE WITHOUT A FLOW CONTROL FUNCTION
SWITCH NODE WITHOUT A FLOW CONTROL FUNCTION
DATA CELL
APPARATUS WITH A FLOW CONTROL FUNCTION
APPARATUS WITH A FLOW CONTROL FUNCTION
FLOW CONTROL

1. Flow control apparatus connected to an ATM switch without a flow control function, the ATM switch having a plurality of input ports and a plurality of output ports coupled among ATM exchanges through transmission links, an input port of said flow control apparatus is connected to one of the output ports of said ATM switch to receive ATM cells from said ATM switch and an output port of said flow control apparatus is connected to one of the input ports of said ATM switch to provide the ATM cells to said ATM switch, comprising:

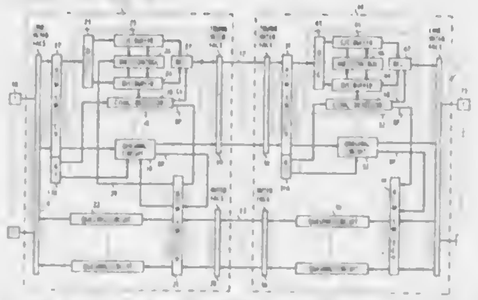
buffer means for temporarily storing the ATM cells output from the one of the output ports of said ATM switch so that said ATM cells are provided to the one of the input ports of said ATM switch for transmission through said ATM switch to a next ATM exchange; and

control means for providing a first control cell conveying free-buffer information of said buffer means to the one of the input ports of said ATM switch for transmission from one of the output puts connected through said ATM switch to a preceding ATM exchange, and for controlling provision of said ATM cells from said buffer means to said ATM switch based on second control cells received from said next ATM exchange and traffic parameters for guaranteeing quality such that the ATM cells are not lost in said ATM switch for transmission to said next ATM exchange, wherein the traffic parameters are preset.

5,787,073
ATM CELL RATE WITH TRANSMISSION PRIORITY GIVEN TO CONTROL CELLS FOR QUICK RESPONSE TO NETWORK CONGESTION

Chinatsu Ikeda, Tokyo, Japan, assignor to NEC Corporation, Tokyo, Japan

Filed May 29, 1996, Ser. No. 654,674
Claims priority, application Japan, May 29, 1995, 7-129969
Int. Cl.^{6} H04L *12/56*
U.S. Cl. 370—236 **12 Claims**



7. An asynchronous transfer mode network node for serving a source terminal and a destination terminal, said source terminal sending data cells and multiplexing an asynchronous transfer mode (ATM) network control cell with a burst of the data cells at regular intervals, said destination terminal copying a congestion indication on receiving a control cell and returning a control cell containing the copied congestion indication toward the source terminal via the network node, said source terminal controlling transmission rate of data cells on receiving a control cell containing the copied congestion indication; the network node comprising:

a first buffer and a second buffer;

means for storing incoming data cells into the first buffer and storing incoming ATM network control cells into the second buffer;

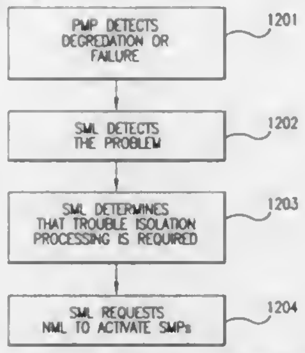
a transmit controller connected to the first and second buffers for forwarding cells in the first and second buffers in a downstream direction with priority given to the ATM network control cells in the second buffer over the data cells in the first buffer; and

a congestion detector connected to the first buffer for writing a congestion indication into a control cell which is either stored in or forwarded from the second buffer when the first buffer is filled to a predetermined storage level.

5,787,074
SYSTEM AND METHOD FOR MONITORING POINT ACTIVATION

Curtis Brownmiller, Richardson; Michael Bencheck, Garland; Minh T. Tran, Plano; Robert Branton, Farmers Branch; Mark DeMoss, The Colony, and Steve Landon, Richardson, all of Tex., assignors to MCI Communications Corporation, Washington, D.C.

Filed Jun. 28, 1996, Ser. No. 672,356
Int. Cl.^{6} H04J *3/14*
U.S. Cl. 370—244 **14 Claims**


PMP DETECTS DEGREDATION OR FAILURE
1201
SML DETECTS THE PROBLEM
1202
SML DETERMINES THAT TROUBLE ISOLATION PROCESSING IS REQUIRED
1203
SML REQUESTS NML TO ACTIVATE SMPs
1204

1. A method for dynamically activating performance monitoring points that have been assigned to a provisioned channel in a telecommunications network, comprising the steps of:

(1) detecting a degradation or failure at primary monitoring points located at or near end points of a provisional channel within said network;

(2) reporting the degradation or failure to a layer in a network management system;

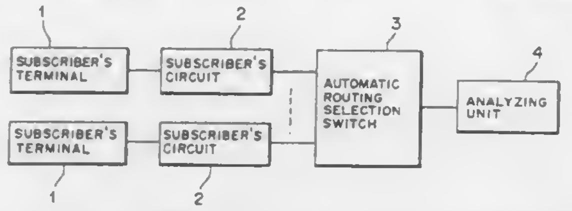
(3) determining whether a lower layer in the network management system should commence trouble isolation processing; and

(4) activating secondary monitoring points located at intermediate points along said provisional channel.

5,787,075
SWITCHED MULTI-MEGABIT DIGITAL SERVICE SWITCHING APPARATUS

Yoshihiro Uchida, Kawasaki, Japan, assignor to Fujitsu Limited, Kanagawa, Japan

Filed Feb. 12, 1996, Ser. No. 600,044
Claims priority, application Japan, May 31, 1995, 7-134479
Int. Cl.^{6} H04L *12/50;* **H04Q** *11/00*
U.S. Cl. 370—252 **20 Claims**



1. A switched multi-megabit digital service switching apparatus for providing switching operations between local area networks in a connectionless mode, comprising:

plural subscriber's circuits, each of said plural subscriber's circuits accommodating at least one subscriber's terminal which terminates an interface with one of said local area networks and forms said local area networks;

an automatic routing selection switch connected to said plural subscriber's circuits, said automatic routing selection switch receiving a fixed-length cell formed of a logic channel information portion and a data portion and selecting automatically an output route for said fixed-length cell, based on information in said logic channel information portion; and

an analyzing unit receiving the fixed-length cell sent from said automatic routing selection switch and then analyzing sender information and receiver information each regarding said fixed-length cell.

5,787,076
MULTI-MODE TDMA SPREAD SPECTRUM COMMUNICATION SYSTEM

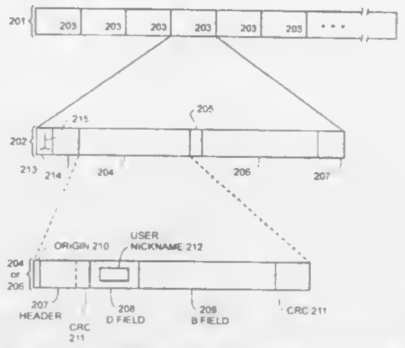
Gary B. Anderson, Carnelian Bay, Calif.; Ryan N. Jensen, Colorado Springs, Colo.; Bryan K. Petch, Colorado Springs, Colo., and Peter O. Peterson, Colorado Springs, Colo., assignors to Omnipoint Corporation, Colorado Springs, Colo.

Continuation of Ser. No. 476,936, Jun. 7, 1995, abandoned, which is a continuation of Ser. No. 284,053, Aug. 1, 1994, which is a continuation-in-part of Ser. No. 215,306, Mar. 21, 1994, abandoned, which is a continuation-in-part of Ser. No. 146,496, Nov. 1, 1993, abandoned. This application Feb. 18, 1997, Ser. No. 801,529
Int. Cl.^{6} H04J *3/16*
U.S. Cl. 370—294 **26 Claims**

1. A multi-mode time division multiple access communication system, comprising:

a major time frame, said major time frame repeating periodically,

a plurality of minor time frames in said major time frame, each of said minor time frames comprising a base station transmission allocation and a user station transmission allocation, said base station transmission allocation and said user station transmission allocation collectively comprising more than half of a minor time frame,



a base station including a base station transmitter operating at a data bit transmission rate,

a plurality of user stations each including a user station transmitter operating at said data bit transmission rate, and each of which communicates in at least one of said minor time frames,

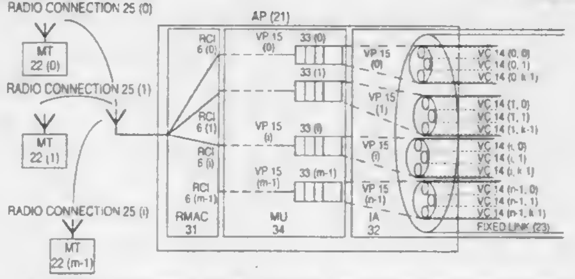
wherein communication in each of said minor time frames is carried out in one of a plurality of modes selected independently for each minor time frame, said plurality of modes comprising at least a first mode, a second mode, and a third mode, and

wherein communication according to said first mode is characterized by a first fixed base station transmission allocation equal to a first fixed user station transmission allocation for each periodic repetition of said major time frame until completion of a call, wherein communication according to said second mode is characterized by a second fixed base station transmission allocation not equal to a second fixed user station transmission allocation for each periodic repetition of said major time frame until completion of a call, and wherein communication according to said third mode is characterized by a single direction link transmission with no reverse link transmission.

5,787,077
DYNAMIC CONNECTION MAPPING IN WIRELESS ATM SYSTEMS

Thomas Kuehnel, Bern, and Yung-Shain Wu, Studen, both of Switzerland, assignors to ASCOM Tech AG, Bern, Switzerland

Filed Jun. 4, 1996, Ser. No. 658,231
Int. Cl.^{6} H04L *12/56;12/66*
U.S. Cl. 370—331 **14 Claims**



1. A digital communication system providing wireless access to an ATM environment, comprising:

a controller for controlling ATM communications;

a first mobile terminal having a wireless communication interface;

at least one access point covering wireless communications within a geographical area, for facilitating communication between said controller and said first mobile terminal when said first mobile terminal is located within the geographical area, said access point including:

a wireless access part for establishing a wireless connection with the wireless communication interface of said first mobile terminal,

an interface part operatively connected to said controller through a respective fixed link, and

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- a mapping unit for mapping ATM cells received on the wireless access part into a selected virtual path on the respective fixed link to said controller, and for mapping ATM cells received on the selected virtual path of the respective fixed link into the wireless connection to said first mobile terminal;
- a plurality of mobile terminals associated with a first one of said at least one access point through respective wireless connections, the fixed link between said first access point and said controller including a plurality of virtual paths, each virtual path being unique to a respective one of said plurality of mobile terminals; and
- at least one identical predefined signalling virtual channel within each of the virtual Paths, the identical predefined signalling virtual channels being for use in communicating predetermined information between said controller and said plurality of mobile terminals.

5,787,078

FRAME SYNCHRONIZATION METHOD

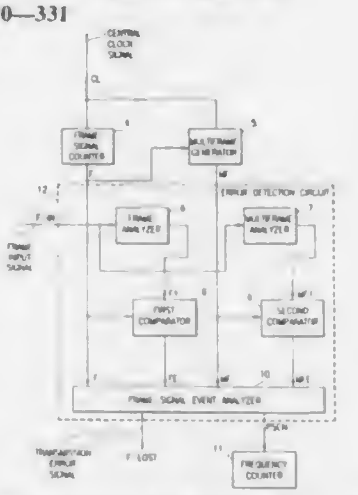
Klaus Geywitz, Gerlingen, and Artur Veloso, Göppingen, both of Germany, assignors to Alcatel N.V., Rijswijk, Netherlands

Continuation-in-part of Ser. No. 399,459, Mar. 7, 1995, abandoned. This application Aug. 9, 1996, Ser. No. 694,820

Claims priority, application Germany, Mar. 9, 1994, 44 07 794.7

Int. Cl.^{6} H04J *3/06*

U.S. Cl. 370—331 **4 Claims**



1. A frame synchronization method for a cordless telephone system having an exchange with interface circuits, having base stations that supply radio cells for establishing a radio connection with cordless terminals and that are respectively connected to interface circuits, the frame synchronization method including the steps of synchronizing frames by means of a frame alignment pulse, combining the frames into multiframes, and synchronizing the multiframes in a multiframe sequence by means of a multiframe alignment pulse which follows after a given number of the frames,

characterized in that the method further includes the step of synchronizing the interface circuits of the exchange with the multiframe sequence by blanking a multiframe alignment pulse so that the base stations can scan the radio cells at the same time and at the same frequency to enable a cell change with a respective cordless terminal.

5,787,079

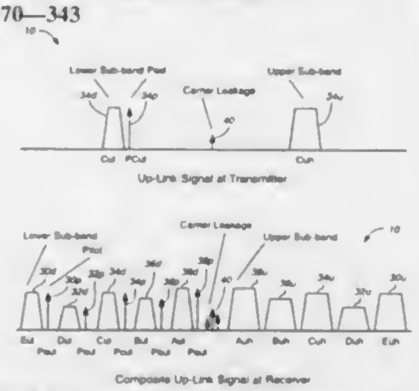
METHOD AND APPARATUS FOR CREATING MULTIPLE SUBCHANNELS IN A SINGLE TWO-WAY RADIO CHANNEL

Andrew Bateman, Bathe; Peter B. Kenington, Winterbourne, and Richard M. Bennett, Henbury, all of United Kingdom, assignors to Unique Wireless Developments, L.L.C., Irving, Tex.

Filed Apr. 23, 1996, Ser. No. 636,549

Int. Cl.^{6} H04J *1/02*

U.S. Cl. 370—343 **29 Claims**



1. A method for creating multiple subchannels in a single two-way radio channel, the method comprising the steps of:

- a) generating at least one pilot tone adjacent to a center of the single two-way radio channel;
- b) splitting the two-way radio channel into a first subchannel for transmitting first voice or data signals on a first upper band and a first lower band;
- c) splitting the two-way radio channel into a second subchannel for transmitting second voice or second data signals on a second upper band and a second lower band, and wherein a combination of the first subchannel and the second subchannel has a bandwidth no larger than the single two-way radio channel;
- d) placing the first upper band in a first upper frequency range above and adjacent to the center of the single two-way radio channel and the first lower band in a first lower frequency range below and adjacent to the center of the single two-way radio channel; and
- e) placing the second upper band in a second upper frequency range above and adjacent to the first upper frequency range and the second lower band in a second lower frequency range below and adjacent to the first lower frequency range.

5,787,080

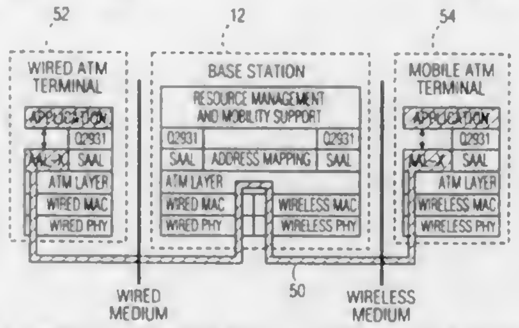
METHOD AND APPARATUS FOR RESERVATION-BASED WIRELESS-ATM LOCAL AREA NETWORK

Samir N. Hulyalkar, Columbia, Md., and Chiu Y. Ngo, Ossining, N.Y., assignors to Philips Electronics North America Corporation, New York, N.Y.

Filed Jun. 3, 1996, Ser. No. 656,803

Int. Cl.^{6} H04B *7/212;* **H04L** *12/28;12/56*

U.S. Cl. 370—348 **26 Claims**



1. A method for implementing a reservation-based wireless asynchronous transfer mode (ATM) local area network (LAN), said method comprising the steps of:

- a) providing a system architecture of mobile nodes (MNs), each MN for communicating with other MNs of the system architecture;
- b) supporting a plurality of services, each service having respective quality-of-service (QoS) requirements; and
- c) implementing a medium access control (MAC) layer using a reservation-based communications protocol, wherein the protocol (i) divides all MAC-based communications between a control channel and a data channel, wherein the control channel and the data channel together comprise a control-data superframe (CDS) and (ii) utilizes the control channel for allocating a bandwidth of the data channel to each service, the control channel having a control frame during which an allocation of data payload slots of the data channel is determined according to (a) a long-term strategy corresponding to a time of service required to complete a service over multiple CDS frames and (b) a short-term strategy within a CDS frame corresponding to instantaneous data payload slot requirements for a particular service, thereby achieving respective QoS requirements of each service.

5,787,081

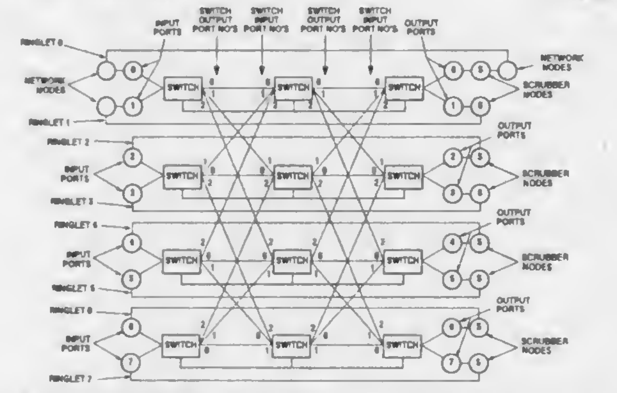
ALLOCATION OF NODE TRANSMISSIONS IN SWITCHING NETWORKS USED WITH SCALABLE COHERENT INTERFACES

Donald Bruce Bennett, and Steven Allen Murrphy, both of Apple Valley, Minn., assignors to Lockheed Martin Corporation, Bethesda, Md.

Filed May 13, 1996, Ser. No. 645,383

Int. Cl.^{6} H04L *12/56*

U.S. Cl. 370—388 **1 Claim**



1. A method of allocating node transmissions during the operation of a packet routing switching network with a plurality of operational rings each of which may have one or more functional nodes therein; wherein,

- (a) each of a plurality of switches of the switching network is assigned to one of a plurality of rows of said switches and to one of a plurality of stages of said switches, which stages comprise an input stage and an output stage, and wherein each of said switches has a plurality of input ports and output ports associated therewith,
- (b) a plurality of said input ports are coupled to said switches of said input stage, and a plurality of said output ports equal in number to said input ports are coupled to said switches of said output stage, and the number of said switches in each of said rows is equal in number to the number of stages of said switching network,
- (c) said packets are transmitted from said output ports to said input ports through said operational rings until each of said packets reaches a designated target node,
- (d) groups of idle bits separate each of said packets and each group of idle bits includes an idle allocation bit, wherein said idle allocation bits determine when all of said nodes in an operational ring have had the opportunity to transmit a packet,

comprising the steps of:

- coupling each of said operational rings to the output port of an output stage switch and to the input port of an input stage switch of the same switch row,
- establishing individually at each switch a reset state for all of said switches in which the idle allocation bits that occur at each of the input ports and output ports of all of said switches have the same predetermined value,
- determining input matching at each non-input and non-output stage switch whenever the idle allocation bits at all of the enabled input ports of said non-input and non-output stage switches have a previous value to a new value and ignoring any further changes back to the previous value until all said enabled input ports have changed to a new value,
- determining input matching at each input stage switch whenever the idle allocation bits at all of the operational ring output ports that are coupled to the input ports of said input stage switch have changed from a previous value to a new value and ignoring any further changes back to the previous value until all said output ports of said operational ring outputs have changed to the new value,
- changing the idle allocation bits at all of the output ports of said non-output stage switches to a new value upon such input matching determination,
- determining input matching at each output stage switch whenever the idle allocation bits at all of the enabled input ports of said output stage switch have changed from a previous value to a new value and ignoring any further changes back to the previous value until all said enabled input ports have changed to a new value and,
- changing the idle allocation bits at all of the output ports of said output stage switches to a new value upon such input matching determination and upon said output stage switch also changing the idle circulation bits at all of said output ports of said output stage switch.

5,787,082

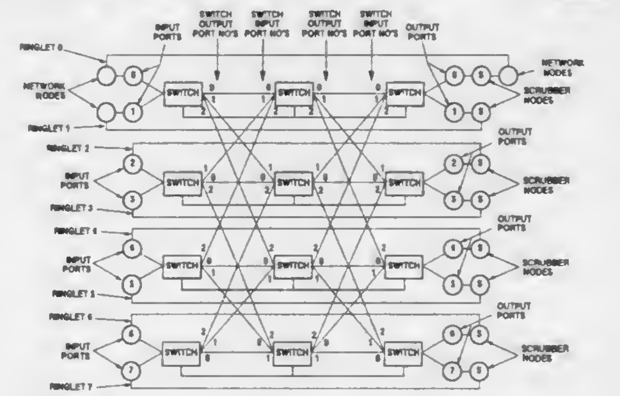
IDENTIFICATION OF NEW AND STALE PACKETS IN SWITCHING NETWORKS USED WITH SCALABLE COHERENT INTERFACES

Donald Bruce Bennett, and Steven Allen Murrphy, both of Apple Valley, Minn., assignors to Lockheed Martin Corporation, Bethesda, Md.

Filed May 13, 1996, Ser. No. 653,654

Int. Cl.^{6} H04L *12/56*

U.S. Cl. 370—388 **4 Claims**



1. A method of detecting new and stale packets during the operation of a packet routing switching network comprising a plurality of operational rings each of which has one scrubber node having an input and an output and may have one or more other functional nodes therein, wherein,

- (a) each of a plurality of switches of said switching network is assigned to one of a plurality of rows of said switches and to one of a plurality of stages of said switches wherein said stages comprise an input stage and an output stage, and wherein each of said switches has a plurality of input ports and output ports associated therewith,

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(b) a plurality of said input ports are coupled to said switches of said input stage, and a plurality of said output ports equal in number to said input ports are coupled to said switches of said output stage, and the number of said switches in each of said rows is equal in number to the number of stages of said switching network,

(c) said packets are transmitted from said input ports to said output ports of said switches and through said operational rings that are connected thereto until each of said packets reaches a designated target node, and

(d) each of said packets comprise a "new/stale" bit which is set to a "new" state when a packet is generated in one of said source nodes in a first operational ring for transmission to one of said target nodes in a second operational ring, which target node may be the same as said first node, and

(e) each scrubber node that receives a packet on its input which has its "new/stale" bit set to a "new" state will toggle said "new/stale" bit on its output to its "stale" state,

comprising the steps of:

(1) coupling each of said operational rings to the output port of an output stage switch and to the input port of an input stage switch,

(2) establishing ring identity code bits at each switch of said input stage to identify each of said operational rings,

(3) comparing said target identity code bits included in each packet with ring identity code bits that are associated with enabled input ports of said input stage switches when packets arrive at said input stage switches,

(4) resetting the "new/stale" bit of each packet to a "new" state that arrives at an input operational stage switch when a comparison of said target identity code bits and said ring identity code bits does not occur and otherwise leaving said "new/stale" bit in each packet in its stale state if said comparison occurs, and

(5) eliminating said packet at the next scrubber node in the operational ring when its "new/stale" bit is in its "stale" state.

5,787,083

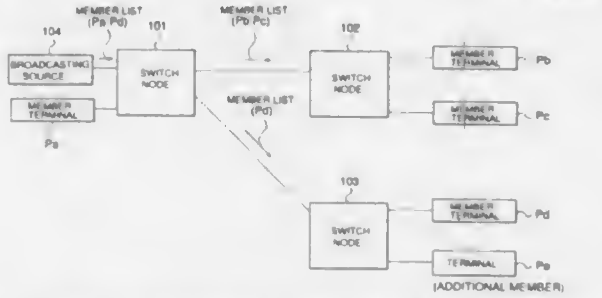
PATH SETTING SYSTEM FOR BROADCAST SERVICE IN SWITCHING NETWORK

Norihisa Iwamoto, and Hiroyuki Watanabe, both of Tokyo, Japan, assignors to NEC Corporation, Japan

Filed Mar. 29, 1996, Ser. No. 626,179

Int. Cl.^{6} H04L *12/18*

U.S. Cl. 370—389 **13 Claims**



1. A method for establishing a connection for a broadcast service between a source terminal and each of a plurality of destination terminals within a switching network including a plurality of switch nodes each accommodating a plurality of terminals, the method comprising the steps of:

at the source terminal,

a) generating a set of destination addresses of the destination terminals; and

b) transmitting the set of destination addresses to a switch node;

at the switch node,

c) receiving the set of destination addresses from the source terminal;

d) determining whether the set of destination addresses includes an address of a terminal accommodated by the switch node;

e) editing the set of destination addresses to produce a first address group and a second address group when the set of destination addresses includes an address of a terminal accommodated by the switch node, the first address group including at least one destination address relating to the switch node, and the second address group including a route group for each destination switch node other than the switch node;

f) transmitting the route group to the destination switch node; and

g) establishing a connection for a broadcast service between the source terminal and each of the destination terminals accommodated by the switch node and the destination switch node.

5,787,084

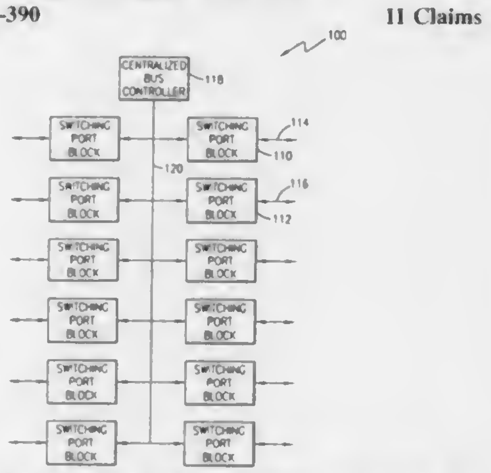
MULTICAST DATA COMMUNICATIONS SWITCHING SYSTEM AND ASSOCIATED METHOD

Hieu M. Hoang, Flower Mound, and Brian W. Johnson, Lucas, both of Tex., assignors to Compaq Computer Corporation, Houston, Tex.

Filed Jun. 5, 1996, Ser. No. 658,742

Int. Cl.^{6} H04L *12/28;12/56*

U.S. Cl. 370—390 **11 Claims**



1. A method for facilitating data flow through a multicast data switch having at least a first port and a second port, said method comprising the steps of:

receiving a data packet at the first port of the multicast data switch, the data packet formed of a plurality of cells of data;

determining if the second port is congested;

if uncongested, sending a select cell of the data packet to the second port of the multicast data switch;

otherwise, sending the select cell of the data packet to the second port if the second port becomes uncongested within a select period of time; and

reassembling the data packet at the second port subsequent to copying each of the plurality of cells into the second port.

5,787,085

DATA TRANSMISSION OPTIMIZATION SYSTEM AND METHOD

David L. Fox, Allen, Tex., assignor to DSC Communications Corporation, Plano, Tex.

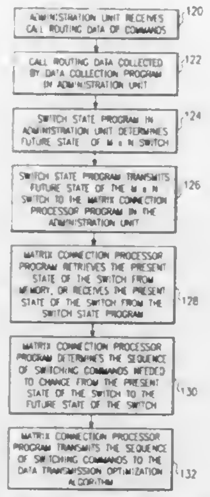
Filed Dec. 19, 1995, Ser. No. 574,549

Int. Cl.^{6} H04B *12/56*

U.S. Cl. 370—392 **22 Claims**

1. A system for optimizing data for transmission comprising:

a data collector operable to collect a plurality of data packets, wherein each data packet includes an address label;


ADMINISTRATION UNIT RECEIVES CALL ROUTING DATA OF COMMANDS
120
CALL ROUTING DATA COLLECTED BY DATA COLLECTION PROGRAM IN ADMINISTRATION UNIT
122
SWITCH STATE PROGRAM IN ADMINISTRATION UNIT DETERMINES FUTURE STATE OF M x N SWITCH
124
SWITCH STATE PROGRAM TRANSMITS FUTURE STATE OF THE M x N SWITCH TO THE MATRIX CONNECTION PROCESSOR PROGRAM IN THE ADMINISTRATION UNIT
126
MATRIX CONNECTION PROCESSOR PROGRAM RETRIEVES THE PRESENT STATE OF THE SWITCH FROM MEMORY, OR RECEIVES THE PRESENT STATE OF THE SWITCH FROM THE SWITCH STATE PROGRAM
128
MATRIX CONNECTION PROCESSOR PROGRAM DETERMINES THE SEQUENCE OF SWITCHING COMMANDS NEEDED TO CHANGE FROM THE PRESENT STATE OF THE SWITCH TO THE FUTURE STATE OF THE SWITCH
130
MATRIX CONNECTION PROCESSOR PROGRAM TRANSMITS THE SEQUENCE OF SWITCHING COMMANDS TO THE DATA TRANSMISSION OPTIMIZATION ALGORITHM
132

a data assembler operable to order the data packets by address label and assemble all data packets with a common address label into a single data block with a single address label; and

a transmitter for transmitting the data block, wherein the transmitter is operable to broadcast the data block.

5,787,086

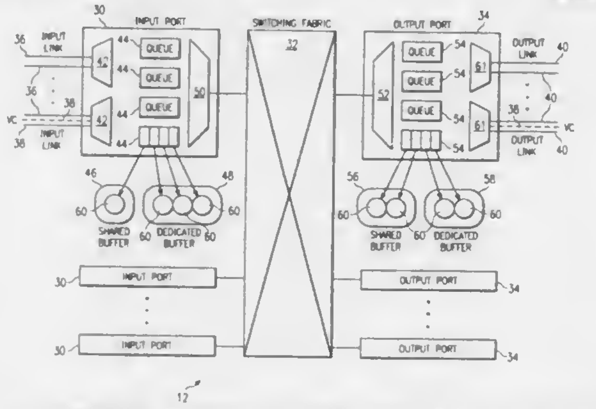
METHOD AND APPARATUS FOR EMULATING A CIRCUIT CONNECTION IN A CELL BASED COMMUNICATIONS NETWORK

Robert B. McClure, Hollis; Stephen A. Caldara, Sudbury; Stephen A. Hauser, Burlington, and Thomas A. Manning, Northboro, all of Mass., assignors to Fujitsu Network Communications, Inc., Richardson, Tex., and Fujitsu Limited, Kawasaki, Japan

Filed Jul. 18, 1996, Ser. No. 684,641

Int. Cl.^{6} H04L *12/28;12/56*

U.S. Cl. 370—413 **11 Claims**



1. A method for emulating a circuit connection in a cell based communications network, comprising:

establishing a virtual connection from a source connected to the communications network to an input port of a first node in the communications network and therethrouqh. to a destination node in the communications network, wherein the virtual connection is for conveying a series of data cells comprising a header portion and a data portion;

transporting cells of the virtual connection across at least one communications link connecting an output port of the first node to the destination node in the communications network wherein said output port includes a first queue;

dedicating a first queue of the input port, only to the virtual connection at the first node wherein the first queue comprises a first amount of buffer space;

allocating a first amount of link bandwidth, only to the virtual connection, on each communications link associated with the virtual connection, the first amount of link bandwidth being defined by dedicating the first queue of the first node output port only to the virtual connection; and

transmitting cells of the virtual connection from said output port of the first node over the virtual connection for receipt at a destination node of the communications network.

5,787,087

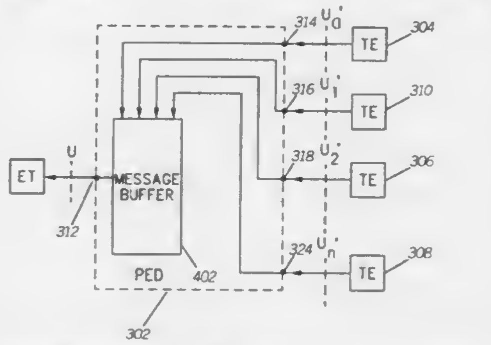
METHOD AND APPARATUS FOR INTERCONNECTING A PLURALITY OF TERMINAL EQUIPMENTS TO THE ISDN

John A. Visser, 46 Chapman Rd., Wakefield, Mass. 01880, and Paul E. Nikolich, 18 Bishops La., Lynnfield, Mass. 01940

Filed Oct. 11, 1995, Ser. No. 541,054

Int. Cl.^{6} H04L *12/66*

U.S. Cl. 370—420 **19 Claims**



1. A circuit which allows for the interconnection of a plurality of terminal equipments each having an embedded U interface termination to an Integrated Services Digital Network (ISDN), the circuit comprising:

a network U-interface for connection to the ISDN;

a U-transceiver for transmitting signals to, and receiving signals from, the ISDN via the U-interface;

a plurality of local (secondary) U-interface ports which allow for the interconnection of the plurality of terminal equipments having embedded U interface terminations to the ISDN; and

a message buffer coupled to the plurality of secondary U-interface ports for queuing messages transmitted by the plurality of terminal equipments prior to the messages being transmitted by the U-transceiver.

5,787,088

METHOD AND SYSTEM FOR INTEROPERATING BETWEEN ISDN AND PSTN TRANSPORT FOR ALLOWING SIMULTANEOUS TRANSMISSION OF VOICE AND DATA OVER ONE TELEPHONE LINE

Nuri Ruhi Dagdeviren, Red Bank; Jerome Prestinario, Bridgewater, both of N.J.; Kenneth R. Klein, Riegelsville, Pa., and Mahendra Pratap, Cliffwood Beach, N.J., assignors to AT&T Corp, Middletown, N.J.

Filed Nov. 13, 1995, Ser. No. 556,726

Int. Cl.^{6} H04J *3/04;* **H04M** *11/06*

U.S. Cl. 370—493 **8 Claims**

1. A method for simultaneously transmitting voice and data through a public switched telephone network and over one telephone line between a calling party location having an ISDN connection and a destination party location having a POTS analog connection comprising

determining if the destination party location has an analog POTS connection,

creating a connection between the calling party location and the destination party location,

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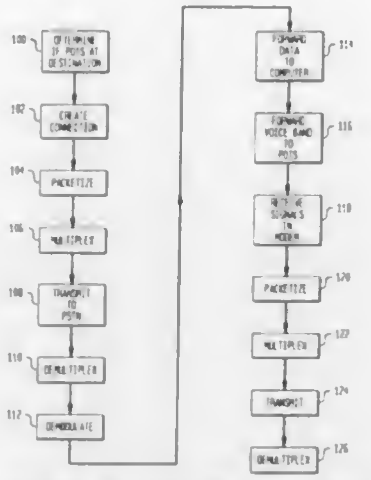


packetizing the data and voice band signals and multiplexing them at the calling party location,

transmitting the multiplexed data and voice band packets through the public switched telephone network to a modem located at the destination party location,

demultiplexing the packets into separate voice band and digital signal components and demodulating the digital signal components within the modem, and

forwarding demodulated data signals to a data terminal and voice band signals to an analog terminal.

5,787,089

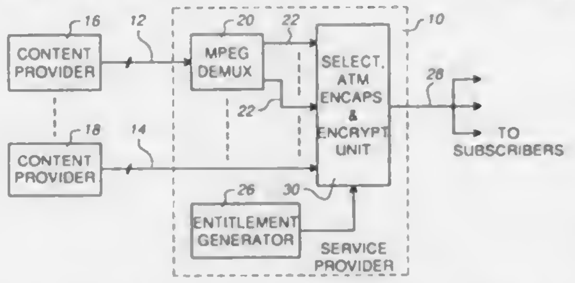
DIGITAL SIGNAL BROADCASTING

Liam M. Casey, and David I. Allan, both of Ottawa, Canada, assignors to Northern Telecom Limited, Montreal, Canada

Filed Jul. 25, 1996, Ser. No. 687,302

Int. Cl.⁶ H04N *7/173;* H04L *12/56*

U.S. Cl. 370—397 **14 Claims**



1. A method of broadcasting a plurality of digital signals, each comprising a data stream including data and timing information, to a distribution network for supply to a plurality of subscribers, comprising the steps of:

allocating a virtual path (VP) identification of ATM (asynchronous transfer mode) cells to the plurality of digital signals and a respective virtual channel (VC) identification of the ATM cells to each individual one of the plurality of digital signals;

encapsulating the data stream of each of the plurality of digital signals in ATM cells having said VP identification and the respective VC identification;

scrambling the encapsulated data stream in each ATM cell having said VP identification in dependence upon a scrambling key allocated to the VP; and

supplying the resulting ATM cells to the distribution network.

5,787,090

AUDIO DATA SYSTEM WITH A FIRST INFORMATION SUB-CHANNEL, EXTRACTION MEANS FOR EXTRACTING SAID INFORMATION, AND PACKETIZER MEANS FOR SUPPLEMENTING SAID AUDIO IN A SECOND INFORMATION SUB-CHANNEL, AND ATTACHER STATION AND USER STATION FOR USE IN SUCH A SYSTEM

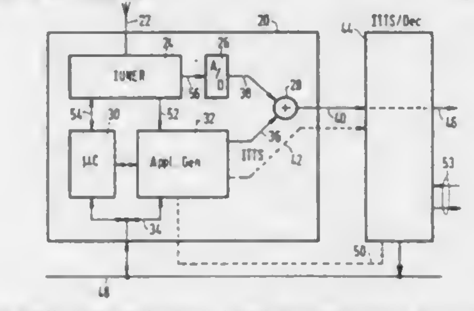
Paulus A. W. Van Niekerk, and Marnix C. Vlot, both of Eindhoven, Netherlands, assignors to U.S. Philips Corporation, New York, N.Y.

Continuation of Ser. No. 569,526, Dec. 8, 1995, abandoned. This application Jul. 17, 1997, Ser. No. 896,121

Claims priority, application European Pat. Off., Dec. 9, 1994, 94203579

Int. Cl.⁶ H04L *5/00*

U.S. Cl. 370—522.007 **14 Claims**



1. An audio system having (i) an attacher station for attaching to an audio representation channel including a first auxiliary information sub-channel and for decoding said auxiliary information, and (ii) a user station fed by said attacher station through a unidirectional interface for receiving and selective displaying of said auxiliary information in an application context under control of a user interface,

characterized in that: said attacher station comprises extracting means for extracting said auxiliary information from said channel, a framework data generator that is instantiatable by information from said information sub-channel, and framework packetizer means fed by said generator for supplementing said audio representation channel on said unidirectional interface in a second auxiliary information sub-channel by packetized and instantiated application information for said user station.

5,787,091

SHARED REDUNDANCY PROGRAMMING OF MEMORY WITH PLURAL ACCESS PORTS

David V. Kersh, III, Sugar Land, Tex., assignor to Texas Instruments Incorporated, Dallas, Tex.

Filed Jun. 13, 1995, Ser. No. 489,973

Int. Cl.⁶ G11C *7/00*

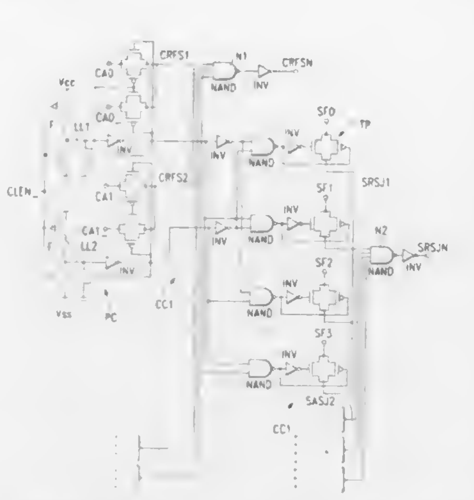
U.S. Cl. 371—10.3 **21 Claims**

15. A circuit for shared redundancy programming of a memory with at least first and second access ports, each said port having connecting means for controlling said port, said circuit comprising:

programmable means for producing and storing an internal address;

first comparison means responsive to said internal address and to a first address signal, said first comparison means generating a first match signal determined by the matching of said internal address and said first address signal, said first match signal communicated to said connecting means of said first access port; and

a second comparison means responsive to said internal address and to a second address signal, said second comparison means generating a second match signal determined by the matching of said internal address and said second address signal, said second match signal communicated to said connecting means of said second access port.



5,787,092

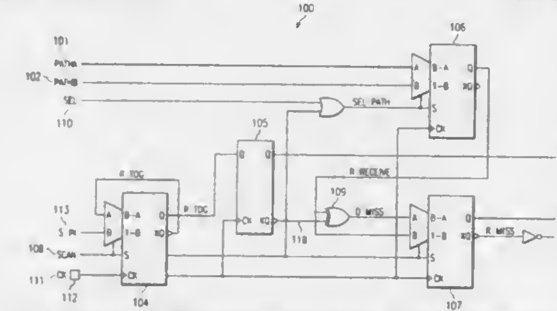
TEST CHIP CIRCUIT FOR ON-CHIP TIMING CHARACTERIZATION

Dwight Jaynes, Richardson, and Harold Dozier, Dallas, both of Tex., assignors to Hewlett-Packard Co., Palo Alto, Calif.

Filed May 27, 1997, Ser. No. 863,833

Int. Cl.⁶ G06F *11/00*

U.S. Cl. 371—22.1 **50 Claims**



1. A system for determining path delay of at least one test path, the path including a plurality of macros, the system comprising:

means for generating a toggling signal;

means for launching the signal onto one end of the path;

means for capturing the signal from the other end of the path; and

means for determining an amount of path delay by comparing a function of the launched signal with a function of the captured signal.

5,787,093

HIGH SPEED PATTERN GENERATING METHOD AND HIGH SPEED PATTERN GENERATOR USING THE METHOD

Kenichi Fujisaki, Gyoda, Japan, assignor to Advantest Corporation, Tokyo, Japan

PCT No. PCT/JP96/02104, § 371 Date Mar. 26, 1997, § 102(e) Date Mar. 26, 1997, PCT Pub. No. WO97/05499, PCT Pub. Date Feb. 13, 1997

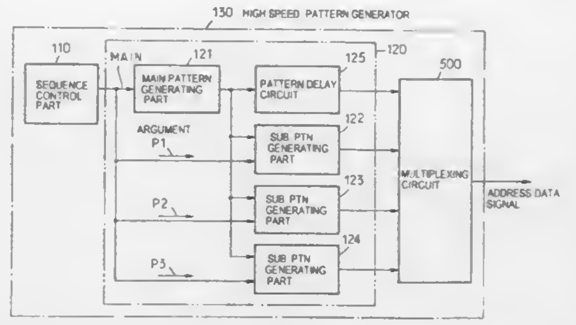
PCT Filed Jul. 26, 1996, Ser. No. 809,632

Claims priority, application Japan, Jul. 26, 1995, 7-190513; Jul. 26, 1995, 7-190514

Int. Cl.⁶ G01R *31/28*

U.S. Cl. 371—27.1 **10 Claims**

1. A high speed pattern generating method for generating test pattern signals at high speed from a pattern generator which comprises a sequence control part and a pattern generating part and generates a test pattern signal from said pattern generating part in accordance with a pattern generating instruction read out from an instruction memory provided in said sequence control part, said test pattern signal being applied to a device under test for testing the operation thereof,



said method being characterized by the steps of:

providing a plurality of pattern generating instruction storage areas in said instruction memory;

supplying pattern generating instructions read out from said plurality of pattern generating instruction storage areas to a plurality of pattern generating parts;

generating from said plurality of pattern generating parts a multi-phase pattern signal comprising the pattern signals having different phases generated from said plurality of pattern generating parts, said multi-phase pattern signal being distributed in phases and in the sequence of the pattern signals to be applied to said device under test; and

time division multiplexing said multi-phase pattern signal using a multiplexing circuit thereby generating a high speed pattern.

8. A high speed pattern generating method for generating test pattern signals at high speed, being characterized by the steps of:

outputting from an instruction memory a pattern generating instruction having an argument for prescribing a plurality of sub patterns following a main pattern;

generating a main pattern from a main pattern generating part in accordance with the pattern generating instruction;

supplying said main pattern generated from said main pattern generating part to a plurality of sub pattern generating parts;

changing said main pattern in said plurality of sub pattern generating parts in accordance with said arguments;

delaying said main pattern thereby to generate a plurality of sub patterns subsequent to said main pattern in the same phase as that of said main pattern; and

time division multiplexing said main pattern and said plurality of sub patterns in a multiplexing circuit, and taking out the time division multiplexed patterns so that high speed patterns changing in accordance with a predetermined pattern generation sequence are generated.

5,787,094

TEST AND DIAGNOSTICS FOR A SELF-TIMED PARALLEL INTERFACE

Delbert Raymond Cecchi, Rochester; Marius V. Dina, Burnsville; Curtis Walter Preuss, and Kenneth Michael Valk, both of Rochester, all of Minn., assignors to International Business Machines Corporation, Armonk, N.Y.

Filed Jun. 6, 1996, Ser. No. 656,950

Int. Cl.⁶ G06F *11/10;* H03M *13/00*

U.S. Cl. 371—53 **25 Claims**

20. A method of testing a self-timed parallel interface at operating speed, comprising the steps of:

generating a plurality of data streams for transmission via an output port;

calculating and attaching an error detection code to each data steam to form a data packet prior to transmission via the output port;

transmitting data packets back-to-back continuously out the output port;

receiving the data packet via an input port, the input port being coupled to the output port;

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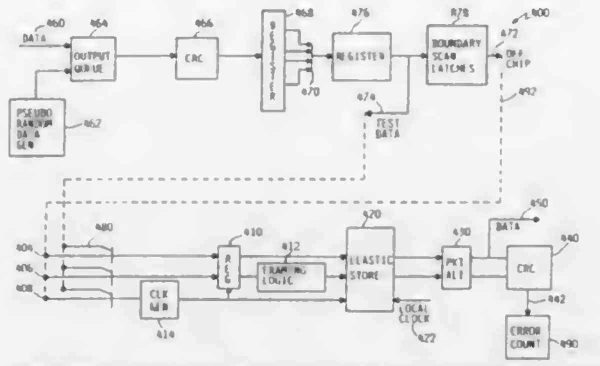


recalculating the error detection code and comparing the recalculated error detection code with the error correction code attached to the data bit stream to determine whether the data steam contains an error originating during transmission; and

counting the number of received data packets containing an error.

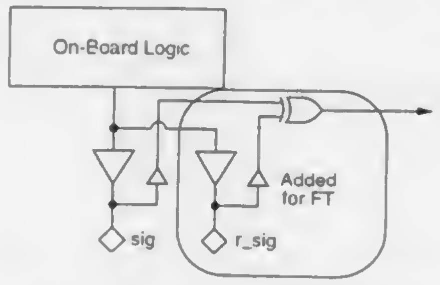
5,787,095
MULTIPROCESSOR COMPUTER BACKLANE BUS

Mark Myers, Portland; Stacey Lloyd, Hillsboro; Richard Stout, Tualatin; Robert Takasumi, Hillsboro, and John Lynch, Portland, all of Oreg., assignors to Pyramid Technology Corporation, San Jose, Calif.

Continuation of Ser. No. 328,896, Oct. 25, 1994, abandoned. This application Mar. 25, 1997, Ser. No. 823,587

Int. Cl.^{6} G06F *15/40;* H04L *1/00*

U.S. Cl. 371—68.1 **4 Claims**



4. A method of detecting backplane bus signalling errors, comprising the steps of:

duplicating an original signal to produce a redundant signal;

driving the original signal and the redundant signal on the backplane bus;

receiving the original signal and the redundant signal on the backplane bus;

comparing the original signal and the redundant signal received on the backplane bus; and

producing an error signal if the original signal and the redundant signal received on the backplane bus are logically different;

wherein the first original signal line is a wired-OR signal line.

5,787,096
CIRCUIT AND METHOD FOR TESTING AN INTEGRATED CIRCUIT

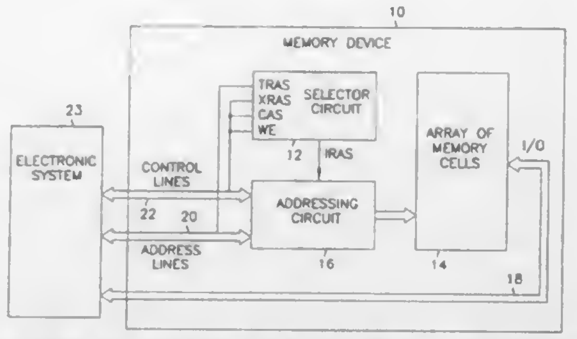
Gordon Roberts, Meridian; James E. Miller, Jr., and Eric Stubbs, both of Boise, all of Id., assignors to Micron Technology, Inc., Boise, Id.

Filed Apr. 23, 1996, Ser. No. 636,385

Int. Cl.^{6} G11C *29/00*

U.S. Cl. 371—21.1 **20 Claims**

1. A method for testing the operation of a multi-pin memory device which has a signal timing specification for a control signal during normal operation, the method comprising the steps of:



providing the control signal to a pin of the memory device that maintains a first logic level for a period of time exceeding the specification for the control signal applied to the pin in normal operation to initiate test mode;

providing a substitute control signal to an alternate pin of the memory device to be used in place of the control signal during the test; and

providing data and additional control signals to selected pins of the memory device to test its operation.

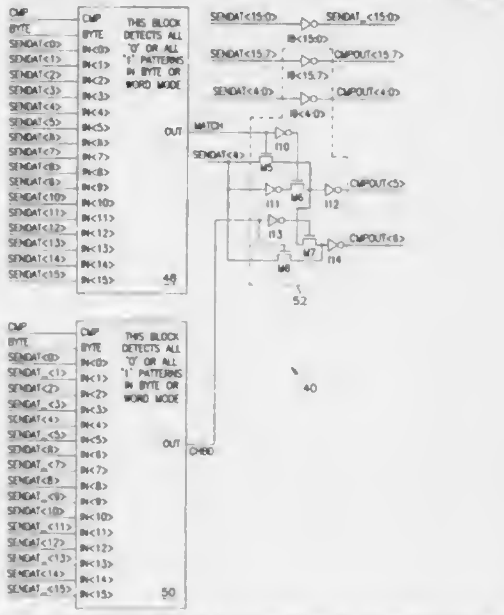
5,787,097
OUTPUT DATA COMPRESSION SCHEME FOR USE IN TESTING IC MEMORIES

Fariborz F. Roohparvar, Cupertino; Allahyar Vahidi Mowlavi, Santa Clara, both of Calif.; Mark A. Hawes, and Gregory L. Cowan, both of Boise, Id., assignors to Micron Technology, Inc., Boise, Id.

Filed Jul. 22, 1996, Ser. No. 681,527

Int. Cl.^{6} G01R *31/28*

U.S. Cl. 371—21.5 **6 Claims**



1. A memory system operable in a normal mode of operation and a test mode of operation, comprising:

sensing circuitry which generates x number of data bits during a read cycle;

a read path circuit, coupled to the sensing circuitry, which transfers the x number of data bits generated by the sensing circuitry during a first read cycle in the normal mode of operation to x number of output nodes;

a first detection circuit, coupled to the read path circuit, which detects whether or not the x number of data bits generated by the sensing circuitry during a second read cycle in the test mode of operation are arranged in a pattern in which all bits are identical;

a second detection circuit, coupled to the read path circuit, which detects whether or not the x number of data bits generated by the sensing circuitry during the second read cycle in the test mode of operation are arranged in a pattern in which each two adjacent bits are different; and

an output circuit, coupled to the first and second detection circuits, which generates y number of output data bits which are arranged in a pattern indicative of whether the x number of data bits generated by the sensing circuitry during the second read cycle in the test mode of operation are identical, are arranged in a pattern in which each two adjacent bits are different, or are arranged in another pattern, and wherein y is less than x.

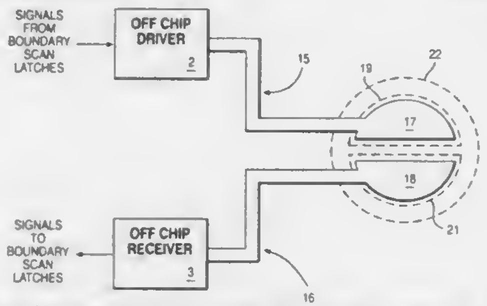
5,787,098
COMPLETE CHIP I/O TEST THROUGH LOW CONTACT TESTING USING ENHANCED BOUNDARY SCAN

Sumit DasGupta, Austin, Tex.; Kris Venkatraman Srikrishnan, Wappingers Falls, N.Y., and Ronald Gene Walther, Austin, Tex., assignors to International Business Machines Corporation, Armonk, N.Y.

Filed Jul. 29, 1996, Ser. No. 688,067

Int. Cl.^{6} G01R *31/28*

U.S. Cl. 371—22.3 **6 Claims**


SIGNALS FROM BOUNDARY SCAN LATCHES
OFF CHIP DRIVER
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15
19
22
17
18
21
SIGNALS TO BOUNDARY SCAN LATCHES
OFF CHIP RECEIVER
3
16

1. In an integrated circuit utilizing boundary scan testing and an array of pads for input/output connection, apparatus for evaluating the connection efficacy of solder deposited on a selected pad, comprising:

an off chip driver means connected by a first electrical line to a first portion of the pad;

an off chip receiver means connected by a second electrical line to a second portion of the pad, the second portion of the pad being electrically distinct from the first portion of the pad;

a solder deposit formed to connect to the first and second portions of the pad; and

means for the off chip receiver means to generate an output signal responsive to the transmission of a signal by the off chip driver means in the presence of an electrical connection from the solder deposit to both the first and second portions of the pad.

5,787,099
SYSTEM AND METHOD FOR ENCODING AND DECODING DATA USING NUMERICAL COMPUTATIONS IN GALOIS FIELDS

Steven Lan, Fremont; David H. Miller, Sacramento, and Richard W. Koralek, Palo Alto, all of Calif., assignors to Adaptec, Inc., Milpitas, Calif.

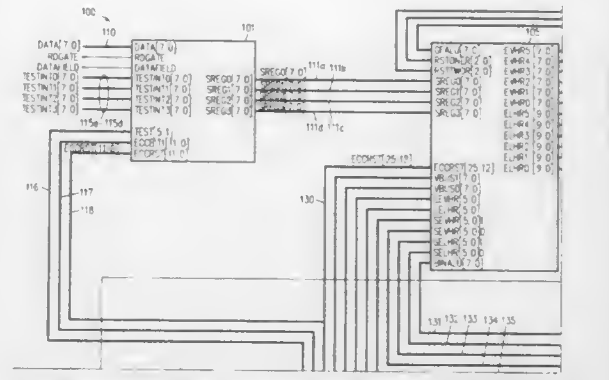
Filed Oct. 12, 1995, Ser. No. 542,277

Int. Cl.^{6} H03M *13/00*

U.S. Cl. 371—37.07 **19 Claims**

1. A system for encoding and decoding data using Reed-Solomon code, comprising:

a decoding circuit receiving a stream of encoded data, said stream of encoded data including Reed-Solomon code words encoded over a GF(q^4) finite Galois field, where q can be expressed as 2^n, n being an integer which is a power of 2, and wherein each element of said GF(q^4) is representable by a first element and a second element of a GF(q^2) finite Galois field, said GF(q^2) finite Galois field being encoded over a GF(q) finite Galois field, and wherein each element of said GF(q^2) is representable by a first element and a second element of a GF(q) finite Galois field, said decoding circuit computing a plurality of syndromes corresponding to said Reed-Solomon code words;



an error value and location circuit, coupled to said decoding circuit to receive said plurality of syndromes, said error value and location circuit computing an error value and an error location from said plurality of syndromes; and

a control circuit, coupled to said decoding unit and said error value and location circuit, said control circuit including a state machine for controlling operations of said decoding circuit and said error value and location circuit.

5,787,100
APPARATUS FOR DETERMINING ERROR EVALUATOR POLYNOMIAL FOR USE IN A REED-SOLOMON DECODER

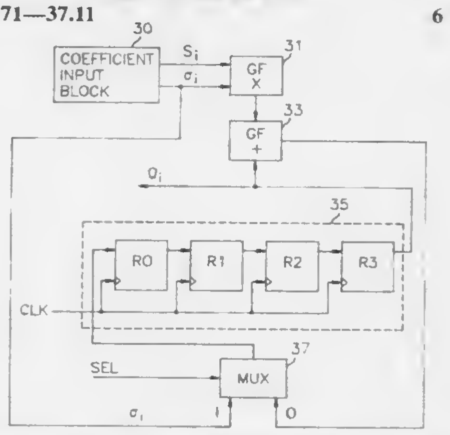
Yong-Hee Im, Seoul, Rep. of Korea, assignor to Daewoo Electronics Co., Ltd., Seoul, Rep. of Korea

Filed Feb. 28, 1997, Ser. No. 810,502

Claims priority, application Rep. of Korea, Feb. 28, 1996, 1996 5128; Feb. 29, 1996, 1996 5444

Int. Cl.^{6} H03M *13/00*

U.S. Cl. 371—37.11 **6 Claims**



1. An apparatus, for use in a Reed-Solomon decoder, for calculating coefficients of an error evaluator polynomial Ω(X), according to

$$\Omega(X)=1+\Omega_1X+\Omega_2X^2+\Omega_3X^3+\ldots+\Omega_TX^T$$
$$=1+(S_1+\sigma_1)X+(S_2+S_1+\sigma_1+\sigma_2)X^2+\ldots+(S_T+S_{T-1}\sigma_1+S_{T-2}\sigma_2+\ldots+\sigma_T)X^T$$

wherein S_i is an (i)th syndrome value, σ_i is an (i)th coefficient of an error locator polynomial, i ranging from 1 to T, and T is a predetermined number, the apparatus comprising:

input means for sequentially providing the coefficients of the error locator polynomial as a first output and the syndrome values as a second output in a predetermined order;

a multiplier for sequentially multiplying the first output and the second output provided from the input means, to thereby sequentially provide multiplication results;

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T memory means;
output means for providing contents of one of the T memory means in a predefined order;
an adder for adding each of the multiplication results provided from the multiplier to the contents of one of the T memory means provided from the output means, to thereby provide an addition result;
selection means for selectively providing the first output or the addition result; and
means for providing the first output or the addition result provided from the selection means to one of the T memory means, to be stored therein.

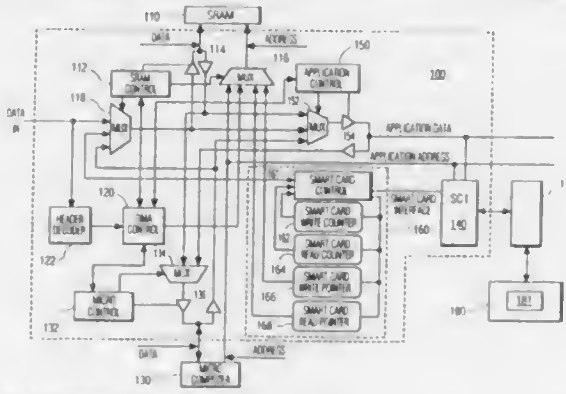
5,787,101
SMART CARD MESSAGE TRANSFER WITHOUT MICROPROCESSOR INTERVENTION

Michael Gene Kelly, Fishers, Ind., assignor to Thomson Consumer Electronics, Inc., Indianapolis, Ind.

Continuation of Ser. No. 260,170, Jun. 15, 1994, abandoned. This application May 5, 1997, Ser. No. 851,158

Int. Cl.^{6} G06F *3/00*

U.S. Cl. 371—49.1 **12 Claims**



1. Apparatus comprising:
a signal processing channel for processing an input signal;
a microprocessor for controlling a signal processing operation of said signal processing channel;
a memory coupled to said signal processing channel for storing data; and
interface means for coupling a data signal between said memory and a controller included in an integrated circuit (IC) card via a signal path exclusive of said microprocessor;
said interface means performing a filtering operation on said data signal coupled between said memory and said controller.

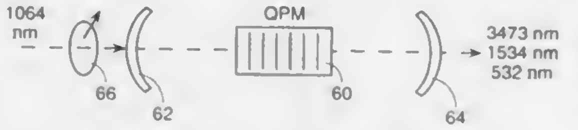
5,787,102
LIGHT GENERATING DEVICE AND METHOD USING A PERIODICALLY STRUCTURED NON-LINEAR MATERIAL AND ORTHOGONAL OPTICAL INTERACTION

Jason I. Alexander, Foster City; Walter R. Bosenberg, Sunnyvale, and Richard W. Wallace, Los Altos, all of Calif., assignors to Lightwave Electronics Corporation, Mountain View, Calif.

Filed Nov. 20, 1996, Ser. No. 754,217

Int. Cl.^{6} H01S *3/10;* **G02F** *1/35;* **G02B** *6/00*

U.S. Cl. 372—22 **26 Claims**



1. A second-harmonic generator, comprising:
a source of pump light having a first frequency; and
a non-linear optical material having formed therein an alternating structure of differing non-linear characteristics having a period such that said alternating structure quasi-phase matches said pump light from said source incident upon said structure and having a first polarization with an optical output exiting said structure, having a second frequency equal to twice said first frequency, and having a second polarization orthogonal to said first polarization.

16. A method of producing from a source of a radiation of a first frequency high-intensity radiation of a second frequency different than said first frequency, comprising the steps of:
electrically periodically poling a crystal of a non-linear material to have a grating structure with a period to quasi-phase match a first polarization of said radiation of said first frequency with a second polarization of said radiation of said second frequency, said first and second polarizations being orthogonal; and
radiating said crystal from said source with said radiation of said first frequency and of said first polarization to thereby produce radiation of said second frequency and of said second polarization.

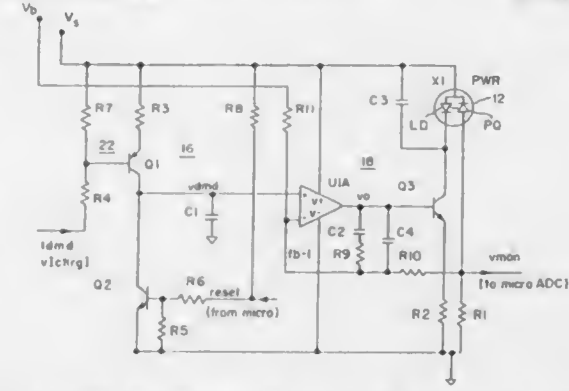
5,787,103
OPERATING AND CONTROL SYSTEM FOR LASERS USEFUL IN BAR CODE SCANNERS

Edward P. Coleman, Fairport, N.Y., assignor to PSC, Inc., Eugene, Oreg.

Continuation of Ser. No. 296,788, Aug. 26, 1994. This application Jan. 16, 1996, Ser. No. 585,934

Int. Cl.^{6} H01S *3/00*

U.S. Cl. 372—38 **18 Claims**



1. A system for controlling an electrically driven laser to maintain a desired output optical power in a beam therefrom, which system comprises a digital controller, said controller having a circuit connected in laser optical power monitoring relationship with said laser, said controller also having a computer operative to control the duration of at least one of a plurality of pulses in d sequence of said pulses in accordance with the optical power monitored by said circuit in time relationship with the occurrence of at least two of said pulses in said sequence of pulses which occur at different times in said sequence so that said one of said pulses has a duration related to said desired output and the duration of at least one of said two of said pulses, a capacitor connected in electrical driving relationship with said laser to an output optical power corresponding to a voltage to which said capacitor is charged, and a charging circuit containing said capacitor to which said pulses are applied and which charges said capacitor in accordance with the duration of said pulses.

5,787,104
SEMICONDUCTOR LIGHT EMITTING ELEMENT AND METHOD FOR FABRICATING THE SAME

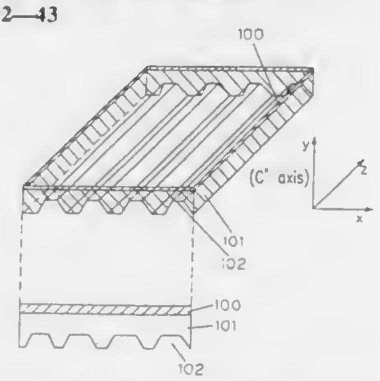
Satoshi Kamiyama, Sanda; Masakatsu Suzuki, Katano; Takeshi Uenoyama, Kyoto; Kiyoshi Ohnaka, Moriguchi; Akira Takamori, Suita; Masaya Mannoh, Hirakata; Isao Kidoguchi; Hideto Adachi, both of Mino; Akihiko Ishibashi, Sakai; Toshiya Fukuhisa, Kyoto, and Yasuhito Kumahuchi, Toyonaka, all of Japan, assignors to Matsushita Electric Industrial Co., Ltd., Osaka, Japan

Filed Jan. 19, 1996, Ser. No. 588,863

Claims priority, application Japan, Jan. 19, 1995, 7-006405

Int. Cl.^{6} H01S *3/19*

U.S. Cl. 372—43 **7 Claims**



1. A semiconductor laser comprising an active layer formed in a c-axis direction, wherein the active layer is made of a hexagonal-system compound semiconductor, and anisotropic strain is generated in a c plane of the active layer.

5,787,105
INTEGRATED SEMICONDUCTOR LASER APPARATUS

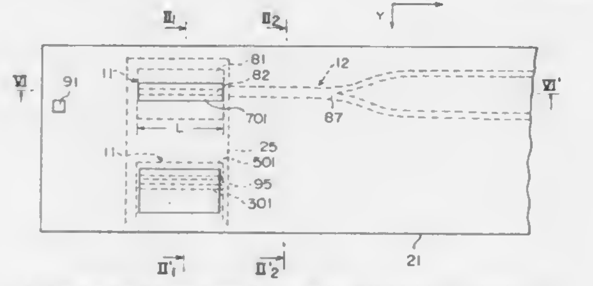
Kazuya Okamoto; Atsushi Yamada, both of Kanagawa-ken; Yoshiaki Nakano, Tokyo, and Kunio Tada, Saitama-Ken, all of Japan, assignors to Nikon Corporation, Tokyo, Japan

Filed Jan. 22, 1996, Ser. No. 589,125

Claims priority, application Japan, Jan. 20, 1995, 5-007741

Int. Cl.^{6} H01S *3/19*

U.S. Cl. 372—50 **13 Claims**



1. An integrated semiconductor laser apparatus comprising:
an active layer for radiating light;
a core layer for propagating light radiated in said active layer;
a first cladding layer disposed between said active layer and said core layer and in the proximity of said core layer;
a second cladding layer disposed between said active layer and said first cladding layer, and
a pair of electrodes for producing an electric current flow in said active layer;
wherein said core layer is located in the proximity of the active layer so as to be in an evanescent-field area of the light radiating in said active layers and wherein a carrier concentration of said second cladding layer is higher than a carrier concentration of said first cladding layer.

5,787,106
OPTICAL SEMICONDUCTOR DEVICE FOR CHANGING A BEAM DIAMETER

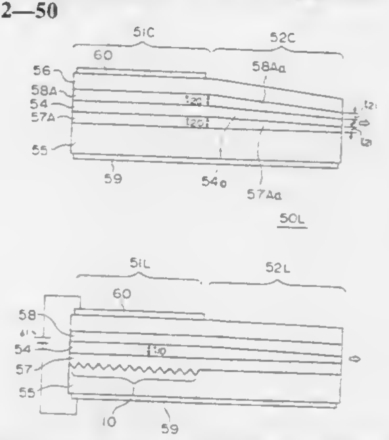
Haruhiko Tabuchi; Masumi Norizuki, and Masami Goto, all of Kawasaki, Japan, assignors to Fujitsu Limited, Kanagawa, Japan

Filed Mar. 8, 1996, Ser. No. 613,208

Claims priority, application Japan, Jun. 2, 1995, 7-136933

Int. Cl.^{6} H01S *3/19;3/08;* **G02B** *6/10*

U.S. Cl. 372—50 **29 Claims**



1. An optical semiconductor device having a multilayered structure and having a first end surface perpendicular to an optical axis of said optical semiconductor device and a second end surface opposite to said first end surface, said optical semiconductor device comprising:
a core layer having a first refractive index;
a lower cladding layer provided on a lower side of said core layer, said lower cladding layer having a second refractive index;
an upper cladding layer provided on an upper side of said core layer, said upper cladding layer having said second refractive index; and
a transmission constant reduction enhancing layer provided between said lower cladding layer and said upper cladding layer, said transmission constant reduction enhancing layer having a third refractive index less than said first refractive index and said second refractive index,
wherein said optical semiconductor device includes a first area and a second area, a portion of said core layer in said first area having a uniform thickness, a portion of said core layer in said second area having a thickness gradually decreasing toward said first end surface of said optical semiconductor device;
said transmission constant reduction enhancing layer being provided between said core layer and said lower cladding layer; and
a portion of said transmission constant reduction enhancing layer in said second area having a thickness gradually decreasing toward said first end surface of said optical semiconductor device.

5,787,107
METHOD AND APPARATUS FOR EFFICIENT CONCENTRATION OF LIGHT FROM LASER DIODE ARRAYS

James R. Leger, Groton, and William C. Goltsos, Burlington, both of Mass., assignors to Massachusetts Institute of Technology, Cambridge, Mass.

Division of Ser. No. 152,585, Nov. 15, 1993, Pat. No. 5,568,318, which is a division of Ser. No. 809,850, Dec. 18, 1991, Pat. No. 5,333,077, which is a continuation of Ser. No. 429,417, Oct. 31, 1989. This application Jun. 12, 1996, Ser. No. 662,787

Int. Cl.^{6} H01S *3/091*

U.S. Cl. 372—71 **4 Claims**

1. A method for pumping a lasing material with a light beam having a spatial cross-sectional distribution which is extended predominantly in one direction, the method comprising:

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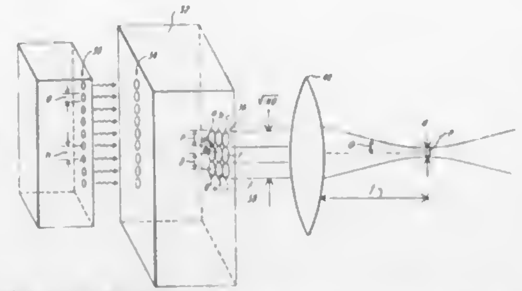


receiving the light beam;

redirecting different portions of the received light beam to different locations on an imaginary plane wherein at least two portions of the light beam are directed along two non-parallel paths so as to generate a two-dimensional pattern of light on the imaginary plane;

redirecting portions of said two-dimensional pattern of light to a point along an axis of the lasing material.

5,787,108

EXHAUST DEVICE FOR ELECTRIC ARC FURNACES AND RELATIVE METHOD

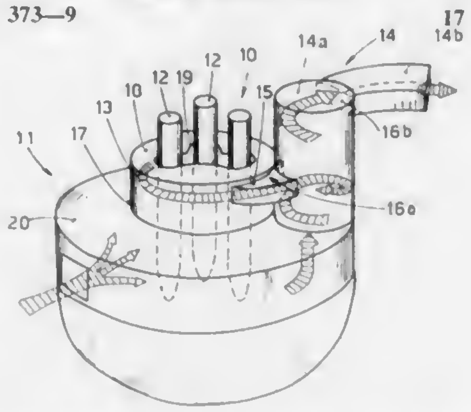
Milorad Pavlicevic, Udine, Italy; Peter Tishchenko, Donezk, Ukraine; Alfredo Poloni, Fogliano di Redipuglia, and Angelico Della Negra, Povoletto, both of Italy, assignors to Danieli & C. Officine Meccaniche SpA, Buttrio, Italy

Filed Apr. 17, 1997, Ser. No. 842,821

Claims priority, application Italy, Apr. 30, 1996, UD96A0066

Int. Cl.⁶ F27D *17/00*

U.S. Cl. 373—9 17 Claims



1. An exhaust device for electric arc furnace (**11**) whether fed by alternating or direct current, the furnace (**11**) comprising a crown (**20**) with at least one aperture (**19**) to introduce and position the electrodes (**12**) and associated with a cupola which partly surrounds the electrodes (**12**) in a vertical direction, the cupola being of a smaller diameter than the crown (**20**), there also being on the crown (**20**) a fourth hole connected to a discharge pipe (**14**) for exhausting fumes, the cupola being vertically elevated and the discharge pipe (**14**) being governed by means to suck in the fumes, the device being characterised in that the elevated cupola is a decantation chamber (**13**) substantially cylindrical in shape, the cupola functioning as a decantation chamber (**13**) having at its upper part a conduit (**15**) to discharge the fumes which projects tangentially and connects the cupola functioning as a decantation chamber (**13**) to the discharge pipe (**14**), the discharge pipe (**14**) being placed at the side of the cupola (**13**).

5,787,109

FURNACE VESSEL FOR A DC ARC FURNACE

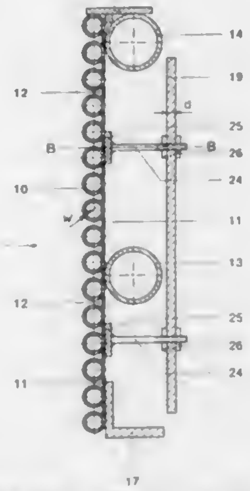
Sven-Einar Stenkvist, Brugg, Switzerland, assignor to Asea Brown Boveri AG, Baden, Switzerland

Filed Dec. 1, 1995, Ser. No. 566,160

Claims priority, application Germany, Dec. 24, 1994, 44 46 542.4

Int. Cl.⁶ H05B *7/144*

U.S. Cl. 373—107 9 Claims



1. A furnace receptacle for a direct current electric arc furnace, comprising:

a heat resistant wall with an outer receptacle casing of steel and having at least one wall segmented tube of non-magnetic material;

a hearth electrode and a fusible electrode which are fed from a power supply facility located laterally outside the receptacle through high amperage conduits, and

at least one adjustable, magnetic trimming plate for influencing the magnetic field within the furnace receptacle, said trimming plate separably fastened on the outer wall of said at least one non-magnetic wall segmented tube.

5,787,110

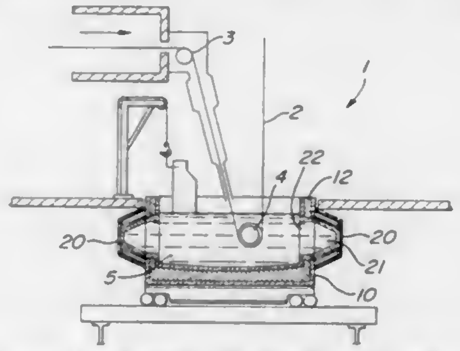
GALVANIZING APPARATUS WITH CORELESS INDUCTION FURNACE

Oleg S. Fishman, Maple Glen, Pa.; John H. Mortimer, Mt. Laurel, and Vitaly A. Peysakhovich, Moorestown, both of N.J., assignors to Inductotherm Corp., Rancocas, N.J.

Filed Nov. 1, 1995, Ser. No. 551,660

Int. Cl.⁶ H05B *6/22*

U.S. Cl. 373—151 11 Claims



1. A galvanizing apparatus for heating liquid metal coatings comprising:

a vessel for holding molten metal, said vessel having a bottom and vertical side walls, said side walls having interior and exterior surfaces and at least one coreless induction furnace;

said coreless induction furnace comprising a conical projection outward from said vessel side walls, said projection being formed in both the interior and exterior surfaces of the side walls such that both the interior and exterior surfaces of the side walls form an outward projection having a conical shape, said at least one conical projection having a widest radius adjacent to the side walls, said radius decreasing along the outward projection from the side walls, and

at least one induction heating coil for heating and stirring the molten metal helically wound on said conical projection on the vessel exterior such that the induction heating coil takes the shape of the conical projection.

5,787,111

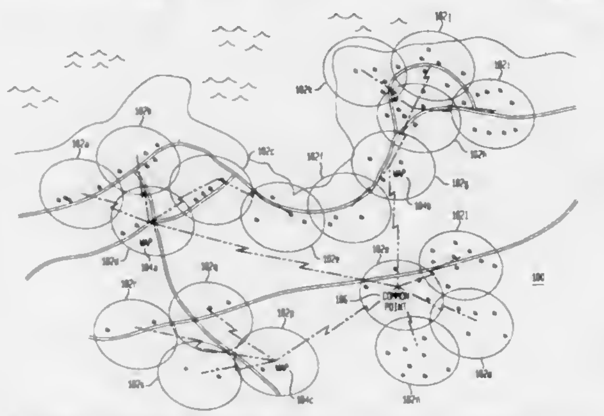
TRANSPORTABLE COMMUNICATION SYSTEM

William E. Gilmore, Richardson, Tex., assignor to MCI Communications Corporation, Washington, D.C.

Filed May 28, 1996, Ser. No. 654,326

Int. Cl.⁶ H04B *1/69*

U.S. Cl. 375—200 23 Claims



1. A transportable communications system for handling information exchange in a special event environment, comprising:

a plurality of user terminals;

a plurality of deployable cell sites wirelessly coupled to one of said plurality of user terminals;

a plurality of deployable wired access points, wherein one of said plurality of wired access points is wirelessly coupled to one of said plurality of cell sites;

a deployable common point wirelessly coupled to said plurality of wired access points; and

a communications network coupled to said common point.

5,787,112

DATA DEMODULATION CIRCUIT AND METHOD FOR SPREAD SPECTRUM COMMUNICATION

Hideshi Murai, Kamakura, Japan, assignor to Mitsubishi Denki Kabushiki Kaisha, Tokyo, Japan

Filed Feb. 8, 1995, Ser. No. 385,284

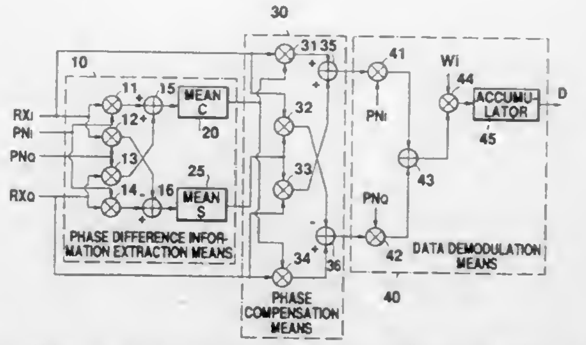
Claims priority, application Japan, Mar. 9, 1994, 6-038702

Int. Cl.⁶ H04B *1/707*

U.S. Cl. 375—206 22 Claims

1. A data demodulator circuit for spread spectrum communication, demodulating data from received signal which is spread spectrum modulated with respect to the in-phase axis and the quadrature axis by a direct sequence technique with an in-phase axis pseudo noise code and a quadrature axis pseudo noise code, respectively, said data demodulator circuit comprising:

a phase difference information extraction means for extracting information of phase differences, by multiplying in-phase axis received signal and quadrature axis received signal with respective pseudo noise codes used on the transmitter side, taking addition or subtraction on two of the products in a predetermined combination, and averaging the results of the addition or subtraction;



a phase compensation means for compensating the effect of phase differences remaining in the in-phase axis received signal and the quadrature axis received signal, by use of the phase difference information obtained by said phase difference information extraction means; and

a data demodulation means for demodulating transmitted data from the outputs of said phase compensation means.

5,787,113

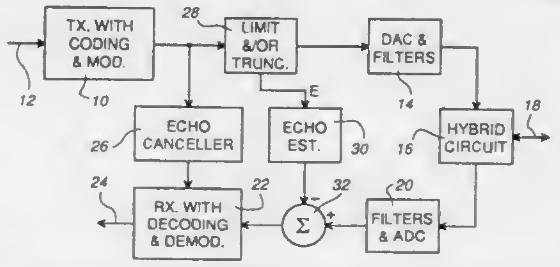
MITIGATING CLIPPING AND QUANTIZATION EFFECTS IN DIGITAL TRANSMISSION SYSTEMS

Jacky S. Chow, Mountain View; John A. C. Bingham, Palo Alto; Mark Bradford Flowers, Sunnyvale, and John M. Cioffi, Cupertino, all of Calif., assignors to Amati Communications Corporation, San Jose, Calif.

Continuation of Ser. No. 165,509, Dec. 13, 1993, Pat. No. 5,623,513. This application Jan. 24, 1997, Ser. No. 789,154

Int. Cl.⁶ H04L *5/16*; H04B *15/00*

U.S. Cl. 375—219 32 Claims



10. A method of mitigating clipping in a transmission system in which a transmit path for a transmit signal and a receive path for a receive signal are coupled to a bidirectional transmission path via a hybrid circuit, the transmit signal comprising samples which are subject to clipping to a predetermined range by a digital-to-analog converter within the transmit path, the method comprising:

scaling amplitudes of the transmit signal in accordance with the predetermined range prior to the digital-to-analog converter;

transmitting an indication of said scaling for complementary scaling at a receiver to which the transmit signal is transmitted; and

transmitting the scaled transmit signal.

5,787,114

LOOP-BACK TEST SYSTEM AND METHOD

Krishnan Ramamurthy, Santa Clara, Calif.; Rong Pan, Aberdeen, N.J., and Francois Ducaroir, Santa Clara, Calif., assignors to LSI Logic Corporation, Milpitas, Calif.

Filed Jan. 17, 1996, Ser. No. 586,174

Int. Cl.⁶ H04B *1/44*

U.S. Cl. 375—221 20 Claims

1. A loop back test system for detection of intra-domain errors of an integrated I/O interface core of an integrated circuit, comprising in operative combination:

a) an integrated transmitter, said transmitter comprising:

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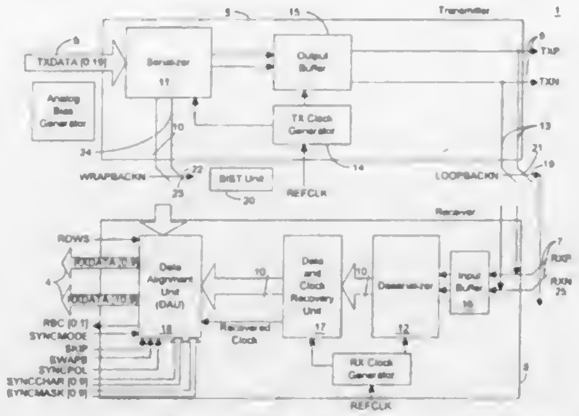


- i) a transmitter input stage for receiving transmitter input data, said input date encoded with an alignment pattern and said input data having a first format, and
- ii) a transmitter converter stage for converting said transmitter input data into transmitter output data, said output data having a second format;

b) an integrated receiver, said receiver comprising:
- i) a receiver converter stage for buffered receiving said transmitter output data for conversion of said transmitter output data to said first format to provide received reconverted data,
- ii) a receiver alignment stage for extracting said alignment pattern from said received reconverted data, and for aligning said received reconverted data to conform to timing of said transmitter input data;

c) a first switching circuit in electrical cooperation with said transmitter converter stage having a first open condition, and a second closed condition, said second closed condition for shunting transmitter output data to said receiver converter stage to provide loop back data to said receiver converter stage, said first switching circuit second closed condition being enabled upon assertion of a loop back signal to the I/O interface core;

d) a second switching circuit in electrical cooperation with said receiver converter stage having a first open position to permit receipt of externally transmitted data, and a second closed condition for receiving an input test data for reconversion, and alignment of the reconverted input test data to provide an output test data, and for halting receipt of the externally transmitted data upon assertion of the loop back signal to the I/O interface core; and

e) an error analysis circuit for comparing said output test data with said input test data.

5,787,115
KEY TELEPHONE SYSTEM WITHOUT COMMON CONTROL

Robert Turnbull; David Westergaard; Bruce W. Yee, all of Calgary; Michael J. Lucas, Alrdrie; Alan D. Eyre, and Brian McKinney, both of Calgary, all of Canada, assignors to Northern Telecom Limited, Montreal, Canada

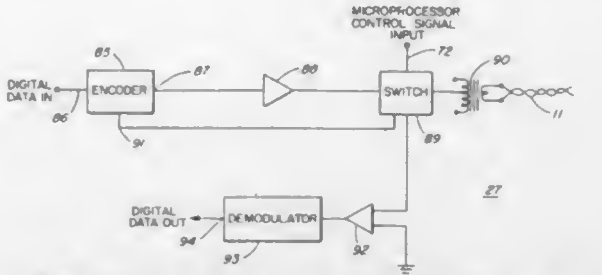
Filed Dec. 28, 1995, Ser. No. 579,967

Int. Cl.^{6} H04B *1/38;* **H04L** *5/16*

U.S. Cl. 375—222 **16 Claims**

1. In a telecommunications system having a plurality of subscriber stations interconnected along a communications path, apparatus disposed at individual ones of the stations for transceiving an input digital bit stream converted into corresponding binary FSK radio frequency output signals, comprising in combination:

an FSK encoder having a control terminal, a first input terminal to which a source of digital data is connected and a first output terminal connectable to the path for communicating encoder generated binary FSK radio frequency output signals to a remote station on the path;



an FSK demodulator having a second input terminal to which received FSK signals are selectively coupled from the path and a second output terminal at which demodulated signals comprise a bit stream of digital data;

a directional switch connected to the control terminal for selectively enabling and disabling the encoder and switching a connection to the path from respective ones of the first output terminal and the second input terminal in response to control signals input to the switch;

means for resolving contention between call initiating stations and identifying a station seizing the path as a master station; and

control means connected to the switch for enabling a switched connection from the first output terminal to the path and enabling the encoder of the master station with a start-up time delay prior to transferring digital data thereto.

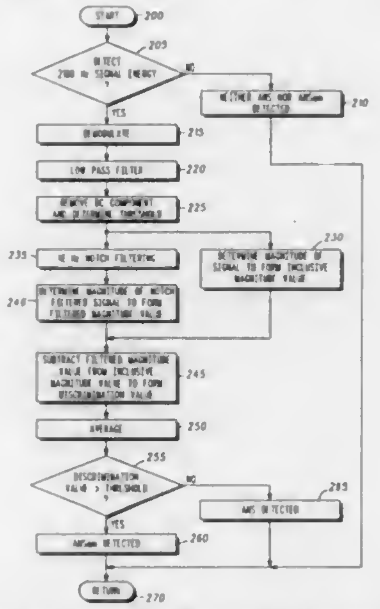
5,787,116
APPARATUS AND METHOD FOR DETECTING AMPLITUDE MODULATED ANSWER BACK TONED SIGNALS

Thanh Lam, Grafton; Timothy Lis, Framingham, and Richard Haltmaier, West Newton, all of Mass., assignors to Motorola Inc., Schaumburg, Ill.

Filed Jun. 18, 1996, Ser. No. 665,624

Int. Cl.^{6} H04B *1/38;* **H04L** *5/16*

U.S. Cl. 375—222 **30 Claims**


START
200
205
DETECT 2100 Hz SIGNAL ENERGY ?
NO
YES
NEITHER ANS NOR ANSam DETECTED
210
DEMODULATE
215
LOW PASS FILTER
220
REMOVE DC COMPONENT AND DETERMINE THRESHOLD
225
230
DETERMINE MAGNITUDE OF SIGNAL TO FORM INCLUSIVE MAGNITUDE VALUE
235
15 Hz NOTCH FILTERING
240
DETERMINE MAGNITUDE OF NOTCH FILTERED SIGNAL TO FORM FILTERED MAGNITUDE VALUE
SUBTRACT FILTERED MAGNITUDE VALUE FROM INCLUSIVE MAGNITUDE VALUE TO FORM DISCRIMINATION VALUE
245
AVERAGE
250
255
DISCRIMINATION VALUE > THRESHOLD ?
NO
ANS DETECTED
265
YES
ANSam DETECTED
260
RETURN
270

1. A method for detecting an amplitude modulated signal, the amplitude modulated signal having a first frequency component, the amplitude modulated signal transmitted and received via a channel to form a received signal, the method comprising:

(a) determining a presence of the first frequency component in the received signal;

(b) when the first frequency component is present, demodulating the received signal to form a demodulated signal;

(c) removing a direct current component from the demodulated signal to form an inclusive signal;

(d) determining a magnitude of the inclusive signal to form an inclusive signal magnitude;

(e) removing a second frequency component of the inclusive signal to form a filtered signal;

(f) determining a magnitude of the filtered signal to form a filtered signal magnitude;

(g) forming a discrimination value as a difference between the inclusive signal magnitude and the filtered signal magnitude; and

(h) when the discrimination value is greater than a predetermined threshold, detecting a presence of the amplitude modulated signal.

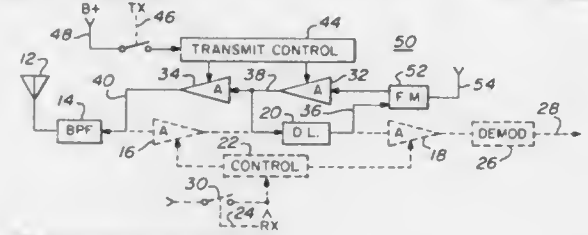
5,787,117
RECEIVER/TRANSMITTER HAVING COMMON ELEMENTS

Darrell L. Ash, Sachse, Tex., assignor to RF Monolithics, Inc., Dallas, Tex.

Filed Jan. 26, 1996, Ser. No. 592,287

Int. Cl.^{6} H03F *1/14;* **H04B** *1/44*

U.S. Cl. 375—223 **17 Claims**



10. A transceiver including:

an antenna;

an RF receiver including a sequential amplifier coupled to said antenna for amplifying a received modulated first RF carrier signal;

said sequential amplifier including at least first and second RF amplifiers;

a demodulator coupled to said sequential amplifier for detecting data in said received modulated first RF carrier signal;

a transmitter including an oscillator for generating a second RF carrier signal, said oscillator including a phase shifting element;

a modulator coupled to said oscillator for modulating said second RF carrier signal for transmission by said antenna;

switching means coupled to said RF receiver and said transmitter for selectively activating either one of said RF receiver and said transmitter; and

a delay line responsive to said switching means and commonly used in said RF receiver to couple said first and second RF amplifier together only when said RF receiver is activated and in said transmitter oscillator as said phase shifting element only when said transmitter is activated.

5,787,118
ADAPTIVE EQUALIZER AND ADAPTIVE DIVERSITY EQUALIZER

Koji Ueda, Kanagawa, Japan, assignor to Mitsubishi Denki Kabushiki Kaisha, Tokyo, Japan

Division of Ser. No. 292,612, Aug. 18, 1994, Pat. No. 5,541,956. This application Apr. 22, 1996, Ser. No. 636,152

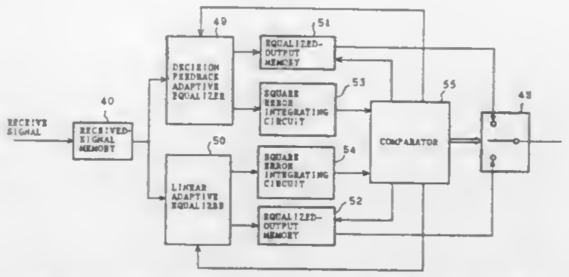
Claims priority, application Japan, Sep. 10, 1993, 5-226004

Int. Cl.^{6} H03H *7/30*

U.S. Cl. 375—232 **11 Claims**

1. An adaptive equalizer comprising:

a decision feedback adaptive equalizer including an equalization filter part, a decision part having an input connected to the output of said equalization filter part and a tap-coefficient-update part which updates the tap coefficients of said equalization filter part in accordance with a tap-coefficient update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51
DECISION FEEDBACK ADAPTIVE EQUALIZER
EQUALIZED-OUTPUT MEMORY
53
SQUARE ERROR INTEGRATING CIRCUIT
55
40
48
RECEIVE SIGNAL
RECEIVED-SIGNAL MEMORY
COMPARATOR
50
54
LINEAR ADAPTIVE EQUALIZER
SQUARE ERROR INTEGRATING CIRCUIT
52
EQUALIZED-OUTPUT MEMORY

algorithm, said equalization filter part having two linear transversal filters, that is, a feedforward filter and a feedback filter;

a linear adaptive equalizaer including an equalization filter part having a linear transversal filter, a decision unit and a tap-coefficient-update part which updates tap coefficients of said equalization filter part in accordance with a tap-coefficient update algorithm;

a comparator for comparing a value determined based on an estimation error produced from said decision feedback adaptive equalizer with a value determined based on an estimation error produced from said linear adaptive equalizer; and

means for selecting one of an output produced from said decision feedback adaptive equalizer and the output produced from said linear adaptive equalizer based on the result of a comparison by said comparator and for setting said selected equalized output as the final output.

5,787,119
TRANSMISSION SYSTEM FOR DIGITIZED VOICE SIGNALS AND CODER/DECODER CIRCUIT FOR SUCH A SYSTEM

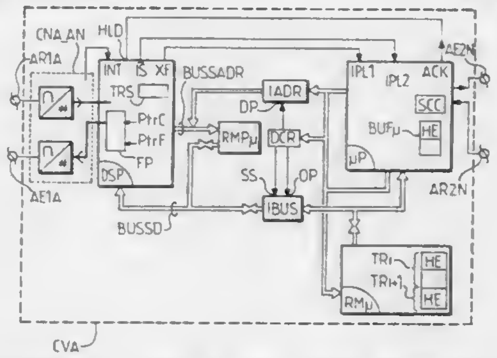
Phillippe Lamballe, Elancourt, and Brou D. N'Dri, Paris, both of France, assignors to U.S. Philips Corporation, New York, N.Y.

Filed Dec. 18, 1995, Ser. No. 573,851

Claims priority, application France, Dec. 21, 1994, 94 15408

Int. Cl.^{6} H04B *1/66*

U.S. Cl. 375—240 **6 Claims**



1. Transmission system for voice signals formed by digital signal frames transmitted between at least a first subscriber and a second subscriber, comprising:

a transmission medium for transmitting said frames,

first and second receiving accesses (AR1A, BR1A) for respectively receiving analog voice signals from the first and second subscribers,

first and second transmission accesses (AE1A, BE1A) for respectively supplying analog voice signals to the first and second subscribers,

at least one coder/decoder circuit (CVA) for forming frames of digital signals after compression of analog voice signals received from a subscriber and for reconstituting, in analog form, analog voice signals to be supplied to said subscriber after decompression of corresponding received digital frames, which coder/decoder circuit includes:

a frame receiving access for receiving said frames (AR2N),

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a frame transmission access for producing said frames (AE2N),
a compression/decompression circuit (CPRSSA-DECPRSSA) for performing said compression and decompression operations, and
control means coupled to said compression/decompression circuit for controlling the compression and decompression operations thereof;
which system is characterized in that:
the compression/decompression circuit is arranged for effecting a compression and a decompression separately, and
the system further comprises priority determining means for causing the control means to control the compression/decompression circuit so that the operation to compress is given priority over the operation to decompress.

5,787,120
TRANSMISSION METHOD AND TRANSMITTER FOR SIGNALS WITH A DECOUPLED LOW LEVEL AND AT LEAST ONE COUPLED HIGH LEVEL FOR A TELECOMMUNICATION NETWORK INCLUDING SUCH A TRANSMITTER

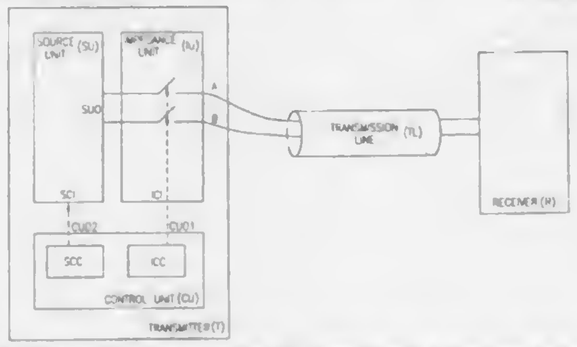
Filip Marcel Louagie, Antwerp, and Didier René Haspeslagh, Harelbeke, both of Belgium, assignors to Alcatel N.V., Rijswljk, Netherlands

Filed Jan. 23, 1996, Ser. No. 590,338

Claims priority, application European Pat. Off., Jan. 30, 1995, 9520017

Int. Cl.^{6} H04B *3/00*; H04L *25/00*

U.S. Cl. 375—257 **8 Claims**



1. A method for transmission of a signal with a low level and at least one high level, generated by a transmitter (T) and transmitted on a transmission line (TL) which couples said transmitter (T) to a receiver (R), wherein said transmitter (T) is decoupled from said transmission line (TL) during a time said signal is at said low level, and said transmitter (T) is coupled to said transmission line (TL) during a time said signal level is at said high level, characterized in that, to transit said signal from said high level to said low level, said transmitter (T) is decoupled from said transmission line (TL) only after said signal is decreased to said low level resulting in oscillations of said signal that are of decreased amplitude and that are restrictable within limits.

5,787,121
DATA TRANSMISSION SYSTEM

Shingo Okamoto, Tokyo, Japan, assignor to NEC Corporation, Tokyo, Japan

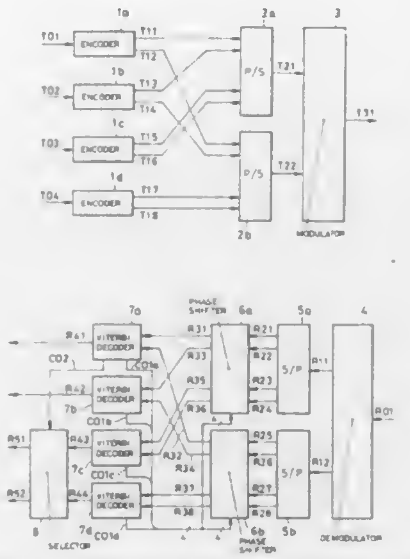
Filed Dec. 26, 1996, Ser. No. 773,950

Claims priority, application Japan, Dec. 27, 1995, 7-340714

Int. Cl.^{6} H04L *5/12*

U.S. Cl. 375—262 **10 Claims**

1. A data transmission system comprising:
encoding means for performing convolution encoding a plurality of information bit strings to be transmitted, per string and outputting encoded bit strings;



parallel/serial converting means for performing parallel/serial conversion for respective encoded bit strings from said encoding means;
modulation means for transmitting modulated signal by modulating outputs of said parallel/serial converting means to a transmission line;
demodulation means for demodulating respective of said modulated signal transmitted through said transmission line;
serial/parallel converting means for performing serial/parallel conversion for outputs of said demodulation means;
error correcting decoding means for performing error correcting decoding for respective decoded bit strings converted by said serial/parallel converting means and outputting decoded bit strings corresponding to a plurality of information bit strings;
bit arranging means for arranging respective encoded bit strings input to said parallel/serial converting means and respective decoded bit strings input to said error correcting decoding means for disabling error correction decoding in at least one of said error correcting decoding means, when erroneous bit strings are output due to frequency division phase ambiguity of said serial/parallel converting means; and
shifting means for monitoring capability and incapability of error correcting decoding in said error correcting decoding means, shifting arrangement of respective decoded bit strings to be input to said error correcting decoding means when correction decoding is not possible, and establishing correspondence between arrangement of said decoded bit strings and arrangement of said information bit strings.

5,787,122
METHOD AND APPARATUS FOR TRANSMITTING/ RECEIVING, ENCODED DATA AS BURST SIGNALS USING A NUMBER OF ANTENNAS

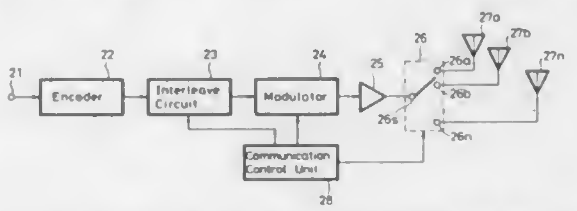
Mitsuhiro Suzuki, Chiba, Japan, assignor to Sony Corporation, Tokyo, Japan

Filed Apr. 30, 1996, Ser. No. 640,059

Claims priority, application Japan, May 24, 1995, 7-125375

Int. Cl.^{6} H04B *7/02*

U.S. Cl. 375—267 **10 Claims**



1. A radio transmitter for intermittently transmitting an encoded information signal in a form of a burst signal comprising:

an encoder for generating an encoded bit signal by encoding bit data of transmission information;
interleave means for interleaving an output signal from said encoder over a plurality of burst signals;
a modulator for modulating an output signal from said interleave means;
a plurality of antennas; and
switch means for sequentially selectively supplying an output signal of said modulator to said plurality of antennas for each of said plurality of burst signals.

5,787,123
RECEIVER FOR ORTHOGONAL FREQUENCY DIVISION MULTIPLEXED SIGNALS

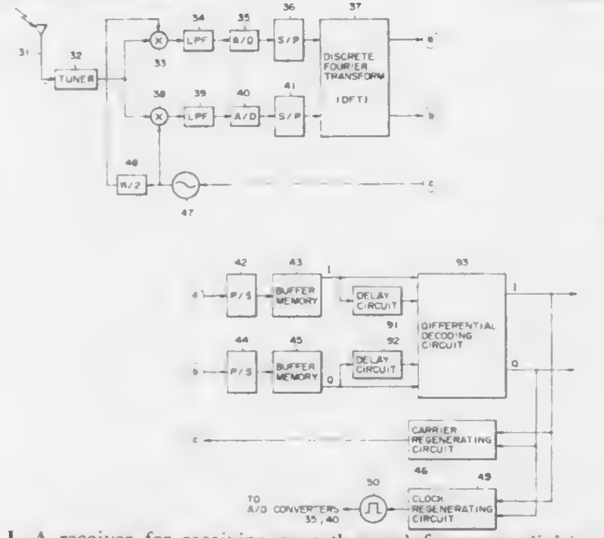
Takahiro Okada, Chiba; Yasunari Ikeda, Kanagawa, and Tamotsu Ikeda, Tokyo, all of Japan, assignors to Sony Corporation, Tokyo, Japan

Filed Oct. 25, 1996, Ser. No. 736,720

Claims priority, application Japan, Oct. 30, 1995, 7-281228

Int. Cl.^{6} H04L *27/14*; H04J *11/00*

U.S. Cl. 375—324 **13 Claims**



1. A receiver for receiving an orthogonal frequency division multiplexed (OFDM) modulated signal, comprising:
receiving means for receiving said OFDM modulated signal;
demodulating means for demodulating said received OFDM modulated signal to generate a baseband OFDM signal;
phase difference detecting means for outputting a phase difference information between the phase of the carrier forming said baseband OFDM signal and the phase of the carrier forming a temporally preceding baseband OFDM signal;
adding means for adding the phase difference information as determined by said phase difference detecting means for a plurality of baseband OFDM signals; and
reference signal generating means for generating a reference signal used for demodulation of said OFDM modulated signal based on an output from said adding means.

5,787,124
QUADRATURE DETECTOR AND AMPLITUDE ERROR CORRECTION METHOD FOR QUADRATURE DETECTOR

Takashi Shimura, Tokyo, Japan, assignor to Advantest Corporation, Tokyo, Japan

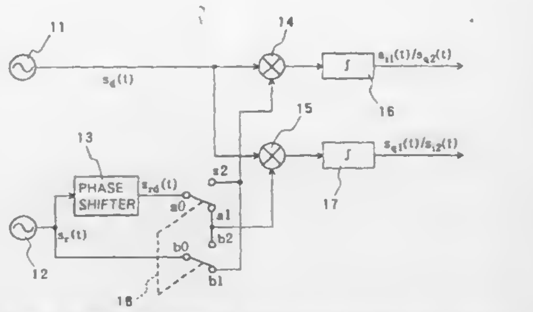
Filed Nov. 15, 1996, Ser. No. 751,159

Claims priority, application Japan, Nov. 21, 1995, 7-302888

Int. Cl.^{6} G06F *7/44*

U.S. Cl. 375—328 **11 Claims**

8. A quadrature detector which includes a first multiplier for multiplying a reference signal and a measured signal, a first inte-



grator for smoothing an output of the first multiplier to produce an I signal and outputting the I signal, a phase shifter for generating an auxiliary reference signal having a predetermined phase delay amount from the reference signal, a second multiplier for multiplying the auxiliary reference signal and the measured signal, and a second integrator for smoothing an output of the second multiplier to produce a Q signal and outputting the Q signal, characterized in that it comprises:
a switch operable, when switched, for inputting the auxiliary reference signal in place of the reference signal to the first multiplier and inputting the reference signal in place of the auxiliary reference signal to the second multiplier.

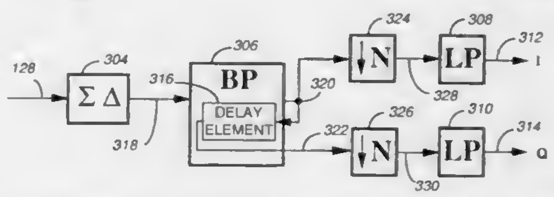
5,787,125
APPARATUS FOR DERIVING IN-PHASE AND QUADRATURE-PHASE BASEBAND SIGNALS FROM A COMMUNICATION SIGNAL

James Gregory Mittel, Lake Worth, Fla., assignor to Motorola, Inc., Schaumburg, Ill.

Filed May 6, 1996, Ser. No. 643,646

Int. Cl.^{6} H04L *27/22*

U.S. Cl. 375—329 **12 Claims**



1. An apparatus for deriving in-phase (I) and quadrature-phase (Q) baseband signals from a digitized signal having a sampling rate, the apparatus comprising:
band pass filter coupled to the digitized signal for band pass filtering the digitized signal to produce a band passed signal;
delay element coupled to the band pass filter for delaying the band passed signal to produce a delayed band passed signal;
decimator means coupled to the band pass filter for decimating the band passed signal and the delayed band passed signal by a predetermined amount to produce, respectively, a decimated signal and a decimated delayed signal; and
low pass filter means coupled to the decimator means for low pass filtering the decimated signal and the decimated delayed signal to produce, respectively, the I and Q baseband signals.

5,787,126
DETECTOR AND RECEIVING AND TRANSMITTING APPARATUS

Kenji Itoh; Mitsuhiro Shimozawa; Kenji Kawakami; Noriharu Suematsu, and Akio Iida, all of Tokyo, Japan, assignors to Mitsubishi Denki Kabushiki Kaisha, Tokyo, Japan

Filed Feb. 7, 1996, Ser. No. 597,708

Claims priority, application Japan, Mar. 3, 1995, 7-044312

Int. Cl.^{6} H04L *27/22*

U.S. Cl. 375—340 **25 Claims**

1. A detector comprising:
a first distributor for distributing a signal wave;

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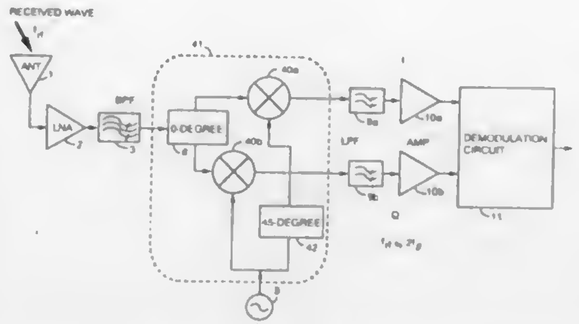


- a 45 degree shifter for shifting a local oscillation wave provided from a local oscillator;
- a first even harmonic mixer for generating a mixed wave between a double frequency wave of said local oscillation wave from said shifter and said signal wave from said first distributor; and
- a second even harmonic mixer for generating a mixed wave between a double frequency wave of said local oscillation wave from said local oscillator and said signal wave from said first distributor.

5,787,127

VITERBI DECODING METHOD AND APPARATUS WITH BALANCE AMONG MEMORY AND PROCESSING REQUIREMENTS

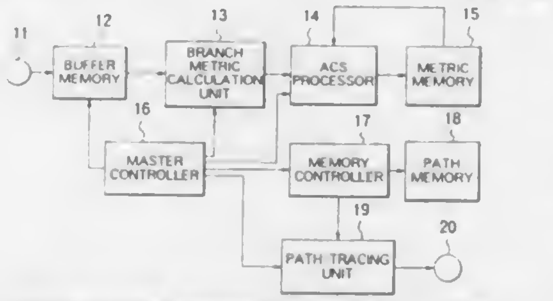
Shigeru Ono, and Hiroshi Katsuragawa, both of Tokyo, Japan, assignors to Oki Electric Industry Co., Ltd., Tokyo, Japan

Filed Jul. 22, 1996, Ser. No. 684,103

Claims priority, application Japan, Aug. 23, 1995, 7-214417

Int. Cl.⁶ H03M *7/00;* H04L *27/06*

U.S. Cl. 375—341 **9 Claims**



5. A Viterbi decoding apparatus for decoding a trellis code represented by branches among states, said branches defining paths in a trellis diagram, comprising:

- a path memory, for storing path information describing X·N most recent branches of one path leading back from each of said states, where N is a fixed positive integer and X has a fixed value not less than two;
- a path-tracing unit coupled to said path memory, for retracing a path having a length of X·N branches in said path memory, and decoding (X−1)·N least recent branches of the path thus retraced;
- an add-compare-select processor coupled to said path memory, for selecting one path per state and writing corresponding path information in said path memory, until new path information describing (X−1)·N most recent branches of each path has been written, said new path information replacing path information describing (X−1)·N least recent branches, and for selecting the path retraced by said path-tracing unit; and
- a controller coupled to said add-compare-select processor, for causing said add-compare-select processor and said path-tracing unit to operate alternately, thereby decoding said trellis code (X—).N branches at a time.

5,787,128

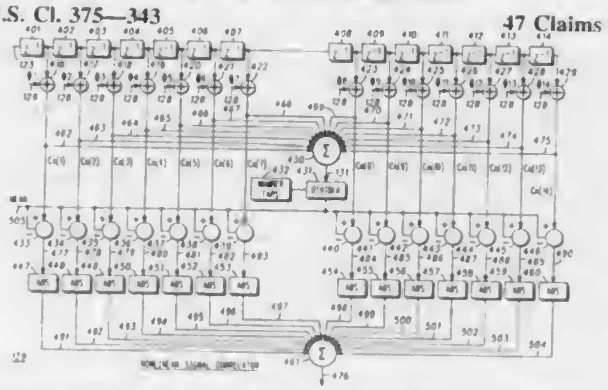
NONLINEAR SIGNAL CORRELATOR AND METHOD THEREFOR

Jennifer Ann Hankisz, Schaumburg, Ill., assignor to Motorola, Inc., Schaumberg, Ill.

Filed Dec. 22, 1995, Ser. No. 577,442

Int. Cl.⁶ H03D *1/00;* H04L *27/06*

U.S. Cl. 375—343 **47 Claims**



1. A method for correlating a received signal with a reference signal to produce a correlation signal, wherein the received signal and the reference signal are each represented by at least a first component and a second component, the method comprising the steps of:

- combining the second component of the received signal and the second component of the reference signal at multiple points in time to produce samples of the correlation signal; and
- summing the samples of the correlation signal to produce the correlation signal.

5,787,129

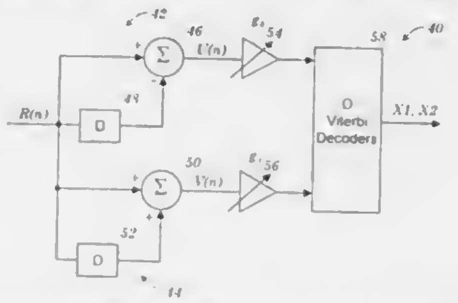
DECODER FOR A TRELLIS ENCODED SIGNAL CORRUPTED BY NTSC CO-CHANNEL INTERFERENCE AND WHITE NOISE

David A. Willming, Palatine, Ill., assignor to Zenith Electronics Corporation, Glenview, Ill.

Filed Oct. 11, 1996, Ser. No. 729,611

Int. Cl.⁶ H03D *1/04;* H04L *25/08*

U.S. Cl. 375—346 **37 Claims**



17. A receiver for decoding noisy encoded data transmitted by a transmitting station, the receiver comprising:

- a) a first filter, wherein the first filter has an input to receive the encoded data, wherein the first filter is a difference filter, and wherein the first filter has a first output to provide first filtered encoded data corresponding to a difference between the encoded data and delayed encoded data;
- b) a second filter, wherein the second filter has an input to receive the encoded data, wherein the second filter is a sum filter, and wherein the second filter has a second output to provide second filtered encoded data corresponding to a sum of the encoded data and the delayed encoded data; and.
- c) decoding means for decoding the first and second filtered encoded data.

5,787,130

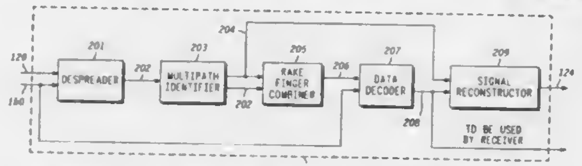
METHOD AND APPARATUS FOR CANCELING INTERFERENCE IN A SPREAD-SPECTRUM COMMUNICATION SYSTEM

Michael D. Kotzin, Buffalo Grove, Ill., and Reuven Meidan, Ramat Hasharon, Israel, assignors to Motorola Inc., Schaumburg, Ill.

Filed Dec. 10, 1996, Ser. No. 763,160

Int. Cl.⁶ H04B *1/10;* H03D *1/04*

U.S. Cl. 375—346 **11 Claims**



1. A method of canceling interference in a spread-spectrum communication system, the method comprising the steps of:

- receiving a first spread-spectrum signal having a plurality of subscribers modulated thereon;
- identifying multipath characteristics for the plurality of subscribers;
- utilizing the multipath characteristics to construct a second spread-spectrum signal representative of the first spread-spectrum signal free from signals caused by multipath scattering;
- extracting information from the second spread-spectrum signal representative of an individual subscriber to produce extracted information;
- utilizing the extracted information and the multipath characteristics to produce a reconstructed signal representative of the individual subscriber, wherein the reconstructed signal representative of the individual subscriber includes multipath scattering components; and
- inverse summing the reconstructed signal representative of the individual subscriber with the first spread-spectrum signal to produce a third spread-spectrum signal substantially free of any interference contributed by the individual subscriber.

5,787,131

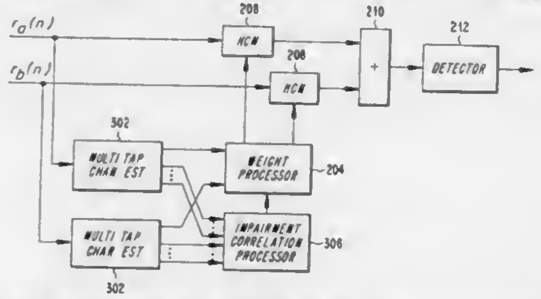
METHOD AND APPARATUS FOR MITIGATION OF SELF INTERFERENCE USING ARRAY PROCESSING

Gregory E. Bottomley, Cary, N.C., assignor to Ericsson Inc., Research Triangle Park, N.C.

Filed Dec. 22, 1995, Ser. No. 577,337

Int. Cl.⁶ H04L *1/02;* H03D *1/00*

U.S. Cl. 375—347 **11 Claims**



1. In a digital wireless communications system for conveying digital information symbols, a receiver comprising:

- means for receiving a radio signal on a plurality of antennas to produce a plurality of antenna signals;
- means for radio processing said antenna signals to produce a plurality of received sample streams;
- means for estimating a plurality of channel taps corresponding to each of said received sample streams;
- means for dividing said plurality of channel taps into a first set of channel taps and a second set of channel taps;
- means for forming impairment correlations using said second set of channel taps; and
- means for detecting said information symbols using said received sample streams, said first set of channel taps, and said impairment correlations.

5,787,132

DATA COMMUNICATION SYSTEM HAVING IMPROVED SYNCHRONIZATION CAPABILITY

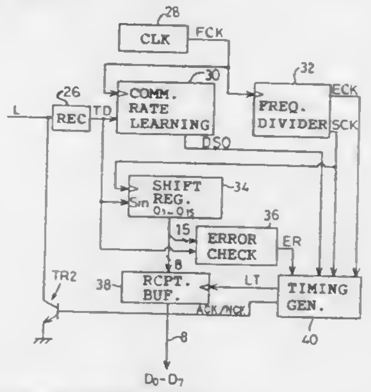
Tomohisa Kishigami, Obu; Katsuhisa Tsuji, Hoi-gun, and Yoshiki Tatsutomi, Obu, all of Japan, assignors to Nippondenso Co., Ltd., Kariya, Japan

Filed Jul. 20, 1995, Ser. No. 504,456

Claims priority, application Japan, Jul. 25, 1994, 6-172475; Dec. 13, 1994, 6-309130

Int. Cl.⁶ H04L *7/00;7/06;13/10;12/42*

U.S. Cl. 375—354 **16 Claims**



1. A data receiving unit comprising:

- A) data receiving means for receiving, through a transmission path, transmission data which has been encoded according to a predetermined transmission code using a predetermined transmission clock signal and which includes a reference pulse having a pulse width corresponding to a period of said transmission clock signal;
- B) clock generating means for generating a received clock signal in synchronization with said transmission data, said clock generating means including
  - i) an oscillator generating a reference clock signal having a period which is shorter than said period of said transmission clock signal,
  - ii) a counter counting an interval between points of change of said transmission data according to said reference clock signal,
  - iii) a reference pulse detector detecting said reference pulse based on a count value from said counter, and
  - iv) a received clock signal generating circuit generating said received clock signal in synchronization with said transmission data by frequency-dividing said reference clock signal based on a count value of said counter when said counter counts said pulse width of said reference pulse; and
- C) data decoding means for decoding said transmission data using said received clock signal.

5,787,133

SIGNAL MODULATION EMPLOYING A PSEUDO-RANDOM SEQUENCE OF PILOT SYMBOLS

Robert F. Marchetto, Burnaby; Todd A. Stewart, West Vancouver, and Glenn S. Fawcett, Vancouver, all of Canada, assignors to Glenayre Electronics, INc., Charlotte, N.C.

Division of Ser. No. 215,129, Mar. 18, 1994, Pat. No. 5,666,378. This application Jun. 7, 1995, Ser. No. 474,332

Int. Cl.⁶ H04L *7/04;1/00*

U.S. Cl. 375—366 **18 Claims**

13. A method for producing a signal that is modulated by a message signal and pilot symbols comprising the steps of:

- (a) converting the message signal into a sequence of data symbols;

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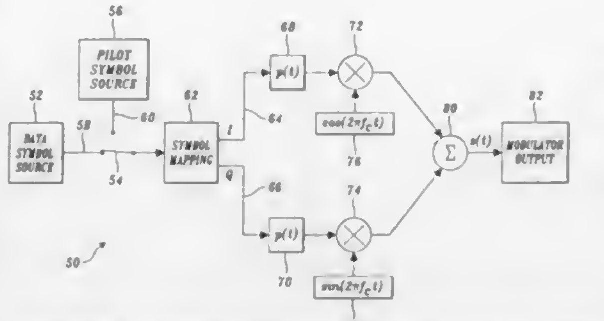


(b) producing a random sequence of pilot symbols for repeated use in producing the modulated signal;

(c) selecting between the data symbols and the pilot symbols to periodically select at least one data symbol of the sequence of data symbols and to intersperse the selected at least one data symbol of the sequence of data symbols between two consecutive pilot symbols of the random sequence of pilot symbols; and

(d) producing a passband signal as a function of the pattern of the data symbols and the interspersed pilot symbols.

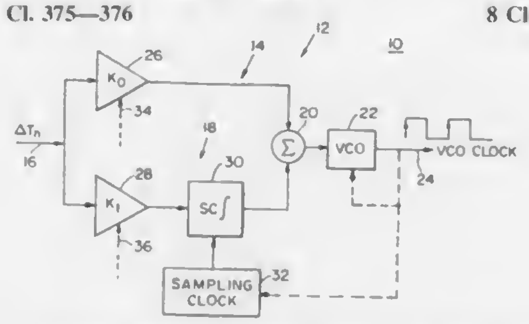
5,787,134
SWITCHED CAPACITANCE PHASE LOCKED LOOP SYSTEM

Janos Kovacs, North Andover, Mass., assignor to Analog Devices, Inc., Norwood, Mass.

Continuation-in-part of Ser. No. 314,894, Sep. 29, 1994, Pat. No. 5,495,512, which is a continuation-in-part of Ser. No. 34,248, Sep. 12, 1994, Pat. No. 5,414,390. This application Oct. 18, 1994, Ser. No. 324,747

Int. Cl.⁶ H03D *3/24*

U.S. Cl. 375—376 8 Claims



1. A switched capacitance phase locked loop (PLL) system comprising:

a filter circuit having a scaling channel for scaling a phase error; an integrating channel for integrating the phase error; and a summing device for combining the scaled phase error and the integrated phase error; and

a voltage controlled oscillator (VCO) responsive to said summing device to produce an output, said VCO having a gain that is proportional to its output clock frequency;

said integrating channel including a switched capacitance integrating circuit for controlling the gain of said integrating channel proportional to the output clock frequency of said VCO and maintaining constant the ratio of and scaling the product of, a unity gain frequency and a zero frequency of the PLL to keep constant a damping factor and to scale a natural frequency of the PLL with the output clock frequency of the VCO, respectively; wherein said unity gain, zero and natural frequencies and said damping factor are measured at the output of said VCO.

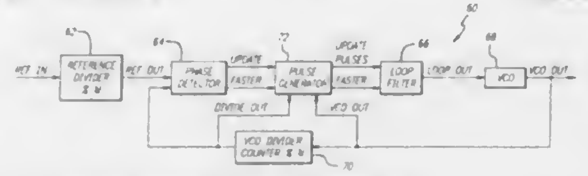
5,787,135
VARIABLE FREQUENCY DIVIDER

Iain Clark, Newark, Calif., assignor to LSI Logic Corporation, Milpitas, Calif.

Division of Ser. No. 334,747, Nov. 4, 1994, Pat. No. 5,692,023. This application Jul. 8, 1997, Ser. No. 889,374

Int. Cl.⁶ H03D *3/24*

U.S. Cl. 375—376 11 Claims



1. A variable frequency divider, comprising:

a binary counter for counting pulses; and

a controller for controlling the counter to produce an output pulse after a number N of pulses has been applied to the counter such that said frequency of said pulses is divided by said number N, in which:

if said number N is not a power of 2, the controller controls the counter to count to a number P that is the largest power of 2 smaller than N; and

the controller further prevents the counter from counting a number R=N-P of said pulses which are substantially evenly distributed among said number P of pulses that are counted by the counter.

5,787,136
WEAR RESISTING SINTERED ALLOY AND ITS PRODUCTION, AND CONTROL ROD DRIVING APPARATUS AND NUCLEAR REACTOR USING THE SAME

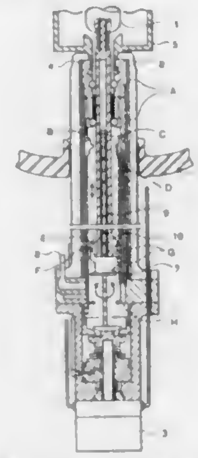
Kunio Miyazaki; Jiro Kuniya, both of Hitachi; Masayoshi Kanno, Kitaiharaki; Masato Koshiishi, Takahagi, and Tomomi Shiraki, Hitachi, all of Japan, assignors to Hitachi, Ltd., Tokyo, Japan

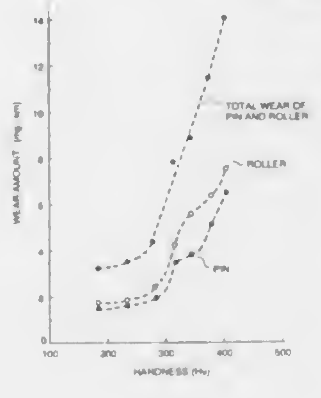
Filed Nov. 5, 1996, Ser. No. 744,195

Claims priority, application Japan, Nov. 6, 1995, 7-287029

Int. Cl.⁶ G21C *7/12*

U.S. Cl. 376—219 17 Claims





10. A control rod driving apparatus comprising a housing, a hollow piston provided in said housing, a driving piston for vertically driving said hollow piston, rollers provided on a tube between said hollow piston and the tube, and pins functioning as rotating shafts of said rollers, wherein each of said rollers is made of a wear resisting sintered alloy comprising an iron-based or nickel-based alloy containing chromium in an amount of from 15 to 30 wt % and particles of one or more kinds of chromium carbides and chromium nitrides, having an average particle size of from 10 to 120 μm, dispersed in said alloy.

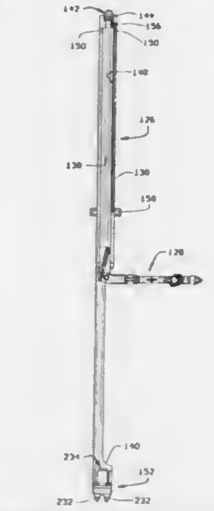
5,787,137
METHODS AND APPARATUS FOR PERFORMING REPAIRS AND INSPECTIONS IN A REACTOR PRESSURE VESSEL OF A NUCLEAR REACTOR

Alfred Stanley Nelson, III, San Jose; Yehuda Krampfner, Pleasanton; Jack Toshio Matsumoto, Sunnyvale, and Rene Delgado, Saratoga, all of Calif., assignors to General Electric Company, Schenectady, N.Y.

Filed Feb. 2, 1996, Ser. No. 595,640

Int. Cl.⁶ G21C *17/01*

U.S. Cl. 376—249 12 Claims



1. Apparatus for use in a nuclear reactor, the reactor including a reactor pressure vessel having a top guide spaced from a core plate therein, the top guide and core plate having openings extending therethrough, a shroud extending around the core plate and an annulus formed between the reactor pressure vessel and the shroud, said apparatus comprising:

an elongate mast, a slot formed in and extending at least partially along the axial length of said mast, said mast comprising an outer cylindrical shaped tube and an inner tube positioned at least partially within said outer tube;

a robotic arm mounted to said mast and vertically movable relative to said slot, said inner tube connected to said robotic arm and vertically movable relative to said outer tube; and

a vertical drive assembly for controlling vertical movement of said robotic arm, said vertical drive assembly secured to said mast inner tube, said vertical drive assembly comprising a vertical drive motor and a pinion, rotation of said pinion controlled by said vertical drive motor, an elongate rack secured to and extending longitudinally along a length of said outer tube, said rack aligned with said pinion so that as said pinion rotates, said inner tube moves vertically relative to said outer tube.

5,787,138
SUPERVISION OF A NEUTRON DETECTOR IN A NUCLEAR REACTOR

Grzegorz Ocieczek, Vasteras, Sweden, and Mika Tiusanen, Tampere, Finland, assignors to ABB Atom AB, Vasteras, Sweden

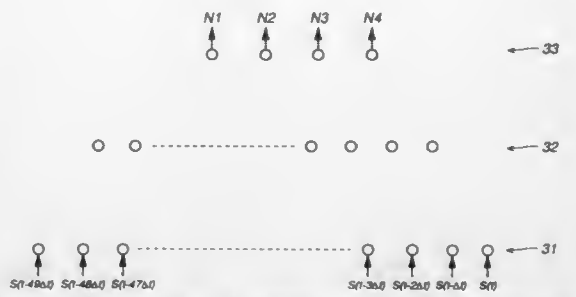
PCT No. PCT/SE95/00634, § 371 Date Feb. 27, 1997, § 102(e) Date Feb. 27, 1997, PCT Pub. No. WO95/34077, PCT Pub. Date Dec. 14, 1995

PCT Filed Jun. 2, 1995, Ser. No. 750,004

Claims priority, application Sweden, Jun. 2, 1994, 9401901

Int. Cl.⁶ G21C *17/108*

U.S. Cl. 376—254 5 Claims



1. A method of monitoring neutron flux detectors in a nuclear reactor with a neural network, said network comprising an input layer adapted to receive a number of input signals corresponding to values at different times of a measured signal; and an output layer adapted to deliver a number of state signals, said method comprising the steps of:

supplying said network with a plurality of input signals with known state signals to teach said network to identify a number of different trends of said measured signal such that said state signals indicate said trends;

supplying said network with input signals corresponding to values at different times of a measured signal from a supervised detector;

supplying said network with input signals corresponding to values at different times of measured signals from a number of reference detectors;

calculating state signals for said supervised detector and for said reference detectors; and

determining whether said supervised detector is defective based on said state signals.

5,787,139
FUEL LOADING METHOD

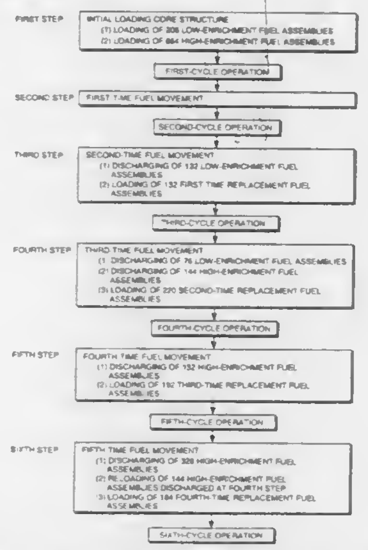
Mitsunari Nakamura, Hitachi; Katsumasa Haikawa, Jyuou; Akihiro Yamanaka, Hitachi; Akiko Kanda, Hitachi; Takaaki Mochida, Hitachi; Junichi Yamashita, Hitachi; Shigetada Tanabe, Hitachi, and Shinichi Kirihara, Mito, all of Japan, assignors to Hitachi, Ltd., and Hitachi Engineering Co., Ltd., both of Japan

Filed May 19, 1997, Ser. No. 858,687

Claims priority, application Japan, May 20, 1996, 8-124349

Int. Cl.⁶ G21C *19/20;5/12*

U.S. Cl. 376—267 9 Claims



1. A fuel loading method for loading at least two types of fuel assemblies which are filled with nuclear fuel and have different average enrichments into a core, comprising the steps of:

discharging fuel assemblies with average enrichments higher than replacement fuel assemblies among the fuel assemblies initially loaded in the core after three operation cycles; and thereafter

reloading the discharged fuel assemblies into the core after one operation cycle or more passes.

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5,787,140

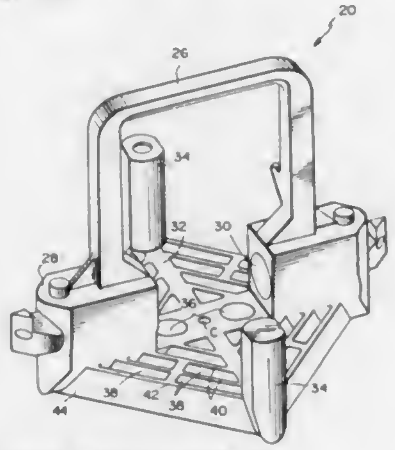
HANDLE ASSEMBLY AND CHANNEL FOR A NUCLEAR REACTOR FUEL BUNDLE ASSEMBLY

Thomas G. Dunlap; Gerald M. Latter; Mark J. Colby, and Michael R. Stepp, all of Wilmington, N.C., assignors to General Electric Company, Schenectady, N.Y.

Filed May 29, 1996, Ser. No. 654,957

Int. Cl.^{6} G21C *3/32*

U.S. Cl. 376—313 **15 Claims**



1. A fuel bundle assembly comprising:
a plurality of fuel rods;
at least one coolant rod;
a fuel bundle assembly channel surrounding said plurality of fuel rods and said coolant rod; and
a handle assembly disposed inside said fuel bundle assembly channel, said handle assembly receiving said at least one coolant rod, and said handle assembly comprising a grid structure, wherein said grid structure comprises a plurality of gridwork windows sized to prevent a fuel rod end plug from passing therethrough.

5,787,141

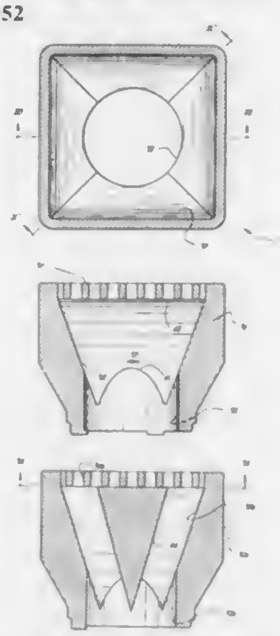
LOWER TIE PLATE OPTIMIZED FOR REDUCED PRESSURE DROP

Bruce Matzner, San Jose, Calif., assignor to General Electric Company, Schenectady, N.Y.

Filed May 19, 1997, Ser. No. 859,222

Int. Cl.^{6} G21C *3/322*

U.S. Cl. 376—352 **8 Claims**



1. A lower tie plate for a nuclear fuel bundle comprising:
a lower tie plate body having upper and lower end portions and wall portions forming an inverted truncated pyramid extending between said upper and lower end portions and defining a flow passage having a central axis;
a lower tie plate grid adjacent an upper end portion of said tie plate body;
said lower end portion including a generally circular nozzle forming part of said flow passage and intersecting said pyramidal wall portions to provide a generally uniform expansion of the flow through said passage;
each wall portion comprising a flat surface with adjacent pairs thereof intersecting one another at a junction forming a straight line, said flat surfaces extending from a transition with the cylindrical nozzle to a juncture adjacent the grid.

5,787,142

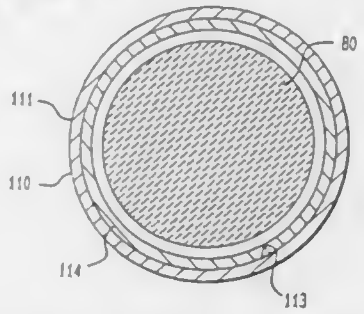
PRESSURIZED WATER REACTOR NUCLEAR FUEL ASSEMBLY

Leonard F.P. Van Swam, Richland, Wash., assignor to Siemens Power Corporation, Richland, Wash.

Filed Apr. 29, 1997, Ser. No. 841,019

Int. Cl.^{6} G21C *3/07*

U.S. Cl. 376—416 **10 Claims**



1. A nuclear fuel assembly for a pressurized water reactor comprising;
a) a lower tie plate;
b) a guide tube having an upper end and a lower end, the lower end connected to the lower tie plate;
c) spacer grids spaced along the guide tube;
d) an upper tie plate which is attached to the upper end of the guide tube;
e) a plurality of nuclear fuel rods which are spaced radially and supported along the guide tube by the spacer grids, wherein at least one of the nuclear fuel rods is comprised of:
an elongated hollow metallic tubular cladding for containing a nuclear fuel, the tubular cladding comprising:
an outer tubular layer having an outer wall and an inner wall, the outer tubular layer formed of a zirconium alloy;
an inner tubular layer bonded to the inner wall of the outer tubular layer and formed of a zirconium alloy consisting essentially of molybdenum and 3 to 6 weight percent bismuth, the balance zirconium;
a body of nuclear fuel material disposed in the tubular cladding; and
sealing means at both ends of the tubular cladding for hermetically sealing the metallic tubular cladding.

3. A nuclear fuel assembly for a pressurized water reactor comprising;
a) a lower tie plate;
b) a guide tube having an upper end and a lower end, the lower end connected to the lower tie plate;
c) spacer grids spaced along the guide tube;
d) an upper tie plate which is attached to the upper end of the guide tube;

e) a plurality of nuclear fuel rods which are spaced radially and supported along the guide tube by the spacer grids, wherein at least one of the nuclear fuel rods is comprised of:
an elongated hollow metallic tubular cladding for containing a nuclear fuel, the tubular cladding comprising:
an outer tubular layer having an outer wall and an inner wall, the outer tubular layer formed of a zirconium alloy;
an inner tubular layer bonded to the inner wall of the outer tubular layer and formed of a zirconium alloy consisting essentially of molybdenum and niobium and 3 to 6 weight percent bismuth, the balance zirconium;
a body of nuclear fuel material disposed in the tubular cladding; and
sealing means at both ends of the tubular cladding for hermetically sealing the metallic tubular cladding.

5,787,143

NUCLEAR REACTOR FUEL ASSEMBLY

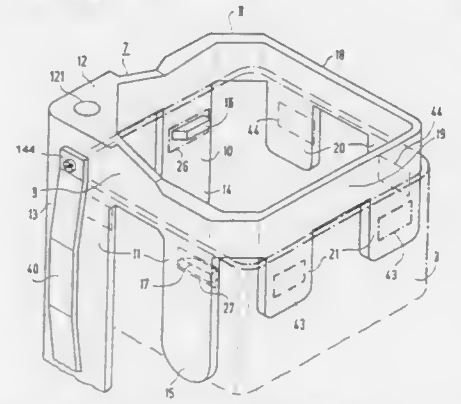
Thomas Reiss, Röttenbach, and Kurt Kraus, Höchstadt, both of Germany, assignors to Siemens Aktiengesellchaft, Munich, Germany

Filed Jan. 22, 1997, Ser. No. 786,845

Claims priority, application Germany, Jul. 22, 1994, 44 26 136.5

Int. Cl.^{6} G21K *3/12*

U.S. Cl. 376—446 **8 Claims**



1. A nuclear reactor fuel assembly, comprising:
an elongate fuel assembly casing having two open ends and having sides;
a fuel assembly head disposed at one of said open ends;
a fuel assembly foot disposed at the other of said open ends;
a rigid connecting body connected between said fuel assembly head and said fuel assembly foot;
fuel rods disposed between said fuel assembly head and said fuel assembly foot, said fuel rods containing nuclear fuel;
an angled part adapted to said fuel assembly casing and having two legs with a vertex, said angled part bearing from the outside against a first side and a second side of said sides of said fuel assembly casing meeting one another;
a bolt disposed at said vertex of said two legs for retaining said angled part on said fuel assembly head, said angled part further having a bearing body bearing from an inside against at least one of a third side and a fourth side of said sides of said fuel assembly casing;
said angled part and said fuel assembly casing having surfaces disposed at each of said first side and said second side of said fuel assembly casing; and
at least one of said surfaces having a peg disposed rigidly thereon and at least one opposite one of said surfaces having an opening formed therein in which said peg engages.

5,787,144

STERILIZATION PROCESS FOR MEDICAL DEVICES

Mark J. Findlay, San Angelo, Tex., assignor to Ethicon, Inc., Somerville, N.J.

Filed Nov. 14, 1996, Ser. No. 748,874

Int. Cl.^{6} G21K *5/10*

U.S. Cl. 378—69 **3 Claims**

1. Method of sterilizing a medical device by exposing the medical device to a CO_{60} source for a sufficient amount of time to effectively sterilize the medical device during a sterilization cycle, wherein a CO_{60} source is raised from a containment tank to an irradiation position and medical devices are transported past the source and the cycle timers time the cycle, the improvement comprising:
monitoring the position of the source during the cycle; and
lowering the source down into the containment tank if the source moves out of the irradiation position and simultaneously stopping the cycle timers; and,
raising the source upward out of the containment tank into the irradiation position; and,
restarting the cycle timers.

5,787,145

METHOD AND ARRANGEMENT FOR IDENTIFYING CRYSTALLINE AND POLYCRYSTALLINE MATERIALS

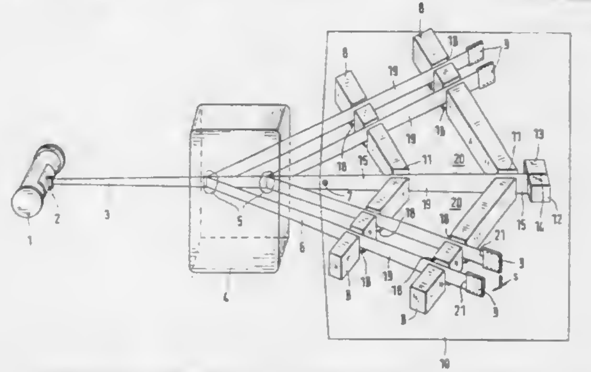
Georg Geus, Wiesbaden, Germany, assignor to Heimann Systems GmbH, Germany

Filed Mar. 21, 1996, Ser. No. 619,410

Claims priority, application Germany, Mar. 21, 1995, 195 10 168.5

Int. Cl.^{6} G01N *23/20*

U.S. Cl. 378—71 **17 Claims**



1. A method for identifying crystalline and polycrystalline material in an object, comprising:
placing the object in an examination region;
passing x-rays having a polychromatic energy distribution through a diaphragm to create a central x-ray beam in a fan plane that is projected into the examination region for irradiating a cross section of the object, the x-rays being diffracted by individual subregions of the object along the cross section in dependence of the presence of at least one of crystalline and polycrystalline material in a respective one of the individual subregions;
arranging collimators with collimating windows beyond the examination region with respect to the diaphragm, each collimating window covering a fixed, predetermined subregion of the examination region and extracting at least one diffracted plane fan beam from the respective individual subregion of the object;
providing a detector comprising a silicon photodiode including an end face having an area of 1 mm^2 to 5 mm^2 behind a respective one of the collimating windows so that each diffracted x-ray plane fan beam exiting a respective one of the collimating windows is incident on a respective one of the end faces of the silicon photodiodes; and
capturing energy spectra of the diffracted x-ray plane fan beam exiting a respective one of the collimating windows with a

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respective one of the silicon photodiodes for converting the captured energy spectra into signals usable in a data processing arrangement.

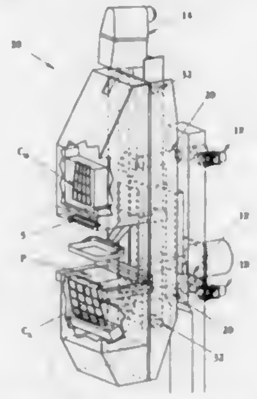
5,787,146
X-RAY IMAGING SYSTEM USING DIFFRACTIVE X-RAY OPTICS FOR HIGH DEFINITION LOW DOSAGE THREE DIMENSIONAL IMAGING OF SOFT TISSUE

Robert H. Glebeler, San Jose, Calif., assignor to SPAD Technologies, Inc., Incline Village, Calif.

Filed Oct. 18, 1996, Ser. No. 733,405

Int. Cl.^{6} G21K *1/06*

U.S. Cl. 378—82 **7 Claims**



1. In a diffractive X-ray technique including,
a broad band X-ray source;
a first X-ray monochrometer crystal surface for receiving the broad band X-rays and diffracting a monochromatic band of X-rays to a specimen;
an interrogation interval for receiving the specimen and imparting to the X-rays image information by absorption, critical angle scattering, and/or, refraction;
a second detection X-ray monochrometer crystal surface for revealing the image information by absorption, critical angle scattering, and/or, refraction to pass the monochromatic beam without the absorption, critical angle scattering, and/or, refraction X-rays; and,
a transducing detector for imaging the monochromatic image bearing X-rays,
the improvement comprising:
at least one of the monchronometer crystal surface comprising a plurality of segmented monochronometer crystals;
each segmented monochronometer crystal having a surface shape which imparts to the segmented monochronometer crystal a portion of a diffracting shape;
the plurality of segmented monochronometer crystals together forming a shape for receiving X-rays and diffracting the X-rays in a pattern from which image information can be derived.

5,787,147
TEST MESSAGE GENERATOR IN A TELECOMMUNICATIONS NETWORK

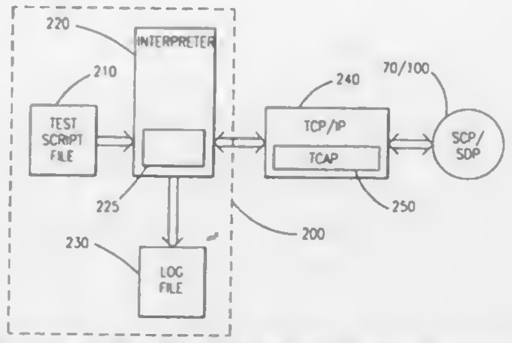
Hans Gundersen, Richardson, Tex., assignor to Ericsson Inc., Research Triangle Park, N.C.

Filed Dec. 21, 1995, Ser. No. 576,509

Int. Cl.^{6} H04M *1/24;3/08;3/22*

U.S. Cl. 379—10 **28 Claims**

1. A system for generating Transaction Capable Application Protocol (TCAP) messages to test a telecommunications software module comprising:
a test script file containing at least one test message constructed using a natural script language, said natural script language employing a TCAP syntax;
an interpreter for receiving said at least one test message from said test script file, and for converting said natural script language of said received test message into the TCAP message pursuant to said TCAP syntax; and
means for transmitting said TCAP message from said interpreter to said telecommunications software module for effectuating the execution and testing of said telecommunications software module.



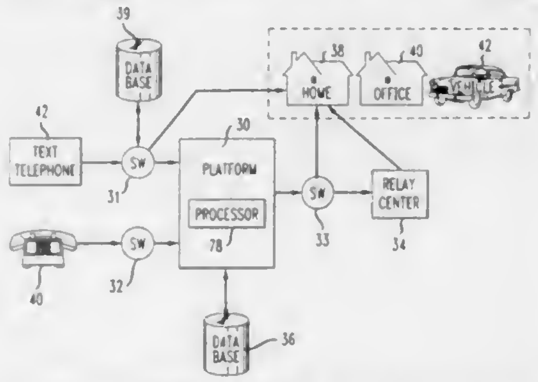
5,787,148
ENHANCED TELECOMMUNICATIONS RELAY SERVICE

Katherine Grace August, Matawan, N.J., assignor to AT&T Corp., Middletown, N.J.

Filed Dec. 28, 1995, Ser. No. 583,144

Int. Cl.^{6} H04M *11/00;3/42;7/00*

U.S. Cl. 379—52 **15 Claims**



12. A telecommunications system for use in a telephone network to process communications with a telecommunications relay center, comprising:
means for detecting an equipment type used for making a telephone call;
a database; and
means for (i) retrieving a data record for routing the telephone call, and (ii) routing the telephone call to a text telephone party based on the equipment type and a record retrieved from the database; wherein
the means for detecting includes signal detection circuitry for determining that the telephone call is a voice call.

5,787,149
METHOD AND APPARATUS FOR MANAGING REMOTELY LOCATED DOCUMENT PRODUCING MACHINES BY USING CELLULAR RADIOS

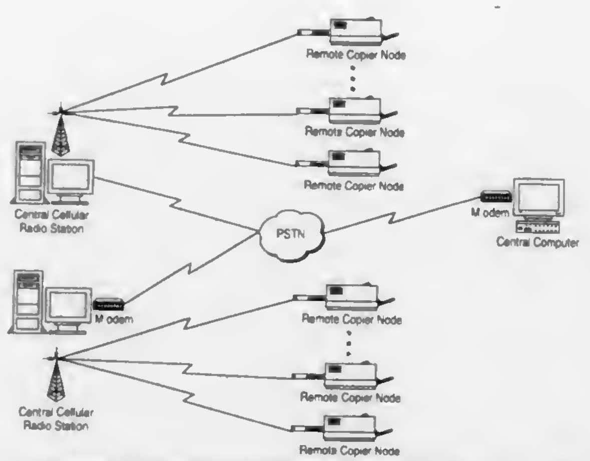
Cid Yousefi, Miami; Christopher E. BoVee, Hollywood; Nello Filippone, Miami, and Robert Moore, Coral Gables, all of Fla., assignors to Equitrac Corporation, Coral Gables, Fla.

Filed Nov. 16, 1995, Ser. No. 558,884

Int. Cl.^{6} H04Q *7/00*

U.S. Cl. 379—59 **38 Claims**

1. An apparatus for managing remotely located document-producing machines by using a cellular radio network, said apparatus comprising:
(a) a plurality of remote document-producing nodes;



(b) a central computer generating a node management command directed towards a selected one of said remote nodes; and
(c) a central cellular radio station receiving said management command, said station having a central cellular radio transmitting communications to said remote nodes, said station transmitting via said central cellular radio said management command to said selected remote node.

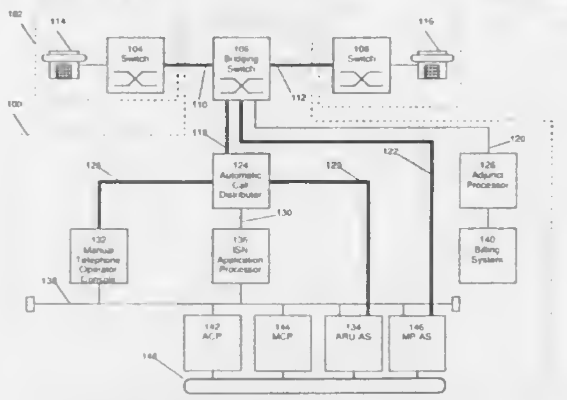
5,787,150
METHOD AND SYSTEM FOR AUTOMATED COLLECT CALL MESSAGING

Doug Reiman, Cedar Rapids; Rick L. Groene, Marion; Duralsamy Gunasekar, Cedar Rapids; Samuel Mullins, Iowa City; Jesse E. Peterson, and Arunachalam Venkatraman, both of Cedar Rapids, all of Iowa, assignors to MCI Communications Corporation, Washington, D.C.

Filed Dec. 29, 1995, Ser. No. 580,949

Int. Cl.^{6} H04M *3/50;7/00*

U.S. Cl. 379—67 **39 Claims**



1. In a telecommunications network having a public switched telephone network and a messaging platform, a method of delivering voice mail messages from a caller placing a collect call from a calling station to a called party at a called station, comprising the steps of:
A) connecting the collect call from the calling station to the messaging platform via a bridging switch;
B) collecting, via an audio response unit/audio server at the messaging platform, information identifying the called station of the collect call from the caller;
C) originating a completion call from the messaging platform to the called station using the public switched telephone network based on the collected information identifying the called station;
D) detecting at the messaging platform whether the completion call is answered by the called station;
E) obtaining at the messaging platform a voice message from the caller if the completion call is not answered; and
F) attempting to deliver the message to the called party from the messaging platform by originating a call from the messaging platform to the called station.

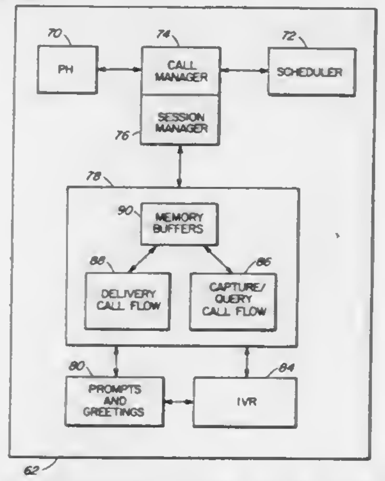
5,787,151
TELEPHONY BASED DELIVERY SYSTEM OF MESSAGES CONTAINING SELECTED GREETINGS

Kenneth Tsutomu Nakatsu, Caledon East; Michael Edward Brett; William Gerald Love, both of Ottawa; Suran Sam de Silva, Nepean, and Jean Wu, Mississauga, all of Canada, assignors to Northern Telecom Limited, Montreal, Canada

Continuation of Ser. No. 443,495, May 18, 1995, abandoned. This application Apr. 15, 1996, Ser. No. 632,597

Int. Cl.^{6} H04M *3/00*

U.S. Cl. 379—67 **22 Claims**



1. A method of operating a system for use with a telephone network to capture a message having a greeting for delivery to a recipient station, comprising the steps of:
receiving a call via the telephone network from a calling station through which a caller interacts with the system;
providing the system with a plurality of greetings which may be accessed by the caller, and in association with one or more of said greetings providing a predetermined date for delivery;
selecting by the caller the greeting in the message from the plurality of greetings;
selecting by the caller delivery of the message on either the predetermined date, if such is associated with the selected greeting, or another date;
receiving directory information of the recipient station from the caller; and
delivering the message to the recipient station on the selected date.

5,787,152
COMPUTER COMMUNICATIONS DEVICE

Tommyca Freadman, 16 Glen Dr., Goshen, N.Y. 10924

Continuation of Ser. No. 503,590, Jul. 18, 1995, abandoned. This application Sep. 12, 1997, Ser. No. 928,890

Int. Cl.^{6} H04M *1/00*

U.S. Cl. 379—67 **13 Claims**

1. A communications device for a computer comprising:
a) a controller adapted to operate in a telephone mode and a voice control mode, the controller including a housing having a Plurality of manually actuated keys for use in operating the controller and having a microphone and a speaker disposed in the housing for use in the telephone mode and the voice control mode, the controller including a mode control switch disposed on said housing for selecting a mode of operation of the controller from the telephone mode and voice control mode, the controller controlling exchange of audio between the controller and a telephone line to conduct a telephone

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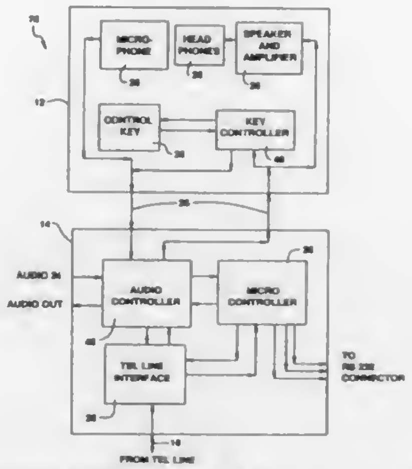


conversation while operating in the telephone mode and the controller controlling operation of a program which is performed by the computer in response to audio input to the controller while operating in the voice control mode, the controller including a transmitter for selectively transmitting audio which is input to the controller to the telephone line and for generating sound in response to audio signals received by the controller via the telephone line while operating in the telephone mode and for selectively transmitting data to the computer in response to audio input to the controller for controlling the operation of the program which is performed by the computer while the controller is operating in the voice control mode, the controller including a first converter for converting audio input to the controller into signals to be transmitted to at least one of the telephone line and the computer, a second converter for converting audio signals input to the controller into sound; and

b) an interface operatively connected to the controller and being adapted to be connected to the computer and the telephone line, the interface including a telephone line interface device for connecting the interface to the telephone line and an audio controller including auxiliary AUDIO IN and AUDIO OUT connections adapted to be connected to an auxiliary speaker located remote from the speaker disposed in the housing, the audio controller being arranged to receive audio signals from the microphone in the controller and from the auxiliary AUDIO IN connection, and to selectively transmit audio signals to the computer, to the telephone line via the telephone line interface and to the auxiliary AUDIO OUT connection.

5,787,153
SYSTEM FOR INCREMENTAL REDISTRIBUTION OF TELEPHONY APPLICATIONS COMPUTING WORKLOAD

Robert Bankay, Richmond, Calif.; Suren Ram Gulrajani, Frazer, Pa., and Samuel Cannavo, Boston, Mass., assignors to Unisys Corporation, Blue Bell, Pa.

Continuation of Ser. No. 537,096, Sep. 29, 1995, abandoned. This application Aug. 9, 1996, Ser. No. 694,517

Int. Cl.^{6} H04M *1/64*

U.S. Cl. 379—88 **25 Claims**

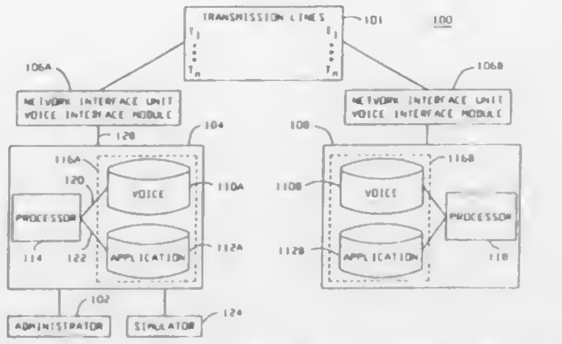
1. A system for transferring voice and data in a telephony application from a source host to a destination host, comprising:

means for permitting a user to specify a number of mailboxes to be transferred;

means for permitting a user to specify a number of transfer dialogs to be used for said transfer of voice and data;

means for identifying static and dynamic data to be transferred;

means for transferring static data first and thereafter transferring dynamic data, wherein numerical mailbox data and numerical message data are transferred by encoding said numerical mailbox and numerical message data in digitized Dual Tone Multiple Frequency (DTMF) tones, and wherein voice messages are transferred as digital voice data; and



means for permitting a user to monitor characteristics of said transfer as said transfer is occurring.

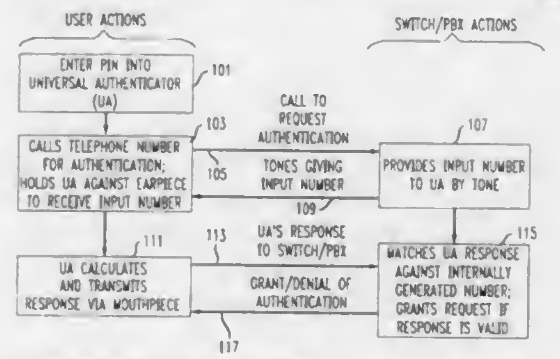
5,787,154
UNIVERSAL AUTHENTICATION DEVICE FOR USE OVER TELEPHONE LINES

Amitava Hazra, Holmdel, and Joseph E. Wilkes, Red Bank, both of N.J., assignors to AT&T Corp, Middletown, N.J.

Filed Jul. 12, 1996, Ser. No. 678,908

Int. Cl.^{6} H04M *11/00*

U.S. Cl. 379—93.03 **8 Claims**


USER ACTIONS
SWITCH/PBX ACTIONS
ENTER PIN INTO UNIVERSAL AUTHENTICATOR (UA)
101
CALL TO REQUEST AUTHENTICATION
103
107
CALLS TELEPHONE NUMBER FOR AUTHENTICATION; HOLDS UA AGAINST EARPIECE TO RECEIVE INPUT NUMBER
105
TONES GIVING INPUT NUMBER
PROVIDES INPUT NUMBER TO UA BY TONE
109
111
113
UA'S RESPONSE TO SWITCH/PBX
115
UA CALCULATES AND TRANSMITS RESPONSE VIA MOUTHPIECE
GRANT/DENIAL OF AUTHENTICATION
MATCHES UA RESPONSE AGAINST INTERNALLY GENERATED NUMBER; GRANTS REQUEST IF RESPONSE IS VALID
117

1. Authentication means comprising:

means for automatically transmitting audio signals over a voice telephone line, said line connected via a telephone network to an authentication system, said means for transmitting arranged for transmitting by having a user of said authentication means hold said means for transmitting against a microphone of a telephone station while leaving a speaker of said telephone station available for said user of said authentication means to listen;

means for generating a number, independent of any keyed personal identification number, coupled to said means for transmitting, wherein said number is derived from a time-varying quantity and a key unique for said authentication means, and said quantity globally and independently maintained internally in said authentication means and in said authentication system; said number for transmission by said means for transmitting to said authentication system for authenticating an identity of said user of said authentication means; and said number comprising data for identifying said authentication means and comprising no data based on any keyed personal identification data;

means for storing a personal identification number;

a keypad for entry of a personal identification number;

means for enabling said authentication means in response to a match of the stored and entered personal identification numbers, wherein said authentication means is planar and essentially the size of a credit card and said means for transmitting includes a pair of opposing speakers situated in a plane lateral to a plane of the authentication means;

a sleeve formed from an elastic material in which said authentication means and said pair of speakers are insertable, said sleeve being configured to support said authentication means against a back face of a telephone when said sleeve is enclosed around said authentication means, said sleeve being further configured to allow operation of said telephone when enclosed around said authentication means.

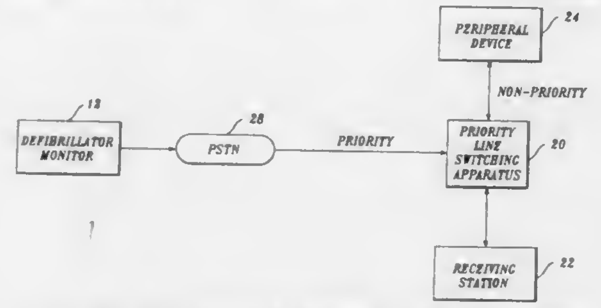
5,787,155
PRIORITY LINE SWITCHING SYSTEM

Michael E. S. Luna, Bothell, Wash., assignor to Physio-Control Corporation, Redmond, Wash.

Filed Nov. 4, 1994, Ser. No. 334,787

Int. Cl.^{6} H04M *11/00*

U.S. Cl. 379—93.09 **24 Claims**



1. A priority line switching apparatus for connection between a first device for transmitting and receiving data messages, and two or more peripheral devices, including a first peripheral device for comnmunicating data messages with the first device and a second peripheral device for communicating data messages with the first device, the second peripheral device supplying an indicator signal when a data message is to be transmitted to the first device, the apparatus comprising:

a switch having a first connection for coupling to the first device, a second connection for coupling to the first peripheral device, and a third connection for coupling to the second peripheral device, said switch being operable in a first mode of operation to connect the first connection with the second connection and in a second mode of operation to connect the first connection with the third connection, for conveying data messages therebetween; and

control means normally maintaining the switch in the first mode of operation to allow transmission of a data message between the first device and the first peripheral device, said control means including means for monitoring the third connection for receipt of an indicator signal from the second peripheral device during transmission of the data message, and for automatically supplying a first control signal to the switch to interrupt the transmission of the data message with the first peripheral device and change from the first mode of operation to the second mode of operation upon receipt of the indicator signal.

5,787,156
TELEPHONIC-INTERFACE LOTTERY SYSTEM

Ronald A. Katz, Los Angeles, Calif., assignor to Ronald A. Katz Technology Licensing, LP, Los Angeles, Calif.

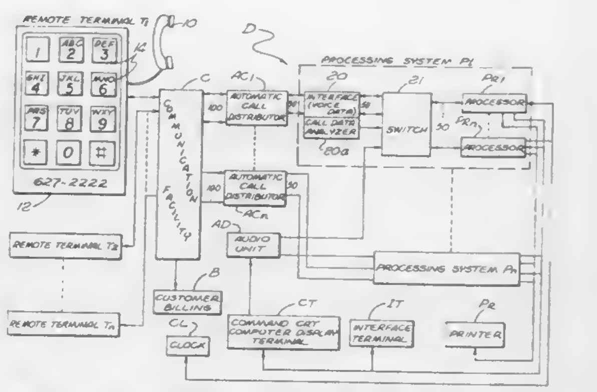
Continuation of Ser. No. 756,956, Sep. 9, 1991, Pat. No. 5,365,575, which is a continuation-in-part of Ser. No. 555,111, Jul. 18, 1990, Pat. No. 5,048,075, which is a continuation of Ser. No. 342,506, Apr. 24, 1989, abandoned, which is a continuation of Ser. No. 194,258, May 16, 1988, Pat. No. 4,845,739, which is a continuation-in-part of Ser. No. 18,244, Feb. 24, 1987, Pat. No. 4,792,968, which is a continuation-in-part of Ser. No. 753,299, Jul. 10, 1985, abandoned. This application Sep. 14, 1994, Ser. No. 306,650

Int. Cl.^{6} H04M *11/00*

U.S. Cl. 379—93.13 **54 Claims**

1. A telephonic-interface control system for a game of chance for use with a communication facility including remote terminal apparatus for individual callers to call, including voice communication means, and digital input means in the form of an array of alphabetic numeric buttons for providing identification data, said telephonic-interface system for a game of chance comprising:

interface means coupled to said communication facility to interface said remote terminal apparatus for voice and digital communication with said individual callers and for receiving automatic number identification data indicative of caller telephone numbers provided automatically by said communication facility;



voice generator means coupled through said interface means for providing vocal instructions to an individual caller to enter data associated with said game of chance and identification data;

processing means for processing said data associated with said game of chance supplied by said individual callers, said processing means coupled to said interface means and selecting at least one subset of at least one winner for said game of chance from said individual callers;

qualification means coupled to said interface means for limiting access to said processing means based upon comparing said identification data with previously stored identification data; and

means for storing coupled to said interface means for storing said data associated with said game of chance in association with said previously stored identification data.

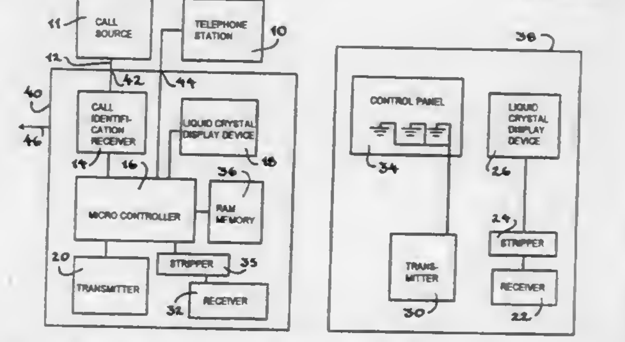
5,787,157
GATEWAY DEVICE FOR TELECOMMUNICATION STATION

Susan Garfin, Suite 2000 393 University Avenue, Toronto, Ontario, M5G 1E6, Canada, and Patrick De Angelis, Oakville, Canada, assignors to Susan Garfin, Toronto, Canada

Continuation-in-part of Ser. No. 492,453, Jun. 20, 1995, abandoned. This application Mar. 24, 1997, Ser. No. 823,205

Int. Cl.^{6} H04M *15/00;15/06;3/00*

U.S. Cl. 379—142 **6 Claims**



1. A gateway device for controlling the admission of telephone calls from a telephone line to a telecommunication station having:

a telephone call identification means;

a micro controller operatively connectable to the telephone line through the telephone call identification means and to a telecommunication station on the telephone line, said micro controller being programmable to accept in memory a list of telephone call identification data and also having in memory instructions to summarily act on a telephone call identified by said call identification means that is included in said telephone call identification data;

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a command station for the micro controller;

means for two-way, radio-link connecting said micro controller and said command station to transmit information in the call identification means not summarily acted on as aforesaid to the command station for visual display and for transmitting control commands from the command station to the micro controller, said command station having visual display means for telephone call identification in the call identification means;

said micro controller having in memory a plurality of command instructions each to be carried out in response to its own control command from said command station;

said command station having a control panel with a distinct manually operable control command initiator for each of said command instructions;

one of said command instructions being to add the identification data of the telephone call currently in the telephone call identification means to the list of telephone call identification data in memory and to process the call as if it had previously been on the list in memory.

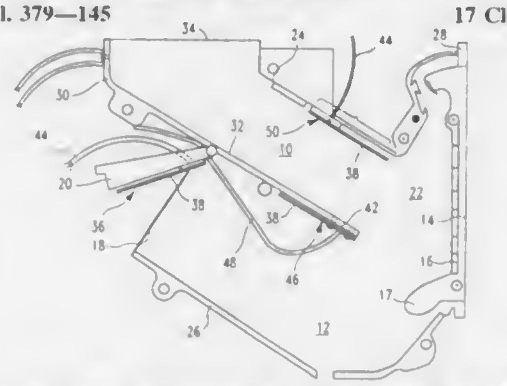
5,787,158
SMART BUCKET

Salvatore Anello, Highland, and Albert F. Diaz, Lynbrook, both of N.Y., assignors to Sandt Technology, Ltd., Marlboro, N.Y.

Filed Feb. 20, 1996, Ser. No. 604,101

Int. Cl.^{6} H04M ***17/00***

U.S. Cl. 379—145 **17 Claims**



1. A coin return mechanism for a coin-operated payphone, comprising a bucket for receiving coins being returned to a payphone user, a chute for discharging coins into the bucket, and at least two spaced-apart switches positioned to be actuated by discrete stuffings placed in the coin return mechanism to prevent retrieval of returned coins by the user, wherein the switches are an electrical ones, wherein the electrical switches are pressure sensitive ones, wherein the bucket has a back door swingable outward at its bottom, and a pressure sensitive electrical switch is mounted on the inside of the back door.

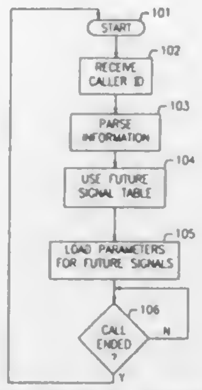
5,787,159
USE OF CALLER ID INFORMATION

Chris Hamilton, 41 Harrison Ave., Montclair, N.J. 07042, and Bill Tiso, 12 Crystal Rock Rd., Sparta, N.J. 07871

Filed Feb. 27, 1996, Ser. No. 607,796

Int. Cl.^{6} H04M ***3/64***

U.S. Cl. 379—201 **2 Claims**



1. An automatic voice processing system comprising: means for extracting information from a signal indicating an origin of an incoming telephone call prior to answering said call; and

means for utilizing said information to estimate signal characteristics of future signals indicative of DPD dialed digits to be received during said incoming telephone call and for processing said future signals with different signal processing algorithms to extract data therefrom, said signal processing algorithms being selected based upon the information indicating an origin of an incoming call, said signal processing algorithm being selected to optimally correspond with said expected signal characteristics of said DPD dialed digits, said signal processing algorithms being adapted to detect DPD digits.

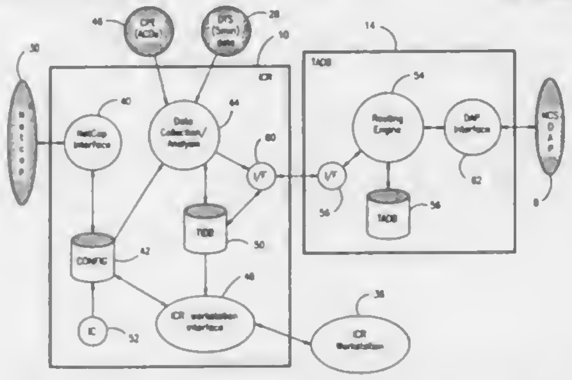
5,787,160
INTELLIGENT ROUTING OF SPECIAL SERVICE CALLS

Christine S. Chaney, Colorado Springs, Colo.; Frances D. E. Taylor, Falls Church, Va., and Cristnbal A. Torres, Colorado Springs, Colo., assignors to MCI Communications Corporation, Washington, D.C.

Continuation of Ser. No. 352,319, Dec. 8, 1994, abandoned. This application Jun. 6, 1996, Ser. No. 660,735

Int. Cl.^{6} H04M ***3/42***

U.S. Cl. 379—220 **18 Claims**



1. In a telecommunications network having originating and terminating switches for network routing of special service calls, a system for routing the special service calls among a plurality of terminations, comprising:

traffic data collect means for collecting data indicative of traffic through said network from said switches;

analysis means for receiving said traffic data from said traffic data collect means, said analysis means further receiving from subscribers of special service calls routing plans for routing calls to said terminations, each of said routing plans comprising at least one trigger point; and

control means interconnected to receive at least one of said routing plans from said analysis means for a special service call number of a subscriber,

wherein, in response to each incoming call directed to said special service call number, said control means being responsive to at least one trigger point in said one routing plan to select an algorithm to determine the most appropriate termination from among said plurality of terminations to route said each incoming call.

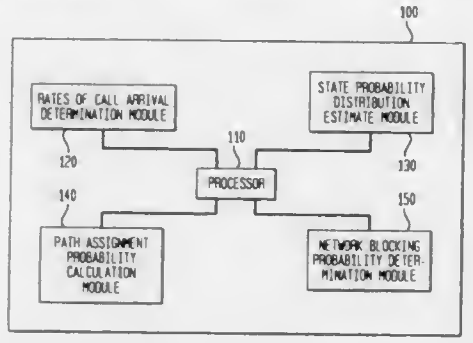
5,787,161
NETWORK DESIGNER FOR COMMUNICATION NETWORKS

Ammar Rayes, Franklin Park, N.J., and Paul Seungkyu Min, St. Louis, Mo., assignors to Bell Communications Research, Inc., Morristown, N.J.

Filed Nov. 13, 1995, Ser. No. 555,955

Int. Cl.^{6} H04M ***3/36***

U.S. Cl. 379—221 **14 Claims**


100
RATES OF CALL ARRIVAL DETERMINATION MODULE
STATE PROBABILITY DISTRIBUTION ESTIMATE MODULE
110
120
130
PROCESSOR
140
150
PATH ASSIGNMENT PROBABILITY CALCULATION MODULE
NETWORK BLOCKING PROBABILITY DETERMINATION MODULE

7. A method of adding circuits to a network to expand network capacity so that the overall network blocking probability falls below a predetermined threshold, the network having nodes connected to each other by links and using an adaptive state dependent routing scheme for routing calls on the links, each link having at least one circuit and the links which interconnect the originating and terminating nodes defining a path, the method comprising the steps, executed on a processor, of:

determining a plurality of circuit combinations, each of said circuit combinations having at least one circuit, so that the addition of each of said circuit combinations to the network may lower the network blocking probability below the predetermined threshold;

determining the cost of adding each of said circuit combinations to the network;

determining the circuit combination that costs the least if added to network; and

adding circuits to the network in accordance with the circuit combination associated with the lowest cost.

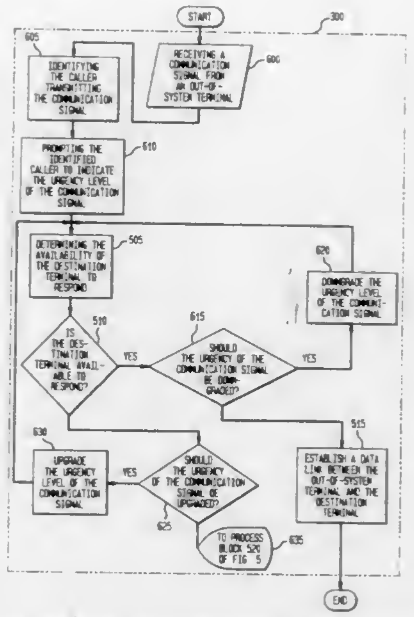
5,787,162
APPARATUS AND METHOD FOR SCHEDULING URGENT COMMUNICATION SESSIONS

Joel I. Javitt, Hillside, N.J., assignor to AT&T Corp., Middletown, N.J.

Filed Sep. 18, 1995, Ser. No. 529,704

Int. Cl.^{6} H04M ***3/42***

U.S. Cl. 379—229 **30 Claims**


START
300
605
IDENTIFYING THE CALLER TRANSMITTING THE COMMUNICATION SIGNAL
RECEIVING A COMMUNICATION SIGNAL FROM AN OUT-OF-SYSTEM TERMINAL
600
PROMPTING THE IDENTIFIED CALLER TO INDICATE THE URGENCY LEVEL OF THE COMMUNICATION SIGNAL
610
DETERMINING THE AVAILABILITY OF THE DESTINATION TERMINAL TO RESPOND
505
620
DOWNGRADE THE URGENCY LEVEL OF THE COMMUNICATION SIGNAL
510
615
IS THE DESTINATION TERMINAL AVAILABLE TO RESPOND?
YES
SHOULD THE URGENCY OF THE COMMUNICATION SIGNAL BE DOWNGRADED?
YES
515
630
UPGRADE THE URGENCY LEVEL OF THE COMMUNICATION SIGNAL
YES
SHOULD THE URGENCY OF THE COMMUNICATION SIGNAL BE UPGRADED?
ESTABLISH A DATA LINK BETWEEN THE OUT-OF-SYSTEM TERMINAL AND THE DESTINATION TERMINAL
625
TO PROCESS BLOCK 520 OF FIG 5
635
END

9. A method of operating a terminal of a communication system capable of supporting communication session scheduling, said terminal operative to receive and transmit communication signals between a first party and a second party via said communication system, said method comprising the steps of:

receiving an urgency portion of a scheduling signal initiated at call initialization through an interface of said terminal; and

selectively modifying, in response to receiving said urgency portion of a scheduling signal, a first data set and a second data set,

said first data set representative of the availability of a first party to respond to a received communication signal, and

said second data set representative of the urgency associated with a particular communication signal transmitted from said first party to said second party.

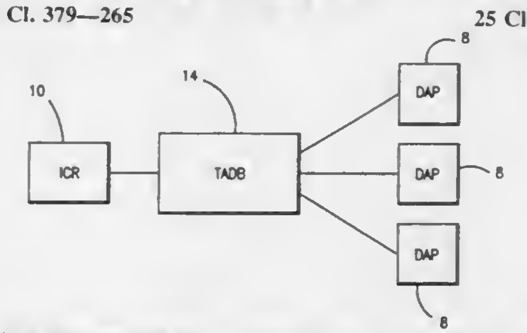
5,787,163
INTELLIGENT LOAD BALANCING OF SPECIAL SERVICE CALLS BASED ON AVAILABILITY OF TERMINATIONS

Frances D. E. Taylor, Falls Church, Va.; Christine S. Chaney, and Christobal Alejandro Torres, both of Colorado Springs, Colo., assignors to MCI Communications Corportion, Washington, D.C.

Continuation-in-part of Ser. No. 352,319, Dec. 8, 1994, abandoned. This application Oct. 30, 1996, Ser. No. 739,993

Int. Cl.^{6} H04M ***7/00***

U.S. Cl. 379—265 **25 Claims**



1. In a telecommunications network having a plurality of termination sets each including at least one termination, a method of routing each special service call directed to a subscriber to a termination set having at least one termination best adapted to respond to said each call from among various terminations operated by said subscriber, comprising the steps of:

a) decreasing the availability of each of said termination sets to receive further calls each time a call is routed to said each termination set;

b) repeatedly increasing the availability of said each termination set to receive further calls after the passage of a predetermined period of time;

c) taking into consideration the availability of said each termination set in relation to other termination sets that contain at least one of said various terminations operated by said subscriber;

d) combining the availability as determined in steps a, b and c to ascertain the termination set most available to receive an incoming call; and

e) routing said incoming call to said most available termination set for response.

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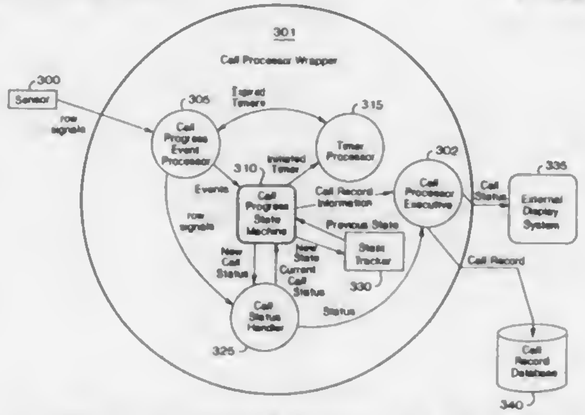
5,787,164
SWITCHED NETWORK CALL PROGRESS PROTOCOL ANALYZER

Walton P. Haines, Corralitos, and Steven Waller, Santa Cruz, both of Calif., assignors to Ellipsys Technologies, Inc., Soquel, Calif.

Filed Aug. 12, 1996, Ser. No. 694,433

Int. Cl.^{6} H04M *1/00*

U.S. Cl. 379—372 **8 Claims**



1. A system for monitoring the progress of a call comprising:

a sensor for sensing raw call progress signaling information on a circuit;

a wrapper coupled to the sensor for receiving the sensed raw call progress signaling information and generating physical events and time events, the wrapper comprising:

a call progress event processor configured to convert the raw call progress signaling information into call progress event indicators,

a timer processor coupled to the call progress event processor configured to calculate an elapsed time from a previous call progress event; and

a call progress state machine coupled to the timer processor configured to receive each event and determine a state of the progress of the call on the circuit.

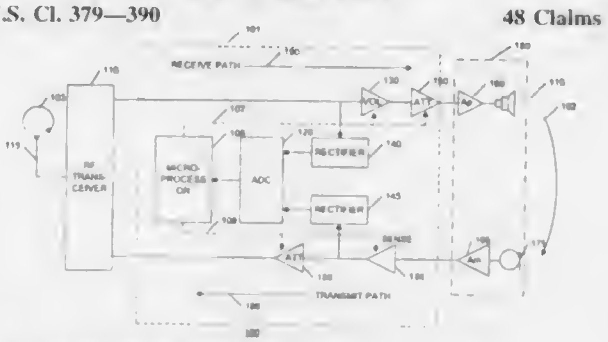
5,787,165
HANDSFREE RADIOTELEPHONE HAVING DYNAMIC PATH ATTENUATION CONTROL FOR ECHO SUPPRESSION

Patrik Lilja, and Eric Anthony Thomas, both of Raleigh, N.C., assignors to Ericsson Inc., RTP, N.C.

Filed Dec. 13, 1996, Ser. No. 768,079

Int. Cl.^{6} H04M *9/08*

U.S. Cl. 379—390 **48 Claims**



1. A speakerphone comprising:

a receive signal path for carrying a received signal;

a transmit signal path for carrying a transmitted signal;

a first variable attenuator coupled to said receive signal path and having a plurality of attenuation levels for variably attenuating the received signal;

a second variable attenuator coupled to said transmit signal path and having a plurality of attenuation levels for variably attenuating the transmitted signal;

first means, coupled to said receive signal path, for generating a first signal indicative of the signal energy of a signal on the receive signal path;

second means, coupled to said transmit signal path, for generating a second signal indicative of the signal energy of a signal on the transmit signal path;

an analog to digital converter (ADC) coupled to said first and second means, said ADC operative to sample said first and second signals at a predetermined sampling interval to generate first and second signal samples;

a microprocessor coupled to said ADC and said first and second variable attenuators, said microprocessor operative to store said first and second signal samples in first and second sample windows, respectively, and to select first and second signal results from said first and second sample windows, respectively;

wherein said microprocessor compares said first and second signal results and adjusts the attenuation levels of the first and second attenuators responsive to said comparison.

5,787,166
TELEPHONE COMMUNICATION HEADSET

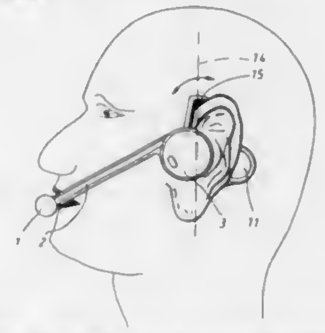
Johan Ullman, Johannebergsg. 32B, Göteborg, Sweden, S-412 55

PCT No. PCT/SE93/01003, § 371 Date May 20, 1996, § 102(e) Date May 20, 1996, PCT Pub. No. WO95/15044, PCT Pub. Date Jun. 1, 1995

PCT Filed Nov. 22, 1993, Ser. No. 648,036

Int. Cl.^{6} H04M *1/00*

U.S. Cl. 379—430 **7 Claims**



1. A telephone communication headset for donning on an outer ear of a user comprising:

a. a main unit;

b. an arm supported by said main unit, said arm having a sound receiving opening for a microphone, said opening being positioned substantially at the outer end of said arm, remote from said main unit;

c. an earphone on or adjacent said main unit;

d. a substantially U-shape support comprising a first shank, downwardly directed in a position of use, and attached to said main unit; a second shank, downwardly directed and occupying an opposing position to said arm relative to said main unit; and an upper portion connecting said first shank and said second shank, said upper portion being arranged, in a position of use, to rest against the uppermost point of the user's outer ear, wherein said upper portion is shaped to support said headset by resting mainly against the uppermost point of the outer ear where it joins the fold to the user's skull; and

e. a weight, attached to said support and arranged such that said weight's mass and leverage is adapted, at least in an upright position of the user's head, to press said second shank against the rear side of the outer ear substantially near the fold between the outer ear and the skull, by way of gravity, whereby by balancing the leverage from the effect of gravity on said arm, said headset is held in position by said pressing of said second shank and by the torque effected by gravity about said uppermost point of the outer ear where it joins the fold to the skull.

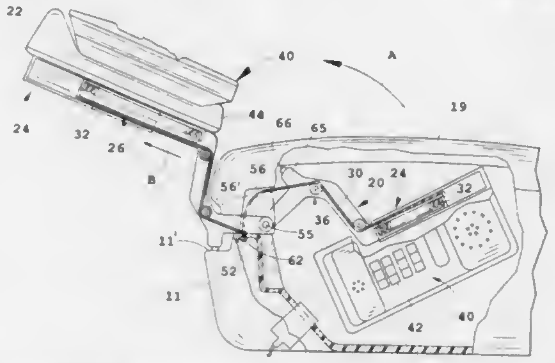
5,787,167
VEHICLE TELEPHONE MOUNTING SYSTEM

Rick A. Anderson, Grand Haven, Mich., assignor to Prince Corporation, Holland, Mich.

Filed Sep. 12, 1996, Ser. No. 713,140

Int. Cl.^{6} H04M *1/00*

U.S. Cl. 379—446 **14 Claims**



1. A telephone mounting system for mounting a telephone handset in a stored position within a storage bin for a vehicle and an extended use position, said telephone mount comprising:

a storage bin;

a mounting platform for receiving a telephone handset;

mounting means for pivotally mounting said platform to said storage bin such that as said platform and telephone handset secured thereto are moved from a stored to an extended position, said platform rotates such that said platform is oriented in a generally vertical plane within the storage bin and rotates when in a fully extended position for access to a telephone handset mounted thereto, wherein said means for mounting said platform to said storage bin includes a cam and a cam follower which responds to the movement of the rotational pivoting of said platform for rotating said platform and wherein said mounting means comprises a first sleeve including one of a cam pin and slot extending therethrough and a tube telescopically fitted to said mounting sleeve and including the other of a cam pin and slot and a pivot mounting bracket mounted on said tube for pivotally mounting said mounting means to said storage bin, and further including a flexible cable coupled to said cam pin and anchored at an opposite end to said storage bin at a position spaced from the pivot connection of said pivot mounting bracket to said storage bin such that said cable draws said sleeve and said tube together as said mounting platform is moved to a retracted stored position.

5,787,168
MOBILE TELEPHONE FASTENING WITH VIBRATION FUNCTION

Wan-yin Lien, 4th Fl.-8, No. 4 Lane 609, Sec. 5, Chunghsin Rd., Sanchung City, Taipei Hsien, Taiwan

Filed Feb. 12, 1997, Ser. No. 798,720

Int. Cl.^{6} H04M *1/00;* **H04B** *1/38;* **G08B** *5/22*

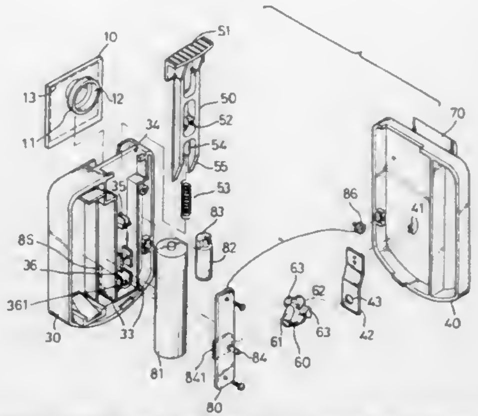
U.S. Cl. 379—455 **2 Claims**

1. A mobile telephone fastening with vibration function comprising:

a cramp adapted to be attached by a mobile telephone and having a projection on a rear face thereof;

a casing having an outer face defining a longitudinal slot therein for receiving the projection of the cramp and an inner face having an inner wall defining a chamber, said chamber having a stop extending from a middle point thereof and communicating with the longitudinal slot;

a cover having a back face with a clip mounted thereto and a front face, said front face having a plurality of bosses extending therefrom to engage with a resilient strip, said resilient strip defining a large hole therein;



a plunger slidably and partly received within the chamber, said plunger having a button formed at an upper end thereof to be received within the chamber, said plunger defining a hole aligned with the stop of the casing and having two opposed protrusions integrally extending from an inner periphery defining the hole, the two opposed protrusions abutting a lower face of the stop of the casing to limit an upward movement of the plunger, a lower end of the plunger defining an inverted U-shaped cut-out which defines a bottom face and two side walls, said bottom face having a post extending downward therefrom for a spring to be mounted thereon, each of the two side walls of the cut-out forming a beveled edge;

an insert received within the passage of the casing, said insert having a slanted front face projecting from the outer face of the casing, a lug integrally formed on a rear face thereof and received in the plunger, and two side protrusions abutting the beveled edge of the plunger; and

a printed circuit board, a battery, and a motor with an eccentric wheel respectively received in the casing and the cover, a pivotable piece mounted behind the printed circuit board, said pivotable piece extending into the chamber, the eccentric wheel being rotatable by the motor to impart a vibration.

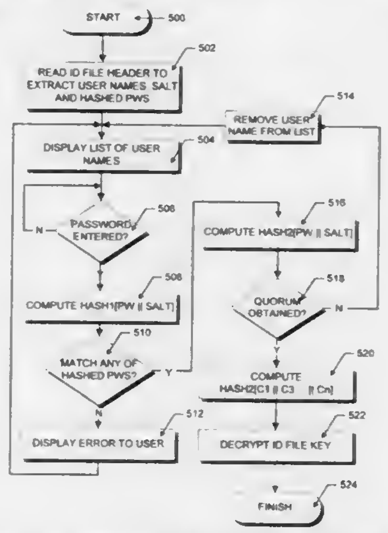
5,787,169
METHOD AND APPARATUS FOR CONTROLLING ACCESS TO ENCRYPTED DATA FILES IN A COMPUTER SYSTEM

Alan D. Eldridge, Hollis, N.H., and Charles W. Kaufman, Northborough, Mass., assignors to International Business Machines Corp., Armonk, N.Y.

Filed Dec. 28, 1995, Ser. No. 579,812

Int. Cl.^{6} H04L *9/00*

U.S. Cl. 380—4 **28 Claims**


START
500
READ ID FILE HEADER TO EXTRACT USER NAMES SALT AND HASHED PWS
502
REMOVE USER NAME FROM LIST
514
DISPLAY LIST OF USER NAMES
504
PASSWORD ENTERED?
506
N
COMPUTE HASH2[PW || SALT]
516
COMPUTE HASH1[PW || SALT]
508
QUORUM OBTAINED?
518
N
Y
MATCH ANY OF HASHED PWS?
510
Y
N
COMPUTE HASH2[C1 || C3 || Cn]
520
DISPLAY ERROR TO USER
512
DECRYPT ID FILE KEY
522
FINISH
524

18. A method for controlling access to secured data by quorums of authorized users, the secured data being encrypted with a file

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key and stored in a memory, the method using a table in the memory having a first entry for each authorized user, the first entry having the name of the each authorized user and a corresponding encrypted password, and for each of the quorums, a second entry comprising a combination of passwords in the each quorum and the file key encrypted with a password key comprised of a cryptographically hashed combination of cryptographically hashed passwords of the users in the each quorum, wherein a second cryptographic hashing technique used to create the second entry differs from a first cryptographic hashing technique to create the first entry, the method comprising the steps of:

- A. hashing an entered password with the first cryptographic hashing technique;
- B. comparing the cryptographically hashed password with the plurality of first entries;
- C. cryptographically hashing the entered password with the second hashing technique when a match is detected in step B;
- D. checking whether a quorum of entered passwords has been obtained
- E. computing a password key by combining passwords hashed with the second cryptographic hashing technique and cryptographically hashing the combination with the second hashing technique and using the password key to decrypt the file key when a quorum has been obtained in step D; and
- F. repeating steps A to C when a quorum has not been obtained in step D.

5,787,170

DATABASE SYSTEM WITH LOCAL INFORMATION REMOTELY SUPPORTED WITH DYNAMIC INFORMATION

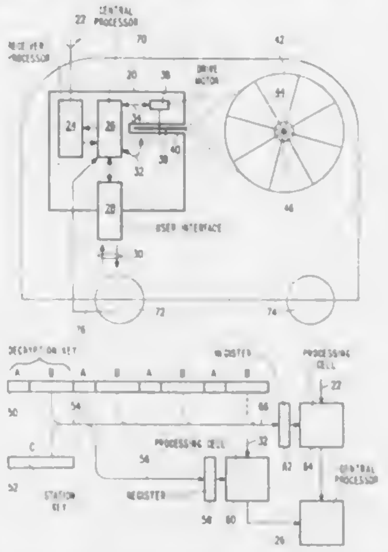
Franciscus J. Op de Beek, Amersfoort, Netherlands, assignor to U.S. Philips Corporation, New York, N.Y.

Continuation of Ser. No. 540,518, Oct. 6, 1995. This application Oct. 6, 1997, Ser. No. 944,111

Claims priority, application European Pat. Off., Oct. 10, 1994, 94202918

Int. Cl.^{6} H04L *9/00;* **G08G** *1/123;* **G01C** *21/00*

U.S. Cl. 380—4 **19 Claims**



1. A database system comprising an individual station having berth means for receiving an optically readable information carrier with local information, and read means for reading said carrier, receiving means for receiving remotely supplied secondary information, processing means for processing local information so read and also said secondary information to produce output information, and user interface means for presenting said output information to a user,

characterized in that said carrier has a read-only part, and furthermore a write part accommodating storage of at least one decryption key, said processing means being arranged for decrypting said secondary information using said at least one decryption key.

5,787,171

DATA TRANSMITTER AND RECEIVER

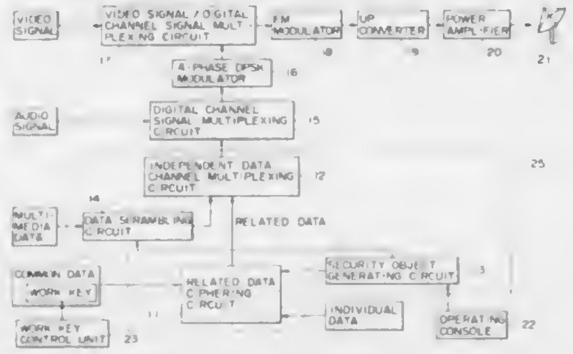
Ichiro Kubota, Kanagawa, and Masaki Hirose, Tokyo, both of Japan, assignors to Sony Corporation, Tokyo, Japan

Filed Jun. 22, 1995, Ser. No. 494,573

Claims priority, application Japan, Jun. 28, 1994, 6-146165; Jul. 6, 1994, 6-154394

Int. Cl.^{6} H04L *9/00;9/08;9/32;* **H04N** *7/167*

U.S. Cl. 380—20 **29 Claims**



20. A data providing system comprising:

a center for providing data; and

a data receiving terminal to receive the data provided from said center;

wherein said center comprises:

- a data source for storing predetermined data to be transmitted:
- first generating means for producing both a predetermined scrambling program for scrambling said predetermined data and control data to be used in the scrambling process;
- scrambling means for scrambling the predetermined data in accordance with said scrambling program;
- second generating means for producing a predetermined descrambling program for descrambling the scrambled data obtained from said scrambling means; and
- transmitting means for transmitting the scrambled data, the descrambling program and the control data to said data receiving terminal;

and said data receiving terminal comprises:

- means for receiving the scrambled data, the control data to be used in the scrambling process, and a predetermined descrambling program for descrambling the scrambled data;
- descrambling means for descrambling the scrambled data by the use of said descrambling program and said control data; and
- memory means for storing the data descrambled by said descrambling means.

5,787,172

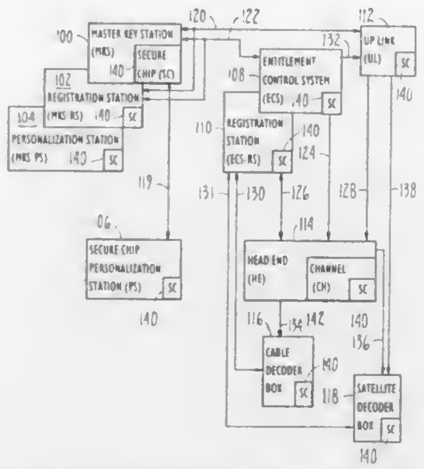
APPARATUS AND METHOD FOR ESTABLISHING A CRYPTOGRAPHIC LINK BETWEEN ELEMENTS OF A SYSTEM

Terry Sutton Arnold, San Diego, Calif., assignor to The Merdan Group, Inc., San Diego, Calif.

Filed Feb. 24, 1994, Ser. No. 201,399

Int. Cl.^{6} H04L *9/12;* **H04N** *7/16*

U.S. Cl. 380—21 **35 Claims**



35. A cryptographic system comprising a first unit, a second unit, a third unit, and a fourth unit, said first and second units communicating securely by utilizing at least one cryptographic data element, said cryptographic data element being generated by said third unit, said third unit communicating said cryptographic data element to said first and second units, and also communicating to said second unit an authorization certificate received from said fourth unit, such that said second unit verifies that said third unit has been authorized by said fourth unit to generate said cryptographic data element.

5,787,173

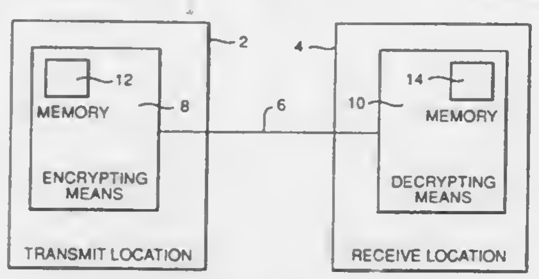
CRYPTOGRAPHIC KEY MANAGEMENT METHOD AND APPARATUS

Edward M. Seheidt, McLean, Va., and John J. Crowley, Rockville, Md., assignors to TECSEC Incorporated, Vienna, Va.

Continuation of Ser. No. 310,652, Sep. 22, 1994, abandoned, which is a continuation of Ser. No. 69,577, May 28, 1993, Pat. No. 5,375,169. This application Mar. 12, 1997, Ser. No. 815,903

Int. Cl.^{6} H04L *9/08;9/28*

U.S. Cl. 380—21 **24 Claims**



1. A secure communication system, comprising:

- a) a communications channel;
- b) a transmit location coupled to the communications channel; and
- c) a receive location coupled to the communications channel;
- d) wherein the transmit location includes
  - i) a transmit key component generator for generating a transmit key component,
  - ii) a receive key component receiver for receiving a receive key component,
  - iii) a first key component combiner for combining the transmit key component and the received receive key component to form a transmit key, and
  - iv) transmit memory for storing the receive key component and the transmit key; and
- e) wherein the receive location includes
  - i) a receive key component generator for generating a receive key component,
  - ii) a transmit key component receiver for receiving a transmit key component,
  - iii) a second key component combiner for combining the transmit key component and the received receive key component to form a receive key, and
  - iv) receive memory for storing the transmit key component and the receive key.

5,787,174

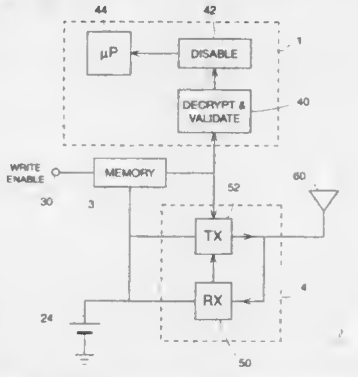
REMOTE IDENTIFICATION OF INTEGRATED CIRCUIT

John R. Tuttle, Boise, Id., assignor to Micron Technology, Inc., Boise, Id.

Continuation-in-part of Ser. No. 489,185, Jun. 9, 1995, abandoned, which is a continuation-in-part of Ser. No. 899,777, Jun. 17, 1992, abandoned, and a continuation-in-part of Ser. No. 168,909, Dec. 17, 1993, Pat. No. 5,497,140, and a continuation-in-part of Ser. No. 422,007, Apr. 11, 1995, Pat. No. 5,572,226, and a continuation-in-part of Ser. No. 990,915, Dec. 15, 1992, Pat. No. 5,550,650, and a continuation-in-part of Ser. No. 263,210, Jun. 21, 1994, Pat. No. 5,583,850, which is a continuation of Ser. No. 990,918, Dec. 15, 1992, Pat. No. 5,365,551. This application Nov. 2, 1995, Ser. No. 556,818

Int. Cl.^{6} H04L *9/32*

U.S. Cl. 380—23 **24 Claims**



1. Integrated circuit apparatus incorporating an identification number, comprising:

- an integrated circuit package;
- a first integrated circuit mounted within the package, wherein the first integrated circuit has a primary function different from radio frequency identification; and
- a radio frequency identification circuit, mounted within the package, including
- an ID number memory integrated circuit for storing an identification number, and
- an integrated circuit RF transceiver including
  - a receiver integrated circuit for receiving RF signals, and
  - a transmitter integrated circuit for transmitting an identification RF signal conveying the stored identification number after the receiver circuit receives an RF interrogation signal.

5,787,175

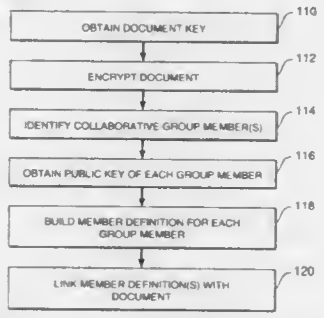
METHOD AND APPARATUS FOR COLLABORATIVE DOCUMENT CONTROL

Stephen R. Carter, Spanish Fork, Utah, assignor to Novell, Inc., Provo, Utah

Filed Oct. 23, 1995, Ser. No. 547,054

Int. Cl.^{6} H04L *9/00*

U.S. Cl. 380—25 **70 Claims**


OBTAIN DOCUMENT KEY
110
ENCRYPT DOCUMENT
112
IDENTIFY COLLABORATIVE GROUP MEMBER(S)
114
OBTAIN PUBLIC KEY OF EACH GROUP MEMBER
116
BUILD MEMBER DEFINITION FOR EACH GROUP MEMBER
118
LINK MEMBER DEFINITION(S) WITH DOCUMENT
120

1. A method for controlling collaborative access to a work group document by users of a computer system, the document having a data portion and a prefix portion each portion capable of being stored in at least one file in the computer system, said method

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comprising the computer-implemented steps of collaboratively encrypting the document and restricting access to the data portion of the resulting collaboratively encrypted document.

5,787,176

Patent Not Issued For This Number

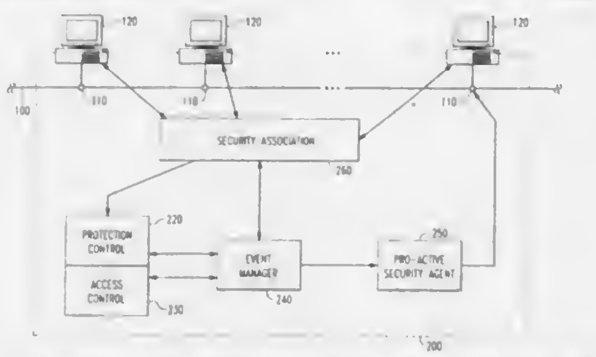
5,787,177
INTEGRATED NETWORK SECURITY ACCESS CONTROL SYSTEM

James Leppek, Melbourne, Fla., assignor to Harris Corporation, Melbourne, Fla.

Filed Aug. 1, 1996, Ser. No. 690,784

Int. Cl.⁶ H04L *9/00;9/32*

U.S. Cl. 380—25 **8 Claims**



1. A method of controlling access by a network user to one or more resources of an information network comprising the steps of:

(a) establishing a security association containing one or more security relationships among users and resources of said information network;
(b) selectively permitting a network user to conduct data communications with respect to a network resource in accordance with said security association;
(c) monitoring activity associated with said network user's conducting data communications with respect to said network resource in step (b); and
(d) controllably modifying said one or more security relationships contained in the security association that has been established in step (a), in dependence upon one or more characteristics of said activity monitored in step (b), in a manner that affects the ability of said network user to conduct data communications with respect to a network resource.

5,787,178
COMPUTERIZED METHOD FOR SIGNING A MESSAGE

Joerg Schwenk, Dieburg, Germany, assignor to Deutsche Telekom AG, Bonn, Germany

Filed Apr. 12, 1996, Ser. No. 631,278

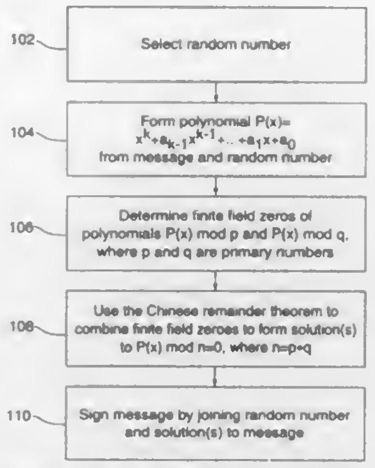
Claims priority, application Germany, Apr. 12, 1995, 195 13 896.1

Int. Cl.⁶ H04K *1/00;* **H04L** *9/00*

U.S. Cl. 380—30 **20 Claims**

1. A method generating a digital signature and using the Signature to sign an electronic message, wherein a microprocessor uses a secret key for signing and the signature can be tested by an other microprocessor with the help of a public key, the public key being a number n that is the product of two prime numbers p and q, and the secret key including at least one of the two prime numbers p and q, the method comprising the steps of:

forming a polynomial of the form $P(x)=x^k+a_{k-1}x^{k-1}+ \ldots +a_1x+a_0$, where the coefficients $a_{k-1} \ldots a_0$ are formed from the message by taking into account a random number.


102
Select random number
104
Form polynomial P(x)= x^k+a_{k-1}x^{k-1}+.. +a_1x+a_0 from message and random number
106
Determine finite field zeros of polynomials P(x) mod p and P(x) mod q, where p and q are primary numbers
108
Use the Chinese remainder theorem to combine finite field zeroes to form solution(s) to P(x) mod n=0, where n=p•q
110
Sign message by joining random number and solution(s) to message

deriving additional polynomials P(x) mod p and P(x) mod q;
determining, zeros in respective finite fields GF(p) and GF(q) of the additional polynomials P(x) mod p and P(x) mod q;
finding at least one solution z of the equation P(x) mod n=0 by using the zeros; and
joining the random number and the at least one solution z to the message.

5,787,179
SCRAMBLING AND DESCRAMBLING OF DATA WITH IMPROVED SECURITY

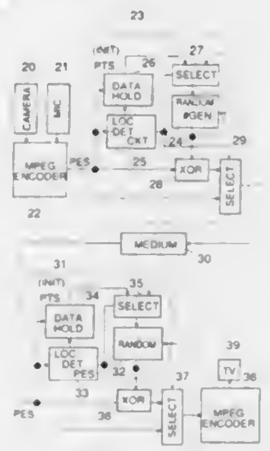
Kiyotaka Ogawa; Kiyoshi Kohiyama; Ryota Akiyama, and Kiyokatsu Iijima, all of Kawasaki, Japan, assignors to Fujitsu Ltd., Kawasaki, Japan

Filed Jul. 19, 1996, Ser. No. 684,386

Claims priority, application Japan, Dec. 7, 1995, 7-319421

Int. Cl.⁶ H04K *1/00*

U.S. Cl. 380—46 **27 Claims**



1. A scrambling method of an incoming stream including a series of unit streams in succession, the unit stream including a first stream part and a second stream part located behind the first stream part, said first stream part including predetermined data having a non-fixed value, the scrambling method scrambling the second stream part by using a random number generator, comprising a step of:

supplying, for each second stream part to be scrambled said, predetermined data included in the first stream part and having said non-fixed value to the random number generator as an initial value thereof.

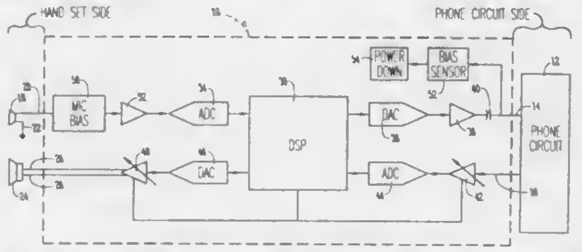
5,787,180
METHOD OF CONNECTING A SCRAMBLER OR ENCRYPTION DEVICE TO A HAND-HELD PORTABLE CELLULAR TELEPHONE

Christopher A. Hall, Lincoln; James R. Holthaus, Omaha, and Bradley A. Riensche, Firth, all of Nebr., assignors to Transcrypt International, Inc., Lincoln, Nebr.

Filed Mar. 24, 1997, Ser. No. 826,083

Int. Cl.⁶ H04L *9/00*

U.S. Cl. 380—52 **28 Claims**



19. An apparatus for providing a level of voice privacy for cellular telephones having a telephone circuit which includes a microphone connected to a microphone input in the telephone circuit, a speaker connected to a speaker output in the telephone circuit, and a transceiver connected to the microphone input to transmit near-side audio from the microphone to the cellular network and connected to the speaker output to receive far-side audio from the cellular network and pass the far-side audio to the speaker, the telephone circuit including a side-tone generator which generates a side-tone based on the near-side audio at the microphone input and passes the generated side-tone to the speaker output, so that the speaker receives a combination of received far-side audio and side-tone, the improvement comprising:

a voice security circuit connected between the microphone and the microphone input of the telephone circuit and between the speaker output and the speaker of the telephone circuit;
the voice security circuit comprising a means for securing the near-side audio positioned between the microphone and the microphone input;
a means for unsecuring far-side audio positioned between the speaker output and the speaker;
a means for adaptively removing echo and the telephone generated side-tone positioned between the speaker output and the speaker.

5,787,181

Patent Not Issued For This Number

5,787,182
AUDIO SIGNAL AMPLIFIER CIRCUIT AND A PORTABLE AUDIO EQUIPMENT USING THE SAME

Taichi Hoshino; Isao Yamamoto; Masanori Fujisawa, and Masato Kobayashi, all of Kyoto, Japan, assignors to Rohm Co., Ltd., Kyoto, Japan

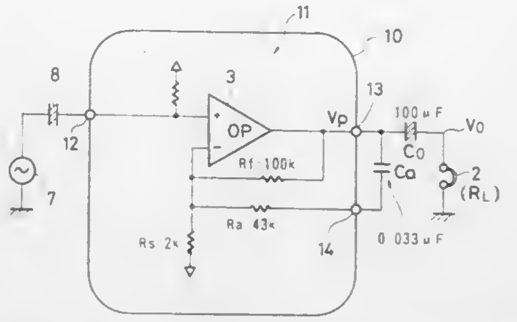
Filed Aug. 7, 1996, Ser. No. 698,153

Claims priority, application Japan, Aug. 9, 1995, 7-224815; May 21, 1996, 8-148497

Int. Cl.⁶ H04R *1/10*

U.S. Cl. 381—74 **10 Claims**

1. An audio signal amplifier circuit including an integrated circuit containing a single-ended power amplifier circuit as an output stage, said audio signal amplifier circuit comprising an output terminal of said integrated circuit, an output of said power amplifier circuit being connected to said output terminal, a resistor having one end connected to a negative feedback input of said power amplifier circuit and the other end connected to a certain terminal other than said output terminal of said integrated circuit, a first capacitor connected between said output terminal and a loud speaker and a second capacitor connected between a wire connecting said output terminal to said loud speaker and said certain terminal, an internal impedance of said loud speaker is in a range from 4Ω to 32Ω and said first capacitor has a capacitance of less than 330 μF, wherein a reducation of low frequency gain determined by a time constant of said first capacitor and an impendance of said loud speaker is corrected by an increase of low frequency amplification gain determined by a time constant of said second capacitor and said resistor.



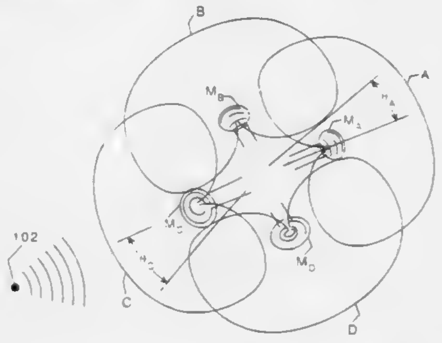
5,787,183
MICROPHONE SYSTEM FOR TELECONFERENCING SYSTEM

Peter Lee Chu, Lexington, and William F. Barton, Littleton, both of Mass., assignors to PictureTel Corporation, Andover, Mass.

Continuation of Ser. No. 132,032, Oct. 5, 1993. This application Dec. 6, 1996, Ser. No. 761,349

Int. Cl.⁶ H04R *3/00*

U.S. Cl. 381—92 **8 Claims**



1. A microphone system for use in a conference environment varying locations within the environment, comprising:

at least two directional microphones held in a fixed arrangement about a center point, the respective response of each said microphone being directed radially away from said center point in a different direction, each said microphone able to receive an acoustic signal and produce an electrical signal in response;
mixing circuitry to combine said electrical signals in varying proportions to form a composite signal, said composite signal including contributions from at least two of said microphones; and control circuitry configured to analyze said electrical signals to determine an angular orientation of the acoustic signal relative to said central point, and to substantially continuously adjust said proportions in response to said determined orientation and provide said adjusted proportions to said mixing circuitry,
the values of said proportions selected so that said composite signal simulates a signal that would be generated by a virtual directional microphone pivoted about said central point to direct its maximum response at the acoustic signal as the acoustic signal moves about the environment.

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5,787,184

Patent Not Issued For This Number

5,787,185
BIOMETRIC IDENTIFICATION OF INDIVIDUALS BY USE OF SUBCUTANEOUS VEIN PATTERNS

David Oswald Clayden, Isleworth, England, assignor to British Technology Group Ltd., London, England

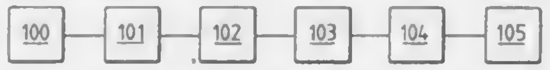
PCT No. PCT/GB94/00707, § 371 Date Sep. 29, 1995, § 102(e) Date Sep. 29, 1995, PCT Pub. No. WO94/29747, PCT Pub. Date Dec. 22, 1994

PCT Filed Mar. 31, 1994, Ser. No. 530,169

Claims priority, application United Kingdom, Apr. 1, 1993, 9306897

Int. Cl.^{6} G06K *9/00*

U.S. Cl. 382—115 **14 Claims**



1. A method of verifying an identity of an individual comprising steps of:

capturing a first image of a subcutaneous vein pattern at a predetermined region of the individual;

converting the captured first image to a plurality of first stored values representative of an intensity of the first image at specified relative locations,

processing the first stored values to produce a second plurality of directionally-weighted stored values representative of a second image of [said] the vein pattern having enhanced contrast;

subjecting the second plurality of directionally-weighted stored values to a thresholding process to select ones of the second plurality of directionallyweighted stored values being above a predetermined value; and

storing a set of measurements derived from selected ones of the second plurality of directionally-weighted stored values for comparison with a corresponding set of measurements made on the individual.

5,787,186
BIOMETRIC SECURITY PROCESS FOR AUTHENTICATING IDENTITY AND CREDIT CARDS, VISAS, PASSPORTS AND FACIAL RECOGNITION

Carlos Cobian Schroeder, Madrid, Spain, assignor to I.D. Tec, S.L., Spain

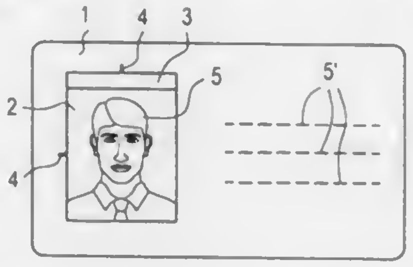
PCT No. PCT/ES95/00021, § 371 Date Apr. 1, 1996, § 102(e) Date Apr. 1, 1996, PCT Pub. No. WO95/25640, PCT Pub. Date Sep. 28, 1995

PCT Filed Feb. 20, 1995, Ser. No. 553,352

Claims priority, application Spain, Mar. 21, 1994, 9400595; May 26, 1994, 9401171; Jul. 5, 1994, 9401452

Int. Cl.^{6} G06K *9/00;5/00;* **B42D** *15/00;* **G07D** *7/00*

U.S. Cl. 382—115 **19 Claims**



1. A biometric security procedure for manufacturing an identity document selected from the group comprising identity cards, credit cards, visas and pass-ports, comprising the steps of:

providing a nucleus of the identity document, said nucleus comprising personal data of a holder of the identity document and a face image of the holder;

carrying out, by means of a computer connected to an image capturing means comprising one of a scanner and a video camera, an analysis of face features of said face image, the computer carrying out an analysis of basic face features of said face image, comparing the basic face features with master/pattern features comprised in a data base, each master/pattern feature having a specific number;

obtaining by said analysis a derived set of master/pattern features that corresponds to a characteristic synthetic image of the holder, said derived set of master/pattern features corresponding to a specific numeric code determined by the number of each of the master/pattern features making up said derived set of master/pattern features;

printing said specific numeric code by means of a printer connected to the computer, on an area of the identity document defined as a code window, whereby said specific numeric code univocally characterizes the holder of the identity document.

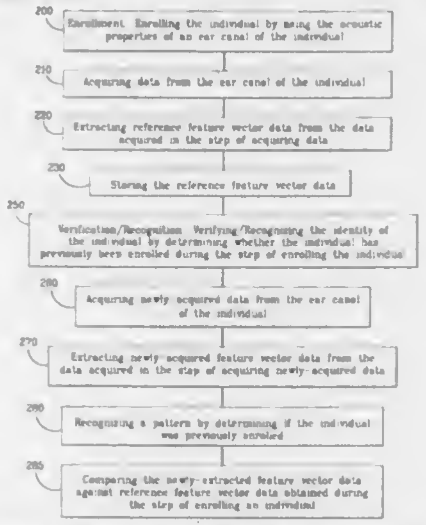
5,787,187
SYSTEMS AND METHODS FOR BIOMETRIC IDENTIFICATION USING THE ACOUSTIC PROPERTIES OF THE EAR CANAL

Ann Marie Bouchard, and Gordon Cecil Osbourn, both of Albuquerque, N. Mex., assignors to Sandia Corporation, Albuquerque, N. Mex.

Filed Apr. 1, 1996, Ser. No. 626,704

Int. Cl.^{6} G06K *9/00;* **G07D** *7/00*

U.S. Cl. 382—115 **57 Claims**


200
Enrollment. Enrolling the individual by using the acoustic properties of an ear canal of the individual
210
Acquiring data from the ear canal of the individual
220
Extracting reference feature vector data from the data acquired in the step of acquiring data
230
Storing the reference feature vector data
250
Verification/Recognition. Verifying/Recognizing the identity of the individual by determining whether the individual has previously been enrolled during the step of enrolling the individual
260
Acquiring newly acquired data from the ear canal of the individual
270
Extracting newly acquired feature vector data from the data acquired in the step of acquiring newly-acquired data
280
Recognizing a pattern by determining if the individual was previously enrolled
285
Comparing the newly-extracted feature vector data against reference feature vector data obtained during the step of enrolling an individual

1. A system for verifying/recognizing the identity of an individual by characterizing the acoustic properties of the ear canal as a biometric, said system comprising:

enrollment means for enrolling the individual by characterizing the acoustic properties of an ear canal of the individual; and

verification means for verifying the identity of the individual by determining whether the individual has previously been enrolled during said step of enrolling the individual.

5,787,188
METHOD FOR IDENTIFYING NORMAL BIOMEDICAL SPECIMENS

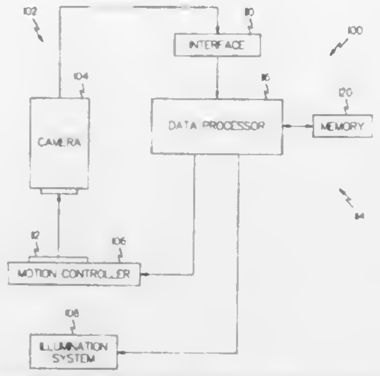
Alan Caril Nelson, Redmond; Shih-Jong James Lee, Bellevue, and Richard S. Johnston, Issaquah, all of Wash., assignors to NeoPath, Inc., Redmond, Wash.

Continuation of Ser. No. 838,064, Feb. 18, 1992, abandoned. This application Dec. 13, 1995, Ser. No. 571,686

Int. Cl.^{6} G06K *9/00*

U.S. Cl. 382—133 **20 Claims**

1. A method for determining a condition of an object on a biological specimen slide having a plurality of other objects, for an image gathering system controlled by a data processing system, the method comprising the steps of:



(a) obtaining at least one image of the object and at least one image of the plurality of other objects with the image gathering system;

(b) measuring at least one feature for at least one of the plurality of other objects with the data processing system;

(c) classifying at least one of the plurality of other objects as either normal or abnormal based on the at least one feature with the data processing system; and

(d) classifying the object as normal or abnormal based on a classification of at least one of the plurality of other objects neighboring the object with the data processing system.

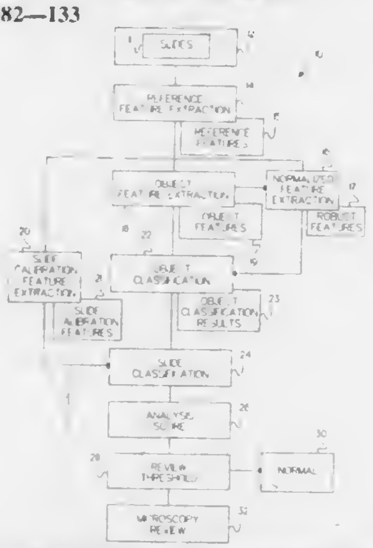
5,787,189
BIOLOGICAL ANALYSIS SYSTEM SELF CALIBRATION APPARATUS

Shih-Jong J. Lee, Bellevue; Seho Oh, Mukilteo; Chih-Chau L. Kuan; Dayle G. Ellison, both of Redmond, and Wendy R. Bannister, Seattle, all of Wash., assignors to NeoPath, Inc., Redmond, Wash.

Continuation of Ser. No. 309,115, Sep. 20, 1994, abandoned. This application Jun. 20, 1996, Ser. No. 667,292

Int. Cl.^{6} G06K *9/00*

U.S. Cl. 382—133 **28 Claims**


SLIDES
REFERENCE FEATURE EXTRACTION
REFERENCE FEATURES
OBJECT FEATURE EXTRACTION
NORMALIZED FEATURE EXTRACTION
17
OBJECT FEATURES
ROBUST FEATURES
20
22
SELF CALIBRATION FEATURE EXTRACTION
OBJECT CLASSIFICATION
SLIDE CALIBRATION FEATURES
OBJECT CLASSIFICATION RESULTS
23
SLIDE CLASSIFICATION
24
ANALYSIS SCORE
30
REVIEW THRESHOLD
NORMAL
MICROSCOPY REVIEW
32

1. A self calibrating biological specimen analysis apparatus for a biological specimen under analysis, the self calibrating biological specimen analysis apparatus comprising:

(a) imaging means for obtaining at least one image of said biological specimen under analysis, wherein the imaging means has an image output;

(b) an automatic calibration feature extraction means, connected to receive the image output, for generating at least one calibrated feature output extracted from cell objects of said biological specimen wherein the automatic calibration feature extraction means self adjusts to match the situation of said biological specimen so that said biological specimen is characterized by the at least one calibrated feature output;

(c) an object classifier connected to the calibrated feature output wherein the object classifier has an object classification result output; and

(d) a biological specimen classifier connected to the object classification result output, wherein the biological specimen classifier has an analysis score output.

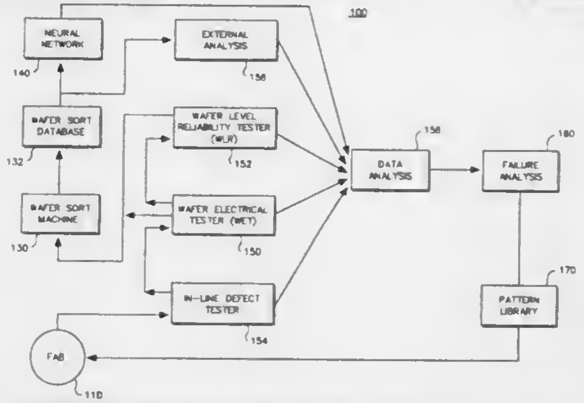
5,787,190
METHOD AND APPARATUS FOR PATTERN RECOGNITION OF WAFER TEST BINS

Yeng-Kaung Peng, Saratoga; Siu-May Ho, and Ying Shiau, both of San Jose, all of Calif., assignors to Advanced Micro Devices, Inc., Sunnyvale, Calif.

Continuation of Ser. No. 488,072, Jun. 7, 1995, abandoned. This application Jun. 27, 1997, Ser. No. 884,316

Int. Cl.^{6} H01L *21/66*

U.S. Cl. 382—145 **3 Claims**



1. A wafer test bin pattern recognition system for a fabrication facility for manufacturing a plurality of semiconductor wafers having plural circuit patterns formed as dice thereon, the system comprising:

a neural network processor linked to said fabrication facility for classifying a population of a plurality of fabricated semiconductor wafers by an identification code which denotes a particular fault for each non-functional die on the plurality of wafers for generating a first wafer map for the population of wafers indicating at least one fault pattern;

a semiconductor tester disposed to receive said plurality of wafers to generate a fault pattern for each of the plurality of wafers on a second wafer map for each wafer; and

a data analyzer for correlating said fault pattern on said first wafer map with said fault patterns on each of said second wafer maps for producing a confirmed fault pattern indicative of corrections required in said fabrication facility.

5,787,191
WIRING PATTERN INSPECTION APPARATUS FOR PRINTED CIRCUIT BOARD

Hideaki Kawamura, Sagamihara; Atsuharu Yamamoto, Kawasaki; Yuji Maruyama; Hidehiko Kawakami, both of Tokyo; Katsuhiro Kondoh, Osaka, and Iwao Ichikawa, Nishinomiya, all of Japan, assignors to Matsushita Electric Industrial Co., Ltd., Osaka, Japan

Division of Ser. No. 219,759, Mar. 29, 1994, Pat. No. 5,459,795, which is a continuation of Ser. No. 829,199, Feb. 3, 1992, abandoned. This application Jun. 6, 1995, Ser. No. 467,442

Claims priority, application Japan, Feb. 26, 1991, 3-30580; Oct. 15, 1991, 3-265890

Int. Cl.^{6} G06K *9/36;9/40;9/00*

U.S. Cl. 382—149 **1 Claim**

1. A wiring pattern inspection apparatus for inspecting an abnormality of wiring pattern formed on a printed circuit board, comprising:

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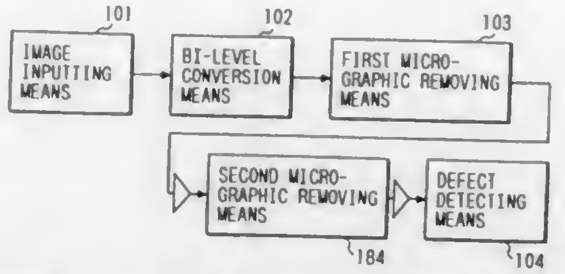

101
102
103
IMAGE INPUTTING MEANS
BI-LEVEL CONVERSION MEANS
FIRST MICRO-GRAPHIC REMOVING MEANS
SECOND MICRO-GRAPHIC REMOVING MEANS
DEFECT DETECTING MEANS
184
104

image inputting means for optically illuminating a surface of said printed circuit board including said wiring pattern and for photoelectrically converting optical information of said printed circuit board surface due to the optical illumination into a grey level image;

bi-level conversion means responsive to said grey level image from said image inputting means to convert said grey level image into a bi-level image in which the wiring pattern side and a background side of said wiring pattern are separated from each other;

first removing means coupled to said bi-level conversion means to contract said bi-level image by a size corresponding to n pixels from the background side and then to expand the contracted bi-level image by a size corresponding to m pixels, wherein said first removing means includes a first AND-processing means to calculate a logical product of the expanded bi-level image and said bi-level image from said bi-level conversion means;

second removing means coupled to said first removing means to invert the logical-product bi-level image which is the calculation result of said first removing means and then to contract the inverted logical-product bi-level image by a size corresponding to n' pixels and further, to expand the contracted inverted logical-product bi-level image by a size corresponding to m' pixels, wherein said second removing means includes,

a second AND-processing means to calculate a logical-product of the expanded inverted logical-product bi-level image and the inverted logical-product bi-level image, and

an inverter means to again invert the calculation result of said second AND-processing means; and

defect detecting means coupled to said second removing means to detect a defect of said wiring pattern on the basis of the inverted calculation result of said inverter means.

5,787,192

IMAGE DATA COMPRESSION APPARATUS AND IMAGE DATA COMMUNICATION SYSTEM

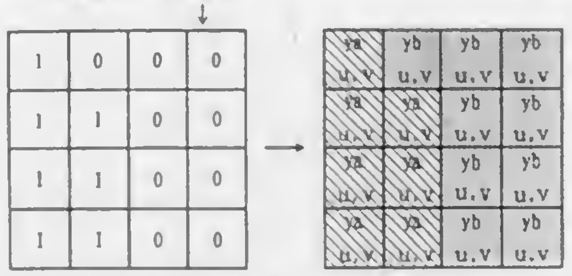
Toshio Takaichi, and Yoshihiro Nakagawa, both of Aichi-ken, Japan, assignors to Kabushikaisha Equos Research, Japan

Filed Sep. 8, 1995, Ser. No. 525,147

Claims priority, application Japan, Sep. 27, 1994, 6-257553; Nov. 25, 1994, 6-315943

Int. Cl.⁶ H04N *1/46*

U.S. Cl. 382—166 **12 Claims**



1. An image data compression apparatus comprising:

image data generating means for generating image data of pixels, each of said data of pixels constituted by a luminance signal and color difference signals;

a block generator for generating data of blocks from the image data generated by said image data generating means, each of said blocks consisting of n×m pixels;

block luminance generating means for generating two luminance signals ya and yb representing each of said blocks;

block color difference generating means for generating one pair of color difference signals u and v from said data of each of said blocks generated by said block generator, said color difference signals u and v representing said blocks;

bitmap generating means for generating n×m bitmap bm for each of said blocks wherein the n×m bitmap represents the distribution of the two luminance signals generated by said block luminance generating means; and

encoding means for generating block components from said to luminance signals ya and yb generated by said block luminance generating means, said one pair of color difference signals u and v generated by said block color difference generating means, and said n×m bit map bm generated by said block generator.

5,787,193

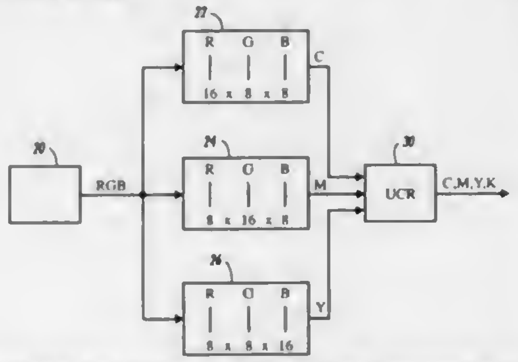
SYSTEM FOR CONVERTING COLOR IMAGE SIGNALS FROM RGB TO CMY COLOR SPACES THROUGH LOOK-UP TABLES

Raja Balasubramanian, Webster, N.Y., assignor to Xerox Corporation, Stamford, Conn.

Filed Sep. 27, 1996, Ser. No. 720,134

Int. Cl.⁶ H04N *1/46;* **G06K** *9/00*

U.S. Cl. 382—167 **7 Claims**



1. An apparatus for converting color signals representing at least a first color and second color of a first type to color signals representing at lease a first color and second color of a second type, comprising:

a first look-up table and a second look-up table, each look-up table being a multi-dimensional look-up table defined in a memory accessible in real time and having as inputs predetermined color signals representing at least the first color and second color of said first type;

the first look-up table providing an output for each of a set of combinations of inputs signals representing the first color and second color of said first type, each output being a color signal representing the color of said second type, the first look-up table being representative of a multi-dimensional color space wherein each of the first color and second color of the first type relates to an axis in the color space;

the second look-up table providing an output for each of a set of combinations of input signals representing the first color and second color of said first type, each output being a color signal representing the second color of said second type, the second look-up table being representative of a multi-dimensional color space wherein each of the first color and second color of the first type relates to an axis in the color space;

wherein there exists a different arrangement of inputs along the axis in the first look-up table corresponding to the first color of the first type than along the axis in the second look-up table corresponding to the first color of the first type, the outputs of the first look-up table having a higher resolution along the axis corresponding to the first color of the first type than the outputs of the second look-up table corresponding to the first color of the first type; and

means for applying color signals representing the first color and second color of said first type to the first look-up table and second look-up table.

5,787,194

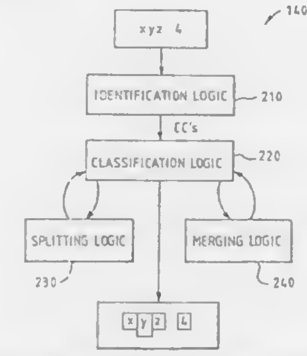
SYSTEM AND METHOD FOR IMAGE PROCESSING USING SEGMENTATION OF IMAGES AND CLASSIFICATION AND MERGING OF IMAGE SEGMENTS USING A COST FUNCTION

Eyal Yair, Haifa, Israel, assignor to International Business Machines Corporation, Armonk, N.Y.

Continuation of Ser. No. 336,160, Nov. 8, 1994, abandoned. This application Dec. 31, 1996, Ser. No. 775,422

Int. Cl.⁶ G06K *9/34;9/68;9/70*

U.S. Cl. 382—173 **15 Claims**



1. Image processing apparatus for segmenting an input image into image portions each containing a single character, the apparatus comprising:

identification logic for identifying connected components in the input image;

classification logic for determining into which of a number of predefined classes a connected component fails, wherein at least one of said classes indicating that the connected component is most likely to be a single character, at least one of the classes indicating that the connected component is most likely to be less than a single character, and at least one of said classes indicating that the connected component is most likely to be more than a single character; and

merging logic and splitting logic for merging and splitting the connected components, respectively, the merging and splitting logic and the classification logic being arranged to operate so that the connected components are iteratively merged and/or split and the resulting split and/or merged connected components are reclassified by the classification logic until an image segmentation is achieved which meets a predefined criterion, wherein the merging logic performs the merging of the connected components by first evaluating a pre-determined cost function to calculate a combining cost value for each possible pair of connected components in a field, and then attempting to merge the pairs of connected components progressively with increasing combining cost values, commencing with the pair of connected components having a minimum combining cost value, until one of the attempted merges is accepted by the classification logic; the merging process being continuously repeated after each acceptance of an attempted merge by the classification logic by evaluating the predetermined cost function to calculate a combining cost value for each of the possible remaining pairs of connected components.

5,787,195

PRECISE DISCRIMINATION OF IMAGE TYPE

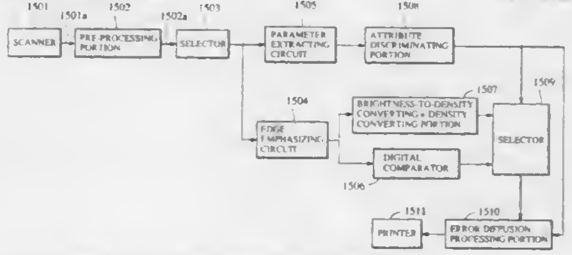
Takuya Tsujimoto, and Masahiro Sakamoto, both of Toyko, Japan, assignors to Canon Kabushiki Kaisha, Japan

Continuation of Ser. No. 318,287, Oct. 5, 1994, abandoned. This application Dec. 5, 1996, Ser. No. 760,330

Claims priority, application Japan, Oct. 20, 1993, 5-262528

Int. Cl.⁶ H04N *1/405;1/407*

U.S. Cl. 382—176 **50 Claims**


1501
1501a
1502
1502a
1503
1505
1508
SCANNER
PRE-PROCESSING PORTION
SELECTOR
PARAMETER EXTRACTING CIRCUIT
ATTRIBUTE DISCRIMINATING PORTION
1504
1507
1509
EDGE EMPHASIZING CIRCUIT
BRIGHTNESS-TO-DENSITY CONVERTING + DENSITY CONVERTING PORTION
DIGITAL COMPARATOR
SELECTOR
1506
1511
1510
PRINTER
ERROR DIFFUSION PROCESSING PORTION

1. An image processing apparatus comprising:

input means for inputting image data;

means for producing a plurality of parameters from a region consisting of a plurality of input image data, wherein the plurality of parameters includes a first parameter equal to a variation amount of a level of the image data in the region, and a second parameter representative of whether the level of the image data in the region is closer to a predetermined first level or to a predetermined second level which is lower than the first level;

discriminating means for discriminating an attribute of the region in accordance with the plurality of parameters; and

conversion means for converting a tone of the image data in the region in accordance with a result of discrimination performed by said discriminating means.

5,787,196

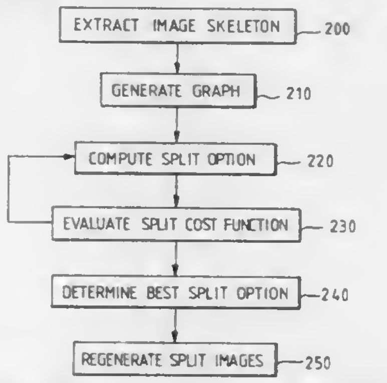
METHOD AND APPARATUS FOR SPLITTING CONNECTED CHARACTERS INTO COMPONENT CHARACTERS

Eyal Yair, and Oren Kagan, both of Haifa, Israel, assignors to International Business Machines Corporation, Armonk, N.Y.

Continuation of Ser. No. 336,154, Nov. 8, 1994, abandoned. This application Nov. 21, 1996, Ser. No. 752,745

Int. Cl.⁶ G06K *9/34;9/00;9/46;9/66*

U.S. Cl. 382—178 **16 Claims**



1. Optical character recognition apparatus for recognizing an image comprising connected characters, the apparatus comprising:

optical character recognition logic for associating single character codes with images; and

image processing means for splitting into component character images, for subsequent storage or processing by OCR apparatus, character images in digital form comprising connected characters, the image processing apparatus comprising:

logic means for extracting an image skeleton from an input image and representing the topology of the image skeleton in a first data structure including the location of each pixel of the image skeleton, and a depth value means for each pixel of the

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image skeleton and data identifying nodes and branch pixels of the image skeleton;

logic means for generating, from the first data structure, second data structures representing the topologies of possible output skeletons based on splits of the input image skeleton at different nodes in the first data structure which second data structures contain different distance vector depth value means and node and branch information than the first data structure based on the splits, wherein the depth value means of the first data structure and the second data structure are for defining each of the pixels therein in terms of an outer contour of the character image represented by the data structure;

means for evaluating the second data structures, comprising means for defining a cost function for each of the possible splits and means for evaluating the cost function from the second data structures; and

means for selecting one of the possible splits that has a cost function that does not divide the first data structure to produce a second data structure that represents only a part of a character to thereby split the input image.

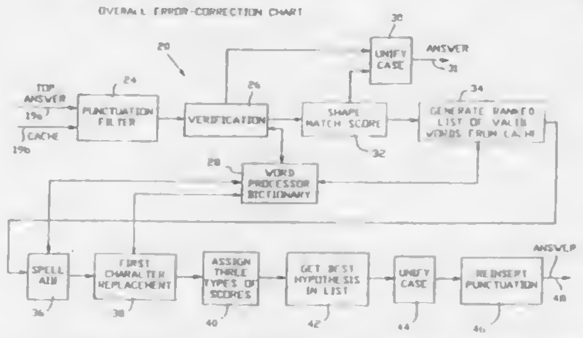
5,787,197
POST-PROCESSING ERROR CORRECTION SCHEME USING A DICTIONARY FOR ON-LINE HANDWRITING RECOGNITION

Homayoon Sadr Mohammad Beigi, Mineola; Tetsunosuke Fujisaki, Armonk, both of N.Y.; William David Modlin, Boca Raton, Fla., and Kenneth Steven Wenstrup, Blue Ash, Ohio, assignors to International Business Machines Corporation, Armonk, N.Y.

Continuation-in-part of Ser. No. 865,550, Apr. 9, 1992, abandoned. This application Mar. 28, 1994, Ser. No. 218,996

Int. Cl.⁶ G06K *9/00*

U.S. Cl. 382—187 **1 Claim**


OVERALL ERROR-CORRECTION CHART
20
TOP ANSWER
19a
CACHE
19b
PUNCTUATION FILTER
24
VERIFICATION
26
28
WORD PROCESSOR DICTIONARY
SHAPE MATCH SCORE
32
UNIFY CASE
30
ANSWER
31
GENERATE RANKED LIST OF VALID WORDS FROM CACHE
34
SPELL AID
36
FIRST CHARACTER REPLACEMENT
38
ASSIGN THREE TYPES OF SCORES
40
GET BEST HYPOTHESIS IN LIST
42
UNIFY CASE
44
REINSERT PUNCTUATION
46
ANSWER
48

1. A method of using a dictionary for on-line handwriting recognition, said method comprising the steps of:

inputting a handwritten word to be recognized;

providing a top answer word for recognition, where said top answer word is made up of a sequence of at least one character which is made up of a sequence of at least one segment;

providing a cache of ranked strokes derived from recognition of the handwritten word;

determining if the sequence of characters in the top answer word matches a word in the dictionary with the same spelling, and if so, providing the top answer word as an output word; and if not

calculating a shape match score for the characters of the top answer word;

determining if the shape match score for the worst character in the top answer word is better than a predetermined threshold, and if so, providing the top answer word as an output word; and if not

identifying a set of new candidate words from the dictionary, said set comprising words formed from all combinations of segments in the cache that produce recognizable characters;

calculating match scores for the new candidate words, each match score comprising the sum of shape match scores of characters in the new candidate words;

comparing the new match scores of the new candidate words and the top answer and providing the one having tue best score as an output word.

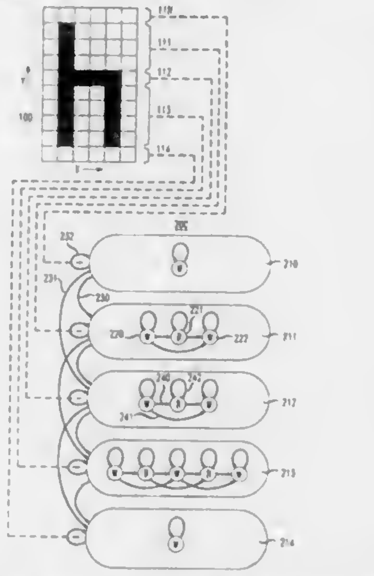
5,787,198
TEXT RECOGNITION USING TWO-DIMENSIONAL STOCHASTIC MODELS

Oscar Ernesto Agazzi, Florham Park, and Shyh-Shiaw Kuo, Berkeley Heights, both of N.J., assignors to Lucent Technologies Inc., Murray Hill, N.J.

Continuation of Ser. No. 981,028, Nov. 24, 1992, abandoned. This application Oct. 25, 1994, Ser. No. 329,047

Int. Cl.⁶ G06K *9/50;9/62*

U.S. Cl. 382—196 **17 Claims**



1. A method of using a computer to spot a keyword in a document, which comprises the steps of:

storing first signals representing a first pseudo two-dimensional hidden Markov model in said computer, said first pseudo two-dimensional hidden Markov model representing said keyword and including a one-dimensional hidden Markov model having at least one superstate associated with a first dimension of said keyword and, for each superstate, a one-dimensional hidden Markov model having at least one state associated with a second dimension of said keyword,

storing second signals representing a second pseudo two-dimensional hidden Markov model in said computer, said second pseudo two-dimensional hidden Markov model representing a plurality of extraneous words, other than said keyword, that may appear in said text and including a one-dimensional hidden Markov model having at least one superstate associated with a first dimension of said plurality of extraneous words and, for each superstate, a one dimensional hidden Markov model having at least one state associated with a second dimension of said plurality of extraneous words,

scanning said document to generate third signals representing a pixel map for each text word in said document, said pixel map having rows and columns of pixels,

for each text word:

responsive to said third signals, comparing the pixel map for said text word with said first pseudo two-dimensional hidden Markov model, by applying the Viterbi algorithm, to generate a first comparison signal indicating a first probability that said first pseudo two-dimensional hidden Markov model represents said text word,

also responsive to said third signals, comparing the pixel map for said text word with said second pseudo two-dimensional hidden Markov model, by applying the Viterbi algorithm, to generate a second comparison signal indicating a second probability that said second pseudo two-dimensional hidden Markov model represents said text word, and

responsive to said first and second comparison signals, generating an output signal identifying said text word as said keyword if said first probability is greater than said second probability.

5,787,199
APPARATUS FOR DETECTING A FOREGROUND REGION FOR USE IN A LOW BIT-RATE IMAGE SIGNAL ENCODER

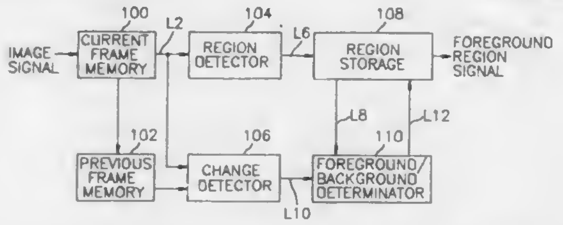
Min-Sup Lee, Seoul, Rep. of Korea, assignor to Daewoo Electronics, Co., Ltd., Seoul, Rep. of Korea

Filed Dec. 28, 1995, Ser. No. 580,235

Claims priority, application Rep. of Korea, Dec. 29, 1994, 94-38604

Int. Cl.⁶ G06K *9/46;9/52;9/48;9/68*

U.S. Cl. 382—203 **12 Claims**



1. An apparatus, for use in a low bit-rate image signal encoder, for detecting a foreground region in an image signal, wherein the image signal has a number of objects therein and the foreground region has at least one moving object therein, which comprises:

means for storing a previous frame of the image signal;

means for storing a current frame of the image signal;

means for comparing the current frame and the previous frame to detect changed pixels, each changed pixel having a differential luminance value;

means for detecting an object region occupied by one of the objects in the current frame;

means for counting the number of all of the pixels contained in the object region to determine a first size of the object region;

means for counting the number of changed pixels which are located in the object region to determine a second size of the object region; and

means for comparing the first size with the second size to determine whether the object region is the foreground region.

5,787,200
CHARACTER RECOGNITION COPROCESSOR

Pasquale Scelza, Genova Sestri Ponente; Giovanni Borghero, Novi Ligure; Fabio Caccia, Genova, and Riccardo Cecinati, Albissola, all of Italy, assignors to Finmeccanica S.P.A., Rome, Italy

Filed Sep. 29, 1995, Ser. No. 537,282

Claims priority, application Italy, Sep. 30, 1994, TO94A0774

Int. Cl.⁶ G06K *9/64;9/68;9/46;9/66;* **G06F** *15/00*

U.S. Cl. 382—217 **10 Claims**

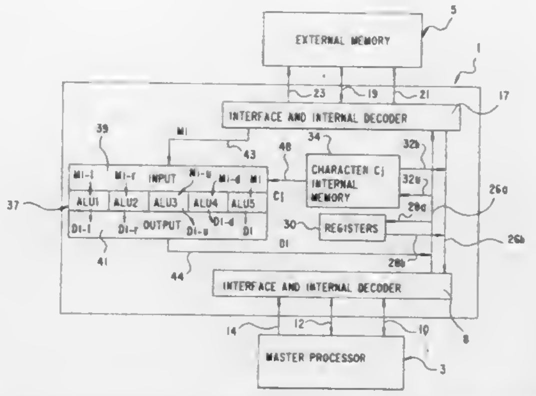
1. A SLAVE character recognition coprecessor connectable to a MASTER processor and cooperating with at least one external memory, said coprocessor comprising:

first interface and internal decoding means communicating with said processor;

second interface and internal decoding means communicating with said external memory;

at least one internal data line extending between said first interface means and said second interface means;

at least one internal memory communicating with said internal data line; and



an electronic arithmetic unit communicating at an input with said second interface means and with said internal memory, and communicating at an output with said MASTER processor;

said internal memory having at least one character comprising a rectangular binary matrix of pixels;

each character comprising a first type of pixel presenting a first binary value ("1") and corresponding to the stroke of a digitized alphanumeric character, and a second type of pixel presenting a second binary value ("0") and corresponding to the background of the alphanumeric character;

said external memory containing a number of reference masks, each comprising a rectangular binary matrix of pixels;

said number of masks defining a class of masks comparable with said character;

said electronic arithmetic unit comparing a character with at least one said masks, and calculating at least one distance representing the difference between the character and the mask.

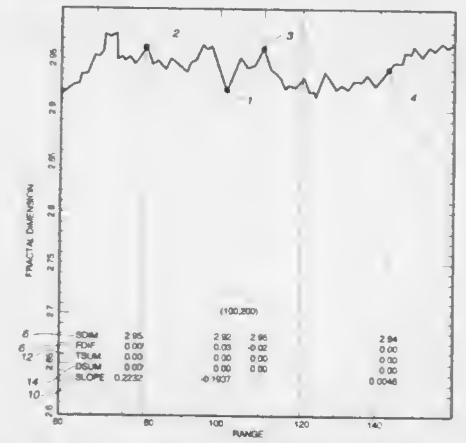
5,787,201
HIGH ORDER FRACTAL FEATURE EXTRACTION FOR CLASSIFICATION OF OBJECTS IN IMAGES

Susan R. Nelson, and Susan M. Tuovila, both of Panama City, Fla., assignors to The United States of America as represented by the Secretary of the Navy, Washington, D.C.

Filed Apr. 9, 1996, Ser. No. 629,709

Int. Cl.⁶ G06K *9/62;9/36;9/46*

U.S. Cl. 382—224 **35 Claims**



1. A method for discriminating objects such as targets from non-targets or background in a raw analog image which is preprocessed by being digitized and normalized and consisting of pixels, each of which having its intensity level valued between 0 and 255 where zero is black and 255 is white, and then subjected to a detector capable of identifying possible objects of interest based on appropriate characteristics such as size and brightness for further processing, and providing the x and y center coordinates of

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each such object in said image, said method having filenames, arrays, and parameters, and said method comprising the steps of:

(a) initializing all filenames, arrays, and parameters;

(b) inputting normalized image data of pixel intensities;

(c) entering input variables consisting of the sizes of a large fractal box, a small fractal box and predetermined threshold test levels;

(d) entering the x and y center coordinates of each object detected in said image in the fractal feature array;

(e) calculating Sdim, the small box fractal dimension, Bdim, the big box fractal dimension and Fdif, the magnitude of the dimensional differences of Bdim and Sdim for each detected object center; and

(f) subjecting said calculated fractal data for each detected object in each said image to classification thresholding where:

(1) minimum thresholds for object acceptance using a counter TARGET1; and

(2) thresholds for target classification using a counter TARGET.

5,787,202

CHARACTER RECOGNITION APPARATUS

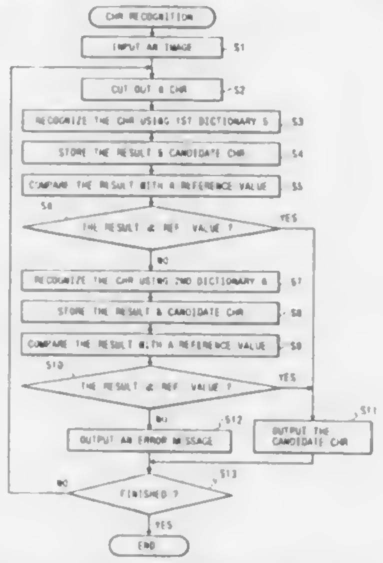
Shugoro Ueno, Tokyo, Japan, assignor to Canon Kabushiki Kaisha, Tokyo, Japan

Continuation of Ser. No. 844,862, Mar. 2, 1992, abandoned, which is a continuation of Ser. No. 544,949, Jun. 28, 1990, abandoned. This application Feb. 3, 1994, Ser. No. 191,158

Claims priority, application Japan, Jun. 29, 1989, 1-165289

Int. Cl.⁶ G06K *9/70*

U.S. Cl. 382—227 **55 Claims**


CHR RECOGNITION
INPUT AN IMAGE
S1
CUT OUT A CHR
S2
RECOGNIZE THE CHR USING 1ST DICTIONARY 5
S3
STORE THE RESULT & CANDIDATE CHR
S4
COMPARE THE RESULT WITH A REFERENCE VALUE
S5
S6
THE RESULT ≥ REF VALUE ?
YES
NO
RECOGNIZE THE CHR USING 2ND DICTIONARY 6
S7
STORE THE RESULT & CANDIDATE CHR
S8
COMPARE THE RESULT WITH A REFERENCE VALUE
S9
S10
THE RESULT ≥ REF VALUE ?
YES
NO
S12
OUTPUT AN ERROR MESSAGE
S11
OUTPUT THE CANDIDATE CHR
S13
NO
FINISHED ?
YES
END

1. A character recognition apparatus comprising:

at least first and second dictionary means each for storing a plurality of character patterns, the first dictionary means being different from the second dictionary means in that said first dictionary means stores character patterns used frequently and said second dictionary means stores character patterns used less frequently;

deriving means for deriving a plurality of candidate characters recognized with said first and second dictionary means;

comparison means for comparing the plurality of candidate characters derived by said deriving means with each other; and

output controlling means for controlling a character recognition output such that, when a result of a comparison made by said comparison means indicates that the plurality of candidate characters are the same, the same candidate character is output and such that, when a result of a comparison made by said comparison means indicates that the plurality of candidate characters are not the same, an error message is issued.

5,787,203

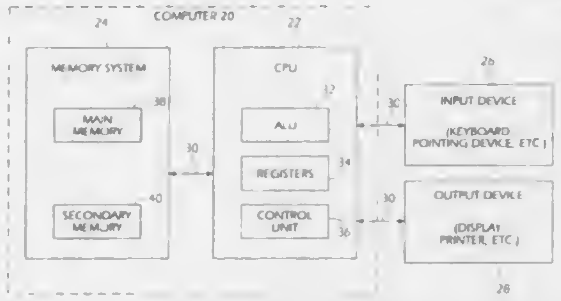
METHOD AND SYSTEM FOR FILTERING COMPRESSED VIDEO IMAGES

Ming-Chieh Lee, Bellevue, and Chuang Gu, Redmond, both of Wash., assignnrs to Microsoft Corporation, Redmond, Wash.

Filed Jan. 19, 1996, Ser. No. 588,056

Int. Cl.⁶ G06K *9/00*

U.S. Cl. 382—232 **14 Claims**



1. A video compression filtering method for a video compression error signal, the error signal including the differences between the representations of an actual and approximate video object, the method comprising:

applying a random noise filter to said video compression error signal to form a first filtered error signal with reduced random noise;

applying an impulse noise filter to said first filtered error signal to form a second filtered error signal with reduced high frequency impulse noise; and

using the second filtered error signal in a video compression encoding scheme.

5,787,204

IMAGE SIGNAL DECODING DEVICE CAPABLE OF REMOVING BLOCK DISTORTION WITH SIMPLE STRUCTURE

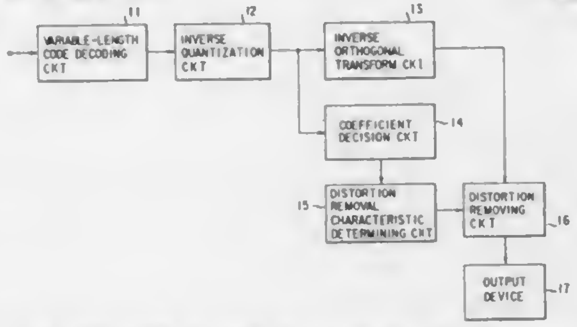
Hiroyuki Fukuda, Tokyo, Japan, assignor to Olympus Optical Co., Ltd., Tokyo, Japan

Continuation of Ser. No. 238,983, May 6, 1994, Pat. No. 5,625,714, which is a continuation of Ser. No. 813,798, Dec. 26, 1991, abandoned. This applicatinn Feh. 6, 1997, Ser. No. 796,534

Claims priority, application Japan, Jan. 10, 1991, 3-1497; Jan. 10, 1991, 3-1499; Mar. 19, 1991, 3-54935; Jul. 15, 1991, 3-173726

Int. Cl.⁶ G06K *9/36;9/46*

U.S. Cl. 382—233 **2 Claims**


11
VARIABLE-LENGTH CODE DECODING CKT
12
INVERSE QUANTIZATION CKT
13
INVERSE ORTHOGONAL TRANSFORM CKT
COEFFICIENT DECISION CKT
14
15
DISTORTION REMOVAL CHARACTERISTIC DETERMINING CKT
DISTORTION REMOVING CKT
16
OUTPUT DEVICE
17

1. An image signal decoding device for decoding supplied coded image data previously compressed by dividing into blocks and performing orthogonal transformation on the image data of each of the blocks and further quantizing frequency components obtained via said orthogonal transformation, said supplied image data in compressed form being decompressed through said decoding, comprising:

inverse quantization means for performing an inverse quantization on the compressed data supplied thereto and for recovering coefficients for said orthogonal transformation;

inverse orthogonal transforming means for performing inverse orthogonal transformation on the inverse-quantized data obtained via said inverse quantization means so as to obtain decompressed image data of decoded form and for producing decoded image data;

significant coefficients decision means for deciding whether or not transform coefficients respectively corresponding to the blocks are significant coefficients prior to said inverse quantization of transform coefficients of each block;

recognizing means for providing recognition of a state of distribution concerning said coefficients for said orthogonal transformation on the basis of the decision made by said significant coefficients decision means; and

distortion removing means for removing distortion included in said decompressed image data produced by said inverse orthogonal transforming means, thereby varying distortion removal characteristics on the basis of the recognition for said state of distribution concerning said coefficients as made via said recognizing means.

5,787,205

MOTION VECTOR DETECTING DEVICE

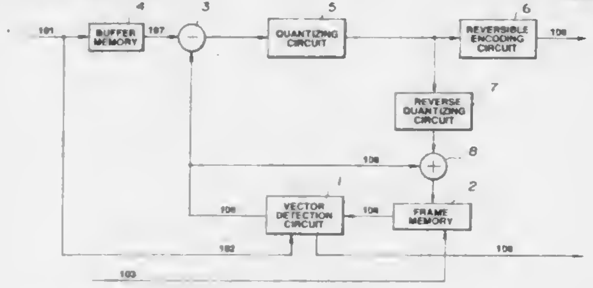
Yasuji Hirabayashi, Kawasaki, Japan, assignor to Canon Kabushiki Kaisha, Tokyo, Japan

Continuation of Ser. No. 527,813, Sep. 18, 1995, abandoned, which is a continuation of Ser. No. 128,119, Sep. 29, 1993, abandoned. This application Sep. 18, 1997, Ser. No. 933,501

Claims priority, application Japan, Oct. 7, 1992, 4-268709

Int. Cl.⁶ G06K *9/36*

U.S. Cl. 382—236 **22 Claims**



1. A motion vector detecting device comprising:

input means for sequentially inputting a plurality of images, each image being divided into blocks comprised of a plurality of pixels;

predicting means for predicting a motion vector for a subject block in a current image based on a registered vector in a previous image;

detecting means for detecting a motion vector for the subject block by searching for a block similar to the subject block among selected blocks in the previous image, the selected blocks being only in a first area of the previous image which extends out from a position corresponding to the subject block in the previous image, the first area corresponding to a still area of the previous image, and in a second area of the previous image which extends out from a position indicated by the registered vector, the second area corresponding to a motion area of the previous image.

5,787,206

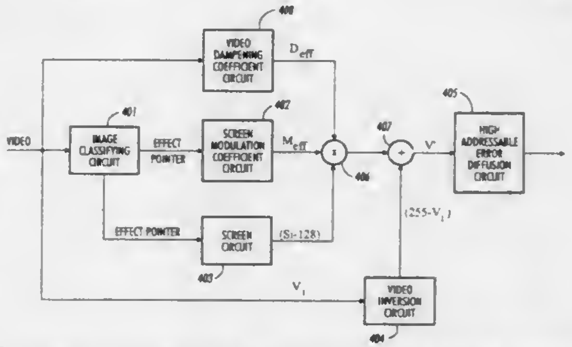
METHOD AND SYSTEM FOR PROCESSING IMAGE INFORMATION USING EXPANDED DYNAMIC SCREENING AND ERROR DIFFUSION

Leon C. Williams, Walworth; Jeng-Nan Shiau, Webster, and David J. Metcalfe, Marion, all of N.Y., assignors to Xerox Corporation, Stamford, Conn.

Filed May 30, 1996, Ser. No. 655,422

Int. Cl.⁶ H04N *1/405*

U.S. Cl. 382—237 **17 Claims**


408
VIDEO DAMPENING COEFFICIENT CIRCUIT
D_eff
401
VIDEO
IMAGE CLASSIFYING CIRCUIT
EFFECT POINTER
402
SCREEN MODULATION COEFFICIENT CIRCUIT
M_eff
406
407
V'
405
HIGH ADDRESSABLE ERROR DIFFUSION CIRCUIT
EFFECT POINTER
SCREEN CIRCUIT
(Si-128)
403
(255-V_i)
V_i
VIDEO INVERSION CIRCUIT
404

7. A system for reducing a number of levels in a multi-level grey scale pixel value representing a pixel and diffusing an error generated from reducing the number of levels, comprising;

input means for receiving the multi-level grey scale pixel value, the multi-level grey scale pixel value;

screening means for generating a screened multi-level grey scale pixel value equal to $(G_L-V_i)+(S_i-Th)$ wherein G_L is the maximum grey level value of the pixel, V_i is equal to the multi-level grey scale pixel value of the first resolution, S_i is equal to a screen value corresponding to a position of the pixel, and Th is the threshold value;

means for reducing the number of levels in the screened multi-level grey scale pixel value;

error means for generating an error value as a result of the reduction by said means; and

error diffusing means for diffusing the error value to multi-level grey scale pixel values of adjacent pixels.

16. A system for screening a multi-level grey scale pixel value, comprising:

receiving means for receiving a multi-level grey scale pixel value representing a pixel having a first resolution;

screening means for generating a screened multi-level grey scale pixel value equal to $(G_L-V_i)+ (S_i-Th)$ wherein G_L is the maximum grey level value of the pixel, V_i is equal to the multi-level grey scale pixel value of the first resolution, S_i is equal to a screen value corresponding to a position of the pixel, and Th is the threshold value;

interpolation means for converting the screened multi-level grey scale pixel value to a second resolution, the second resolution being higher than the first resolution; and

binarization means for binarizing the converted multi-level grey scale pixel value so as to output a binary signal and an error value, the error value having a resolution equal to the first resolution.

5,787,207

METHOD AND APPARATUS FOR MINIMIZING BLOCKINESS IN RECONSTRUCTED IMAGES

Stuart J. Golin, 626 Dutch Neck Rd., East Windsor, N.J. 08520

Continuation of Ser. No. 134,469, Oct. 12, 1993, abandoned, which is a continuation of Ser. No. 815,638, Dec. 30, 1991, abandoned. This application Jan. 5, 1996, Ser. No. 583,537

Int. Cl.⁶ G06K *9/40*

U.S. Cl. 382—254 **10 Claims**

1. A method for forming an output digital video signal representative of at least one filtered image from an input digital video signal representative of at least one predicted image, said predicted

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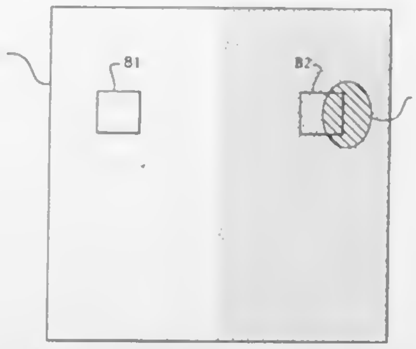


image having first and second blocks, said first and second blocks sharing a common border, the method comprising the steps of:

(a) determining with a decoder prediction information representative of how said first and second blocks were predicted;

(b) determining with the decoder in accordance with said prediction information whether a discontinuity due to differences in how said first and second blocks were predicted exists at said border;

(c) forming with the decoder a filtered image by filtering said first and second blocks in the vicinity of said border if and only if a discontinuity exists at said border; and

(d) forming with the decoder said output digital video signal from said filtered image.

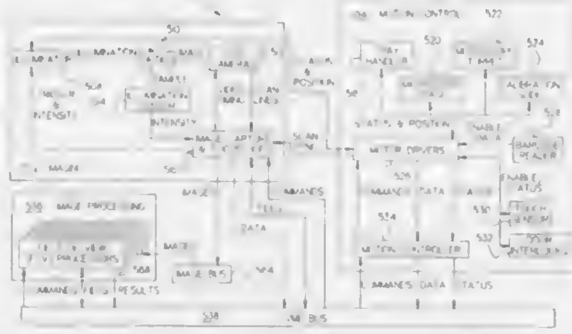
5,787,208
IMAGE ENHANCEMENT METHOD AND APPARATUS

Seho Oh, Mukilteo; Shih-Jong J. Lee, Bellevue; Michael J. Seo, Kirkland; Chih-Chau L. Kuan, Redmond, and Florence W. Patten, Issaquah, all of Wash., assignors to NeoPath, Inc., Redmond, Wash.

Filed Jun. 7, 1995, Ser. No. 472,389

Int. Cl.^{6} G06K *9/40;9/00*

U.S. Cl. 382—257 **27 Claims**



1. An image enhancement method for an optical system for a biological specimen screener comprising the steps of:

(a) obtaining an original image of a biological specimen;

(b) providing a digital representation comprising more than two pixel values wherein the digital representation is representative of said original image;

(c) dilating said digital representation to produce a dilated image;

(d) eroding said digital representation to provide an eroded image; and

(e) processing said dilated image, said eroded image and said digital representation to produce an enhanced image according to

$$I_{enh}=\mu_D I_D+\mu_E I_E+\mu_O I_O$$

where I_O comprises an original image pixel value, I_E comprises an eroded image pixel value, I_D comprises a dilated image pixel value, and I_{enh} comprises an enhanced image pixel value and wherein μ_O, μ_E and μ_D comprise membership values for each pixel of the digital representation and are related according to

$$\mu_D=\begin{cases} f(t); & t>0 \\ 0; & \text{otherwise,} \end{cases}$$

$$\mu_E=\begin{cases} f(-t); & t<0 \\ 0; & \text{otherwise,} \end{cases}$$

$$\mu_O=1-\mu_E-\mu_D$$

where f(t) is a predetermined monotonic increasing function and wherein

$$t=\frac{2I_O-I_D-I_E}{I_D-I_E}$$

and t=0 when $I_D=I_E$.

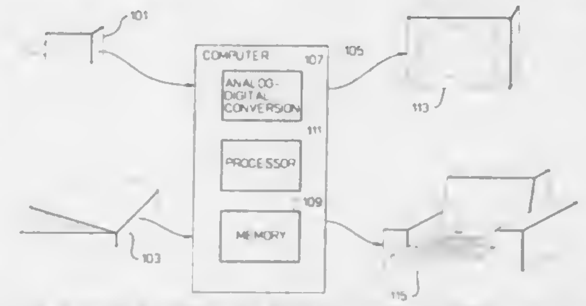
5,787,209
METHOD OF FILTERING IMAGES USING IMAGE COMPRESSIBILITY TO DETERMINE THRESHOLD PARAMETER

Kontantinos Konstantinides, San Jose; Balas K. Natarajan, Los Gatos, and Gregory S. Yovanof, Sunnyvale, all of Calif., assignors to Hewlett-Packard Company, Palo Alto, Calif.

Filed Feb. 5, 1996, Ser. No. 596,800

Int. Cl.^{6} H04B *1/66*

U.S. Cl. 382—260 **9 Claims**



1. A method of operating a digital processor to filter noise from an image, the method comprising the steps of:

(a) storing an image in the digital processor;

(b) determining compressibility values of the stored image corresponding with various possible values of a threshold parameter;

(c) selecting an optimum threshold parameter value according to the compressibility values; and

(d) filtering the image using the selected threshold parameter value,

wherein step (b) comprises: dividing the image into a plurality of subimages; selecting one of the subimages; and repeatedly applying a Singular Value Decomposition transform to the selected subimage using a different threshold parameter value during each such application.

5,787,210
POST-PROCESSING METHOD FOR USE IN AN IMAGE SIGNAL DECODING SYSTEM

Sang-Ho Kim, Seoul, Rep. of Korea, assignor to Daewood Electronics, Co., Ltd., Seoul, Rep. of Korea

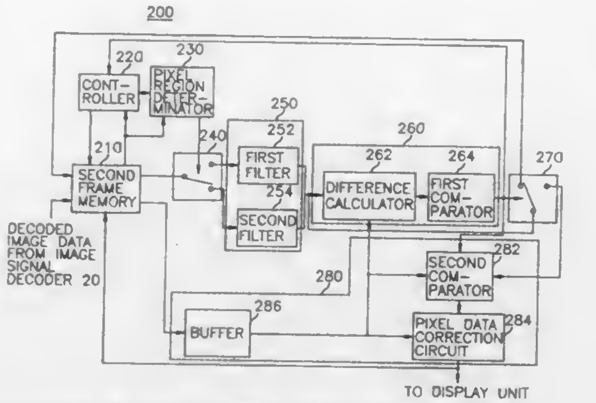
Filed Sep. 22, 1995, Ser. No. 532,035

Claims priority, application Rep. of Korea, Oct. 31, 1994, 94-28268

Int. Cl.^{6} G06K *9/03;9/00;* **H04N** *17/02;11/04*

U.S. Cl. 382—309 **4 Claims**

1. A method, for use in an image signal decoding system, for post-processing decoded image data of a current frame on a pixel-by-pixel basis, wherein the decoded image data is provided on a block-by-block basis from an image signal decoder incorporated in the image signal decoding system, comprising the steps of:



(a) storing the decoded image data of the current frame;

(b) assigning each pixel value included in the stored decoded image data as a target pixel value in sequence, said target pixel value representing the value of a target pixel to be filtered, and producing position information representing the position of the target pixel;

(c) generating a selection signal indicating whether or not the target pixel belongs to a boundary region of a block of the stored decoded image data by using the position information of the target pixel, wherein the boundary region denotes a region which includes pixels placed along the boundary of the block;

(d) selectively filtering the target pixel value in response to the selection signal to thereby produce a filtered target pixel value;

(e) calculating an absolute difference value between an original target pixel value and the filtered target pixel value, the original target pixel value representing a non-filtered target pixel value included in the decoded image data;

(f) updating the stored target pixel value with the filtered target pixel value if the absolute difference value is smaller than a predetermined threshold value;

(g) repeating said steps (b) to (f) for N times as long as the absolute difference value is smaller than the predetermined threshold value and updating the stored target pixel value with a compensated target pixel value if the absolute difference value is equal to or larger than the predetermined threshold value, wherein the compensated target pixel value is provided by adding up the original target pixel value and the predetermined threshold value if the original target pixel value is smaller than the filtered target pixel value and by subtracting the predetermined threshold value from the original target pixel value if the original target pixel value is greater than the filtered target pixel value; and

(h) repeating said steps (b) to (g) for a next target pixel until all the pixels in the current frame are post-processed.

5,787,211
OPTICAL MODULATOR FOR CATV SYSTEMS

Ganesh K. Gopalakrishnan, Huntingdon Valley, Pa., assignor to General Instrument Corporation of Delaware, Chicago, Ill.

Filed Apr. 3, 1996, Ser. No. 624,045

Int. Cl.^{6} G02F *1/035*

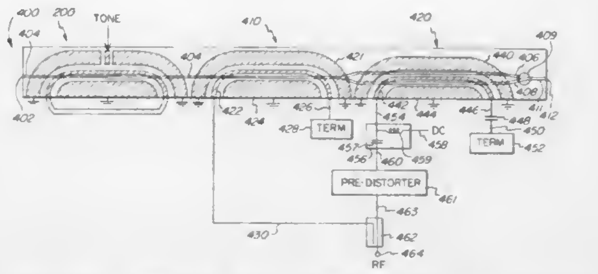
U.S. Cl. 385—2 **19 Claims**

1. An external electro-optic modulator, comprising:

a first electrode;

means for coupling a radio-frequency (RF) signal to said first electrode;

a ground electrode operatively associated with said first electrode for providing an electromagnetic field corresponding to said RF signal to an optical signal in a waveguide of said modulator; and



electrically conductive ring resonator including a portion disposed within said electromagnetic field, wherein said ring resonator resonates in response to said electromagnetic field.

5,787,212
OPTICAL COUPLER SENSOR WITH MOVABLE OPTICAL WAVEGUIDE

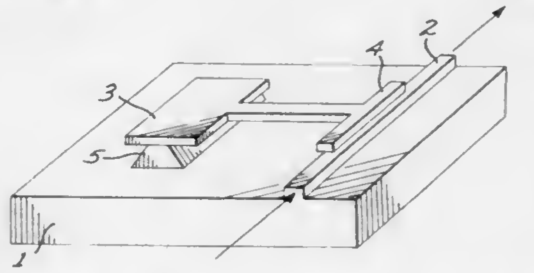
Song-Cheol Hong, and Doo-Young Ha, both of Taejon, Rep. of Korea, assignors to Korea Advanced Institute of Science and Technology, Taejon, Rep. of Korea

Filed Jun. 28, 1996, Ser. No. 669,789

Claims priority, application Rep. of Korea, Jun. 28, 1995, 95-17827

Int. Cl.^{6} G02B *6/00*

U.S. Cl. 385—13 **8 Claims**



1. A process for fabrication of the optical coupler sensor which comprises the steps of:

(i) formation of a core layer on the cladding layer on which a substrate is formed;

(ii) formation of a fixed optical waveguide by etching of the core layer;

(iii) formation of a support layer on the core layer;

(iv) formation of a cantilever and a movable optical waveguide linked thereto on the support layer; and,

(v) formation of a cantilever support board by selective etching of the support layer.

5,787,213
METHOD AND APPARATUS FOR WRITING BRAGG GRATINGS ON STRAINED OPTICAL FIBERS

Darryl Leneir Brownlow, Bridgewater, N.J., assignor to Lucent Technologies, Murray Hill, N.J.

Filed Jul. 3, 1996, Ser. No. 675,027

Int. Cl.^{6} G02B *6/26*

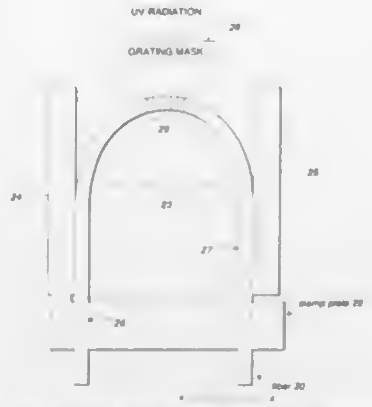
U.S. Cl. 385—37 **8 Claims**

1. A method for writing a Bragg grating in an optical fiber comprising the steps of:

providing a length of photosensitive optical fiber;

bending said fiber by securing a first region of said fiber against lateral movement and moving a planar surface against a second region of said fiber toward said first region, producing a bent region between said first and second region subject to at least 6% strain;

VOL 1212 ISS 4 JL 28 1998 UMI



writing said Bragg grating on said bent region by exposing said region to a pattern of ultraviolet light; and

relaxing said fiber.

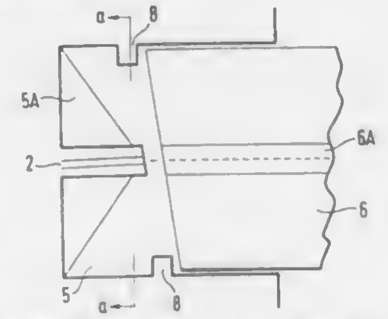
5,787,214
CONNECTION BETWEEN AN INTEGRATED OPTICAL WAVEGUIDE AND AN OPTICAL FIBRE

Arnold Peter Roscoe Harpin, Oxford; Andrew George Rickman, Marlborough; Robin Jeremy Richard Morris, Oxford, and John Paul Drake, Oxon, all of United Kingdom, assignors to Bookham Technology Ltd., United Kingdom

Filed May 6, 1996, Ser. No. 643,476

Int. Cl.⁶ G02B *6/30*

U.S. Cl. 385—49 **26 Claims**



1. A connection between an integrated optical waveguide and an optical fibre, the integrated optical waveguide comprising a layer of silicon in which a rib waveguide is formed separated from a substrate by a layer of silicon dioxide, a V-groove being formed in the substrate for receiving an optical fibre and arranged so as to align the optical fibre at a predetermined angle to the waveguide, the rib waveguide and underlying layer of silicon dioxide being formed so as to overhang the end of the V-groove so the end of the waveguide is in close proximity with the end of an optical fibre positioned in the V-groove.

5,787,215
LINEAR PD/LD MODULE, LINEAR PD/LED MODULE, LINEAR LD/PD MODULE, LINEAR LED/PD MODULE AND LINEAR PD MODULE

Yoshiki Kuhara; Naoyuki Yamabayashi; Yasuhiro Iguchi; Yasushi Fujimura, and Hiromi Nakanishi, all of Osaka, Japan, assignors to Sumitomo Electric Industries, Ltd., Osaka-Fu, Japan

Filed Nov. 13, 1996, Ser. No. 748,623

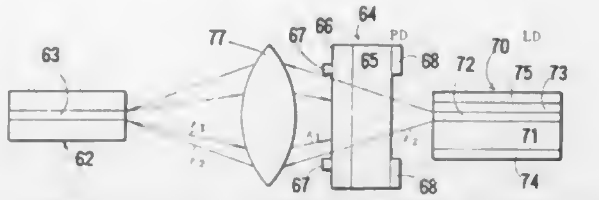
Claims priority, application Japan, Nov. 13, 1995, 7-319705; Jan. 9, 1996, 8-019350

Int. Cl.⁶ G02B *6/36;* H01S *3/18;* H04J *14/02*

U.S. Cl. 385—88 **35 Claims**

1. A linear PD/LD module comprising:

(n−1) eigen-wavelength photodiodes PD1, PD2, PD3, . . . PDn−1 with isolated, narrow sensitivity ranges at eigen wavelengths $\lambda 1, \lambda 2, \lambda 3, \ldots,$ and $\lambda n-1$ satisfying inequalities of $\lambda 1<\lambda 2<\lambda 3< \ldots <\lambda n-1$ and:



a laser diode emitting λn which is longer than $\lambda n-1$;

wherein the j-th photodiode ($j=1,2,3, \ldots ,n-1$) has a substrate, a light receiving layer, a window layer, an annular electrode with aperture on a top surface and another annular electrode with an aperture on a bottom surface for allowing light to pass from the top aperture to the bottom aperture or from the bottom aperture to the top aperture, the first photodiode PD1 has a window layer of an edge wavelength of $\lambda w1$ and a light receiving layer of an edge wavelength of $\lambda z1$ which satisfy inequalities $\lambda w1<\lambda 1<\lambda z1<\lambda 2$, the j-th photodiode PDj has a window layer of an edge wavelength of λwj and a light receiving layer of an edge wavelength of λzj which satisfy inequalities $\lambda j-1<\lambda w1<\lambda j<\lambda zi1<\lambda j+1$($j=2, 3, \ldots ,n-1$), the j-th photodiode absorbs and senses only λj light but allows the other light of a wavelength longer than λj to pass, the (n−1) photodiodes PD1, PD2, PD3, . . . , PDn−1 and the laser are aligned in series in the order of increasing the eigen wavelengths $\lambda 1<\lambda 2<\lambda 3< \ldots <\lambda n$ on a straight line as PD1+PD2+PD3+ . . . +PDn−1+LD, the λn light emitted from the laser passes all the preceding photodiodes PD1, PD2, PD3, . . . , PDn−1 and the λj light in the $\lambda 1+\lambda 2+\lambda 3+ \ldots +\lambda n-1$ light emitted from an optical fiber is absorbed and sensed by the PDj.

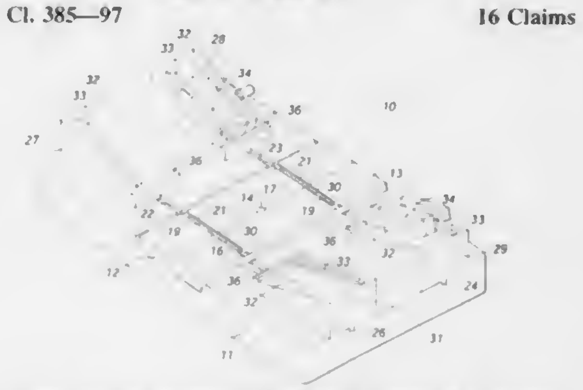
5,787,216
FIBER SPLICING ASSEMBLY

Chester L. Bice, Powder Springs; Norvel R. Branham, Stone Mountain, and Andrew Lewis Ingles, Alpharetta, all of Ga., assignors to Lucent Technologies Inc., Murry Hill, N.J.

Filed Feb. 3, 1997, Ser. No. 794,720

Int. Cl.⁶ G02B *6/255*

U.S. Cl. 385—97 **16 Claims**



1. A fiber splicing assembly comprising a planar base member;

a substantially planar plate member mounted on said base member, said base member having at least one transversely extending groove therein;

first and second fiber guiding rods located within said groove in side-by-side relationship and forming a substantially V-shaped channel therebetween;

a first ramp member mounted on said base member on one side of said plate member having a sloped surface sloping toward said plate member, said surface having a guide member thereon for aligning a fiber in a fiber holder with said V-shaped channel between said fiber guiding rods; and

stop means on said surface of said first ramp member for limiting the length of a fiber introduced into said V-shaped channel.

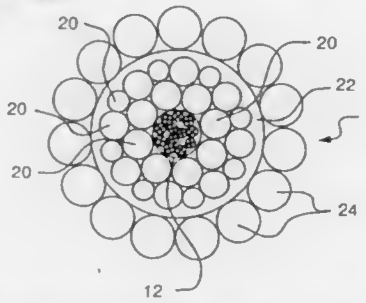
5,787,217
FIBER OPTIC GROUND WIRE CABLE

Richard T. Traut, Madbury, and Gregory N. Fontaine, Rye, both of N.H., assignors to Simplex Technologies, Inc., Newington, N.H.

Filed Feb. 15, 1996, Ser. No. 601,677

Int. Cl.⁶ G02B *6/44*

U.S. Cl. 385—106 **34 Claims**



1. A high strength waterproof fiber optic cable assembly comprising a core structure comprising a plurality of fiber optic mini-bundles, each consisting of a plurality of optical fibers bonded together in a first curable material, said plurality of fiber optic mini-bundles being bonded together as a unitary structure by a second curable material, high-tension metal strength members surrounding said core structure, and a metal tube surrounding and hermetically sealing said high-tension metal strength member.

5,787,218
LIQUID CURABLE URETHANE (METH)ACRYLATE CONTAINING RESIN COMPOSITION

Tohru Ohtaka, Kawasaki; Yuichi Hashiguchi, Yokohama; Mitsuhito Suwa, Yokkaichi, and Katsutoshi Igarashi, Yokohama, all of Japan, assignors to DSM NV, Heerlen, Netherlands

Filed Aug. 10, 1995, Ser. No. 513,231

Int. Cl.⁶ C08F *2/50;* C08G *18/32;* G02B *6/02;6/14*

U.S. Cl. 385—123 **15 Claims**

1. A liquid curable resin composition containing urethane bonds at a concentration of 2.0×10^{-3} mole/gm of resin composition or more and comprising:

(a) a urethane (meth)acrylate having at least three cyclic structures in the molecule, wherein said urethane (meth)acrylate is derived from at least one polyol selected from the group consisting of alkyleneoxide-addition diols of bisphenol-A, alkyleneoxide-addition diols of bisphenol-F, alkyleneoxide-addition diols of hydrogenated bisphenol-A, alkyleneoxide-addition diols of bisphenol-F, alkyleneoxide-addition diols of hydroquinone, alkyleneoxide-addition diols of naphthohydroquinone, alkyleneoxide-addition diols of anthrahydroquinone, tricyclodecanediol, tricyclodecanedimethanol, pentacyclodecanediol and pentacyclodecanedimethanol;

(b) a polymerizable mono-functional vinyl monomer of which the homopolymer thereof has a glass transition point of 50° C. or more; and

(c) a polymerization initiator,

wherein the resin, when cured, has a Young's modulus of greater than 150 kg/mm^2.

5,787,219
CABLE CLOSURE

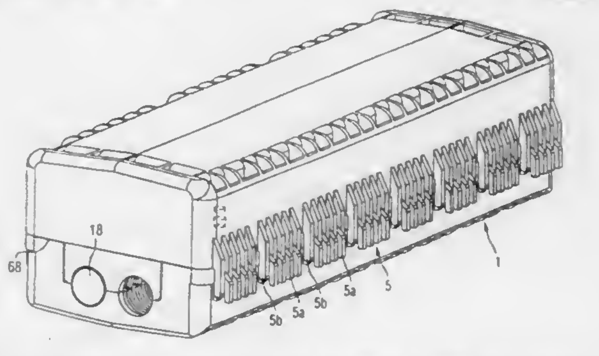
Thorsten Mueller, Menden, Germany; Andreas Guenther, Fort Worth, Tex., and Rainer Zimmer, Schalksmuehle, Germany, assignors to Siemens Aktiengesellschaft, Munich, Germany

Filed Mar. 19, 1997, Ser. No. 822,608

Claims priority, application Germany, Mar. 20, 1996, 196 11 020.3

Int. Cl.⁶ G02B *6/38*

U.S. Cl. 385—134 **27 Claims**



1. In a cable closure for receiving splices of a cable, said closure having a lower shell and a cover, at least one end face of the lower shell having a fixed part and a removable sealing, with cable lead-in openings being arranged in a separating plane between the fixed part and the sealing element, the improvements comprising the fixed part of the end face being formed by a plurality of rigid lamellae lying one behind the other in the axial direction of the cable lead-ins, the outermost and innermost lamellae forming a chamber for receiving a portion of the sealing element, said sealing element having lamellae facing the cable lead-in plane and corresponding to the lamellae of the lower shell, the sealing element being fixed in a recess of the fixed part of the end face in such a way that, after placing the sealing material in the separating plane between the fixed part and the sealing element, a peripherally stepless sealing plane is formed with respect to the cover, a receiving chamber for fixed cable-clamping means being arranged in the interior of the cable closure adjoining the fixed part of the lower shell, the cover being connected to the lower shell by means forming a hinge along one side of the cover and shell and fastening elements being arranged on an opposite side of the cover and shell.

5,787,220

Patent Not Issued For This Number

5,787,221
DIGITAL SIGNAL RECORDING APPARATUS

Chiyoko Matsumi, Suita; Tatsuro Juri, Osaka; Akira Iketani, Higashiosaka; Makoto Goto; Susumu Yamaguchi, both of Nishinomiya; Hideki Otaka, Neyagawa; Shigeru Awamoto, Osaka; Masakazu Nishino, Kashiwara; Takao Kashiro, Kadoma, and Tadashi Ono, Kyoto, all of Japan, assignors to Matsushita Electric Industrial Co., Ltd., Osaka, Japan

Division of Ser. No. 708,703, Sep. 5, 1996, which is a division of Ser. No. 532,424, Sep. 22, 1995. This application Apr. 29, 1997, Ser. No. 850,263

Claims priority, application Japan, Sep. 26, 1994, 6-229544; Sep. 28, 1994, 6233828; Oct. 7, 1994, 6-242810; Dec. 8, 1994, 6-304639; Apr. 7, 1995, 7-82247; May 22, 1995, 7-148231

Int. Cl.⁶ H04N *5/782;5/92*

U.S. Cl. 386—33 **3 Claims**

1. A digital signal recording apparatus for recording a video signal on a recording medium, in a case where a number of horizontal effective pixels of the video signal is not N (an integer) times as large as a number of horizontal pixels of a macro block, or in a case where a number of vertical effective pixels of the video

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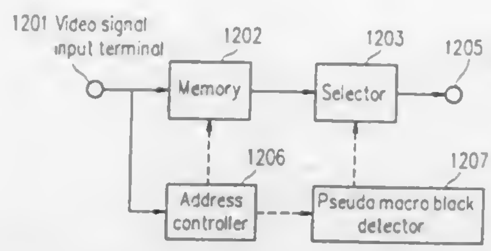


signal is not N times as large as a number of vertical pixels of the macro block, comprising:

a dividing means for dividing the video signal into a plurality of macro blocks;

a judging means for judging whether each of the plurality of macro blocks corresponds to an extra portion of the horizontal effective pixels or an extra portion of the vertical effective pixels;

a generating means for generating a pseudo macro block having a predetermined pixel value;

a selection means for selecting one of the macro block divided by the dividing means and the pseudo macro block generated by the generating means based on a result obtained by the judging means;

a coding means for coding the macro block selected by the selection means; and

a recording means for recording the video signal coded by the coding means on the recording medium.

5,787,222
INFORMATION RECORDING APPARATUS AND INFORMATION REPRODUCING APPARATUS

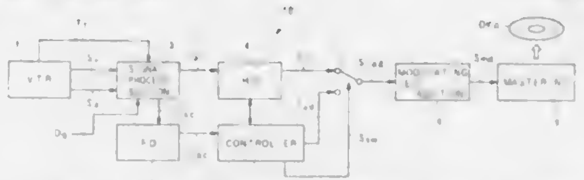
Akihiro Tozaki, Tsurugashima; Hiroshi Nakamura, and Junichi Yoshio, both of Tokorozawa, all of Japan, assignors to Pioneer Electronic Corporation, Tokyo-to, Japan

Filed Jul. 9, 1996, Ser. No. 677,196

Claims priority, application Japan, Jul. 10, 1995, 7-173795

Int. Cl.^{6} H04N *5/91;5/93*

U.S. Cl. 386—46 **12 Claims**



1. An apparatus for recording information onto a recording medium to be reproduced by a reproducing apparatus able to perform an interactive reproduction, comprising:

a process means for dividing the recorded information into a plurality of partial recorded information, each of which is a discrete segment able to be selectively accessed by said reproducing apparatus in the interactive reproduction, on the basis of material content information, which indicates a material content of the recorded information and is provided externally;

a controller for generating reproduction control information to control said reproducing apparatus to reproduce the plurality of partial record information in a predetermined order, which is set in advance or which is based on a condition given to said reproducing apparatus from the external at a time of the interactive reproduction, by selectively accessing a respective one of the plurality of partial recorded information according to the reproduction information; and

a recording means for recording the plurality of partial recorded information and the reproduction control information onto the recording medium,

wherein said controller generates the reproduction control information comprising branch destination information for specifying at least one second partial recorded information to be branched from a first partial record information, and

wherein the branch destination information comprises branch timing information for said reproducing apparatus to judge, in a case that a branch command is given to said reproducing apparatus from the external, whether the branch command causes said reproducing apparatus to immediately branch into the partial recorded information at a branch destination or to branch into the partial recorded information at the branch destination after finishing the reproduction of the partial recorded information presently reproduced at a timing when the branch command is given.

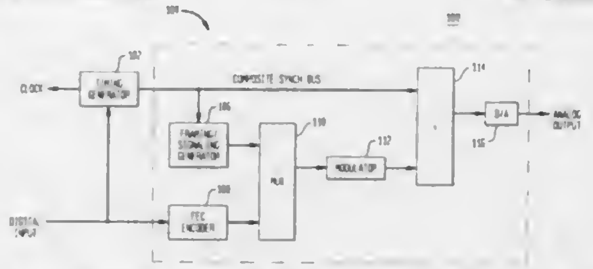
5,787,223
STORAGE OF DIGITAL DATA AS ANALOG SIGNALS

Alireza Farid Faryar, Fair Haven; Kim Nigel Matthews, Watchung, and George John Kustka, Marlboro, all of N.J., assignors to Lucent Technologies Inc., Murray Hill, N.J.

Filed Sep. 17, 1996, Ser. No. 719,290

Int. Cl.^{6} H04N *5/91;5/911*

U.S. Cl. 386—46 **44 Claims**



1. An apparatus for converting a digital input stream into an analog output signal, comprising:

(a) a timing generator;

(b) a modulator;

(c) a composite stream generator; and

(d) a digital-to-analog (D/A) converter, wherein:

the timing generator is capable of generating timing signals comprising vertical and horizontal synchronization signals that are independent of content of the digital input stream, wherein the synchronization signals ensure that the analog output signal has temporal characteristics of a television signal;

the modulator is capable of modulating the digital input stream to generate a modulated digital stream, wherein the modulator ensures that the analog output signal has spectral characteristics of a television signal;

the composite stream generator is capable of generating a composite digital stream from the timing signals and the modulated digital stream; and

the D/A converter is capable of converting the composite digital stream into the analog output signal, wherein the analog output signal has the temporal and spectral characteristics of a television signal capable of being input to a video cassette recorder for recording the analog output signal onto a video cassette tape.

5,787,224
DEVICE FOR AND METHOD OF EDITING INFORMATION

Naoto Itoh, and Minemasa Ohta, both of Yamanashi-ken, Japan, assignors to Pioneer Electronic Corporation, Tokyo-to, and Pioneer Video Corporation, Yamanashi-ken, both of Japan

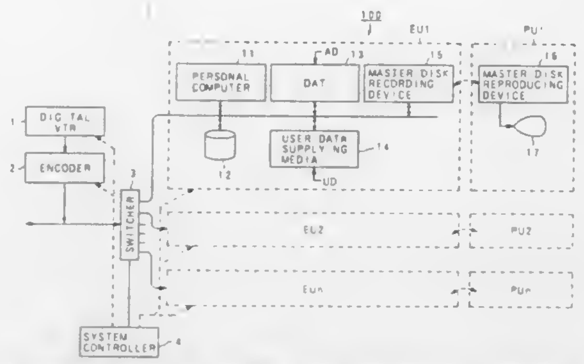
Filed Mar. 8, 1996, Ser. No. 613,033

Claims priority, application Japan, Mar. 13, 1995, 7-052975

Int. Cl.^{6} H04N *5/93;* G11B *27/00*

U.S. Cl. 386—52 **7 Claims**

1. A device for editing information for use in a pre-mastering of an optical disc, said device comprising:



a singular means for encoding and compressing a plurality of unit information each having a predetermined length and outputting the unit information at a first rate;

a plurality of means for processing the unit information thus outputted in a parallel manner with each other at a second rate different from the first rate, respectively and further comprising a plurality of means to perform a process of mastering the optical disc;

means for selectively supplying the unit information outputted by said outputting means to one of the processing means; and

means for detecting the processing means which is not performing the processing and permitting the supplying means to supply a new unit information to the processing means thus detected when said outputting means outputs the new unit information.

5,787,225
OPTICAL DISK APPARATUS FOR THE REPRODUCTION OF COMPRESSED DATA

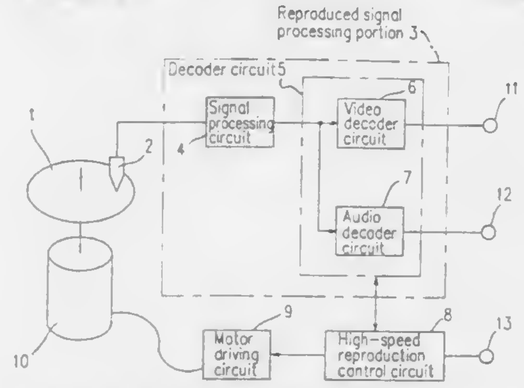
Masahiro Honjo, Sakai, Japan, assignor to Matsushita Electric Industrial Co., Ltd., Osaka, Japan

Filed Mar. 29, 1994, Ser. No. 219,615

Claims priority, application Japan, Mar. 29, 1993, 5-069606

Int. Cl.^{6} H04N *5/783*

U.S. Cl. 386—105 **4 Claims**


Reproduced signal processing portion 3
Decoder circuit 5
1
2
4
Signal processing circuit
6
Video decoder circuit
11
7
Audio decoder circuit
12
10
9
Motor driving circuit
8
High-speed reproduction control circuit
13

1. An optical disk apparatus comprising:

signal processing means for reading video data and audio data from an optical disk and for generating a video data signal and an audio data signal in accordance with the read-out video data and audio data;

video decoder means for receiving the video data signal from the signal processing means and for decoding the received video data signal to generate a reproduced video signal;

control means for generating a high-speed reproduction control signal for switching from a normal reproduction to a high-speed reproduction; and

audio decoder means for generating a reproduced audio signal based on the audio data signal from the signal processing means, wherein when the high-speed reproduction control signal is received from the control means, the audio decoder means demodulates only part of the audio data signal generated in a first period, and does not demodulate part of the audio data signal generated in a second period succeeding the first period, so as to output only the demodulated part generated in the first period as the reproduced audio signal, and in the normal reproduction, the audio decoder means decodes all of the audio data signal, so as to output the decoded audio data signal as the reproduced audio signal, the first period and the second period being alternately repeated,

wherein the video decoder means includes means for, when the high-speed reproduction control signal is received from the control means, outputting video signals decoded from only the intra-coded video data and forward predictive coded video data among the intra-coded video data, forward predictive coded video data and bidirectionally predictive-coded video data contained in the received video data signal as the reproduced video signal.

5,787,226
RADIO-INTEGRATED VIDEO TAPE RECORDER (VTR)

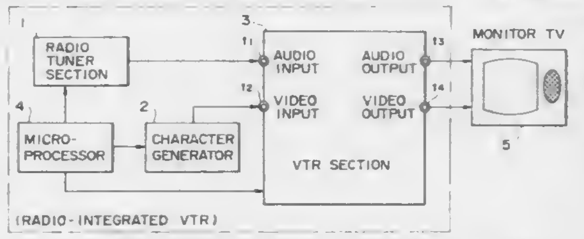
Chieko Miyake, Chiba; Tadashi Kurita, and Yoshihiro Ohta, both of Kanagawa, all of Japan, assignors to Sony Corporation, Tokyo, Japan

Filed Dec. 18, 1995, Ser. No. 573,995

Claims priority, application Japan, Dec. 21, 1994, 6-317419

Int. Cl.^{6} H04N *5/76*

U.S. Cl. 386—83 **6 Claims**



1. A radio-integrated video tape recorder (VTR) comprising:

a radio tuner section for receiving radio broadcast programs and for outputting an audio signal corresponding to a selected one of said radio broadcast programs in a radio broadcast program recording mode;

a character generator for producing a video signal;

a VTR section operative, in said radio broadcast program recording mode, for recording said audio signal output by said radio tuner section and said video signal from said character generator in related portions of a recording tape, said VTR section being further operative, in a playback mode, for substantially simultaneously reproducing said audio and video signals recorded in said related portions of the tape; and

a microprocessor for controlling said radio tuner section, character generator and VTR section and being operative, in said radio broadcast program recording mode, to provide situation data to said character generator which determines said video signal recorded by said VTR section and which includes time data and receiving data identifying said one of the radio broadcast programs to which said audio signal recorded in said related portion of the recording tape corresponds so that, in said playback mode, said video signal being reproduced from the tape can be referred to in retrieving said selected one of the radio broadcast programs recorded on the tape.

5,787,227
IMAGE RECORDING APPARATUS

Isao Harigaya; Yoshihiro Nakatani, and Koji Takahashi, all of Kanagawa-ken, Japan, assignors to Canon Kabushiki Kaisha, Tokyo, Japan

Continuation of Ser. No. 88,908, Jul. 8, 1993, abandoned, which is a continuation of Ser. No. 473,924, Feb. 1, 1990, abandoned. This application Oct. 13, 1994, Ser. No. 324,151

Int. Cl.^{6} H04N *5/91*

U.S. Cl. 386—95 **13 Claims**

1. A recording apparatus, comprising:

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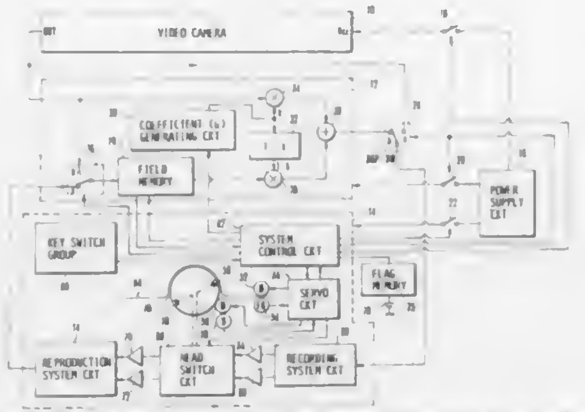


recording means for recording an image signal on a recording medium;

conversion means for converting an object image into an image signal;

a memory for storing image signals for one picture;

combining means for combining the image signals read out from the memory and the image signal converted by said conversion means;

mode switching means for switching a mode of said apparatus among a plurality of modes including a first mode in which said recording means records the image signal combined by said combining means and a second mode in which said recording means records the image signal output from said conversion means;

retaining means for retaining mode data indicating the mode, said retaining means retaining the mode data in a power supply-off state; and

control means for controlling the memory and said recording means according to the mode data retained by said retaining means.

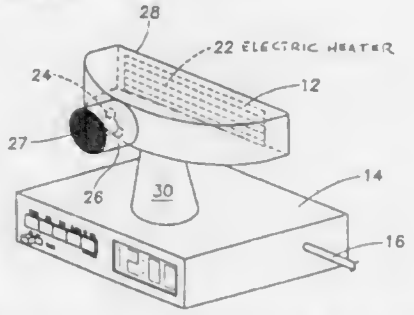
5,787,228
PORTABLE VEHICLE ARTICULATED WINDSHIELD DEFROSTER WITH HEATED AIR-FLOW AND TIMER

Sharon K. Fiely; Michael J. Fiely, both of 1545 U.S. Rte. 127, Maria Stein, Ohio 45860, and Darrell F. Lochtefeld, 2578 Fleetfoot Rd., St. Henry, Ohio 45883

Filed Feb. 28, 1996, Ser. No. 607,426

Int. Cl.^{6} A45D *20/10*

U.S. Cl. 392—383 **1 Claim**



1. A portable vehicle windshield defroster with articulated plenum comprising:

(a) a timing box including:
  electrical circuit timing means,
  means for connecting the electrical circuit timing means to a source of electrical power,
  means connected to the electrical circuit timing means for receiving electrical output power,
  a first switch means for controlling the input power to the electrical circuit timing means,
  a second switch means for programming the activation time of the electrical timing circuit means,
  a third switch means for activating a preprogrammed period of operation,
  a time display means operatively associated with the electrical circuit timing means, and
  a female electrical plug;

(b) a plenum, having at least top and bottom walls, and an arcuate side wall connected at each end by a linear side wall forming an enclosure including:
  an electrical resistance heater mounted within the plenum, proximate the linear sidewall,
  a cylindrically shaped appendage connected through the arcuate plenum side wall,
  an electrically powered fan and motor mounted within the appendage for causing air to flow over the electrical resistance heater and through the linear plenum side wall, and
  a ball shaped mounting means connected to the bottom wall, adapted to be operatively associated with a complementary socket means in a supporting stand; and

(c) a plenum support stand for supporting and connecting the plenum to the timing box including:
  a body forming a support stand having a longitudinal axis and a transverse axis where the longitudinal axis is greater than the transverse axis and defined ends,
  a socket at one end adapted to receive the ball shaped mounting means of the plenum and further adapted to allow the plenum to articulate about a horizontal axis and a vertical axis, and
  a male electrical plug means at the opposed end adapted to removeably engage and connect the supporting stand to the timing box female electrical plug.

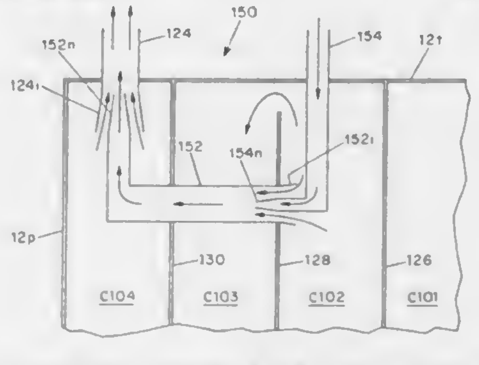
5,787,229
ELECTRIC HOT WATER TANK WITH LAYERED STORAGE

Leif Liljegren, Oakland, N.J., assignor to South Breeze Corporation, Warrenton, Va.

Filed May 3, 1996, Ser. No. 642,431

Int. Cl.^{6} A61M *16/00*

U.S. Cl. 392—492 **14 Claims**



14. A water heater comprising a tank containing water at a first temperature in a first region and water at a second temperature in a second region, the first and second temperatures being substantially different, a hot water outlet conduit leading from the first region to outside the tank, and venturi injector means having a water transfer conduit having an inlet in the second region and as an outlet a water discharge nozzle extending into the hot water outlet conduit, and a cold water injector conduit having an inlet outside the tank adapted to be connected to a cold water supply line and having as an outlet a cold water discharge nozzle, the discharge nozzle being received in the inlet of the water transfer conduit.

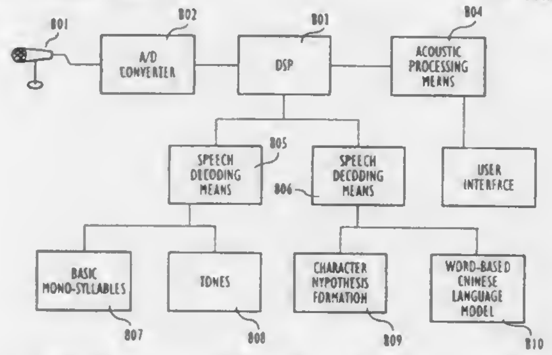
5,787,230
SYSTEM AND METHOD OF INTELLIGENT MANDARIN SPEECH INPUT FOR CHINESE COMPUTERS

Lin-Shan Lee, 3F, No. 7, Lane 58, Wen-Chou St., Taipei, Taiwan

Filed Dec. 9, 1994, Ser. No. 352,587

Int. Cl.^{6} G10L *9/06*

U.S. Cl. 395—2.44 **19 Claims**



1. A Mandarin speech input method for directly translating a plurality of spoken words of Mandarin speech into corresponding Chinese characters, comprising steps of:

acoustic processing of the Mandarin speech, the acoustic processing step employing "Segmental Probability Models" to calculate probabilities of each of a plurality of mono-syllables in the Mandarin speech input and each of a plurality of tones thereof for further recognition; and

linguistic decoding of the plurality of mono-syllables recognized by the acoustic processing step, the linguistic decoding step employing "Word-class-based Markov Chinese Language Models" to locate the corresponding Chinese characters for a series of the plurality of mono-syllables.

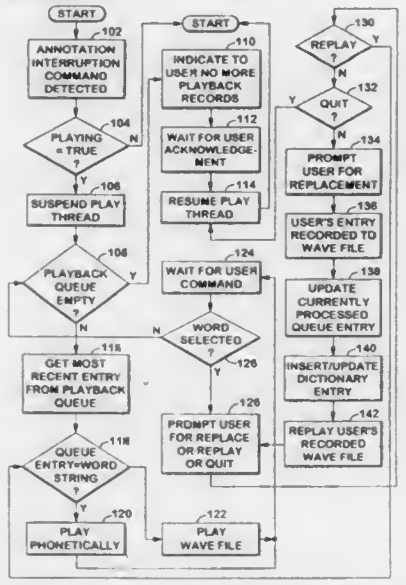
5,787,231
METHOD AND SYSTEM FOR IMPROVING PRONUNCIATION IN A VOICE CONTROL SYSTEM

William Johnson, Flower Mond, and Owen Weber, Coppell, both of Tex., assignors to International Business Machines Corporation

Filed Feb. 2, 1995, Ser. No. 382,737

Int. Cl.^{6} G10L *5/02*

U.S. Cl. 395—2.69 **26 Claims**


START
102
ANNOTATION INTERRUPTION COMMAND DETECTED
104
PLAYING = TRUE ?
N
Y
106
SUSPEND PLAY THREAD
108
PLAYBACK QUEUE EMPTY ?
Y
N
116
GET MOST RECENT ENTRY FROM PLAYBACK QUEUE
118
QUEUE ENTRY=WORD STRING ?
Y
120
PLAY PHONETICALLY
START
110
INDICATE TO USER NO MORE PLAYBACK RECORDS
112
WAIT FOR USER ACKNOWLEDGEMENT
114
RESUME PLAY THREAD
124
WAIT FOR USER COMMAND
WORD SELECTED ?
N
Y
126
128
PROMPT USER FOR REPLACE OR REPLAY OR QUIT
122
PLAY WAVE FILE
130
REPLAY ?
Y
N
132
QUIT ?
Y
N
134
PROMPT USER FOR REPLACEMENT
136
USER'S ENTRY RECORDED TO WAVE FILE
138
UPDATE CURRENTLY PROCESSED QUEUE ENTRY
140
INSERT/UPDATE DICTIONARY ENTRY
142
REPLAY USER'S RECORDED WAVE FILE

11. A method in a data processing system for enhancing voice pronunciation of a textual input stream comprising the steps of:

receiving text from the textual input stream;

customizing a customizable pronunciation dictionary by a user immediately upon recognition by the user that one or more textual portions from the textual input stream was mispronounced the customizing step further comprising
  invoking a process interruption by a user during processing of the textual input stream,
  automatically suspending the process before completing processing of the textual input stream, and
  presenting an appropriate interface for selecting and editing the textual portions for proper pronunciations;

comparing the text with the customizable pronunciation dictionary;

determining a sound interface input in accordance with one of a plurality of playing methods for playing sound associated with the text; and

routing the sound interface input to an appropriate device interface in accordance with the one of a plurality of playing methods.

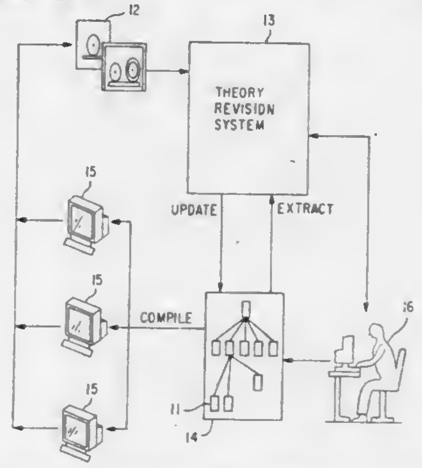
5,787,232
EFFICIENT DATA-DRIVEN THEORY REVISION SYSTEM

Russell Greiner, Plainsboro; R. Bharat Rao, Robinsville, and Glenn A. Meredith, Freehold, all of N.J., assignors to Siemens Corporate Research, Inc., Princeton, N.J.

Filed Jan. 10, 1996, Ser. No. 584,629

Int. Cl.^{6} G06F *15/18*

U.S. Cl. 395—10 **10 Claims**



1. An efficient data-driven theory revision system comprising:

efficient learning means;

expert system means interfaced with said efficient learning means and capable of receiving input from a domain expert;

compile means connected to said expert system means;

field user input means connected to said compile means; and

session transcript means connected between said field user input means and said efficient learning means wherein said efficient learning means comprises:
  RTI_ELIGIBLE means;
  RTP means; and
  RTM means.

5,787,233
ROUTE GENERATING DEVICE

Shinji Akimoto, Kamakura, Japan, assignor to Mitsubishi Denki Kabushiki Kaisha, Tokyo, Japan

Filed Mar. 26, 1996, Ser. No. 624,740

Claims priority, application Japan, Mar. 28, 1995, 7-069660

Int. Cl.^{6} G06F *13/376;15/18*

U.S. Cl. 395—10 **8 Claims**

1. A route generating device comprising:

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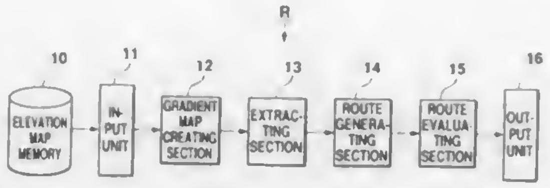

R
10
11
12
13
14
15
16
ELEVATION MAP MEMORY
IN-PUT UNIT
GRADIENT MAP CREATING SECTION
EXTRAC-TING SECTION
ROUTE GENERA-TING SECTION
ROUTE EVALUA-TING SECTION
OUT-PUT UNIT

an elevation map memory storing elevation data of subareas which are defined by division of an operations zone of a movable object;
an input unit reading the elevation data from the elevation map memory;
a gradient map creating section calculating gradient data based on the elevation data read from the map memory so as to create a gradient map;
an obstruction region extracting section extracting an inclinational obstruction region on the basis of the gradient map, said inclinational obstruction region having a gradient enough to hinder a movement of the movable object;
a route generating section determining a travelable region on the basis of the inclinational obstruction region for going around obstructions so as to calculate possible traveling routes on the basis of the travelable region for avoiding the obstructions;
a route evaluating section evaluating the traveling routes calculated in the route generating section so as to select an optimum route from a current location of the movable object to a destination; and
an output unit outputting the optimum route selected in the route evaluating section.

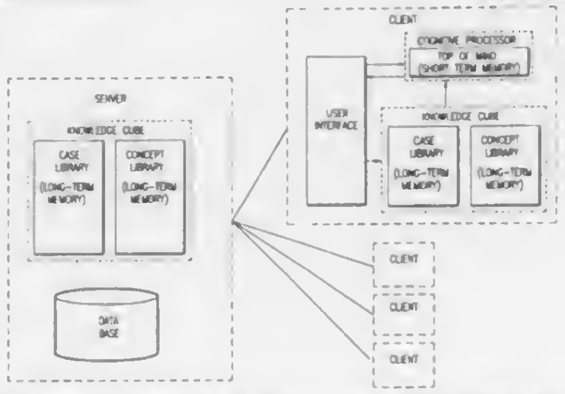
5,787,234
SYSTEM AND METHOD FOR REPRESENTING AND RETRIEVING KNOWLEDGE IN AN ADAPTIVE COGNITIVE NETWORK

Bruce G. Molloy, 40 Malapardis Rd., Morris Plains, N.J. 07950

Filed Jun. 10, 1997, Ser. No. 872,791

Int. Cl.^{6} G06F *15/18;17/30*

U.S. Cl. 395—51 **61 Claims**


CLIENT
COGNITIVE PROCESSOR
TOP OF MIND (SHORT TERM MEMORY)
USER INTERFACE
KNOWLEDGE CUBE
CASE LIBRARY (LONG-TERM MEMORY)
CONCEPT LIBRARY (LONG-TERM MEMORY)
SERVER
KNOWLEDGE CUBE
CASE LIBRARY (LONG-TERM MEMORY)
CONCEPT LIBRARY (LONG-TERM MEMORY)
DATA BASE
CLIENT
CLIENT
CLIENT

1. A method of storing and retrieving data in a computer system comprising the steps of:
abstracting the data into generic concepts,
storing in the memory of the computer system a set of cases, each case comprising one or more of said concepts,
retrieving from the computer system an ordered ranking of one or more concepts related to a query by:
comparing the query with the contents of the memory, and
evaluating a strength of association of the query with the concepts stored in the memory, wherein the step of evaluating a strength of association of the query with the concepts stored in memory comprises the steps of:
comparing the query with the concepts previously stored in the memory,
for each case where a match occurs between the query and a concept of the case, activating all the concepts in that case,
accumulating the number of activations of each concept and the number of queries for which the concept was activated, and
combining the number of activations and the number of queries for which the concept was activated to determine the strength of association between the query and the stored concepts.

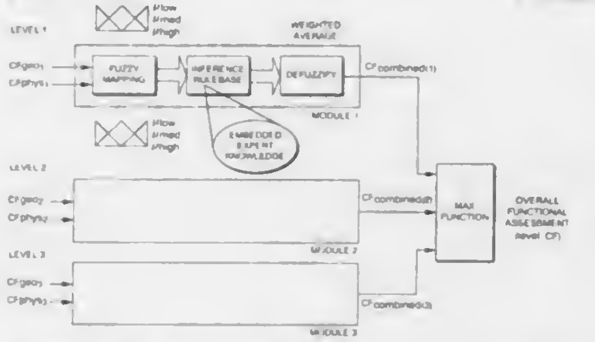
5,787,235
FUZZY LOGIC-BASED EVIDENCE FUSION TOOL FOR NETWORK ANALYSIS

Michael D. Smith, Burtonsville, Md.; Allen R. Bonde, Jr., Medfield, Mass.; Gregory J. Catherine, Germantown, Md.; Rosemarie Napolitano, Elkridge, Md., and Diane M. Wolfe, Germantown, Md., assignors to GTE Government Systems Corporation, Needham, Mass.

Filed May 9, 1995, Ser. No. 437,732

Int. Cl.^{6} G06F *17/00*

U.S. Cl. 395—50 **4 Claims**



1. Apparatus for determining which function level that a switch is likely functioning at in a telecommunication system wherein said switch can be functioning at any one in a set of n function levels, said switch having geographic characteristics and physical characteristics, said apparatus comprising:
an expert system for providing a first set of n confidence factors for the switch, each confidence factor, CFgeo, representing the confidence that the switch is functioning at a corresponding function level based upon the geographic characteristics of the switch and for providing a second set of n confidence factors for the switch, each confidence factor, CFphy, representing the confidence that the switch is functioning at a corresponding level based upon the physical characteristics of the switch;
fuzzy mapping means for fuzzy mapping the confidence factor CFgeo for the switch into high, medium and low fuzzy membership values for CFgeo at each function level;
fuzzy mapping means for fuzzy mapping the confidence factor CFphy for the switch into high, medium and low fuzzy membership values for CFphy at each function level;
a set of fuzzy evidence fusion rules coupled to the fuzzy mapping means, each rule activated by the fuzzy membership values for CFgeo and CFphy at each function level for inferring a degree of truth for each rule for each function level;
a singleton defuzzification means for combining the degree of truth of each rule into a single combined confidence factor CF for each function level; and
means for determining the maximum combined confidence factor and assigning to the switch the function level corresponding to the maximum confidence factor.

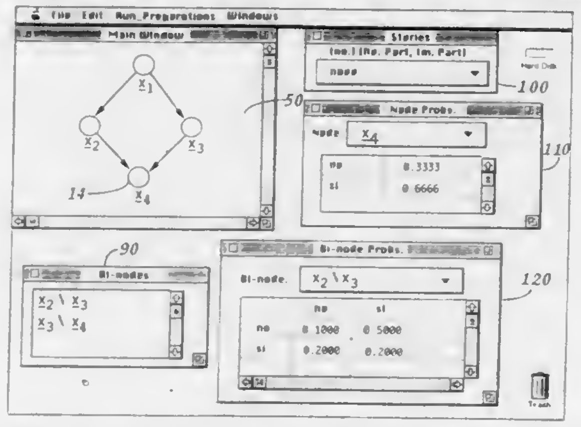
5,787,236
GRAPHICAL COMPUTER METHOD FOR ANALYZING QUANTUM SYSTEMS

Robert R. Tucci, P.O. Box 226, Bedford, Mass. 01730

Filed Jan. 11, 1996, Ser. No. 584,168

Int. Cl.^{6} G06F *15/18*

U.S. Cl. 395—61 **21 Claims**



11. A method that uses a computer having storage and calculation means to analyze a physical system that exhibits quantum mechanical behavior, said method comprising the steps of:
storing in said storage means a knowledge base comprising:
(a) graph information comprising a label for each node of a plurality of N nodes, and also comprising a plurality of directed lines, wherein a directed line is an ordered pair of said node labels, wherein one member of said label pair labels the source node and the other member labels the destination node of the directed line,
(b) state information comprising, for each $j \in \{1,2, \ldots ,N\}$, a finite set Σ_j containing labels for the states that the j'th node $\hat{x}_j$ may assume, and
(c) amplitude information comprising, for each $j \in \{1,2, \ldots N\}$, a representation of a complex number $A_j[x_j|x_{k_1},x_{k_2}, \ldots ,x_{k_{|S_j|}}]$ for each vector and $x_{k_{|S_j|}} \in \Sigma_{k_{|S_j|}}$, wherein $(\hat{x}_{k_1},\hat{x}_{k_2}, \ldots ,\hat{x}_{k_{|S_j|}})$ are the $|S_j|$ nodes connected to $\hat{x}_j$ by directed lines entering $\hat{x}_j$, wherein said directed lines entering $\hat{x}_j$ transmit the state of their source node, wherein said $|S_j|$ is an integer greater or equal to zero;
calculating with said calculation means and with some parts of said knowledge base, the probability that some said node $\hat{x}_j$ will be measured to be in a state x_j contained in Σ_j.

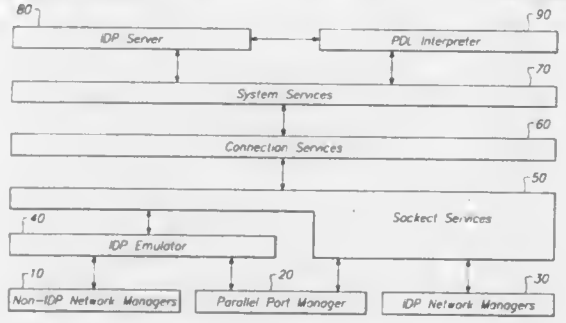
5,787,237
UNIFORM INTERFACE FOR CONDUCTING COMMUNICATIONS IN A HETEROGENEOUS COMPUTING NETWORK

Paul E. Reilly, San Jose, Calif., assignor to Apple Computer, Inc., Cupertino, Calif.

Filed Jun. 6, 1995, Ser. No. 470,962

Int. Cl.^{6} G06F *13/00*

U.S. Cl. 395—112 **10 Claims**



1. A heterogeneous network printing system comprising:
a plurality of host computers;
a plurality of heterogeneous network service protocols/ports for connecting said host computers to the network;
a printer connected to the network; and
a heterogeneous interface comprising a uniform imaging device protocol (IDP) and an IDP emulator for uniformly interfacing between said heterogeneous network service protocols/ports and said printer,
wherein said heterogeneous network service protocols/ports comprise IDP ports and non-IDP ports, and
wherein said IDP emulator monitors connection requests on the non-IDP ports, provides an IDP print job request message when a connection request is received from a non-IDP port, and queues the resulting IDP print job request message with IDP print job requests received from IDP ports so that print jobs from both IDP and non-IDP ports are processed in an order in which requests are received.

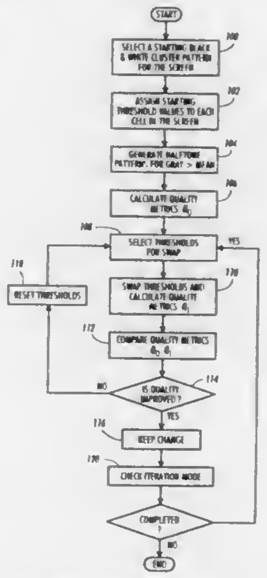
5,787,238
CLUSTERED HALFTONE DOT DESIGN PROCESS

Shen-ge Wang, Fairport, N.Y., assignor to Xerox Corporation, Stamford, Conn.

Filed Nov. 14, 1996, Ser. No. 749,306

Int. Cl.^{6} G06K *15/02;* **G06T** *5/00;* **H04N** *1/405;1/52*

U.S. Cl. 395—109 **11 Claims**


START
SELECT A STARTING BLACK & WHITE CLUSTER PATTERN FOR THE SCREEN
100
ASSIGN STARTING THRESHOLD VALUES TO EACH CELL IN THE SCREEN
102
GENERATE HALFTONE PATTERN, FOR GRAY > MEAN
104
CALCULATE QUALITY METRICS Q_0
106
108
SELECT THRESHOLDS FOR SWAP
YES
118
RESET THRESHOLDS
SWAP THRESHOLDS AND CALCULATE QUALITY METRICS Q_1
110
112
COMPARE QUALITY METRICS Q_0 Q_1
NO
IS QUALITY IMPROVED ?
114
YES
116
KEEP CHANGE
120
CHECK ITERATION MODE
COMPLETED ?
NO
END

1. A printing system suitable for forming marks on a substrate at one of c possible levels of colorant, and receiving image signals represented at d possible levels, where $d>c$, and having a halftone processor to reduce the number of levels at which the image is represented from d levels to c levels in order to replicate gray level printing, including:
a memory, storing a set of halftone threshold level signals, each threshold signal corresponding to a unique location in a halftone cell;
a comparator, receiving said image signal and one of the halftone threshold signals from the memory, and producing an output signal at one of c possible levels, varying according to the comparison of said halftone threshold signal to said image signal to cause marking at a selected location on a substrate;
said set of threshold level signals together forming a screen matrix arranged for use with respect to the image to generate multiple clusters of printed spots within a single repetition of the screen and generated by a dot clustering optimization process which optimizes the screen by approximating a condition where:
A. At any level of the input, all clusters have the same shape and the same size; and
B. All adjacent clusters are equal-distance separated.

2. A method of designing a halftone cell, for converting an image received at d levels, for reproduction at two levels, said cell

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having elements each corresponding to a pixel in a discrete area of an image the method including the steps:

a) choosing a desired cluster pattern for said halftone cell;
b) assigning threshold values to the halftone cell;
c) generating halftone screens;
d) calculating a quality metric, by measuring divergence from the conditions:
  1. At any level of the input, all clusters have the same shape and the same size; and
  2. All adjacent clusters are equal-distance separated;
e) randomly choosing a limited set of threshold values and swapping the threshold values;
f) recalculating the quality metric and determining whether the quality metric has improved;
g) determining whether to keep the swap or returning the screen to its initial state based on the determination of whether the quality metric has improved.

10. A method of generating threshold values appropriately positioned in a halftone cell, for converting an image received at d levels, for reproduction at c levels, where c is less than d, said cell having N elements each corresponding to a pixel in a discrete area of an image the method including the steps:

selecting a number of clusters for a halftone cell;
a determining a threshold values between 1 and N corresponding to each elements;
measuring a quality metric for the halftone cell, as a function of uniformity of shape and size of clusters, and distance between clusters;
making at least one swap of threshold values between elements;
re-measuring the quality metric;
reversing the swap of threshold values if the quality metric change is not appropriate.

5,787,239
IMAGE PROCESSING/COMMUNICATION SYSTEM

Hitoshi Horie, Ageo; Toru Ozaki, Tokyo, and Hideyuki Shirai, Ichikawa, all of Japan, assignors to Matsushita Graphic Communication Systems, Inc., Japan

Division of Ser. No. 2,471, Jan. 8, 1993, Pat. No. 5,574,834.
This application Jul. 17, 1996, Ser. No. 680,645
Claims priority, application Japan, Jan. 9, 1992, 4-1879; Feb. 13, 1992, 4-26457; Apr. 22, 1992, 4-102622
Int. Cl.^{6} G06F *15/00*
U.S. Cl. 395—114 **11 Claims**

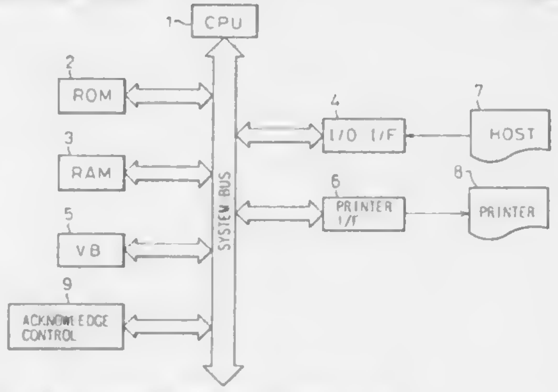
1. An image communication system comprising:

receiving means for receiving code data corresponding to an image from a circuit;
compression/expansion performing means for decoding the code data received by the receiving means to first image data indicating the image of one page, calculating an enlargement/reduction parameter required to determine an enlargement/reduction ratio from the first image data corresponding to one page and coding the first image data to re-coded data;
coded data storing means for storing the re-coded data obtained by the compression/expansion performing means;
control means for controlling the compression/expansion performing means to decode the code data to the first image data, code the first image data to the re-coded data, re-decode the re-coded data stored in the coded data storing means to second image data indicating the image and convert the second image data into enlargement/reduction image data by performing an enlargement/reduction operation for the second image data according to the enlargement/reduction parameter; and
recording means for recording the enlargement/reduction image data obtained by the compression/expansion performing means on a recording paper having a fixed size under the control of the control means.

5,787,240
PRINTER CONTROL APPARATUS CONVERTING VIDEO DATA FROM AN EXTERNAL HOST TO VIDEO DATA FOR A PRINTER

Igor Hansen, West Lothian, United Kingdom; Keiji Fujiwara, Kato-gun, Japan; Shinichi Takahashi, Kawasaki, Japan; Atsushi Miki, and Satoshi Fukui, both of Kato-gun, Japan, assignors to Fujitsu Ltd., Japan, and Clan Systems Ltd., United Kingdom

Filed Feb. 2, 1995, Ser. No. 382,540
Claims priority, application European Pat. Off., May 20, 1994, 94303651
Int. Cl.^{6} G06K *15/00*
U.S. Cl. 395—115 **23 Claims**



1. Data processing apparatus, comprising:

a memory;
a bus;
a central processing unit interconnected with said memory via said bus and operable, in synchrony with successive bus cycles of the apparatus, to convert successive blocks of input data, supplied to the apparatus in a first form, to respective blocks of operative data of a second form to be stored in said memory;
a data latch unit connected with said bus, for retaining such a block of operative data temporarily; and
an address latch unit, connected with said bus, for retaining temporarily an address at which said block of operative data held by said data latch unit is to be stored in said memory, and in that operation of the apparatus involves delivery of such a block of operative data to the bus, by said central processing unit, in the second half of one bus cycle, retention of that block of operative data by said data latch unit for a period of time during the first half of the next bus cycle, and writing of that block of operative data in the said memory during the said period of time at an address retained during that period in said address latch unit.

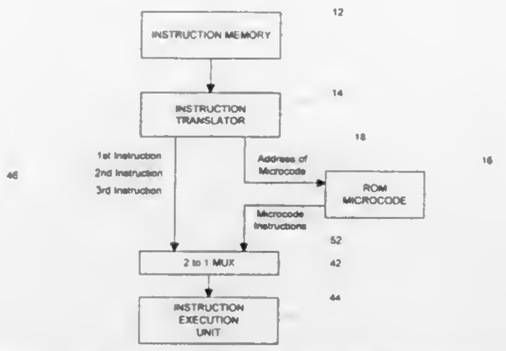
5,787,241
METHOD AND APPARATUS FOR LOCATING EXCEPTION CORRECTION ROUTINES

Glenn Henry, and Terry Parks, both of Austin, Tex., assignors to Integrated Device Technology, Inc., Santa Clara, Calif.

Filed Dec. 18, 1995, Ser. No. 574,636
Int. Cl.^{6} G06F *11/00*
U.S. Cl. 395—181 **24 Claims**

1. A processor for executing macro instructions wherein the macro instructions are translated into micro instructions, and wherein the micro instructions cause the processor to generate exceptions that require execution of exception routines, the exception routines having exception correction routines, the processor comprising:

an instruction memory;
an instruction execution unit;

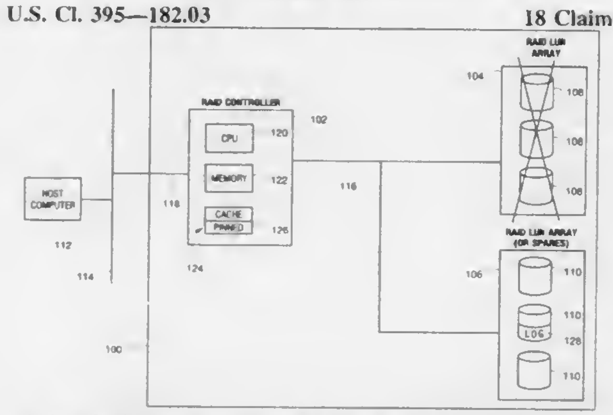


a translator, connected to said instruction memory, for receiving the macro instructions from said instruction memory, for generating first micro instructions relating to the macro instructions, and for generating a first address associated with second micro instructions, the first address at a predetermined offset from associated exception correction routines;
a ROM; connected to said translator, for receiving from said translator said first address, and for providing as output said second micro instructions; and
a MUX, having inputs connected to said translator and to said ROM, and an output connected to said instruction execution unit, for selecting instructions between said translator and said ROM, and having as an output either of said first micro instructions or said second micro instructions;
wherein said first address is used by the processor, with said predetermined offset, to locate said associated exception correction routines.

5,787,242
METHOD AND APPARATUS FOR TREATMENT OF DEFERRED WRITE DATA FOR A DEAD RAID DEVICE

Rodney A. DeKoning; Donald R. Humlicek, and Max L. Johnson, all of Wichita, Kans., assignors to Symbios Logic Inc., Fort Collins, Colo.

Filed Dec. 29, 1995, Ser. No. 580,566
Int. Cl.^{6} G06F *11/00;12/00*
U.S. Cl. 395—182.03 **18 Claims**



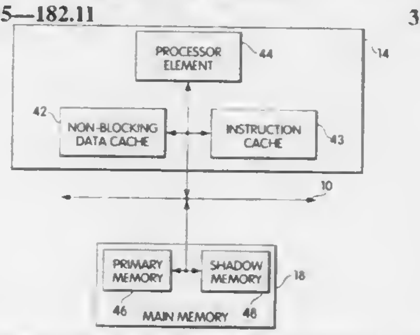
1. In a RAID subsystem having a plurality of RAID devices and a RAID controller having a memory for caching I/O requests, a method for managing pinned data in a RAID subsystem comprising the steps of:

storing the pinned data from said memory to a log area in said RAID subsystem, wherein said log area is allocated from storage space within the disk drives of an operational one of said plurality of RAID devices; and
freeing said memory corresponding to said pinned data for use by said RAID controller in conjunction with other RAID devices in said RAID subsystem.

5,787,243
MAIN MEMORY SYSTEM AND CHECKPOINTING PROTOCOL FOR FAULT-TOLERANT COMPUTER SYSTEM

Jack J. Stiffler, Hopkinton, Mass., assignor to Texas Micro, Inc., Houston, Tex.

Continuation of Ser. No. 258,165, Jun. 10, 1994, abandoned.
This application Jul. 2, 1996, Ser. No. 674,660
Int. Cl.^{6} G06F *11/00*
U.S. Cl. 395—182.11 **33 Claims**



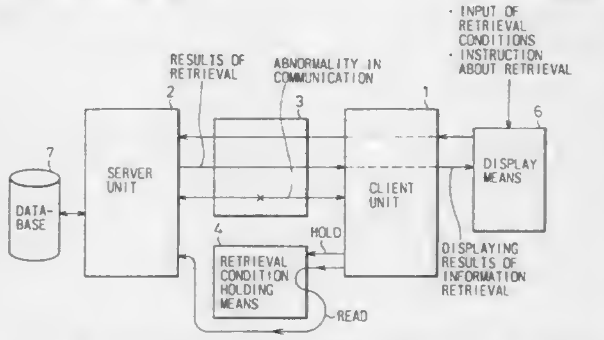
1. A computer system which periodically establishes a consistent checkpoint of a current state of the computer system for supporting fault-tolerant operation, the computer system comprising:

a processor having a cache and internal resisters and connected to a main memory system;
wherein the main memory system includes:
  i) a primary memory element;
  ii) a buffer memory element connected to the primary memory element such that selected accesses to the primary memory element are captured in the buffer memory element simultaneously with the access to the primary memory element;
  iii) a shadow storage element connected to the buffer memory;
  iv) means for copying data from the buffer memory element to the shadow storage element in response to an instruction to perform such copying from the processor; and
wherein the processor includes means for suspending operations, means for flushing the cache and internal registers and means for instructing the means for copying after flushing of the cache and internal registers has completed.

5,787,244
INFORMATION RETRIEVAL SYSTEM

Nobuyuki Hiratsuka, Kawasaki, and Akira Horikawa, Okayama, both of Japan, assignors to Fujitsu Limited, Kawasaki, Japan

Filed Feb. 13, 1996, Ser. No. 601,160
Claims priority, application Japan, Feb. 13, 1995, 7-024038
Int. Cl.^{6} G06F *15/16;13/14;* **H04L** *12/42*
U.S. Cl. 395—182.14 **3 Claims**


· INPUT OF RETRIEVAL CONDITIONS
· INSTRUCTION ABOUT RETRIEVAL
RESULTS OF RETRIEVAL
ABNORMALITY IN COMMUNICATION
2
3
1
6
7
DATA-BASE
SERVER UNIT
CLIENT UNIT
DISPLAY MEANS
4
HOLD
RETRIEVAL CONDITION HOLDING MEANS
READ
DISPLAYING RESULTS OF INFORMATION RETRIEVAL

1. An information retrieval system of a client/server model for effecting mutual communication between a client unit for instruct-

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ing information retrieval for retrieving an objective information and a server unit for accepting information retrieval instructed from said client unit, wherein said client unit includes:

abnormality-in-communication detecting means for detecting an occurrence of an abnormality in communication between said client unit and said server unit;

retrieval condition holding means for holding retrieval conditions relating to information retrieval, that have been inputted up to a point of interruption of said information retrieval, when said client/server model enters a state of an abnormal end or a compulsive end due to an abnormality in communication and said information retrieval is interrupted, said client unit erasing said retrieval conditions held by said retrieval condition holding means when said retrieval conditions held by said retrieval condition holding means are judged as unnecessary; and

retrieval requesting means for reading out said retrieval conditions from said retrieval condition holding means and transmitting said retrieval conditions to said server unit, when said retrieval conditions held by said retrieval condition holding means are judged as necessary and when said interrupted information retrieval is started again, wherein said server unit includes retrieving means for executing information retrieval on the basis of said retrieval conditions read out from said retrieval condition holding means.

5,787,245

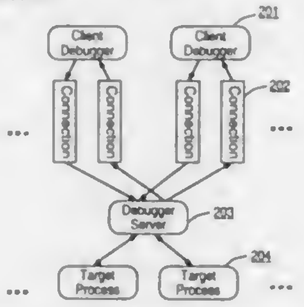
PORTABLE DEBUGGING SERVICE UTILIZING A CLIENT DEBUGGER OBJECT AND A SERVER DEBUGGER OBJECT

Lawrence L. You, San Jose, and Daniel S. Keller, Cupertino, both of Calif., assignors to Object Technology Licensing Corporation, Cupertino, Calif.

Filed Nov. 13, 1995, Ser. No. 557,660

Int. Cl.⁶ G06F *11/00*

U.S. Cl. 395—183.14 **29 Claims**



1. An apparatus for debugging a target process including a client debugger which communicates via a connection object to one or more server debugger objects, the apparatus comprising:

(a) a client debugger object with logic for preparing a debug request for transmission to a connection object for ultimate routing of said request to a target server debugger object, client debugger object operations being performed synchronously with said request;

(b) a connection object for routing requests between said client debugger object and said target server debugger object in order for said client debugger object to communicate asynchronously with said target server debugger object; and

(c) a target server debugger object, said target server debugger object including logic for performing debug operations on said target process.

5,787,246

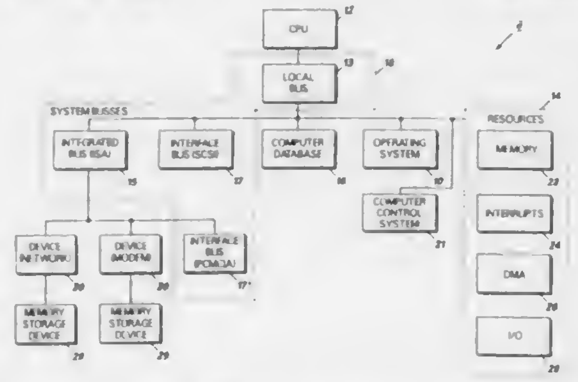
SYSTEM FOR CONFIGURING DEVICES FOR A COMPUTER SYSTEM

Moshe Lichtman, Bellevue; Mark R. Enstrom, Redmond; Thomas E. Lennon, Seattle; Ralph A. Lipe, Woodinville; Pierre-Yves Santerre, Bellevue; Robert T. Short, Kirkland, and David W. Voth, Redmond, all of Wash., assignors to Microsoft Corporation, Redmond, Wash.

Filed May 27, 1994, Ser. No. 250,698

Int. Cl.⁶ G06F *15/02;12/02;9/445;15/40*

U.S. Cl. 395—200.5 **98 Claims**



1. In a computer system characterized by computer system resources, a method for identifying devices connected to a system bus of said computer system, comprising the steps of:

a. instructing each of said devices to enter an inactive state, said devices having a function that is disabled during said inactive state;

b. isolating said particular device from said remaining devices by denying said particular device access to said remaining devices via said system bus;

c. assigning a device identification code to said particular device, wherein said device identification code uniquely identifies said particular device connected to said system bus;

d. obtaining logical configuration data for said particular device, wherein said logical configuration data supplies configuration requirements for operating said particular device with said computer system;

e. repeating steps (a) through (d) for each of the remaining ones of said devices connected to said system bus.

5,787,247

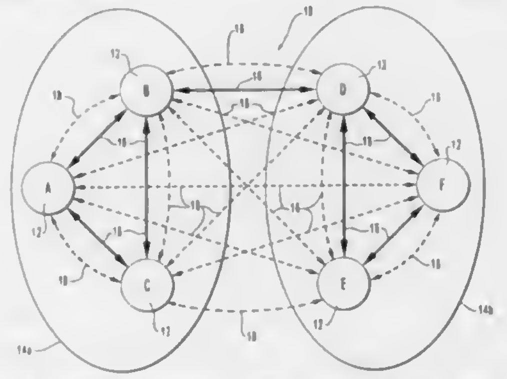
REPLICA ADMINISTRATION WITHOUT DATA LOSS IN A STORE AND FORWARD REPLICATION ENTERPRISE

Scott Norin, Newcastle; Darren A. Shakib, and Max L. Benson, both of Redmond, all of Wash., assignors to Microsoft Corporation, Redmond, Wash.

Filed Jul. 12, 1996, Ser. No. 679,054

Int. Cl.⁶ G06F *15/16;* **H04L** *12/00*

U.S. Cl. 395—200.5 **27 Claims**



1. In a computer network where copies of data objects are replicated among a plurality of replica nodes that are logically connected to provide a data flow path from each replica node to any other replica node in the network, and each replica node being capable of making changes to the replicated data objects and each being capable of storing the changes made either locally or by any other node, and each being capable of providing access to such stored changes by any other replica node in the network, a method of removing a local copy of a data object from a local replica node in the computer network while protecting against inadvertent loss of any changes made to the local data object prior to its removal at the local replica node, the method comprising the steps of:

saving, at a local replica node, changes made to a local copy of a data object by the local replica node and changes made by and received from other replica nodes on a computer network so that the local copy of the data object reflects all such changes made to the data object;

transmitting to at least one other replica node in the network any changes which have been made to the local copy of the data object by the local replica node and which have not previously been transmitted to at least one other replica node in the network in order to preserve said changes and ensure continued availability of said changes by virtue of their storage in said at least one other replica node of the network;

verifying that the saved changes reside on at least one other replica node in the network prior to removal of the local copy of the data object from the local replica node by (1) sending a message to said at least one other replica node, and by (2) positively confirming that the saved changes reside on the at least one other replica node if the combination of all changes on all replica nodes other than the local replica node include at least the saved changes;

removing the local copy of the data object from the local replica node if said saved changes reside on at least one other replica node without removing any changes from said at least once other replica node; and

accessing said saved changes from at least one replica node in the network.

5,787,248

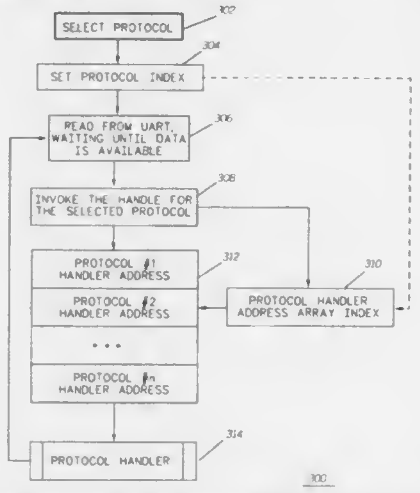
SYSTEM FOR SELECTING NETWORK MANAGEMENT PROTOCOL BY SETTING PROTOCOL HANDLER INDEX BASED ON NEWLY SELECTED PROTOCOL AND SELECTING PROTOCOL HANDLER ADDRESS USING PROTOCOL HANDLER INDEX

Gregg D. Zupcsics, Plantation, and William Shaw, Pembroke Pines, both of Fla., assignors to Racal-Datacom, Inc., Sunrise, Fla.

Filed Jan. 2, 1996, Ser. No. 581,919

Int. Cl.⁶ G06F *13/14*

U.S. Cl. 395—200.6 **12 Claims**


SELECT PROTOCOL
302
SET PROTOCOL INDEX
304
READ FROM UART, WAITING UNTIL DATA IS AVAILABLE
306
INVOKE THE HANDLE FOR THE SELECTED PROTOCOL
308
PROTOCOL #1 HANDLER ADDRESS
312
PROTOCOL #2 HANDLER ADDRESS
...
PROTOCOL #n HANDLER ADDRESS
PROTOCOL HANDLER ADDRESS ARRAY INDEX
310
PROTOCOL HANDLER
314
300

1. A method for selecting a communication protocol from among a plurality of communication protocols residing in a communication device, one of said plurality of communication protocols being the presently selected communication protocol, the communication protocols are used for transferring network management information to and from the communication device, the method comprising the steps of:

(a) receiving a request at the communication device to change the presently selected network management communication protocol used to a new network management communication protocol selected from among the plurality of network management communication protocols residing in the communication device;

(b) setting a protocol handler index based on the new network management communication protocol requested in step and

(c) selecting a protocol handler address which corresponds to the newly selected network management communication protocol using the protocol handler index set in step (b).

5,787,249

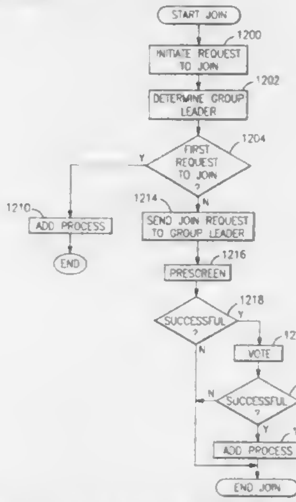
METHOD FOR MANAGING MEMBERSHIP OF A GROUP OF PROCESSORS IN A DISTRIBUTED COMPUTING ENVIRONMENT

Peter Richard Badovinatz, Kingston; Tushar Deepak Chandra, Elmsford, both of N.Y.; Ajei Sarat Gopal, Fort Lee, N.J.; Orvalle Theordore Kirby, Pleasant Valley, and John Arthur Pershing, Jr., Buchanan, both of N.Y., assignors to International Business Machines Coporation, Armonk, N.Y.

Filed Apr. 30, 1996, Ser. No. 640,412

Int. Cl.⁶ G06F *15/163*

U.S. Cl. 395—200.31 **17 Claims**



1. A method for joining a group of processors in a distributed computing environment, said method comprising:

requesting, by a processor, to join a group of processors, said group of processors executing related processes;

establishing said group responsive to the first processor requesting to join said group, said first processor being designated as group leader processor for performing specified actions for said group of processors; and

adding said processor to said group of processors.

5,787,250

PROGRAM PRODUCT FOR MANAGING MEMBERSHIP OF A GROUP OF PROCESSORS IN A DISTRIBUTED COMPUTING ENVIRONMENT

Peter Richard Badovinatz, Kingston; Tushar Deepak Chandra, Elmsford, both of N.Y.; Ajei Sarat Gopal, Fort Lee, N.J.; Orvalle Theodore Kirby, Pleasant Valley, and John Arthur Pershing, Jr., Buchanan, both of N.Y., assignors to International Business Machines Corporation, Armonk, N.Y.

Filed Apr. 30, 1996, Ser. No. 640,381

Int. Cl.⁶ G06F *15/163*

U.S. Cl. 395—200.31 **6 Claims**

1. A computer program product comprising a computer useable medium having computer readable program code means therein for

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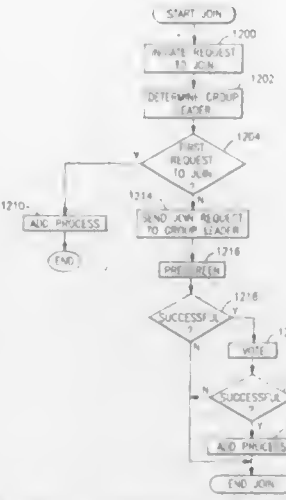


use in joining a group of processors in a distributed computing environment, said computer readable program code means in said computer program product comprising:

computer readable program code means for causing a computer to effect requesting, by a processor, to join a group of processors, said group of processors executing related processes; and

computer readable program code means for causing a computer to establish said group responsive to the first processor requesting to join said group, and to effect adding said processor to said established group of processors, designating said first processor as group leader to effect performing specified actions for said group of processors.

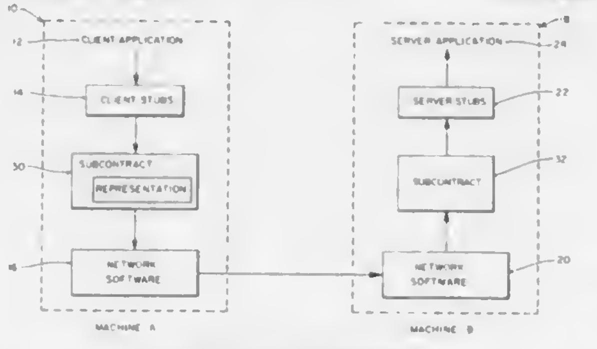
5,787,251
METHOD AND APPARATUS FOR SUBCONTRACTS IN DISTRIBUTED PROCESSING SYSTEMS

Graham Hamilton; Michael L. Powell, both of Palo Alto; James G. Mitchell, Los Altos, and Jonathan J. Gibbons, Mountain View, all of Calif., assignors to Sun Microsystems, Inc., Palto Alto, Calif.

Continuation of Ser. No. 554,794, Nov. 7, 1995, Pat. No. 5,577,251, which is a continuation of Ser. No. 995,863, Dec. 21, 1992, abandoned. This application Nov. 18, 1996, Ser. No. 752,192

Int. Cl.^{6} G06F *13/00*

U.S. Cl. 395—200.33 **22 Claims**



REMOTE OBJECT INVOCATION USING SUBCONTRACT

1. In an object oriented system wherein there exists client applications, objects, object type definitions, object implementations and servers, a spring object comprising:

a method table containing an entry for each operation implied by said spring object's type definition;

a subcontract mechanism coupled to said method table, the subcontract mechanism specifying which subcontract operations said spring object may perform, the subcontract mechanism comprising a client-side program mechanism for executing operation invocations on an object associated with said subcontract, and a server-side program mechanism associated with said client-side program mechanism for exchanging messages and for processing other operation calls initiated by said client-side program mechanism; and

a data structure coupled to said subcontract mechanism, said data structure representing a subcontract's local private state.

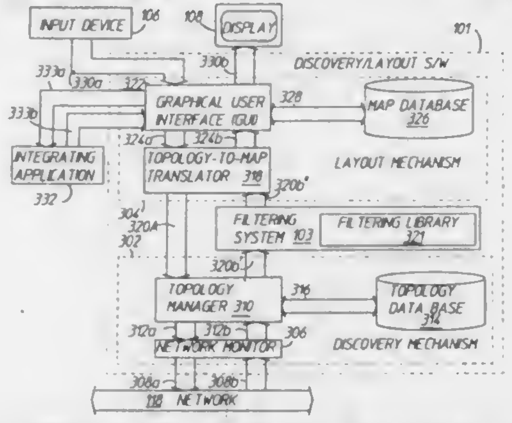
5,787,252
FILTERING SYSTEM AND METHOD FOR HIGH PERFORMANCE NETWORK MANAGEMENT MAP

Robert Dwight Schettler; Eric A. Pulsipher, and Brian J. Atkins, all of Fort Collins, Colo., assignors to Hewlett-Packard Company, Palo Alto, Calif.

Filed Nov. 1, 1995, Ser. No. 551,499

Int. Cl.^{6} G06F *15/177*

U.S. Cl. 395—200.54 **31 Claims**



1. A management system for efficiently discovering and displaying devices and interconnections of a network, comprising:

a processor;

a memory;

a display;

an interface interconnecting said processor, said memory, and said display and capable of connecting to said network;

a discovery mechanism stored in said memory for driving said processor, said discovery mechanism configured to discover and store topology data indicative of said devices and said interconnections of said network;

a layout mechanism stored in said memory for driving said processor, said layout mechanism configured to receive said topology data from said discovery mechanism, said layout mechanism configured to drive said display based upon said topology data; and

a filtering system stored in said memory for driving said processor, said filtering system configured to filter objects within said topology data that pass from said discovery mechanism to said layout mechanism.

5,787,253
APPARATUS AND METHOD OF ANALYZING INTERNET ACTIVITY

Timothy David McCreery, Lafayette, and Mahboud Zabetian, Walnut Creek, both of Calif., assignors to The AG Group, Walnut Creek, Calif.

Filed May 28, 1996, Ser. No. 654,347

Int. Cl.^{6} H04N *1/413*

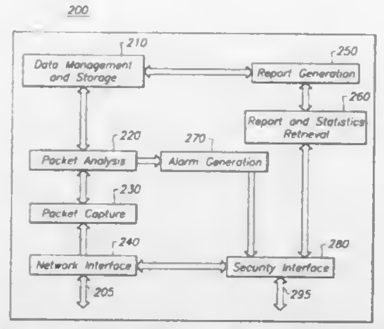
U.S. Cl. 395—200.61 **23 Claims**

1. An apparatus for analyzing internet activity, the apparatus comprising:

a packet capturing module, for accessing the packets traversing a network, the packets having source and destination addresses other than an address corresponding to the apparatus, and for filtering the packets to produce raw packet data, wherein the packet capturing module produces the raw packet data by retrieving a predetermined address, comparing the predetermined address to the internet protocol source address for a current packet, comparing the predetermined address to the internet protocol destination address for the current packet, and retaining the current packet where one of the internet protocol source and destination addresses for the current packet matches the predetermined address;

a packet analyzing module, in communication with the packet capturing module, for producing decoded packet data and for producing transaction data from the decoded packet data; and

a data management module, in communication with the packet capturing module and the packet analyzing module, for analyzing at least one of the raw packet data, the decoded packet data and the transaction data to provide an indication of internet usage.



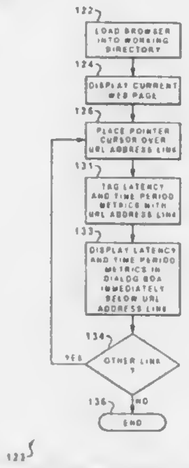
5,787,254
WEB BROWSER METHOD AND SYSTEM FOR DISPLAY AND MANAGEMENT OF SERVER LATENCY

John Maddalozzo, Jr.; Gerald Francis McBrearty, and Johnny Meng-Han Shieh, all of Austin, Tex., assignors to International Business Machines Corporation, Armonk, N.Y.

Filed Mar. 14, 1997, Ser. No. 818,485

Int. Cl.^{6} G06F *13/00*

U.S. Cl. 395—200.58 **27 Claims**


122
LOAD BROWSER INTO WORKING DIRECTORY
124
DISPLAY CURRENT WEB PAGE
126
PLACE POINTER CURSOR OVER URL ADDRESS LINE
131
TAG LATENCY AND TIME PERIOD METRICS WITH URL ADDRESS LINE
133
DISPLAY LATENCY AND TIME PERIOD METRICS IN DIALOG BOX IMMEDIATELY BELOW URL ADDRESS LINE
134
YES
OTHER LINK ?
136
NO
END
123

1. A browser extension method for a browser in a computer network having at least one client connectable to one or more servers, said client having an interface for displaying a first hypertext document with at least one hypertext link to a second hypertext document located at a server, comprising the steps of:

associating at least one access parameter with said at least one hypertext link, wherein said at least one access parameter includes:

a time access parameter value wherein said time access parameter value indicates an estimated length of time of an access time period; and

a data rate access parameter value wherein said data rate access parameter value indicates an estimated data retrieval rate for data retrieved from said server during said access time period;

selecting said at least one hypertext link to said second hypertext document in response to user input;

initiating an access time period during which said at least one hypertext link accesses said second hypertext document in response to said selection;

displaying said at least one access parameter in response to initiation of said access time period; and

displaying a preferences dialog box in response to user input, wherein said user is prompted to request at least one latency time parameter for said at least one hypertext link encountered by said browser.

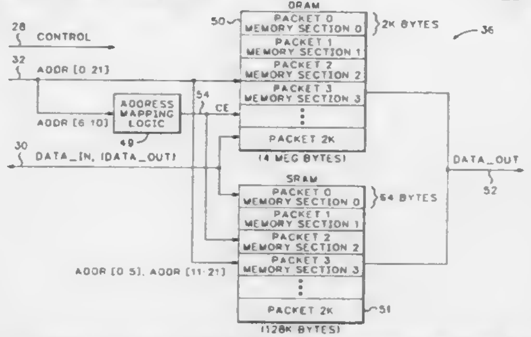
5,787,255
INTERNETWORKING DEVICE WITH ENHANCED PROTOCOL TRANSLATION CIRCUIT

Jonathan M. Parlan, San Jose, and Shashi Kumar, Fremont, both of Calif., assignors to Cisco Systems, Inc., San Jose, Calif.

Filed Apr. 12, 1996, Ser. No. 631,790

Int. Cl.^{6} G06F *12/00*

U.S. Cl. 395—200.63 **23 Claims**


DRAM
50
PACKET 0 MEMORY SECTION 0
2K BYTES
36
28
CONTROL
PACKET 1 MEMORY SECTION 1
32
ADDR [0 21]
PACKET 2 MEMORY SECTION 2
54
PACKET 3 MEMORY SECTION 3
ADDRESS MAPPING LOGIC
CE
ADDR [6 10]
49
PACKET 2K
30
DATA_IN, (DATA_OUT)
(4 MEG BYTES)
DATA_OUT
52
SRAM
PACKET 0 MEMORY SECTION 0
64 BYTES
PACKET 1 MEMORY SECTION 1
PACKET 2 MEMORY SECTION 2
ADDR [0 5], ADDR [11·21]
PACKET 3 MEMORY SECTION 3
PACKET 2K
51
(128K BYTES)

1. Memory overlay circuit used in an internetworking device for translating a network packet, comprising:

a first memory having a first data access time;

a second memory having a second data access time faster than the first data access time;

an address bus coupled to both the first and second memory;

a data bus coupled to both the first and second memory; and

a translation circuit coupled to both the first and second memory, the translation circuit identifying a packet header solely from an address value on the address bus, enabling the first memory when the packet header is identified from the address value and storing the identified packet header in the enabled first memory using the same address value used for identifying the packet header,

identifying packet data solely from the address value on the same address bus, enabling the second memory when packet data is identified from the address value and storing the identified packet data in the enabled second memory using the same address value identifying the packet data, and

using the first memory to translate the packet header into different network protocols.

5,787,256
APPARATUS AND METHOD FOR DATA COMMUNICATION BETWEEN NODES

Mark Douglas Marik, Charlotte; Robert Anthony Palo, Concord, both of N.C., and Susan E. Waefler, Del Ray Beach, Fla., assignors to International Business Machines Corporation, Armonk, N.Y.

Continuation of Ser. No. 1,870, Jan. 8, 1993, abandoned. This application Aug. 6, 1996, Ser. No. 692,553

Int. Cl.^{6} G06F *13/00*

U.S. Cl. 395—200.68 **9 Claims**

1. Method for data communication between a computer and at least three peripherals connected along a plurality of communication channels, the peripherals being connected in a hierarchy wherein at least one peripheral, a composer, has at least one parent and at least one child, comprising the steps of:

for at least one composer,

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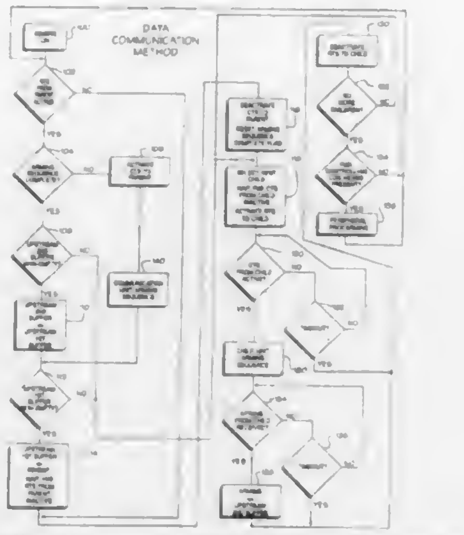


(a) establishing a communication link between the composer and a parent;

(b) transmitting a first composite message, if any, from the composer to the parent;

(c) for at least one child within a set of children,

  (i) establishing a communication link between the composer and a child;

  (ii) receiving a message, if any, from the child;

  (iii) for each additional selected child, if any, repeating steps (c)(i) through (c)(ii), wherein a set of messages from a subset-of the set of children may be received;

(d) composing the set of messages from step (c) into a second composite message; and

(e) repeating steps (a) through (d) until terminated, wherein the second composite message of step (d) becomes the first composite message of step (b); whereby the composer is capable of composing messages independently of at least one indirectly connected peripheral in the hierarchy, and is also capable of composing messages asynchronously with at least one other peripheral in the hierarchy.

5,787,257

CONTROL METHOD FOR STATION-TO-STATION SLAVE TRANSMISSION

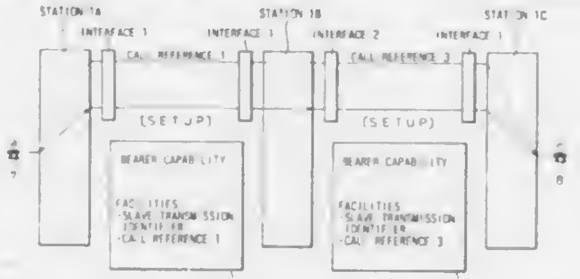
Masashi Kusunoki, Kawasaki, Japan, assignor to Fujitsu Limited, Kanagawa, Japan

Continuation of Ser. No. 594,695, Jan. 31, 1996, abandoned. This application Nov. 18, 1997, Ser. No. 972,701

Claims priority, application Japan, Mar. 17, 1995, 7-059401

Int. Cl.^{6} G06F *13/00*

U.S. Cl. 395—200.72 **23 Claims**



1. In a network formed by exchanges which support ISDN, when an exchange which receives a slave transmission request from a terminal which is already performing communication via one medium with a terminal of another station, a control method for station-to-station slave transmission, said control method comprising the steps of:

detecting said slave transmission request from said terminal and then detecting a call reference being used in a connection to said other station;

setting of a slave transmission identifier and a call reference into information elements which transfer control information and which are added to an ISDN protocol message;

capturing of a different channel on one interface used to connect to said already-communicating terminal; and

sending a call setting message, into which said information elements are set, to said other station;

and further comprising, when said other station, which houses said already-communicating terminal, detects from said information elements added to a call setting message that this is a slave transmission, receiving at the other terminal connected to said other station, via medium of a type that is specified based on said call reference within said information elements.

5,787,258

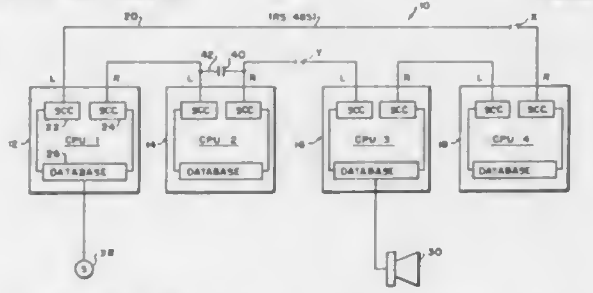
LIFE SAFETY SYSTEM HAVING A PANEL NETWORK WITH MESSAGE PRIORITY

Hilario S. Costa, and Andrew Novetzke, both of Sarasota, Fla., assignors to General Signal Corporation, Stamford, Conn.

Filed May 10, 1996, Ser. No. 644,479

Int. Cl.^{6} G06F *13/00;13/18;15/16*

U.S. Cl. 395—200.81 **7 Claims**



1. A life safety system having a message priority comprising:

a network of panels, each panel including a first module in the form of a central processing unit, and a plurality of local I/O modules connected to the central processing unit and to each other;

means for establishing message priority in communication between said panels, said means including a two-state token form of coded invitations to transmit messages, the first state of the token representing a low priority invitation and the second state of the token representing a high priority invitation;

said means for establishing message priority further including means for passing said tokens continuously between panels to determine if any panel has a high priority message; wherein a given panel, having a low priority message and holding the token in its first state, recognizes that state of the token and generates the second state of the token representing a high priority invitation, which it then passes on to determine if any other panel has a high priority message to transmit; and, wherein that other panel having a high priority message preempts communication of messages between panels by first capturing the token which is in the second state and then transmitting its high priority message to an intended panel.

5,787,259

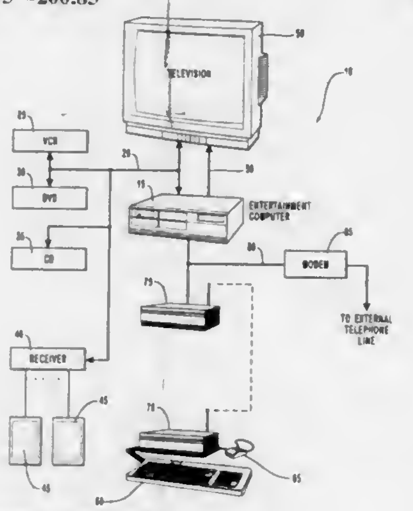
DIGITAL INTERCONNECTS OF A PC WITH CONSUMER ELECTRONICS DEVICES

Wassef Haroun, Seattle; George M. Moore, Redmond; Forrest Foltz, Kirkland; Edward L. Stubbs, Redmond, and Felix Gerard Torquil Ifor Andrew, Seattle, all of Wash., assignors to Microsoft Corporation, Redmond, Wash.

Filed Mar. 29, 1996, Ser. No. 624,064

Int. Cl.^{6} H04M *11/00;* **H04N** *7/14*

U.S. Cl. 395—200.83 **18 Claims**



1. A computer comprising:

a housing;

a processor positioned in the housing; and

an external bus adapter configured to allow the processor to access consumer electronics devices positioned outside of the housing using an external bus, and wherein the external bus is an IEEE **1394** bus; and

wherein the processor is configured to:

produce a first digital audio signal,

mix the first digital audio signal with a second digital audio signal to produce a unified digital audio signal, and

transmit the unified digital audio signal to a consumer electronics device using the external bus.

5,787,260

BUSLINE LENGTH RECOGNITION SYSTEM

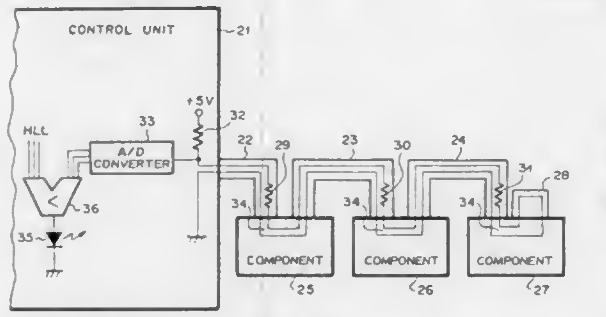
Toshio Misaka, Gunma, Japan, assignor to NEC Corporation, Tokyo, Japan

Division of Ser. No. 336,197, Nov. 2, 1994, abandoned. This application Sep. 22, 1997, Ser. No. 934,887

Claims priority, application Japan, Nov. 5, 1993, 5-276249

Int. Cl.^{6} G06F *13/00*

U.S. Cl. 395—280 **2 Claims**



1. Busline length recognition system comprising:

a control unit;

a plurality of components each having two duplex bus signal lines;

a plurality of connecting portions each having two signal lines for connecting said control unit and said plurality of components in series;

a terminal resistance module having a single signal line for short-circuiting said two duplex signal lines of a terminal one of said plurality of components; and

a resistance proportional to the length of the signal line of each connecting portion being connected to one of the two signal lines of each connecting portion,

wherein said control unit providing therein a grounding portion for grounding one of the two signal lines of said connecting portion, a reference resistance for connecting the other of the two signal lines of said connecting portion to a reference resistance, an A-D converter connected to said reference resistance, a comparator to which the output signal of said A-D converter and the reference signal are entered for comparison and a light emitting diode which turns on by the output signal of said comparator.

5,787,261

DATA TRANSFER SYSTEM, COMPUTER SYSTEM AND ACTIVE-LINE INSERTED/WITHDRAWN FUNCTIONAL CIRCUIT BOARD

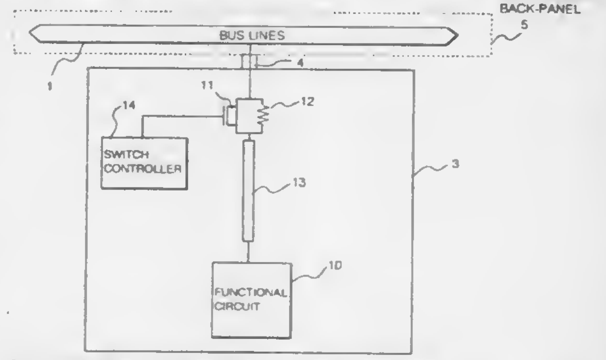
Hideki Osaka, Hiratsuka; Akira Yamagiwa, Naka-gun; Ryoichi Kurihara, Hadano, and Masao Inoue, Sagamihara, all of Japan, assignors to Hitachi, Ltd, Tokyo, Japan

Filed Nov. 27, 1995, Ser. No. 563,106

Claims priority, application Japan, Nov. 28, 1994, 6-292993

Int. Cl.^{6} G06F *13/00*

U.S. Cl. 395—283 **15 Claims**



1. A data transfer/computer system comprising:

a plurality of functional circuit boards, each equipped with a functional circuit wherein at least one of said functional circuit boards is equipped with a connector; and

a data bus connected to said functional circuit on at least one of said functional circuit boards, the other end of said data bus being connected to a resistor and a switching element connected in parallel, and the other end of the parallel resistor and switching element being connected to a terminal of said connector, for transferring data among said plurality of functional circuit boards through said connector.

5,787,262

SYSTEM AND METHOD FOR DISTRIBUTED CONFLICT RESOLUTION BETWEEN DATA OBJECTS REPLICATED ACROSS A COMPUTER NETWORK

Darren Arthur Shakib, Redmond; Scott Norin, Newcastle, and Max Loell Benson, Redmond, all of Wash., assignors to Microsoft Corporation, Redmond, Wash.

Filed Jun. 26, 1996, Ser. No. 673,161

Int. Cl.^{6} G06F *13/42;15/177;7/20*

U.S. Cl. 395—200.35 **26 Claims**

1. In a network comprising a plurality of nodes each of which can make changes to local copies of a replica object and each of which transmit any changes made to other nodes in the network, a method for each node (1) to independently detect conflicts that arise when two or more copies of the replica object are changed to introduce conflicts and (2) to take steps to resolve the conflicts

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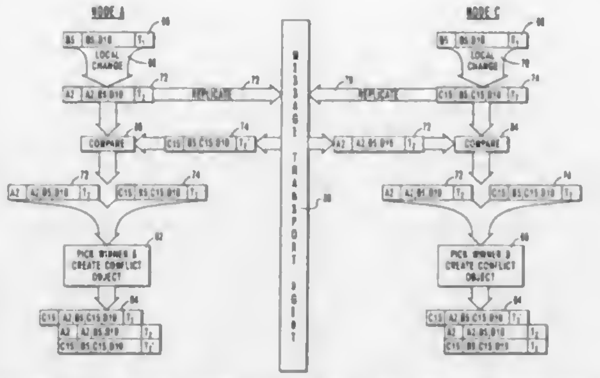


without interrupting normal operation of the network the method comprising the steps of:

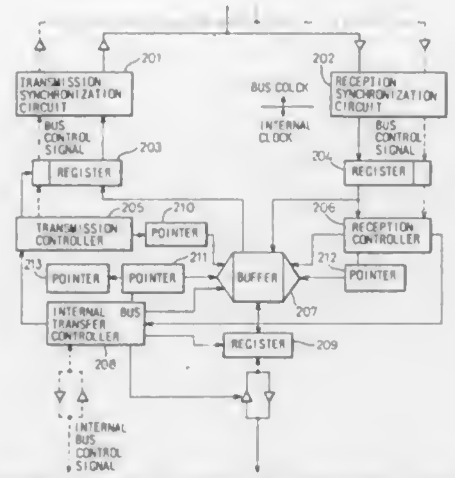
- keeping at a local node a local copy of the replica object and a local change history comprising globally unique change numbers that together identify all changes that have been made to said local copy, whether at said local node or at other nodes in the network;
- receiving, from another node in the network, at least one message comprising a received copy the replica object and a received change history;
- detecting if a conflict exists between said received copy and said local copy and taking steps to resolve any detected conflict without interrupting normal operation of the network by performing at least the steps of:
  - comparing said received change history with said local change history and declaring a conflict only if one of either said received change history or said local change history does not contain all the changes of the other;
  - if a conflict is declared then creating a new copy of the replica object that can be changed and transmitted to other replica nodes without interrupting normal operation of the network by performing at least the steps of:
    - executing a predetermined sequence of steps that deterministically select one of either said received copy or said local copy as a winner copy; and
    - attaching the copy not selected as the winner copy to the winner copy; and
  - if a conflict is not declared, then replacing said local copy with said received copy if said received copy contains all changes of said local copy, otherwise discarding said received copy and retaining said local copy.

5,787,263
METHOD OF AN APPARATUS FOR CONTROLLING DATA TRANSFER

Masahiro Tamagawa, and Masato Maebayashi, both of Kawasaki, Japan, assignors to Fujitsu Limited, Kawasaki, Japan

Continuation of Ser. No. 214,699, Mar. 18, 1994, abandoned.
This application May 14, 1996, Ser. No. 645,784
Claims priority, application Japan, May 28, 1993, 5-126628
Int. Cl.^{6} G06F *13/14*

U.S. Cl. 395—287 **20 Claims**



1. A method for controlling data transfer between units via a system bus in a computer system by using a bus handler, comprising the steps of:

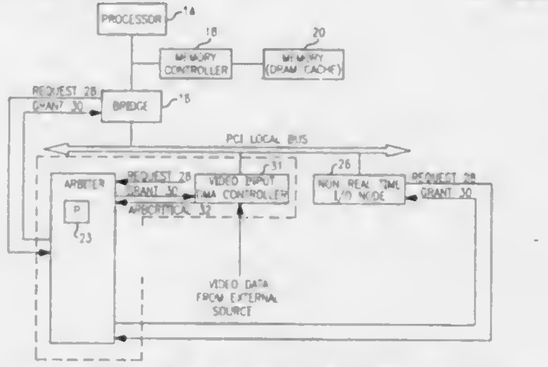
- transferring data transfer requests separately from responses thereto in a manner of a split transfer technique;
- arbitrating bus request signals (BRQs) issued by the units, thereby assigning a proper one of the units as a bus master unit and providing the bus master unit with a bus grant signal (BGRM) in said bus handler;
- continuously asserting a bus request signal in said bus master unit until completely transferring all transferable statuses including statuses prepared during transferring statuses for informing units other than the bus master unit as bus slaves of a reception result of commands sent therefrom when the one of the units is a bus master unit; and
- continuously providing the bus master unit with the bus grant signal until the bus master unit drops the bus request signal in said bus handler.

5,787,264
METHOD AND APPARATUS FOR ARBITRATING ACCESS TO A SHARED BUS

Kevin M. Christiansen, Saratoga; Mark A. Stubbs, Felton, and Bruce Eckstein, Cupertino, all of Calif., assignors to Apple Computer, Inc., Cupertino, Calif.

Filed May 8, 1995, Ser. No. 437,233
Int. Cl.^{6} H01J *13/00*

U.S. Cl. 395—293 **20 Claims**



1. A computer system for processing data comprising:

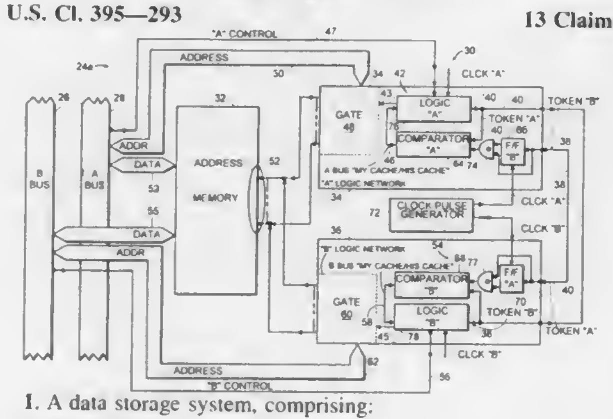
- a system bus for transferring signals within said computer system;
- a plurality of devices of a first priority, each of said devices of first priority generating a first signal to request control of said system bus;
- at least one video device of a second priority for generating a second signal to request control of said system bus; and
- an arbiter responsive to said first signal from each of said plurality of devices of first priority, and to said second signal from said at least one video device of second priority, for arbitrating control of said system bus among said plurality of devices of first priority using an equal access arbitration in an absence of detecting said second signal and, upon detecting said second signal, granting control of said system bus to said at least one video device of second priority; wherein
- an elapsed period of time subsequent to a grant of system bus control to one of said plurality of devices of first priority is stored while the at least one video device of second priority uses the system bus.

5,787,265
BUS ARBITRATION SYSTEM HAVING A PAIR OF LOGIC NETWORKS TO CONTROL DATA TRANSFER BETWEEN A MEMORY AND A PAIR OF BUSES

Eli Leshem, Brookline, Mass., assignor to EMC Corporation, Hopkinton, Mass.

Filed Sep. 28, 1995, Ser. No. 534,376
Int. Cl.^{6} H01J *13/00*

U.S. Cl. 395—293 **13 Claims**



1. A data storage system, comprising:

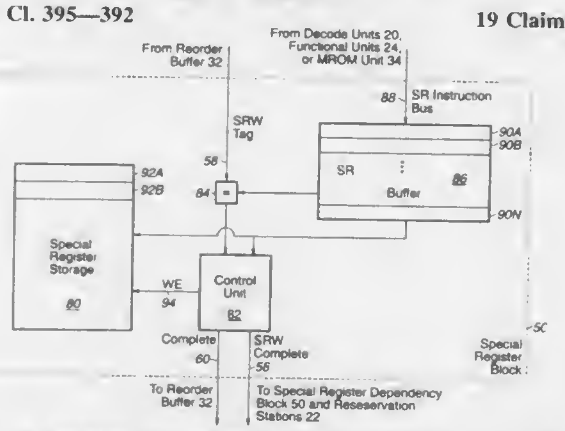
- a pair of buses;
- a memory;
- a bus availability system for enabling data to be transferred between the memory and either one of the pair of buses, such system including a pair of logic networks;
  - a first one of the pair of logic networks being adapted to enable data to be transferred between the memory and a first one of the buses in response to a first bus availability signal and for providing a second bus availability signal indicating when the memory is available to transfer data between such memory and the second one of the buses; and,
  - a second one of the pair of logic networks being adapted to enable data to be transferred between the memory and the second one of the buses in response to the second bus availability signal and for providing the first bus availability signal indicating when the memory is available to transfer data between such memory and the first one of the buses.

5,787,266
APPARATUS AND METHOD FOR ACCESSING SPECIAL REGISTERS WITHOUT SERIALIZATION

William M. Johnson; Thang M. Tran, and Rupaka Mahalingaiah, all of Austin, Tex., assignors to Advanced Micro Devices, Inc., Sunnyvale, Calif.

Filed Feb. 20, 1996, Ser. No. 603,805
Int. Cl.^{6} G06F *9/00*

U.S. Cl. 395—392 **19 Claims**



1. An apparatus for updating one of a plurality of special registers in a microprocessor, wherein said one of said plurality of special registers is included in a group consisting of a plurality of address segment translation registers, a floating point data pointer register and a plurality of microprocessor-architected debug registers, and wherein an update of each of said plurality of special registers changes a mode of operation for said microprocessor, said apparatus comprising:

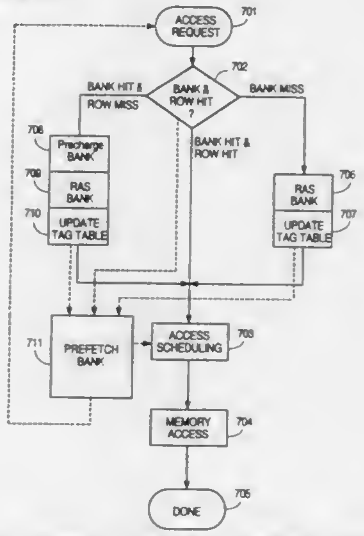
- a storage including a plurality of storage locations corresponding to said plurality of special registers;
- a buffer coupled to said storage, wherein said buffer is configured to store an operation which updates one of said plurality of special registers, and wherein said operation corresponds to a first instruction executed by said microprocessor;
- a storage device configured to store a first indication of said one of said plurality of special registers;
- at least one decode unit coupled to receive said first indication from said storage device, wherein said decode unit is configured to identify a second instruction having implicit dependence upon said one of said plurality of special registers wherein said one of said plurality of special registers is not explicitly expressed in an encoding of said second instruction, and wherein said decode unit is configured to dispatch said second instruction along with said first indication; and
- at least one reservation station coupled to receive said second instruction and said first indication, wherein said reservation station is configured to store said second instruction until said first instruction is performed in response to said at least one decode unit identifying said implicit dependence.

5,787,267
CACHING METHOD AND CIRCUIT FOR A MEMORY SYSTEM WITH CIRCUIT MODULE ARCHITECTURE

Wingyu Leung, Cupertino, and Kit Sang Tam, Belmont, both of Calif., assignors to Monolithic System Technology, Inc., Sunnyvale, Calif.

Filed Jun. 7, 1995, Ser. No. 479,915
Int. Cl.^{6} G06F *12/00*

U.S. Cl. 395—432 **24 Claims**



1. A memory system for use in a computer system having a plurality of processors or processes, the memory system comprising:

- a memory bus coupled to each of the processors;
- a plurality of memory banks coupled in parallel to the memory bus, wherein each of the memory banks has a dedicated sense amplifier circuit for storing data received from the corresponding memory bank, wherein a first group of the memory banks have sense amplifier circuits which are maintained in an active state to store cache data for the processors or processes, and a second group of the memory banks are maintained in a precharged state, wherein the first group includes a predetermined first number of the memory banks and the second group includes a second number of the memory banks, wherein any one of the memory banks can be in either the first group or the second group.

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5,787,268
INTERACTIVE CIRCUIT DESIGNING APPARATUS

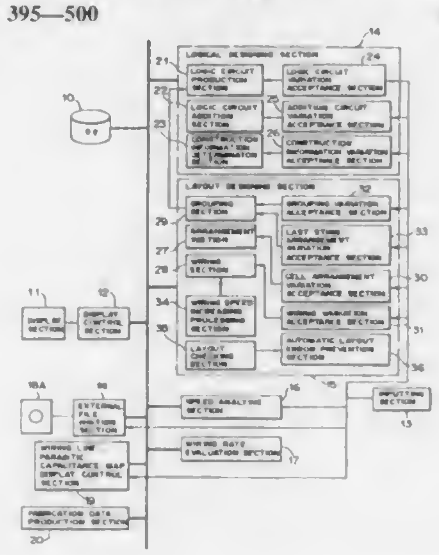
Yaroku Sugiyama; Hiroyuki Sugiyama; Noriyuki Ito; Ryouichi Yamashita; Terunobu Maruyama, and Yasunori Abe, all of Kawasaki, Japan, assignors to Fujitsu Limited, Kawasaki, Japan

Filed Jun. 30, 1995, Ser. No. 497,375

Claims priority, application Japan, Oct. 20, 1994, 6-255783

Int. Cl.⁶ G06F *17/50*

U.S. Cl. 395—500 **69 Claims**


LOGICAL DESIGNING SECTION
LOGIC CIRCUIT PRODUCTION SECTION
LOGIC CIRCUIT VARIATION ACCEPTANCE SECTION
LOGIC CIRCUIT ADDITION SECTION
ADDITION CIRCUIT VARIATION ACCEPTANCE SECTION
CONSTRUCTION INFORMATION VARIATION ACCEPTANCE SECTION
LAYOUT DESIGNING SECTION
GROUPING SECTION
WIRING SECTION
DISPLAY SECTION
INPUTTING SECTION
SPEED ANALYSIS SECTION
FABRICATION DATA PRODUCTION SECTION
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1. An interactive circuit designing apparatus, comprising:

a display section for displaying a process of a circuit design to allow a circuit design to be performed interactively;

an inputting section for inputting response information to display data displayed on said display section;

logical designing means for logically designing a design object circuit;

layout designing means for performing a mounting arrangement of logical components constituting the design object circuit based on a result of the logical design by said logical designing means and performing a wiring between the logical components;

speed analysis means for performing a speed analysis based on a calculation of a delay for each of a plurality of paths on the design object circuit in accordance with a result of the design by said layout designing means; and

a grouping section for grouping, after a plurality of logical components to which a predetermined signal is to be distributed are arranged for mounting by said layout designing means, the plurality of logical components for last stage temporary positions of a signal distribution circuit for distributing the signal, and wherein said logical designing means includes a logic circuit addition section for generating a signal distribution circuit for distributing a signal from a signal source to the individual logical components based on the last state temporary positions and the plurality of logical component groups obtained by grouping by said grouping section and adding the signal distribution circuit as a logic circuit, said layout designing means determining a mounting arrangement of the signal distribution circuit based on the logic circuit as the signal distribution circuit added by said logic circuit addition section;

said logical designing means, said layout designing means and said speed analysis means being connected to each other so as to cooperate with each other.

5,787,269
PROCESS SIMULATION APPARATUS AND METHOD FOR SELECTING AN OPTIMUM SIMULATION MODEL FOR A SEMICONDUCTOR MANUFACTURING PROCESS

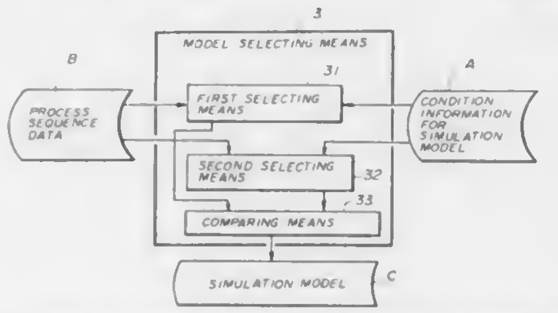
Toshihiro Hyodo, Ikeda, Japan, assignor to Ricoh Company, Ltd., Tokyo, Japan

Filed Sep. 19, 1995, Ser. No. 531,231

Claims priority, application Japan, Sep. 20, 1994, 6-250190; Dec. 2, 1994, 6-323969

Int. Cl.⁶ G06F *11/30*

U.S. Cl. 395—500 **16 Claims**



1. A process simulation apparatus for simulating a manufacturing process of a semiconductor device which manufacturing process comprises various processes including an ion implantation process and a diffusion process, said process simulation apparatus comprising:

reading means for inputting process sequence data which represents conditions of a two-dimensional simulation for each process;

a memory unit storing said process sequence data input from said reading means and also storing condition information for various simulation models usable for each process;

model selecting means for selecting an optimum simulation model used for simulating each process so as to perform a two-dimensional simulation simulating each process, said model selecting means comparing said process sequence data and said condition information and selecting a simulation model which most accurately simulates an actual process based on the comparison; and

simulation means for simulating said semiconductor device manufacturing process by a two-dimensional simulation method using said optimum simulation model selected by the model selecting means to produce simulated results of said device manufacturing process.

5,787,270
METHOD AND APPARATUS FOR INTRUSIVE TESTING OF THE PERFORMANCE-ENHANCING FEATURES OF AN ADVANCED MICROPROCESSOR

Charles T. Bloomer; James F. Headley; Jody A. McCoy, and Leo J. Klaes, Jr., all of Austin, Tex., assignors to Advanced Micro Devices

Filed Nov. 15, 1995, Ser. No. 559,503

Int. Cl.⁶ G06F *9/455*

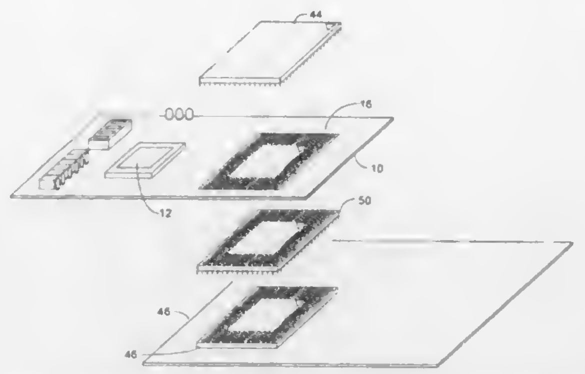
U.S. Cl. 395—500 **21 Claims**

1. A method of performing intrusive testing upon a microprocessor, comprising the steps of:

coupling an intrusive testing unit between a motherboard and said microprocessor;

causing said microprocessor to execute a test software program, wherein the test software program comprises a set of instructions to (i) read the contents of a first computer file from a hard drive coupled to the motherboard, and (ii) write the contents of the first computer file back to a second computer file on the hard drive;

causing the intrusive testing unit to produce at least one logic signal;



applying said logic signal to at least one control signal pin of the microprocessor while the microprocessor is executing the test software program; and

comparing the response produced by the microprocessor with a set of desired results; and

producing a test result based on the comparison of the response produced by the microprocessor and the set of desired results.

5,787,271
SPARE CAPACITY ALLOCATION TOOL

Jay C. Box, Garland, and Sridhar S. Nathan, Plano, both of Tex., assignors to MCI Corporation, Washington, D.C.

Filed Jun. 26, 1996, Ser. No. 670,886

Int. Cl.⁶ G06F *9/455;* **H04L** *12/24*

U.S. Cl. 395—500 **28 Claims**

23. A system for deriving a minimal spares network for a communications network comprising a plurality of nodes and a plurality of spans interconnecting the nodes, the system comprising:

network modeling means for providing a network model that defines the physical topology of the network;

demand modeling means for modeling the demands of the network;

simulator means for simulating a severed span within said network model;

cutsite means for deriving a set of cutsite lists from said network modeling means, wherein each cutsite list identifies at least one span from said plurality of spans, and comprises a list of affected demands that would be interrupted if said at least one span were to be severed;

sorting means for sorting said set of cutsite lists into a first sorted order according to a predefined sorting criteria;

first processing means for processing said each cutsite list in said first sorted order to derive a first spares network comprising a first set of spare resources;

second processing means for processing said each cutsite list in a second sorted order to derive a second spares network comprising a second set of spare resources;

initializing means for initializing the minimal spares network with an initial set of spare resources that are derived from the spare resources that are common among said first and said second processing means; and

third processing for processing said each cutsite list to derive the minimal spares network.

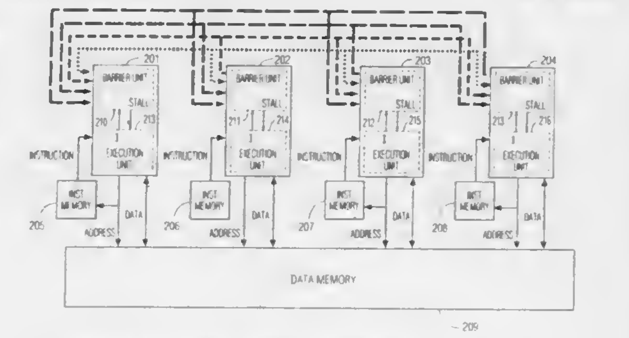
5,787,272
METHOD AND APPARATUS FOR IMPROVING SYNCHRONIZATION TIME IN A PARALLEL PROCESSING SYSTEM

Rajiv Gupta, Ossining, and Michael Abraham Epstein, Spring Valley, both of N.Y., assignors to Philips Electronics North America Corporation, New York, N.Y.

Continuation of Ser. No. 488,311, Jun. 7, 1995, abandoned, which is a division of Ser. No. 189,269, Jan. 31, 1994, abandoned, which is a continuation of Ser. No. 689,383, Apr. 22, 1991, abandoned, which is a division of Ser. No. 227,276, Aug. 2, 1988, abandoned. This application Jun. 10, 1997, Ser. No. 871,562

Int. Cl.⁶ G06F *15/16*

U.S. Cl. 395—553 **11 Claims**



1. A parallel processor system comprising:

first and second data processors for executing first and second sequences of instructions, respectively, in parallel, wherein:

the first sequence comprises a concatenation of a first unshaded region of consecutive instructions followed by a second shaded region of consecutive instructions followed by a third unshaded region of consecutive instructions;

the second sequence comprises a concatenation of a fourth unshaded region of consecutive instructions followed by a fifth shaded region of consecutive instructions followed by a sixth unshaded region of consecutive instructions;

each instruction in the second shaded region is executable independently of any instruction in the fourth and any successive regions in the second instruction stream;

each instruction in the fifth shaded region is executable independently of any instruction in the first and any successive regions in the first instruction stream;

at least one instruction in the first unshaded region and at least one instruction in the sixth unshaded region have a dependence relationship, or at least one instruction in the third unshaded region and at least one instruction in the fourth unshaded region have a dependence relationship;

synchronization means coupled to the processors for controlling synchronization between the processors during execution of said first and second streams of instructions in parallel, so that the first processor exits the second shaded region only after the second processor has completed execution of the instructions in the fourth unshaded region, or so that the second processor exits the fifth shaded region only after the first processor has completed execution of the instructions in the first unshaded region.

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5,787,273

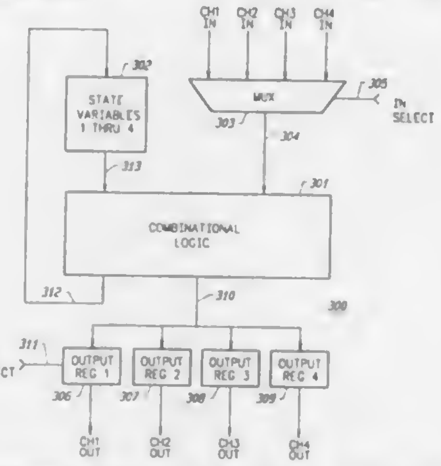
MULTIPLE PARALLEL IDENTICAL FINITE STATE MACHINES WHICH SHARE COMBINATORIAL LOGIC

Thomas Jefferson Runaldue, San Jose, Calif., assignor to Advanced Micro Devices, Inc., Sunnyvale, Calif.

Filed Dec. 13, 1996, Ser. No. 764,212

Int. Cl.^{6} G06F *1/08*

U.S. Cl. 395—555 **21 Claims**



1. An integrated circuit device for servicing N channels, comprising:

a combinatorial logic block having a current state input, a channel input, a next state output, and a channel output;

an input multiplexor having N inputs and an output, wherein each of the N inputs is coupled to a corresponding one of the N channels, and wherein the output is coupled to the combinatorial logic block channel input;

a memory unit having a next state input and a current state output, and having N state variable storage locations corresponding to the N channels, wherein the next state input is coupled to the combinatorial logic block next state output, and wherein the current state output is coupled to the combinatorial logic block current state input; and

N output registers, each register having an input and an output, wherein each of the inputs is coupled to the combinatorial logic block channel output, and wherein each of the outputs is coupled to a corresponding one of the N channels.

5,787,274

DATA MINING METHOD AND SYSTEM FOR GENERATING A DECISION TREE CLASSIFIER FOR DATA RECORDS BASED ON A MINIMUM DESCRIPTION LENGTH (MDL) AND PRESORTING OF RECORDS

Rakesh Agrawal; Manish Mehta, both of San Jose, and Jorma Johannes Rissanen, Los Gatos, all of Calif., assignors to International Business Machines Corporation, Armonk, N.Y.

Filed Nov. 29, 1995, Ser. No. 564,694

Int. Cl.^{6} G06F *17/30*

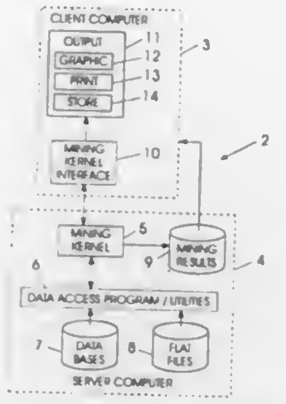
U.S. Cl. 395—613 **42 Claims**

1. A method for generating a decision tree classifier from a training set of records, each record having at least one numeric attribute and a class label of a class to which the record belongs, the method comprising the steps of:

pre-sorting the records based on the numeric attribute;

generating an attribute list for each attribute and a class list, each entry of the class list corresponding to a class label, the attribute list including values of the attribute and indices to the class labels;

creating a decision tree from the pre-sorted records, attribute lists, and class list, using a breadth-first process, the decision tree having a root node, a plurality of interior nodes, and a plurality of leaf nodes, the breadth-first process being such that the nodes of a same depth from the root node are formed in parallel; and



pruning the decision tree based on a Minimum Description Length (MDL) scheme to obtain the decision tree classifier, the MDL scheme encoding the decision tree as a model such that an encoding cost for describing the decision tree and the training set is minimized, and the method taking into account the encoding cost in the pruning.

5,787,275

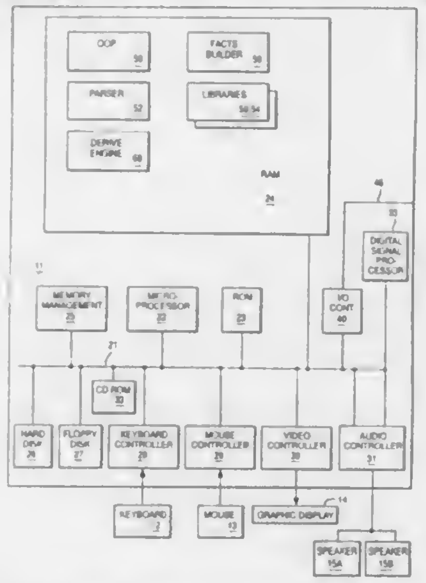
IDENTIFYING MULTIPLE LEVEL CLASS RELATIONSHIPS IN AN OBJECT ORIENTED SYSTEM USING ICONS AND LINES TO REPRESENT CLASS RELATIONSHIPS

Shih-Gong Li, Cupertino, Calif., assignor to International Business Machines Corporation, Armonk, N.Y.

Division of Ser. No. 454,792, May 31, 1995, Pat. No. 5,640,558. This application Nov. 12, 1996, Ser. No. 747,314

Int. Cl.^{6} G06F *17/30*

U.S. Cl. 395—614 **20 Claims**



1. A method for presenting multiple level class relationship data of an object oriented application on a computer system display comprising the steps of:

selecting a set of icons to represent a set of classes in the multiple level class relationship data;

selecting a set of lines to represent a set of class relationships in the multiple class relationship data; and

presenting the icons and lines in a tree format on the system display, wherein each line connects two icons and is presented in a manner which indicates a class relationship between the two classes represented by the respective icons, and wherein at least two lines are respectively presented in at least two different manners indicating at least two different class relationships.

5,787,276

MICROPROCESSOR INCLUDING CIRCUIT FOR GENERATING SIGNAL USED FOR TRACING EXECUTED INSTRUCTION STREAM

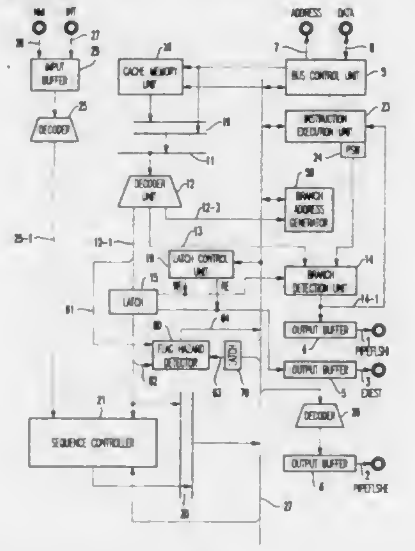
Yasuaki Kuroda, Tokyo, Japan, assignor to NEC Corporation, Tokyo, Japan

Filed Jul. 6, 1994, Ser. No. 267,917

Claims priority, application Japan, Jul. 7, 1993, 5-191789

Int. Cl.^{6} G06F *9/34*

U.S. Cl. 395—581 **21 Claims**



7. A microprocessor comprising:

a decoder for receiving a first instruction, for producing a second instruction which is decoded from said first instruction and for producing branch information when receiving a branch instruction;

a storage coupled to said decoder for storing said second instruction in response to a first signal and reading out said second instruction in response to a second signal;

execution means coupled to said storage for executing said second instruction and for storing at least one execution state of said execution means to a register; and

a first detector for generating a detection signal responding to said first signal when said branch information corresponds with said execution state and outputting said detection signal to an exterior of said microprocessor,

wherein said storing of said second instruction in said storage and said generating of said detection signal by said first detector are synchronized by said first signal.

5,787,277

Patent Not Issued For This Number

5,787,278

METHOD AND SYSTEM FOR GENERATING AND MAILING A SYSTEM PERFORMANCE REPORT, UTILIZING A REPORT TEMPLATE WITH PREDETERMINED CONTROL COMMANDS FOR CONTROLLING THE PRINTER

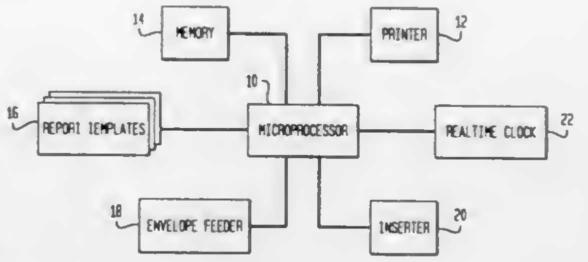
Maya Barton, Chapel Hill, N.C.; James L. Harman, Southport, Conn.; Gary S. Jacobson, Norwalk, Conn.; Stephen Tymoszuk, Stratford, Conn., and Eric L. Zuidema, Norwalk, Conn., assignors to Pitney Bowes Inc., Stamford, Conn.

Filed Dec. 28, 1994, Ser. No. 365,727

Int. Cl.^{6} B07C *3/00*

U.S. Cl. 395—601 **14 Claims**

12. A method for generating reports for mailing, the method comprising the steps of:



(a) storing system data in a memory device;

(b) selecting a report template;

(c) retrieving the report template;

(d) retrieving system data from the memory device;

(e) printing a report corresponding to the report template;

(f) inserting the report into an envelope;

(g) placing a delivery address on the envelope;

(h) automatically generating a report after a predetermined time period has elapsed.

5,787,279

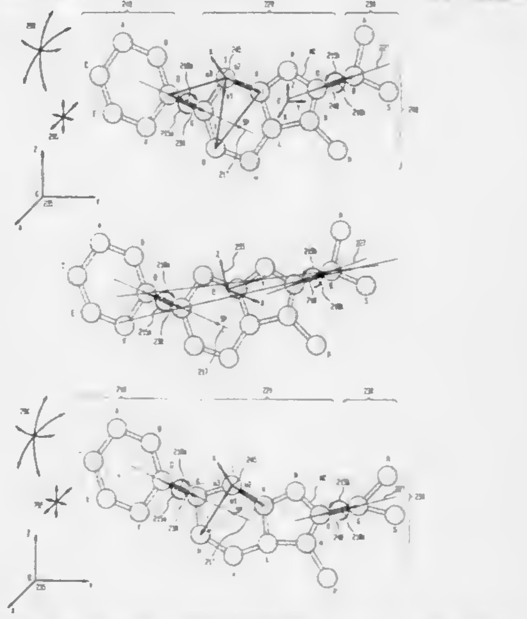
SYSTEM AND METHOD FOR CONFORMATIONALLY-FLEXIBLE MOLECULAR RECOGNITION

Isidore Rigoutsos, Long Island City, N.Y., assignor to International Business Machines Corporation, Armonk, N.Y.

Filed Dec. 22, 1995, Ser. No. 577,353

Int. Cl.^{6} G06F *17/30*

U.S. Cl. 395—606 **60 Claims**



1. A method for storing a representation of one or more reference molecules in a memory in a computer system, the method executed on a computer system and comprising the steps of:

a. recognizing either one or more rigid substructures of the reference molecule, each of the rigid substructures having one or more atomic sites, each of the atomic sites being connected to zero or more atomic sites in the rigid substructure with a non-rotatable bond, each rigid substructure having a global position and a global orientation in a global coordinate frame:

b. defining two or more vectors with a magnitude and direction with a fixed position and orientation with respect to a selected rigid substructure the selected rigid substructure being one of the rigid substructures;

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- c. selecting a set of three or more sites, the selected set of sites being in the selected rigid substructure, the set of sites forming a frame tuple, at least one of the sites being non-colinear with the remaining sites, the sites being in a fixed position with respect to the selected rigid substructure, and the frame tuple defining a three-dimensional skewed local coordinate frame;
- d. selecting one or more of the frame tuples and generating a fame tuple field with information associated with each of the selected frame tuples; and
- e. storing a record in a data structure, the data structure having a plurality of records, each record containing the frame tuple field and a vector field, the vector field containing vector information relating to each of the vectors as well as information about the identities of the molecule and selected rigid substructure.

5,787,280

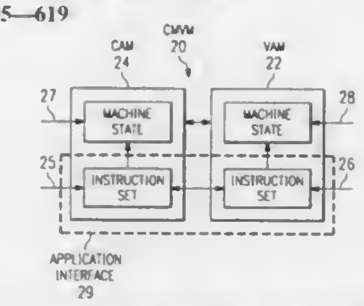
APPARATUS AND METHOD FOR PROVIDING A FACILITY FOR MANAGING VERSIONS AND CONFIGURATIONS OF PERSISTENT AND TRANSIENT OBJECTS

Vappala John Joseph, Plano; Mark Benjamin Shadowens, Irving; Craig Warren Thompson, and John Chung-Lin Chen, both of Plano, all of Tex., assignors to Texas Instruments Incorporated, Dallas, Tex.

Division of Ser. No. 62,492, May 14, 1993, abandoned, which is a continuation of Ser. No. 526,215, May 21, 1990, abandoned. This application Jun. 7, 1995, Ser. No. 487,353

Int. Cl.^{6} G06F *17/30*

U.S. Cl. 395—619 **11 Claims**



1. A method for managing change in an application wherein how the change is being managed remains transparent to a user comprising the steps of:

inputting domain specific information as function parameters as well as object type information to an abstract machine via an interface;

initializing policies selected by said user within said abstract machine;

storing change management data structures in a private state of said abstract machine in response to a service request by said application, wherein said data structures are managed in a generic application-nondependent fashion;

managing a name space which includes at least one name;

communicating with said application using only said at least one name;

automatically updating said stored change management data structures in response to said service request; and

returning information to said application using un-typed pointer structures together with said names.

5,787,281

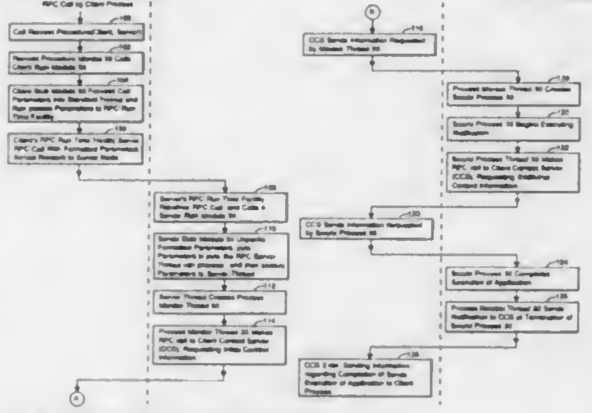
COMPUTER NETWORK PROVIDING TRANSPARENT OPERATION ON A COMPUTE SERVER AND ASSOCIATED METHOD

Benn Lee Schreiber, Issaquah, Wash.; Robert Bismuth, Harvard, Mass.; Claire Rae Cockcroft, Redmond, Wash.; Mark Charles Ozur, Boulder, Colo., and Dennis Joseph Doherty, Redmond, Wash., assignors to Digital Equipment Corporation, Maynard, Mass.

Continuation of Ser. No. 81,970, Jun. 24, 1993, Pat. No. 5,430,876, which is a continuation-in-part of Ser. No. 982,415, Nov. 27, 1992, Pat. No. 5,249,293, which is a continuation of Ser. No. 372,022, Jun. 27, 1989, abandoned, and a continuation of Ser. No. 830,730, Feb. 4, 1992, Pat. No. 5,247,676, which is a continuation of Ser. No. 374,100, Jun. 29, 1989, abandoned. This application Apr. 28, 1995, Ser. No. 431,277

Int. Cl.^{6} G06F *13/14*

U.S. Cl. 395—684 **10 Claims**



1. A computer network comprising:

a compute server;

a multiplicity of client systems that are each coupled to said compute server, each client system including a client context server with means for sending remote procedure calls to the compute server, each remote procedure call specifying a task to be performed by said compute server on behalf of the one of said multiplicity of client systems that sent said remote procedure call;

said compute server including:

remote procedure call receiving means for receiving each remote procedure call sent to the compute server and for passing each said remote procedure call to a corresponding instance of a predefined control process;

at least one of said control process instances including:

(A) RPC sending means for sending a remote procedure call to said one client system, said remote procedure call requesting context information from said one client system;

(B) context information receiving means for receiving context information from said one client system in response to said remote procedure call sent by said RPC sending means; and

(C) means for initiating execution of said specified task using said received context information and transmission of results produced by execution of said specified task to said one client system;

each said client system further including:

client context means for responding to said remote procedure call sent by said compute server's RPC sending means by sending said requested context information to the corresponding control process instance in said compute server; and

means for receiving from the compute server the results of executing said specified task.

5,787,282

CONTROL PROGRAM DESIGNING SUPPORT APPARATUS

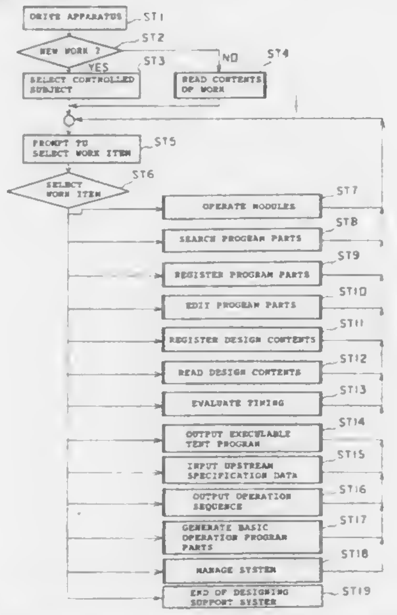
Makoto Tanaka; Kinya Ogino, and Tetsuo Yamasaki, all of Hyogo, Japan, assignors to Mitsubishi Denki Kabushiki Kaisha, Tokyo, Japan

Filed Jul. 21, 1994, Ser. No. 278,625

Claims priority, application Japan, Dec. 10, 1993, 5-310888

Int. Cl.^{6} G06F *9/44*

U.S. Cl. 395—701 **11 Claims**



1. A control program designing support apparatus for designing a control program to control a plurality of interrelated controlled subjects comprising:

selecting means for selecting a plurality of controlled subjects and for specifying groups of controlled subjects as contents of control, the groups defining how each of said controlled subjects is to be controlled;

program parts managing means for searching a set of program parts corresponding to the plurality of controlled subjects as based upon searching data corresponding to said contents of the control, and for searching the set of program parts based upon searching data peculiar to each of the plurality of controlled subjects under independent control without influencing control of the other controlled subjects to obtain a set of output program parts;

program parts combining means for hierarchically combining the output program parts; and

program converting means for converting the output program parts combined by said program parts combining means into an executable text program.

5,787,283

FRAMEWORK FOR MANUFACTURING LOGISTICS DECISION SUPPORT

Goodwin R. Chin, Palo Alto, Calif.; Walter C. Dietrich, Jr., Yorktown Heights, N.Y.; Thomas Robert Ervolina, Hopewell Junction, N.Y.; John Peter Fasano, Briarcliff Manor, N.Y.; Elizabeth Jodi Poole, Garrison, N.Y., and Jung-Mu Tang, South Salem, N.Y., assignors to International Business Machines Corporation, Armonk, N.Y.

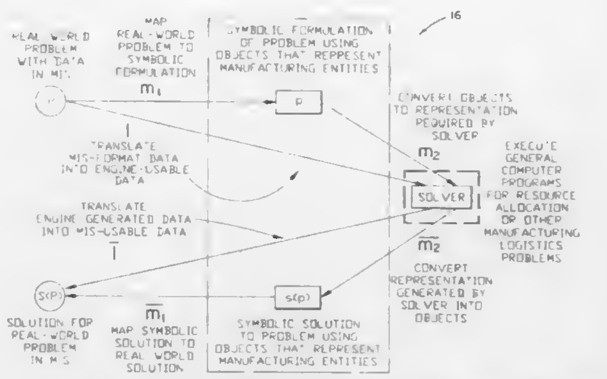
Filed Oct. 27, 1995, Ser. No. 549,591

Int. Cl.^{6} G06F *17/60*

U.S. Cl. 395—701 **7 Claims**

1. A tool including a framework suitable for manufacturing logistics decision support, the tool comprising:

(1) means for providing an object-oriented technology framework, the framework comprising:


16
REAL WORLD PROBLEM WITH DATA IN MIS
MAP REAL-WORLD PROBLEM TO SYMBOLIC FORMULATION
SYMBOLIC FORMULATION OF PROBLEM USING OBJECTS THAT REPRESENT MANUFACTURING ENTITIES
m1
P
CONVERT OBJECTS TO REPRESENTATION REQUIRED BY SOLVER
m2
TRANSLATE MIS-FORMAT DATA INTO ENGINE-USABLE DATA
EXECUTE GENERAL COMPUTER PROGRAMS FOR RESOURCE ALLOCATION OR OTHER MANUFACTURING LOGISTICS PROBLEMS
SOLVER
TRANSLATE ENGINE GENERATED DATA INTO MIS-USABLE DATA
m̄2
CONVERT REPRESENTATION GENERATED BY SOLVER INTO OBJECTS
S(P)
s(p)
m̄1
SOLUTION FOR REAL-WORLD PROBLEM IN MIS
MAP SYMBOLIC SOLUTION TO REAL WORLD SOLUTION
SYMBOLIC SOLUTION TO PROBLEM USING OBJECTS THAT REPRESENT MANUFACTURING ENTITIES

(i) means for defining objects representing manufacturing logistics problems; and

(ii) means for transforming a subset of the above objects into representations commonly used in mathematical solvers, wherein the representations in the solver have predefined relationships based on their properties; and

(2) means responsive to selective changes in the objects for modifying the behavior of the framework for developing a new manufacturing logistics decision support application.

5,787,284

IMPROVING MEMORY LAYOUT BASED ON CONNECTIVITY CONSIDERATIONS

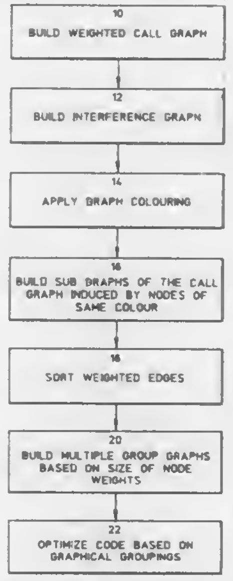
Robert James Blainey, Newmarket; Christopher Michael Donawa, and James Lawrence McInnes, both of Toronto, all of Canada, assignors to International Business Machines Corporation, Armonk, N.Y.

Filed Oct. 7, 1996, Ser. No. 726,038

Claims priority, application Canada, Dec. 28, 1995, 2166254

Int. Cl.^{6} G06F *9/45*

U.S. Cl. 395—701 **4 Claims**


10
BUILD WEIGHTED CALL GRAPH
12
BUILD INTERFERENCE GRAPH
14
APPLY GRAPH COLOURING
16
BUILD SUB GRAPHS OF THE CALL GRAPH INDUCED BY NODES OF SAME COLOUR
18
SORT WEIGHTED EDGES
20
BUILD MULTIPLE GROUP GRAPHS BASED ON SIZE OF NODE WEIGHTS
22
OPTIMIZE CODE BASED ON GRAPHICAL GROUPINGS

4. A program storage device readable by a machine, tangibly embodying a program of instructions executable by the machine to perform method steps of optimizing memory layout following complication, said method steps comprising:

defining a limit;

identifying a referenced program object;

building a weighted graph wherein weights on nodes represent program object size and weights on edges represent access relationships between nodes;

grouping the heaviest edges together from the weighted interference graph while the total weight of the nodes does not meet a preset limit; and

remapping the program objects based on the grouping.

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5,787,285

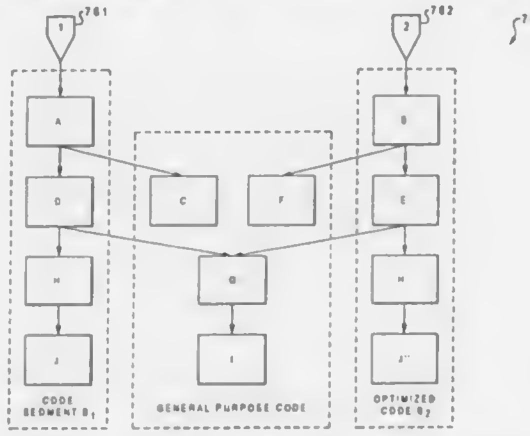
APPARATUS AND METHOD FOR OPTIMIZING APPLICATIONS FOR MULTIPLE OPERATIONAL ENVIRONMENTS OR MODES

David Lee Lanning, Boca Raton, Fla., assignor to International Business Machines Corporation, Armonk, N.Y.

Filed Aug. 15, 1995, Ser. No. 515,436

Int. Cl.^{6} G06F *9/44*

U.S. Cl. 395—704 **28 Claims**



1. A method of optimizing executable code for operation in a plurality of different operating environments or modes, the method comprising the steps of:

A. executing the code with predetermined input conditions from one of the plurality of operating environments or modes;

B. monitoring the execution of the code to identify non-branching code blocks which execute more than a predetermined number of times and to identify non-branching code blocks which execute less than a predetermined number of times;

C. combining the non-branching code blocks which execute more than a predetermined number of times to form a program segment and combining the identified non-branching code blocks which execute less than a predetermined number of times to form a general purpose program segment which is common to all program segments;

D. repeating steps A through C for each operating environment and mode; and

E. optimizing each of the program segments.

5,787,286

METHOD AND SYSTEM FOR TABULATION OF EXECUTION PERFORMANCE

Richard Arthur Hooker, So. Burlington, Vt., assignor to International Business Machines Corporation, Armonk, N.Y.

Filed Oct. 10, 1995, Ser. No. 541,363

Int. Cl.^{6} G06F *11/34;9/45*

U.S. Cl. 395—704 **33 Claims**

1. A method for operating a processor of a digital computer to tabulate instruction execution of a code segment executing thereon, said processor having multiple execution units, said method comprising:

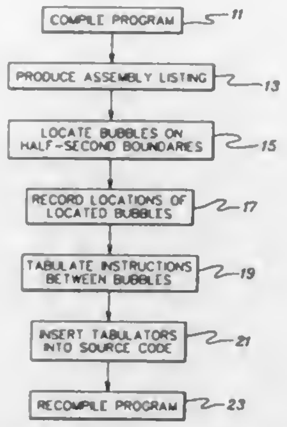
(a) compiling said code segment for optimal execution performance without predefining space for at least one tabulation instruction, thereby producing compiled code;

(b) identifying in the compiled code an unused time slot of one execution unit of said multiple execution units, said unused time slot existing during an execution of the compiled code on the processor;

(c) inserting into the compiled code a tabulation instruction to be executed during said unused time slot by said one execution unit;

(d) recompiling the compiled code with the inserted tabulation instruction, thereby producing recompiled code;

(e) executing said recompiled code on said processor; and


COMPILE PROGRAM
11
PRODUCE ASSEMBLY LISTING
13
LOCATE BUBBLES ON HALF-SECOND BOUNDARIES
15
RECORD LOCATIONS OF LOCATED BUBBLES
17
TABULATE INSTRUCTIONS BETWEEN BUBBLES
19
INSERT TABULATORS INTO SOURCE CODE
21
RECOMPILE PROGRAM
23

(f) during said executing (e), executing said tabulation instruction on said one execution unit of said processor, said tabulation instruction causing the processor to output a count of instructions executed by the processor for tabulating a count of instructions executed per unit of time, wherein said tabulation instruction is executed by a free resource of said processor identified subsequent to said compiling (a) and said optimal execution performance of said compiled code is not degraded by said recompiling (d) and executing of said tabulation instruction.

5,787,287

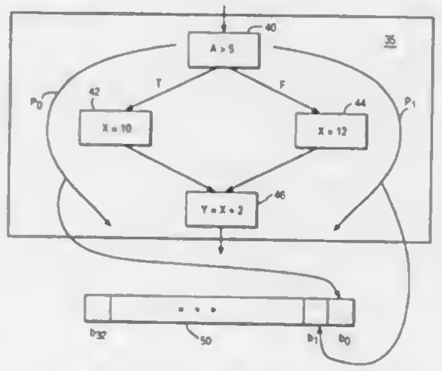
REPRESENTATION OF CONTROL FLOW AND DATA DEPENDENCE FOR MACHINE

Jayashankar Bharadwaj, San Jose, Calif., assignor to Intel Corporation, Santa Clara, Calif.

Filed Dec. 27, 1995, Ser. No. 578,965

Int. Cl.^{6} G06F *9/45*

U.S. Cl. 395—708 **32 Claims**



1. A method of representing data dependence and control flow between a first instruction and a second instruction in a sequence of software instructions, the first instruction and the second instruction each for reading a variable or for writing the variable, the sequence characterized by a plurality of control flow paths, the method comprising the steps of:

allocating a plurality of units of memory space, each unit corresponding to one of the control flow paths; and

assigning a value to each unit to indicate whether a dependency exists between the first instruction and the second instruction with respect to the variable along the control flow path represented by said unit.

5,787,288

METHOD AND DEVICE FOR RENEWING AN INTERNAL PROGRAM OF AN APPARATUS HAVING COMMUNICATION CAPABILITY

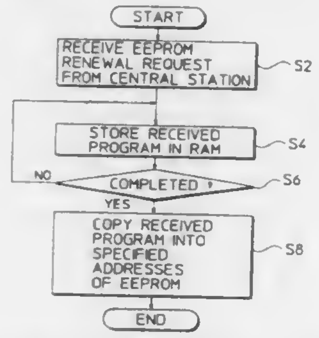
Katsumi Nagata; Masahiro Inoue; Hiroaki Nakamura, and Tetsuya Shibata, all of Osaka, Japan, assignors to Mita Industrial Co., Ltd., Osaka, Japan

Filed Nov. 2, 1994, Ser. No. 333,170

Claims priority, application Japan, Nov. 19, 1993, 5-290949

Int. Cl.^{6} G06F *7/00;9/00;13/00*

U.S. Cl. 395—712 **20 Claims**


START
RECEIVE EEPROM RENEWAL REQUEST FROM CENTRAL STATION
S2
STORE RECEIVED PROGRAM IN RAM
S4
NO
COMPLETED ?
S6
YES
COPY RECEIVED PROGRAM INTO SPECIFIED ADDRESSES OF EEPROM
S8
END

1. A renewing method for renewing a previously stored control program stored in an internal program memory of an apparatus capable of communicating with a central station, the central station being operable to transmit data including a new control program and other contents, the renewing method comprising steps of:

establishing communication between said apparatus and said central station;

determining whether data transmitted from the central station is said new control program;

replacing said previously stored control program with said new control program following determining that said new control program is transmitted by the central station; and

storing the data transmitted from the central station in a secondary memory of said apparatus;

the determining step determining whether the data stored in the secondary memory is said new control program; and

the replacing step transferring the new control program from the secondary memory to the internal program memory to replace the previously stored control program with the new control program.

5,787,289

DISPLAY ADAPTER SUPPORTING PRIORITY BASED FUNCTIONS

John Andrew Cook; Gregory Alan Flurry; Larry William Henson, and Bruce Richard Wood, all of Austin, Tex., assignors to International Business Machines Corporation, Armonk, N.Y.

Continuation of Ser. No. 336,716, Nov. 9, 1994, Pat. No. 5,592,678, which is a continuation of Ser. No. 734,428, Jul. 23, 1991, abandoned. This application Sep. 23, 1996, Ser. No. 717,674

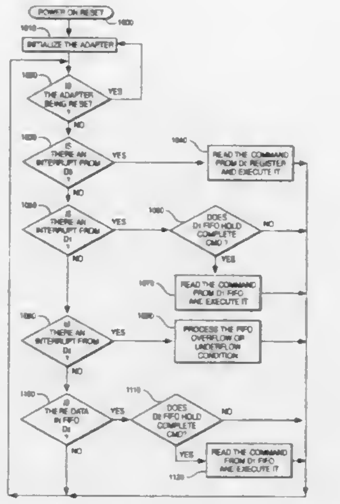
Int. Cl.^{6} G06F *13/00*

U.S. Cl. 395—732 **9 Claims**

1. A display adapter for use in a multi-tasking data processing apparatus that includes means for executing processes and means for generating a first and a second processing request, said display adapter comprising:

first port means for receiving said first processing request;

second port means for concurrently receiving said second processing request, said first port means having a priority higher than said second port means; and


POWER ON RESET
1000
1010
INITIALIZE THE ADAPTER
1020
IS THE ADAPTER BEING RESET ?
YES
NO
1030
IS THERE AN INTERRUPT FROM D0 ?
YES
1040
READ THE COMMAND FROM D0 REGISTER AND EXECUTE IT
NO
1050
IS THERE AN INTERRUPT FROM D1 ?
1060
DOES D1 FIFO HOLD COMPLETE CMD ?
NO
YES
1070
READ THE COMMAND FROM D1 FIFO AND EXECUTE IT
1080
IS THERE AN INTERRUPT FROM D1 ?
1090
PROCESS THE FIFO OVERFLOW OR UNDERFLOW CONDITION
1100
IS THERE DATA IN FIFO D1 ?
1110
DOES D1 FIFO HOLD COMPLETE CMD?
1120
READ THE COMMAND FROM D1 FIFO AND EXECUTE IT

processing means, coupled to said first port means and said second port means, for processing said first and second processing requests in an order of priority based on the port from which the processing requests are received.

5,787,290

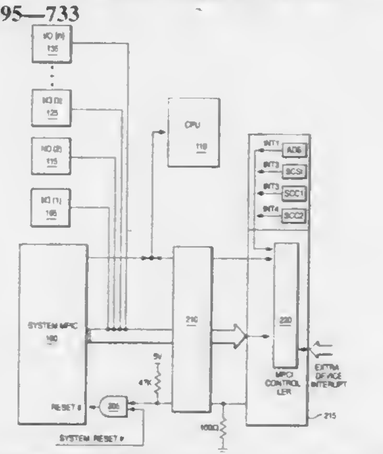
ADAPTER WITH AN ONBOARD INTERRUPT CONTROLLER FOR CONTROLLING A COMPUTER SYSTEM

Louis Bennie Capps, Jr., Round Rock; Son Hung Lam, Austin, and An Xuan Tra, Round Rock, all of Tex., assignors to International Business Machines Corporation, Armonk, N.Y.

Filed Dec. 20, 1996, Ser. No. 769,843

Int. Cl.^{6} G06F *13/14;9/46*

U.S. Cl. 395—733 **9 Claims**



1. An adapter for a first computer system being operable in a second computer system comprising:

an onboard interrupt controller;

means for disabling an in-system interrupt controller, said in-system interrupt controller being part of said second computer system; and

means for allowing said onboard interrupt controller to functionally replace said in-system interrupt controller.

5,787,291

LOW POWER DATA PROCESSING SYSTEM FOR INTERFACING WITH AN EXTERNAL DEVICE AND METHOD THEREFOR

William C. Moyer, Dripping Springs, and Claude Moughanni, Austin, both of Tex., assignors to Motorola, Inc., Schaumburg, Ill.

Filed Feb. 5, 1996, Ser. No. 598,833

Int. Cl.^{6} G06F *1/00;1/18;1/26*

U.S. Cl. 395—750.03 **4 Claims**

4. A data processor, comprising:

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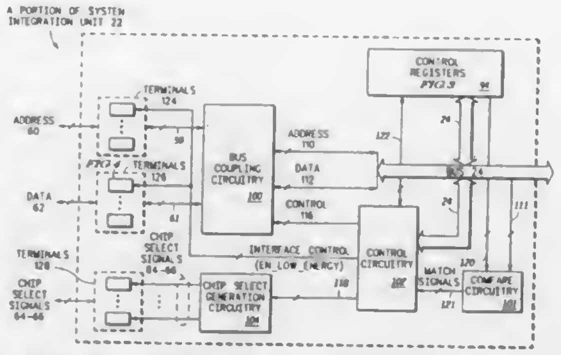
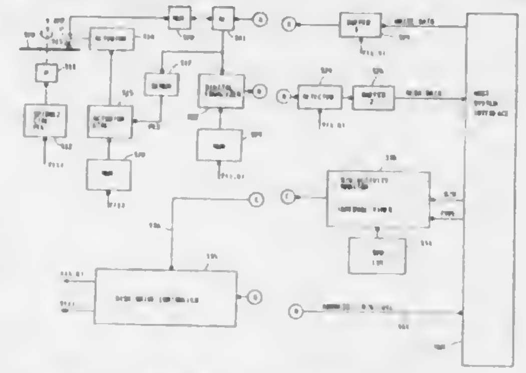

A PORTION OF SYSTEM INTEGRATION UNIT 22
ADDRESS 60
DATA 62
TERMINALS 124
TERMINALS 126
TERMINALS 128
CHIP SELECT SIGNALS 64-66
CHIP SELECT SIGNALS 64-66
BUS COUPLING CIRCUITRY 100
ADDRESS 110
DATA 112
CONTROL 116
CONTROL REGISTERS
INTERFACE_CONTROL (EN_LOW_ENERGY)
CONTROL CIRCUITRY
MATCH SIGNALS
COMPARE CIRCUITRY
CHIP SELECT GENERATION CIRCUITRY
111
122
24

- a central processing system for communicating a plurality of address values, a plurality of data values and a plurality of control values;
- a plurality of integrated circuit terminals, wherein each of the plurality of
  integrated circuit terminals, comprises:
  - a first inverter for receiving a second control signal and providing an output;
  - a first NAND logic gate having a first input coupled to the output of the first inverter, the first NAND logic gate having a second input coupled to receiving the plurality of data values, the first NAND logic gate having an output;
  - a first NOR logic gate having a first input for receiving the second control signal and having a second input for receiving the plurality of data values, the first NOR logic gate having an output;
  - a second NAND logic gate having a first input coupled to the output of the first NOR logic gate and a second input for receiving the first voltage signal;
  - a second inverter having an input coupled to the first voltage signal and an output;
  - a second NOR logic gate having a first input coupled to the output of the first NAND gate and a second input coupled to the output of the second inverter, the second NOR gate having an output;
  - a first transistor having a first terminal coupled to a first supply voltage, a second terminal coupled to the output of the second NAND logic gate and an output;
  - a second transistor having a first terminal coupled to the output of the first transistor, a second terminal coupled to the output of the second NOR logic gate, and a third terminal coupled to a second supply voltage;
  - a third transistor having a first terminal coupled to the first supply voltage, a second terminal coupled to the output of the first NOR logic gate, and a third terminal coupled to the third terminal of the first transistor; and
- a fourth transistor having a first terminal to provide the first one of the plurality of data values at a pair of voltage levels determined by the first data attribute value, a second terminal coupled to the output of the first NAND logic gate, and a third terminal coupled to the second supply voltage; and
- a system integration unit, the system integration unit, comprising:
  - a control circuit coupled to the central processing unit for receiving the plurality of control values, the control circuit providing a first control value corresponding to a first external device;
  - a first control register coupled to the control circuit for receiving the first control value, the first control register selectively providing a first data attribute value in response to the first control value; and
  - a bus coupling circuit coupled to the central processing unit for receiving the plurality of data values and coupled to the first control register for receiving the first data attribute value, the bus coupling circuit coupled to the plurality of integrated circuit terminals to provide a first voltage signal indicating a first pair of voltage levels corresponding to a first logic level and a second logic level of the plurality of data values communicated by the plurality of integrated circuit terminals, the first voltage level being determined by the first data attribute value.

5,787,292
POWER SAVING METHOD AND APPARATUS FOR USE IN MULTIPLE FREQUENCY ZONE DRIVES
Hal Hijalmar Ottesen, and Gordon J. Smith, both of Rochester, Minn., assignors to International Business Machines Corporation, Armonk, N.Y.

Filed Apr. 1, 1996, Ser. No. 625,334
Int. Cl.⁶ G06F *11/00*
U.S. Cl. 395—750.01 **21 Claims**



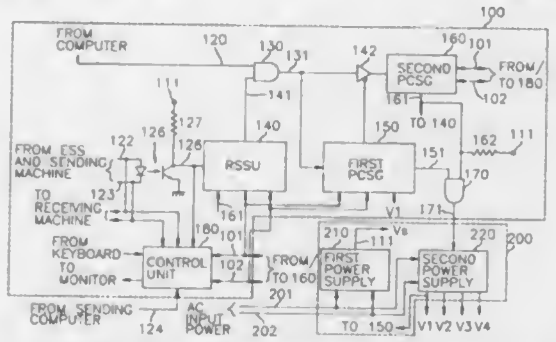
1. A memory storage device comprising:
- a disk having N concentric zones, N being an integer greater than 1, provided around a surface of the disk, data being stored in each zone such that a linear density of data at an inner track location of each zone is substantially constant;
- a motor connected to the disk to selectively rotate the disk at a plurality of discrete disk velocities; and
- a transducer provided to perform at least one of a write and a read operation to and from at least two of said zones on the disk at each of the plurality of discrete disk velocities.

5,787,293
COMPUTER INCORPORATING A POWER SUPPLY CONTROL SYSTEM THEREIN
Ki-Hong Kim; Jean-Gee Hong; Seong-Sik Ham, and Chang-Hun Choi, all of Incheon, Rep. of Korea, assignors to Daewoo Telecom Ltd., Incheon, Rep. of Korea

Filed Nov. 14, 1996, Ser. No. 749,027

Claims priority, application Rep. of Korea, Apr. 24, 1996, 1996-12601; Jun. 3, 1996, 1996-19673; Sep. 18, 1996, 1996-40722

Int. Cl.⁶ G06F *1/26*
U.S. Cl. 395—750.01 **24 Claims**

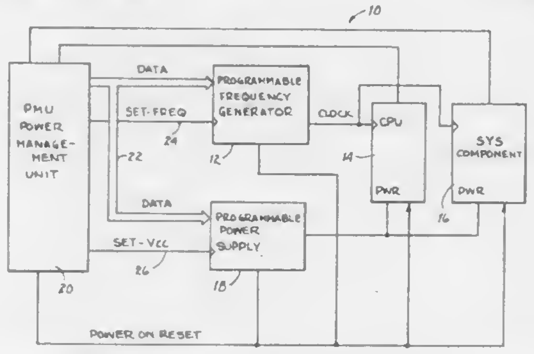


1. A computer incorporating therein a control system for controlling the operation of a power supply therein which supplies a plurality of DC output voltages to designated components of the computer to control on-off operations of the computer, wherein the control system comprises:

- means for detecting a power selection signal, generated when a power on/off key of the computer is actuated to control the on-off operations of the computer, to provide a detected power selection signal as a power detection signal;
- means for producing a first, a second and a third mode control signals when predetermined instructions corresponding to the signals are given by the computer user, respectively;
- a first generation means, responsive to the first mode control signal, for generating a first power control signal and a selection control signal by using the power detection signal;
- a second generation means, responsive to the selection control signal and the second and the third mode control signals, for generating a second power control signal by utilizing the power detection signal; and
- a combining means for logically combining the first and the second power control signals to generate a definitive power control signal and to provide it to the power supply, thereby selectively supplying the DC output voltages to the designated components of the computer to control the on-off operations of the computer.

5,787,294
SYSTEM FOR REDUCING THE POWER CONSUMPTION OF A COMPUTER SYSTEM AND METHOD THEREFOR
David R. Evoy, Tempe, Ariz., assignor to VLSI Technology, Inc., San Jose, Calif.

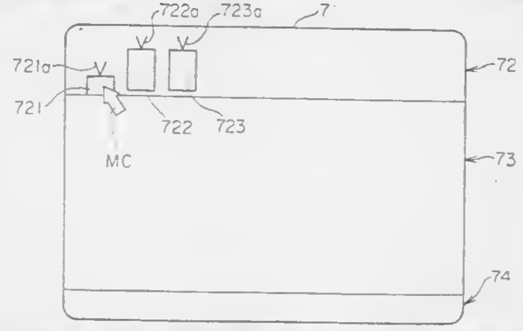
Filed Oct. 13, 1995, Ser. No. 542,498
Int. Cl.⁶ G06F *1/00;1/18;1/26*
U.S. Cl. 395—750.03 **25 Claims**


10
PMU POWER MANAGEMENT UNIT
DATA
SET-FREQ
24
22
PROGRAMMABLE FREQUENCY GENERATOR
12
CLOCK
CPU
14
PWR
SYS COMPONENT
PWR
16
DATA
PROGRAMMABLE POWER SUPPLY
SET-VCC
26
18
20
POWER ON RESET

12. A system for reducing power consumption of a computer system comprising, in combination:
- programmable power supply means individually coupled to each of a plurality of system components one of said plurality of system components being a central processing unit for individually adjusting operating voltages of each of said plurality of system components based on current operating conditions of each of said plurality of system components;
- programmable frequency generator means individually coupled to said plurality of system components for individually adjusting operating frequencies of each of said plurality of system components based on current operating conditions of each of said plurality of system components;
- power management unit means coupled to said programmable frequency generator means, said programmable power supply means, and each of said plurality of system components for receiving said current operating conditions of each of said plurality of system components and for controlling said programmable frequency generator means by providing said programmable frequency generator means with said operating frequencies for each of said plurality of system components based on current operating conditions such that each of said plurality of system components may be simultaneously supplied with different operating frequencies in order to optimize overall system power savings and for controlling said programmable power supply means by providing said programmable power supply means with said operating voltages for each of said plurality of system components based on current operating conditions such that each of said plurality of system components may be simultaneously supplied with different operating voltages in order to optimize overall system power savings;
- data bus means coupled to said power management means, said programmable frequency generator means, and said programmable power supply means for transferring data to said programmable frequency generator means indicating said operating frequencies that each of said plurality of system components should be operating at under current operating conditions and for transferring data to said programmable power supply means indicating said operating voltages that each of said plurality of system components should be operating at under current operating conditions;
- set frequency line means coupled to said power management unit means and said programmable frequency generator means for sending a signal to said programmable frequency generator means to load said data from said power management unit means to alter said operating frequencies of each of said plurality of system components to match current operating conditions;
- set voltage line means coupled to said power management unit means and said programmable power supply means for sending a signal to said programmable power supply means to load said data from said power management unit means to alter said operating voltages of each of said plurality of system components to match current operating conditions: and
- power on reset line means coupled to said power management unit means, said programmable frequency generator means, said programmable power supply means, and each of said plurality of system components for sending a signal that puts said programmable frequency generator means, said programmable power supply means, and each of said plurality of system components in an initial operating condition.

5,787,295
DOCUMENT PROCESSING APPARATUS
Hisayasu Nakao, Kawasaki, Japan, assignor to Fujitsu Limited, Kawasaki, Japan

Continuation of Ser. No. 113,924, Aug. 31, 1993, abandoned. This application Nov. 6, 1996, Ser. No. 744,654
Claims priority, application Japan, Feb. 3, 1993, 5-016163
Int. Cl.⁶ G06F *17/21*
U.S. Cl. 395—761 **13 Claims**



1. A document processing apparatus including a display device for displaying document information of a page including a plurality of lines on the display device, comprising:
- a storage device to store information;
- command generating means for generating an add command to affix an identification mark to a desired line in a desired page of the document information displayed on the display device, and for generating a select command to select a desired one of a plurality of affixed identification marks;

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identification mark affixing means, in response to receiving said add command, for causing said storage device to store the desired line in the desired page to which the identification mark is to be affixed as identification mark information;

identification mark searching means, in response to receiving said select command, for searching the identification mark information stored in the storage device for the desired line in the desired page corresponding to the selected one affixed identification mark; and

display control means for displaying the identification mark affixed to the desired line in the desired page of the document information at a particular position on a screen of the display device, based on the add command generated by the command generating means or the identification mark information searched for by said identification mark searching means in response to said select command, for moving the identification mark displayed on the display device from an outside to an inside of a display section for the document information in response to receiving the add command, and for displaying a ribbon-card shade as the identification mark on the display device.

5,787,296

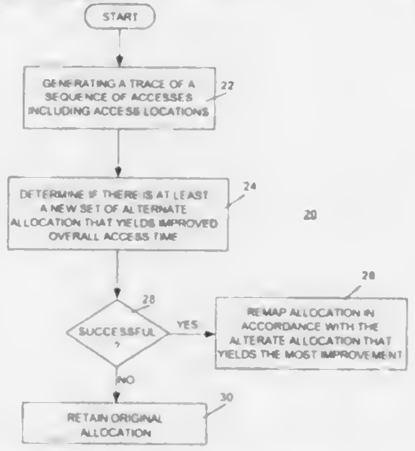
METHOD AND APPARATUS FOR REDUCING POWER CONSUMPTION BY A DISK DRIVE THROUGH DISK BLOCK RELOCATION

Knut Grimsrud, Aloha, and Rick Coulson, Portland, both of Oreg., assignors to Intel Corporation, Santa Clara, Calif.

Continuation-in-part of Ser. No. 708,983, Sep. 6, 1996. This application Sep. 27, 1996, Ser. No. 721,840

Int. Cl.^{6} G06F *1/32*

U.S. Cl. 395—750.03 **38 Claims**


START
GENERATING A TRACE OF A SEQUENCE OF ACCESSES INCLUDING ACCESS LOCATIONS
22
DETERMINE IF THERE IS AT LEAST A NEW SET OF ALTERNATE ALLOCATION THAT YIELDS IMPROVED OVERALL ACCESS TIME
24
20
SUCCESSFUL ?
28
YES
REMAP ALLOCATION IN ACCORDANCE WITH THE ALTERNATE ALLOCATION THAT YIELDS THE MOST IMPROVEMENT
26
NO
RETAIN ORIGINAL ALLOCATION
30

20. A machine implemented method comprising the steps of:

a) tracing a sequence of disk accesses, and generating trace data for the disk accesses traced including disk locations accessed and the order the disk locations are accessed;

b) generating, if possible, a new set of disk locations to relocate the contents of the disk locations accessed, wherein the new set of disk locations are to yield reduction in power consumption by the disk drive when effectuating access of the relocated contents, and the new set of disk locations are to be generated employing a cost function that relates power consumption by power consuming elements of the disk drive to disk locations and the order the disk locations are accessed.

5,787,297

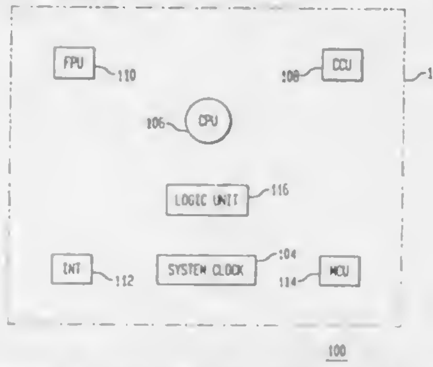
SELECTIVE POWER-DOWN FOR HIGH PERFORMANCE CPU/SYSTEM

Chong Ming Lin, Sunnyvale, Calif., assignor to Seiko Epson Corporation, Tokyo, Japan

Continuation of Ser. No. 487,976, Jun. 7, 1995, Pat. No. 5,655,124, which is a continuation of Ser. No. 860,717, Mar. 31, 1992, Pat. No. 5,452,401. This application Mar. 3, 1997, Ser. No. 811,238

Int. Cl.^{6} G06F *1/00*

U.S. Cl. 395—750.04 **12 Claims**



1. A system for controlling the supplying of a system clock signal to each of at least two functional units of a microelectronic device, said system comprising:

(a) a compiler for compiling a stream of source code instructions into a stream of machine code instructions;

(b) an instruction decoding unit for decoding said stream of machine code instructions and for examining a machine code instruction within said stream of machine code instructions a first preselected number of system clock cycles before execution of said machine code instruction to determine which of the at least two functional units will execute said machine code instruction;

(c) an instruction execution unit for causing said stream of machine code instructions to be executed by the at least two functional units and for determining when execution of said machine code instruction within said stream of machine code instructions is complete;

(d) first logic means, coupled to said instruction decoding unit, for causing the system clock signal to be supplied to the functional unit needed to execute said machine code instruction a second preselected number of system clock cycles before said machine code instruction is executed; and

(e) second logic means, coupled to said instruction execution unit and to said first logic means, for causing the system clock signal to be supplied to the functional unit executing said machine code instruction until the execution of said machine code instruction is complete as determined by said instruction execution unit, whereby the power consumption of said microelectronic device is reduced.

5,787,298

BUS INTERFACE CIRCUIT FOR AN INTELLIGENT LOW POWER SERIAL BUS

Walter F. Broedner, Saratoga, and Anthony M. Faddell, Sunnyvale, both of Calif., assignors to General Magic, Inc., Sunnyvale, Calif.

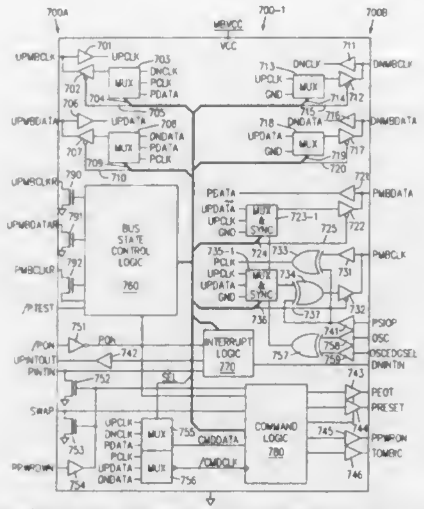
Filed Aug. 18, 1995, Ser. No. 516,849

Int. Cl.^{6} G06F *1/32*

U.S. Cl. 395—750.05 **28 Claims**

1. A method of operation of a serial bus interface circuit in a peripheral device comprising:

entering a power-on state upon detection of a transmission error over a bus coupled to said bus interface circuit; and



entering said power-on state upon powering-up said peripheral device wherein said bus interface circuit generates an interrupt signal upon entering said power-on state.

5,787,299

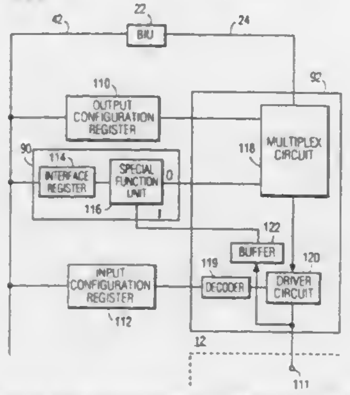
PIN SELECTION SYSTEM FOR MICROCONTROLLER HAVING MULTIPLEXER SELECTS BETWEEN ADDRESS/DATA SIGNALS AND SPECIAL SIGNALS PRODUCED BY SPECIAL FUNCTION DEVICE

Farrell L. Ostler, Albuquerque, N. Mex.; Ata R. Khan, Sunnyvale, and Gregory K. Goodhue, San Jose, both of Calif., assignors to Philips Electronics North American Corporation, New York, N.Y.

Continuation of Ser. No. 308,057, Sep. 16, 1994, abandoned. This application Nov. 18, 1996, Ser. No. 751,281

Int. Cl.^{6} G06F *1/04*

U.S. Cl. 395—800 **7 Claims**



1. A pin function selection circuit for a microcontroller, comprising:

a configuration register having contents, said configuration register comprising an output configuration register and an input configuration register indicating a function of external pins of the microcontroller; and

a function selection circuit connected to the configuration register, to the external pins and to microcontroller units using different input/output function signals, said function selection circuit comprising:

a multiplex circuit connected to said output configuration register and the microcontroller units; and

a driver circuit connected to said input configuration register, said multiplex circuit, said microcontroller units and the external pins,

said multiplex circuit comprising:

bit multiplexers connected to the microcontroller units and the driver circuit; and

a decode unit connected to the output configuration register and the bit multiplexers.

5,787,300

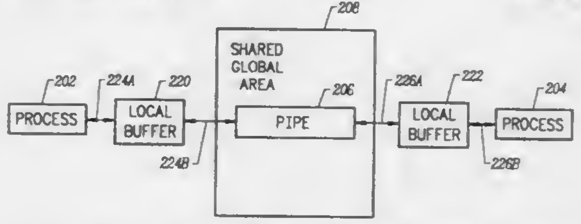
METHOD AND APPARATUS FOR INTERPROCESS COMMUNICATIONS IN A DATABASE ENVIRONMENT

Joyo Wijaya, Menlo Park, Calif., assignor to Oracle Corporation, Redwood City, Calif.

Continuation of Ser. No. 150,592, Nov. 10, 1993, abandoned. This application Jan. 11, 1996, Ser. No. 584,910

Int. Cl.^{6} G06F *13/00*

U.S. Cl. 395—800.01 **26 Claims**



1. A method of communicating between sessions executing in the memory space of a computer system to exchange a data record between the sessions, said method comprising the sequential steps of:

a) providing a shared global area within the memory space of said computer system;

b) providing a pipe object within the memory space of said computer system for managing said shared global area;

c) transmitting, by a first session, a pipe designation and a predetermined data record to said shared global area;

d) determining, by said pipe object, if a pipe having said pipe designation exists in said shared global area;

e) creating, by said pipe object, said pipe having said pipe designation in said shared global area, if said pipe having said pipe designation does not exist; and

f) identifying, by said pipe object, said predetermined data record in said pipe having said pipe designation.

5,787,301

PARALLEL COMPUTER SYSTEM

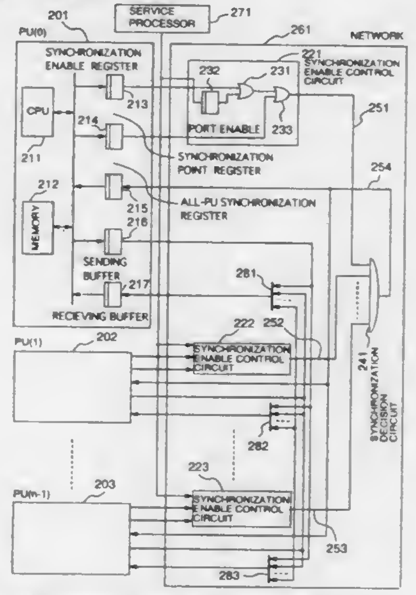
Osamu Arakawa; Tadaaki Isobe, both of Hadano; Toshimitsu Ando, Isehara; Masato Ishii, Sagamihara, and Shigeo Takeuchi, Hanno, all of Japan, assignors to Hitachi, Ltd., and Hitachi ULSI Engineering Corp., both of Tokyo, Japan

Filed Mar. 21, 1995, Ser. No. 407,843

Claims priority, application Japan, Mar. 24, 1994, 6-053412

Int. Cl.^{6} G06F *15/16*

U.S. Cl. 395—800.2 **5 Claims**


201
SERVICE PROCESSOR
271
PU(0)
261
NETWORK
SYNCHRONIZATION ENABLE REGISTER
221
SYNCHRONIZATION ENABLE CONTROL CIRCUIT
232
231
213
CPU
214
PORT ENABLE
233
251
211
SYNCHRONIZATION POINT REGISTER
254
212
MEMORY
215
216
ALL-PU SYNCHRONIZATION REGISTER
SENDING BUFFER
281
217
RECIEVING BUFFER
222
252
PU(1)
202
SYNCHRONIZATION ENABLE CONTROL CIRCUIT
241
SYNCHRONIZATION DECISION CIRCUIT
282
223
PU(n-1)
203
SYNCHRONIZATION ENABLE CONTROL CIRCUIT
253
283

1. A parallel computer system, comprising:

a plurality of processor units for executing programs;

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each of said processor units including first storage means for storing information indicating whether or not execution of a program by said corresponding processor unit has attained a point for synchronization;

a network for interconnecting said plurality of processor units; said network comprising:

second storage means in correspondence to said processor units, respectively, for storing information indicating whether the information stored in said first storage means is valid or not; and

means for selectively receiving the information stored in said first storage means incorporated in the processor units for which said second storage means indicates that the information stored in said first storage means is valid, and informing said processor units of completion of synchronization when all of said information indicate that execution of the program in said processor units have reached a point for synchronization.

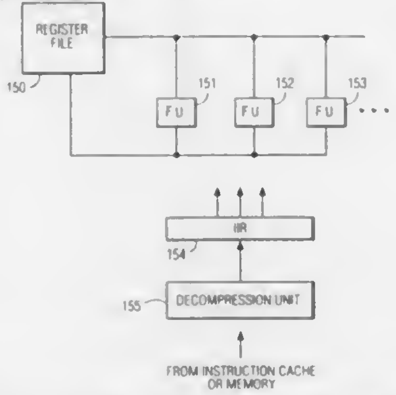
5,787,302
SOFTWARE FOR PRODUCING INSTRUCTIONS IN A COMPRESSED FORMAT FOR A VLIW PROCESSOR

Hari Hampapuram, Sunnyvale; Yen C. Lee, San Jose; Eino Jacobs, Palo Alto, and Michael Ang, Santa Clara, all of Calif., assignors to Philips Electronic North America Corporation, New York, N.Y.

Filed May 15, 1996, Ser. No. 649,731

Int. Cl.^{6} G06F *7/00*

U.S. Cl. 395—800.24 **24 Claims**



1. Computer software, stored in a computer storage medium, for producing compressed code for running on a VLIW processor, the software comprising

code for receiving a compiled and linked object module produced by a compiler and/or linker, which object module is stored in a computer storage medium ; and

code for compressing the compiled and linked software to produce a second object module which second object module is stored in a computer storage medium, which second object module includes a stored instruction, which instruction comprises a plurality of operations, each operation being compressed according to a compression scheme which assigns a compressed operation length to that operation, the compressed operation length being chosen from a plurality of finite lengths, which finite lengths include at least two non-zero lengths, which of the finite lengths is chosen being dependent upon at least one feature of the operation.

5,787,303
DIGITAL COMPUTER SYSTEM CAPABLE OF PROCESSING A PLURALITY OF INSTRUCTIONS IN PARALLEL BASED ON A VLIW ARCHITECTURE

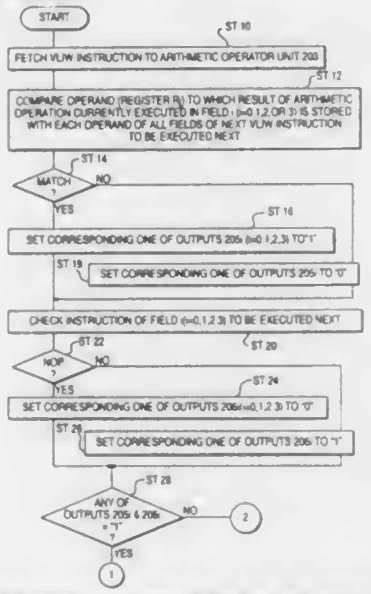
Tadashi Ishikawa, Tokyo, Japan, assignor to Kabushiki Kaisha Toshiba, Kawasaki, Japan

Continuation of Ser. No. 968,398, Oct. 29, 1992, abandoned. This application Mar. 27, 1997, Ser. No. 828,773

Claims priority, application Japan, Oct. 31, 1991, 3-286100; Oct. 31, 1991, 3-286224

Int. Cl.^{6} G06F *9/40*

U.S. Cl. 395—800.24 **27 Claims**


START
ST 10
FETCH VLIW INSTRUCTION TO ARITHMETIC OPERATOR UNIT 203
ST 12
COMPARE OPERAND (REGISTER Ri) TO WHICH RESULT OF ARITHMETIC OPERATION CURRENTLY EXECUTED IN FIELD i (i=0,1,2,OR 3) IS STORED WITH EACH OPERAND OF ALL FIELDS OF NEXT VLIW INSTRUCTION TO BE EXECUTED NEXT
ST 14
MATCH ?
NO
YES
ST 16
SET CORRESPONDING ONE OF OUTPUTS 205i (i=0,1,2,3) TO "1"
ST 18
SET CORRESPONDING ONE OF OUTPUTS 205i TO "0"
CHECK INSTRUCTION OF FIELD (i=0,1,2,3) TO BE EXECUTED NEXT
ST 20
ST 22
NOP ?
NO
YES
ST 24
SET CORRESPONDING ONE OF OUTPUTS 206i(i=0,1,2,3) TO "0"
ST 26
SET CORRESPONDING ONE OF OUTPUTS 206i TO "1"
ST 28
ANY OF OUTPUTS 205i & 206i = "1" ?
NO
2
YES
1

15. A parallel processing system having an arithmetic operation unit for executing Very Large Instruction Words (VLIW), comprising:

an instruction buffer for holding a current VLIW and a next VLIW, the current VLIW and the next VLIW each having a plurality of instructions;

comparator means, coupled to the instruction buffer, for comparing a register number containing a result of an arithmetic operation for each instruction in the current VLIW with each register number referred to by the instructions in the next VLIW, and for determining when an instruction in the current VLIW should not be executed during a next instruction cycle when an instruction of the current VLIW requires more than one instruction cycle to execute;

instruction output controller means, coupled to the instruction buffer and the comparison means, for controlling output from the instruction buffer in accordance with the determination of the comparator means; and

means for stopping the output from the instruction buffer upon detection of a no-operation state thereby delaying execution of the next VLIW for an instruction cycle.

5,787,304
MULTIPATH I/O STORAGE SYSTEMS WITH MULTIPATH I/O REQUEST MECHANISMS

Paul Hodges, San Jose; Michael Garwood Hurley, Cupertino; Norman Kenneth Ouchi, San Jose, and Mien Shih, Saratoga, all of Calif., assignors to International Business Machines Corporation, Armonk, N.Y.

Filed Feb. 5, 1996, Ser. No. 597,092

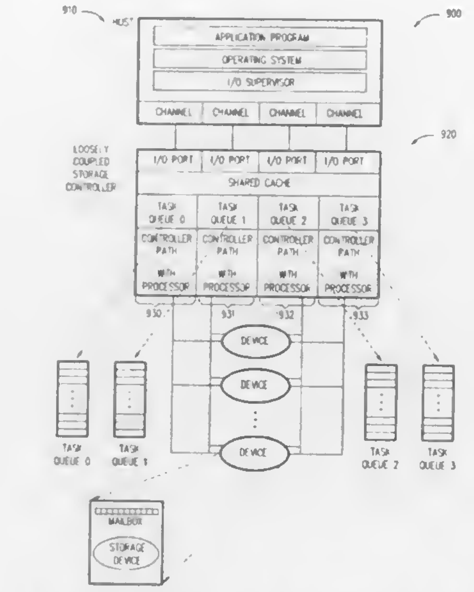
Int. Cl.^{6} G06F *13/00*

U.S. Cl. 395—821 **11 Claims**

1. A data processing system, comprising:

a central processing unit (CPU);

a storage subsystem in communication with said CPU, said storage subsystem including:



a storage controller having a plurality of storage sub-controllers, each of said storage sub-controllers comprising a queue, said queues concurrently storing requests received from said CPU, each of said requests having a unique identification label; and.

a storage device for servicing requests received from said queues, said storage device comprising a mailbox for storing the status and the unique identification of each request being serviced.

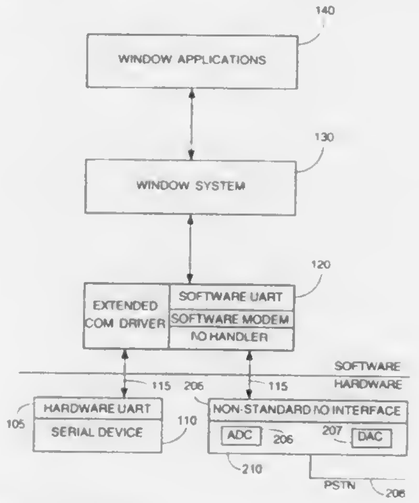
5,787,305
HOST SIGNAL PROCESSING MODEM USING A SOFTWARE SIMULATION OF A UART

Peter C. Chen, Saratoga, Calif., assignor to PC-Tel, Inc., Milpitas, Calif.

Filed Apr. 25, 1995, Ser. No. 428,935

Int. Cl.^{6} G06F *3/00;13/00*

U.S. Cl. 395—823 **2 Claims**



1. A system comprising:

a computer having a processing unit, a main memory, and a local bus;

a device coupled to the local bus, wherein the device occupies an I/O slot that corresponds to a first communications port on the local bus, and the device has a register set with an address assignment in the first communication port that differs from a standard address assignment of a register set for a UART corresponding to the first communication port;

an operating system executed by the processing unit, wherein the operating system includes a procedure for accessing a register set of a UART corresponding to the first communications port; and

a communications driver executed by the processing unit, the communication driver comprising:

a UART emulation which in response to an access by the procedure for accessing the register set of a UART, converts the access as required for the register set and address assignment of the device; and

a software modem adapted to convert digital samples from the device to data values transmitted to the UART emulation and adapted to convert data values from the UART emulation to digital samples for the device.

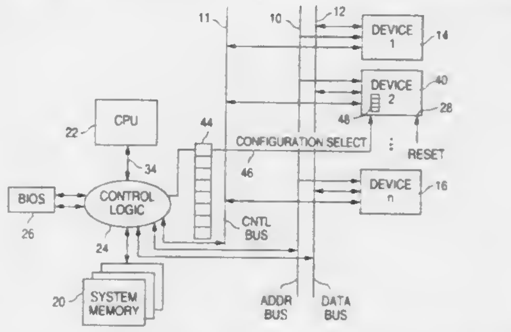
5,787,306
AUTOMATIC ASSIGNMENT OF I/O ADDRESSES IN A COMPUTER SYSTEM

Martin S. Michael, Santa Clara, Calif., assignor to National Semiconductor Corporation, Santa Clara, Calif.

Filed May 18, 1994, Ser. No. 245,315

Int. Cl.^{6} G06F *12/00*

U.S. Cl. 395—829 **22 Claims**



1. A method for automatically assigning I/O addresses to one or more devices connected to a bus, comprising the steps of:

initiating, by a processor without said one or more devices' intervention, said method by said processor issuing a reset signal for resetting said one or more devices and reading I/O addresses from storage locations;

identifying, by said processor without a user's intervention, available I/O addresses in an address space;

selecting, by said processor without said user's intervention, one available I/O address for transmission to a first device connected to said bus;

transmitting, by said processor without said user's intervention, said one available I/O address to said first device for storage in said first device as an I/O address for said first device; and

addressing said first device using said I/O address stored in said first device.

5,787,307
APPARATUS FOR DRAINING OFF ELECTRIC CHARGES FROM A BUS CONNECTOR PINS HAVING A SWITCH CONTROLLER FOR CONTROLLING TWO SWITCHES WHERE THE SECOND SWITCH CONNECTS THE PINS TO GROUND

Naoyuki Imoto, Zama, Japan, assignor to International Business Machines Corporation, Armonk, N.Y.

Filed Oct. 12, 1995, Ser. No. 542,369

Claims priority, application Japan, Nov. 18, 1994, 6-284633

Int. Cl.^{6} G06F *13/00*

U.S. Cl. 395—836 **20 Claims**

1. An information processing apparatus comprising:

a processor;

at least one input/output device;

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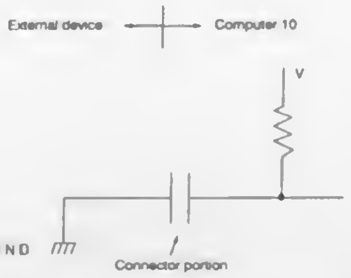


an input/output bus for connecting said processor to said at least one input/output device;

a bus connector for expanding said input/output bus to an external device;

a first switch for electrically disconnecting bus signals that are carried by said input/output bus to corresponding connector pins of said bus connector;

a second switch for electrically grounding said connector pins in said bus connector; and

switch control means for controlling said first and said second switches.

5,787,308
PRINTING APPARATUS AND METHOD IN WHICH VIRTUAL BUSY SIGNAL IS GENERATED WHEN PRINTER BUFFER HAS LARGER VACANT AREA THAN A PREDETERMINED VALUE

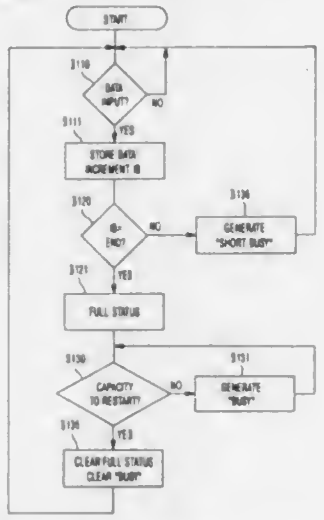
Naohisa Suzuki, Yokohama; Koji Fukunaga, Tokyo; Masaki Nishiyama, Yokohama; Tsutomu Takahashi, Kawasaki; Jiro Tateyama, Yokohama; Jun Oida, Kawasaki, and Hisatsugu Naito, Tokyo, all of Japan, assignors to Canon Kabushiki Kaisa, Tokyo, Japan

Continuation of Ser. No. 919,226, Jul. 27, 1992, abandoned. This application Dec. 13, 1994, Ser. No. 357,290

Claims priority, application Japan, Jul. 30, 1991, 3-190371

Int. Cl.^{6} G06F *13/00*

U.S. Cl. 395—839 **13 Claims**



1. A printing apparatus comprising:

a data processing unit comprising:

first register means, connected to an interface, for transferring a print command and data to the interface, and

first processing means for controlling a transfer timing of the print command and data from said first register means to the interface; and

a printing unit comprising:

second register means, connected to the interface, for receiving the print command and data transferred from said data processing unit,

memory means for storing the print command and data received by said second register means,

a printer mechanism for printing data, and

second processing means for modifying the data stored in said memory means into printable data and

controlling said printer mechanism to print the printable data,

wherein said data processing unit determines whether a busy signal from said first register means is detected and transfers data to said printing unit when the busy signal is not detected, and

wherein said printing unit further comprises:

determining means for determining whether or not said memory means has a vacant memory area larger than a predetermined value each time a predetermined amount of data is transferred from said data processing unit; and

busy signal generating means for causing said second register means to provide, to said first register means, a virtual busy signal which is not detectable by said data processing unit as a busy signal in response to said determining means determining that said memory means has a vacant memory area larger than the predetermined value or a busy signal which is detectable by said data processing unit in response to said determining means determining that said memory means does not have a vacant memory area larger than the predetermined value.

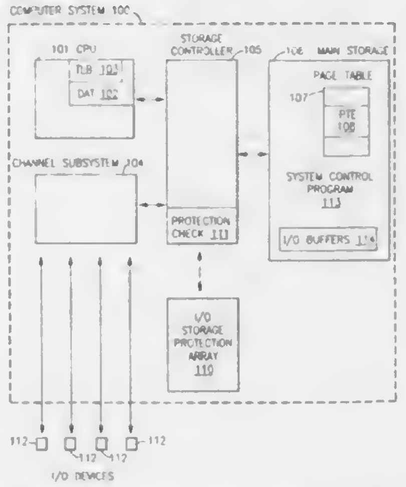
5,787,309
APPARATUS FOR PROTECTING STORAGE BLOCKS FROM BEING ACCESSED BY UNWANTED I/O PROGRAMS USING I/O PROGRAM KEYS AND I/O STORAGE KEYS HAVING M NUMBER OF BITS

Paul Gregory Greenstein, Croton-on-Hudson; Richard Roland Guyette, LaGrangeville, and John Ted Rodell, Wapplingers Falls, all of N.Y., assignors to International Business Machines Corporation, Armonk, N.Y.

Filed May 23, 1996, Ser. No. 652,392

Int. Cl.^{6} G06F *12/00*

U.S. Cl. 395—856 **13 Claims**



1. An I/O storage protection arrangement in a computer system containing at least one central processor (CP) entity, at least one I/O processor interface, and a shared main storage having a storage interface accessible to both the CP entity and the I/O processor interface, the shared main storage having a plurality of storage blocks (storage) generally accessible to both the CP entity and I/O processor interface, the computer system executing CP programs that request CPU storage accesses and I/O programs that request I/O storage accesses of data and programs in the blocks, the I/O storage protection arrangement comprising:

an I/O program key comprised of M number of bits being associated with an I/O program and being provided for each storage access requested by the I/O program,

an I/O storage key array containing a plurality of I/O key entries, each key entry containing an M-bit I/O storage key having M number of bits,

an I/O address being provided for the I/O program to the I/O storage key array for selecting an M-bit I/O storage key therein, the I/O address being associated with a main storage block (associated block) in which the storage access is being requested,

an I/O transfer signal being provided for the I/O request for signalling that the I/O program is making a storage access request, and

storage controller circuits receiving the I/O transfer signal, the M-bit I/O storage key and the M-bit I/O program key for comparing the M-bit I/O storage key with the M-bit I/O program key and outputting an access allowance indication to enable the storage access in the associated block only if the I/O transfer signal indicates the storage access is for an I/O program request and a match is found between the M-bit I/O storage key and the M-bit I/O program key.

5,787,310
MICROCOMPUTER

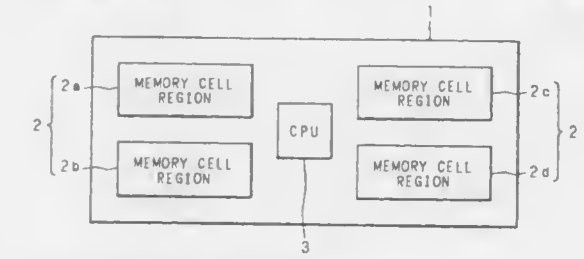
Toru Shimizu; Katsunori Sawai; Yukihiko Shimazu; Masaki Kumanoya, and Katsumi Dosaka, all of Itami, Japan, assignors to Mitsubishi Denki Kabushiki Kaisha, Tokyo, Japan

Filed Jul. 10, 1995, Ser. No. 500,039

Claims priority, application Japan, Jan. 31, 1995, 7-014605

Int. Cl.^{6} G06F *9/02;9/06;12/06*

U.S. Cl. 395—862 **13 Claims**



1. A microcomputer comprising:

at least one processor; and

a first memory array having a continuous address space and being a single type memory array, said at least one processor and the first memory array being integrated on a common chip; and

the first memory array is divided into a plurality of sub-arrays and, the at least one processor is arranged between the plurality of sub-arrays; wherein

when a unit of reading out of and writing into by the first memory array is N×M (N and M are positive integral number) bits, the first memory array is divided into M number of sub-arrays of which unit of reading out and writing into is N bits, and M number of sub-arrays are respectively connected to the processor through an N bit data bus.

5,787,311
INTEGRATED CIRCUIT MULTIPORT MEMORY HAVING SERIAL ACCESS BIT MASK REGISTER AND METHOD FOR WRITING IN THE MULTIPORT MEMORY

William K. Waller, Boise, Id., assignor to Micron Technology, Inc., Boise, Id.

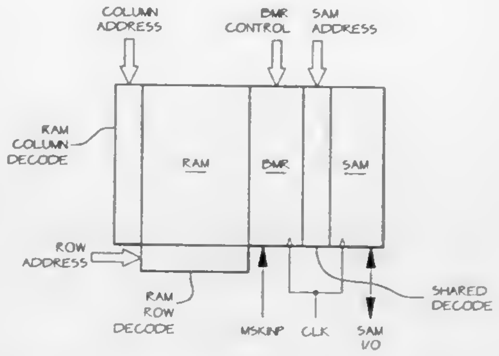
Continuation of Ser. No. 171,370, Dec. 20, 1993, abandoned, which is a continuation of Ser. No. 73,247, Jun. 7, 1993, abandoned, which is a continuation of Ser. No. 989,456, Dec. 9, 1992, abandoned, which is a continuation of Ser. No. 433,339, Nov. 8, 1989, abandoned. This application Sep. 14, 1995, Ser. No. 528,181

Int. Cl.^{6} G06F *13/00*

U.S. Cl. 395—869 **20 Claims**

1. An integrated circuit comprising:

a. a first memory array;



b. a second memory array;

c. a bit mask register coupled to said first and said second memory arrays, said bit mask register comprising a serial node; and access port adapted to load a mask into said bit mask register, wherein the integrated circuit is operative to perform a bit masked transfer between said first and said second memory arrays.

5,787,312
DATA STORAGE DEVICE FOR DISPLAYING STICKING OR STOCKING MEMORANDUM DATA TO RECORDED DATA ALONG WITH A SYMBOL INDICATIVE OF A PRESENCE OF THE MEMORANDUM DATA

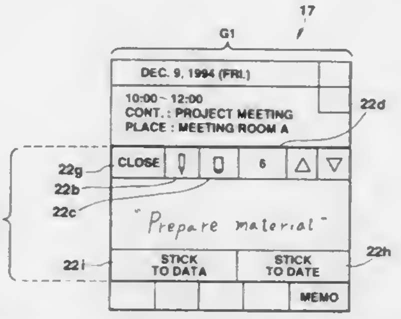
Katsumi Suzuki, Fussa, Japan, assignor to Casio Computer Co., Ltd., Tokyo, Japan

Filed Sep. 21, 1995, Ser. No. 531,734

Claims priority, application Japan, Sep. 28, 1994, 6-233554

Int. Cl.^{6} G06F *3/14*

U.S. Cl. 395—894 **10 Claims**



1. A data storage device which includes a memory for storing data and a display for displaying data read out from the memory as requested by a user, said data storage device comprising:

input screen displaying means for displaying, on a display screen on which data has been displayed, an input display screen through which memorandum data is inputted;

first sticking means for sticking to the displayed data the memorandum data inputted through the input display screen;

stocking means for stocking the memorandum data inputted through the input display screen without the memorandum data being stuck to the displayed data;

stocked data displaying means for reading the memorandum data stocked by said stocking means and for displaying the read memorandum data;

second sticking means for sticking to the displayed data the memorandum data displayed by said stocked data displaying means;

symbol displaying means for displaying the data to which the memorandum data is stuck by one of said first and second sticking means, along with a symbol indicative of a presence of the memorandum; and

memorandum data displaying means responsive to an operation of the displayed symbol for displaying the memorandum data stuck to the data.

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5,787,313

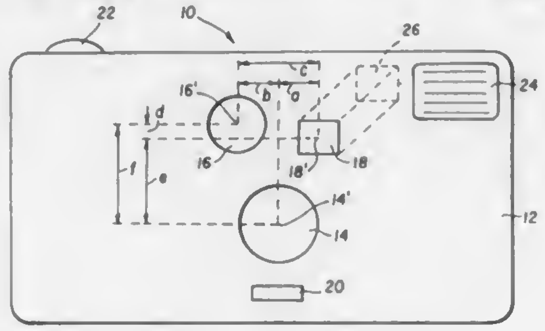
HYBRID CAMERA INCLUDING VIEWFINDER WITH MASKS FOR PARALLAX CORRECTION AND IMAGE FORMAT INDICATION

John T. Compton, LeRoy; Robert D. Huot, Pittsford, and Carl F. Leidig, Rochester, all of N.Y., assignors to Eastman Kodak Company, Rochester, N.Y.

Filed Feb. 20, 1997, Ser. No. 803,487

Int. Cl.^{6} G03B *5/00;13/14;17/48*

U.S. Cl. 396—80 **12 Claims**



1. A hybrid camera, comprising:
a camera housing;
an electronic imaging device supported within the camera housing;
a first optical system for focusing light from a scene onto the imaging device, the first optical system having a first optical axis and a first field of view;
a film imaging plane defined within the camera housing for photographic film;
a second optical system for focusing light from a scene onto the film imaging plane, the second optical system having a second optical axis spaced from the first optical axis and a second field of view;
a viewfinder supported by the camera housing, the viewfinder having a third optical axis and a third field of view, the viewfinder being located relative to a selected one of the first and second optical systems such that the third field of view includes at least 75% of the field of view of the selected optical system over typical ranges to an object in a scene;
the field of view of the selected optical system being larger than that of a non-selected one of the first and second optical systems such that the field of view of the selected optical system includes at least 75% of the field of view of the non-selected optical system over typical ranges to an object in a scene;
an array of electronically actuateable masks positioned transverse to the third optical axis within the viewfinder, the masks being configured and located for actuation to correct for parallax between the viewfinder and the non-selected optical system and to indicate a print format for an image to be captured on photographic film;
means for measuring range from the camera to an object in a scene reflecting light to be focused on the imaging device and the imaging plane and for producing a signal proportional to the range; and
a controller, responsive to the signal, for actuating selected ones of the masks for correction for parallax, or indication of print format for photographic prints made from images captured at the imaging plane, or both.

5,787,314

AUTOMATIC FOCUSING DEVICE

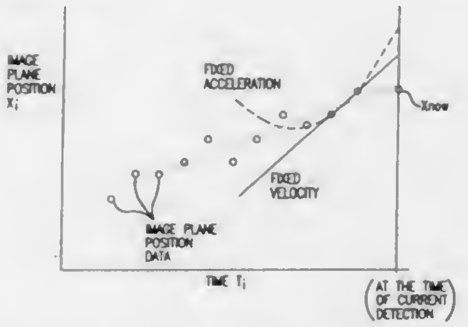
Toru Iwane, Tokyo, Japan, assignor to Nikon Corporation, Tokyo, Japan

Filed Nov. 21, 1996, Ser. No. 754,789

Claims priority, application Japan, Dec. 7, 1995, 7-318818

Int. Cl.^{6} G03B *13/34;15/16*

U.S. Cl. 396—95 **14 Claims**



1. An automatic focusing device comprising:
focus detection means for detecting focus data of a photographic lens from a plurality of focus detection areas established within an imaging region;
selection means for selecting a specified focus area from said plurality of focus detection areas; and
focus control means for receiving focus data from the specified area selected by the selection means and for performing focus control of the photographic lens based on the focus data, wherein the selection means comprises:
statistical prediction means for performing regression analysis on past focus data within said specified focus area and for extending a trend of the focus data to determine an acceptable range of predicted values of the focus data,
statistical determination means for determining no continuity of focus data when the most recent focus data for the specified focus area falls outside of the acceptable range of predicted values, and
statistical tracking means for searching for the newest focus data that falls within the acceptable range of predicted values from among the focus detection areas when the statistical determination means determines that there is no continuity of focus data and for setting the searched-out area as the specified area.

5,787,315

APPARATUS PROVIDED WITH A FILM FRAME JUDGEMENT DEVICE

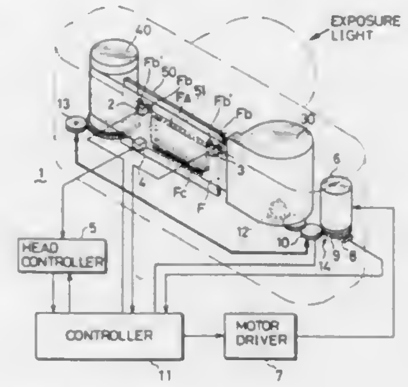
Yoshiyuki Tanaka, Sakal, and Toshihito Kido, Matsubara, both of Japan, assignors to Minolta Co., Ltd., Osaka, Japan

Filed Feb. 20, 1997, Ser. No. 801,392

Claims priority, application Japan, Feb. 21, 1996, 8-034031

Int. Cl.^{6} G03B *17/24;* **G11B** *5/00*

U.S. Cl. 396—319 **17 Claims**



1. An apparatus comprising:
a feeder which feeds a film having a non-magnetic recording portion and a magnetic recording portion;
a reader which magnetically scans the non-magnetic recording portion and the magnetic recording portion to generate scan signals, scanning of the non-magnetic recording portion being held for a predetermined period of 20 milliseconds or more; and
a judger which makes a threshold value based on scan signals from the non-magnetic recording portion and judges whrther or not the magnetic recording portion has been recorded with magnetic data by comparing scan signals with the threshold value.

5,787,316

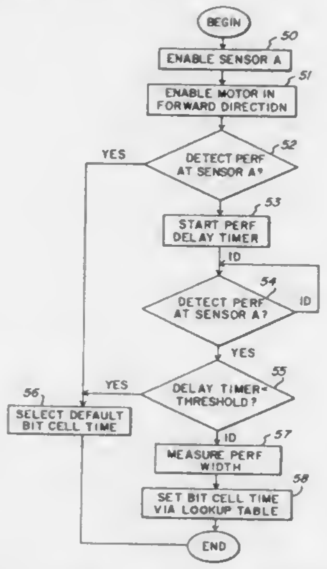
METHOD OF SETTING BIT CELL LENGTH FOR MAGNETIC RECORDING OF DATA IN A PHOTOGRAPHIC CAMERA

Richard A. Shroyer, Rochester, N.Y., assignor to Eastman Kodak Company, Rochester, N.Y.

Filed Apr. 7, 1997, Ser. No. 835,248

Int. Cl.^{6} G03B *17/24*

U.S. Cl. 396—319 **9 Claims**



1. A method of setting bit cell length for magnetic recording of a digital data.signal in a predetermined length of recording track on photographic film strip within a camera, the data signal having up to a preselected maximum number of data bits, and the camera having apparatus for measuring film transport velocity upon initiation of film advance and for setting a bit cell length in response to said measured velocity; the method comprising the steps of:
initiating film advance after capture of an image on the film;
sensing, during an initial stage of film advance, a condition related to film advance which is indicative that said measured film transport velocity is invalid for use in setting bit cell length for data recording; and
setting a default bit cell length when said sensed condition indicates said measured film transport velocity is invalid for use in setting bit cell length, said default bit cell length being sufficiently short to ensure recording of all the data signal in said predetermined length of recording track for a predefined maximum film transport velocity.

5,787,317

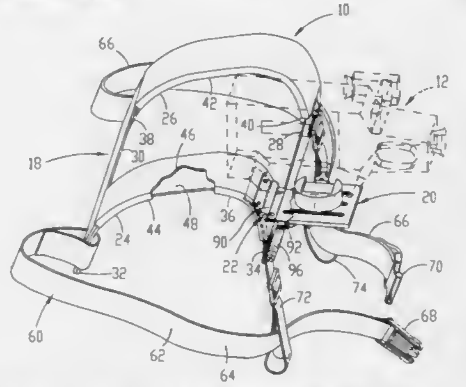
SHOULDER CARRIER FOR CAMERA

Charles E. Robinson, Sr., 1842 E. 48th Ter., Kansas City, Mo. 64130

Filed May 1, 1997, Ser. No. 845,635

Int. Cl.^{6} G03B *17/00*

U.S. Cl. 396—420 **4 Claims**



1. A shoulder carrier for a camera comprising:
first and second shoulder supports each presenting a front side and a rear side;
a first bar for positioning the front side of said first and second shoulder supports in fixed spaced-apart relationship;
a second bar for positioning the rear side of said first and second shoulder supports in fixed spaced-apart relationship;
first connecting means adjustably coupling said first bar to said front side of said first and second shoulder supports for selectively varying the relative spacing between said first and second shoulder supports;
adjustment means associated with said second bar for selectively varying the relative spacing between said first and second shoulder supports;
a platform for supporting a camera;
a camera mount for coupling a camera to the platform; and
a coupler including a hinge mounted on one of said shoulder supports and a brace for pivotally connecting said platform to one of said first and second shoulder supports and adjustably supporting said platform at a desired orientation relative to said one of said first and second shoulder supports.

5,787,318

CAMERA HAVING ADJUSTABLE APERTURE

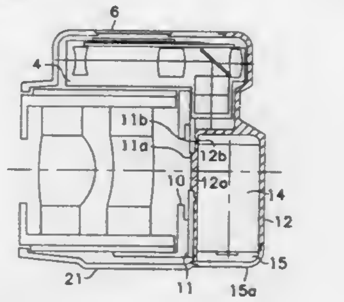
Minoru Katoh, Kawasaki; Hiroshi Wakabayashi, Yokohama, and Kiyosada Machida, Urawa, all of Japan, assignors to Nikon Corporation, Tokyo, Japan

Continuation of Ser. No. 655,913, May 31, 1996, abandoned. This application Nov. 12, 1997, Ser. No. 968,494

Claims priority, application Japan, Jun. 1, 1995, 7-135032

Int. Cl.^{6} G03B *17/00*

U.S. Cl. 396—442 **15 Claims**



1. A camera comprising:
a lens system;
an aperture that regulates the exposure region of a film; and
a pressure plate disposed at a rear surface of said aperture, said pressure plate including a hole facing the aperture;

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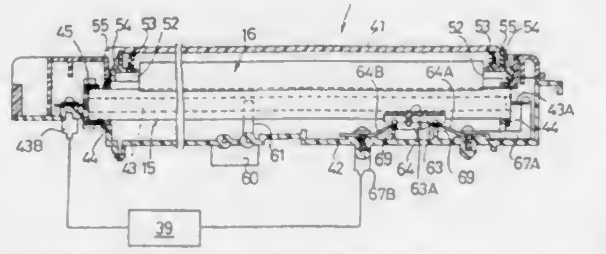
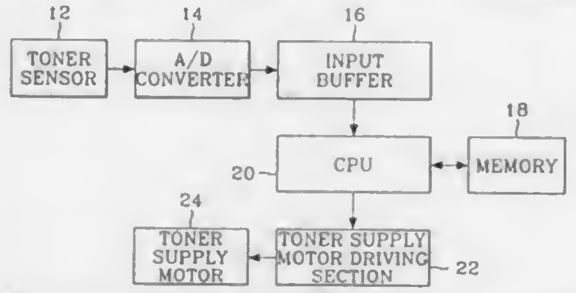
wherein said hole and said aperture are aligned with said lens system,
wherein said pressure plate includes a rear cover serving as a back surface of the camera; and
wherein an insertion member obstructs said hole when said rear cover is closed.

5,787,319
FIXING UNIT FOR USE IN IMAGE FORMING APPARATUS
Yoshiya Tomatsu, Kasugai, Japan, assignor to Brother Kogyo Kabushiki Kaisha, Nagoya, Japan
Filed Mar. 17, 1997, Ser. No. 819,434
Claims priority, application Japan, Apr. 11, 1996, 8-089285
Int. Cl.⁶ G03G *15/20*
U.S. Cl. 399—33 **19 Claims**



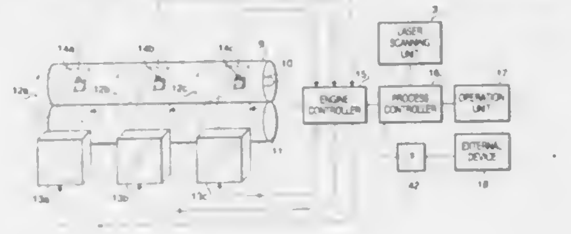
18. In a fixing device for an image forming apparatus, a method comprising the steps of:
positioning an electrical insulating member adjacent an outer peripheral surface of a heat roller;
positioning a temperature fuse on a side of the electrical insulating member opposite to a side of the electrical insulating member positioned adjacent the outer peripheral surface of a heat roller; and
transferring heat, when the heat roller overheats, to the temperature fuse via the electrical insulating member to cause the temperature fuse to react and cut off electric power supply to the heat roller,
wherein the step of transferring heat comprises providing the fixing device with synthetic resin bearings from axially supporting the heat roller so that when the heat roller overheats the bearings melt to allow the heat roller to be pressed into contact with the electrical insulating member by a pressing roller.

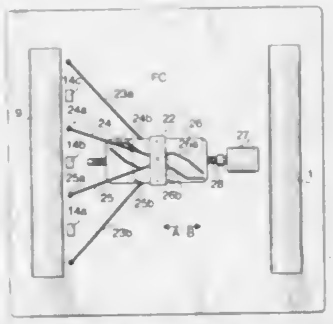
5,787,320
TONER DENSITY ADJUSTING METHOD FOR AN IMAGE RECORDING APPARATUS
Jong-Moon Eun, Suwon, and Yoon-Tae Lee, Kwongsun-gu, both of Rep. of Korea, assignors to SamSung Electronics Co., Ltd., Kyungki-do, Rep. of Korea
Filed Aug. 12, 1996, Ser. No. 695,605
Claims priority, application Rep. of Korea, Aug. 12, 1995, 1995 24909
Int. Cl.⁶ G03G *15/10;15/08*
U.S. Cl. 399—59 **15 Claims**



9. An image recording apparatus, comprising:
toner supply means for supplying toner for a printing operation;
memory means for storing a weighted value table providing weighted values corresponding to toner consumption coefficients and a driving table providing driving times of said toner supply means corresponding to said weighted values; and
control means for adjusting a density of said toner by:
  calculating, for each line of a page, one of said toner consumption coefficients by dividing a number of black data bits represented on each said line by a total number of data bits represented on each said line;
  obtaining from said weighted value table, said weighted values corresponding to said toner consumption coefficients calculated in said calculating step;
  generating an average weighted value for said page representing an average of said weighted values obtained in said obtaining step;
  locating from said driving table, one of said driving times corresponding to said average weighted value for said page; and
  driving said toner supply means in accordance with said driving time located in said locating step to adjust the density of said toner while printing said page.

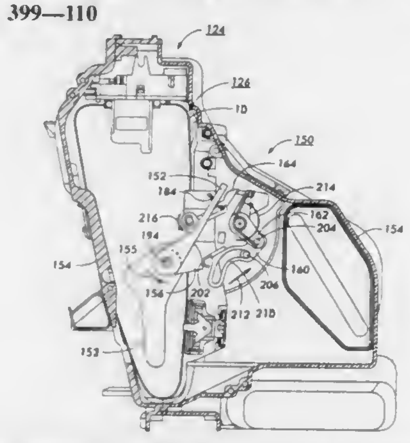
5,787,321
TEMPERATURE CONTROLLING DEVICE FOR FIXING UNIT
Tomoyuki Nishikawa, and Tsukasa Yanashima, both of Tokyo, Japan, assignors to Asahi Kogaku Kogyo Kabushiki Kaisha, Tokyo, Japan
Filed Feb. 4, 1997, Ser. No. 795,688
Claims priority, application Japan, Feb. 9, 1996, 8-023975
Int. Cl.⁶ G03G *15/20*
U.S. Cl. 399—69 **21 Claims**





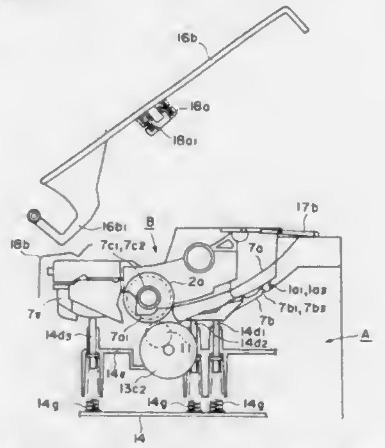
1. A temperature controlling device for an electrophotographic imaging device having a fixing unit that includes a heat roller, said fixing unit performing a fixing function in which toner is fixed on a recording sheet, said temperature controlling device comprising:
a temperature sensing system, arranged about an outer surface of said heat roller such that, for the purposes of temperature measurement, said heat roller is divided into a plurality of areas along a rotational axis of said heat roller, a temperature of each area being detected by said temperature sensing system;
an air blowing system which blows air to each of said plurality of areas separately, said air blowing system including a fan; and
a controller which controls said air blowing system to blow air in accordance with temperatures of said plurality of areas and which controls distribution of air, adjacent said fan, to be distributed to said plurality of areas in accordance with temperatures of said plurality of areas.

5,787,322
MULTIFUNCTION CUSTOMER REPLACEABLE UNIT LATCH
Douglas W. Sass, Ontario; Alvin J. Owens, Jr., Fairport, and David E. Rollins, Lyons, all of N.Y., assignors to Xerox Corporation, Stamford, Conn.
Filed Apr. 11, 1997, Ser. No. 832,716
Int. Cl.⁶ G03G *15/00;21/00*
U.S. Cl. 399—110 **19 Claims**



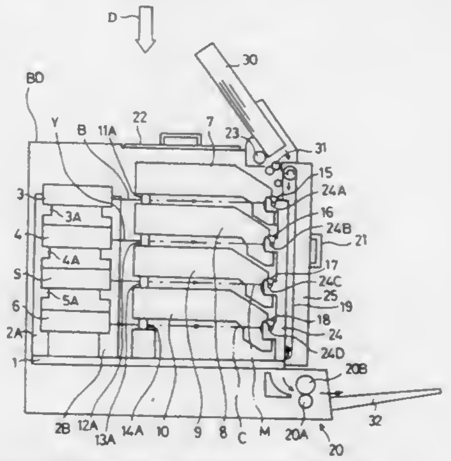
1. A mechanism for selectively positioning a plurality of devices in a printing machine, comprising:
a manually actuated lever for controlling the mechanism;
a first linkage operably connecting said lever to a first device for performing a first function; and
a second linkage operably connecting said lever to a second device for performing a second function, the first function being independent of the second function, so as to simultaneously reposition the first device and the second device by manually actuating said lever.

5,787,323
IMAGE FORMING APPARATUS HAVING A DETACHABLY MOUNTABLE PROCESS CARTRIDGE
Yoshiya Nomura, Tokyo; Yoshinori Sugiura, Kawasaki, and Yoshiro Tsuchiya, Yokohama, all of Japan, assignors to Canon Kabushiki Kaisha, Tokyo, Japan
Continuation of Ser. No. 234,419, Apr. 28, 1994. This application Jan. 17, 1996, Ser. No. 587,570
Claims priority, application Japan, Apr. 28, 1993, 5-123163
Int. Cl.⁶ G03G *21/18*
U.S. Cl. 399—111 **57 Claims**



1. An image forming apparatus for forming an image on a recording material, wherein a process cartridge is detachably mountable to said image forming apparatus, and wherein said process cartridge comprises an electrophotographic photosensitive member and process means, said apparatus comprising:
a main assembly;
mounting means, in said main assembly, for detachably mounting said process cartridge;
an openable cover movable relative to said main assembly, wherein said cover is openable so that said process cartridge may be mounted to said mounting means;
first urging means, provided in said cover, for elastically urging said process cartridge so as to position said process cartridge at a positioning portion in said mounting means;
second urging means, provided in said main assembly, for elastically urging said process cartridge so as to position said process cartridge at the positioning portion in said mounting means; and
feeding means for feeding the recording material.

5,787,324
IMAGE FORMING APPARATUS HAVING A PLURALITY OF VERTICALLY STACKED IMAGE FORMING UNITS
Takeo Iwasaki, Nagoya, Japan, assignor to Brother Kogyo Kabushiki Kaisha, Nagoya, Japan
Filed Sep. 24, 1996, Ser. No. 718,864
Claims priority, application Japan, Nov. 17, 1995, 7-300314
Int. Cl.⁶ G03G *21/00*
U.S. Cl. 399—112 **21 Claims**



1. An electrophotographic device, comprising:
a main body frame;
a plurality of developing devices, each developing device including a developing material storage bin, an optical beam emitter and a photosensitive member, wherein developing material is provided from the storage bin to a surface of the photosensitive member to form developing material images on the surface of the photosensitive member, such that each developing device holds a different color developing material, and the plurality of optical beam emitters are arranged so each optical beam travels along an optical path passing directly from a beam emitter to a corresponding one of the photosensitive members;
a developer supporting device for supporting the plurality of developing devices on the main body frame;
a door that is openable to expose a recording sheet feeding path of the electrophotographic device; and
a recording sheet feeding device mounted on an inner side of the door for feeding a recording sheet along the recording sheet feeding path to successively bring the recording sheet adjacent the photosensitive members of the plurality of developing devices so that developing material on surfaces of the photosensitive members can be transferred to the recording sheet, said recording sheet feeding device feeding said recording sheet across all of the developing devices in a linear manner.

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Patent Not Issued For This Number

5,787,326
IMAGE FORMING APPARATUS HAVING A COVER FOR PROTECTING A TRANSFER REGION OF AN INTERMEDIATE TRANSFER MEMBER WHEN A DOOR IS OPENED

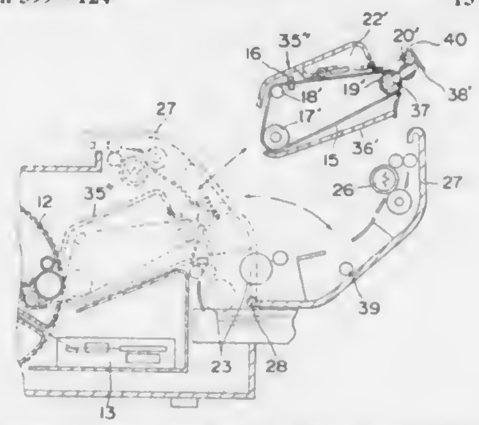
Katsutoshi Ogawa, Hirakata; Akira Kumon, Katano, and Junichi Nawama, Toyonaka, all of Japan, assignors to Matsushita Electric Industrial Co., Ltd., Kadoma, Japan

Filed Apr. 2, 1996, Ser. No. 626,345

Claims priority, application Japan, Apr. 3, 1995, 7-077499

Int. Cl.^{6} G03G *15/00*

U.S. Cl. 399—124 **15 Claims**



11. An intermediate transfer unit detachable from a main part of an image forming apparatus through an opening of a case of the apparatus for clearing paper jams, the opening being closed with a door, said intermediate transfer unit comprising:

- an intermediate transfer member on which a toner image is transferred;
- a transfer member which transfers the toner image onto said intermediate transfer member;
- an intermediate transfer unit case containing said intermediate transfer member and said transfer member and having a portion wherein said intermediate transfer member is exposed to the exterior of said intermediate transfer unit case;
- a second transfer member which transfers the toner image held on said intermediate transfer member onto a paper sheet; and
- a member connected to said case, said member engaging said door when said door is closed, the member separating said second transfer member from said intermediate transfer member when said door is opened,
- wherein when said intermediate transfer unit is detached, said second transfer member takes a position near said portion of said case to cover said intermediate transfer member with a gap remaining between said second transfer member and said intermediate transfer member.

5,787,327
CHARGING DEVICE FOR IMAGE FORMING APPARATUS

Kouji Matsushita, and Yasuhiro Nakagami, both of Toyokawa, Japan, assignors to Minolta Co., Ltd., Osaka, Japan

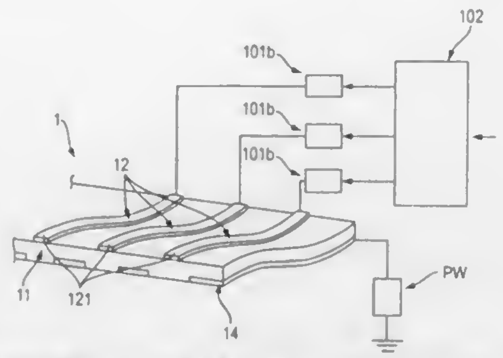
Filed Jun. 28, 1996, Ser. No. 671,879

Claims priority, application Japan, Jun. 30, 1995, 7-166596; May 14, 1996, 8-119221

Int. Cl.^{6} G03G *15/22;* B41J *2/39*

U.S. Cl. 399—130 **43 Claims**

21. A charging device for charging a surface of a charge-receiving member, wherein said member moves relative to said charging device in a moving direction, said charging device comprising:



- a flexible sheet having a first surface with a downstream side with respect to the moving direction for contacting said charge-receiving member, and with an upstream side with respect to the moving direction for facing said charge-receiving members, said first surface being terminated at a downstream side edge, said sheet further having a second surface that extends from the downstream side edge in an extending direction substantially orthogonal to said surface of said charge-receiving member;
- a plurality of electrodes each of which terminates at a portion of said second surface of said downstream.

5,787,328
ROTARY DEVELOPING DEVICE FOR AN IMAGE FORMING APPARATUS

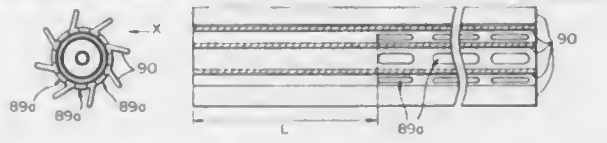
Kazuyuki Sugihara; Tomoji Ishikawa, both of Yokohama, and Katsuhiro Kosuge, Tokyo, all of Japan, assignors to Ricoh Company, Ltd., Tokyo, Japan

Division of Ser. No. 459,423, Jun. 2, 1995. This application Jan. 17, 1997, Ser. No. 784,532

Claims priority, application Japan, Jun. 5, 1994, 6-147177

Int. Cl.^{6} G03G *15/06*

U.S. Cl. 399—224 **2 Claims**



1. A rotary developing device comprising:

- a developing unit having a plurality of developing chambers arranged around an axis of rotation, and rotatable about said axis to move any one of said plurality of developing chambers to a developing position where an image carrier is located;
- a developing storing unit comprising a plurality of developer receptacles respectively corresponding to said plurality of developing chambers; and
- a conveyor conveying a developer from each of said developer receptacles to one of said plurality of developing chambers;
- wherein a rotatable hollow member is disposed in at least one of said plurality of developing chambers and has a plurality of agitating blades, each extending over a width of an effective developing range, at predetermined circumferential intervals, wherein said conveyor extends in said hollow member over said width, and wherein said hollow member is formed with developer outlets in a circumferential wall thereof wherein said developer outlets are defined in a range of from an intermediate portion to an upstream end of said circumferential wall in a direction in which said conveyor conveys the developer.

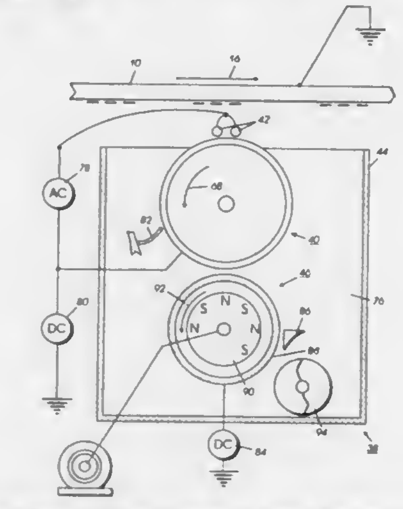
5,787,329
ORGANIC COATED DEVELOPMENT ELECTRODES AND METHODS THEREOF

John R. Laing, Rochester; Edward J. Gutman, Webster; J. Stephen Kittelberger, Rochester; John G. VanDusen, Walworth; Suresh K. Ahuja, Webster; Merlin E. Scharfe, Penfield; Richard L. Schank, Pittsford; Mark J. Hirsch, Fairport; Santokh S. Badesha; Arnold W. Henry, both of Pittsford, and George J. Heeks, Rochester, all of N.Y., assignors to Xerox Corporation, Stamford, Conn.

Filed Apr. 29, 1997, Ser. No. 841,136

Int. Cl.^{6} G03G *15/08*

U.S. Cl. 399—266 **30 Claims**



1. An apparatus for developing a latent image recorded on a surface, comprising:

- wire supports;
- a donor member spaced from the surface and being adapted to transport toner to a region opposed from the surface;
- an electrode member positioned in the space between the surface and the donor member, the electrode member being closely spaced from the donor member and being electrically biased to detach toner from the donor member thereby enabling the formation of a toner cloud in the space between the electrode member and the surface with detached toner from the toner cloud developing the latent image, wherein opposed end regions of the electrode member are attached to wire supports adapted to support the opposed end regions of said electrode member; and
- an organic coating on at least a portion of nonattached regions of, said electrode member.

5,787,330
IMAGE FORMING APPARATUS HAVING SHEET CURVATURE CORRECTING DEVICE

Hitoshi Funato, Ebina, Japan, assignor to Fuji Xerox Co., Ltd., Tokyo, Japan

Filed Oct. 2, 1996, Ser. No. 725,322

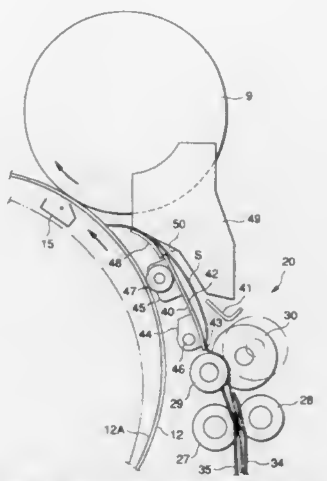
Claims priority, application Japan, Oct. 4, 1995, 7-258007

Int. Cl.^{6} G03G *15/00*

U.S. Cl. 399—390 **10 Claims**

1. An image forming apparatus, comprising:

- rotatable sheet support means having an arcuate portion curving outward for supporting a sheet;
- imaging means for forming an image on said sheet on said sheet support means;
- conveyer means for conveying said sheet to said arcuate portion after curving said sheet outward like said arcuate portion of said sheet support means; and
- correcting means for correcting the curvature radius of said sheet on its way to said sheet support means from said conveyer means so that the curvature radius of said sheet becomes equal to or greater than that of said arcuate portion before guiding said sheet to said arcuate portion.



5,787,331
CURL CORRECTION DEVICE OF AN IMAGE FORMING APPARATUS

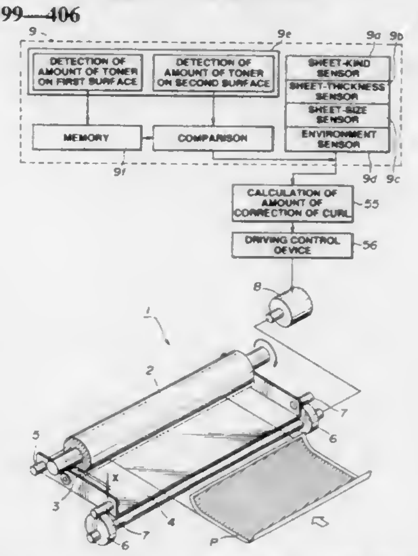
Keiko Ohkuma, Matsudo; Kiyoharu Tanaka, Kawasaki, and Tooru Matsuyama, Yokohama, all of Japan, assignors to Canon Kabushiki Kaisha, Japan

Continuation of Ser. No. 570,572, Dec. 11, 1995, abandoned. This application Jun. 3, 1997, Ser. No. 867,766

Claims priority, application Japan, Dec. 14, 1994, 6-310545; Feb. 21, 1995, 7-032123; Oct. 24, 1995, 7-275558

Int. Cl.^{6} G03G *15/00*

U.S. Cl. 399—406 **41 Claims**



1. A curl correction device of an image forming apparatus, said device comprising:

- image forming means for forming images on first and second surfaces of a sheet;
- first curl correction means for correcting curl in a first direction of the sheet;
- second curl correction means for correcting curl in a second direction opposite to said first direction of the sheet;
- kind-information transmission means for transmitting kind information relating to a kind of the sheet;
- image-information transmission means for transmitting information relating to the images formed on the first and second surfaces of the sheet by said image forming means;
- control means for changing a curl correction capability of at least said one of said first and second curl correction means based on the kind information transmitted from said kind-information transmission means, and image information of the

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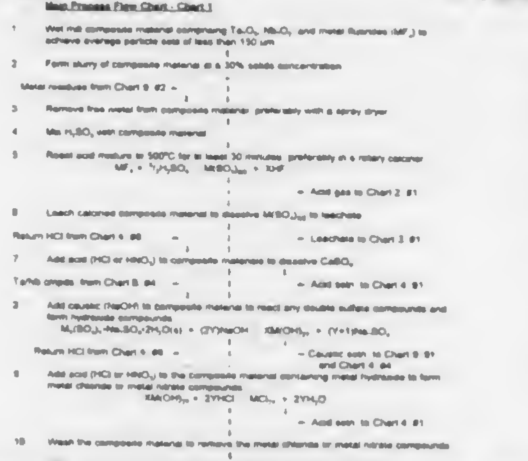
first and second surfaces of the sheet transmitted from said image-information transmission means;
conveying means for conveying the sheet on which the image is formed by said image forming means;
a conveying path for leading the sheet on which the image is formed by said image forming means to said image forming means again;
a first leading path for leading the sheet to said first curl correction means, and then to said conveying means;
a second leading path for leading the sheet to said second curl correction means, and then to said conveying means;
first switching means for leading the sheet selectively to said first leading path or said second leading path; and
second switching means for leading the sheet selectively to said conveying path, said second switching means being disposed downstream of said second curl correction means on said second leading path.

5,787,332
PROCESS FOR RECOVERING TANTALUM AND/OR NIOBIUM COMPOUNDS FROM COMPOSITES CONTAINING A VARIETY OF METAL COMPOUNDS

William D. Black; David R. Tierney, both of Johnson City, Tenn., and Henrietta Notzl-Loiselle, Saskatoon, Canada, assignors to Fansteel Inc., North Chicago, Ill.
Filed Sep. 26, 1996, Ser. No. 721,104
Int. Cl.^{6} C01F *17/00;* **C01G** *33/00;35/00;43/025*
U.S. Cl. 423—9 **22 Claims**



1. Method for recovering constituents from a composite material which comprises tantalum oxides and niobium oxides, and other metals (M) at least a portion of which are present as metal fluoride compounds (MF_y), said method comprising the steps of:

a. reacting said metal fluoride (MF_y) compounds of said composite material with sulfuric acid (H_2SO_4) to form metal sulfate ($M(SO_4)_{y/2}$) compounds from said metal fluoride compounds and to form hydrogen fluoride (HF) according to the reaction:

$$MF_y+(Y/2)H_2SO_4\rightarrow M(SO_4)_{Y/2}+YHF(1\leqq y\leqq 6);$$

b. washing the composite material with water to remove at least a portion of said metal sulfate ($M(SO_4)_{y/2}$) compounds from said composite material, whereby said removed portion is leached into said water and forms a leachate solution,

c. solubilizing, in a first acid solution comprising hydrochloric acid (HCl) or nitric acid (HNO_3), any metal sulfate compounds remaining in said composite material after step (b), thereby removing at least a portion of said remaining metal sulfate compounds in said first solution;

d. reacting any double sulfate compounds ($M_x(SO_4)_y\cdot NaSO_4\cdot 2H_2O$) among said metal sulfate compounds in said material with caustic soda (NaOH) in a caustic solution to form metal hydroxide compounds (XM(OH)2y) according to:

$$M_x(SO_4)_y\cdot Na_2SO_4\cdot 2H_2O+(2Y)NaOH\rightarrow XM(OH)_{2y}+(Y+1)Na_2SO_4$$

where 1<y<3, and removing said caustic solution;

e. reacting said metal hydroxide compounds ($M(OH)_{2y}$) with a second acid solution comprising HCl or HNO_3 to form metal chloride compounds or metal nitrate compounds according to:

$$XM(OH)_{2y}+2YHCl\rightarrow MCl_{26}+2YH_2O;$$

or

$$XM(OH)_{2y}+2YHNO_3\rightarrow M(NO_3)_{2y}+2YH_2O$$

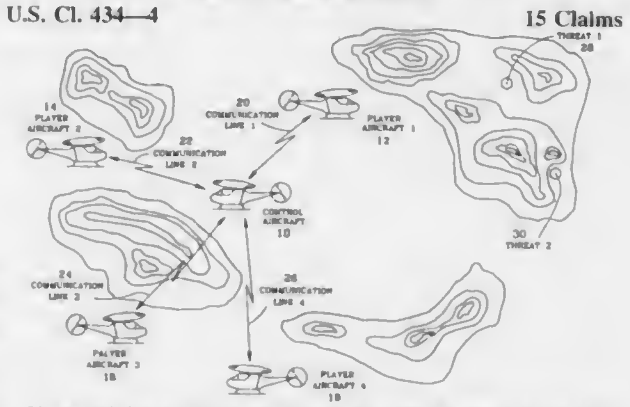
where $1\leqq x\leqq 2$, $1\leqq y\leqq 3$;

f. removing said metal chloride or metal nitrate compounds from the composite material of step (e) to thereby provide a residue of said composite material where said residue comprises tantalum oxide and niobium oxide in concentrated amounts relative to initial amounts of said oxides in said composite material prior to step (a); and

g. collecting said residue composite materials.

5,787,333
AIRCRAFT SURVIVABILITY EQUIPMENT TRAINING METHOD AND APPARATUS FOR LOW FLYERS

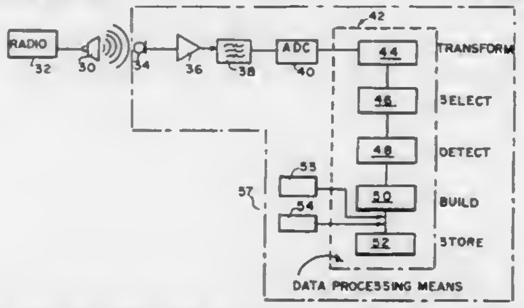
John E. Rasinski, and My Tran, both of Albuquerque, N. Mex., assignors to Honeywell Inc., Minneapolis, Minn.
Continuation of Ser. No. 297,189, Aug. 26, 1994, abandoned. This application Nov. 26, 1996, Ser. No. 756,537
Int. Cl.^{6} G09B *9/00;9/08*
U.S. Cl. 434—4 **15 Claims**



11. A training platform for player aircraft for an in-flight ASE training apparatus comprising:
an input data link for receiving threat files and training setup data from an airborne central training control;
means for displaying threats from said threat files;
means for controlling power to counter-measure and weapons systems from said training setup data;
means for setting up weapons systems configuration from said training setup data;
means for simulating electronic counter-measure models from said training setup data;
means for simulating weapons systems by said training setup data;
means for simulating counter-measures; and
an output data link for transmitting said simulated electronic counter-measure models, simulated weapons systems, simulated counter-measures and aircraft dynamic data from a player aircraft navigation system.

5,787,334
METHOD AND APPARATUS FOR AUTOMATICALLY IDENTIFYING A PROGRAM INCLUDING A SOUND SIGNAL

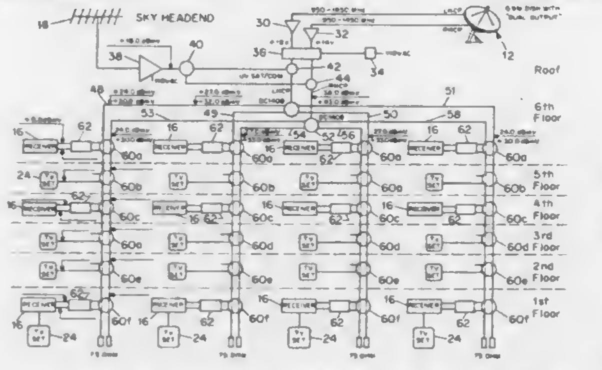
Michel Fardeau, Les Milles; Michel Briend, Roquevaire; Marc Tommasi, Ventabren, and Serge Galant, Aix-en-Provence, all of France, assignors to Ceridian Corporation, Columbia, Md.
Division of Ser. No. 476,499, Jun. 7, 1995, Pat. No. 5,581,800, which is a division of Ser. No. 360,990, Dec. 20, 1994, Pat. No. 5,574,962, which is a continuation of Ser. No. 936,111, Aug. 27, 1992, abandoned. This application Sep. 27, 1996, Ser. No. 721,705
Claims priority, application France, Sep. 30, 1991, 91 11989
Int. Cl.^{6} H04B *17/00*
U.S. Cl. 455—2 **9 Claims**



1. A personal monitoring device for use in collecting information concerning audio signals available to a person, the audio signals including an identification code, comprising:
an acoustic transducer having an output at which it provides a non-acoustic signal in response to audio signals;
a detection circuit coupled with the output of the acoustic transducer to receive the non-acoustic signal and operative to detect an identification code therein, the detection circuit having an output at which it provides a code detection signal representing the detected identification code;
a carry detection transducer having an output at which it provides a carry detection signal indicating that the personal monitoring device is being carried by a person; and
a memory device coupled with the detection circuit and the carry detection transducer to store data representing the code detection signal and data representing the carry detection signal.

5,787,335
DIRECT BROADCAST SATELLITE SYSTEM FOR MULTIPLE DWELLING UNITS

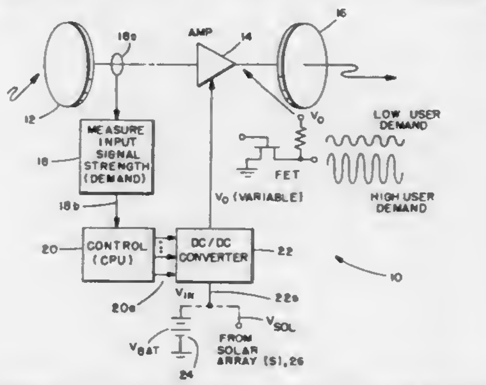
Abram Novak, Brooklyn, N.Y., assignor to Ethnic-American Broadcasting Co, LP, Fort Lee, N.J.
Filed Nov. 18, 1996, Ser. No. 751,320
Int. Cl.^{6} H04N *7/16*
U.S. Cl. 455—3.2 **8 Claims**



1. A system for distributing broadcast and satellite television signals to multiple users, comprising a satellite antenna system for receiving satellite signals having first and second polarizations and for providing corresponding first and second satellite signals on respective first and second transmission lines; a broadcast signal antenna system for receiving broadcast signals and for combining said broadcast signals with said satellite signals on at least one of said transmission lines; a dual transmission line distribution system for providing said satellite and broadcast signals to a plurality of user locations; means at said user locations for providing said broadcast signals to a user's television receiver; and a switch at selected user locations for selectively connecting said first or second satellite signals to a satellite signal receiver.

5,787,336
SATELLITE COMMUNICATION POWER MANAGEMENT SYSTEM

Edward Hirschfield, Cupertino; Robert A. Wiedeman, Los Altos, both of Calif., and Stanley Canter, Phoenix, Ariz., assignors to Space Systems/Loral, Inc., Palo Alto, Calif.
Filed Nov. 8, 1994, Ser. No. 336,387
Int. Cl.^{6} H04B *7/185*
U.S. Cl. 455—13.4 **14 Claims**



1. A method for operating a communications signal transmitter, comprising the steps of:
receiving a communications signal;
sensing a signal strength of the received communications signal;
adjusting an output of a power supply that supplies operating power to a communications signal transmitter amplifier in accordance with the sensed signal strength so as to increase the output of the power supply when the sensed signal strength increases and to decrease the output of the power supply when the sensed signal strength decreases; and
amplifying the received communications signal with the communications signal transmitter amplifier;
wherein the step of adjusting includes the steps of:
  setting the duty cycle of a pulse width modulated signal as a function of at least the sensed signal strength;
  driving a switch means with the pulse width modulated signal to chop a primary DC source into an AC signal; and
  synchronously rectifying the AC signal with an inverse of the pulse width modulated signal to provide a DC output from the power supply for supplying the operating power to the communications signal transmitter amplifier.

5,787,337
METHOD OF FABRICATING A FIELD-EMISSION COLD CATHODE

Fumihiko Matsuno, and Nobuya Seko, both of Tokyo, Japan, assignors to NEC Corporation, Tokyo, Japan
Filed Jan. 29, 1996, Ser. No. 593,371
Claims priority, application Japan, Jan. 30, 1995, 7-013127
Int. Cl.^{6} H01J *9/02*
U.S. Cl. 445—50 **10 Claims**

1. A method of fabricating a field-emission cold cathode comprising the steps of:
forming an insulating layer on a substrate having a conductive surface;
forming a conductive gate layer on said insulating layer;

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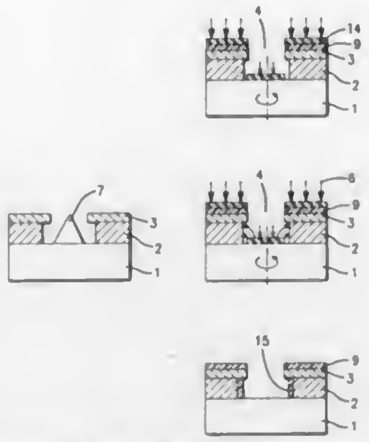


forming a cavity in said insulating layer and conductive gate layer;
forming a sacrificing layer on said gate layer;
forming a protecting film on a side surface of said insulating layer within the cavity by coating a positive photoresist;
forming an emitter electrode within the cavity by depositing emitter electrode material; and
removing said protecting film and said sacrificing layer together with extra emitter electrode material.

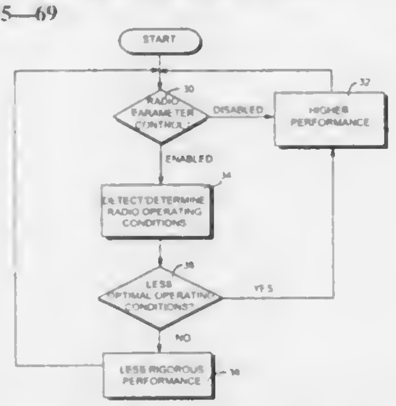
5,787,338
METHOD AND APPARATUS FOR CONTROLLING OPERATION OF A PORTABLE OR MOBILE BATTERY-OPERATED RADIOS

Mark D. Priest, Rustburg, Va., assignor to Ericsson Inc., Research Triangle Park, N.C.

Division of Ser. No. 443,662, May 18, 1995. This application Mar. 14, 1997, Ser. No. 814,996

Int. Cl.⁶ H04B *1/00;7/00*

U.S. Cl. 455—69 **4 Claims**


START
30
RADIO PARAMETER CONTROL?
DISABLED
32
HIGHER PERFORMANCE
ENABLED
34
DETECT/DETERMINE RADIO OPERATING CONDITIONS
36
LESS OPTIMAL OPERATING CONDITIONS?
YES
NO
LESS RIGOROUS PERFORMANCE
38

1. In a trunked radio communications system where trunked radio communications over radio frequency communications channels are coordinated from a base station having an associated geographical coverage area, a method for optimizing the performance of a portable or mobile battery-operated radio comprising the steps of:
establishing operating parameter values of the radio at various performance levels corresponding to particular radio operating conditions;
determining at the radio a current radio operating condition; and
adjusting the radio operating parameter value based on the determined radio operating condition,
wherein one of the radio frequency communication channels is a control channel divided in time into slots, a radio obtains access to transmit to the base station during one or more predetermined time slots by transmitting a channel request message, and the operating parameter is a number of slots used for making a channel request such that as the current radio operating condition determined by the radio changes, the radio adjusts the number of slots.

5,787,339
RADIOCOMMUNICATION SYSTEM OPERATING IN A TIME SHARED CONTROL

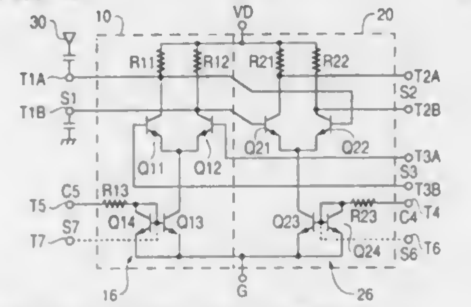
Hiroshi Asazawa, Tokyo, Japan, assignor to NEC Corporation, Tokyo, Japan

Filed Nov. 22, 1995, Ser. No. 561,897

Claims priority, application Japan, Nov. 22, 1994, 6-287730

Int. Cl.⁶ H04B *1/44*

U.S. Cl. 455—83 **9 Claims**



1. A radiocommunication system comprising:
an antenna, an input/output stage section including a first differential transistor pair having an input pair and an output pair for supplying a differential output through said antenna, a first current source operatively connected to said first differential transistor pair, a second differential transistor pair having an input pair for receiving an input signal through said antenna and an output, a second current source operatively connected to said second differential transistor pair, each of said first and second current sources being activated and inactivated in a time shared control by a changeover signal for supplying operational current to a corresponding one of said first and second differential transistor pairs;
a transmitting section having an output pair connected to the input pair of said first differential transistor pair; and
a receiving section having an input pair connected to the output pair of said second differential transistor pair.

5,787,340
RADIATION SHIELDING APPARATUS FOR COMMUNICATION DEVICE

Raimo Erik Sepponen, Helsinki, Finland, assignor to Nokia Mobile Phones, Salo, Finland

PCT No. PCT/FI94/00063, § 371 Date Aug. 15, 1995, § 102(e) Date Aug. 15, 1995, PCT Pub. No. WO94/18817, PCT Pub. Date Aug. 18, 1994

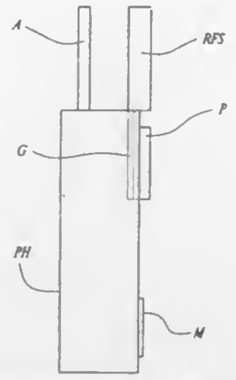
PCT Filed Feb. 15, 1994, Ser. No. 507,346

Claims priority, application Finland, Feb. 15, 1993, 930646

Int. Cl.⁶ H04B *1/38*

U.S. Cl. 455—90 **28 Claims**

1. An apparatus for radio communication comprising: a main housing; a display; a keyboard, an antenna having an upper extending section located above said housing for radiating electromagnetic radiation; and a shield including a layer of electrically conductive material coupled at the operating frequency of the antenna to an electrical ground of the apparatus, said shield which under operational conditions is located between user and the radiating section of the antenna located above said housing thereby reducing electromagnetic irradiation of the user from said antenna; said shield being arranged to actuate a switch that controls functions of said apparatus; and said switch enabling the use of the apparatus only when the shield is in its shielding position.



5,787,341
FITTING PIECE IN A MOBILE STATION FOR ITS ATTACHMENT DEVICE

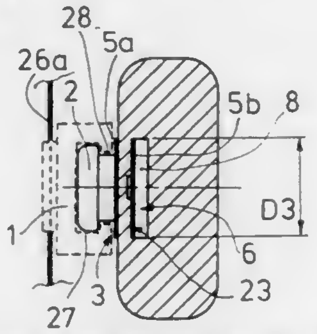
Tapio Parkas, and Mika Kontkanen, both of Salo, Finland, assignors to Nokia Mobile Phones Ltd., Salo, Finland

Filed Jun. 10, 1996, Ser. No. 661,215

Claims priority, application Finland, Jun. 30, 1995, 953248

Int. Cl.⁶ H04B *1/38*

U.S. Cl. 455—90 **15 Claims**



1. A fitting piece in a mobile station for an attachment device with which the mobile station can be attached to a target and detached therefrom and re-attached thereto comprising: a support stud (**2**) attached to a mobile station with a fitting piece (**3**); and a carrying means (**1**) in a target, having elements for the detachable grip on the support stud, characterized in that the fitting piece (**3**) is formed of a U-shaped plate (**4**) having a first branch (**5***a*) in which said support stud (**2**) is located and a second branch (**5***b*) which in the operating state is located in an attachment cavity (**6**) in the rear cover of the mobile station, whereby the first branch (**5***a*) of the U-plate (**4**) rests against a first surface (**21**) of the rear cover (**22**) of the mobile station (**20**) and the second branch (**5***b*) rests against a second surface (**23**) of the rear cover (**22**) in the cavity.

5,787,342
RECEIVER

Shunji Tochihara, Nishitama-gun, and Yoshinari Nanao, Hamura, both of Japan, assignors to Kokusai Electric Co., Ltd., Tokyo, Japan

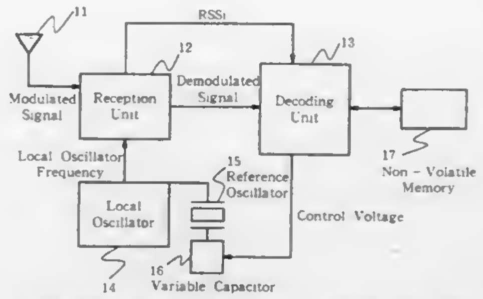
Filed Jul. 18, 1996, Ser. No. 684,139

Claims priority, application Japan, Jul. 21, 1995, 7-207545

Int. Cl.⁶ H04B *1/06*

U.S. Cl. 455—264 **20 Claims**

1. A receiver comprising:
a reception unit for demodulating a received signal;
a decoding unit for decoding the received signal which has been demodulated by said reception unit;



a local oscillator for supplying said reception unit with a local oscillator frequency which is used for demodulating the received signal;
a voltage-controlled oscillator for generating a reference frequency which is used for producing the local oscillator frequency; and
a memory for storing a control voltage setting which is obtained based on an adjustment signal received by said receiver when said receiver is manufactured;
wherein, said decoding unit comprises means for monitoring a reception electric field intensity of said reception unit, for controlling a control voltage applied to said voltage-controlled oscillator in a manner so as to increase the reception electric field intensity, and for controlling the control voltage based on the control voltage setting stored in said memory.

5,787,343
METHOD OF PROCESSING CALLS BETWEEN MOBILE TERMINALS AND FIXED TERMINALS

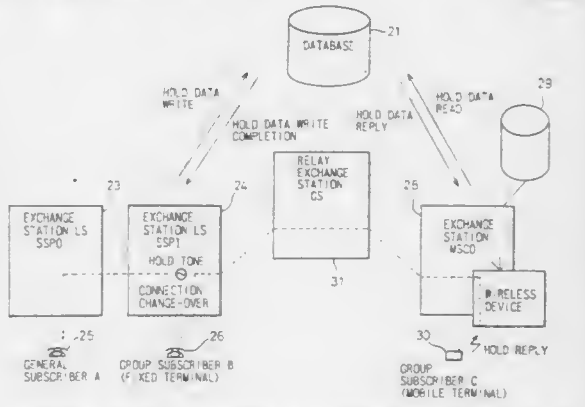
Masami Iijima, and Takaaki Kawakami, both of Kawasaki, Japan, assignors to Fujitsu Limited, Kanagawa, Japan

Continuation of Ser. No. 269,052, Jun. 29, 1994. This application Dec. 11, 1996, Ser. No. 763,519

Claims priority, application Japan, Dec. 13, 1993, 5-312031

Int. Cl.⁶ H04Q *7/20*

U.S. Cl. 455—414 **12 Claims**



7. Terminal change-over system in a composite communications network including mobile terminals and fixed terminals, comprising:
a mobile network exchange which controls connections with mobile terminals,
a fixed network exchange which controls connections with fixed terminals, and
a database which is accessed in common by said mobile network exchange and said fixed network exchange,
said database records data about groups comprising a combination of said mobile terminals and said fixed terminals which are the object of a mutual change-over,
said mobile network exchange and said fixed network exchange change over and connect the mobile terminals or the fixed terminals, during a telephone conversation, to the fixed terminals or the mobile terminals comprising said combination, in accordance with the group data of the mobile terminals and

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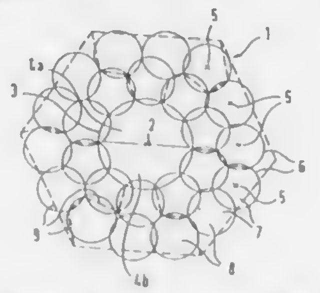
the fixed terminals in said database, without interrupting said telephone conversation.

5,787,344
ARRANGEMENTS OF BASE TRANSCEIVER STATIONS OF AN AREA-COVERING NETWORK
Stefan Scheinert, Gartenstrasse 9, DE-90443 Nürnberg, Germany

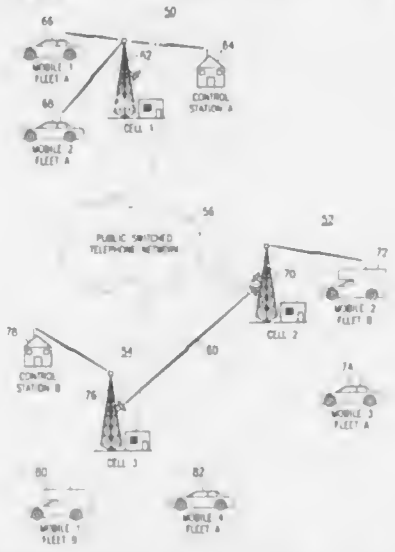
Filed Jun. 22, 1995, Ser. No. 493,793
Int. Cl.^{6} H04Q *7/20*
U.S. Cl. 455—422 **21 Claims**



1. An arrangement of base transceiver stations in an area-covering radio network comprising cell regions arranged continuously in rows, each cell region comprising:
- (a) a central transceiver station coupled to a base station controller;
- (b) a plurality of decentral transceiver stations surrounding and coupled to the central transceiver station; and
- (c) a plurality of cell areas, each cell area operated at respectively different transmission frequencies, each cell area being formed by a plurality of adjacent, decentral transceiver stations to which the same transmission frequencies are allocated.

5,787,345
AUTOMATIC VOICE PROMPTS IN A LAND MOBILE RADIO SYSTEM
Billy G. Moon, Southlake, Tex., assignor to Uniden America Corporation, Fort Worth, Tex.

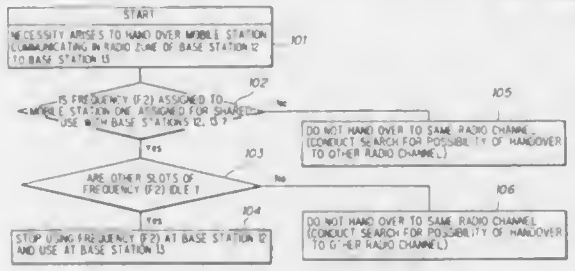
Continuation of Ser. No. 258,438, Jun. 10, 1994, abandoned.
This application Mar. 12, 1997, Ser. No. 815,900
Int. Cl.^{6} H04B *7/00;9/00*
U.S. Cl. 455—436 **12 Claims**



1. A method for advising a mobile radio user in a land mobile radio system, which has a plurality of cells, that the users radio has checked-in to a local cell when the user's radio was not previously assigned to the local cell, wherein each cell in the system has a switch, a plurality of repeaters and each mobile radio is assigned to a particular cell when the mobile radio is in communication with the particular cell, the method comprising the steps of:
- receiving at said local cell a check-in command via a control channel from one of said mobile radios which did not have an established assignment to said local cell in said system, and which said mobile radio does not have a voice channel established to said local cell,
- selecting a source within the switch at said local cell for a recorded audible voice prompt after receipt of said check-in command, wherein said voice prompt serves to produce when received at a mobile radio an audible announcement which identifies the local cell,
- establishing a voice communication channel between said source and one of said repeaters in said local cell, and
- transferring said voice prompt from said source through said voice communication channel and said one repeater for transmission to said one mobile radio for producing said audible announcement at said one mobile radio.

5,787,346
RADIO CHANNEL ASSIGNMENT METHOD
Takayuki Iseyama, Kawasaki, Japan, assignor to Fujitsu Limited, Kanagawa, Japan

Filed Jun. 19, 1996, Ser. No. 665,765
Claims priority, application Japan, Dec. 12, 1995, 7-322968
Int. Cl.^{6} H04Q *7/20;* H04B *7/00;7/212*
U.S. Cl. 455—439 **10 Claims**

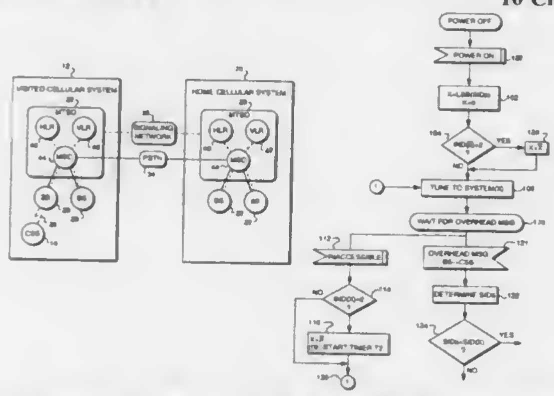

START
NECESSITY ARISES TO HAND OVER MOBILE STATION COMMUNICATING IN RADIO ZONE OF BASE STATION 12 TO BASE STATION 13
101
102
IS FREQUENCY (F2) ASSIGNED TO MOBILE STATION ONE ASSIGNED FOR SHARED USE WITH BASE STATIONS 12, 13 ?
NO
105
DO NOT HAND OVER TO SAME RADIO CHANNEL (CONDUCT SEARCH FOR POSSIBILITY OF HANDOVER TO OTHER RADIO CHANNEL)
YES
103
ARE OTHER SLOTS OF FREQUENCY (F2) IDLE ?
NO
106
YES
104
STOP USING FREQUENCY (F2) AT BASE STATION 12 AND USE AT BASE STATION 13
DO NOT HAND OVER TO SAME RADIO CHANNEL (CONDUCT SEARCH FOR POSSIBILITY OF HANDOVER TO OTHER RADIO CHANNEL)

1. A radio channel assignment method in a time division multiple access mobile telecommunication system having a plurality of radio base stations to which shared radio frequencies have been assigned, and a base station control unit for controlling each of the radio base stations, wherein the radio frequencies are shared with radio base stations, each radio frequency is assigned as a radio channel, on a per time-slot basis, to a mobile station, and a radio channel is specified by the radio frequency and the time-slot, said method comprising the steps of:
- managing, by said base station control unit, and with regard to each radio frequency, the number of a radio base station that is using this radio frequency, the number of a mobile station that is using this radio frequency in each time slot, and data indicating whether this radio frequency is a frequency that has been assigned for shared use with the radio base stations;
- if it has become necessary for a mobile station currently communicating via a predetermined radio channel to be handed over from a radio base station with which it is currently communicating to an adjacent radio base station, determining, by said base station control unit, whether the frequency currently being used by the mobile station is a shared assigned frequency and whether this frequency has been assigned to another mobile station in another time slot;
- changing over, by said base radio station control unit, the radio base station using the frequency of the mobile station from the current radio base station to the adjacent radio base station, without changing the frequency currently being used by the mobile station, when the frequency currently being used by the mobile station is a shared assigned frequency and this frequency has not been assigned to other mobile station in any other time slot;

- implementing handover by activating a radio channel of a prescribed time slot of the shared frequency at said adjacent radio base station; and
- after handover to said adjacent radio base station is made, notifying, by said adjacent radio base station, said mobile station of the fact that the radio base station has been changed over.

5,787,347
METHOD AND APPARATUS FOR SELECTING A CELLULAR SYSTEM FOR COMMUNICATION WITH A CELLULAR TELEPHONE IN A ROAMING AREA
I-Hsiang Yu, Lexington; Daniel G. Borkowski, Acton, and Kenneth Chao, Waltham, all of Mass., assignors to GTE Laboratories Incorporated, Waltham, Mass.

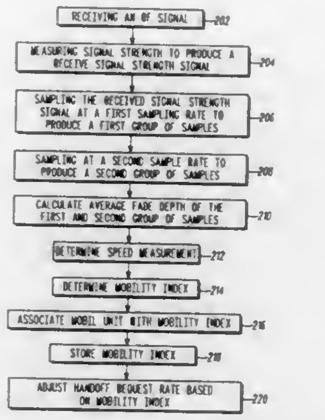
Filed Dec. 11, 1995, Ser. No. 570,226
Int. Cl.^{6} H04M *11/00;* H04Q *7/00*
U.S. Cl. 455—440 **10 Claims**



1. A method for selecting a cellular system for communication with a cellular telephone in a roaming area, said cellular telephone having a home cellular system in a home service area, said method comprising the steps of:
- said cellular telephone transmitting a system access message to a default cellular system;
- when the default cellular system that receives the system access message is a visited cellular system in the roaming area and the cellular telephone is not registered with the visited cellular system, said visited cellular system registering the presence of the cellular telephone in the roaming area with the home cellular system;
- said home cellular system sending a response including a selection indication to the cellular telephone through the visited cellular system, said selection indication containing selection information for controlling selection of a cellular system for communication with said cellular telephone in the roaming area, wherein said selection information includes one of a negative SID indication, and a retune indication; and
- said cellular telephone selecting a cellular system for communication in the roaming area in accordance with said one of the negative SID indication and the retune indication.

5,787,348
METHOD OF MEASURING SPEED OF A MOBILE UNIT AND A RECEIVER FOR USE IN A WIRELESS COMMUNICATION SYSTEM
William Daniel Willey, Arlington Heights, Ill.; Michael Joseph Wroble, Bedford, Tex., and John Christopher Kay, Elgin, Ill., assignors to Motorola, Inc., Schaumburg, Ill.

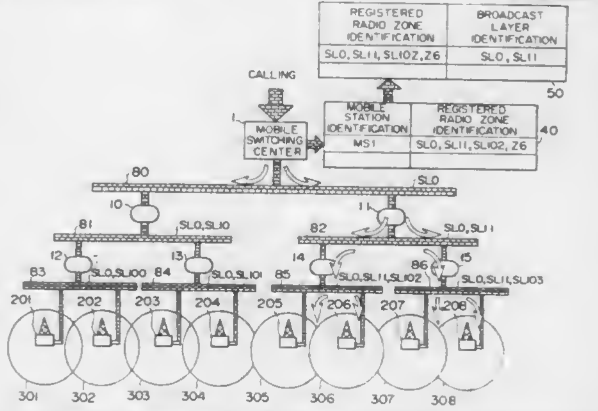
Filed Dec. 6, 1995, Ser. No. 569,413
Int. Cl.^{6} H04Q *7/38*
U.S. Cl. 455—441 **16 Claims**


RECEIVING AN RF SIGNAL
202
MEASURING SIGNAL STRENGTH TO PRODUCE A RECEIVE SIGNAL STRENGTH SIGNAL
204
SAMPLING THE RECEIVED SIGNAL STRENGTH SIGNAL AT A FIRST SAMPLING RATE TO PRODUCE A FIRST GROUP OF SAMPLES
206
SAMPLING AT A SECOND SAMPLE RATE TO PRODUCE A SECOND GROUP OF SAMPLES
208
CALCULATE AVERAGE FADE DEPTH OF THE FIRST AND SECOND GROUP OF SAMPLES
210
DETERMINE SPEED MEASUREMENT
212
DETERMINE MOBILITY INDEX
214
ASSOCIATE MOBIL UNIT WITH MOBILITY INDEX
216
STORE MOBILITY INDEX
218
ADJUST HANDOFF REQUEST RATE BASED ON MOBILITY INDEX
220

1. A method of measuring speed of a mobile unit in communication with a wireless communication system, the wireless communication system comprising a switch and a base station in communication with the switch, the method comprising the steps of:
- receiving a radio frequency, RF, signal from the mobile unit;
- measuring signal quality of the RF signal during a first time period to produce a first group of samples;
- sampling the received quality signal during a first time period and at a first sampling rate to produce a first group of samples;
- sampling a received quality signal during a second time period and at a second sampling rate to produce a second group of samples;
- calculating a variation in signal quality of the RF signal in response to the first and second group of samples;
- determining a speed measurement in response to the variation in signal quality; and
- the base station directing to the switch a plurality of handoff requests at a timing rate, the timing rate adjusted based on the speed measurement.

5,787,349
CONTROL SIGNALING NETWORK, RADIO BASE STATION AND MOBILE SWITCHING CENTER
Masanori Taketsugu, Tokyo, Japan, assignor to NEC Corporation, Japan

Continuation of Ser. No. 22,656, Mar. 1, 1993, abandoned.
This application Dec. 7, 1994, Ser. No. 351,554
Claims priority, application Japan, Feb. 27, 1992, 4-041599
Int. Cl.^{6} H04Q *7/22*
U.S. Cl. 455—445 **8 Claims**



1. In a mobile communication system comprising a plurality of mobile stations, a plurality of radio zones, a plurality of radio base stations in said radio zones for communication with mobile stations in the radio zones by using radio channels, a mobile switching center governing said radio base stations, and a control signaling network linking said mobile switching center and said radio base stations, said control signaling network comprising:
- a plurality of broadcast layers including a lower broadcast layer, said broadcast layers being arranged in a hierarchical arrange-

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ment and identified by broadcast layer identifications corresponding to respective layers of the hierarchical arrangement; and

selection relays for selectively relaying calling signals containing a hierarchically low-order broadcast layer identification or a registered area identification, as a destination address of said calling signals and in response to direct linking to the broadcast layer indicated as the destination address of said calling signals, changing the broadcast layer identification to the registered area identification contained in the calling signals as a new destination address of the calling signal, the selection relays operating solely unidirectionally by relaying calling signals solely from a higher hierarchical layer toward a lower hierarchical layer,

said selection relays and radio base stations in the same hierarchical layer receiving said call signals simultaneously and said selection relays comparing call signals with an identification code of the lower broadcast layer,

thereby transmitting a calling signal data from said mobile switching center to the radio base stations governed by the mobile switching center.

5,787,350
METHOD FOR DETERMINING BASE STATION LOCATIONS, AND DEVICE FOR APPLYING THE METHOD

Teun van der Vorm, Zoetermeer; Jacob Noordhuis, Voorburg, and Robertus Johannes Leonardus Buckers, Schiedam, all of Netherlands, assignors to Koninklijke PTT Nederland N.V., Netherlands

PCT No. PCT/EP94/03171, § 371 Date Mar. 11, 1996, § 102(e) Date Mar. 11, 1996, PCT Pub. No. WO95/09513, PCT Pub. Date Apr. 6, 1995

PCT Filed Sep. 23, 1994, Ser. No. 605,219

Claims priority, application Netherlands, Sep. 30, 1993, 9301684

Int. Cl.⁶ H04Q *7/36*

U.S. Cl. 455—446 **10 Claims**

1. For use with a communications network encompassing a geographic area divided into a plurality of geographically adjoining subareas, a computer implemented method for determining particular ones of the subareas at which communications base stations are to be located, the computer having a processor and a memory, wherein the method, implemented through executable program instructions stored in the memory, comprises the steps of:

(a) calculating a plurality of subarea values, wherein for each different first one of the subareas a corresponding one of the subarea values is a function of first and second subarea parameters associated with the first one subarea and a second one of the subareas adjoining the first one subarea, respectively;

(b) determining, from amongst the plurality of subarea values, an extreme subarea value;

(c) assigning a communications base station to a third one of the subareas which has the extreme subarea value associated therewith, the base station having a predefined adjustment function associated therewith;

(d) varying, through the adjustment function corresponding ones of the subarea parameters associated with the third one subarea and a fourth one of the subareas which adjoins the specific third one subarea; and

(e) repeating steps (a)–(d) above, to assign additional ones of the base stations to corresponding ones of the subareas, until a predefined first stop condition occurs.

5,787,351

Patent Not Issued For This Number

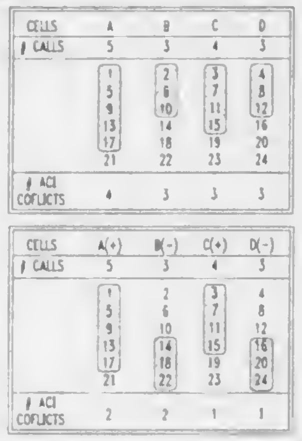
5,787,352
SYSTEM AND METHOD FOR MANAGEMENT OF NEIGHBOR-CHANNEL INTERFERENCE WITH POWER CONTROL AND DIRECTED CHANNEL ASSIGNMENT

Mathilde Benveniste, South Orange, N.J., assignor to AT&T Corp., Middletown, N.J.

Filed Dec. 29, 1995, Ser. No. 581,694

Int. Cl.⁶ H04Q *7/00*

U.S. Cl. 455—452 **15 Claims**



CELLS	A	B	C	D
# CALLS	5	3	4	3
	1	2	3	4
	5	6	7	8
	9	10	11	12
	13	14	15	16
	17	18	19	20
	21	22	23	24
# ACI COFLICTS	4	3	3	3

CELLS	A(+)	B(-)	C(+)	D(-)
# CALLS	5	3	4	3
	1	2	3	4
	5	6	7	8
	9	10	11	12
	13	14	15	16
	17	18	19	20
	21	22	23	24
# ACI COFLICTS	2	2	1	1

6. A method of managing interference in a wireless communications network having service areas partitioned into a plurality of cells, wherein a plurality of communications channels are available for allocation among said cells, said method comprising the steps of:

causing each of said available channels to be assigned a label corresponding to one of two mutually disjoint categories, wherein no two adjacent channels are labeled with a same category;

causing each of said cells to use channels that have been assigned a common label;

assigning said channels to users in each of said cells according to a constraint that, for cells with a label corresponding to a first of said mutually disjoint categories, said cells' users are assigned to a lowest-number channel available, and for cells with a label corresponding to a second of said mutually disjoint categories, said cells' users are assigned to a highest-number channel available;

assigning channels to users in each one of said cells in conjunction with an application of power control for transmissions to and from mobile units served by a central transmission site subject to the following constraints;

for transmissions from a central transmission site to a mobile unit ("down-link") said power control is applied only as to mobile users located beyond a distance from said transmission site; and

for transmissions from a mobile unit to a central transmission site ("up-link") said power control is applied only as to mobile units located within a radial distance for said central transmission site;

wherein each said radio distance is determined so as to achieve an acceptable level of interference and is utilized in the assignment of high power users to low-number channels in said first labeled cells and to high-number channels in said second labeled calls.

5,787,353
PROCESS FOR THE IN SITU RECOVERY OF CHEMICAL VALUES FROM UF 6 GASEOUS DIFFUSION PROCESS EQUIPMENT

Keith Kibbe, Knoxville, Tenn.; Aarne Visnapuu, Rolla, Mo., and Wilbur L. Kephart, Farragut, Tenn., assignors to Southeastern Technologies, Inc., Knoxville, Tenn.

Filed Mar. 26, 1996, Ser. No. 622,261

Int. Cl.⁶ C01G *57/00*

U.S. Cl. 423—19 **35 Claims**

1. A process for the recovery of uranium and nickel values from one or more items of process equipment theretofore employed in a uranium hexafluoride isotope enrichment gaseous diffusion plant employing the steps of

conditioning an item of process equipment to ensure its freedom from undesirable chemical values,

subjecting said conditioned item of process equipment to a quantity of a gaseous fluorinating agent that is capable of converting at least uranium oxide and/or uranyl fluoride to gaseous uranium hexafluoride at a temperature not greater than about 65° C., and at subatmospheric pressure, for a time sufficient to convert at least uranium compounds disposed on the surfaces of the item of process equipment to gaseous uranium hexafluoride,

withdrawing and capturing said uranium hexafluoride,

thereafter, subjecting said item of process equipment to a mixture of gaseous carbon monoxide and a gaseous promoter, at subatmospheric pressure and at a temperature less than the temperature at which nickel carbonyl decomposes when at a subatmospheric pressure, for a time sufficient to convert metallic nickel exposed on the surfaces of the item of process equipment to gaseous nickel carbonyl,

withdrawing said gaseous nickel carbonyl, and

converting said gaseous nickel carbonyl to metallic nickel.

5,787,354
METHOD AND APPARATUS FOR LOCATING A RADIOTELEPHONE WITHIN A CELLULAR SYSTEM

Calvin Boyd Gray, Alphretta, and Robert G. Zicker, Roswell, both of Ga., assignors to GTE Mobile Communications Service Corporation, Atlanta, Ga.

Continuation-in-part of Ser. No. 201,445, Feb. 24, 1994, Pat. No. 5,594,782. This application Apr. 3, 1995, Ser. No. 415,825

Int. Cl.⁶ H04Q *7/22*

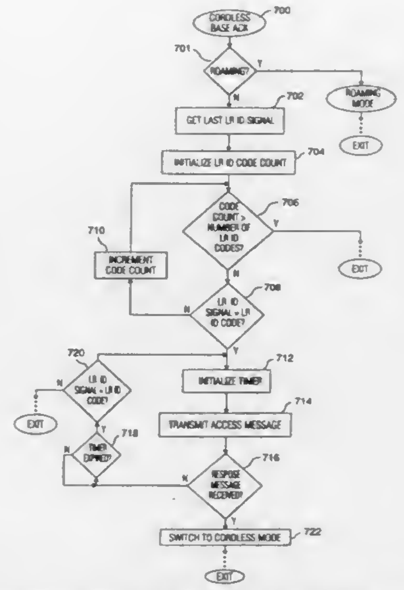
U.S. Cl. 455—456 **10 Claims**

1. A method of operating a radiotelephone (RT) within a cellular telecommunication system (CTS) having a unique system identification (SID), a plurality of land stations configured to communicate with said RT, a plurality of cells defining the transmit/receive range of said land stations, a plurality of local regions defined by the area associated with one or more of said cells, and a cordless base station configured to communicate with said RT, said method comprising the steps of:

receiving an intrasystem local region identification signal at said RT, said intrasystem local region identification signal being transmitted by one of said land stations;

comparing said received intrasystem local region identification signal with one or more local region identification codes at said RT; and

initiating communication between said RT and said cordless base station in response to said comparing step when said received intrasystem local region identification signal matches one of said local region identification codes.



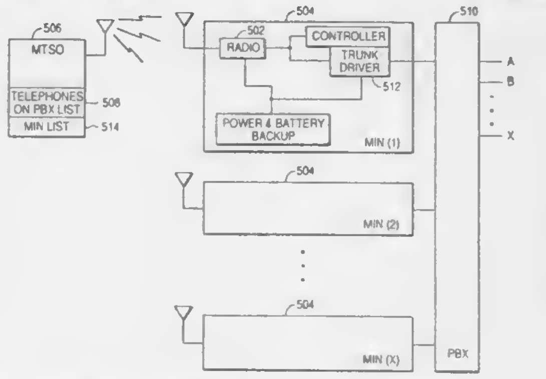
5,787,355
METHOD AND APPARATUS FOR WIRELESS TRUNKING TO PRIVATE BRANCH EXCHANGES

Cecil Bannister; Raju Iyer; Kishore Raj, all of Plano; Richard Mo, Dallas; Paul S. Meche, Richardson, all of Tex., and Sorin Cohn, Kanata, Canada, assignors to Northern Telecom Limited, Montreal, Canada

Filed Apr. 22, 1994, Ser. No. 231,710

Int. Cl.⁶ H04Q *7/26*

U.S. Cl. 455—458 **6 Claims**



1. A communication network comprising:

a private branch exchange;

a plurality of trunk lines; and

a plurality of radio units connected through said trunk lines to said private branch exchange, said radio units transmitting telephone messages to and receiving telephone messages from a communication cell, each of said radio units having a memory with a plurality of stored mobile identification numbers for which each of said radio units can respond to route an incoming call, each memory storing a different plurality of mobile identification numbers, each of said radio units further having circuitry actively responsive to a page to determine if said page includes a mobile identification number matching one of said stored mobile identification numbers and, if so, to instruct another radio unit to seize one of said trunk lines to route the incoming call to said private branch exchange.

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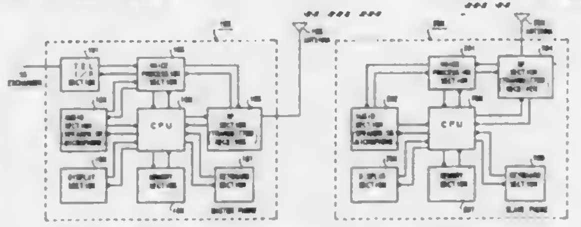
5,787,356
CORDLESS TELEPHONE SYSTEM AND GENERATION METHOD OF A UNIQUE WORD THEREOF

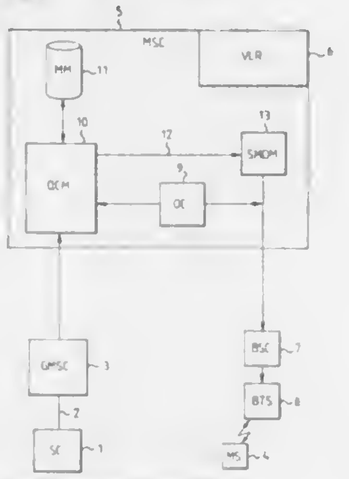
Kiyoshi Tanaka, Chiba, and Katsuhiko Otsuji, Kawasaki, both of Japan, assignors to Uniden Corporation, Chiba, Japan
Continuation of Ser. No. 305,935, Sep. 19, 1994, abandoned.
This application Jun. 18, 1997, Ser. No. 878,073
Claims priority, application Japan, Dec. 14, 1993, 5-342607
Int. Cl.^{6} H04Q *7/24*
U.S. Cl. 455—464 **11 Claims**



1. A cordless telephone system in which communication is executed between a master phone and a slave phone, said master phone and said slave phone respectively comprising:
- a memory for storing an ID code indicating that said master phone and said slave phone form a pair;
- a unique word generator in each of said master and slave phones for independently generating a unique word based on a prescribed correspondence to said ID code stored in said memory; and
- a communication controller for simultaneously checking an ID code of either one of said master phone and said slave phone and establishing communication frame synchronism with the other one of said master phone and said slave phone using said unique word.

5,787,357
SHORT MESSAGE PROCESSING IN A MOBILE EXCHANGE

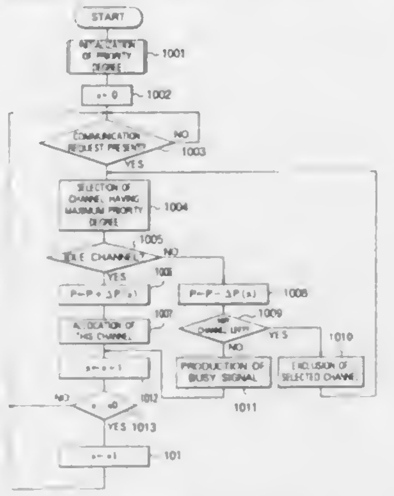
Hannu-Pekka Salin, Vantaa, Finland, assignor to Nokia Telecommunications Oy, Espoo, Finland
Continuation of Ser. No. 211,662, Apr. 11, 1994, abandoned.
This application Jun. 24, 1996, Ser. No. 668,828
Claims priority, application United Kingdom, Oct. 17, 1991, 9122039
Int. Cl.^{6} H04Q *7/20*
U.S. Cl. 455—466 **4 Claims**



3. A cellular radio system, comprising:
- at least one mobile radio exchange,
- at least one radio base station,
- at least one short message center,
- at least one radio subscriber, the mobile exchange further comprising
  - a short message delivery means for delivering one short message at a time to a radio subscriber via the radio base station over a radio path;
  - a means for observing operation of the mobile radio exchange so as to detect the completion of the delivery of a preceding first short message via the radio base station on the radio path and to prevent delivery of a second short message via said radio base station on said radio path, when the delivery of said preceding first short message is in progress, by monitoring the delivery of said preceding first short message from said mobile radio exchange to said radio subscriber by monitoring whether there is a radio connection between said radio subscriber and said radio base station and whether said preceding first short message previously received at the mobile radio exchange is being delivered to the radio subscriber during said radio connection, and thereby rejecting said second short message;
  - a memory means associated with said mobile radio exchange for storing the rejected second short message; and
  - a queue control means responsive to said means for observing operation of said mobile radio exchange for reading said rejected second short message from said memory means so as to initiate delivery of said second short message to said radio subscriber after detecting that delivery of said preceding first short message via said radio base station over said radio path to the radio subscriber has become completed.

5,787,358
DYNAMIC CHANNEL ALLOCATION SYSTEM CAPABLE OF REALIZING CHANNEL ALLOCATION WITHOUT SPOILING ADVANTAGE OF INHERITANCE OF A PAST HISTORY

Hideaki Takahashi, Tokyo, Japan, assignor to NEC Corporation, Tokyo, Japan
Filed Sep. 9, 1996, Ser. No. 709,880
Claims priority, application Japan, Sep. 13, 1995, 7-260816
Int. Cl.^{6} H04Q *7/00;9/00*
U.S. Cl. 455—512 **7 Claims**

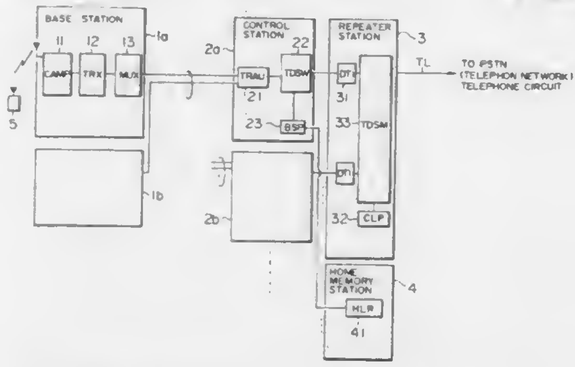

START
INITIALIZATION OF PRIORITY DEGREE
1001
1002
COMMUNICATION REQUEST PRESENT?
NO
1003
YES
SELECTION OF CHANNEL HAVING MAXIMUM PRIORITY DEGREE
1004
1005
IDLE CHANNEL?
NO
YES
1006
1008
1007
ALLOCATION OF THIS CHANNEL
1009
YES
1010
NO
PRODUCTION OF BUSY SIGNAL
EXCLUSION OF SELECTED CHANNEL
1011
NO
1012
YES 1013
101

1. A dynamic channel allocation system in which communication is carried out between a radio base station and a radio mobile station by the use of a plurality of channels, each channel being given a priority degree, one of said channels that has a higher priority degree being preferentially allocated to said communication, said system comprising:
- resetting means for resetting a priority degree modification frequency counter into zero;
- first making means for making said priority degree modification frequency counter count up by +1 upon every communication request from said radio mobile station;
- selecting means for selecting as a selected channel a particular channel having a higher priority degree upon every communication request from said radio mobile station;

- allocating means for allocating said selected channel to each communication request when said selected channel is an idle channel and for increasing said priority degree of said selected channel by a first function determined by the value of said priority degree modification frequency counter;
- decreasing means for decreasing said priority degree of said selected channel by a second priority function determined by the value of said priority degree modification frequency counter when said selected channel is not an idle channel;
- judging means for judging whether or not the value of said priority degree modification frequency counter has reached an upper limit value; and
- second making means for making said priority degree modification frequency counter have an intermediate value between zero and said upper limit value, wherein accumulation of a past history is inheritably available for realizing a rapid channel allocation and quickly bringing said priority degree to a stable point with said past history.

5,787,359
MOBILE COMMUNICATION SYSTEM INCLUDING RADIO SET HAVING DETECTING REGISTERED POSITION INFORMATION FUNCTION

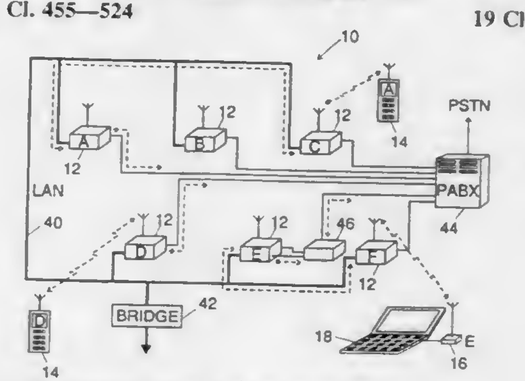
Kimitaka Nagata, Tokyo, Japan, assignor to NEC Corporation, Tokyo, Japan
Filed Mar. 11, 1996, Ser. No. 613,691
Claims priority, application Japan, Mar. 10, 1996, 7-050701
Int. Cl.^{6} H04B *7/00*
U.S. Cl. 455—517 **6 Claims**



1. A mobile communication system comprising a radio set and a network-side system, wherein said network-side system comprises:
- first storage means for storing as registered position information the current and previous positions of said radio set;
- transmission means for transmitting the registered position information stored in said first storage means when receiving a registered position information request signal requesting registered position information from said radio set;
- a repeater station that is coupled to an ordinary telephone circuit;
- base stations;
- a control station for changing over one of the base stations that is in radio connection with said car telephone set; and
- a home memory station for performing position registration of said car telephone set; and
- wherein said radio set is a car telephone set and comprises transmission means for transmitting said registered position information request signal; and said second storage means for storing said received registered position information.

5,787,360
TELECOMMUNICATIONS SYSTEMS

Stuart Johnston, Lincoln, Calif.; Roberto Morassi, Stoke Gifford, and Isabelle Moreau, Bradley Stoke, both of England, assignors to Hewlett-Packard Company, Palo Alto, Calif.
Filed Aug. 8, 1996, Ser. No. 694,135
Claims priority, application European Pat. Off., Aug. 9, 1995, 95305562; Aug. 9, 1995, 95305564
Int. Cl.^{6} H04H *3/00;* **H04M** *11/00*
U.S. Cl. 455—524 **19 Claims**



1. A telecommunications system comprising:
- a plurality of base stations;
- a communications channel interconnecting said base stations;
- a plurality of communication devices, each communication device being able to communicate with said base stations via an additional channel separate from said communications channel, and each communication device having a specific association of identity with a respective base station irrespective of physical location of the communication device;
- each said base station being arranged to establish communication with a selected communication device such that either:
  - i) communications between a base station and said selected communication device traverse said additional channel directly between that base station and that device; or
  - ii) communications between a first base station and said selected communication device traverse said communications channel, said additional channel and at most one other base station, said first base station being the base station specifically associated with the selected communication device; and
- wherein communications with said selected communication device and involving a channel different from said communications channel always traverse the respective base station with which that selected communication device has a specific association of identity, via a link which is individual to that base station.

5,787,361
COUPLING PLATE FOR MOUNTING A BATTERY PACK ONTO A CELLULAR PHONE

Sung-chin Chen, 1st Fl., No. 19, Lane 456, Chilin Rd., Taipei, Taiwan
Filed Apr. 19, 1996, Ser. No. 634,922
Int. Cl.^{6} H04Q *7/00;* **H01M** *2/10*
U.S. Cl. 455—550 **1 Claim**

1. A fixation arrangement for detachably mounting a battery pack onto a cellular phone, comprising:
- two parallel guide rails defined on the cellular phone;
- a sloping depression defined between the guide rails and sloping outward to the guide rails;
- a recess defined adjacent to the sloping depression and in a position opposite to the sloping direction of the depression; and
- a coupling plate integrally formed with the battery pack and having two parallel lips corresponding to the guide rails for slidably engaging onto the cellular phone, a U-shaped slot provided in a position corresponding to the depression and the recess and defining a tongue portion with a tip over the recess

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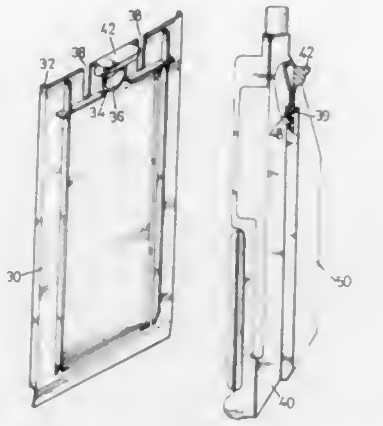


when the battery pack is engaged with the cellular phone, a tab protruding from the tip of the tongue portion for inserting into the recess when the battery pack is engaged with the cellular phone, and two cutouts respectively extending between one of the lips and the U-shaped slot and in a direction substantially parallel to the guide rails.

5,787,362

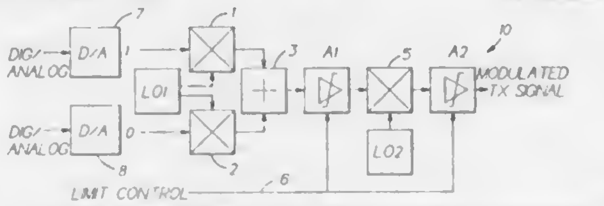
AM REMOVAL FROM FM SIGNAL GENERATED BY IQ MODULATOR

Jorma Matero, Oulu, Finland, assignor to Nnkia Mobile Phones Limited, Salo, Finland

Filed Jul. 8, 1996, Ser. No. 677,724

Int. Cl.⁶ H04B *1/04*

U.S. Cl. 455—553 **16 Claims**



1. A circuit for selectively one of phase modulating or frequency modulating an RF signal, comprising:

IQ generator means for generating one of first quadrature waveshapes or second quadrature waveshapes in response to a modulating signal;

quadrature mixer means for mixing the first quadrature waveshapes or the second quadrature waveshapes with a first RF signal to generate a phase modulated RF signal or a frequency modulated signal, respectively; and

limiter means having an input coupled to an output of said quadrature mixer means for reducing an amplitude modulation component of only said frequency modulated signal.

5,787,363

SYSTEM AND METHOD FOR CONNECT MESSAGE SYNCHRONIZATION OF MODEMS IN A CELLULAR DATA GATEWAY

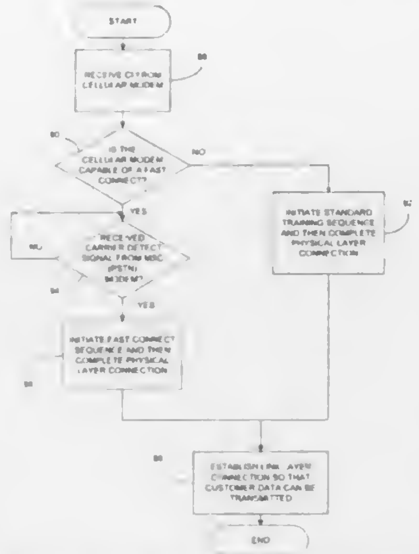
Robert Earl Scott, Indian Rocks Beach, and E. Robert Lastinger, Jr., Lithia, both of Fla., assignors to Paradyne Corporation

Filed Jan. 8, 1997, Ser. No. 780,238

Int. Cl.⁶ H01Q *7/24*

U.S. Cl. 455—557 **12 Claims**

1. A data gateway for a wireless network situated at a mobile switching center for interconnecting an originating modem of an analog cellular system and an answer modem of a public switched telephone network (PSTN), said data gateway comprising:


START
RECEIVE CT FROM CELLULAR MODEM
IS THE CELLULAR MODEM CAPABLE OF A FAST CONNECT?
NO
YES
RECEIVED CARRIER DETECT SIGNAL FROM MSC (PSTN) MODEM?
NO
YES
INITIATE FAST CONNECT SEQUENCE AND THEN COMPLETE PHYSICAL LAYER CONNECTION
INITIATE STANDARD TRAINING SEQUENCE AND THEN COMPLETE PHYSICAL LAYER CONNECTION
ESTABLISH LINK LAYER CONNECTION SO THAT CUSTOMER DATA CAN BE TRANSMITTED
END

a cellular modem connected to a cellular switch and configured for interfacing with said analog cellular system, said cellular modem capable of operating in a fast connect sequence;

a PSTN modem connected to said mobile switching center and configured for interfacing with said PSTN;

means for interconnecting said cellular modem and said PSTN modem as a back-to-back modem pair so as to form a data gateway; and

delay means associated with said cellular modem of said data gateway for delaying said cellular modem of said data gateway from initiating said fast connect sequence with said originating cellular modem until said PSTN modem of said data gateway has completed making a connection with the answer PSTN modem.

5,787,364

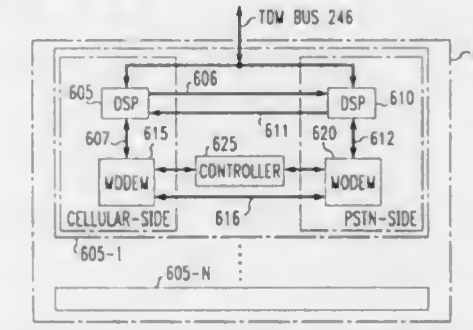
TRANSPARENT CALL PROGRESS

James Walter Exner, Plano; Lynn Wesley Hitchcock, Garland, both of Tex.; Edward Jung, West Orange, and Craig Matthews, Tinton Falls, both of N.J., assignors to Paradyne Corporation, Largn, Fla.

Filed Jan. 30, 1995, Ser. No. 380,872

Int. Cl.⁶ H04Q *7/00;9/00*

U.S. Cl. 455—560 **6 Claims**



1. A cellular pool apparatus for use in a cellular data connection, the apparatus comprising:

means for coupling at least one signal representative of call progress information between a first communications channel associated with a cellular-side of the cellular data connection and a second communications channel associated with a PSTN-side of the cellular data connection during a data call setup portion of a data call; and

modem means coupled to the first communications channel and the second communications channel for establishing the cellular data connection subsequent to the data call setup portion of the data call; and

wherein the modem means includes a means for passing E-port and M-port analog signals (E&M signaling) between the cellular-side and the PSTN-side of the cellular data connection.

5,787,365

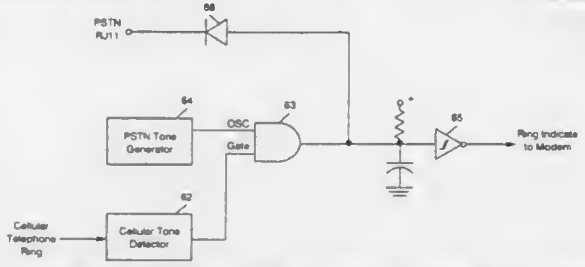
APPARATUS FOR COMBINING CELLULAR TELEPHONE RING SIGNALS AND PSTN RING SIGNALS

Jose Louis Rivero, Boca Raton; Russell Stephen Padgett, Boynton Beach; James Christian Wulf, and Robert Bedford Ferrier, both of Boca Raton, all of Fla., assignors to International Business Machines, Armonk, N.Y.

Continuation of Ser. No. 279,659, Jul. 25, 1994, abandoned. This application Apr. 24, 1996, Ser. No. 639,001

Int. Cl.⁶ H04Q *7/32*

U.S. Cl. 455—567 **4 Claims**



1. A ring detection device for signaling a modem adapted to respond to a PSTN ring signal in a personal communication device which alternatively communicates by radio telephone and through a direct connection to a PSTN that applies a ring signal to indicate an incoming call, said ring detection device comprising:

a detector connected to said radio telephone for detecting a signal indicating an incoming call and, responsively, producing a call detection signal;

an oscillator circuit for generating a simulated ring signal; a gate circuit connected to receive the call detection signal from said detector and the simulated ring signal from said oscillator and passing such ring signal to output only in response to a call detection signal;

coupling means for receiving ring signals from said PSTN network and as output from said gate circuit and applying them to said modem to signal an incoming call whereby said modem is prepared to respond to the call.

5,787,366

COMMUNICATION INTERFACE BETWEEN A COMPUTER AND A VEHICLE DEVICE

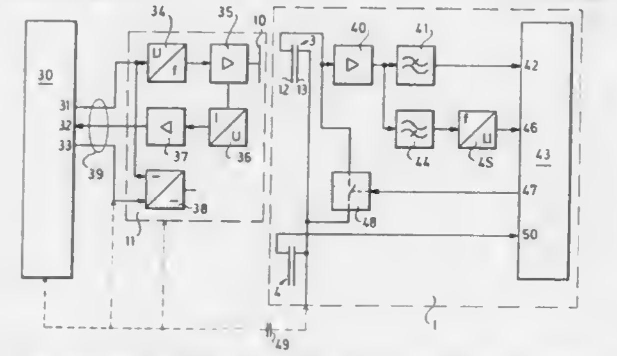
Jürgen Adams, Villingen-Schwenningen, Germany, assignor to VDO Adolf Schindling AG, Frankfurt, Germany

Filed Apr. 8, 1996, Ser. No. 628,940

Claims priority, application Germany, Apr. 6, 1995, 195 12 903.2

Int. Cl.⁶ G08C *17/06;* **G06K** *7/08*

U.S. Cl. 701—1 **17 Claims**



1. A communication interface between a computer and a vehicle device, comprising:

a computer and a capacitor coupling adapter, said adapter having an electrode and being connected to said computer;

wherein the vehicle device has at least one large-area functional element serving as counter-electrode for said electrode of said adapter to enable said adapter to be applied to the vehicle device from outside the vehicle device.

5,787,367

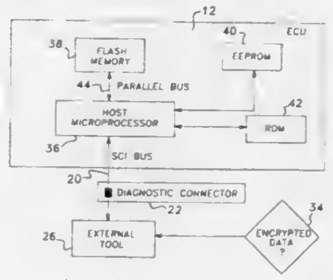
FLASH REPROGRAMMING SECURITY FOR VEHICLE COMPUTER

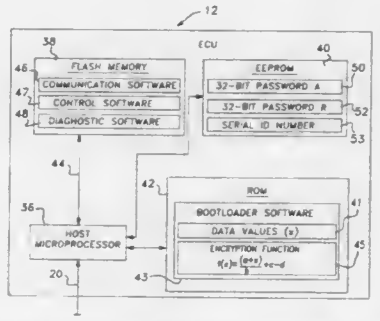
Charles J. Berra, Troy, Mich., assignor to Chrysler Corporation, Auburn Hills, Mich.

Filed Jul. 3, 1996, Ser. No. 675,754

Int. Cl.⁶ H04L *9/32;* **G06F** *12/14*

U.S. Cl. 701—1 **12 Claims**





1. A system for providing secured programming of one or more on-board vehicle computers, said system comprising:

an identification code stored in memory of a programmable vehicle computer;

a first password message stored in memory of the programmable vehicle computer;

a second password message stored in memory of the programmable vehicle computer;

a database containing programming software for programming the programmable vehicle computer, said database further providing a first password message corresponding to the identification code and a second password message;

encryption means for encrypting communication data in accordance with an encryption function and based on values provided by said second password message and a series of data values;

an interface device for communicating between the database and the programmable vehicle computer;

control means within the vehicle computer for deciphering received encrypted messages and generating deciphered data values as a function of the password message; and

means for allowing reprogramming of the software in the programmable vehicle computer when the deciphered data values match the stored data values in the programmable vehicle computer.

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5,787,368

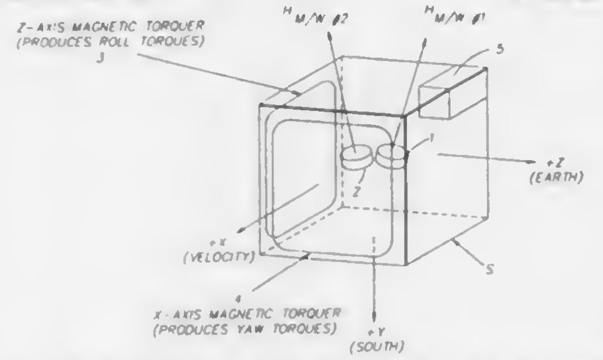
SPACECRAFT YAW CONTROL USING ONLY WHEEL SPEED MEASUREMENTS PROCESSED THROUGH A SIMPLE FILTER BANK

Donald W. Gamble; Xenophon H. Price, both of Menlo Park, and Kam Kin Chan, San Jose, all of Calif., assignors to Space Systems/Loral, Inc., Palo Alto, Calif.

Filed Nov. 3, 1995, Ser. No. 552,613

Int. Cl.^{6} B64G *1/24*

U.S. Cl. 701—13 **19 Claims**


Z-AXIS MAGNETIC TORQUER (PRODUCES ROLL TORQUES)
3
H M/W #2
H M/W #1
5
1
2
+Z (EARTH)
+X (VELOCITY)
5
4
X-AXIS MAGNETIC TORQUER (PRODUCES YAW TORQUES)
+Y (SOUTH)

1. An attitude control system for spacecraft having momentum wheels for spacecraft momentum storage, processing means for calculating control torques, and torque actuators that can provide a torque axis anywhere in the spacecraft roll/yaw plane, comprising:

means for inputting signals indicative of the momentum wheel speeds to said processor means;

means in said processing means for calculating appropriate attitude torques, using said momentum wheel speeds indicative signals, comprising:

means, in accordance with a predetermined processing timing, for obtaining, from said momentum wheel speeds indicative signals, the spacecraft momentum wheel speed measurements and projecting said spacecraft momentum wheel speed measurements onto an axis in the spacecraft roll/yaw plane;

means for obtaining the spacecraft momentum on said roll/yaw axis;

a plurality of simple filters with different time constants which are selected according to the particular spacecraft and application;

means for inputting said roll/yaw plane axis momentum in said filters;

means for using the output of said filters to obtain two weighted linear sums, the weights of which are selected according to the particular spacecraft and application;

means for transforming each weighted linear sum into a form compatible with the spacecraft actuator command to control said torque actuators; and

means, responsive to said transformed weighted linear sums, for producing output signals indicative of the calculated appropriate attitude torques in a form for controlling said torque actuators.

5,787,369

OBJECT DETECTION SYSTEM AND METHOD FOR RAILWAYS

Theodore F. Knaak, 8526 Danvers Ct., Orlando, Fla. 32818

Filed Feb. 21, 1996, Ser. No. 604,583

Int. Cl.^{6} B60Q *1/00;* **G01C** *3/00*

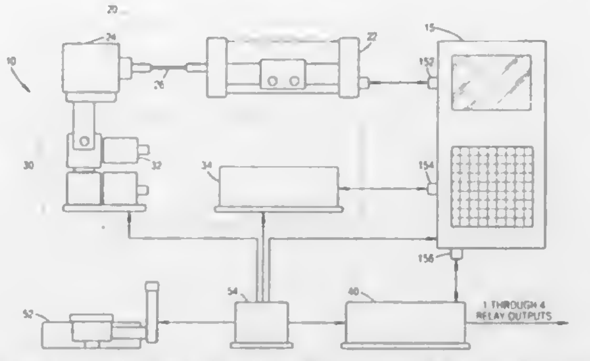
U.S. Cl. 701—19 **22 Claims**

1. A system for detecting the presence of an object on a portion of a railroad track, the system comprising:

means for performing an optical scan of a predetermined length of railroad track;

means for sensing from the scanning means a presence of an object along the predetermined length of track;

means for determining a position of the sensed object from the scanning and sensing means; and



means for providing a signal indicative of the presence and position of the sensed object.

5,787,370

METHOD AND APPARATUS FOR VEHICLE HEADLIGHT-RANGE ADJUSMENT

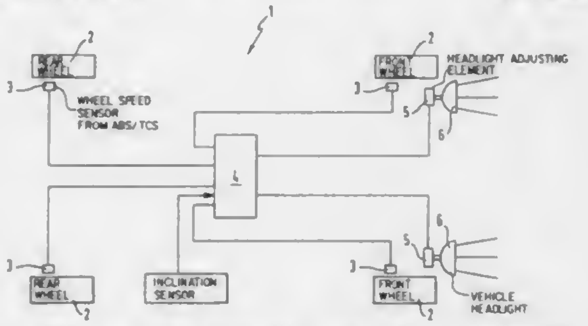
Eberhard Kutscher, Marbach; Hans Scheerer, Esslingen, and Dirk Hamann, Weinstadt, all of Germany, assignors to Mercedes-Benz Ag, Germany

Filed Oct. 19, 1995, Ser. No. 545,116

Claims priority, application Germany, Oct. 24, 1994, 44 37 949.8

Int. Cl.^{6} B60Q *1/08*

U.S. Cl. 701—49 **8 Claims**



1. A headlight-range adjustment system on a vehicle for automatically adjusting vehicle headlights as a function of vehicle longitudinal acceleration and longitudinal deceleration, comprising at least one wheel speed sensor included in one of an anti-lock brake system and a traction control system to detect rotational wheel speed, means for determining signals representative of the vehicle longitudinal acceleration and deceleration and dynamic changes in at least one of vehicle level, ground clearance and pitching movements of the vehicle from signals representative of the detected rotational wheel speed, and means for controlling adjustment elements drivingly connected to the vehicle headlights to keep the range setting of the vehicle headlights substantially independent of the dynamic changes of the at least one vehicle level, ground clearance and the pitching movements based upon said determined signals.

5,787,371

APPARATUS TO ENABLE CONTROLLING A THROTTLE CONTROLLING FROM A REMOTE HOST

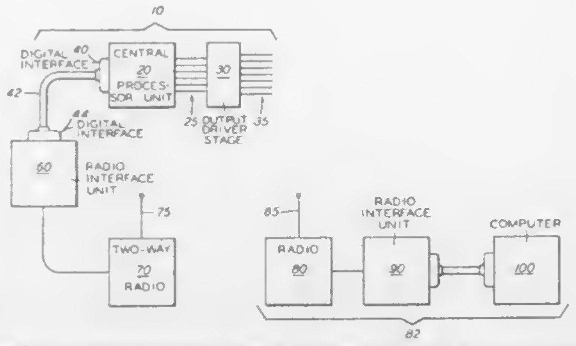
Gregory S. Balukin, and Daniel J. Wolf, both of Pittsburgh, Pa., assignors to Westinghouse Air Brake Company, Wilmerding, Pa.

Continuation of Ser. No. 340,213, Nov. 16, 1994, abandoned. This application Aug. 15, 1997, Ser. No. 920,207

Int. Cl.^{6} B61L *3/00*

U.S. Cl. 701—19 **16 Claims**

1. In a locomotive throttle controller having a digital central processor and an output driver for supplying an analog voltage signal to a trainline which controls dynamic braking and a plurality of digital voltage signals to trainlines which control locomotive power setting and reverser, such trainlines being industry standard locomotive trainlines which, when used in a consist of coupled locomotives, may be joined by metal to metal connections between adjacent locomotives, the improvement comprising:



(a) a digital interface through which external digital equipment can communicate with said central processor;

(b) means for communicating via said digital interface between said external digital equipment and said central processor such that said external digital equipment may be used to control at least said throttle setting, said reverser and said dynamic braking; and

said external digital equipment including a digital computer connected to said throttle controller through said digital interface, so that at least said throttle setting, said reverser and said dynamic braking of said locomotive can be controlled by digital signals originating in said external computer, and so that diagnostic information from said central processor indicative of voltages measured on said trainlines can be accessed by said external computer.

5,787,372

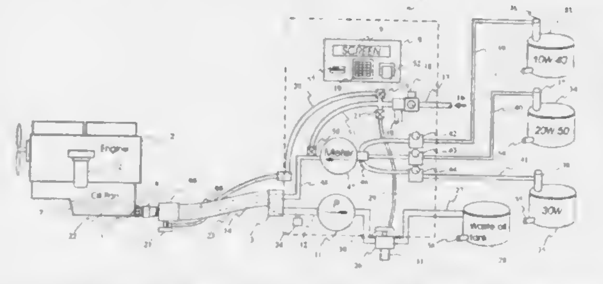
AUTOMATED FLUID CHANGING SYSTEM WITH SINGLE-POINT CONNECTION

Robert W. Edwards, Star Rt. Box 8, Lyman Daniel Rd., Trenton, Ga. 30752, and Guy E. Whited, III, 5404 Greenough Way, Greensboro, N.C. 27410

Continuation-in-part of Ser. No. 232,473, Apr. 25, 1994, abandoned. This application Jan. 27, 1995, Ser. No. 381,686

Int. Cl.^{6} F01M *1/00*

U.S. Cl. 701—29 **21 Claims**



1. An automated system for changing the fluid in a fluid receptacle having a drain plug opening which comprises:

an evacuation means in selective fluid communication with the drain plug opening for evacuating used fluid from said fluid receptacle through the drain plug opening;

a dispenser means in selective fluid communication with the drain plug opening for dispensing fresh fluid into said fluid receptacle through the drain plug opening;

a connector means in fluid communication with the drain plug opening for releasably connecting said system to the drain plug opening;

a valve means for directing the flow of said used fluid from the fluid receptacle through the drain plug opening and for directing the flow of said fresh fluid into the fluid receptacle through said drain plug opening, said valve means having a first chamber through which the used fluid flows and a second chamber through which the fresh fluid flows, said valve means being adapted to allow the used fluid to flow through said first chamber and said fresh fluid to flow through said second chamber without substantially commingling the used fluid with the fresh fluid during the fluid changing operation, and said valve means being in continuous fluid communication with the connector means, the evacuation means, and the dispenser means until the fluid changing system has automatically replaced the used fluid in the fluid receptacle with the fresh fluid; and

an electronic control means in electronic communication with each of said evacuation means, said dispenser means, and said valve means for automatically directing the evacuation means to remove the used fluid from the fluid receptacle through the drain plug opening and for automatically directing the dispenser means to dispense fresh fluid into the fluid receptacle through the drain plug opening prior to disconnecting the system from the drain plug opening.

5,787,373

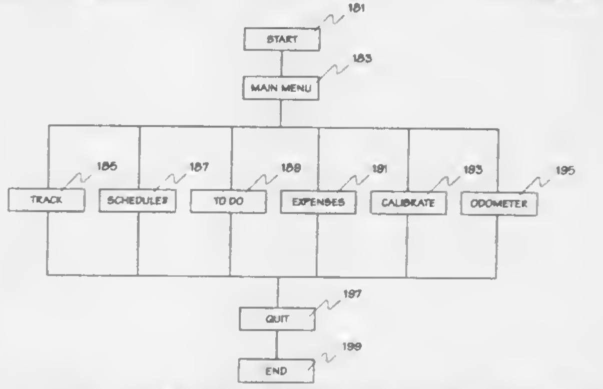
TRAVEL EXPENSE TRACKING SYSTEM

Steven P. Migues, Bedford, and Arthur Dubey, Dallas, both of Tex., assignors to Datatrac International, Inc., Hurst, Tex.

Continuation of Ser. No. 745,696, Nov. 12, 1996, abandoned, which is a continuation of Ser. No. 541,319, Oct. 10, 1995, abandoned, which is a continuation of Ser. No. 570,875, Aug. 22, 1990, abandoned. This application Jun. 13, 1997, Ser. No. 876,113

Int. Cl.^{6} G06F *17/40:17/60*

U.S. Cl. 701—33 **23 Claims**



1. A trip expense tracking system for use with a portable computer having a computer memory, a computer keyboard, and a display screen, in a vehicle of the type which generates an electrical odometer signal corresponding to distance traveled by said vehicle, comprising:

a mileage tracking hardware module electrically coupled to said portable computer for receiving said electrical odometer signal from said vehicle and for generating a mileage signal which is readable by said portable computer, including:

(a) means for receiving said electrical odometer signal corresponding to distance traveled by said vehicle and recording a quantitative indicator of distance traveled; and

(b) means for receiving and counting interrogating signals from a source external to said mileage tracking hardware module;

(c) means for communicating a status indication signal from said mileage tracking hardware module to an external target; and

(d) means for coordinating operation of said (a) means for receiving said electrical odometer signal, (b) said means for receiving and counting, and (c) said means for communicating; and

a computer program resident in said memory of said portable computer and operable in a mileage tracking mode for receiving data relating to trip purpose, trip contact, and trip time, and for generating a mileage signal from intermittent electri-

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cal interaction with said mileage tracking hardware module and grouping data of said mileage signal with said trip purpose, trip contact, and trip time data and for storing the grouped data in said memory of said portable computer.

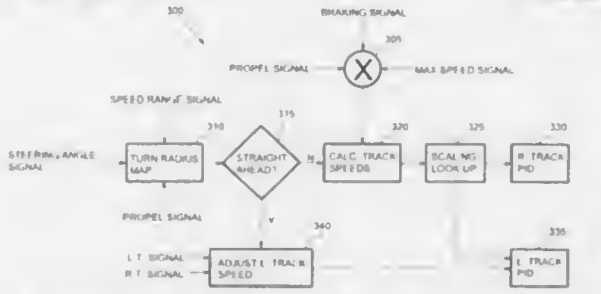
5,787,374
PROPULSION CONTROL APPARATUS AND METHOD FOR A PAVER

Alan L. Ferguson; Conrad G. Grembowicz, both of Peoria, and Keith R. Schmidt, Sycamore, all of Ill., assignors to Caterpillar Paving Products, Inc., Minneapolis, Minn.

Filed Oct. 25, 1995, Ser. No. 548,122

Int. Cl.^{6} B62D *11/22;* F16H *37/14*

U.S. Cl. 701—41 **18 Claims**



1. An apparatus for controlling the propulsion of a machine having a hydrostatic system that drives a plurality of ground engaging traction devices, comprising:

means for producing a desired travel speed signal indicative of a desired speed of machine travel;

means for producing a steering angle signal indicative of a desired steering angle of the machine travel;

means for receiving the desired travel speed and steering angle signals, determining a desired rotational speed of the ground engaging traction devices to steer the machine at the desired steering angle, and producing command signals indicative of the desired rotational speeds; and

means for receiving the command signals and responsively controlling the speed of the ground engaging traction devices to the desired speed to cause the machine to steer at a desired turning radius that is independent to the actual speed of travel.

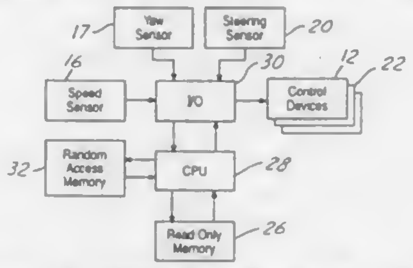
5,787,375
METHOD FOR DETERMINING STEERING POSITION OF AUTOMOTIVE STEERING MECHANISM

Dinu Petre Madau, and Behrouz Ashrafi, both of Dearborn, Mich., assignors to Ford Global Technologies, Inc., Dearborn, Mich.

Filed Apr. 1, 1996, Ser. No. 625,965

Int. Cl.^{6} B62D *5/00*

U.S. Cl. 701—41 **12 Claims**



7. A method for determining a steering wheel angle of an automotive steering mechanism and controlling an automotive device, comprising the steps of:

counting steering position data from a steering angle sensor and generating a first signal therefrom representing rotational motion of the steering mechanism;

measuring a yaw rate from a yaw rate sensor and producing a second signal therefrom representing a vehicle yaw rate;

calculating a vehicle yaw acceleration from said second signal;

updating a straight path indicator using one of two formulas selected based on an evaluation of a predetermined group of vehicle operating characteristics, including said vehicle yaw rate and said vehicle yaw acceleration;

determining a center position estimate in accordance with a predetermined algorithm when said updated straight path indicator exceeds a predetermined value and generating a center position signal therefrom;

estimating an actual steering wheel angle from said first signal and said center position signal and generating an estimated steering wheel angle signal therefrom; and

controlling the automotive device using said steering wheel angle signal.

5,787,376
POWER STEERING MOTOR CONTROL UNIT WITH DRIVING MODE CORRECTION

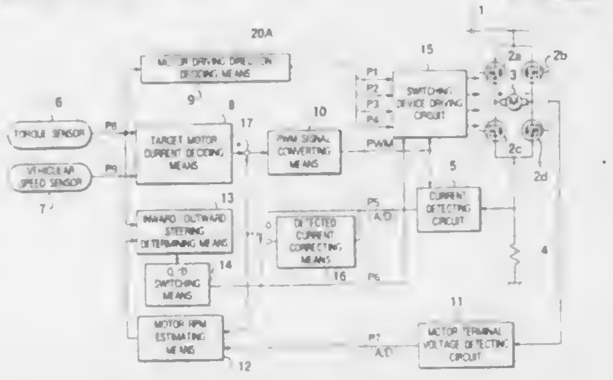
Kazuhisa Nishino; Masaya Ushio, both of Kobe, and Shunichi Wada, Tokyo, all of Japan, assignors to Mitsubishi Denki Kabushiki Kaisha, Tokyo, Japan

Filed Dec. 29, 1995, Ser. No. 581,208

Claims priority, application Japan, Sep. 1, 1995, 7-225424

Int. Cl.^{6} B62D *5/04*

U.S. Cl. 701—41 **6 Claims**


1
20A
MOTOR DRIVING DIRECTION DECIDING MEANS
15
2a
2b
3
9
8
17
10
6
TORQUE SENSOR
P8
TARGET MOTOR CURRENT DECIDING MEANS
PWM SIGNAL CONVERTING MEANS
P1
P2
P3
P4
SWITCHING DEVICE DRIVING CIRCUIT
PWM
2c
2d
VEHICULAR SPEED SENSOR
P9
7
5
13
INWARD OUTWARD STEERING DETERMINING MEANS
DETECTED CURRENT CORRECTING MEANS
P5
A/D
CURRENT DETECTING CIRCUIT
4
14
Q/D SWITCHING MEANS
16
P6
11
MOTOR RPM ESTIMATING MEANS
P7
A/D
MOTOR TERMINAL VOLTAGE DETECTING CIRCUIT
12

1. A motor control unit for driving a vehicle power steering motor (**3**) with a PWM signal and feedback-controlling motor current, comprising:

a) driving means (**15**) for driving said motor with a PWM signal;

b) motor driving mode switching means (**14**) having a plurality of motor driving modes for a driving control system of said motor and for switching said motor driving mode;

c) a feedback control loop coupled between the motor and the driving means, and including current detecting means (**5**) for detecting a drive current flowing through said motor, and comparing means (**17**) for comparing the detected motor current with a target motor current, and

d) means for preventing shocks to a steering system of the vehicle and current detection errors due to motor driving mode switching, said preventing means comprising input signal correcting means (**16**) coupled in said feedback control loop for correcting at least one input signal of said comparing means in accordance with said motor driving mode; wherein the correction value given by said input signal correcting means is changed whenever said motor driving mode is switched.

5,787,377
AIR-BAG CONTROL CIRCUIT

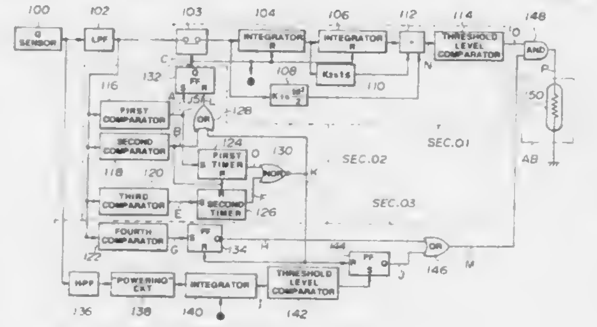
Kajiro Watanabe, Tokyo; Kazuyasu Kon, Saitama; Shin-ichiro Tsurushima, Saitama; Satoru Matsumori, Saitama; Yasuo Saito, Saitama; Kunihiro Kaneko, Saitama, and Katsushi Ohneda, Saitama, all of Japan, assignors to Kanto Seiki Co. Ltd., Omiya, Japan

Continuation-in-part of Ser. No. 749,459, Aug. 26, 1991, abandoned. This application Sep. 23, 1994, Ser. No. 311,741

Claims priority, application Japan, Aug. 24, 1990, 2-222858; Sep. 21, 1990, 2-253515; Oct. 2, 1990, 2-264649; Nov. 27, 1990, 2-324787; Nov. 27, 1990, 2-324788; Nov. 27, 1990, 2-324790; Nov. 27, 1990, 2-324791; Nov. 27, 1990, 2-324792; Nov. 27, 1990, 2-324794; Apr. 8, 1991, 3-101821; Jun. 27, 1991, 3-57143 U; Jul. 22, 1991, 3-204583; Jul. 22, 1991, 3-204584

Int. Cl.^{6} B60R *21/32*

U.S. Cl. 701—45 **37 Claims**



1. A control circuit for an air-bag mounted in a motor vehicle, comprising:

an acceleration sensor mounted to the vehicle for producing an acceleration signal a(t) indicative of acceleration of the vehicle;

an ignition timing circuit which processes said acceleration signal to predict a time when a passenger's head will reach a front surface of the air-bag in a fulls deployed condition and thereafter produces a timing-based ignition signal in accordance with the predicted time; and

wherein said ignition timing circuit includes circuit means which is operatively connected to said acceleration sensor, said circuit means performing the following functions:

carrying out partial integration of the acceleration signal a(t) to produce a signal V(t) indicative of velocity;

carrying out partial integration of the velocity indicative signal V(t) to produce a first signal x(t) indicative of displacement;

weighting the acceleration signal a(t) with a factor $td^2/2$ to produce a second signal $\{\frac{1}{2} \times a(t) \times td^2\}$ indicative of displacement;

weighting the velocity indicative signal V(t) with a time factor (td) to produce a third signal $\{V(t) \times td\}$ indicative of displacement;

adding the first, second and third displacement signals together to derive a predicted displacement signal $\{x(t+td)\}$;

comparing the predicted displacement signal with a reference value; and

issuing said timing-based ignition signal in the event that the predicted displacement signal exceeds the reference value.

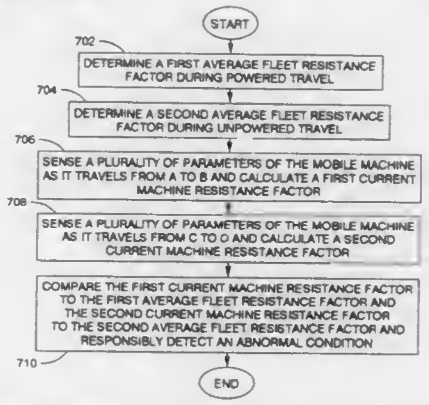
5,787,378
METHOD FOR DETERMINING THE RESISTANCE FACTOR OF AN EARTHMOVING MACHINE TO DETECT AN ABNORMAL CONDITION

David R. Schricker, Princeville, Ill., assignor to Caterpillar Inc., Peoria, Ill.

Filed Mar. 15, 1996, Ser. No. 617,525

Int. Cl.^{6} B60S *5/00;* G08B *23/00*

U.S. Cl. 701—50 **8 Claims**


START
702
DETERMINE A FIRST AVERAGE FLEET RESISTANCE FACTOR DURING POWERED TRAVEL
704
DETERMINE A SECOND AVERAGE FLEET RESISTANCE FACTOR DURING UNPOWERED TRAVEL
706
SENSE A PLURALITY OF PARAMETERS OF THE MOBILE MACHINE AS IT TRAVELS FROM A TO B AND CALCULATE A FIRST CURRENT MACHINE RESISTANCE FACTOR
708
SENSE A PLURALITY OF PARAMETERS OF THE MOBILE MACHINE AS IT TRAVELS FROM C TO D AND CALCULATE A SECOND CURRENT MACHINE RESISTANCE FACTOR
COMPARE THE FIRST CURRENT MACHINE RESISTANCE FACTOR TO THE FIRST AVERAGE FLEET RESISTANCE FACTOR AND THE SECOND CURRENT MACHINE RESISTANCE FACTOR TO THE SECOND AVERAGE FLEET RESISTANCE FACTOR AND RESPONSIBLY DETECT AN ABNORMAL CONDITION
710
END

1. A method for detecting an abnormal condition in one mobile machine in a fleet of like mobile machines, the one mobile machine moving from a first point (A) to a second point (B), comprising:

(1) determining an average fleet resistance factor for the fleet;

(2) sensing, via onboard sensors, a plurality of parameters of the one mobile machine as it travels from A to B, and responsibly determining a current machine resistance factor; and,

(3) comparing said average fleet resistance factor and said current machine resistance factor and responsively detecting the abnormal condition.

5,787,379
LOCKUP CONTROL SYSTEM FOR AUTOMATIC TRANSMISSIONS

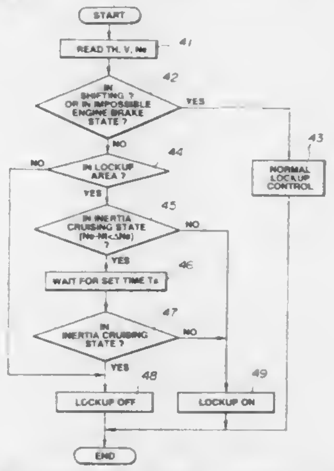
Tatsuo Ochiai, Fujisawa; Koichi Hayasaki, Ebina, and Masayuki Furuya, Sagamihara, all of Japan, assignors to Nissan Motor Co., Ltd., Yokohama, Japan

Filed Dec. 8, 1994, Ser. No. 352,354

Claims priority, application Japan, Dec. 22, 1993, 5-324547; Dec. 24, 1993, 5-328727

Int. Cl.^{6} G06G *7/70;* F16H *61/58*

U.S. Cl. 701—68 **9 Claims**



1. A system for controlling lockup operation of a torque converter of an automatic transmission of a motor vehicle, wherein the torque converter operates in a converter state when the vehicle is cruising in a converter area and in a lockup state when the vehicle is cruising in a lockup area, the system comprising:

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means for determining whether the motor vehicle is cruising in the converter area or in the lockup area and generating a first signal indicative of the cruising area of the vehicle;

means for detecting whether the vehicle is coasting when the first signal indicates that the vehicle is cruising in the lockup area and generating a second signal indicative thereof; and

means for prohibiting lockup of the torque converter when the second signal indicates that the vehicle is coasting, even while the first signal indicates that the vehicle is cruising in the lockup area.

5,787,380

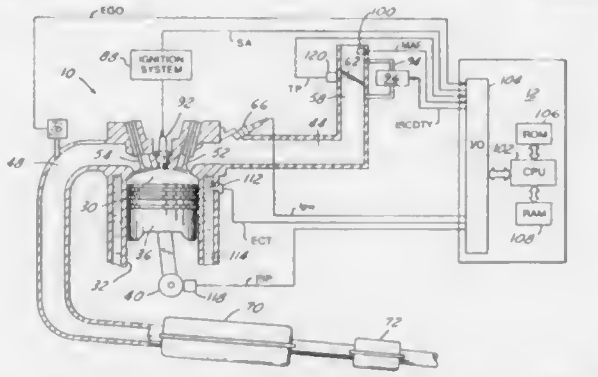
AIR/FUEL CONTROL INCLUDING LEAN CRUISE OPERATION

Michael John Cullen, Northville; David George Farmer, Plymouth, and Arnold William Brandt, Livonia, all of Mich., assignors to Ford Global Technologies, Inc., Dearborn, Mich.

Filed Oct. 27, 1995, Ser. No. 549,504

Int. Cl.^{6} G06G *7/70*

U.S. Cl. 701—103 **5 Claims**



1. A system for changing engine air/fuel ratio from a stoichiometric value to a lean value without reduction in engine torque output, comprising:

a throttle body coupled to the engine having a throttle plate positioned therein;

an air bypass passageway coupled to said throttle body having an inlet connected upstream of said throttle and an outlet coupled to the engine downstream of said throttle;

a control valve connected to said bypass passageway for controlling airflow through said bypass passageway in proportion to a control signal;

a mass airflow meter connected to said throttle body upstream of said throttle for producing a measurement of total mass airflow inducted through both said throttle body and said bypass passageway into said engine;

first control means providing fuel to the engine in proportion to a ratio of said total mass airflow to a desired air/fuel ratio;

second control means switching engine air/fuel operation to a lean air/fuel value by changing said desired air/fuel ratio to a desired lean air/fuel ratio which forces said first control means to provide fuel in proportion to said desired lean air/fuel ratio so that engine air/fuel mixture inducted into the engine is at said desired lean air/fuel ratio; and

third control means for causing an increase in volume of said inducted air/fuel mixture to compensate for loss in engine torque resulting from switching to said lean air/fuel ratio while maintaining said desired lean air/fuel ratio, said third control means increasing airflow through said bypass passageway via said control signal whereby said total airflow measurement increases and said first control means proportionally increases delivered fuel in response to said airflow measurement to achieve said increased air/fuel volume while maintaining said desired lean air/fuel ratio and avoiding a drop in the engine torque output.

5,787,381

CONTROL APPARATUS FOR AUTOMOBILE ENGINE INCLUDING MICROCOMPUTER WHICH MAY BE PROGRAMMED AFTER MOUNTING ON A CIRCUIT BOARD

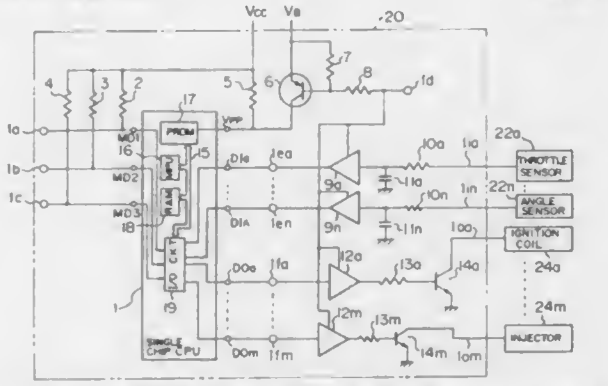
Shoji Sasaki, Katsuta, Japan, assignor to Hitachi, Ltd., Tokyo, Japan

Continuation of Ser. No. 141,703, Oct. 27, 1993, Pat. No. 5,602,738, which is a continuation of Ser. No. 647,564, Jan. 29, 1991, abandoned. This application Sep. 26, 1996, Ser. No. 721,324

Claims priority, application Japan, Feb. 1, 1990, 2-020416

Int. Cl.^{6} G06F *19/00;13/00;* G11C *17/18*

U.S. Cl. 701—115 **7 Claims**



1. A control apparatus for controlling an internal combustion engine of an automobile, said control apparatus comprising:

a circuit board having a plurality of input terminals and a plurality of output terminals;

a microcomputer mounted on said circuit board and having an input and an output, said input adapted for connection via a first one of said input terminals to a sensor, external to said circuit board, which senses an operating condition of the automobile, said output adapted for connection via one of said output terminals to an actuator, external to said circuit board, for controlling an operating condition of said internal combustion engine in accordance with the sensed operating condition;

program memory means in said microcomputer for storing a control program to control said microcomputer;

write control means mounted on said circuit board and responsive to a write control signal, for controlling said program memory means to permit writing of the control program into said program memory means;

input means mounted on said circuit board and connected to a second one of said input terminals for receiving from a source, external to said circuit board, the control program to be written into said program memory means when said program memory means is under control of said write control means; and

isolation means mounted on said circuit board, connected to said microcomputer, to said first one of said input terminals, and to said one of said output terminals, and responsive to the write control signal, for electrically isolating said microcomputer from the sensor and the actuator when said write control means is controlling said program memory means, to inhibit input of signals from the sensor and output of signals to the actuator during writing of the control program into said program memory means.

5,787,382

NAVIGATION APPARATUS FOR DISPLAYING A MAP BY LIMIT INFORMATION

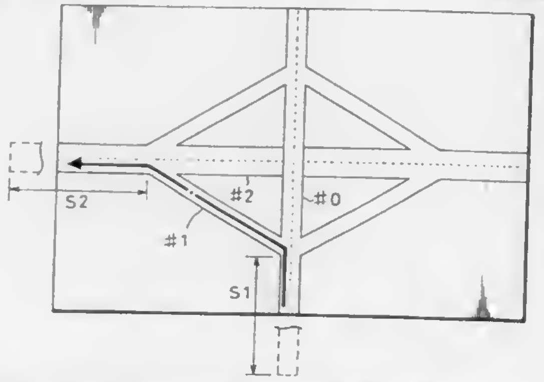
Atsushi Kurahayashi, Kanagawa, Japan, assignor to Sony Corporation, Tokyo, Japan

Filed May 20, 1996, Ser. No. 650,772

Claims priority, application Japan, May 29, 1995, 7-130870

Int. Cl.^{6} G06F *165/00*

U.S. Cl. 701—214 **14 Claims**



1. A navigation apparatus for navigating a navigation object comprising:

road data memory means having road data and shape data including shape data of an intersecting point of an at least one road crossing;

map making means for making a map from said road data of said road data memory means;

route guide means for making a route for the navigation object to travel from said road data of said road data memory means; and

positioning means for positioning a present position of the navigation object corresponding to said map of said map making means.

5,787,383

VEHICLE NAVIGATION APPARATUS WITH ROUTE MODIFICATION BY SETTING DETOUR POINT

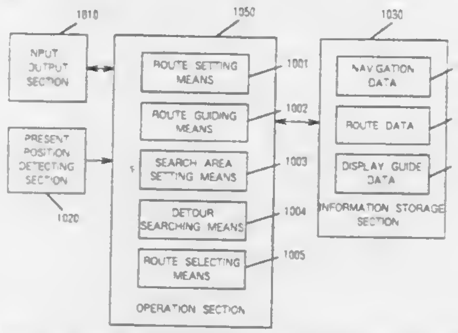
Syuzo Moroto, Nagoya; Knji Sumiya, Nishio; Yasunobu Ito, Okazaki; Kunihiro Yamada, Anjo; Mitsuhiro Nimura, and Takeshi Yano, both of Okazaki, all of Japan, assignors to Aisin AW Co., Ltd., Japan

Division of Ser. No. 356,891, Dec. 15, 1994, Pat. No. 5,612,881. This applicatinn Dec. 2, 1996, Ser. No. 755,888

Claims priority, applicatinn Japan, Dec. 27, 1993, 5-332822; Dec. 27, 1993, 5-332825; Dec. 29, 1993, 5-351322; Jan. 25, 1994, 6-006144

Int. Cl.^{6} G06F *165/00*

U.S. Cl. 701—210 **7 Claims**



1. A vehicle navigation apparatus for providing guidance for a vehicle through a detour off of a set route, said apparatus comprising:

data storage means for storing map data;

route setting means for setting a route from a present vehicle position to a destination as a connected array of intersections;

input means for designating a detour point off of the set route;

search area setting means for setting a detour search area including the detour point and a Plurality of intersections in said array of intersections and wherein said plurality of intersections is less than said array of intersections;

detour searching means for searching said map data to identify a plurality of detour routes, each detour route departing from said set route, passing through the designated detour point and returning to the set route at a respective one of said plurality of intersections of said array within said set detour search area;

route selecting means for selecting one of said plurality of detour routes as a selected detour route for which guidance is to be provided; and

route guiding means for providing guidance along the set route, as modified by the selected detour route.

5,787,384

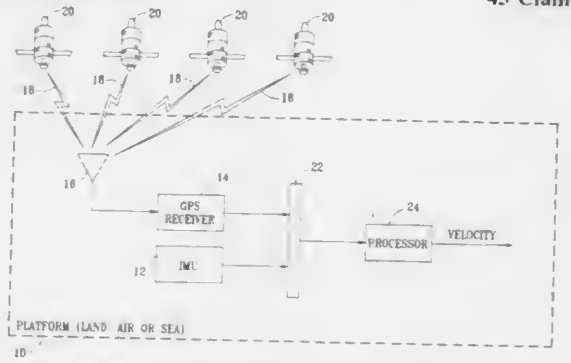
APPARATUS AND METHOD FOR DETERMINING VELOCITY OF A PLATFORM

Gregory Bengt Johnson, West Jorden, Utah, assignor to E-Systems, Inc., Dallas, Tex.

Filed Nov. 22, 1995, Ser. No. 561,689

Int. Cl.^{6} G01C *21/10;21/16;23/00*

U.S. Cl. 701—216 **43 Claims**



1. An apparatus for generating a velocity signal indicative of the velocity of a platform using a satellite-based navigation system comprising:

a GPS receiver located at the platform for receiving a plurality of GPS signals from a corresponding plurality of GPS satellites and outputting GPS navigation data;

an inertial measurement unit located at the platform for outputting inertial navigation data indicative of the inertial movement of the platform;

a processor for generating an acceleration signal indicative of the acceleration of the platform by combining a first acceleration measurement of the platform calculated from the GPS navigation data with a second acceleration measurement of the platform calculated from the inertial navigation data: and

said processor further generating the velocity signal from the acceleration signal and the GPS navigation data.

5,787,385

COMPUTER CONTROLLED LASER FOG TRACKING

Bruce Tognazzini, Woodside, Calif., assignor to Sun Microsystems, Inc., Palo Alto, Calif.

Filed Feb. 28, 1996, Ser. No. 608,456

Int. Cl.^{6} G06F *163/00;169/00*

U.S. Cl. 702—3 **22 Claims**

1. A system for detecting a reduction in visibility comprising:

a. a plurality of reflectors;

b. at least one scanning transmissometer for illuminating said reflectors and detecting reflected illumination in which at least one scanning transmissometer is positioned on each side of a

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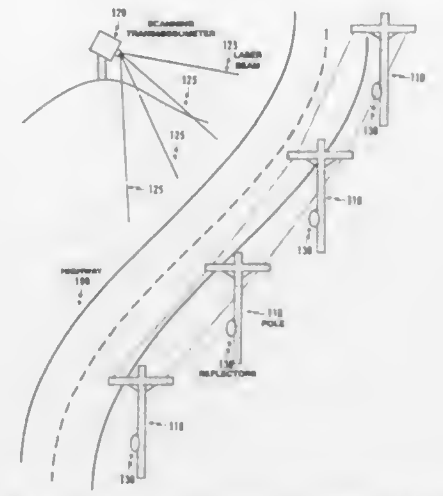


roadway and each transmissometer illuminates a set of reflectors on the opposite side of the roadway.

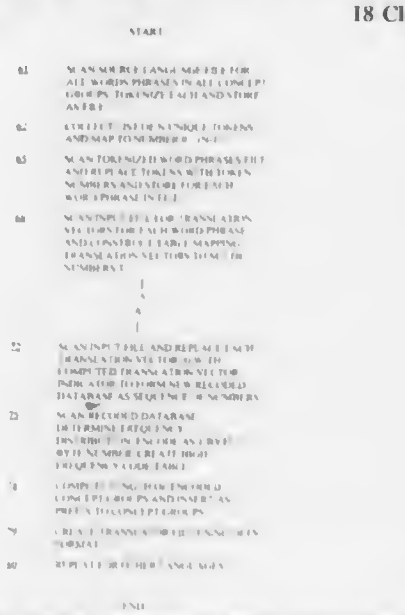
5,787,386
COMPACT ENCODING OF MULTI-LINGUAL TRANSLATION DICTIONARIES

Ronald M. Kaplan, Palo Alto, Calif., and Atty T. Mullins, Tucson, Ariz., assignors to Xerox Corporation, Stamford, Conn.

Division of Ser. No. 435,242, May 5, 1995, Pat. No. 5,523,946, which is a continuation of Ser. No. 836,038, Feb. 11, 1992, abandoned. This application Jun. 3, 1996, Ser. No. 657,229

Int. Cl.⁶ G06F *17/28;17/30*

U.S. Cl. 704—8 **18 Claims**



1. A method for making a database stored upon a computer readable medium used with a computer for use as a computerized multi-lingual dictionary for translating words and phrases in a first language into words and phrases in at least a second language, comprising the steps:

(a) defining a set of abstract concept groups capable of encompassing all words and phrases to be translated of the first and second languages, each concept group containing words and phrases having related meanings and all of said words and phrases to be translated being included in at least one of the concept groups, such phrases comprising a string made up of words and punctuations,

(b) providing a word-number mapper capable of inversely associating a unique first number between 0 and N-1 with each of the unique words or punctuations of the first language with N being the total number of unique words and punctuations in the first language,

(c) mapping each unique word or punctuation to a unique first number using the mapper of step (b) and storing the resultant mapping,

(d) separating one or more first numbers from one or more other first numbers with a second number,

(e) forming a set of pairs of first and second numbers representative of each of the concept groups in said first language,

(f) forming a translator file for said first language by combining the first and second number pairs of all the concept groups.

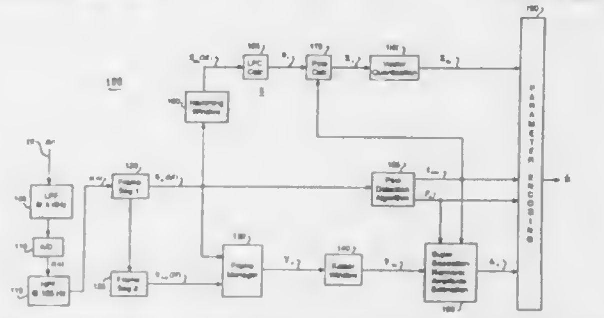
5,787,387
HARMONIC ADAPTIVE SPEECH CODING METHOD AND SYSTEM

Joseph Gerard Aguilar, Oak Lawn, Ill., assignor to Voxware, Inc., Princeton, N.J.

Filed Jul. 11, 1994, Ser. No. 273,069

Int. Cl.⁶ G01L *3/02*

U.S. Cl. 704—208 **52 Claims**



1. A method for processing an audio signal comprising the steps of:

dividing the signal into segments, each segment representing one of a succession of time intervals;

detecting for each segment the presence of a fundamental frequency;

if such a fundamental frequency is detected, estimating the amplitudes of a set of sinusoids harmonically related to the detected fundamental frequency, the set of sinusoids being representative of the signal in the time segment; and

encoding for subsequent storage and transmission the set of the estimated harmonic amplitudes, each amplitude being normalized by the sum of all amplitudes.

5,787,388
FRAME-COUNT-DEPENDENT SMOOTHING FILTER FOR REDUCING ABRUPT DECODER BACKGROUND NOISE VARIATION DURING SPEECH PAUSES IN VOX

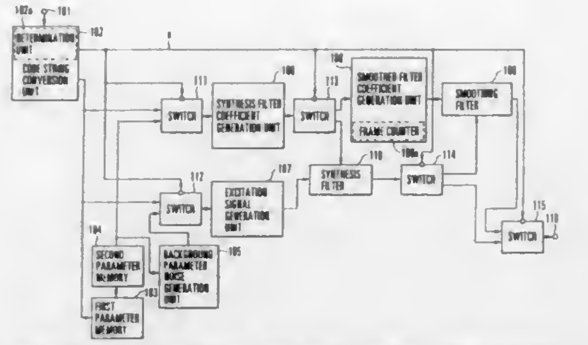
Toshihiro Hayata, Tokyo, Japan, assignor to NEC Corporation, Tokyo, Japan

Filed Jun. 21, 1996, Ser. No. 666,124

Claims priority, application Japan, Jun. 30, 1995, 7-165736

Int. Cl.⁶ H04B *14/00;* **G10L** *9/14*

U.S. Cl. 704—215 **8 Claims**



1. A speech decoding apparatus connected to a speech encoding apparatus which divides a speech signal into a plurality of frames, encodes a parameter in units of frames, stops transmission output when the speech signal represents a pause state, and transmits an encoded signal representing the pause state in units of frames having a predetermined period for a pause interval, comprising:

conversion means for converting the received encoded signal into the parameter in units of frames;

memory means for repeatedly updating and storing the parameter representing the pause state and output from said conversion means for the pause interval of the speech signal;

synthesis filter coefficient generation means for generating a synthesis filter coefficient on the basis of the parameter read out from said memory means;

smoothed filter coefficient generation means for generating a smoothed filter coefficient on the basis of the synthesis filter coefficient output from said synthesis filter coefficient generation means, said smoothed filter coefficient generation means generating the smoothed filter coefficient which is smoothed such that the smoothing filter coefficient changes in accordance with a count value of said frames during the predetermined period;

background noise generation means for generating background noise on the basis of the parameter read out from said memory means for the pause interval of the speech signal; and

smoothing filter means for performing filtering processing of the background noise output from said background noise generation means by using the smoothed filter coefficient output from said smoothed filter coefficient means and outputting smoothed background noise.

5,787,389
SPEECH ENCODER WITH FEATURES EXTRACTED FROM CURRENT AND PREVIOUS FRAMES

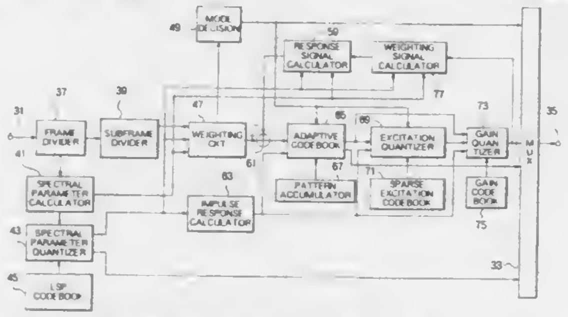
Shin-Ichi Taumi, and Kazunori Ozawa, both of Tokyo, Japan, assignors to NEC Corporation, Tokyo, Japan

Filed Jan. 17, 1996, Ser. No. 588,005

Claims priority, application Japan, Jan. 17, 1995, 7-004921; Jan. 30, 1995, 7-013072

Int. Cl.⁶ G10L *3/02*

U.S. Cl. 704—219 **10 Claims**



1. A speech signal encoder device comprising:

segmenting means for segmenting an input speech signal into original speech frames at a predetermined frame period;

deciding means for using said original speech frames in deciding a predetermined number of modes of said original speech frames to produce decided mode results;

weighting means for perceptually weighting said original speech frames into weighted speech frames; and

encoding means for encoding said input speech signal into codes at said frame period and in response to said modes to produce said decided mode results and said codes as an encoder device output signal,

wherein said deciding means makes use, in deciding a current mode of said modes for each current speech frame segmented from said input speech signal at said frame period, of feature quantities of at least one kind extracted from said current speech frame and a previous speech frame segmented at least one frame period prior to said current speech frame and of a previous mode decided at least one frame period prior to said current mode,

wherein said deciding means uses said weighted speech frames in deciding said modes,

wherein said feature quantities are rates of variation with time in said feature quantities,

said speech signal encoder device further comprising:

means for extracting each of primary quantities of said feature quantities from said current speech frame,

wherein said deciding means comprises:

means for extracting said rates of variation from said current and said previous speech frames as secondary quantities of said feature quantities; and

mode deciding means for deciding said current mode in response to said primary and said secondary quantities and said previous mode.

5,787,390
METHOD FOR LINEAR PREDICTIVE ANALYSIS OF AN AUDIOFREQUENCY SIGNAL, AND METHOD FOR CODING AND DECODING AN AUDIOFREQUENCY SIGNAL INCLUDING APPLICATION THEREOF

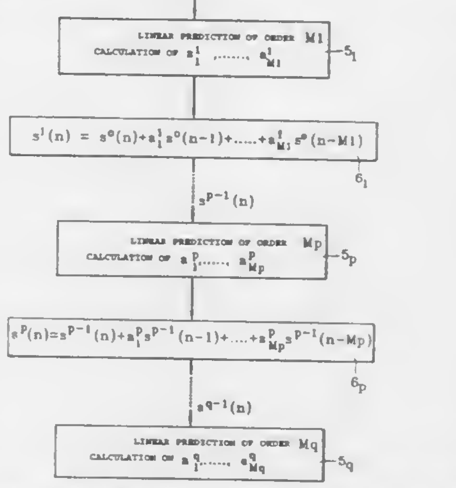
Catherine Quinquis, and Alain Le Guyader, both of Lannion, France, assignors to France Telecom, Paris, France

Filed Dec. 11, 1996, Ser. No. 763,457

Claims priority, application France, Dec. 15, 1995, 95 14925

Int. Cl.⁶ G10L *3/02;5/00*

U.S. Cl. 704—219 **22 Claims**


s°(n)
LINEAR PREDICTION OF ORDER M1
CALCULATION OF a₁¹ ,……, a¹M1
5₁
s¹(n) = s°(n)+a₁¹s°(n-1)+…..+a¹M1s°(n-M1)
6₁
sᵖ⁻¹(n)
LINEAR PREDICTION OF ORDER Mp
CALCULATION OF aᵖ₁……, aᵖMp
5p
sᵖ(n)=sᵖ⁻¹(n)+aᵖ₁sᵖ⁻¹(n-1)+….+aᵖMpsᵖ⁻¹(n-Mp)
6p
sq⁻¹(n)
LINEAR PREDICTION OF ORDER Mq
CALCULATION OF aq₁……, aqMq
5q

3. Method for coding an audiofrequency signal, comprising the following steps:

linear predictive analysis of the audiofrequency signal digitized in successive frames in order to determine parameters defining a short-term synthesis filter;

determination of excitation parameters defining an excitation signal to be applied to the short-term synthesis filter in order to produce a synthetic signal representing the audiofrequency signal; and

production of quantization values of the parameters defining the short-term synthesis filter and of the excitation parameters,

wherein the linear predictive analysis is a process with q successive stages, q being an integer greater than 1, wherein each prediction stage $p(1 \leqq p \leqq q)$ includes determining parameters representing a number Mp, predefined for each stage p, of linear prediction coefficients $a_1^p, \ldots, a_{M_p}^p$ of an input signal of said stage, wherein the audiofrequency signal to be coded constitutes the input signal of stage 1, wherein, for any integer p such that $1 \leqq p \leqq q$, the input signal of stage p+1 consists of the input signal of stage p filtered by a filter with transfer function

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$$A^p(z) = 1 + \sum_{i=1}^{Mp} a_i^p \cdot z^{-i},$$

and wherein the short-term synthesis filter has a transfer function of the form 1/A(z) with

$$A(z) = \prod_{p=1}^{q} A^p(z)$$

5,787,391
SPEECH CODING BY CODE-EDITED LINEAR PREDICTION

Takehiro Moriya; Akitoshi Kataoka, both of Tokorozawa; Kazunori Mano, Musashino; Satoshi Miki, Tokorozawa; Hitoshi Omuro, Higashimurayama, and Shinji Hayashi, Iruma, all of Japan, assignors to Nippon Telegraph and Telephone Corporation, Tokyo, Japan

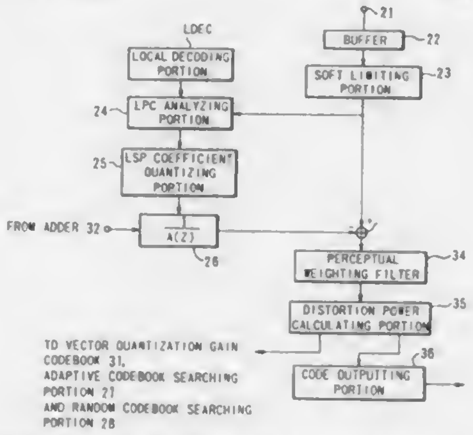
Continuation of Ser. No. 82,103, Jun. 28, 1993, abandoned.

This application Jun. 5, 1996, Ser. No. 658,303

Claims priority, application Japan, Jun. 29, 1992, 4-170895; Oct. 2, 1992, 4-265194; Oct. 2, 1992, 4-265195; Mar. 29, 1993, 5-070534

Int. Cl.⁶ G10L *3/02*

U.S. Cl. 704—225 **40 Claims**


21
BUFFER
22
SOFT LIMITING PORTION
23
LDEC
LOCAL DECODING PORTION
24
LPC ANALYZING PORTION
25
LSP COEFFICIENT QUANTIZING PORTION
FROM ADDER 32
A(Z)
26
PERCEPTUAL WEIGHTING FILTER
34
DISTORTION POWER CALCULATING PORTION
35
TO VECTOR QUANTIZATION GAIN CODEBOOK 31, ADAPTIVE CODEBOOK SEARCHING PORTION 27 AND RANDOM CODEBOOK SEARCHING PORTION 28
CODE OUTPUTTING PORTION
36

1. A method for coding speech data in units of frames comprising the steps of:

- forming a vector from speech signals comprising a plurality of samples as a unit of frame operation;
- storing said vector as a speech input vector;
- sequentially checking, one frame at a time, an amplitude of each speech input vector, and compressing said amplitude when the absolute value of said amplitude exceeds a predetermined value;
- conducting linear prediction analysis and calculating a linear prediction coefficient (LPC) for each checked speech input vector;
- converting each calculated LPC coefficient into a line spectrum pair (LSP) parameter;
- quantizing said LSP parameter using a vector quantizing process, the quantized LSP parameter being expressed by a weighted mean vector of a plurality of vectors from a current frame operation and at least one previous frame operation, wherein said quantizing step comprises the steps of:
  - selecting one vector from among a plurality of stored vectors in a storing means;
  - multiplying a ratio constant (g) of a weighted mean by said selected one vector and outputting a fourth product;
  - multiplying a ratio constant (1−g) of the weighted mean by a vector selected during processing of the frame immediately preceding the current frame operation and outputting a fifth product;
  - obtaining said quantized LSP parameter by adding the fourth product to the fifth product;
  - calculating the distortion data between an LSP parameter before quantization and said quantized LSP parameter; and
  - selecting another vector which will minimize the distortion data at the time of selecting the one vector;
- converting said quantized LSP parameter into a quantized LPC coefficient;
- synthesizing a synthetic speech vector based on an external driving vector and said quantized LPC coefficient;
- selecting a first pitch period vector from among a plurality of pitch period vectors;
- selecting a first noise waveform vector from among a plurality of noise waveform vectors;
- calculating a prediction gain for the first noise waveform vector;
- multiplying said prediction gain by said first noise waveform vector and outputting a first product;
- multiplying a gain selected from among a plurality of gains by said first pitch period vector and outputting a second product;
- multiplying said selected gain by said first product and outputting a third product;
- adding the second and third products, and supplying the sum as said driving vector;
- calculating distortion data by subtracting said synthetic speech vector from said checked speech input vector;
- weighting said calculated distortion data;
- calculating a distortion power of said distortion data with regard to the weighted distortion data;
- selecting a second pitch period vector that will provide a minimum distortion power from among the plurality of pitch period vectors;
- selecting a second noise waveform vector that will provide a minimum distortion power from among the plurality of noise waveform vectors; and
- encoding the second pitch period vector and second noise waveform vector into bit series, adding as necessary error correctional coding, wherein the step of encoding encodes the selected another vector.

5,787,392
SPEECH SIGNAL PROCESSING CIRCUIT AND METHOD FOR DECODING A CODED SPEECH SIGNAL BY CONTROLLING OPERATION OF A BAND SYNTHESIS FILTER

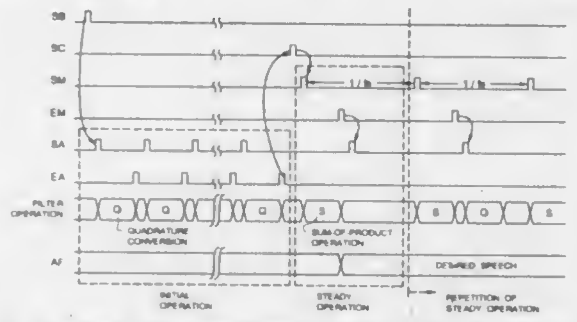
Hideto Takano, and Yoshitaka Shibuya, both of Tokyo, Japan, assignors to NEC Corporation, Tokyo, Japan

Filed Apr. 1, 1996, Ser. No. 625,221

Claims priority, application Japan, Mar. 30, 1995, 7-072924

Int. Cl.⁶ G10L *7/04*

U.S. Cl. 704—230 **17 Claims**



1. A speech signal processing circuit for decoding a coded speech signal, comprising:

- an input buffer for receiving and temporarily storing a coded speech signal sample;
- a band synthesis filter for reading a coded speech signal sample stored in said input buffer and conducting quadrature conversion processing and sum-of-product operation processing to decode the coded speech signal sample into a speech signal; and
- control means for controlling operation of said band synthesis filter,
- said control means including:
  - initial operation executing means for, when recognizing a coded speech signal sample as being stored in said input buffer, conducting, as an initial operation of said band synthesis filter, the quadrature conversion processing of said coded speech signal samples as many times as a number predetermined corresponding to an operation delay time of said band synthesis filter, and
  - steady operation executing means for repeatedly and continuously executing, as a steady operation of said band synthesis filter, the quadrature conversion processing of the coded speech signal samples stored in said input buffer and the sum-of-product operation processing with respect to the results of said quadrature conversion processing after said initial operation is completed.

5,787,393
SPEECH RECOGNITION APPARATUS USING NEURAL NETWORK, AND LEARNING METHOD THEREFOR

Mitsuhiro Inazumi, Suwa, Japan, assignor to Seiko Epson Corporation, Tokyo, Japan

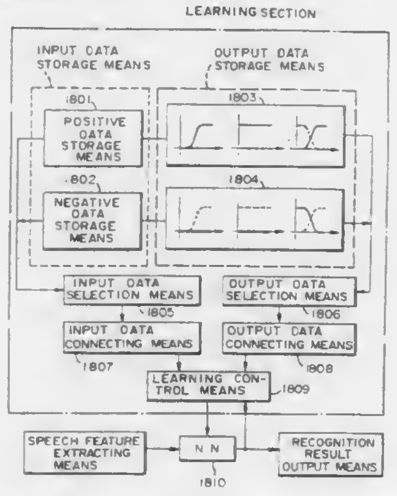
Continuation of Ser. No. 150,170, Nov. 29, 1993, abandoned.

This application Jun. 7, 1995, Ser. No. 485,134

Claims priority, application Japan, Mar. 30, 1992, 4-73818; Apr. 8, 1992, 4-87146; Apr. 9, 1992, 4-88786; Jun. 18, 1992, 4-159422; Jun. 18, 1992, 4-159441; Jun. 19, 1992, 4-161075

Int. Cl.⁶ G10L *5/00*

U.S. Cl. 704—232 **5 Claims**


LEARNING SECTION
INPUT DATA STORAGE MEANS
OUTPUT DATA STORAGE MEANS
1801
POSITIVE DATA STORAGE MEANS
1802
NEGATIVE DATA STORAGE MEANS
1803
1804
INPUT DATA SELECTION MEANS
1805
OUTPUT DATA SELECTION MEANS
1806
INPUT DATA CONNECTING MEANS
1807
OUTPUT DATA CONNECTING MEANS
1808
LEARNING CONTROL MEANS
1809
SPEECH FEATURE EXTRACTING MEANS
N N
1810
RECOGNITION RESULT OUTPUT MEANS

1. A method for recognizing speech, comprising:

- extracting values of an input to be recognized;
- inputting the extracted values into a recurrent neural network;
- storing input learning data of a plurality of continuous data streams within a plurality of categories;
- selecting input learning data of a plurality of continuous data streams to be learned within a plurality of categories;
- storing positive output learning data of a plurality of continuous data streams within a plurality of categories corresponding to an input learning data category;
- storing negative output learning data of a plurality of continuous data streams within a plurality of categories corresponding to an input learning data category;
- selecting output learning data of a plurality of continuous data streams to be learned, each of which corresponds to an input learning data category;
- connecting the selected input learning data into a single continuous data stream;
- connecting the selected output learning data into a single continuous data stream in correlation with the connection of said input learning data;
- inputting said connected input learning data stream to the extraction step; and
- changing weightings at connections of neuron elements on the basis of outputs of said recurrent neural network and said connected output learning data streams.

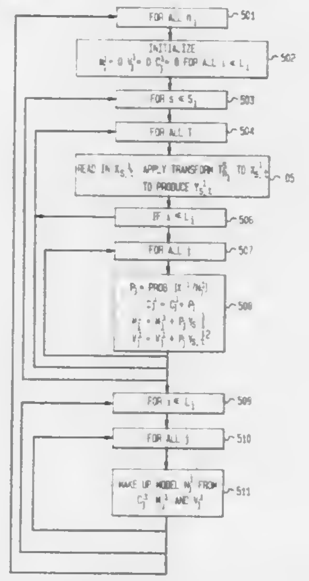
5,787,394
STATE-DEPENDENT SPEAKER CLUSTERING FOR SPEAKER ADAPTATION

Lalit Rai Bahl, Amawalk; Ponani Gopalakrishnan, Yorktown Heights; David Nahamoo, White Plains, and Mukund Padmanabhan, Ossining, all of N.Y., assignors to International Business Machines Corporation, Armonk, N.Y.

Filed Dec. 13, 1995, Ser. No. 572,223

Int. Cl.⁶ G10L *5/06*

U.S. Cl. 704—238 **23 Claims**



1. A method for adapting the parameters of a speech recognition system during a training process, to better recognize speech of a particular test speaker comprising the steps of:

- calculating the acoustic characterization of a plurality of training speakers for all acoustic subspaces of an acoustic space, the acoustic characterizations being individually identifiable for each training speaker for each acoustic subspace;
- calculating the acoustic characterization of a test speaker from adaptation data provided by said test speaker for acoustic subspaces of the acoustic space;
- computing a match score between the test speaker's characterization for each acoustic subspace, and each training speaker's characterization for the same acoustic subspace;
- ranking each of the training speakers in the acoustic subspace based upon the score; and
- for each acoustic space, generating a re-estimated acoustic model for the particular acoustic subspace using individually identifiable data respectively derived from the one or more training speakers closest to the test speaker for that acoustic subspace, the re-estimated acoustic model for each acoustic subspace being used during a decoding process.

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5,787,395

WORD AND PATTERN RECOGNITION THROUGH OVERLAPPING HIERARCHICAL TREE DEFINED BY RELATIONAL FEATURES

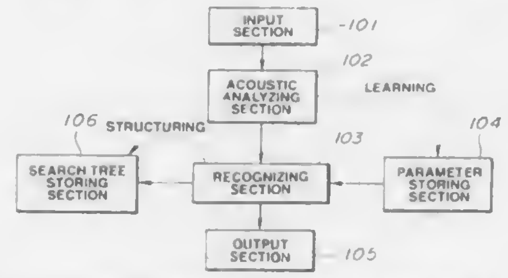
Katsuki Minamino, Tokyo, Japan, assignor to Sony Corporation, Tokyo, Japan

Filed Jul. 18, 1996, Ser. No. 683,488

Claims priority, application Japan, Jul. 19, 1995, 7-182851

Int. Cl.⁶ G10L *9/08*

U.S. Cl. 704—255 **20 Claims**



1. A voice recognizing method, comprising the steps of:

providing a plurality of voice recognition objective words;

structuring said voice recognition objective words into a hierarchical structure having a plurality of levels based upon correlation values indicative of similarities between each pair of voice recognition objective words;

inputting an unknown voice signal;

accumulating scores for the voice recognition objective words which are related in said hierarchical structure to a voice recognition word in a higher level, which word in said higher level receives a high score for said unknown input voice signal by using parameters which are calculated in advance; and

extracting and recognizing a corresponding voice recognition objective word to said unknown input voice signal.

5,787,396

SPEECH RECOGNITION METHOD

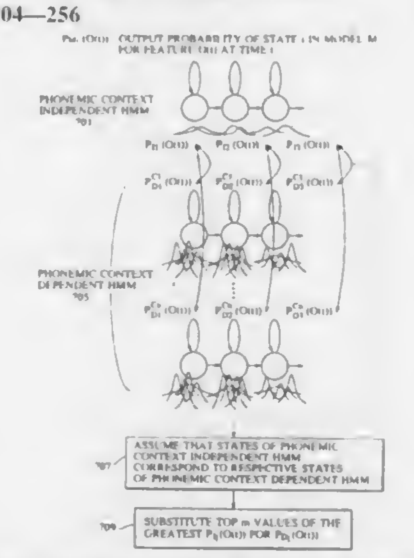
Yasuhiro Komori, Kawasaki; Yasunori Ohora, Yokohama, and Masayuki Yamada, Kawasaki, all of Japan, assignors to Canon Kabushiki Kaisha, Tokyo, Japan

Filed Sep. 18, 1995, Ser. No. 529,436

Claims priority, application Japan, Oct. 7, 1994, 6-244005

Int. Cl.⁶ G10L *5/06;9/00*

U.S. Cl. 704—256 **27 Claims**


OUTPUT PROBABILITY OF STATE i IN MODEL M FOR FEATURE O(t) AT TIME t
PHONEMIC CONTEXT INDEPENDENT HMM
701
PHONEMIC CONTEXT DEPENDENT HMM
705
707
ASSUME THAT STATES OF PHONEMIC CONTEXT INDEPENDENT HMM CORRESPOND TO RESPECTIVE STATES OF PHONEMIC CONTEXT DEPENDENT HMM
709
SUBSTITUTE TOP m VALUES OF THE GREATEST

1. A speech recognition method for performing speech recognition by use of continuous mixture HMMs for output probability determination, said HMMs being in a same class including a first type of HMM having a small number of mixtures and a second type of HMM having a large number of mixtures, said first type of HMM having the same number of states as said second type of HMM, said method comprising the steps of:

determining a first type of output probabilities with respect to input speech by use of said first type of HMM having the small number of mixtures;

selecting states in which said determined output probabilities are high;

determining a second type of output probabilities of said selected states with respect to said input voice by use of said second type of HMM having the large number of mixtures;

substituting the second type of output probabilities for the first type of output probabilities; and

recognizing said input speech in accordance with the first type of output probabilities which are not substituted and the second type of output probabilities which are substituted.

5,787,397

INTERRUPT INFORMATION GENERATING APPARATUS AND SPEECH INFORMATION PROCESSING APPARATUS

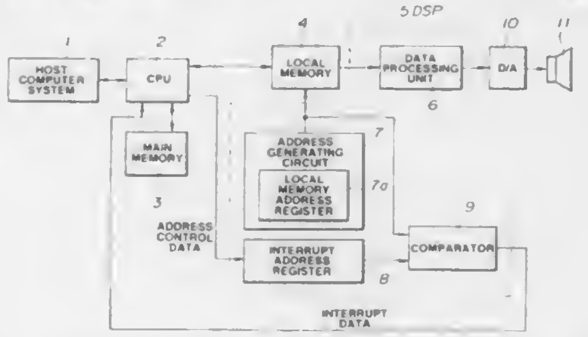
Makoto Furuhashi, Kanagawa, and Masakazu Suzuoki, Tokyo, both of Japan, assignors to Sony Corporation, Tokyo, Japan

Continuation of Ser. No. 328,423, Oct. 25, 1994, Pat. No. 5,655,059. This application Apr. 7, 1997, Ser. No. 838,424

Claims priority, application Japan, Oct. 27, 1993, 5-268906

Int. Cl.⁶ G10L *5/02;9/00*

U.S. Cl. 704—267 **1 Claim**



1. An apparatus for processing sound data information comprised of a formant portion and a one-period portion, said apparatus comprising:

a CPU for receiving sound data information and control programs and for controlling a continuous playback operation when playing back said formant portion and a multi-loop playback operation when playing back said one-period portion;

a local memory for receiving and storing the sound data information from said CPU;

a main memory for receiving and storing said control programs;

a host computer connected to said CPU for supplying said sound data information and said control programs to said CPU, and wherein said CPU controls the sound data information written in said local memory via said host computer;

digital signal processing means for reading out the stored sound data information from said local memory and for processing the read sound data information in a predetermined manner, said digital signal processing means including address generating means for generating address information for the sound data information stored in said local memory, interrupt address generating means responsive to an interrupt generating control signal supplied from said CPU for generating interrupt address information indicating end points of said formant portion and said one-period portion, and comparator means for comparing the address information from said address generating means and the interrupt address information from said interrupt address generating means and, upon a corresponding match thereof, for generating an interrupt signal and for supplying said interrupt signal to said CPU;

wherein during said continuous playback operation, said CPU upon receipt of the interrupt signal from said comparator means controls said local memory such that the formant portion of said sound data information stored in said local memory which corresponds to the sound data information already read out by the digital signal processing means is rewritten with other formant portion sound data information, and supplies said interrupt generating control signal to said interrupt address generating means so as to cause said interrupt address generating means to generate a new interrupt address corresponding to the end of the rewritten other formant portion sound data information, and

wherein during said multi-loop playback operation, said CPU upon receipt of the interrupt signal from said comparator means (i) controls said digital signal processing means such that at least a portion of the read one-period portion of said sound data information is repeatedly read out a number of times from said local memory, (ii) detects the number of times the at least a portion of the read one-period portion of said sound data information is read out, and (iii) supplies said interrupt control signal to said interrupt address generating means so as to cause said interrupt address generating means to generate new interrupt address information indicating an end of another one-period portion when the detected number of times the at least a portion of the read one-period portion sound data information is read out is a pre-set number.

5,787,398

APPARATUS FOR SYNTHESIZING SPEECH BY VARYING PITCH

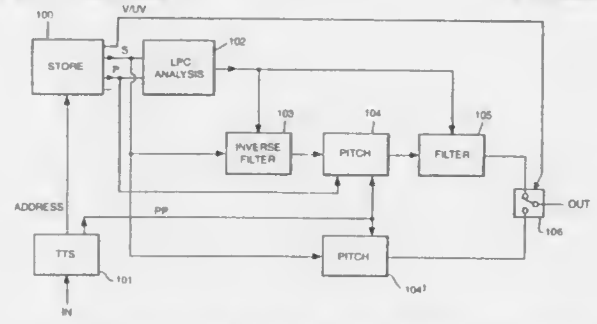
Andrew Lowry, Ipswich, England, assignor to British Telecommunications PLC, London, England

Continuation-in-part of Ser. No. 241,893, May 13, 1994. This application Aug. 26, 1996, Ser. No. 702,933

Claims priority, application European Pat. Off., Mar. 18, 1994, 94301953

Int. Cl.⁶ G10L *9/00*

U.S. Cl. 704—268 **21 Claims**



1. A speech synthesis apparatus including means controllable to vary a pitch of speech signals synthesized thereby, having:

(i) means for separating the speech signals into a spectral component and an excitation component;

(ii) means for multiplying the excitation component by a series of overlapping window functions synchronous, in the case of voiced speech, with pitch timing mark information corresponding at least approximately to instants of vocal excitation, to separate it into windowed segments;

(iii) means to apply a controllable time-shift to the segments and add the time-shifted segments together; and

(iv) means for recombining the spectral and excitation components;

wherein the multiplying means employs at least two windows per pitch period, each having a duration of less than one pitch period.

5,787,399

PORTABLE RECORDING/REPRODUCING DEVICE, IC MEMORY CARD RECORDING FORMAT, AND RECORDING/REPRODUCING MEHTOD

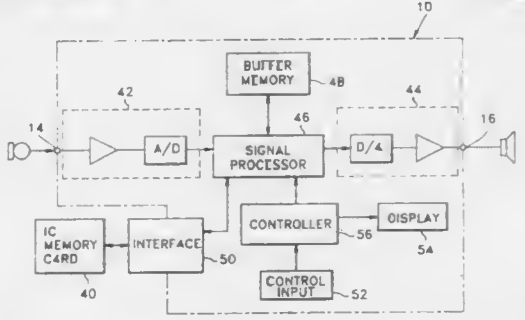
Young-man Lee, Suwon, and Chan-dong Cho, Ansan, both of Rep. of Korea, assignors to Samsung Electronics Co., Ltd., Kyungki-Do, Rep. of Korea

Continuation of Ser. No. 381,654, Jan. 31, 1995. This application Jul. 29, 1997, Ser. No. 902,204

Claims priority, application Rep. of Korea, May 31, 1994, 1994 12148

Int. Cl.⁶ G10L *3/00*

U.S. Cl. 704—270 **7 Claims**



1. A portable recording/reproducing device contained in a single case, comprising:

audio input means for inputting an analog audio signal via an external microphone input terminal and generating a digital audio signal;

a signal processor for compressing the digital audio signal input via said audio input means and expanding compressed data so as to provide a processed digital audio signal;

audio output means for converting the processed digital audio signal into a second analog audio signal and outputting the result to an external earphone output terminal;

a buffer memory for storing a table of contents (TOC) and temporarily storing data processed by said signal processor;

interfacing means for performing an interfacing operation with respect to the transmission of recording/reproducing data between the signal processor and an IC memory card;

control input means for inputting recording and reproducing commands;

a display for displaying a control state; and

a controller for, when a record command is input via said control input means, detecting a non-sound section of the audio signal input via said audio input means and generating time data corresponding to a time of duration of the non-sound section, the time of duration being one of a plurality of possible times of duration of the non-sound section, forming a data transmission block having the time data and sound data, in which the time data constitutes a header of the data transmission block and indicates the time of duration of the non-sound section which occurs before an audio section corresponding to the sound data of the data transmission block, recording the result onto the IC memory card via said interfacing means, and registering entry of newly recorded content in the TOC, and when a reproduction command is input via said control input means, reading one of a start address and an end address of a selected audio piece with reference to the TOC which is loaded into said buffer memory from the IC memory card via said interfacing means, accessing corresponding audio data of the IC memory card and decoding the corresponding audio data after a time delay corresponding to the time duration of the non-sound section, controlling the system according to a reproduction operation, and displaying the control state via said display.

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5,787,400

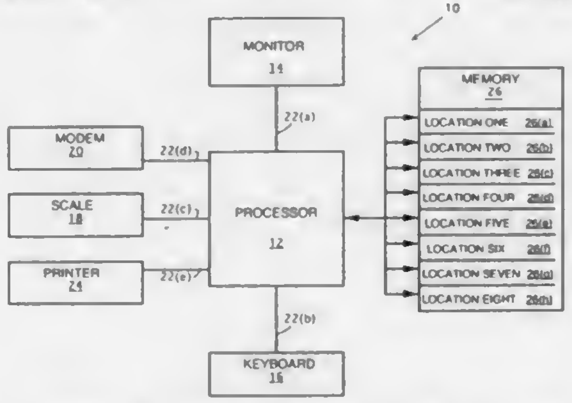
METHOD FOR IMPLEMENTING ELECTRONIC DATA INTERCHANGE (EDI) IN THE PROCESSING OF MANIFESTS AND PARCEL INQUIRY/RESPONSES FOR MULTIPLE CARRIERS IN A PARCEL PROCESSING SYSTEM

Tracy A. Weber, Southbury, Conn., assignor to Pitney Bowes Inc., Stamford, Conn.

Filed Dec. 12, 1994, Ser. No. 359,143

Int. Cl.⁶ G06F *153/00;13/00*

U.S. Cl. 705—1 **24 Claims**



1. A method for implementing one of a plurality of electronic data interchange standards to process documentation in a parcel processing system, comprising:

- (a) enabling a parcel processing system to utilize one or more of a plurality of electronic data interchange standards when in communication with a corresponding parcel processing system;
- (b) selecting a first carrier from among a list of carriers, wherein said selection is made based upon pre-selected criteria;
- (c) determining whether said selected carrier possesses an electronic data interchange capability necessary for said corresponding parcel processing system;
- (d) rejecting said selected carrier if said selected carrier does not possess a corresponding electronic data interchange capability, and determining a next available carrier meeting said pre-selected criteria;
- (e) accepting said selected carrier or said next available carrier if said selected carrier or said next available carrier possesses a corresponding electronic data interchange capability;
- (f) selecting an electronic data interchange standard that is compatible with said electronic data interchange capability of said accepted carrier;
- (g) reading from a database those fields necessary to construct a manifest in a format in conformance with requirements of said accepted carrier;
- (h) translating said constructed manifest into an electronic data interchange standard that matches that of said accepted carrier; and
- (i) transmitting said translated manifest to said accepted carrier by transmission means for reception by said corresponding parcel processing system.

5,787,401

Patent Not Issued For This Number

5,787,402

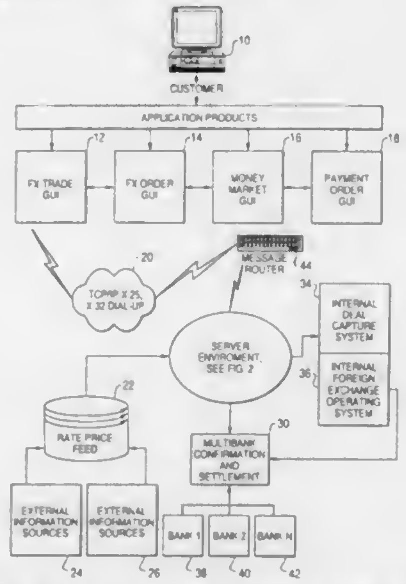
METHOD AND SYSTEM FOR PERFORMING AUTOMATED FINANCIAL TRANSACTIONS INVOLVING FOREIGN CURRENCIES

Neil D. Potter, Westfield; Bohdan Chomut, Summit; David M. Jacobs, Wayne; Peter E. Rayner, Westfield, all of N.J.; Cynthia M. Anasson, Milford, Conn., and Elizabeth J. Friedman, Falmouth, Great Britain, assignors to Crossmar, Inc., New York, N.Y.

Filed Oct. 8, 1996, Ser. No. 727,786

Int. Cl.⁶ G06F *17/60*

U.S. Cl. 705—37 **123 Claims**


10
CUSTOMER
APPLICATION PRODUCTS
12
14
16
18
FX TRADE GUI
FX ORDER GUI
MONEY MARKET GUI
PAYMENT ORDER GUI
20
TCP/IP X.25, X.32 DIAL-UP
MESSAGE ROUTER
44
34
INTERNAL DEAL CAPTURE SYSTEM
SERVER ENVIROMENT, SEE FIG. 2
36
INTERNAL FOREIGN EXCHANGE OPERATING SYSTEM
22
RATE PRICE FEED
30
MULTIBANK CONFIRMATION AND SETTLEMENT
EXTERNAL INFORMATION SOURCES
EXTERNAL INFORMATION SOURCES
BANK 1
BANK 2
BANK N
24
26
38
40
42

1. A method for a user to perform financial transactions involving a plurality of currencies comprising the steps of:

accessing a financial system affiliated with a financial institution using a terminal, wherein said terminal is a personal computer acting as a local client in a client-server architecture, and running in a graphical user interface environment;
verifying that said access to said system is authorized;
identifying an account affiliated with said user to trade on;
inputting a first currency and a second currency to be used in said transaction;
inputting the desired characteristics of said transaction including a desired transaction amount;
determining automatically the terms to be offered by said financial institution to said user for said transaction including a rate of exchange between said two currencies;
informing said user of said offered transaction terms;
accepting said offered transaction terms;
reverifying user authorization prior to a release; and
releasing automatically said accepted transaction terms for execution.

5,787,403

BANK-CENTRIC SERVICE PLATFORM, NETWORK AND SYSTEM

William M. Randle, Bexley, Ohio, assignor to Huntington Bancshares, Inc., Columbus, Ohio

Filed Mar. 8, 1995, Ser. No. 401,075

Int. Cl.⁶ G06F *17/60*

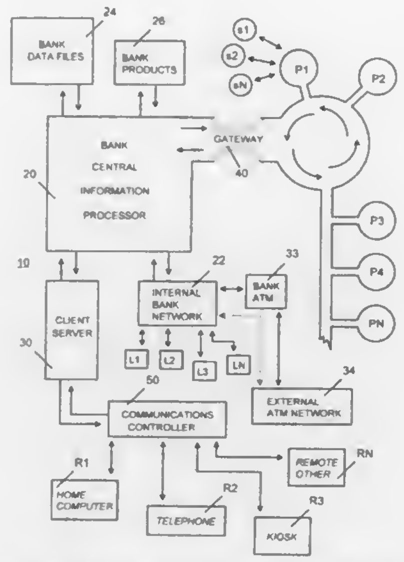
U.S. Cl. 705—43 **18 Claims**

1. A bank-centric service platform that enables access by a bank customer at a remote location to financial information, products and services maintained by a bank at a central location and to financial and non-financial information, products and services of other providers accessible through the bank, said banking service platform comprising:

a central information processor at the central location of a bank, said processor including data storage files relating to bank customers and accounts as the bank maintains these files in the ordinary course and categories of financial information, products and services conventionally offered by the bank;

a branded access gateway interconnected to the bank central information processor providing communication with other providers of financial and non-financial information, products and services with which a bank customer may initiate a transaction, the branded access gateway being controlled by the bank and having characteristics uniquely associated with the bank;

a client server operatively interconnected to communicate with customer operable transceivers at remote locations, said client server enabling live video-conferencing between the bank and a customer substantially simultaneously with real-time data transmission between said customer operable transceiver and said central information processor through said client server, said client server processing communications to and from said customer operable transceivers, and enabling a customer using the transceiver to access and control items in, and perform transactions with respect to, information products and services of the bank in the data storage files of the central information processor and to access the financial and non-financial information, products and services of other providers that are accessible through the branded gateway from said central information processor and to initiate transactions therewith.



5,787,404

CREDIT-CARD BASED RETIREMENT FUND SYSTEM AND METHOD

Ernesto Fernandez-Holmann, Apartado Postal 928-A, Lona 01010, Guatemala

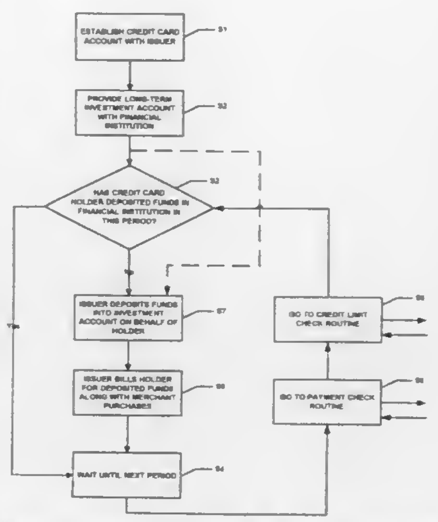
Filed Nov. 21, 1995, Ser. No. 561,617

Int. Cl.⁶ G06F *17/60*

U.S. Cl. 705—35 **12 Claims**

1. A computerized method for providing an investment fund comprising the steps of:

- a) establishing a computerized credit based account with a credit card issuer for the benefit of a credit card holder.
- b) providing a computerized investment account with a financial institution for the benefit of the credit card holder;
- c) determining if the credit card holder has independently deposited funds into the investment account in a particular period;
- d) electronically transferring funds automatically to the computerized investment account by the credit card issuer with a predetermined amount of money specified by the credit card holder on a periodic basis, only when the credit card holder has not independently deposited funds into the investment account in said particular period; and
- e) charging an amount of money so funded against the credit based account of the credit card holder.


ESTABLISH CREDIT CARD ACCOUNT WITH ISSUER
PROVIDE LONG-TERM INVESTMENT ACCOUNT WITH FINANCIAL INSTITUTION
HAS CREDIT CARD HOLDER DEPOSITED FUNDS IN FINANCIAL INSTITUTION IN THIS PERIOD?
ISSUER DEPOSITS FUNDS INTO INVESTMENT ACCOUNT ON BEHALF OF HOLDER
ISSUER BILLS HOLDER FOR DEPOSITED FUNDS ALONG WITH MERCHANT PURCHASES
WAIT UNTIL NEXT PERIOD
GO TO CREDIT LIMIT CHECK ROUTINE
GO TO PAYMENT CHECK ROUTINE

5,787,405

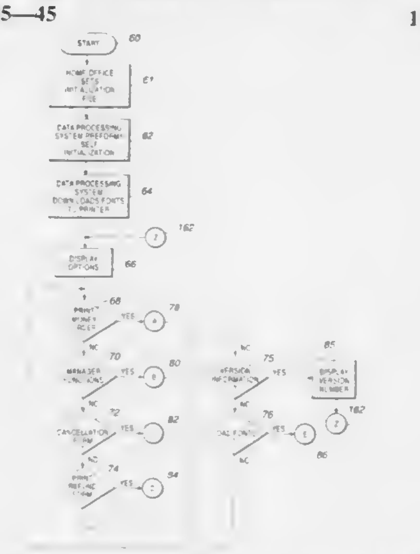
METHOD AND SYSTEM FOR CREATING FINANCIAL INSTRUMENTS AT A PLURALITY OF REMOTE LOCATIONS WHICH ARE CONTROLLED BY A CENTRAL OFFICE

Edward M. Gregory, Fairview, Tex., assignor to FFP Financial Services, L.P., Fort Worth, Tex.

Filed Sep. 29, 1994, Ser. No. 315,224

Int. Cl.⁶ G06F *17/60;* G07G *1/12*

U.S. Cl. 705—45 **15 Claims**


START
60
HOME OFFICE SETS INITIALIZATION FILE
61
DATA PROCESSING SYSTEM PERFORMS SELF INITIALIZATION
62
YES
NO

1. A method for creating money orders and vendor drafts using a data processing system and a printer at each of a plurality of remote stores, where each of the plurality of the remote stores is able to communicate with a home office using a communication device connected to the data processing system, the method comprising the steps of:

- a) awaiting the selection by a user using the data processing system to create a transaction which is either a money order or a vendor draft requiring a plurality of parameters to create, the plurality of parameters including a dollar amount;
- b) prompting the user using the data processing system for entry of each of the plurality of parameters necessary to create the transaction;
- c) entering a number associated with the transaction and the dollar amount of the transaction in a log on the data processing system;
- d) printing the transaction on the printer;

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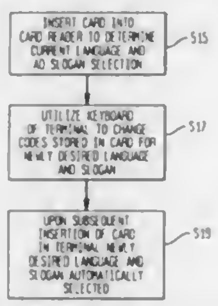
- e) repeating steps (a) through (d) as necessary to create the required money orders or vendor drafts;
- f) sending the log to the home office using the communication device at specific intervals; and
- g) assembling at the home office the logs from each of the plurality of remote stores and creating a database of all transactions at all remote stores.

5,787,406
VALUE DISPENSING MECHANISM, SUCH AS A POSTAGE METER, HAVING AUTOMATIC DISPLAY/ PRINTING SELECTION

Robert G. Arsenault, Stratford; William F. Bailey, Guilford; William T. Lefebvre, Rocky Hill, and Joseph M. Mozdzer, Beacon Falls, all of Conn., assignors to Pitney Bowes Inc., Stamford, Conn.

Filed Dec. 11, 1996, Ser. No. 764,399
Int. Cl.^{6} G07B *17/00*

U.S. Cl. 705—410 **8 Claims**


INSERT CARD INTO CARD READER TO DETERMINE CURRENT LANGUAGE AND AD SLOGAN SELECTION
515
UTILIZE KEYBOARD OF TERMINAL TO CHANGE CODES STORED IN CARD FOR NEWLY DESIRED LANGUAGE AND SLOGAN
517
UPON SUBSEQUENT INSERTION OF CARD IN TERMINAL NEWLY DESIRED LANGUAGE AND SLOGAN AUTOMATICALLY SELECTED
519

1. A value dispensing mechanism, which prints an indication of value, comprising:
- a portable accounting device which accounts for the printed indication of value; and
- a terminal including means for printing the indication of value, a display which displays messages related to functions of the value dispensing mechanism, means for controlling messages displayed on the display and for initiating operation of the printing means to print the indication of value, means for storing a plurality of display options, and means for removably receiving the portable accounting device such that at times when the portable accounting device is received in the receiving means the controlling means and the portable accounting device are in operative communication with each other to permit operation of the value dispensing mechanism;
- wherein the portable accounting device includes means for automatically designating at least one of the display options upon insertion of the portable accounting device into the receiving means for at least one of displaying the selected display option on the display and printing the selected display option as at least a portion of the indication of value.

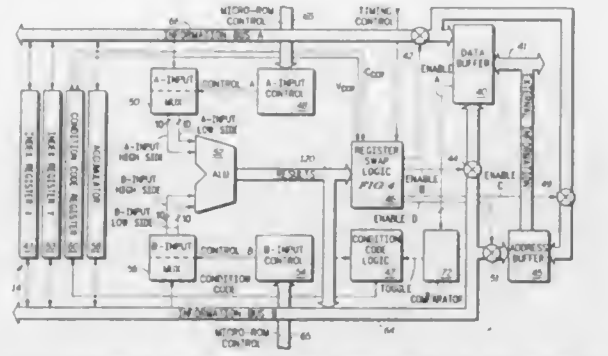
5,787,407
DATA PROCESSING SYSTEM FOR EVALUATING FUZZY LOGIC RULES AND METHOD THEREFOR

J. Greg Viot, Austin, Tex., assignor to Motorola Inc., Schaumburg, Ill.

Continuation of Ser. No. 363,434, Dec. 22, 1994, abandoned. This application Nov. 17, 1997, Ser. No. 971,266
Int. Cl.^{6} G06F *15/18*

U.S. Cl. 706—8 **34 Claims**

1. A data processing system for evaluating fuzzy logic rules, comprising:
- (a) an instruction decoder having an input for receiving a rule evaluation instruction, the rule evaluation instruction to be processed from an instruction set comprising a plurality of instructions, and having an output;
- (b) a register having an output for providing a control signal; and



- (c) an execution unit having a first input coupled to the output of the instruction decoder and a second input for receiving the control signal, for executing a plurality of arithmetic and logic functions in response to a plurality of input signals from the output of the instruction decoder, and in response to the rule evaluation instruction, the execution unit fetching at least one fuzzy input of a fuzzy logic rule, determining a rule strength by performing a predetermined mathematical operation on the at least one fuzzy input, and selectively weighting the rule strength to provide a fuzzy output in response to a logic state of the control signal

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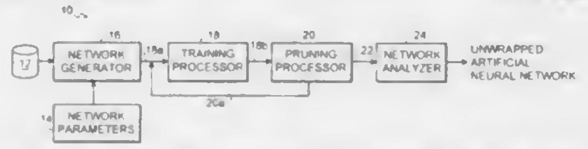
5,787,408
SYSTEM AND METHOD FOR DETERMINING NODE FUNCTIONALITY IN ARTIFICIAL NEURAL NETWORKS

Christopher M. Deangelis, Cranston, R.I., assignor to The United States of America as represented by the Secretary of the Navy, Washington, D.C.

Filed Aug. 23, 1996, Ser. No. 702,300
Int. Cl.^{6} G06F *15/18*

U.S. Cl. 706—25 **13 Claims**



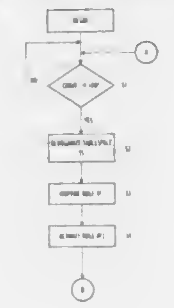
1. An apparatus for unwrapping an artificial neural network (ANN) comprising:
- a network generator for generating an initial ANN architecture for mapping a plurality of network inputs to at least one network output;
- a pruning processor having a pruning input for receiving an ANN and generating a selected one of a pruned ANN and a minimal ANN architecture, said pruning processor comprising means for removing weights and biases from ANN nodes, means for removing dead nodes, means for removing saturated nodes, and means for removing orphaned nodes, wherein a dead node is an ANN node having an output activation of approximately zero for every input pattern, a saturated node is an ANN node having an output activation of approximately one for every said input pattern, and an orphan node is an ANN node lacking a selected one of all input connections and all output connections;
- a training processor, coupled to said network generator and said pruning processor, for receiving an input ANN, said input ANN being a selected one of said initial ANN architecture and said pruned ANN, and for generating a trained ANN from said input ANN, said trained ANN being coupled to said pruning input; and
- a network analyzer, coupled to receive said minimal ANN architecture, for generating an unwrapped artificial neural network, said network analyzer comprising a connection analyzer for identifying network inputs remaining in said minimal ANN architecture and determining the information represented by said remaining network inputs, and a node analyzer, coupled to said connection analyzer, for defining the utilization and functionality of each node in said minimal ANN architecture.

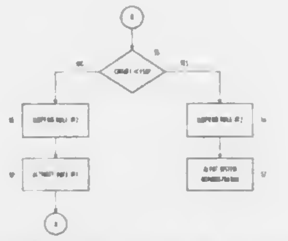
5,787,409
DYNAMIC MONITORING ARCHITECTURE

Roland Seiffert, Morgan Hill, and Stan Wong, San Jose, both of Calif., assignors to International Business Machines Corporation, Armonk, N.Y.

Filed May 17, 1996, Ser. No. 650,900
Int. Cl.^{6} H04L *12/26*

U.S. Cl. 706—45 **18 Claims**





1. A dynamic monitoring system for monitoring status and conditions of a computer system, said dynamic monitoring system comprising:
- one or more watchdog checks, each defining a predetermined characteristic of said computer system to be monitored, and one or more watchdog rules, each defining a condition to be evaluated based on one or more of said watchdog checks;
- a monitor, responsive to said watchdog checks, for monitoring the predetermined characteristics of said computer system, said monitor producing check values representative of the status of said predetermined characteristics of said computer system;
- a rule evaluator, responsive to said one or more watchdog rules and at least one of said check values, for evaluating at least one of said watchdog rules based on said at least one check value and for producing an evaluation result; and
- altering means, responsive to said evaluation result, for dynamically altering said rule evaluator in real-time, by activating and suspending at least one of said watchdog rules and checks based on said evaluation result, to adapt said rule evaluator and said dynamic monitoring system to the status and conditions of said computer system.

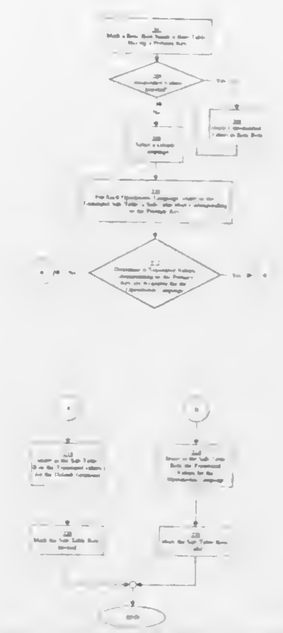
5,787,410
METHOD AND APPARATUS FOR STORING AND RETRIEVING DATA IN MULTIPLE LANGUAGES SIMULTANEOUSLY USING A FULLY-POPULATED SUB-TABLE

Douglas James McMahon, Belmont, Calif., assignor to Oracle Corporation, Redwood Shores, Calif.

Filed Feb. 20, 1996, Ser. No. 603,658
Int. Cl.^{6} G06F *17/30*

U.S. Cl. 707—1 **39 Claims**

1. A computer implemented method for storing and retrieving data values in a database management system (DBMS), said method comprising the steps of:
- generating a Base Table, said Base Table including at least one base row having a primary key, said base row exclusive of translatable data values;



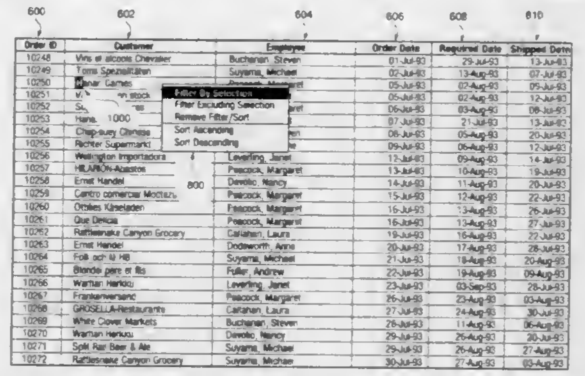
- generating a fully-populated Sub-Table, said Sub-Table includes a set of fully-populated sub-table rows corresponding to said base row, each said fully-populated row includes at least one translatable data field, said Sub-Table further includes a set of language values, wherein each set of sub-table rows in said Sub-Table corresponds to a separate language value of said set of language values
- selecting a language value from said set of language values as a default language;
- inserting a second base row in said Base Table; and
- in response to inserting said second base row in said Base Table, generating a second set of sub-table rows in said Sub-Table, each row of said second set corresponding to a separate language value of said set of language values, wherein at least one of said rows in said second set is generated by copying a translatable data value of said default language.

5,787,411
METHOD AND APPARATUS FOR DATABASE FILTER GENERATION BY DISPLAY SELECTION

Shane L. Groff, Kirkland, and Timothy P. McKee, Seattle, both of Wash., assignors to Microsoft Corporation, Redmond, Wash.

Filed Mar. 20, 1996, Ser. No. 619,018
Int. Cl.^{6} G06F *11/30*

U.S. Cl. 707—2 **32 Claims**



Order ID	Customer	Employee	Order Date	Required Date	Shipped Date
10248	Vins et alcools Chevalier	Buchanan, Steven	01-Jul-93	29-Jul-93	13-Jul-93
10249	Toms Spezialitäten	Suyama, Michael	02-Jul-93	13-Aug-93	07-Jul-93
10250	Hanar Carnes	Peacock, Margaret	05-Jul-93	02-Aug-93	09-Jul-93
10251	[illegible]	[illegible]	05-Jul-93	02-Aug-93	12-Jul-93
10252	[illegible]	[illegible]	06-Jul-93	03-Aug-93	08-Jul-93
10253	Hanar	[illegible]	07-Jul-93	21-Jul-93	13-Jul-93
10254	Chop-suey Chinese	[illegible]	08-Jul-93	05-Aug-93	20-Jul-93
10255	Richter Supermarkt	[illegible]	09-Jul-93	06-Aug-93	12-Jul-93
10256	Wellington Importadora	Leverling, Janet	12-Jul-93	09-Aug-93	14-Jul-93
10257	HILARIÓN-Abastos	Peacock, Margaret	13-Jul-93	10-Aug-93	19-Jul-93
10258	Ernst Handel	Davolio, Nancy	14-Jul-93	11-Aug-93	20-Jul-93
10259	Centro comercial Moctezuma	Peacock, Margaret	15-Jul-93	12-Aug-93	22-Jul-93
10260	Ottilies Käseladen	Peacock, Margaret	16-Jul-93	13-Aug-93	26-Jul-93
10261	Que Delícia	Peacock, Margaret	16-Jul-93	13-Aug-93	27-Jul-93
10262	Rattlesnake Canyon Grocery	Callahan, Laura	19-Jul-93	16-Aug-93	22-Jul-93
10263	Ernst Handel	Dodsworth, Anne	20-Jul-93	17-Aug-93	28-Jul-93
10264	Folk och fä HB	Suyama, Michael	21-Jul-93	18-Aug-93	20-Aug-93
10265	Blondel père et fils	Fuller, Andrew	22-Jul-93	19-Aug-93	09-Aug-93
10266	Wartian Herkku	Leverling, Janet	23-Jul-93	03-Sep-93	28-Jul-93
10267	Frankenversand	Peacock, Margaret	26-Jul-93	23-Aug-93	03-Aug-93
10268	GROSELLA-Restaurante	Callahan, Laura	27-Jul-93	24-Aug-93	30-Jul-93
10269	White Clover Markets	Buchanan, Steven	28-Jul-93	11-Aug-93	06-Aug-93
10270	Wartian Herkku	Davolio, Nancy	29-Jul-93	26-Aug-93	30-Jul-93
10271	Split Rail Beer & Ale	Suyama, Michael	29-Jul-93	26-Aug-93	27-Aug-93
10272	Rattlesnake Canyon Grocery	Suyama, Michael	30-Jul-93	27-Aug-93	03-Aug-93

1. A computer operable method for generating a database filter comprising:
- selecting data on a computer display screen by highlighting a portion of at least one value on said computer display screen that is indicative of a desired filter in response to user supplied input, wherein said data represents a plurality of data values stored in a database table; and

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generating commands to select database records in accordance with said desired filter.

5,787,412

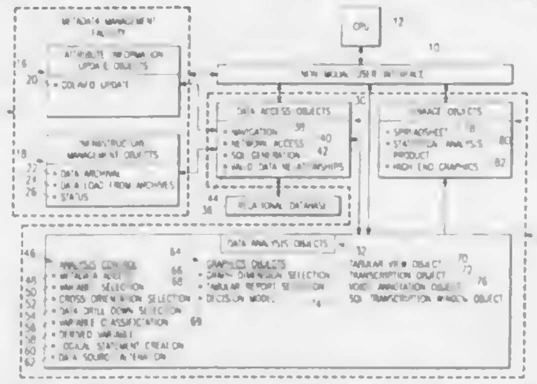
OBJECT ORIENTED DATA ACCESS AND ANALYSIS SYSTEM

Robert M. Bosch, Addison, and Marshall P. Reeder, Carrollton, both of Tex., assignors to The Sabre Group, Inc., Fort Worth, Tex.

Continuation-in-part of Ser. No. 196,412, Feb. 14, 1994, Pat. No. 5,586,311. This application Apr. 17, 1996, Ser. No. 633,897

Int. Cl.^{6} G06F *17/30*

U.S. Cl. 707—2 **2 Claims**



1. A system for accessing and analyzing data through a central processing unit, said system comprising:

a non modal user interface for providing a user access to the system;

a plurality of application analysis objects for creating an analysis network, said analysis network comprising a plurality of user interactively selected nodes and connections wherein the nodes and connections determine the analysis of a selected database,

said application analysis objects having means for automatically generating the required analysis paths without user interaction responsive to the connection of selected analysis objects in the created analysis network and including decision model analysis means for analyzing said data analysis network in response to said decision model and for generating a new analysis network path in response to the requirement of said decision model;

a metadata management facility for providing data structure and location information to said application analysis objects;

a plurality of application graphics objects for interactively manipulating the plurality of analysis objects through the non-modal user interface to create said analysis network; and

a plurality of application data access objects for allowing application object to access required databases and for generating Structured Query Language in response to the analysis network.

5,787,413

C++ CLASSES FOR A DIGITAL LIBRARY

Steven Victor Kauffman, San Jose; Lara Marie Lewis, Campbell, and James Albert Willey, San Jose, all of Calif., assignors to International Business Machines Corporation, Armonk, N.Y.

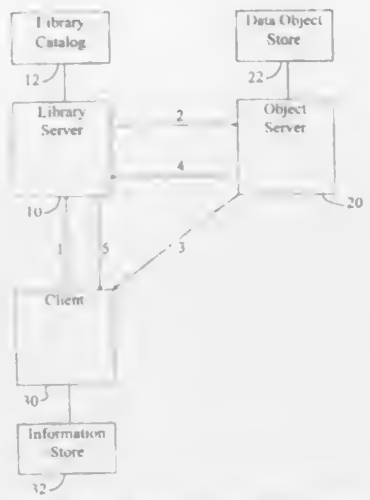
Filed Jul. 29, 1996, Ser. No. 688,120

Int. Cl.^{6} G06F *17/30*

U.S. Cl. 707—2 **16 Claims**

1. A system for performing library functions on data objects, said system comprising:

a digital client/server library system having components which include: (1) clients, (2) an object server for storing said data objects, and (3) a centralized server having information stored



therein regarding a respective location of each of said data objects, each of said clients, and the object server, wherein said library functions include storing and managing said data objects, wherein said data objects are each a single content part, and each correspond to at least one item;

system software of said library for controlling said components to perform said library functions;

a set of callable application programming interfaces (API's), each of said API's, when called, causing said system software to control said components to perform a corresponding one of said library functions, said set of API's defining a first overall programming interface of said library; and

an application program which, upon execution, causes one of said API's to be called so that said corresponding one of said library functions is performed; and a set of object oriented programming classes for interfacing between said application program and said API's, each of said object oriented programming classes defining executable objects that share a common respective structure and a common respective behavior, at least one of said executable objects, after creation thereof, calling a selected one of said API's, said set of object oriented programming classes defining a second overall programming interface of said library;

wherein said application program, upon said execution thereof, causes said selected one of said API's to be called by (1) creating said at least one of said executable objects and then by (2) causing said at least one of said executable objects to call said selected one of said API's.

5,787,414

DATA RETRIEVAL SYSTEM USING SECONDARY INFORMATION OF PRIMARY DATA TO BE RETRIEVED AS RETRIEVAL KEY

Seiji Miike; Satoshi Ito, both of Kanagawa-ken; Hiroshi Mizoguchi, Tokyo; Yoichi Takebayashi, Kanagawa-ken; Mika Fukui, Kanagawa-ken; Yoshiaki Kurosawa, Kanagawa-ken; Akira Morishita, Kanagawa-ken; Shigenobu Seto, Kanagawa-ken; Hideaki Shinchi, Kanagawa-ken; Yasushi Kawakura, Kanagawa-ken; Yoshikuni Matsumura, Kanagawa-ken, and Hisako Tanaka, Kanagawa-ken, all of Japan, assignors to Kabushiki Kaisha Toshiba, Kawasaki, Japan

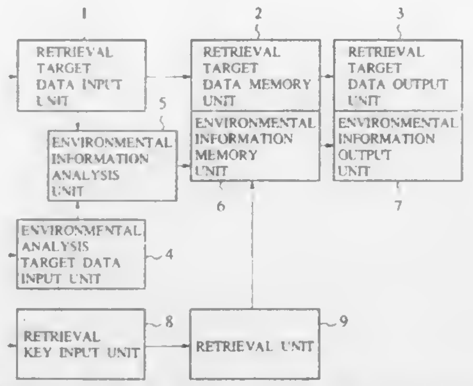
Continuation of Ser. No. 254,050, Jun. 3, 1994, abandoned. This application Sep. 26, 1996, Ser. No. 720,218

Claims priority, application Japan, Jun. 3, 1993, 5-133118; Jun. 4, 1993, 5-133746; Sep. 20, 1993, 5-255241; Dec. 22, 1993, 5-325231; Dec. 29, 1993, 5-351113

Int. Cl.^{6} G06F *17/30*

U.S. Cl. 707—2 **68 Claims**

1. A data retrieval system, comprising: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RETRIEVAL TARGET DATA INPUT UNIT
RETRIEVAL TARGET DATA MEMORY UNIT
RETRIEVAL TARGET DATA OUTPUT UNIT
5
ENVIRONMENTAL INFORMATION ANALYSIS UNIT
ENVIRONMENTAL INFORMATION MEMORY UNIT
ENVIRONMENTAL INFORMATION OUTPUT UNIT
6
7
ENVIRONMENTAL ANALYSIS TARGET DATA INPUT UNIT
4
RETRIEVAL KEY INPUT UNIT
8
RETRIEVAL UNIT
9

first memory means for storing primary data which are a filing target to be stored in the system and retrieved from the system;

analysis means for automatically acquiring secondary information at a time of manipulation or input of the primary data, the secondary information being environmental information indicating an environmental condition of the primary data which is not directly indicative of the data content of the primary data;

second memory means for storing the secondary information associated with the primary data, in correspondence to the primary data stored in the first memory means;

input means for specifying a retrieval key to be used in selecting the secondary information associated with a desired primary data, said retrieval key not specifying any content of the desired primary data;

retrieval means for selecting the secondary information from the second memory means in accordance with the retrieval key entered by the input means, and then identifying for retrieval, based on the secondary information, the primary data stored in correspondence to the secondary information selected in accordance with the retrieval key; and

output means for outputting the primary data identified for retrieval by the retrieval means as a retrieval result for the desired primary data.

5,787,415

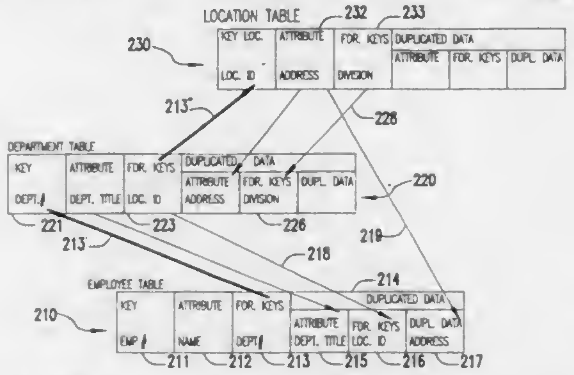
LOW MAINTENANCE DATA DELIVERY AND REFRESH SYSTEM FOR DECISION SUPPORT SYSTEM DATABASE

Paul Jacobson, Brunswick, and Michael Tefft, North Royalton, both of Ohio, assignors to International Business Machines Corporation, Armonk, N.Y.

Filed Oct. 30, 1996, Ser. No. 739,531

Int. Cl.^{6} G06F *17/30*

U.S. Cl. 707—2 **15 Claims**



1. A method for maintaining data integrity of a decision support system when data is to be updated/refreshed in one or more de-normalized relational databases therein, said a de-normalized database having an entity-attribute-relationship architecture, said method comprising the steps, in sequence, of

collecting update data in a staging table corresponding to an entity or database,

identifying instances of an entity to be updated in a home entity table of said decision support system,

erasing instances of an entity in said home entity table of said decision support system which are identified by said identifying step,

merging said update data with import data from instances in another entity or database to form merged data, and

storing said merged data as instances in said home entity table of said decision support system.

5,787,416

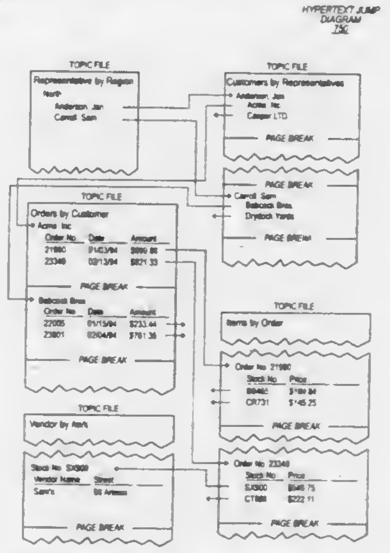
METHODS FOR HYPERTEXT REPORTING IN A RELATIONAL DATABASE MANAGEMENT SYSTEM

Lloyd Tabb, Santa Cruz, and Conrad Herrmann, Soquel, both of Calif., assignors to Borland International, Inc., Scotts Valley, Calif.

Continuation of Ser. No. 283,127, Jul. 29, 1994, Pat. No. 5,603,025. This application Feb. 6, 1997, Ser. No. 796,671

Int. Cl.^{6} G06F *17/30*

U.S. Cl. 707—2 **25 Claims**



1. In a computer system, a method for publishing database information to a hypertext database report, the method comprising:

(a) receiving first input specifying information taken from a first set comprising at least one database table;

(b) receiving second input specifying information taken from a second set comprising at least one database table; and

(c) if information is relatable between said first and second sets, publishing database information to a hypertext database report by generating a hypertext report having at least one hypertext link for cross-referencing relatable information in the two sets, such that user invocation of said at least one hypertext link invokes display of cross-referenced relatable information.

5,787,417

METHOD AND SYSTEM FOR SELECTION OF HIERARCHICALLY RELATED INFORMATION USING A CONTENT-VARIABLE LIST

Richard R. Hargrove, Redmond, Wash., assignor to Microsoft Corporation, Redmond, Wash.

Filed Jan. 28, 1993, Ser. No. 10,540

Int. Cl.^{6} G06F *17/30*

U.S. Cl. 707—4 **23 Claims**

1. In a computer system having a display device and hierarchical database that is indexed by dimensions, topics, and sub-topics, a method of displaying a query user interface on the display device for the hierarchical database, comprising the computer-implemented steps of:

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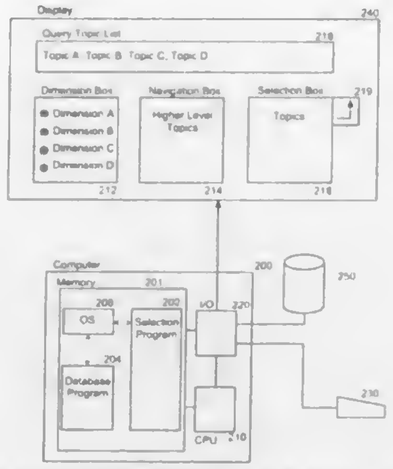


- displaying a list of dimensions in a first element of the query user interface, said list of dimensions containing dimensions that are selectable by a user wherein a selected one of the dimensions in the list of dimensions is currently selected and each dimension corresponds to a set of topics in the hierarchical database;
- displaying a list of higher-level topics in a second element of the query user interface, wherein said list of higher-level topics holds a list of higher-level topics that are contained in the topics of the selected dimension, wherein the higher-level topics are selectable by a user and wherein a selected one of the higher-level topics is currently selected; and
- displaying a list of lower-level topics in a third element of the query user interface element, wherein said list of lower-level topics holds a list of lower-level topics that are sub-topics for the selected higher-level topic, wherein said sub-topics are selectable by the user to select a topic for a query of the hierarchical database;
- wherein the first element, the second element and the third element are concurrently displayed as part of the query user interface;
- wherein when a user selects a different dimension from the list of dimensions displayed in the first element, displaying in the second element a list of higher-level topics that are contained in the topics of the selected different dimension and displaying in the third element a list of lower-level topics that are contained in a selected higher-level topic that is displayed in the second element; and
- wherein when a user selects a different higher-level topic from the list of higher-level topics displayed in the second element, displaying in the third element a list of lower-level topics that are contained in the selected higher-level topic that is displayed in the second element.

5,787,418

FIND ASSISTANT FOR CREATING DATABASE QUERIES

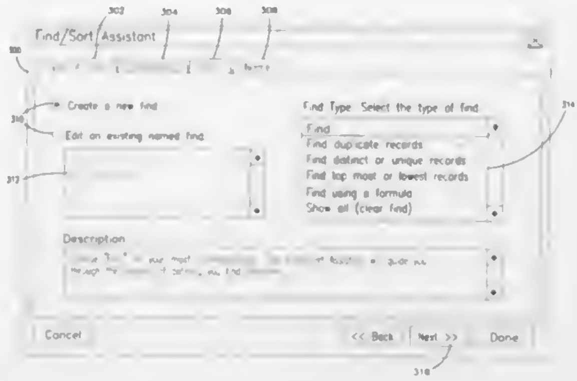
Michael Robert Hibbetts, Redwood City; Kester Li, and Jonathan Michael Levine, both of San Francisco, all of Calif., assignors to International Business Machine Corporation, Armonk, N.Y.

Filed Sep. 3, 1996, Ser. No. 708,117
Int. Cl.^{6} G06F *17/30*

U.S. Cl. 707—4 **21 Claims**

1. A computerized method of finding information in a memory of a computer having a processor, data storage device, display device, and data input device, the computer processor running a database management system having a plurality of database tables each including a plurality of associated database fields having database data, the method comprising the steps of:

(a) displaying a window containing a card metaphor on the display device;



(b) accepting, through the card metaphor, a find request comprising a find type and a find condition entered from the data input device;

(c) interpreting the find type and find condition to generate a natural language description of the find request; and

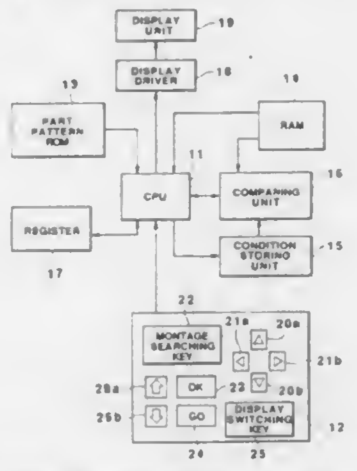
(d) presenting the natural language description of the find request in the window on the display device.

5,787,419

FACE IMAGE SEARCHING APPARATUS FOR SEARCHING FOR AND DISPLAYING A FACE IMAGE

Shinichiro Sato, Fussa; Kyoko Maeda, Hinodemachi; Kenji Chida, Kawaguchi, and Takashi Kojo, Ome, all of Japan, assignors to Casio Computer Co., Ltd., Tokyo, Japan
Continuation of Ser. No. 94,469, Jul. 19, 1993, abandoned.
This application Dec. 3, 1996, Ser. No. 757,141
Claims priority, application Japan, Aug. 24, 1992, 4-224240; Aug. 24, 1992, 4-224241; Dec. 17, 1992, 4-337351
Int. Cl.^{6} G06F *17/30*

U.S. Cl. 707—4 **1 Claim**



1. A face image searching apparatus for searching through a plurality of face images each composed of different part images arranged at predetermined different positions for at least one face image, said apparatus comprising:

- part image storing means which contains a plurality of groups of part images, one group for each of the different parts which compose a face image, and a plurality of designating data each for designating a corresponding part image, the respective designating data being stored along with the corresponding part images in corresponding relationship;
- part image selecting means for selecting a plurality of part images one for each of the parts which compose the face from among the plurality of groups of part images stored in said part image storing means;
- face image composing means for disposing the plurality of part images selected by said part image selecting means at predetermined positions of the respective parts which compose the face to compose a face image for retrieval use;
- face image storing means for storing a plurality of face images each composed by said face image composing means;
- first designating data storing means for reading from said part image storing means and storing designating data for designating the respective part images of each of the face images of the plurality of face images stored in said face image storing means;
- operable means operated for displaying a part image for retrieval use;
- part image display means, responsive to said operable means being sequentially operated, for sequentially selecting and displaying part images one by one from among the plurality of groups of part images stored in said part image storing means, and displaying the name of the selected displayed part image simultaneously;
- part image designating means for designating any part image from among the part images displayed by said part image display means;
- second designating data storing means for storing designating data corresponding to the part image designated by said part image designating means;
- retrieval start designating means for starting the start of retrieval of a face image; coincidence determining means responsive to said retrieval start designating means designating the start of retrieval of a face image, for determining whether the designating data stored in said second designating data storing means coincides with any one of the designating data stored in said first designating data storing means;
- reading means, responsive to a determination by said coincidence determining means that the designating data stored in said second designating data storing means coincides with any one of the designating data stored in said first designating data storing means, for reading out a face image including a part image corresponding to the coinciding designating data from among the plurality of face images for retrieval use stored in said face image storing means;
- face display means for displaying the face image read by said reading means
- inputting means for inputting character data for the respective face images stored in said face image storing means; and
- character data storing means for storing the character data input by said inputting means;
- wherein in response to a determination by said coincidence count determining means that the designating data stored in said second designating data storing means coincides with any one of the designating data stored in said first designating data storing means, said reading means reads out a face image including the part image corresponding to the coinciding designating data from among the plurality of face images stored in said face image storing means, and reads out character data corresponding to the read-out face image from said character data storing means; and
- wherein said display means displays the read face image and the corresponding character data.

5,787,420

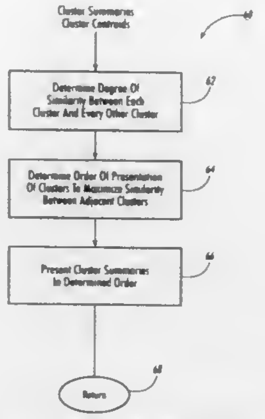
METHOD OF ORDERING DOCUMENT CLUSTERS WITHOUT REQUIRING KNOWLEDGE OF USER INTERESTS

John W. Tukey, Princeton, N.J., and Jan O. Pedersen, Palo Alto, Calif., assignors to Xerox Corporation, Stamford, Conn.

Filed Dec. 14, 1995, Ser. No. 572,558
Int. Cl.^{6} G06F *17/30*

U.S. Cl. 707—5 **11 Claims**

8. A method of ordering document clusters for presentation after browsing a corpus of documents using a computer including a processor and a memory coupled to the processor, the processor implementing the method by executing instructions stored in the memory, the method comprising the steps of:


Cluster Summaries
Cluster Centroids
60
Determine Degree Of Similarity Between Each Cluster And Every Other Cluster
62
Determine Order Of Presentation Of Clusters To Maximize Similarity Between Adjacent Clusters
64
Present Cluster Summaries In Determined Order
66
Return
68

a) grouping the corpus into a plurality of clusters, each cluster having a centroid and including at least one document, and each document including a rank generated in response to a query of the computer user;

b) generating a cluster summary for each of the plurality of clusters;

c) if there has been no external input indicative of topics of interest to the computer user determining for each cluster a degree of similarity between the cluster and every other cluster by finding a dot product between the cluster centroid and every other cluster centroid;

d) determining an order of presentation of the plurality of clusters based upon the degree of similarity between clusters to maximize the degree of similarity between adjacent clusters; and

e) presenting the plurality of clusters to the computer user in the order of presentation.

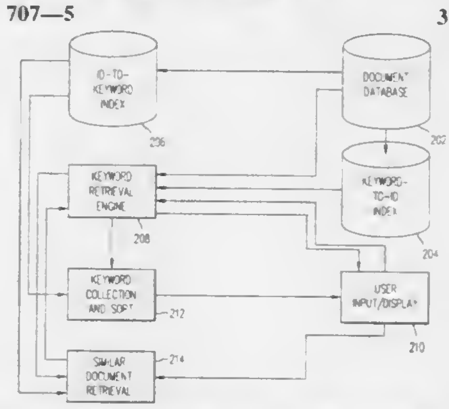
5,787,421

SYSTEM AND METHOD FOR INFORMATION RETRIEVAL BY USING KEYWORDS ASSOCIATED WITH A GIVEN SET OF DATA ELEMENTS AND THE FREQUENCY OF EACH KEYWORD AS DETERMINED BY THE NUMBER OF DATA ELEMENTS ATTACHED TO EACH KEYWORD

Hiroshi Nomiyama, Kawasaki, Japan, assignor to International Business Machines Corporation, Armonk, N.Y.

Filed Jan. 11, 1996, Ser. No. 584,826
Claims priority, application Japan, Jan. 12, 1995, 7-002955
Int. Cl.^{6} G06F *17/30*

U.S. Cl. 707—5 **37 Claims**



1. An information retrieval method for navigating users by computer processing in a database containing keyword-attachable information and comprising a plurality of individually identifiable data elements, said method comprising the steps of:

(a) in a given set of said data elements, for each given keyword attached to said set of said data elements, counting a corresponding number of said data elements to which the keyword is attached as a frequency for the keyword; and

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(b) sorting said keywords in a decreasing order of said frequency and displaying a list of said sorted keywords and the corresponding number of data elements for each sorted keyword.

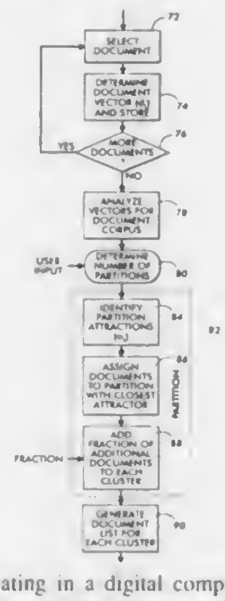
5,787,422

METHOD AND APPARATUS FOR INFORMATION ACCESSS EMPLOYING OVERLAPPING CLUSTERS

John W. Tukey, Princeton, N.J., and Jan O. Pedersen, Palo Alto, Calif., assignors to Xerox Corporation, Stamford, Conn.

Filed Jan. 11, 1996, Ser. No. 585,075
Int. Cl.^{6} G06F *17/30*

U.S. Cl. 707—5 **11 Claims**


72
SELECT DOCUMENT
DETERMINE DOCUMENT VECTOR (d,) AND STORE
74
76
YES
MORE DOCUMENTS ?
NO
ANALYZE VECTORS FOR DOCUMENT CORPUS
78
USER INPUT
DETERMINE NUMBER OF PARTITIONS
80
IDENTIFY PARTITION ATTRACTIONS (d,)
84
82
ASSIGN DOCUMENTS TO PARTITION WITH CLOSEST ATTRACTOR
86
PARTITION
FRACTION
ADD FRACTION OF ADDITIONAL DOCUMENTS TO EACH CLUSTER
88
GENERATE DOCUMENT LIST FOR EACH CLUSTER
90

1. A method, operating in a digital computer, for searching a corpus of documents, comprising the steps of:

preparing an initial structuring of the corpus into a plurality of primary overlapping clusters, wherein at least two of the plurality of primary overlapping clusters contain a single document, wherein the step of preparing an initial structuring of the corpus includes the steps of

(a) identifying an attractor for each of a plurality of clusters,

(b) including in each of the plurality of clusters all documents for which the cluster produces the closest attractor, and

(c) adding to the cluster those additional documents numbering a predefined number of documents for which the cluster provides an attractor whose difference in closeness from the closest attractor is minimized; and

determining a summary of the plurality of primary overlapping clusters prepared by said initial structuring of the corpus.

5,787,423

INFORMATION COLLECTION SYSTEM FOR A COMMUNICATION NETWORK WITH LANGUAGE TRANSLATION CAPABILITIES

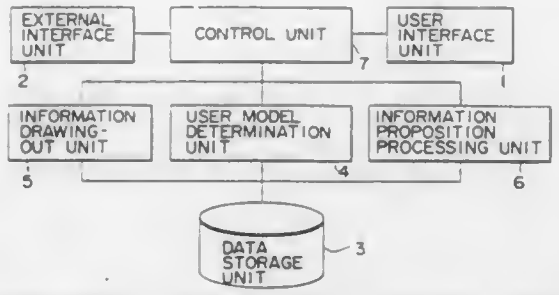
Hideki Hirakawa, Yokohama, Japan, assignor to Kabushiki Kaisha Toshiba, Kawasaki, Japan

Continuation of Ser. No. 762,373, Sep. 19, 1991, Pat. No. 5,673,428. This application Feb. 28, 1997, Ser. No. 808,442
Claims priority, application Japan, Sep. 19, 1990, 2-247448
Int. Cl.^{6} G06F *17/30*

U.S. Cl. 707—5 **4 Claims**

1. An information collection system connected to a communication network for receiving a plurality of information and for collecting desired information from said communication network, comprising:

user interface means for executing input/output information with respect to a user;


EXTERNAL INTERFACE UNIT
2
CONTROL UNIT
7
USER INTERFACE UNIT
1
INFORMATION DRAWING-OUT UNIT
5
USER MODEL DETERMINATION UNIT
4
INFORMATION PROPOSITION PROCESSING UNIT
6
DATA STORAGE UNIT
3

external interface means for exchanging various types of information with a plurality of external units connected to said communication network;

user model determination means for preparing first user-information for discriminating and modifying information required by said user, and second user-information for defining an information proposition method in a form of a user-desired format;

information drawing-out means for drawing out information input from said external interface means in accordance with said first user-information;

information modify means for modifying the drawn out information into a user-desired information by performing desired processing in accordance with the first user-information;

information proposition processing means for converting information modified by said information modify means into a proposition form for said user in accordance with said second user-information;

output means for outputting information converted by said information proposition processing means; and

control means for receiving information from said individual means mentioned above, and executing control of said individual means and information exchange therewith in accordance with said received information, wherein

said information modify means includes information translating means for analyzing a sentence and meaning of the drawn out information and translating the drawn out information from a first language to a second language in accordance with the first user-information.

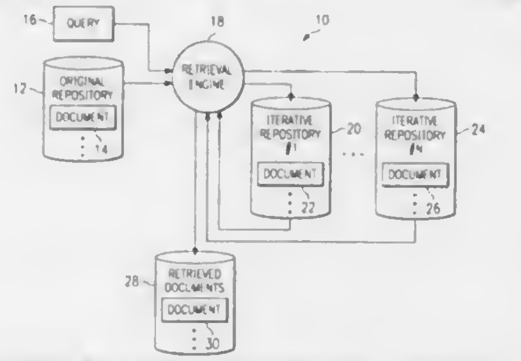
5,787,424

PROCESS AND SYSTEM FOR RECURSIVE DOCUMENT RETRIEVAL

Joe R. Hill, Austin, and Gregory J. Thompson, Round Rock, both of Tex., assignors to Electronic Data Systems Corporation, Plano, Tex.

Filed Nov. 30, 1995, Ser. No. 565,535
Int. Cl.^{6} G06F *17/00*

U.S. Cl. 707—6 **19 Claims**



1. A system for recursive document retrieval, comprising:

an original repository comprising a plurality of documents;

a retrieval engine coupled to the original repository and receiving a query, the retrieval engine operable:

to execute an automatic recursive retrieval process with respect to the original repository using the query, the automatic recursive retrieval process comprising a plurality of iterations; and

to provide as system output a retrieved repository comprising a plurality of documents from the original repository identified as sufficiently relevant to the query according to the automatic recursive retrieval process for detection as relevant documents;

wherein the plurality of iterations comprises a first iteration performing a retrieval process on the original repository to generate an iterative repository and subsequent iterations performing retrieval processes on iterative repositories generated by previous iterations to generate additional iterative repositories; and

wherein the retrieved repository is one of the additional iterative repositories.

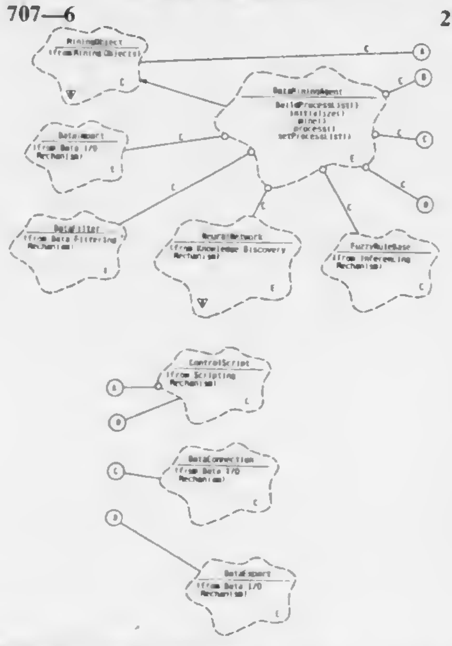
5,787,425

OBJECT-ORIENTED DATA MINING FRAMEWORK MECHANISM

Joseph Phillip Bigus, Rochester, Minn., assignor to International Business Machines Corporation, Armonk, N.Y.

Filed Oct. 1, 1996, Ser. No. 723,599
Int. Cl.^{6} G06F *17/30*

U.S. Cl. 707—6 **29 Claims**



1. A program product, comprising:

an object-oriented framework mechanism that reads data from a data import object in a data import class, discovers underlying relationships in the data via a knowledge discovery mechanism, and writes the underlying relationships to a data export object in a data export class, the framework mechanism executing on the central processing unit; and

signal bearing media bearing the framework mechanism.

5,787,426

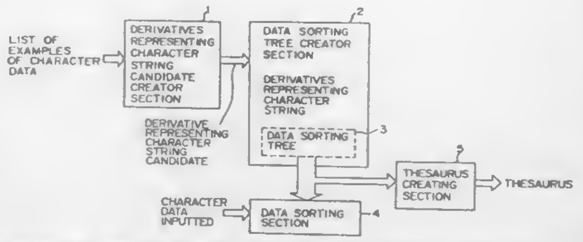
DATA SORTING, DATA SORTING TREE CREATING, DERIVATIVE EXTRACTION AND THESAURUS CREATING APPARATUS AND METHOD, OR DATA PROCESSING SYSTEM

Takeshi Koshiba, and Yasubumi Sakakibara, both of Kawasaki, Japan, assignors to Fujitsu Limited, Kawasaki, Japan

Filed Mar. 22, 1995, Ser. No. 408,304
Claims priority, application Japan, Apr. 28, 1994, 6-091517; Feb. 10, 1995, 7-022697
Int. Cl.^{6} G06F *17/30*

U.S. Cl. 707—7 **25 Claims**

1. An apparatus for sorting input character data, comprising:


1
2
LIST OF EXAMPLES OF CHARACTER DATA
DERIVATIVES REPRESENTING CHARACTER STRING CANDIDATE CREATOR SECTION
DATA SORTING TREE CREATOR SECTION
DERIVATIVES REPRESENTING CHARACTER STRING
DERIVATIVE REPRESENTING CHARACTER STRING CANDIDATE
DATA SORTING TREE
3
5
THESAURUS CREATING SECTION
THESAURUS
CHARACTER DATA INPUTTED
DATA SORTING SECTION
4

means for storing a data sorting binary tree to internal nodes of which derivatives representing character strings are labeled and derivatives are defined by the following formula

$$s=min(u, v), s=s'a(a\in\Sigma)\ \exists t\in\Sigma^1\cup\Sigma^2\cup\Sigma^3\ldots\cup\Sigma^n(s't=max(u, v))$$

where u and v represent character strings forming derivatives;

s' is obtained by removing an optional character string a of a length 1 from s;

t represents a character string;

Σ^n is a collection of optional characters having a length of n and n is a positive integer; and

means for carrying out branching operations on the basis of evaluation results obtained while evaluating the sorting attribute to determine whether the input character data includes, as a partial character string, a derivatives representing character string or its derivative labeled to each internal node of the data sorting binary tree, and sorting the input character data to a sorting class labeled to a leaf node of the data sorting binary tree finally arrived at after starting from an internal or root node of the data sorting binary tree.

5,787,427

INFORMATION HANDLING SYSTEM, METHOD, AND ARTICLE OF MANUFACTURE FOR EFFICIENT OBJECT SECURITY PROCESSING BY GROUPING OBJECTS SHARING COMMON CONTROL ACCESS POLICIES

Messaoud Benantar, Poughkeepsie, N.Y.; George Robert Blakley, III, and Anthony Joseph Nadalin, both of Austin, Tex., assignors to International Business Machines Corporation, Armonk, N.Y.

Filed Jan. 3, 1996, Ser. No. 582,270
Int. Cl.^{6} G06F *12/14*

U.S. Cl. 707—9 **12 Claims**

	OBJGRP1	OBJGRP2
ALICE	READ, WRITE, EXECUTE	USE, ADMINISTER, CONTROL
PROGRAMMERS	EXECUTE	USE, CONTROL
GUEST	READ	USE

1. An information handling system, comprising:

one or more processors;

a memory system;

one or more I/O controllers, each controlling one or more I/O devices;

a bus connecting the processors, the memory system and the I/O controllers;

an operating system controlling operation of the processors, the memory system and the I/O controllers; and

an object oriented control means comprising:

means for creating one or more groups of objects, the objects in each object group sharing a common access control policy, wherein each group contains objects from one or more object classes;

means for associating each object group with one or more access matrixes wherein each access matrix is stored separately from each object; and

means for accessing objects from an object group based on an associated access matrix.

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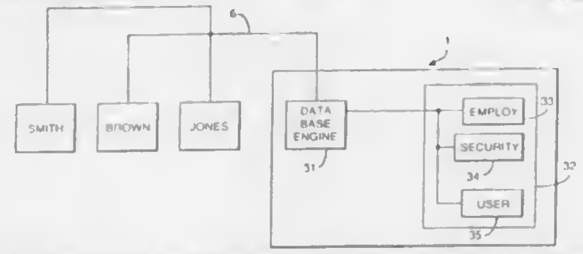
5,787,428

CONTROL OF DATABASE ACCESS USING SECURITY/ USER TAG CORRESPONDENCE TABLE

Keith Hart, Ipswich, United Kingdom, assignor to British Telecommunications public limited company, London, England
Filed Aug. 21, 1996, Ser. No. 693,293
Claims priority, application United Kingdom, Feb. 16, 1994, 9402935
Int. Cl.⁶ G06F *17/30*
U.S. Cl. 707—9 **4 Claims**



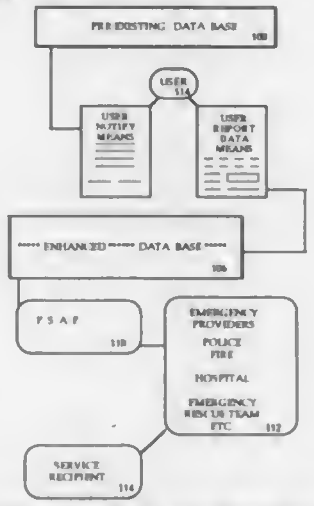
1. A method of controlling access by a user to a database which comprises a set of data divided into sub-sets of data, said method comprising the steps of:

assigning a single security tag to each sub-set of data in at least some of said sub-sets of data,
assigning a user tag to an identifier for each user in a user table,
assigning at least one security tag to each user tag in a security table,
utilising the user table to obtain the user tag for the user,
utilising the security table to obtain at least one security tag corresponding to the user tag, and
permitting the user to access any sub-set of data having said at least one security tag.

5,787,429

POTENTIAL HAZARD AND RISK-ASSESSMENT DATA COMMUNICATION NETWORK

Michael A. Nikolin, Jr., 717 Highland Ave., San Mateo, Calif. 94401
Filed Jul. 3, 1996, Ser. No. 675,699
Int. Cl.⁶ G06F *17/30*
U.S. Cl. 707—10 **10 Claims**



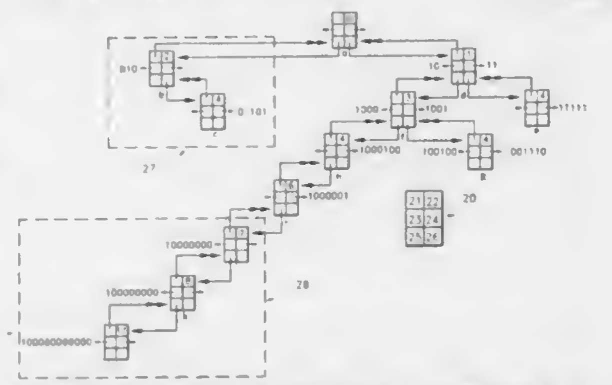
1. A potential hazard and risk-assessment data communication network for collecting, maintaining and utilizing such data efficiently, particularly for providing such data to emergency service providers via emergency service provider dispatcher, the network and data typically maintained by a custodian, the data communication network comprising, in combination:

a pre-existing database and a pre-existing information communication system;
a potential user report means, the report means sufficient to efficiently report any and all potential hazard and risk-assessment data to the custodian of the network;
an enhanced database, the enhanced database having a predetermined structure, the enhanced database comprising all potential hazard and risk-assessment data of potential utility to an emergency service provider;
an emergency service provider dispatch means, the dispatch means having a direct link to the enhanced database and a direct link to a emergency service provider, wherein upon placing a distress call via the pre-existing information communication system the dispatcher of the emergency service providers is directly linked to the enhanced database and the dispatcher is immediately supplied with all potential hazard and risk-assessment data of potentially immeasurable utility for enjoining the emergency situation and
a potential user notification means for advising all potential users of the existence and importance of such network and for providing additional information of utility, the additional information of utility including identifying indicia, physical, facsimile, electronic or other address of the custodian of the network.

5,787,430

VARIABLE LENGTH DATA SEQUENCE BACKTRACKING A TRIE STRUCTURE

Willibald Doeringer, Fussgoenheim, Germany; Douglas Dykeman, Richterswil, Switzerland; Günter Karjoth, Waedenswil, Switzerland; Mehdi Nassehi, Horgen, Switzerland, and Mohan Sharma, Mountain View, Calif., assignors to International Business Machines Corporation, Armonk, N.Y.
PCT No. PCT/EP94/02135, § 371 Date Dec. 17, 1996, § 102(e) Date Dec. 17, 1996, PCT Pub. No. WO96/00945, PCT Pub. Date Jan. 11, 1996
PCT Filed Jun. 30, 1994, Ser. No. 765,764
Int. Cl.⁶ G06F *17/30*
U.S. Cl. 707—100 **13 Claims**



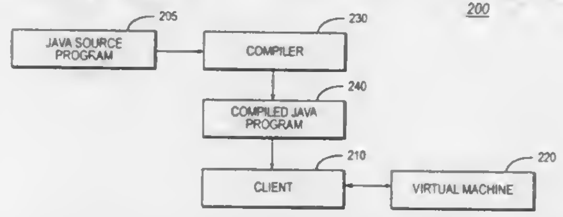
1. Method for retrieving a prefix match, a postfix match or a complete match, preferably the longest prefix- or postfix match, or all prefix- or postfix matches of a search argument (input key) from entries stored in a database with a trie-like structure having nodes (**20**), with each node containing first link information (**21**) leading to at least one previous node (parent pointer) and second link information (**25**,**26**) leading to at least one following node (child pointer), at least one stored key (entry,**23**,**24**), or a combination, thereof, said method comprising the steps of

entering at a node of said database (root node);
determining a search path from one node to another through said trie-like database by successively processing segments of said search argument which comprise only those parts of the entries which are necessary to identify the next (child) node, and said second link information (**25**,**26**) until said segments are consumed or a (leaf) node lacking said second link information (**25**,**26**) is reached;
comparing with said search argument an entry stored in the node at which said search path ended; and if no at least partial match between the search argument and said entry is found in said current node,
backtracking said search path by processing said first link information (**21**) of said current node; and
repeating the previous two steps until said at least partial match is found or said root node is reached.

5,787,431

DATABASE DEVELOPMENT SYSTEM WITH METHODS FOR JAVA-STRING REFERENCE LOOKUPS OF COLUMN NAMES

Steven T. Shaughnessy, Scotts Valley, Calif., assignor to Borland International, Inc., Scotts Valley, Calif.
Filed Dec. 16, 1996, Ser. No. 767,167
Int. Cl.⁶ G06F *17/00*
U.S. Cl. 707—100 **20 Claims**



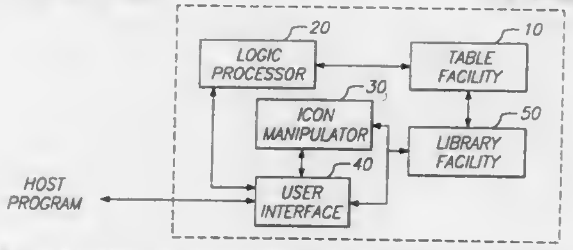
1. In a development system for creating a program which includes programmatic access to columns of database tables, an improved method for determining an ordinal representing an offset within a database table of a column which has been referenced within a program by name, the method comprising:

allocating memory for storing a plurality of reference cache entries, each cache entry storing a reference to a text string representing a name for a given column and further storing an ordinal for the given column;
upon a request for an ordinal of a particular column, said request including the text string which represents the name for the particular column,
  (i) attempting to determine the ordinal by examining the reference cache for an entry storing a reference which matches a corresponding reference to a text string representing the name for the particular column;
  (ii) if the reference cache has no such entry,
    (1) determining the ordinal based, at least in part, on comparison of the text string representing the name for the particular column, and
    (2) updating the reference cache by storing a cache entry having a reference to the text string and the ordinal for the particular column, so that subsequent requests for the ordinal of the particular column can be satisfied based on examination of the reference cache; and
  (iii) providing the determined ordinal for the particular column, so that the program has programmatic access to information stored at the particular column.

5,787,432

METHOD AND APPARATUS FOR THE GENERATION, MANIPULATION AND DISPLAY OF DATA STRUCTURES

Jack J. LeTourneau, San Francisco, Calif., assignor to Prime Arithmethics, Inc., San Francisco, Calif.
Continuation-in-part of Ser. No. 623,628, Dec. 6, 1990, abandoned. This application Jun. 7, 1995, Ser. No. 486,351
Int. Cl.⁶ G06F *17/30*
U.S. Cl. 707—101 **16 Claims**



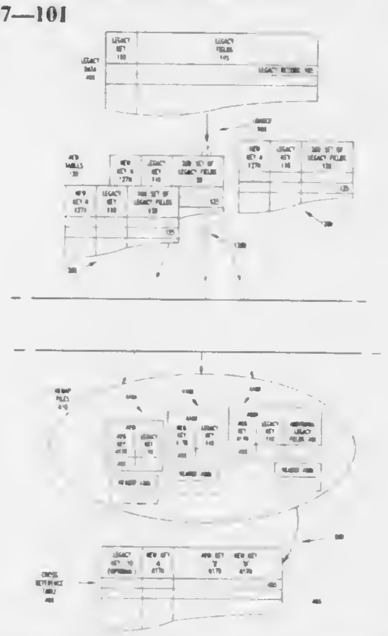
9. An apparatus for manipulating data structures, comprising:

a memory circuit configured to store a table including a plurality of prime numbers and a unique data structure associated with each prime number, wherein a predetermined relationship exists between each prime number and its respective data structure such that when two prime numbers are multiplied together to form a product, a corresponding unique data structure associated with a prime whose index is the product of the two prime numbers can be formed by a combination of the data structures associated with the two prime numbers;
an interface circuit configured to receive an instruction from a calling procedure and configured to provide a response to the instruction; and
a processor circuit coupled to the memory circuit and the interface circuit and configured to receive the instruction, to associate the instruction with a portion of the table, to manipulate a portion of the table according to the instruction and to provide the response to the interface circuit corresponding to the instruction and associated with a portion of the table.

5,787,433

METHOD AND SYSTEM FOR REMAPPING AN EXISTING DATABASE TO A NEW DATABASE SYSTEM

Robert Charles Plotkin, Irvington, and Michael Stephen Schwartz, Bronx, both of N.Y., assignors to International Business Machines Corporation, Armonk, N.Y.
Filed Mar. 17, 1997, Ser. No. 818,407
Int. Cl.⁶ G06F *17/30*
U.S. Cl. 707—101 **8 Claims**



1. A method for cross referencing a legacy database, comprising the steps of:

reading, from the legacy database, a plurality of legacy records associated with a legacy key, the legacy records having one or more legacy fields;
creating two or more new tables, each of the new tables having a plurality of new records with one or more new fields, each of the new records being a subset of the legacy fields and having a new key and the respective legacy key of the subset of legacy fields;
for each new record created in the new tables, creating a corresponding remap record in one or more remap files, each remap record having all of the new keys for each new record associated with one of the respective keys; and
building a cross reference table that correlates every new key in every new record that contains a subset of legacy fields for the respective legacy key.

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5,787,434

FILE PROCESSING APPARATUS, FILE PROCESSING METHOD AND A COMPUTER READABLE MEMORY MEDIA

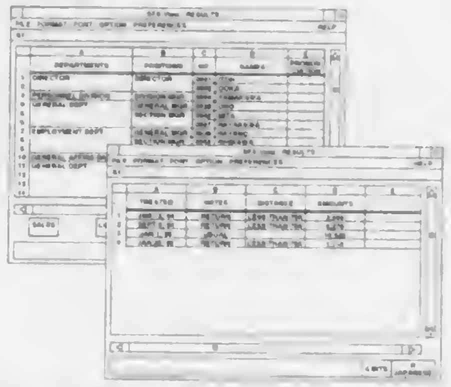
Yoshiharu Nakamura, Ome, and Katuzi Takano, Musashimurayama, both of Japan, assignors to Casio Computer Co., Ltd., Tokyo, Japan

Filed Feb. 21, 1996, Ser. No. 604,166

Claims priority, application Japan, Feb. 24, 1995, 7-060009; Apr. 10, 1995, 7-107785

Int. Cl.^{6} G06F *17/30*

U.S. Cl. 707—102 **7 Claims**



1. A file processing apparatus having a display screen with a cursor displayed thereon, and for retrieving record data of a desired record from plural files, said file processing apparatus comprising:

first display control means for displaying on the display screen plural record data stored in a first file among the plural files;

data designating means for designating, with the cursor, a display position of desired data among each of the plural record data displayed on the display screen;

file selecting means for selecting a second file different from the first file from among the plural files;

data retrieving means, responsive to said file selecting means selecting the second file, for retrieving from the second file selected by said file selecting means, record data including the desired data designated by said data designating means, using the desired data as a keyword; and

second display control means for displaying on the display screen the record data retrieved from the selected second file by said data retrieving means.

5,787,435

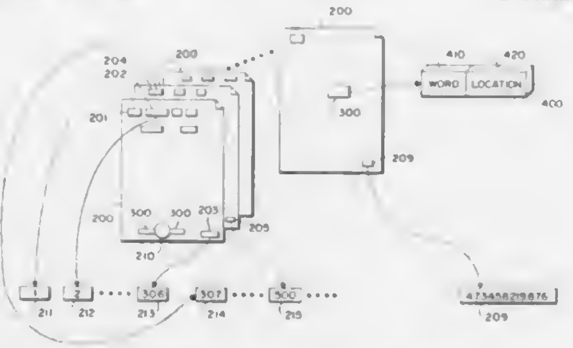
METHOD FOR MAPPING AN INDEX OF A DATABASE INTO AN ARRAY OF FILES

Michael Burrows, Palo Alto, Calif., assignor to Digital Equipment Corporation, Maynard, Mass.

Filed Aug. 9, 1996, Ser. No. 700,748

Int. Cl.^{6} G06F *17/30*

U.S. Cl. 707—102 **2 Claims**



1. A computer implemented method for mapping an index of information of a database as a plurality of records, comprising:

parsing a batch of the records into words and locations, each word representing a portion of the information of a particular record, and each location assigned sequentially in the order of parsing the words;

generating an index entry for each unique word, each index entry including the unique word and all of the locations of the unique word;

hashing each unique word to determine a bucket number;

writing index entries having identical bucket numbers to a single index file in an order according to their unique words;

generating a summary file for each index file by periodically sampling the data being written to the index file;

grouping the index files and their associated summary files into a tier of files representing an index of the batch of records.

5,787,436

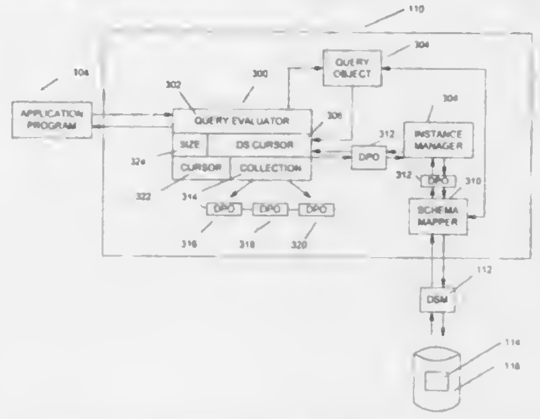
METHOD FOR USING A DATASTORE CURSOR FOR THE INCREMENTAL PRESENTATION OF QUERY RESULTS WHEN TRAVERSING IMPLIED COLLECTIONS IN NON-OBJECT-ORIENTED DATASTORES

Kenneth R. Blackman, San Jose, and Jack L. Howe, III, Gilroy, both of Calif., assignors to International Business Machines Corporation, Armonk, N.Y.

Filed Oct. 25, 1996, Ser. No. 738,330

Int. Cl.^{6} G06F *17/30*

U.S. Cl. 707—103 **21 Claims**



1. A computerized method for using a datastore cursor for the incremental presentation of query results when traversing implied collections in non-object-oriented datastores, comprising the steps of:

receiving a query request to retrieve data from an external non-object-oriented datastore stored on a data storage device attached to a computer;

retrieving data from the external non-object-oriented datastore in response to the received query request; and

encapsulating the retrieved data in one or more datastore persistent objects, wherein the datastore persistent objects are materialized in the memory of the computer as members of a datastore collection and the datastore collection is limited to a specified number of datastore persistent objects.

5,787,437

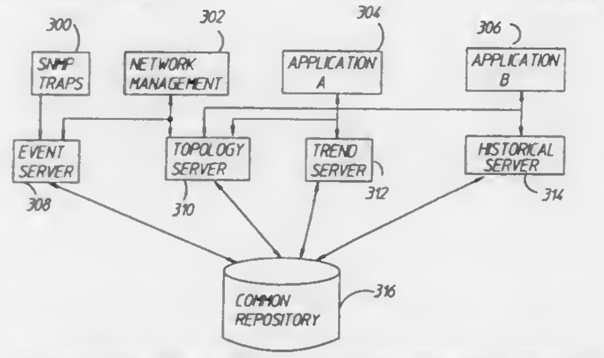
METHOD AND APPARATUS FOR SHARED MANAGEMENT INFORMATION VIA A COMMON REPOSITORY

Robert A. Potterveld, Fort Collins, and Thomas G. Bartz, Loveland, both of Colo., assignors to Hewlett-Packard Company, Palo Alto, Calif.

Filed Oct. 29, 1996, Ser. No. 741,152

Int. Cl.^{6} G06F *17/30*

U.S. Cl. 707—103 **13 Claims**



1. A computer based data management system for managing information regarding objects, each object belonging to an object class and utilized by application programs; said data management system comprising:

memory means for storing said information;

a meta-schema for defining standard structures for storing said information managed by said system in said memory means, said information comprising attributes of said objects and relationships between said objects;

a plurality of integrated server programs for servicing requests received by said plurality of integrated server programs from said application programs to manipulate said information regarding objects stored in said memory means in accordance with the standard structures defined by said meta-scheme and in accordance with standard object class definitions; and

server program generation means, independent of the application programs, but cooperative with said meta-schema and standard object class definitions, for generating additional ones of said server programs and integrating said additional ones of said server programs with said plurality of integrated server programs so as to maintain information integrity within the memory means and reduce unintended duplication of information within the memory means.

5,787,438

METHOD AND APPARATUS FOR INCORPORATING POLICIES IN SEARCHES FOR FACTORY OBJECTS

Kimberly Ann Cink, Rochester, Minn., and Russell Ley Newcombe, Round Rock, Tex., assignors to International Business Machines Corporation, Armonk, N.Y.

Filed Oct. 31, 1996, Ser. No. 741,728

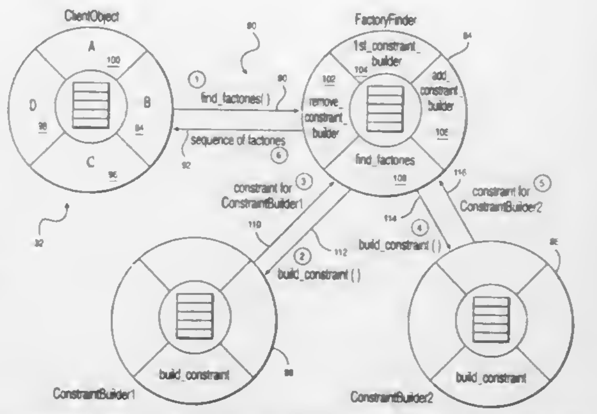
Int. Cl.^{6} G06F *17/30*

U.S. Cl. 707—103 **12 Claims**

1. A method, implemented in a computer system, for creating an interface for building business policies into searches for object factories in an object oriented environment, comprising the steps of:

defining a constraint object in said object oriented environment having at least one method for accepting user specified information;

receiving and processing the user specified information based on internal logic within said at least one method; and



formatting said user specified information created by said processing step for a search mechanism.

5,787,439

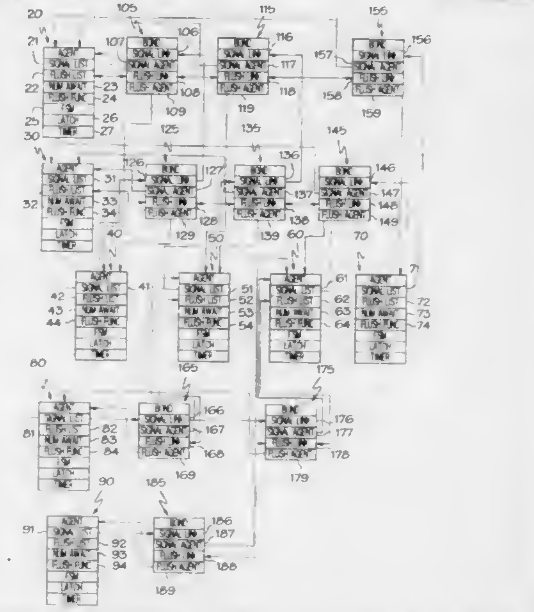
METHOD AND SYSTEM FOR MAINTAINING A PREFERRED SEQUENCE FOR ACCESSING A PLURALITY OF OBJECTS

Paul James Taysom, Provo, Utah, assignor to Novell, Inc., Provo, Utah

Filed Dec. 13, 1996, Ser. No. 766,746

Int. Cl.^{6} G06F *17/30*

U.S. Cl. 707—103 **16 Claims**



1. A method for ensuring a preferred sequence for accessing a plurality of objects in a computer-implemented system, the steps comprising:

associating an agent with each of a plurality of objects, at least some of the objects having a preferential processing subordination with respect to other of the objects;

providing an access list reference and a signal list reference for each of the agents,

the access list references of at least some of the agents containing a reference to one or more agents, each agent associated with a subordinate object,

the signal list references of at least some of the agents containing a reference to one or more agents associated with objects to which the object of the respective agent is subordinate;

determining that a particular object is to be accessed;

ensuring that any object associated with an agent referenced in the access list reference of the agent associated with the particular object to be accessed is accessed prior to accessing the particular object; and

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signaling each waiting agent in the signal list reference of the agent associated with the particular object that the particular object has been accessed.

5,787,440

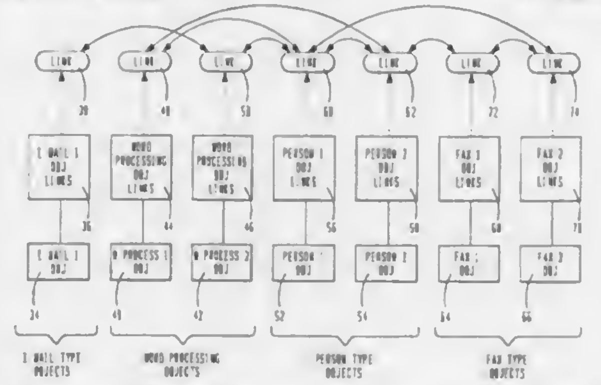
OBJECT ORIENTED ARCHITECTURE WITH BIDIRECTIONAL LINKING OF RELATIONSHIPS BETWEEN OBJECTS

Stephen Peter Bakke, Dallas; William R. Lovin, Allen; Patrick E. Dobyns, Garland, and John Martindale, Dallas, all of Tex., assignors to Crossties Software Corp., Carrollton, Tex.

Continuation of Ser. No. 208,980, Mar. 10, 1994, abandoned. This application Mar. 4, 1996, Ser. No. 610,693

Int. Cl.⁶ G06F *17/30*

U.S. Cl. 707—103 **6 Claims**



6. A method for linking objects in an object oriented system, comprising the steps of:

providing a database;

creating objects to define characteristics of predetermined portions of the database, each of the objects associated with one of the predetermined portions of the database, the step of creating objects further comprising the steps of:

receiving characteristics external to the database associated with an object that is not part of the database,

adding the received characteristics to the database, and

creating a new object in response to the step of receiving that is associated with the receive characteristics;

creating bidirectional links between select ones of the any of the objects in accordance with predetermined criteria such that only two objects can be associated with a single bidirectional link in the database the bidirectional links indicating a relationship between the linked objects such that each of said bidirectional links is created defining a relationship in the database between one of the linked objects and another of the linked objects, and between the another of the linked objects and the one of the linked objects;

storing the created bidirectional links in association with the associated one of each of the objects to define the bidirectional links from the associated one of each of the objects to others of the objects;

accessing a select one of any of the objects as a primary object, the step of accessing also accessing the stored bidirectional links associated with the primary object;

selecting one of the accessed links associated with the selected primary object; and

selecting the object defined by the selected link as a new primary object, the associated links for the new primary object defining a link to the previous primary object.

5,787,441

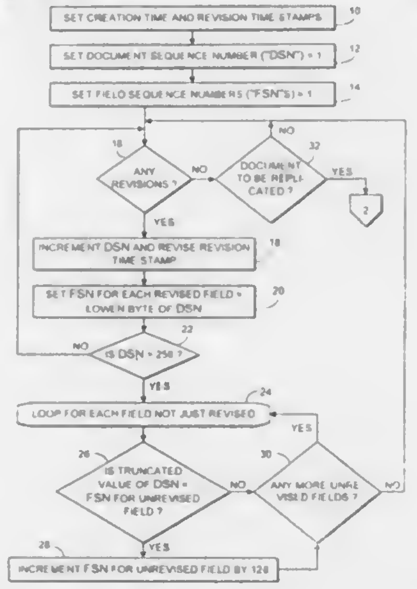
METHOD OF REPLICATING DATA AT A FIELD LEVEL

Steven R. Beckhardt, Nashua, N.H., assignor to International Business Machines Corporation, Armonk, N.Y.

Filed Jan. 11, 1996, Ser. No. 584,958

Int. Cl.⁶ G06F *17/30*

U.S. Cl. 707—201 **25 Claims**


SET CREATION TIME AND REVISION TIME STAMPS
10
SET DOCUMENT SEQUENCE NUMBER ("DSN") = 1
12
SET FIELD SEQUENCE NUMBERS ("FSN"S) = 1
14
16
ANY REVISIONS ?
NO
DOCUMENT TO BE REPLICATED ?
32
YES
NO
2
YES
INCREMENT DSN AND REVISE REVISION TIME STAMP
18
SET FSN FOR EACH REVISED FIELD = LOWER N BYTE OF DSN
20
22
NO
IS DSN > 256 ?
YES
24
LOOP FOR EACH FIELD NOT JUST REVISED
YES
26
IS TRUNCATED VALUE OF DSN = FSN FOR UNREVISED FIELD ?
NO
30
ANY MORE UNREVISED FIELDS ?
NO
28
YES
INCREMENT FSN FOR UNREVISED FIELD BY 128

25. A method for replicating data from a first document to a second document, each document containing data arranged in a plurality of fields, fields of the first document corresponding to fields of the second document, the first document having a first document sequence number representing the number of revisions to the first document, the second document having a second document sequence number representing the number of revisions to the second document, the plurality of fields each having a field sequence number, the method comprising the steps of:

storing each first and second document sequence number using m bits and storing each field sequence number using n bits, wherein n is less than m;

incrementing the first document sequence number each time a revision to one or more of the fields in the first document is registered;

setting a first new value for each field sequence number corresponding to each of one or more fields in the first document which have been revised, wherein the first new value is set equal to the lower n bits of the first document sequence number;

if the first document sequence number exceeds 2^n, setting a second new value for at least one field sequence number for at least one field in the first document which was not revised in the registered revision;

when data is to be replicated, determining an actual value for each field sequence number by computing the difference between the first document sequence number and the field sequence number and, if the difference is greater than 2^n-1, adding 2^n to the field sequence number to determine the actual value; and

for each field of the first document having a field sequence number of higher actual value than the second document sequence number, replicating the data in the field to the corresponding field of the second document.

5,787,442

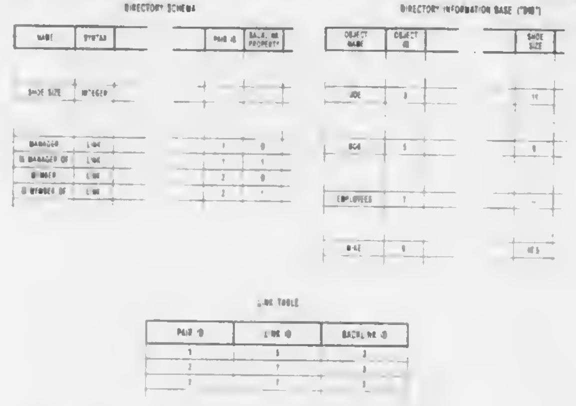
CREATING INTEROBJECT REFERENCE LINKS IN THE DIRECTORY SERVICE OF A STORE AND FORWARD REPLICATION COMPUTER NETWORK

Donald Joseph Hacherl, North Bend, and Tsvi Michael Reiter, Redmond, both of Wash., assignors to Microsoft Corporation, Redmond, Wash.

Filed Jul. 11, 1996, Ser. No. 678,647

Int. Cl.⁶ G06F *17/30*

U.S. Cl. 707—201 **19 Claims**



1. In a directory service of a computer-based store and forward replication enterprise, wherein individual data objects are contained in a directory information base in which individual data objects are each identified by an object ID and wherein the individual data objects also have one or more corresponding object properties, a method for establishing interobject cross references between referencing objects and referenced objects contained in the directory, the method comprising the steps of:

creating a directory schema that defines paired links, each paired link representing a relationship between two or more objects and each paired link being identified by a unique pair ID;

locally creating a link database table at each replication location, said link database table having a plurality of individual entries each corresponding to a pair ID so that said link database table contains all relationships which link said objects;

modifying at a replication location one of the corresponding object properties for a data object in the directory information base and replicating the change to other replication locations; and

locally updating at each replication location the link database table to reflect the modification.

5,787,443

METHOD FOR DETERMINING DATABASE ACCURACY

Douglas C. Palmer, Austin, Tex., assignor to Cooperative Computing, Inc., Austin, Tex.

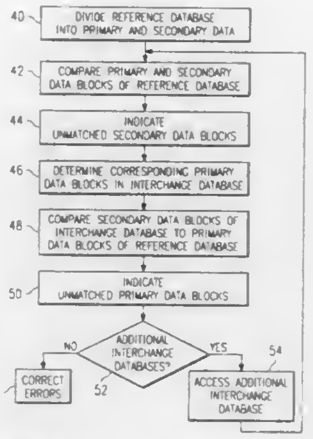
Filed Nov. 14, 1995, Ser. No. 557,284

Int. Cl.⁶ G06F *17/30*

U.S. Cl. 707—202 **13 Claims**

1. A method for detecting errors within a first database containing first and second groups of related data with a second database also containing the first and second groups of related data, wherein the second database comprises a reference database of manufacturers auto part data and the first database comprises an interchange database of manufacturers auto part data, comprising the steps of:

(a) comparing data of the first group of the first database to the data of the first group of the second database to locate matching data in the second database;


40
DIVIDE REFERENCE DATABASE INTO PRIMARY AND SECONDARY DATA
42
COMPARE PRIMARY AND SECONDARY DATA BLOCKS OF REFERENCE DATABASE
44
INDICATE UNMATCHED SECONDARY DATA BLOCKS
46
DETERMINE CORRESPONDING PRIMARY DATA BLOCKS IN INTERCHANGE DATABASE
48
COMPARE SECONDARY DATA BLOCKS OF INTERCHANGE DATABASE TO PRIMARY DATA BLOCKS OF REFERENCE DATABASE
50
INDICATE UNMATCHED PRIMARY DATA BLOCKS
NO
ADDITIONAL INTERCHANGE DATABASES?
YES
54
56
CORRECT ERRORS
52
ACCESS ADDITIONAL INTERCHANGE DATABASE

(b) identifying data of the second group of the second database associated with the matching data of the second database;

(c) comparing the identified data to data of the second group of the first database associated with the matching data of the first group of the first database to verify a matching condition; and

(d) generating an indication if no matching condition exists.

5,787,444

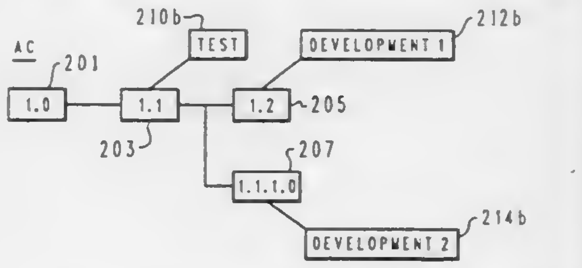
METHOD AND APPARATUS FOR MAINTAINING REVISION CONTOL OF A SET OF OBJECTS WITHIN A DATA PROCESSING SYSTEM

Christopher Henry Gerken, Apex; Bruce Walter Hanover, Cary; Stacy Renee Joines, Raleigh, and Ruth E. Willenborg, Apex, all of N.C., assignors to International Business Machines Corp., Armonk, N.Y.

Continuation of Ser. No. 31,757, Mar. 15, 1993, abandoned. This application Jun. 19, 1995, Ser. No. 492,389

Int. Cl.⁶ G06F *17/30*

U.S. Cl. 707—203 **19 Claims**



1. A method for maintaining revision control of a set of revisions within a data processing system, wherein said set of revisions are linearly interrelated such that a subsequent revision is related to at least one preceding revision and each revision is created within a hierarchial promotion structure having a plurality of levels, said method comprising the data processing implemented steps of:

creating a database which includes data identifying said linear interrelation between revisions within said set of revisions, said data including a revision identifier associated with each of said set of revisions; and

associating a status indicator with each revision within said hierarchial promotion structure, wherein a user may access said set of revisions utilizing a revision identifier or hierarchial promotion structure indicator.

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5,787,445

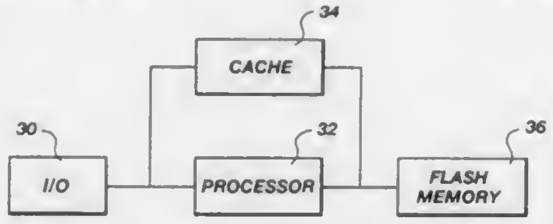
OPERATING SYSTEM INCLUDING IMPROVED FILE MANAGEMENT FOR USE IN DEVICES UTILIZING FLASH MEMORY AS MAIN MEMORY

Norbert Daberko, Oceanside, Calif., assignor to Norris Communications Corporation, Poway, Calif.

Filed Mar. 7, 1996, Ser. No. 612,772

Int. Cl.^{6} G06F *17/30*

U.S. Cl. 707—205 **25 Claims**



1. A method of memory management for a primary memory created from a non-volatile, long-term storage medium, said method enabling direct manipulation of contiguous and non-contiguous discrete data segments stored therein by a file system, and comprising the steps of:

- (a) creating the primary memory from a non-volatile, long-term storage medium, wherein the primary memory comprises a plurality of blocks in which the data segments are to be stored;
- (b) coupling a cache memory to the primary memory, said cache memory providing temporary and volatile storage for at least one of the data segments;
- (c) writing a new data segment from the cache memory to the primary memory by linking said new data segment to a sequentially previous logical data segment by the following steps:
  - (1) receiving the new data segment in the cache memory;
  - (2) moving the new data segment from the cache memory to a next available space within primary memory such that the new data segment is stored in primary memory in non-used memory space;
  - (3) identifying the previous logical data segment in primary memory;
  - (4) creating a logical link between the previous logical data segment and the new data segment such that the logical link provides a path for sequentially accessing the data segments within the primary memory; and
  - (5) creating additional serial and logical links as subsequent new data segments are written to primary memory, said logical links providing the path for serially accessing the data segments regardless of contiguity of the data segments relative to each other within the primary memory.

5,787,446

SUB-VOLUME WITH FLOATING STORAGE SPACE

Chi-Hung Dang, and Chi-Thanh Dang, both of Tucson, Ariz., assignors to International Business Machines Corporation, Armonk, N.Y.

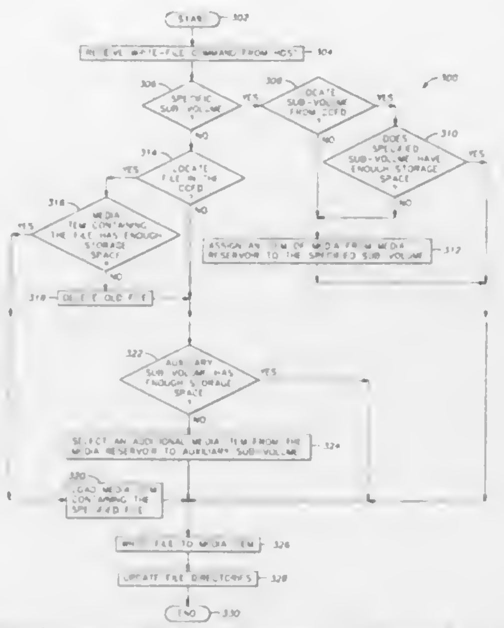
Continuation of Ser. No. 511,564, Aug. 3, 1995, abandoned. This application Jun. 19, 1997, Ser. No. 879,104

Int. Cl.^{6} G06F *17/30*

U.S. Cl. 707—205 **27 Claims**

1. A method for managing file storage in a data storage library, comprising the steps of:

- establishing a primary sub-volume by designating a first predetermined number of media items for storage of a first class of files and storing files of the first class in the primary sub-volume;
- establishing a secondary sub-volume by designating a second predetermined number of media items for storage of a second class of files and storing files of the second class in the secondary sub-volume;


START
302
RECEIVE WRITE-FILE COMMAND FROM HOST
304
300
306
SPECIFIC SUB-VOLUME ?
308
LOCATE SUB-VOLUME FROM CCFD ?
YES
NO
310
DOES SPECIFIED SUB-VOLUME HAVE ENOUGH STORAGE SPACE ?
314
LOCATE FILE IN THE CCFD ?
316
MEDIA ITEM CONTAINING THE FILE HAS ENOUGH STORAGE SPACE ?
ASSIGN AN ITEM OF MEDIA FROM MEDIA RESERVOIR TO THE SPECIFIED SUB-VOLUME
312
318
DELETE OLD FILE
322
AUXILIARY SUB-VOLUME HAS ENOUGH STORAGE SPACE ?
SELECT AN ADDITIONAL MEDIA ITEM FROM THE MEDIA RESERVOIR TO AUXILIARY SUB-VOLUME
324
320
LOAD MEDIA ITEM CONTAINING THE SPECIFIED FILE
WRITE FILE TO MEDIA ITEM
326
UPDATE FILE DIRECTORIES
328
END
330

- establishing an auxiliary sub-volume by designating a third predetermined number of media items for storage of files not of the first or second classes;
- establishing a file directory listing files contained in the primary and secondary sub-volumes;
- receiving a command to store a file;
- if the command requests storage of the file in a specified sub-volume, determining whether the specified sub-volume has sufficient storage space to contain the file;
  - if the specified sub-volume has sufficient storage space to contain the file, storing the file in the specified sub-volume;
  - if the specified sub-volume lacks sufficient storage space to contain the file, storing the file in at least one media item of the auxiliary sub-volume; and
- if the command does not request storage of the file in a specified sub-volume, determining whether the specified sub-volume is listed in the file directory;
  - if the specified sub-volume is not listed in the file directory storing the file in at least one media item of the auxiliary sub-volume;
  - if the specified sub-volume is listed in the file directory,
    - utilizing the file directory to identify a media item containing the file;
    - determining whether the identified media item has sufficient storage space to store the file;
    - if the identified media item has sufficient storage space to store the file, storing the file in the identified media item;
    - if the identified media item lacks sufficient storage space to store the file, storing the file in at least one media item of the auxiliary sub-volume.

5,787,447

MEMORY ALLOCATION MAINTAINING ORDERING ACROSS MULTIPLE HEAPS

Neil G. Smithline, San Jose, and Christopher D. Quenelle, Mountain View, both of Calif., assignors to Sun Microsystems, Inc., Palo Alto, Calif.

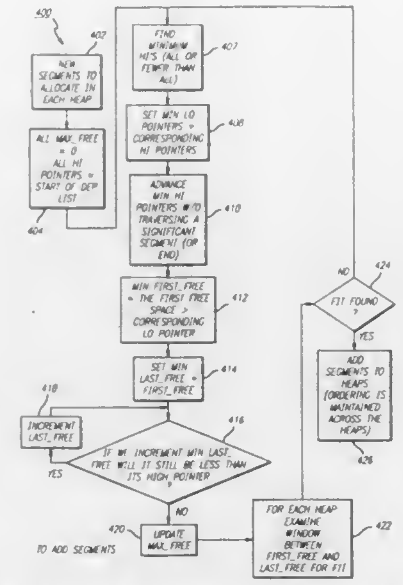
Filed May 8, 1995, Ser. No. 436,101

Int. Cl.^{6} G06F *17/30*

U.S. Cl. 707—206 **19 Claims**

1. An apparatus for manipulating entries in a plurality of heaps stored in a memory of a data processing system, comprising

- means for determining respective amounts of free space required in each of the plurality of heaps; and


400
402
NEW SEGMENTS TO ALLOCATE IN EACH HEAP
ALL MAX_FREE = 0 ALL HI POINTERS = START OF DEP LIST
404
FIND MINIMUM HI'S (ALL OR FEWER THAN ALL)
407
SET MIN LO POINTERS = CORRESPONDING HI POINTERS
408
ADVANCE MIN HI POINTERS W/O TRAVERSING A SIGNIFICANT SEGMENT (OR END)
410
MIN FIRST_FREE = THE FIRST FREE SPACE > CORRESPONDING LO POINTER
412
SET MIN LAST_FREE = FIRST_FREE
414
418
INCREMENT LAST_FREE
416
IF WE INCREMENT MIN LAST_FREE WILL IT STILL BE LESS THAN ITS HIGH POINTER ?
YES
NO
420
UPDATE MAX_FREE
TO ADD SEGMENTS
FOR EACH HEAP EXAMINE WINDOW BETWEEN FIRST_FREE AND LAST_FREE FOR FIT
422
NO
424
FIT FOUND ?
YES
ADD SEGMENTS TO HEAPS (ORDERING IS MAINTAINED ACROSS THE HEAPS)
426

- means for allocating the respective amounts of required free space in each of the plurality of heaps, so that an order of entries in the heaps remains ordered across the heaps.

5,787,448

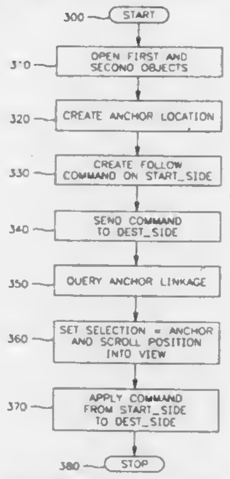
DYNAMIC LINKING SYSTEM

David R. Anderson, Cupertino; Jack H. Palevich, Sunnyvale; Larry S. Rosenstein, Santa Clara, and Arnold Schaeffer, Belmont, all of Calif., assignors to Object Technology Licensing Corp., Cupertino, Calif.

Continuation of Ser. No. 94,657, Jul. 19, 1993, abandoned. This application Dec. 13, 1995, Ser. No. 571,578

Int. Cl.^{6} G06F *9/06*

U.S. Cl. 707—501 **30 Claims**


300
START
310
OPEN FIRST AND SECOND OBJECTS
320
CREATE ANCHOR LOCATION
330
CREATE FOLLOW COMMAND ON START_SIDE
340
SEND COMMAND TO DEST_SIDE
350
QUERY ANCHOR LINKAGE
360
SET SELECTION = ANCHOR AND SCROLL POSITION INTO VIEW
370
APPLY COMMAND FROM START_SIDE TO DEST_SIDE
380
STOP

1. An apparatus for document composition under control of an application program, comprising:

- (a) a processor;
- (b) a storage attached to the processor;
- (c) a display under the control of the processor;
- (d) a document having contents resident in the storage and presented on the display;
- (e) means controlled by the application program for selecting a first portion of the document contents and for constructing a first anchor object in the storage associated with the first selected document portion;
- (f) means controlled by the application program for constructing a second anchor object in the storage associated with the document;
- (g) means controlled by the application program for creating a link object to link the first and the second anchor objects the link object comprising means responsive to changes in the first document for applying a query command to the second anchor object and means in the second anchor object for selecting a second portion of the document based on the query command;
- (h) means in the first anchor object and controlled by the application program for applying a command to the first selected document portion to process the contents of the first selected document portion;
- (i) means in the first anchor object for sending the command to the second anchor object by means of the link object; and
- (j) means in the second anchor object for responding to the command by selecting a second portion of the document contents and applying the command to process the contents of the second selected portion.

5,787,449

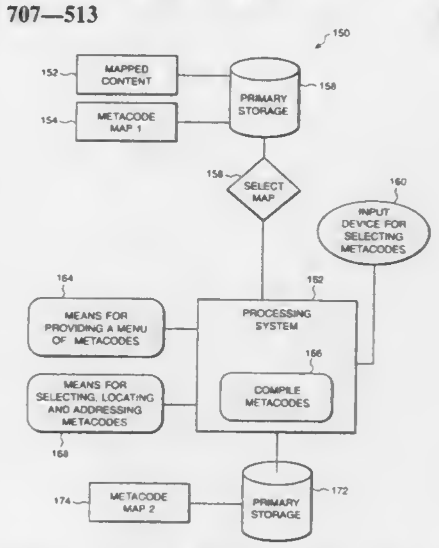
METHOD AND SYSTEM FOR MANIPULATING THE ARCHITECTURE AND THE CONTENT OF A DOCUMENT SEPARATELY FROM EACH OTHER

Michel J. M. G. Vulpe, and Stephen P. Owens, both of Toronto, Canada, assignors to Infrastructures for Information Inc., Toronto, Canada

Filed Jun. 2, 1994, Ser. No. 253,263

Int. Cl.^{6} G06F *17/00*

U.S. Cl. 707—513 **20 Claims**



1. A computer system for the manipulation of the architecture and content of a document having a plurality of metacodes and content by producing a first map of metacodes and their addresses of use in association with mapped content; said system comprising:

- metacode map distinct storage means;
- means for providing a menu of metacodes to said metacode storage means;
- and means for compiling said metacodes of the menu by locating, detecting and addressing the metacodes in the document to constitute the map and storing the map in the metacode storage means; and
- means for resolving the content and the metacode map into the document.

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5,787,450

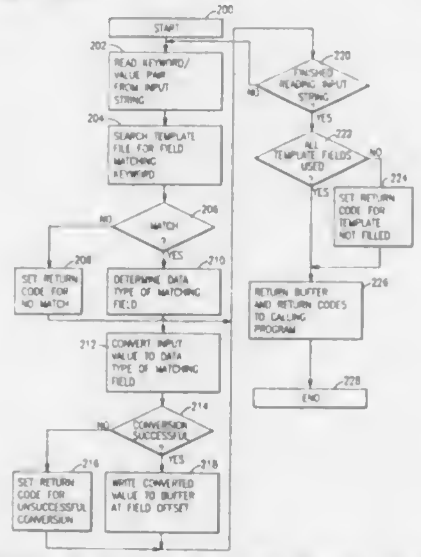
APPARATUS AND METHOD FOR CONSTRUCTING A NON-LINEAR DATA OBJECT FROM A COMMON GATEWAY INTERFACE

Richard Alan Diedrich, Rochester, Minn.; Scott Thomas Evans, Newark Valley, and James Kevan Finkenaur, New Paltz, both of N.Y., assignors to International Business Machines Corporation, Armonk, N.Y.

Filed May 29, 1996, Ser. No. 654,989

Int. Cl.⁶ G06F *17/00*

U.S. Cl. 707—513 **6 Claims**


200
START
202
READ KEYWORD/ VALUE PAIR FROM INPUT STRING
204
SEARCH TEMPLATE FILE FOR FIELD MATCHING KEYWORD
206
MATCH ?
NO
YES
208
SET RETURN CODE FOR NO MATCH
210
DETERMINE DATA TYPE OF MATCHING FIELD
212
CONVERT INPUT VALUE TO DATA TYPE OF MATCHING FIELD
214
CONVERSION SUCCESSFUL ?
216
SET RETURN CODE FOR UNSUCCESSFUL CONVERSION
218
WRITE CONVERTED VALUE TO BUFFER AT FIELD OFFSET
220
FINISHED READING INPUT STRING ?
222
ALL TEMPLATE FIELDS USED ?
224
SET RETURN CODE FOR TEMPLATE NOT FILLED
226
RETURN BUFFER AND RETURN CODES TO CALLING PROGRAM
228
END

1. A method for constructing a data structure including data defined data types from a text input string including a plurality of pairs of keywords and corresponding values, comprising the steps of:

generating in a template file an ordered list of fields defining for each keyword a data type and size;
receiving from a calling program said input string;
reading a pair from said input string;
searching said template file for a field name matching the keyword in the pair;
determining from the template file the data type for the matching field name;
converting said value from text to the data type of said matching field;
writing the converted value to an output buffer at a location in said data structure corresponding to said matching field; and
repeating said reading, searching, determining, converting, and writing steps for each pair in said input string.

5,787,451

METHOD FOR BACKGROUND SPELL CHECKING A WORD PROCESSING DOCUMENT

Alex Mogilevsky, Redmond, Wash., assignor to Microsoft Corporation, Redmond, Wash.

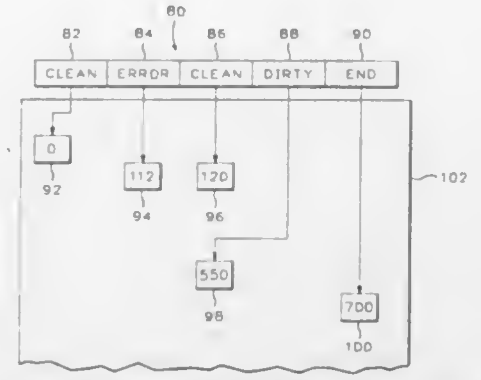
Continuation of Ser. No. 437,949, May 8, 1995, Pat. No. 5,649,222. This application Feb. 27, 1997, Ser. No. 807,624

Int. Cl.⁶ G06F *17/00*

U.S. Cl. 707—533 **15 Claims**

1. A computer-readable medium having computer-executable instructions for performing steps comprising:

(a) storing spelling status data to monitor spelling status of ranges of characters in the word processing document;
(b) automatically spell checking words in the word processing document during idle periods in editing the word processing document; and



(c) if an edit to the word processing document changes one or more characters in the document, then updating the spelling status data corresponding to the one or more characters.

5,787,452

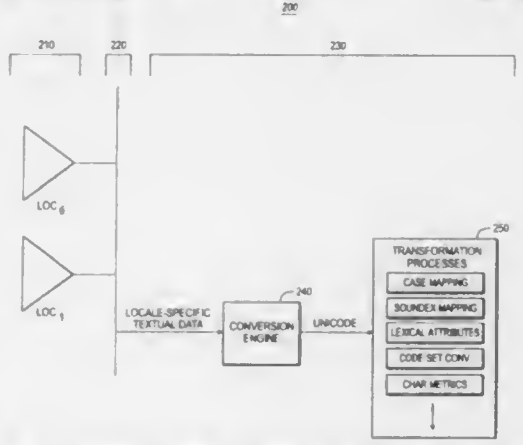
CLIENT/SERVER DATABASE SYSTEM WITH METHODS FOR MULTI-THREADED DATA PROCESSING IN A HETEROGENEOUS LANGUAGE ENVIRONMENT

Michael G. McKenna, Oakland, Calif., assignor to Sybase, Inc., Emeryville, Calif.

Filed May 21, 1996, Ser. No. 651,100

Int. Cl.⁶ G06F *17/21*

U.S. Cl. 707—536 **10 Claims**



1. In a computer system, a method for transforming textual information based on locale-specific information, the method comprising:

providing a transformation structure comprising a plurality of arrays storing locale-specific information for a particular type of character transformation;
receiving input requesting that the character transformation be performed on an input character, said input character comprising at least one byte value;
mapping said input character into a Unicode character using a Unicode mapping table, said Unicode character comprising a plurality of byte values; and
transforming said Unicode character into a final transformation value for said input character, by performing the substeps of:
  (i) using a most significant byte of said Unicode character to reference a particular entry of a particular one of said plurality of arrays,
  (ii) determining whether the entry being referenced stores said final transformation value or a reference to a another one of said plurality of arrays,
  (iii) if said entry stores said final transformation value, satisfying said request by returning said final transformation value stored at the entry being referenced and thereafter terminating the method,
  (iv) if said entry stores a reference to another one of said plurality of arrays, using a next most significant byte of said Unicode character to reference a particular entry of said another one of said plurality of arrays, and
  (v) repeating substeps (ii)–(iv) until said final transformation value is located.

5,787,453

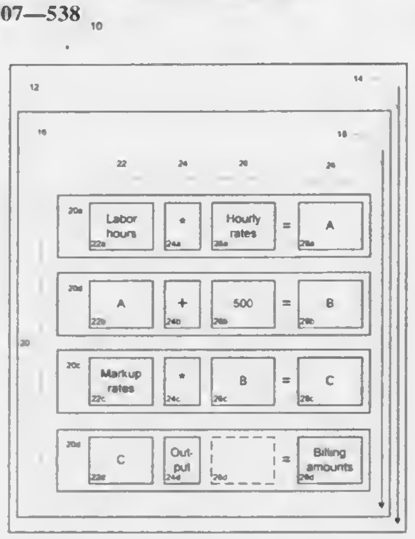
INTERACTIVE FORMULA PROCESSING SYSTEM FOR SQL DATA BASE

Sargent L. Kennedy, Pleasanton, Calif., assignor to PeopleSoft, Inc., Pleasanton, Calif.

Filed Oct. 24, 1995, Ser. No. 547,255

Int. Cl.⁶ G06F *3/00*

U.S. Cl. 707—538 **13 Claims**



1. A programming system for users to program computers to perform mathematical and data transfer operations on data objects in SQL data bases, comprising:

a) operation identifier selecting means, for choosing a representative operation identifier out of a menu of said mathematical and data transfer operations;
b) result identifier selecting means, for choosing a representative result identifier from the set consisting of variables and said data objects, to receive the results of a said operation represented by a said operation identifier;
c) operand selecting means, for choosing representative operand identifiers from the set consisting of said data objects, said variables, and constants, upon which a said operation represented by a said operation identifier is to be performed;
d) formula step defining means, for constructing formula steps consisting of one of said operation identifiers, at least one and at most two of said operand identifiers, and one of said result identifiers;
e) formula defining means, for constructing formulas each consisting of sequenced instances of said formula steps; and
f) formula groups defining means, for categorizing formula groups of sequenced instances of said formulas by user definable relationship.

5,787,454

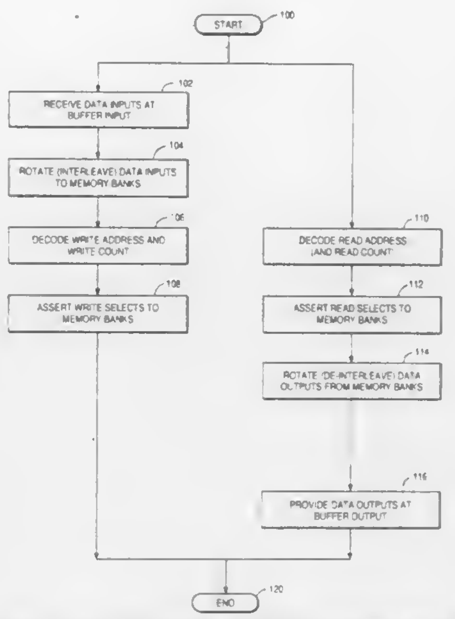
RECORDER BUFFER WITH INTERLEAVING MECHANISM FOR ACCESSING A MULTI-PARTED CIRCULAR MEMORY ARRAY

Joseph F. Rohlman, Portland, Oreg., assignor to Intel Corporation, Santa Clara, Calif.

Filed Dec. 27, 1995, Ser. No. 578,964

Int. Cl.⁶ G06F *12/02;13/16;* G11C *8/00*

U.S. Cl. 711—5 **4 Claims**


100
START
102
RECEIVE DATA INPUTS AT BUFFER INPUT
104
ROTATE (INTERLEAVE) DATA INPUTS TO MEMORY BANKS
106
DECODE WRITE ADDRESS AND WRITE COUNT
108
ASSERT WRITE SELECTS TO MEMORY BANKS
110
DECODE READ ADDRESS (AND READ COUNT)
112
ASSERT READ SELECTS TO MEMORY BANKS
114
ROTATE (DE-INTERLEAVE) DATA OUTPUTS FROM MEMORY BANKS
116
PROVIDE DATA OUTPUTS AT BUFFER OUTPUT
120
END

1. In a reorder buffer of an out-of-order processor, a method of writing a predetermined number of data inputs to an array of memory cells in a clock cycle of the out-of-order processor, each of cells being coupled to a plurality of write bitlines and a plurality of read bitlines, with the read and write bitlines being shared among a set of discontinuous metal tracks, the memory cells being grouped into a plurality of memory banks, the memory banks having a plurality of outputs, the memory cells each having a single write port and a single read port, each of which is accessed in a circular order, the method comprising the steps of:

(a) routing each of a number of consecutively-addressed data items provided at the predetermined number of data inputs to a different memory bank of the plurality of memory banks;
(b) decoding a write address;
(c) providing a write select signal for each of the number of consecutively-addressed data items to one or more rotators, each of the one or more rotators being associated with a corresponding memory bank of the plurality of memory banks, with each write select corresponding to a particular entry in the plurality of memory banks.

5,787,455

METHOD AND APPARATUS FOR STORING CORRECTED WORDS WITH PREVIOUS USER-CORRECTED RECOGNITION RESULTS TO IMPROVE RECOGNITION

John Lome Campbell Seybold, Palo Alto, Calif., assignor to Motorola, Inc., Schaumburg, Ill.

Filed Dec. 28, 1995, Ser. No. 579,957

Int. Cl.⁶ G06F *12/00;* G06K *9/00*

U.S. Cl. 711—100 **14 Claims**

8. A device, comprising:

a digitizing input device for receiving user input and for providing information representing the user input;
a display for displaying the user input;
a memory having an operating system and application programs stored therein, including recognition instructions, a first set of recognition data and a second set of recognition data; and
digital processing circuitry including a programmable digital processing device capable of processing the recognition instructions in accordance with the operating system to:
  compare the information representing the user input with the first set of recognition data;
  generate a list of candidate recognition results based on comparing information representing the user input with the first set of recognition data, wherein each candidate recognition result in the list has an associated having a value representing a likelihood of the candidate recognition result correctly replicating the user input as typewritten text;

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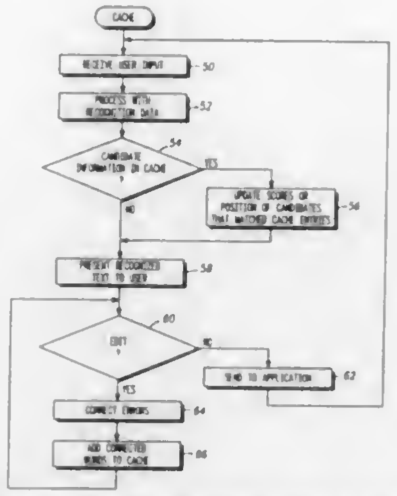

CACHE
RECEIVE USER INPUT
50
PROCESS WITH RECOGNITION DATA
52
CANDIDATE INFORMATION IN CACHE ?
54
YES
UPDATE SCORES OR POSITION OF CANDIDATES THAT MATCHED CACHE ENTRIES
56
NO
PRESENT RECOGNIZED TEXT TO USER
58
EDIT ?
60
NO
SEND TO APPLICATION
62
YES
CORRECT ERRORS
64
ADD CORRECTED WORDS TO CACHE
66

compare each candidate recognition result in the list with the second set of recognition data, wherein the second set of recognition data represents previous user-corrected recognition results;

enhance the associated value for a candidate recognition result when the candidate recognition result is found in the second set of recognition data to reflect a higher likelihood of correctly replicating the user input;

present to a user the candidate recognition result that has a highest likelihood of correctly replicating the user input;

implement user instructions to modify at least a portion of the candidate recognition result that has the highest likelihood of correctly replicating the user input to generate a user-corrected recognition result; and

add the user-corrected recognition result to the second set of recognition data, wherein the user-corrected recognition result is used for later comparison with subsequent lists of recognition results.

5,787,456

SEMICONDUCTOR MEMORY DEVICE WHICH CAN PERFORM A HIGH SPEED OPERATION

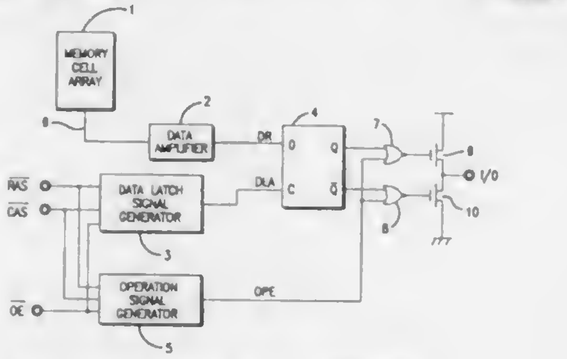
Hiroshi Nakayama, Tokyo, Japan, assignor to NEC Corporation, Tokyo, Japan

Filed Jul. 29, 1996, Ser. No. 688,271

Claims priority, application Japan, Jul. 28, 1995, 7-193690

Int. Cl.⁶ G06F *12/00;13/00*

U.S. Cl. 711—100 **13 Claims**



7. A semiconductor memory device, comprising:

a memory cell array;

an output terminal;

a data latch signal generator including a first gate circuit, a F/F circuit, a first delay element, a second gate circuit and a data latch signal output;

said first gate circuit of said data latch signal generator having a first input node supplied with a column address strobe (CAS) signal, a second input node supplied with an output enable (OE) signal and an output;

said F/F circuit of said data latch signal generator having a first input coupled to said output of said first gate circuit, a second input supplied with a row address strobe (RAS) signal and an output;

said first delay element of said data latch signal generator having an input coupled to said output of said F/F circuit, and an output;

said second gate circuit of said data latch signal generator having a first input coupled to said output of said F/F circuit, a second input coupled to said output of said first delay element and an output coupled to said data latch signal output;

a data latch circuit having a data input coupled to said memory cell array, a clock input coupled to said data latch signal output of said data latch signal generator, and a data output;

an operation signal generator including a second delay element, a third gate circuit, a fourth gate circuit and an operation signal output;

said second delay element of said operation signal generator having an input supplied with said CAS signal, and an output;

said third gate circuit of said operation signal generator having a first input supplied with said CAS signal, a second input coupled to said output of said second delay element, and an output;

said fourth gate circuit of said operation signal generator having a first input supplied with said RAS signal, a second input supplied with said OE signal, a third input coupled to said output of said third gate circuit and an output coupled to said operation signal output; and

an output circuit having a data input coupled to said data output of said data latch circuit, an enable coupled to said operation signal output, and an output coupled to said output terminal.

5,787,457

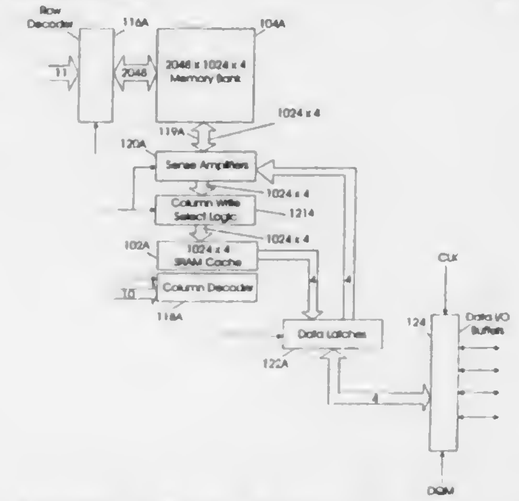
CACHED SYNCHRONOUS DRAM ARCHITECTURE ALLOWING CONCURRENT DRAM OPERATIONS

Christopher Paul Miller, Underhill; Jim Lewis Rogers, Milton, and Steven William Tomashot, Williston, all of Vt., assignors to International Business Machines Corporation, Armonk, N.Y.

Filed Oct. 18, 1996, Ser. No. 731,790

Int. Cl.⁶ G06F *12/08*

U.S. Cl. 711—105 **9 Claims**



1. A cached synchronous dynamic random access memory (cached SDRAM) device having a multi-bank architecture, said cached SDRAM comprising:

a synchronous dynamic random access memory (SDRAM) bank including a row decoder coupled to a memory bank array for selecting a row of data in the memory bank array, sense amplifiers coupled to the memory bank array via bit lines for latching the row of data selected by the row decoder, and a synchronous column select means for selecting a desired column of the row of data;

a randomly addressable row register for storing a row of data latched by the sense amplifiers; and

a select logic gating means, disposed between the sense amplifiers and said row register, for selectively gating the row of data present on the bit lines to said row register in accordance to particular industry standard synchronous memory operations of said cached SDRAM being performed,

wherein data to be input into said cached SDRAM during a Write operation is received by the sense amplifiers and written into the memory bank array,

wherein data to be output from said cached SDRAM during a Read operation is read out only from said row register, the row of data contained in said row register first having been read from the memory bank array to the sense amplifiers and then selectively gated to the row register in accordance with the particular industry standard synchronous memory operations, and

wherein said row decoder, said memory bank array, said sense amplifiers, said synchronous column select means, said randomly addressable row register, and said select logic gating means are arranged so as to maintain backward compatibility with industry standard SDRAMs.

5,787,458

CONTENT ADDRESSABLE MEMORY OF A SIMPLE CONSTRUCTION CAPABLE OF RETRIEVING A VARIABLE WORD LENGTH DATA

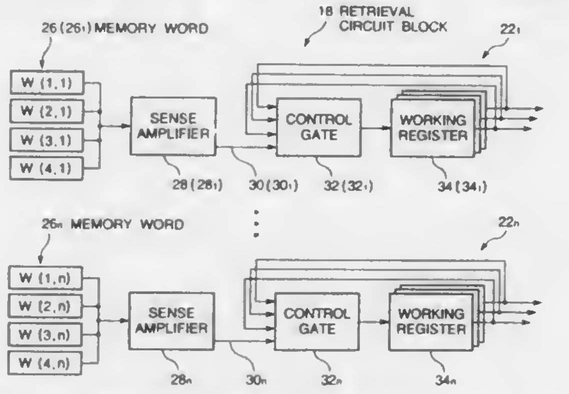
Tohru Miwa, Tokyo, Japan, assignor to NEC Corporation, Tokyo, Japan

Filed Sep. 3, 1996, Ser. No. 706,470

Claims priority, application Japan, Aug. 31, 1995, 7-248767

Int. Cl.⁶ G06F *12/04;* **G11C** *15/00*

U.S. Cl. 711—108 **7 Claims**



1. A content addressable memory comprising:

a memory array composed of a number of memory words divided into a plurality of logical address memory blocks;

a plurality of retrieval sense amplifiers, each provided in common to a plurality of memory words of the same number as the number of said logical address memory blocks so hat said plurality of memory words are included, one in one, in said plurality of logical address memory blocks, respectively, and each of said logical address blocks is constituted of only a memory word of the logical address of the same rank within said plurality of memory words in common to each one of said plurality of retrieval sense amplifiers;

a plurality of hold means, each provided for a corresponding one of the retrieval sense amplifiers, for holding the result of retrieval outputted from the corresponding retrieval sense amplifier;

a plurality of logic operations processing means, each having a first input connected to an output of a corresponding one of said retrieval sense amplifiers, a second input connected to an output of a corresponding one of said hold means, and an output connected to an input of the corresponding hold means, each of said logical operation processing means executing a logic operation between the result of retrieval held in the corresponding hold means and the result of retrieval outputted from the corresponding retrieval sense amplifier, and the result of said logic operations being stored back in said corresponding hold means,

the content addressable memory being so controlled that, when a retrieval is conducted, all the memory words included in a selected one of said plurality of logical address memory blocks are retrieved concurrently for the same retrieval data by means of the retrieval sense amplifiers, and said logic operation between the result of current retrieval outputted from each of said retrieval sense amplifiers and the result of the preceding retrieval held in the corresponding hold means is executed by the corresponding logic operation processing means, and the result of the logic operation executed is stored back in the same corresponding hold means.

5,787,459

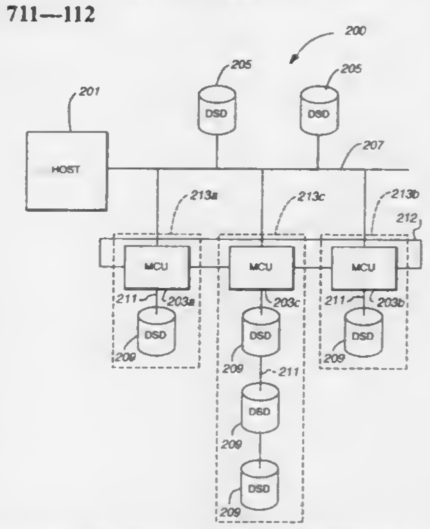
DISTRIBUTED DISK ARRAY ARCHITECTURE

David C. Stallmo; William A. Brant, and Randy Hall, all of Boulder, Colo., assignors to EMC Corporation, Hopkinton, Mass.

Continuation of Ser. No. 415,157, Mar. 31, 1995, Pat. No. 5,689,678, which is a continuation of Ser. No. 29,794, Mar. 11, 1993, abandoned. This application Dec. 27, 1995, Ser. No. 579,553

Int. Cl.⁶ G06F *13/368*

U.S. Cl. 711—112 **29 Claims**



1. A distributed storage array system configured to be coupled to a host computer having a host bus, comprising:

a plurality of data storage devices for storing and retrieving data in a selected sequence;

a communications link; and

a plurality of modular control units, each configured to communicate with the host computer directly over the host bus, each modular control unit being coupled to at least one corresponding data storage device and to each other modular control unit by said communications link, wherein:

at least one modular control unit includes a receiver for receiving input/output requests from the host computer directly over the host bus for determining a next data storage device of a sequence of data storage devices involved in responding to a pending one of the received input/output requests; and

each modular control unit includes a receiver for receiving configuration information from another modular control unit over the communications link separately from communications over the host bus.

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5,787,460

DISK ARRAY APPARATUS THAT ONLY CALCULATES NEW PARITY AFTER A PREDETERMINED NUMBER OF WRITE REQUESTS

Mitsuhiko Yashiro; Takeshi Obata; Suijin Takeda, and Sawao Iwatani, all of Kawasaki, Japan, assignors to Fujitsu Limited, Kawasaki, Japan

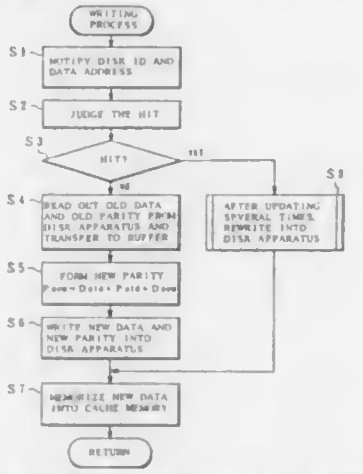
Continuation of Ser. No. 147,817, Nov. 4, 1993, abandoned.

This application Nov. 6, 1996, Ser. No. 746,154

Claims priority, application Japan, May 21, 1992, 4/128975; Oct. 8, 1992, 4/269823; Oct. 8, 1992, 4/269824

Int. Cl.^{6} G06F *11/10*

U.S. Cl. 711—114 **19 Claims**


WRITING PROCESS
S1
NOTIFY DISK ID AND DATA ADDRESS
S2
JUDGE THE HIT
S3
HIT?
YES
NO
S4
READ OUT OLD DATA AND OLD PARITY FROM DISK APPARATUS AND TRANSFER TO BUFFER
S8
AFTER UPDATING SEVERAL TIMES REWRITE INTO DISK APPARATUS
S5
FORM NEW PARITY
S6
WRITE NEW DATA AND NEW PARITY INTO DISK APPARATUS
S7
MEMORIZE NEW DATA INTO CACHE MEMORY
RETURN

1. A disk array apparatus for use with a host computer, said disk array apparatus comprising:

a disk array having a plurality of disk apparatuses for storing data, including old data, and one disk apparatus for storing parity information, including old parity information;

access processing means for forming a new parity information on the basis of new data, old data, and an old parity information when said new data is received, said access processing means further updating said old data and said old parity information of said disk array by said new data and said new parity information;

cache memory means for storing the data stored in said disk array; and

cache control means for holding said old parity information in said cache memory means without allowing the new parity information to be formed by said access processing means until said access processing means has received new data in response to a write request from an upper apparatus a predetermined number of times, and supplying said new data to said access processing means.

5,787,461

HIGH SPEED OPTICAL DISK DRIVE CACHING EXECUTABLE AND NON-EXECUTABLE DATA

Mark Stephens, Burlingame, Calif., assignor to Roadrunner Technology, Inc., San Mateo, Calif.

Filed Aug. 12, 1996, Ser. No. 695,405

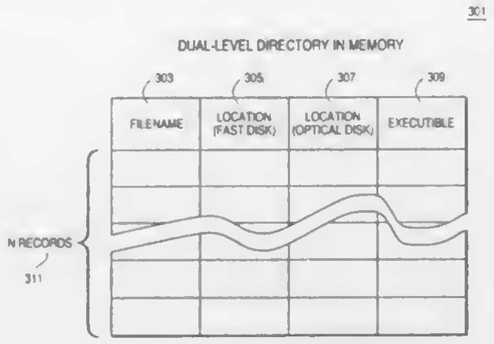
Int. Cl.^{6} G06F *13/00*

U.S. Cl. 711—113 **19 Claims**

10. In a data storage device including an optical disk drive, a method for supplying information read from the optical disk drive, the method comprising the steps of:

reading a first directory from the optical disk drive with a controller in the data storage device, the controller coupled to the optical disk drive;

constructing a second directory in a memory coupled to the controller, the memory in the data storage device, the second directory indicating locations of executable files and non-executable data in the optical disk drive;



caching the executable files from the optical disk drive in a local storage device coupled to the controller, the local storage device in the data storage device;

updating the second directory to indicate executable file entries and corresponding locations of the executable files in the local storage device;

caching requested non-executable data from the optical disk drive in the local storage device;

updating the second directory to indicate corresponding locations of the requested non-executable data in the local storage device; and

removing only non-executable data from the local storage device when additional storage space is necessary in the local storage device to cache the requested non-executable data from the optical disk drive.

5,787,462

SYSTEM AND METHOD FOR MEMORY MANAGEMENT IN AN ARRAY OF HEAT PRODUCING DEVICES TO PREVENT LOCAL OVERHEATING

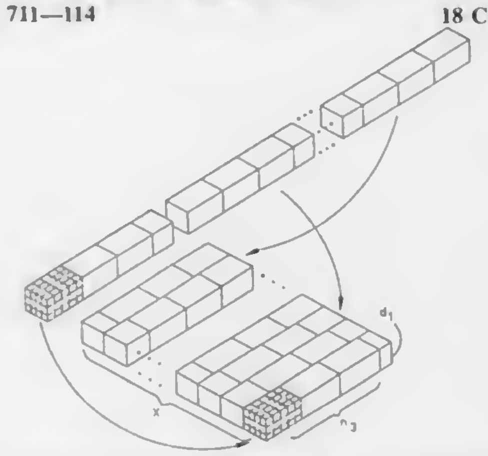
James Lee Hafner, San Jose; John Anthony Tomlin, Sunnyvale, and Larry Lynn Williams, Los Altos, all of Calif., assignors to International Business Machines Corporation, Armonk, N.Y.

Division of Ser. No. 350,923, Dec. 7, 1994, Pat. No. 5,530,658.

This application Mar. 1, 1996, Ser. No. 609,202

Int. Cl.^{6} G06F *12/02;9/312*

U.S. Cl. 711—114 **18 Claims**



1. A configuration management system for determining the assignment of logical files in a disk device array for retrieving and storing data across the disks according to the logical files in respective access operations, the system comprising:

a cluster map having entries that identify logical clusters of disk devices and the disk devices corresponding to the logical clusters;

a configuration manager that receives configuration constraints that specifies the dimensions and the volume N of the disk array, a number C of operational cluster groups to which the devices will be assigned, a number L of disk clusters indicating the maximum number of disk clusters that will be operated substantially simultaneously during access operations in the system, and the dimensions of a critical box representing an arrangement of the disk devices such that, if a disk device is assigned to each cell of the critical box and all devices in the critical box are operated simultaneously during the same access operation, then thermal operating restrictions of the disk devices will be exceeded, wherein the configuration manager assigns disk devices to clusters by performing the steps of:

determining if the number of clusters C is an integer divisor of the volume N of the device array and halting further assignment processing if not;

determining a logical building block comprising a logical sub-volume of the device array;

assigning a preliminary number label to each cell of the device array, the number labels running from 1 to the building block volume and repeating until all the devices are assigned a label;

assigning a final number label to each cell of the device array, each label corresponding to an assignment of the devices to operating clusters such that each device array cluster includes the same number of devices and each logical building block sub-volume of the device array includes at most one device from each cluster; and

providing an output listing comprising the cells of the disk array and the corresponding labels representing assignment of disk devices to clusters of the disk array, said output listing defining the cluster map of the system; and

an access manager that selects logical clusters in which data is to be retrieved or stored, receives access commands identifying data to be retrieved or stored in the disk array, and retrieves at most L cluster numbers from the cluster map that identifies the clusters on which the data is to be retrieved or stored.

5,787,463

DISK ARRAY SYSTEM INCLUDING A DUAL-PORTED STAGING MEMORY AND CONCURRENT REDUNDANCY CALCULATION CAPABILITY

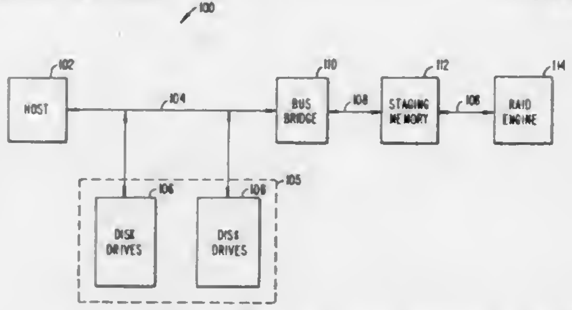
Kumar Gajjar, San Jose, Calif., assignor to MTI Technology Corporation, Sunnyvale, Calif.

Continuation of Ser. No. 445,622, May 22, 1995, abandoned.

This application Apr. 15, 1997, Ser. No. 834,349

Int. Cl.^{6} G06F *13/16;11/10*

U.S. Cl. 711—114 **12 Claims**



1. In a computer system having a host computer, a storage subsystem and a plurality of storage devices, wherein the host computer transfers data blocks to and from the plurality of storage devices through the storage subsystem, the storage subsystem comprising:

a dual-ported memory device for storing the data blocks being transferred between the host computer and the plurality of storage devices, the dual-ported memory device having a first port coupled to the host computer and the plurality of storage devices; and

a RAID engine providing pipelined operation of the computer system coupled to a second port of the dual-ported memory device for retrieving a first data block from the dual-ported memory device, calculating parity information associated with the first data block at the same time that a second data block is being transferred to the dual-ported memory device and storing the calculated parity information in the dual-ported memory device.

5,787,464

COMPUTER SYSTEM INCLUDING A DUAL MEMORY CONFIGURATION WHICH SUPPORTS ON-LINE MEMORY EXTRACTION AND INSERTION

Ryokichi Yoshizawa, Katsuta; Takeshi Miyao, Hitachioota; Shigenori Kaneko, Nakaminato; Tomoaki Nakamura, Katsuta, and Hidebumi Miyata, Hitachioota, all of Japan, assignors to Hitachi, Ltd., Tokyo, and Hitachi Process Computer Engineering, Hitachi, both of Japan

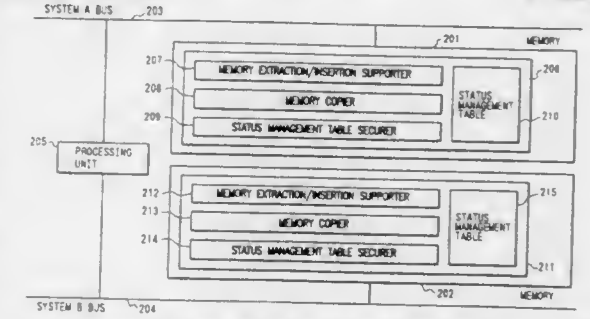
Continuation of Ser. No. 127,832, Sep. 28, 1993, abandoned.

This application Feb. 3, 1997, Ser. No. 794,604

Claims priority, application Japan, Sep. 29, 1992, 4-259299

Int. Cl.^{6} G06F *13/00;12/06*

U.S. Cl. 711—115 **4 Claims**



1. A computer system including a dual memory configuration, wherein said dual memory configuration comprises a first memory coupled to a first bus and a second memory coupled to a second bus, wherein said computer system supports an on-line memory extraction of the second memory and an insertion of a third memory coupled to the second bus, said computer system comprising:

a processor coupled to said first and second bus;

wherein said first memory comprises:

an original memory status management table;

means for supporting the extraction and the insertion during on-line operation, said supporting means determining whether a capacity of the third memory is greater than a capacity of the second memory;

means for copying a memory content of said first memory to the third memory if said supporting means determines that said third memory capacity is greater than said second memory capacity; and

means for securing an expanded memory status management table corresponding to the third memory if said supporting means determines that said third memory capacity is greater than said second memory capacity, and linking said expanded memory status management table to said original memory management status management table.

5,787,465

DESTINATION INDEXED MISS STATUS HOLDING REGISTERS

Norman P. Jouppi, Palo Alto, and Ramsey W. Haddad, Cupertino, both of Calif., assignors to Digital Equipment Corporation, Maynard, Mass.

Continuation of Ser. No. 270,080, Jul. 1, 1994, abandoned.

This application Aug. 21, 1996, Ser. No. 701,036

Int. Cl.^{6} G06F *12/00;12/08*

U.S. Cl. 711—117 **12 Claims**

1. A hierarchical memory arrangement for use with a computer system including a main memory, a cache memory, and a processor having a set of processor registers, comprising:

a set of status registers, there being one status register corresponding to each processor register;

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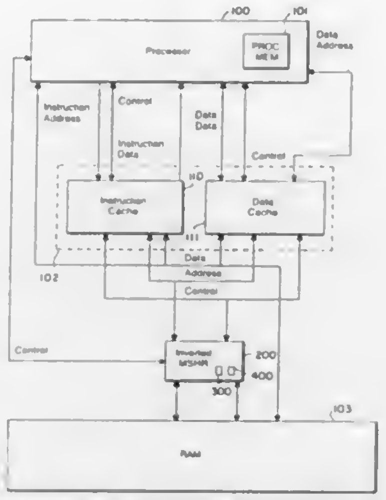


means, responsive to the processor requesting the transfer of data stored in the cache memory at a source address to one of the processor registers having a destination address, for determining a miss condition of the data-stored at the source address;

means, responsive to detecting the miss condition, for selecting a particular status register corresponding to the one processor register having the destination address wherein the source address is stored in said particular status register which corresponds to the destination address; and

means for storing the source address in the particular status register corresponding to the one processor register having the destination address, and for initiating the transfer of the data from the main memory to the cache memory at the source address while allowing the processor to request the transfer of additional data from the cache memory at different source addresses to the set of processor registers.

5,787,466

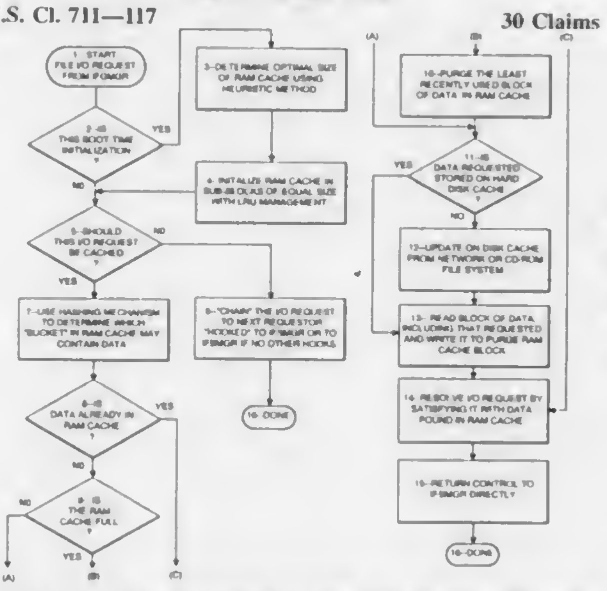
MULTI-TIER CACHE AND METHOD FOR IMPLEMENTING SUCH A SYSTEM

Brian Berliner, Colorado Springs, Colo., assignor to Sun Microsystems, Inc., Mountain View, Calif.

Filed May 1, 1996, Ser. No. 641,653

Int. Cl.^{6} G06F *12/08*

U.S. Cl. 711—117 **30 Claims**


1 START FILE I/O REQUEST FROM IFSMGR
2-IS THIS BOOT TIME INITIALIZATION ?
YES
NO
3-DETERMINE OPTIMAL SIZE OF RAM CACHE USING HEURISTIC METHOD
4-INITIALIZE RAM CACHE IN SUB-BLOCKS OF EQUAL SIZE WITH LRU MANAGEMENT
5-SHOULD THIS I/O REQUEST BE CACHED ?
NO
YES
7-USE HASHING MECHANISM TO DETERMINE WHICH "BUCKET" IN RAM CACHE MAY CONTAIN DATA
6-"CHAIN" THE I/O REQUEST TO NEXT REQUESTOR "HOOKED" TO IFSMGR OR TO IFSMGR IF NO OTHER HOOKS
16-DONE
8-IS DATA ALREADY IN RAM CACHE ?
YES
NO
9-IS THE RAM CACHE FULL ?
NO
YES
(A)
(B)
(C)
10-PURGE THE LEAST RECENTLY USED BLOCK OF DATA IN RAM CACHE
11-IS DATA REQUESTED STORED ON HARD DISK CACHE ?
YES
NO
12-UPDATE ON DISK CACHE FROM NETWORK OR CD-ROM FILE SYSTEM
13-READ BLOCK OF DATA INCLUDING THAT REQUESTED AND WRITE IT TO PURGE RAM CACHE BLOCK
14-RESOLVE I/O REQUEST BY SATISFYING IT WITH DATA FOUND IN RAM CACHE
15-RETURN CONTROL TO IFSMGR DIRECTLY
16-DONE

1. A method for implementing a multi-tier caching system, said multi-tier caching system being implemented on a computer system having a random access memory (RAM), a portion of which is set aside and initialized as a RAM cache for storing first-tier data within a plurality of RAM data blocks, and at least one local non-volatile local mass storage device on which data can be alterably stored and on which a portion thereof functions as a non-volatile cache for storing second-tier data within non-volatile data blocks, said computer system having a data path to a mass storage device with an access speed slower than that of the local mass storage device, said slower mass storage device storing a full set of file data, said method comprising the steps of:

whenever a received file input/output request involves data resident on said slower mass storage device and the requested data is not available as first-tier data nor available as second-tier data, determining whether or not all RAM data blocks are already filled with first-tier data;

purging first-tier data from a least-recently-used RAM data block if all RAM data blocks are already filled;

retrieving a quantity of third-tier data which includes the requested data;

writing all retrieved third-tier data to a non-volatile data block, as well as to an empty RAM data block; and

resolving the file input/output request from the retrieved third-tier data written to the empty RAM data block.

5,787,467

CACHE CONTROL APPARATUS

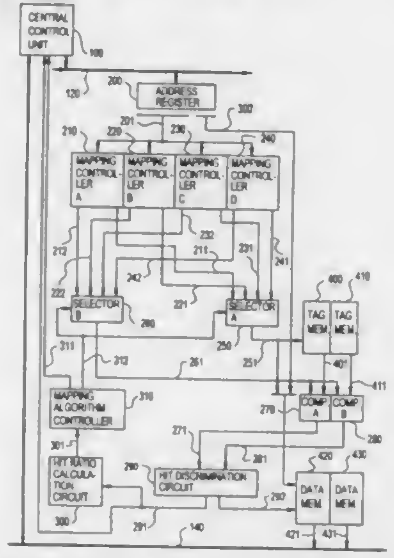
Kenji Abe, Ibaraki, Japan, assignor to NEC Corporation, Tokyo, Japan

Filed Mar. 21, 1996, Ser. No. 621,203

Claims priority, application Japan, Mar. 22, 1995, 7-062846

Int. Cl.^{6} G06F *12/00*

U.S. Cl. 711—118 **7 Claims**



1. A cache control apparatus for use with a system which includes a central control unit, an address bus over which access address data is outputted from said central control unit, a data bus connected to said central control unit, and a cache memory connected to said data bus and including a tag memory for storing an address tag and a data memory connected to said data bus for storing block data, said cache control apparatus comprising:

an address register connected to said address bus for storing the access address data;

a plurality of mapping controllers individually provided for a plurality of different mapping algorithms each for producing a set address and an address tag in response to an output of said address register;

a mapping algorithm controller for selecting one of said plurality of mapping controllers and outputting a selector control signal corresponding to the selected mapping controller;

a first selector for selecting one of the set addresses outputted from said plurality of mapping controllers in response to the selector control signal and outputting the selected set address to said tag memory and said data memory;

a second selector for selecting one of the address tags outputted from said plurality of mapping controllers in response to the selector control signal;

a comparison circuit for comparing the address tag outputted from said second selector and an address tag outputted from said tag memory with each other;

a hit discrimination circuit for discriminating a cache hit based on a result of the comparison by said comparison circuit; and

hit ratio calculation means for calculating a cache hit ratio based on a result of the cache hit discrimination;

said mapping algorithm controller selecting one of said plurality of mapping controllers based on the cache hit ratio calculated by said hit ratio calculation means.

5,787,468

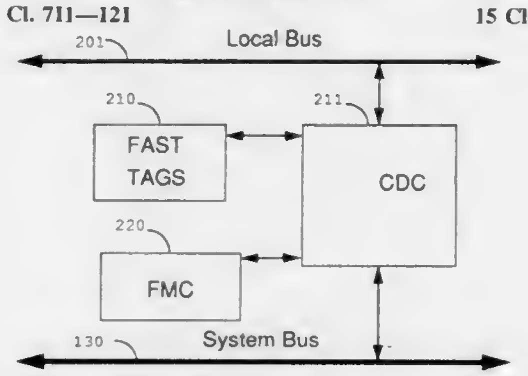
COMPUTER SYSTEM WITH A CACHE COHERENT NON-UNIFORM MEMORY ACCESS ARCHITECTURE USING A FAST TAG CACHE TO ACCELERATE MEMORY REFERENCES

Roy E. Clark, Hopkinton, Mass., assignor to Data General Corporation, Westboro, Mass.

Filed Jun. 11, 1996, Ser. No. 665,065

Int. Cl.^{6} G06F *13/00*

U.S. Cl. 711—121 **15 Claims**



13. A computer system comprising:

(a) at least one microprocessor capable of issuing memory requests where each one of said memory requests has a request address and requires a snoop response before said memory request can continue;

(b) a cache memory;

(c) a tag memory for storing status information and addresses for a subset of entries in said cache memory; and

(d) means connected to said at least one of said microprocessors, said cache memory and said tag memory, for responding to requests from any one of said microprocessors with status information if said request address matches an address in said tag memory and with DEFER if said request address does not match said request address.

5,787,469

SYSTEM AND METHOD FOR EXCLUSIVELY WRITING TAG DURING WRITE ALLOCATE REQUESTS

Quinn W. Merrell, Aloha, Oreg., assignor to Intel Corporation, Santa Clara, Calif.

Filed Sep. 6, 1996, Ser. No. 709,164

Int. Cl.^{6} G06F *12/08*

U.S. Cl. 711—122 **18 Claims**

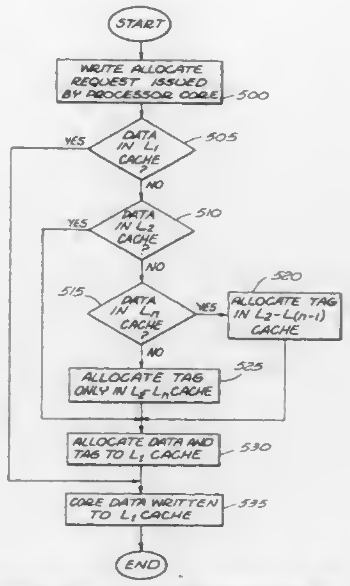
1. A computer system comprising:

a memory element; and

a microprocessor coupled to the memory element, the microprocessor including

a processor core,

a multi-level integrated cache coupled to the processor core, the integrated cache including a first level cache and at least one high level cache, and


START
WRITE ALLOCATE REQUEST ISSUED BY PROCESSOR CORE
500
DATA IN L1 CACHE ?
505
YES
NO
DATA IN L2 CACHE ?
510
YES
NO
515
DATA IN Ln CACHE ?
YES
520
ALLOCATE TAG IN L2-L(n-1) CACHE
NO
ALLOCATE TAG ONLY IN L2-Ln CACHE
525
ALLOCATE DATA AND TAG TO L1 CACHE
530
CORE DATA WRITTEN TO L1 CACHE
535
END

a logic element that controls allocation of data and tag information into the integrated cache, the logic element only writing tag information of a selected cache line which includes tag and data to the at least one high level cache when the processor core issues a Write Allocate request and data requested by the processor core is located in one of the at least one high level cache and the memory element.

5,787,470

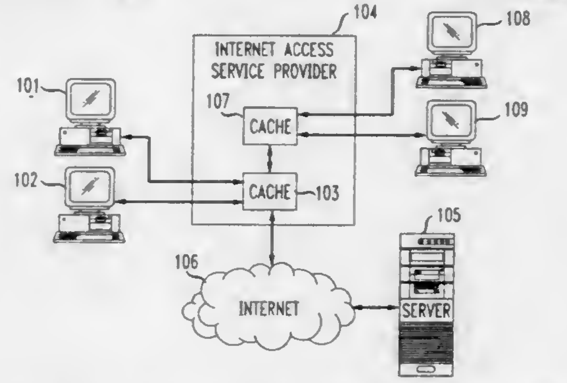
INTER-CACHE PROTOCOL FOR IMPROVED WEB PERFORMANCE

Antonio DeSimone, Ocean; David Hilton Shur, Middletown, and Sandeep Sibal, Matawan, all of N.J., assignors to AT&T Corp, Middletown, N.J.

Filed Oct. 18, 1996, Ser. No. 733,485

Int. Cl.^{6} G06F *12/00*

U.S. Cl. 711—124 **12 Claims**



12. In a system comprising a first Web cache, a second Web cache and at least one other Web cache, the first, second and at least one other Web cache being interconnected on a packet data network, each Web cache storing Web objects that can be retrieved by a plurality of client terminals connected to any Web cache, the Web objects stored in the first, second and the at least one other Web caches being copies of Web objects received from Web servers connected on the packet data network, a method comprising the steps of:

receiving at the second Web cache from the first Web cache information relating to Web objects that have been modified in the first Web cache and information that the first Web cache has on Web objects that have been modified in all other Web caches in the system;

updating state-information stored at the second Web cache relating to Web objects stored in the first Web cache and all other Web caches in the system in response to the information

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received from the first Web cache relating to Web objects that have been modified in the first Web cache and information that the first Web cache has on Web objects that have been modified in all other Web caches in the system; and

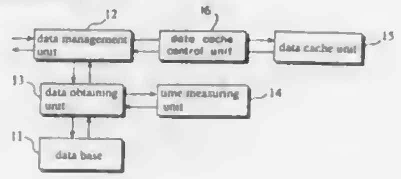
transmitting to the first Web cache from the second Web cache, information relating to those Web objects in the second Web cache that have been modified in the second Web cache and information that the second Web cache has relating to Web objects that have been modified in all other Web caches, in accordance with the updated state-information stored at the Web second cache relating to Web objects stored on all Web caches.

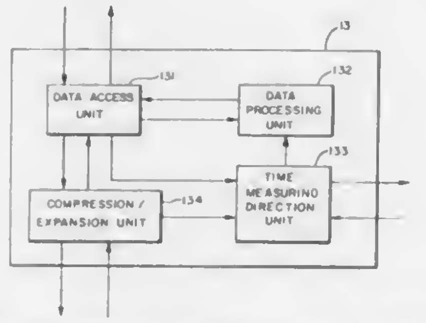
5,787,471
CACHE MEMORY MANAGEMENT APPARATUS HAVING A REPLACEMENT METHOD BASED ON THE TOTAL DATA RETRIEVAL TIME AND THE DATA SIZE

Shinji Inoue, Neyagawa; Takashi Kakiuchi, Higashi-Osaka; Hiroki Nakamura, Osaka, and Masahiro Ooashi, Hirakata, all of Japan, assignors to Matsushita Electric Industrial Co., Ltd., Osaka-fu, Japan

Continuation of Ser. No. 301,476, Sep. 7, 1994, abandoned. This application Mar. 10, 1997, Ser. No. 814,600
Claims priority, application Japan, Sep. 8, 1993, 5-223360
Int. Cl.^{6} G06F *12/12*

U.S. Cl. 711—133 7 Claims





1. A memory management device for reducing database access time, the memory management device comprising:

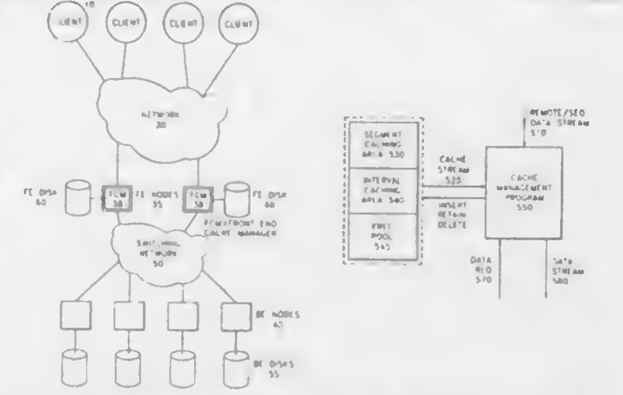
- a data obtaining means for obtaining data from a database;
- a time measuring means for measuring a time period for obtaining data from the database by the data obtaining means and for converting the measured time period into time information, wherein the time measuring means measures an entire time taken by the data obtaining means to obtain the data, including the time to access the database, to retrieve the data, and to convert or manipulate the data into an appropriate format;
- a data cache means for linking the data obtained by the data obtaining means with the time information measured by the time measuring means, and for storing the data and the time information as cache data;
- a data management means for managing a data request from a user's program, wherein the data management means outputs the requested data from the data cache means to the user's program if the requested data is stored in the data cache means and, if the requested data is not stored in the data cache means, the data management means activates the data obtaining means to obtain the requested data from the database and outputs the requested data to the user's program; and
- a cache control means for controlling the data stored in the data cache means based on the time information stored with the data, wherein, if the data cache means has a necessary space to store the data obtained by the data obtaining means, the data is stored in the data cache means without replacing any data, but if the data cache means lacks the necessary space to store the data obtained by the data obtaining means, then data stored in the data cache means having a lowest time information is replaced by the data obtained by the data obtaining means.

5,787,472
DISK CACHING SYSTEM FOR SELECTIVELY PROVIDING INTERVAL CACHING OR SEGMENT CACHING OF VIDED DATA

Asit Dan, West Harrison, and Dinkar Sitaram, Yorktown Heights, both of N.Y., assignors to IBM Corporation, Armonk, N.Y.

Filed Jul. 31, 1995, Ser. No. 509,312
Int. Cl.^{6} G06F *12/12;* **H04N** *7/10*

U.S. Cl. 711—134 14 Claims



11. A computer readable memory that can be used to direct a computer to perform in a particular manner when used by the computer, comprising:

- means for determining whether to discard data blocks associated with a given stream from the cache storage device as they are read by a consuming process;
- means, responsive to a determination that the data blocks should be discarded from the cache storage device as they are read by the consuming process, for caching the data blocks associated with the given stream in accordance with an interval caching algorithm for use by the next successive stream; and
- means responsive to a determination that the data blocks should not be discarded from the cache storage device as they are read by the consuming process, for caching the data blocks in accordance with a segment caching algorithm.

5,787,473
CACHE MANAGEMENT SYSTEM USING TIME STAMPING FOR REPLACEMENT QUEUE

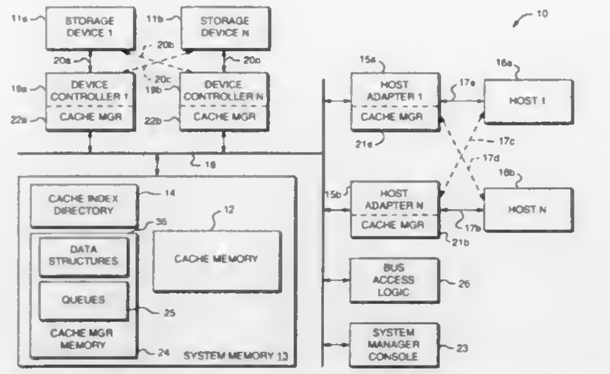
Natan Vishlitzky, Brookline, and Yuval Ofek, Hopkinton, both of Mass., assignors to EMC Corporation, Hopkinton, Mass.

Continuation of Ser. No. 523,304, Sep. 5, 1995, Pat. No. 5,592,432. This application Sep. 20, 1996, Ser. No. 718,202
Int. Cl.^{6} G06F *12/00*

U.S. Cl. 711—134 73 Claims

1. In a computer-implemented process for a cache memory which stores data elements in a replacement queue having a tail location and other data element storage locations, a method for replacing data elements in the replacement queue, comprising the steps of:

- time stamping each data element in the replacement queue at the time the data element is placed at the tail of the replacement queue; and,



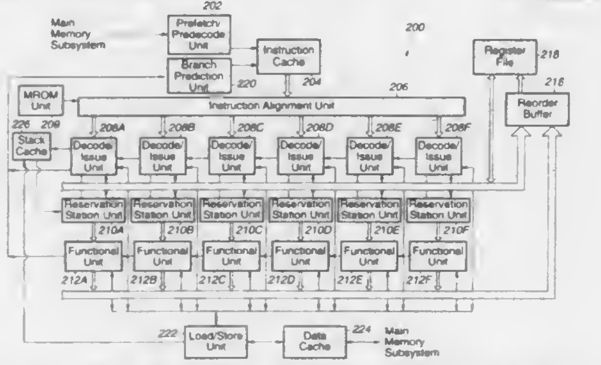
- replacing or maintaining each data element based on the elapsed time such data element has been in the replacement queue as determined by the time stamping of such data element.

5,787,474
DEPENDENCY CHECKING STRUCTURE FOR A PAIR OF CACHES WHICH ARE ACCESSED FROM DIFFERENT PIPELINE STAGES OF AN INSTRUCTION PROCESSING PIPELINE

Marty L. Pflum, Austin, Tex., assignor to Advanced Micro Devices, Inc., Sunnyvale, Calif.

Filed Nov. 20, 1995, Ser. No. 561,033
Int. Cl.^{6} G06F *13/00*

U.S. Cl. 711—138 28 Claims



22. A method of detecting dependencies between a memory access to a first cache performed within a first pipeline stage and a second memory access to a second cache performed within a second pipeline stage comprising:

- recording read and write memory accesses to one of a plurality of storage locations within said first cache; and
- checking for a prior memory access to one of said plurality of storage locations within said first cache when said second memory access is performed to a datum stored within said one of said plurality of storage locations.

5,787,475
CONTROLLED PREFETCHING OF DATA REQUESTED BY A PERIPHERAL

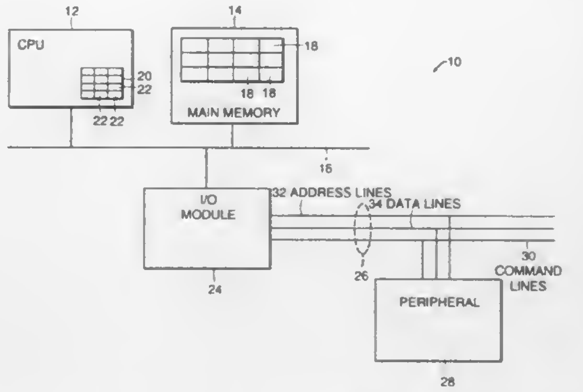
Chester Walenty Pawlowski, North Chelmsford, Mass., assignor to Digital Equipment Corporation, Maynard, Mass.

Continuation of Ser. No. 918,541, Jul. 21, 1992. This application Jun. 5, 1997, Ser. No. 869,694
Int. Cl.^{6} G06F *7/00*

U.S. Cl. 711—137 8 Claims

1. A computer system comprising:

- a main memory having a plurality of storage locations, each of said plurality of storage locations storing a predetermined amount of data;
- a peripheral including means for issuing a request for requested data, and means for providing one or more operating parameters that characterize the peripheral and the requested data, said operating parameters including a starting address of the requested data stored in said main memory; and



- an input/output module, coupled to the main memory and the peripheral, comprising:
  - means for retrieving said requested data;
  - first determining means, responsive to the request, for determining a first storage location in said main memory, comprising a first portion of the requested data and corresponding to the starting address;
  - means for prefetching data from other storage locations in the main memory that are consecutive to said first storage location; and
  - means for supplying to the peripheral said first portion of said requested data and means for discarding non-requested data stored in said first storage location; and
- wherein said prefetching data means further includes:
  - second determining means, responsive to the operating parameters, for determining whether said requested data is located in consecutive storage locations in said main memory, and
  - means, responsive to the second determining means, for causing said retrieving means to prefetch a second portion of said requested data from one or more of said other storage locations which contain the requested data and are consecutive to the first storage location; and
- wherein the peripheral is coupled to the input/output module through an input/output bus having a predetermined number of data lines available for a data transfer between the input/output module and the peripheral, the operating parameters further including a data width indicating which of the data lines are used to transfer the requested data and the operating parameters further including a number of data transfers required to transfer the requested data to the peripheral.

5,787,476
SYSTEM AND METHOD FOR MAINTAINING COHERENCY OF VIRTUAL-TO-PHYSICAL MEMORY TRANSLATIONS IN A MULTIPROCESSOR COMPUTER

James P. Laudon, Menlo Park, and Daniel E. Lenoski, San Jose, both of Calif., assignors to Silicon Graphics, Inc., Mountain View, Calif.

Filed May 5, 1995, Ser. No. 435,459
Int. Cl.^{6} G06F *12/00*

U.S. Cl. 711—141 9 Claims

6. In a multiprocessor computer system, a memory controller for maintaining coherency between virtual-to-physical memory translations of multiple processors in a system, wherein each of the plurality of processors include a cache memory and a translation-lookaside buffer to store virtual-to-physical memory translations, the memory controller comprising:

- a. first means for storing a poison state, wherein said poison state is associated with a memory block in the system.
- b. second means for setting said poison state when a virtual-to-physical memory translation for said memory block is stale;

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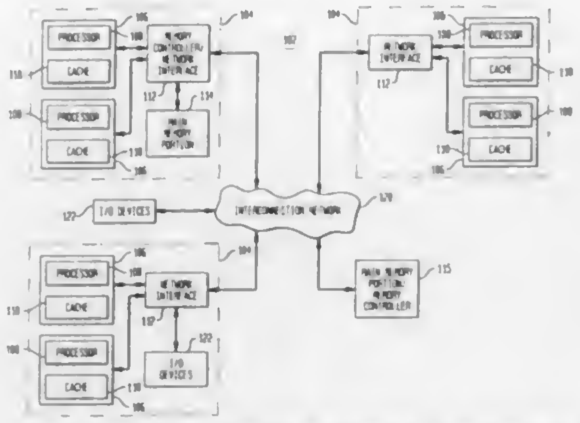


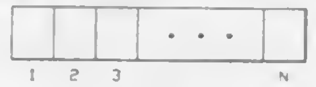
- c. third means for generating an exception in response to an access by one of the processors to said memory block if said poison state is set, thereby indicating that said virtual-to-physical memory translation for said memory block is stale;
- e. fourth means for copying aid memory block to a new physical location; and
- d. fifth means for locking said virtual-to-physical memory translation during said copying.

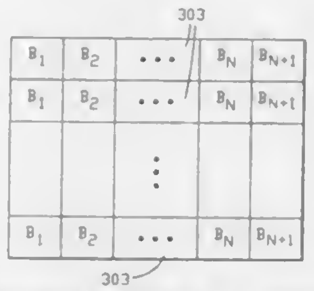
5,787,477
MULTI-PROCESSOR CACHE COHERENCY PROTOCOL ALLOWING ASYNCHRONOUS MODIFICATION OF CACHE DATA

Rudolph Nathan Rechtschaffen, Scarsdale, and Kattamuri Ekanadham, Yorktown Heights, both of N.Y., assignors to International Business Machines Corporation, Armonk, N.Y.

Filed Jun. 18, 1996, Ser. No. 665,659
Int. Cl.⁶ G06F *12/00*

U.S. Cl. 711—141 **28 Claims**





15. In a multi-processor system having a plurality of processors and associated local caches, an apparatus for maintaining coherency of data stored in the local caches, the apparatus comprising:

a first memory storing first data identifying the processors that have been granted authorization to modify a block of data shared by more than one processor;

a second memory storing second data identifying, for a given block of data stored in at least one of the local caches,

- a) the processors having a copy of the given block of data stored in the local caches associated with the processors; and
- b) whether any of the processors have been authorized to modify the given block of data;

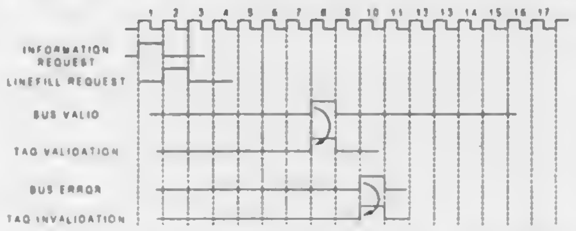
coherence logic, coupled to said first and second memories, that, in response to a reference issued by a particular processor to modify a given block of data, determines whether to grant authorization to the particular processor to modify the given block of data according to the first data stored in the first memory and the second data associated with the given block of data stored in the second memory.

5,787,478
METHOD AND SYSTEM FOR IMPLEMENTING A CACHE COHERENCY MECHANISM FOR UTILIZATION WITHIN A NON-INCLUSIVE CACHE MEMORY HIERARCHY

Dwain Alan Hicks, Pflugerville; Peichun Peter Liu, Austin; Michael John Mayfield, Austin, and Rajinder Paul Singh, Austin, all of Tex., assignors to International Business Machines Corporation, Armonk, N.Y.

Filed Mar. 5, 1997, Ser. No. 810,775
Int. Cl.⁶ G06F *12/00*

U.S. Cl. 711—141 **18 Claims**



1. A method of implementing a cache coherency mechanism for supporting a non-inclusive cache memory hierarchy within a data processing system, wherein said data processing system includes a primary cache memory, a secondary cache memory and a main memory, wherein said primary cache memory and said secondary cache memory are non-inclusive, said method comprising the steps of:

providing a modify bit, a first state bit and, a second state bit in association with each cache line within said primary cache;

setting said first state bit only if a corresponding cache line in said primary cache memory has been modified by a store operation under a write-through mode;

setting said second state bit only if a corresponding cache line exists in both of said primary cache and said secondary cache; and

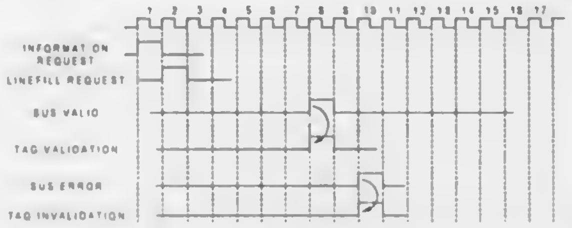
maintaining a cache coherency between said primary cache and said secondary cache utilizing said modify bit, said first state bit, and said second state bit.

5,787,479
METHOD AND SYSTEM FOR PREVENTING INFORMATION CORRUPTION IN A CACHE MEMORY CAUSED BY AN OCCURRENCE OF A BUS ERROR DURING A LINEFILL OPERATION

Romesh Mangho Jessani; Belliappa Manavattira Kuttanna; Soummya Mallick, and Rajesh Bhikhubhai Patel, all of Austin, Tex., assignors to International Business Machines Corporation, Armonk, N.Y., and Motorola, Inc., Schaumburg, Ill.

Filed Apr. 29, 1996, Ser. No. 639,576
Int. Cl.⁶ G06F *12/16*

U.S. Cl. 711—144 **11 Claims**



1. A method of preventing information corruption in a cache memory due to a bus error which occurs during a linefill operation, said method comprising the steps of:

providing a tag in association with each cache line of said cache memory;

validating a tag associated with a particular cache line to indicate said particular cache line is valid before a linefill operation is performed to said particular cache line; and

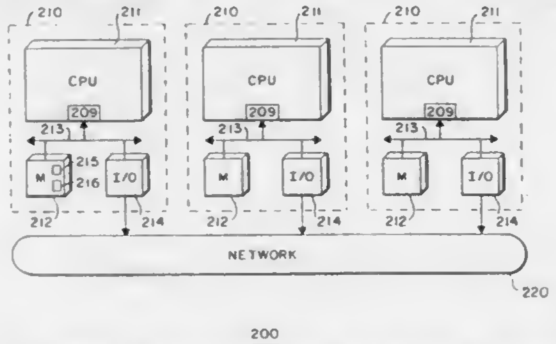
in response to an occurrence of a bus error during said linefill operation, invalidating said tag associated with said particular cache line to indicate said particular cache line is invalid, such that the integrity of information within said particular cache line is maintained.

5,787,480
LOCK-UP FREE DATA SHARING

Daniel J. Scales, Palo Alto, and Kourosh Gharachorloo, Stanford, both of Calif., assignors to Digital Equipment Corporation, Maynard, Mass.

Filed Jul. 17, 1996, Ser. No. 684,281
Int. Cl.⁶ G06F *12/00*

U.S. Cl. 711—148 **17 Claims**



3. A system for accessing shared data, the system comprising:

a first memory, including a first block of data having a first plurality of entries, each entry having a corresponding address;

a second memory, including a second block of data having a second plurality of entries, each entry having a corresponding address; and

a processor configured to:

request a copy of the first block of data,

modify a particular one of the second plurality of entries in the second block which corresponds to a particular one of the first plurality of entries in the first block; and

merge the particular one of the second entries with the requested copy of the first block of data.

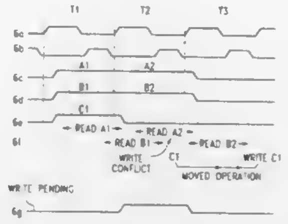
5,787,481
SYSTEM FOR MANAGING WRITE AND/OR READ ACCESS PRIORITIES BETWEEN CENTRAL PROCESSOR AND MEMORY OPERATIONALLY CONNECTED

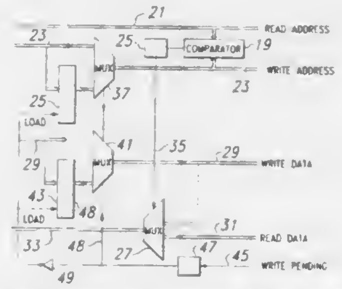
Frederic Boutaud, Chemin des Martels, France, and Sigheshi Abiko, Tokyo, Japan, assignors to Texas Instruments Incorporated, Dallas, Tex.

Continuation of Ser. No. 408,795, Mar. 23, 1995, abandoned. This application Apr. 23, 1997, Ser. No. 847,550
Claims priority, application France, Mar. 24, 1994, 94 03925
Int. Cl.⁶ G06F *12/00;13/00*

U.S. Cl. 711—151 **8 Claims**

1. A system for managing write and/or read access priorities between a central processing unit and at least one memory connected to the central processing unit wherein at least one write address bus and read address bus are included with one write data bus and read data bus in interconnected relationship between the central processing unit and said at least one memory for enabling said central processing unit to access said at least one memory; said system comprising:





an address comparator coupled between said write address bus and said read address bus for comparing at respective time instants the write address appearing on the write address bus and the read address appearing on the read address bus, said address comparator being responsive to the write address and the read address being identical for generating an output indicative of a condition of invalid access to said memory as an invalid access signal;

a diversion multiplexer having first and second inputs and an output;

one of said read data bus and said write data bus being segmental and including a first portion connected to the first input of said diversion multiplexer and a second portion connected to the output of said diversion multiplexer such that said diversion multiplexer is interposed between the first and second portions of the segmental one of said read data bus and said write data bus;

a shunt connection extending from the other of said read data bus and said write data bus to the second input of said diversion multiplexer and connected thereto; and

said diversion multiplexer having a further control input connected to the output of said address comparator, said diversion multiplexer connecting the first and second portions of said segmental one of said read data bus and said write data bus together in the absence of receiving an invalid access signal from said address comparator at the control input thereof or alternatively connecting the shunt connection extending from the other of said read data bus and said write data bus via the second input of said diversion multiplexer to the second portion of said segmental one of said read data bus and said write data bus while disconnecting the first portion of said segmental one of said read data bus and said write data bus from the second portion thereof in response to receiving an invalid access signal from said address comparator at the control input thereof, such that data in the other of said read data bus and said write data bus is diverted via said shunt connection and said diversion multiplexer to the second portion of said segmental one of said read data bus and said write data bus.

5,787,482
DEADLINE DRIVEN DISK SCHEDULER METHOD AND APPARATUS WITH THRESHOLDED MOST URGENT REQUEST QUEUE SCAN WINDOW

Shenze Chen, Cupertino, and Manu Thapar, Fremont, both of Calif., assignors to Hewlett-Packard Company, Palo Alto, Calif.

Filed Jul. 31, 1995, Ser. No. 509,074
Int. Cl.⁶ G06F *13/00;13/28*

U.S. Cl. 711—158 **7 Claims**

1. A method of controlling a disk drive with a movable arm, wherein said arm at any given point in time has a current location, comprising the steps of:

defining a threshold parameter;

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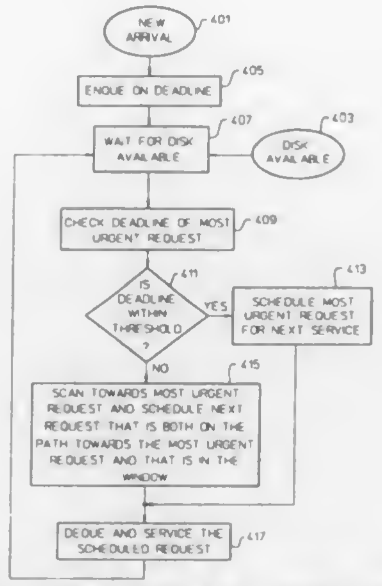

NEW ARRIVAL
401
ENQUE ON DEADLINE
405
WAIT FOR DISK AVAILABLE
407
DISK AVAILABLE
403
CHECK DEADLINE OF MOST URGENT REQUEST
409
IS DEADLINE WITHIN THRESHOLD ?
411
YES
SCHEDULE MOST URGENT REQUEST FOR NEXT SERVICE
413
NO
SCAN TOWARDS MOST URGENT REQUEST AND SCHEDULE NEXT REQUEST THAT IS BOTH ON THE PATH TOWARDS THE MOST URGENT REQUEST AND THAT IS IN THE WINDOW
415
DEQUE AND SERVICE THE SCHEDULED REQUEST
417

accepting a plurality of disk access requests, each having a prescribed deadline and a disk address, wherein the disk access request with the most urgent deadline is the most urgent request;

storing the disk access requests in a queue having a front, such that the most urgent disk access request is at the front of the queue and such that the queue is sorted according to deadlines;

defining a window in said queue wherein said window contains a certain number of disk access requests in the front of said queue; and

processing requests in said queue by:

determining how much time is left before the deadline of the most urgent request in the queue expires;

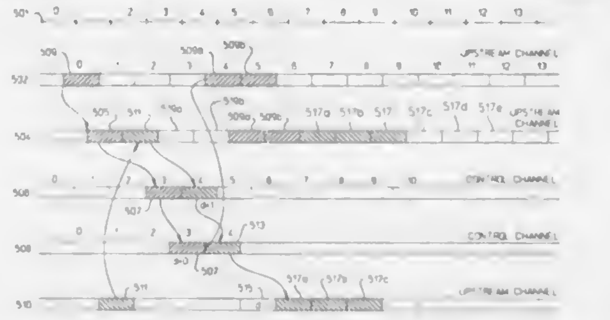
if said time is less than the threshold, serve the most urgent request;

otherwise scan from said current arm location towards the disk address of said most urgent request; and

during said scan schedule the first encountered request that is in the scan path and that is in the window.

5,787,483
HIGH-SPEED DATA COMMUNICATIONS MODEM
Mehrban Jam, Fremont, and Ran-Fun Chiu, Los Altos, both of Calif., assignors to Hewlett-Packard Company, Palo Alto, Calif.

Filed Sep. 22, 1995, Ser. No. 532,923
Int. Cl.^{6} G06F ***12/00***
U.S. Cl. 711—158 **2 Claims**



1. A parallel processing system for a high speed data communications modem, comprising:

a. a first state machine controlled device that performs a first data communication function;

b. a first register set addressable by said first device;

c. a second state machine controlled device that performs a second data communication function;

d. a second register set addressable by said second device;

e. a microprocessor connected to said first and second register sets;

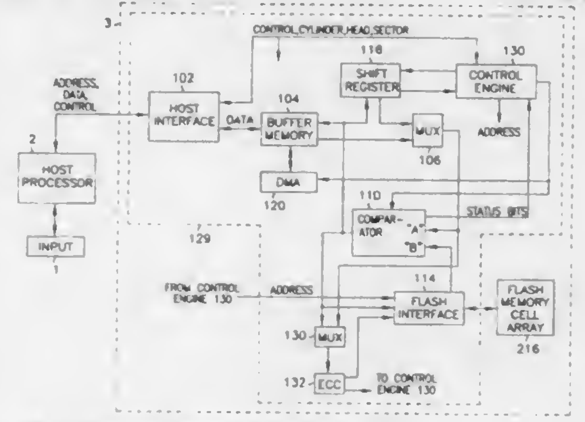
f. a shared memory;

g. a memory access arbitration unit connected to said first and second devices and to said shared memory, and operable to accept a memory access request from each of said first and second devices during each clock cycle of the parallel processing system and to access said shared memory in response to said memory access requests and;

h. a register file connected to said microprocessor and to said first and second devices, said register file containing a pointer to an area of said shared memory for storing data associated with said first data communication function and a pointer to an area of said shared memory for storing data associated with said second data communication function, said first and second pointers beina initialized by said microprocessor and said pointers beina provided to said memory access arbitration unit by said first and second devices as part of said memory access requests.

5,787,484
SYSTEM AND METHOD WHICH COMPARES DATA PREREAD FROM MEMORY CELLS TO DATA TO BE WRITTEN TO THE CELLS
Robert Norman, San Jose, Calif., assignor to Micron Technology, Inc., Boise, Id.

Filed Aug. 8, 1996, Ser. No. 689,369
Int. Cl.^{6} G06F ***12/00***
U.S. Cl. 711—159 **53 Claims**



39. A computer system, including:

a processor; and

a memory subsystem,

wherein said memory subsystem includes:

an array of memory cells organized into sets of said cells;

a processor interface coupled to receive memory commands and data from the processor, and operable to generate control signals in response to the memory commands;

a buffer memory coupled to the processor interface and configured to receive and store a first set of the data from the processor interface, said first set of data to be written to the array to replace a second set of data stored in a first one of the sets of the cells;

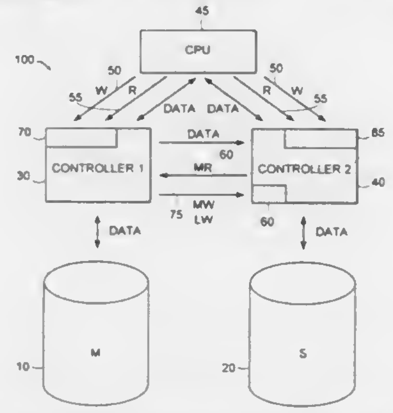
array interface circuitry coupled to the array and operable to read the second set of data from said first one of the sets;

a comparator coupled to the buffer memory to receive the first set of data and coupled to the array interface circuitry to receive the second set of data which has been read from the first one of the sets, the comparator being operable to compare at least a portion of the first set of data with at least a portion of the second set of data and to assert a first signal with a first state in response to determining that the first set of data matches the second set of data; and

a control engine coupled to the comparator to receive the first signal, coupled to the processor interface to receive the control signals, and coupled to the array interface circuit, the control engine being operable to prevent a write of the first set of data to the array in response to reception of both the first signal having the first state and a first one of the control signals, wherein the first one of the control signals is indicative of a memory command from the processor which would otherwise cause the memory circuit to write said first set of data to the array.

5,787,485
PRODUCING A MIRRORED COPY USING REFERENCE LABELS
Martin J. Fitzgerald, V, Medway, and Glenn A. Tremblay, Upton, both of Mass., assignors to Marathon Technologies Corporation, Boxboro, Mass.

Filed Sep. 17, 1996, Ser. No. 714,255
Int. Cl.^{6} G06F ***12/16***
U.S. Cl. 711—162 **24 Claims**



1. A method of performing a mirror set copy from a first storage device to a second storage device in a computer system in which each write request is identified by a reference label, the method comprising:

receiving write requests at the first storage device,

receiving the write requests at the second storage device,

processing write requests at the first storage device,

reading mirror data from the first storage device in response to a mirror read request,

sending the mirror data to the second storage device along with information designating at least one write request that the second storage device is permitted to process,

writing the mirror data to the second storage device, and

after writing the mirror data, processing at the second storage device any write requests designated by the information provided with the mirror data.

5,787,486
BUS PROTOCOL FOR LOCKED CYCLE CACHE HIT
Henry Chin, Wappingers Falls, N.Y.; John Edward Derrick, Milton, Vt.; Christopher Michael Herring, Longmont, Colo., and George Totolos, Jr., Wexford, Pa., assignors to International Business Machines Corporation, Armonk, N.Y.

Filed Dec. 15, 1995, Ser. No. 572,987
Int. Cl.^{6} G06F ***12/14***
U.S. Cl. 711—163 **8 Claims**

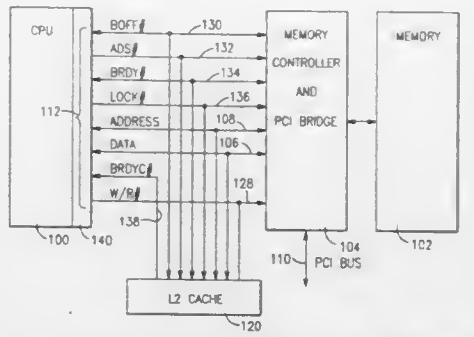
1. A system for providing access to cache during locked cycles, comprising:

a central processing unit capable of retrying the whole of an exclusive access sequence;

a cache;

a main memory;

a CPU local bus and a peripheral local bus interconnecting, for the transfer of data, said central processing unit, said cache, a peripheral device, and said main memory; said peripheral

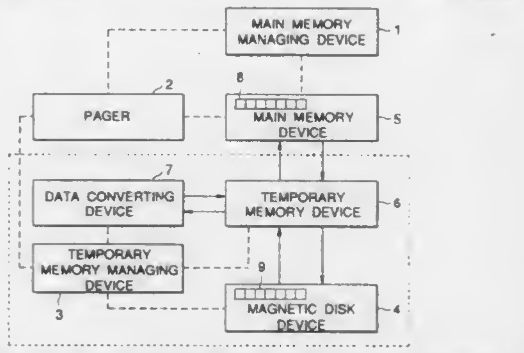


local bus supporting with respect to said peripheral device exclusive data access to data interspersed with other data access; and

a memory controller interconnecting said CPU local bus, said peripheral local bus, and said main memory for controlling the transfer of data on said CPU local bus, said memory controller being responsive to a locked cycle on said CPU local bus for determining for cache hits if said CPU local bus will continued to be enabled to the locked cycle and, if not, cancelling said locked cycle.

5,787,487
INFORMATION STORAGE SYSTEM FOR CONVERTING DATA AT TRANSFER
Sunao Hashimoto; Shigehisa Kawabe, and Kazunori Horikiri, all of Kanagawa, Japan, assignors to Fuji Xerox Co., Ltd., Tokyo, Japan

Continuation of Ser. No. 350,146, Nov. 29, 1994, abandoned.
This application Mar. 21, 1997, Ser. No. 822,146
Claims priority, application Japan, Nov. 30, 1993, 5-326198
Int. Cl.^{6} G06F ***13/16***
U.S. Cl. 711—165 **18 Claims**



1. An information storage system which transfers data between a main memory means which stores data in a block unit and an auxiliary memory means which stores data in a block unit for processing, the system comprising:

data conversion information holding means for holding conversion information which associates at least one first data block, corresponding to a data block stored in the auxiliary memory means, with a conversion procedure to convert the at least one first data block, and for holding plural second data blocks, each of which is generated by the conversion procedure and corresponds to a data block of the main memory means;

temporary memory means, which includes a plurality of blocks, each block stores the first data block or one of the second data blocks, for temporarily storing data to be transferred between the auxiliary memory means and the main memory means;

temporary memory managing means for holding a relationship which associates a block of the temporary memory means with the first data block, and associates a block of the temporary memory means with the second data block, and for managing data transfer between the auxiliary memory means and the temporary memory means in accordance with the relationship; and

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data converting means for reading out the one first data block from the temporary memory means, for converting the read first data block by using the conversion procedure associated with the read first data block to the plural second data blocks, and for writing each of the converted second blocks into a block of the temporary memory means in accordance with the conversion information held in the data conversion information holding means and the relationship held in the temporary memory managing means.

5,787,488

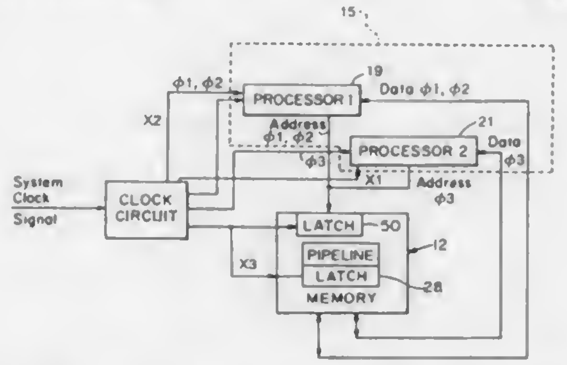
MULTI-PHASE MULTI-ACCESS PIPELINE MEMORY SYSTEM

Douglas Garde, Dover, Mass., assignor to Analog Devices, Inc., Norwood, Mass.

Continuation of Ser. No. 215,508, Mar. 22, 1994, abandoned, and a continuation-in-part of Ser. No. 52,073, Apr. 22, 1993, Pat. No. 5,471,607. This application Jan. 6, 1997, Ser. No. 779,273

Int. Cl.^{6} G06F *15/67;13/18*

U.S. Cl. 711—169 **19 Claims**



1. A dual phase, dual access pipeline memory system comprising:

first and second processors;

a pipeline memory including latch means;

bus means for interconnecting said processors and pipeline memory;

a clock circuit responsive to a system clock signal for providing a first clock signal in phase with said system clock signal for accessing said first processor, a second clock signal out of phase with said system clock signal for accessing said second processor out of phase with said first processor, and a third clock signal at twice the system clock signal rate for clocking said pipeline memory through said latch means to allow an address to be supplied to said pipeline memory by said first processor during one phase while said first processor is accessing data from the previous cycle in the same phase and, conversely, to allow an address to be supplied to said pipeline memory by said second processor during the other phase while the said second processor is accessing data from the previous cycle in the same phase.

5,787,489

SYNCHRONOUS SRAM HAVING PIPELINED ENABLE

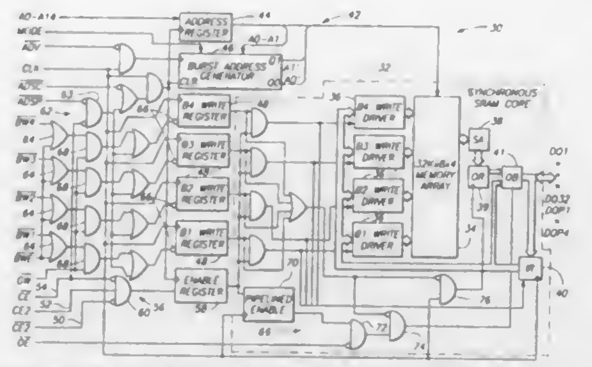
J. Thomas Pawlowski, Boise, Id., assignor to Micron Technology, Inc., Boise, Id.

Continuation of Ser. No. 566,719, Dec. 4, 1995, abandoned, which is a continuation-in-part of Ser. No. 540,581, Oct. 5, 1995, abandoned, which is a continuation-in-part of Ser. No. 391,725, Feb. 21, 1995. This application Apr. 4, 1997, Ser. No. 825,963

Int. Cl.^{6} G06F *9/38*

U.S. Cl. 711—169 **22 Claims**

1. A synchronous burst SRAM device comprising:



an SRAM core having a memory array, write drivers, sense amplifiers, and I/O buffers;

an address register for receiving addresses for the memory array in the SRAM core;

a burst address generator coupled to the address register for rapidly generating additional addresses using at least one address bit stored in the address register;

an input for receiving an external address signal indicating that an external address is ready to be loaded into the address register;

three chip enable inputs for receiving chip enable signals;

chip enable and select logic coupled to the three chip enable inputs to perform the dual tasks of (1) selectively enabling or disabling the synchronous burst SRAM device and (2) selectively permitting access to the SRAM core when the SRAM device is with a boon accordance with a boolean function of the chip enable signals at the three chip enable inputs, the chip enable and select logic outputting an SRAM core enable signal resulting from the boolean function of the chip enable signals;

an enable register having an input connected to the chip enable and select logic for temporarily storing the SRAM core enable signal, and having an output;

a pipelined enable register coupled between the enable register and the SRAM core for temporarily storing the SRAM core enable signal and delaying propagation of the core enable signal to the SRAM core; and

pipelining logic coupled to at least one of the three chip enable inputs to block the external address signal when one chip enable signal received at the one chip enable input is at a selected asserted logic level to thereby permit pipelining operation of the synchronous burst SRAM device.

5,787,490

MULTIPROCESS EXECUTION SYSTEM THAT DESIGNATES CACHE USE PRIORITY BASED ON PROCESS PRIORITY

Toshihiro Ozawa, Kawasaki, Japan, assignor to Fujitsu Limited, Kanagawa, Japan

Filed Jun. 10, 1996, Ser. No. 661,083

Claims priority, application Japan, Oct. 6, 1995, 7-259824

Int. Cl.^{6} G06F *12/08*

U.S. Cl. 711—173 **18 Claims**

1. A multiprocess execution system comprising:

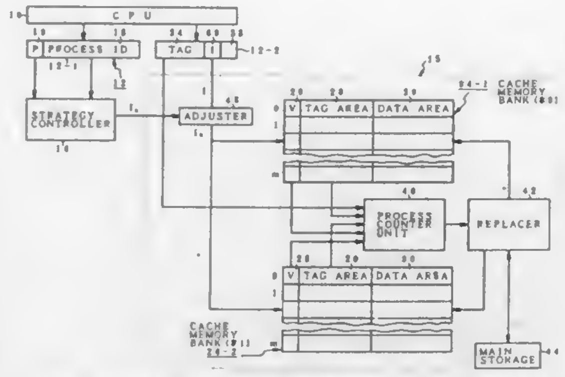
a processing unit for executing a specified process from among a plurality of processes in accordance with a process priority based use allocation schedule;

a cache memory for temporarily storing main storage resources for use in said processing unit;

a cache use priority designation unit for designating an cache use priority pertaining to said cache memory when any one process is executed by said processing unit; and

a cache control unit for controlling, in response to an access demand from said processing unit, an access to said cache memory in accordance with said cache use priority: wherein

said cache control unit is provided with a set associative control feature in which said cache memory is divided into set regions each including frame blocks of a predetermined number of



ways m, each frame block having a length corresponding to a predetermined block length of said main storage, said frame blocks constituting each set region each including a valid bit field, a tag field having a process ID, and a data field for storing one frame block of said main storage therein: and in which

through an index-based designation of a set region performed in response to an access demand from said processing unit, one or a plurality of frame blocks within said set region is acquired, and if there exists a frame block whose tag field process ID coincides with the process ID included in said access demand and whose valid bit is set, judgment results in a hit to handle said access demand; and wherein

said cache control unit varies in accordance with a cache use priority P designated the number of ways m of said set associative control available to a process, without varying the capacity of the cache memory within the same cache memory.

5,787,491

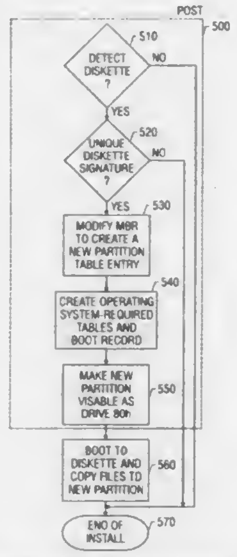
FAST METHOD AND APPARATUS FOR CREATING A PARTITION ON A HARD DISK DRIVE OF A COMPUTER SYSTEM AND INSTALLING SOFTWARE INTO THE NEW PARTITION

Stanley L. Merkin, Georgetown; Mukund P. Khatri, and Robert B. Macy, both of Austin, all of Tex., assignors to Dell USA LP, Austin, Tex.

Filed Jan. 26, 1996, Ser. No. 592,559

Int. Cl.^{6} G06F *11/00*

U.S. Cl. 711—173 **13 Claims**


POST
500
510
DETECT DISKETTE ?
NO
YES
520
UNIQUE DISKETTE SIGNATURE ?
NO
YES
530
MODIFY MBR TO CREATE A NEW PARTITION TABLE ENTRY
540
CREATE OPERATING SYSTEM REQUIRED TABLES AND BOOT RECORD
550
MAKE NEW PARTITION VISABLE AS DRIVE 80h
560
BOOT TO DISKETTE AND COPY FILES TO NEW PARTITION
570
END OF INSTALL

6. A machine-executed method for creating a new partition in a hard disk drive of a computer system and installing partition-specific software into said new partition, said method comprising:

(a) reading a diskette during POST contained in a diskette drive of said computer system for detecting the presence of a unique diskette signature on said diskette;

(b) if said unique diskette signature is found to be present on said diskette, performing the following additional steps:

(i) creating said new partition during POST on said hard disk drive;

(ii) assigning said new partition during POST to logical drive 80*h;*

(iii) booting to said diskette; and

(iv) executing partition installation software contained on said diskette having said unique diskette signature, said execution of said installation software causing said partition-specific software to be installed into said new partition.

5,787,492

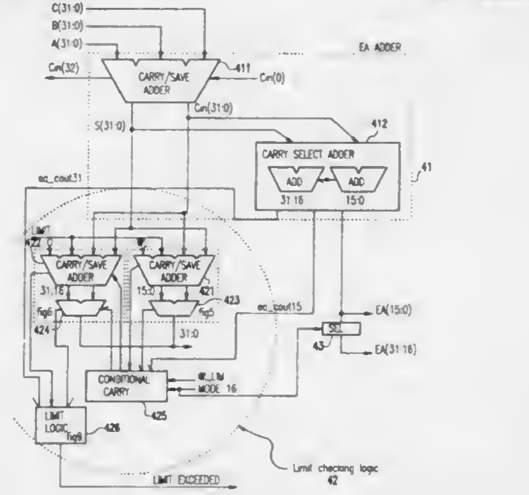
ADDRESS LIMIT CHECK APPARATUS WITH CONDITIONAL CARRY LOGIC

Stephen Gerard Shuma, and Robert Francis Hayosh, both of South Burlington, Vt., assignors to International Business Machines Corporation, Armonk, N.Y.

Filed Apr. 9, 1996, Ser. No. 629,697

Int. Cl.^{6} G06F *12/00*

U.S. Cl. 711—201 **10 Claims**



1. An apparatus for performing an address limit check comprising:

a first adder receiving a displacement, an index and a base address for calculating an effective address;

a second adder receiving sum and carry outputs of said first adder for calculating an effective address and carry out;

means for inputting an address limit value;

means for storing an addressability mode field;

a third adder for calculating first partial limit information based on said first adder results and said limit value;

a fourth adder for calculating second partial limit information based on said first adder results and the limit value and conditioned carry out values of said third adder;

means for conditioning carry out values of said third adder and said second adder to control the operation of said fourth adder based on said addressability mode field; and

means responsive to said carry out of the fourth adder and said carry out of the second adder to assert a limit check condition.

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5,787,493

CONTROL METHOD AND APPARATUS FOR DIRECT EXECUTION OF A PROGRAM ON AN EXTERNAL APPARATUS USING A RANDOMLY ACCESSIBLE AND REWRITABLE MEMORY

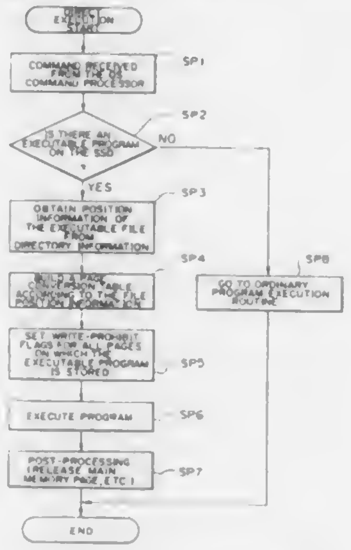
Hideto Niijima, Tokyo, and Akashi Satoh, Kamifukuoka, both of Japan, assignors to International Business Machines Corporation, Armonk, N.Y.

Continuation of Ser. No. 123,121, Sep. 17, 1993, abandoned. This application Apr. 8, 1997, Ser. No. 841,976

Claims priority, application Japan, Sep. 25, 1992, 4-256284

Int. Cl.^{6} G06F *12/00*

U.S. Cl. 711—204 11 Claims


DIRECT EXECUTION START
COMMAND RECEIVED FROM THE OS COMMAND PROCESSOR
SP1
SP2
IS THERE AN EXECUTABLE PROGRAM ON THE SSD ?
NO
YES
SP3
OBTAIN POSITION INFORMATION OF THE EXECUTABLE FILE FROM DIRECTORY INFORMATION
SP4
BUILD A PAGE CONVERSION TABLE ACCORDING TO THE FILE POSITION INFORMATION
SP8
GO TO ORDINARY PROGRAM EXECUTION ROUTINE
SET WRITE-PROHIBIT FLAGS FOR ALL PAGES ON WHICH THE EXECUTABLE PROGRAM IS STORED
SP5
EXECUTE PROGRAM
SP6
POST-PROCESSING (RELEASE MAIN MEMORY PAGE, ETC.)
SP7
END

1. A method for use with a computer system comprising a CPU that refers to virtual-real address translation tables, including a page table, and an external storage device, being a memory card that uses a rewritable and randomly accessible memory, wherein said external storage device is treated as being partitioned into logical pages when accessed as an I/O device, the size of the logical page is adjusted according to the size of a page managed by said CPU, and said logical pages of said external storage device are mapped to a real address space of said CPU, said logical pages being aligned with pages managed by said CPU, said method comprising the steps of:

building said page table for arranging addresses of said logical pages in a preferred sequence, said logical page containing a segment of an executable program, said executable program segments stored on said external storage device in a nonsequential order, said logical page addresses stored in said page table such that said executable program will execute in proper sequence;

setting write-prohibit flags to prohibit write operations on said logical pages of said external storage device arranged in said preferred sequence in said page table;

referring to said virtual-real address translation tables, including said page table, to read said executable program out of said external storage device by using said preferred sequence in said page table, thereby executing said program;

initiating a write-protect interrupt when a write operation is requested on a logical page for which the write-prohibit flag has been set;

copying said write-protected logical page into a main memory of said computer system; and

conducting said requested write operation to said copy in said main memory, thereby allowing said executable program to resume on said write-protected logical page.

5,787,494

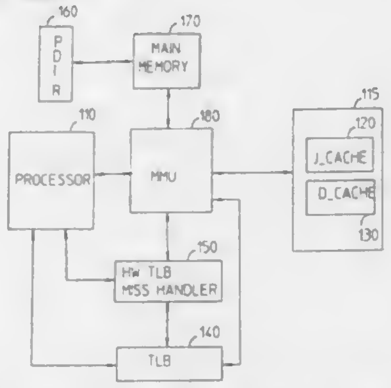
SOFTWARE ASSISTED HARDWARE TLB MISS HANDLER

Eric R. DeLano, Fort Collins; Michael A. Buckley, Windsor, and Duncan C. Weir, Loveland, all of Colo., assignors to Hewlett-Packard Company, Palo Alto, Calif.

Continuation of Ser. No. 957,345, Oct. 6, 1992, Pat. No. 5,493,660. This application Sep. 22, 1995, Ser. No. 532,948

Int. Cl.^{6} G06F *12/10*

U.S. Cl. 711—206 13 Claims



1. A computer-based system for handling translation lookaside buffer (TLB) misses, the system comprising:

(a) a memory unit for storing blocks of data, wherein each block of data is accessed via a virtual address;

(b) a TLB for storing address translation information for translating said virtual address to a physical address for each block of data in said memory unit;

(c) a hardware TLB miss handler, coupled to said TLB, adapted to hash said virtual address to form a physical address pointer into a physical page directory, and further adapted to check a hardware-visible portion of said physical page directory for a missing translation; and

(d) a software TLB miss handler adapted to accept said physical address pointer from said hardware TLB miss handler if said hardware TLB miss handler does not locate the missing translation in the hardware-visible portion of said physical page directory, said software TLB miss handler being further adapted to check the remainder of said physical page directory for the missing translation.

5,787,495

METHOD AND APPARATUS FOR SELECTOR STORING AND RESTORATION

Glenn Henry, and Terry Parks, both of Austin, Tex., assignors to Integrated Device Technology, Inc., Santa Clara, Calif.

Filed Dec. 18, 1995, Ser. No. 572,898

Int. Cl.^{6} G06F *12/10*

U.S. Cl. 711—208 15 Claims

1. A register file for directly loading a selector, the register file allowing restoration of the selector, as needed, the register file comprising:

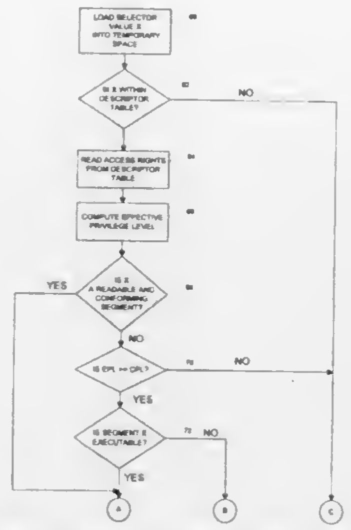
a plurality of descriptor registers;

a plurality of selector registers, associated with said descriptor registers, said selector registers comprising:

a first word, for storing a new selector; and

a second word, adjacent to said first word, for storing an old selector;

wherein said new selector becomes said old selector when a subsequent new selector is loaded; and


LOAD SELECTOR VALUE X INTO TEMPORARY SPACE
IS X WITHIN DESCRIPTOR TABLE?
NO
READ ACCESS RIGHTS FROM DESCRIPTOR TABLE
COMPUTE EFFECTIVE PRIVILEGE LEVEL
YES
IS X A READABLE AND CONFORMING SEGMENT?
NO
IS EPL <= DPL?
NO
YES
IS SEGMENT X EXECUTABLE?
NO
YES
A
B
C

wherein said new selector may be stored in said first word during the same clock cycle that said old selector is stored in said second word.

5,787,496

DIGITAL SIGNAL PROCESSOR HAVING A PARTITIONED MEMORY WITH FIRST AND SECOND ADDRESS AREAS FOR RECEIVING AND STORING DATA IN SYCHRONISM WITH FIRST AND SECOND SAMPLING CLOCKS

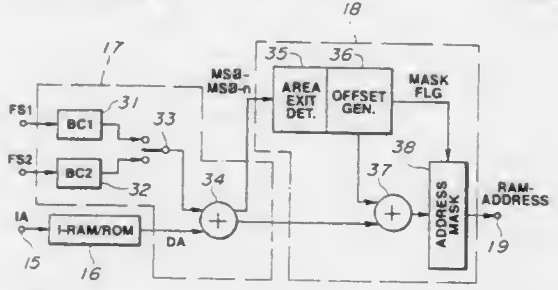
Shinji Kobayashi, Kanagawa, Japan, assignor to Sony Corporation, Tokyo, Japan

Filed Apr. 23, 1996, Ser. No. 636,342

Claims priority, application Japan, Apr. 28, 1995, 7-106774; Jul. 26, 1995, 7-190752

Int. Cl.^{6} G06F *12/02;12/06*

U.S. Cl. 711—220 3 Claims



1. A digital signal processor, comprising:

a first counter which increments from a first initial address value in a first address area synchronous with a first sampling clock signal;

a second counter which increments from a second initial address value in a second address area synchronous with a second sampling clock signal;

address generating means which generates a first address in said first address area according to a first counter value in said first counter and generates a second address in said second address area according to a second counter value in said second counter;

a data memory which stores information signals supplied synchronously with said first and second sampling clock signals in the first address and second address generated by said address generating means; and

arithmetic operating means which reads and perform arithmetic operations on information signals stored in said data memory;

wherein said address generating means includes first mask means and an area detecting means, said area detecting means detecting an address area based on a sum of addresses specified by an output of said first mask means and one of said first counter value and said second counter value, and wherein said first mask means masks said first address value according to a detection result of said area detecting means.

5,787,497

DIRECT MEMORY ACCESS CONTROL DEVICE FOR A RING BUFFER

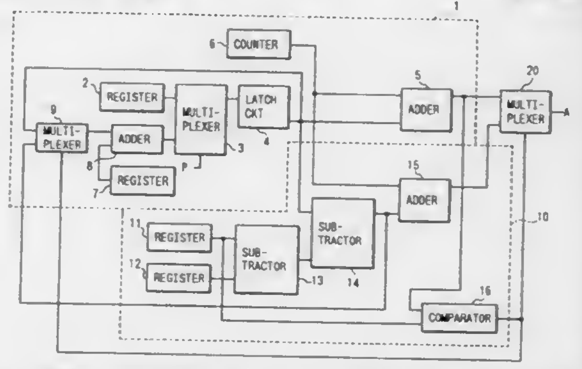
Hitoshi Tokura, and Jun Yamashita, both of Saitama, Japan, assignors to Fuji Xerox Co., Ltd., Tokyo, Japan

Continuation of Ser. No. 77,636, Jun. 17, 1993, abandoned. This application May 27, 1997, Ser. No. 863,291

Claims priority, application Japan, Jun. 18, 1992, 4-184539

Int. Cl.^{6} G06F *13/28*

U.S. Cl. 711—220 8 Claims



1. A DMA control device for generating address signals to a ring buffer during an image data transfer, comprising:

an address generation means for generating said address signals to said ring buffer sequentially by: providing a start address equal to an address within a range of said ring buffer, incrementing said start address according to the output of a counter, clearing said counter and generating a line feed signal when said counter reaches a set value, and generating a subsequent start address, discontinuous with said incremented start address, of next data to be read out each time that said line feed signal is generated, wherein the subsequent start address is generated by adding the line length of a line in the image data to the provided start address; and

a corrected address generation means for initializing said address generation means to a value obtained by substracting the total number of addresses of said ring buffer from said address generated from said address generation means when said address exceeds a final address of said ring buffer.

5,787,498

INTEGRATED CIRCUIT MEMORY WITH VERIFICATION UNIT WHICH RESETS AN ADDRESS TRANSLATION REGISTER UPON FAILURE TO DEFINE ONE-TO-ONE CORRESPONDENCES BETWEEN ADDRESSES AND MEMORY CELLS

Robert D. Lee, Denton, and Scott J. Curry, Coppell, both of Tex., assignors to Dallas Semiconductor Corporation, Dallas, Tex.

Continuation of Ser. No. 259,290, Jun. 13, 1994, Pat. No. 5,603,000, which is a continuation of Ser. No. 615,615, Nov. 19, 1990, abandoned, and a continuation-in-part of Ser. No. 352,581, May 15, 1989, Pat. No. 5,210,846, Ser. No. 351,759, May 15, 1989, Pat. No. 4,982,371, Ser. No. 351,760, May 15, 1989, Pat. No. 5,091,771, Ser. No. 351,998, May 15, 1989, Pat. No. 4,972,377, Ser. No. 352,598, May 15, 1989, Pat. No. 4,945,217, Ser. No. 352,596, May 15, 1989, Pat. No. 4,948,954, Ser. No. 351,999, May 15, 1989, Pat. No. 5,045,675, Ser. No. 352,142, May 15, 1989, Pat. No. 4,995,004, and Ser. No. 351,997, May 15, 1989, abandoned. This application Aug. 12, 1996, Ser. No. 695,505

Int. Cl.^{6} G06F *12/02*

U.S. Cl. 711—221 2 Claims

1. An integrated circuit, comprising:

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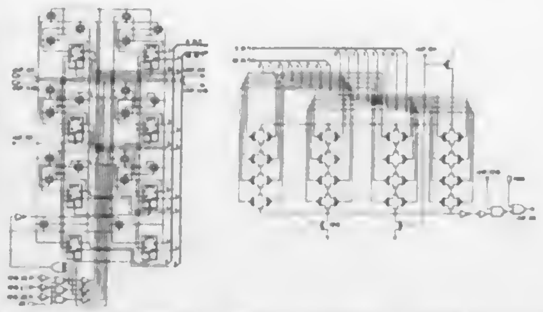

at least one memory array containing multiple low-power memory cells arranged in rows and columns,

a command decoder, connected to decode commands requesting access to said memory array,

wherein said command decoder includes a writable translation register, said writable translation register having modifiable contents, wherein said writable translation register defines plural one-to-one correspondences between logical memory addresses and the cells of said memory array, with each of said one-to-one correspondences associated with a corresponding bit pattern in said writable translation register;

and wherein said command decoder translates access requests, in accordance with the bit pattern of said translation register, to provide a block select output;

an address decoder, connected to receive said block select output, and accordingly to select ones of said rows and columns of said cells and wherein said command decoder further screens access requests for match with a password, and further comprising a pseudo-random number generator, which is activated if said command decoder does not detect a match with the password; and

means to monitor the internal consistency of said translation register and for providing a reset signal upon the detection of an inconsistency therein.

5,787,499

Patent Not Issued For This Number

DESIGN PATENTS

GRANTED July 28, 1998

ERRATA

For CLASS	See PATENT NO.
D15—150	396,387

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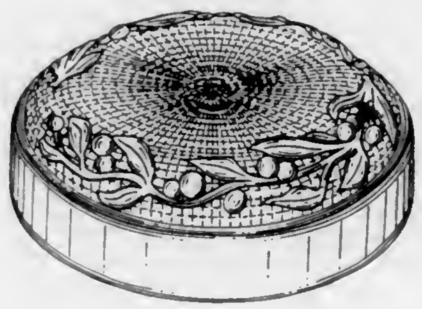
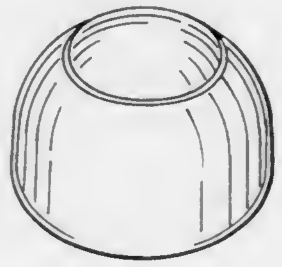
DESIGNS

JULY 28, 1998

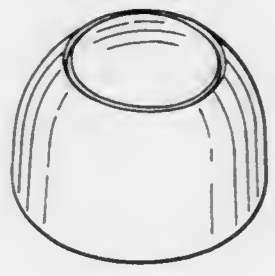
396,335
CHEESE
Anna Bonnard, Paris, France, assignor to Bongrain S.A., Guyancourt, France
Filed Aug. 1, 1996, Ser. No. 57,833
Term of patent 14 years
LOC (6) Cl. 01 - *03*
U.S. Cl. D1—115



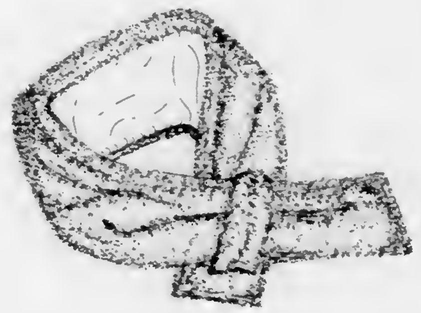
396,336
CONFECTIONERY
Cedric J. L. T. Waggoner, Hartville, Ohio, assignor to Harry London Candies, Inc., North Canton, Ohio
Filed Nov. 15, 1996, Ser. No. 62,435
Term of patent 14 years
LOC (6) Cl. 01 - *01*
U.S. Cl. D1—127



396,337
CONFECTIONERY
Cedric J. L. T. Waggoner, Hartville, Ohio, assignor to Harry London Candies, Inc., North Canton, Ohio
Filed Nov. 15, 1996, Ser. No. 62,489
Term of patent 14 years
LOC (6) Cl. 01 - *01*
U.S. Cl. D1—127



396,338
SCARF
Chuen Huei Yang, P.O. Box 196, Fung Yung, Taichung, Taiwan
Filed Feb. 7, 1997, Ser. No. 66,373
Term of patent 14 years
LOC (6) Cl. 02 - *05*
U.S. Cl. D2—500



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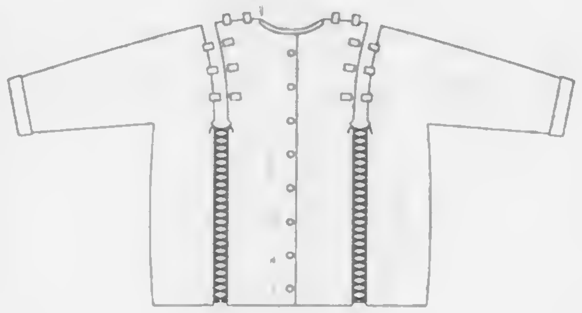
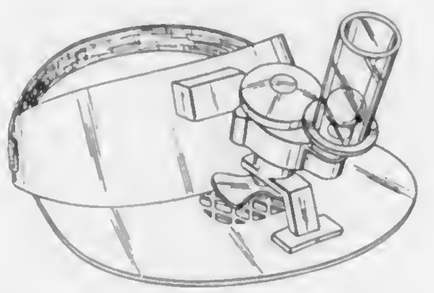
396,339
GARMENT FOR USE WITH THE "HALO" MEDICAL DEVICE

Dorothy L. Ramsey, 349 Ash Ave., #60, Carpinteria, Calif. 93013
Filed Apr. 4, 1997, Ser. No. 69,693
Term of patent 14 years
LOC (6) Cl. 02 - *01*
U.S. Cl. D2—720



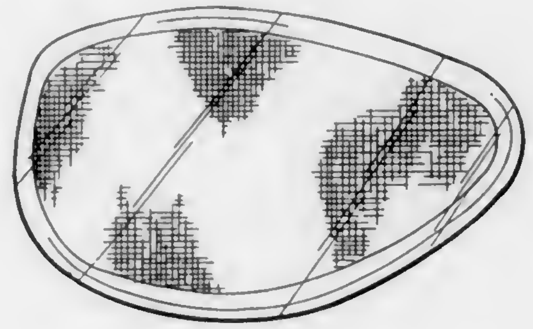
396,340
VISOR WITH FAN

Yung Lee She, 303, N. Valencia St., Alhambra, Calif. 91801
Filed Apr. 23, 1997, Ser. No. 70,435
Term of patent 14 years
LOC (6) Cl. 02 - *03*
U.S. Cl. D2—876



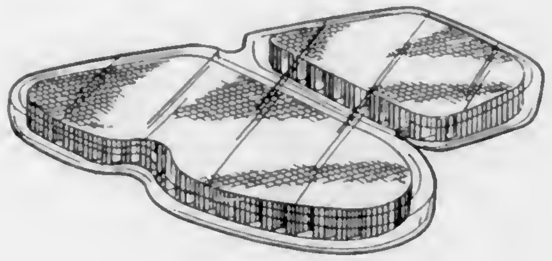
396,341
PORTION OF A BLADDER FOR A SHOE SOLE

Sergio G. Lozano, Beaverton; Craig E. Santos, and Edward N. Thomas, both of Portland, all of Oreg., assignors to Nike, Inc., Beaverton, Oreg.
Filed Jan. 9, 1998, Ser. No. 81,799
Term of patent 14 years
LOC (6) Cl. 02 - *04*
U.S. Cl. D2—961



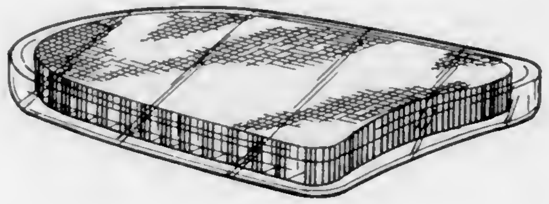
396,342
PORTION OF A BLADDER FOR A SHOE SOLE

Thomas Foxen; Craig E. Santos, and Edward N. Thomas, all of Portland, Oreg., assignors to Nike, Inc., Beaverton, Oreg.
Filed Jan. 9, 1998, Ser. No. 81,793
Term of patent 14 years
LOC (6) Cl. 02 - *04*
U.S. Cl. D2—961



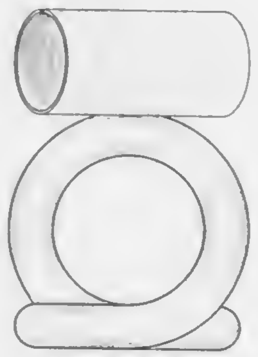
396,343
PORTION OF A BLADDER FOR A SHOE SOLE

Thomas Foxen; Craig E. Santos, and Edward N. Thomas, all of Portland, Oreg., assignors to Nike, Inc., Beaverton, Oreg.
Filed Jan. 9, 1998, Ser. No. 81,800
Term of patent 14 years
LOC (6) Cl. 02 - *04*
U.S. Cl. D2—961



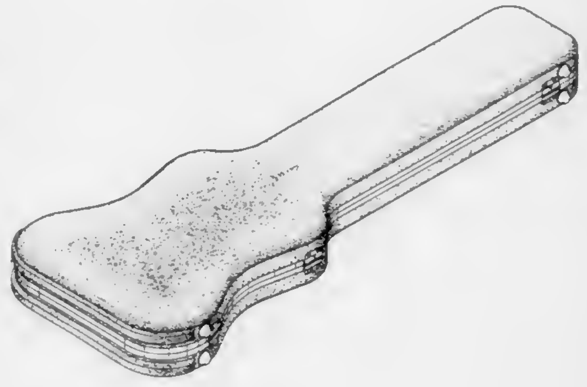
396,344
CROCHET FINGER GUARD

Julia Wolfert, 5270 Otter La., Middleburg, Fla. 32068
Filed Feb. 14, 1997, Ser. No. 66,553
Term of patent 14 years
LOC (6) Cl. 02 - *07*
U.S. Cl. D3—29



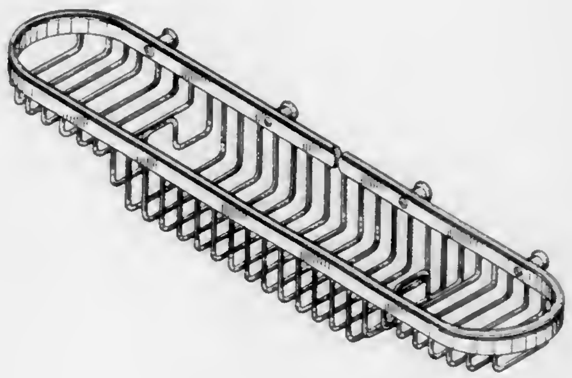
396,345
GUITAR CASE

David B. Sanderson, Villa Park, Calif., assignor to SKB Corporation, Orange, Calif.
Filed May 2, 1997, Ser. No. 70,186
Term of patent 14 years
LOC (6) Cl. 03 - *01*
U.S. Cl. D3—204



396,346
STORAGE BASKET

Victor Hoernig, Lowell, Ind., assignor to Gusa, Inc., Fort Mill, S.C.
Filed Dec. 20, 1996, Ser. No. 64,009
Term of patent 14 years
LOC (6) Cl. 03 - *01*
U.S. Cl. D3—306



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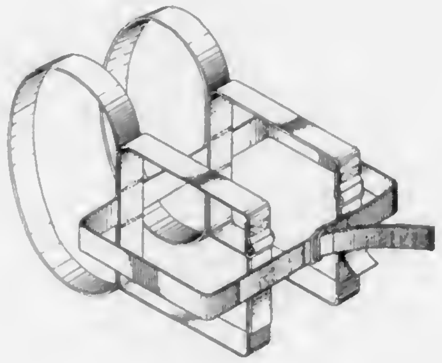
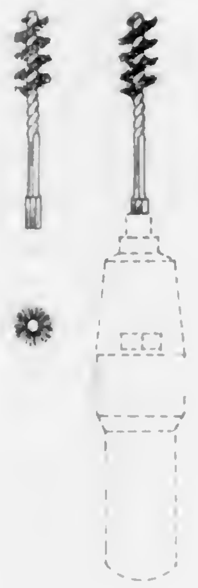
396,347
BACK PACK TYPE COOLER CARRIER

Deanna G. Jenkins, and Richard E. Hanshaw, both of Rte. 9 Box 526, Charleston, W. Va. 25311
Filed Sep. 5, 1997, Ser. No. 76,124
Term of patent 14 years
LOC (6) Cl. 03 - *99*
U.S. Cl. D3—327



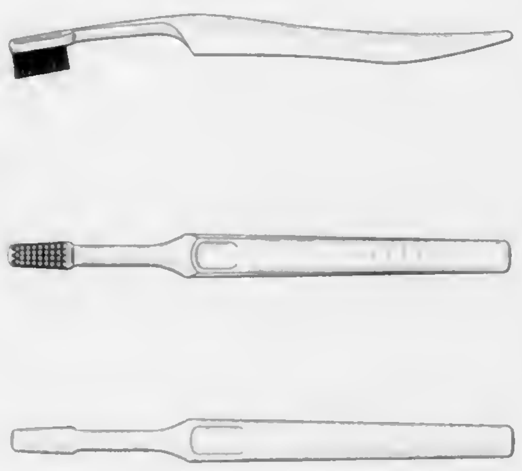
396,348
PIPE FITTING CLEANER BRUSH

Joseph L. Chaves, 17 Woodland Ave., Kingston, Mass. 02364
Division of Ser. No. 920,149, Jul. 24, 1992, Pat. No. Des. 356,213. This application Mar. 10, 1995, Ser. No. 36,036
Term of patent 14 years
LOC (6) Cl. 04 - *02*
U.S. Cl. D4—102



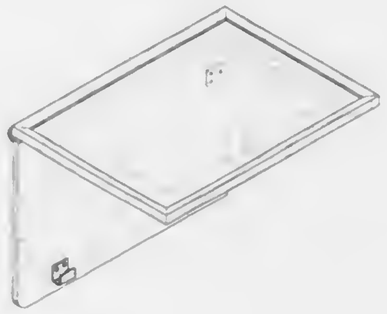
396,349
TOOTHBRUSH

Roland Jeannet, Dusseldorf, Germany; Robert Leutwyler, Boppelsen, and Werner Leutwyler, Zurich, both of Switzerland, assignors to Johnson & Johnson Consumer Products, Inc., Skillman, N.J.
Continuation of Ser. No. 55,130, May 30, 1996, abandoned, which is a continuation of Ser. No. 40,955, Jun. 30, 1995, abandoned, which is a continuation of Ser. No. 28,631, Sep. 19, 1994, abandoned, which is a continuation of Ser. No. 915,953, Jul. 17, 1992, abandoned. This application Apr. 3, 1997, Ser. No. 68,564
Claims priority, application Germany, Jan. 20, 1992, M 92 00 565.9
Term of patent 14 years
LOC (6) Cl. 04 - *02*
U.S. Cl. D4—104



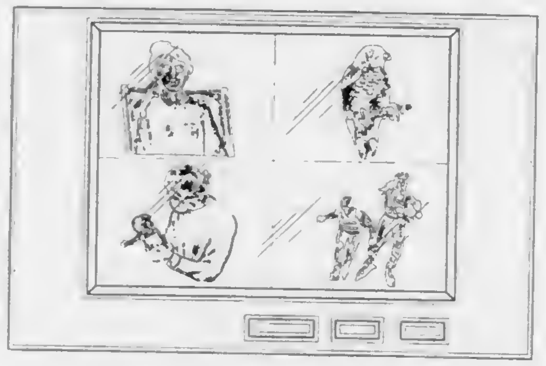
396,350
PICTURE FRAME APPARATUS

John Panzenhagen, 224 Hidden Clen Ct., Franklin Lakes, N.J. 07417-2416
Filed May 13, 1997, Ser. No. 70,662
Term of patent 14 years
LOC (6) Cl. 06 - *07*
U.S. Cl. D6—300



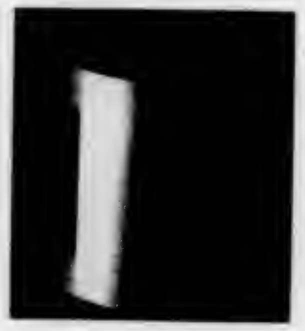
396,351
DIGITAL DISPLAY PICTURE FRAME

Shanmugathasan Patkunan, 76 Sherwood Road, Luton, Bedfordshire, United Kingdom, LU4 8LG
Filed Jun. 19, 1997, Ser. No. 72,575
Term of patent 14 years
LOC (6) Cl. 06 - *07*
U.S. Cl. D6—300



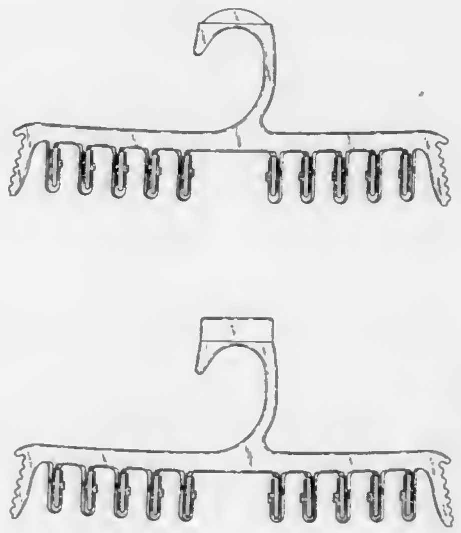
396,352
PICTURE FRAME

Timothy J. Mullen, 2200 Jerrold Ave., Unit O, San Francisco, Calif. 94124
Filed Sep. 9, 1997, Ser. No. 77,831
Term of patent 14 years
LOC (6) Cl. 06 - *07*
U.S. Cl. D6—300



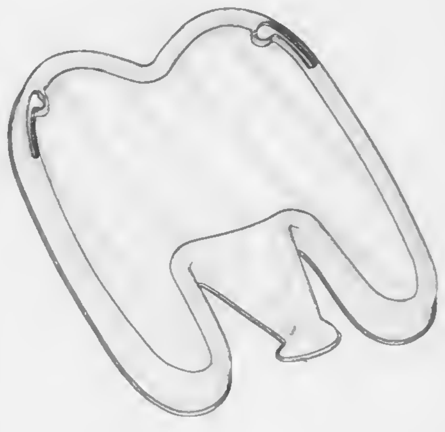
396,353
GARMENT HANGER

Stanley F. Gouldson, Northport, N.Y., assignor to Spotless Plastics Pty. Ltd., Australia
Continuation of Ser. No. 33,518, Jan. 13, 1995, Pat. No. Des. 376,263. This application Oct. 16, 1996, Ser. No. 61,208
Term of patent 14 years
LOC (6) Cl. 06 - *08*
U.S. Cl. D6—315



396,354
SAFETY SEAT FOR USE IN VEHICLES

Anthony Malcolm Smith, and David Field, both of Surrey, United Kingdom, assignors to Metro Products (Accesories & Leisure) Ltd., West Sussex, United Kingdom
Filed Jun. 19, 1996, Ser. No. 55,973
Claims priority, application United Kingdom, Dec. 20, 1995, 2052907
Term of patent 14 years
LOC (6) Cl. 06 - *01*
U.S. Cl. D6—333



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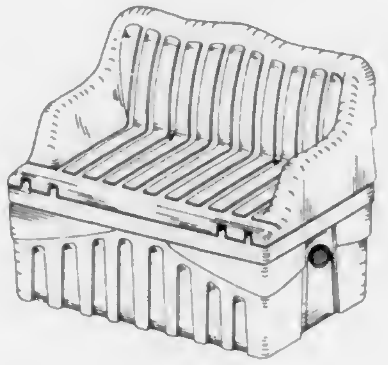
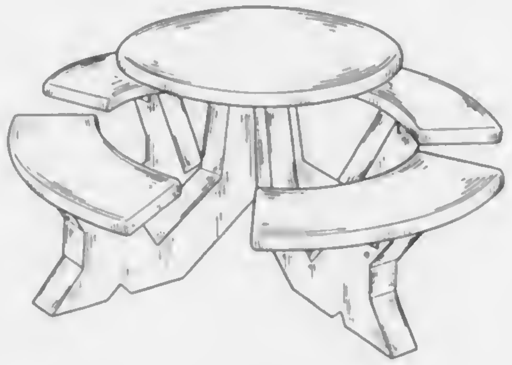
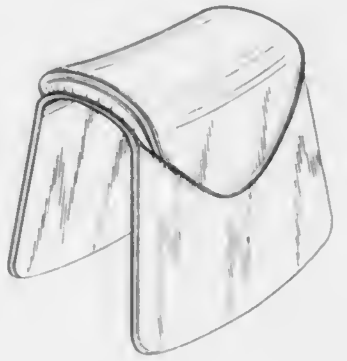
396,355
SEAT BENCH
Bruce L. Godbersen, 282 LaJune Ave., Ida Grove, Iowa 51445
Filed Jul. 14, 1997, Ser. No. 73,503
Term of patent 14 years
LOC (6) Cl. 06 - *01*
U.S. Cl. D6—336



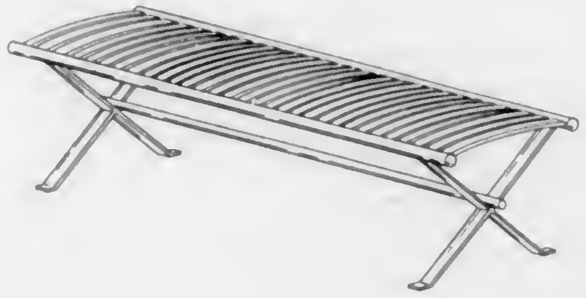
396,356
PICNIC TABLE
Chris C. Petersen, 1523 1st Ave. South, Denison, Iowa 51442
Filed Mar. 11, 1997, Ser. No. 68,590
Term of patent 14 years
LOC (6) Cl. 06 - *01*
U.S. Cl. D6—337



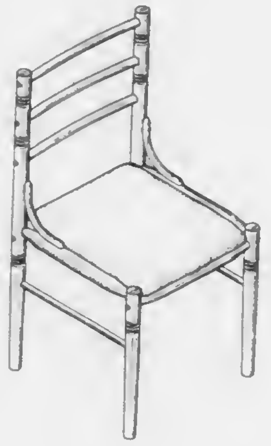
396,357
ROCKING STOOL
Thomas M. Perrin, Grand Rapids, and Steve J. Nemeth, Jr., Holland, both of Mich., assignors to Haworth, Inc., Holland, Mich.
Filed Jun. 6, 1997, Ser. No. 71,760
Term of patent 14 years
LOC (6) Cl. 06 - *01*
U.S. Cl. D6—349



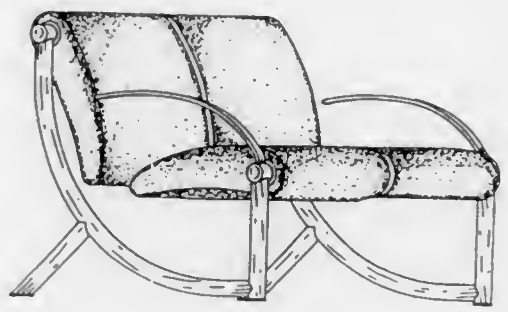
396,358
BENCH
James Geier, Chicago, Ill., assignor to 555 Design Fabrication Management Inc., Chicago, Ill.
Filed Jul. 31, 1997, Ser. No. 74,468
Term of patent 14 years
LOC (6) Cl. 06 - *01*
U.S. Cl. D6—349



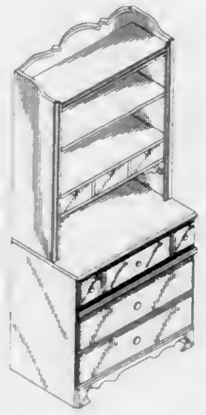
396,359
CHAIR
Biing-Kwei Jiang, Taichung Hsien, Taiwan, assignor to Chu Chiang, Taichung Hsien, Taiwan, a part interest
Filed Jun. 2, 1997, Ser. No. 71,552
Claims priority, application Taiwan, Feb. 27, 1997, 86301621
Term of patent 14 years
LOC (6) Cl. 06 - *01*
U.S. Cl. D6—370



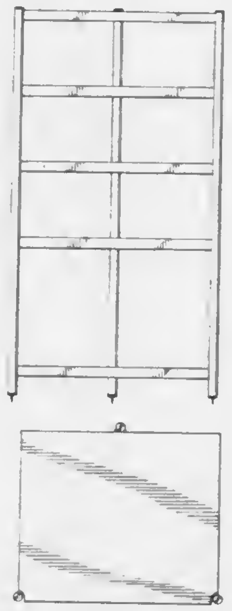
396,360
SEATING UNIT
Tina Zimmermann, Ueberlingen, Germany, assignor to Klöber GmbH, Überlingen, Germany
Filed Apr. 14, 1997, Ser. No. 69,100
Term of patent 14 years
LOC (6) Cl. 06 - *01*
U.S. Cl. D6—381



396,361
STORAGE UNIT
Paul Zaidman, Winnipeg, Canada, assignor to Palliser Funiture Ltd., Winnipeg, Canada
Filed Aug. 21, 1996, Ser. No. 58,720
Term of patent 14 years
LOC (6) Cl. 06 - *04*
U.S. Cl. D6—437



396,362
HI-FI RACK
Dennis Loo, 990 E. Oak St., Anaheim, Calif. 92805
Filed Feb. 18, 1997, Ser. No. 66,632
Term of patent 14 years
LOC (6) Cl. 06 - *04*
U.S. Cl. D6—465



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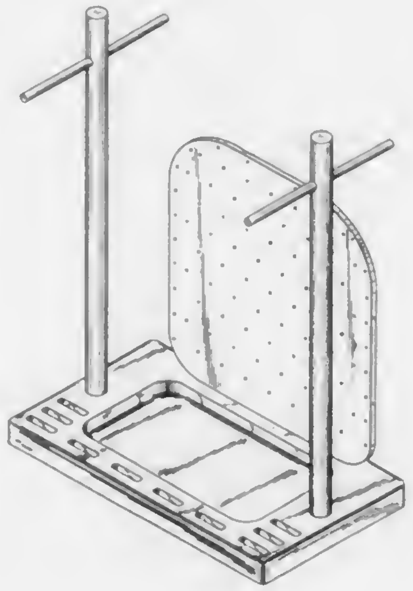
JEWELRY ORGANIZER

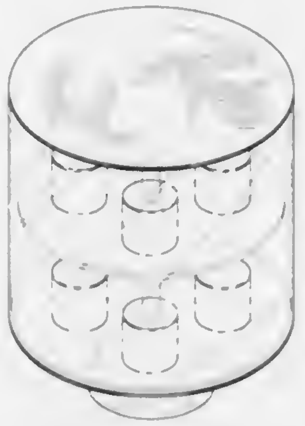
Clarence W. Skrum, 7152 Lee Rd., Rte. 1, Lodi, Wis. 53555
Filed Jul. 31, 1997, Ser. No. 74,258
Term of patent 14 years
LOC (6) Cl. 06 - *04*
U.S. Cl. D6—469



396,364

REVOLVING ICE CREAM DISPLAY REFRIGERATOR CASE

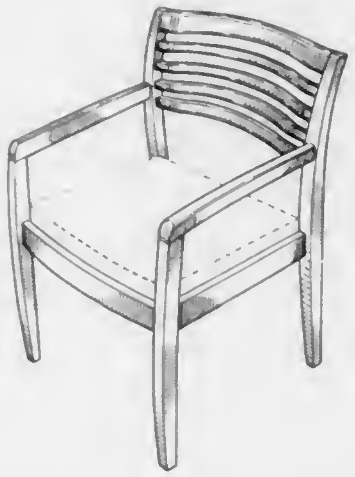
Ossie L. Townsend, 3550 Winter Park Dr. Apt. 129, Sacramento, Calif. 95834
Filed Jul. 21, 1997, Ser. No. 73,295
Term of patent 14 years
LOC (6) Cl. 06 - *04*
U.S. Cl. D6—472



396,365

CHAIR

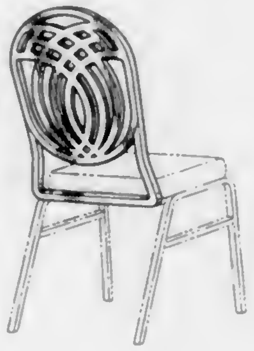
Anthony R. Lizell, 108 Old Oak Tree Rd., Lansdale, Pa. 19446
Filed Jul. 30, 1997, Ser. No. 74,219
Term of patent 14 years
LOC (6) Cl. 06 - *06*
U.S. Cl. D6—500



396,366

CHAIR BACK

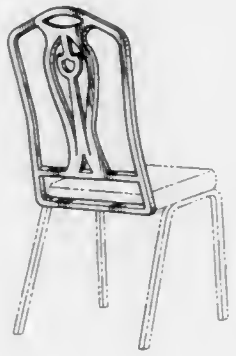
Philip P. Swy, Temperance, Mich., assignor to Michigan Tube Swagers & Fabricators, Inc., Temperance, Mich.
Filed May 13, 1997, Ser. No. 70,638
Term of patent 14 years
LOC (6) Cl. 06 - *06*
U.S. Cl. D6—502



396,367

CHAIR BACK

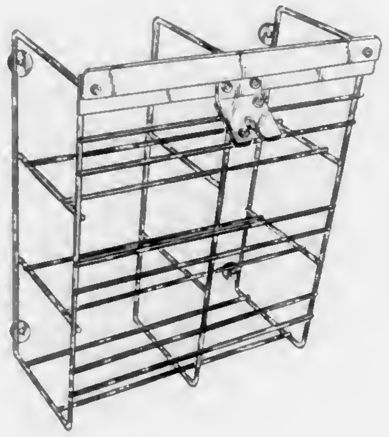
Philip P. Swy, Temperance, Mich., assignor to Michigan Tube Swagers & Fabricators, Inc., Temperance, Mich.
Filed May 13, 1997, Ser. No. 70,639
Term of patent 14 years
LOC (6) Cl. 06 - *06*
U.S. Cl. D6—502



396,368

STRING DISPENSER

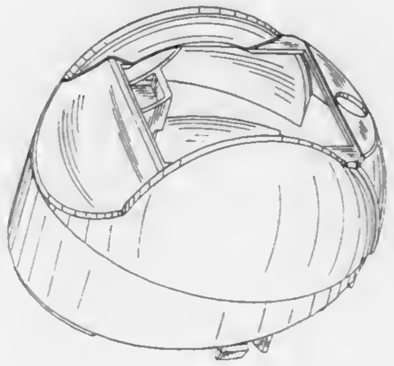
Jacobus Jozef Smakman, Lisse, Netherlands, assignor to Harry Vernooy B.V., Sassenheim, Netherlands
Filed Mar. 4, 1996, Ser. No. 51,116
Claims priority, application Hague Agreement, Sep. 11, 1995, DM/034100
Term of patent 14 years
LOC (6) Cl. 06 - *02*
U.S. Cl. D6—515



396,369

TEARING OFF MOUTH PIECE

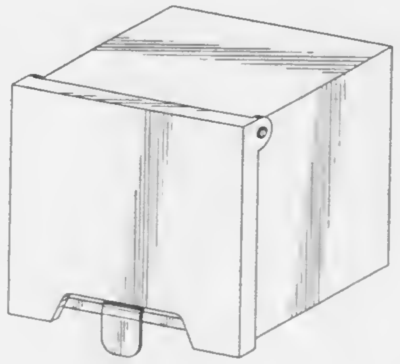
Giorgetto Giugiaro, Turin, Italy, assignor to SCA Hygiene Paper AB, Gothenburg, Sweden
Filed Nov. 7, 1996, Ser. No. 62,083
Term of patent 14 years
LOC (6) Cl. 07 - *07*
U.S. Cl. D6—518



396,370

MEASURED TOILET PAPER STRIP UNIT

Gilbert Romero, 201 Clayton Rd., Space 4, Raton, N. Mex. 87740
Filed Jan. 25, 1996, Ser. No. 49,515
Term of patent 14 years
LOC (6) Cl. 06 - *02*
U.S. Cl. D6—523



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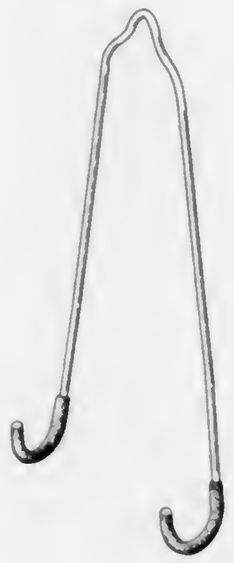
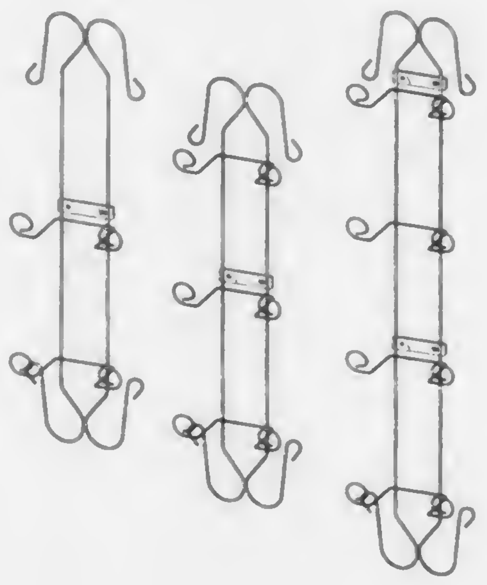
396,371
SKATEBOARD HANGER

Rex Oliver, 1526 Lava Ridge Rd., Santa Clara, Utah 84765
Filed Oct. 2, 1996, Ser. No. 60,598
Term of patent 14 years
LOC (6) Cl. 08 - *05*
U.S. Cl. D6—552



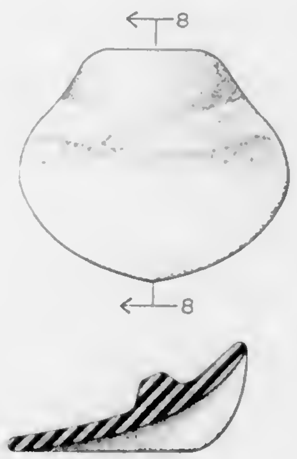
396,372
PLATE RACK

Sheldon H. Goodman, 30905 Stratford, Solon, Ohio 44139
Filed May 8, 1997, Ser. No. 70,437
Term of patent 14 years
LOC (6) Cl. 08 - *08*
U.S. Cl. D6—566



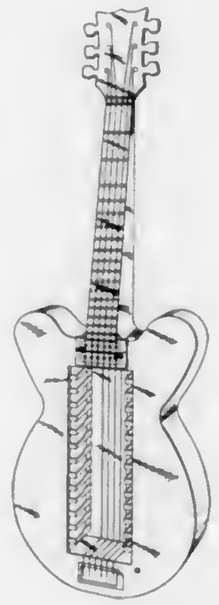
396,373
NECK AND SHOULDER PILLOW

Anthony Reale, 31 Tomlin Crescent, Richmond Hill, Ontario, Canada, L4C 7T4
Filed Sep. 17, 1997, Ser. No. 76,825
Term of patent 14 years
LOC (6) Cl. 06 - *09*
U.S. Cl. D6—601



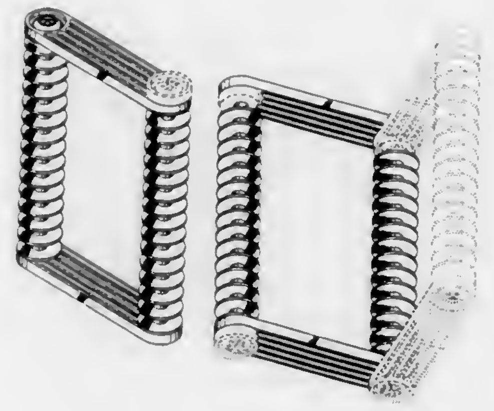
396,374
GUITAR-SHAPED MEDIA STAND

Dieter Ljubojevic, D-32584, Löhne, Germany
Filed Dec. 22, 1995, Ser. No. 48,794
Claims priority, application Germany, Jun. 22, 1995, 95 04 975.4
Term of patent 14 years
LOC (6) Cl. 06 - *04*
U.S. Cl. D6—630



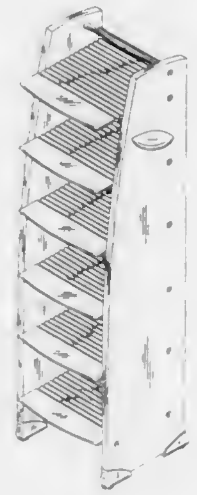
396,375
PLATE-LIKE ARTICLE HOLDER

Katsutoshi Hamada, Osaka, Japan, assignor to Elecom Kabushiki Kaisha, Osaka, Japan
Filed Jul. 22, 1996, Ser. No. 57,256
Claims priority, application Japan, Jan. 30, 1996, 8-2338; Jan. 30, 1996, 8-2339
Term of patent 14 years
LOC (6) Cl. 06 - *04*
U.S. Cl. D6—630



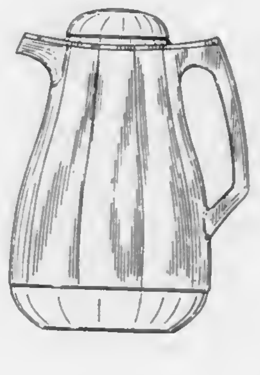
396,376
COMPACT DISC RACK

Louisa Mok Sze-Man, Kowloon, Hong Kong, assignor to Ezech Limited, Kowloon, Hong Kong
Filed Feb. 20, 1997, Ser. No. 67,312
Term of patent 14 years
LOC (6) Cl. 06 - *04*
U.S. Cl. D6—630



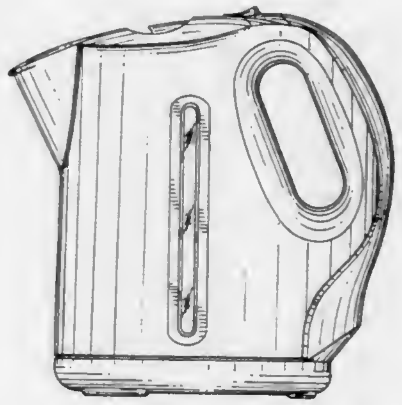
396,377
VACUUM BOTTLE

Akira Tamura, Hirakata, Japan, assignor to Tiger Mahobin Kabushiki Kaisha, Osaka, Japan
Filed Jun. 18, 1997, Ser. No. 72,423
Claims priority, application Japan, Dec. 25, 1996, 8-39605
Term of patent 14 years
LOC (6) Cl. 07 - *01*
U.S. Cl. D7—319



396,378
KETTLE

Keith James Hensel, Greenwich, Australia, assignor to Sunbeam Corporation Limited, New South Wales, Australia
Filed Aug. 11, 1997, Ser. No. 74,821
Claims priority, application Australia, Feb. 12, 1997, 407/1997
Term of patent 14 years
LOC (6) Cl. 07 - *01*
U.S. Cl. D7—319



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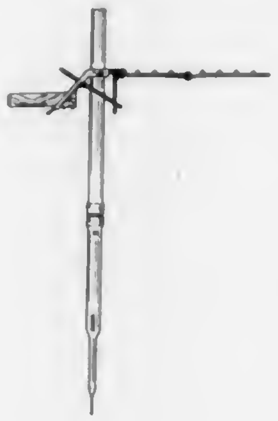
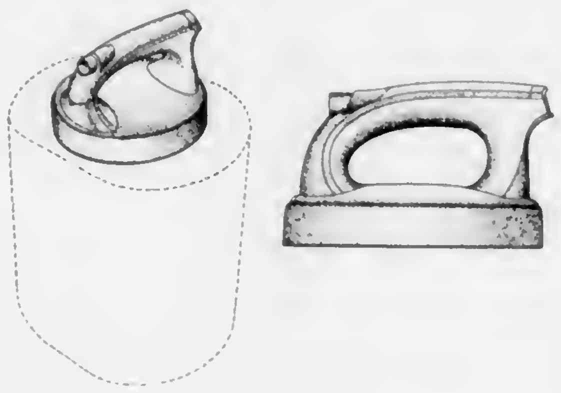
396,379
CAMPER'S GRILL

Mark Stoetzl, 17616 Road 400, Madera, Calif. 93638
Filed Sep. 24, 1997, Ser. No. 76,905
Term of patent 14 years
LOC (6) Cl. 07 - *02*
U.S. Cl. D7—335



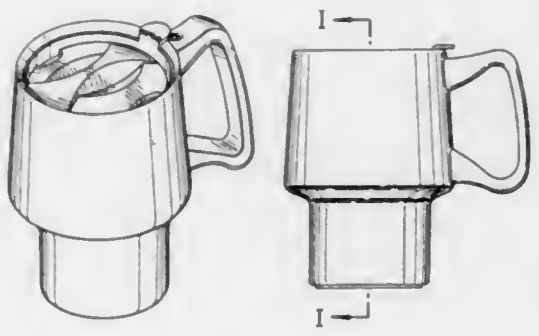
396,380
CONTAINER HANDLE AND DISPERSING SPOUT

John W. Lai; Andrew Bert Hodge, both of San Francisco, Calif., and Thomas J. Melk, Chicago, Ill., assignors to Outer Circle Products, Ltd., Chicago, Ill.
Continuation of Ser. No. 6,492, Jan. 14, 1997, abandoned. This application May 20, 1997, Ser. No. 70,942
Term of patent 14 years
LOC (6) Cl. 07 - *99*
U.S. Cl. D7—392



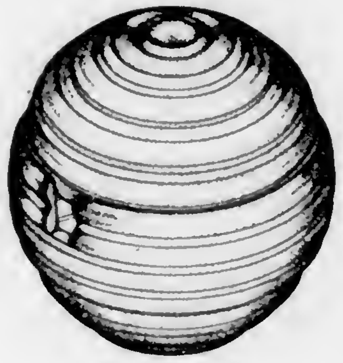
396,381
TRAVEL MUG

Young Chung, Samboo Apt. 3-202, 538-1, Banghwa 2-dong, Kangseo-ku, Seoul, Rep. of Korea
Filed Mar. 21, 1997, Ser. No. 68,485
Term of patent 14 years
LOC (6) Cl. 07 - *01*
U.S. Cl. D7—510



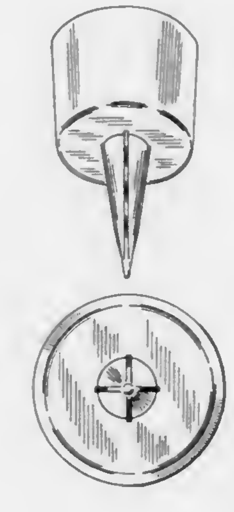
396,382
BEEHIVE SUGAR CONTAINER

Junior Julian Hsu, 3633 Palm Canyon, Northbrook, Ill. 60062
Filed Jan. 9, 1997, Ser. No. 64,711
Term of patent 14 years
LOC (6) Cl. 07 - *06*
U.S. Cl. D7—599



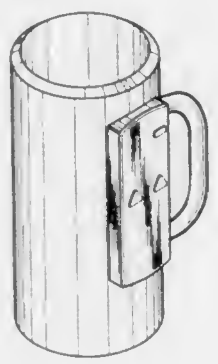
396,383
CONTAINER HOLDER

Paul M. Hanson, 5326 Blueridge Pkwy., Memphis, Tenn. 38134
Filed Jul. 31, 1997, Ser. No. 75,079
Term of patent 14 years
LOC (6) Cl. 07 - *06*
U.S. Cl. D7—620



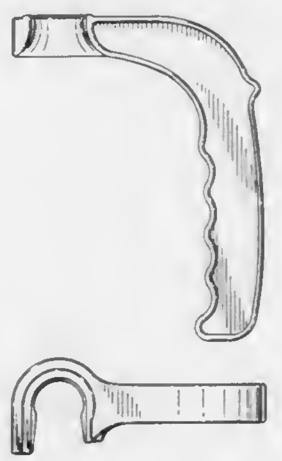
396,384
COMBINED BEVERAGE CAN HOLDER AND REMOTE TV CONTROL

Brenda J. Slaten, 2008 40th St., Des Moines, Iowa 50310, and Paul J. Heddinger, 536 13th St., West Des Moines, Iowa 50265
Filed Jul. 11, 1997, Ser. No. 73,632
Term of patent 14 years
LOC (6) Cl. 07 - *06*
U.S. Cl. D7—622



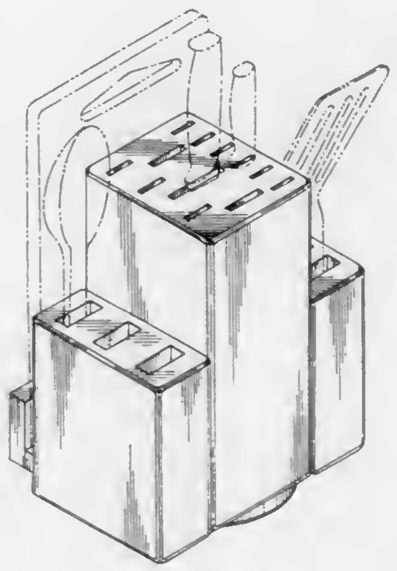
396,385
BOTTLE HOLDER

Henry P. Lisciotti, Jr., and Thomas J. DiRusso, both of Leominster, Mass., assignors to Sportsmen's Plastics, Inc., Leominster, Mass.
Filed Oct. 3, 1997, Ser. No. 77,521
Term of patent 14 years
LOC (6) Cl. 07 - *06*
U.S. Cl. D7—622



396,386
KITCHEN CADDY

Jamie C. Conner, c/o Source Manufacturing Company, Inc., 191 Post Road West, Westport, Conn. 06880
Filed Sep. 22, 1997, Ser. No. 76,764
Term of patent 14 years
LOC (6) Cl. 07 - *07*
U.S. Cl. D7—641



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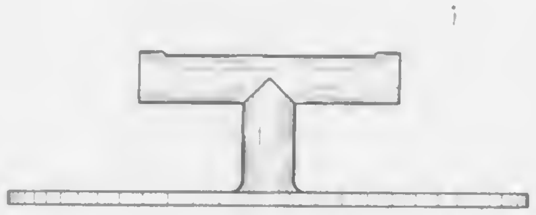
396,387
PRESS DEVICE FOR DRAINING LIQUIDS FROM CANS
Guy Marzullo, 6217 N. Talman Ave., Apt. #3, Chicago, Ill. 60659

Filed Apr. 4, 1997, Ser. No. 69,687
Term of patent 14 years
LOC (6) Cl. 07 - *04*

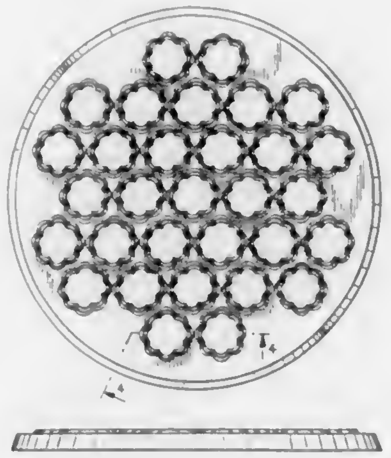
U.S. Cl. D15—150



396,388
TRAY FOR MAKING STUFFED PASTA PRODUCTS
Edward I. Mishan, New York, N.Y., assignor to E. Mishan & Sons, Inc., New York, N.Y.

Division of Ser. No. 072,508, Jun. 19, 1997. This application Nov. 19, 1997, Ser. No. 80,285
Term of patent 14 years
LOC (6) Cl. 07 - *04*

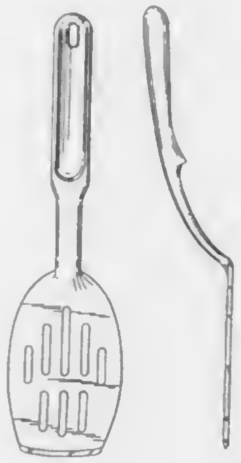
U.S. Cl. D7—672



396,389
COMBINED SPATULA AND TURNER
Jenel Durbin, Bloomingdale, Ill., assignor to The Pampered Chef, Ltd., Addison, Ill.

Filed Feb. 28, 1997, Ser. No. 67,109
Term of patent 14 years
LOC (6) Cl. 07 - *02*

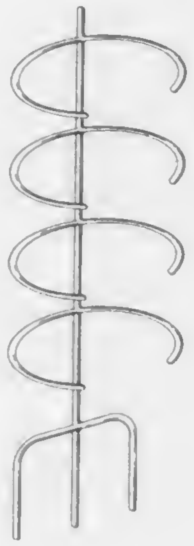
U.S. Cl. D7—692



396,390
PLANT STAKE
Marylee W. Edmondson, 926 8th St., Las Vegas, N. Mex. 87701

Filed Apr. 10, 1997, Ser. No. 69,095
Term of patent 14 years
LOC (6) Cl. 08 - *01*

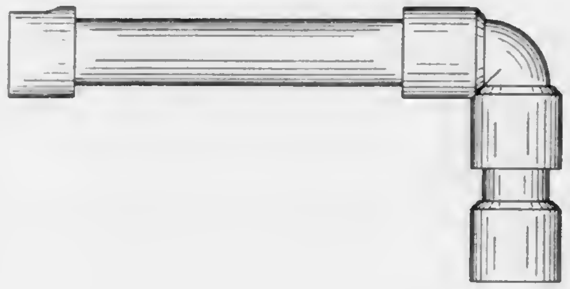
U.S. Cl. D8—1



396,391
TOOL FOR USE IN INSTALLING TREE STAND CLIMBERS
Philip Michael Rein, 6 Country Acres Ct., St. Peters, Mo. 63376, and John Patrick Patton, Sr., 2933 Whitestable Dr., O'Fallon, Mo. 63366

Filed Aug. 22, 1997, Ser. No. 75,767
Term of patent 14 years
LOC (6) Cl. 08 - *05*

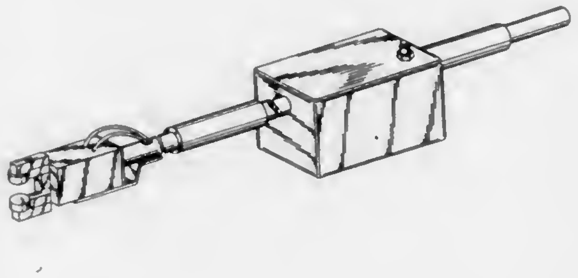
U.S. Cl. D8—14



396,392
MANUAL MANIPULATOR
Stephen L. Moskalik, Plainwell, Mich., assignor to TDA Buddy, Inc., Kalamazoo, Mich.

Division of Ser. No. 55,462, Jun. 4, 1996, Pat. No. Des. 390,077. This application Sep. 12, 1997, Ser. No. 76,527
Term of patent 14 years
LOC (6) Cl. 08 - *05*

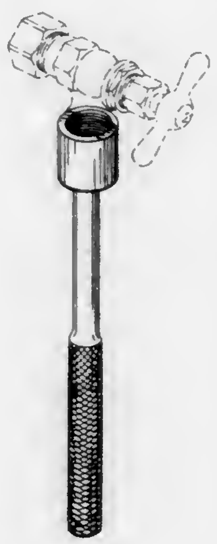
U.S. Cl. D8—14



396,393
PLUMBER'S WRENCH
John H. McCallum, 2344 Via Miraleste, Palm Springs, Calif. 92262

Continuation-in-part of Ser. No. 50,293, Feb. 14, 1996, abandoned. This application Jun. 24, 1997, Ser. No. 72,700
Term of patent 14 years
LOC (6) Cl. 08 - *05*

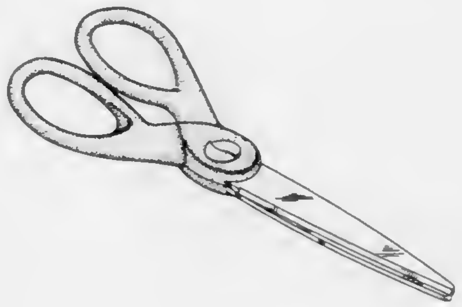
U.S. Cl. D8—29



396,394
SCISSORS
Bruno Gstadler, Poissy, France, assignor to Manufacture D'Articles de Precision et de Dessin, France

Filed Aug. 30, 1996, Ser. No. 58,996
The portion of the term of this patent subsequent to Jul. 14, 2012, has been disclaimed.
Term of patent 14 years
LOC (6) Cl. 08 - *03*

U.S. Cl. D8—57



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DRILL

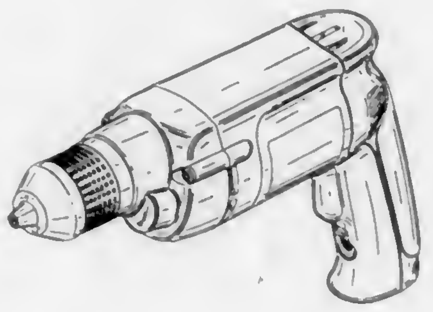
Donald W. Zurwelle, Lutherville, Md., assignor to Black & Decker Inc., Newark, Del.

Filed Feb. 28, 1997, Ser. No. 67,183

Term of patent 14 years

LOC (6) Cl. 08 - *01*

U.S. Cl. D8—68



396,396

BICYCLE HANDLE SHIFTER GRIP

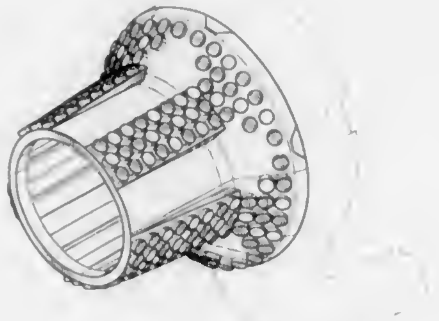
Michael W. Larson, Chicago, Ill., assignor to SRAM Corporation, Chicago, Ill.

Filed Oct. 31, 1994, Ser. No. 30,496

Term of patent 14 years

LOC (6) Cl. 08 - *06*

U.S. Cl. D8—303



396,397

LATCH APPARATUS

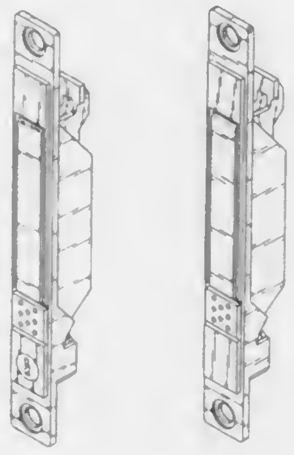
David A. Swan, Shoreview, Minn., assignor to Hoffman Enclosures Inc., Anoka, Minn.

Filed Mar. 19, 1996, Ser. No. 51,826

Term of patent 14 years

LOC (6) Cl. 08 - *07*

U.S. Cl. D8—331



396,398

LOCK ASSEMBLY HOUSING

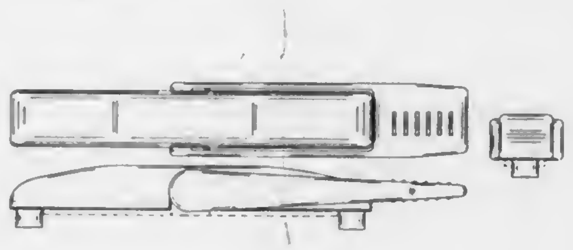
Todd Allan Anderson, Conyngham, and Clifford Elliott Simon, Mountaintop, both of Pa., assignors to Allen-Stevens Corp., West Hazelton, Pa.

Filed Jan. 28, 1997, Ser. No. 65,244

Term of patent 14 years

LOC (6) Cl. 08 - *07*

U.S. Cl. D8—338



396,399

INFORMATION CARRIER FOR COIN OPERATED LOCK ON SHOPPING TROLLEYS AND SIMILAR ARTICLES

Dagfinn Leira, Fredsbergveien 15, 6009 Alesund, Norway

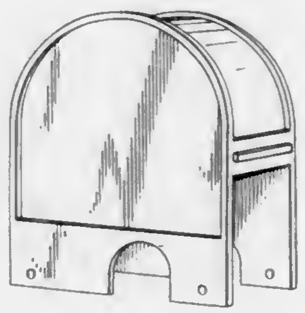
Filed Mar. 17, 1997, Ser. No. 68,655

Claims priority, application Norway, Sep. 24, 1996, D960689

Term of patent 14 years

LOC (6) Cl. 08 - *07*

U.S. Cl. D8—343



396,400

KEY TURNER

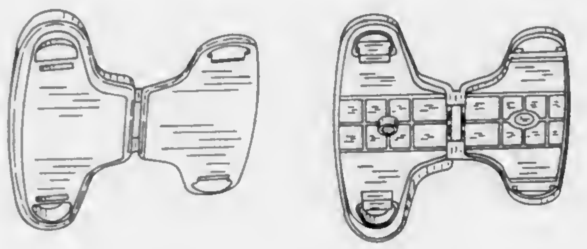
Curtis Taylor, Chagrin Falls; Jeffrey S. Plantz, Seven Hills, and Nicholas E. Stanca, Westlake, all of Ohio, assignors to Magic American Corporation, Cleveland, Ohio

Filed Aug. 11, 1997, Ser. No. 74,969

Term of patent 14 years

LOC (6) Cl. 08 - *07*

U.S. Cl. D8—346



396,401

LIGHT SWITCH COVER

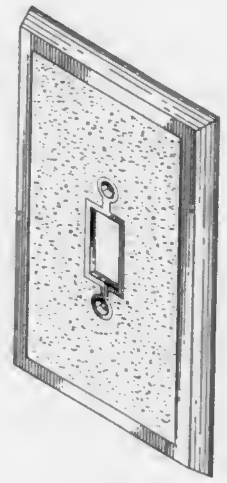
Curtis Christie, 19219 SW. 120th Ave., Miami, Fla. 33177

Filed Jul. 31, 1995, Ser. No. 42,050

Term of patent 14 years

LOC (6) Cl. 11 - *05*

U.S. Cl. D8—353



396,402

ONE PIECE REFRIGERATOR BRACKET

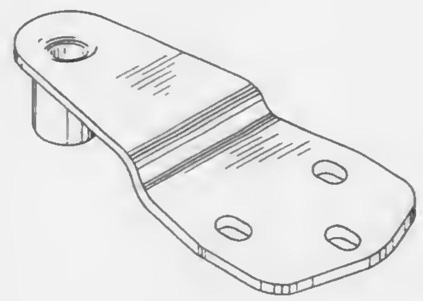
David W. Rastovski, Valparaiso, Ind., assignor to Diversified Specialties, Port Washington, Wis.

Filed Jun. 12, 1996, Ser. No. 55,785

Term of patent 14 years

LOC (6) Cl. 08 - *05*

U.S. Cl. D8—354



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396,403
CD PLAYER MOUNT

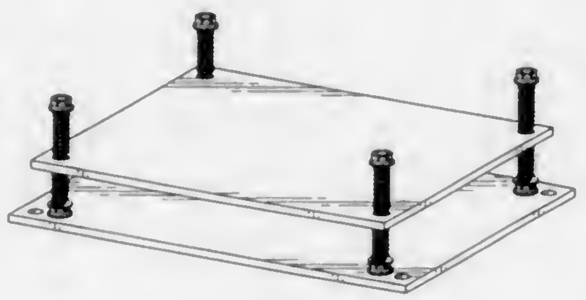
James Todd Whittaker, 1416 Norton Ave., San Mateo, Calif. 94401

Filed Sep. 10, 1996, Ser. No. 59,408

Term of patent 14 years

LOC (6) Cl. 08 - *05*

U.S. Cl. D8—354



396,404
KITE REEL

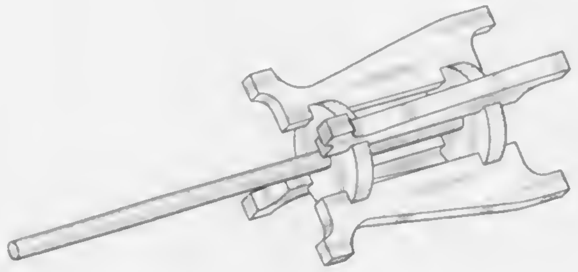
Sunho Hong, 15 Chesterfield, Mission Viejo, Calif. 92692, assignor to Sunho Hong, Mission Viejo, Calif.

Filed Aug. 13, 1997, Ser. No. 74,939

Term of patent 14 years

LOC (6) Cl. 08 - *05*

U.S. Cl. D8—358



396,405
BELTLESS HAMMER HOLDER

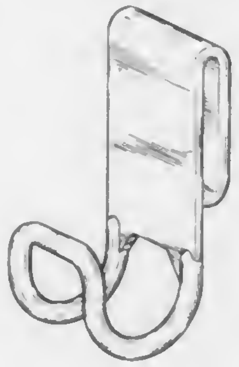
Geno Zaccardelli, 7245 Akins Rd., North Royalton, Ohio 44133

Filed Nov. 1, 1996, Ser. No. 61,845

Term of patent 14 years

LOC (6) Cl. 08 - *05*

U.S. Cl. D8—373



396,406
FACE ATTACHMENT

Tomoo Eguchi, Utsunomiya, Japan, assignor to Nifco Inc., Yokohama, Japan

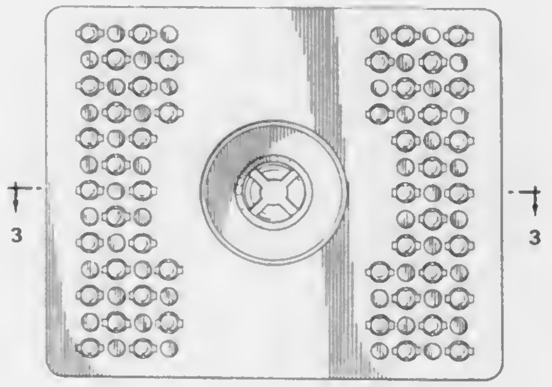
Division of Ser. No. 51,019, Mar. 1, 1996. This application Jul. 18, 1997, Ser. No. 73,870

Claims priority, application Japan, Oct. 12, 1995, 7-30288; Oct. 12, 1995, 7-30290

Term of patent 14 years

LOC (6) Cl. 08 - *08*

U.S. Cl. D8—382



396,407
PROTECTIVE CAP FOR SHELVING UPRIGHT

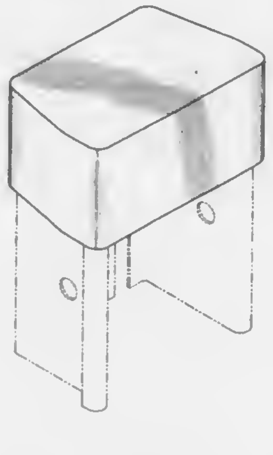
Kevin Jennings, 154 Barnard Ave., Apt. D., Asheville, N.C. 28804, and Arnold Marshall, 333 Gouges Branch Rd., Leicester, N.C. 28748

Filed Dec. 5, 1996, Ser. No. 63,312

Term of patent 14 years

LOC (6) Cl. 08 - *09*

U.S. Cl. D8—499



396,408
FRUIT PACKING TRAY

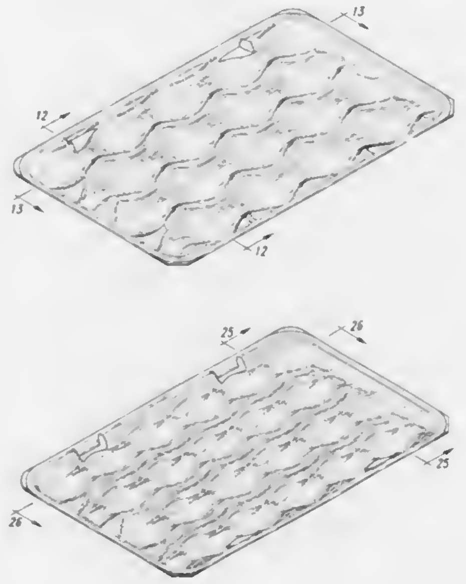
Darryl Carver, Bellevue, Wash., assignor to Michelsen Packaging Co., Yakima, Wash.

Filed Aug. 2, 1996, Ser. No. 57,900

Term of patent 14 years

LOC (6) Cl. 09 - *03*

U.S. Cl. D9—345



396,409
OVERSIZED TWO PART VEHICLE TRANSMISSION SHIPPING CONTAINER

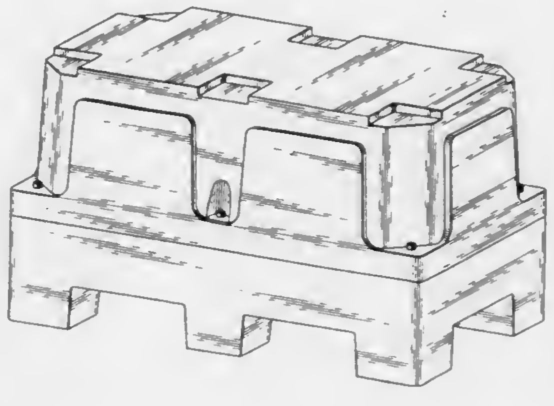
Rick Scribner, 2483-B Mercantile Dr., Rancho Cordova, Calif. 95742

Division of Ser. No. 64,488, Jan. 2, 1997, Pat. No. Des. 391,849. This application Sep. 29, 1997, Ser. No. 77,208

Term of patent 14 years

LOC (6) Cl. 09 - *07*

U.S. Cl. D9—426



396,410
REMOTE SPRAY HANDLE FOR USE WITH PRESSURIZED LIQUID SPRAY CONTAINERS

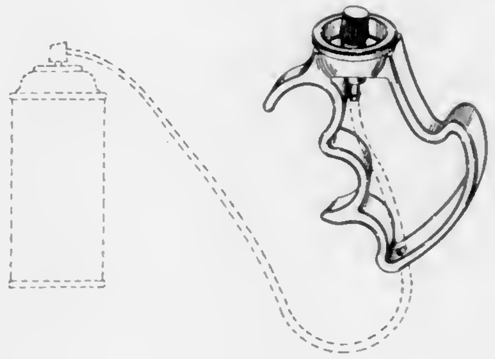
Gregory Joe Gault, 7233 Claire Ave., Reseda, Calif. 91355

Filed Sep. 11, 1996, Ser. No. 59,463

Term of patent 14 years

LOC (6) Cl. 09 - *07*

U.S. Cl. D9—434



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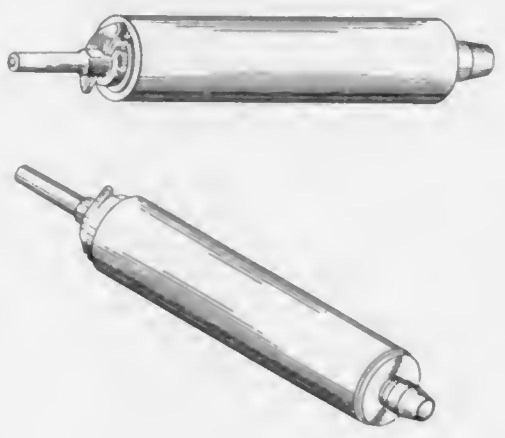
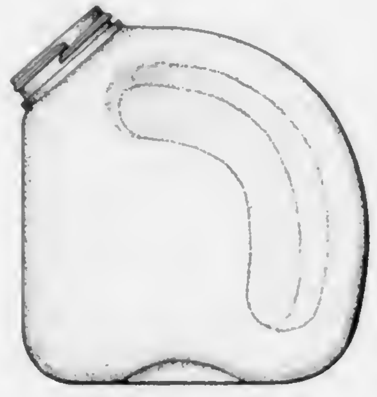
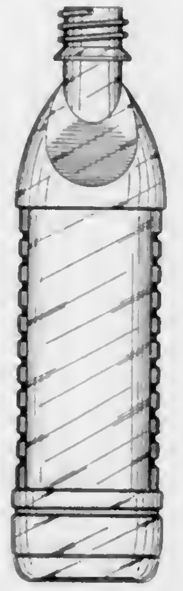
396,411
PUMP FOR A SOAP DISPENSER
Warren S. Daansen, P.O. Box 614, Nashua, N.H. 03061
Filed Feb. 8, 1996, Ser. No. 50,105
The portion of the term of this patent subsequent to Jul. 23, 2010, has been disclaimed.
Term of patent 14 years
LOC (6) Cl. 09 - *07*
U.S. Cl. D9—448



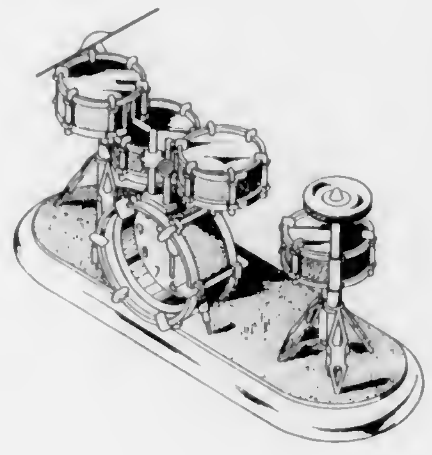
396,412
BOTTLE
Michael D. Murphy, Tinley Park, Ill., assignor to W. Braun Company, Chicago, Ill.
Filed Jan. 21, 1997, Ser. No. 65,102
Term of patent 14 years
LOC (6) Cl. 09 - *01*
U.S. Cl. D9—520



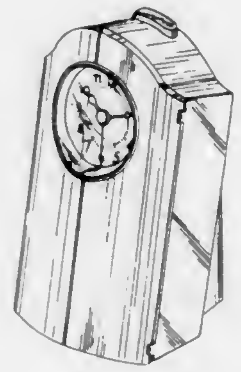
396,413
BOTTLE
Len Duboff, 104 Stonecrest Rd., Ridgefield, Conn. 06877
Filed Aug. 25, 1997, Ser. No. 75,350
Term of patent 14 years
LOC (6) Cl. 09 - *01*
U.S. Cl. D9—539



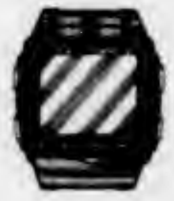
396,414
CLOCK
Kuo-Chin Chiang, 58, Ma Yuan West St., Taichung, Taiwan
Filed Aug. 14, 1997, Ser. No. 75,039
Term of patent 14 years
LOC (6) Cl. 10 - *01*
U.S. Cl. D10—6



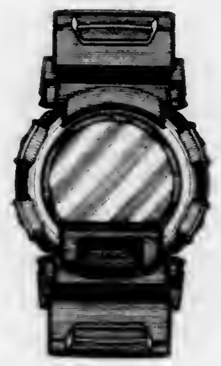
396,415
CLOCK
Chu-Rong Kuo, 12F, No. 367, Han Kou Road, Sec. 4, Taichung, Taiwan
Filed Jul. 22, 1997, Ser. No. 73,996
Term of patent 14 years
LOC (6) Cl. 10 - *01*
U.S. Cl. D10—28



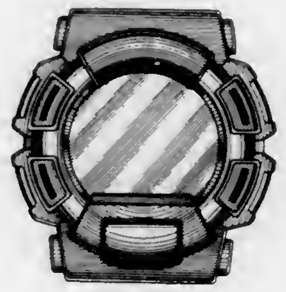
396,416
WATCH CASE
Shoichi Sugita, Wako, and Kotaro Nakazato, Wako, both of Japan, assignors to Casio Computer Co., Ltd., Tokyo, Japan
Filed Aug. 11, 1997, Ser. No. 74,875
Term of patent 14 years
LOC (6) Cl. 10 - *02*
U.S. Cl. D10—30



396,417
WATCH CASE
Atsushi Goto, Kunitachi, Japan, assignor to Casio Computer Co., Ltd., Tokyo, Japan
Filed Sep. 2, 1997, Ser. No. 76,098
Term of patent 14 years
LOC (6) Cl. 10 - *02*
U.S. Cl. D10—30



396,418
WATCH CASE
Atsushi Goto, Kunitachi, Japan, assignor to Casio Computer Co., Ltd., Tokyo, Japan
Filed Oct. 1, 1997, Ser. No. 77,291
Term of patent 14 years
LOC (6) Cl. 10 - *02*
U.S. Cl. D10—30



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WRIST WATCH

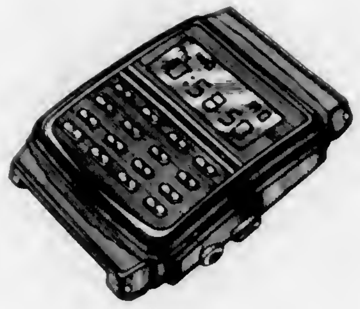
Shoichi Sugita, Wako, and Masao Wada, Tokyo, both of Japan, assignors to Casio Computer Co., Ltd., Tokyo, Japan

Filed Sep. 2, 1997, Ser. No. 76,099

Term of patent 14 years

LOC (6) Cl. 10 - *02*

U.S. Cl. D10—31



396,420

WRISTWATCH

Olivier C. Coquerel, Paris, France, assignor to S.T. Dupont S.A., Paris, France

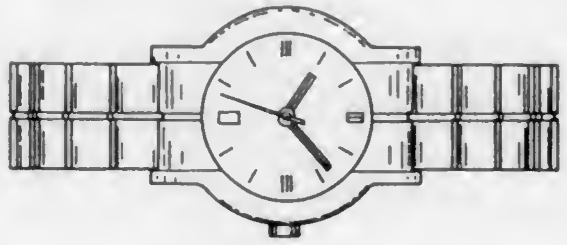
Filed Sep. 29, 1997, Ser. No. 77,429

Claims priority, application France, Apr. 3, 1997, 971971

Term of patent 14 years

LOC (6) Cl. 10 - *02*

U.S. Cl. D10—32



396,421

CONSUMER IR THERMOMETER

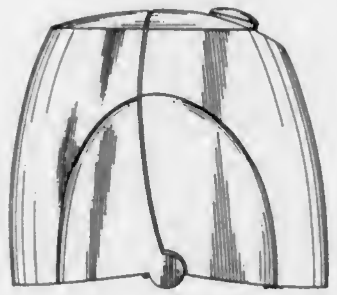
Matthew Barthelemy, 2557 Park Blvd., Suite L102, Palo Alto, Calif. 94306; Stuart Seydo Kurdi, 9466 Hito Ct., San Diego, Calif. 92129; Sonja Ándrea Schiefer, 741 Homer Ave., Palo Alto, Calif. 94301, and Stephen George Zmina, 189 Sierra Ct., Morgan Hill, Calif. 95037

Filed Mar. 17, 1997, Ser. No. 68,155

Term of patent 14 years

LOC (6) Cl. 10 - *04*

U.S. Cl. D10—57



396,422

RULER WITH DRAWING CURVES

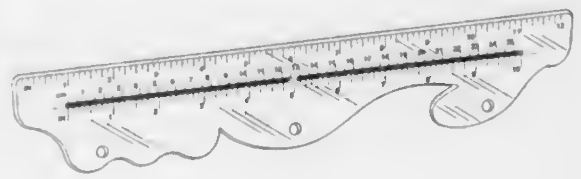
Charles W. Dietterich, Brodheadsville, Pa.; Stephen A. White, Bloomsbury, N.J.; Brett A. Wilson, Durham, Pa., and Richard A. Tarozzi, Gales Ferry, Conn., assignors to Binney & Smith Inc., Easton, Pa.

Filed Oct. 20, 1997, Ser. No. 78,137

Term of patent 14 years

LOC (6) Cl. 10 - *04*

U.S. Cl. D10—62



396,423

GLOBAL POSITIONING SYSTEM RECEIVER

Mitsuo Ishii, Tokyo, Japan, assignor to Topcon Corporation, Tokyo, Japan

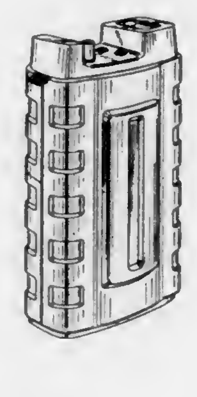
Filed Nov. 10, 1997, Ser. No. 79,244

Claims priority, application Japan, Sep. 30, 1997, 9-6941

Term of patent 14 years

LOC (6) Cl. 10 - *04*

U.S. Cl. D10—65



396,424

RULER

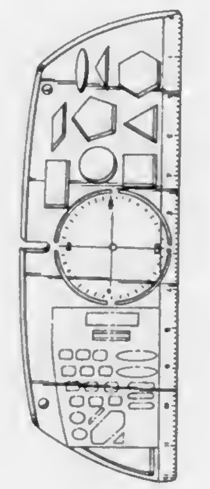
Mark A. Bedol, P.O. Box 1268, Claremont, Calif. 91711, and Edward Wong, Alhambra, Calif., assignors to Mark A. Bedol, Claremont, Calif.

Filed Aug. 14, 1997, Ser. No. 75,836

Term of patent 14 years

LOC (6) Cl. 10 - *04*

U.S. Cl. D10—71



396,425

HOUSING FOR A BATTERY TESTER

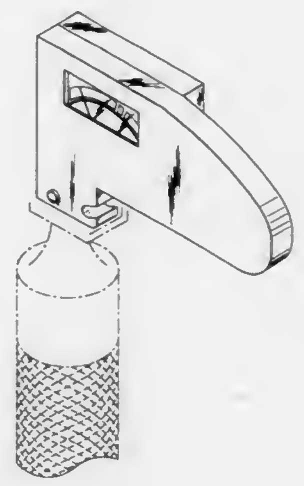
Jeff Ratner, Pinellas Park, Fla., assignor to Mercury Enterprises, Inc., Clearwater, Fla.

Filed Dec. 19, 1997, Ser. No. 80,937

Term of patent 14 years

LOC (6) Cl. 10 - *04*

U.S. Cl. D10—77



396,426

TRANSMITTER FOR A HUNTER PROXIMITY ALARM

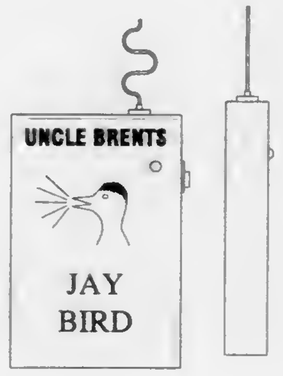
H. Brent Lambert, Rt. 11 Box 477B Lost Pavement Rd., Parkersburg, W. Va. 26101

Filed Oct. 30, 1997, Ser. No. 78,662

Term of patent 14 years

LOC (6) Cl. 10 - *05*

U.S. Cl. D10—106



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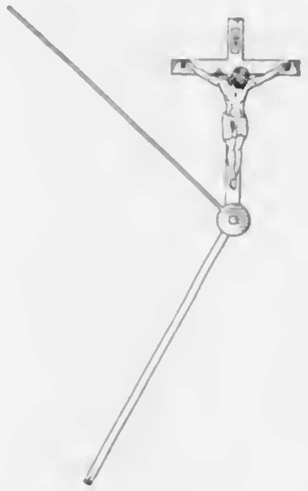
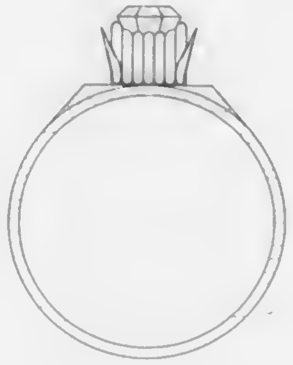
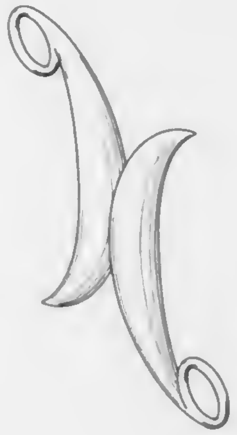
396,427
HANDS FOR A TIMEPIECE
Bryan J. Halligan, 3237 NE. 100th St., Seattle, Wash. 98125
Continuation-in-part of Ser. No. 60,728, Oct. 4, 1996, abandoned. This application Oct. 25, 1996, Ser. No. 61,516
Term of patent 14 years
LOC (6) Cl. 10 - *01*
U.S. Cl. D10—127



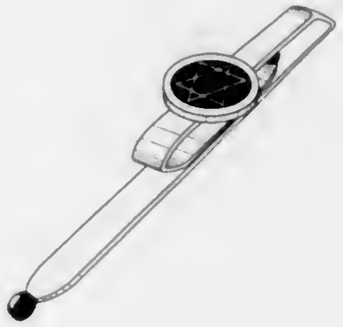
396,428
ORNAMENTAL RING
Billy R Chatlin, and Clemmie E Sheppard, both of 4745 Detroit, Beaumont, Tex. 77703-1414
Filed Jul. 31, 1997, Ser. No. 74,491
Term of patent 14 years
LOC (6) Cl. 11 - *01*
U.S. Cl. D11—35



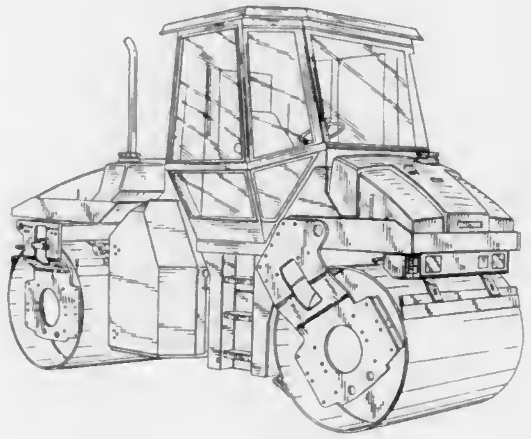
396,429
JEWELRY PENDANT
Anna V. Kowsky, 39429 Blue Fin Way, Fremont, Calif. 94538-1816
Filed Jul. 1, 1997, Ser. No. 73,135
Term of patent 14 years
LOC (6) Cl. 11 - *01*
U.S. Cl. D11—79



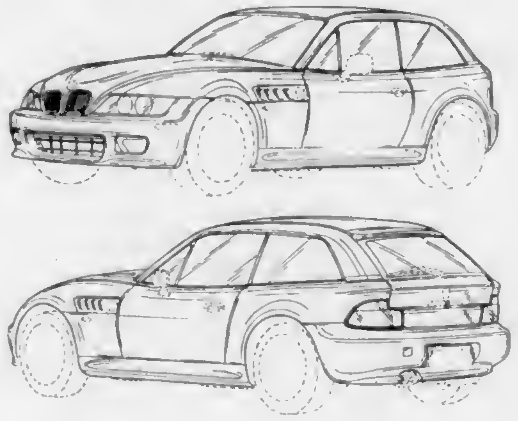
396,430
CLIP
David S. Marsh, 5 G, Bull Lane, Orrell Park, Liverpool, United Kingdom
Filed Oct. 23, 1997, Ser. No. 78,430
Term of patent 14 years
LOC (6) Cl. 02 - *07*
U.S. Cl. D11—203



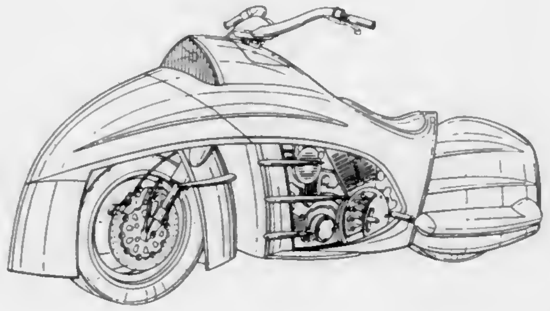
396,431
ROAD ROLLER WITH AN ASYMMETRICAL CABIN FOR AN OPERATOR
Jörgen Lindgren, Karlskrona; Sven-Erik Samuelsson, Nätraby, and Anders Thulin, Lyckeby, all of Sweden, assignors to Dynapac Heavy Equipment AB, Karlskrona, Sweden
Filed Aug. 7, 1995, Ser. No. 42,318
Claims priority, application Sweden, Feb. 16, 1995, 950323
Term of patent 14 years
LOC (6) Cl. 12 - *13*
U.S. Cl. D12—14



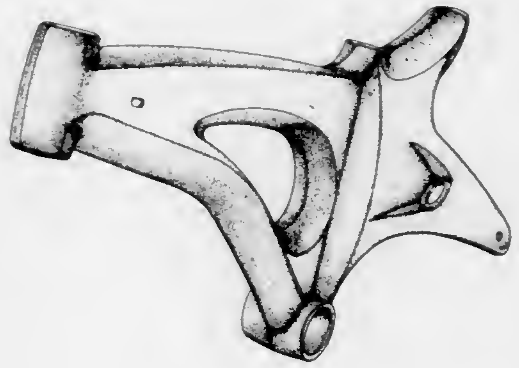
396,432
MOTOR VEHICLE BODY
Marcus Syring, Munich, Germany, assignor to Bayerische Motoren Werke Aktiengesellschaft
Filed Aug. 5, 1997, Ser. No. 74,545
Claims priority, application Germany, Feb. 5, 1997, M 97 01 285.8
Term of patent 14 years
LOC (6) Cl. 12 - *08*
U.S. Cl. D12—91



396,433
VEHICLE
Harald Belker, Seal Beach; Barbara Ling, Echo Park, and Joel Schumacher, Burbank, all of Calif., assignors to Warner Bros., Burbank, Calif.
Filed Apr. 18, 1997, Ser. No. 69,848
Term of patent 14 years
LOC (6) Cl. 12 - *11*
U.S. Cl. D12—110



396,434
BIKE FRAME GUARD
I-Li Tseng, Tainan Hsien, Taiwan, assignor to Overlord Industries Corp., Tainan Hsien, Taiwan
Filed May 14, 1997, Ser. No. 70,729
Term of patent 14 years
LOC (6) Cl. 12 - *11*
U.S. Cl. D12—111



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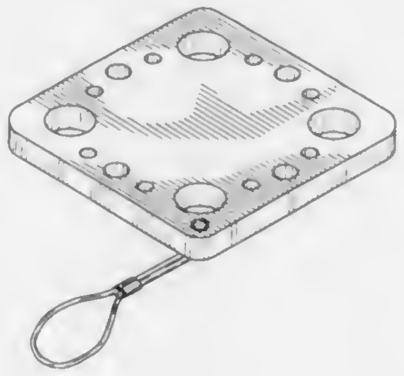
396,435
TWO-WHEELED VEHICLE KICKSTAND SUPPORT PAD

Mark L. Favereaux, Sr., 1241 ½ First Ave., Hellertown, Pa. 18055

Filed Jul. 10, 1997, Ser. No. 73,394
Term of patent 14 years
LOC (6) Cl. 12 - *11*

U.S. Cl. D12—120

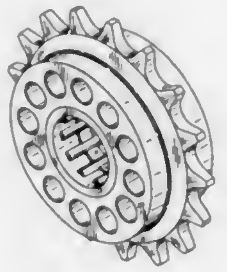


396,436
SPROCKET GEAR FOR A CHAIN-DRIVEN VEHICLE

Gordon Liska, 51 Depot St., Verona, N.J. 07044

Filed May 30, 1997, Ser. No. 71,510
Term of patent 14 years
LOC (6) Cl. 12 - *12*

U.S. Cl. D12—123

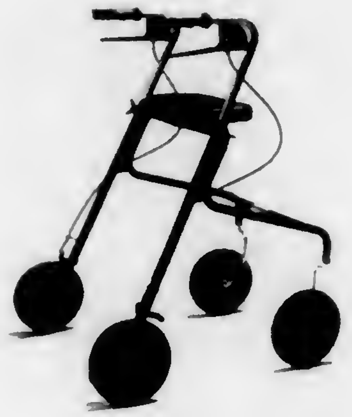


396,437
WALKER

Gunnar Liljedahl, Lulea, Sweden, assignor to Liko AB, Lulea, Sweden

Filed Aug. 9, 1996, Ser. No. 58,176
Term of patent 14 years
LOC (6) Cl. 12 - *12*

U.S. Cl. D12—130

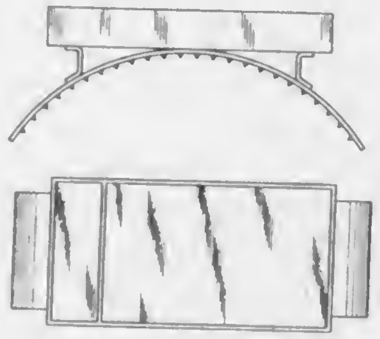


396,438
TIRE TRAY PARTS PAN

Matthew J. Ellsworth, P.O. Box 576, Bartonsville, Pa. 18321

Filed Sep. 11, 1996, Ser. No. 59,454
Term of patent 14 years
LOC (6) Cl. 12 - *16*

U.S. Cl. D12—425

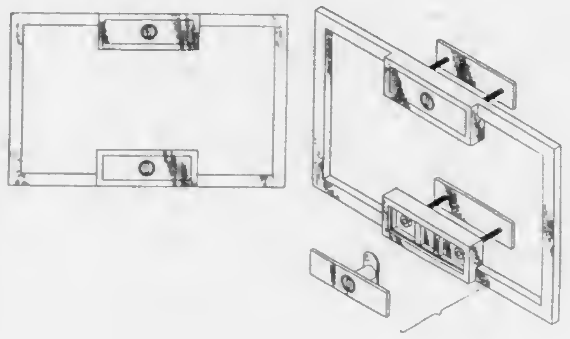


396,439
AUTO LICENSE PLATE LOCK BOX SYSTEM

Anthony Turnquest, 7471 SW. 10Ct 202D, North Lauderdale, Fla. 33068

Filed Feb. 14, 1997, Ser. No. 66,551
Term of patent 14 years
LOC (6) Cl. 12 - *16*

U.S. Cl. D12—193

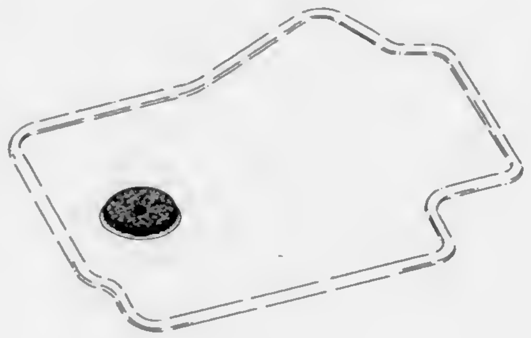


396,440
EXTERIOR FACE OF FLOOR MAT RETENTION PATCH

David G. Reilly, Stillwater, N.Y., assignor to Racemark International, Inc., Malta, N.Y.

Filed Dec. 24, 1996, Ser. No. 64,211
Term of patent 14 years
LOC (6) Cl. 12 - *16*

U.S. Cl. D12—203

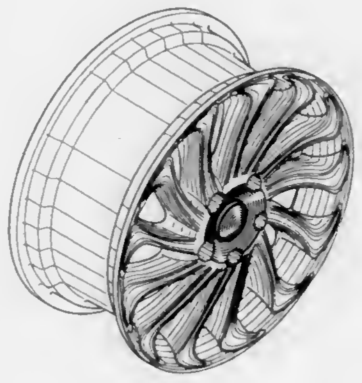


396,441
WHEEL FOR AUTOMOBILE

Nobuo Nishida, Osaka, Japan, assignor to Kabushiki Kaishi Crimson, Nara, Japan

Filed May 23, 1997, Ser. No. 71,085
Term of patent 14 years
LOC (6) Cl. 12 - *16*

U.S. Cl. D12—209

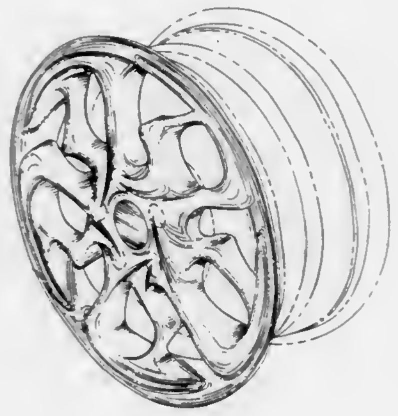


396,442
VEHICLE-WHEEL FRONT FACE

Arthur D. Hale, Jr., Long Beach, Calif., assignor to Mobile Hi-Tech Wheels, Torrance, Calif.

Filed Aug. 15, 1997, Ser. No. 75,234
Term of patent 14 years
LOC (6) Cl. 12 - *16*

U.S. Cl. D12—209



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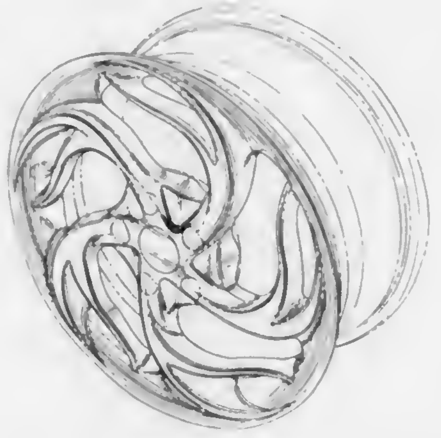
396,443

VEHICLE-WHEEL FRONT FACE

Mark D. Neeper, Denver, Colo., assignor to Mobile Hi-Tech Wheels, Torrance, Calif.

Filed Oct. 20, 1997, Ser. No. 78,242
Term of patent 14 years
LOC (6) Cl. 12 - *16*

U.S. Cl. D12—209



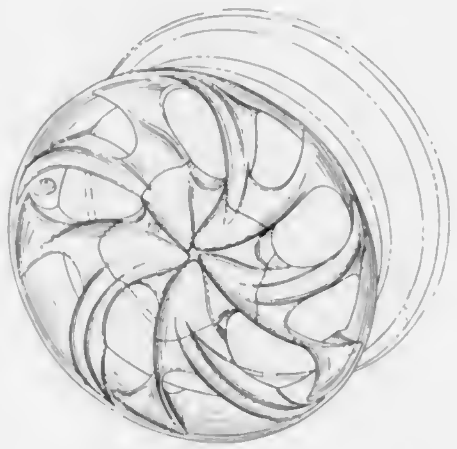
396,444

VEHICLE-WHEEL FRONT FACE

Mark D. Neeper, Denver, Colo., assignor to Mobile Hi-Tech Wheels, Torrance, Calif.

Filed Oct. 21, 1997, Ser. No. 78,338
Term of patent 14 years
LOC (6) Cl. 12 - *16*

U.S. Cl. D12—209



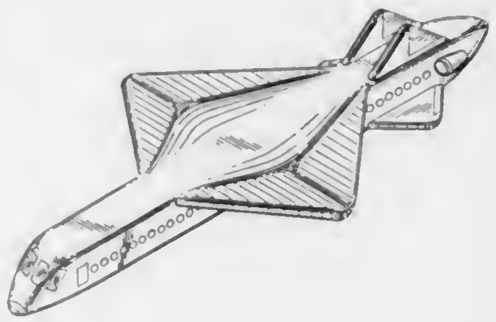
396,445

PASSENGER AIRCRAFT

Manuel Navarro-Machado, 1803 SW. 104 Pl., Miami, Fla. 33165

Filed Jun. 27, 1997, Ser. No. 73,040
Term of patent 14 years
LOC (6) Cl. 12 - *07*

U.S. Cl. D12—333



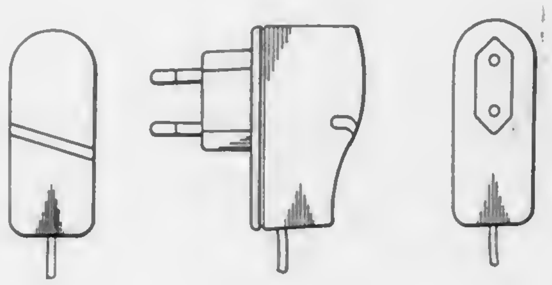
396,446

CHARGER/ADAPTER FOR ELECTRONIC DEVICE

Jan Kettula, Turku; Anu Suomalainen, Piikkiö, and Tomek Rudkiewicz, Turku, all of Finland, assignors to Nokia Mobile Phones Limited, Finland

Filed Aug. 23, 1996, Ser. No. 58,801
Claims priority, application Finland, Feb. 23, 1996, 138/96
Term of patent 14 years
LOC (6) Cl. 13 - *02*

U.S. Cl. D13—107



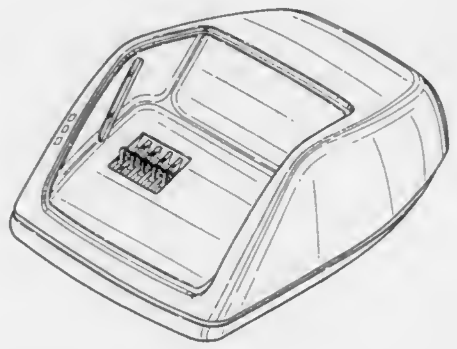
396,447

BATTERY CHARGER FOR A PORTABLE RADIO TELEPHONE

Grant H. Lloyd; John E. Herrmann, and John D. Bean, all of Lawrenceville, Ga., assignors to Motorola, Inc., Schaumburg, Ill.

Filed Sep. 20, 1996, Ser. No. 60,032
Term of patent 14 years
LOC (6) Cl. 13 - *02*

U.S. Cl. D13—107



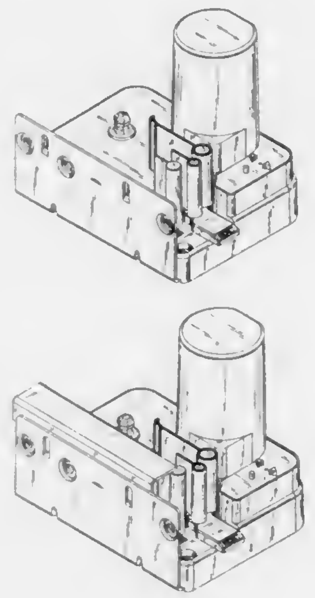
396,448

MOTOR DRIVE UNIT FOR A WINDOW SHADE

Gary E. Will, Macungie; Mark A. Cieri, Allentown; Charles J. Digney, Jr., Holland, and Noel Mayo, Philadelphia, all of Pa., assignors to Lutron Electronics Co. Inc., Coopersburg, Pa.

Filed Dec. 27, 1996, Ser. No. 64,323
Term of patent 14 years
LOC (6) Cl. 13 - *02*

U.S. Cl. D13—112



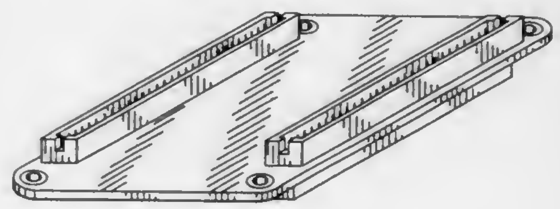
396,449

CIRCUIT BOARD MODULE

Brad Taylor, Oakland, Calif., assignor to Giga Operations Corporation, Berkeley, Calif.

Continuation-in-part of Ser. No. 13,593, Sep. 27, 1993, abandoned. This application Jul. 7, 1995, Ser. No. 41,332
Term of patent 14 years
LOC (6) Cl. 13 - *03*

U.S. Cl. D13—182



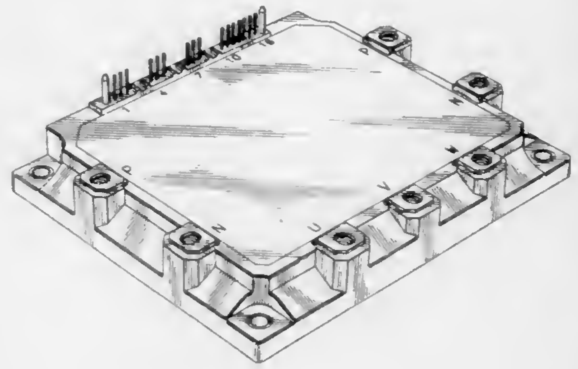
396,450

HYBRID INTEGRATED CIRCUIT FOR ELECTRIC POWER CONTROL

Akira Nishiura, and Shin Soyano, both of Kanagawa, Japan, assignors to Fuji Electric Co., Ltd., Kanagawa, Japan

Filed Jun. 19, 1997, Ser. No. 72,564
Claims priority, application Japan, Dec. 24, 1996, 8-38953
Term of patent 14 years
LOC (6) Cl. 13 - *03*

U.S. Cl. D13—182



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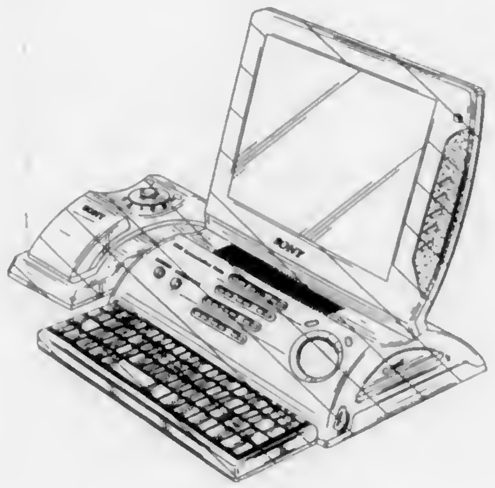
396,451

COMBINED TERMINAL AND ASSOCIATED TELEPHONE HANDSET AND CANDLE

James E. Wicks, Tarrytown, N.Y., assignor to Sony Corporation, Tokyo, Japan, and Sony Corp. of America, New York, N.Y.

Filed Oct. 3, 1995, Ser. No. 44,933
Term of patent 14 years
LOC (6) Cl. 14 - *02*
U.S. Cl. D14—101

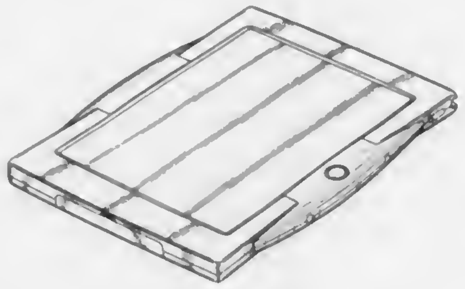


396,452

PORTABLE CHARACTER AND IMAGE PROCESSING APPARATUS

Masatomo Naruki, Kanagawa-ken, Japan, assignor to Kabushiki Kaisha Toshiba, Kawasaki, Japan

Continuation of Ser. No. 63,554, Dec. 10, 1996, abandoned. This application Jul. 29, 1997, Ser. No. 75,721
Claims priority, application Japan, Jul. 11, 1996, 8-20493
Term of patent 14 years
LOC (6) Cl. 14 - *02*
U.S. Cl. D14—107



396,453

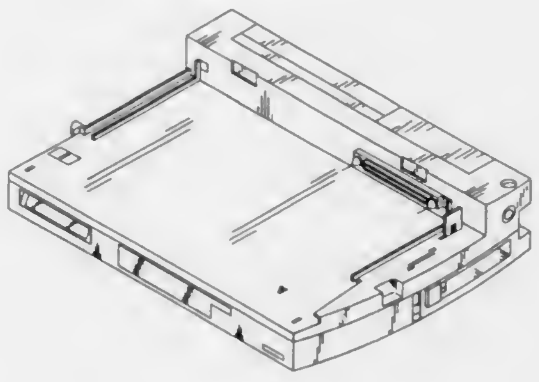
Patent Not Issued For This Number

396,454

DOCKING UNIT FOR A PORTABLE COMPUTER

Hisashi Shima, Yamato, and Kazuhiko Yamazaki, Hiratsuka, both of Japan, assignors to International Business Machines Corp., Armonk, N.Y.

Filed Aug. 14, 1996, Ser. No. 58,406
Term of patent 14 years
LOC (6) Cl. 14 - *02*
U.S. Cl. D14—114

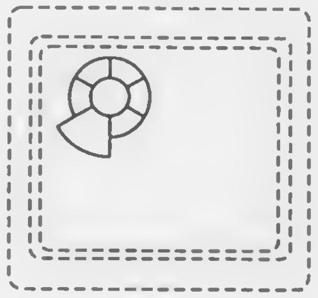


396,455

DISPLAY OBJECT FOR A DISPLAY SCREEN

Eric A. Bier, Mountain View, Calif., assignor to Xerox Corporation, Stamford, Conn.

Continuation-in-part of Ser. No. 95,598, Jul. 21, 1993, Pat. No. 5,581,670. This application Jan. 21, 1994, Ser. No. 17,735
Term of patent 14 years
LOC (6) Cl. 14 - *02*
U.S. Cl. D14—114.3

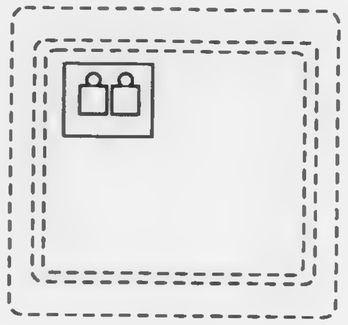


396,456

DISPLAY OBJECT FOR A DISPLAY SCREEN

Eric A. Bier, Mountain View, Calif., assignor to Xerox Corporation, Stamford, Conn.

Continuation-in-part of Ser. No. 95,598, Jul. 21, 1993, Pat. No. 5,581,670. This application Jan. 21, 1994, Ser. No. 17,737
Term of patent 14 years
LOC (6) Cl. 14 - *02*
U.S. Cl. D14—114.3

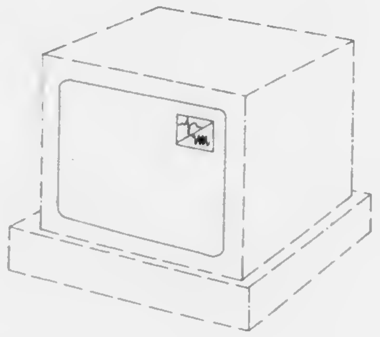


396,457

DISPLAY SCREEN WITH AN ICON

Armando M. Cappa, Reseda; Jeffrey D. Konopka, Northridge, and Warren R. Heer, La Palma, all of Calif., assignors to Pacesetter, Inc., Sylmar, Calif.

Filed Jan. 24, 1996, Ser. No. 49,407
The portion of the term of this patent subsequent to Jun. 30, 2012, has been disclaimed.
Term of patent 14 years
LOC (6) Cl. 14 - *02*
U.S. Cl. D14—114.3

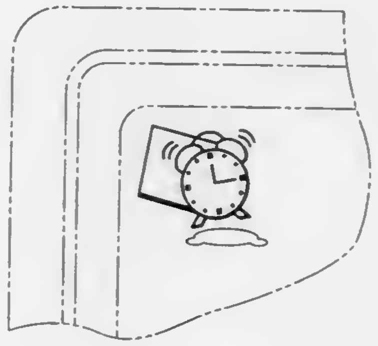


396,458

PORTION OF A COMPUTER SCREEN WITH A COMPUTER GENERATED ICON

Dale R. Bohnert, River Falls, Wis.; Peter M. Eisenberg, Minneapolis, Minn., and Cindy L. Munson, Naperville, Ill., assignors to Minnesota Mining and Manfacturing Company, St. Paul, Minn.

Filed Feb. 14, 1996, Ser. No. 50,316
Term of patent 14 years
LOC (6) Cl. 14 - *02*
U.S. Cl. D14—114.5

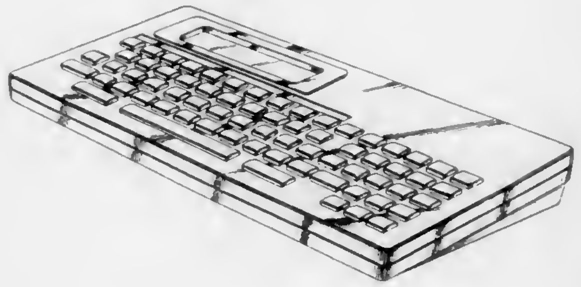


396,459

KEYBOARD

Chin-June Lee, Taipei Hsien, Taiwan, assignor to Taiwan Semiconductor Co., Ltd., Taipei, Taiwan

Filed Jul. 2, 1997, Ser. No. 72,812
Term of patent 14 years
LOC (6) Cl. 14 - *02*
U.S. Cl. D14—115



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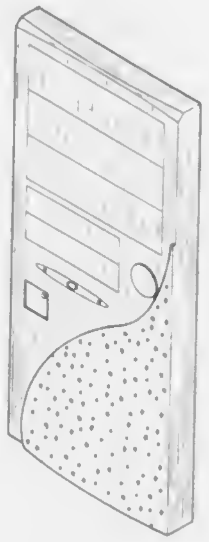
396,460
COMPUTER FRONT PANEL

Steven Su, 6F, No. 12, Alley 1, Lane 1 Sec. 1, Yung-An S. Rd. Lu-Cho, Taipei, Taiwan

Filed Aug. 22, 1997, Ser. No. 75,187
Term of patent 14 years
LOC (6) Cl. 14 - *02*

U.S. Cl. D14—115

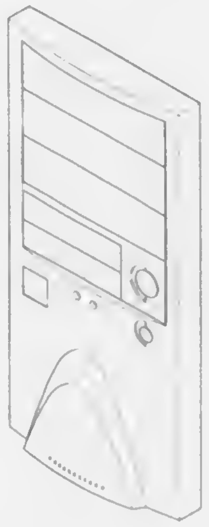


396,461
COMPUTER FRONT PANEL

Steven Su, 6F, No. 12, Alley 1, Lane 1, Sec. 1, Yung-An S. Rd., Lu-Cho, Taipei, Taiwan

Filed Aug. 22, 1997, Ser. No. 75,189
Term of patent 14 years
LOC (6) Cl. 14 - *02*

U.S. Cl. D14—115

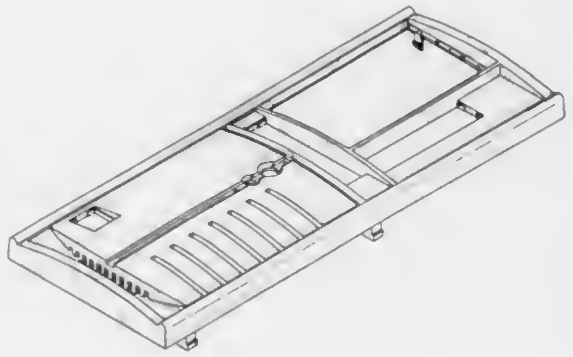


396,462
PERSONAL COMPUTER FRONT PANEL

Richard C. Y. Fu, Cerritos, Calif., assignor to Hon Hai Precision Ind. Co., Ltd., Taiwan

Filed Sep. 25, 1997, Ser. No. 77,069
Term of patent 14 years
LOC (6) Cl. 14 - *02*

U.S. Cl. D14—115

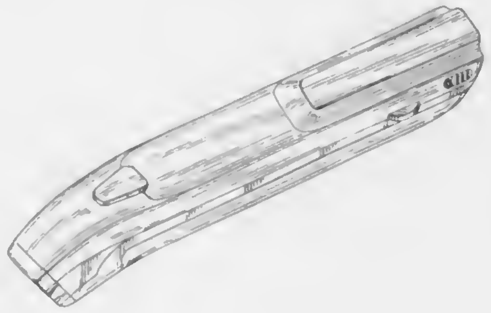


396,463
IMAGE READING APPARATUS FOR AN ELECTRONIC COMPUTER

Yoshiyuki Nada, and Jun Takahashi, both of Hachiouji, Japan, assignors to Olympus Optical Co., Ltd., Tokyo, Japan

Filed Jul. 15, 1997, Ser. No. 73,682
Claims priority, application Japan, Feb. 10, 1997, 9-3401
Term of patent 14 years
LOC (6) Cl. 14 - *02*

U.S. Cl. D14—116

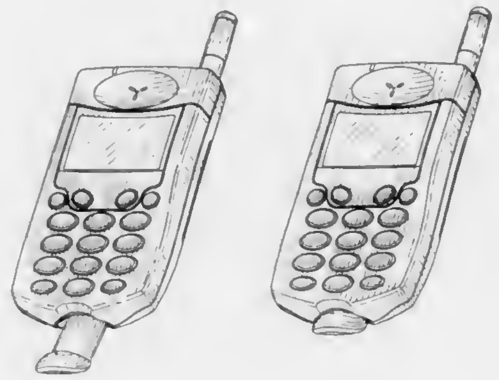


396,464
TELEPHONE

Simon Bradford, Le Mans, France, assignor to U.S. Philips Corporation, New York, N.Y.

Filed Jul. 31, 1997, Ser. No. 74,444
Claims priority, application WIPO, Feb. 19, 1997, DMA/003600
Term of patent 14 years
LOC (6) Cl. 14 - *03*

U.S. Cl. D14—138

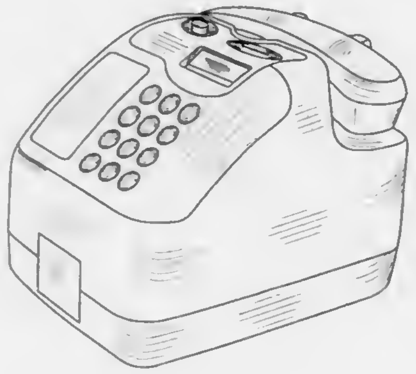


396,465
TELEPHONE

Jimmy Chien; Judy Chien, both of Manhasset Hills, N.Y., and Wan-Neng Chuang, Bangkok THX, assignors to Eastern America Trio Products, Inc., Flushing, N.Y.

Filed Aug. 28, 1997, Ser. No. 76,040
Term of patent 14 years
LOC (6) Cl. 14 - *03*

U.S. Cl. D14—146

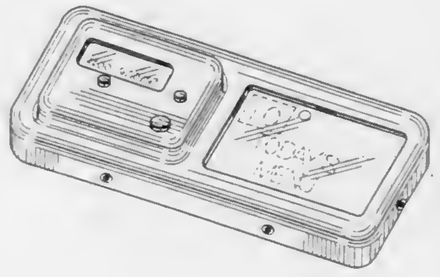


396,466
PAGER

Kevin L. Sibbitt, 1012 Chokecherry Dr., Winter Springs, Fla. 32708

Filed Sep. 12, 1997, Ser. No. 76,679
Term of patent 14 years
LOC (6) Cl. 14 - *01*

U.S. Cl. D14—191

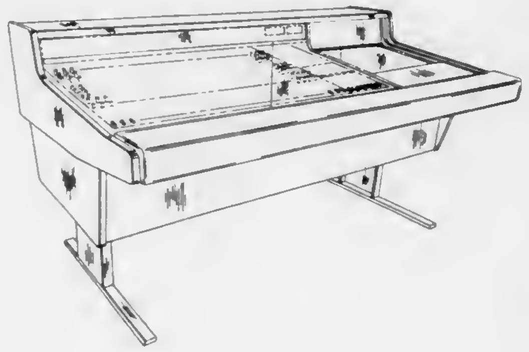


396,467
AUDIO MIXING BOARD CONSOLE

Wm. David Atkins, Rte. 3, Box 4374-A, Osage Beach, Mo. 65065

Filed Jan. 29, 1996, Ser. No. 49,692
Term of patent 14 years
LOC (6) Cl. 14 - *99*

U.S. Cl. D14—217



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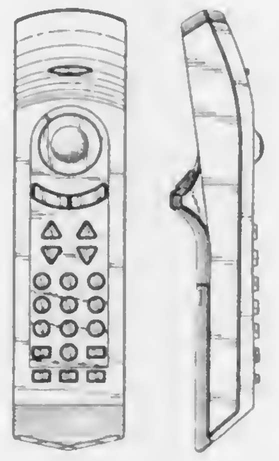
396,468
WIRELESS REMOTE WITH TRACKBALL

Jeffrey Schindler, Sioux City, Iowa; Sidney David Autry, Dakota Dunes, S. Dak.; Keith Alan Kozak, and Loriann M. Tague, both of Sioux City, Iowa, assignors to Gateway 2000, Inc., North Sioux City, S. Dak.

Filed May 29, 1996, Ser. No. 55,099
Term of patent 14 years
LOC (6) Cl. 14 - *03*

U.S. Cl. D14—218

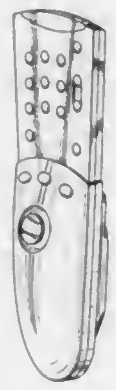


396,469
REMOTE CONTROL FOR ELECTRONIC COMPUTERS

Ushio Inami, Kanagawa-ken, Japan, assignor to Kabushiki Kaisha Toshiba, Kawasaki, Japan

Filed Jun. 20, 1997, Ser. No. 72,630
Claims priority, application Japan, Dec. 20, 1996, 8-38454
Term of patent 14 years
LOC (6) Cl. 14 - *03*

U.S. Cl. D14—218

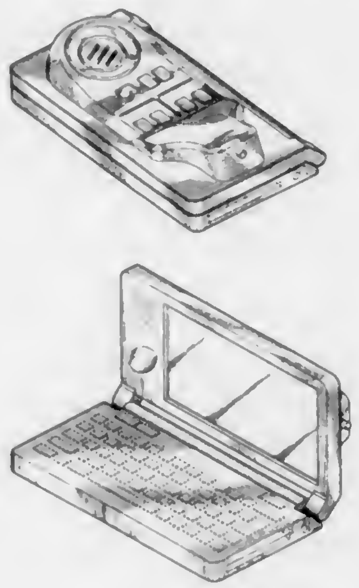


396,470
PALM-TOP REMOTE CONTROL

Mark David Summers, Phoenix; Brian Mitchel Cover, Gilbert; James Donald Crowe; Donald Charles Cohlman, both of Chandler, and Edoardo Campini, Mesa, all of Ariz., assignors to Motorola, Inc., Schaumburg, Ill.

Filed Aug. 22, 1997, Ser. No. 75,458
Term of patent 14 years
LOC (6) Cl. 14 - *03*

U.S. Cl. D14—218

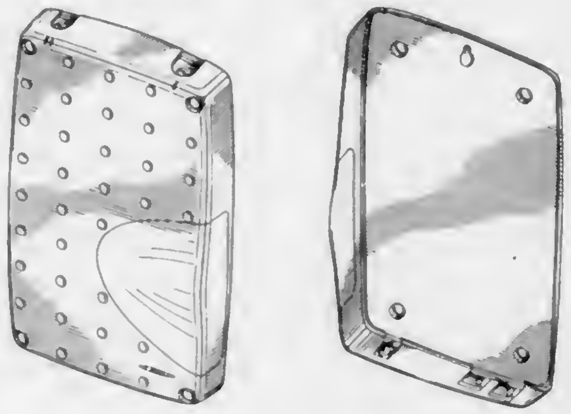


396,471
TERMINAL FOR WIRELESS LOCAL LOOP

Petteri Kolinen, Helsinki, Finland, assignor to Nokia Mobile Phones Limited, Espoo, Finland

Filed Nov. 20, 1996, Ser. No. 62,634
Claims priority, application Finland, May 31, 1996, 375/96
Term of patent 14 years
LOC (6) Cl. 14 - *03*

U.S. Cl. D14—240

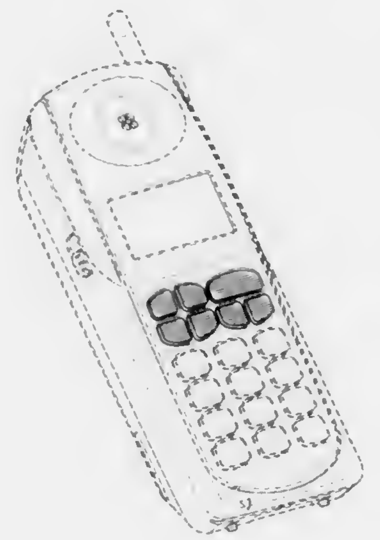


396,472
KEY ARRANGEMENT

Daryl R Harris, Evanston, and Derek E. Jensen, Grayslake, both of Ill., assignors to Motorola, Inc., Schaumburg, Ill.

Continuation of Ser. No. 60,536, Sep. 30, 1996, Pat. No. Des. 388,429. This application Aug. 11, 1997, Ser. No. 74,823
Term of patent 14 years
LOC (6) Cl. 14 - *03*

U.S. Cl. D14—247

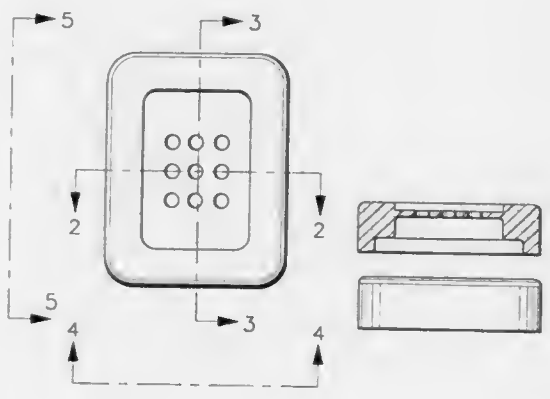


396,473
EAR CUSHION FOR TELEPHONES

Ronald L. Brito, P.O. Box 309, San Dimas, Calif. 91773

Division of Ser. No. 51,430, Nov. 3, 1996, Pat. No. Des. 386,765. This application Jul. 24, 1997, Ser. No. 74,002
Term of patent 14 years
LOC (6) Cl. 14 - *03*

U.S. Cl. D14—249

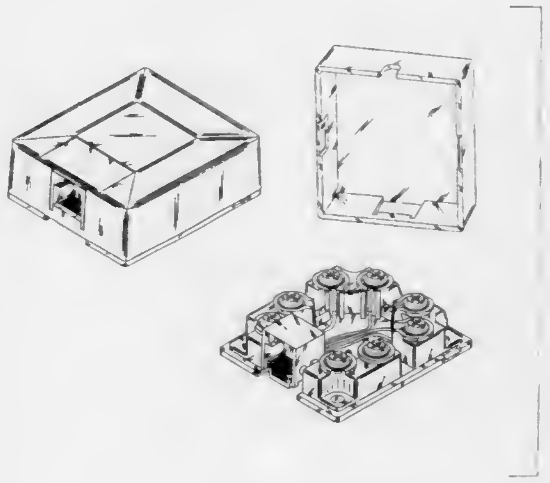


396,474
SURFACE MOUNT JACK

Mike H. Lin, Cerritos, Calif., assignor to International Connectors and Cable Corporation, Cerritos, Calif.

Filed Jul. 5, 1996, Ser. No. 56,653
Term of patent 14 years
LOC (6) Cl. 14 - *03*

U.S. Cl. D14—256

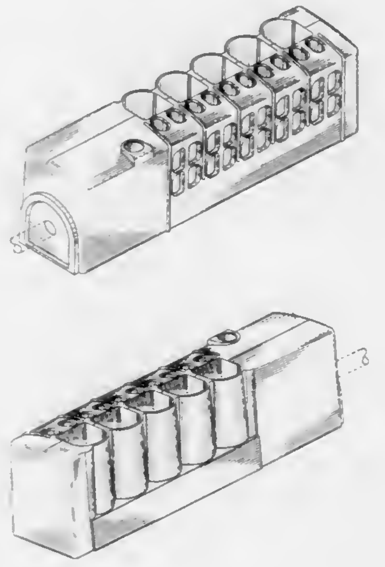


396,475
TERMINAL BLOCK HOUSING

Janet A. Bradshaw, Darien; Daniel A. Hoeft, Mundelein, and Alan Schwimmer, Northbrook, all of Ill., assignors to Reltec Corporation, Mayfield Heights, Ohio

Filed Oct. 4, 1996, Ser. No. 60,730
Term of patent 14 years
LOC (6) Cl. 14 - *03*

U.S. Cl. D14—256



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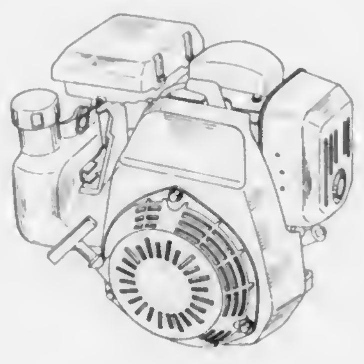
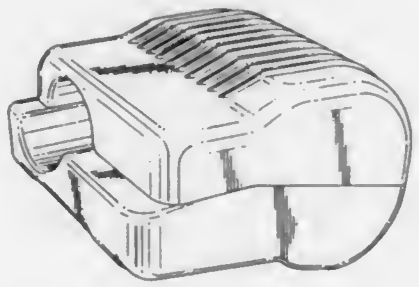
396,476
INTERNAL-COMBUSTION ENGINE

Hirohide Shimizu, Wako, Japan, assignor to Honda Giken Kogyo Kabushiki Kaisha, Tokyo, Japan
Filed Jul. 11, 1997, Ser. No. 73,612
Claims priority, application Japan, Jan. 14, 1997, 9-740
Term of patent 14 years
LOC (6) Cl. 15 - *01*
U.S. Cl. D15—1



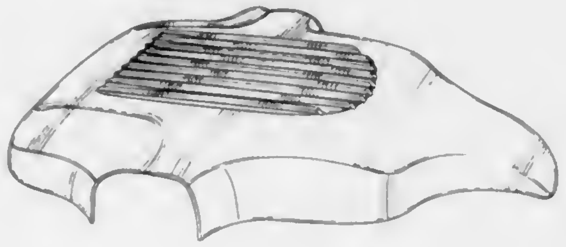
396,477
AUTOMOTIVE RESONATOR

Changize Sadr, Ontario, Canada, assignor to ABC Group, Rexdale, Canada
Filed Sep. 11, 1996, Ser. No. 59,375
Term of patent 14 years
LOC (6) Cl. 15 - *01*
U.S. Cl. D15—5



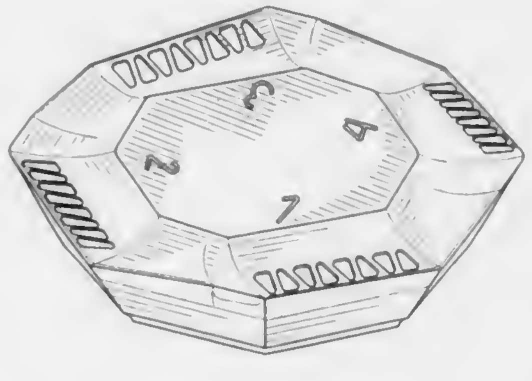
396,478
ENGINE COVER

Robert N. Hubbach, Clarkston, Mich., assignor to Chrysler Corporation, Auburn Hills, Mich.
Filed Jul. 29, 1997, Ser. No. 74,230
Term of patent 14 years
LOC (6) Cl. 15 - *01*
U.S. Cl. D15—5



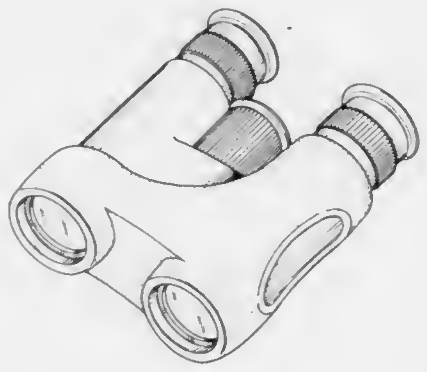
396,479
CUTTING INSERT

Amir Satran, Kfar Vradim, and Vladimir Zak, Kiryat Bialik, both of Israel, assignors to Iscar Ltd., Migal Tefen, Israel
Filed Jan. 14, 1997, Ser. No. 64,916
Claims priority, application Israel, Jul. 15, 1996, 26511
Term of patent 14 years
LOC (6) Cl. 15 - *09*
U.S. Cl. D15—139



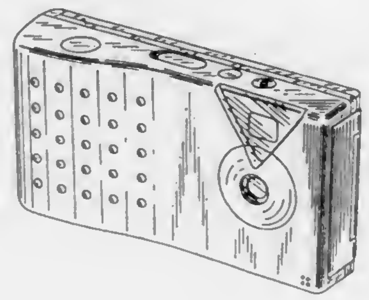
396,480
BINOCULAR

Su-Min Kung, 8F, No. 276-2, Sec. 1, Tai-Tung Road, Hsichih, Taiwan
Filed Apr. 22, 1997, Ser. No. 72,891
Term of patent 14 years
LOC (6) Cl. 16 - *06*
U.S. Cl. D16—133



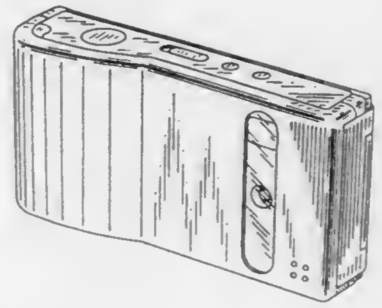
396,481
ELECTRONIC STILL CAMERA

Yuuki Shibata, Yokohama, and Toshiyuki Yamanouchi, Kawasaki, both of Japan, assignors to Kabushiki Kaisha Toshiba, Kawasaki, Japan
Filed Jun. 25, 1997, Ser. No. 72,473
Claims priority, application Japan, Dec. 26, 1996, 8-39033
Term of patent 14 years
LOC (6) Cl. 16 - *01*
U.S. Cl. D16—202



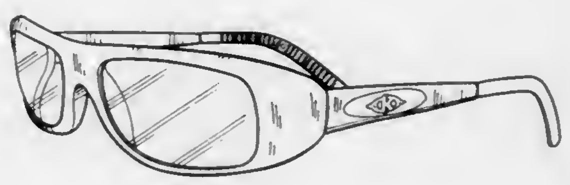
396,482
ELECTRONIC STILL CAMERA

Toshiyuki Yamanouchi, Kawasaki, Japan, assignor to Kabushiki Kaisha Toshiba, Kawasaki, Japan
Filed Jun. 25, 1997, Ser. No. 72,474
Claims priority, application Japan, Jan. 7, 1997, 9-00022
Term of patent 14 years
LOC (6) Cl. 16 - *01*
U.S. Cl. D16—202



396,483
SUNGLASSES

Luciano Simioni, Montebelluna, Italy, assignor to Killer Loop Eyewear S.p.A., Pederobba, Italy
Filed May 16, 1997, Ser. No. 70,811
Term of patent 14 years
LOC (6) Cl. 16 - *06*
U.S. Cl. D16—325



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396,484

DESIGN FOR SUNGLASSES

Paul J. Stahles, Pt. Clare, Australia, assignor to Australia Vision Services Pty. Ltd., Horsfield Bay, Australia

Continuation-in-part of Ser. No. 46,208, Nov. 9, 1995, Pat. No. Des. 387,083. This application Jul. 30, 1996, Ser. No. 57,707

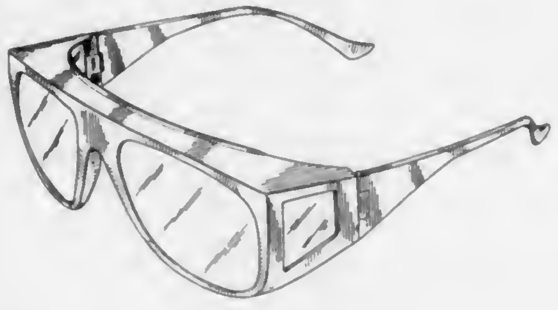
Claims priority, application Australia, May 26, 1995, 1635/95

The portion of the term of this patent subsequent to Dec. 2, 2011, has been disclaimed.

Term of patent 14 years

LOC (6) Cl. 16 - *06*

U.S. Cl. D16—326



396,485

Patent Not Issued For This Number

396,486

CALCULATOR

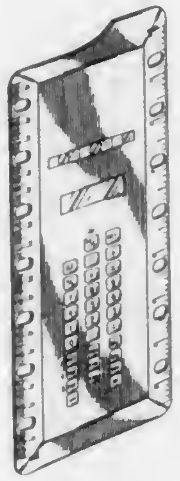
Mark A. Bedol, 3423 Yankton Ave., Claremont, Calif. 91711

Filed Oct. 15, 1996, Ser. No. 61,041

Term of patent 14 years

LOC (6) Cl. 18 - *01*

U.S. Cl. D18—7



396,487

BANK CHECK

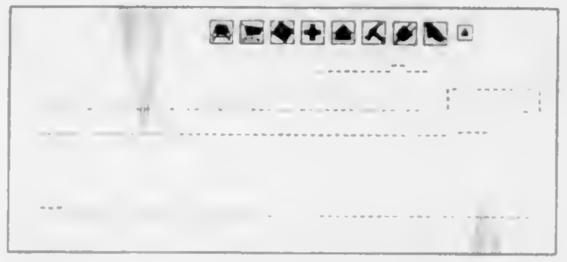
Todd M. Kunkler, 9530 E. Imperial Hwy., Suite F, Downey, Calif. 90242

Division of Ser. No. 48,179, Dec. 21, 1995, Pat. No. Des. 386,784, Continuation-in-part of Ser. No. 20,420, Mar. 25, 1994, Pat. No. Des. 365,598. This application Jul. 15, 1997, Ser. No. 73,505

Term of patent 14 years

LOC (6) Cl. 19 - *08*

U.S. Cl. D19—11



396,488

BANK CHECK

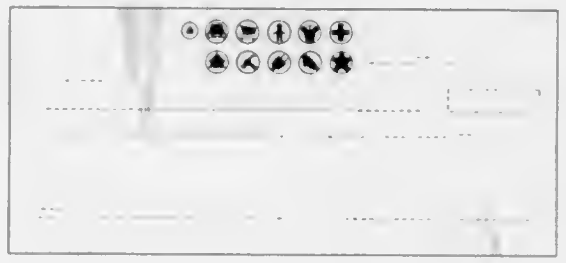
Todd M. Kunkler, 9530 E. Imperial Hwy., Suite F, Downey, Calif. 90242

Division of Ser. No. 48,179, Dec. 21, 1995, Pat. No. Des. 386,784, Continuation-in-part of Ser. No. 20,420, Mar. 25, 1994, Pat. No. Des. 365,598. This application Jul. 15, 1997, Ser. No. 73,508

Term of patent 14 years

LOC (6) Cl. 19 - *08*

U.S. Cl. D19—11



396,489

BOOK COVER

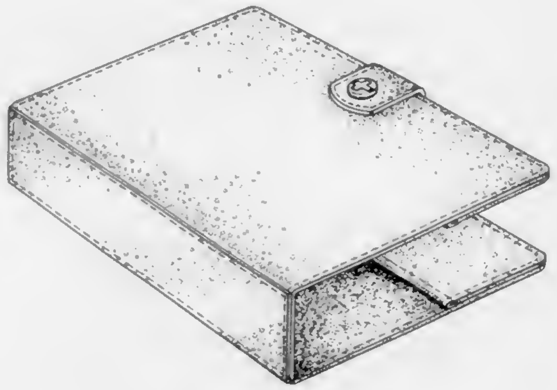
Robert G. Siemon, Newport Coast, and Francois Nolot, Santa Ana, both of Calif., assignors to Bob Siemon Designs, Inc., Santa Ana, Calif.

Filed Jul. 11, 1996, Ser. No. 56,928

Term of patent 14 years

LOC (6) Cl. 19 - *04*

U.S. Cl. D19—26



396,490

MULTI-PURPOSE INFORMATION CENTER

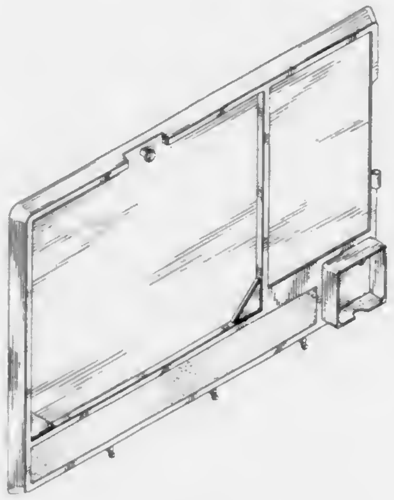
Douglas M. Jack, Fullerton, Calif., assignor to Day Runner, Inc., Fullerton, Calif.

Filed Aug. 20, 1997, Ser. No. 75,432

Term of patent 14 years

LOC (6) Cl. 19 - *06*

U.S. Cl. D19—52



396,491

CARD FILE

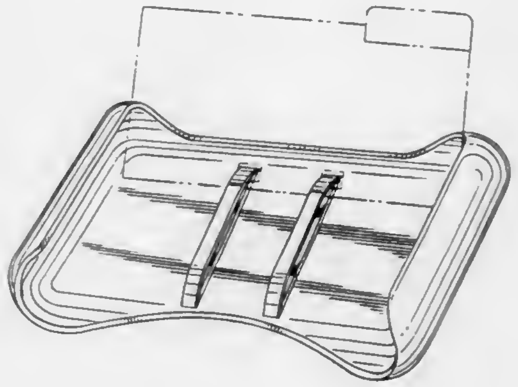
Albert B. Cheris, Highland Park, and Mark Dziersk, Chicago, both of Ill., assignors to Tenex Corporation, Elk Grove Village, Ill.

Filed Aug. 29, 1997, Ser. No. 75,952

Term of patent 14 years

LOC (6) Cl. 19 - *02*

U.S. Cl. D19—76



396,492

SHEET DISPENSER

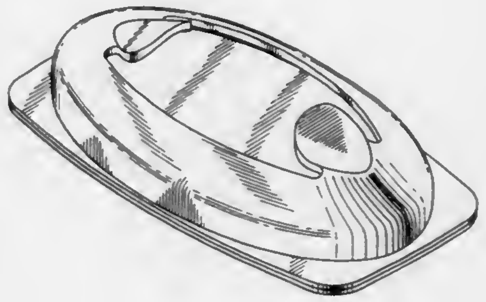
Casey L. Carlson, Edina, and Daniel E. Siltberg, White Bear Township, both of Minn., assignors to Minnesota Mining and Manufacturing Company, St. Paul, Minn.

Division of Ser. No. 55,990, Jun. 19, 1996, Pat. No. Des. 387,806. This application Aug. 22, 1997, Ser. No. 75,776

Term of patent 14 years

LOC (6) Cl. 19 - *02*

U.S. Cl. D19—86



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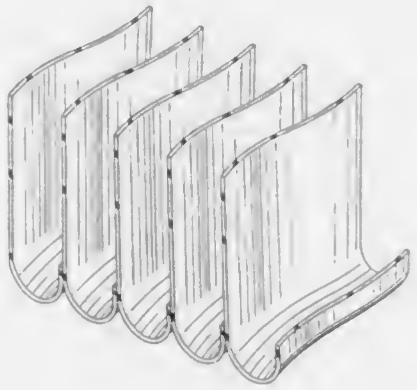
396,493
SORTER FILE FOR NOTES, DISCS AND THE LIKE

Albert B. Cheris, Highland Park, and Mark Dziersk, Chicago, both of Ill., assignors to Tenex Corporation, Elk Grove Village, Ill.

Division of Ser. No. 68,602, Apr. 1, 1997. This application Aug. 29, 1997, Ser. No. 75,956
Term of patent 14 years
LOC (6) Cl. 19 - *02*

U.S. Cl. D19—90

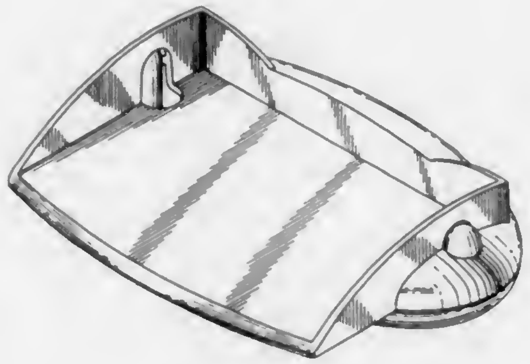


396,494
SHEET DISPENSER

Casey L. Carlson, Edina, and Daniel E. Siltberg, White Bear Township, both of Minn., assignors to Minnesota Mining and Manufacturing Company, St. Paul, Minn.

Division of Ser. No. 55,990, Jun. 19, 1996, Pat. No. Des. 387,806. This application Aug. 22, 1997, Ser. No. 75,777
Term of patent 14 years
LOC (6) Cl. 19 - *02*

U.S. Cl. D19—92

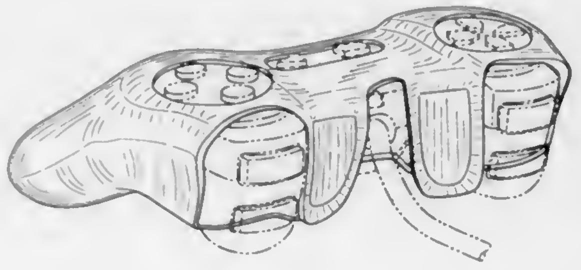


396,495
GAME CONTROLLER COVER

Eric Hirokane, 15507 Parron Ave., Gardena, Calif. 90249-4724

Filed Nov. 20, 1997, Ser. No. 79,953
Term of patent 14 years
LOC (6) Cl. 21 - *01*

U.S. Cl. D21—48

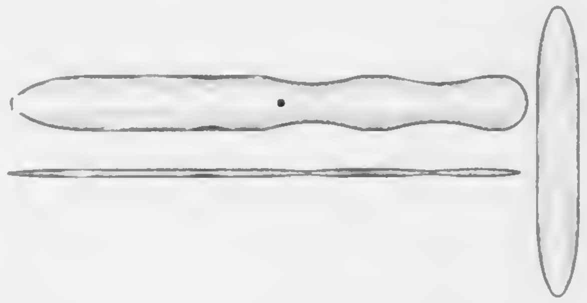


396,496
LOOP STICK

Jerry L. Poindexter, 400 Willow Creek Rd., Rocky Mount, Va. 24151

Filed Aug. 29, 1997, Ser. No. 76,020
Term of patent 14 years
LOC (6) Cl. 21 - *01*

U.S. Cl. D21—82

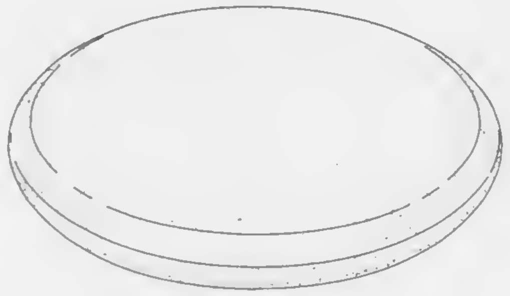


396,497
INFLATABLE FLYING DISK

Kenneth R. Benson, Southbury, Conn., assignor to Philip A. Hopfe, Jr., Lincoln, R.I., a part interest

Filed Sep. 12, 1997, Ser. No. 76,529
Term of patent 14 years
LOC (6) Cl. 21 - *01*

U.S. Cl. D21—84

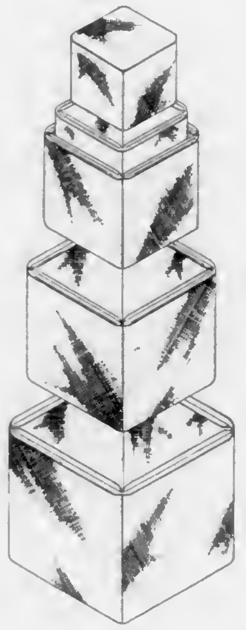


396,498
REVERSIBLE NESTING BLOCKS

Tamra L. Leslie, Atlanta, Ga., assignor to KIDS II, Inc., Alpharetta, Ga.

Filed Jun. 24, 1997, Ser. No. 72,547
Term of patent 14 years
LOC (6) Cl. 21 - *01*

U.S. Cl. D21—108

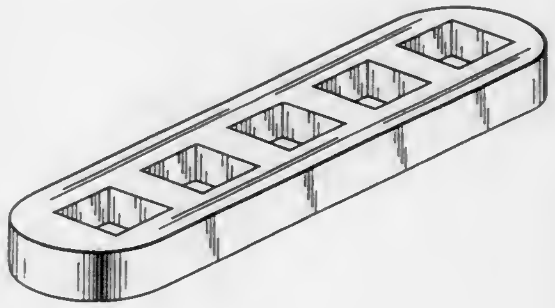


396,499
CONSTRUCTION GAME ELEMENT

Peter Karl Walter Larws, Usingen, Germany, assignor to Palimondial S.A., Luxembourg, Luxembourg

Filed Jun. 30, 1997, Ser. No. 72,778
Term of patent 14 years
LOC (6) Cl. 21 - *01*

U.S. Cl. D21—108

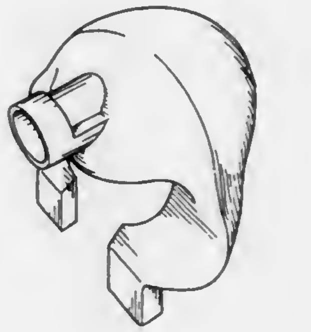


396,500
HEADGEAR FOR A TOY FIGURE

Sisse Degner, Langå, Denmark, assignor to INTERLEGO AG, Baar, Switzerland

Filed Sep. 18, 1997, Ser. No. 76,698
Term of patent 14 years
LOC (6) Cl. 21 - *01*

U.S. Cl. D21—108



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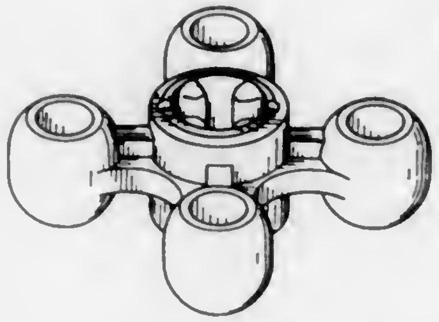
TOY BUILDING ELEMENT

Jan Hatting, Vejle, Denmark, assignor to INTERLEGO AG, Baar, Switzerland

Filed Sep. 18, 1997, Ser. No. 76,737
Term of patent 14 years
LOC (6) Cl. 21 - *01*

U.S. Cl. D21—108



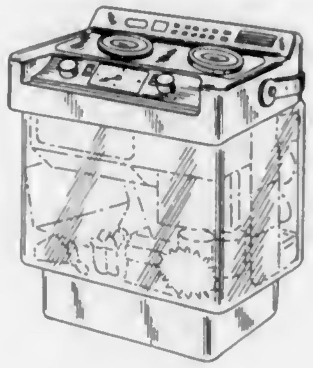
396,502

TOY STOVE

Martin Blumenthal, 99 Longview Ave., Chatham, N.J. 07928

Filed Feb. 20, 1997, Ser. No. 66,754
Term of patent 14 years
LOC (6) Cl. 21 - *02*

U.S. Cl. D21—122



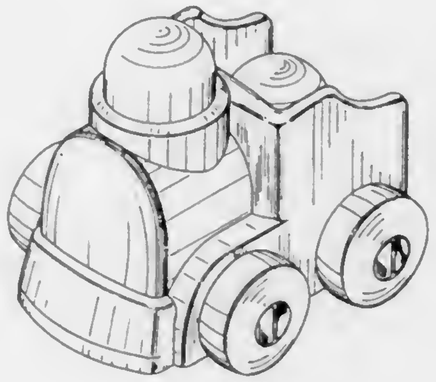
396,503

TOY LOCOMOTIVE

Paul Leadbetter, Søborg, Denmark, assignor to INTERLEGO AG, Baar, Switzerland

Filed Sep. 18, 1997, Ser. No. 76,735
Term of patent 14 years
LOC (6) Cl. 21 - *01*

U.S. Cl. D21—129



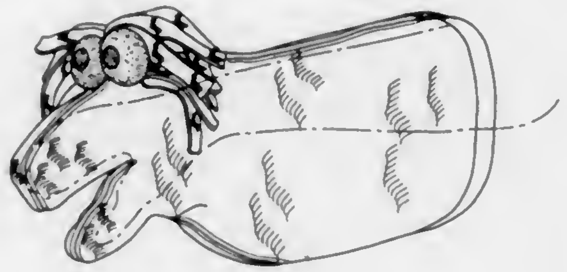
396,504

PUPPET HAT

Donna Marbet, 117 Old Point Rd., Newbury, Mass. 01951

Filed Jun. 30, 1997, Ser. No. 73,158
Term of patent 14 years
LOC (6) Cl. 21 - *01*

U.S. Cl. D21—153



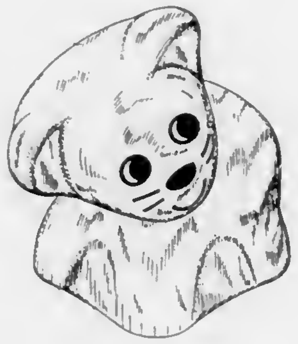
396,505

TOY ANIMAL

Paul Leadbetter, Søborg, Denmark, assignor to INTERLEGO AG, Baar, Switzerland

Filed Sep. 18, 1997, Ser. No. 76,730
Term of patent 14 years
LOC (6) Cl. 21 - *01*

U.S. Cl. D21—163



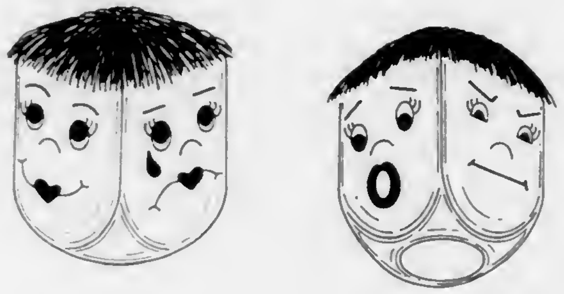
396,506

CUBE SHAPED DOLL HEAD WITH MULTIPLE FACES

Juanita A. Morrison, 4605 No. Penn. Av. 2-D, Oklahoma City, Okla. 73112-8934

Filed Jul. 25, 1995, Ser. No. 41,869
Term of patent 14 years
LOC (6) Cl. 21 - *01*

U.S. Cl. D21—190



396,507

Patent Not Issued For This Number

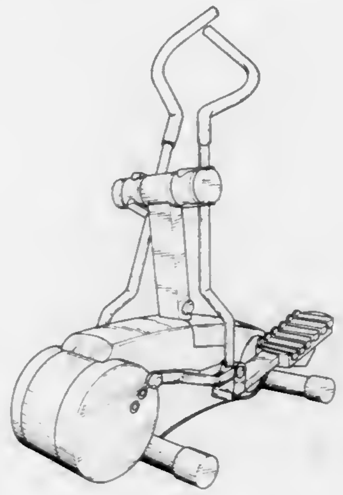
396,508

COMBINATION STEP WALK AND RUN EXERCISER

Chih-Liang Chen, No. 10, Lane 1431, Kuanghsing Rd., Pateh City, Taoyuan Hsien, Taiwan

Filed May 2, 1997, Ser. No. 70,239
Term of patent 14 years
LOC (6) Cl. 21 - *02*

U.S. Cl. D21—194



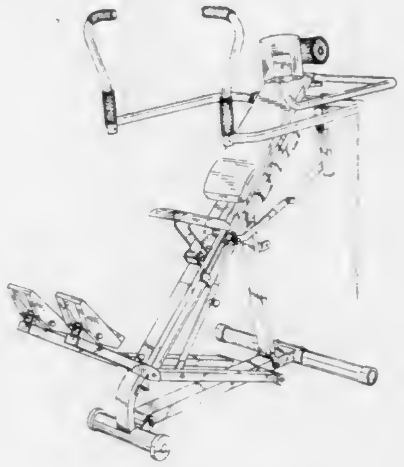
396,509

EXERCISER

Leonard Sands, 4555 Reseda Blvd., Tarzana, Calif. 91356, and Johnson Kuo, 5F. No. 6, Lane 12, Sec. 6, Hsin I Rd., Taipei, Taiwan

Filed Jul. 2, 1997, Ser. No. 72,808
Term of patent 14 years
LOC (6) Cl. 21 - *02*

U.S. Cl. D21—191



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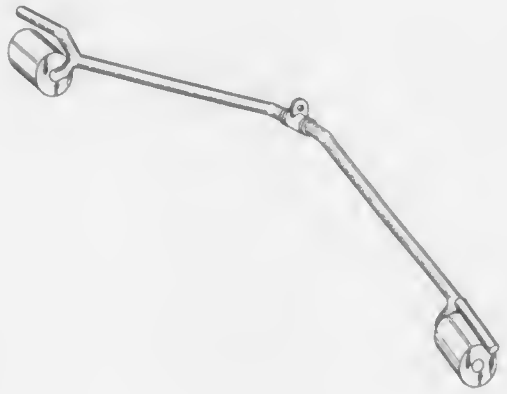
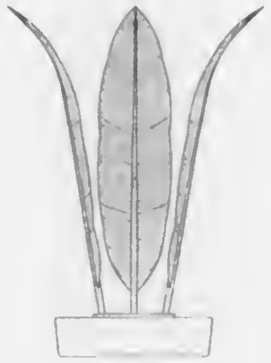
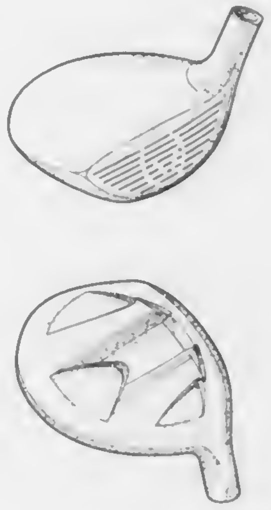
396,510
WRIST SUPPORTING WEIGHT TRAINING LAT BAR
Marvin Marney, 188 Wilton Dr., #2, Campbell, Calif. 95008
Continuation-in-part of Ser. No. 603,443, Feb. 20, 1996, abandoned. This application Jan. 10, 1997, Ser. No. 64,778
Term of patent 14 years
LOC (6) Cl. 21 - *02*
U.S. Cl. D21—198



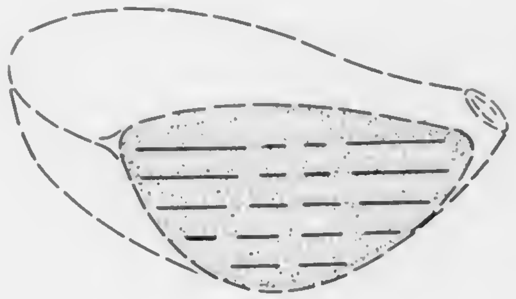
396,511
FEATHER COCK
Richard Leong, 1126-E-14, Vancover, BC, Canada, VST2P3
Filed Jun. 14, 1996, Ser. No. 55,854
Term of patent 14 years
LOC (6) Cl. 21 - *02*
U.S. Cl. D21—207



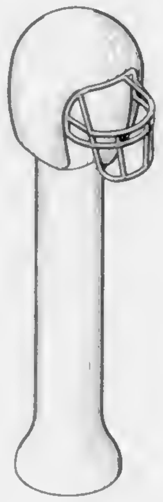
396,512
GOLF CLUB HEAD
Philippe Besnard, Oceanside, and Richard Wahlin, San Diego, both of Calif., assignors to Taylor Made Golf Company, Carlsbad, Calif.
Filed May 15, 1997, Ser. No. 70,768
Term of patent 14 years
LOC (6) Cl. 21 - *02*
U.S. Cl. D21—214



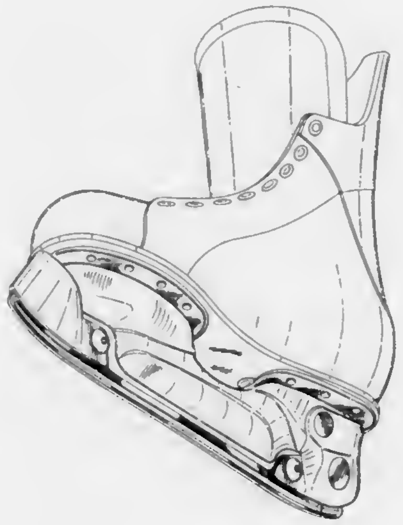
396,513
SCORELINE PATTERN FOR GOLF CLUB HEAD
Augustin W. Rollinson, Carlsbad, and D. Clayton Evans, Vista, both of Calif., assignors to Callaway Golf Company, Carlsbad, Calif.
Continuation-in-part of Ser. No. 58,272, Aug. 29, 1996, Pat. No. Des. 389,542. This application Mar. 6, 1997, Ser. No. 67,534
Term of patent 14 years
LOC (6) Cl. 21 - *02*
U.S. Cl. D21—221



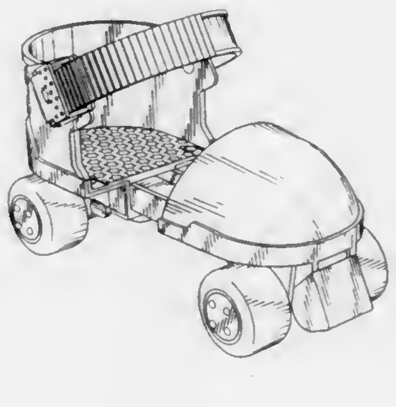
396,514
GOLF CLUB COVER
Jeffrey R. Perry, Plano, Tex., and John C. Welch, Altamonte Springs, Fla., assignors to Tour Gear Limited, Scottsdale, Ariz.
Continuation-in-part of Ser. No. 18,041, Jan. 26, 1994, abandoned. This application May 25, 1995, Ser. No. 39,346
Term of patent 14 years
LOC (6) Cl. 21 - *02*
U.S. Cl. D21—222



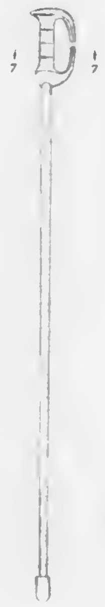
396,515
ICE SKATE
Fabio Venier, Holland Landing, and Markus Hetzler, Brampton, both of Canada, assignors to Multimatic Advanced Technologies, Inc., Bridgetown, Barbados
Filed Mar. 6, 1997, Ser. No. 67,699
Term of patent 14 years
LOC (6) Cl. 21 - *02*
U.S. Cl. D21—225



396,516
ROLLER SKATE
Kenny Yiu Wing Fung, Hong Kong, Hong Kong, assignor to Grace Artificial Jewellery Manufacturing Company Limited, Hong Kong, Hong Kong
Filed Jan. 8, 1997, Ser. No. 64,675
Claims priority, application United Kingdom, Nov. 26, 1996, 2061171
Term of patent 14 years
LOC (6) Cl. 21 - *02*
U.S. Cl. D21—226



396,517
ROLLER POLE
Dale Lopez Reed, 114 3rd Ave., Tawas City, Mich. 48763
Filed Jul. 30, 1997, Ser. No. 74,216
Term of patent 14 years
LOC (6) Cl. 21 - *02*
U.S. Cl. D21—230



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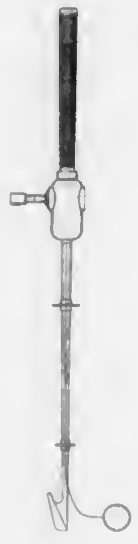
396,518

TETHERED GOLF CLUB DEVICE

Steven R. Reynolds, 5234 Mezzanine Way, Long Beach, Calif. 90808

Filed May 9, 1997, Ser. No. 71,054
Term of patent 14 years
LOC (6) Cl. 21 - *02*

U.S. Cl. D21—234



396,519

ARROW REST SUPPORT GUIDE

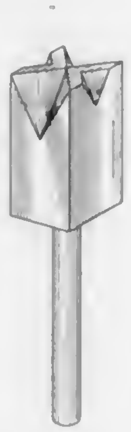
Edward M. Jessee, Louisville, Ky., assignor to Coffey Marketing Corporation, Buckner, Ky.

Continuation-in-part of Ser. No. 322,868, Oct. 17, 1994. This application Jan. 31, 1996, Ser. No. 49,753

The portion of the term of this patent subsequent to Oct. 7, 2011, has been disclaimed.

Term of patent 14 years
LOC (6) Cl. 22 - *01*

U.S. Cl. D22—107



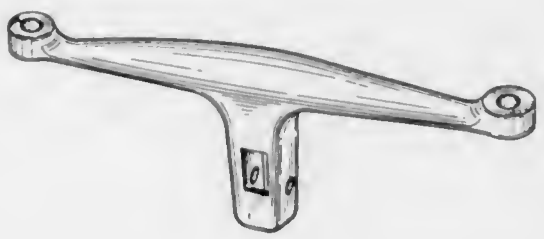
396,520

FISHING REEL HANDLE

Shinichi Asano, Musashino; Takashi Shibata, Higashikurume; Tomoyuki Amano, Higashikurume, and Masayoshi Fujii, Higashikurume, all of Japan, assignors to Daiwa Seiko, Inc., Tokyo, Japan

Filed Jul. 15, 1996, Ser. No. 57,025
Claims priority, application Japan, Jan. 16, 1996, 8-624
Term of patent 14 years
LOC (6) Cl. 22 - *05*

U.S. Cl. D22—140



396,521

HOOK SETTING FISHING FLOAT

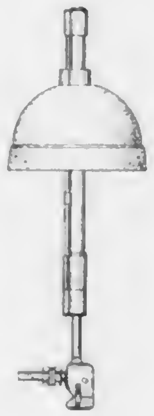
Paul E. Brackett, Sr., 4501 Countryaire Estates, Hackett, Ak. 72937

Continuation-in-part of Ser. No. 37,021, Apr. 3, 1995, Pat. No. Des. 371,421. This application Jul. 1, 1996, Ser. No. 56,495

The portion of the term of this patent subsequent to Jul. 2, 2010, has been disclaimed.

Term of patent 14 years
LOC (6) Cl. 22 - *05*

U.S. Cl. D22—146



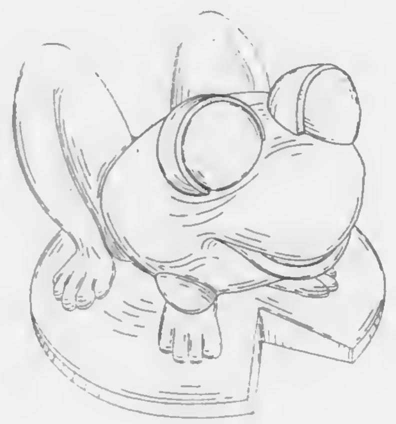
396,522

MICROORGANISM DISPENSER

Michael Van Erdewyk, 7775 Grinnell Way, Lakeville, Minn. 55044, and Vincent P. Spaulding, R.R. 1 Box 1236, Waymart, Pa. 18472

Filed Sep. 26, 1997, Ser. No. 76,889
Term of patent 14 years
LOC (6) Cl. 23 - *01*

U.S. Cl. D23—207



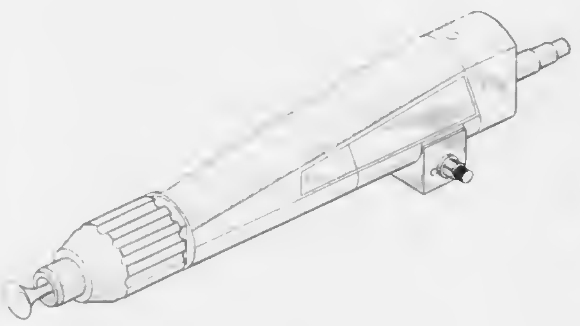
396,523

POWDER SPRAY GUN

Horst Adams, Nonnenhorn, Germany, assignor to Wagner International AG, Alstatten, Switzerland

Filed Apr. 30, 1996, Ser. No. 53,826
Claims priority, application Germany, Oct. 31, 1995, M 95 08 798.2
Term of patent 14 years
LOC (6) Cl. 23 - *01*

U.S. Cl. D23—213



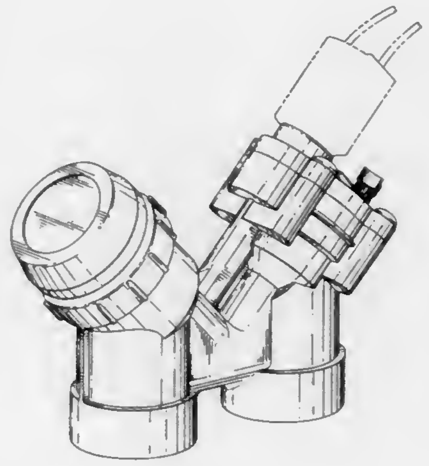
396,524

ANTI-SIPHON VALVE BODY

Walter C. Patrick, Alta Loma, and Richard G. Garza, Norwalk, both of Calif., assignors to Arcadia Industries, Inc., San Diego, Calif.

Filed Oct. 18, 1996, Ser. No. 61,273
Term of patent 14 years
LOC (6) Cl. 23 - *01*

U.S. Cl. D23—233



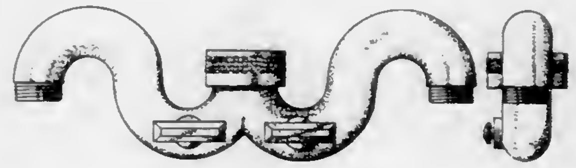
396,525

DUAL SHOWERHEAD ADAPTER

Lawrence A. Larimer, 4917 Bella Collina St., Oceanside, Calif. 92056

Filed Sep. 23, 1996, Ser. No. 60,091
Term of patent 14 years
LOC (6) Cl. 23 - *01*

U.S. Cl. D23—263



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396,526
PORTABLE ELECTRIC HEATER

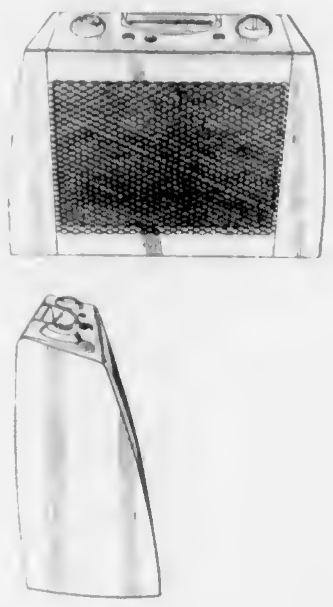
Stephan Boyle, Belmont; Walter Birdsell, Shrewsbury; Steven L. Hecker, Waltham; Kenneth David Harris, Jr., Cambridge, and Stanley Gresens, Charlestown, all of Mass., assignors to Honeywell Inc., Minneapolis, Minn.

Filed Dec. 12, 1996, Ser. No. 63,635

Term of patent 14 years

LOC (6) Cl. 23 - *03*

U.S. Cl. D23—335



396,527
PORTABLE ELECTRIC HEATER

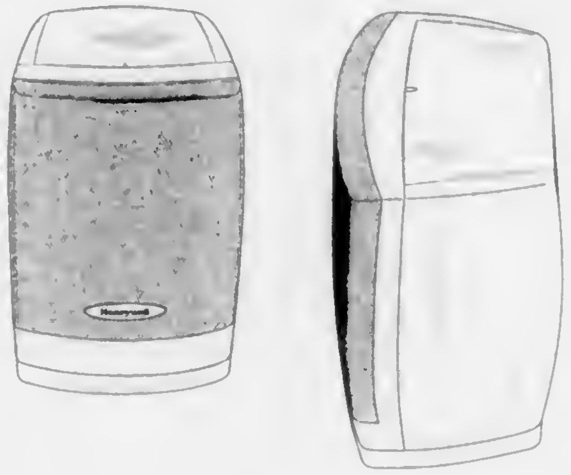
Stephan Boyle, Belmont; Rodney B. Jané, Westborough; Walter Birdsell, Shrewsbury; Steven L. Hecker, Waltham, and Kenneth David Harris, Jr., Cambridge, all of Mass., assignors to Honeywell Inc., Minneapolis, Minn.

Filed Dec. 12, 1996, Ser. No. 63,640

Term of patent 14 years

LOC (6) Cl. 23 - *03*

U.S. Cl. D23—335



396,528
CAR AIR FRESHENER

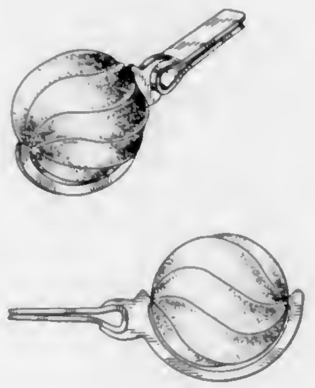
Joseph P. Ceresko, Mt. Cobb, Pa., assignor to Space Age Plastics

Filed Jun. 18, 1997, Ser. No. 72,424

Term of patent 14 years

LOC (6) Cl. 23 - *04*

U.S. Cl. D23—366



396,529
FRESH AIR IONIZER

Se Kit Yuen, Kowloon, Hong Kong, assignor to John Manufacturing Limited, Kowloon, Hong Kong

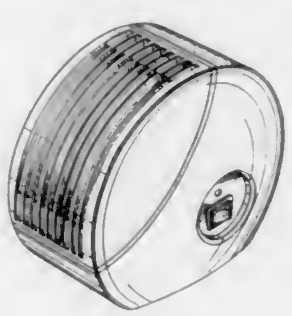
Filed Nov. 4, 1997, Ser. No. 78,841

Claims priority, application United Kingdom, Jul. 7, 1997, 2067204; Aug. 13, 1997, 2068311

Term of patent 14 years

LOC (6) Cl. 23 - *04*

U.S. Cl. D23—366



396,530
CEILING FAN

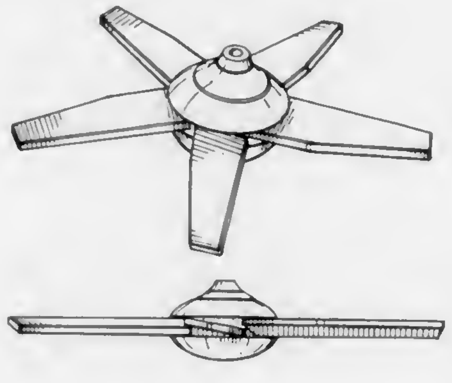
Jen-Lung David Tai, 5616 W. Aster Dr., Glendale, Ariz. 85304

Filed Oct. 1, 1997, Ser. No. 77,296

Term of patent 14 years

LOC (6) Cl. 23 - *04*

U.S. Cl. D23—377



396,531
COMBINED CEILING FAN AND LIGHT FIXTURE

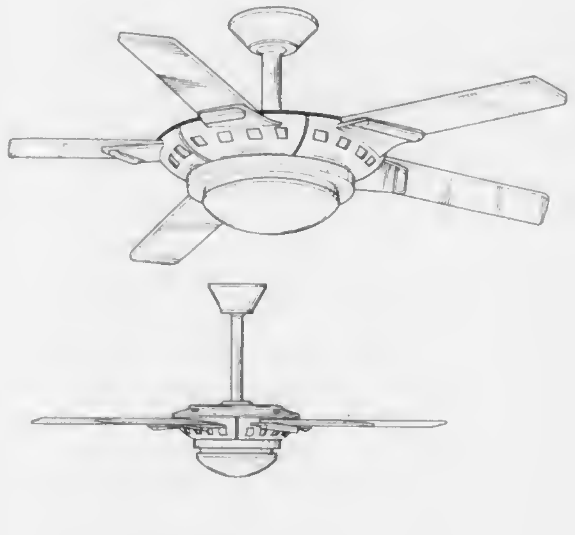
Cheng-Ta Lieu, Taichung Hsien, Taiwan, assignor to Pan Air Electric Co., Ltd., Taichung Hsien, Taiwan

Filed Oct. 9, 1997, Ser. No. 77,771

Term of patent 14 years

LOC (6) Cl. 23 - *04*

U.S. Cl. D23—377



396,532
CEILING FAN HOUSING

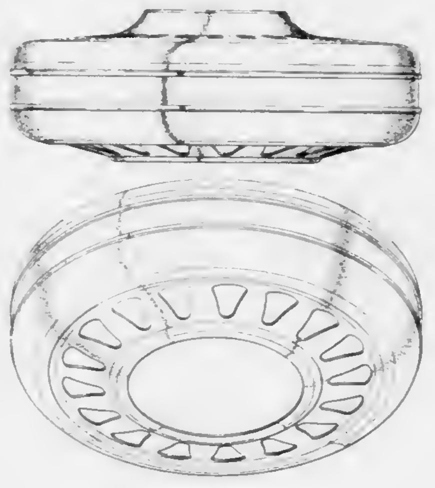
Masao Tsuji, Germantown, Tenn., assignor to Hunter Fan Company, Memphis, Tenn.

Filed May 31, 1995, Ser. No. 39,570

Term of patent 14 years

LOC (6) Cl. 23 - *04*

U.S. Cl. D23—411



396,533
BLADE MEDALLION FOR A CEILING FAN

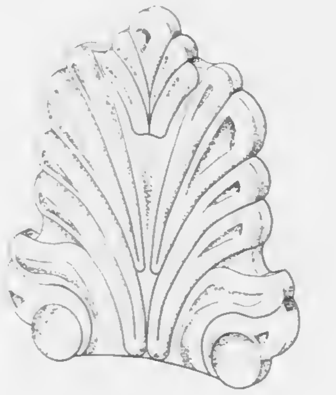
Masao Tsuji, Germantown, Tenn., assignor to Hunter Fan Company, Memphis, Tenn.

Division of Ser. No. 58,257, Aug. 9, 1996. This application Aug. 5, 1997, Ser. No. 74,526

Term of patent 14 years

LOC (6) Cl. 23 - *04*

U.S. Cl. D23—411



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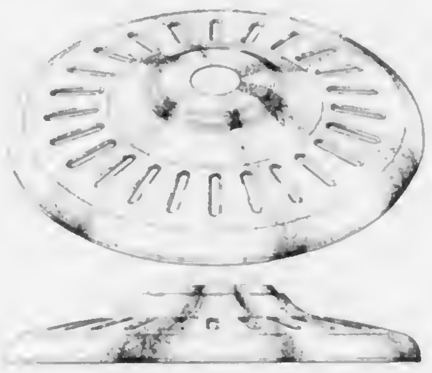
396,534
UPPER HOUSING FOR A CEILING FAN
Masao Tsuji, Germantown, Tenn., and Jack W. Gee, II, Huntsville, Ala., assignors to Hunter Fan Company, Memphis, Tenn.
Division of Ser. No. 58,261, Aug. 9, 1996. This application Aug. 5, 1997, Ser. No. 74,529
Term of patent 14 years
LOC (6) Cl. 23 - 04
U.S. Cl. D23—411



LIST OF PATENTEES

TO WHOM

PATENTS WERE ISSUED ON THE 28th DAY OF JULY, 1998

NOTE— Arranged in accordance with the first significant character or word of the name (in accordance with city and telephone directory practice).

AB Volvo: *See—*
  Mattsson, Mikael, 5,784,919, Cl. 72-450.000.
AB Volvo Penta: *See—*
  Nestvall, Per, 5,785,562, Cl. 440-1.000.
ABB Atom AB: *See—*
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ABB Power T&D Company, Inc.: *See—*
  Bapat, Vinod N., 5,786,684, Cl. 323-258.000.
ABB Research Ltd.: *See—*
  Harris, Christopher; Bakowski, Mietek; Zdansky, Lennart; and Bijlenga, Bo, 5,786,251, Cl. 438-268.000.
Abbott, Anthony Steven, to Northrop Grumman Corporation. On-the-fly accuracy enhancement for civil GPS receivers. 5,786,790, Cl. 342-357.000.
Abbott Laboratories: *See—*
  Allen, Michael S.; and Tien, Jien-Heh J., 5,786,500, Cl. 560-29.000.
  Attermeier, Kurt; Dudar, Thomas E.; Stiehl, Mark A.; and Tartaglia, Joseph M., 5,785,692, Cl. 604-242.000.
  Grabenkort, Richard E., 5,785,682, Cl. 604-82.000.
  Leckie, Gregor W.; Davis, Alan H.; Semple-Facey, Ingrid E.; Manlove, Matthew T.; and Solomon, Natalie A., 5,786,149, Cl. 435-6.000.
  Stassi, Diane L.; Maine, Gregory T.; Post, David A.; and Satter, Mark T., 5,786,181, Cl. 435-76.000.
ABD, L.C.: *See—*
  Tieskoetter, Mark, 5,785,211, Cl. 222-396.000.
Abe, Kenji, to NEC Corporation. Cache control apparatus. 5,787,467, Cl. 711-118.000.
Abe, Masahiro: *See—*
  Haraguchi, Hiroshi; Abe, Masahiro; and Nomura, Wataru, 5,786,267, Cl. 438-584.000.
Abe, Tadashi: *See—*
  Tsuzuki, Yasuhiro; and Abe, Tadashi, 5,785,782, Cl. 152-210.000.
Abe, Tetsuya; Ito, Takayuki; and Enomoto, Takashi, to Asahi Kogaku Kogyo Kabushiki Kaisha. Zoom lens system having a high zoom ratio. 5,786,943, Cl. 359-688.000.
Abe, Tsutomu: *See—*
  Ikeda, Masami; Abe, Tsutomu; and Matsuo, Keisuke, 5,786,835, Cl. 347-106.000.
Abe, Yasuhiko: *See—*
  Iinuma, Kazuhiro; Kawagishi, Tetsuya; and Abe, Yasuhiko, 5,785,654, Cl. 600-441.000.
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  Sugiyama, Yaroku; Sugiyama, Hiroyuki; Ito, Noriyuki; Yamashita, Ryouichi; Maruyama, Terunobu; and Abe, Yasunori, 5,787,268, Cl. 395-500.000.
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Abiko, Sigheshi: *See—*
  Boutaud, Frederic; and Abiko, Sigheshi, 5,787,481, Cl. 711-151.000.
Abolfathi, Amir; Hogendijk, Michael; and Khosravi, Farhad, to Endotex Interventional Systems, Inc. Methods and apparatus for treating aneurysms and arterio-venous fistulas. 5,785,679, Cl. 604-51.000.
Abou-Rached, Roger Georges, to R.A.R. Consultants Ltd. Method of securing and architectural finish element to a surface. 5,785,904, Cl. 264-35.000.
Abraham, Andrew J.; and Leslie, Brian R., to Illinois Tool Works Inc. Dynamometer torsional damping apparatus. 5,784,929, Cl. 74-574 000.
Academy Manufacturing Co., Inc.: *See—*
  Locke, Albert C.; and Schoenfeld, Oscar, 5,785,792, Cl. 156-247.000.
Acadia Elastomers: *See—*
  Suggs, Steven M.; and Meyer, Reid M., 5,785,322, Cl. 277-207.00A.
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  Bell, Christopher A., 5,785,163, Cl. 192-70.300.
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  Keim, Karl-Heinz; and Kober, Rudi, 5,785,252, Cl. 239-418.000.
Achkar, Charles: *See—*
  Gudas, Lorraine J.; Achkar, Charles; Buck, Jochen; Langston, Alexander W.; Derguini, Fadila; and Nakanishi, Koji, 5,786,391, Cl. 514-690.000.
Ackerly, Anne C.: *See—*
  Greer, Ernest P.; Luchetti, Robert J.; Shipman, David A.; Tanis, Jack A.; Draudt, Gregg Robert; Ackerly, Anne C.; and Tingley, Michael, 5,784,843, Cl. 52-220.700.
Ackermann, Roland: *See—*
  Richter, Andreas M.; Ackermann, Roland; Lutz, Manfred; and Humpert, Hans-Josef, 5,786,121, Cl. 430-135.000.
Ackers, Bernard Lawrence Phillip: *See—*
  Baker, Paul William; and Ackers, Bernard Lawrence Phillip, 5,785,414, Cl. 362-240.000.
ACT Medical, Inc.: *See—*
  de Toledo, Fernando Alvarez; and Doucette, Thomas H., 5,785,689, Cl. 604-165.000.
ActiSys Corporation: *See—*
  Wang, Li-Chen; and Yeh, Keming, 5,786,921, Cl. 359-152.000.
Acuson Corporation: *See—*
  Goodsell, Leonard James, Jr.; Marshall, Janice L.; Guracar, Ismayil M.; Haller, Matthew I.; and Cole, Christopher R., 5,785,655, Cl. 600-441.000.
Adachi, Hideto: *See—*
  Kamiyama, Satoshi; Suzuki, Masakatsu; Uenoyama, Takeshi; Ohnaka, Kiyoshi; Takamori, Akira; Mannoh, Masaya; Kidoguchi, Isao; Adachi, Hideto; Ishibashi, Akihiko; Fukuhisa, Toshiya; and Kumabuchi, Yasuhito, 5,787,104, Cl. 372-43.000.
Adachi, Kenji: *See—*
  Toufuku, Atsushi; and Adachi, Kenji, 5,785,897, Cl. 252-514.000.
Adamic, Raymond J.; Shields, James P.; and Kowalski, Mark H., to Hewlett-Packard Company. Bleed alleviation in ink-jet inks using organic acids. 5,785,743, Cl. 106-31.270.
Adams, Jürgen, to VDO Adolf Schindling AG. Communication interface between a computer and a vehicle device. 5,787,366, Cl. 701-1.000.
Adams, Paul E.: *See—*
  Dietz, Jeffry G.; Baker, Mark R.; and Adams, Paul E., 5,786,490, Cl. 549-269.000.
Adams, Robert W.; and Kwan, Tom W., to Analog Devices, Inc. Variable sample-rate DAC/ADC/converter system. 5,786,778, Cl. 341-61.000.
Adaptec, Inc.: *See—*
  Lan, Steven; Miller, David H.; and Koralek, Richard W., 5,787,099, Cl. 371-37.070.
Addway Engineering Limited: *See—*
  Shek, Kwok Nam, 5,784,743, Cl. 15-22.100.
ADE Corporation: *See—*
  Mallory, Roy E., 5,786,698, Cl. 324-611.000.
Adinolfi, David W.: *See—*
  van Lake, Paul; and Adinolfi, David W., 5,785,660, Cl. 600-523.000.
Adir et Compagnie: *See—*
  Fauchere, Jean-Luc; Thurieau, Christophe; Verbeuren, Tony; Rupin, Alain; and Simonet, Serge, 5,786,330, Cl. 514-13.000.
Adolf Hottinger Maschinenbau GmbH: *See—*
  Stangier, Ulf; and Rommel, Reiner, 5,785,108, Cl. 164-21.000.
Adolf Mohr Maschinenfabrik GmbH & Co KG: *See—*
  Gross, Helmut; and Stemmer, Frank, 5,784,940, Cl. 83-699.410.
Adolph, Eudora F.; Witt, Paul A.; Garcia, Emmanuel; Musiol, John A.; Vivacqua, Raymond J.; Lotito, James C.; and Lewis, Robert Alden, to Siemens Automotive Corporation; and AlliedSignal Inc. Occupant sensing and crash behavior system. 5,785,347, Cl. 280-735.000.
Advance Designed Systems, Inc.: *See—*
  Fenton, E. Dale, 5,785,341, Cl. 280-441.000.
Advance Research Chemicals, Inc.: *See—*
  Meshri, Dayal T.; Meshri, Sanjay D.; Contractor, Dinshaw B.; and Parker, Jennifer, 5,785,770, Cl. 148-26.000.
Advanced Deposition Technologies, Inc.: *See—*
  Walters, Glenn J.; and McCormick, John A., 5,786,910, Cl. 359-2.000.
Advanced Micro Devices: *See—*
  Bloomer, Charles T.; Headley, James F.; McCoy, Jody A.; and Klaes, Leo J., Jr., 5,787,270, Cl. 395-500.000.
Advanced Micro Devices, Inc.: *See—*
  Bui, Nguyen Duc; Yue, John T.; and Pham, Van, 5,786,705, Cl. 324-766.000.
  Cheung, Robin W.; and Lin, Ming-Ren, 5,785,236, Cl. 228-180.500.
  Gardner, Mark I.; Hause, Fred N.; and Fulford, H. Jim, Jr., 5,786,256, Cl. 438-305.000.
  Hao, Ming-yin; and Rakkhit, Rajat, 5,786,254, Cl. 438-287.000.
  Johnson, William M.; Tran, Thang M.; and Mahalingaiah, Rupaka, 5,787,266, Cl. 395-392.000.
  Peng, Yeng-Kaung; Ho, Siu-May; and Shiau, Ying, 5,787,190, Cl. 382-145.000.
  Pflum, Marty L., 5,787,474, Cl. 711-138.000.
  Runaldue, Thomas Jefferson, 5,787,273, Cl. 395-555.000.
Advanced Refractory Technologies, Inc.: *See—*
  Dorfman, Veniamin F.; and Goel, Arvind, 5,786,068, Cl. 428-209.000.
Advanced Tissue Sciences, Inc.: *See—*
  Naughton, Gail K.; and Naughton, Brian A., 5,785,964, Cl. 424-93.210.
Advantest Corporation: *See—*
  Fujisaki, Kenichi, 5,787,093, Cl. 371-27.100.

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Shimura, Takashi, 5,787,124, Cl. 375-328.000.

Ae, Satoshi: *See—*

Nakamura, Takahiro; and Ae, Satoshi, 5,785,755, Cl. 117-104.000.

Affymax Technologies N V: *See—*

Barrett, Ronald W.; Cwirla, Steven E.; Dower, William J.; Koller, Kerry J.; Lee, Jung; Martens, Christine L.; and Ruhland-Fritsch, Beatrice, 5,786,322, Cl. 514-2.000.

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- Chiu, George Liang-Tai; Cipolla, Thomas Mario; Doany, Fuad Elias; Dove, Derek Brian, Rosenbluth, Alan Edward, Singh, Rama Nand, and Wilczynski, Janusz Stanislaw, to International Business Machines Corporation. Efficient optical system for a high resolution projection display employing reflection light valves. 5,786,934, Cl. 359-494.000.
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- Gordon, Jeffrey R.; and Rose, William B., to University of Illinois, The Board of Trustees of the. Compressed stopper channel bypass pipe burst pressure relief apparatus for plumbing fixtures. 5,785,072, Cl. 137-59.000
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- Xu, Shuang-yong; and Xiao, Jian-ping, to New England Biolabs, Inc. Method for cloning and producing the bssHII restriction endonuclease in *E. coli*. 5,786,195, Cl. 435-199.000.
- Yada, Hiroaki; Hayashi, Nobuhiro; Yamakoshi, Takamichi; and Fukuyama, Munekatsu, to Sony Corporation. Magnetic disk recording and playback apparatus using independently positioned recorded pattern setsfr clock generation. 5,786,954, Cl. 360-51.000.
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- Yagasaki, Yoichi; Yonemitsu, Jun; and Suzuki, Teruhiko, to Sony Corporation. Method of encoding image signal, apparatus for encoding image signal, method of decoding image signal, apparatus for decoding image signal, and image signal recording medium. 5,786,858, Cl. 348-415.000.
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- Yamada, Hiroshi, to NEC Corporation. Reflector holding structure for liquid crystal module. 5,786,877, Cl. 349-58.000.
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- Yamada, Masahiro, to Sony Corporation. Electro-optical device having inverted domains formed inside a ferro-electric substrate and electro-optical unit utilizing thereof. 5,786,926, Cl. 359-250.000.
- Yamada, Masakatsu: *See—*
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- Yamagishi, Hirotoshi; Takano, Kiyotaka; and Kimura, Masanori. Single crystal growing apparatus. 5,785,758, Cl. 117-218.000.
- Yamagiwa, Akira: *See—*
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- Yamaha, Takahisa, to Yamaha Corporation. Semiconductor device with moisture impervious film. 5,786,638, Cl. 257-760.000.
- Yamakawa, Hiroshi: *See—*
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- Yamamoto, Hironori, to NEC Corporation. Method of manufacturing a semiconductor device having an oxide film of a high quality on a semiconductor substrate. 5,786,277, Cl. 438-770.000.
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- Gardner, Timothy James; Bournias, Spyros; and Johnson, Larry, to Philips Electronics North America Corporation. Interface system for a television receiver. RE. 35,859, Cl. 348-553.000.
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- Rosen, Robert: *See—*
  - Steiner, Solomon; and Rosen, Robert, RE. 35,862, Cl. 424-455.000.
- Sachdeva, Robit C. L.; and Oshida, Yoshiki, to Ormco Corporation. Orthodontic bracket. RE. 35,863, Cl. 433-8.000.
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- Steiner, Solomon; and Rosen, Robert, to Emisphere Technologies, Inc. Delivery systems for pharmacological agents encapsulated with proteinoids. RE. 35,862, Cl. 424-455.000.
- Ward, Peter C., to MPB Corporation. Corrosion-resistant zinc-nickel plated bearing races. RE. 35,860, Cl. 384-492.000.
- Weingardt, Gary. Pari-mutuel electronic and live table gaming. RE. 35,864, Cl. 463-28.000.

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- Bernstein, Joel E., to Bernstein, Joel E. Method of treating psoriatic skin and composition. B1 486,450, Cl. 514-627.000.
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- Zimmermann, Tina, to Klöber GmbH. Seating unit. 396,360, Cl. D6-381.000.
- Zmina, Stephen George: *See—*
    - Barthelemy, Matthew; Kurdi, Stuart Seydo; Schiefer, Sonja Andrea; and Zmina, Stephen George, 396,421, Cl. D10-57.000.
- Zurwelle, Donald W., to Black & Decker Inc. Drill. 396,395, Cl. D8-68.000.
- 555 Design Fabrication Management Inc.: *See—*
    - Geier, James, 396,358, Cl. D6-349.000.

LIST OF PLANT PATENTEES

- California Florida Plant Co., L.P.: *See—*
    - Jessel, Walter H., Jr., 10,524, Cl. Plt.-70.500.
- Dettmer, Eleonore: *See—*
    - Stahnke, Otto; Dettmer, Peter; and Dettmer, Eleonore, 10,523, Cl. Plt.-56.000.
- Dettmer, Peter: *See—*
    - Stahnke, Otto; Dettmer, Peter; and Dettmer, Eleonore, 10,523, Cl. Plt.-56.000.
- Gebr. Verwer: *See—*
    - Verwer, Aad, 10,525, Cl. Plt.-87.800.
- Greenleaf Nursery Company: *See—*
    - Hunt, Marilyn; Wadsworth, Grady, deceased, 10,521, Cl. Plt.-54.100.
    - Van Antwerp, Jim, 10,522, Cl. Plt.-54.100.
- Hunt, Marilyn; Wadsworth, Grady, deceased (by Judith K. Wadsworth, legal representative), to Greenleaf Nursery Company. Ternstroemia gymnanthera 'Grewad'. 10,521, Cl. Plt.-54.100.
- Jessel, Walter H., Jr., to California Florida Plant Co., L.P. Carnation plant named 'CFPC Peach Majestic'. 10,524, Cl. Plt.-70.500.
- Pounders, Cecil T., Jr. Ilex hybrid variety named 'Xia Xiang'. 10,526, Cl. Plt.-65.000.
- Stahnke, Otto; Dettmer, Peter; and Dettmer, Eleonore. Azalea plant named 'Theo'. 10,523, Cl. Plt.-56.000.
- Van Antwerp, Jim, to Greenleaf Nursery Company. *Ternstroemia gymnanthera* 'Grevan'. 10,522, Cl. Plt.-54.100.
- Verwer, Aad, to Gebr. Verwer. Dahlia plant named 'Art Deco'. 10,525, Cl. Plt.-87.800.
- Wadsworth, Grady, deceased (by Judith K. Wadsworth, legal representative): *See—*
    - Hunt, Marilyn; Wadsworth, Grady, deceased, 10,521, Cl. Plt.-54.100.
- Wadsworth, Judith K., legal representative: *See—*
    - Hunt, Marilyn; Wadsworth, Grady, deceased, 10,521, Cl. Plt.-54.100.

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CLASSIFICATION OF PATENTS

ISSUED JULY 28, 1998

NOTE—First number, class; second number, subclass; third number, patent number

CLASS 2

22	5,784,715
69	5,784,716
79	5,784,717
90	5,784,718
94	5,784,719
125	5,784,720
239	5,784,721
244.1	5,784,722
400	5,784,723
424	5,784,724

CLASS 4

295	5,784,725
324	5,784,726
516	5,784,727
579	5,784,728

CLASS 5

86.1	5,784,729
	5,784,730
238	5,784,731
430	5,784,732
482	5,784,733
613	5,784,734

CLASS 8

155.1	5,784,735
409	5,785,717
437	5,785,718
471	5,785,719
567	5,785,720

CLASS 12

142 B	5,784,736
142 E	5,784,737

CLASS 14

2.4	5,784,738
18	5,784,739
71.3	5,784,740
73	5,784,741

CLASS 15

22.1	5,784,742
	5,784,743
29	5,784,744
104.061	5,784,745
118	5,784,746
229.11	5,784,747
230.14	5,784,748
246.2	5,784,750
250.02	5,784,749
250.04	5,784,751
256.6	5,784,752
319	5,784,753
320	5,784,754
334	5,784,755
348	5,784,756
351	5,784,757

CLASS 16

335	5,784,758
342	5,784,759

CLASS 24

3.13	5,784,760
16 R	5,784,761
129 R	5,784,762
130	5,784,763
279	5,784,764
615	5,784,765
641	5,784,766
665	5,784,767

CLASS 27

19	5,784,768

CLASS 29

401.1	5,784,769
455.1	B1 153,977
564.4	5,784,770
596	5,784,771
603.15	5,784,772
720	5,784,773
758	5,784,774
832	5,784,777
834	5,784,778
840	5,784,779
	5,784,780
846	5,784,781
848	5,784,782
888.011	5,784,783
890.046	5,784,776
890.08	5,784,784

CLASS 30

53	5,784,785
138	5,784,786
168	5,784,787
294	5,784,788
388	5,784,789
532	5,784,790

CLASS 33

27.03	5,784,791
227	5,784,792
282	5,784,793
366	5,784,794
559	5,784,795
739	5,784,796

CLASS 34

58	5,784,797
	5,784,798
92	5,784,799
97	5,784,800
115	5,784,801
312	5,784,802
437	5,784,803
446	5,784,804
589	5,784,805

CLASS 36

2 R	5,784,806
93	5,784,807
102	5,784,808
117.5	5,784,809
118.2	5,784,810
141	5,784,811

CLASS 37

348	5,784,812
455	5,784,813

CLASS 40

121	5,784,814
414	5,784,815
654.01	5,784,816
748	5,784,817

CLASS 42

70.04	5,784,818
70.11	5,784,819
84	5,784,821
94	5,784,820
101	5,784,822
103	5,784,823

CLASS 43

4	5,784,824
43.12	5,784,825
	5,784,826
44.8	5,784,827
44.9	5,784,828
44.91	5,784,829
53.5	5,784,830

CLASS 48

86 R	5,785,721

CLASS 49

141	5,784,831
352	5,784,832
360	5,784,833
475.1	5,784,834

CLASS 51

295	5,785,722

CLASS 52

9	5,784,835
79.8	5,784,836
143	5,784,837
169.5	5,784,838
204.1	5,784,839
204.5	5,784,840
220.5	5,784,841
220.7	5,784,843
222	5,784,842
292	5,784,844
408	5,784,845
409	5,784,846
506.07	5,784,847
519	5,784,848
653.1	5,784,849
667	5,784,850
736.1	5,784,851
786.13	5,784,853

CLASS 53

50	5,784,854
53	5,784,855
118	5,784,856
201	5,784,857
329	5,784,858
397	5,784,859
434	5,784,860
435	5,784,861
512	5,784,862
551	5,784,863
557	5,784,864
567	5,784,865

CLASS 55

267	5,785,723
337	B1 062,874
377	5,785,724
382	5,785,725

CLASS 56

6	5,784,866
10.2 R	5,784,867
10.8	5,784,868
119	5,784,869
320.1	5,784,870
327.1	5,784,871
364	5,784,872
377	5,784,873

CLASS 57

237	5,784,874

CLASS 60

39.05	5,784,875
39.06	5,784,876
204	5,784,877
274	5,784,878
276	5,784,879
277	5,784,880
278	5,785,030
322	5,784,881
323	5,784,882
327	5,784,883
403	5,784,884
423	5,784,885
649	5,784,886
657	5,784,887
677	5,784,888
725	5,784,889

CLASS 62

3.7	5,784,890
126	5,784,891
174	5,784,892
333	5,784,893
402	5,784,894
407	5,784,895
	5,784,896
515	5,784,897
636	5,784,898
648	5,784,899

CLASS 63

3	5,784,900

CLASS 65

134.1	5,785,726
169	5,785,727
384	5,785,728
385	5,785,729

CLASS 68

12.02	5,784,902
13 R	5,784,905
27	5,784,901
133	5,784,904

CLASS 70

57	5,784,906
203	5,784,907
209	5,784,908
224	5,784,909
395	5,784,910

CLASS 71

22	5,785,730

CLASS 72

52	5,784,911
104	5,784,912
149	5,784,913
205	5,784,914
211	5,784,915
313	5,784,916
370.04	5,784,918
450	5,784,919
453.18	5,784,920
457	5,784,921

CLASS 73

3	5,786,525
12.01	5,786,526
19.01	5,786,527
38	5,786,528
40.7	5,786,529
49.3	5,786,530
116	5,786,531
121	5,786,532
146	5,786,533
624	5,786,535
662	5,786,537
714	5,786,538

CLASS 74

335	5,784,917
424.8 VA	5,784,922
465	5,784,923
473.13	5,784,924
490.09	5,784,925
572	5,784,926
573 R	5,784,927
574	5,784,928
	5,784,929
594.6	5,784,930
	5,784,931
813 R	5,784,932

CLASS 75

368	5,785,731
375	5,785,732
444	5,785,733
581	5,785,734
711	5,785,735
736	5,785,736
751	5,785,737

CLASS 81

3.36	5,784,933
57.26	5,784,934
467	5,784,935

CLASS 83

145	5,784,936
422	5,784,937
528	5,784,938
563	5,784,939
699.41	5,784,940
794	5,784,941
856	5,784,942

CLASS 84

293	5,786,539
645	5,786,540
663	5,786,541

CLASS 088

181 T	5,785,158

CLASS 89

1.13	5,786,542

CLASS 91

28	5,784,943
361	5,784,944
	5,784,945
376 R	5,784,946
406	5,784,947

CLASS 92

57	5,784,948
	5,784,949
71	5,784,950
187	5,784,951

CLASS 95

12	5,785,738
39	5,785,739
102	5,785,740

CLASS 96

4	5,785,741
144	5,785,742

CLASS 99

483	5,784,952
499	5,784,953
511	5,784,954

CLASS 100

329	5,784,955

CLASS 101

115	5,784,956
142	5,784,957
216	5,784,958
219	5,784,959
352.09	5,784,960
375	5,784,961
423	5,784,962
425	5,784,963
480	5,784,964

CLASS 102

288	5,786,543
438	5,786,546
481	5,786,544

CLASS 104

96	5,784,965
304	5,784,966

CLASS 105

3	5,784,967
26.05	5,784,968
199.2	5,784,969
401	5,784,970

CLASS 106

31.27	5,785,743
	5,785,744
	5,785,745
31.86	5,785,746
194.2	5,785,747
443	5,785,748
484	5,785,749
497	5,785,750
725	5,785,751

CLASS 108

51.3	5,784,971
156	5,784,972

CLASS 109

59 R	5,784,973

CLASS 110

186	5,784,974
245	5,784,975

CLASS 111

105	5,784,984
184	5,784,985

CLASS 112

102.5	5,784,986
	5,784,987
103	5,784,988
300	5,784,989
470.05	5,784,990

CLASS 114

21.2	5,786,545
39.2	5,784,976
61	5,784,977
103	5,784,978
218	5,784,979
263	5,784,980
299	5,784,981
361	5,784,982
363	5,784,983

CLASS 117

32	5,785,752
36	5,785,753
89	5,785,754
104	5,785,755
105	5,785,756
218	5,785,757
	5,785,758

CLASS 118

319	5,785,759
500	5,785,764
612	5,785,761
666	5,785,762
723 EB	5,785,763

CLASS 119

6.5	5,784,991
6.8	5,784,992
14.04	5,784,993
14.08	5,784,994
28.5	5,784,995
57.92	5,784,996
60	5,784,997
69.5	5,784,998
71	5,784,999
166	5,785,000
168	5,785,001
223	5,785,002
496	5,785,003
651	5,785,004
706	5,785,005
732	5,785,006
771	5,785,007
831	5,785,008
850	5,785,009
863	5,785,010
865	5,785,011

CLASS 122

235.11	5,785,012

CLASS 123

41.44	5,785,013
65 PE	5,785,014
70 R	5,785,015
90.11	5,785,016
90.16	5,785,017
90.17	5,785,018
	5,785,026
184.24	5,785,027
193.3	5,785,028
197.3	5,785,029
295	5,785,031
365	5,785,019
425	5,785,020
446	5,785,021
456	5,785,022
463	5,785,023
470	5,785,024
497	5,785,025
509	5,785,032
520	5,785,033
568	5,785,034
633	5,785,035
673	5,785,036
684	5,785,037

CLASS 124

56	5,785,038

CLASS 125

39	5,785,039

CLASS 126

9 A	5,785,045
9 R	5,785,046
39 H	5,785,047

CLASS 128

200.23	5,785,048
203.15	5,785,049
205.24	5,785,050
207.15	5,785,051
640	5,785,040
653.1	5,785,041
653.2	5,785,042
712	5,785,043
760	5,785,044
830	5,785,052
840	5,785,053
842	5,785,054
845	5,785,056
846	5,785,057
869	5,785,058
898	5,785,059

CLASS 131

231	5,785,061

CLASS 132

200	5,785,063
226	5,785,064
275	5,785,065

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CLASS 134

2	5,785,765
29	5,785,766
42	5,785,767
102 1	5,785,067
144	5,785,068

CLASS 135

20 1	5,785,069
67	5,785,070

CLASS 136

250	5,785,768
256	5,785,769

CLASS 137

59	5,785,072
	5,785,073
68 11	5,785,074
115 1	5,785,075
231	5,785,076
315	5,785,077
350	5,785,078
502	5,785,079
510	5,785,080
516 23	5,785,081
516 29	5,785,082
533 13	5,785,083
549	5,785,084
563	5,785,085
625 38	5,785,086
625.65	5,785,087

CLASS 138

38	5,785,088
42	5,785,089
89	5,785,090
123	5,785,091
133	5,785,092
178	5,785,093

CLASS 139

91	RE. 35,858
384 R	5,785,094
449	5,785,095

CLASS 140

92 1	5,785,096
92 7	5,785,097

CLASS 141

27	5,785,098
86	5,785,099
198	5,785,100

CLASS 144

4 1	5,785,101
387	5,785,102

CLASS 148

26	5,785,770
213	5,785,771
508	5,785,772
600	5,785,760
634	5,785,773
	5,785,774
669	5,785,775
690	5,785,776
694	5,785,777

CLASS 152

151	5,785,778
204	5,785,779
209 R	5,785,780
210	5,785,782
216	5,785,783
454	5,785,781

CLASS 156

66	5,785,784
73 1	5,785,786
155	5,785,787
203	5,785,785
217	5,785,788
235	5,785,789
239	5,785,790
242	5,785,791
247	5,785,792
272 2	5,785,793
290	5,785,794
344	5,785,795
345	5,785,796
	5,785,797
361	5,785,798
379 7	5,785,799
382	5,785,800
450	5,785,801
471	5,785,802
538	5,785,803
556	5,785,804
580	5,785,805
580 2	5,785,806
662.1	5,785,807

CLASS 159

47 1	5,785,808

CLASS 160

38	5,785,104
243	5,785,105
370 21	5,785,106

CLASS 162

5	5,785,809
60	5,785,810
65	5,785,811
76	5,785,812
158	5,785,813
191	5,785,814
198	5,785,815
203	5,785,816
218	5,785,817
338 2	5,785,818

CLASS 164

16	5,785,107
21	5,785,108
59 1	5,785,109
113	5,785,110
200	5,785,111
472	5,785,112

CLASS 165

41	5,785,113
47	5,785,114
67	5,785,115
80.3	5,785,116
166	5,785,117
170	5,785,118
178	5,785,119

CLASS 166

55	5,785,120
90 1	5,785,121
227	5,785,122
369	5,785,123
372	5,785,124
380	5,785,125

CLASS 169

46	5,785,126
71	5,785,127

CLASS 172

126	5,785,128
536	5,785,129

CLASS 174

35 MS	5,786,547
50 54	5,786,548

CLASS 175

4 6	5,785,130
46	5,785,131
57	5,785,132
61	5,785,133
258	5,785,134
373	5,785,135

CLASS 177

211	5,786,549

CLASS 180

65.2	5,785,136
	5,785,137
	5,785,138
68 1	5,785,139
68 4	5,785,140
219	5,785,141
271	5,785,142
374	5,785,143
422	5,785,144
443	5,785,145

CLASS 182

3	5,785,146
70	5,785,147
138	5,785,148

CLASS 184

6 12	5,785,149
6 16	5,785,151
6 17	5,785,150
16	5,785,152

CLASS 187

249	5,785,153
386	5,786,550
	5,786,551

CLASS 188

1 12	5,785,154
41	5,785,155
73 44	5,785,156
156	5,785,157
219 1	5,785,159
322 15	5,785,160

CLASS 192

3 29	5,785,161
53.331	5,785,162
70 3	5,785,163
99 S	5,785,164

CLASS 198

322	5,785,165
330	5,785,166
333	5,785,167
465 4	5,785,168
493	5,785,169

CLASS 200

11 TC	5,786,552
61 48	5,786,553
61.88	5,786,554

CLASS 202

158	5,785,819
	5,785,820

CLASS 203

57	5,785,821
67	5,785,822
71	5,785,823

CLASS 204

176	5,785,824
192.16	5,785,825
212	5,785,826
267	5,785,827
294	5,786,555
298 13	5,785,828
427	5,785,829
433	5,785,830
451	5,785,831
469	5,785,832
525	5,785,833
562	5,785,834
616	5,785,835

CLASS 205

44	5,785,836
74	5,785,837
83	5,785,838
634	5,785,839
640	5,785,840
705	5,786,556
763	5,785,841
777 5	5,785,842

CLASS 206

203	5,785,170
232	5,785,171
308 1	5,785,172
315 6	5,785,173
349	5,785,174
386	5,785,175
387 1	5,785,176
446	5,785,177
459 1	5,785,178
494	5,785,179
532	5,785,180

CLASS 208

131	5,785,843

CLASS 209

3 3	5,785,181
44	5,785,182

CLASS 210

85	5,785,844
167	5,785,845
169	5,785,846
177	5,785,847
282	5,785,848
297	5,785,849
304	5,785,850
489	5,785,851
613	5,785,852
614	5,785,853
620	5,785,854
634	5,785,856
638	5,785,857
650	5,785,858
651	5,785,859
	5,785,860
669	5,785,861
723	5,785,862
724	5,785,863
739	5,785,864
747	5,785,865
748	5,785,866
759	5,785,867
761	5,785,868
782	5,785,869
798	5,785,870

CLASS 211

1 51	5,785,183
4	5,785,184
37	5,785,185
41	5,785,186
59 1	5,785,187
88 01	5,785,188
187	5,785,189
189	5,785,190

CLASS 212

275	5,785,191

CLASS 213

75 TC	5,785,192

CLASS 215

235	5,785,193
302	5,785,194
329	5,785,195
354	5,785,196
375	5,785,197

CLASS 216

2	5,785,871
11	5,785,873
24	5,785,874
41	5,785,875
58	5,785,876
67	5,785,877
68	5,785,878
95	5,785,879

CLASS 219

69 11	5,786,557
110	5,786,558
121 64	5,786,559
121.77	5,786,560
121 84	5,786,561
137 R	5,786,562
213	5,786,563
216	5,786,564
260	5,786,565
400	5,786,566
	5,786,567
	5,786,568
411	5,786,569
469	5,786,570
494	5,786,571
523	5,786,572
529	5,786,574
535	5,786,573
621	5,786,643
633	5,786,575
672	5,786,576
682	5,786,577
720	5,786,578
746	5,786,579
752	5,786,580

CLASS 220

254	5,785,198
258	5,785,199
289	5,785,200
321	5,785,201
455	5,785,202
783	5,785,203

CLASS 221

24	5,785,204
26	5,785,205
271	5,785,206

CLASS 222

148	5,785,208
153 07	5,785,209
229	5,785,210
396	5,785,211
509	5,785,212
553	5,785,213
594	5,785,880
609	5,785,214

CLASS 223

50	5,785,215
85	5,785,216
111	5,785,217

CLASS 224

42 24	5,785,218
269	5,785,221
555	5,785,222
576	5,785,219
609	5,785,223
677	5,785,220

CLASS 225

4	5,785,224
96 5	5,785,225

CLASS 226

45	5,785,226

CLASS 227

8	5,785,227
	5,785,228
10	5,785,229
71	5,785,230
130	5,785,231
176 1	5,785,232

CLASS 228

42	5,785,235
46	5,785,233
180 22	5,785,237
180.5	5,785,236
223	5,785,234

CLASS 229

103	5,785,238
120.36	5,785,239
137	5,785,240
305	5,785,242

CLASS 235

455	5,786,581
462	5,786,582
	5,786,583
	5,786,584
472	5,786,585
	5,786,586
487	5,786,587

CLASS 236

47	5,785,243
49 3	5,785,244

CLASS 239

9	5,785,245
11	5,785,246
135	5,785,247
237	5,785,248
265 19	5,785,249
337	5,785,250
417 3	5,785,251
418	5,785,252
455	5,785,253
490	5,785,254
552	5,785,256
585 4	5,785,257
590	5,785,258

CLASS 241

24 18	5,785,259
24.28	5,785,260
36	5,785,261
74	5,785,262
79 1	5,785,263
169 1	5,785,264

CLASS 242

36	5,785,265
323	5,785,266
332	5,785,267
340	5,785,268
379 1	5,785,269
422 4	5,785,270
530 1	5,785,271
532 5	5,785,272
541 3	5,785,273
593	5,785,274

CLASS 244

3 17	5,785,275
135 A	5,785,276
137.2	5,785,277
139	5,785,278
158 R	5,785,279
173	5,785,280
190	5,785,281
199	5,785,282

CLASS 246

62	5,785,283

CLASS 248

27 3	5,785,284
68 1	5,785,285
187 1	5,785,286
188.9	5,785,287
220 41	5,785,288
230 1	5,785,289
311 2	5,785,290
429	5,785,291
	5,785,292
442.2	5,786,861
649	5,785,293
678	5,785,294

CLASS 250

208 1	5,786,588
	5,786,589
	5,786,590
226	5,786,591
227 14	5,786,592
231 14	5,786,593
236	5,786,594
256	5,786,595
353	5,786,596
370 09	5,786,597
455 11	5,786,598
483 1	5,786,599
484 4	5,786,600
491 1	5,786,601
515 1	5,786,611
559 33	5,786,602

CLASS 251

11	5,785,295
129 11	5,785,296
129 14	5,785,297
129 16	5,785,298
129 18	5,785,299
342	5,785,300
354	5,785,301

CLASS 252

46 3	5,785,881
62 52	5,785,882
67	5,785,883
70	5,785,884
	5,785,885
186 33	5,785,886
186 42	5,785,887
192	5,785,888
299 01	5,785,889
299 62	5,785,890
305	5,785,891
309	5,785,892
356	5,785,894
389 23	5,785,895
392	5,785,896
514	5,785,897
584	5,785,898

CLASS 257

13	5,786,603
77	5,786,604
101	5,786,605
103	5,786,606
225	5,786,607
253	5,786,608
257	5,786,609
280	5,786,610
316	5,786,612
318	5,786,614
348	5,786,615
355	5,786,613
358	5,786,616
371	5,786,617
391	5,786,618
403	5,786,619
408	5,786,620
415	5,786,621
578	5,786,622
587	5,786,623
635	5,786,624
644	5,786,625
673	5,786,626
679	5,786,627
684	5,786,628
686	5,786,629
697	5,786,630
701	5,786,631
	5,786,632
706	5,786,633
717	5,786,634
718	5,786,635
723	5,786,636
758	5,786,637
760	5,786,638
775	5,786,639

CLASS 261

91	5,785,899
97	5,785,900
117	5,785,901
130	5,785,902

CLASS 264

2 5	5,785,903
35	5,785,904
37	5,785,905
40 1	5,785,906
	5,785,907
40.5	5,785,908
45 5	5,785,910
46.5	5,785,909
83	5,785,912
86	5,785,911
109	5,785,913
226	5,785,914
328 9	5,785,915
331.13	5,785,916
345	5,785,917
401	5,785,918
	5,785,919
515	5,785,920
529	5,785,921
682	5,785,922

CLASS 266

144	5,785,923

CLASS 267

64 17	5,785,302
103	5,785,303

CLASS 269

16	5,785,304
37	5,785,305
41	5,785,306
254 CS	5,785,307

CLASS 271

9 11	5,785,308
11	5,785,309
13	5,785,310
110	5,785,311
264	5,785,312

CLASS 273

108.1	5,785,313
138.3	5,785,314
139	5,785,315
142 H	5,785,316
148 B	5,785,317
153 S	5,785,318
157 R	5,785,319
241	5,785,320
292	5,785,606
309	5,785,321

CLASS 277

207 A	5,785,322
582	5,785,323

CLASS 279

2.03	5,785,324
33	5,785,325

CLASS 280

11.2	5,785,326
11.27	5,785,327
33.998	5,785,328
79.5	5,785,329
81.6	5,785,330
87.041	5,785,331
96.1	5,785,332
204	5,785,333
	5,785,334
	5,785,335
234	5,785,336
255	5,785,337
278	5,785,338
283	5,785,339
304 1	5,785,340
441	5,785,341
602	5,785,342
634	5,785,343
714	5,785,344
715	5,785,345
728.2	5,785,346
735	5,785,347
740	5,785,348
743.1	5,785,349
743.2	5,785,350
757	5,785,351

CLASS 283

67	5,785,353
74	5,785,354
108	5,785,355

CLASS 285

92	5,785,357
93	5,785,358
191	5,785,359
328	5,785,360
382	5,785,361

CLASS 290

17	5,786,640

CLASS 292

98	5,785,362
165	5,785,363
201	5,785,364
216	5,785,365
341 12	5,785,366

CLASS 293

133	5,785,367
134	5,785,368

CLASS 294

1 1	5,785,369
1.2	5,785,370

CLASS 296

24.1	5,785,372
26.01	5,785,373
78.1	5,785,374
108	5,785,375
146.15	5,785,377
146 6	5,785,376
187	5,785,378

CLASS 297

158.5	5,785,379
219 1	5,785,381
250.1	5,785,382
255	5,785,383
317	5,785,384
328	5,785,385
367	5,785,386
473	5,785,387
482	5,785,388

CLASS 301

37.42	5,785,389
108.1	5,785,390
111	5,785,391

CLASS 303

7	5,785,392
	5,785,393
119 2	5,785,394

CLASS 305

138	5,785,395

CLASS 307

64	5,786,641
72	5,786,642
117	5,786,644

CLASS 310

68 B	5,786,646
68 R	5,786,645
89	5,786,647
90	5,786,648
112	5,786,649
156	5,786,650
259	5,786,651
263	5,786,652
323	5,786,653
328	5,786,654
333	5,786,655

CLASS 312

1	5,785,396
111	5,785,397
223.2	5,785,398
324	5,785,399
334 12	5,785,400
350	5,785,401
	5,785,402

CLASS 313

308	5,786,656
	5,786,657
309	5,786,658
	5,786,659
440	5,786,661
495	5,786,660
	5,786,663
506	5,786,664
512	5,786,665

CLASS 315

5.38	5,786,666
39	5,786,667
85	5,786,668
169.3	5,786,669
200 R	5,786,670
307	5,786,671
368.26	5,786,672

CLASS 318

139	5,786,673
268	5,786,674
466	5,786,675
468	5,786,676
560	5,786,677
677	5,786,678
696	5,786,679
	5,786,680
701	5,786,681

CLASS 320

6	5,786,682

CLASS 323

220	5,786,683
258	5,786,684
270	5,786,685
282	5,786,686
289	5,786,687

CLASS 324

146	5,786,688
158 1	5,786,689
248	5,786,690
300	5,786,691
307	5,786,692
309	5,786,693
318	5,786,694
320	5,786,695
329	5,786,696
537	5,786,697
611	5,786,698
617	5,786,699
713	5,786,700
754	5,786,701
763	5,786,702
	5,786,703
765	5,786,704
766	5,786,705
770	5,786,707
772	5,786,708

CLASS 326

27	5,786,709
40	5,786,710
83	5,786,711

CLASS 327

94	5,786,712
108	5,786,713
116	5,786,715
143	5,786,716
	5,786,717
166	5,786,718
202	5,786,719
321	5,786,720
	5,786,721
503	5,786,722
530	5,786,723
534	5,786,724

CLASS 329

304	5,786,725
325	5,786,726

CLASS 330

59	5,786,730
124 R	5,786,727
149	5,786,728
255	5,786,729
267	5,786,731

CLASS 331

1 A	5,786,732
11	5,786,733
57	5,786,734
158	5,786,735

CLASS 333

1.1	5,786,736
33	5,786,737
133	5,786,738
210	5,786,739
219 1	5,786,740

CLASS 335

222	5,786,741

CLASS 337

66	5,786,742
206	5,786,743

CLASS 338

14	5,786,744
51	5,786,745

CLASS 340

286.07	5,786,746
311 1	5,786,748
384.7	5,786,749
425.5	5,786,750
438	5,786,751
467	5,786,752
	5,786,753
476	5,786,754
506	5,786,755
507	5,786,756
531	5,786,757
539	5,786,758
541	5,786,760
542	5,786,759
547	5,786,761
551	5,786,762
572	5,786,763
	5,786,764
576	5,786,765
628	5,786,767
632	5,786,768
687	5,786,769
825.06	5,786,770
826	5,786,771
903	5,786,772
947	5,786,773
984	5,786,774

CLASS 341

22	5,786,775
23	5,786,776
55	5,786,777
61	5,786,778
	5,786,779
67	5,786,780
111	5,786,781
141	5,786,782
172	5,786,783
176	5,786,784

CLASS 342

1	5,786,785
13	5,786,786
70	5,786,787
159	5,786,788
357	5,786,789
	5,786,790
457	5,786,791

CLASS 343

700 MS	5,786,793
770	5,786,792

CLASS 345

60	5,786,794
75	5,786,795
76	5,786,796
79	5,786,797
89	5,786,798
94	5,786,799
98	5,786,800
102	5,786,801
127	5,786,802
153	5,786,803
158	5,786,804
159	5,786,805
161	5,786,806
	5,786,807
	5,786,808
168	5,786,809
	5,786,810
172	5,786,811
173	5,786,812
212	5,786,813
328	5,786,814
333	5,786,815
339	5,786,816
	5,786,817
	5,786,818
354	5,786,819
357	5,786,820
430	5,786,822
431	5,786,823
438	5,786,824
501	5,786,825
505	5,786,826
507	5,786,827

CLASS 347

19	5,786,828
28	5,786,829
33	5,786,830
43	5,786,831
45	5,786,832
71	5,786,833
87	5,786,834
106	5,786,835
171	5,786,836
179	5,786,838
190	5,786,837
211	5,786,839
217	5,786,841
	5,786,842
251	5,786,843

CLASS 348

6	5,786,844
9	5,786,845
20	5,786,846
47	5,786,847
51	5,786,848
113	5,786,849
158	5,786,850
222	5,786,851
312	5,786,852
358	5,786,853
373	5,786,854
391	5,786,855
403	5,786,856
405	5,786,857
415	5,786,858
416	5,786,859
	5,786,860
448	5,786,862
458	5,786,863
473	5,786,864
505	5,786,865
520	5,786,866
521	5,786,867
536	5,786,868
553	RE. 35,859
565	5,786,869
607	5,786,870
609	5,786,871
669	5,786,872
756	5,786,873

CLASS 349

8	5,786,874
20	5,786,875
42	5,786,876
58	5,786,877
126	5,786,878
134	5,786,879

CLASS 351

41	5,786,880
51	5,786,881
156	5,786,882
162	5,786,883

CLASS 353

42	5,785,403

CLASS 356

72	5,786,886
73	5,786,887
	5,786,888
152.1	5,786,889
225	5,786,890
237	5,786,891
244	5,786,892
301	5,786,893
338	5,786,894
350	5,786,895
354	5,786,896
363	5,786,897
426	5,786,898

CLASS 358

298	5,786,900
474	5,786,901
475	5,786,902
485	5,786,903
487	5,786,904
498	5,786,905
500	5,786,906
518	5,786,907
	5,786,908
527	5,786,909

CLASS 359

2	5,786,910
17	5,786,911
117	5,786,912
119	5,786,913
124	5,786,914
127	5,786,915
128	5,786,916
	5,786,917
135	5,786,918
	5,786,919
152	5,786,921
158	5,786,922
172	5,786,923
197	5,786,924
245	5,786,925
250	5,786,926
291	5,786,927
295	5,786,928
330	5,786,929
331	5,786,930
409	5,786,932
460	5,786,933
494	5,786,934
504	5,786,935
557	5,786,936
572	5,786,931
583	5,786,937
617	5,786,938
621	5,786,939
637	5,786,940
683	5,786,941
686	5,786,942
688	5,786,943
689	5,786,944
692	5,786,945
695	5,786,946
822	5,786,947
838	5,786,948

CLASS 360

16	5,786,949
41	5,786,950
46	5,786,951
48	5,786,952
51	5,786,953
	5,786,954
72.1	5,786,955
73.14	5,786,956
77.01	5,786,958
77 08	5,786,957
85	5,786,959
90	5,786,960
104	5,786,961
	5,786,962
	5,786,968
106	5,786,963
	5,786,964
113	5,786,965
132	5,786,966
	5,786,967
133	5,786,969

CLASS 361

18	5,786,970
42	5,786,971
56	5,786,972
100	5,786,973
107	5,786,974
111	5,786,975
215	5,786,976
223	5,786,977
321.5	5,786,978
328	5,786,979
502	5,786,980
	5,786,981
639	5,786,982
680	5,786,983
686	5,786,984
707	5,786,985
719	5,786,986
749	5,786,988
759	5,786,989

CLASS 362

32	5,785,404
66	5,785,405
96	5,785,406
101	5,785,407
119	5,785,408
153.1	5,785,409
	5,785,410
219	5,785,411
226	5,785,412
228	5,785,413
240	5,785,414
249	5,785,415
280	5,785,416
373	5,785,418

CLASS 363

16	5,786,990
84	5,786,991
89	5,786,992

CLASS 364

140	5,786,993
184	5,786,994
187	5,786,996
188	5,786,995
190	5,786,997
424.01	5,786,998
468.01	5,787,000
468.03	5,787,001
468.22	5,787,002
475.05	5,786,999
484	5,787,004
487	5,787,005
488	5,787,006
489	5,787,007
	5,787,008
	5,787,009
	5,787,010
490	5,787,011
	5,787,012
	5,787,013
492	5,787,014
496	5,787,015
505	5,787,018
	5,787,027
550	5,787,019
	5,787,020
552	5,787,021
564.444	5,787,017
578	5,787,022
724.011	5,787,023
	5,787,024
736.01	5,787,025
736.05	5,787,026
746.1	5,787,028
760.01	5,787,029
761	5,787,030
764	5,787,031

CLASS 365

151	5,787,032
182	5,787,033
185.02	5,787,034
185.05	5,787,035
185.18	5,787,036
	5,787,037
185.22	5,787,038
	5,787,039
189.01	5,787,040
189.02	5,787,041
196	5,787,042
200	5,787,043
	5,787,044
230.01	5,787,045
230.03	5,787,046
230.04	5,787,047

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CLASS 366

6	5,785,419
20	5,785,420
33	5,785,421
162.5	5,785,422
165 3	5,785,423
317	5,785,424

CLASS 367

1	5,787,048
7	5,787,049
25	5,787,050
56	5,787,051
84	5,787,052
149	5,787,053

CLASS 368

204	5,787,054
223	5,787,055

CLASS 369

13	5,787,056
34	5,787,057
44 23	5,787,058
44 28	5,787,059
44.42	5,787,060
58	5,787,061
	5,787,062
77 2	5,787,063
112	5,787,064
200	5,787,066
247	5,787,067
275 3	5,787,068
291	5,787,069

CLASS 370

217	5,787,070
231	5,787,071
	5,787,072
236	5,787,073
244	5,787,074
252	5,787,075
294	5,787,076
331	5,787,077
	5,787,078
343	5,787,079
348	5,787,080
388	5,787,081
	5,787,082
389	5,787,083
390	5,787,084
392	5,787,085
397	5,787,089
413	5,787,086
420	5,787,087
493	5,787,088
522 007	5,787,090

CLASS 371

10 3	5,787,091
21 1	5,787,096
21.5	5,787,097
22 1	5,787,092
22 3	5,787,098
27.1	5,787,093
37.07	5,787,099
37 11	5,787,100
49 1	5,787,101
53	5,787,094
68 1	5,787,095

CLASS 372

22	5,787,102
38	5,787,103
43	5,787,104
50	5,787,105
	5,787,106
71	5,787,107

CLASS 373

9	5,787,108
107	5,787,109
151	5,787,110

CLASS 374

16	5,785,425
126	5,785,426

CLASS 375

200	5,787,111
206	5,787,112
219	5,787,113
221	5,787,114
222	5,787,115
	5,787,116
223	5,787,117
232	5,787,118
240	5,787,119
257	5,787,120
262	5,787,121
267	5,787,122
324	5,787,123
328	5,787 124
329	5,787,125
340	5,787,126
341	5,787,127
343	5,787,128
346	5,787,129
	5,787,130
347	5,787,131
354	5,787,132
366	5,787,133
376	5,787,134
	5,787,135

CLASS 376

219	5,787,136
249	5,787,137
254	5,787,138
267	5,787,139
313	5,787,140
352	5,787,141
416	5,787,142
446	5,787,143

CLASS 378

69	5,787,144
71	5,787,145
82	5,787,146

CLASS 379

10	5,787,147
52	5,787,148
59	5,787,149
67	5,787,150
	5,787,151
	5,787,152
88	5,787,153
93.03	5,787,154
93.09	5,787,155
93 13	5,787,156
142	5,787,157
145	5,787,158
201	5,787,159
220	5,787,160
221	5,787,161
229	5,787,162
265	5,787,163
372	5,787,164
390	5,787,165
430	5,787,166
446	5,787,167
455	5,787,168

CLASS 380

4	5,787,169
	5,787,170
20	5,787,171
21	5,787,172
	5,787,173
23	5,787,174
25	5,787,175
	5,787,177
30	5,787,178
46	5,787,179
52	5,787,180

CLASS 381

74	5,787,182
92	5,787,183

CLASS 382

115	5,787,185
	5,787,186
	5,787,187
133	5,787,188
	5,787,189
145	5,787,190
149	5,787,191
166	5,787,192
167	5,787,193
173	5,787,194
176	5,787,195
178	5,787,196
187	5,787,197
196	5,787,198
203	5,787,199
217	5,787,200
224	5,787,201
227	5,787,202
232	5,787,203
233	5,787,204
236	5,787,205
237	5,787,206
254	5,787,207
257	5,787,208
260	5,787,209
309	5,787,210

CLASS 383

4	5,785,427
103	5,785,428

CLASS 384

397	5,785,429
447	5,785,430
492	RE. 35,860
493	5,785,431
520	5,785,432
539	5,785,433
551	5,785,434

CLASS 385

2	5,787,211
13	5,787,212
37	5,787,213
49	5,787,214
88	5,787,215
97	5,787,216
106	5,787,217
123	5,787,218
134	5,787,219

CLASS 386

33	5,787,221
46	5,787,222
	5,787,223
52	5,787,224
83	5,787,226
95	5,787,227
105	5,787,225

CLASS 392

383	5,787,228
492	5,787,229

CLASS 395

2.44	5,787,230
2.69	5,787,231
10	5,787,232
	5,787,233
50	5,787,235
51	5,787,234
61	5,787,236
109	5,787,238
112	5,787,237
114	5,787,239
115	5,787,240
181	5,787,241
182.03	5,787,242
182.11	5,787,243
182 14	5,787,244
183 14	5,787,245
200.31	5,787,249
	5,787,250
200 33	5,787,251
200.35	5,787,262
200 5	5,787,246
	5,787,247
200 54	5,787,252
200 58	5,787,254
200.6	5,787,248
200 61	5,787,253
200 63	5,787,255
200 68	5,787,256
200 72	5,787,257
200 81	5,787,258
200.83	5,787,259
280	5,787,260
283	5,787,261
287	5,787,263
293	5,787,264
	5,787,265
309	5,786,885
392	5,787,266
432	5,787,267
500	5,787,268
	5,787,269
	5,787,270
	5,787,271
553	5,787,272
555	5,787,273
581	5,787,276
601	5,787,278
606	5,787,279
613	5,787,274
614	5,787,275
619	5,787,280
684	5,787,281
701	5,787,282
	5,787,283
	5,787,284
704	5,787,285
	5,787,286
708	5,787,287
712	5,787,288
732	5,787,289
733	5,787,290
750 01	5,787,292
	5,787,293
750 03	5,787,291
	5,787,294
	5,787,296
750 04	5,787,297
750 05	5,787,298
761	5,787,295
772	RE. 35,861
800	5,787,299
800 01	5,787,300
800 2	5,787,301
800.24	5,787,302
	5,787,303
821	5,787,304
823	5,787,305
829	5,787,306
836	5,787,307
839	5,787,308
856	5,787,309
862	5,787,310
869	5,787,311
894	5,787,312

CLASS 396

80	5,787,313
95	5,787,314
319	5,787,315
	5,787,316
420	5,787,317
442	5,787,318

CLASS 399

33	5,787,319
59	5,787,320
69	5,787,321
110	5,787,322
111	5,787,323
112	5,787,324
124	5,787,326
130	5,787,327
224	5,787,328
266	5,787,329
390	5,787,330
406	5,787,331

CLASS 400

120.02	5,785,435
124.01	5,785,436
193	5,785,437
248	5,785,438
472	5,785,439
618	5,785,440
633	5,785,441
693	5,785,442

CLASS 401

6	5,785,443

CLASS 402

8	5,785,444
73	5,785,445
79	5,785,446

CLASS 403

49	5,785,447
325	5,785,448
343	5,785,449
368	5,785,450
388	5,785,460
405 1	5,785,461
408 1	5,785,451

CLASS 404

25	5,785,452
94	5,785,453

CLASS 405

45	5,785,454
63	5,785,455
154	5,785,456
172	5,785,457
184	5,785,458
237	5,785,459
259 6	5,785,462
302 2	5,785,463

CLASS 406

163	5,785,464

CLASS 408

1 R	5,785,465
80	5,785,466
87	5,785,467
226	5,785,468

CLASS 409

191	5,785,469
287	5,785,470

CLASS 410

3	5,785,471
77	5,785,472
94	5,785,473
96	5,785,474
146	5,785,475

CLASS 411

383	5,785,476
432	5,785,477
433	5,785,480
487	5,785,478

CLASS 412

39	5,785,479

CLASS 414

270	5,785,482
300	5,785,483
417	5,785,484
498	5,785,485
513	5,785,486
517	5,785,487
523	5,785,481
795.8	5,785,489
798 9	5,785,488

CLASS 415

55.1	5,785,490
70	5,785,491
173.7	5,785,492
174 1	5,785,493
200	5,785,494
221	5,785,495

CLASS 416

97 R	5,785,496
114	5,785,497
224	5,785,498
248	5,785,499

CLASS 417

46	5,785,500
69	5,785,501
222.2	5,785,502
269	5,785,503
313	5,785,504
364	5,785,505
366	5,785,506
423.14	5,785,507
560	5,785,508

CLASS 418

11	5,785,509
104	5,785,510

CLASS 420

63	5,785,924

CLASS 422

72	5,785,925
100	5,785,926
104	5,785,927
171	5,785,929
173	5,785,930
180	5,785,931
186 04	5,785,932
224	5,785,933

CLASS 423

9	5,787,332
19	5,787,353
109	5,785,935
210	5,785,936
213 2	5,785,937
244 01	5,785,938
279	5,785,939
334	5,785,940
337	5,785,941
376	5,785,942
588	5,785,943
700	5,785,944
	5,785,945
701	5,785,946
705	5,785,947

CLASS 424

1 69	5,785,948
1.81	5,785,949
1.89	5,785,950
46	5,785,952
49	5,785,951
	5,785,955
52	5,785,956
53	5,785,957
61	5,785,958
	5,785,959
63	5,785,960
70 19	5,785,961
70 22	5,785,962
78 36	5,785,963
93	5,785,953
93 21	5,785,964
	5,785,965
131 1	5,785,966
139 1	5,785,967
147 1	5,785,968
181 1	5,785,969
184 1	5,785,970
190 1	5,785,971
195.1	5,785,972
196.11	5,785,973
233 1	5,785,974
278 1	5,785,975
400	5,785,976
401	5,785,977
	5,785,978
	5,785,979
402	5,785,980
408	5,785,982
423	5,785,983
435	5,785,988
439	5,785,984
440	5,785,989
442	5,785,990
448	5,785,985
	5,785,991
450	5,785,986
	5,785,987
	5,785,992
	5,785,993
455	RE. 35,862
464	5,785,995
473	5,785,994

CLASS 425

8	5,785,996
71	5,785,997
110	5,785,998
130	5,785,999
140	5,786,000
183	5,786,002
349	5,786,079
405.1	5,786,003
408	5,786,004

CLASS 426

74	5,786,006
	5,786,007
89	5,786,008
106	5,786,009
107	5,786,010
119	5,786,011
231	5,786,012
233	5,786,013
287	5,786,014
417	5,786,015
496	5,786,016
534	5,786,017
557	5,786,018
607	5,786,019
619	5,786,020
634	5,786,021

CLASS 427

2.31	5,786,022
8	5,786,023
29	5,785,934
99	5,786,025
115	5,786,026
124	5,786,027
282	5,786,028
	5,786,029
353	5,786,030
376.4	5,786,031
387	5,786,032
412.1	5,786,033
428	5,786,034
443.2	5,786,035
444	5,786,036
466	5,786,037
554	5,786,038
578	5,786,039
598	5,786,040

CLASS 428

1	5,786,041
	5,786,042
4	5,786,043
8	5,786,044
15	5,786,045
31	5,786,046
	5,786,047
34 6	5,786,048
35.2	5,786,049
	5,786,050
35.9	5,786,051
36.9	5,786,053
36 91	5,786,054
42	5,786,055
43	5,786,056
52	5,786,057
57	5,786,058
89	5,786,060
100	5,786,061
	5,786,062
107	5,786,063
137	5,786,064
141	5,786,065
172	5,786,066
192	5,786,067
209	5,786,068
216	5,786,069
220	5,786,070
221	5,786,071
292 4	5,786,072
303	5,786,073
323	5,786,074
325	5,786,075
	5,786,076
331	5,786,077
332	5,786,078
357	5,786,080
369	5,786,082
373	5,786,083
379	5,786,086
398	5,786,087
403	5,786,088
411.1	5,786,089
	5,786,090
417.9	5,786,085
421	5,786,091
423.1	5,786,092
425 9	5,786,093
432	5,786,094
446	5,786,095
447	5,786,096
469	5,786,097
	5,786,098
511	5,786,100
689	5,786,102
694 R	5,786,103

CLASS 429

13	5,786,104
34	5,786,105
98	5,786,106
163	5,786,107
178	5,786,108
199	5,786,110

CLASS 430

5	5,786,111
	5,786,112
	5,786,113
	5,786,114
	5,786,115
	5,786,116
21	5,786,117
58	5,786,118
59	5,786,119
106.6	5,786,120
135	5,786,121
157	5,786,122
270	5,786,208
270.14	5,786,123
270.16	5,786,124
272.1	5,786,125
273.1	5,786,126
	5,786,127
302	5,786,128
	5,786,129
320	5,786,130
325	5,786,131
343	5,786,132
512	5,786,133
517	5,786,134
529	5,786,135

CLASS 431

42	5,785,511
79	5,785,512
320	5,785,513

CLASS 432

118	5,785,516
252	5,785,517
253	5,785,518
258	5,785,519

CLASS 433

7	5,785,520
8	RE. 35,863
29	5,785,521
72	5,785,522
82	5,785,523
173	5,785,524
174	5,785,525
178	5,785,526
215	5,785,527

CLASS 434

4	5,787,333
88	5,785,528
211	5,785,529
219	5,785,530
262	5,785,531

CLASS 435

4	5,786,137
6	5,786,138
	5,786,139
	5,786,140
	5,786,141
	5,786,142
	5,786,144
	5,786,145
	5,786,146
	5,786,147
	5,786,148
	5,786,149
	5,786,150
	5,786,151
7.1	5,786,152
	5,786,153
7.2	5,786,154
	5,786,155
7.21	5,786,157
7.23	5,786,158
7.24	5,786,160
	5,786,161
7.32	5,786,162
7.9	5,786,156
7.92	5,786,163
11	5,786,164
12	5,786,136
18	5,786,165
25	5,786,166
34	5,786,167
69.1	5,786,168
	5,786,169
	5,786,171
	5,786,173
	5,786,174
69.3	5,786,176
	5,786,177
69.6	5,786,178
69.7	5,786,179
70.21	5,786,180
76	5,786,181
91.1	5,786,182
91.2	5,786,183
101	5,786,184
139	5,786,185
161	5,786,186
172.1	5,786,187
172.3	5,786,189
177	5,786,188
183	5,786,190
189	5,786,191
193	5,786,192
	5,786,193
196	5,786,194
199	5,786,195
208	5,786,196
220	5,786,197
236	5,786,198
239	5,786,199
240.2	5,786,201
252.3	5,786,203
	5,786,204
	5,786,205
252.33	5,786,206
267	5,786,207
309.2	5,786,209
320.1	5,786,210
	5,786,211
	5,786,212
	5,786,213
375	5,786,214
401	5,786,215
402	5,786,216
	5,786,217
724	5,786,159

CLASS 436

34	5,786,218
50	5,786,223
63	5,786,224
147	5,786,225
164	5,786,226
177	5,786,227
	5,786,228
506	5,786,221
518	5,786,220
523	5,786,219

CLASS 437

31	5,786,222
67	5,786,229
209	5,786,230

CLASS 438

17	5,786,231
20	5,786,232
46	5,786,233
47	5,786,234
53	5,786,235
60	5,786,236
109	5,786,237
118	5,786,238
123	5,786,239
131	5,786,240
163	5,786,241
166	5,786,242
172	5,786,244
197	5,786,245
231	5,786,247
240	5,786,248
241	5,786,249
254	5,786,250
268	5,786,251
275	5,786,252
	5,786,253
287	5,786,254
299	5,786,255
305	5,786,256
	5,786,257
337	5,786,258
396	5,786,259
401	5,786,260
403	5,786,261
424	5,786,262
431	5,786,263
443	5,786,264
450	5,786,265
462	5,786,266
584	5,786,267
600	5,786,268
603	5,786,269
613	5,786,270
615	5,786,271
628	5,786,272
637	5,786,273
692	5,786,275
724	5,786,276
770	5,786,277
787	5,786,278

CLASS 439

34	5,785,532
61	5,785,533
65	5,785,534
73	5,785,535
78	5,785,536
79	5,785,537
91	5,785,538
150	5,785,539
157	5,785,540
164	5,785,541
213	5,785,542
271	5,785,543
278	5,785,544
352	5,785,545
354	5,785,546
369	5,785,547
409	5,785,548
495	5,785,549
497	5,785,550
516	5,785,553
535	5,785,551
557	5,785,552
584	5,785,554
610	5,785,555
637	5,785,556
660	5,785,557
680	5,785,558
	5,785,559
851	5,785,560

CLASS 440

1	5,785,562
6	5,785,563
90	5,785,564

CLASS 441

64	5,785,565
70	5,785,566
88	5,785,567
127	5,785,568

CLASS 442

64	5,786,280
68	5,786,059
104	5,786,281
123	5,786,282
186	5,786,283
334	5,786,284
397	5,786,285
659	5,786,279

CLASS 445

25	5,785,569
50	5,787,337
52	5,785,570

CLASS 446

124	5,785,571
144	5,785,572
171	5,785,573
208	5,785,574
340	5,785,575
456	5,785,576

CLASS 451

14	5,785,578
38	5,785,579
42	5,785,580
99	5,785,581
102	5,785,582
178	5,785,583
283	5,785,584
288	5,785,585
556	5,785,586

CLASS 452

134	5,785,588
141	5,785,589

CLASS 453

57	5,785,590

CLASS 454

118	5,785,591

CLASS 455

2	5,787,334
3.2	5,787,335
13.4	5,787,336
69	5,787,338
83	5,787,339
90	5,787,340
	5,787,341
264	5,787,342
414	5,787,343
422	5,787,344
436	5,787,345
439	5,787,346
440	5,787,347
441	5,787,348
445	5,787,349
446	5,787,350
452	5,787,352
456	5,787,354
458	5,787,355
464	5,787,356
466	5,787,357
512	5,787,358
517	5,787,359
524	5,787,360
550	5,787,361
553	5,787,362
557	5,787,363
560	5,787,364
567	5,787,365

CLASS 463

7	5,785,592
13	5,785,593
17	5,785,594
20	5,785,595
22	5,785,596
28	RE. 35,864
43	5,785,597
44	5,785,598

CLASS 464

68	5,785,599
89	5,785,600

CLASS 472

135	5,785,601

CLASS 473

2	5,785,602
215	5,785,603
265	5,785,604
291	5,785,605
301	5,785,607
313	5,785,608
327	5,785,609
331	5,785,610
377	5,785,612
414	5,785,613
471	5,785,615
479	5,785,616
566	5,785,614
	5,785,617
576	5,785,618

CLASS 474

109	5,785,619
132	5,785,620
267	5,785,621

CLASS 475

72	5,785,623
84	5,785,622
252	5,785,624
297	5,785,625

CLASS 477

99	5,785,626
109	5,785,627
130	5,785,628
138	5,785,629

CLASS 482

4	5,785,630
5	5,785,631
	5,785,632
77	5,785,633
111	5,785,634
133	5,785,635

CLASS 492

7	5,785,636

CLASS 493

420	5,785,638
464	5,785,639

CLASS 494

27	5,785,637

CLASS 501

8	5,786,286
10	5,786,287
16	5,786,288
71	5,786,289

CLASS 502

84	5,786,290
104	5,786,291
216	5,786,293
349	5,786,294
439	5,786,295
	5,786,296

CLASS 503

227	5,786,297
	5,786,298
	5,786,299
	5,786,300

CLASS 504

261	5,786,301
282	5,786,302
485	5,786,510

CLASS 505

210	5,786,303
234	5,786,304
433	5,786,305
452	5,786,306

CLASS 508

365	5,786,307
588	5,786,309

CLASS 510

122	5,786,310
147	5,786,311
152	5,786,312
219	5,786,313
230	5,786,314
	5,786,315
235	5,786,316
278	5,786,317
299	5,786,318
423	5,786,319
470	5,786,320

CLASS 512

11	5,786,321

CLASS 514

2	5,786,322
	5,786,323
9	5,786,324
11	5,786,325
	5,786,326
12	5,786,327
	5,786,328
	5,786,329
13	5,786,330
15	5,786,331
16	5,786,332
	5,786,333
17	5,786,334
	5,786,335
18	5,786,336
19	5,786,337
29	5,786,338
44	5,786,340
	5,786,341
54	5,786,342
	5,786,343
100	5,786,344
159	5,786,345
	5,786,346
167	5,786,347
	5,786,348
183	5,786,349
	5,786,350
210	5,786,351
211	5,786,352
	5,786,353
235.8	5,786,355
248	5,786,356
249	5,786,357
258	5,786,358
262	5,786,359
263	5,786,360
267	5,786,361
277	5,786,354
280	5,786,362
300	5,786,363
307	5,786,364
311	5,786,365
312	5,786,366
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315	5,786,368
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318	5,786,371
321	5,786,372
326	5,786,373
379	5,786,374
383	5,786,375
409	5,786,376
410	5,786,377
423	5,786,378
448	5,786,379
458	5,786,384
460	5,786,385
466	5,786,386
547	5,786,387
552	5,786,388
	5,786,389
557	5,786,380
	5,786,381
627	B1 486,450
629	5,786,382
633	5,786,383
657	5,786,390
690	5,786,391
772.4	5,786,392

CLASS 518

700	5,786,393

CLASS 519

30	5,786,339

CLASS 521

50.5	5,786,406
51	5,786,394
64	5,786,395
	5,786,396
77	5,786,397
82	5,786,398
89	5,786,399
117	5,786,400
128	5,786,401
129	5,786,402
134	5,786,403
157	5,786,404
167	5,786,405

CLASS 523

124	5,786,408
142	5,786,409
161	5,786,410

CLASS 524

102	5,786,411
264	5,786,412
268	5,786,413
413	5,786,414
423	5,786,415
440	5,786,416
446	5,786,417
579	5,786,418
590	5,786,419

CLASS 525

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64	5,786,422
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67	5,786,424
131	5,786,425
	5,786,426
322	5,786,427
333.3	5,786,428
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437	5,786,430

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113	5,786,431
127	5,786,432
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503	5,786,444

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23.6	5,786,466
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123.1	5,786,470

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208	5,786,476
215	5,786,477
318	5,786,472
336	5,786,478
354	5,786,479

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114	5,786,481
140	5,786,482
168	5,786,483
225	5,786,484
277.4	5,786,473

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421	5,786,486
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455	5,786,488

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334	5,786,498

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352	5,786,506

CLASS 562

412	5,786,507
444	5,786,508

CLASS 564

223	5,786,509

CLASS 568

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22	5,786,512
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315	5,786,514
316	5,786,515
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454	5,786,517
487	5,786,518
629	5,786,519
630	5,786,520
700	5,786,521
724	5,786,522
735	5,786,523
862	5,786,524

CLASS 600

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125	5,785,643
131	5,785,644
171	5,785,645
201	5,785,647
206	5,785,648
233	5,785,649
300	5,785,650
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449	5,785,656
454	5,785,657
473	5,785,658
485	5,785,659
523	5,785,660
559	5,785,661
575	5,785,662
587	5,785,663
588	5,785,664
594	5,785,665
595	5,785,666

CLASS 601

23	5,785,667
50	5,785,668
148	5,785,669

CLASS 602

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18	5,785,670
19	5,785,672
26	5,785,673

CLASS 604

9	5,785,674
22	5,785,675
28	5,785,677
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51	5,785,679
57	5,785,680
65	5,785,681
82	5,785,682
89	5,785,683
96	5,785,684
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110	5,785,687
141	5,785,688
165	5,785,689
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242	5,785,692
249	5,785,693
250	5,785,694
339	5,785,695
378	5,785,696
	5,785,697
387	5,785,698
391	5,785,699
408	5,785,700
411	5,785,701

CLASS 606

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17	5,785,704
32	5,785,705
41	5,785,706
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43	5,785,708
56	5,785,709
61	5,785,710
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	5,785,713
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108	5,785,715

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732	5,786,987

CLASS 701

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13	5,787,368
19	5,787,369
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29	5,787,372
33	5,787,373
41	5,787,374
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	5,787,376
45	5,787,377
49	5,787,370
50	5,787,378
68	5,787,379
103	5,787,380
115	5,787,381
210	5,787,383
214	5,787,382
216	5,787,384

CLASS 702

3	5,787,385

CLASS 704

8	5,787,386
208	5,787,387
215	5,787,388
219	5,787,389
	5,787,390
225	5,787,391
230	5,787,392
232	5,787,393
238	5,787,394
255	5,787,395
256	5,787,396
267	5,787,397
268	5,787,398
270	5,787,399

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1	5,787,400
35	5,787,404
37	5,787,402
43	5,787,403
45	5,787,405
410	5,787,406

CLASS 706

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45	5,787,409

CLASS 707

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101	5,787,432
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102	5,787,434
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103	5,787,436
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202	5,787,443
203	5,787,444
205	5,787,445
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206	5,787,447
501	5,787,448
513	5,787,449
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533	5,787,451
536	5,787,452
538	5,787,453

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5	5,787,454
100	5,787,455
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105	5,787,457
108	5,787,458
112	5,787,459
113	5,787,461
114	5,787,460
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117	5,787,465
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118	5,787,467
121	5,787,468
122	5,787,469
124	5,787,470
133	5,787,471
134	5,787,472
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137	5,787,475
138	5,787,474
141	5,787,476
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144	5,787,479
148	5,787,480
151	5,787,481
158	5,787,482
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159	5,787,484
162	5,787,485
163	5,787,486
165	5,787,487
169	5,787,488
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173	5,787,490
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201	5,787,492
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	306	396,346
	327	396,347
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	104	396,349
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	315	396,353
	333	396,354
	336	396,355
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	349	396,357
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	381	396,360
	437	396,361
	465	396,362
	469	396,363
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	515	396,368
	518	396,369
	523	396,370
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	620	396,383
	622	396,384
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	331	396,397
	338	396,398
	343	396,399
	346	396,400
	353	396,401
	354	396,402
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	358	396,404
	373	396,405
	382	396,406
	400	396,407
D9—	345	396,408
	426	396,409
	434	396,410
	448	396,411
	520	396,412
	539	396,413
D10—	6	396,414
	28	396,415
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		396,418
	31	396,419
	32	396,420
	57	396,421
	62	396,422
	65	396,423
	71	396,424
	77	396,425
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	79	396,429
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	91	396,432
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	203	396,440
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	333	396,445
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	182	396,449
		396,450
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	240	396,471
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	256	396,474
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	190	396,506
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	198	396,510
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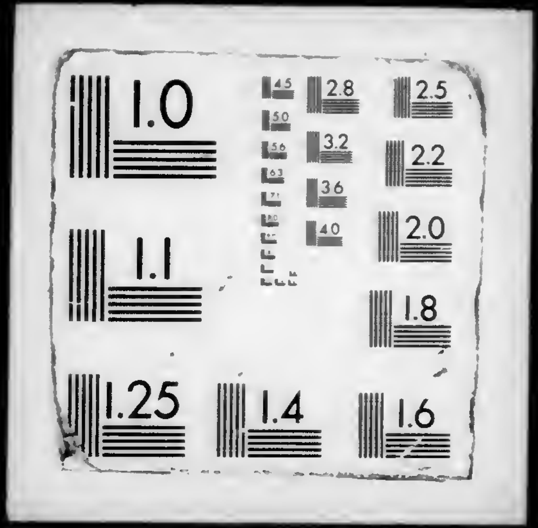

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